# COVID-19 Nursing Homes Expert Panel

## Examination of Measures to 2021

Report to the Minister for Health

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# Abbreviations

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| **ACMT** | Area Crisis Management Team |
| **ANP** | Advanced Nurse Practitioner |
| **CDC** | Centers for Disease Control |
| **CHO** | Community Healthcare Organisation |
| **CIDR** | Computerised Infectious Disease Reporting |
| **CNM** | Clinical Nurse Manager |
| **CNO** | Chief Nursing Officer (Department of Health) |
| **DMHG** | Dublin Midlands Hospital Group |
| **DoH** | Department of Health |
| **DPH** | Departments of Public Health |
| **ECDC** | European Centre for Disease Prevention and Control |
| **GRO** | General Registration Office |
| **HCW** | Healthcare worker |
| **HIPE** | Hospital Inpatient Enquiry System |
| **HIQA** | Health Information and Quality Authority |
| **HPSC** | Health Protection and Surveillance Centre |
| **HPSIR** | Hospital Patient Safety Indicator Report |
| **HRB** | Health Research Board |
| **HSE** | Health Service Executive |
| **IADNAM** | Irish Association of Directors of Nursing and Midwifery |
| **ICGP** | Irish College of General Practitioners |
| **IEHG** | Ireland East Hospital Group |
| **IEMAG** | Irish Epidemiological Modelling Advisory Group |
| **IGS** | Irish Gerontological Society |
| **IMO** | Irish Medical Organisation |
| **INMO** | Irish Nurses and Midwives Organisation |
| **InterRAI** | International Resident Assessment Instrument |
| **IPC** | Infection Prevention and Control |
| **ISPGM** | Irish Society of Physicians in Geriatric Medicine |
| **LIMS** | Laboratory Information Management Systems |
| **LTRC** | Long-term residential care |
| **NGO** | Non-Government Organisation |
| **NHI** | Nursing Homes Ireland |
| **NPHET** | National Public Health Emergency Team |
| **OECD** | Organisation for Economic Cooperation and Development |
| **PIC** | Person in Charge |
| **PPE** | Personal Protective Equipment |
| **QQI** | Quality and Qualifications Ireland |
| **RCPI** | Royal College of Physicians of Ireland |
| **RCSI** | Royal College of Surgeons in Ireland |
| **SAT** | Single Assessment Tool |
| **SIPTU** | Services, Industrial, Professional and Technical Union |
| **SSWHG** | South/South West Hospital Group |
| **TESSy** | The European Surveillance System (ECDC) |
| **TILDA** | The Irish Longitudinal Study on Ageing |
| **UCD** | University College Dublin |
| **ULHG** | University Limerick Hospitals Group |
| **WHO** | World Health Organization |

COVID-19 represents **a significant global threat** to public health.

# Executive Summary

## Introduction

COVID-19 represents a significant global threat to public health. On 11th March 2020, the World Health Organization (WHO) made the assessment that COVID-19 should be characterised as a pandemic.[1]

In a matter of months this global pandemic has seen approximately 13.5 million cases and over 580,000 deaths.[2] Ireland has experienced some 25,683 cases and 1,748 deaths as of 14th July 2020.[3] Internationally, the latest signs and trends remain troubling.

Evidence in Ireland and globally has shown that older people, particularly those who are medically compromised or frailer are at severe risk for poorer outcomes from COVID-19, and that congregated settings such as long-term residential care facilities have been severely impacted.

Data from the Health Protection Surveillance Centre (HPSC) indicates that, as of midnight on 14th July 2020, 79% of all notified deaths from COVID-19 occurred in the over 75 age groups and that deaths in nursing homes (985 cases) represented 56% of total deaths (1,748 cases) in Ireland.

## Establishment of Panel & Terms of Reference

The response to the COVID-19 pandemic is public health led. The primary governance structure established to lead this response is the, now well known, National Public Health Emergency Team (NPHET).

NPHET recommended the establishment of an Expert Panel on Nursing Homes on 14th May 2020, to examine the complex issues surrounding the management of COVID-19 among this particularly vulnerable cohort. Later that month, the Nursing Homes Expert Panel was appointed by the Minister for Health with the following terms of reference to:

- provide assurance that the national protective public health and other measures adopted to safeguard residents in nursing homes, in light of COVID-19, are appropriate, comprehensive and in line with international guidelines and any lessons learned from Ireland's response to COVID-19 in nursing homes to date;
- provide an overview of the international response to COVID-19 in nursing homes utilising a systematic research process;
- report to the Minister for Health by end June 2020 in order to provide immediate real-time learnings and recommendations in light of the expected ongoing impact of COVID-19 over the next 12-18 months.

The Expert Panel is chaired by Prof. Cecily Kelleher. In addition to the Chair, the Panel comprises Ms. Brigid Doherty, Ms. Petrina Donnelly, and Prof. Cillian Twomey. The Panel brings together considerable expertise in the management of public health, geriatric medicine, nursing homes and experience of the impact of COVID-19 in the nursing home setting.

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1 See World Health Organization, 'Timeline of WHO's Response to COVID-19', https://www.who.int/news-room/detail/29-06-2020-covidtimeline (accessed 15th July 2020).

2 See European Centre for Disease Prevention and Control, ' COVID-19 situation update worldwide, as of 16 July 2020, https://www.ecdc.europa.eu/en/geographical-distribution-2019-ncov-cases (accessed 16th July 2020).

3 See Department of Health, 'Statement from the National Public Health Emergency Team - Wednesday 15 July', https://www.gov.ie/en/press-release/4e2a1-statement-from-the-national-public-health-emergency-team-wednesday-15-july/ (accessed pm 15th July 2020).

## Approach/Methodology

The Expert Panel adopted an evidence-informed and consultative approach to completing five inter-related areas of work:

1) review and analysis of available epidemiological data;
2) rapid systematic review of measures to protect older people in LTRCs;
3) a three-part consultation process involving meetings with stakeholders, inviting written submissions from stakeholders, and a public consultation;
4) site 'visits' to three nursing homes, and,
5) engagement with several residents/relatives, identified from independent advocacy organisations, who expressed the desire to share their thoughts and experiences with the Expert Panel.

The Panel was supported in its work by a small Support Team, drawn from Department of Health staff, who provided secretariat and logistical support. The Panel, independent in its operation, presents its own deliberations, findings and recommendations in this report.

The Panel met with the then Minister, in late June to advise of the progress to date and to inform him that additional time would be required in order to complete its work. The Panel was conscious of the need to examine international evidence, undertake a comprehensive engagement process and to consider key data. Careful consideration of all of these components supports and informs this report. The Panel completed an interim progress report which was provided to the Minister on 30th June. The Interim Report was subsequently published by Minister Donnelly on the 13th July.

## Review of Data

The Panel decided at the outset to develop a set of evidence-based recommendations and determined that a thorough consideration of the available data would be required.

The Panel reviewed a list of available datasets relating to nursing homes prepared by the Department of Health, from which the Panel identified the following areas for consideration: mortality; excess mortality; and clusters. The Panel met with the Department of Health and the HPSC to discuss the data available, to review a preliminary presentation based on the areas identified, and to identify any additional key data, trends and disaggregation for further consideration. The Department of Health subsequently provided an analysis of data in relation to the following:

- weekly trends in COVID-19 cases from the HPSC;
- trends in COVID-19 mortality;
- COVID-19 excess mortality;
- trends in COVID-19 cases among healthcare workers;
- influenza outbreaks (non-COVID-19);
- where available, hospital transfers, and,
- cases and clusters by CHO and/or regional level.

The analysis of this data is presented in Chapter 3 of this report and seeks to understand the basic epidemiology of the incidence of COVID-19 and associated mortality in nursing homes in Ireland, compared with those in the wider population.

At the last census an estimated 5.0% of those aged 65 years and older were living in communal establishments in Ireland. There are 576 registered nursing homes in Ireland of which 440 are private or voluntary nursing homes and 3.6% of the over 65s reside in these settings.

On 16th March 2020, the HPSC was notified of the first case and cluster in nursing homes. As of 27th June 2020, the HPSC had reported 252 clusters in nursing homes (18% of all clusters). 195 (77%) of nursing homes clusters have been closed. These clusters are associated with 5,608 confirmed cases (22% of cases). Of those cases in nursing homes, 422 were hospitalised. 971 deaths (56% of all deaths) were associated at that point with nursing home clusters. The highest number of clusters are in the densely populated Eastern region. This is also where the highest community infections were observed.

The peak of new cases in the general population was on 28th March 2020. From early April there was a rapid rise in cases in LTRCs. The peak in new confirmed cases in these settings in mid-April coincided with expanded testing undertaken in the sector. Analysis by the Irish Epidemiological Modelling Advisory Group (IEMAG) shows a greatly higher nursing home incidence rate at 14.5% than in the general population of over 65s.

Ireland is in a relatively strong position in terms of accurately capturing information on deaths across all settings. Due to differences in the availability of testing and policies, and due to different approaches to recording deaths, international comparisons are difficult to make. There have been large numbers of deaths in care homes in some countries such as the United Kingdom and the United States but official data for these and other countries is either incomplete or difficult to interpret. Another difficulty in comparing data on deaths is that in some countries the data only record the place of death, while others also report deaths in hospital of care home residents.

Challenges were also identified in relation to performing international comparisons of excess mortality. Among these are that excess mortality figures are not stable and best practice is to wait for a number of months before seeking to establish trends. Preliminary analysis conducted by Department of Health staff indicates that excess mortality figures observed in Ireland for the first half of the year are likely due to the pandemic.

The serious impact on LTRCs was identified by the ECDC in its 9th Rapid Risk Assessment of 23rd April 2020. Internationally the role played by those with asymptomatic or very mildly symptomatic disease in spreading infection is now more clearly recognised. Such asymptomatic transmission poses a significant challenge to public health and infection control strategies. In addition, a clinical picture in vulnerable and older populations has emerged that did not meet the definition as established initially through the WHO. At the outset of the pandemic there were major national challenges in testing and contact tracing that affected nursing homes. Within nursing homes testing to ascertain asymptomatic cases is now a core strategy. Ireland's testing of all staff in all facilities and all patients in affected facilities contributed to the identification of asymptomatic cases and the interruption of transmission.

The very infectious nature of COVID-19 makes it difficult to prevent and control in residential care settings. The transmission of the virus into and within nursing homes is multifactorial. People in nursing homes were disproportionately likely to contract it compared to their peer-age-group. The mortality rates seen in nursing homes were also higher, this is in the context of a more medically vulnerable and frail population.

## Evidence Review

In line with the Panel's second term of reference, a rapid systematic review was undertaken by a research team from UCD, under the direction of the Panel, to investigate measures implemented in long-term residential care facilities to reduce transmission of, morbidity and mortality resulting from SARS-CoV-2. Economic issues associated with the virus (cost issues, cost effectiveness, procurement) were also investigated.

Three databases (PubMed, EMBASE, Cinahl) were searched using key terms related to coronavirus, infection control, and nursing homes, from inception to present. Peer reviewed literature with no restrictions on language were considered eligible for inclusion. All study types were considered, and the inclusion criteria related to interventions and policies that were implemented in nursing homes, long stay facilities, and which aimed to reduce mortality, morbidity rates, and transmission of COVID 19. The population considered included residents, staff, and visitors.

The Health Information and Quality Authority (HIQA) Evidence Synthesis Protocol 2020[4] informed the search strategy to capture the population, intervention, and outcomes of interest. The review was also registered on the PROSPERO database, an international prospective register of systematic reviews.

The research team identified 33 pieces of research for inclusion and a summary of this evidence review is presented in Chapter 4. Despite limitations in the quality of the evidence in the context of a very newly identified disease, several implications for practice are highlighted. The use of personal protective equipment (PPE) and other infection control measures are essential regardless of whether a case has been reported in a facility. Where available, widescale testing of residents and staff should be implemented and surveillance systems should be in place. Consideration should be given to the wellbeing of residents and the voices of all involved in the care and management, especially those of residents and their families should be at the heart of practice developments. Preparedness for future outbreaks including staff training in infection prevention and control is key.

## Stakeholder Engagement

The Expert Panel undertook an extensive process of stakeholder engagement involving meetings, written submissions, and a public consultation. The consultation process received input from nursing homes, representative and professional organisations, residents, staff, and family members. A considerable volume of primary materials was received by the Expert Panel and considered in the context of its overall work.

A range of survey templates were developed by the Support Team, approved by the Panel, and disseminated through written invitations and a public call for submissions on behalf of the Panel. The Panel met with a range of stakeholder organisations who were invited to provide them with a written submission survey, and additional material for consideration, including position papers, operational material, and evidence. Thirteen meetings were held with key stakeholder groups between 12th June and 1st July, with a total of 43 representatives. The Panel also met with the Person in Charge, staff, and residents of three nursing homes, identified by HIQA, and an advocacy organisation facilitated meetings with several individuals with relevant lived experience.

[4] See Health Information and Quality Authority, 'Protocol for Evidence Synthesis Support: COVID-19' (25th May 2020), https://www.hiqa.ie/sites/default/files/2020-05/Protocol-for-HIQA-COVID-19-evidence-synthesis-support_1-6.pdf.

Written submissions were sought from a further twelve groups. Registered nursing homes were also invited to make written submissions. At the request of the Panel, HIQA facilitated the dissemination of an invitation to make a submission to all registered nursing homes. A little under 10% of nursing homes returned a response. A total of 25 stakeholder and 53 nursing home submissions were received. A call for submissions from members of the public was open for one week closing on 18th June 2020. A total of 60 submissions was received. Submissions were collated by the Support Team, and a qualitative thematic analysis was conducted using the Framework Method, in order to identify and present an overview of the themes and issues raised in the submissions to the Panel.

Across all meetings, the following key themes were consistently identified: timeliness of response, the challenges presented by managing a new disease, implications for any future model of care, interdisciplinary cooperation, the role of GPs in providing care and leadership, staffing in nursing homes, the community and regional response, and future protective measures.

Across all written submissions similarly, the following primary themes were identified: nursing home procedures, communication, oversight and guidance, future preparedness, the nursing home model of care, and representation and advocacy.

Many stakeholders focused on the challenges when an outbreak occurred, elements that worked well, areas of ongoing concern and the paramount importance of the residents and their families. All stakeholders emphasised in relation to outbreak management, the issues of timely testing turnaround, availability of PPE and the need for future preparedness as well as the need to keep in train with national guidelines. Stakeholders, including nursing home providers would like to see greater integration of private and voluntary residential settings into the health service, together with improved community services for older people.

## Key Findings & Policy Considerations

The identification of learnings and key lessons from the Irish response to COVID-19 in nursing homes so far, along with the international experience, is comprehensively informed by the epidemiology and data analysis, the international evidence review, and the range of stakeholder engagements undertaken. Chapters 6 and 7 focus on the Panel's reflections, deliberations and discussion on real-time learning.

The task of the Panel is forward-looking to protect the at-risk population in nursing homes into the near future, whether or not a surge of COVID-19 occurs or if the infection remains in the community and continues to be a risk to those especially vulnerable to it. The Panel's work has been guided by the principles of in-action and after-action reviews where lessons learned in real time are acted upon. This is not simply to identify those lessons learned but to seek to apply these insights in a tighter timescale in order to improve the outcome of the ongoing response.

The Panel's key findings and recommendations relate to:

- nursing home procedures;
- staffing levels and skill mix;
- communication across the health system;
- oversight and guidance;
- future preparedness;
- the need for a revised model of care for nursing homes;
- representation and advocacy;
- end of life care.

There is increasing evidence to show that highly dependent persons can live safely and more happily in domestic settings, provided their required homecare supports are in place. Given ageing demographic projections, particularly for the numbers aged 80 years or over, there will be a growing need for a range of long-term care, including nursing home care. Nursing homes should be part of a continuous spectrum of care of the older person in the wider healthcare system, with provision of multidisciplinary support.

The Panel also assesses the need to focus on the development of a new model of care, including care needs and dependency assessments policies and protocols, and governance structures within the nursing home setting and across the community. The evidence considered highlights a requirement for robust, accountable clinical oversight across the sector, in addition to monitoring with appropriate enforcement capability and more defined roles for the Person in Charge, along with an enhanced regulatory framework and increased regulator activity.

It is clear from the engagements with, and submissions of, a range of stakeholders that healthcare staff worked tirelessly and with admirable resilience to continue to provide care to residents. Great value was placed on the significant package of support established by the HSE, not least the COVID-19 Response Teams. Staffing, the role of staff and the conditions of employment in nursing homes are critical areas that need focused attention, including the development of education and career pathways. It is important to not only recognise the significant efforts made by nursing home staff in their care of residents throughout the pandemic, but also to be fully cognisant of the impacts, including psychological, arising from this experience – these staff now need to be supported and cared for. The wrap-around supports established by the HSE including the aforementioned COVID-19 Response Teams, the supply of PPE, emergency staffing and clinical support, amongst other things, have been critical interventions, playing a central role in supporting nursing home residents. Not only must these supports continue, but they must evolve and develop as central planks of the response to COVID-19.

The Expert Panel makes a substantial package of recommendations having regard to the real-time learnings and, what is felt, is required to ensure ongoing protection and support for nursing homes residents. The recommendations also reflect that systematic reform is needed in the way nursing home care and older persons care is delivered. Many of these issues have been amplified by the arrival of COVID-19 and focused and sustained attention is required in the context of the ongoing response to COVID-19 and in the longer-term provision of safe, quality care for Ireland's ageing population.

In summary, the Panel's recommendations centre around the thematic areas below. Consideration has been given to recommended timelines, recognising urgent and immediate actions that are needed, as well as identifying requirements for the planning and development of actions over the next 18 months, in light of the expected ongoing impact of COVID-19 over that timeframe. The thematic areas associated with the recommendations are: 1) Public Health measures; 2) Infection prevention and control; 3) Outbreak management; 4) Future admissions to nursing homes; 5) Nursing home management; 6) Data analysis; 7) Community Support Teams; 8) Clinical – general practitioner lead roles on Community Support Teams and in nursing homes; 9) Nursing home staffing & workforce; 10) Education; 11) Palliative care; 12) Visitors to nursing homes; 13) Communication; 14) Regulations; 15) Statutory care supports.

The Panel concludes that these protective public health and other measures should be in place, in line with lessons learned to date and international best practice, to safeguard all our citizens but especially the residents in nursing homes over the next 12-18 months and into the longer term future. While often overlooked by the health system and the communities they serve, nursing homes are essential to the continuum of care across the life cycle, particularly in times of crisis. As we mourn the profound loss of life of nursing home residents in the wake of COVID-19, may we forever honour these lives by learning from this tragedy and creating a better system.

# 1. Introduction

COVID-19 represents a significant global threat to public health. The virus has no regard to country borders and its impacts are being felt right across the world. Recognising the progression of the virus and the increasing threat it posed (and continues to pose) to public health, on 11th March 2020, the World Health Organization (WHO) announced that COVID-19 should be characterised as a pandemic.[5] In a matter of months this global pandemic has seen approximately 13.5 million cases and over 580,000 deaths.[6] Ireland has not been left unaffected by the virus, with 25,683 cases and 1,748 deaths as of 14th July 2020.[7]

In declaring COVID-19 a pandemic, the WHO reiterated a message it had already communicated internationally: that COVID-19 was not just a public health crisis but one that would touch every sector – and called for countries to take a whole-of-government, whole-of-society approach, built around a comprehensive strategy to prevent infections, save lives and minimize impact.[8]

In Ireland, the national response to COVID-19 is supported by a dedicated governance structure to ensure a public health-led, whole-of-society approach. The National Public Health Emergency Team (NPHET) was established in January, chaired by the Chief Medical Officer of the Department of Health. It held its first meeting on 27th January 2020. It oversees and provides direction, guidance, support and expert advice on the development and implementation of a strategy to respond to COVID-19 in Ireland.[9] *A National Action Plan* was published on 16th March 2020, setting out a national response and plan for the mobilisation of resources to combat the spread of the virus.[10]

It is now known that older age groups have a higher risk of mortality from COVID-19. Nursing home residents have been identified as a particularly vulnerable cohort. Analysis of Irish COVID-19 mortality data indicates that the population of long-term residential care (LTRC) facilities, including nursing homes, have had significantly higher risk of contracting COVID-19 than the general population of similar age.

Data from the Health Protection Surveillance Centre (HPSC) indicates that as of midnight on 14th July 2020, 79% of all notified deaths from COVID-19 occurred in the over 75 age groups and that deaths in nursing homes (985 cases) represented 56% of total deaths (1,748 cases) in Ireland.

5 See World Health Organization, 'Timeline of WHO's Response to COVID-19', https://www.who.int/news-room/detail/29-06-2020-covidtimeline (accessed 15th July 2020).
6 See European Centre for Disease Prevention and Control, ' COVID-19 situation update worldwide, as of 16 July 2020, https://www.ecdc.europa.eu/en/geographical-distribution-2019-ncov-cases (accessed 16th July 2020).
7 See Department of Health, 'Statement from the National Public Health Emergency Team - Wednesday 15 July', https://www.gov.ie/en/press-release/4e2a1-statement-from-the-national-public-health-emergency-team-wednesday-15-july/ (accessed pm 15th July 2020).
8 Ibid., 1.
9 See Department of the Taoiseach and Department of Health, *Ireland's National Action Plan in Response to COVID-19 (Coronavirus): Update 16th March 2020* (Government of Ireland, 2020).
10 Ibid.

## 1.1. Long-term Residential Care and COVID-19

Long-term residential care (LTRC) facilities provide long-term care and short-stay, transitional care, and respite support either through the State, section 38 and section 39 organisations, or privately.[11] A significant number of these facilities are registered with the Health Information and Quality Authority (HIQA) and are subject to the regulatory framework for designated centres under the Health Act 2007 and associated regulations and standards. This regulation aims to safeguard vulnerable people, of any age, who are receiving residential care services and provide assurance to the public that people living in designated centres are receiving a safe, high-quality service that meets the requirements of the regulations.[12] HIQA has implemented on-going risk assessments throughout the pandemic.

This COVID-19 Nursing Homes Expert Panel report is primarily focused on the approximately 576[13] registered nursing homes which provide about 32,000 beds across the country. Almost 80% of nursing homes in Ireland are privately operated with considerable variation between homes in the facilities offered. Newer nursing homes typically provide single occupancy en suite rooms whereas older homes often have multi-bedrooms with communal bathrooms and congregated recreational spaces.[14]

Up to approximately 30,000 people are currently living in nursing homes in Ireland, on a long-stay or short-stay basis. The impact of COVID-19 on those living in these settings has been disproportionate by comparison with the impact on the general population. People living in these settings represent vulnerable populations and have been identified by the WHO as having a higher risk of susceptibility to infection from COVID-19 and to subsequent adverse outcomes.[15] This has been attributed to resident characteristics, such as: older age, the high prevalence of underlying medical conditions, and circumstances in which high care support for the activities of daily living is required in collective high physical contact environments.

As outlined in the NPHET meeting paper of 22nd May *Overview of the Health System Response to date: Long-term residential healthcare settings* certain characteristics of LTRC facilities in Ireland, including nursing homes, place them at greater risk of experiencing a COVID-19 outbreak among residents and staff. Some of these characteristics include:

- settings tend to be congregated and residents might be in shared rooms rather than individual rooms, particularly in older homes;
- high contact environments i.e. significant levels of physical contact and close proximity between care staff and residents, particularly in relation to personal care;
- symptoms of COVID-19 are common and might have multiple aetiologies in this population;
- a confirmed outbreak causes high levels of staff absenteeism due to sick leave and self-isolation requirements;
- to provide continuity of service absenteeism may result in the need for higher usage of agency/temporary staff, who in turn may be moving between facilities, working in multiple facilities and often sharing accommodation with other vulnerable groups, increasing the risk of transmission;
- the emerging information on the extent of asymptomatic and pre-symptomatic COVID-19 transmission.[16]

[11] Section 38 and 39 organisations are service-providers which are funded by the Health Service Executive (HSE) under sections 38 and 39 of the Health Act, 2004. Acute psychiatric admission units are not considered as part of the mental health LTRC profile.

[12] Health Information and Quality Authority, *Regulation Handbook: A Guide for Providers and Staff of Designated Centres* (HIQA, 2019), https://www.hiqa.ie/sites/default/files/2019-10/Regulation-Handbook.pdf.

[13] Health Information and Quality Authority, The Impact of COVID-19 on Nursing Homes in Ireland (HIQA, 21st July 2020), https://www.hiqa.ie/sites/default/files/2020-07/The-impact-of-COVID-19-on-nursing-homes-in-Ireland_0.pdf

[14] Health Information and Quality Authority, The regulation of health and social care services by HIQA during the COVID-19 public health emergency, (7th May 2020).

[15] World Health Organization 2020, Infection Prevention and Control guidance for Long-Term Care Facilities in the context of COVID19 Interim guidance (21st March 2020), https://apps.who.int/iris/handle/10665/331508

[16] See Department of Health, 'Overview of the Health System Response to Date: Long-term Residential Healthcare Settings, NPHET Meeting Paper, 22nd May 2020' (26th May 2020), https://www.lenus.ie/handle/10147/627723.

## 1.2. Establishment of the Nursing Homes Expert Panel

The experience of the nursing home sector to-date in Ireland and elsewhere demonstrates that residents of nursing homes represent a particularly vulnerable cohort. Public health data for Ireland indicates that LTRCs represented a particularly susceptible environment for COVID-19, especially nursing homes. As of 27th June, the Health Protection Surveillance Centre (HPSC) data indicates that approximately 18% of all clusters notified up to that date occurred in nursing home settings (see chapter 3 for further analysis). Accordingly, amongst other things, NPHET recommended the establishment of an Expert Panel on Nursing Homes on 14th May 2020, to examine the complex issues surrounding the management of COVID-19 among this particularly vulnerable cohort. Later that month, the COVID-19 Nursing Homes Expert Panel was appointed by the Minister for Health with the following terms of reference to:

- provide assurance that the national protective public health and other measures adopted to safeguard residents in nursing homes, in light of COVID-19, are appropriate, comprehensive and in line with international guidelines and any lessons learned from Ireland's response to COVID-19 in nursing homes to date;
- provide an overview of the international response to COVID-19 in nursing homes utilising a systematic research process; and to
- report to the Minister for Health by end June 2020 in order to provide immediate real-time learnings and recommendations in light of the expected ongoing impact of COVID-19 over the next 12-18 months.

The Expert Panel is chaired by Prof. Cecily Kelleher, Principal of the University College Dublin (UCD) College of Health and Agricultural Sciences. In addition to the Chair, the Panel comprises Ms. Brigid Doherty, Ms. Petrina Donnelly, and Prof. Cillian Twomey. The Panel brings together considerable expertise in the management of public health, geriatric medicine, nursing homes and experience of the impact of COVID-19 in the nursing home setting.

## 1.3. Report Overview

In light of the expected ongoing impact of COVID-19 over the next 12-18 months and in order to inform its recommendations, the Panel engaged in a comprehensive data gathering exercise involving extensive stakeholder engagement, a systematic review of international literature and data analysis. The Expert Panel, in conducting its work, was particularly conscious of the need to complete a significant examination and identify key learnings and recommendations in a rapid timeframe, in order for those learnings and recommendations to be available to the Minister in early course, given the seriousness of the ongoing challenge of COVID-19.

This report provides a summary of the work conducted by the Expert Panel, having regard to its Terms of Reference. The evidence-informed and consultative approach taken by the Panel is described in Chapter 2. Chapter 3 presents an overview of relevant epidemiolocal information and data. Chapter 4 presents a summary and the results of a systematic evidence review completed under the direction of the Panel. Chapter 5 gives an overview of the results of a three-part consultation process conducted by the Expert Panel. Chapter 6 sets out the views and considerations of the Panel in respect of healthcare policy for older persons, and finally, Chapter 7 sets out the in-depth discussion on learnings and the recommendations of the Panel.

The Expert Panel wishes to acknowledge the commitment and willingness of stakeholders to provide their input and views to the process, especially nursing home residents and front-line staff.

# 2. Methodology

The Expert Panel adopted an evidence-informed and consultative approach to completing five inter-related areas of work:

1) review and analysis of available epidemiological data;
2) rapid systematic review of measures to protect older people in LTRCs;
3) a three-part consultation process involving meetings with stakeholders, inviting written submissions from stakeholders, and a public consultation;
4) site 'visits' to three nursing homes, and,
5) engagement with a number of residents/relatives, identified from independent advocacy organisations, who expressed the desire to share their thoughts and experiences with the Expert Panel.

The Panel was supported in its work by a dedicated Department of Health Support Team (ST) from Social Care Division, Research Services and Policy Unit, and the Primary Care Division. A team of reviewers from UCD were responsible for completing the rapid systematic review of measures to protect older people in long-term residential care facilities. Epidemiological data and analysis were provided by the Department of Health, the Health Protection Surveillance Centre (HPSC), and HIQA, under the direction and specification of the Panel. The consultation process was managed by the Support Team according to the requirements specified by the Panel. Direct engagements with nursing homes and with residents/relatives were arranged and completed by the Panel.

In accordance with its terms of engagement, the Panel is an independent expert panel. The Panel is responsible for the direction and organisation of its work and decisions with regard to the content of this final report.

In line with public health measures, the Expert Panel conducted its primary business through video calls. At the Panel's first formal meeting on the 29th May 2020, a terms of engagement document was agreed setting out the manner in which the Panel would conduct its business (Appendix 1).

To progress its work, the Expert Panel convened a scheduled core business meeting once per week which all Panel members attended along with the Panel's Support Team. The Panel also held a weekly scheduled deliberative meeting where the four members of the Panel met in "closed door" sessions. As the Panel's work progressed, the Panel also convened daily meetings with stakeholders and other ad hoc meetings to advance particular areas of work.

The approach and methods for each area are described in the remainder of this chapter.

## 2.1. Review and Analysis of Epidemiological Data

The Panel reviewed a list of available datasets relating to nursing homes prepared by the Department of Health, from which the Panel identified the following areas for consideration: mortality; excess mortality; and clusters. The Panel met with the Department of Health and the HPSC to discuss the data available, to review a preliminary presentation based on the areas identified, and to identify any additional key data, trends and disaggregation for further consideration. The following data on nursing homes was prepared for the Panel at its specification:

- weekly trends in COVID-19 cases from the HPSC;
- trends in COVID-19 mortality;
- COVID-19 excess mortality;
- trends in COVID-19 cases among healthcare workers;
- influenza outbreaks (non-COVID-19);
- where available, hospital transfers, and,
- cases and clusters by CHO and/or regional level.

A summary of the data analysis requested is presented in Chapter 3. A view on the comprehensiveness, validation and limitations of the data is also provided.

A suite of reports was provided to the Panel by the Support Team that capture COVID-19 epidemiological analysis, international evidence, and evidence-based guidelines relevant to the areas of interest outlined by the Panel, summarised in Table 2.1 Summary of reports, publications, and guidelines provided to the Expert Panel by Support Team.

***Table 2.1*** *Summary of reports, publications, and guidelines provided to the Expert Panel by Support Team*

| Organisation | Title/Description | Published |
|---|---|---|
| Health Services Insights | An International Mapping of Medical Care in Nursing Homes[17] | 23/01/2019 |
| European Centre for Disease Prevention and Control (ECDC) | Rapid Risk Assessment: Outbreak of Novel Coronavirus Disease 2019 (COVID-19): Increased Transmission Globally: Fifth Update[18] | 02/03/2020 |
| ECDC | Rapid Risk Assessment Novel Coronavirus Disease 2019 (COVID-19) Pandemic: Increased Transmission in the EU/EEA and the UK: Sixth Update[19] | 12/03/2020 |
| The Irish Longitudinal Study on Ageing (TILDA) | TILDA Report to Inform Demographics for Over 50s in Ireland for COVID-19 Crisis[20] | 16/03/2020 |

[17] See Gudmund Ågotnes, Margaret J. McGregor, Joel Lexchin, Malcolm B. Doupe, Beatrice Müller, and Charlene Harrington, 'An International Mapping of Medical Care in Nursing Homes', *Health Services Insights* 12 (January 2019): 1–12.

[18] See European Centre for Disease Prevention and Control, 'Rapid Risk Assessment: Outbreak of Novel Coronavirus Disease 2019 (COVID-19): Increased Transmission Globally: Fifth Update', (2nd March 2020), https://www.ecdc.europa.eu/sites/default/files/documents/RRA-outbreak-novel-coronavirus-disease-2019-increase-transmission-globally-COVID-19.pdf.

[19] See European Centre for Disease Prevention and Control, 'Rapid Risk Assessment: Novel Coronavirus Disease 2019 (COVID-19) Pandemic: Increased Transmission in the EU/EEA and the UK: Sixth Update', (12th March 2020), https://www.ecdc.europa.eu/sites/default/files/documents/RRA-sixth-update-Outbreak-of-novel-coronavirus-disease-2019-COVID-19.pdf.

[20] Rose Anne Kenny, Belinda Hernández, Aisling O'Halloran, Frank Moriarty, and Christine McGarrigle, TILDA Report to Inform Demographics for Over 50s in Ireland for COVID-19 Crisis, (TILDA, March 2020), https://tilda.tcd.ie/publications/reports/pdf/Report_DemographicsOver50s.pdf

| Organisation | Title/Description | Published |
|---|---|---|
| HPSC | 'Interim Public Health and Infection Prevention Control Guidelines on the Prevention and Management of COVID-19 Cases and Outbreaks in Residential Care Facilities and Similar Units'.[21] | 21/03/2020 |
| World Health Organization (WHO) | 'Infection Prevention and Control Guidance for Long-Term Care Facilities in the Context of COVID-19: Interim Guidance'.[22] | 21/03/2020 |
| WHO | 'Guidance on COVID-19 for the Care of Older People and People Living in Long-Term Care Facilities, Other Non-Acute Facilities and Home Care'.[23] | 23/03/2020 |
| Health Research Board (HRB) | 'Evidence Search: COVID-19 and Nursing Homes'. [Unpublished.] | 24/03/2020 |
| ECDC | 'Rapid Risk Assessment: Coronavirus Disease 2019 (COVID-19) Pandemic: Increased Transmission in the EU/EEA and the UK: Seventh Update'[24] | 25/03/2020 |
| HIQA | 'Protocol for the Identification and Review of Public Policy Responses to COVID-19'.[25] | 21/04/2020 |
| HPSC | 'Interim Public Health and Infection Prevention Control Guidelines on the Prevention and Management of COVID-19 Cases and Outbreaks in Residential Care Facilities and Similar Unit V4.1s' | 04/05/2020 |
| HIQA | 'Rapid Review of Public Health Guidance for Infection Prevention and Control Measures in Residential Care Facilities in the Context of COVID-19'[26] | 6/05/2020 |
| HIQA | 'Report of NF01 and NF02 Notifications to HIQA'. [Unpublished.] | 11/05/2020 |
| Department of Health | Consolidate international interventions - A timeline of state interventions taken in response to COVID-19 is provided for 28 countries with specific information on nursing homes | 12/05/2020 |

[21] See Health Protection Surveillance Centre, 'Interim Public Health and Infection Prevention Control Guidelines on the Prevention and Management of COVID-19 Cases and Outbreaks in Residential Care Facilities and Similar Units' (HSE, 21st March 2020; rev. 19th June 2020), http://hdl.handle.net/10147/627376.

[22] See World Health Organization, 'Infection Prevention and Control Guidance for Long-Term Care Facilities in the Context of COVID-19: Interim Guidance' (21st March 2020), https://apps.who.int/iris/handle/10665/331508.

[23] See World Health Organization, 'Guidance on COVID-19 for the Care of Older People and People Living in Long-Term Care Facilities, Other Non-Acute Facilities and Home Care' (23rd March 2020), https://iris.wpro.who.int/handle/10665.1/14500.https://iris.wpro.who.int/handle/10665.1/14500

[24] See European Centre for Disease Prevention and Control, 'Rapid Risk Assessment: Coronavirus Disease 2019 (COVID-19) Pandemic: Increased Transmission in the EU/EEA and the UK: Seventh Update' (25th March 2020), https://www.ecdc.europa.eu/sites/default/files/documents/RRA-seventh-update-Outbreak-of-coronavirus-disease-COVID-19.pdf.

[25] See Health Information and Quality Authority, 'Protocol for the Identification and Review of Public Policy Responses to COVID-19' (21st April 2020; rev. 27th May 2020), https://www.hiqa.ie/sites/default/files/2020-06/Protocol-to-identify-public-policy-responses-to-easing-COVID-19-restrictions.pdf.

[26] Health Information and Quality Authority, 'Rapid Review of Public Health Guidance for Infection Prevention and Control Measures in Residential Care Facilities in the Context of COVID-19'

| Organisation | Title/Description | Published |
|---|---|---|
| International Long-Term Care Policy Network | 'England: Estimates of Mortality of Care Home Residents Linked to the COVID-19 Pandemic'.[27] | 17/05/2020 |
| ECDC | Surveillance of COVID-19 at long-term care facilities in the EU/EEA[28] | 19/05/2020 |
| HPSC | COVID-19 Interim FAQs for the interpretation and subsequent action related to repeat testing[29] | 20/05/2020 |
| HIQA | Rapid review of protective measures for vulnerable people[30] | 21/05 2020 |
| Department of Health | 'Overview of the Health Response to date: Long Term Residential Healthcare Settings' – Paper submitted to NPHET[31] | 22/05/2020 |
| TILDA | TILDA Nursing Home Data: A Short Report to Inform COVID-19.'[32] | 22/05/2020 |
| NPHET | 'COVID-19: Comparison of Mortality Rates between Ireland and Other Countries in EU and Internationally'[33] | 28/05/2020 |
| HPSC | Epidemiology of COVID-19 Outbreaks/Clusters in Ireland: Weekly Report (up to week 24 week ending 13th June 2020)[34] | June 2020 |
| NPHET Sub-group: Evidence and Guidance | 'Evidence and Guidance Sub-group Database Extract: Summary Reports (Evidence Briefs and Guidelines) Considered Relevant to the Nursing Home Expert Group'. [Unpublished.] | 01/06/2020 |
| HPSC | Interim Public Health and Infection Prevention Control Guidelines on the Prevention and Management of COVID-19 Cases and Outbreaks in Residential Care Facilities and Similar Unit V5.0[35] | 19/06/2020 |

[27] See Adelina Comas-Herrera and Jose-Luis Fernández, 'England: Estimates of Mortality of Care Home Residents Linked to the COVID-19 Pandemic' (International Long-term Care Policy Network, 12th May 2020), https://ltccovid.org/wp-content/uploads/2020/05/England-mortality-among-care-home-residents-report-17-May.pdf.

[28] Surveillance of COVID-19 at long-term care facilities in the EU/EEA

[29] COVID-19 Interim FAQs for the interpretation and subsequent action related to repeat testing

[30] Health Information and Quality Authority, 'Rapid Review of Public Health Guidance on Protective Measures for Vulnerable Groups in the Context of COVID-19', Rapid review of protective measures for vulnerable people https://www.hiqa.ie/reports-and-publications/health-technology-assessment/rapid-review-protective-measures-vulnerable

[31] Ibid., 9.

[32] Roman Romero-Ortuno, Peter May, Minjuan Wang, Siobhan Scarlett, Ann Hever, and Rose Anne Kenny, TILDA Nursing Home Data: A Short Report to Inform COVID-19 (TILDA: May 2020), https://tilda.tcd.ie/publications/reports/pdf/Report_Covid19NursingHomes.pdf

[33] National Public Health Emergency Team, 'COVID-19: Comparison of Mortality Rates between Ireland and Other Countries in EU and Internationally', https://www.gov.ie/en/publication/84bc5-covid-19-comparison-of-mortality-rates-between-ireland-and-other-countries-in-eu-and-internationally/.

[34] Epidemiology of COVID-19 Outbreaks/Clusters in Ireland: Weekly Report (up to week 24 week ending 13th June 2020)

[35] Interim Public Health and Infection Prevention Control Guidelines on the Prevention and Management of COVID-19 Cases and Outbreaks in Residential Care Facilities and Similar Unit V5.0 https://www.lenus.ie/handle/10147/627376

## 2.2. Rapid Systematic Review

A rapid systematic review was completed to investigate measures implemented in long-term residential care facilities to reduce transmission of, morbidity and mortality resulting from, SARS-CoV-2. Economic issues associated with the virus (cost issues, cost effectiveness, procurement) were also investigated.

Three databases (PubMed, EMBASE, Cinahl) were searched using key terms related to coronavirus, infection control, and nursing homes, from inception to present. Peer reviewed literature with no restrictions on language were considered eligible for inclusion. All study types were considered, with inclusion criteria related to the following: interventions and policies that were implemented in nursing homes; long-stay facilities; and which aimed to reduce mortality, morbidity rates, and transmission of COVID-19. The population considered included residents, staff, and visitors. The HIQA evidence synthesis protocol 2020[36] informed the search strategy to capture the population, intervention, and outcomes of interest.

The titles and abstracts of identified papers were screened for eligibility. Full texts of papers identified through screening were then examined and data was extracted from these studies. The Covidence programme was used to conduct the review. The critical appraisal skills programme (CASP) checklist tool was used to appraise the quality of qualitative research retrieved.[37] The results of the systematic search, and the findings of the review are described in Chapter 4.

## 2.3. Consultation Process

### 2.3.1. Stakeholder Meetings

The Panel held structured meetings with the following stakeholder organisations:

- Alliance of the Age Sector NGOs;
- Department of Health:
  - Secretary General;
  - Chief Nursing Officer;
  - Assistant Secretary, Social Care Division;
- Chief directors of nursing for two hospital groups;
- HIQA;
- HSE:
  - Community operations: including nursing homes, community, testing, and procurement officers;
  - Antimicrobial Resistance & Infection Control (AMRIC);
  - relevant National Clinical Advisors and Group Leads (NCAGL); and,
  - HPSC;
- Irish Association of Directors of Nursing and Midwifery (IADNAM);
- Irish College of General Practitioners (ICGP);
- Irish Gerontological Society (IGS);
- Irish Hospice Foundation;
- Irish Medical Organisation (IMO);

[36] See Health Information and Quality Authority, 'Protocol for Evidence Synthesis Support: COVID-19' (25th May 2020), https://www.hiqa.ie/sites/default/files/2020-05/Protocol-for-HIQA-COVID-19-evidence-synthesis-support_1-6.pdf.

[37] See Critical Appraisal Skills Programme, 'CASP Checklist: 10 Questions to Help You Make Sense of a Qualitative Research' (2018), https://casp-uk.net/wp-content/uploads/2018/01/CASP-Qualitative-Checklist-2018.pdf.

- Irish Nurses & Midwives Organisation (INMO);
- Irish Society of Physicians in Geriatric Medicine group-meeting;
- NPHET representatives:
  - Chair of NPHET;
  - Chair of Expert Advisory Group to NPHET;
  - Chair of Irish Epidemiological Modelling Advisory Group to NPHET;
  - Assistant Secretary, Social Care, Department of Health;
- Nursing Homes Ireland (NHI);
- Royal College of Physicians of Ireland (RCPI) Policy Group on Ageing;
- Safeguarding Ireland;
- Sage Advocacy; and
- Services Industrial Professional and Technical Union (SIPTU).

Attendees were asked to provide a written submission using a dedicated form, in advance of the meeting. Stakeholders were also invited to submit up to a maximum of three key publications/documents that they would like to bring to the Panel's attention. The meetings involved a 10-minute presentation covering the following areas:

1) key lessons for the immediate term;
2) key actions for the medium-to-longer term;
3) priority national protective public health measures; and
4) other matters attendees wished to bring to the attention of the Panel.

The presentations were followed by about 30-50 minutes of questions, clarifications and general discussion. To support the efficient management of the engagements, stakeholders were requested to limit attendees to a maximum of three representatives for single stakeholder meetings and two representatives per organisation for group meetings.

Thirteen meetings were held between the 12th June and 1st July, with a total of 43 representatives.

### 2.3.2. Written Stakeholder Submissions

The following stakeholder organisations were invited to submit a written submission to the Expert Panel, using the same form that was provided in advance of stakeholder meetings:

- All Ireland Institute of Hospice and Palliative Care (AIIHPC);
- Centre for Economic and Social Research on Dementia - NUI Galway (CESRD);
- Coroner for the District of Kildare;
- Department of Housing, Planning and Local Government;
- Department of Public Expenditure and Reform;
- Economic and Social Research Institute (ESRI);
- Home and Community Care Ireland (HCCI);
- Hospital Groups (DMHG; IEHG; SSWHG; ULHG; Saolta; RCSI);
- HSE Community Health Organisations (CHO 1 – 9);
- Institute of Public Health (IPH);
- Irish Association of Social Workers (IASW);
- National Treatment Purchase Fund (NTPF).

Invitation letters were sent to each stakeholder from the Panel. Included in the invitation list for written submissions were stakeholders who communicated with the Panel at an early stage of its work. Registered nursing homes were also invited to make written submissions to the Panel as part of this process and HIQA provided additional support in circulating these invitations, on the basis that the Authority is in direct communication with all registered nursing homes. Stakeholders and nursing homes were asked to make their submission by the 18th June 2020. A total of 25 stakeholder and 53 nursing home submissions were received. Written submissions from stakeholders and nursing homes were collated and analysed by the Support Team in order to provide a summary of themes and issues for the Panel to consider. The Support Team used the 'framework method': a qualitative method of thematic analysis that is often used in applied policy research to identify themes from structured feedback.[38] This method was chosen on the basis that submissions were made using a form containing questions and areas for consideration. All submissions were also collated and provided to the Panel for its own review and consideration. The results of the analysis are presented in Chapter 5.

### 2.3.3. Public Consultation

A public-facing consultation was conducted to provide an additional public voice to that of the stakeholders. As with other stakeholder consultations, a structured approach was taken, and a consultation form was provided with the following questions:

- Based on your knowledge or experience, what are the key lessons for the immediate term arising from the experience of the COVID-19 pandemic to date?;
- Based on your knowledge or experience or key learning, what key actions or measures do you think are required for the short, medium and long-term to safeguard residents in nursing homes, against the impact of COVID-19?;
- Describe what you think are the existing and additional priority national protective public health measures for nursing homes in the context of COVID-19; and
- Other relevant matters you wish to bring to the attention of the Panel.

A call for submissions from members of the public was published on the Department of Health's website[39] and a press release was circulated by the Department's Press Office to publicise the consultation. The consultation was open for submissions for one week closing on 18th June 2020.

A total of 60 submissions were received from members of the public. The Support Team also used the framework method to conduct a thematic analysis of the submissions received. All submissions were also collated and provided to the Panel for their own review. The results of the analysis are presented in Chapter 5.

[38] On the 'framework method' see Jane Ritchie and Liz Spencer, 'Qualitative Data Analysis for Applied Policy Research' in The Qualitative Researcher's Companion, A. Michael Huberman and Matthew B. Miles (eds), (Sage, 2002): 305–330.

[39] See Department of Health, 'Press Release: COVID-19 Nursing Homes Expert Panel Invites Written Submissions', 10th June 2020, https://www.gov.ie/en/press-release/a2960-covid-19-nursing-homes-expert-panel-invites-written-submissions/

## 2.4. Direct Engagements with Nursing Homes

The Panel met with a small number of nursing homes in order to engage directly with and hear the experiences of staff and carers who have been managing the response to COVID-19 on the front-line and providing care in nursing homes throughout the pandemic, and to hear the experiences and perspectives of people who have been resident in nursing homes throughout the pandemic.

The Panel conducted both virtual meetings and one site visit, following all public health precautions and guidance for visiting nursing homes. Through these engagements the Panel met with:

- the Person in Charge;
- front-line staff; and,
- residents.

The Support Team assisted the Expert Panel in setting up these meetings with the relevant representatives from each of the nursing homes. The selection of nursing homes was facilitated by HIQA, whereby HIQA recommended nursing homes based on selection criteria (public and private mix; COVID-19 and non-COVID-19 affected mix) provided by the Panel. The nursing homes 'visited' included both public and private operated nursing homes and nursing homes that had and had not experienced COVID-19 cases.

## 2.5. Engagements with Residents and Family Members

The Expert Panel engaged with a number of residents and relatives, identified from independent advocacy sources, who had expressed the desire to share their thoughts, experiences and perspectives with the Expert Panel. This was a particularly valuable contribution to the Panel's work.

## 2.6. Interim Report

On the 30th June 2020, the COVID-19 Nursing Homes Expert Panel submitted an interim report to the Minister for Health. The purpose of that report was to provide a short update to the Minister on the work of the Panel to that point, along with a description of its approach to the work and the Panel's intended next steps. The Minister published the Interim Report on 13th July 2020.[40]

[40] See Department of Health, 'Press Release: Minister for Health publishes interim report of the COVID-19 Nursing Homes Expert Panel', 13th July 2020, https://www.gov.ie/en/press-release/ad16e-minister-for-health-publishes-interim-report-of-the-covid-19-nursing-homes-expert-panel/

# 3. Epidemiology Analysis

## 3.1 Irish Nursing Homes: Background

The Census 2016 provides data on the numbers of older people living in communal establishments including nursing homes.[41] The census enumerated 637,567 persons 65 years and older, of whom 32,139 (5.0%) were living in communal establishments in Ireland: 22,762 (3.6%) in nursing homes, 3,689 (0.6%) in hospitals, and 5,688 in other communal establishments (0.9%). Of a population of 67,555 who were 85 years and older, 17% (11,454) were living in nursing homes. Two-thirds of all nursing home residents aged 65 and older, and three-quarters of those 85 years and older, were women (see table 3 in section 3.6). There are 576 registered nursing homes in Ireland of which about 440 are private or voluntary nursing homes. The average capacity of a nursing home is 55 beds (ranging from 9-184 beds) and approximately 30,000 staff are employed in these settings.

As international organisations have increased their understanding of COVID-19,[42] they have advised that older people and those who are medically vulnerable are more susceptible to COVID-19 infection and may experience more adverse health outcomes as a result.[43] For this reason, analyses of data to understand the basic epidemiology of the incidence of COVID-19 and associated mortality in nursing homes in Ireland, compared with those in the wider population is important.

## 3.2. Public Health Surveillance and Data Capture

There are a number of reasons why long-term residential care settings (LTRCs) have been more severely impacted by the COVID-19 pandemic and these lessons are becoming increasingly apparent as epidemiologists and public health experts have learned more about the transmission of this novel virus over the preceding weeks and months.

Prompt, effective public health surveillance and response is critical to the identification and control of outbreaks in healthcare settings. Ireland has a national public health surveillance system called CIDR (Computerised Infectious Disease Reporting) in place, managed by the HSE Health Protection Surveillance Centre (HPSC), to manage the surveillance and control of infectious diseases in Ireland.

[41] See Central Statistics Office, 'Census of Population 2016: Profile 3: An Age Profile of Ireland', https://www.cso.ie/en/releasesandpublications/ep/p-cp3oy/cp3/agr/.
[42] See World Health Organization, 'Coronavirus: Overview', https://www.who.int/health-topics/coronavirus#tab=tab_1.
[43] European Centre for Disease Prevention and Control, 'Guidance on the Provision of Support for Medically and Socially Vulnerable Populations in EU/EEA Countries and the United Kingdom During the COVID-19 Pandemic', 3rd July 2020, https://www.ecdc.europa.eu/sites/default/files/documents/Medically-and-socially-vulnerable-populations-COVID-19.pdf.

The process for data capture on CIDR is as follows:

- outbreaks and probable cases are notified to the eight regional departments of public health (DPH) who create the CIDR records for these cases;
- separately, positive laboratory results generate CIDR files for confirmed cases – sent to DPH before the HPSC;
- those records of cases and outbreaks are then manually linked/merged with one another as contact tracing is completed;
- the classification of outbreaks location type is then made – nursing homes are one such classification. Classification of these settings is determined by the DPHs;
- under legislation all deaths associated with COVID-19 as a notifiable disease must be notified to the HPSC;
- this data is then analysed by the HPSC;
- the data does not differentiate between public and private facilities; and
- data are also received by HPSC on a daily basis from the General Registration Office (GRO) on all deaths by age, gender, location of death (hospital/non-hospital) date of death, date of registration and cause of death nationally.

Death registration data collected by GRO provides the most complete mortality data but is not timely due to registration lag-time. The current legislation provides 3 months for a death to be formally registered. The Department of Health understands that approximately 80% of deaths are registered within this timeframe. Normally this must be done in person. In response to the COVID-19 pandemic, the GRO has provided an online portal for the registration of deaths.

CIDR records a case as being associated with nursing home care only if it is linked to an outbreak in a nursing home setting. A single isolated case will not be identified on CIDR as a case in a nursing home.

## 3.3. Supplementary Data

HIQA also collects relevant information:

- outbreaks of notifiable diseases in HIQA registered centres are submitted within 36 hours by the centre using the NF02 notification; and
- unexpected deaths in HIQA registered centres are reported to HIQA through NF01 notifications from designated centres for older people.

Different countries measure mortality rates in different ways and therefore the data are not always consistent or comparable at an international level. For example, some countries do not count deaths that occur in probable or possible COVID-19 cases within their count of COVID-19 related deaths.

Similarly, some countries are not currently able to report COVID-19 related deaths if they occur outside the acute hospital setting. This is in contrast to Ireland, where confirmed and probable COVID-19 related deaths are reported regardless of where they occur. Some countries do not report deaths in instances which COVID-19 may not have been considered the main cause of death but rather as a secondary cause. Moreover, many countries report completely separately on the registered deaths and are unable to link them with the deaths by place of death such as hospital or nursing home.

In Ireland, this level of detail is available but there can be a lag while data is collated and to allow for the notification of deaths to reach the HPSC and the Department of Health. Numerous efforts have been made to report on all deaths linked to COVID-19, including:

- all clinicians have been written to, to emphasise to them the importance of death certification and notification of deaths;
- outbreak control teams have been asked to ensure that all confirmed or suspected cases in LTRCs are notified;
- a census of mortality in residential care settings has been undertaken (see below);
- funeral directors have been written to requesting that they encourage families to use the online option for death certification and to submit death certification in a timely manner;
- the HPSC is monitoring 'all cause' mortality and Ireland is participating in a European network (EuroMOMO) which is monitoring 'all cause' mortality; and
- continued engagement with the GRO regarding the importance of timely mortality information.

Ireland is therefore in a relatively strong data collection position as CIDR captures data (cases, clusters and deaths) from both the community as well as acute hospitals and has done so since the commencement of the pandemic. The information in CIDR can then be cross-checked against other data collection systems such as that collected via HIQA, the GRO, and externally, RIP.ie. This adds to the understanding of the validity of data collected in CIDR. To date, when checked, the data contained within CIDR was similar to that contained within HIQA and RIP.ie.

The approach has been clear and consistent in recording COVID-19 cases and deaths in nursing homes from the beginning of this pandemic. This places Ireland as one of the very few countries to take a comprehensive approach and use this data to inform public health actions in a measured, decisive and scientific manner.

## 3.4. International Guidance: Surveillance and Definitions for COVID-19 Cases and Deaths

In considering the appropriate case definitions, the NPHET has been informed by the guidance and advice given by the WHO and the European Centre for Disease Prevention and Control (ECDC). Ireland's case definition was developed with regard to the current EU definition and currently uses the ECDC surveillance definition of a COVID-19 death.[44]

On the 17th June 2020, the ECDC published *Monitoring and Evaluation Framework for COVID-19 Response Activities in the EU/EEA and the UK*.[45] Pillar 3 of this document describes the key features and indicators of a comprehensive surveillance system. Ireland currently regularly reports or can calculate the vast majority of metrics listed using currently available data with the exception of population serology studies, one of which is currently in progress. This section also refers to the use of technology for contact tracing. A contact tracing app in Ireland has been developed and launched. This means that by international standards, Ireland has a reasonably comprehensive surveillance system in place.

[44] See European Centre for Disease Prevention and Control, 'Surveillance Definitions for COVID-19', https://www.ecdc.europa.eu/en/covid-19/surveillance/surveillance-definitions.

[45] See European Centre for Disease Prevention and Control, 'Monitoring and Evaluation Framework for COVID-19 Response Activities in the EU/EEA and the UK' (17th June 2020), https://www.ecdc.europa.eu/sites/default/files/documents/covid-19-framework-monitor-responses.pdf

## 3.5. Definitions

The COVID-19 case definition has evolved in line with international definitions and new information over the course of the pandemic. Current definitions are outlined below and are published on the HPSC website.[46]

### Box 1: COVID-19 Case Definition

**Version 5.8 Date last updated: 19 June 2020**

#### Clinical criteria

- A patient with acute respiratory infection (sudden onset of at least one of the following; cough, fever,[1] shortness of breath)
- **OR** Sudden onset of anosmia,[2] ageusia[3] and dysgeusia[4] **AND** with no other aetiology that fully explains the clinical presentation
- **OR** A patient with any acute respiratory tract infection who has been in close contact[5] with a confirmed or probable COVID-19 case in the 14 days prior to onset of symptoms.
- **OR** A patient with acute respiratory infection (e.g. cough, fever, shortness of breath)
- **OR** sudden onset of anosmia, ageusia and dysgeusia) **AND** having been a resident or a staff member, in the 14 days prior to onset of symptoms, in a residential institution for vulnerable people where ongoing COVID-19 transmission has been confirmed.
- **OR** A patient with severe acute respiratory infection (fever and at least one sign/symptom of respiratory disease (e.g. cough, fever, shortness of breath)) **AND** requiring hospitalisation (SARI) **AND** with no other aetiology that fully explains the clinical presentation.

*Clinical judgement should be applied in application of these criteria to determine who requires testing.*

**Diagnostic imaging criteria**
Radiological evidence showing lesions compatible with COVID-19

**Laboratory criteria**
Detection of SARS-CoV-2 nucleic acid in a clinical specimen

#### Case classification

- *Possible:* Any person meeting the clinical criteria
- *Probable case:* Any person meeting the clinical criteria with an epidemiological link
  **OR** Any person meeting the diagnostic imaging criteria
- *Confirmed case:* Any person meeting the laboratory criteria

***Notes:***

1 Fever may be subjective or confirmed by healthcare worker (≥380C);
2 Loss of sense of smell;
3 Loss of sense of taste;
4 Distortion of sense of taste;
5 Close contact: <2 metres face-to-face contact for greater than 15 minutes.

[46] See Health Protection Surveillance Centre, 'Covid-19 Case Definitions' (15th May 2020), https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/casedefinitions/

## Box 2: COVID-19 Outbreak Case Definition

### Definition Confirmed Case

- A cluster/outbreak, with two or more cases of laboratory confirmed COVID-19 infection regardless of symptom status. This includes cases with symptoms and cases who are asymptomatic.
- **OR** A cluster/outbreak, with two or more cases of illness with symptoms consistent with COVID-19 infection (as per the COVID-19 case definition), and at least one person is a confirmed case of COVID-19.

### Definition Suspected Case

- A cluster/outbreak, with two or more cases of illness with symptoms consistent with COVID-19 infection (as per the COVID-19 case definition).

## Box 3: Surveillance Definition for COVID-19 Death

Mortality monitoring should be conducted according to the WHO definition:

A COVID-19 death is defined for surveillance purposes as a death resulting from a clinically compatible illness in a probable or confirmed COVID-19 case, unless there is a clear alternative cause of death that cannot be related to COVID-19 disease (e.g., trauma). There should be no period of complete recovery between the illness and death.

A death due to COVID-19 may not be attributed to another disease (e.g. cancer) and should be counted independently of pre-existing conditions that are suspected of triggering a severe course of COVID-19.

The number of deaths due to COVID-19 should be reported to the European Surveillance System (TESSy) on a weekly basis (case-based or aggregated data).[47,48]

[47] See World Health Organization, 'Emergency Use ICD Codes for COVID-19 Disease Outbreak', https://www.who.int/classifications/icd/covid19/en/ (accessed 13th July 2020).

[48] See European Centre for Disease Prevention and Control, 'Surveillance definitions for COVID-19', https://www.ecdc.europa.eu/en/covid-19/surveillance/surveillance-definitions (accessed 13th July 2020).

## 3.6. COVID-19 Nursing Home Surveillance Information

On 16th March 2020, the HPSC was notified of the first case and cluster in nursing homes (two clusters were notified on that day in separate nursing homes with Outbreak Control Teams in place).

- As of 27th June 2020, the HPSC had reported 252 clusters in nursing homes (18% of all clusters). 195 (77%) nursing home clusters had been closed. These clusters are associated with 5,608 confirmed cases (22% of all cases).
- Of those cases in nursing homes, 422 were hospitalised.
- 971 deaths (56% of all deaths) were associated with nursing home clusters.

***Table 3.1*** *HPSC CIDR Nursing Home data as of 27th June 2020 and Table 3.2 provide further breakdown per region. The highest number of clusters are in the densely populated Eastern region. This is also where the highest community infections were observed.*

| HSE Area | Number of NH Outbreaks | Percent of All Outbreaks Notified | Confirmed Cases Associated with NH Outbreaks | Percent of All Cases Notified Nationally | Number of All Deaths | Percentage of Deaths Notified Nationally | Number of Hospitalisa-tions | Percent of Hospital-isations Notified Nationally |
|---|---|---|---|---|---|---|---|---|
| **East** | 121 | 8.5% | 3,400 | 13.4% | 621 | 35.7% | 189 | 5.7% |
| **Midlands** | 10 | 0.7% | 240 | 0.9% | 22 | 1.3% | 19 | 0.6% |
| **MidWest** | 16 | 1.1% | 315 | 1.2% | 52 | 3.0% | 58 | 1.8% |
| **NorthEast** | 38 | 2.7% | 1,037 | 4.1% | 175 | 10.0% | 93 | 2.8% |
| **SouthWest** | 5 | 0.4% | 117 | 0.5% | 21 | 1.2% | 20 | 0.6% |
| **SouthEast** | 17 | 1.2% | 153 | 0.6% | 25 | 1.4% | 16 | 0.5% |
| **South** | 9 | 0.6% | 79 | 0.3% | 11 | 0.6% | 5 | 0.2% |
| **West** | 36 | 2.5% | 267 | 1.0% | 44 | 2.5% | 22 | 0.7% |
| **Total** | **252** | **17.7%** | **5,608** | **22.0%** | **971** | **55.6%** | **422** | **12.9%** |

*Source: HPSC Weekly Outbreak Report 29th June 2020*

***Table 3.2*** *Total Cases and Cases Associated with Nursing Home Clusters*

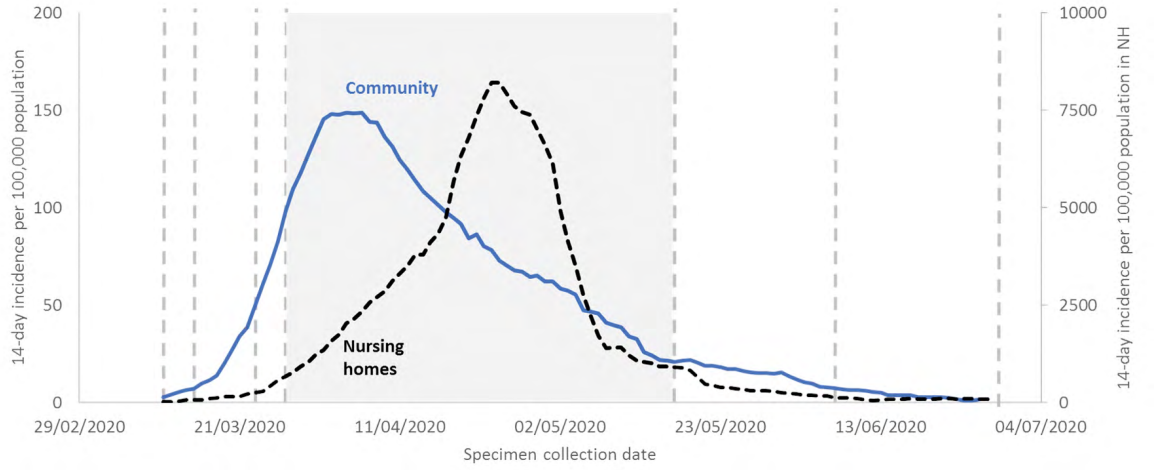
| County | Total Cases | Percent of Total Cases | Cases associated with NH Clusters | Percent of Total Cases associated with NH Clusters |
|---|---|---|---|---|
| **Carlow** | 169 | 0.7% | 72 | 1.3% |
| **Cavan** | 863 | 3.4% | 256 | 4.5% |
| **Clare** | 371 | 1.5% | 176 | 3.1% |
| **Cork** | 1,538 | 6.0% | 126 | 2.2% |
| **Donegal** | 463 | 1.8% | 72 | 1.3% |
| **Dublin** | 12,403 | 48.7% | 2,726 | 48.0% |
| **Galway** | 490 | 1.9% | 30 | 0.5% |
| **Kerry** | 309 | 1.2% | 1 | 0.0% |
| **Kildare** | 1,393 | 5.5% | 493 | 8.7% |
| **Kilkenny** | 358 | 1.4% | 9 | 0.2% |
| **Laois** | 264 | 1.0% | 15 | 0.3% |
| **Leitrim** | 82 | 0.3% | 8 | 0.1% |
| **Limerick** | 581 | 2.3% | 78 | 1.4% |
| **Longford** | 282 | 1.1% | 33 | 0.6% |
| **Louth** | 782 | 3.1% | 294 | 5.2% |
| **Mayo** | 560 | 2.2% | 156 | 2.7% |
| **Meath** | 807 | 3.2% | 217 | 3.8% |
| **Monaghan** | 537 | 2.1% | 269 | 4.7% |
| **Offaly** | 489 | 1.9% | 56 | 1.0% |
| **Roscommon** | 348 | 1.4% | 81 | 1.4% |
| **Sligo** | 144 | 0.6% | 37 | 0.7% |
| **Tipperary** | 546 | 2.1% | 61 | 1.1% |
| **Waterford** | 154 | 0.6% | 14 | 0.2% |
| **Westmeath** | 673 | 2.6% | 136 | 2.4% |
| **Wexford** | 218 | 0.9% | 57 | 1.0% |
| **Wicklow** | 649 | 2.5% | 209 | 3.7% |
| **Total*** | **25,473** | **100.0%** | **5,682** | **100.0%** |

Source: CIDR, Data as of 26th June 2020.

Note: Totals may not match due to differences in data available at time of data extraction. CIDR is a live dataset.

Graph 3.1 shows that the peak number of new cases in the general population was on the 28th March 2020. It was only when this peak was reached that the number of cases in LTRCs began to increase. From early April there was a rapid rise in cases in LTRCs. The peak in new confirmed cases in these settings in mid-April coincided with the expanded testing undertaken in the sector.

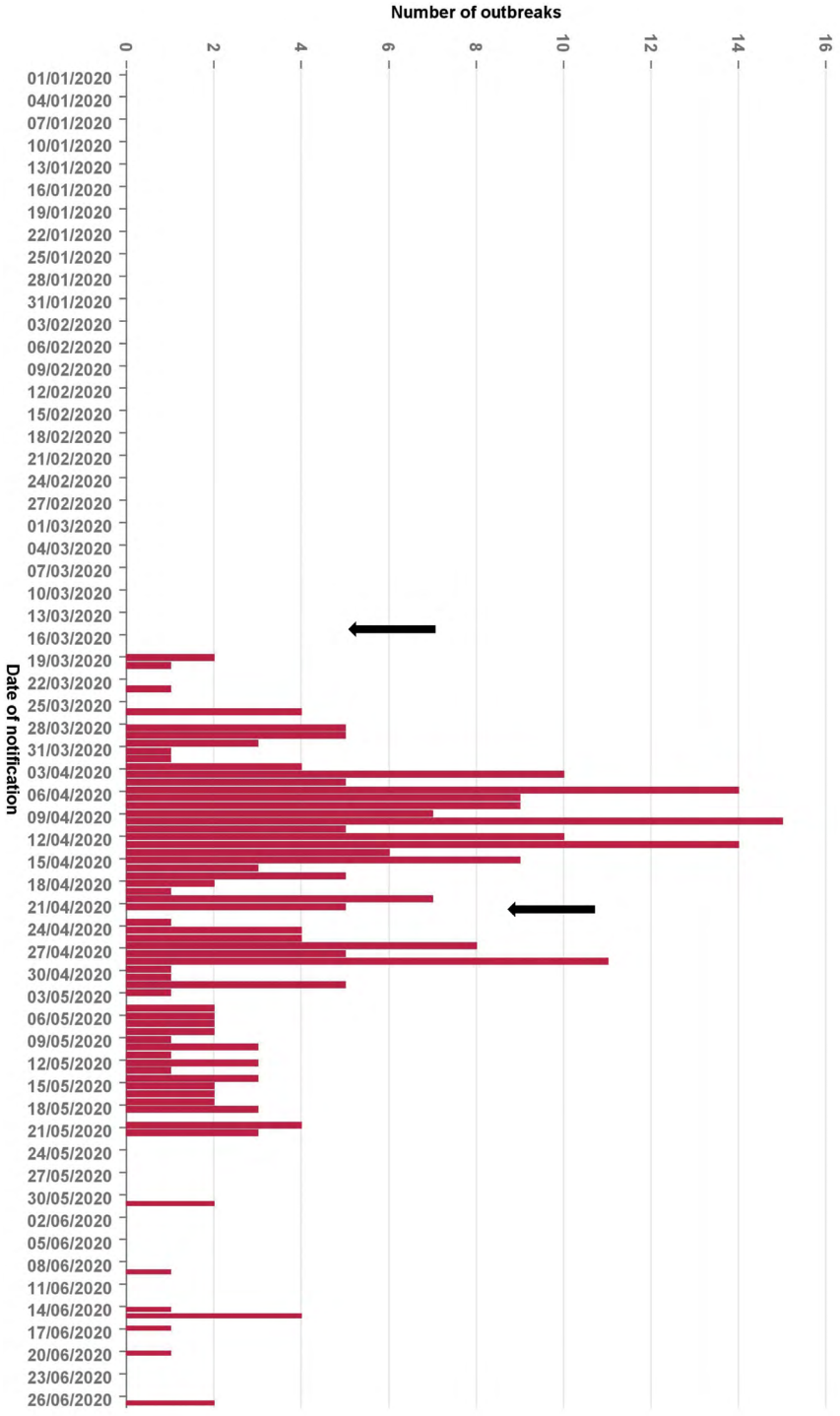
***Graph 3.1*** *Number of COVID-19 Cases in Nursing Homes by Date as a 5-day Rolling Average*




*Source: CIDR, July 2020*

*Data 5-day rolling average. Community: all cases excluding healthcare workers, and cases associated with outbreaks in long term residential care setting.*

***Graph 3.2*** *Number of COVID-19 outbreaks in nursing homes notified in Ireland, by residential facility type (N=252), up to midnight on 27th June 2020*




*Source: HPSC, 29th June 2020*

Analyses of the trajectory of the epidemic among the general population, healthcare workers, and LTRC residents has been conducted by the Irish Epidemiological Modelling Advisory Group (IEMAG). Its work shows that the peak number of new confirmed cases in the general population was observed in the last week of March. The rate of increase of new cases among nursing home residents was slower and lagged behind both the general and healthcare worker populations. The first outbreak in nursing homes was not identified until the 16th March 2020. Most outbreaks were identified after 23rd March and into the first week of April.

Graph 3.2 provides a view of the number of COVID-19 outbreaks by date in LTRC settings. The first arrow corresponds to the time at which the first public health measures, including the restriction of visitors to residential care facilities, were implemented. The second arrow refers to the implementation of the expanded testing programme of residents and staff in nursing homes. The first outbreak was not identified until the 16th March 2020 – 4 days after the implementation of visiting restrictions (12th March).[49] In addition, most outbreaks were identified after the 23rd March and into the first week of April. Another spike in the identification of outbreaks coincided with the implementation of the expanded testing programme in the last week of April (second arrow). The graph shows the timeline along which new clusters in nursing homes were identified and notified to the HPSC by local Departments of Public Health.

Analysis of the impact of COVID-19 on different age groups was conducted. A comparison of cases of people in nursing homes as compared to those in the general population is described in Table 3.3 below.

The incidence rate and relative risk of contracting COVID-19 was greatly higher in nursing home residents than people in the same age groups in the general population.

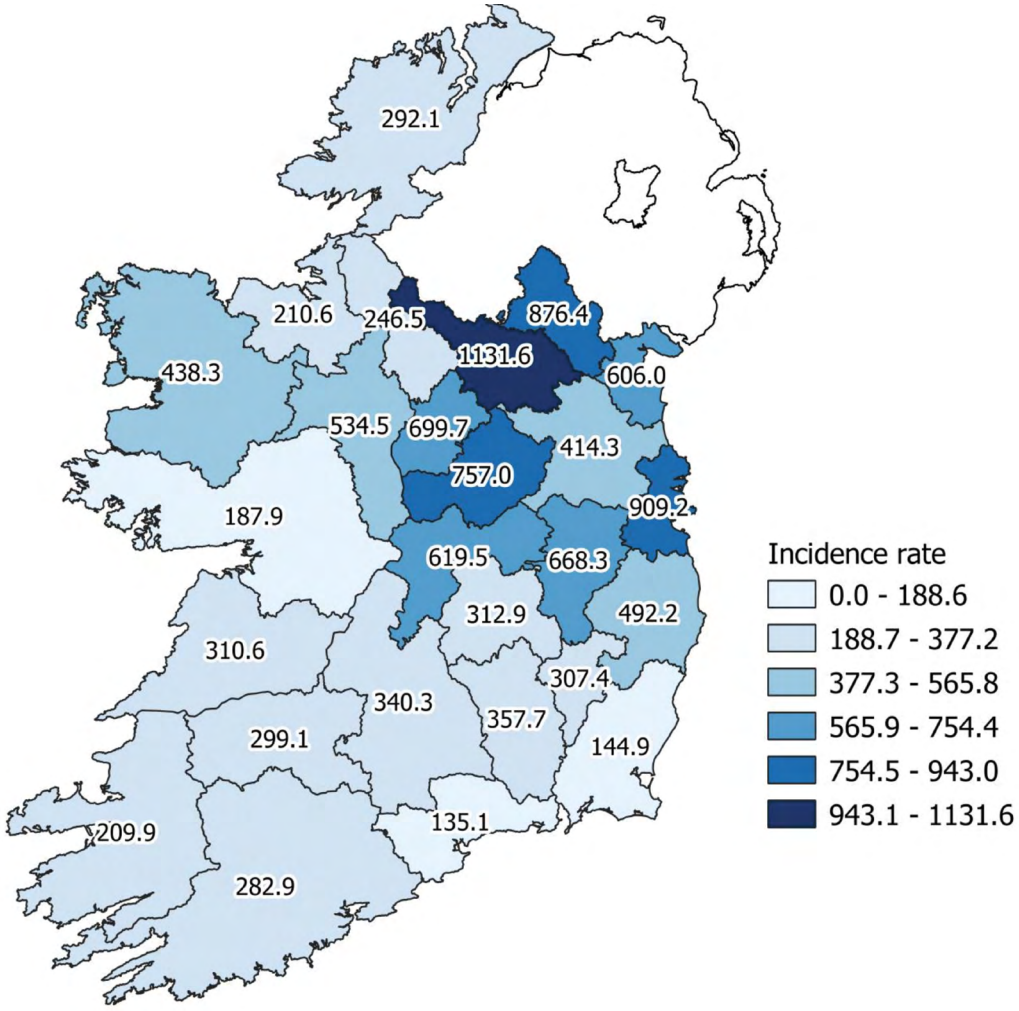
***Table 3.3*** *COVID-19 incidence rates in nursing home population, compared with those in the general population*

| Age | Population | Nursing home population | % population in nursing homes | Population outside nursing homes | Cases in nursing homes | Nursing home incidence rate | Cases in general population | Incidence rate general population |
|---|---|---|---|---|---|---|---|---|
| **65-69** | 211,236 | 1,384 | 0.7% | 209,852 | 143 | 10.3% | 567 | 0.27% |
| **70-74** | 162,272 | 1,983 | 1.2% | 160,289 | 310 | 15.6% | 581 | 0.36% |
| **75-79** | 115,467 | 3,035 | 2.6% | 112,432 | 423 | 13.9% | 519 | 0.46% |
| **80-84** | 81,037 | 4,906 | 6.1% | 76,131 | 724 | 14.8% | 452 | 0.59% |
| **85-89** | 44,862 | 5,730 | 12.8% | 39,132 | 897 | 15.7% | 302 | 0.77% |
| **90-94** | 17,974 | 4,175 | 23.2% | 13,799 | 593 | 14.2% | 140 | 1.01% |
| **95+** | 4,719 | 1,549 | 32.8% | 3,170 | 219 | 14.1% | 24 | 0.76% |
| **Total** | **637,567** | **22,762** | **3.6%** | **614,805** | **3,309** | **14.5%** | **2,585** | **0.4%** |

*Source: CSO Census 2016 and CIDR June 2020*
*Notes: Population statistics from CSO Census 2016. Cases in nursing homes: all cases associated with nursing home outbreaks excluding those identified as healthcare workers. Cases in general population: all cases excluding those associated with outbreaks in other long-term residential care settings and those identified as healthcare workers.*

[49] Implementation of NPHET recommendations from the meeting of 11th March were announced by the Taoiseach on 12th March

***Graph 3.3*** *Cumulative incidence rates of confirmed cases of COVID-19 per 100,000 population notified in Ireland to midnight 28th June 2020*




*Source: HPSC, Epidemiology of COVID-19 in Ireland, 30th June 2020*

### Impact of COVID-19 as compared to other infectious diseases

The impact of COVID-19 in LTRC facilities in Ireland has, like many other countries, been considerable and much higher than seen with influenza outbreaks. In recent years the impact of influenza on this sector has been recorded by the HPSC in its weekly and annual reports describing the annual influenza epidemics.[50] In the most recent severe season of 2017/ 2018, 200 influenza outbreaks were reported including 158 influenza outbreaks that season in residential care facilities. 53 deaths were laboratory confirmed to be associated with these outbreaks.

***Table 3.4*** *Excess deaths from EuroMOMO model in 2017/2018 Influenza Season*

| Week 40 2017- 20 2018[51] | 15-64 years | ≥65 years | All Ages |
|---|---|---|---|
| **Total Deaths** | 3,495 | 17,371 | 21,051 |
| **Expected Deaths** | 3,372 | 16,061 | 19,595 |
| **Excess Deaths** | 123 | 1,310 | 1,456 |

*Source: Communication from HPSC, June 2020*

The COVID-19 virus is a much more infectious virus than influenza and is understood to have similar modes of transmission. A review of 12 modelling studies reported the mean basic reproductive number ($R_0$) for COVID-19 at 3.28, with a median of 2.79.[52] The median R value for the pandemic of influenza H1N1 2009 was 1.46 and for seasonal influenza was 1.28.[53] This means that every person with COVID-19 spreads the infection to double the number of people as a person with influenza.

The ECDC in its 5th Rapid Risk Assessment of 2nd March 2020, stated that there remains no strong evidence of transmission preceding symptom onset. However, in their 6th Rapid Risk Assessment released on the 12th March 2020 the ECDC described a singular case report in which possible asymptomatic transmission had occurred and advised that major uncertainties remain in assessing the role of pre-symptomatic transmission.

The serious impact on LTRCs was subsequently identified by the ECDC in its 9th Rapid Risk assessment of 23rd April 2020. Internationally the role played by those with asymptomatic or very mildly symptomatic disease in spreading infection is now much more clearly recognised. Such asymptomatic transmission poses a significant challenge to public health and infection control strategies. An important component of such strategies is to achieve overall reduction and control of virus levels in the community so as to avoid its unwitting spread into vulnerable settings, such as nursing homes, by those that are asymptomatic. Within nursing homes testing to ascertain asymptomatic cases is now a core strategy. Ireland's testing of all staff in all facilities and all patients in affected facilities contributed to the identification of asymptomatic cases and the interruption of transmission.

[50] See Health Protection Surveillance Centre, 'Annual Epidemiological Report' (HSE, December 2018), https://www.hpsc.ie/a-z/respiratory/influenza/seasonalinfluenza/surveillance/influenzasurveillancereports/seasonsummaries/Influenza%202017-2018%20Annual%20Summary_Final.pdf

[51] EuroMOMO, 'Graphs and Maps', https://www.euromomo.eu/graphs-and-maps/

[52] See European Centre for Disease Prevention and Control, 'Coronavirus Disease 2019 (COVID-19) in the EU/EEA and the UK: Eighth Update' (8th April 2020), https://www.ecdc.europa.eu/sites/default/files/documents/covid-19-rapid-risk-assessment-coronavirus-disease-2019-eighth-update-8-april-2020.pdf

[53] See Matthew Biggerstaff, Simon Cauchemez, Carrie Reed, Manoj Gambhir and Lyn Finelli, 'Estimates of the Reproduction Number for Seasonal, Pandemic, and Zoonotic Influenza: A Systematic Review of the Literature', *BMC Infectious Diseases* 14/1 (September 2014): 480–499.

In addition, a clinical picture in vulnerable and older populations has emerged that did not meet the case definition as established initially through the WHO. Evidence has emerged that presentation of COVID-19 in LTRCs can differ from that of the general population from no temperature to confusion and the pace of progression of disease is much faster, likely due to the age and frailty of older people in such settings.

### Mortality in those with confirmed cases of COVID-19

Mortality in COVID-19 rises very steeply with age, both in the general population and in congregated settings. The Department of Health compared crude age-specific case-fatality rates for the general population and presumed residents of nursing homes.

Table 3.5 shows this comparison for all cases to 30th June 2020. The age-specific case-fatality rate was similar for older people in the two settings but is higher in younger age groups (under 65 years of age). However, this analysis should be treated with caution, as there are small numbers of deaths in lower age groups in nursing homes. In addition, mass (near universal) testing in nursing homes will have detected asymptomatic and mild cases which may not have been referred for testing in the general population, thereby increasing case numbers in nursing homes relative to the general population and decreasing the case-fatality rate.

***Table 3.5*** *Age-specific case-fatality rates*

| Age Group | General population | | | Nursing homes | | |
|---|---|---|---|---|---|---|
| | Cases | Deaths | CFR | Cases | Deaths | CFR |
| **0-19** | 833 | <5 | 0.1% | 12 | 0 | 0.0% |
| **20-39** | 3,872 | 9 | 0.2% | 152 | <5 | 0.7% |
| **40-59** | 4,419 | 40 | 0.9% | 219 | 10 | 4.6% |
| **60-64** | 834 | 23 | 2.8% | 87 | 7 | 8.0% |
| **65-69** | 567 | 49 | 8.6% | 143 | 20 | 14.0% |
| **70-74** | 581 | 76 | 13.1% | 310 | 54 | 17.4% |
| **75-79** | 519 | 110 | 21.2% | 423 | 73 | 17.3% |
| **80-84** | 452 | 109 | 24.1% | 724 | 178 | 24.6% |
| **85+** | 466 | 147 | 31.5% | 1,709 | 449 | 26.3% |
| **Total** | **12,543** | **564** | **4.5%** | **3,779** | **792** | **21.0%** |

*Source: CIDR, 30th June*
*Notes: The general population refers to all cases not associated with outbreaks in nursing homes, in non-nursing home long-term residential care settings or those identified as healthcare workers. Nursing homes refers to all cases associated with outbreaks in nursing homes not identified as healthcare workers. Note that an unknown number of cases in younger age groups may be healthcare workers or close contacts associated with the outbreak. This may lead to an underestimate of case-fatality rate in these younger age groups.*

### International approaches to mortality

Comparative analysis of pandemic-related mortality in different countries is important to describe the impact of the pandemic on populations, to inform health system responses, and to assess the effectiveness of countermeasures taken at national level by different countries. Countries across the world currently report widely different mortality experiences with COVID-19.

However, there are several factors affecting mortality which make direct comparisons between countries difficult. These include:

- differences in testing availability, testing strategies, and case ascertainment;
- differences in mortality case definition and reporting e.g. probable and confirmed, community, and hospitalised cases;
- demographic factors including how age, socio-economic profiles differ across jurisdictions: - for example, age structure – percentage of population 65+: Italy 23%, Sweden 20%, Austria 19%, Spain 19%, UK 18%, Ireland 13%;
- geographic factors such as population density and urban distribution;
- international travel patterns including the number of initial seedings / ongoing importation patterns: Transport hubs – Paris, Brussels and London as major international aviation hubs are judged to have led to multiple introductions and contributed to rapid increase in initial cases in France, Belgium and the UK;
- point on the epidemic curve – rising or falling;
- timing, stringency, and effectiveness of public health measures – case detection, contact tracing, isolation, social distancing, travel restrictions:- countries with early imposition of lockdown measures including New Zealand, Austria, Denmark and Norway had lower case notification and death rates;
- effectiveness at controlling outbreaks in nursing homes and other congregated settings;
- health service capacity and efficacy considerations. - ICU bed capacity, availability of ventilators a major factor in mortality in outbreaks where health service capacity was overwhelmed, such as Italy and Spain.

Mortality data have been the subject of much international discussion particularly in relation to the reporting of mortality in nursing homes. Unlike Ireland, official data on the numbers of deaths among care home residents linked to COVID-19 is not available for many countries. In addition, international comparisons are difficult to make due to differences in testing availability and approaches to recording deaths.

The NPHET has recommended the use of WHO and ECDC definitions of a COVID-19 death for surveillance purposes (see Box 3). This approach is broad in nature and seeks to count deaths in those who were both confirmed and possible COVID-19 cases.

HIQA's report, *Analysis of Excess All-cause Mortality in Ireland During the COVID-19 Epidemic* (3rd July 2020), using data from the death notices website, RIP.ie, observes that the approach to COVID-19 mortality reporting in Ireland *"has been one of precaution [...] as recommended by WHO guidance"*.[54] The report goes on to note that the officially reported COVID-19 death figures may be an overestimate. For example, deaths in those who were known to be infected with coronavirus at the time of death but who were at or close to end-of–life independently of COVID-19 may have been included in the count, as this is in line with international definitions. It is also possible that a proportion of the deaths occurred among people who were known to be infected with COVID-19 at the time of death but whose cause of death may have been predominantly due to other factors. Furthermore, some of the deaths which were officially reported as being due to 'clinically suspected' COVID-19 may not have been, there being uncertainty in such cases in the absence of confirmatory test results.

[54] See Health Information and Quality Authority, Analysis of Excess All-cause Mortality in Ireland During the COVID-19 Epidemic (HIQA, 3rd July 2020), 21, https://www.hiqa.ie/sites/default/files/2020-07/Analysis-of-excess-all-cause-mortality-in-Ireland-during-the-COVID-19-epidemic_0.pdf.

At this point in time, it is not possible to say with certainty that this is the true impact of COVID-19 on overall mortality, which should continue to be monitored via the excess mortality statistics reported by EuroMOMO.

## 3.7. COVID-19 and Nursing Homes: International Comparisons of Mortality

Official data on the numbers of people affected by COVID-19 is not available in many countries. Due to differences in the availability of testing and policies, and due to different approaches to recording deaths, international comparisons are difficult to make.[55] In countries in which there have been at least 100 deaths in total and official data is available, the percentage of COVID-19-related deaths among care home residents ranges from 24% in Hungary to 85% in Canada. It should be noted that these figures are subject to change as countries update their official figures and progress along their own individual national epidemic trajectories.

There have been large numbers of deaths in care homes in some countries such as the United Kingdom and the United States but official data for these and other countries is either incomplete or difficult to interpret. Another difficulty in comparing data on deaths is that in some countries the data only record the place of death, while others also report deaths in hospital of care home residents as care home deaths. Table 3.6 sets out the most recent data from official sources but is caveated with respect to the difficulties in comparing data in instances which there exist differences in testing availability and policies, and in which different approaches to recording deaths are adopted, rendering international comparisons difficult.

On 28th May 2020 the NPHET published *COVID-19: Comparison of Mortality Rates between Ireland and other countries in EU and Internationally*.[56]

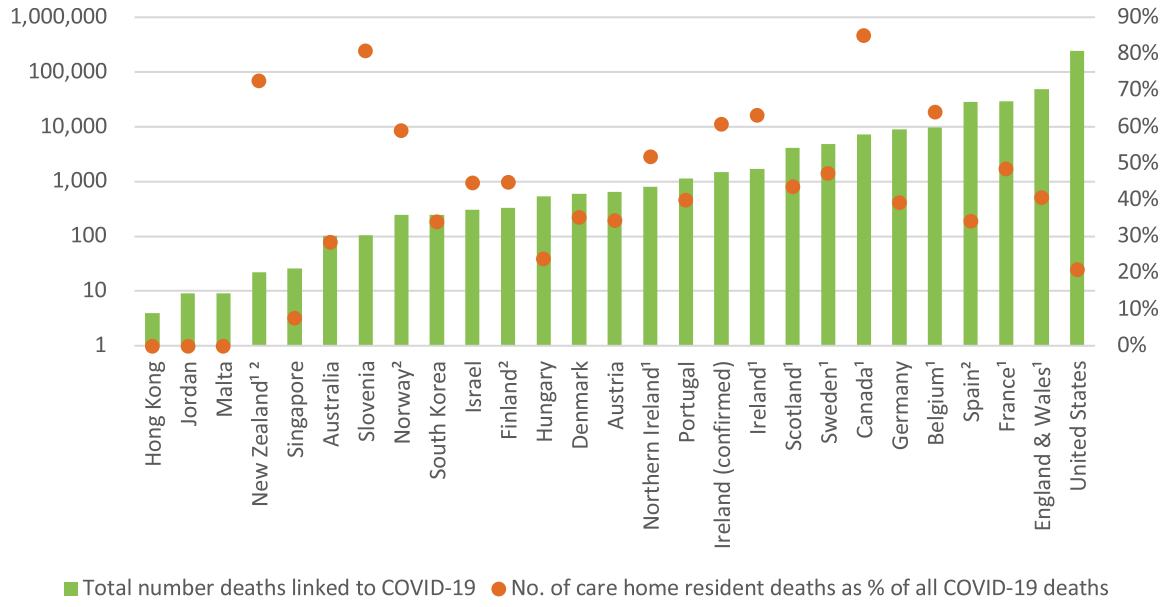
Graph 3.4 and Table 3.6 below describe the number of COVID-19 related deaths reported nationally and the percentage of those that occurred amongst long-term care residents.

It should be said that in addition to the aforementioned difficulties in drawing international comparisons with regard to COVID-19 motality, there is an additional level of complexity in comparing long-term care residents. There is no internationally agreed definition of the term and accordingly, comparisons should be treated with caution.

[55] See Comas-Herrera, Adelina, Joseba Zalakaín, Charles Litwin, Amy T. Hsu, Elizabeth Lemmon, David Henderson and Jose-Luis Fernández, 'Mortality Associated with COVID-19 Outbreaks in Care Homes: Early International Evidence' (International Long-Term Care Policy Network, 26th June 2020), https://ltccovid.org/2020/04/12/mortality-associated-with-covid-19-outbreaks-in-care-homes-early-international-evidence/.

[56] See Department of Health National Public Health Emergency Team, 'COVID-19: Comparison of Mortality Rates between Ireland and other Countries in EU and Internationally', 28th May 2020, https://www.gov.ie/en/publication/84bc5-covid-19-comparison-of-mortality-rates-between-ireland-and-other-countries-in-eu-and-internationally/.

***Graph 3.4*** *Total number of deaths linked to COVID-19 in the total population and % of COVID-related deaths among care home residents, plotted using a logarithmic scale for total deaths*




Source Comas-Herrera, Joseba Zalakaín, Charles Litwin, Amy T. Hsu, Elizabeth Lemmon, David Henderson and Jose-Luis Fernández, 'Mortality Associated with COVID-19 Outbreaks in Care Homes: Early International Evidence', International Long Term Care Policy Network, 26th June 2020

[1] Reporting both confirmed and probable COVID-related deaths.

[2] Refers to number of deaths in care homes.

Note: Also includes data for Ireland confirmed only as requested by Expert Panel.

***Table 3.6*** *Number of COVID-19-related or confirmed deaths in the population and in care homes (or among carehome residents)*

| Country | Date | Approach to measuring deaths | Total number deaths linked to COVID-19 | Number of deaths of care home residents linked to COVID-19 | Number of deaths in care homes | Number of care home resident deaths as % of all COVID-19 deaths | Number of deaths in care homes as % of all COVID-19 deaths |
|---|---|---|---|---|---|---|---|
| Australia | 21/06/2020 | Confirmed | 102 | 29 | | 31% | |
| Austria | 05/06/2020 | Confirmed | 646 | 222 | | 34% | |
| Belgium | 20/06/2020 | Confirmed + Probable | 9,696 | 6213 | 4,851 | 64% | 50% |
| Canada | 01/06/2020 | Confirmed + Probable | 7,326 | 6,236 | | 85% | |
| Denmark | 15/06/2020 | Confirmed | 598 | 211 | | 35% | |
| Finland | 23/06/2020 | Confirmed | 327 | | 147 | | 45% |
| France | 16/06/2020 | Confirmed + Probable | 29,547 | 14,341 | 10,457 | 49% | 35% |
| Germany | 23/06/2020 | Confirmed | 8,895 | 3,491 | | 39% | |
| Hong Kong | 22/06/2020 | Confirmed | 4 | 0 | 0 | 0% | 0% |
| Hungary | 02/06/2020 | Confirmed | 532 | 127 | | 24% | |
| Ireland | 22/06/2020 | Confirmed + Probable | 1,717 | | 1,086 | 63% | |
| Israel | 24/06/2020 | Confirmed | 307 | 137 | | 45% | |
| Jordan | 22/04/2020 | Confirmed | 9 | 0 | 0 | 0% | 0% |
| Malta | 23/06/2020 | Confirmed | 9 | 0 | 0 | 0% | 0% |
| New Zealand | 10/06/2020 | Confirmed + Probable | 22 | | 16 | | 72% |
| Norway | 19/06/2020 | Confirmed | 244 | | 144 | | 59% |
| Portugal | 09/05/2020 | | 1,125 | 450 | | 40% | |
| Singapore | 22/06/2020 | Confirmed | 26 | 2 | 0 | 8% | |
| Slovenia | 22/05/2020 | Confirmed | 105 | 85 | 55 | 81% | 52% |
| South Korea | 30/04/2020 | Confirmed | 247 | 84 | 0 | 34% | 0% |
| Spain | 23/06/2020 | Confirmed + Probable | 28,318 (confirmed) | | 9,679 (confirmed) 19,553 (confirmed + probable) | | 34% (confirmed) 68% (confirmed + probable) |
| Sweden | 15/06/2020 | Confirmed + probable | 4,810 | 2,280 | | 47% | |
| England & Wales (UK) | 12/06/2020 | Confirmed + probable | 48,538 | 19,700 | 14,364 | 41% | 30% |
| Northern Ireland (UK) | 12/06/2020 | Confirmed + probable | 795 | 412 | 338 | 52% | 43% |
| Scotland (UK) | 14/06/2020 | Confirmed + probable | 4,070 | 1,777 | 1,896 | 44% | 47% |
| United States | 18/06/2020 | Confirmed | 240,138 | 50,185 | | 45% | |

*Source: Comas-Herrera, Joseba Zalakaín, Charles Litwin, Amy T. Hsu, Elizabeth Lemmon, David Henderson and Jose-Luis Fernández, 'Mortality Associated with COVID-19 Outbreaks in Care Homes: Early International Evidence', International Long Term Care Policy Network, 26th June 2020.*

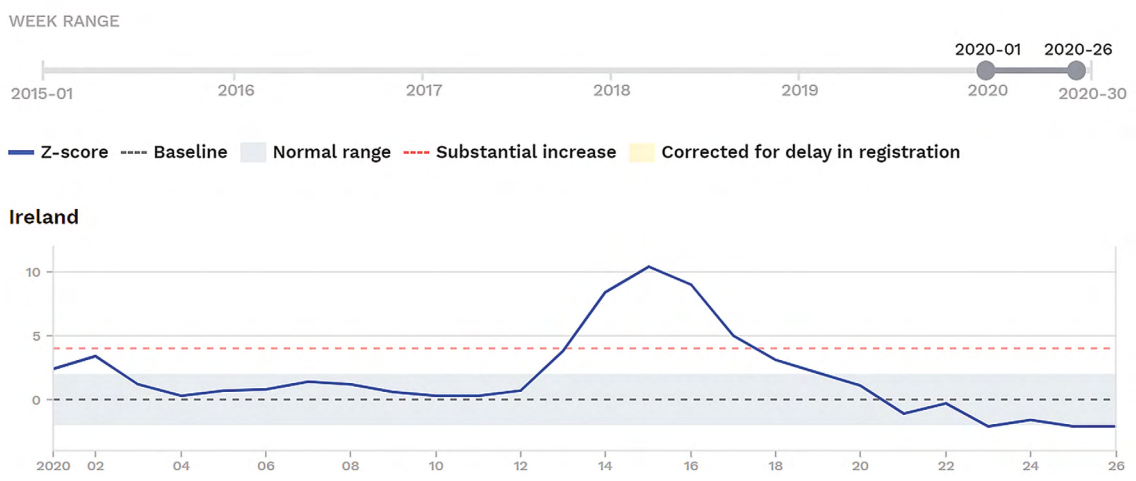
## Excess Mortality

Excess all-cause mortality is an important measure to consider in looking at the effects of COVID-19 in Ireland. Estimates of excess deaths can provide information about the scale of mortality potentially related to the COVID-19 pandemic, including deaths that are directly or indirectly attributed to COVID-19. Excess deaths are typically defined as the difference between the observed numbers of deaths in specific time periods and expected numbers of deaths in the same time-periods.

There are many ways and methodologies to measure excess mortality. The agreed and accepted standardised approach across Europe is the European Mortality Monitoring Project, (EuroMOMO). EuroMOMO is supported by and works closely with the ECDC and the WHO Regional Office for Europe.

EuroMOMO's preliminary analysis shows that Ireland experienced excess mortality from mid-March to mid-April. This coincided with the jump in mortality that was seen with COVID-19. Since mid-May, Ireland has recorded mortality rates that have actually been lower than expected.

***Graph 3.5*** *Ireland's reported excess mortality 2020 as compared to baseline*




*Source: EuroMOMO*

Excess mortality figures are not stable for this year because of our experiences with COVID-19. At this stage in a pandemic it is not valid to stand over analyses of excess mortality and disease incidence with certainty. Best practice is to wait for a number of months before seeking to establish trends in excess mortality analyses. This can allow time for countries to share full data given the different data collection cycles. Other differences between countries such as age-breakdowns and population density need to be considered when measuring indictors such as all-cause excess mortality.

EuroMOMO also does not differentiate between reason for death or place of death. In this way it would not be possible to identify excess deaths in specific settings (e.g. nursing homes).

In the interim, the Department of Health has undertaken a preliminary analysis of excess mortality in relation to the number of deaths associated with confirmed cases of COVID-19. It shows that the excess mortality we experienced in the first half of this year is explained by the pandemic. This report has been published on the Department of Health website.[57]

## 3.8. Mortality Census: Long-term Residential Care Facilities

In order to be assured that all deaths in LTRCs in Ireland, both laboratory-confirmed and probable, were being captured, the Department of Health undertook a mortality census of all LTRC facilities in mid-April. Data from the census of mortality was compared with other sources of mortality data, including the HIQA NF02 notifications and CIDR. This comparison demonstrated a close alignment between the sources in terms of the number of cases. The census reported that 3,367 total deaths occurred in LTRCs from 1st January to 19th April 2020, as set out in Table 3.7.

***Table 3.7*** *Mortality Census of LTRCs 1st January – 19th April 2020*

| | COVID-19 Lab confirmed deaths | COVID-19 Probable deaths | Total COVID-19 deaths | All deaths |
|---|---|---|---|---|
| **Nursing Homes** | 376 | 209 | 585 | 3,243 |
| **Disability** | 8 | 8 | 16 | 73 |
| **Mental Health*** | 10 | 4 | 14 | 51 |
| **Total** | 394 | 221 | 615 | 3,367 |

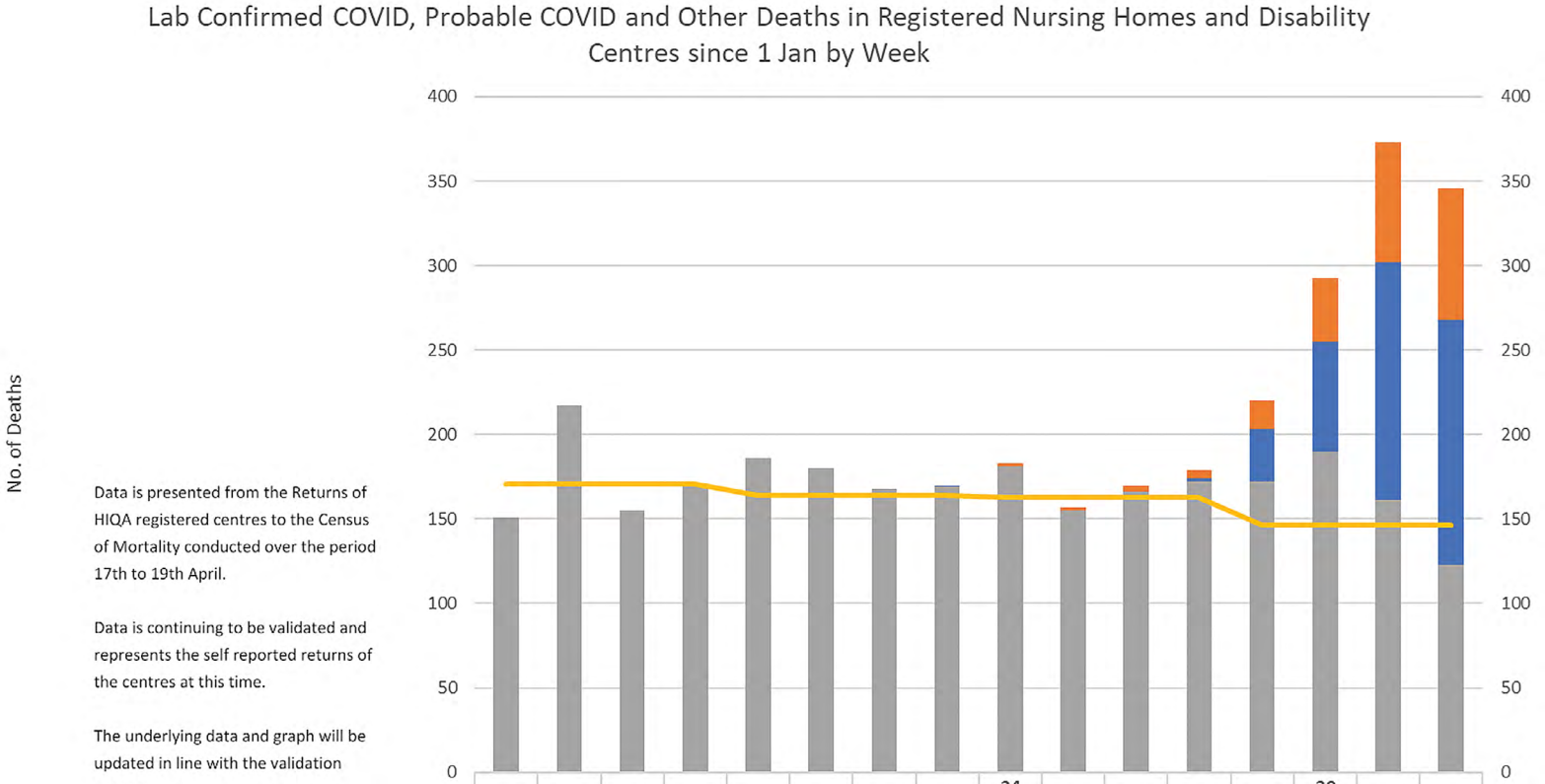
*Source: Department of Health, June 2020*
*Notes: Survey respondents were asked to identify if any "confirmed" or "suspected" COVID-19 deaths had occurred in their facility. In line with updated terminology used to describe COVID-19, "suspected" deaths as reported by respondents are noted as probable in reporting the results of this census.*

** Includes multiple responses from houses in the community – central validation of response rate in process*

Data was compared between the census of mortality and other sources of mortality data including the HIQA NF02 notifications and the HPSC. It demonstrated that the number of cases reported in these sources closely aligned. The data in Graph 3.6 would suggest that excess deaths in this period were COVID-19 related.

[57] Department of Health, COVID-19: Comparison of Mortality Rates between Ireland and other countries in EU and Internationally, (May 2020) https://assets.gov.ie/75031/2c4aee04-baca-4b12-90a0-e999621b82e5.pdf

***Graph 3.6*** *Mortality census – LTRC settings, January – April 2020*




| | 1-5 Jan | 6-12 Jan | 13-19 Jan | 20-26 Jan | 27 Jan - 2 Feb | 3-9 Feb | 10-16 Feb | 17-13 Feb | 24 Feb-1 Mar | 2-8 Mar | 9-15 Mar | 16-22 Mar | 23-29 Mar | 30 Mar-5 Apr | 6-12 Apr | 13-19 Apr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Probable COVID Deaths (Census of Mortality) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 4 | 5 | 17 | 38 | 71 | 78 |
| Lab Confirmed COVID Deaths (Census of Mortality) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 31 | 65 | 141 | 145 |
| Other Non COVID Deaths (Census of Mortality) | 151 | 217 | 155 | 169 | 186 | 180 | 168 | 169 | 181 | 155 | 166 | 172 | 172 | 190 | 161 | 123 |
| HIQA Notified deaths ,2019 (incl NF01) Expected Unexpected | 171 | 171 | 171 | 171 | 164 | 164 | 164 | 164 | 163 | 163 | 163 | 163 | 146 | 146 | 146 | 146 |

*Source: Department of Health, June 2020*

The data indicates an increase in mortality in LTRCs from around the week beginning 16th March 2020 onwards. This data provides a snapshot and as the census data is self-reported there will inevitably be some variance between this data and other data sources. The observed increase in mortality would appear to be attributable to COVID-19 related deaths. Data was also collected on the place of death of residents. Deaths occurred outside of residential centre and in hospitals as follows: 26% for COVID-19 confirmed cases; 5% COVID-19 probable; 15% of all deaths. The current HSE guidance is that people are to be managed in the facilities in which they live unless a transfer to hospital is deemed clinically appropriate and will confer additional benefit.

While the information likely indicates that COVID-19 infection is contributing to mortality in this population during the pandemic, it will ultimately require the outputs of European and Irish all-cause mortality surveillance systems to determine the level of excess mortality above what would be expected and particularly in comparison with past severe influenza seasons in which excess deaths can reach levels of >1,000.

### Staff Testing

Ireland is one of the few countries that has undertaken a mass testing programme in LTRC. Following a NPHET recommendation of 17th April 2020, the testing of all staff in LTRC facilities was conducted. Over 95,900 tests were completed with a relatively low overall positivity rate (5.5%) at that time. As recommended by ECDC, HSE is now undertaking a weekly rolling programme of testing staff in nursing homes for a four-week period so that any new emerging infection can be continuously tracked and targeted.

On 29th June 2020 the HPSC reported the number of healthcare worker cases in nursing homes as 1,892 (7.4% of all cases).

In late June, a programme of serial testing for staff working in nursing homes began. As of 4th July 2020, 15,662 tests had been completed. A total of 27 staff were found to be positive for COVID-19 across 20 facilities.

Table 3.8 and Table 3.9 below summarise the work and findings of this serial testing programme up to 4th July.

***Table 3.8*** *Overall Serial Testing Results to 4th July 2020*

| Results Summary | Year to date |
|---|---|
| Results received | 15,662 |
| Detected | 27 (0.2%) |
| Not Detected | 15,624 (99.8%) |
| Inhibitory | 2 (0.01%) |
| Not tested | 2 (0.01%) |
| Invalid | 7 (0.04%) |

*Source: HSE Daily Report for Serial Testing of all staff in Residential Care Facilities (Older People)*
*Date: 4th July 2020*

***Table 3.9*** *Summary of Tests and Positive Tests by Facility and Region to 4th July*

| Nursing Home Location | Nursing Home Number | Total Est. Staff in Facility (based on FTE) | Total Staff tested | Number Detected (%) | Date Result Reported |
|---|---|---|---|---|---|
| North West (CHO1) | **Facility 1** | **40** | **34** | **1 (2.9%)** | **July 4th** |
| West (CHO2) | Facility 1 | 34 | 33 | 1 (3.0%) | June 30th |
| Mid-West (CH03) | Facility 1 | 30 | 41 | 1 (2.4%) | June 30th |
| | Facility 2 | 57 | 56 | 1 (1.8%) | June 30th |
| | Facility 3 | 36.5 | 21 | 1 (4.8%) | July 1st |
| East (CHO6) | **Facility 1** | **64** | **70** | **1 (1.4%)** | **July 4th** |
| East (CHO7) | **Facility 1** | **148** | **93** | **1 (1.1%)** | **July 4th** |
| | **Facility 2** | **134** | **63** | **1 (1.6%)** | **July 4th** |
| Midlands (CHO8) | Facility 1 | 60.5 | 76 | 1 (1.3%) | July 2nd |
| | **Facility 2** | **58** | **37** | **1 (2.7%)** | **July 4th** |
| | **Facility 3** | **87** | **50** | **3 (6.0%)** | **July 4th** |
| East (CHO9) | **Facility 1** | 170<br>**170** | 93<br>**144** | 5 (5.4%)<br>**1 (0.7%)** | June 26th<br>**July 4th** |
| | Facility 2 | 100 | 31 | 2 (6.4%) | June 26th |
| | Facility 3 | 170 | 103 | 1 (0.6%) | June 28th |
| | Facility 4 | 114 | 100 | 1 (0.9%) | June 29th |
| | Facility 5 | 185 | 68 | 1 (1.5%) | June 30th |
| | **Facility 6** | **157** | **273** | **3 (1.1%)** | **July 4th** |
| **Total** | | | | **27** | |

*Source: HSE Daily Report for Serial Testing of all staff in Residential Care Facilities (Older People)*
*Date: 4th July 2020*

Table 3.10 shows the number of healthcare workers in outbreak nursing homes confirmed to have COVID-19 by month. The majority of cases were identified in April, which coincided with the introduction of the enhanced testing programme in the sector.

***Table 3.10*** *Number of Healthcare Workers in Nursing Homes Confirmed to have COVID-19 by Month*

| | March | April | May | June | Total |
|---|---|---|---|---|---|
| Carlow | <5 | 25 | 6 | <5 | 33 |
| Cavan | <5 | 103 | 20 | <5 | 123 |
| Clare | <5 | 36 | 6 | <5 | 43 |
| Cork | 11 | 33 | 5 | <5 | 49 |
| Donegal | <5 | 33 | <5 | <5 | 33 |
| Dublin | 23 | 575 | 155 | 25 | 778 |
| Galway | <5 | 7 | <5 | <5 | 10 |
| Kerry | <5 | <5 | <5 | <5 | <5 |
| Kildare | <5 | 72 | 28 | 10 | 111 |
| Kilkenny | <5 | 5 | <5 | <5 | 6 |
| Laois | <5 | 6 | <5 | <5 | 8 |
| Leitrim | <5 | <5 | 5 | <5 | 5 |
| Limerick | <5 | 45 | 7 | <5 | 55 |
| Longford | <5 | 12 | <5 | <5 | 13 |
| Louth | <5 | 125 | 14 | <5 | 140 |
| Mayo | <5 | 47 | <5 | <5 | 51 |
| Meath | <5 | 68 | <5 | <5 | 72 |
| Monaghan | <5 | 98 | 11 | <5 | 109 |
| Offaly | <5 | 22 | <5 | <5 | 23 |
| Roscommon | <5 | 5 | 28 | <5 | 35 |
| Sligo | <5 | 13 | <5 | <5 | 15 |
| Tipperary | 5 | 21 | 6 | <5 | 32 |
| Waterford | <5 | <5 | <5 | <5 | 5 |
| Westmeath | <5 | 37 | 9 | <5 | 46 |
| Wexford | <5 | 21 | <5 | <5 | 21 |
| Wicklow | <5 | 56 | 16 | <5 | 76 |
| **Total** | | | | | **1,892** |

*Source: CIDR, 29th June 2020*

### Hospital Transfers

At the beginning of the pandemic, efforts were made to ensure that sufficient acute hospital capacity was available, which included discharging patients who were medically fit where possible, including discharges of patients to nursing homes. This protected patients from potential hospital-acquired infections, and the HSE and HPSC developed guidance for such discharges and patient transfers:

**Patients diagnosed with COVID-19.** From 10th March 2020, testing of people in line with the national testing criteria and two negative swabs for those COVID-19 positive before transfer from hospital to a nursing home was introduced. This guidance was reviewed on the 6th April by the Expert Advisory Group to NPHET who advised that there was no need to change the discharge criteria for hospitalised patients returning LTRCs – those COVID-19 positive would continue to have 2 negative tests 24 hours apart before transfer. The NPHET accepted this advice on 7th April.

**In-hospital contacts of patients diagnosed with COVID-19.** Since 10th March, the guidance has been that COVID-19 contacts could be discharged back to nursing homes so long as they were isolated in a single room in the nursing home for 14 days.

**All people being transferred, regardless of COVID-19 diagnostic or contact history**; From 8th April, a requirement to isolate *all people* transferred to nursing homes in a single room, where possible, for a monitoring period of 14 days was introduced by the HPSC. This was done on the basis that testing that failed to detect the virus did not give sufficient assurance that the person was not infected (for example, presymptomatic incubation of the virus);

- the HSE confirmed that March 10th guidance remained the protocol in place for hospital discharges until it was superseded by HPSC 8th April guidance;
- on 10th March there were 34 confirmed COVID-19 cases in Ireland;
- the comprehensive *Interim Public Health and Infection Prevention Control Guidelines on the Prevention and Management of COVID-19 Cases and Outbreaks in Residential Care Facilities and Similar Units*, last updated on 19th June 2020, indicates that:
  - all patients for admission to LTRCs should be tested for COVID-19. This is to help identify most of those who have the infection but it will not detect all of those with the infection.
  - every resident transferred to a residential care setting must be accommodated in a single room with contact and droplet precautions for 14 days after transfer and monitored for new symptoms consistent with COVID-19 during that time. This applies even if they have had a test for COVID-19 reported as not-detected or "negative".[58]

### Available Hospitalisation Data

The Health Pricing Office's Hospital Inpatient Enquiry System (HIPE) was adapted during the COVID-19 pandemic to collect information specifically on COVID-19 positive cases in the acute hospital system. In the early stages of the pandemic there was uncertainty about the level of acute hospital system capacity that may be required. Consequently, there were efforts made to ensure that adequate capacity would be available. This included rescheduling/cancelling elective procedures and attempting to ensure that patients who were assessed to be fit for discharge did not experience delays in their discharge to their place of residence.

[58] See Health Protection Surveillance Centre, 'Interim Public Health and Infection Prevention Control Guidelines on the Prevention and Management of COVID-19 Cases and Outbreaks in Residential Care Facilities and Similar Units', 19th June 2020, https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/guidance/outbreakmanagementguidance/RCF%20guidance%20document.pdf

Table 3.11 and Table 3.12 below detail the number of admissions and discharges from nursing homes and other long-stay settings into, and from, acute hospitals by week in 2020. It should be noted that during the time of the pandemic, certain activities remained essential such as dialysis treatments and chemotherapy. This should be considered when examining these tables. The testing of patients was in line with the case definitions in use at the time.

There was a decrease in the overall number of admissions from nursing homes and other long-stay settings in the second quarter of 2020 by comparison with the first quarter. There was also an increase in the number of discharges to nursing homes and other long-stay settings in February and March, though most of these are noted as being "Non-COVID-19". The number of discharges roughly correlates with the number of admissions in this cohort on a week-by-week basis.

It should also be noted that "COVID-19 confirmed" indicates that the patients referred to were noted as having COVID-19 at some point in their hospital stay. It does not mean that they were confirmed as having COVID-19 at the time of their discharge. Furthermore, it does not indicate that the patient may not have developed COVID-19 subsequently. All COVID-19 status is representative of a point in time. Finally in relation to table 3.11, the date of admission refers to the date patients were admitted, and associated COVID-19 "confirmed" or COVID-19 "probable" data does not mean that the patient was "confirmed" or "probable" COVID-19 on that date, rather they were identified at some point in their hospital stay as confirmed or probable to have COVID-19 (i.e. the associated admission date is the date of admission to hospital and not the date of confirmed or probable COVID-19 infection).

Unfortunately, in the absence of an individual health identifier, it is not possible to comprehensively and reliably track the spread of COVID-19 by patient between the acute hospital and nursing homes sectors. Even if such an identifier were available, this sort of analysis would be subject to a number of confounding variables such as the movement of staff, the timing of notification of cases and outbreaks, outbreak control team interventions or asymptomatic transmission (known to be a possible source of transmission from mid-March as per the ECDC).

***Table 3.11*** *Transfers from LTRC including nursing homes to hospital*

| Admitted from | | Transfer from nursing home/ convalescent home or other long stay accommodation | | | | Other (non-LTRCs) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | COV Confirmed | COV Probable | Non COVID | Total | COV Confirmed | COV Probable | Negative COVI | Total | Non COVID |
| Admission date | Week beginning | . | . | . | | . | . | . | | - |
| Week 01 | 30/12/2019 | . | . | 239 | 239 | 3 | 1 | . | 4 | 34,294 |
| Week 02 | 06/01/2020 | . | . | 254 | 254 | 14 | . | . | 14 | 34,670 |
| Week 03 | 13/01/2020 | . | . | 237 | 237 | 8 | . | . | 8 | 34,746 |
| Week 04 | 20/01/2020 | . | . | 236 | 236 | 8 | 1 | . | 9 | 35,242 |
| Week 05 | 27/01/2020 | . | . | 227 | 227 | 14 | . | . | 14 | 35,310 |
| Week 06 | 03/02/2020 | 1 | . | 242 | 243 | 15 | . | . | 15 | 35,277 |
| Week 07 | 10/02/2020 | . | . | 258 | 258 | 20 | . | . | 20 | 34,303 |
| Week 08 | 17/02/2020 | 1 | . | 203 | 204 | 28 | . | . | 28 | 35,342 |
| Week 09 | 24/02/2020 | 1 | . | 229 | 230 | 61 | 2 | . | 63 | 35,219 |
| Week 10 | 02/03/2020 | 5 | . | 189 | 194 | 156 | 5 | . | 161 | 31,846 |
| Week 11 | 09/03/2020 | 6 | 1 | 121 | 128 | 397 | 9 | . | 406 | 18,238 |
| Week 12 | 16/03/2020 | 29 | 1 | 101 | 131 | 605 | 40 | . | 645 | 18,073 |
| Week 13 | 23/03/2020 | 54 | . | 93 | 147 | 546 | 33 | . | 579 | 16,898 |
| Week 14 | 30/03/2020 | 62 | 1 | 100 | 163 | 509 | 37 | . | 546 | 17,651 |
| Week 15 | 06/04/2020 | 57 | 2 | 109 | 168 | 341 | 28 | . | 369 | 16,789 |
| Week 16 | 13/04/2020 | 49 | . | 127 | 176 | 276 | 19 | . | 295 | 19,032 |
| Week 17 | 20/04/2020 | 30 | 2 | 101 | 133 | 212 | 23 | . | 235 | 19,616 |
| Week 18 | 27/04/2020 | 30 | 1 | 83 | 114 | 154 | 15 | . | 169 | 18,399 |
| Week 19 | 04/05/2020 | 7 | . | 109 | 116 | 74 | 9 | . | 83 | 20,318 |
| Week 20 | 11/05/2020 | 8 | . | 71 | 79 | 50 | 3 | . | 53 | 20,774 |
| Week 21 | 18/05/2020 | 7 | 1 | 43 | 51 | 18 | 1 | . | 19 | 20,628 |
| Week 22 | 25/05/2020 | . | . | 8 | 8 | 2 | 2 | . | 4 | 6,288 |
| Week 23 | 01/06/2020 | . | . | . | 0 | . | . | . | 0 | 38 |
| | | 348 | 9 | 3,891 | 4,248 | 3,540 | 230 | 1 | 3,771 | 583,678 |

*Source: HIPE, Health Pricing Office, June 2020*

***Table 3.12*** *Transfers from hospital to LTRC including nursing homes*

| Discharged to | | Nursing home, convalescent home or long stay accommodation | | | | Other | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | COV Confirmed | COV Probable | Non COVID | Total | COV Confirmed | COV Probable | Negative COVI | Non COVID | Total |
| Discharge date | Week Beginning | . | . | | | . | . | . | | |
| Week 01 | 30/12/2019 | . | . | 691 | 691 | . | . | . | 34,061 | 34,061 |
| Week 02 | 06/01/2020 | . | . | 704 | 704 | . | . | . | 34,144 | 34,144 |
| Week 03 | 13/01/2020 | . | . | 681 | 681 | . | . | . | 34,395 | 34,395 |
| Week 04 | 20/01/2020 | . | . | 656 | 656 | . | . | . | 34,780 | 34,780 |
| Week 05 | 27/01/2020 | . | . | 667 | 667 | . | . | . | 35,072 | 35,072 |
| Week 06 | 03/02/2020 | . | . | 595 | 595 | . | . | . | 34,758 | 34,758 |
| Week 07 | 10/02/2020 | . | . | 637 | 637 | . | . | . | 34,126 | 34,126 |
| Week 08 | 17/02/2020 | . | . | 605 | 605 | . | . | . | 35,015 | 35,015 |
| Week 09 | 24/02/2020 | . | . | 682 | 682 | 2 | 1 | . | 35,443 | 35,446 |
| Week 10 | 02/03/2020 | 2 | . | 777 | 779 | 45 | 2 | . | 32,928 | 32,975 |
| Week 11 | 09/03/2020 | 2 | . | 570 | 572 | 119 | 7 | . | 19,653 | 19,779 |
| Week 12 | 16/03/2020 | 2 | . | 481 | 483 | 300 | 19 | . | 18,605 | 18,924 |
| Week 13 | 23/03/2020 | 14 | . | 272 | 286 | 478 | 39 | . | 16,998 | 17,515 |
| Week 14 | 30/03/2020 | 43 | . | 252 | 295 | 586 | 26 | . | 17,551 | 18,163 |
| Week 15 | 06/04/2020 | 29 | . | 169 | 198 | 487 | 30 | . | 16,198 | 16,715 |
| Week 16 | 13/04/2020 | 50 | . | 208 | 258 | 386 | 27 | . | 18,778 | 19,191 |
| Week 17 | 20/04/2020 | 77 | 5 | 203 | 285 | 330 | 27 | . | 19,440 | 19,797 |
| Week 18 | 27/04/2020 | 50 | 2 | 190 | 242 | 264 | 22 | 1 | 17,878 | 18,165 |
| Week 19 | 04/05/2020 | 60 | . | 244 | 304 | 210 | 10 | . | 20,399 | 20,619 |
| Week 20 | 11/05/2020 | 32 | 1 | 275 | 308 | 163 | 7 | . | 21,172 | 21,342 |
| Week 21 | 18/05/2020 | 30 | 2 | 305 | 337 | 101 | 8 | . | 23,027 | 23,136 |
| Week 22 | 25/05/2020 | 10 | 1 | 102 | 113 | 16 | 3 | . | 8,359 | 8,378 |
| Week 23 | 01/06/2020 | . | . | . | . | . | . | . | 71 | 71 |
| | | 401 | 11 | 10,298 | 10,710 | 3,487 | 228 | 1 | 577,271 | 580,987 |

*Source: HIPE, Health Pricing Office, June 2020*

## 3.9. Summary

The very infectious nature of the COVID-19 virus makes it difficult to prevent and control in residential care settings, an experience replicated internationally. The transmission of the virus into, and within, nursing homes is multifactorial. Actions taken to mitigate the spread of COVID-19 are aimed at protecting residents and staff through actions to deter COVID-19 from coming in the nursing home door and, if it gets in the door, to minimise spread.

As a new disease, health authorities across the world are learning about COVID-19 and adapting as new evidence and understanding is formed. The case definition evolved as new information became known, evidence is now available that indicates that older people can have atypical presentations and the level of asymptomatic transmission is higher than previously known.

People in nursing homes and equivalent centres were disproportionately likely to contract COVID-19 compared to those in their peer age-group living in the community. The mortality rates seen in nursing homes were also higher than those seen in the general population for most age groups. This is in the context of a more medically vulnerable population in nursing homes.

COVID-19 spread to nursing homes later than across the general population. While the majority of clusters are now closed, the information from the data must inform protective actions and policies. Adding to the datasets and maximising available information will be important as Ireland and the rest of the world continues to adapt to this novel virus.

# 4. Evidence Review

## 4.1. Introduction

This chapter presents a brief overview of the rapid review of literature undertaken on behalf of the Expert Panel by a Review Team at University College Dublin (UCD). The full report of the rapid review – *Systematic Rapid Review of Measures to Protect Older People in Long-Term Residential Care Facilities from COVID-19* - undertaken on behalf of, and under the direction of the Panel is provided, in full, at Appendix 3. First person references in this chapter refer to the Review Team.

## 4.2. Objective

A rapid review of literature provides an overview of the international response to COVID-19 in nursing homes and assesses the extent to which measures implemented in long-term residential care facilities reduced transmission and evaluated the impact on morbidity and mortality outcomes.

## 4.3. Methods

Google Scholar database (from 1st January 2019 to current), websites for policy documents and reports including the agile platform Long-Term Care Responses to COVID-19, World Health Organization (WHO), and Centers for Disease Control (CDC) and four databases (inception to 12th June 2020) were searched:

- EMBASE (via OVID);
- PubMed (via OVID);
- Cumulative Index to Nursing and Allied Health Literature (CINAHL);
- Cochrane Database and Repository for COVID-19 evidence.

We included a pre-published repository MedRXiv database (searched inception up to 3rd July 2020).[59]

## 4.4. Summary of Findings (Policies and Reports)

Policy guidance for nine other countries included recommendations on testing, screening, monitoring, isolation, cohorting, social distancing, visitation, environmental cleaning, immunisation, providing care for non-cases, caring for the recently deceased, and governance and leadership. Differences emerged for criteria for testing, length of isolation of symptomatic residents, recommendations for the use of facemasks by staff and residents, immunisation requirements, use of nebulisers, on temporary resident transfer to the homes of family or friends, ventilation, and on limiting staff movement between facilities and managing deliveries.

[59] See https://www.medrxiv.org/

## 4.5. Summary of Findings (Systematic Review)

In total, 33 papers present limited data on the management of outbreaks and the absence of a systems approach to the management of COVID-19 in nursing homes. Several studies implemented large-scale surveillance/ testing of residents and employees to reduce transmission, but availability of testing kits was limited earlier in the pandemic and prevented broader testing.[60,61] Testing of symptomatic residents was prioritised which neglects pre-symptomatic cases (residents, visitors, and staff). Only testing symptomatic individuals was insufficient to prevent transmission.

Increased movement of residents, workers, and visitors raises the likelihood of viral transmission in long-term residential care facilities (LTRCs). Evidence of reduced transmission is apparent when LTRCs instigated cohorting and lockdown procedures limiting movements of staff and preventing access to visitors. Rapid isolation of cases, prohibiting entry of staff and visitors presenting with symptoms or with recent overseas travel, and restricting staff movement between wards, assisted in limiting resident case numbers to 19 of a total of 96 residents and employee case numbers to 8 of a total of 136 staff members.[60]

The use of PPE is an essential strategy for reducing transmission in nursing homes. Gloves, masks, gowns, and eye protection were all investigated in the included reports. An increase in the spread of COVID-19 was demonstrated, as eye protection and face masks were less available to staff in UK nursing homes.[62] Use of infection control measures including droplet and contact precautions, hand and personal hygiene, regular disinfection of surfaces, and creation of specific zones for removal of contaminated PPE was reported.

Frequent screening of residents for symptoms (once or twice per day) and of staff before commencing a shift should be implemented to identify at-risk individuals. Residents identified by such strategies should be isolated and testing undertaken. Staff presenting with symptoms should quarantine at home and await results of a test before returning to the facility. Closing facilities to visitors limits transmission of the virus further, as does delaying the transfer of residents to a facility until after a negative test result is confirmed.

Numerous facility-specific characteristics were associated with an increased risk of COVID-19 cases. The Office of National Statistics report (2020) identified employment contracts of staff with no sick payments were associated with a higher risk of transmission of COVID-19, as was the additional use of agency care staff. In US nursing homes, larger facility size increased the odds of case presentation, as did the percentage of African American residents and a for-profit status.[63] Increased rates of cases were reported in residents associated with increased numbers of workers/agency staff employed in the facility.[62] In Irish nursing homes, resident case numbers were associated with the proportion of symptomatic staff,[64] with a similar outcome reported in UK nursing homes.[65] That said many of these characteristics are not acutely modifiable, e.g. for-profit status, number of beds available, percentage of African American residents, awareness identifies facilities for urgent action.

[60] See Amy V. Dora, Alexander Winnett, Lauren P. Jatt, Kusha Davar, Mika Watanabe, Linda Sohn, Hannah S. Kern, Christopher J. Graber, and Matthew B. Goetz, 'Universal and Serial Laboratory Testing for SARS-CoV-2 at a Long-Term Care Skilled Nursing Facility for Veterans - Los Angeles, California, 2020', Morbidity and Mortality Weekly Report 69/21 (2020): 651–655.

[61] See N.S.N. Graham, C. Junghans, R. Downes, C. Sendall, H. Lai, A. McKirdy, P. Elliott, R. Howard, D. Wingfield, M. Priestman, M. Ciechonska, and L. Cameron et al, 'SARS-CoV-2 Infection, Clinical Features and Outcome of COVID-19 in United Kingdom Nursing Homes', Journal of Infection (3rd June 2020): 1–9, https://www.medrxiv.org/content/10.1101/2020.05.19.20105460v1.full.pdf.

[62] See Julii Suzanne Brainard, Steven Rushton, Tim Winters, and Paul R Hunter, 'Introduction to and Spread of COVID-19 in Care Homes in Norfolk, UK', medRxiv preprint (18th June 2020), https://www.medrxiv.org/content/10.1101/2020.06.17.20133629v1.

[63] See Hannah R. Abrams, Lacey Loomer, Ashvin Gandhi, and David C. Grabowski, 'Characteristics of U.S. Nursing Homes with COVID-19 Cases', Journal of the American Geriatrics Society (2nd June 2020): 1–4.

[64] See Seán P. Kennelly, Adam H. Dyer, Ruth Martin, Siobhán M. Kennelly, Alan Martin, Desmond O'Neill, and Aoife Fallon, 'Asymptomatic Carriage Rates and Case-Fatality of SARS-CoV-2 Infection in Residents and Staff in Irish Nursing Homes', medRxiv preprint (12th June 2020), https://www.medrxiv.org/content/10.1101/2020.06.11.20128199v1.

[65] See Office of National Statistics, 'Impact of coronavirus in care homes in England: 26 May to 19 June 2020' (3 July 2020) https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/impactofcoronavirusincarehomesinenglandvivaldi/26mayto19june2020,

## 4.6. Conclusions: Implications for Practice and Research

Despite limitations in the quality of the available evidence, several implications for practice are highlighted. The use of PPE and other infection control measures (droplet and contact precautions, hand hygiene) are essential regardless of whether a case has been reported in a facility. Frequent screening of residents for symptoms (once or twice per day), and screening of staff prior to commencing a shift should be implemented to identify at-risk individuals. Residents identified by such strategies should be isolated and testing should be undertaken. Staff presenting with symptoms should be isolated at home and await results of a test before returning to the facility. Closing homes to visitors limits opportunities for the virus to be introduced, as does delaying the transfer of residents to a facility until after a negative test result has been produced.

Where available, widescale testing of residents and staff should be implemented, with rapid isolation of positive cases. Ensuring PPE and infection control practices are followed with such cases is essential. Given the presence of asymptomatic and presymptomatic cases, it is not recommended to withhold testing until symptoms develop. Surveillance systems recording the health status of residents should be in place to monitor health outcomes including assessments of frailty and delirium.

Consideration must be given to the mental wellbeing of residents who have been isolated, particularly given they have likely already experienced a period of reduced visitation from family. Furthermore, residents suffering from dementia who may walk with purpose may require additional attention. Consideration of the impact on families and the systems that are required to support them during periods of reduced visitations.

The preparedness of facilities for future outbreaks includes development of staff training and education programmes on infection prevention and control and the appropriate use of PPE for all employees of LTRCs. This should include quality review with regular monitoring of knowledge and practice. This is essential given the implications to LTRCs where employment of agency staffing is adopted and given the additional risks of transmission noted from the evidence. Similarly, the evidence identified risks of transmission of the virus when not directly involved in caring duties.

Consideration must be given to supporting the health and wellbeing of all staff employed in LTRC facilities during an outbreak, including financial support during periods of isolation and quarantining.

The voices of all involved in the care and management, especially those of residents and their families, should be at the heart of practice developments.

Given the rapid nature of data collection during the current pandemic and the short follow-up time, opportunities to implement controlled interventions are limited. As such, the retrospective, descriptive nature of studies identified for this review do not allow the determination of cause and effect. Longitudinal follow-up will be essential. Future research should:

- implement interventions, ideally with a control or usual care comparison group to assist in elucidating the most appropriate strategies to reduce transmission;
- develop robust surveillance system for monitoring of residents' health and wellbeing prospectively including assessment of frailty and delirium;
- assess the infection control preparedness of LTRC facilities;
- evaluate the impact of outbreaks and isolation on the health and wellbeing of residents, employees, and families;
- include the voices of residents, families and all involved in the care and protection of older people in LTRC facilities.

# 5. Stakeholder Consultation: an In-Action and After-Action Review

The Expert Panel was tasked with providing assurance that the national protective public health and other measures adopted to safeguard residents in nursing homes specifically, in light of COVID-19 are appropriate, comprehensive and in line with international guidelines and identify any lessons learned from Ireland's response to COVID-19 in nursing homes to date. Whilst at the time of writing the epidemic in Ireland has been arrested for now, albeit with recent worrying developments in case incidents and an increased R number, an unintended but tragic consequence has been the death toll in older people resident in long-term residential care facilities, particularly nursing homes.

The task of the Panel is forward-looking to protect that vulnerable population into the near future, whether or not a surge of COVID-19 occurs or if the infection remains in the community and continues to be a risk to those especially vulnerable to it. The Panel's work has been guided by the principles of in-action and after-action reviews where lessons learned in real time are acted upon. This is not simply to identify those lessons learned but to seek to apply these insights in a tighter timescale in order to improve the outcome of the ongoing response. Finally, it assists in assessing strategic options in the upcoming phases of the pandemic.[66]

The Panel adopted the strategy of stakeholder consultation and to complete the report within two months of the group's establishment. An interim report on the processes entailed and initial advice to continue the existing supports to nursing homes in place was given to the Minister on 30th June. Here, the Panel reports on the submissions made and follow-up discussions had with those key stakeholders. Engagement with this process was timely, constructive, well-prepared and inspired by a need to ensure that best practice in an ongoing learning environment was implemented. The Panel has concluded the need to sustain the immediate supports in place for this sector, the importance of preparation planning for upcoming winter 2020/2021, but also that the experience of this epidemic worldwide has revealed the need to focus now on the care of older persons more generally in our society and the framework required to do so.

The Panel has worked to the Programme for Government published in June 2020[67] which advocates for an Age Friendly Ireland, proposes the establishment of a Commission on Care and a 10-point plan for home and community care support, focuses on delivering choice and sets out proposals for the future of long-term residential care, enhancing dementia care and end-of-life care. In this context we have approached the task as being expressly about the short-term protections required but also as an opportunity for the future. We are at a crossroads also in healthcare policy in Ireland in that many aspects of the traditional two-tier health care delivery model across all parts of our health care system, from general practice and primary care through to the acute hospital system and highly specialist healthcare management, are subject currently to policy review. We must seize the opportunity and swiftly.

The Expert Panel engaged in an extensive process of stakeholder engagement involving meetings, written submissions, and a public consultation. All primary materials, including completed submissions, were received by the Expert Panel and considered in the context of its overall work.

[66] See European Centre for Disease Prevention and Control, 'ECDC Technical Report: Conducting In-Action and After-Action Reviews of the Public Health Response to COVID-19' (June 2020), https://www.ecdc.europa.eu/sites/default/files/documents/In-Action-and-After-Action-Reviews-of-the-public-health-response-to-COVID-19.pdf.

[67] See Government of Ireland, Programme for Government – Our Shared Future, (June 2020)

Submissions were collated by the Support Team, and a qualitative thematic analysis was conducted using the Framework Method, in order to identify and present an overview of the themes and issues raised in the submissions to the Panel. This approach is described in Chapter 2, Methodology.

The rest of this chapter provides the analysis and summary of the views and inputs received from stakeholders. It is important for the reader to recognise that this chapter presents the views and statements made by respondents without the comment or the validation of the Panel.

## 5.1. Meetings with Stakeholders

HIQA has regulatory responsibility for oversight of the nursing home sector with 576 registered facilities across the country. Its submission to the Panel was through the lens of regulation. Nursing Homes Ireland (NHI) is a national representative body for private and voluntary nursing homes in the sector. Its 385 members provide quality care to over 25,000 residents.

The Panel engaged with several groups and bodies representing geriatricians/gerontology and received a submission from the Royal College of Physicians of Ireland (RCPI) Clinical Advisory Group for Geriatric Medicine, a position paper from the Irish Gerontological Society (IGS) as well as several papers and reports from practitioners in different parts of the country on the experience of establishing integrated and inter-disciplinary and outreach support teams for residential facilities during the outbreak.

The Irish College of General Practitioners (ICGP) submitted a number of documents including those on a primary care lead for the Integrated Care Programme for Older People (ICPOP), access to specialist advice and support via Integrated Referral Management System, telemedicine and virtual clinics in the residential care setting and the case for an urgent evaluation of electronic medical records in long-term residential care facilities.

The Older Persons Subgroup of the Irish Association of Directors of Nursing and Midwifery (IADNAM) made a formal submission and attended a session with two of the chief directors of nursing and midwifery from the hospital groups.

Both the Irish Medical Organisation (IMO) and the Irish Nurses and Midwives Organisation (INMO) have significant membership who cater for and support staff in this sector. SIPTU Health Division which represents over 42,000 health workers in nursing, midwifery and allied health as well as a range of services including the National Ambulance Service, catering, porter and technical services as well as healthcare assistants employed in both residential and community settings, engaged with the Panel.

The Panel met with both clinical and operational leads from the HSE, with senior members of public health from the HSE and the Health Protection Surveillance Centre, as well as receiving several submissions from the regional Departments of Public Health, from HSE CHO leads and from Hospital Groups. The HSE also submitted a position document.

The 'Advocacy and End of Life thematic engagement' comprised engagement with members from Sage Advocacy, the Alliance of Age Sector NGOs, the Irish Hospice Foundation and Safeguarding Ireland.

The Expert Panel met with members of the National Public Health Emergency Team (NPHET), including the Chair and Chief Medical Officer, the Secretary General and Chief Nursing Officer and a data team established by the Department of Health to support its work.

## 5.1.1. Key Learnings and Actions

### *5.1.1.1. Timeliness of Response*

The Census 2016 showed nearly 30,000 people are resident in nursing homes and €1 billion is invested by the State through the Nursing Home Support Scheme (NHSS) with significant further contributions paid directly by NHSS residents and non-NHSS residents. Additionally, the State has provided €30m to private nursing homes for delivery of short-stay transitional care services. In the first instance, the primary responsibility for the provision of safe care and service to nursing homes rests with individual nursing home operators. The State's responsibility to respond to the public health emergency created the need to establish a structured support system further to NPHET recommendations. Formalised contact began to take place between HSE, NHI and HIQA from early February and the Vulnerable Persons Subgroup of NPHET was established soon after.

A common theme in the discussions with stakeholders focused on the challenges when an outbreak occurred, elements that worked well, areas of ongoing concern and the paramount importance of the residents and their families. All stakeholders emphasised the issues of timely testing turnaround, availability of personal protective equipment (PPE) and examples were given by one stakeholder noting that practical need to have deep clean processes in place, comfortable PPE, protocols for storage and the avoidance of staff clustering when not directly engaged in care. Stakeholders stressed the need for timely response and future preparedness as well as the need to keep in train with national guidelines.

The timelines of the health sector response from 9th March onwards were described by stakeholders. The Area Crisis Management Teams (ACMTs) were established to manage an integrated response across acute and community organisations and to engage with nursing homes and national guidance documents were also produced. In addition to the Department of Health, the HSE also had regular discussions with HIQA and NHI. On 27th March response teams with national oversight were established by the HSE. The first COVID-19 case in Ireland was on 29th February and the first in a nursing home on 16th March. Cases peaked in the general population on 28th March but in nursing homes, four weeks later.

On 18th March 2020, NPHET established a Nursing Home Working Group and on 31st March NPHET approved a six-point plan (see appendix 2) for LTRC facilities which strengthened HSE national and regional governance structures, put in place transmission risk mitigation measures in suspected or COVID-19 positive settings and made a serious of recommendations with regard to homecare staff, staff screening and prioritisation for COVID-19 testing, HSE provision of PPE and oxygen, training and preparedness planning. The HSE's submission notes that it does not have a legislative based authority to have a specific or direct role for or oversight of private and voluntary residential centres.

Notwithstanding that the legal responsibility for care rests with the nursing home provider, the HSE and Department of Health provided the necessary funding and supports, ranging from clinical advice, infection control, large scale provision of PPE, a temporary financial support scheme and staffing in order to maintain these services as it was clear that some were not able to support themselves to do so. All stakeholders, including the nursing home providers, would like to see greater integration of private and voluntary residential settings into the health service, improved community services for older people and a heavy focus on testing and quick turnaround of results.

#### *5.1.1.2. A New Disease*

There was broad consensus that COVID-19 is a new disease with atypical presentation in older persons and consequently is complex to manage and the congregated nature of the nursing home setting posed challenges. Stakeholders stressed the need for preparedness and infection prevention and control measures that were systemic, comprehensive and responsive. An important learning is the prevention of virus entry to and within residential care facilities including nursing homes.

Key lessons included the challenge of managing COVID-19 in a nursing home environment versus a sterile healthcare environment with enhanced infection prevention requirements. The nature of COVID-19, including its level of infectiousness, the extent of atypical presentation and the level of asymptomatic transmission and the generally evolving epidemiological knowledge posed management problems.

The evolving diagnostic criteria were important and in the future a balance has to be struck in relation to visitor access that recognises that residents have a right to have their nursing home place considered a home. In its engagement with the Panel the HSE expressed confidence that the issues regarding provision of testing and contact tracing were resolved, with readiness for a future wave in place. Protocols for interim assessment, testing and outbreak guidance in residential and long-stay facilities are in place and kept under review. These include management protocols for where there is no case, a single case or a current outbreak ongoing.

#### *5.1.1.3. A Model for Future Care*

The COVID-19 experience provided an opportunity to inform a continuum of care, including staffing, governance, funding and future models for congregated settings. Future models of LTRC should include outreach support from hospitals and in-reach support from communities. There should be a focus on empowering the older person to remain at home, innovative models including smaller domestic-style units integrated into towns and city community areas. Several stakeholders referred to the experience in Denmark which has moved away from building new facilities. While citing research that indicated size of units was a factor in rapid spread, paradoxically many of these facilities had modern high-quality facilities and compliance with HIQA regulations was not a key factor.

Many of the submissions and position papers stressed the importance of inter-disciplinary cooperation but also key leads at community level in the major disciplines. There was a consensus that the COVID-19 pandemic exposed the deficiencies in the system and the lack of an overarching governance structure within the LTRC sector, both with public and private homes. The RCPI submission, also cited by the HSE, recommends a review of the clinical governance, an updating of HIQA's inspection criteria, the introduction of the Single Assessment Tool (InterRAI) and the revision of the CHO and regional health area boundaries to align with the Acute Hospital Groups as part of implementation of Sláintecare. A number of recommendations on staffing and team leads were also made.

HIQA asserted its role as a vital line of communication between individual facilities and the agencies of government regarding COVID-19. In its view the escalation pathways worked well. HIQA also produced a series of analyses, rapid reviews and action reports which are referenced elsewhere, including in the rapid systematic review undertaken for this report. HIQA noted the relative lack of access to infection control specialists. It also noted that the current regulations were outdated and they did not specifically capture the issues around infection prevention and control which should have greater focus into the future. Many respondents agreed that HIQA regulations should be updated and that coordination between agencies was vital, as well as effective and linked information systems.

The Chief Inspector of Social Care Services of HIQA decided on 13th March 2020 to suspend all routine regulatory and monitoring inspections with immediate effect. A quality assurance process was set up and from 25th March to the date of writing the report published on 21st July, 2,851 calls were made to nursing homes by inspectors and an infection prevention and control service was set up. HIQA assesses whether units are compliant, substantially compliant or not compliant across the regulatory areas including critically governance and infection prevention and control. According to this process the 189 nursing homes were 96% compliant, with 3% not compliant. However, risk inspections were then resumed in late May 2020 with homes where outbreaks had occurred prioritised. To date 44 inspections had taken place with advance notice by the time of publishing the report. These were considerably poorer findings, 28% were fully compliant with governance and management, 27% with infection prevention and control procedures, 39% with premises and 67% with staffing. It is the opinion of the Chief Inspector that the current regulation on infection prevention and control in nursing home is not commensurate with what is required to respond and manage a COVID-19 outbreak.[68]

Governance issues raised included the mix of service models and heterogeneity of nursing homes, the need to hold or have access to a standard base-line stock of PPE and the clinical supports and relationships between nursing homes and community services.

Several respondents also noted that seasonal influenza outbreaks always pose a challenge for this sector, but that at least has a vaccine, and COVID-19 is both more infectious and challenging because of its atypical and potentially asymptomatic presentation. Many also stressed the requirement for agreed protocols with public health for visitors. The need for training of staff in on-site swabbing was also stressed.

#### *5.1.1.4. Role of the GP*

According to respondents the role/input of the general practitioner was not consistent during the pandemic but it was suggested that the GP should have a key role to play into the future. The format of a zoom-facilitated, participant-directed COVID-19 education series for nursing homes was described, with several hundred participants, addressing a "burning issue" on each occasion.

A cooperative GP model was cited by the ICGP, which operated a mixed approach of site visits, telepractice and regular phone contact. A crisis of this kind posed challenges for single-handed GPs in particular. Priorities for improvement including appointing a GP lead for older person care, connectivity between sectors and continuing education in older person care. The ICGP advocates a wider application of better eHealth systems, with particular reference to the universal use of electronic patient records.

#### *5.1.1.5. Future Staffing*

There was unanimity on the need for adequate staffing, contingency plans and training. The INMO noted that staffing requirements are typically based on a cost of care model, rather than on dependency assessment. It also highlighted the shifts in guidelines for staff at work and the fact that current knowledge around infectivity and transmission might have precluded some earlier advice such as close contacts who were asymptomatic being assumed safe to continue working.

Several highlighted the need to support healthcare assistants at work and in their living standards. The INMO also highlighted the importance of utilising qualified nursing staff to their full potential and optimising their scope of practice and role of the nurse in the care of the older person. They also supported the implementation of Sláintecare and the introduction of collective bargaining for the workers in private care homes.

[68] See Health Information and Quality Authority, The impact of COVID-19 on nursing homes in Ireland, (July 2029), https://www.hiqa.ie/sites/default/files/2020-07/The-impact-of-COVID-19-on-nursing-homes-in-Ireland_0.pdf

A number of respondents stressed resilient rosters and sufficient staff, the need for isolation facilities and for a HIQA review of appropriate policies and guidelines. Longer term, the IMO advocated for a funding model that included a "gerontological tariff" which would recognise the complexity of needs of very old people, formal introduction of integrated pathways of care and continuity of care with the role of GP as primary care giver in this setting. The IMO also stressed the role of public health specialists and the need to implement the findings from the Crowe Howarth[69] and Scally[70,71] reports that would strengthen the public health surveillance and community functions. It also highlighted the upcoming influenza vaccine campaign, the need for infection prevention and control (IPC) protocols and risk assessment in every facility. It also supported flexible care packages and the central concept of choice by older people in selecting their best option for the future.

Some respondents thought there was an over-reliance on the private sector to provide nursing home care and highlighted pay and conditions for workers in private nursing homes, the need to define staff ratios and skill mix and the need to refocus the State's attention on Long-term residential care through directly-provided, publicly-owned organisations that are not for profit in their intent.

#### *5.1.1.6. Community and Regional Response*

Examples were cited of how regional teams interacted with nursing homes and how IPC principles were operationalised well in a short time frame. Many also highlighted the challenges in supplying the facilities and in managing high levels of anxiety for staff.

Some outlined that an analysis is required of the Person in Charge role across types of residence and long-stay facility and the ongoing workforce challenges related to dependency levels in older persons. Gerontological qualifications should be a pre-requisite for working in this sector according to some respondents. It was also proposed that the skill mix and nurse:client ratio in nursing homes be defined. The importance of IPC and IPC competence in this environment was further highlighted. Respondents noted that it was important to ensure that each facility had a resource plan as well as a workforce plan in place and that operationalising of guidelines occurred on the ground. An integrated approach for nursing homes and community supports going forward was further stressed.

Sage Advocacy proposed that clear responsibility for clinical care in all nursing homes should rest with community-based doctors with a specialist interest in medicine for older people as well as gerontologically trained Advanced Nurse Practitioners (ANPs) and clear protocols for interactions between community services and nursing homes should be devised.

Several groups questioned the large congregated settings model, noting that that model is no longer recommended in respect of disability or mental health settings. Several focused also on a rights-based approach to care, and proposing an independent review into the circumstances of every death in residential care settings and of the governance in nursing homes. A re-evaluation of the choice of care for older people on a continuum which includes remaining at home was also proposed. The Irish Hospice Foundation proposed a model for the extension of end-of-life and palliative care provision into nursing homes. In Ireland, 23% of deaths occur in residential care settings. Dying, death and bereavement are core parts of the work of the nursing home sector, even more so during COVID-19. The Irish Hospice Foundation proposed that a palliative care, end-of-life care and bereavement support model, not unlike the acute hospitals 'hospice-friendly hospital' programme, might be provided, with benefit to the nursing homes sector.

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[69] See Crowe Howarth, Final Report to: the Department of Health on the Role, Training, and Career Structures of Public Health Physicians in Ireland, (April 2018), https://assets.gov.ie/9446/56efd96dac314a9692b785706b5a5ecb.pdf

[70] See Dr. Gabriel Scally, Scoping Inquiry into the CervicalCheck Screening Programme, Final Report, (Department of Health September 2018), https://www.gov.ie/en/publication/aa6159-dr-gabriel-scallys-scoping-inquiry-into-cervicalcheck/

[71] See Dr. Gabriel Scally, Scoping Inquiry into the CervicalCheck Screening Programme, Supplementary Report, (Department of Health June 2019), https://www.gov.ie/pdf/?file=https://assets.gov.ie/10738/ba4f9a6299bb4ab6aa8d239b951eb71a.pdf#page=1

Several respondent groups pointed out that many people, if given the choice, would not be resident in nursing homes if reasonable alternatives were available to them such as home care support, sheltered housing, home share arrangements, retirement villages or Teaghlach-type housing care arrangements.

#### *5.1.1.7. Required Measures*

The short-term measures required are continuation of the current actions, in the medium term the integration of these on a sustainable basis, acceleration of phase 3 of the Safe Staffing and Skillmix Framework and in the long-term, capital and environment planning and a model of care review. In terms of the Safe Staffing and Skillmix Framework, Phase 1 was managed over three pilot hospital sites. Phase 2 is based in the Emergency Care setting and phase 3 is planned for the non-acute setting. The Chief Nursing Officer (CNO) Nursing Workforce Strategy proposes a radical new approach to determining nurse staffing levels, designed to put patient needs first and focus on delivering positive patient outcomes.

## 5.2. Organisations Invited to Make a Written Submission

This section provides a summary of the themes identified through a qualitative analysis of all written submissions from stakeholder organisations invited to make a submission. The summaries provided in this chapter represent the views from the range of stakeholders, taken directly from returned completed survey forms.

Twenty five submissions were received from organisations invited to make a written submission. A range of material (references to papers, reports, and timelines) were also provided by these organisations for the Panel to consider.

### 5.2.1. Nursing Home Procedures

In terms of ways of working and procedures followed on the ground, many respondents feedback typically referred to the management approach followed in a nursing home, the issue of patient transfers from acute hospital to residential settings, staffing issues, and visitor protocols.

#### *5.2.1.1. Management Approach*

Several respondents described the management approach as being the critical success factor in a crisis response. This leads to good preparedness to respond to future crises. Leadership hierarchies were also suggested, so that strong nursing leadership is maintained in the absence of more senior personnel.

#### *5.2.1.2. Transfers from Acute Hospital to Long-term Residential Care Facilities*

The concern of introduction of infection via acute hospital to residential settings was also evident in respondents' comments. A number called for the complete cessation in a crisis while others noted that this should be a factor for consideration in crisis management planning.

#### *5.2.1.3. Staffing and Monitoring*

In relation to staffing and monitoring, several concepts for consideration emerged:

- the need for staffing levels and nurse-to-resident ratios, for both "normal" time and in the context of a crisis;
- provision of employee assistance programmes or other counselling supports for staff affected during the crisis;
- development of clear plans and procedures for reconfiguring and/or suspending certain staff duties to refocus on 'crisis response mode'. Areas mentioned include:
  - agency staff use;
  - redeployment;
  - ordering of stock and other administrative actions;
  - communication to families;
  - completion of standard forms and templates.

#### *5.2.1.4. Visitor Protocols*

Respondents advocated for the empowerment of the person in charge of a centre to make decisions regarding whether visitors should be allowed. It is also suggested that this should be under continuous review in the context of a dynamic situation.

Concern was also expressed for the circumstances and criteria that trigger the current 28-day lockdown of a nursing home requirement, and whether these rules need to be re-evaluated. Additionally, protocols and supports to facilitate visitors for residents who are under end-of-life care was also advocated for.

#### *5.2.1.5. Other Suggestions and Advice*

- staff and resident influenza immunisations need high uptake this winter;
- isolation capacity in facilities in LTRCS should be considered;
- contingency planning for when staff members get sick; and to
- support management and staff to remain vigilant and engage in on-going surveillance of the risks of the COVID-19.

### 5.2.2. Communication

Several respondents felt that communication during the crisis was particularly challenging for nursing homes, and this was related to governance, decision-making, and the media. Respondents highlighted the following:

- governance of clinical decision-making in terms of HSE, public health, HPSC, local clinicians and national decision-making in terms of the NPHET led to some mixed messages and confusion relating to instructions given;
- clear identification of the governance, accountability and decision-making of each relevant Department is required;
- mixed messages from different sources and the constant proliferation of media 'specialists' led to confusion in LTRCs, challenges to adhering to guidance and additional stress for staff, residents, and their families;
- the process of communicating results to staff, and advice on managing visitations for residents; and
- stigma associated with facilities where there were COVID-19 cases and negative reporting in the media, which caused additional distress to residents, staff, and families.

The lack of data sharing capability was also linked to communication challenges, and a number of respondents noted that the interRAI (Single Assessment Tool) for sharing of data across community, acute and residential care settings is needed to overcome this issue. Respondents underlined the importance of establishing formal communication channels to support the ongoing response that is required. For example, links between directors of nursing in the community and the persons in charge of nursing homes.

One respondent highlighted that it is critical that the communication channels established during the COVID-19 pandemic between the HSE and the private nursing homes remain in place and should be formalised. Several respondents noted that clear and consistent public health messaging helps, but that in a crisis there was no time to read guidelines or explore alternatives, and therefore persons in charge rely on public health for advice and guidance. Further improvements to communications were suggested by respondents:

- improved communication between testing centres, departments of public health and contact tracing centres;
- a more streamlined approach to the dissemination of information/guidelines and requests for information from multiple sources, in the event of another COVID-19 surge;
- nursing homes and HSE Community Nursing Units (CNUs) need to be aware of who to contact in the department of public health in their area; who to contact for testing, PPE and oxygen supplies; and, the contact details for the local specialist palliative care team(s);

- information and communications technology (ICT) systems should be in place to alleviate the need for repeated requests from both national and regional offices for data to front line staff;
- communications team to immediately provide meaningful updates to all family members using an agreed template. (This should be carried out by staff not involved in the direct 24/7 care in units);
- greater use of ICT/telehealth, e.g. Glad/Acorn ICT system, which facilitate outreach consultant geriatrician support;
- promotion of the influenza campaign for this coming season.

Communication of information to residents and families was also raised for consideration. Respondents suggested that timely, transparent, and standardised information about COVID-19 infection levels in each nursing home would help address resident and family concerns and avoid uncertainty and stress – e.g. the number of current cases, days since last case. In addition, having easily accessible and simplified "COVID-19 action plans" for each nursing home so residents and families can access details of current measures and criteria for easing of restrictions, would also be of value to residents and families.

In terms of facilitating communication between residents and their family and friends, it was suggested that the implementation of appropriate technological solutions to allow more residents to avail of digital communication tools is key now and in the future. This should recognise that many residents are not digitally literate and may have physical, dexterity, mobility, hearing, visual and cognitive issues.

## 5.2.3. Oversight and Guidance

#### *5.2.3.1. Compliance*

Several respondents discussed the ongoing role of inspection to ensure compliance with infection prevention and control (IPC) standards, and that consideration should be given to making it compulsory for all services to participate in inspections and compliance. In addition to the immediate issue of managing COVID-19, the measures referred to above would also serve to protect vulnerable residents of nursing homes from other threats including influenza, pneumonia, and *clostridium difficile*.

#### *5.2.3.2. Governance and Clinical Oversight*

Several respondents discussed a need to review and update the existing governance structures for both public and private nursing home facilities, for clear governance structures to be put in place for both, and for information in relation to these structures to be made public. Others felt that governance changes including a regional structure, which builds upon the emergency responses developed in the first phase of the COVID-19 pandemic, are required. Within this, the issue of regulation was also raised, including the regulation of staff training.

Several respondents discussed the role of HIQA, noting the need to improve communication between HIQA and public health outbreak control teams. Others sought clarification on the role of HIQA as regulator in certain circumstances arising during the pandemic response, for example prior to re-opening a facility once an outbreak of COVID-19 has been closed, and in terms of their role in overseeing issues such as management at nursing homes, employment policy and practices and accommodation arrangements for all staff, including non-healthcare workers.

Broadly, respondents noted that the public health department of the HSE is supportive of HIQA's drive to improve physical infrastructure standards in nursing homes, having encountered a number of instances where the design and layout of buildings acted as a barrier to ensuring adequate infection prevention and control.

One respondent felt that HIQA's regulatory role has brought a national standardisation to the private nursing home sector, noting its significance as capacity expanded to accommodate the growing population of older dependent individuals in Ireland. However, the limitations of a national approach, removed from local health service delivery and planning structures have become evident, as local HSE services rushed to establish emergency COVID-19 supports including nursing home support units, which have provided staffing, PPE, and technical services (such as oxygen).

#### *5.2.3.3. Guidelines and Care Pathways*

Several respondents discussed the need for disease preparedness and planning and that a new "infectious diseases" plan should rapidly be agreed for the home care and nursing home sectors. The challenge of data collection and reporting was raised as part of this planning, where a number of agencies are collecting similar data, HSE, HIQA, public health; and there is a lot of data required daily from an already stretched workforce. One respondent called for the development of integrated reporting between public health and regulatory agencies so that data can be accessed by all relevant agencies under the direction of public health.

In addition to outlining measures to deal with a second, or successive, outbreaks of COVID-19, this plan would set out the protocol and renumeration policy for carers who provide care to those with COVID-19 and other diseases; workforce management guidance (to keep staff healthy, motivated and engaged); the expectations of the HSE and other providers; how the various State bodies and private sector bodies will consult one another; how non-agreed items will be paid for, such as thermometers and PPE, to avoid confusion in the midst of a pandemic wave; and other relevant matters.

Detailed validated preparedness plans outlining measures to be put in place, should a surge occur, should be a requirement of providers. In the private sector clear oversight for the monitoring of these preparedness plans is required. Infection control procedures, defined plans to deal with high levels of sick leave, access to occupational health, workforce planning, and agency management should be included in these plans.

One respondent noted that a key success factor was the outreach service provided by consultant geriatricians from the local hospitals that supported clinical staff (GPs and nurses) caring for residents with complex needs associated with COVID-19. Respondents felt that consideration should be given to the formalisation of this service, particularly in advance of winter 2020.

### 5.2.4. Future Preparedness

#### *5.2.4.1. Access to Services*

Respondents identified that certain services and expertise were provided during the crisis that would be invaluable to the nursing home sector going forward and for future-proofing measures. The concept of utilising technology, such as Telehealth, was also raised as a means of providing these services and greater integration of nursing homes in a more efficient manner.

A list of relevant medical and public health services to aid future preparedness was provided by respondents and are summarised as follows:

- consultant geriatrician and medical team;
- IPC (nurse and consultant microbiologist);
- advanced nurse practitioner (ANP) for older persons to support nursing teams;

- community nurse specialist (CNS) for older persons;
- tissue viability nurse;
- HPSC services;
- occupational health;
- bereavement and counselling services for staff and residents;
- psychiatry;
- palliative care;
- HSE central resource, including IPC, contact tracing, and staffing needs support; and
- quality managers, health and safety and risk coordinators.

#### *5.2.4.2. Training*

Respondents noted the need for current staff training to be prioritised and reviewed in terms of skill mix. Further, some respondents felt that staff training should be mandated for all aspects of care including health and safety, IPC, correct use of PPE, and end-of-life care. One respondent suggested that all staff should be accredited by a national training and accreditation system. Furthermore, all staff should be trained to the appropriate level in relation to infection control, and processes should be put in place to monitor the effectiveness of same, before the Autumn and a second wave of infection.

#### *5.2.4.3. COVID-19 Testing*

Considerations highlighted include:

- the logistics around the return of small-scale swabbing in rural areas to a collection point, then on to laboratories needs to be established and developed to allow routine and regular testing;
- the additional staffing requirements to support mass testing;
- the usefulness of regular mass testing in areas where the disease has been eradicated.

#### *5.2.4.4. Personal Protective Equipment (PPE)*

A number of respondents highlighted the need for all possible measures to safeguard residents from contracting the virus, including maintaining adequate supplies of PPE in stock in all healthcare facilities and training of staff in the correct use and disposal of PPE to be adopted. Further, several respondents underlined the requirement for clear pathways for nursing homes to access and manage PPE. One respondent noted that there should be a timely and user-friendly ordering system on site for current and future outbreaks, which would enable nursing homes to respond to evolving requirements. A baseline stock of PPE, to deal with an infection rate of 25%, should also be available.

#### *5.2.4.5. Facilities*

The physical infrastructure of nursing homes was discussed by several participants, and improvements are needed to cover capacity, occupancy, design, space, single room occupancy, adequate day and leisure space, isolation, and medical care facilities. It was suggested that this should be regulated, monitored, and subject to approval, and the facility should be licenced to operate on an ongoing basis. It was noted that the current design and layout of many facilities does not reflect the complex needs of residents and has acted as a barrier to ensuring adequate infection prevention and control. It was also noted that there should be sufficient IT infrastructure available for communication between residents, health professionals and with families.

#### *5.2.4.6. Infection Prevention and Control (IPC)*

It was noted that IPC measures have played a central role in preventing and controlling the transmission of COVID-19 to nursing homes and in tackling the spread of COVID-19 in facilities where the virus is present.

Respondents discussed the need for access to IPC expertise for each facility, and that there should be clarity on IPC strategies for residential units with co-located rehabilitation, transitional, and respite care services. Further, the need for further tailored education is emphasised. One respondent noted that while online resources were helpful, in certain circumstances face-to-face/onsite infection control training is necessary and more beneficial. IPC training should be deemed a priority and made mandatory.

One respondent suggested that nursing homes should have access to a Clinical Nurse Specialist in IPC to ensure ongoing monitoring of infection control. Further specific measures suggested included:

- increase of cleaning services to carry out cleaning of high touch points, 5 times per day;
- designated IPC lead on-site to coordinate response and liaise with public health and external IPC specialist rather than this being done by the director of nursing who needs to be available to manage staff and support family members;
- HIQA baseline benchmarking (audit) against national IPC standards to establish an 'as of today' picture of nursing home preparedness;
- access to IPC resources immediately to address gaps in both practice and training; and
- an IPC lead in each nursing home to coordinate response at local level.

#### *5.2.4.7. Assistive Technology*

Some respondents suggested that assistive technology will play a key role in fostering inclusion, participation, autonomy and independence for older people and people with disabilities by maintaining or improving their functional capabilities. The COVID-19 pandemic has underscored the importance and potential of assistive technologies in enabling older people and people with disabilities to live independently in the community, away from residential facilities, such as nursing homes, where the virus is more readily transmissible.

### 5.2.5. The Nursing Home Model in Ireland

Several respondents discussed the role of national policy for older people, and that a shared objective of maintaining residents in their place of residence for as long as is appropriate to their needs, should be adopted by all relevant stakeholders including nursing home providers, nursing home representative groups, the regulator, GPs and HSE services including public health, CHOs and hospitals. This shared objective, respondents suggest, will help inform and clarify decision-making by all parties. Further themes are discussed below.

#### *5.2.5.1. Lack of Policy Recognition*

Some organisations described how nursing homes are an integral part of the health and social care system, which has never been fully recognised in policymaking in Ireland and needs to change immediately. Several organisations acknowledged the important role of nursing homes in the provision of care for people with high levels of need.

In terms of COVID-19, some organisations stated that nursing homes should have been prioritised earlier in public health emergency planning and that policy decisions in response to COVID-19 highlighted the lack of priority that nursing homes receive, both in terms of residents and staff.

The LTRC sector is a considerable component of health and social care in Ireland, more so than in Southern European countries, like Italy. Older people in need of care in Ireland, and in Northern Europe more generally, have much greater use of LTRC than in Southern Europe, by double, in some comparisons. Therefore, polices to reduce the risk and consequences of COVID-19 may be more focused upon LTRC in the immediate term.

As one respondent suggests:

> *Lack of representation makes it exceptionally difficult to raise or receive a response to valid concerns, as the current planning process does not value professional concerns. The dominance of the medical model in the planning process, without broad consultation to include views of the wider, modern healthcare service, has resulted in a narrow view and response to the needs of residents.*

#### *5.2.5.2. Funding Model*

Several organisations discussed the current model of nursing home funding, the National Treatment Purchase Fund (NTPF) and the complexity of care. Organisations noted that the cost of care, as currently configured and utilised by the NTPF, does not recognise the levels of care and services provided, and the substantial cross-subsidisation required, for which a budget is not allocated. Further, the funding of nursing home care by the NTPF does not align with the complexity and evolving care needs of residents.

It was noted that the higher dependency levels of future nursing home residents will require a greater level of multi-disciplinary expertise in the provision of care, including palliative care. This will not be met without a review of the mechanisms for calculating cost of care. Several organisations suggested that the NTPF would benefit from greater gerontological input in terms of strategy, policy, and assessment processes.

Several respondents highlighted that additional investment in the sector will be required in order to provide for inhouse staffing, PPE, training and enhanced sick leave arrangements for staff.

As another respondent notes,

> *the challenges posed by COVID-19 for the LTRC sector in Ireland has uncovered a disconnect between regulation, purchasing of care, and oversight. The current system of access to and eligibility for publicly-funded or subsidised residential care was established on a statutory basis in 2009 with the introduction of the Nursing Homes Support Scheme (NHSS – 'Fair Deal'). The state funds the majority of the cost of LTRC by means of the Fair Deal scheme. The NTPF agrees rates of payment for providers under the scheme, acting as purchaser for the state.*

#### *5.2.5.3. Model of Care*

Several organisations discussed alternative approaches to the model of care for older people, with a strong community focus including home care, supported housing, and the continued de-congregation of residents to smaller, community-based settings. While these issues pre-date the COVID-19 pandemic, a shift away from nursing homes as the dominant model of care was seen as a way to mitigate the risk of COVID-19 by several respondents. As one respondent explained:

> *The Covid-19 pandemic illustrated the speed with which an infectious disease can spread through a nursing home, due to a combination of factors including reduced opportunities for both staff and residents to physically distance from one another and self-isolate in the event of illness or exposure to the virus. Changeover in rosters and the attendance of nursing home staff can also give rise to further opportunities for cross-contamination between the community and the residents in the facility. As a means of reducing the high concentration of persons in nursing homes most at risk from Covid-19 … there may need to be a future recalibration of care for older persons away from traditional nursing homes to community-based supported living guided by individual choice.*

However, as another respondent puts forward, while future models of care may, correctly, focus on greater provision of care for older people at home, the nursing homes sector will remain a key sector. The ESRI estimates that even under optimistic healthy ageing scenarios, between 2015 and 2030, there will be an at least 44% increase in demand for LTRC. Medium to long-term planning should focus on the management and sustainability of LTRC.

#### *5.2.5.4. Service Delivery Model*

Integration with, and oversight from, the wider healthcare sector was strongly advocated for by many of the respondents. While the crisis was devastating in the nursing home sector, the response implemented demonstrated how the sector could improve going forward and be better prepared for future crises. One respondent noted that *"ensuring that all national guidance being implemented to avoid reinventing the really good work and collegiality that has emerged during this pandemic."*

A number of suggestions are made in this regard, including:

- the development of a specific liaison role for public health in each CHO area;
- community consultant geriatricians;
- community advanced nurse practitioners;
- hospital – community outreach; and;
- regional IPC roles.

Policies to remove the disjointed nature of financing, provision, and regulation need to be considered. For example, despite HIQA requiring nursing homes to meet standards for the provision of care for residents living with dementia, the Nursing Homes Support Scheme does not currently allocate additional funding for cognitive impairment. In order to better integrate LTRC as part of a wider model of care for older people, and coordinate care alongside a new statutory home support scheme, consideration may need to be given as to whether it is necessary to establish HSE responsibility for the oversight, planning and provision of LRTC services by statute. The challenges posed by COVID-19 for LTRC have shed light on the need to discuss what LTRC care will look like and plan accordingly to meet residents needs.

#### *5.2.5.5. Home Care*

Respondents suggested that, although not appropriate in every case, home care should become the default discharge option from hospital for vulnerable people who have continuing care needs. Utilising the existing transitional care budget is one way of exploring how to do this, respondents proposed.

Several organisations discussed the pilot statutory home care scheme, and that it should be resumed as a matter of priority since it was suspended at the onset of the COVID-19 pandemic.

> *The pilot testing of the new statutory home care scheme for older people proposed to be introduced during 2020/2021 should not be delayed because of the current pandemic.*

Regulations should consider de-congregation of residents from large nursing homes to smaller dwellings. One respondent explained that nursing homes that provide residents with single rooms and bathrooms were better equipped to care for residents. When there is multi-occupancy it is extremely difficult to cohort and control the spread of infection. Outbreaks in other residential care facilities such as intellectual disability residences, were easier to manage as the number of close contacts (staff and residents) were fewer than in the congregated settings of nursing homes and Community Nursing Units (CNU).

#### *5.2.5.6. Housing with Supports*

Respondents discussed the need to progress work underway on developing models of housing with supports, and to put in place and incentivise alternative models to meet high support needs, i.e. housing with care and respite at home was highlighted as vital in light of COVID-19 in supporting people to remain at home. It was noted that all new buildings should be informed by the adoption of the universal design approach to buildings and the built environment.

Several respondents noted the ongoing situation whereby older people are being prematurely moved to nursing homes because they could not avail of the support they needed to live independently at home. While nursing homes play a vital role in the provision of care for older people with high levels of need, there is a need to tailor supports to suit the requirements of the individual and to implement models of housing with supports to meet diverse needs in the community.

#### *5.2.5.7. Persons with Cognitive Impairment and Dementia*

Several respondents felt that the current model of long-term care in Ireland should be urgently recalibrated with reference to recently published policy documents on housing for older people and the continuum of care for people with dementia. A review of dementia care and how social distancing can be managed for residents with dementia were also recommended.

It was noted that nursing home facilities cater for many older people with disabilities, including persons with cognitive disabilities, such as dementia, and persons with physical disabilities. To be effective, infection control and prevention measures must take account of and be sensitive to the needs of persons with disabilities, and communications, whether written, digital, verbal or signed, must be accessible.

One respondent noted the HSE efforts to support people with dementia and cognitive disabilities in nursing homes during the pandemic, including the compilation of a range of practical resources, such as *COVID-19 Related Hygiene and the Person Living with Dementia and COVID-19: Managing Isolation and Non-Cognitive Symptoms of People with Dementia in Residential Care Facilities for Older People*.

#### *5.2.5.8 De-congregation*

Several respondents discussed the need for older people to move to households with low numbers of residents living together, similar to other services (specialist services for people with intellectual disabilities and people with enduring mental health issues), and a move away from building large facilities. Others highlighted the progress made in the disability sector in moving people with disabilities out of congregated settings, and in line with current policy, to enable them to live independently with appropriate supports and to be included in the community. It was noted that the current situation regarding persons with disabilities under the age of 65 years living in nursing homes for older persons needs to be urgently addressed. Effectively addressing this issue would require appropriate housing, care and supports to be provided to such persons in the community and planning to ensure that the practice of inappropriate placements of persons with disabilities in nursing homes in the future can also be addressed. It would also require a coordinated effort between the relevant authorities and actors, particularly the HSE and local authorities, as well as other stakeholders in the community, to enable same.

#### *5.2.5.9. Personal Assistance*

Home support and personal assistance services were also emphasised as playing an important role in enabling older persons and persons with a disability to live independent lives in the community for as long as possible. Such services are important, not just in empowering people to pursue their life choices, but also to remain connected with their community, neighbours and friends, as well as the natural supports in their lives. It was noted that personal assistance services are not available to those over the age of 65 and that the COVID-19 pandemic has further highlighted the need for work on a national personal assistance policy and home care standards to be expedited.

### 5.2.6. Representation and Advocacy

Several respondents raised the issue of advocacy and the ongoing need for external advocacy services for residents, families, and friends both locally and nationally. It was noted that during an outbreak the physical and psychological care needs of the resident necessitated skilled, knowledgeable, and experienced nurses, healthcare assistants, and GPs working together with senior decision-makers such as ANPs.

Several respondents emphasised the need to create a new narrative of care in relation to older people, incorporating the language of inclusion, empowerment, and citizenship. These respondents also noted that, unfortunately, ageism and paternalism characterised much of the earliest public policy response to the crisis and this created unnecessary and unwanted stigma for older people in all settings.

Other issues raised included:

- Needs and rights of the dying and bereaved: communication care, psychosocial, end of life care and bereavement support;
- Safeguarding: lack of understanding of the risks of abuse and neglect in nursing homes. Essential public health measures inadvertently increased risk, by reducing resident access to their social supports;
- Inclusion: the voices of residents and families themselves, are absent from any planning process. Understanding the lived-experience of nursing home living is important;
- Indirect impacts: pandemic-related social isolation is linked to a steep deterioration in people's mental, cognitive, and physical health. This is particularly relevant to vulnerable groups with cognitive impairment and dementia comorbidities.

## 5.3. Nursing Homes Consultation

A total of 53 submissions were received by the Expert Panel from nursing homes. This section presents the main themes that were identified. The summaries provided in this chapter represent the views from nursing homes, taken directly from returned completed survey forms.

### 5.3.1. Nursing Home Procedures

Feedback from the "on-the-ground" stakeholders covered several themes that provide a perspective on the procedures and steps that were taken in light of COVID-19, and reflections on what the future approach should be.

#### *5.3.1.1. Learnings and Reflections*

Several respondents shared their stories of how they prepared for and experienced the crisis as it unfolded. Some report from the perspective of an experience of COVID-19 in their setting, while others report from the position of relief at avoiding and preventing the disease from entering their facilities.

#### *5.3.1.2. Management Approach*

Early planning, strong leadership, and acting ahead of national public health guidance are recurring themes in what respondents identify as the critical success factors they believe helped set them on a good path for preventing the introduction and transmission of COVID-19 in their nursing homes.

#### *5.3.1.3. Transfers from Acute Hospital to Long-term Residential Care Facilities*

Many respondents report dissatisfaction with how this transpired. There is a strong belief among respondents that this was a key source of infection introduction into the homes. Several respondents advocate that going forward there should be strict testing and isolation procedures in place at the point of transfer.

#### *5.3.1.4. Staffing and Monitoring*

At the onset of a crisis, one response advises that designated crisis response teams should be established for each setting. This is reflective of the approach reported by other respondents. Ensuring no cross-over of these teams to different settings or between different teams was an important feature. It was advised that agency staff use would be either suspended entirely for the duration, or failing this, that such staff would be dedicated to one setting only. The health of staff should also be monitored for temperature and symptoms, and the advocacy of vaccinations among healthcare workers (HCW) encouraged or required.

#### *5.3.1.5. Visitor Protocols*

Many respondents asked that current restrictions on visitors be maintained for longer, and for the decision to lift these restrictions to be made at a local level. Clear guidelines for visitors are also asked for, particularly around hygiene protocols and the wearing of face coverings, both during visits and in their wider daily interactions and contacts.

#### *5.3.1.6. Other Suggestions and Advice Included:*

- a single dedicated GP assigned to the nursing home rather than at individual patient level;
- enhanced observation recording for temperature and oxygen saturation;
- resume quality of life activities at a smaller scale;
- have a contingency plan in place;
- have all policies and procedures up to date;
- good documentation procedures;
- follow all public health guidance.

#### *5.3.1.7. Cost and Finance*

Nursing homes have incurred significant additional costs as a result of the crisis. Many respondents draw attention to this and call for continued financial support in this regard. An additional request raised by several is for the administrative burden of such funding to be streamlined and burdenless.

### 5.3.2. Communication

#### *5.3.2.1. Impact on Residents*

Many respondents recognised the detrimental effect that loneliness and isolation had on their residents. Counselling supports may be needed for residents and staff in the aftermath of the crisis. They also spoke of the need for setting up communications teams to facilitate virtual visits and to develop programmes of engaging activities and for social interaction.

On a practical level, several respondents noted that not all facilities had access to Wi-Fi facilities and called for this to be addressed.

#### *5.3.2.2. Families and the General Public*

Respondents recognised the importance of good communication for families and the general public and have suggested several asks and recommendations in this regard:

- summary information sheets, uniform across all nursing homes and with the most up-to-date advice and guidance should be provided to nursing homes as some guidance documents are lengthy. These should be user friendly for an audience of staff, residents, and families;
- communication and acknowledgement of the expanded role and pressures on staff at this time;
- that proposed changes to nursing home practice, such as visiting restrictions, would be communicated with the nursing home sector before being announced;
- consistency between visiting guidelines for nursing homes and for hospitals;
- public communications about the risks to older people to prevent complacency and increase understanding of the rationale for the visiting restrictions;
- include information on the level of COVID-19-free status of nursing homes.

#### *5.3.2.3. Miscommunication and Duplication*

Many submissions highlighted that they were receiving duplicate information, sometimes with conflicting guidance on the same topic. One respondent suggested that when updates are being issued, these would be issued in “marked up” format, so as to make it easier to identify changes in guidance and recommendations.

#### *5.3.2.4. What Worked Well*

Several respondents took the opportunity to highlight the benefit they experienced from some WhatsApp groups that were set up in response to the crisis.

#### *5.3.2.5. Improving Communications*

Respondents highlighted several areas where they would benefit from improvements in communications, both at a national level and in terms of public health processes:

- clear communication on or about hospital-to-nursing home discharges;
- have a clear single-point-of-contact between nursing home and public health;
- highlight the success stories and what-went-well in nursing homes;
- weekly reporting of infections by geographic area, in line with current practice for influenza and norovirus;
- a helpline for access to urgent expert advice.

A user-friendly one-stop-shop website or platform as a single-source of education, information, graphics, and training resources.

### 5.3.3. Oversight and Guidance

#### *5.3.3.1. Governance and Clinical Oversight*

The concept of leadership and collaboration were reflected in many submissions received. Several respondents called for robust clinical governance and oversight supports from consultant geriatricians, clinical nurse specialists, old age psychiatry and mental health clinicians to support the care for residents. The establishment of one overarching body was also called for to coordinate all parties involved, including the nursing home sector.

Many felt that effective leadership and accountability are needed to implement a well-thought-out strategy to protect the vulnerable nursing home community going forward. Allied to this, it was highlighted that sometimes there have been discordance between the public health and occupational health authorities as to how to manage and deal with real time, point of care challenges for HCWs. This can add to the stress of delivering regulated care in these un-precedented times.

Some respondents highlighted the existing regulations governing the operation of LTRC facilities and others call for more stringent consequences for non-compliance to be implemented.

#### *5.3.3.2. Guidelines and Care Pathways*

Many submissions included calls for guidance, protocols, or clarity at national level around specific topics, including:

- CHO and local acute hospital oversight;
- formalised communication and oversight links within the healthcare ecosystem;
- infection control committee established for each nursing home;
- guidelines for GP referrals for older persons services;
- visitor guidelines under COVID-19;
- contingency plan and outbreak management;
- single source information dissemination pathways;
- patient needs centred guidelines on staffing ratios;
- pathways of care focused on minimising time spent in hospitals or emergency departments for older people;
- guidelines for staff wearing uniforms between work and home;
- guidelines for staff returning from annual leave;
- regulation and registration of workers in this sector; and
- resident transfer protocols – particularly COVID-19 related.

In terms of persons with dementia, some respondents viewed that the impact of the COVID-19 restrictions was less pronounced for dementia patients when compared to mental health patients, over the period. Others suggested that the impact was catastrophic for both dementia patients, and their carers. Practical information and bespoke guidelines for these subgroups of residents were called for, as well as more innovative ways to care for the specific needs of these residents.

## 5.3.4. Future Preparedness

### *5.3.4.1. Access to Services*

Many submissions included a call for specific services and for either the resumption of services that had been suspended or continuance of new services that had been provided in response to the crisis:

- general practice;
- allied health services, including:
  - rehabilitation services;
  - occupational therapy;
  - speech and language therapy;
  - physiotherapy;
  - clinical nutrition;
- tissue viability;
- infection prevention and control specialists;
- frailty assessment;
- gerontological expertise;
- IV antibiotic administration in the home;
- diabetes screening;
- access to dialysis and radiotherapy services.

### *5.3.4.2. Training Needs*

Key areas of training support highlighted in the submissions focused on:

- access to the HSE for all healthcare workers regardless of public/private status;
- improvement of HPSC website for access and navigation;
- infection control drills and practical training programmes;
- training in infection prevention and control;
- gerontology and clinical frailty assessment;
- professional development and increased skills e.g. IV administration;
- crisis management training;
- dementia in the context of crisis management and infection control scenarios;
- mental health and resilience training;
- training delivered through multiple languages;
- swab test training;
- contact tracing training;
- verification of death training; and
- the establishment of an interim grade of staff between nurse and healthcare assistant.

#### *5.3.4.3. Staffing and Recruitment*

Several respondents took the opportunity to commend the dedication and commitment their staff had shown through this crisis and the important impact this had on outcomes for residents in their care.

Staffing and recruiting concerns raised by respondents included:

- a review of pay and conditions for healthcare workers in this sector;
- clarity on the wage subsidy scheme as it applies to this sector of workers;
- processing and approving non-nationals to work in Ireland as a high priority;
- the issue of competition between HSE and nursing homes for staff – both directly and indirectly;
- COVID-19 requires an increase of staffing levels from normal practice;
- the requirement for increased administrative support;
- recruitment support would be beneficial;
- redeployment initiative was unsuccessful.

#### *5.3.4.4. COVID-19 Testing*

In terms of COVID-19 testing, a number of recommendations were suggested across many submissions:

- there should be frequent testing of staff and residents and compulsory staff testing;
- considering the discomfort and invasiveness of testing, the frequency should be balanced with the level of threat or risk of infection;
- the turn-around time in results needs to be within 24 – 48 hours;
- antibody testing should also commence;
- contact tracing needs to be improved;
- information sharing of test results should be efficient and appropriate;
- frequent symptom monitoring should complement a testing regime;
- concern over asymptomatic spread of the virus.

#### *5.3.4.5. Personal Protective Equipment (PPE)*

Many respondents reflected on the PPE crisis that they experienced, competing against the HSE and failing to secure the necessary supplies. Several highlighted that the uncertainty of supply caused great anxiety for the people within their facilities. Going forward, both the cost of PPE and surety of supply are recurring concerns in the submissions.

#### *5.3.4.6. Nursing Home Facilities*

As a result of the practical changes required in response to COVID-19, many respondents have highlighted the additional facilities that will need to be provided (or continued) to support this, including:

- elimination of multi-occupancy rooms;
- provision of isolation facilities for new admissions and COVID-19-positive patients;
- provision of staff accommodation;
- designated visiting areas with COVID-19 protective infrastructure; and
- separate entry and exit changing rooms for staff.

#### *5.3.4.7. Infection Prevention and Control*

While some focused on the basics of hand-washing, and regular audio-cues to rewash, others have highlighted the need for specific IPC deep-clean regimes and services for their facilities. E-Documentation was suggested by one as an important factor, and another noted an observed reduction in chest infections in their centre for the period. Although nursing homes are experienced in managing patients with Methicillin-resistant Staphylococcus aureus (MRSA) and *Clostridium difficile* (C. diff), one respondent posits that it was the unprecedented nature of the global crisis of COVID-19 that was the differentiating factor with this virus.

#### *5.3.4.8. Other Measures*

Several respondents felt disappointed that the emerging signals from the experiences being witnessed in other jurisdictions did not translate to more robust early preparation in Ireland for the nursing home and LTRC setting.

Going forward, some respondents have suggested that travellers from COVID-19 affected countries should be required to complete 14-day isolation, while others have asked for clear guidance and protocols on mask-wearing to be implemented, particularly for those who might intend to visit a nursing home.

Wider suggestions concerning society's responsibility toward protecting older people and vulnerable adults included calls for it to be made mandatory for HCWs to avail of vaccination programmes such as the annual influenza programme and hepatitis C programme. Sick pay supports were also suggested.

Several respondents highlight the existing regulations governing the operation of LTRCs and some ask for more stringent consequences for non-compliance to be implemented.

### 5.3.5. The Nursing Home Model in Ireland

#### *5.3.5.1. Funding Model*

The unfairness in the funding as determined by the National Treatment Purchase Fund (NTPF), that administers the Nursing Homes Support Scheme (NHSS) was a recurring theme of submissions. The perceived disparity between the funding provided in comparison to the resident's required service care costs is highlighted while the inequity of funding as between private versus public sector nursing homes is also underlined.

It is a clear source of dissatisfaction for private sector operators. Many called for this anomaly in the NHSS to be addressed.

Many respondents claimed that there is a disparity between the levels of funding provided, particularly through the NHSS, and the actual cost of providing the required care. This is further underlined by the noted absence of a link between HIQA standards and requirements and the funding on offer.

An alternative view suggested is that COVID-19 is, fundamentally, a unique public health threat and that the cost-consequences of this extra-ordinary crisis should be a State-funded liability, falling outside the remit of the public-private debate.

#### *5.3.5.2. Model of Care*

National policy on the model of care for older people is also raised in responses. There is a call for this to be examined and for society to make a conscious decision about the direction of policy we wish to pursue as a country. Several respondents advocate for supporting and promoting independent living and encouraging the elderly to live at home for longer rather than the current LTRC model.

#### *5.3.5.3. Service Delivery Model*

Conceptually, many expressed a belief that nursing homes should not be considered in isolation, but that they were part of a continuum of care of the older person. The integration of nursing homes into the wider healthcare system was a strong theme from the respondents. Several respondents referenced the comprehensive and multidisciplinary support that was deployed as a result of the crisis and asked that this care model would be formalised and maintained going forward.

Several submissions called for greater sharing of information pertaining to local clusters.

#### *5.3.5.4. The Role of CHOs*

The involvement of the relevant HSE Community Healthcare Organisation (CHO) (e.g. through COVID-19 Response Teams) was largely seen as a positive move with many respondents calling for their continued involvement in the sector into the future. There were several additional suggestions related to the longer-term establishment of links, such as the set-up of CHO teams and single-points-of-contact for communications.

#### *5.3.5.5. The Nursing Home as a "home"*

Concerns were raised that nursing homes were increasingly being seen as medical settings, with some respondents noting that nursing homes are primarily residencies for communal living. Therefore, quality of life for residents should be considered in that context.

### 5.3.6. Representation and Advocacy

#### *5.3.6.1. Representation*

Many respondents felt that the nursing home sector should have been included on NPHET or a sub-group thereof in the planning and management of COVID-19 in Ireland. There is a further call for the nursing home sector to be included and represented on any relevant panels, committees, or working groups. Consultation and inclusion are called for several times throughout the responses.

In the context of the national level, many respondents expressed their disappointment at how the sector was portrayed by HIQA during a debate at the COVID-19 Oireachtas Committee. Several questioned why the purported concerns of HIQA were only coming to light as a result of COVID-19, pointing to the 2019 HIQA Annual Report that had expressed satisfaction with the levels of governance and compliance within the sector.

Some respondents took the opportunity to highlight the contributions of their staff and to show their gratitude and praise. The media portrayal of the nursing home sector, particularly the private operators, was a source of repeated disquiet throughout the submissions received. Concerns were raised about the tone and commentary of an Oireachtas Committee hearing on the nursing home sector.

#### *5.3.6.2. Advocacy*

Several respondents called for the nursing homes sector to be acknowledged and respect at national and government level, and the theme of advocacy and support arose several times throughout the submissions. Some respondents commented on representation and advocacy for the nursing home sector, and others discussed advocating for their residents and those that are vulnerable. The tone of many of the submissions reflected a sense of "powerlessness" and "loneliness" in the face of the crisis as it unfolded.

Respondents reiterate that a nursing home is primarily the residence of a person and not a medical facility, and that the rights of residents in terms of dignity, freedom, choice, and equality need to be respected and at the forefront of policy going forward.

In terms of nursing home organisations, respondents express a sense of abandonment and lack of support, with one respondent noting that they felt that they *"must paddle [their] own canoe"*.

# 5.4. Public Consultation

A total of 60 submissions were received by the Expert Panel. Thirty five respondents provided information on their organisation or employment affiliation, while 25 did not. Fourteen respondents identified themselves as family members of a resident, 3 respondents as residents, 10 as staff, and 29 classified themselves as "other".

This chapter presents the main themes that were identified. The summaries provided in this chapter represent the views of a range of stakeholders, taken directly from returned completed survey forms.

## 5.4.1. Nursing Home Procedures

Personal accounts of individuals experiences of the crisis were also shared with the Expert Panel. Experiences recounted included survivors, family members, and front-line healthcare workers. Each were keen to offer their recollections on how events unfolded and reflections on where improvements could be made in the future.

Contingency planning and developing clear processes and procedures, such as entry and exit, zoning, and isolation, are suggested by many respondents. Increased use of outdoor spaces and initiatives to ensure that non-COVID-19 related health needs are also maintained were also proposed.

The need for written bespoke 'care plans' for each resident was also suggested by several respondents, highlighting that in the context of a crisis, residents are not always cared for by those who are familiar with a resident's personal needs, preferences, and choices.

There is a strong belief among respondents that acute hospital transfers into nursing homes was a key source of infection introduction into the homes. Several respondents advocate that there should be strict testing and isolation procedures in place at the point of transfer. Staff shortages, the need for streamlined recruitment, garda vetting, and visas for foreign nationals were also raised.

Respondents recommended encouraging the uptake of vaccinations for HCWs, with some suggesting they be made mandatory by employers. Dedicating staff to specific nursing homes or units featured strongly, as did continuous health and temperature monitoring of staff.

A diverse range of views on visitor protocols and recreational and occupational activities were provided. Some were keen for the restrictions to remain in place as long as the risk was there. Others however, prioritised the social, physical, and psychological needs of residents to resume visits with family and also with other personal care professionals.

## 5.4.2. Communication

The concept of communication and information sharing frequently arises in the responses.

**Family / Nursing Home:**

- calls were made for clearer communications, such as welfare updates, availability of written care plans, outbreak status of the facility, and consultation being carried out in relation to patient care decisions. Respondents reported a 'sense of retreat' by nursing homes when it became difficult or impossible to reach them by phone as the crisis set in.
- other respondents raised the need for restoration of trust and confidence between nursing homes and families.
- the need for structures and guidelines for advanced care planning was also raised.

**Resident / Family:**

- many questioned the timing or length of time that visitor restrictions were / are in place, and the severity of those restrictions. Some reported that window visits were not allowed, and that virtual visits were not being facilitated.
- additional supports may now be required for residents who have suffered the impact of long-term isolation and loneliness as a consequence of visiting restrictions.

**Nursing Home / Health services:**

- several respondents suggested that telephone triage and video consultations could be introduced to optimise access to health services for residents, either COVID-19 or non-COVID-19-related.
- the need for IT infrastructure to facilitate greater integration and connectivity is also raised.

## 5.4.3. Oversight and Guidance

#### *5.4.3.1. Clinical Governance and Oversight*

Designation of governance responsibility and strengthening of HIQA's mandate for effective enforcement of appropriate care standards and investigation of individual complaints were called for in some responses. Others added that they felt the experience gained over recent months has demonstrated a lack of adequate clinical oversight, clear governance structures and monitoring with appropriate enforcement capability in the nursing home sector.

Several respondents commented on HIQA's current audit process, and suggested that it needs to be updated, including unannounced inspections, publicly available results, and clear compliance procedures.

One respondent also raised a concern regarding the status of religious congregations in terms of oversight, noting that they currently do not fall within the remit of HIQA.

## 5.4.4. Future Preparedness

#### *5.4.4.1. Access to Services*

The concept of nursing home care being viewed broadly in terms of the wider spectrum of all available services and supports operating in an integrated way was a recurring theme in the submissions received. It was suggested that nursing homes, including private facilities, should be integrated into the wider framework of health and social care, and considered part of integrated care pathways to include nursing homes visits. Respondents suggested that allied healthcare professionals should also be involved in older peoples care in nursing homes, as they are in communities. Respondents called for clear responsibility and oversight in all care facilities for older people at both regional and national level.

#### *5.4.4.2. Training Needs*

Specific to COVID-19, training for infection prevention and control, COVID-19 testing, training in the correct use of PPE, and simulation training for an outbreak were suggested. Reflecting concerns regarding influenza vaccination uptake rates in the sector, some respondents suggested training for staff on the importance and impact of good vaccination uptake. The mental health needs of staff as a result of the crisis was also a concern for respondents, and training and support in this area was also suggested.

More generally, respondents suggested training in the administration of IV antibiotics, oral care, gerontology, dementia, frailty, and palliative care. Formalising the grade and qualifications for healthcare assistants were also proposed.

#### *5.4.4.3. Staffing and Recruitment*

There was a strong recognition of front-line staff for their *"courageous persistence in the face of a frightening outbreak"*, from the witness accounts shared with the Expert Panel. In terms of future preparedness, one respondent expressed concern at a potential reliance on staff mobility as a solution in a crisis, suggesting that this may have contributed to the initial 'seeding' of nursing homes in this crisis.

Monitoring of staffing numbers and defining staff ratio requirements was also suggested as an approach to ensuring sufficient staff levels and an ability to identify where staffing levels are becoming a risk. Redeployment was also raised as both a suggestion and an issue. It was noted that in practice, some staff who were approached did not facilitate the need for redeployment during the crisis.

#### *5.4.4.4. COVID-19 Testing*

Regular and rapid testing procedures were called for by many respondents. Some further suggested including a nominated family member in regular screening so as to ensure continued visiting ability for the resident. Timely results, especially for residents in isolation as a suspected case, was asked to be considered. The communication of test results, for both positive and negatives, need to be treated equally urgently.

Testing sensitivity is not 100% accurate, as one respondent pointed out. It is suggested that where clinical presentation casts doubt on the test, then all precautions must be followed for the 14-day period. Over-reliance on the test result is cautioned against. One respondent suggested that keeping flowchart for each resident of vital statistics throughout the period in order to identify any change before illness would be a useful practice.

Confusion over casual contacts versus close contacts is a point raised several times, with consequences for disease identification as well as unnecessary isolation of residents and loss of staff for 2-week periods being highlighted as a result.

#### *5.4.4.5. Personal Protective Equipment (PPE)*

The need for personal protective equipment is recognised by many respondents. Several suggest that a minimum emergency stock should be retained in each nursing home. It was also suggested that in certain circumstances, sterilisation and reuse of PPE is feasible.

Some respondents recalled seeing staff not wearing their PPE correctly, or only partially (e.g. wearing gowns but not gloves). Training was highlighted as being equally important as access to PPE.

#### *5.4.4.6. Nursing Home Facilities*

Many respondents recognised that with the lifting of visitor restrictions, nursing homes will need to put physical infrastructure in place to aid the continued protection of residents. Dedicated visiting rooms with clear screens were suggested, as well as full PPE for visitors entering. Sanitation rooms for entry and exit of the building were also suggested, for both staff and visitors. Concerns were expressed with regard to accommodation facilities for staff who cannot self-isolate at home. Improvements and upgrading of outdoor spaces were also suggested to facilitate visits as well as the elimination of shared occupancy rooms for residents.

#### *5.4.4.7. Infection Prevention and Control (IPC)*

There is a fine line between good geriatric nursing and effective IPC, or even conflict, as one respondent notes. Notwithstanding this, respondents made several suggestions with regard to the methods and procedures that should be considered as part of infection control, from first principles of good hygiene to deep-clean measures, to electrostatic sterilisation using hydrogen peroxide and 0.5% silver. Additional suggestions included:

- a review of the HIQA IPC guidelines or standards;
- an IPC audit schedule to be established;
- access to an IPC qualified nurse on-site; and
- a rigorous influenza vaccination campaign for 2020.

#### *5.4.4.8. Vulnerable Subgroups*

Across all categories identified, the specific needs of certain subgroups were also raised for consideration, such as for those with dementia. Individual risk assessment plans are suggested for all residents to ensure that all needs and adjustments are taken into consideration.

### 5.4.5. The Nursing Home Model in Ireland

Many respondents reflected on the nursing home model of care, questioning whether the size of larger nursing homes are fit for purpose. Others noted the need for policies that will support older people to live independently for as long as possible. This corresponds with respondents who identified the function of nursing homes as a residence or a tertiary medical facility. These policy-level observations help to explain the diverse suggestions on what is required going forward. Some respondents called for measures that would increase the medicalisation of the nursing home setting, while others call for the restoration of residencies to being "a home" as soon as possible.

Investment and funding for this sector to "bring it into the 21st century" was also mentioned by some. Specifics include capital infrastructure, and modification requirements to accommodate COVID-related changes, IT infrastructure, and increased funding under the NHSS are cited.

Many submissions reflected the opinion that nursing homes should be considered as part of the national health infrastructure, believing that this would further enhance consistency and standardisation across facilities. Shared guidelines on nursing, staffing, skill levels and medical care across the sector were also called for. The concept of integration of nursing homes with the wider healthcare system also included aspects such as, relationships and arrangements with local hospitals, local authority facilities, dental, physio and other personal and therapeutic healthcare services.

More broadly, a wider societal discussion was advocated for, in particular, to examine whether we, as a society, wish to pursue the provision of supports for older people in a congregated or domiciliary based care setting, as well as whether these should be viewed through the lens of a social versus a clinical model.

### 5.4.6. Representation and Advocacy

Many respondents expressed a wish that residents at the heart of this consultation be given a voice. Some felt that their voices and concerns were not heard during the crisis. The psychological impact of the nursing home lockdown is a recurring concern, as is the loss of choice for residents of the homes. The point is raised in this context that a nursing home is primarily the resident's home and therefore they, their family or other relevant advocate, should be included and consulted in decision-making. Appropriate representation and advocacy on behalf of residents at the national level, such as NPHET, was also a concern for respondents.

A dignity Charter for every patient and representation of residents at national strategic discussions were also suggested. Additionally, representation of nursing homes at that level was also suggested.

Reflecting on the need for advocacy, one respondent noted that

> *in the decade of austerity organisations that represented those on the margins were de funded or changed or amalgamated. The Human Rights Commission was amalgamated, The National Council of Ageing and Older People was disbanded, funding for advocacy was reduced, so a voice for the most voiceless was lost. Independent Advocacy groups like SAGE and Older People Councils under 'Age Friendly Ireland' may need further support. Active Retired Groups and Network do advocate for their members but who advocates on behalf of the most vulnerable Older People? residents of long stay units are often highly dependent and voiceless; this needs to be remedied. There needs to be a clear and supported charter of rights.*

Another respondent considers that

> *The COVID-19 crisis has shown that care is not valued in Irish society. The pandemic has laid bare the weaknesses in the provision of home care and nursing home and the lack of integration between both sectors. With an increasing number of people living into older age, Government policy on the provision of long-term care is central to ensuring care is accessible, high-quality, efficient and secure - even in crisis situations.*

## 5.5. Consultation on Site Visits and with those with Individual Experience of COVID-19

The Expert Panel established a number of rapid consultation processes with national stakeholders and the public. The Panel was particularly keen to engage with and hear from those who:

i) had been managing the response to COVID-19 on the front-line of nursing homes;
ii) have been providing care in nursing homes throughout the pandemic so far, and
iii) those with lived experience as residents in nursing homes throughout the pandemic.

The voices, experience and learnings from these key stakeholders provided a key input to the deliberations of the Panel.

The Panel decided to hold discussions with the staff and residents in a number of public and private nursing homes. HIQA was asked to identify nursing homes that would be willing and available to participate in such a process and to suggest the names of four facilities, two public and two private. Due to the prevailing travel restrictions, out of county travel was not possible so virtual visits with Panel members were to be arranged. The Panel asked that the person in charge, two senior staff members and residents, if available, would participate. Questions posed by the Panel were pre-supplied by letter. These related to staff and resident's experience of the pandemic, supports required and key learnings for the next 18 months. The Panel held virtual sessions with two nursing homes, a third obliged with an on-site visit and the fourth had to withdraw at the last moment.

### 5.5.1. Impact of the Pandemic

COVID-19 was a devastating reality for two of the homes with which the Panel engaged. In addition to a significant number of deaths, many other residents and staff members contracted COVID-19 which placed a significant strain on the maintenance of basic staffing levels. The overall level of upset suffered by residents, relatives and staff connected with these nursing homes cannot be overstated. Many will require ongoing support and understanding in the coming months. The third nursing home had a small number of COVID-19 positive cases but, because of their foresight, staff had procured a good supply of masks, gloves and PPE by late February/early March, in anticipation of what was to come.

The key points emerging from all three 'visits' are:

1) when COVID got into the facility, it seemed to spread with undue haste; (three residents died in a single 12-hour period, another three within a further 48 hours – "what were we to do?");
2) the HSE COVID-19 Response Team support was crucial;
3) speedy access to PPE varied, especially in the early weeks of the pandemic (it was acknowledged that this was a nationwide, indeed global reality);
4) staffing levels were overstretched due to illness, the need to isolate – something that still causes many of the staff concerned ongoing distress and guilt;

5) the visiting restrictions, whose rationale was understood, were still thought to have been cruel, especially for residents who were close to death and also for residents with dementia whose diminished insight as to what was going on was compounded by not seeing their relatives. The role of families in supporting staff in these critical areas was stressed.

### 5.5.2. Key Learnings for the Next 18 Months

These key learnings primarily related to preparedness. One facility stressed the importance of a solid team and had already put counselling and other supports in place for staff. The importance of timely testing availability and turnaround times was stressed and provision for this was already in place. There were also plans in train for the implementation of further IPC training. A balance had to be found to "live safely with the virus" rather than initiating constant lockdown-type restrictions. Contingency measures were planned for, including self-isolation facilities. The integration of private nursing homes into the HSE services and supports should be sustained and the level of supports received was of a high standard and appreciated. Staff training and occupational health supports were also very important to maintain.

In addition to the above engagements with residents and staff of the nursing homes, separate arrangements were also made to engage with a number of residents/relatives, identified from independent advocacy sources, and who had expressed the desire to share their thoughts and experiences with the Expert Panel. Virtual meetings were arranged with four individuals, two of whom were resident in nursing homes and two were close relatives of nursing home residents. They agreed, through Sage Advocacy, to participate. Their stories and concerns were different in some respects, but common themes were also evident.

Firstly, all expressed their utter frustration bordering on anger regarding the 'no visiting' policy, particularly when a family member was close to death *'and no family member allowed in to say goodbye'*. This was a bigger issue for larger families when only a specific number from that family could ever be permitted to visit. Communication options such as mobile phone, FaceTime, Skype and other systems were used, with varying benefit.

The themes that differed within the group included one resident who outlined her frustration that she could not, due to COVID-19, get out for her usual weekend visits to family, not to mention to advance her preference to getting home permanently. A second theme that emerged related to an overall quality of care matter, which was not specifically COVID-19-related and is being addressed in another forum.

Overall, both residents and their relatives were warm in their praise of all nursing home staff and expressed their sincere gratitude and appreciation, acknowledging that they have been working under extraordinary stress these past several months. These contributions resonated with submissions from other affected family members, who recounted their experience of losing a loved one during the pandemic.

## 5.6. Expert Panel Acknowledgement

The Panel would like to again acknowledge the high level of commitment and engagement from organisations and individuals in responding to invitations and, sincerely appreciates all of those who have shared their experiences, expertise, insights and ideas with the Panel, which were most valuable inputs for the deliberations of the Panel.

# 6. Healthcare Policy for Older People: Time to Review the Model of Care

Across the OECD-26 over a 10-year period, there has been, on average, almost no change in the number of long-term beds per 1,000 population aged over 65. However, there is great variation between countries; for example, from 2005 to 2015, Sweden reduced the number of long-term beds by 23.5 per thousand population aged over 65 years whereas Ireland increased by 6.5 beds per 1,000 over the same time period.[72] The reduction in Sweden was attributable to a move to a greater provision of older persons' care in the community. This is in line with the Sláintecare Implementation Strategy and associated action plan and was also reflected in the care transitions during COVID-19. Iceland, Canada and Norway have also shifted emphasis on the care of older people from residential to community settings.[73] The consequence of this shift is that residential care is reserved for those with the greatest need.

## 6.1. Provision of Services

In the past 20 years significant financial incentives,[74] reportedly up to 50% of the construction costs, were given toward meeting the costs of new private nursing homes. This major policy shift effectively handed future responsibility for the residential care needs of an increasing number of frail older vulnerable members of society to the private sector. Thirty years ago, 80% of residents in long-term residential care were in publicly-funded. Today the exact reverse applies with 80% in private nursing homes.

An extract from Chapter 9 of the Report of the Working Party on Services for the Elderly *The Years Ahead – a Policy for the Elderly*, (see paragraph 9.23) published in October 1988,[75] states that:

> *Comhairle na nOspidéal described the large geriatric hospital as 'inappropriate to the needs of the elderly, (apart from patients that come from the immediate vicinity of the institution) and such institutions should, as soon as possible, be replaced by smaller-scale, long-term accommodation related to the local community in which they are located'.*
> *Comhairle na nOspidéal Report (1985)*

In those days the suggested appropriate size/capacity for a Community Hospital was 50-60 beds – and it would provide the wide range of services as well as meeting the local long-term residential care need. These other services included i) short stay acute admission for an acute illness, ii) further inpatient rehabilitation of patients discharged from the acute service – e.g. post stroke, hip fracture, iii) day care services, iv) scheduled flexible respite care, v) end-of-life care for patients admitted from home or for those already resident in the facility, supported by the excellent specialist palliative care homecare programme.

*The Years Ahead* report includes recommendations still relevant today. It is also noteworthy in that it included a full chapter (Chapter 12) on implementing its proposals – novel in those days. It is ironic that, 32 years on, far from taking the above advice, there are many nursing homes developed since, with bed capacities similar to, if not greater, than those of the 'geriatric hospital' of old.

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[72] See Organisation for Economic Cooperation and Development, Health at a Glance 2017: OECD Indicators (Paris: OECD, 2017). https://doi.org/10.1787/health_glance-2017-en

[73] See Organisation for Economic Cooperation and Development, Health at a Glance 2017: OECD Indicators (Paris: OECD, 2017). https://doi.org/10.1787/health_glance-2017-en

[74] Such as through s.268 of the Taxes Consolidation Act 1997, as amended by s.22 of the Finance Act 1998 - provides for a scheme of capital allowances for expenditure incurred on the construction and refurbishment of buildings and structures in use for the purposes of a nursing home.

[75] See Government of Ireland, The Years Ahead: A Policy for the Elderly: Report of the Working Party on Services for the Elderly (Dublin: The Stationery Office, October 1988),

The WHO has stated that traditional models of residential/nursing home care perpetuate outdated ways of working representing:

> *outdated ideas and ways of working which often focus on keeping older people alive rather than on supporting dignified living and maintaining their intrinsic capacity.*[76]

There is increasing evidence to show that highly dependent persons can live safely and more happily in domestic settings, provided their required homecare supports are in place. Smaller household models of residential care permit changes in infrastructure from the traditional institutional model to an environment that more resembles a family home (accommodating 6-12 people). Construction of facilities like this are national policy and this model has become the norm in some European countries for 10 or many years.[77]

> *The residential care model in Ireland, 'does not adequately reflect international practice, which has moved towards domestic scale households'. 'The current prevailing models will continue to drive practice that prioritizes economies of scale and routinized care over quality of life and as such represents a lost opportunity to move beyond mere compliance to holistic person centred supports for individuals at this stage of their lives'.* (submission to the Panel)

'Creating community' (as opposed to merely providing care) has been identified as a way of shifting from environments where residents are seen as passive recipients of care to ones where people (staff and residents) are engaged in mutually supporting each other[78,79]) The Panel agrees that a focus on new enabling models of home-based care is required. Another submission to the Panel best describes the required change in approach and attitude as follows:

> *Create a new narrative of care in relation to older people, incorporating the language of inclusion, empowerment and citizenship. Unfortunately, ageism and paternalism characterised much of the earliest public policy response to the crisis, creating un-necessary and unwanted stigma for older people in all settings.*

Given ageing demographic projections, particularly for the numbers aged 80 years or over, there will be a continuing need for long-term nursing home care for the increasing number of associated of frail and highly dependent individuals who, despite the above, cannot any longer be cared in their own homes. For this population coexisting dementia may present an added dimension to their care needs. Approximately 70% of residents in long stay facilities (public and private) have a dementia.[80]

Promoting a more patient-centred social model of care has been advanced as a preferred alternative to the traditional medical/institutional model – such a facility should be a 'home' rather than a 'hospital'. Whilst understanding this, the reality remains of an increasing number of older frail, vulnerable people with multiple co-morbidities who will require the skills of a combined medical and social models of care. This was amply demonstrated at the peak of the COVID-19 pandemic transmission in our nursing homes especially in the latter half of March and throughout April.

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[76] See World Health Organization, *World Report on Ageing and Health* (Geneva: WHO, 2015).

[77] See Selma te Boekhorst, Maria F. I. A. Depla, Jacomine de Lange, Anne Margriet Pot, and Jan A. Eefsting, 'The Effects of Group Living Homes on Older People with Dementia: A Comparison with Traditional Nursing Home Care', *International Journal of Geriatric Psychiatry* 24/9 (September 2009): 970–978; Andriana Sandra P. A. van Beek, Dinnus H. M. Frijters, Cordula Wagner, Peter P. Groenewegen, and Miel W. Ribbe, 'Social Engagement and Depressive Symptoms of Elderly Residents with Dementia: A Cross-Sectional Study of 37 Long-Term Care Units', *International Psychogeriatrics* 23/4 (2011): 625–633.

[78] See Sonya Brownie and Susan Nancarrow, 'Effects of Person-Centered Care on Residents and Staff in Aged-Care Facilities: A Systematic Review', *Clinical Interventions in Aging* 8 (2013): 1–10. https://doi.org/10.2147/CIA.S38589

[79] See Christine Brown Wilson, 'Developing Community in Care Homes Through a Relationship-Centred Approach', *Health and Social Care in the Community* 17/2 (2009): 177–186. https://doi.org/10.1111/j.1365-2524.2008.00815.x

[80] See Susan Cahill, Eamon O'Shea, and Maria Pierce, *Creating Excellence in Dementia Care: A Research Review for Ireland's National Dementia Strategy* (Dublin and Galway: Living with Dementia Research Programme, Trinity College and Irish Centre for Social Gerontology, National University of Ireland Galway, 2012).

## 6.2. The National Treatment Purchase Fund (NTPF)

In 2006, the State introduced a funding model to help support the cost of nursing home care in private and public nursing homes – the Nursing Home Support Scheme (NHSS). The scheme is administered by the HSE, and negotiation of prices to be charged by private and voluntary nursing homes for nursing homes services is undertaken by the National Treatment Purchase Fund (NTPF) – originally established for a different purpose (i.e. reducing waiting times for patients on waiting lists for various elective, mainly surgical, procedures, such as hip replacements and cataract extractions).

In its submission to the Panel, the NTPF confirmed that its role, laid down in legislation, is *'to make arrangements regarding the price at which services will be provided, (it) does not provide funding in respect of the services and has no role in overseeing or regulating the nature, quality or the provision of these services, which are matters for other State Agencies'*. During the current Public Health Emergency, the NTPF provided *'administrative support and advice in relation to the Covid-19 Temporary Assistance Payment Scheme ("TAPS"). At all times, the NTPF defers to the expertise and the statutory responsibilities of the responsible agency when providing this assistance'.*

The overwhelming view expressed to the Panel was that the annual funding negotiations between nursing homes the NTPF was regarded as a challenge that invariably ended with the nursing home feeling that the agreed sum payable per resident was insufficient, and in the private nursing homes' view, invariably less than funding provided to public funded homes. The strong views expressed are that, in reaching a final figure, inadequate attention is paid to residents' physical or cognitive dependency levels. The introduction of a valid reliable, assessment tool to address these concerns is urgently required.

Over the course of the pandemic there has been considerable focus on the State supports provided to nursing homes. The NHSS is expected to contribute in excess of €1 billion to private nursing homes in 2020 (inclusive of resident contributions) along with circa €30m in transitional care bed commissioning. The sustainability of such scale of intervention poses significant challenges, and further creates a point for considered discussion with regard to the scale and configuration of future provision. But in the Panel's view, additional funding will be required. In the absence of published financial accounts, the contribution from the private provider in addressing areas such as improved staff skill mix, nurse/care assistant ratios, and their ongoing education and training needs is unknown. Investment will be required to ensure nursing home adherence to HIQA's nursing home standards and further ongoing costs arising from COVID-19.

## 6.3. Strategic Reform Requirements – the Need for a Policy Shift

The *Forum on Long-term Care for Older People* (2018)[81] strongly advocated the need for legislation to support and care for older people preferably in their own homes or in smaller congregated settings. In the absence of such legal entitlement there remains the possibility that the funding for services such as homecare packages is under threat, especially towards year end.

The COVID-19 public health emergency has shown some of the many strengths of Irish society. It has also shown some weaknesses. We have a two-tier healthcare system and a two-tier siloed approach to the long-term support and care of older people which favours referral to long-term care settings as opposed to promoting a wider range of home care options. We owe it to our older population and ourselves to do better.

[81] Sage Advocacy, Responding to the Support & Care Needs of our Older Population, (July 2016), https://www.sageadvocacy.ie/media/1124/report_of_forum_on_ltc_for_older_people.pdf

An extract from a submission on this subject from the Department of Health says:

> *The impacts and the learning from the Covid-19 pandemic has further amplified the urgent need to further develop national policy in this regard. The primary objective is to ensure that the person and their particular needs are at the centre of service delivery, that genuine choice is available and that services, and particularly resource allocation (funding) for services is integrated – ideally through a single pot of funding, with funding following the service user, having regard to the particular care band in which their needs relates'.*

Among the key themes submitted to the Panel (in written submissions and in discussion) are a need to:

- **a)** provide an integrated system of support for older persons' care needs regardless of location, under a single source of funding;
- **b)** integrate private nursing homes into the wider framework of public health and social care;
- **c)** examine the appropriate staff skill mix and nursing staff levels linked to the dependency levels of residents;
- **d)** broaden the range and incentivise the provision of alternative models of home care support in smaller, more domesticated settings.

Many of the contributions to the Panel have raised issues about staffing levels in nursing homes including number of nurses x grade, the number of healthcare assistants and the nurse/healthcare assistant ratio. A requirement that staff have gerontological nursing and QQI training for healthcare assistant staff was stressed. The view, as expressed by private nursing homes, is that their staffing levels compare less favourably to those in public and voluntary funded residential care facilities.

The pay rates and overall working conditions of, at least, some staff in the private sector was raised as a concern by several contributors. Some of these lowly paid workers seek employment in more than one nursing home to augment their income, a circumstance that, can potentially pose a serious risk in terms of COVID-19 transmission from one facility to another. Furthermore, these dedicated workers (many from overseas) may live together in congregated accommodation, although working in different nursing homes, thus further enhancing potential COVID-19 transmission risk.

The instrument used by the Nursing Homes Support Scheme (NHSS), to determine the eligibility is the Common Summary Assessment Report (CSAR) whose findings determine eligibility for the scheme. The Panel has been advised that the CSAR has its limitations and should be replaced by a more appropriate assessment tool. The InterRAI (short for International Resident Assessment Instrument) through a standardised (IT based) assessment tool (SAT) places the older person at the centre of the healthcare delivery system, through the provision of a comprehensive assessment of their health, social care and support needs (www.interRAI.org). A more holistic and standardised approach to care needs assessment is seen as one of the most significant and urgent areas of reform required. The identified care needs through the care needs assessment should drive the development of an individualised care plan, where the person and their needs are the central component of clinical and service decision-making. The Department of Health and the HSE are currently examining the introduction of InterRAI-SAT across older persons services.

The current model of private residential care for older persons has no formal clinical governance links to the wider HSE. More formalised links would facilitate better national oversight of the care delivered to frail older people. The COVID-19 pandemic has highlighted challenges in relation to nursing home governance and the roles and responsibilities of the major stakeholders including Department of Health, HSE (especially HPSC and public health), HIQA, and private nursing home providers.

Nursing homes have an important role in the provision of care for dependent older people. These were challenging and stressful times for residents, family, staff working in long-term care facilities. The appropriate care and support should be available to those who require it, regardless of location. Steps must be taken to make time for discussions on decision-making, advance care planning and end of life care occur in more planned, timely considered and sympathetic way. The lessons gained from COVID-19 must ensure everyone is better prepared for the future COVID-19 or related outbreaks.

## 6.4. Programme for Government (2020)

> *The impact of Covid-19 has been particularly difficult for older people. It has been challenging for those who live on their own and for those residing in nursing homes. Learning from Covid-19 we will assess how we care for older people and examine alternatives to meet the diverse needs of our older citizens. We will establish a commission to examine care and supports for older people.*

The COVID-19 Nursing Homes Expert Panel is reassured that its views are reflected in the new government's own plans for enhanced services for older people in all settings.

The Expert Panel received submissions of high quality and calibre in both written form and during oral presentations. The submissions have assisted the Panel in framing its recommendations both in the immediate, shorter term, and medium to longer term. They have provided important insights with relevance beyond the immediate requirements of the COVID-19 pandemic but were also highly relevant for this purpose. The Panel is of the view that the rich information contained in these submissions should be captured as part of the initial deliberations of the proposed Commission on Care outlined in the Programme for Government.

The Panel recognises the values of emerging national and international publications on the COVID-19 pandemic whose findings should further assist in the management of any further COVID-19 surge later this year or over the coming 18 months.

# 7. Discussion and Recommendations

## 7.1. Discussion

The COVID-19 Nursing Homes Expert Panel was appointed by the Minister for Health on 20th May to provide immediate real-time learnings and recommendations in light of the expected ongoing impact of COVID-19 with regard to nursing homes over the next 12-18 months. In this chapter the Panel draws on the stakeholder submissions, the data analyses, and evidence review undertaken for the Panel's report and our own deliberations, in order to discuss those findings and to make recommendations.

### 7.1.1. Nursing Home Procedures

Over the last 15 years, most countries in Europe have seen an increase in the number of healthcare workers providing long-term care. The majority of these, approximately two-thirds, are classified as healthcare assistants or multi-task attendants (residential settings) or home-based care assistants; one-third of healthcare workers in these settings are nurses.[82]

Between 2005 and 2015 the proportion of older people in Ireland aged 80 years and older (the cohort most likely to need longer-term care) has increased by 21% with the number of long-term healthcare workers over this period increasing by 13%. This is slightly below the OECD-17 average (European countries) where the population of people aged 80 years and older has increased between 2005 and 2015 by 24% with the long-term health workforce increasing by 18% in this period. It is recognised, as with other countries, that we have a lack of nurses with specialist qualifications in care of the older person. Although figures are not available in Ireland, the US reports that fewer than 1% of registered nurses and 3% of advanced practice nurses hold a qualification in nursing gerontology.[83] Across Europe, there are variable levels of skill mix in older persons' residential settings.[84] There is considerable variability in staffing levels across nursing homes and other LTRC facilities in Ireland, and this has been a source of much debate with no agreement to date. The Irish Association of Directors of Nursing and Midwifery (IADNAM) has submitted proposals on the required nursing staff numbers, the appropriate skill mix and the preferred nurse/nurse attendant ratios. Many of these proposals have been with the Department of Health and HSE for some time, and urgent and prioritised action is required to advance the next phase of the Framework for Safe Nurse Staffing and Skill Mix, as it relates to nursing home care.

To their eternal credit, many nursing homes managed to cope well with COVID-19 outbreaks/clusters when they arose. Others were more seriously challenged, especially those with bigger case numbers; indeed, the consequences were overwhelming and devastating for their residents, their families and the staff themselves. Carefully planned post pandemic support will be required. The peak period of COVID-19 and COVID-19 related challenges in nursing homes stretched from late March through April, and many stakeholders commented on the rapidity of spread of the virus and the subsequent numbers of deaths so close to each other. Working as they do with frail and vulnerable older people, end of life care and care of the dying are aspects of care that staff in nursing homes are experienced in and do well. However, as happened in some nursing homes, the experience of many deaths one after the other was new. This experience was both shattering and frightening.

[82] See Organisation for Economic Cooperation and Development, Health at a Glance 2017. https://doi.org/10.1787/health_glance-2017-en

[83] See John W. Rowe, Lisa Berkman, Linda Fried, Terry Fulmer, James Jackson, Mary Naylor, William Novelli, Jay Olshansky, Robyn Stone, 'Discussion Paper: Preparing for Better Health and Health Care for an Aging Population: A Vital Direction for Health and Health Care' (Washington DC: National Academy of Medicine, 2016), https://nam.edu/preparing-for-better-health-and-health-care-for-an-aging-population-a-vital-direction-for-health-and-health-care/. https://doi.org/10.31478/201609n

[84] See Royal College of Nursing, Safe Staffing for Older People's Wards: RCN Full Report and Recommendations (London: Royal College of Nursing, 2012).

The highly transmissible nature of the COVID-19 virus, to residents and staff that had to take sick leave or self-isolate and the knock-on effects on those who had contact with cases had serious consequences on efforts to maintain staffing levels. Staff felt guilty that they were required to absent themselves from work for the 14 days. In truth, so too did staff who tested COVID-19 positive.

The Panel acknowledges that healthcare staff and providers of nursing homes, private and public, faced an unprecedented challenge, never before experienced and once the infection had entered a nursing home, it spread rapidly. It is also evident however that many nursing homes had the ability to manage the outbreak effectively. It is clear from the submissions of a range of stakeholders that healthcare staff worked tirelessly and with admirable resilience to continue to provide care to the residents and valued the support of the HSE's clinical support teams. Presentations to the Expert Panel at stakeholder meetings and written submissions to the Panel also acknowledge the commitment by nursing home staff who may be traumatised by their experience. Despite the perception that older people are not valued by healthcare policymakers and providers, as the Expert Panel examined the submissions, those submissions demonstrate reassuringly that there is a very enthusiastic and 'exercised' interest by a broad range of professionals who appear passionate about improving the care of older citizens in community and residential settings.

There is a need for clarity on clinical governance of all residential care facilities private, public and voluntary at regional and national level and with due regard to incorporating resilience to anticipate pandemics and natural disasters. Eighty percent of long-term residential care provision is delivered within the private sector. Experience gained over recent months has demonstrated that adequate and robust clinical oversight, monitoring with appropriate enforcement capability and clear governance structures are required across the nursing home sector. There should be a requirement for clear clinical governance with oversight of all nursing homes and enhanced support from general practitioners in this regard. Representatives from the IGS, when speaking to the Panel, proposed that a clinical governance oversight committee should exist in all nursing homes.

The HSE's COVID-19 response teams, including the relevant clinical supports, for each area should be resourced to continue for the next 12 to 18 months. Separately, access to the Community Intervention Teams (CITs) should be extended to all nursing homes to provide a rapid and integrated response to patients with an acute episode of illness who require enhanced services or acute intervention (potentially avoiding acute hospital transfer); for example, IV antibiotic administration in the home and should be accompanied by a national, consistent protocol and standard operating procedures.

Nursing home residents, with medical card eligibility, should have access to the same services as are available to community-based residents. Examples include frailty assessment and rehabilitation services such as occupational therapy, physiotherapy, speech and language therapy; and other services such as clinical nutrition/dietetics, tissue viability advice, infection prevention and control (IPC), IV antibiotic administration, diabetes management and access to dialysis and radiotherapy services, when required. In addition, access to specialist medical opinion from geriatricians, consultants in palliative medicine, psychiatry of old age and others, as needed.

Meeting the individual and combined care needs of residents in nursing homes are paramount considerations for everyone involved in delivering, commissioning and regulating care for older people.

### 7.1.2. Communication Across the Healthcare System

During the pandemic the manner in which services were delivered to residents in nursing homes required a new and enhanced approach to care delivery. Outpatient appointments were necessarily cancelled and there was evidence from stakeholder interviews and submissions that GP cover in homes was reduced and occasionally not immediately available. Further challenges resulted from reduced availability of permanent staff in many homes due to sick leave or self-isolation, which necessitated staff redeployment across the entire system. The HSE has been the State's primary arm in the response to the pandemic and must continue to be central to the wider integration of all nursing homes across the healthcare system, particularly in the interests of frail older people, including through integrated pathways of care for older persons and by the permanent establishment of COVID-19 response initiatives. The Hospital Groups provided crucial multidisciplinary support to nursing homes within their CHO areas. The hospitals' response teams and approach differed but, in the main, the responses included:

- direct medical advice / support, including from a geriatrician via onsite and virtual visits as a supplement to GP service provision;
- daily health checks to assess any potential challenges and to offer support;
- onsite point of care tests and management, e.g. phlebotomy, ultrasound, ECGs, administration of IV antibiotics;
- management of resident transfers from nursing home to hospital and from hospital back to the nursing home;
- establishment of care pathways ensuring residents received 'the right care, in the right place, at the right time';
- consults from other specialties, e.g. occupational health, palliative care, staff practice development;
- direct infection prevention & control (IPC) advice/support/training;
- direct nursing advice/support/deployment;
- direct operational control and workforce provision;
- access to swabs, timely testing and results for patients and staff, with guidance on priorities for whom and when to test;
- nursing/direct nursing/healthcare assistant /allied health staff deployment;
- direct hygiene service support to maintain standards;
- provision of equipment, e.g. O2, IV drip stands, pumps and IV fluids;
- supply of Personal Protective Equipment (PPE) with training on usage;
- administrative support;
- access to improving communication channels e.g. tablet / web-based support to enable communication with relatives; and
- information packs for homes - leaflets / algorithms / lanyards / notices already designed and easily printable all sizes / formats / volumes.

The hospitals' response teams were critical in the management of the acute phase of the pandemic. Many stakeholders acknowledged the contribution and the response provided and outlined the importance of this continued structure of support.

Each Community Healthcare Organisation (CHO) area requires an inter-disciplinary team to facilitate residents receiving assessment and care management in their own home consisting of general practitioner, geriatrician, public health specialists, infection control and director of nursing. In the event that care needs require hospital admission each nursing home needs to work with their local CHO/acute hospital(s) to identify pathways of care to streamline admission, reduce risk of further decline and to avoid delayed transfer back to the person's nursing home.

Revisions of CHO geographical boundaries to align with acute hospitals sector groups should be strongly considered in line with the planned Regional Health Areas (RHAs) in the Sláintecare Strategy. A director of nursing should be identified at CHO level with a remit for all residential care facilities in the CHO, supported by infection prevention and control, public health and older persons operations with clear remit over nursing homes. A nursing home-based director of nursing representative should be a member of the Community Support Team (CST).

Ongoing access to occupational health and human resources services is required to assist with staff advice, contact tracing and advice regarding staff wellbeing. Occupational health and human resources services have an important role in protecting healthcare workers and ensuring business continuity of health services. Expansion is required of Advanced Nurse Practitioner (ANP) roles to support specialist care delivery such as nurse prescribing, comprehensive assessment and liaison functions across acute mental health and palliative care services to enhance care delivery in a resident's home.

Access to primary care services including the HSE community allied health professionals should be based on need for all older persons whether in private or public nursing homes or their own homes. There is evidence in the literature suggesting the need for rehabilitation and reablement post COVID-19 as a result of resident deconditioning. Post COVID-19 recovery plans to include public health and ready and speedy access to homecare packages are required. Post COVID-19 recovery plans, including rehabilitation access and public health will be required. Patients should not be admitted directly to long-term residential care without being given the choice and a care needs assessment and appropriate opportunity to stay in their own home following appropriate access to rehabilitation or reablement opportunity and access to a homecare package that meets their needs.

A number of key stakeholders interviewed sought clarity as to who was in charge in the wider private nursing homes system. During the pandemic there was evidence that connections between the HSE, including community services and acute hospitals and private nursing homes improved considerably; many written submissions stressed the importance of this partnership continuing on a permanent basis. It is evident that the multi-specialty HSE COVID-19 Response Teams set up to support nursing home staff were invaluable and that in the face of the pandemic there were no barriers, it was a seamless service across public and private providers. The evidence of this is refreshing and to be commended. The lack of statutory home care support entitlement and the need to make acute bed capacity quickly available early in the pandemic did result in some patients being transferred from acute hospitals to nursing home facilities rather than to their own home.

Nursing homes should be part of a continuous spectrum of care of the older person into the wider healthcare system with provision of multidisciplinary support. Residents in some nursing homes did not have direct GP support - some GPs were themselves cocooning. Initially during COVID-19 this did present a challenge, as each resident is assigned to their own individual GP, that was addressed when the HSE COVID-19 Response Teams and public health teams were established. In the early stages of the pandemic, for a variety of reasons, such as insufficient testing materials, and delays in the setting up/staffing test centres, access to rapid turnaround testing and tracing was inadequate in the general community, (including nursing homes). With the more recent knowledge that asymptomatic and atypical presentations were seen in this older cohort of people, preparedness and prompt action is equally urgent to optimally protect this cohort of frail older nursing home residents. In line with public health advice and recommendations of the ECDC, nursing home residents should continue to be prioritised for testing, noting the critical importance of rapid reporting of results. Likewise, the continuation of periodic testing for healthcare workers in nursing homes should be planned for, with the relevant periods identified by the HPSC, having regard to public health and ECDC advice and recommendations.

Looking ahead, there is an obligation to ensure that a satisfactory level of competent, skilled and appropriately trained nursing and medical staff are available to meet the inevitable clinical and medical needs of this significant number of highly vulnerable older people in congregated settings, if/when exposed to a highly transmissible virus such as COVID-19 or any other virulent outbreak. Nursing homes must also ensure the provision of a varied range of social supports and diversional therapies for their residents, the nursing home also being their home.

There was a general belief from some stakeholders that when comparing the per resident State funding for public versus private nursing homes, the public facilities benefit by as much as 40%. Whist the state contributed over €1 billion, via the Nursing Homes Support Scheme (NHSS), in 2019, the contribution from the owners of private nursing homes, especially the larger consortia, is not known. The funding and expenditure specifically invested by providers to improving nursing staff skill mix, nurse/care assistant ratios, addressing HIQA inspection recommendations, ongoing education and training programmes of staff and, more recently the private homes financial contribution to COVID-19 enhanced requirements like IPC training, sourcing PPE, masks, oxygen use requires greater transparency.

During the crisis, leadership and timely decision-making became overwhelmed due to a vacuum of clear guidance, mixed messaging, a lack of access to clinical expertise and resources (oxygen, infusion pumps, PPE). A submission from academic nursing who took part in the 'call to arms' felt that for the vast majority of nursing homes there was no direct clinical governance; GPs' mainly focused on managing their individual patients either in person or virtually. COVID-19 very quickly exhausted existing governance and escalation pathways.

Key learnings highlighted by the COVID-19 Response Team set up in the Cork-Kerry Community Healthcare area include:

- **i)** clear and consistent communication by senior healthcare professionals, at a national level – plan nationally and act locally;
- **ii)** Clinical Support Teams operating locally with clear communication to the homes about their role, contact details with availability 24/7 and the range of supports provided e.g. universal testing, PPE, training and access to specialist advice;
- **iii)** clear communication in regard to Infection Prevention and Control led by senior healthcare professionals, including adequate numbers of trained infection prevention & control nurses;
- **iv)** adequate PPE and training for staff in the proper use of PPE, cohorting and isolation techniques; and
- **v)** timely testing of staff and residents in the event of an outbreak.[85]

Establishing COVID-19 Response Teams was a breakthrough and many believe that they should now be maintained on a permanent footing. There is a suggestion to set up CSTs, with appropriate representation, to support all long-term residential centres (LTRCs). There should be one CST per CHO area.

The Expert Panel strongly supports the establishment of integrated CSTs (with joint responsibility and leadership across CHOs and hospital groups) on a permanent basis. They will play a critical role in providing more robust governance and leadership for any future COVID-19 surge and ensure more appropriate integrated overall care and oversight to the frail older nursing home residents not just in this time of COVID-19 but beyond this pandemic.

[85] See D. W. Molloy, C. O'Sullivan, R. O'Caoimh, E. Duggan, K. McGrath, M. Nolan, J. Hennessy, G. O'Keeffe, K. O'Connor, 'The Experience of Managing Covid-19 in Irish Nursing Homes in 2020: Cork–Kerry Community Healthcare, Cork Ireland', *The Journal of Nursing Home Research* 6 (6th July 2020): 47–49.

Membership of CSTs must include representation from:

- general practice (a GP lead with an interest and sessional commitment to care in residential care facilities);
- geriatric medicine (a geriatrician with an interest in and dedicated sessional commitment to community geriatric medicine);
- public health specialist;
- palliative care (in collaboration with their community palliative care teams);
- senior infection control nurse;
- occupational health;
- advanced nurse practitioner;
- nursing home-based director of nursing (direct liaison with counterparts in public, private and voluntary nursing homes); and
- senior management from both the community and the regional hospital groups.

The support, expertise, and contribution of palliative care teams in the community has been highlighted as essential and appreciated by staff working in all residential care settings, be they public, voluntary or private. Similarly, short periods of stay for convalescence following an acute hospital stay are facilitated in some voluntary and private residential care facilities. Other specialty areas that should be involved on an as needed/consultation basis includes, but are not limited to, microbiology, infectious diseases, and old age psychiatry.

The lead general practitioner on CSTs and the GPs designated as the nursing home GP lead should have attained accreditation in postgraduate gerontological educational programmes as provided by their respective training bodies (ICGP & RCPI). This also must apply to senior nursing staff, especially the director of nursing/person in charge, advanced nursing practitioner and clinical nurse manager (CNM) grades in nursing homes. Similarly, all healthcare assistants (HCAs) require QQI level 5 accreditation. Nursing home providers, public, voluntary and private, must also contribute resources to support their staff participating in all relevant education and training programmes to include those relevant to the COVID-19 pandemic. Where applicable, they should also provide financial support to those staff seeking postgraduate gerontological accreditation.

The ICGP, RCPI and its faculties, IGS, Irish Society of Physicians in Geriatric Medicine (ISPGM), Irish College of Psychiatry and several Third Level Educational Institutions all run good quality postgraduate educational programmes.

In the context of coordinating the optimal medical care of frail older persons in residential care settings the Panel strongly advocates definitive cross College collaboration, specifically between the ICGP and RCPI's Clinical Advisory Group for Geriatric Medicine. Given that general practitioners and geriatricians will be working together as key members of the proposed CSTs and linking closely at the nursing home level, participating in joint postgraduate education programmes, especially for the medical care needs in nursing home settings, should be introduced. This will also present opportunities for collaborative much-needed nursing home research. These links should also be fostered within the framework of their respective postgraduate specialist training programmes.

The Panel received mixed views on the need for an identified GP lead in each nursing home. Feedback suggests that GP cover for nursing homes may be better coordinated in rural/county town settings rather than in larger urban settings. The coordination challenge is greater in those nursing homes with larger resident capacity - in some cases, as many as 10-15 GPs can attend their patients who are residents, but no one GP has an oversight function within that nursing home. A significant question arises in respect of clinical governance. The Panel suggests that an identified GP Lead would be contracted and, in addition to looking after their own patients in the nursing home, would also work closely with the Person in Charge, other senior nursing staff, and designated infection control nurse and a representative from the healthcare assistant staff in the nursing home.

The above issues necessarily require an overall nursing home 'team response' and neither could, nor should be addressed during individual GP-resident consultation visits. Not all general practitioner attendees need (or indeed wish) to be involved in this oversight role but it is essential that at least one lead GP has this responsibility in each residential care facility.

The historical 'Medical Officer' contract is, in expectation and salary, outdated and is quite unsuited to today's required role. This doctor must have dedicated sessional commitment and be incentivised to take on the role with an appropriate contract and remuneration. This applies, even more so, to the GP Lead members of the proposed CSTs who have a wider remit and responsibility as the key GP contact with their general practitioner colleagues in the CHO area.

Failure to urgently address these appointments will merely mean a continuation of the current unsatisfactory situation that applies in many nursing homes throughout the country. Therefore, it is recommended that a GP Lead be appointed to each CHO-based Community Support Team, and that each provider should appoint and contract at least one GP to have a lead role in each nursing home. It must be ensured that appropriate contracts are drawn up between each nursing home provider for each GP Lead with specified sessional commitment and sufficient remuneration to secure the required professional, commensurate with the level of responsibility attached to the role. A national framework describing the role and responsibilities of the GP lead should be developed by the Department of Health and the HSE as a matter of urgency, so that providers can operate within a consistent and clear set of requirements. The Department of Health should explore whether the particulars of this framework should be incorporated into the nursing homes regulatory framework.

The Expert Panel fully recognises the existing significant capacity constraints with regard to GP manpower. However, the importance of the general practitioner in providing clinical support and services in nursing homes cannot be overstated and the Panel strongly supports the case being made to increase the GP training programme capacity. The recruitment of more GPs must be planned and pursued as a matter of urgency.

The development, in the medium-term, of clinical governance models in the community should be explored further by the Department of Health in conjunction with the HSE, supported by an international evidence review of models of clinical governance in nursing home settings.

The policy subjects that require multidisciplinary collaborative input include:

- coordinating overall nursing home policy and its interface with outside bodies such as HSE, HIQA, DoH;
- education and training of nursing home staff in general and to ensure preparedness for a COVID-19 surge (or other predictable future winter infection outbreaks);
- response to and progress made related to HIQA inspection reports and recommendations, including identifying those responsible for their implementation;
- reviewing overall resident care plans;
- anticipatory care planning: what to do when a resident deteriorates in the so-called twilight hours when medical access is to the local On-Call service (e.g. SouthDoc, ShannonDoc) and a doctor with no prior knowledge of the resident;
- promoting the wider implementation of advanced care directives;
- end of Life Care Policy;
- agreed criteria for acute hospital referral.

### 7.1.3. Oversight and Guidance

It is emphasised by all stakeholders and is a characteristic of the nursing home setting that a nursing home should be seen as a resident's 'home' and not an 'institution'. The promotion of a pleasant conducive environment, empowerment and participation in the nursing home affairs is a key aspect of the HIQA inspection process and with good reason. Many of the HIQA reports emphasised examples of good practice in social activities and events and resident respondents to the Panel's engagement process poignantly said they felt safe as well as comfortable in their home. Residents outlined that the quality of food and meeting up with others at mealtimes were important practical features of daily life.

However, from a public health perspective there are aspects of this setting that pose inherent risk. Firstly, residents are in congregated living conditions with high risk of contamination and spread. There is a high degree of physical contact and intimate care support in such settings. Many of those who are frail or infirm may be restricted to a chair or bed for much of their time. There are also infrastructural issues including single, multiple or nightingale bedroom occupancy, shared bathroom and catering facilities and the general issue of high capacity occupancy. A balance must be struck between ongoing social interaction and public health considerations.

This sector is regulated by HIQA which has a team currently of 22 inspectors and performs a series of inspections, both announced and unannounced, on a regular basis, on average every 18 months, so that every registered home is assessed for compliance under legislation. The reports follow a similar qualitative format and are concerned with the quality of life as well as the risk assessment aspects. In line with legislation, the person in charge is normally a registered nurse with appropriate clinical experience and healthcare workers or healthcare assistants form a significant proportion of the teams. There are no clear guidelines on the minimum number of qualified staff who should be on duty, the minimum standards of qualification and training and protocols for ongoing needs assessment, dependency and care planning.

It is evident that the reports are transparently available and all these issues are addressed at site visits over one or two days but the standards could be more tightly defined. It must be said that there is no clear relationship to the compliance standards then operating and the COVID-19 pandemic and there is no systematic evidence that infection prevention and control is addressed in these inspections, which often focus more on safety issues such as fire drills and evacuation measures. Also, it is a matter of record in the stakeholder consultations that turnover of staff, difficulty in replacing those on sick leave and the reliance on a small pool of agency staff placed huge strain on providers at the height of the epidemic.

The HIQA standards have demonstrated that even when a standard is met, quality can still be absent. The nursing metrics developed for use in residential care facilities are a key enabler to measure quality care across private and public and provide opportunities for sharing, benchmarking and learning.[86] Likewise, public hospitals produce the Hospital Patient Safety Indicator Report (HPSIR), which is a monthly report that collates a range of patient safety indicators and is then reviewed by the senior accountable officer at both hospital-level and hospital group-level before publication on the website. The purpose of the HPSIR is to assure the public that the indicators selected and published in this report are monitored by senior management of both the hospital and hospital group on a monthly basis, as a key component of clinical governance.

[86] See eHealth Ireland, 'Nursing and Midwifery Quality Care Metrics', https://www.ehealthireland.ie/Case%20Studies/Nursing-Midwifery-Quality-Care-Metrics/

Considering the nursing metrics and the HPSIR, a quality indicators/resident safety model should be developed for nursing homes, requiring each nursing home to publish regular reports. This would support continued service improvement and outcomes and improve transparency with regard to compliance. HIQA should establish a register of all such reports provided by nursing homes. There is an opportunity to include infection prevention and control to these metrics to support nursing homes to prepare and manage outbreaks. The IGS proposed the establishment of a clinical governance oversight committee in all nursing homes, and this would be a practical means to review quality indicator/resident safety reports and action appropriate follow-up and assuring findings from the ongoing inspections are implemented.

Ensuring a quality assurance framework on preparedness is critical. As a matter of urgency, HIQA inspectors should physically assess nursing homes against the framework. While onsite inspections are labour intensive, their frequency should be increased as there is evidence that there is a disconnect between the self-assessment submitted by providers and HIQA's on-site assessments. Mandatory training records, including infection control, should be included in the inspection process. HIQA maintains a reporting relationship with the HPSC and communication with Department of Public Health, if identified public health concerns regarding a nursing home arise. HIQA and the HSE should ensure that appropriate escalation pathways are in place especially with regard to the CSTs, where in the public interest care or other concerns across all nursing homes are addressed.

### 7.1.4. Future Preparedness

The first cases of this new coronavirus acquired infection were reported by the WHO on 12th January 2020. In December 2019, a series of cases emerged in Wuhan, China greatly resembling viral pneumonia. COVID-19 took a grip in Wuhan province in China in early January and necessitated the largest lockdown so far seen in human history. Cases emerged in Southeast Asia before spreading quickly to North America. It has swept across the planet reaching Europe with certainty in late January and the first definite case in the Republic of Ireland was reported on the 29th of February. Although the WHO gave frequent briefings and public health guidance throughout January and February, it was not until 11th March 2020 that a global pandemic was declared. It quickly became clear that a significant proportion of those contracting the virus became very seriously ill requiring intensive care and these patients had a high mortality rate. It was also evident that age was a risk factor in itself, as was co-morbidity and underlying disease.

The infectivity and contagious nature of the disease was also a matter for concern and evolving evidence. Initially, guidance was influenced by the experience of SARS-Cov-1, which was known to cause severe lower respiratory tract infection with appreciable mortality but not to be so easily transmissible as an upper respiratory tract infection. It became clear however that COVID-19 was a more infectious disease, with an incubation period of up to 14 days. A series of reports from the ECDC documented the evolving evidence. On 2nd March 2020, it was concluded there was no strong evidence of transmission preceding symptom onset.[87] On 12th March ECDC reported that all EU/EEA countries and the UK were affected, and the pace of the increase of cases mirrored that which occurred in China in January.[88]

[87] See European Centre for Disease Prevention and Control, 'Rapid Risk Assessment: Outbreak of Novel Coronavirus Disease 2019 (COVID-19): Increased Transmission Globally: Fifth Update'. https://www.ecdc.europa.eu/en/publications-data/rapid-risk-assessment-outbreak-novel-coronavirus-disease-2019-covid-19-increased

[88] See European Centre for Disease Prevention and Control, 'Rapid Risk Assessment: Outbreak of Novel Coronavirus Disease 2019 (COVID-19): Increased Transmission Globally: Sixth Update', https://www.ecdc.europa.eu/sites/default/files/documents/RRA-sixth-update-Outbreak-of-novel-coronavirus-disease-2019-COVID-19.pdf

Clinical presentations ranged from asymptomatic to severe pneumonia which could lead to death. In addition to case reports, ECDC reported modelling studies that inferred that pre-symptomatic transmission could occur, but major uncertainties on this process remained. On 24th April an epidemiological description of a care home outbreak was published online by the New England Journal of Medicine (NEJM) which confirmed both the atypical presentation seen in elderly people and spread from asymptomatic care home residents to others.[89] The accompanying NEJM editorial made clear that upper respiratory spread was common and highly contagious.[90]

On 25th March ECDC reported that risk was moderate for all but very high for older adults and reported that asymptomatic individuals could be infected with the disease.[91] On 23rd April ECDC reported that a "recent modelling study suggested that asymptomatic individuals might be major drivers for the growth of the COVID-19 pandemic".[92]

By 12th March, the first measures of lockdown were instituted in the Republic of Ireland including the closing down of educational institutions. The National Public Health Emergency Team (NPHET) first established on 27th January 2020, recommended a series of measures aimed at suppression and containment of the virus at population level and these stringent general measures saw a very high degree of public compliance. The peak number of recorded cases occurred on 28th March 2020 and thereafter a flattening of the incidence curve occurred, with a fall in all parameters including daily new cases, numbers hospitalised and in intensive care, and deaths from the disease during April and May.

Age, underlying medical conditions, atypical presentation and high translation to more serious clinical manifestations are all risk factors characteristic of a nursing home population. The first line strategy is to prevent incidence but also to have appropriate clinical care from a lead medical practitioner, access to inter-disciplinary team support, properly developed care plans, access to specialist services and a pre-agreed end of life plan discussed with the resident, family members and care providers.

In the data chapter of this report the incidence and mortality patterns are reported and compared to the international trends. There is clear evidence of regional variation in the impact of the COVID-19 pandemic in Ireland and residential facilities are more concentrated in the areas most affected by the epidemic. According to the HIQA register of designated centres for older persons (accessed 4th July 2020), there are 261 facilities in Leinster and 111 of these are in Dublin. Similarly, the data analysis shows the total number of cases by county and province and the percentage occurring specifically in nursing homes varies considerably. As a general observation the higher the number of cases in a county, the higher the incidence in nursing homes, with some variability seen, for example in Cork, with 1,537 cases, (6% of all cases nationally), just 5% (79 cases) occurred in nursing homes. The cumulative rise in reported clusters was also steeper in nursing homes than in other long-stay or residential facilities.

[89] Arons, M.M., Hatfield, K.M., Reddy, S.C., Kimball, A., James, A., Jacobs, J.R., Taylor, J., Spicer, K., Bardossy, A.C., Oakley, L.P., Tanwar, S., Dyal, J.W., et al. for the Public Health–Seattle and King County and CDC COVID-19 Investigation Team (2020). Presymptomatic SARS-CoV-2 Infections and Transmission in a Skilled Nursing Facility. New England Journal of Medicine, 382, 2081-2090. DOI: 10.1056/NEJMoa2008457

[90] Gandhi, M., Yokoe, D.S., & Havlir, D.V. (2020). Asymptomatic Transmission, the Achilles' Heel of Current Strategies to Control Covid-19. New England Journal of Medicine, 382, 2158-2160. DOI: 10.1056/NEJMe2009758

[91] See European Centre for Disease Prevention and Control, 'Rapid Risk Assessment: Coronavirus Disease 2019 (COVID-19) Pandemic: Increased Transmission in the EU/EEA and the UK: Seventh Update' (25th March 2020), https://www.ecdc.europa.eu/sites/default/files/documents/RRA-seventh-update-Outbreak-of-coronavirus-disease-COVID-19.pdf

[92] See European Centre for Disease Prevention and Control, 'Rapid Risk Assessment: Coronavirus Disease 2019 (COVID-19) in the EU/EEA and UK: Ninth Update' (23rd April 2020), https://www.ecdc.europa.eu/sites/default/files/documents/covid-19-rapid-risk-assessment-coronavirus-disease-2019-ninth-update-23-april-2020.pdf.

Data from CIDR suggest that most of those diagnosed with COVID-19 in the nursing home population, as with the general population, have recovered. In both instances a strong age gradient for mortality was evident. This is a highly contagious virus spread by droplet infection which can be transmitted from surfaces by hand contact to nose and mouth. Infection is more likely in indoor settings than outdoors and the greater the social distance between individuals and the less time in close contact the lower the risk. As described earlier the disease can be transmitted by asymptomatic and pre-symptomatic people and may present atypically especially in older people. This necessitates a high index of suspicion and appropriate protocols for action. The rapidity with which the epidemic took hold over a short period of weeks must also be a major learning point.

There is reason to believe that where there is ongoing community transmission, settings like nursing homes will be more vulnerable to exposure from the many interactions with external people. The focus in early March was on banning visitors but transfer protocols for patients and stabilising of the workforce is also critical. The lockdown in Ireland arrested community spread but the incidence was greater in the capital city and surrounding counties because of the presence of ports and airport, greater population density and reliance on public transport. Other factors at play include the profile of workers in nursing homes and the interaction with other cluster risk situations such as family members, shared accommodation and contact with other high-risk areas such as the meat packing industry.

Size matters in a contagious disease because close proximity to a large group of people risks transmission to others. There is a need for more definitive research on this question. For instance, a list of all deaths by nursing home location was published in the Irish Times from HSE compiled data. An analysis by Romero-Ortuño & Kennelly showed that the crude death rate should be corrected for size of nursing home/units as more deaths occurred in larger nursing home/units but their analysis also showed no significant association with HIQA compliance reports on staffing, governance/management, premises, and infection control.[93] A review by the Expert Panel team of the HIQA Inspectors' most recent report content for selected units high concentration of deaths showed that major compliance issues were rare. A similar analysis with the same data sources of the HIQA database of registered units (Stakeholder submission to Expert Panel 2020)[94] showed that the average maximum occupancy was greater in nursing homes with deaths relative to those where none occurred. In a recent analysis of the evolution and impact of COVID-19 in care homes in one geographic region in Scotland, it was reported that outbreaks were strongly associated with care-home size and recommended shielding of susceptible residents and rapid action to minimise outbreak size.[95]

The HSE should develop an integrated infection prevention and control strategy in the community with particular focus on all nursing homes, public, private or voluntary. Each individual nursing home should adopt a clear IPC strategy for itself which should be incorporated into its preparedness plan. It should be reviewed regularly to ensure consistency with the HSE's community IPC strategy.

It is crucial to preparedness that a comprehensive infection prevention and control strategy is sustained during the next 18 months. It is also crucial that information systems operate optimally and in a linked manner to ensure timely surveillance is in place.

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[93] Romero-Ortuno, Roman, and Seán Kennelly, 'COVID-19 Deaths in Irish Nursing Homes: Exploring Variation and Association with the Adherence to National Regulatory Quality Standards' (6th April 2020), https://www.irishgerontology.com/news/latest-news/Covid-19-deaths-irish-nursing-homes-new-research.

[94] Roe, M., F. Butler, P. Wall, 'An Analysis of Deaths Related to Covid-19 in Irish Nursing Homes Using Publicly Available Data', 18th June 2020 [unpublished submission to the Expert Panel].

[95] Burton, Jennifer K., Gwen Bayne, Christine Evans, Frederike Garbe, Dermot Gorman, Naomi Honhold, Duncan McCormick, Richard Othieno, Janet Stevenson, Stefanie Swietlik, Kate Templeton, Mette Tranter, Lorna Willocks and Bruce Guthrie, 'Evolution and Impact of Covid-19 Outbreaks in Care Homes: Population Analysis in 189 Care Homes in One Geographic Region', medRxiv preprint, 10th July 2020, https://www.medrxiv.org/content/10.1101/2020.07.09.20149583v1.full.pdf.

Further development work between the HSE, HPSC and HIQA should be undertaken to ensure an integrated approach to data collation, coordination, sharing and analysis is undertaken to support ongoing timely surveillance. The development of a data requirement framework for nursing home providers should be developed to identify required data flows and timings so that appropriate data is collected regularly, consistently and, in a streamlined way.

Access to good quality data in a timely manner is critical to planning services and responses and the requirement for integrated information management systems with data available in real time is critical from an ongoing preparedness perspective. Across the range of services provided by, and on behalf of, the HSE, to older people in the community there needs to be centralised information systems to: assist ongoing services responses, and reporting by the HSE; assist the HSE, Department of Health, and Government in policy development, informing resource allocation, contingency planning and planning future capacity. The development of an integrated IT/ information management system for older persons services is therefore critical. All relevant service providers, should ensure that they interface with and integrate with the HSE developed system.

### 7.1.5. The Nursing Home Model in Ireland

Older people receive medical care in a range of settings. The general practitioner is the first person of contact in the community setting. As for the general population, when an older person, living in their own home, has a health concern, their GP is the person they will contact first. As outlined in a number of submissions to the Expert Panel, general practitioners (GPs) often know their patients 'from the cradle to the grave'. A typical general practice list will include individuals/families who will have been on their list for many years and so will be well known to each other. In other words, patients in older age will have built up a strong bond of trust, confidence and often friendship with their family doctor.

Accordingly, GPs are in a unique position to care for the medical needs of their older patients once/if they are admitted to residential care settings. They work as independent contractors in the healthcare system and their patient list includes those with a) full medical cards (which facilitates access to an extensive range of services and supports, including prescribed medications free of charge); b) a GP Only card (everybody >70 years, which gives access to free GP consultation). But, unlike those with the full medical card, this group does not have automatic eligibility for the wider range of services. There is a third category who attend their general practitioner as private patients – less applicable now to older people since the introduction of the 70 years+ GP Visit card.

GPs have universal access to 'routine' blood investigations and x-ray requests; this is less so for other tests such as endoscopy and more sophisticated radiology like CT scanning. GPs should have easier access to such investigations, guided by request protocols agreed with the relevant consultant specialists. Expanding GP access to a broader range of diagnostics would reduce hospital OPD waiting times and allow for quicker identification of those patients requiring referral to hospital-based specialists.

Most day-to-day interactions between patient and GP are managed at the community level without the need for referral or seeking a second opinion from the acute hospital sector. A minority in any one year will require emergency hospital admission; a larger number will need an urgent 'elective' referral, but the need for either is more the exception than the rule. Those patients that have accessed the acute hospital service for whatever reason may either return to the care of their GP or, for patients with more complex illnesses, care is shared between the patient's GP and the hospital specialist team(s).

The GP plays a key role in continuing to meet the medical care needs of their patients if/when admitted to the local community hospital on a short term or more permanent basis or to a voluntary or private residential care facility for long-term residential care. In recent times there has been a tendency to label all these facilities under the 'nursing home' heading, which ignores the important role of and wide range of services provided

by Community Hospitals all around the country. The services include: a) Short stay acute admission for those with an acute illness that cannot be safely managed at home, but can be in the local community hospital, thus reducing the referral load to the relevant acute general/regional hospital; b) Continuing the required further inpatient rehabilitation of patients discharged from the acute service, e.g. post stroke, hip fracture; c) Day care services for those at home requiring further support and therapy; d) Scheduled flexible respite care admissions – to support the carers of frailer older persons who otherwise might be in long-term residential care; e) End-of-Life care: Community Hospitals play an important role in providing the end-of-life care whether for patients admitted from home or for those already resident in the Community Hospital, ably assisted by community palliative care. Respite and convalescence support is also provided by private and voluntary nursing homes.

Contrary to traditionally accepted 'wisdom', there is increasing evidence to show that even those with significant dependency levels, including dementia, can be safely, and some would argue more appropriately, reside in domestic, more 'homely' settings, always provided the required homecare supports are put in place. That said, there will be a continuing need for safe high quality long-term residential / nursing home care especially for persons with higher physical and/or cognitive dependency.

The Panel has been told, contrary to popular belief, that there is no longer any significant difference in the dependency levels of older residents in private, public or voluntary institutions, but this needs validation. There is no agreed national validated assessment tool for measuring person dependency in residential care to plan for and meet residents care needs which need to be subject to regular review. The introduction and application of a universal common assessment tool, that is accurate, reliable, reproducible and easily used, measuring dependency levels has been sought for years. The application of such an assessment tool is a suitable mechanism for validating the extent, if any, of variation between dependency levels in public, private and voluntary nursing homes.

Representations to the Panel argued strongly for the implementation of the InterRAI / Single Assessment Tool across the healthcare system including residents in nursing homes. It provides a universal assessment of the needs of older people. It will allow essential data to be collected to support care planning, integration with community/acute hospital specialist services, and professional development. The Panel has been advised that plans are at an advanced stage with imminent roll out now expected. However, the assessment tool must be supported by national policy, appropriate protocols and standard operating procedures. These should be developed as a matter of urgency to support the full adoption of interRAI for care needs assessment for older persons services.

The Qmci Score is a rapid easily used and reproducible screening test of cognitive function. It was developed using data from a wide variety of sources including general practices, community rehabilitation facilities and memory clinics. It has been validated in multiple languages and has been favourably compared with other short cognitive screens (www.qmci.ie).

The Clinical Frailty Score (CFS) also has good predictive outcomes value; it can also be used as an educational tool in training programmes for medical, nursing and other care staff in nursing homes. The CFS was recently found to be a better guide than patient age and co-morbidities for informing decision-making about medical care in the acute hospital setting. The use of CFS in nursing homes might confer a similar benefit to this setting.[96] Consideration should be given to the integration of Qmci or similar screening tests and the CFS or other such standards tools into the care needs assessment process (interRai) for use in nursing home settings, including in relation to ongoing review of resident needs.

[96] See Jonathan Hewitt, Ben Carter, Arturo Vilches-Moraga, Terence J. Quinn, Philip Braude, Alessia Verduri, Lyndsay Pearce, Michael Stechman, Roxanna Short, Angeline Price, Jemima T. Collins, Eilidh Bruce et al, 'The Effect of Frailty on Survival in Patients with COVID-19 (COPE): A Multi-Centre, European, Observational Cohort Study', The Lancet Public Health (30th June 2020), https://www.thelancet.com/pdfs/journals/lanpub/PIIS2468-2667(20)30146-8.pdf.

Currently there is no agreed safe staffing and skill mix framework applied to nursing homes. Staffing requires regular review and adaptation e.g. during a pandemic when staffing levels need to be altered to ensure full implementation of best practice infection prevention and control guidelines. There is also evidence of high ratio of healthcare assistants (HCAs) to trained staff. Many HCAs are working across various sites, including hospital and community. The lack of directly employed staff compromises the ability to manage and monitor their competencies and training needs. On 2nd April 2020, HSE asked staff agencies to complete full rosters for an 8-12-week period as opposed to per shift. Per shift rostering compromises continuity of care and assessment of a deteriorating resident. Some staff required occupational health support due to non-registration with a GP.

Staff absenteeism was a particular challenge during COVID-19 with some homes experiencing 40-50% absenteeism placing demand on existing staff with little option to replace sick leave. In many situations this was further escalated as senior managers were infected resulting in diminished leadership and capacity to contain the pandemic effects. Options taken to replace leave include agency staff utilisation, redeployment from other community settings and acute hospitals. The HSE played an important role, on foot of NPHET adopted public health measures, to support nursing homes with emergency staffing provision. This role, in emergency situations, where nursing homes have exhausted all possible resources, should continue.

The Person in Charge (PIC) should have a requirement for gerontology training or a formal qualification, QQI level 5 should be necessary for healthcare assistants. An amendment to current regulations revoked the obligation for the PIC to have a formal gerontology qualification. Continuing education should be available on an ongoing basis. Contracts, pay scales and staff development in nursing homes require review. There is an immediate and ongoing need to attract staff to work in this area but it needs to be attractive with career development opportunities. A review should be undertaken of the regulatory change that removed the requirement of the presence of a registered nurse on duty at all times in certain circumstances (i.e. where the Chief Inspector of social care services is satisfied that a registered nurse is not required).[97] During the pandemic residents need close monitoring, regular updates of care plans and care initiated to meet new changes - this requires clinical expertise. Access to infection prevention and control (IPC), including external expertise, in nursing homes was inadequate, initially at least. This latter role is required to ensure the implementation of best practice guidelines, staff training in PPE, standard precautions and liaison with acute and HSE IPC supports.

Person-centredness is key. Every effort should be made to preserve the choice, autonomy and needs of all residents at all times. All providers should be familiar with the *"Ethical Considerations Relating to Long-Term Residential Care Facilities in the context of COVID-19"* published by the Department of Health and should incorporate its principles into care and service delivery.[98] During a pandemic or any future infection outbreak, public health measures should reflect these principles. People with dementia are a vulnerable cohort with different but particular needs and any COVID-related restrictions that are implemented need to be aligned with a person-centred approach; discussion with family/relatives is essential.

## 7.1.6. Representation and Advocacy

Respecting each individual's will and preference on all aspects of their care are fundamental rights. Preferences regarding a person's future anticipatory medical care can be captured in a written statement if an advanced healthcare directive has been completed. Such directives allow individuals plan their own future healthcare in advance. It makes sure their wishes will be known, should a time come when they can no longer understand their options or communicate their choices to others.

[97] Regulation 15(3) of the Health Act 2007 (Care and Welfare of Residents in Designated Centres for Older People) Regulations 2013.
[98] See Department of Health, Ethical Considerations Relating to Long-Term Residential Care Facilities in the Context of COVID-19 Guidance, (4th June 2020) https://www.gov.ie/en/publication/37ef1-ethical-considerations-relating-to-long-term-residential-care-facilities/

Staff in nursing homes have acknowledged and benefited from their participation in education and training sessions, virtual and face to face, on the value and correct use of such advanced healthcare directives. Enacting the Assisted Decision Making (Capacity) Act 2015 is long overdue, especially the sections related to advanced healthcare directives and capacity. The Assisted Decision-Making Capacity Act needs to be implemented without further delay.

Independent advocacy for nursing home residents is not promoted compared to advocacy for other vulnerable/ marginalised community groups throughout the pandemic. There is a degree of resistance by some nursing homes to support and provide access to independent advocacy, as was mentioned in a number of responses to the Panel. The HSE safeguarding service, while it is available to all settings, does not have any legislative authority in relation to private nursing homes. There is no legal or contractual obligation on private nursing homes to cooperate or assist with the safeguarding service. Social work services for older people are essential; many older people have to negotiate difficult life altering decisions and transitions. When they do not have access to social worker support advocacy services are of increased importance. The Panel recommends that:

- the extension of the National Patient Advocacy Service to nursing homes is explored nationally, for both private and public and public nursing homes. HIQA should continue to highlight and promote independent advocacy services available to residents.
- established independent advocacy services continue to be promoted and in the interim as part of the exploration of the extension of the National Patient Advocacy Service, HIQA and the Department of Health should explore introducing a requirement that all nursing home providers promote, facilitate and engage meaningfully with independent advocacy services.
- the oversight and governance of safeguarding concerns that occur within private nursing homes needs to be reformed, it is suggested that the HSE Safeguarding Service be extended to cover all nursing homes. In the interim, where an individual care concern is raised to HIQA, the concern should be reported to the relevant Safeguarding and Protection Team (SPT) for investigation. All providers should engage with, facilitate and support the SPT in its work.
- access to social work services for older people is essential; many older people have to negotiate difficult life altering decisions and transitions.

The Department of Health should explore a suitable structure and process for external oversight of individual care concerns, once internal (nursing home) processes have been exhausted without satisfaction.

The National Care Experience Programme (NCEP) was established in 2019 to improve the quality of health and social care services in Ireland by asking people about their experiences of care and acting on their feedback. It is a partnership between HIQA, the HSE and the Department of Health, with patient representatives providing their input at each stage of the programme. In the hospital setting, it has aimed to understand the experience of patients and uses this feedback to inform the future development, planning, design and delivery of improved patient-centred care. It is imperative that nursing home residents are provided an opportunity to have their voice and experience heard in such a structured manner, with a view to improving services and the lived experience. The Panel understands that it is intended to roll out the Care Experience Programme to nursing homes in a future phase. The Panel recommends that this be pursued without delay.

Regulatory inspectors who are familiar with the nursing home sector did not continue to physically inspect nursing homes during the pandemic, especially the nursing homes about which they had previously raised concerns. To build public confidence, to safeguard residents and to secure compliance with the regulatory framework, increased physical regulatory inspections must be mobilised, including continued oversight of and checks on preparedness. Feedback was received from nursing home respondents that guideline documents should be coordinated and distributed from one source to avoid duplication and to ensure that accurate, consistent and timely information is provided.

Sláintecare sets out to redesign our health and social care services to meet these challenges and to improve the health and wellbeing of the population. Consistent with this is the focus on keeping people well in their homes and communities for as long as possible, i.e. get *"the right care, in the right place, at the right time"*. The policy objective is to support people with care needs to continue to live in their own homes and communities for as long as possible. Important reforms include the planned Statutory Homecare Scheme and the need to enhance access to homecare, expansion of the range of housing options within local communities as people's needs change and integration of services across the care continuum, underpinned by multi-disciplinary teams with strong systems of clinical governance. This requires working with a range of stakeholders and other Departments.

Key relevant policy documents include the *National Positive Ageing Strategy*,[99] the *Irish National Dementia Strategy*,[100] *Housing Options for our Ageing Population Policy Statement*,[101] the *National Carers' Strategy*,[102] and the *Report of the National Advisory Committee on Palliative Care*.[103] The policy framework, *Housing Options for Our Ageing Population Policy Statement* details a set of actions to develop new housing models, including those with associated care and support models which fall between home care and full-time nursing home care. The objective is to ensure older people stay socially connected within their community and to provide essential care and supports where needed, while preserving and protecting independence, functionality, and social connectedness for as long as possible, in a way that is as affordable as possible for older people themselves and sustainable for the State.

### 7.1.7. End of Life Care

There is only one chance to get end-of-life care right and we know that dying alone can be hugely distressing both for the dying person and their families. Care of the dying patient and family (despite being an old title) is as important today as when Dame Cecily Saunders first introduced the concept of palliative care (in the 1950s)[104] at the end of life and all that it entails. Depending on the experience of relatives/friends, if poorly managed, it will have a prolonged effect on the normal grieving process. The experience of dying in the COVID-19 pandemic may result in a large number of families suffering pathological grief into the future. It is well acknowledged that one's experience of the death of a loved one will affect how one deals with one's own impending death.

We must have a keen appreciation for the impact of a death on a fellow resident. For those who witnessed many losses and may suffer varying degrees of emotional trauma, it is important to recognise that they need a formal way of expressing their grief as a community. If not facilitated, the resident may quietly fear their own death. Residents need reassurance that their own death will be acknowledged and their life celebrated and that friends and family will be cared for when their time comes.

[99] Department of Health, National Positive Ageing Strategy, 30th April 2013, https://www.gov.ie/en/publication/737780-national-positive-ageing-strategy/?referrer=http://www.health.gov.ie/healthy-ireland/national-positive-ageing-strategy/

[100] Department of Health, National Dementia Strategy, December 2014, https://www.gov.ie/en/publication/62d6a5-national-dementia-strategy/?referrer=http://www.health.gov.ie/healthy-ireland/national-positive-ageing-strategy/the-irish-national-dementia-strategy/

[101] Department of Housing, Planning and Local Government and Department of Health, Housing Options for Our Ageing Population, February 2019, https://www.gov.ie/en/publication/ea33c1-housing-options-for-our-ageing-population-policy-statement/

[102] Department of Health, National Carers Strategy, July 2012, https://www.gov.ie/en/publication/a1e44e-national-carers-strategy/#:~:text=The%20aim%20is%20to%20support,strategy%20was%20published%20in%202012

[103] Department of Health, Report of the National Advisory Committee on Palliative Care, 10th June 2001, https://www.gov.ie/en/publication/06aecd-report-of-the-national-advisory-committee-on-palliative-care/

[104] See Caroline Richmond, 'Dame Cicely Saunders, Founder of the Modern Hospice Movement, Dies', British Medical Journal, https://www.bmj.com/content/suppl/2005/07/18/331.7509.DC1. https://www.bmj.com/content/suppl/2005/07/18/331.7509.DC1

If a nursing home does not have adequate numbers of senior nursing staff on duty at all times, there is a risk that end of life care is compromised. Many nursing homes required assistance from gerontologists and specialist palliative care teams to guide and support staff through end of life care issues. Nursing Homes Ireland stated that their members are used to dealing with and managing residents at end of life, however when COVID-19 arrived in nursing homes, the scale of assistance staff required by some was more than expected. Many, (but not all) required assistance with anticipatory prescribing and assessment of end of life care plans as residents' conditions changed. Communication with relatives of dying residents required a higher level of skill and time as deterioration occurred and death approached at speed. Lack of family visiting may contribute to delayed symptom awareness by staff.

It was evident that the expertise of geriatricians and community or hospital palliative care teams, once linkage was established, was appreciated by staff and assisted in end of life care decisions as required. It is difficult to establish the effect of the isolation of COVID-19 residents at the end of life: evidence was given from gerontologists that end of life care symptoms were well managed. Interviews with and submissions by relatives described very distressing accounts of the effect of physical isolation from each other. Death and dying grief supports were curtailed/non-existent in some instances.

Communication with relatives regarding a deteriorating relative and how symptom control is being managed is important. Visitor guidelines for the future can take account of our better public health understanding of the risks associated with this disease and require individual assessment. Compassionate visiting was advocated by the Irish Hospice Foundation. Bereavement support for individual residents and the facilitation of informal bereavement gatherings of all residents was discussed. Bereavement support for families of deceased is required: feeling of overwhelming grief, coupled with guilt at not being able to be present at end-of-life are significant impacts and feelings arising. Communication is therefore more important than ever before. Providers should offer to hold family meetings to provide feedback and answer/explain the many unanswered questions as a result of restrictions. These meetings should be supported with independent advocacy. Staff debriefing and counselling supports by a trained person and individual ongoing support should be available if required.

The Panel supports the initiation of a joint HSE-IHF collaborative national programme on palliative, end-of-life and bereavement care for the nursing home sector that engages all stakeholders and improves quality of care across the sector. This initiative could be established along the same lines as the Joint HSE-IHF Hospice Friendly Hospitals Programme, launched nationally in 2017.

## 7.1.8. Conclusion

A major aspect of modern public health is the improved life expectancy in developed economies. Many factors contribute to that longevity, including the declines in cardiovascular diseases associated with reductions in smoking and an emphasis on healthier lifestyles. Older people have contributed as citizens and taxpayers throughout their lives and the benefits of cross-generation interaction and engagement are many. Young adults today know their grandparents in a way not seen in the past and they benefit from the experience.

Many younger grandparents have acted as carers for their children's children in this modern commuter age. The people over 65 in Ireland today include the baby-boomer generations born after the Emergency period (1946-1955), and the older old, those born around the time of the War of Independence and the establishment of the Free State and the later establishment of the Republic of Ireland (1920-1945). When we speak of commemorating one hundred years of history these citizens are the living embodiment of that past. These are the people who survived into old age but were inordinately the victims of the pandemic. While often overlooked by the health system and the communities they serve, nursing homes are essential to the continuum of care across the life cycle, particularly in times of crisis. As we mourn the profound loss of life of nursing home residents in the wake of COVID-19, may we forever honour these lives by learning from this tragedy and creating a better system.

The COVID-19 Nursing Homes Expert Panel sets out below a range of recommendations. These recommendations have been developed on foot of and informed by the very substantial engagements with a variety of experts and organisations; examination of key documentation; data analysis; an evidence review and importantly from direct engagements with nursing home residents, families and staff. The Panel submits these recommendations following considered deliberations and they should be read in line with the entirety of this report, and especially in reference to the discussion in this chapter. In the context of the significant importance of the continued response and reform of nursing home care in the context of COVID-19 and beyond, the Panel recommends that the relevant Government Departments ensure that sufficient resources are assigned to the responsible Departments and agencies to ensure the timely implementation of these recommendations.

## 7.2. Recommendations

***Table 7.1*** *COVID-19 Nursing Homes Expert Panel Recommendations*

| # | Recommendation | Suggested Lead Agency | Suggested Timeframe |
|---|---|---|---|
| **1. Public Health Measures** | | | |
| 1.1. | Continue the enhanced public health measures for COVID-19 Disease Management in Long-term Residential Care (LTRC) adopted by NPHET at its meetings of 31st March 2020 and 3rd April 2020, including PPE supply to nursing homes; staff accommodation; contingency staffing teams; preparedness planning etc. (see appendix 2) | HSE, HIQA, Each Nursing Home Provider as relevant | Ongoing |
| 1.2. | HSE COVID-19 Response Teams have been a critical initiative. These teams must remain in place. These teams should be standardised in terms of operation and composition and must be overseen jointly by HSE CHOs and Hospital Groups, who should have joint responsibility and accountability for their operation. | HSE and Hospital Groups | Immediately and ongoing |
| 1.3. | It is critical that regional public health departments are provided with sufficient resources to have a staff complement and skill mix of team members in place to provide local support.<br><br>The Crowe Howarth recommended implementation process should continue on a timely basis. | HSE | Immediately<br><br>Ongoing |
| **2. Infection Prevention and Control (IPC)** | | | |
| 2.1. | Develop an integrated infection prevention and control strategy in the community with particular focus on all nursing homes, public, private or voluntary. | HSE | Within 1 month of publication of this report |
| 2.2. | Each nursing home should adopt a clear IPC strategy, including deep clean protocols, for itself which should be incorporated into its preparedness plan. It should be reviewed regularly to ensure consistency with the HSE's community IPC strategy. | Each Nursing Home Provider | Within 1 month of publication of this report |
| 2.3. | In line with public health and ECDC guidance, nursing home residents should continue to be prioritised for testing with rapid reporting of results. | HSE (HPSC) | Immediate and ongoing |
| 2.4. | A plan for and monitoring of a programme of periodic testing for healthcare workers in nursing homes should be continued. Associated protocols should identify the periods. | HSE (HPSC) | Within 1 month of publication of this report – monitoring and review ongoing |
| 2.5. | Ensure there is rapid turnaround capacity in testing and contact tracing system. | HSE (HPSC) | Ongoing |

| # | Recommendation | Suggested Lead Agency | Suggested Timeframe |
|---|---|---|---|
| 2.6. | It is essential that in-house staff who can undertake sample swabbing and reliable labelling are available, and that there is proximal access to a laboratory with Laboratory Information Management Systems (LIMS) follow up for contact tracing for both residents and staff. | Each Nursing Home Provider | Ongoing |
| 2.7. | (a) Infection control training should be mandatory for all grades of nursing home staff.<br><br>(b) Nursing home staff should have access to 'train the trainers infection control' training programme approved by the HSE.<br><br>(c) Commitment required by healthcare agencies to formally confirm evidence of IPC, including PPE training prior to allocating staff to nursing homes. Nursing home providers should not contract an agency staff without evidence of IPC/PPE training. Each provider should have documentary assurance from the agency that the staff member has had the requisite training. HIQA should undertake compliance checks.<br><br>(d) Every nursing home requires onsite access to a trained infection control lead on each shift. That lead will ensure IPC protocols are implemented and will support staff to do so. | (a) Each Nursing Home Provider<br><br>(b) Each Nursing Home Provider and HSE<br><br>(c) Staff Agencies and each Nursing Home Provider<br><br>(d) Each Nursing Home Provider | Immediate and ongoing |
| 2.8. | A user-friendly, consistent protocol for ordering and for the ongoing supply of additional COVID-19 related PPE to nursing homes by the HSE needs to be refined.<br><br>Similar protocols must be put in place for the ordering and supply of other essential COVID-19 management related equipment. These protocols should be kept under review during the pandemic.<br><br>Each nursing home is responsible for and should have an emergency supply of PPE and other COVID-19 related equipment in the event of a cluster. This should be included in preparedness plans. | HSE<br><br>Each Nursing Home Provider | Ongoing |
| 2.9. | Influenza vaccine should be prioritised for all residents unless medically contraindicated of all nursing homes once it becomes available and consider making it mandatory for staff. | HSE and Department of Health | Planning should commence immediately |
| 2.10. | Management of entry and exit: Examine options for zoning within care homes so different entrances/exits can be used for different parts of the home. This examination should be documented with results and actions incorporated into preparedness plans. | Each Nursing Home Provider | Within 3 months |

| # | Recommendation | Suggested Lead Agency | Suggested Timeframe |
|---|---|---|---|
| **3. Outbreak Management** | COVID-19 is highly contagious and has atypical presentations in older adults. There needs to be a strong clinical index of suspicion. Nursing homes need an immediate action plan for when COVID-19 cases are suspected and must include the following elements, in accordance with HSE protocols: | | |
| 3.1. | Access to rapid testing with fast tracked results, as above. | HSE | Ongoing |
| 3.2. | PPE to be readily available and staff training with onsite supervision on every shift to ensure PPE being used correctly. Training should be documented and records available for inspection by HIQA. | Each Nursing Home Provider<br><br>HIQA (compliance oversight) | Ongoing and all staff should be trained within 2 months |
| 3.3. | Sustain protocols for self-isolation, quarantine, cohorting and referral to GP Lead. | Each Nursing Home Provider | Ongoing |
| 3.4. | Suspect cases and close contacts need to be isolated pending the results of rapid testing. | Each Nursing Home Provider | Ongoing |
| 3.5. | Facilities must have ability and space to isolate and cohort residents and a clear plan on how this will happen. This plan should be incorporated into preparedness plans. | Each Nursing Home Provider | Ongoing |
| 3.6. | Access to safe staffing levels at all times and to include required skill set on every shift. | Each Nursing Home Provider | Ongoing |
| 3.7. | Social distancing facilities for residents and staff should be in place and maintained. | Each Nursing Home Provider | Ongoing |
| 3.8. | Each provider should incorporate written plans on each of the above into their preparedness plan for review by HIQA. | Each Nursing Home Provider<br><br>HIQA (compliance oversight) | Ongoing |
| **4. Future admissions to Nursing homes** | | | |
| 4.1. | Ensure all new residents coming from the community or proposed transfers from hospital are tested for COVID-19 prior to admission. | Each Nursing Home Provider and HSE | Ongoing |
| 4.2. | Admissions should only be made to nursing homes who can demonstrate their infection control measures are of sufficient standard to ensure there is no risk of onward infection. HIQA should maintain a register of those nursing homes it deems to have demonstrated sufficient infection control standard reached, to support informed decisions on admissions in this regard. | Each Nursing Home Provider, HSE and HIQA | Ongoing |
| 4.3. | New Residents must be isolated according to HPSC protocol. | Each Nursing Home Provider | Ongoing |

| # | Recommendation | Suggested Lead Agency | Suggested Timeframe |
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| **5. Nursing Home Management** | | | |
| 5.1. | Log of all persons/staff entering nursing homes should be maintained by each nursing home and available for inspection by HIQA. | Each Nursing Home Provider<br><br>HIQA (compliance oversight) | Ongoing |
| 5.2. | Nursing homes should have a clear written back-up plan when regular staff cannot work or fail to turn up for work. This should be incorporated into the nursing home's preparedness plan for review by HIQA. | Each Nursing Home Provider<br><br>HIQA (compliance oversight) | Immediate |
| 5.3. | All Healthcare Assistants (HCAs) should have a relevant QQI Level 5 qualification or be working towards achieving it. A phased pathway towards achieving this should be in place. The requirement's inclusion in the regulatory framework should be considered. | Each Nursing Home Provider<br><br>Department of Health (if regulation required) | An education plan for each healthcare assistant should be in place by each provider within 18 months of the publication of this Report |
| 5.4. | Framework for Safe Staffing and Skill mix (published 2018) should be prioritised and urgently developed to apply in nursing homes - public and private, nationally. | Department of Health | Within 18 months of publication of this Report |
| 5.5. | While Phase 3 of the Safe Staffing Framework is developed, in the interim, evidence and learnings from earlier phases of the Framework should be examined and used to inform interim changes to staffing in nursing homes. These learnings should also be used to develop guidance on staffing levels and skillmix in surge situations arising from COVID-19. These changes should be readjusted as Phase 3 develops and is rolled out. | Department of Health | 2020 |
| 5.6. | For the next 18 months or until the declaration of the end of the Global pandemic by WHO, staff employed by a nursing home should be precluded from working across multiple sites and adequate single-site employment contracts should be put in place to support this. | Each Nursing Home Provider (employment)<br><br>Department of Health (if regulation required)<br><br>HIQA (compliance oversight) | Planning should commence immediately |

| # | Recommendation | Suggested Lead Agency | Suggested Timeframe |
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| 5.7. | A review of employment terms and conditions of nurse and healthcare assistant staffing grades in nursing homes should be undertaken with a view to ensuring future capacity and the supply of qualified staff. | Department of Enterprise, Trade and Employment | Within 18 months |
| 5.8. | Occupational health and HR support, including psychological supports, for all staff is necessary and access should be put into place. | Each Nursing Home Provider | Immediately |
| 5.9. | Increased integration of private and voluntary nursing homes into the wider health and social care systems requires enhanced transparency of operation, funding and finances of these nursing homes. The funding and expenditure (public and private monies) utilisation by private and voluntary providers in providing and improving services should be clearly transparent and measures should be considered to ensure this. | Department of Health, NTPF, HSE | Planning should commence immediately |
| **6. Data Analysis** | | | |
| 6.1. | Improve linkage amongst different datasets such as CIDR with HIQA and GRO datasets. This may include updating the CIDR outbreak file data fields to include a HIQA ID. | HSE (HPSC) and HIQA | Planning should commence immediately with a view to completing linkages in 2020 |
| 6.2. | Implementation of Individual Health Identifier (IHI) as a matter of priority to enable tracking of patients between community and acute hospital sectors. | HSE and Department of Health | Progress should be made without delay |
| 6.3. | Develop and introduce an integrated IT system for older persons services including residential, home support, day care, needs assessment and care planning, so as to support the provision, management, delivery and reporting of services, and especially for planning alternative service provision and planned capacity development in the event of evolving public health measures. | HSE | Introduce within 18 months or sooner |
| 6.4. | Realignment of geography used in CIDR to Regional Health Areas (RHAs), counties or other, in line with current health system structures as they evolve. | HSE (HPSC) | Planning should commence immediately |
| 6.5. | Introduction of the ability to link and track contacts into CIDR or using another data programme. | HSE (HPSC) | Planning should commence immediately |
| 6.6. | Having regard to improved data linkages (6.1), the HSE (HPSC) should produce a detailed report on the management and outcomes of the multiple clusters that occurred during the COVID-19 pandemic with learnings on causal factors and preparedness for infection prevention and control. | HSE (HPSC) | Within 9 months of the publication of this Report |
| 6.7. | HPSC, HSE and HIQA should produce a detailed epidemiological analysis comparing both risk and protection factors associated with having an outbreak or not at all in HIQA regulated facilities. | HSE (HPSC) and HIQA | Within 3 months of the publication of this Report |

| # | Recommendation | Suggested Lead Agency | Suggested Timeframe |
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| **7. Community Support Teams** | | | |
| 7.1. | Establish new integrated Community Support Teams with clearly defined joint leadership and responsibility across each CHO and hospital group area on a permanent basis, in line with the discussion in this chapter. In the interim, the existing COVID-19 Response Teams should remain in place. | HSE and Hospital Groups | Planning to commence immediately |
| 7.2. | In the event of a COVID-19 surge, a designated member of the future Community Support Team should always have 24/7 availability for the nursing homes in the catchment area. | HSE and Hospital Groups | Immediately |
| **8. Clinical – General Practitioner lead roles on Community Support Teams and in Nursing Homes** | | | |
| 8.1. | A GP will be a key member of each Community Support Team (and in the interim each COVID-19 Response Team). | HSE | Within 3 months of publication of this Report |
| 8.2. | One of the GPs, already caring for their patients in a nursing home, will be appointed to the additional role as a nursing home's GP Lead, and working with the Person in Charge and other senior nursing home staff will contribute to the nursing home's general oversight and governance. The Person in Charge has overall responsibility for clinical governance. | Each Nursing Home Provider and GPs | Within 18 months of publication of this Report |
| 8.3. | The sessional commitment and remuneration for the post will be specified in a contract between the nursing home and GP lead; functions would include promoting the use of instruments like the InterRAI Single Assessment Tool and the Clinical Frailty Score and optimising medication management, ensuring full compliance with e.g. influenza vaccine uptake for residents and staff in the nursing home and close liaison with community services and outreach services of acute Hospital Groups. | Each Nursing Home Provider and GPs | Within 18 months of publication of this Report |
| 8.4. | A national framework describing the role and responsibilities of the GP lead, including the elements outlined above, should be developed, so that providers can operate within a consistent and clear set of requirements. | Department of Health and HSE | Within 18 months of publication of this Report |
| 8.5. | The Department of Health with support from HIQA should explore, whether the particulars of this framework should be incorporated into the regulatory framework. | Department of Health | Within 18 months of publication of this Report |

| # | Recommendation | Suggested Lead Agency | Suggested Timeframe |
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| 8.6. | A clinical governance oversight committee should be established in all nursing homes and its inclusion in the regulatory framework should be considered – in the interim guidance on the role and composition should be developed. In time, one of the functions of this oversight committee should be to review quality indicator/resident safety reports and action appropriate follow up (see recommendation 9.4). | Each Nursing Home Provider<br><br>HSE (Guidance)<br><br>Department of Health (Regulation if required)<br><br>HIQA (compliance oversight) | Within 9 months of publication of this Report.<br><br>Within 6 months of publication of this Report.<br><br>Within 18 months of publication of this Report. |
| **9. Nursing Home Staffing/Workforce** | | | |
| 9.1. | HIQA should carry out and publish a detailed audit of existing staffing levels (nursing and care assistant) and qualifications in all nursing homes – public, voluntary and private. | HIQA | Within 6 months of publication of this Report |
| 9.2. | It is essential to have strong informed nursing leadership on site in all nursing homes with a documented contingency plan for when leaders are absent. These plans should be incorporated into preparedness plans. They should be available for inspection by HIQA. | Each Nursing Home Provider.<br><br>HIQA (compliance oversight) | Ongoing |
| 9.3. | There should be national criteria on roles and responsibilities of the Person in Charge and registered nursing staff in nursing homes. This should be incorporated into the regulatory framework. | Department of Health | Within 9 months of publication of this Report |
| 9.4. | Considering the nursing metrics and the HPSIR, a quality indicators and outcomes/resident safety model should be developed for nursing homes, requiring each nursing home to publish regular reports and to provide copies to HIQA. HIQA should establish a public register of all such reports provided by nursing homes, and oversight and validation checks should be incorporated into the regulatory framework. | Department of Health (model)<br><br>Each Nursing Home Provider (Implementation)<br><br>HIQA (compliance oversight) | Planning for and the development of a model and process should commence immediately with a system developed within 9 months and operational within 18 months |
| 9.5. | The development, in the medium-term, of clinical governance models in the community should be explored further by the Department of Health in conjunction with the HSE, supported by an international evidence review of models of clinical governance in nursing home settings. | Department of Health and HSE | Within 12 months |

| # | Recommendation | Suggested Lead Agency | Suggested Timeframe |
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| **10. Education-Discipline-Specific and Inter-disciplinary** | | | |
| 10.1. | HSE training programmes, such as e.g. HSELanD, should continue to be made available to private nursing homes and an appropriate governance structure established. | HSE | Ongoing |
| 10.2. | To promote the wider implementation of advanced healthcare directives (AHDs), education programmes, including some virtual, should be put in place and providers should facilitate greater staff participation. | The Decision Support Service and HSE<br><br>Each Nursing Home Provider (facilitating staff participation) | Planning should commence immediately |
| 10.3. | Implement relevant aspects of the Assisted Decision Making (Capacity) Act 2015, once enacted, in areas such as capacity assessment, recognising each resident's will and the wider use of advanced healthcare directives. | Department of Justice and Equality in consultation with the Department of Health | Within 6 months of publication of this Report |
| 10.4. | Staff training and career development programme with a requirement that senior nursing staff will have undertaken post-graduate gerontological training and show general evidence of training competency. A phased pathway towards achieving this should be in place with clear targets set, and regulatory oversight provided to ensure that targets are met. | Each Nursing Home Provider<br><br>Department of Health and HIQA (Regulation if required)<br><br>HIQA (Compliance oversight) | Phased pathway and targets should be developed within 9 months (provider, with regulation developed as required (Department of Health).<br>Each Nursing Home Provider should have a compliance plan within 3 months thereafter |

| # | Recommendation | Suggested Lead Agency | Suggested Timeframe |
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| 10.5. | Mandatory continuing education for all staff in areas such as infection control, palliative care & end of life and dementia should be introduced and a phased pathway towards achieving this should be in place with clear targets set, and regulatory oversight provided to ensure that targets are met. | Department of Health (Regulation if required)<br><br>HIQA (Compliance oversight)<br><br>Each Nursing Home Provider (compliance plan and pathway for all staff) | Phased pathway and targets should be developed within 9 months with regulation as required (Department of Health regulatory and HIQA compliance oversight). Each Nursing Home Provider should have a compliance plan within 3 months thereafter |
| **11. Palliative Care** | | | |
| 11.1. | Every nursing home should be linked with the Community Palliative Care Team in their catchment area. | HSE and Each Nursing Home Provider | Within 2 months |
| 11.2. | Visitor guidelines – individual assessments should be undertaken and documented, and compassionate visiting should be followed as recommended by the HSE and in line with HPSC visiting guidance. They should be available for inspection by HIQA. | Each Nursing Home Provider<br><br>HIQA (Compliance oversight) | Immediately and ongoing |
| 11.3. | Initiate a joint HSE-IHF collaborative national programme on palliative, end-of-life and bereavement care for the nursing home sector that engages all stakeholders and improves quality of care across the sector. This initiative would be established along the same lines as the HSE-IHF Hospice Friendly Hospitals Programme (2017 to date). | HSE and Irish Hospice Foundation | Planning should commence immediately |
| **12. Visitors to Nursing Homes** | | | |
| 12.1. | HPSC should proactively/regularly review visiting guidelines in order to achieve a balance between individual freedoms and protective public health measures, in line with the Department of Health ethical guidance. | HSE (HPSC) | Ongoing |
| 12.2. | Infrastructural adaptations may be needed including visiting rooms that can facilitate visits from friends and family. | Each Nursing Home Provider | Immediately |
| 12.3. | End of life visiting must be arranged on compassionate grounds based on clinical judgement and take account of public health measures. | Each Nursing Home Provider | Ongoing |

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| **13. Communication** | | | |
| | Support and communication for residents and their families are a continuing priority. | | |
| 13.1. | Meaningful communications with residents and families should take place regularly in relation to visiting protocols, changes in processes and explanations relating to same. | Each Nursing Home Provider | Ongoing |
| 13.2. | Clear communication plans with residents to provide information on the ongoing situation should be developed and documented regularly. HIQA should examine these as part of the inspection process. Providers should provide regular updates about residents to the families. | Each Nursing Home Provider<br><br>HIQA (Compliance oversight) | Ongoing |
| 13.3. | Phone lines must be maintained and additional reception / communications staff planned for at busy periods. Purchase tablet computers if relevant and review IT solutions for use by individual residents to assist with family and friend communication and review of facilities to ensure all have access to Wi-Fi facilities. Each provider should document its review and action plan in this regard and make it available to residents, families and HIQA. | Each Nursing Home Provider | Within 3 months of publication of this report |
| 13.4. | Dedicated staff should be assigned/appointed to facilitate social activities and communication with family. Assignments / appointments should be documented with clear activity and communication plans and records in place, and available for inspection by HIQA. | Each Nursing Home Provider<br><br>HIQA (Compliance oversight) | Within 3 months of publication of this report |
| **14. Regulatory Recommendations** | | | |
| 14.1. | A clear document outlining the roles and responsibilities of key stakeholders should be developed to include a clear overview of the roles and responsibilities of NPHET, the Department of Health, HSE, HIQA, and individual providers. This should take into account the recommendations in this Report. The ongoing approach to nursing homes should be coordinated in line with this. Official guidelines, key updates and important news relating to COVID-19 should be coordinated and distributed to providers from one statutory source to avoid duplication and confusion. Requests for information from providers should be coordinated similarly subject to existing legal requirements. | Department of Health in consultation with HSE and HIQA | Document should be developed Within 1 month of publication of this report and HIQA or the HSE should be designated as sector communications coordinator<br><br>HSE and HIQA should agree a written protocol on communication within 1 month thereafter |

| # | Recommendation | Suggested Lead Agency | Suggested Timeframe |
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| 14.2. | HIQA itself identified a deficit in infection control and risk management expertise in this sector. Mandatory training records including infection control should be included consistently in the inspection process. | HIQA | Planning should commence immediately |
| 14.3. | There are currently 22 inspectors overseeing approximately 576 facilities with a visit frequency of 18 months. While onsite inspections are labour intensive, the frequency of these should be increased. | HIQA | Immediately |
| 14.4. | The legislation underpinning nursing homes registration and operation and empowering HIQA is in place, but the current regulations need to be modernised and enhanced with additional powers and requirements. These regulations should be reviewed, including to give full effect to the recommendations of this report. | Department of Health with input from HIQA | Within 6 months of publication of this report |
| 14.5. | Assessment of compliance with the regulatory assessment framework of the preparedness of designated centres for older people for a COVID-19 outbreak should be part of the inspection process. | HIQA | Immediately and ongoing |
| 14.6. | Provision should be made for regular mandatory reporting to HIQA of key operational data by each nursing home provider including data on staff numbers and grades, qualifications, occupancy levels. This data should be available to health agencies including the Department of Health to inform ongoing planning for residential care services. HIQA should ensure streamlined processes are in place for the collection, collation and reporting of such data. | Department of Health (Regulation if required)<br><br>HIQA (operational processes)<br><br>Each Nursing Home Provider (submission of data) | Within 6 months of publication of this Report |
| **15. A broader range of statutory care supports for Older People** | | | |
| 15.1. | Integration of private nursing homes into the wider framework of public health and social care should be advanced. This should be prioritised in the short-term with the implementation of the recommendations in this Report, and longer-term reform should be pursued as a key component of the intended Commission on Care. | HSE and Each Nursing Home Provider in the short term<br><br>Government, HSE, Department of Health (long-term reform) | In line with timelines for relevant recommendations in this report.<br><br>Planning should commence in line with the Commission on Care process |
| 15.2. | The Department of Health and HIQA should explore introducing a requirement that all nursing home providers promote, facilitate and engage meaningfully with independent advocacy services. | Department of Health and HIQA | Within 6 months of publication of this Report |

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| 15.3. | The Department of Health should explore a suitable structure and process for external oversight of individual care concerns arising in nursing homes, once internal processes have been exhausted without satisfaction. | Department of Health | Within 12 to 18 months of publication of this Report |
| 15.4. | HIQA and each nursing home provider should continue to highlight and promote independent advocacy services available to residents. | HIQA and Each Nursing Home Provider | Ongoing |
| 15.5. | Provide nursing home residents with full medical card eligibility equality of access to services available to community-based peers. | HSE | Immediately and ongoing |
| 15.6. | Access to home support should be expanded and prioritised. | HSE and Department of Health | Immediately |
| 15.7. | Standardised care needs assessment should be developed and rolled out. Consideration of a person's suitability for rehabilitation and/or reablement services should be mandatory prior to ad-mission to nursing home and an opportunity for access to such services should be available. The consideration and outcome should be documented. | HSE, Overseen by the Department of Health | Develop models and pathways within 9 months of publication of this Report.<br><br>Ensure longer term integration within 24 months of publication of this Report |
| 15.8. | Incentives, including financial, must be explored to help provide a wider range of service and ownership models for both care in the home and in smaller congregated units/ settings. This would acknowledge and reflect most people's preferred wishes. | Government, Department of Finance, Department of Public Expenditure and Reform, in consultation with Department of Health | Within 18 months of publication of this Report |
| 15.9. | Review and as appropriate following review develop policy and underpinning legislation, as necessary, for the introduction of a single integrated system of long-term support and care, spanning all care situations with a single source of funding. | Government and Department of Health | Planning for the review should commence in line with the Commission on Care process |
| 15.10. | This choice model would be payable to the beneficiary for use either to support further care in their own home, in alternative home-based supportive care or in residential care. | Government and Department of Health | Planning for the review should commence in line with the Commission on Care process |

| # | Recommendation | Suggested Lead Agency | Suggested Timeframe |
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| 15.11. | To support this policy initiative, and in line with 15.7 national integrated care needs assessment and care planning policy and structures should be developed for older persons services. Examination of the role of resource allocation models should be undertaken including an international evidence review. | Department of Health and HSE | Policy development and commence roll out within 9 months of publication of this Report<br><br>Review of Resource Allocation Modelling within 18 months of publication of this Report |
| 15.12. | The National Care Experience Programme expansion to nursing home residents should be progressed at pace. | HIQA | Within 18 months of publication of this Report |

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# Appendix 1:

## Terms of Reference and Engagement

### 1. Purpose

**1.1.** In line with the Terms of Reference, the purpose of the Expert Panel is to report to the Minister in order to provide immediate real-time learnings and recommendations in light of the expected ongoing impact of COVID-19 with regard to Nursing Homes over the next 12-18 months.

### 2. Terms of Reference

**2.1.** Provide assurance that the national protective public health and other measures adopted to safeguard residents in nursing homes, in light of COVID-19, are appropriate, comprehensive and in line with international guidelines and any lessons learned from Ireland's response to COVID-19 in nursing homes to date;

**2.2.** Provide an overview of the international response to COVID-19 in nursing homes utilising a systematic research process;

**2.3.** Report to the Minister for Health by end June 2020 in order to provide immediate real-time learnings and recommendations in light of the expected ongoing impact of COVID-19 over the next 12-18 months.

### 3. Independence

**3.1.** The Panel is an independent expert Panel.

**3.2.** It will be assisted and supported as necessary by a Department of Health provided support team.

**3.3.** The Panel will be responsible for the direction of its work and decisions with regard to the organisation of its work and the content of its final report.

**3.4.** The Panel may delegate administrative and other relevant tasks and administrative decisions to the Support Team.

### 4. Membership

- Prof. Cecily Kelleher, Chair
- Ms. Brigid Doherty
- Ms. Petrina Donnelly
- Prof. Cillian Twomey

### 5. Terms of Engagement/Operational Arrangements

**5.1.** The Chair shall:

5.1.1. Set and manage the agenda for each meeting.

5.1.2. Manage declarations of conflict of interest as they arise.

5.1.3. Conclude each meeting with a summary of decisions and/or actions.

5.1.4. Sign off meeting minutes in consultation with Panel members.

5.1.5. Nominate an alternate should the Chair be unable to attend a meeting.

5.1.6. Report to the Minister for Health in line with the terms of reference.

**5.2.** The Chair will decide the schedule of meetings in consultation with the Panel. It is anticipated that the Panel will meet approximately once per week (this schedule may be subject to change).

**5.3.** Meetings will be held via Videocall.

**5.4.** The Panel will undertake closed door meetings itself to deliberate and/or conduct any part of its work in confidence.
**5.5.** The Department of Health will provide a support team to assist the Panel with its work, including the provision of secretariat support.
**5.6.** The Secretary will arrange for circulation of relevant documentation, records of meetings, and communications with regard to the convening of meetings.
**5.7.** Meetings will be documented by the Secretary, including actions to be taken, main points discussed, minutes etc.
**5.8.** Draft minutes will be circulated to Panel members following each meeting and approved subject to any appropriate amendments at each subsequent meeting [approved minutes will generally be published on the Department of Health's website subject to limited redaction if required e.g. to protect the integrity of the deliberative process and/or other matters falling under the Freedom of Information Act (FOI)].
**5.9.** A summary of agreed action points will be circulated to members as soon as possible following each meeting.
**5.10.** The Chair may invite third parties to participate in meetings to provide expert input and advice. The Chair may ask such persons to prepare discussion documents as appropriate.

## 6. Communications, Correspondence and Media

**6.1.** The Support Team will manage correspondence on behalf of the Expert Panel.
**6.2.** In agreement with the Panel, agreed lines of reply will be used by the Support Team to respond to correspondence on behalf of the Panel.
**6.3.** The Support Team will establish and maintain a correspondence tracker and will report to the Panel at agreed intervals providing a summary of correspondence received, highlighting key issues and correspondence and requesting agreement on the response to be issued to any key items.
**6.4.** Through the support team and in consultation with the Chair as necessary, the Department of Health's press office will interface directly with the media on any media queries and requests and the support team will maintain a tracker of such queries.
**6.5.** Having regard to public and parliamentary interest in the work of the Panel, the Support Team will manage any parliamentary work and Ministerial briefing with respect to the work of the Panel, respecting the deliberative processes.

## 7. Support Team

The Support Team members are:

- Susan Callaghan
- Niamh Carey
- Sarah Gibney
- Sinéad Mahon
- Niall Redmond
- Daniel Sheridan

A dedicated email address for all communications has been established:

NHExpert_Panel@health.gov.ie (no longer active on completion of Panel's Work)

# Appendix 2:

## Public Health Measures for COVID-19 Disease Management in LTRCs Adopted by NPHET at its Meetings of 31st March 2020 and 3rd April 2020

### No. 1 Strengthened HSE National and Regional Governance Structures

- Establish a national and regional (CHO) LTRC COVID-19 Infection Prevention and Control (IPC) Teams with an allocated IPC Advisor to liaise with each LTRC and homecare provider
- A local public health led Outbreak Control Team for each outbreak who will be responsible for data capture with support of LTRC via CRM system
- Provision of updated guidance including LTRC specific admission and transfer guidance
- Establish teams (per CHO), building on existing capacity where possible, to provide medical and nursing support to LTRCs
- Establish capacity and provide for teams of last resort (crisis support team to go into individual LTRC facilities as required) to provide staffing for a short period of time to ensure service continuity
- HIQA/MHC to risk rate all LTRC settings based on disease progression, environ-ment and staff and liaise with national and regional governance structures and LTRCs as necessary in light of mitigating actions

### No. 2 Transmission Risk Mitigation in suspected or COVID-19 positive settings LTRC and homecare staff

- HSE to provide support for appropriate alternative residence and transport for staff living in congregated domestic living arrangements involving other LTRC set-tings/homecare staff
- Minimise staff movement working across LTRCs
- Agencies and LTRC/home support providers agree protocols to minimise staff movement across COVID-19 and non-COVID-19 LTRC settings/home support cli-ents

### No. 3 Staff Screening and Prioritisation for COVID-19 Testing

- Prioritise LTRC staff/homecare staff for COVID-19 testing
- Each LTRC should undertake active screening of all staff (Temperature checking twice a day)

### No. 4 HSE Provision of PPE and Oxygen

- Ensure PPE supply to LTRC settings and home support providers
- Access to oxygen for LTRC settings

### No. 5 Training

- The HSE and LTRC settings support access to the provision of training for sufficient staff in IPC, use of PPE, use of oxygen, palliative care and end of life care, pronouncement of death
- The HSE and home support providers support access to the provision of training for staff in IPC

### No. 6 Facilities and Homecare Providers – Preparedness planning

- Depending on size of LTCF or homecare provider designate a team or at least one full-time staff member as lead for COVID-19 preparedness and response
- LTRC settings have COVID-19 preparedness plans in place to include planning for cohorting of patients (COVID-19 and non-COVID-19), enhanced IPC, staff training, establishing surge capacity, promoting resident and family communication, promoting advanced healthcare directives

# Appendix 3:

## Systematic Rapid Review of Measures to Protect Older People in long-term Residential Care Facilities from COVID-19

**Authors of this report:**
Dr Kate Frazer, Dr Lachlan Mitchell, Diarmuid Stokes,
Eibhlin Crowley, Professor Cecily Kelleher

# Contents

## 1. Introduction

This chapter presents a rapid review literature undertaken on behalf of the COVID-19 Nursing Homes Expert Panel. This chapter presents results from 1) a review of national and international policy documents and grey literature, followed by 2) presentation of results from a rapid systematic review (CRD42020191569) of international evidence.

## 2. Objective

This review of evidence aimed to provide an overview of the International response to COVID-19 in nursing homes, to assess the extent to which measures implemented in long-term residential care facilities (RCFs) reduced transmission of SARS-CoV-2 and the effect on morbidity and mortality outcomes.

## 3. Summary of Policy Literature

### 3.1 Searching other resources/ grey literature

One author completed a comprehensive search of the grey literature accessing Google Scholar database (from 01/01/2019 to 12/06/2020). We searched national and international websites for all policy documents and reports including the agile platform Long Term Care Responses to COVID-19 (https://ltccovid.org/), World Health Organisation (WHO), websites reporting health professional guidelines and Centers for Disease Control (CDC) reports. We include evidence from national and international reports and policies.

## 4. Results

The results from the grey literature search present national evidence followed by evidence reported from international sources.

## 5. Summary of Irish Literature

During the course of the COVID-19 pandemic in Ireland, different state bodies, particularly the Health Information and Quality Authority (HIQA) have charted the infection and mortality rates of those residing in nursing homes. This summary compiles their findings.

### 5.1 Infection Prevention and Control Measures

In June 2020 HIQA released a review (Rapid Review of Public health Guidance for Residential Care, 11th June 2020 https://www.hiqa.ie/reports-and-publications/health-technology-assessment/rapid-review-public-health-guidance) of the infection prevention and control measures put in place in Irish nursing homes during COVID-19. The review seeks to outline measures taken or advised by other organisations and governments to protect residents and staff of nursing homes. The review also focused on identifying whether any enhanced infection prevention and control measures, such as universal testing, for example, are being taken elsewhere to protect RCFs that have no known cases of COVID-19.

The report concluded that a range of guidance was issued internationally to protect residents and staff of RCFs in the context of COVID-19. The guidance, for the most part, includes recommendations on testing, screening, monitoring, isolation, cohorting, social distancing, visitation, environmental cleaning, immunisation, providing care for non-cases, caring for the recently deceased and governance and leadership.

The report found that many similarities exist between guidance documents, including recommendations to screen people entering facilities, to monitor staff and residents for new symptoms, to restrict visitation except on compassionate grounds, to isolate suspected and confirmed cases, to cohort residents who were symptomatic, to clean frequently touched surfaces regularly, and to develop outbreak management plans. Some areas differ between guidance documents, including criteria for testing, length of isolation of symptomatic residents, recommendations for the use of facemasks by staff and residents, immunisation requirements, use of nebulisers and guidance on caring for the recently deceased.

Some recommendations were not common and were issued by only one or two agencies, such as the guidance on temporary resident transfer to the homes of family or friends, using a single countrywide mechanism for reporting bed vacancies and ventilation. Guidance on limiting staff movement between facilities and managing deliveries was also limited.

Not all guidance documents reviewed included detail on all of the themes identified. For example, the WHO does not advise on the cohorting of staff, even though the cohorting of staff is recommended by most agencies reviewed. In instances where an agency has not provided guidance on a theme included in this review, it is possible that this area is covered in other guidance documents not specific to COVID-19 and RCFs and thus not captured in this review.

A new theme of "reopening" has also emerged. Guidance for when RCFs reopen has been published by the Centers for Medicare & Medicaid Services (CMS) (20) and adopted by the CDC. This outlines a three-phase plan with criteria for implementing and service provision guidance, including for testing, visitation, communal dining, group activities and medical trips outside the facility, at each phase. Ireland, Hong Kong, New Zealand and the CMS have issued guidance for visits during the reopening of RCFs. The recommendations include limiting visitor numbers, maintain visitor logs, screen visitors for symptoms and potential contact with COVID-19, maintain physical distancing (except New Zealand), implement strict hand hygiene measures and to stop visits if there is a confirmed case of COVID-19 within the RCF. Some countries are relaxing the protective measures they previously put in place. New Zealand has relaxed its guidance on visitation, isolation, admissions, outings and has removed the physical distancing requirement for everyone, including those in RCFs. Hong Kong has also relaxed their guidance on visitation, communal activities, wearing of facemasks by residents and outings for RCFs. Ireland will allow visits from the 15 June for RCFs with no cases of COVID-19.

In May 2020 HIQA also released the results of a rapid review of public health guidance on protective measures for vulnerable groups (Rapid review of public health guidance on protective measures for vulnerable groups Health Information and Quality Authority, 21 May 2020). The review found that a variety of protective measures to protect vulnerable groups who are at high risk of severe illness from COVID-19. These broadly involve social or physical distancing and protective self-separation. However, highly protective measures are in place to shield, or cocoon, those who are considered extremely medically vulnerable to severe illness from COVID-19, as seen in Ireland and the UK. Since the 18 May, Northern Ireland has included people who have had a splenectomy as extremely vulnerable people. Singapore has indicated that, as restrictions ease from 2 June, the advice to stay at home will remain.

New guidance has been published for older people, particularly those over 70, in Finland, including advice on improving well-being and functional ability during the crises. The Ministry of Health and Social Affairs in Sweden published an article on measures, advice, and restrictions specific to high-risk populations.

Although some of the measures may seem stringent, research (by Ferguson et al. (33) in March 2020) suggests that social distancing of older people and others most at risk of severe disease, in combination with home isolation of suspected cases and home quarantine of those living in the same household as suspected cases, could reduce hospital demand and mortality.

### 5.2 At-Risk Cohorts

In March 2020 TILDA released a report to inform on the demographics for over 50's in Ireland for the COVID-19 crisis (TILDA report to inform demographics for over 50s in Ireland for COVID-19 crisis https://tilda.tcd.ie/publications/reports/Covid19Demographics/). TILDA is a Longitudinal Study on Ageing, which at wave 1 (2009) represented 1:156 people aged 50 and older in Ireland. TILDA collects detailed subjective and objective measures of health, social circumstances and economics every two years. The TILDA report analysed data to identify numbers of at-risk cohorts based on existing national and international data for at-risk groups (i.e. frailty, pre frailty; cardiovascular and chronic conditions; comorbidities; possible at- risk CVD and anti-inflammatory medications*); and living/household circumstances (social isolation) including grandparenting; community social care and health service. The table below (TILDA 2020) presents results in disease prevalence in over 50s in Ireland.

***Table 1:*** *Disease prevalence in TILDA and Population of over 50s Ireland*

| Medical Condition | Number of cases in TILDA (n=5,206) | Estimated Population Prevalence % | Estimated Number in Population (n=1,446,460) |
|---|---|---|---|
| Asthma | 657 | 12.79 | 185002 |
| Chronic lung disease such as chronic bronchitis or emphysema | 402 | 8.53 | 123383 |
| High Cholesterol | 3037 | 58.5 | 846179 |
| Hypertension | 2589 | 51.84 | 749845 |
| Arthritis (including osteoarthritis, or rheumatism) | 2256 | 45.55 | 658863 |
| Osteoporosis, sometimes called thin or brittle bones | 1148 | 22.27 | 322127 |
| Diabetes | 612 | 12.64 | 182833 |
| Cancer or a malignant tumour | 612 | 11.58 | 167500 |
| Thyroid Problems | 592 | 11.11 | 160702 |
| Angina | 337 | 7.27 | 105158 |
| A heart attach (inc. myocardial infarction or coronary thrombosis) | 295 | 6.16 | 89102 |
| Varicose Ulcers (an ulcer due to varicose veins) | 226 | 4.75 | 68707 |
| Ministroke/TIA | 242 | 4.66 | 67405 |
| A stroke (cerebral vascular disease) | 143 | 2.45 | 35438 |
| Congestive heart failure | 83 | 1.75 | 25313 |
| Cirrhosis, or serious liver damage | 59 | 1.4 | 20250 |

*TILDA report to inform demographics for over 50s in Ireland for COVID-19 crisis.*

## 6. Quality of Life

In May 2020 TILDA released a report to inform COVID-19 responses in nursing homes (TILDA nursing home data: A short report to inform COVID-19 responses for our most vulnerable 2020 https://tilda.tcd.ie/publications/reports/Covid19NursingHomes/index.php). This small descriptive series of TILDA nursing home participants found that participants were chronologically very old, had very high levels of physical and cognitive morbidities, and very high levels of physical disability.

Despite the above, when TILDA nursing home participants were able to self-report, a majority reported that their physical and mental health was fair, good, very good or even excellent. Not being able to self-report was mostly associated with the presence of cognitive and communication problems, including dementia.

The report found that the personal perspectives of the TILDA nursing home participants provided an essential reminder that quality of life is often rated higher by oneself than by proxies, even in the presence of very advanced age and extensive comorbidities and disabilities.

However, from the data sources alone in this report, it is not possible to infer the proportion or incidence of institutionalisation in the Irish population. The small number of participants included in the short report comes from secondary data analysis and is not necessarily representative of the nursing home population in Ireland.

## 7. Unexpected Deaths

In May 2020 HIQA released a report (Analysis of NF01 and NF02 notifications to HIQA, 11th May 2020) examining any unexpected deaths of residents in nursing homes in Ireland. From March 2020 these notifications of unexpected deaths included suspected or confirmed COVID-19 as a cause of death. The report also looked at figures for confirmed and suspected COVID-19 infections in staff and residents.

The report found that the number of deaths attributed to COVID-19 differs by type of notification (Table 2). A total of 604 COVID-19 related deaths were reported across 97 centres based on NF01s.

***Table 2:*** *Counts of Centres and Mortality (1st March 2020 to 6th May 2020)*

| Cause of death | Centres | Deaths |
|---|---|---|
| Non-COVID-19 related | 137 | 240 |
| COVID-19 related | 97 | 604 |
| All NF01s | 193 | 844 |

*HIQA Analysis of NF01 and NF02 notifications to HIQA*

## 8. NF01s by centre type, area type and deprivation

The risk ratio for all notified deaths indicates the elevated risk of death observed since 1 March 2020 relative to historical patterns. A high risk ratio for non-COVID-19 NF01s suggests that there is either under-classification of unexpected deaths as COVID-19 related, or that there is an increased risk of unexpected deaths not attributable to COVID-19.

The risk of unexpected death due to COVID-19 differs between private designated centres and HSE owned or funded centres. The risk of mortality for the period 1 March 2020 to date was compared to the risk based on historical patterns. A relative risk rate was calculated for all notified deaths and all non-COVID-19 deaths. Deaths listed are based only on the NF01 data to capture non-COVID-19 related deaths.

***Table 3:*** *Relative risk of mortality: 1 March 2020 to 6 May 2020 versus historical*

| Factor | Type | Centres | Beds | Risk ratio (mean [95% CI]) | |
|---|---|---|---|---|---|
| | | N (%) | N (%) | All NF01s | Non-Covid-19 NF01s |
| **Centre type** | HSE | 138 (24%) | 6,950 (22%) | 4.56 [3.16 to 6.67] | 1.48 [1.03 to 2.17] |
| | Private | 442 (76%) | 25,288 (78%) | 5.40 [4.58 to 6.41] | 1.50 [1.27 to 1.78] |
| **Area type** | City | 142 (24%) | 9,379 (29%) | 6.84 [5.04 to 9.26] | 2.12 [1.56 to 2.87] |
| | Town | 228 (39%) | 12,944 (40%) | 4.91 [3.91 to 6.30] | 1.30 [1.03 to 1.67] |
| | Village | 78 (13%) | 3,603 (11%) | 5.08 [3.04 to 8.75] | 1.31 [0.78 to 2.25] |
| | Rural | 132 (23%) | 6,312 | 4.44 [3.20 to 6.39] | 1.30 [0.93 to 1.87] |
| **Deprivation** | 1 (least deprived) | 97 (17%) | 5,807 (18%) | 5.43 [3.94 to 7.71] | 1.94 [1.40 to 2.75] |
| | 2 | 82 (14%) | 4,677 (15%) | 5.86 [3.97 to 9.36] | 1.65 [1.12 to 2.64] |
| | 3 | 66 (11%) | 3,680 (11%) | 11.19 [6.29 to 21.40] | 1.88 [1.06 to 3.60] |
| | 4 | 111 (19%) | 6,536 (20%) | 5.38 [3.75 to 7.89] | 1.58 [1.10 to 2.32] |
| | 5 (most deprived) | 224 (39%) | 11,538 (36%) | 4.29 [3.39 to 5.53] | 1.19 [0.94 to 1.53] |

*HIQA Analysis of NF01 and NF02 notifications to HIQA*

This report's data suggests 'an elevated risk of non-COVID-19 mortality, which may indicate under-classification of mortality as COVID-19 related. The elevated risk of non-COVID-19 mortality is more pronounced in centres located in urban areas and the less deprived areas' (Page 3 of HIQA's report).

With regards to numbers of residents with COVID-19 reported mortality due to COVID-19 in public compared to private nursing homes the report found that HSE centres with reported COVID-19 cases or deaths account for 3,721 of 6,950 (53.5%) of HSE beds. Private centres with reported COVID-19 cases or deaths account for 13,887 of 25,288 (54.9%) of private beds. As the proportion of beds in COVID-19 affected centres is approximately the same in HSE and private centres, the relative difference will be unaffected by choice of bed measure (Page 4 of HIQA's report).

The report also found that the COVID-19 pandemic has not affected all counties equally, with some having a much more significant burden of infection. In terms of the percentage of centres with one or more COVID-19 cases, figures vary from 12.5% in Kilkenny to 100% in Monaghan (Page 7 of HIQA's report). The number of COVID-19 related deaths per bed varies considerably across counties, assuming full capacity at the start of March, the proportion of deaths per bed used to approximate the percentage mortality from COVID-19, which is 1.9% nationally.

## 9. Summary of International Grey Literature

During the COVID-19 pandemic in Europe, different agencies have studied the effects of infection control and procedures on the infection and mortality rates in nursing homes. This summary documents their key findings.

## 10. Preventing and Managing COVID-19 in Nursing Homes

The International Long Term Care Policy Network based in the London School of Economics published a report in May 2020 which documented international examples of measures to prevent and manage COVID-19 outbreaks in residential care and nursing home settings (https://ltccovid.org/wp-content/uploads/2020/05/International-measures-to-prevent-and-manage-COVID19-infections-in-care-homes-11-May-2.pdf).

The report found that while both the characteristics of the population in care homes and the difficulties of physical distancing in communal living mean that care home residents are at high risk of dying from COVID-19, these deaths are not inevitable. Countries with low levels of infection in the population typically also have low levels of infections in care homes.

The report found that the response to COVID-19 in care homes needs coordinating across all relevant government departments and levels, and with the acute health sector response. Evidence of asymptomatic transmission and atypical presentation of COVID-19 in older populations should reflect in guidance documents and testing policies. Regular testing of residents and staff in care homes is essential, ideally followed by contact tracing and effective isolation. Also, timely data on the impact of COVID-19 in care homes is vital to ensure that opportunities for preventing large numbers of deaths are not missed.

The report noted that staff pay and living conditions might be an essential barrier to effective infection controls, particularly if staff do not have access to sick pay or need to work in multiple facilities (or live in crowded accommodation). Access to healthcare and palliative care (in terms of personnel, medicines and equipment) also needs to be guaranteed, particularly for homes without nursing or medical staff. However, not all care homes are suitable for isolation facilities. Technical support and alternative accommodation may be required in some cases. The report also notes that measures to address the psychological impact of the pandemic on both staff and residents need to be put in place, particularly as many staff and residents will have experienced trauma and grief. For some residents, particularly those with dementia, the disruption in their normal lives by the measures may have significant negative impacts.

The report also found that while most countries have restricted visitors, this policy alone has not protected care homes from infection. Countries are increasingly considering how to make visits safer, recognizing their impact on wellbeing.

The European Centre for Disease Prevention and Control (ECDC) outlines in their May 2020 report (Surveillance of COVID-19 at long-term care facilities in the EU/EEA https://www.ecdc.europa.eu/en/publications-data/surveillance-COVID-19-long-term-care-facilities-EU-EEA) that enhanced infection prevention and control (IPC) measures should be in place in all long-term residential care facilities (LTRCs). This includes separation of possible cases with respiratory symptoms, even without laboratory confirmation of COVID-19. Several IPC measures for COVID-19 in healthcare facilities focus mainly on rapid identification, source control, administrative controls, environmental measures and personal protective measures according to national or local authority guidelines. ECDC has published guidance that includes occupational health and safety requirements in healthcare settings and LTRCs. In areas with sustained community transmission, in addition to strict hand hygiene, the wearing of surgical masks or FFP2 respirators should be considered by all LTRC staff when caring for all residents. Other measures to consider are temporary closure of LTRCs for visitors and systematic testing of all LTRC staff.

The World Health Organisation (WHO) issued guidance for LTRCs on preventing the spread of COVID-19 within their facilities on the 21st of March 2020 (Infection Prevention and Control Guidance for Long-Term Care Facilities in the context of COVID-19 https://apps.who.int/iris/bitstream/handle/10665/331508/WHO-2019-nCoV-IPC_long_term_care-2020.1-eng.pdf).. The objective of the report was to guide IPC in LTRCs in the context of COVID-19 to 1) prevent COVID-19-virus from entering the facility, 2) prevent COVID-19 from spreading within the facility, and 3) prevent COVID-19 from spreading to outside the facility. With regards to prevention, the document outlined the need for infection prevention and control committees with an IPC coordinator, physical distancing in place within the facility and visiting reduced.

However, on the 12th of March, the ECDC also issued a report on infection, prevention and control for COVID-19 in healthcare settings (Infection prevention and control for COVID-19 in healthcare settings - first update https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-infection-prevention-and-control-healthcare-settings-march-2020.pdf) which advises on controls that should be implemented in a LTRCs. The report gave an outline of technical measures and resources for reducing the risk of transmission of COVID-19 in healthcare settings (including LTRCs) and laboratories in the EU/EEA. It drew on interim advice produced by WHO and national agencies, and also expert opinion, for LTRCs actions included administrative measures, the management of residents with COVID-19 symptoms and environmental cleaning and waste management. Additional measures also listed included instituting daily monitoring of all residents for symptoms, e.g. measure body temperature, restricted access to the LTRC; only admitting essential services and new residents and reinforcing the message that people with respiratory symptoms should not enter the LTRC.

## 11. Mortality in Care Homes associated with COVID-19

The International Long Term Care Policy Network published a report in May 2020, highlighting the early international evidence on mortality associated with COVID-19 outbreaks in care homes (https://ltccovid.org/wp-content/uploads/2020/06/Mortality-associated-with-COVID-21-May.pdf).

The report found that official data on the numbers of deaths among care home residents linked to COVID-19 is not available in many countries. Still, an increasing number of countries are publishing data. Due to differences in testing availabilities and policies, and to different approaches to recording deaths, international comparisons are difficult, however there are three main approaches to quantifying deaths in relation to COVID-19: deaths of people who test positive (before or after their death), deaths of people suspected to have COVID-19 (based on symptoms), and excess deaths (comparing the total number of deaths with those in the same weeks in previous years). Another important distinction is whether the data covers deaths of care home residents or only deaths in the care home (as there are variations in the share of care home residents who are admitted to hospital and may die there).

Reliable data from 19 countries suggests that the share of care home residents whose deaths are linked to COVID-19 tends to be lower in countries where there have been fewer deaths in total, although as the number of deaths grows the share seems to reach a plateau, for now. There have been no infections or deaths in care homes in Hong Kong (only 4 deaths in total and 1,056 cases of infections in the total population). In the other countries where there have been at least 100 deaths in total and official data is available, the percentage of COVID-19-related deaths among care home residents ranges from 24% in Hungary to 82% in Canada). Data from England illustrates well the importance of paying attention to differences in definitions and methods used to estimate these percentages: the share of all probable COVID-19 deaths in care homes is 27%, and the share of deaths of care home residents is 38%. The share of excess mortality in care homes during the pandemic has been 44%, and the share of deaths of care home residents is 52% of all excess deaths. Also, in France, deaths in care homes are 34% of all COVID-19 deaths, whereas deaths of care home residents are 51%.

For a few countries the share of all care home residents whose deaths can be linked to COVID-19 can be estimated. These range from 0 in Hong Kong, 0.3% in Austria, 0.4% in Germany and 0.9% in Canada, to 2% in Sweden, 2.4% in France and 3.7% in Belgium. In the UK, if only deaths in care homes registered as linked to COVID-19 is considered, the figure would be 2.8, whereas if excess deaths of care home residents are used, it would be 6.7%.

***Table 4:*** *Number of COVID-related or confirmed deaths in the population and in care homes (or among care home residents).*

| Country | Date | Approach to measuring deaths | Total number deaths linked to COVID-19 | Number of deaths of care home residents linked to COVID-19 | Number of deaths in care homes | Number of care home resident deaths as % of all COVID-19 deaths | Number of deaths in care homes as % of all COVID-19 deaths |
|---|---|---|---|---|---|---|---|
| **Austria** | 06/05/2020 | Confirmed | 510 | 220 | | 41% | |
| **Australia** | 18/05/2020 | Confirmed | 99 | 29 | | 29% | |
| **Belgium** | 18/05/2020 | Confirmed + Probable | 9,080 | | 4,646 | | 51% |
| **Canada** | 08/05/2020 | Confirmed + Probable | 4,740 | 3,890 | | 82% | |
| **Denmark** | 07/05/2020 | Confirmed | 506 | 170 | | 34% | |
| **France** | 18/05/2020 | Confirmed + Probable | 28,239 | 14,363 | 10,650 | 51% | 38% |
| **Germany** | 20/05/2020 | Confirmed | 8,090 | 3,049 | | 37% | |
| **Hong Kong** | 20/05/2020 | Confirmed | 4 | 0 | 0 | 0% | 0% |
| **Hungary** | 11/05/2020 | Confirmed | 421 | 100 | | 24% | |
| **Ireland** | 06/05/2020 | Confirmed + Probable | 1,375 | | 857 | 62% | |
| **Israel** | 29/04/2020 | Confirmed | 202 | 65 | | 32% | |
| **Norway** | 18/05/2020 | Confirmed | 233 | | 135 | | 58% |
| **Portugal** | 09/05/2020 | | 1,125 | 450 | | 40% | |
| **Singapore** | 03/05/2020 | Confirmed | 18 | 2 | 0 | 11% | |
| **South Korea** | 30/04/2020 | Confirmed | 247 | 84 | 0 | 34% | 0% |
| **Spain** | 10/05/2020 | Confirmed + Probable | 31,889 (confirmed) | | 9,642 (confirmed) 16,678 (confirmed + probable) | | 30% (confirmed) |
| **Sweden** | 14/05/2020 | Confirmed | 3,395 | 1,661 | | 49% | |
| **England & Wales (United Kingdom)** | 08/05/2020 | Probable + Excess deaths | 37,375 (probable) 49,470 (excess deaths) | 12,526 (probable) 25,591 (excess deaths) | 9,980 (probable) 21,753 (excess deaths) | 38% (probable) 52% (excess deaths) | 27% (probable) 44% (excess deaths) |
| **Scotland (United Kingdom)** | 17/05/2020 | Probable + Excess deaths | 3,546 (probable) 3,946 (excess deaths) | | 1,623 (probable) 2,006 (excess deaths) | | 46% (probable) 51% (excess deaths) |
| **United States** | 20/05/2020 | Confirmed | 93,163 | 30,130 | | 41% | |

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***Table 5:*** *Share of care home residents who may have died as a direct or indirect result of the COVID-pandemic*

| | Number of care home residents (or beds) | Deaths attributed to COVID (as per table 6) as percentage of care home residents | Excess deaths compared to previous years, as percentage of care home residents |
|---|---|---|---|
| **Austria** | 69,730 | 0.3% | |
| **Belgium** | 125,000 | 3.7% | |
| **Canada** | 425,755 | 0.9% | |
| **France** | 605,061 | 2.4% | |
| **Germany** | 818,000 (beds) | 0.4% | |
| **Sweden** | 82,217 | 2.0% | |
| **United Kingdom** | 411,000 | 3.4% | 6.7% |

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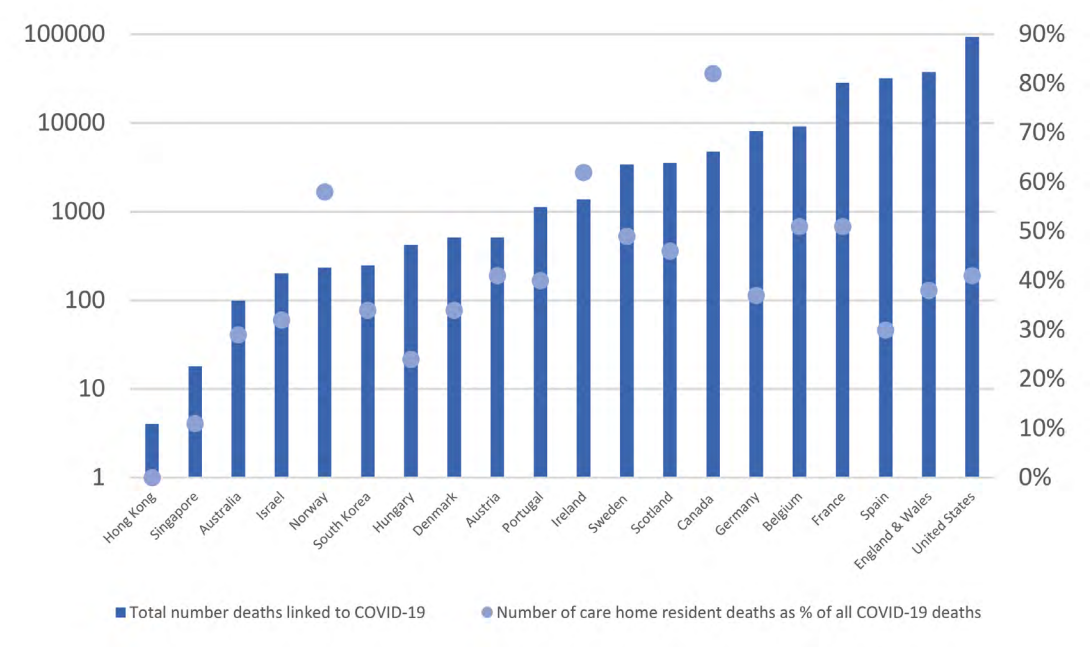
***Table 6:*** *Total number of deaths linked to COVID-19 in the total population compared to the number of deaths among care home residents, plotted using a logarithmic scale for the total deaths*

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## 12. COVID-19 and Long Term Care Actions by Country

Examples from 9 countries from the International Long Term Care Policy Network Country Reports on COVID-19 and Long Term Care - https://ltccovid.org/country-reports-on-covid-19-and-long-term-care/ are presented below.

### 12.1 Australia

April 2020 Report

The Australian government prioritised preparing the aged care sector for COVID-19. On the 11th of March, $440 million was committed to aged care, including to address staff retention and surge staffing and improve infection prevention and control. Aged care providers had priority access to the national stockpile of PPE, healthcare rapid response teams and staffing support when an outbreak occurs in a facility or in home care.

Nursing home visiting rules were introduced by the government on the 18th of March, limiting visitors to two people a day, to held in private rooms. Many nursing homes introduced stricter rules, locking down facilities so that there are no visitors except for under particular circumstances.

There have been 55 nursing home residents diagnosed with COVID-19, of those 13 have died and 14 recovered, representing <1% of all COVID-19 cases and 17% of all deaths.

At the time of writing, Australia has flattened the COVID-19 curve and government and public discussion is shifting to softening provider-imposed total nursing home lockdowns and supporting the wellbeing of residents.

### 12.2 Canada

4th June 2020

While there are many sources of data on the impact of COVID-19 on the Canadian population, in general, timely, consistent and accurate information on the number of confirmed cases of COVID-19 in Canadian long-term care homes continue to be a challenge in this pandemic. As new information becomes available and cases evolved or resolved, there have been changes to previously estimated prevalence and case fatality of residents in Canadian long-term care homes. There is an estimated case fatality rate of 36% (range 20 to 42%) among residents in Canadian long-term care homes. Based on publicly available information from official sources, it has been noted in this report that deaths in long-term care residents currently represent up to 85% of all COVID-19 deaths in Canada.

The difference in population size and density in each province, which influences the rate of community transmission, may partially affect regional differences in the prevalence of COVID-19 cases in long-term care homes, rather than the proportions of provincial/territorial populations 80 years or older living in these settings.

Given the vulnerability of residents in long-term care homes, the proper implementation of infection prevention and control policies is the most effective strategy to reduce overall rates of deaths in this population. Key policy measures to prevent the continued spread of COVID-19 and associated mortality in Canadian long-term care home residents include adequate staffing, limitation of movement of healthcare workers between multiple sites, access to personal protective equipment and ensuring staff know how to use it properly.

With decreasing incidence rates, many provinces are starting to consider relaxing visitation restrictions. Continued screening for both typical and atypical symptoms, as well as periodic surveillance testing of long-term care staff and residents, are critical for balancing resident safety and well-being.

### 12.3 China
16th April 2020

In Mainland China, the national ministries and commissions have issued and updated a package of guidelines and circulars to support long-term care. Those policies mandated a high level of cross-sectoral collaboration and prioritization of long-term care services for older people. The report found that a steering committee for providing guidance and integrating resources, and an integrative IT system for information and data sharing are crucial for prompt and efficient responses. Key measures have focused on coordinating acute and long-term care and preventing the virus spread in care homes. Moving from the containment phase into the mitigation stage, the Chinese Government is now focusing on the provision of regular health and social care services for older people.

### 12.4 Finland
12th June 2020

Finland has succeeded in protecting people aged 70 years and over from COVID-19 in general. Still, almost half of the 318 deaths in the country have occurred in care homes for older people (situation on 1st June). However, it is likely that all deaths from COVID-19 have not been recognised and classified similarly.

There are also remarkable regional differences in the spread of the infection. However, the national guidelines for restrictions are similar throughout the country. The national level guidelines have been more detailed and clearer for care homes than for home care. The implementation of the measures to prevent the infection has varied between municipalities, however, most of the municipalities have acted vigorously regarding the prevention of the virus and followed the given instructions. In care homes, visiting restrictions have in some cases led to anxiety concerning family members. In exposure cases, some of the residents have had relatively long periods of isolation, during which mobility within the care unit is limited. Therefore, attempts to prevent a possible deterioration in mental well-being, including providing video calls and photographs to the residents.

### 12.5 Germany
26th May 2020

The German government has issued financial support and relaxed monitoring of care providers during this pandemic so that the residential and ambulatory care that people receive can be maintained.

Residential care settings across Germany have started to allow their residents to have visitors. The care settings have to develop and implement complex safety protection plans to facilitate this.

The Robert Koch Institute (RKI) provides regularly updated guidance, recommendations and advice for specific care settings. This guidance includes the establishment of zones to physically separate residents during the outbreak and contact tracing. The RKI also issues a daily update on the number of confirmed and recovered COVID-19 cases as well as of the number of COVID-19 related deaths.

### 12.6 Hong Kong
27th April 2020

There have been 1,038 confirmed cases of COVID-19 in Hong Kong as of 27th April 2020. However, there have been no frontline healthcare workers affected, and no nursing home residents have been infected with the virus so far. The Government and society at large responded very quickly. They imposed strict policies to stem the spread of the virus in community and long-term residential care facilities, including practice guidelines, financial support and special arrangements on health and social care

services. Non-Governmental Organisations increased the use of anti-epidemic measures and information and communication technology to support older people and their family members during the epidemic, including people living with dementia.

### 12.7 Italy

30th April 2020

The report outlined that the Italian government acted late with regard to the COVID-19 outbreak management in nursing homes. The first operational guidelines were released after the country's total lockdown on March 9th, only requiring care homes to suspend visitations. The Ministry of Health only released an update of the operational guidelines dedicated to nursing homes on March 25th. The first COVID-19 case was detected in Italy on January 30th. In Italy, regional authorities are responsible for the operational regulation of the LTRC sector: after the outbreak, they enacted late and different responses without clear guidance from the national legislator.

Italy also faced a massive shortage of Personal Protection Equipment (PPE) and nursing homes were not prioritized for receiving new procurements. Workers and care users were therefore not sufficiently protected from the spread of COVID-19. Coordination with healthcare actors (mainly acute care but also general practitioners) has also been limited and poorly implemented, mainly relying on professional linkages of individual professionals and without a regional or national framework.

The National Institute of Health (Institute Superiore di Sanità) launched a survey to investigate the incredibly high numbers of deaths registered in long-term residential care centres for older people after the national press raised the attention on the potentially considerable underestimation of COVID-19-related deaths in care homes. Preliminary results confirm that the actual number of COVID-19 related deaths might be much higher than reported in official documents. As of today, current procedures do not foresee testing older people in care homes, neither those who died after presenting symptoms. The report found that the response to the COVID-19 emergency was left to the initiative of each nursing home alone, relying on their capacity and willingness to cope with extraordinary conditions while having poor support from institutions.

### 12.8 The Netherlands

26th May 2020

After a significant peak in the number of deaths in week 15 (6 April - 12 April 2020), the number of COVID-19 cases and deaths in nursing homes has been declining. The Dutch government is taking a phased approach to relaxing the nursing home visitor ban while monitoring infections and deaths. Nurses and carers in nursing homes and homecare organisations can apply for personal protective equipment (PPE) and can gain access to testing. However, care professionals still experience barriers to accessing (adequate) PPE. Informal caregivers are also eligible to access PPE and testing. Although some action has been taken to improve the collection of information in long-term residential care facilities (e.g. data on people with intellectual disabilities), significant information gaps remain about long-term care and COVID-19, especially how COVID-19 affects long-term care staff.

### 12.9 South Africa

31st Mary 2020

Having witnessed devastating scenes unfolding in other countries, care homes and care centres within retirement villages did not wait for government permission or guidance but responded rapidly to the threat of COVID-19.

The response was firm and unapologetic, erring on the side of caution. Actions taken included:

- Going into voluntary lockdown before the official announcement;
- Introducing a COVID-19 infection control officer to coordinate the implementation of protocols;
- Increasing monitoring to ensure compliance;
- Encouraging staff to stay on site, and ensuring that these staff were accommodated according to the zones in the facility where they worked;
- Allocating one person to do the shopping, and sanitising items entering the home;
- Reducing the use of public transport by transporting staff privately;
- Having a color-coded system to identify isolation zones within the home and the staff allocated to these zones (colour-coded badges);
- Cleaning more thoroughly.

## 13. Results from Systematic Review

In total 1,101 titles and abstracts were uploaded into Covidence. Following further deduplicating 1,059 titles and abstracts were screened. 79 full text papers were reviewed, and 33 papers selected for inclusion – (Figure 1 PRISMA).

## 14. Methods

### 14.1 Types of studies and evidence

After a preliminary review of one database, a decision was taken to provide a comprehensive inclusion of evidence for the Expert Panel. In this review include all study designs (e.g. experimental studies, quasi-experimental studies, observational studies including cohort, case-control and uncontrolled before and after studies, and qualitative studies) that involved an assessment of measures to reduce transmission of COVID-19 (including SARS or MERS). Additional evidence from grey literature, including a current repository for COVID-19 studies, is reported.

### 14.2 Types of participants

Participants in this review were adults comprising residents, employees and visitors in long-term residential care facilities.

### 14.3 Types of intervention

To provide as comprehensive a review of the evidence as possible we included evidence for any intervention implemented to reduce the transmission of COVID-19 in long-term residential care facilities, including social distancing, personal protective equipment, hand hygiene.

## 15. Primary outcome measures

Measures of outcomes include morbidity data, case fatality rates, reductions in reported transmission rates. Data are stratified, where possible, and reported for different population groups or long-term care facilities in general.

## 16. Search methods for identification of studies (see Appendix for search strategy).

Search strategies comprised search terms both for keywords and controlled-vocabulary search terms MESH and EMTREE.

We searched databases from inception to 20th June 2020:

- EMBASE (via OVID)
- PubMed (via OVID)
- Cumulative Index to Nursing and Allied Health Literature (CINAHL)
- Cochrane Database and Repository for COVID 19 evidence
- MedRXiv pre-published repository

## 17. Searching other resources

We checked reference lists and bibliographies of included evidence for further articles up to 3 July 2020. We did not exclude any publications based on language or publication date.

## 18. Selection of studies/ evidence

This review process consisted of the following stages:

1. Two authors developed the search strings for each database search (DS & KF).
2. One author ran all database searches and downloaded results into a reference management database with duplicate citations deleted (DS).
3. One author downloaded the search into Covidence management platform (LM). Two authors independently screened all titles and abstracts for potentially eligible studies and obtained full-text copies (LM & KF).
4. Two authors independently reviewed all full-text papers (LM & KF). The eligibility decision was made based on full-text screening.
5. Two authors independently (LM & KF) extracted data from included studies. Due to the rapid nature of this review for reporting to the Expert Panel, each author independently extracted data from 50% the studies. The data from each study was then independently checked and verified.
6. We resolved eligibility disagreements by discussion, and by inviting a third review author (CK) to act as an independent arbiter.
7. We recorded reasons for exclusion of studies/ reports.

## 19. Data extraction and management

A data extraction form was developed and modified. We adapted extraction forms previously used in published Cochrane systematic reviews. Two authors (LM & KF) extracted data from the included studies and reports. All extracted data were independently checked and verified.

We extracted the following data.

- Title
- Lead author
- Year of publication
- Reference for publication
- Country
- Study setting
- Study design
- Description of intervention
- Size of population
- Number and characteristics of participants
- Outcomes and how measured
- Length of follow-up
- Sources of funding
- Peer reviewed
- Ethical approval
- Potential Conflicts of interest of study authors

If study results were reported in more than one publication, we extracted data from all included publications. We highlight and report combined reporting for these studies.

## 20. Data synthesis

Meta-analysis was not possible due to heterogeneity in study designs, participants, outcomes, and nature of the interventions, so we present a summary and descriptive statistics and a narrative synthesis of results. Subgroup analyses are presented for studies reporting outcomes for specialist populations, including residents, employees, and visitors.

## 21. Results

## 22. Description of studies

We searched the literature for this review in June 2020, and this yielded 1,101 records. Hand searching and reference lists yielded three additional studies. In total, 1,059 records were reviewed following deduplication. Details of the search are presented in the PRISMA diagram (Figure 1).

## 23. Included studies and evidence

Thirty-three papers are included in this review: Abrams et al., 2020, American Geriatrics Society, 2020, Arons et al., 2020, Brainard et al., 2020, Burki, 2020, Clarfield et al., 2020, Danis et al., 2020, Dora et al., 2020, Fisman et al., 2020, Graham et al., 2020, Guery et al., 2020, Hand et al., 2018, Heung et al., 2006, Ho et al., 2003, Kennelly et al., 2020, Kim, 2020, Kimball et al., 2020, Lee et al., 2020, Lynch and Goring, 2020, McMichael et al., 2020a, McMichael et al., 2020b, Office for National Statistics, 2020, Quicke et al., 2020, Rios et al., 2020, Roxby et al., 2020a, Roxby et al., 2020b, Smith et al., 2020, Stall et al., 2020, Stow et al., 2020, Trabucchi and De Leo, 2020, Tse et al., 2003, Wasserman et al., 2020, Zazzara et al., 2020 (Table 1S).

It must be noted that a number of the papers are multiple reporting for the one study or outbreak of COVID- 19, e.g. Aron et al 2020 and Kimball et al 2020 report evidence on one outbreak in the USA; McMichael 2020a and 2020b are linked papers, as are Roxby 2020a and Roxby 2020b.

Twenty-five papers report evidence of measures to reduce transmission of COVID-19 in long-term residential care facilities for residents (Table 2S), nineteen papers report evidence for employee outcomes (Table 3S), and four papers include evidence for visitors (Table 5S). Seven reports focus on systems evidence for long-term care facilities: Abrams et al. (2020), American Geriatrics Society (2020), Lynch and Goring (2020), Rios et al. (2020), Stall et al. (2020), Wasserman et al. (2020), Zazzara et al. (2020) (Table 4S). See Tables 6S, 7S, and 8S for focused resident, employee, and visitor outcomes.

Geographically, nine individual countries are represented in this review including **USA** (Abrams et al., 2020, American Geriatrics Society, 2020, Arons et al., 2020, Dora et al., 2020, Hand et al., 2018, Kimball et al., 2020, Lynch and Goring, 2020, McMichael et al., 2020a, McMichael et al., 2020b, Quicke et al., 2020, Roxby et al., 2020a, Roxby et al., 2020b, Wasserman et al., 2020); **UK** (Brainard et al., 2020, Burki, 2020, Graham et al., 2020, Office for National Statistics, 2020, Stow et al., 2020, Zazzara et al., 2020); **Canada** (Fisman et al., 2020, Rios et al., 2020, Stall et al., 2020); **France** (Guery et al., 2020); **Hong Kong** (Heung et al., 2006, Ho et al., 2003, Tse et al., 2003); **Ireland** (Kennelly et al., 2020); **Italy** (Trabucchi and De Leo, 2020); **Israel** (Clarfield et al., 2020); **South Korea** (Kim, 2020, Lee et al., 2020, Smith et al., 2020). Danis et al. (2020) present evidence for EU/ EEA regions.

## 24. Excluded Studies

We excluded 46 studies and reports from this review which did not meet the inclusion criteria. We report reasons for exclusion in Figure 1, including wrong intervention, not research papers, systematic reviews and topic not related to COVID-19 specifically.

## Table 1S Characteristics of Studies/ Reports

| Study ID | Country | Setting (including location and social context) | Review title or ID | Study Design/ Publication type (e.g. report, abstract, letter) | Population |
|---|---|---|---|---|---|
| Abrams et al (2020) | USA | All nursing homes eligible | Characteristics of US Nursing Homes with COVID-19 cases. Journal of American Geriatrics Society | Retrospective cohort study.<br><br>(Peer review search)<br><br>Constructed database of nursing homes with verified COVID-19 cases | Facilities |
| American Geriatrics Society Policy Brief: COVID-19 and Nursing Homes | USA | NH and LTCFs | American Geriatrics Society Policy Brief: COVID-19 and Nursing Homes<br><br>J Am Geriatr Soc May 2020;68(5):908-911 | Special article nursing homes (NHs) and other long-term care facilities (LTCFs). (Policy Brief)<br><br>(Peer review search) | Staff, residents, and facilities |
| Arons et al (2020) | King County, Washington USA | Nursing home facility, King County, Washington USA | Presymptomatic SARS-CoV-2 infections and transmission in a skilled nursing facility, The New England journal of Medicine. N Engl J Med 2020;382:2081-90.<br><br>DOI: 10.1056/NEJMoa2008457 | Serial point-prevalence surveys 1 week apart<br><br>(Peer review search) | Residents /staff |
| Brainard et al (2020) | England | Care homes, Norfolk | Introduction to and spread of COVID-19 in care homes in Norfolk, UK | Cross sectional study (not peer reviewed- MedRxiv) | Staff |
| Burki (2020) | England and Wales | Care homes | England and Wales see 20000 excess deaths in care homes. The Lancet World Report, volume 395, issue 10237, P1602, May 23, 2020 | Summary Report<br>(Peer review search) | Residents |
| Clarfield et al (2020) | Israel | Older people in the community/ long-term care institutions | Israel ad hoc COVID-19 committee: Guidelines for care of older persons during a pandemic. The American Geriatrics Society. https://onlinelibrary.wiley.com/doi/10.1111/jgs.16554 | Modified Delphi study of professionals<br>(Peer review search) | Older people in community including long-term care institutions |
| Danis et al (2020) | EU/EEA | Long-term care facilities | High impact of COVID-19 in long-term care facilities, suggestion for monitoring in the EU/EEA, May 2020. Euro Surveill. 2020; 25(22):pii20000956 | Summary report (Peer review search) | Residents |
| Dora et al (2020) | California, USA | Skilled nursing facility USA | Universal and serial laboratory testing for SARS-CoV-2 at a long-term care skilled nursing facility for veterans - Los Angeles, California, 2020 | Observational prospective study (Peer review search) | Residents, staff, and visitors |

## Table 1S Characteristics of Studies/ Reports

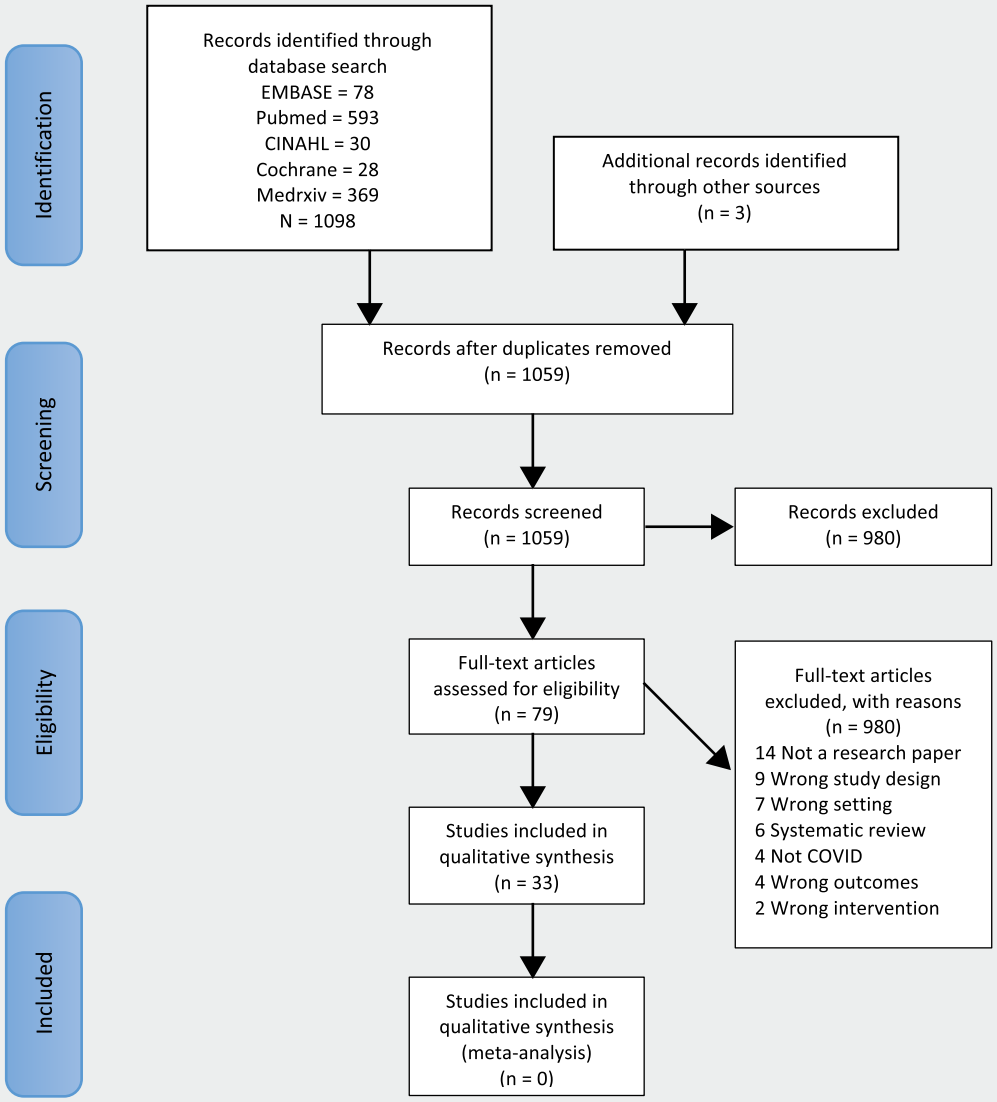
| Study ID | Country | Setting (including location and social context) | Review title or ID | Study Design/ Publication type (e.g. report, abstract, letter) | Population |
|---|---|---|---|---|---|
| Fisman et al (2020) | Ontario, Canada | Long-term care homes | Failing our most vulnerable: COVID-19 and long-term care facilities in Ontario. MedRxiv. https://www.medrxiv.org/content/10.1101/2020.04.14.20065557v1.full.pdf | Retrospective analysis of a database of LongTerm Care Residents.<br><br>(not peer reviewed- MedRxiv) | Residents, staff, and community |
| Geury et al (2020) | Nantes, France | Nursing home, France | Limited effectiveness of systematic screening by nasopharyngeal RT-PCR of medicalized nursing home staff after a first case of COVID-19 in a resident | Cross sectional study<br>(Peer review search) | Staff |
| Graham et al (2020) | England | 4 nursing homes in London, England | SARS-CoV-2 infection, clinical features and outcomes of COVID-19 in United Kingdom nursing homes. https://www.medrxiv.org/content/10.1101/2020.05.19.20105460v1.full.pdf | Cross sectional point prevalence surveys. 1 week apart.<br><br>(not peer reviewed- MedRxiv) | Staff and residents |
| Hand et al (2018) | Louisiana USA | Long-term care facility | Severe respiratory illness outbreak associated with human coronavirus NL63 in a long-term care facility. Emerg Infect Dis (2018). 24(10):1964-1966. DOI: https://doi.org/10.3201/eid2410.180862 | Case report of outbreak<br>(Peer review search)<br><br>Letter | Residents |
| Heung et al (2006) | Hong Kong | Residential care home in Hong Kong | Prevalence of subclinical infection transmission of severe acute respiratory syndrome (SARS) in a residential care home for the elderly. Hong Kong Med J, 2006; 12(3):201-7. https://pubmed.ncbi.nlm.nih.gov/16760548/ | Cross sectional study (Peer review search) | Residents and staff |
| Ho et al.,(2003) | Hong Kong | A nursing home in Hong Kong | An outbreak of severe acute respiratory syndrome in a nursing home. J Am Geriatr Soc, 51, 1504-5. | Case report of observational study.<br>(Peer review search)<br><br>Letter to the editor | Residents and staff and visitors |
| Kennelly et al (2020) | Ireland | Nursing homes | Kennelly, S. P., Dyer, A. H., Martin, R., Kennelly, S. M., Martin, A., O'neill, D. & Fallon, A. 2020. Asymptomatic carriage rates and case-fatality of SARS-CoV-2 infection in residents and staff in Irish nursing homes. medRxiv, 2020.06.11.20128199. | Retrospective cohort study | Staff and residents |
| Kim (2020) | Korea (South) | Nursing home in Korea | Improving preparedness for and response to coronavirus disease 19 (COVID-19) in long-term care hospitals in Korea (2020). Infect chemother. | Case report of an outbreak<br>(Peer review search) | Residents and staff |
| Kimball et al 2020 | King County, Washington, USA | Long-Term Care Skilled Nursing Facility | Asymptomatic and Presymptomatic SARS-CoV-2 Infections in Residents of a Long-Term Care Skilled Nursing Facility - King County, Washington, March 2020<br><br>MMWR. Morbidity and mortality weekly report 2020;69(13):377-381 | Report of an outbreak<br>(Peer review search)<br><br>See **Roxby** for follow up testing results | Residents |

**Table 1S Characteristics of Studies/ Reports**

| Study ID | Country | Setting (including location and social context) | Review title or ID | Study Design/ Publication type (e.g. report, abstract, letter) | Population |
|---|---|---|---|---|---|
| Lee et al (2020) | Korea | Long-term care hospital | Can post-exposure prophylaxis for COVID-19 be considered as an out-break response strategy in long-term care hospitals? Int J Antimicrob Agents (2020), 55(6): 1-5988 | Non-randomised intervention study. (Peer review search) | Residents and staff |
| Lynch et al 2020 | USA | Long-term care facilities | Practical Steps to Improve Air Flow in Long-Term Care Resident Rooms to Reduce COVID-19 Infection Risk Journal of the American Medical Directors Association 2020; | Guidance on air flow Special article. (Peer review search) | Facilities |
| McMichael et al 2020 | King County, Washington, USA | Skilled nursing facility in King County, Washington | Epidemiology of covid-19 in a long-term care facility in King County, Washington New England Journal of Medicine 2020;382(21):2008-2011 | Surveillance of outbreak surveillance case study (Peer review search) | Residents, staff, and visitors |
| McMichael et al 2020 | King County, Washington, USA | Long-Term Care Skilled Nursing Facility | COVID-19 in a Long-Term Care Facility - King County, Washington, February 27-March 9, 2020 MMWR. Morbidity and mortality weekly report 2020;69(12):339-342 | Report of surveillance outbreak study (Peer review search) | Residents, staff, and visitors |
| Office for National Statistics (2020) | England | Care homes, England | Impact of coronavirus in care homes in England Report. Office for National Statistics. | Cohort study. (Report, not yet peer reviewed- online report 03.07.2020) | Residents and staff |
| Quicke et al 2020 | Colorado, USA | | Longitudinal Surveillance for SARS-CoV-2 RNA Among Asymptomatic Staff in Five Colorado Skilled Nursing Facilities: Epidemiologic, Virologic and Sequence Analysis medRxiv 2020;():2020.06.08.20125989 | Longitudinal cohort study (not peer reviewed- MedRxiv) | Staff |
| Rios et al 2020 | Canada | Long-term care facilities | Guidelines for preventing respiratory illness in older adults aged 60 years and above living in long-term care: A rapid review of clinical practice guidelines medRxiv 2020.03.19.20039180; doi: https://doi.org/10.1101/2020.03.19.20039180 | Rapid review of clinical practice guidelines (Peer review search) | Facilities |
| Roxby et al 2020 | Seattle, Washington, USA | Assisted living facility | Detection of SARS-CoV-2 Among Residents and Staff Members of an Independent and Assisted Living Community for Older Adults - Seattle, Washington, 2020 MMWR. Morbidity and mortality weekly report 2020;69(14):416-418 | Cross sectional surveillance study report (Peer review search) | Residents and staff |
| Roxby et al 2020 | Seattle, Washington, USA | Long-term care facilities | Outbreak Investigation of COVID-19 among Residents and Staff of an Independent and Assisted Living Community for Older Adults in Seattle, Washington JAMA Internal Medicine 2020;():May 21, 2020. doi:10.1001/jamainternmed.2020.2233 | Cross sectional surveillance study (Peer review search | Residents and staff |

| Table 1S Characteristics of Studies/ Reports | | | | | |
|---|---|---|---|---|---|
| **Study ID** | **Country** | **Setting (including location and social context)** | **Review title or ID** | **Study Design/ Publication type (e.g. report, abstract, letter)** | **Population** |
| Smith et al 2020 | France | Simulated Long-term Care | How best to use limited tests? Improving COVID-19 surveillance in long-term care medRxiv 2020;():2020.04.19.20071639 | Statistical modelling (not peer reviewed- MedRxiv) | Residents and Staff |
| Stall et al 2020 | Ontario, Canada | Nursing homes | For-profit nursing homes and the risk of COVID-19 outbreaks and resident deaths in Ontario, Canada. medRxiv 2020;():2020.05.25.20112664 | Retrospective cohort study (not peer reviewed- MedRxiv) | Facilities, residents |
| Stow et al 2020 | England | Care home units and from local authority areas in England. | National Early Warning Scores (NEWS / NEWS2) and COVID-19 deaths in care homes: a longitudinal ecological study medRxiv 2020;():2020.06.15.20131516 | Longitudinal ecological study (not peer reviewed- MedRxiv) | Residents |
| Trabucchi et De Leo 2020 | Italy | Nursing homes | Nursing homes or besieged castles: COVID-19 in northern Italy. Lancet Psychiatry May 2020;7(5):387-388 | Correspondence (Peer review search) | Residents |
| Tse et al 2003 | Hong Kong | Nursing home | Experiencing SARS: perspectives of the elderly residents and health care professionals in a Hong Kong nursing home Geriatric Nursing 2003;24(5):266-269 | Descriptive qualitative study (Peer review search) | Residents, staff |
| Wasserman et al 2020 | USA | Nursing Facilities | Diagnostic Testing for SARS-Coronavirus-2 in the Nursing Facility: Recommendations of a Delphi Panel of Long-Term Care Clinicians Journal of Nutrition, Health & Aging 2020;24(6):538-543 | Delphi study of experts (Peer review search) | Facilities |

***Figure 1*** *Search Strategy*




## 25. Effects of interventions

**Personal protective equipment (PPE)**

Six studies implemented or provided guidance on the use of personal protective equipment (PPE), including gloves, eye protection, masks, and gowns. In one nursing home, 48 of 76 residents screened during point-prevalence surveys tested positive for COVID-19 following recommendations for all healthcare staff to wear PPE when entering rooms (Arons et al., 2020). The spread of COVID-19 in residents increased when eye protection and face masks became less available in care homes in Norfolk, England (Brainard et al., 2020). Use of PPE was monitored by an infection control nurse in a skilled nursing facility in California, where 19 of 90 residents tested positive (1/19 died) (Dora et al., 2020). The SARS virus was spread to 6 people (2 residents, 1 staff member, 3 visitors) after staff were instructed

on the use of PPE following one resident testing positive (Ho et al., 2003). In a single nursing home facility in Hong Kong, staff implemented use of PPE, including a designated PPE removal zone following an outbreak of COVID-19, resulting in no additional infections (Kim, 2020). 23 of 76 residents tested positive after an outbreak in a skilled nursing facility in Washington where staff implemented PPE use (Kimball et al., 2020)

**Surveillance**

Surveillance and/or screening of residents and staff was reported in 7 of 33 studies. Surveillance consisted of widespread testing for a viral infection while screening included symptom and temperature screening regularly (residents) and upon entering a facility (staff, visitors). In a skilled nursing facility in California, all residents underwent serial testing, all clinical and non-clinical staff underwent a single viral test for COVID-19. Screening of all staff and visitors for symptoms was completed before entering the facility. In total, 19/96 and 8/136 residents and staff tested positive, respectively (Dora et al., 2020). In a French nursing home, all staff underwent surveillance testing following the occurrence of a confirmed COVID-19 case in a resident, with 3 of 136 staff testing positive (Geury et al., 2020). Comprehensive testing of all residents and a representative sample of staff was conducted in four London nursing homes, where 126 of 313 residents initially tested positive, with an additional 5 testing positive on re-testing one week later. Positive tests were found in 3 of 70 staff (Graham et al., 2020). Symptom screening of residents following an outbreak of HCoV-NL63 in a US nursing home resulted in 13 of 130 residents testing positive (Hand et al., 2018).

Similarly, residents and staff were screened for symptoms in a long-term care facility in Washington where 23 of 76 residents tested positive (Kimball et al., 2020). Weekly testing was conducted in residents across five nursing facilities in Colorado, showing varied temporal incidence rates. One site remained infection-free, a second site began with low rates, declining rapidly to zero cases, one facility began with a high incidence rate (22.5%) which declined over time. The remaining two sites had low prevalence initially, but observed significant rise in incidence rates over time (Quicke et al., 2020). Staff were screened daily for symptoms and temperature in a facility in Washington, where 4/80 residents tested positive following two point-prevalence surveys. 2 of 62 staff tested positive in a single point-prevalence survey (Roxby et al., 2020a, Roxby et al., 2020b).

**Isolation**

Six studies (seven papers) reported on facilities where resident isolation/cohorting was implemented to reduce transmission of COVID-19. Rapid isolation of positive residents was suggested to have contributed to reduced viral transmission in a Californian nursing facility, where 19 of 96 residents and 8 of 136 staff tested positive. Staff movement between wards was also restricted (Dora et al., 2020). Similarly, 4 nursing homes across London implemented cohorting of positive residents, with 131 of 313 residents and 3 of 70 staff testing positive during observations (Graham et al., 2020). During a SARS outbreak in Hong Kong, a nursing home facility isolated all febrile residents and all residents returning from a hospital after the virus was detected in the home, resulting in transmission to only 6 other individuals (2 residents, 1 staff, 3 visitors) (Ho et al., 2003). COVID-19 positive residents in a Korean nursing home were placed in isolation, and care workers for this isolation cohort had restricted movements, to prevent viral transmission. These measures assisted in preventing further resident and staff infection, with all 142 residents and 82 staff testing negative 14 days after the quarantine (Kim, 2020). A long-term care facility in Washington implemented isolation procedures for symptomatic residents following an outbreak, with 23 of 76 residents testing positive (Kimball et al., 2020). Finally, a care home in Washington isolated all residents following the detection of an outbreak in the facility, with 3 of 80 residents testing positive during initial point-prevalence testing, with an additional one resident testing positive a week later. All residents remained clinically stable 14-days after the second test (Roxby et al., 2020a).

**Infection control (droplet precautions, hand hygiene)**

Infection control procedures were reported in five studies (six papers). Hand hygiene and droplet and contact precautions were implemented in a long-term residential care facility in California, where 19 of 96 residents and 8 of 136 staff tested positive (Dora et al., 2020). Droplet precautions, as well as hand and personal hygiene reviews, were conducted in a Louisiana nursing home following an outbreak of HCoV-NL63, with 7 of 130 residents testing positive (Hand et al., 2018). Seroprevalence for the SARS-CoV virus was assessed in residents and staff of a Hong Kong nursing home where contact and droplet precautions were implemented during an outbreak. No included participants were positive for antibodies (0 of 76 residents, 0 of 26 staff); however, staff and residents reported to be symptomatic during the outbreak did not participate in the assessment (Heung et al., 2006). Hand hygiene practices for health care personnel were included in the infection control procedures of a Washington skilled nursing facility, with 23 of 76 residents testing positive during an outbreak (Kimball et al., 2020). In addition to hand hygiene practices which included increased availability of hand hygiene stations, disinfection of frequently touched surfaces was conducted to reduce transmission in a Washington facility following an outbreak. Repeated point-prevalence surveys identified 4 of 80 residents infected, with all residents clinically stable 14-days after the final survey (Roxby et al., 2020a, Roxby et al., 2020b).

**Mortality**

Mortality is reported in eleven reports. McMichael et al (2020) present the initial USA outbreak data from a long-term residential care facility for 167 cases of COVID-19, including 101 residents. The case fatality rate for residents was 33.7% (34 of 101). Arons et al (2020) reported deaths in 26% of residents (15 of 57), with 35% of residents presenting with typical symptoms. Dora et al (2020) reported one death in a facility with 96 residents in three ward locations. Resident testing commenced 29$^{th}$-31$^{st}$ March, and 19 cases identified, and one resident died. Fewer fatalities resulted following the introduction of testing regimes, cohorting of residents and restricting of the transfer of staff between the three locations. Fisman et al (2020) identified COVID-19 in 43.4% of residents (n=272) in long-term residential care facilities in Ontario. Mortality rates were 13 times higher in long-term residential care when compared to data from Ontario residents for those aged >69 years. The death rates continued to increase over time for residents during week 29$^{th}$ March to 7$^{th}$ April. Graham et al (2020) reviewed four nursing homes in England, reporting COVID-19 mortality for all causes at 54% in residents and with the highest mortality rates occurring during the first week in April. Mortality rates were highest for men and for those with comorbidities. A recent report from Office for National Statistics (2020) on data for 9,081 nursing homes and 293,301 residents in England, reported 55.6% of homes experienced at least one case of COVID-19 (95% CU 54.8 to 56.4). There were 15,606 deaths reported in residents across all homes. There is an 11% increased risk of COVID-19 infection in a resident of a nursing home (OR 1.11 95% CI 1.1 to 1.11) with each additional infected employee. Other variables linked to higher transmission to residents included homes with no sick pay remuneration for employees or those using bank/agency staff on most or every day. Stow et al (2020) study of 460 care homes over 46 local authorities in England, to establish a national early warning score reporting system, registered 1,532 COVID-19 deaths over period 23$^{rd}$ March and 10$^{th}$ May 2020 (additional 4,221 deaths attributed to other causes). The impact of noting resident use of health surveillance in the two weeks before peaks in nursing home deaths.

In Hong Kong, Heung et al (2020) reported three deaths. Two residents and one employee died. The data on the three cases identified transfer from a hospital into a nursing home for one case. Transmission to the other resident and employee considered seating placements in a dining room and handling of clinical waste. Ho et al (2020) also reported seven cases in Hong Kong. Of the three residents, one employee and three visitors who were infected with COVID-19, two residents and one employee died. Kennelly et al (2020) report evidence from a large survey of 28 nursing homes in Ireland where 63% of surveys returned provide data on 2043 residents. A COVID-19 outbreak was recorded in 75% of nursing homes

in the study. Eight nursing homes had ≥80% single rooms in line with regulatory standards, and there was no association between adherence to the standard and a COVID-19 outbreak ($\chi 2=1.37$, $p=0.24$) More cases occurred in public nursing homes. Over the 83 days of the study, 15.3% (312 of 2,043) of residents died. The case fatality rate was 27.6% (n=221 of 764) for combined laboratory-confirmed/suspected COVID-19. Case fatality rates were higher in public as against private nursing homes (22.3% v 11.2%); however, this represents five facilities. Staff tested positive in 24 of the 28 homes in the study, and under 25% of those were asymptomatic. Kennelly et al (2020) report that the total number of nursing homes included represents less than 10% of all nursing homes nationally. While Danis et al (2020) present EU/EEA data on confirmed cases and mortalities for several countries, the deaths among residents account for 37 to 66% of all COVID-19 related deaths. Data from outbreak surveillance included other closed settings and could underestimate the mortality rates in residents in long-term residential care facilities for older people (Irish data includes facilities for people with disabilities, homeless populations and direct provision centres, and includes staff and residents).

**Resident symptoms**

Six studies report the symptoms of residents, with an additional study reporting the presence of delirium in frail residents with the COVID-19 (Zazzara et al., 2020). In a Washington nursing home (Arons et al., 2020) 48 residents tested positive for COVID-19, 3 were asymptomatic and 24 were presymptomatic (symptoms developed within seven days of testing). A separate Washington nursing home identified 23 of 76 residents testing positive for COVID-19; however, only ten residents reported any symptoms (2/10 atypical symptoms) (Kimball et al., 2020). The remaining residents reported either no symptoms (3 residents) or they were presymptomatic (10 residents) and the mean interval between testing and symptom onset in the presymptomatic residents was 3 days (Kimball et al., 2020). Among the 21 symptomatic residents, 4 had atypical symptoms (Arons et al., 2020). Dora et al (2002) reported five of 19 positive residents in a California nursing home displayed symptoms upon testing, with 8 of 19 developing symptoms in the week following testing (presymptomatic) and 6 of 19 remaining asymptomatic. Graham et al (2020) reported 126 of 313 residents across 4 London nursing homes tested positive, of which 54 were asymptomatic. Among the symptomatic residents, 22 presented with atypical symptoms (Graham et al., 2020). Across 28 nursing home in Ireland, 710 residents tested positive, with 193 residents identified as asymptomatic (Kennelly et al., 2020). A small number of residents in an assisted living facility in Washington tested positive (4 of 80), with 1 resident identified as asymptomatic (Roxby et al., 2020a, Roxby et al., 2020b). In a large sample of the hospital and community participants with confirmed or suspected COVID-19, a significantly higher prevalence of delirium was identified in frail individuals. Frailty predicted delirium in the hospital sample ($p=0.013$; OR = 3.22, 95% C.I. (1.44, 7.21)), and in the community sample ($p=0.038$; OR = 2.29, 95% C.I. (1.33, 4.0)). After age-matching, delirium was reported in 40 (38%) of frail and 13 (12%) of non-frail patients with COVID-19 (Zazzara et al., 2020).

**Visitor outcomes**

Four papers reporting on three studies presented outcomes related to nursing home visitors. Sixteen individuals who tested positive were epidemiologically linked to an outbreak in a Washington nursing home which they had visited. None of these visitors died (McMichael et al., 2020a, McMichael et al., 2020b). Following an outbreak of SARS in a Hong Kong nursing home, 3 individuals tested positive after visiting the facility, with all individuals recovering (Ho et al., 2003). One study reported that visitors were prohibited from entering a California skilled nursing facility after an outbreak of COVID-19; however, no visitor outcomes were reported (Dora et al., 2020).

**Systems management of facilities**

Several papers and reports guide the management of nursing homes, residents, employees, and visitors to reduce and limit the transmission of COVID-19. Abrams et al (2020) report on the impact of size and location of nursing homes on outbreaks. Outbreaks recorded in larger facilities (large: OR 6.52 V small; medium: OR 2.63 V small) and urban (OR 3.22 V rural). The highest number of cases reported in New Jersey (OR 7.16), Massachusetts (OR 4.36), Georgia, Maryland and Connecticut. Stall et al (2020) reported no association with higher rates of COVID-19 in 'with profit' homes. Incidence was associated with the number of beds, but not profit status; similar to Kennelly et al (2020) who reported higher rates in public nursing homes. American Geriatrics Society (2020), Lynch et al (2020), Rios et al (2020) and Wasserman et al (2020) provide evidence from expert opinions and developed recommendations on the testing, reporting, ventilation and PPE strategies to reduce transmission. Finally, Zazzara et al (2020) point of care assessment of hospital and community cohorts included transfers from long-term residential care facilities and the assessment of frailty and screening for delirium. Delirium was reported in 38% (n=40) frail and 12% (n=13) non frail patients with COVID-19. Frailty was associated with predicting delirium p= 0.0013, OR 3.22 (95% CI 1.44 to 7.21). Systematic implementation of processes for review of frailty and delirium for all setting for older people is identified.

## 26. Adverse events

Adverse events following the intervention are reported in one study. Post-exposure prophylaxis, in the form of hydroxychloroquine, was administered to 189 patients and 22 care workers in a long-term care hospital in Korea. Thirty-two participants reported one or more symptoms related to the treatment, of which five individuals discontinued the intervention (Lee et al., 2020). No further reporting of adverse events in the remaining papers.

## 27. Discussion

The principal purpose of this review was to assess the extent to which measures implemented in long-term residential care facilities reduced transmission of SARS-CoV-2 and effect on morbidity and mortality outcomes. We found 33 papers providing expert opinions, recommendations, and evidence of outcomes following measures implemented in residential care homes. The included studies were from nine individual countries, while one paper reported on the EU/ EEA. Of the 33 included papers, 25 report resident related outcomes, 19 report employee-related outcomes, and four report visitor outcomes. All of these studies are retrospective reports following the implementation of measures to reduce transmission. There were no studies which described the use of alternative or control treatments, which prevents the determination of cause and effect of study outcomes. However, the findings in this review can provide recommendations on strategies to assist in reducing transmission of the SARS-CoV-2 virus in long-term residential care facilities.

The rapid nature of data gathering and reporting in real-time outbreak surveillance is acknowledged in the papers reviewed. Limited data exist on the management of outbreaks in nursing homes/long-term residential care facilities, and there is an absence of a systems approach to the management of COVID-19 in nursing homes. Several studies implemented large-scale surveillance/testing of residents and employees to reduce transmission. However, availability of testing kits was likely limited earlier in the pandemic, which may have prevented broader testing (Dora et al., 2020, Graham et al., 2020). In this situation, testing of symptomatic residents was prioritised. However, evidence from Arons et al (2020), Guery et al (2020), Graham et al (2020) Brainard et al (2020) and Kennelly et al (2020) identify challenges for testing among asymptomatic employees and residents. Given the scale of presymptomatic cases, testing only symptomatic individuals was, therefore, likely to be insufficient to prevent transmission. As

such, implementing broad testing sweeps when testing is available is recommended to identify cases. When limited testing is available, prioritising symptomatic and high-risk individuals may be the best response. Group testing may also be an efficient strategy for detecting outbreaks (Smith et al., 2020).

Greater movement of residents, workers, and visitors increases the opportunity for viral transmission in long-term residential care facilities. Evidence of reducing transmission is evident when facilities instigated cohorting and lockdown procedures limiting movements of staff and preventing access to visitors. For example, in a California nursing home, rapid isolation of cases, prohibiting entry of staff and visitors presenting with symptoms or with recent travel to countries with CDC warnings, and restricting staff movement between wards, assisted in limiting resident case numbers to 19 of 96 and employee case numbers to 8 of 136 (Dora et al., 2020). Isolation was implemented with additional measures in other studies, with varying degrees of success (Graham et al., 2020, Ho et al., 2003, Kim 2020, Kimball et al., 2020, Roxby et al., 2020a), suggesting isolation of residents presenting with symptoms or following a positive test is an appropriate measure. Consideration of the mental wellbeing of residents is necessary, including those with dementia who may have limited comprehension of why measures are in place (Trabucchi and De Leo, 2020). Walking with purpose may frequently occur in these residents and is a risk for transmission of infection.

The use of PPE is an essential strategy for reducing transmission in nursing homes. Gloves, masks, gowns, and eye protection were all investigated in the included reports. Brainard et al (2020) demonstrated an increase in the spread of COVID-19 as eye protection and face masks became less available to staff in UK nursing homes. A dedicated zone for removal of PPE may be considered, such as that implemented in a Hong Kong facility following an outbreak. The car park of the facility was dedicated to the removal of PPE, with use of the elevator limited to staff to access this dedicated zone (Kim, 2020). In addition to PPE use, other infection control measures were described. These measures included droplet and contact precautions, hand and personal hygiene, and disinfection of surfaces. The use of these strategies was shown to assist in reduction of transmission (Dora et al., 2020, Hand et al., 2020, Heung et al., 2006, Kimball et al., 2020, Roxby et al., 2020a), and are essential to limit viral transmission.

Numerous facility-specific characteristics are associated with an increased risk of COVID-19 cases. The Office of National Statistics (2020) identifies homes, where employment contracts of staff have no sick payments, are associated with a higher risk of transmission of COVID-19 as is the additional use of agency care staff. In the US, nursing homes, larger facility size increased the odds of case presentation, as did the percentage of African American residents and a for-profit status (Abrams et al., 2020). Brainard et al (2020) showed the rate of resident cases increased as the number of workers in the facility increased. In Irish nursing homes, resident case numbers were associated with the proportion of symptomatic staff (Kennelly et al., 2020), with a similar outcome reported in UK nursing homes (Office of National Statistics, 2020). Although many of these characteristics are not acutely modifiable (e.g. for-profit status, percentage of African American residents), awareness of these associations should assist in identifying facilities where urgent action must be taken when community and/or facility cases are detected.

After the submission of the rapid review in early July, two further papers were published (Burton et al., 2020; Fisman et al.,2020a), the evidence was provided to the Expert Panel during their review. These studies reported mortality data from outbreaks in Scottish (Burton et al. 2020) care homes and further evidence reported from long-term care facilities in Canada (Fisman et al. 2020a). We include Fisman et al (2020) initial publication in the review, the subsequent paper contained more detailed evidence (Fisman et al 2020a).

Burton et al reported COVID-19 deaths in 109 of the 189 Scottish care homes. In total 55 outbreaks were reported over five weeks (16th March to 19th April) and a further 15 outbreaks from 19th April to 31st May. Of the 70 care homes reporting a positive COVID-19 case, 66 were in residential care homes for older people. In total, 401 deaths are reported in care homes with reported outbreaks, and two deaths occurred in care homes with no outbreak. Excess mortality was associated with larger capacity homes (median 48 beds V 8 beds); private ownership (67.9% V 30%); and previous history of infectious disease outbreaks (28.4% V 0%). Adjusted Odds Ratios associated increased mortality rates in residents with an increased number of beds OR 3.50 (95% CI 2.06 to 5.94) (per 20-bed increase).

Fisman et al (2020a) reported excess deaths in long-term care facilities in Ontario compared to residents living in the locality. In their cohort study (data from January to May 2020) 272 of the 627 facilities reported a COVID-19 infection in either residents or staff. The reported mortality of 0.1% in individuals aged 69 years and older living in the area and similar for residents in long-term care facilities. The Incidence Rate Ratio (IRR) of COVID-19 deaths in those living in long-term care increased in a short period to 13.1 (95% CI 9.9 to 17.3) compared with the adults living in the community. The IRR increased to 87.3 (95% credible interval, 6.4-769.8) by April 11, 2020. Lagged infection in staff was a strong predictor of death in residents adjusted IRR 1.17 (95% CI 1.11 to 1.26 at a 6-day lag and their study noted the importance of focusing on testing, availability of PPE and limiting movement of staff in long-term care facilities.

The results from these two observational studies are consistent with the evidence reported in the rapid review and identify the excess mortality associated with the size of facilities, and the risk of transmission of COVID-19 to residents from staff.

### 27.1 Quality of the evidence

A formal review of quality was not completed due to limitations in time and the extent to which the reports included in this review fulfilled quality criteria. The quality of evidence in this review is low, primarily reported from observational studies, expert opinion, reporting of outbreaks and describing the process and management. Other factors associated with lower quality of evidence includes the reliance of self-reporting of symptoms, recall bias, use of datasets which may be incomplete, and many studies which are not currently in peer review. A formal analysis of quality will be undertaken subsequently.

### 27.2 Limitations in the review process

The extensive review of three data sources and inclusion of MedRxiv, while not peer-reviewed, was not a limitation. Language was not a limitation as there was no restriction imposed, and there was no restriction on time for searches. However, it is acknowledged that this review was completed in five weeks, and we may have missed including a report or study. Additionally, our data extraction was undertaken authors individually and then checked and verified; this was due to the timeline and may result in transcription errors. Due to our independent checking and verification, we aimed to reduce this likelihood. There is no formal quality review of the evidence (design and bias) due to the rapid time involved in undertaking this review. However, we identify the low quality of the current evidence base available. We present a descriptive narrative summary, due to the heterogeneity, both statistical and methodological in the studies and papers included in this review.

### 27.3 Agreements and disagreements with other studies or reviews

The results from this review are consistent with those reported by Salcher-Konrad et al (2020) limited evidence exists. To limit study designs would have reduced, presenting the most comprehensive evidence base to support the Expert Panel and the decision to include reported recommendations, guidance, and weaker study designs establishes the baseline for future research.

## 28. Implications for practice

Despite limitations in the quality of the available evidence, several implications for practice are highlighted. The use of PPE and other infection control measures (droplet and contact precautions, hand hygiene) are essential regardless of whether a case is reported in a facility. Frequent screening of residents for symptoms (once or twice per day), and screening of staff before commencing a shift should be implemented to identify at-risk individuals. Residents identified by such strategies should be isolated, and testing should be initiated. Staff presenting with symptoms should quarantine at home and await results of a test before returning to the facility. Closing nursing homes to visitors limits the opportunity to introduce the virus into the facility, as does delaying the transfer of residents to a facility until after confirmation of a negative test result.

Widescale testing of residents and staff should be implemented, with rapid isolation of positive cases. Given the prevalence of asymptomatic cases, testing only those displaying symptoms is likely ineffective in preventing transmission, and therefore all residents should be tested in facilities experiencing an outbreak. Staff should don PPE when in contact with all residents in such facilities, and infection control policies must be implemented. Surveillance systems recording the health status of residents should be in place to monitor health outcomes, including assessments of frailty and delirium.

The mental wellbeing of residents who are isolated, particularly during periods with no visitation from the family must be considered, and systems developed to support them and their families. Furthermore, residents with dementia may require additional attention. A review of the impact of COVID-19 on staff employed in long-term care facilities during an outbreak, including health and wellbeing and financial supports, during periods of isolation and quarantine must be completed.

Preparedness of facilities for future outbreaks includes the development of staff training and education programs on infection control and the appropriate use of PPE for all employees of long-term care facilities with a quality review of practices and regular monitoring of knowledge and practice. These practices are essential given the implications for long-term care facilities where employment of agency staffing is adopted, and additional risks of transmission noted. Similarly, the evidence identified transmission risks among staff not directly involved in caring duties, so all should be included in preparedness training and education.

The voices of all involved in the care and management of older people, especially those of residents and their families, should be at the heart of practice developments.

## 29. Implications for research

Given the rapid nature of data collection during the current pandemic, and the short follow-up time, opportunities to implement controlled interventions are limited. As such, the retrospective, descriptive nature of studies identified for this review do not allow the determination of cause and effect. Longitudinal follow-up will be essential. Future research should

- Implement interventions, ideally with control or usual care comparison group to assist in elucidating the most appropriate strategies to reduce transmission.
- Develop a robust surveillance system of monitoring of residents' health and wellbeing prospectively, including assessment of frailty and delirium.
- Assess the infection control preparedness of long-term care facilities.
- Evaluate the impact of outbreaks and isolation on the health and wellbeing of residents, employees and families.
- Include the voices of residents, families and all involved in the care and protection of older people in long-term care facilities.

**Table 2S** Outcomes for Residents

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| American Geriatrics Society Policy Brief: COVID-19 and Nursing Homes | USA | NH and LTCFs | Staff, residents, and facilities | None, reporting recommendations | CMS has rolled out several policy changes to support healthcare professionals and systems on the frontline of caring for individuals with COVID-19. These include changes in how Medicare reimburses for telehealth visits and updates to eliminate the 3-day hospital stay rule to allow Medicare to cover earlier admissions to NHs. | Issue 1: Defense Production Act and Supply Chain: increase the supply of ventilators. However, there are current and potential shortages of equipment and supplies across settings. NHs, LTCFs, other congregate living settings (e.g., assisted living), and home healthcare agencies are priorities. Use of PPE, availability of Testing kits, symptom management for end of life care including medications. Management of safe Transfer of COVID-19 Patients. For individuals who test positive for COVID-19 or are strongly suspected of contracting the disease, several important factors will impact transitions between care settings: Hospital to NH Individuals who test positive for COVID-19 should not be discharged to a mainstream NH unless the facility can safely and effectively isolate the patient from other residents and has adequate infection control protocols and PPE for staff and residents. This includes the ability to isolate or cohort the resident(s) separately from the rest of the community and provide dedicated staff for people with COVID-19 in line with CDC guidance. Public Health Planning Public health planning including collaborating with stakeholders and across several different priorities including Consultants and health professionals, administrators, palliative care specialists, local expertise collaborations can help states encourage NHs and hospitals to create their own transfer policies, which may require frequent adjustment based on local conditions and based on hospital resources. Hospital discharge also plays an important role in COVID-19 planning and use of telemedicine. Workforce planning including expertise, training and supports, ratios. Consideration of tax reliefs and payments. |
| Arons et al (2020) | King County, Washington USA | Nursing home facility, King County, Washington USA | Residents / staff | (March 6) Onsite infection prevention and control measures including recommended all health care staff entering symptomatic residents' rooms wear eye protection, gown, gloves, face mask. | Positive test; typical or typical symptoms; non-symptomatic; presymptomatic. Growth rate, doubling time. | 57 of 89 (64%) residents tested positive during point-prevalence surveys, clinical evaluation, or postmortem examination as of March 26 (first survey done on March 13). 48 of 76 (63%) who did first survey tested positive in either initial or subsequent point-prevalence surveys. 17 of 48 (35%) reported typical symptoms, 4(8%) only atypical symptoms, 27(56%) reported no new symptoms or changes in chronic symptoms at time of testing. Of 27 asymptomatic - 12 reported only stable chronic symptoms, 15 reported no symptoms. In the 7 days after test, 24 of 27 asymptomatic developed symptoms (therefore presymptomatic). Median time to symptom onset was 4 days. Doubling time estimated at 3.4 days. Mortality 26% (15 of 57). 11 of 136 full time staff positive at first survey. By March 26, 55 reported symptoms, 51 were tested, 26 were positive. 17/26 were nursing staff, 9 had occupations across multiple units (therapists, environmental service, dietary service) |
| Burki (2020) | England and Wales | Care homes | Residents | None. Report of excess deaths | Reporting excess mortality in update report. | On May 15, 2020, the UK Office for National Statistics (ONS) released provisional figures on deaths involving COVID-19 in the care sector in England and Wales. From March 2 to May 1, 2020, COVID-19 was confirmed or suspected in the deaths of 12 526 individuals living in care homes in the two nations. Facilities not confident in having appropriate PPE available. Difficulties acquiring tests. Homes receiving patients with no negative test result in mid-April, i.e. probably infected. April 28th government stipulated all residents and staff should be tested for the virus. 9039 deaths occurred in March and April in care home (remainder in a hospital setting). Majority had at least one underlying condition - dementia and Alzheimer's disease. Care homes are built for communal living and challenges if placed isolation - increased risk of falls, mental health impact and subsequent impact on nutrition too. |

## Table 2S Outcomes for Residents

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Clarfield et al (2020) | Israel | Older people in the community/ long-term care institutions | Older people in community including long-term care institutions | Set of guidelines for care in Israel | Guidelines for care in Israel | Presents a Triage tool for caring for older people with COVID-19. Utilize palliative care techniques to alleviate suffering; provide palliative care training to nursing home staff. Upstream recommendations including assessment for ventilation, treatment, ICU access and interventions. Downstream interventions include palliative care (including training and support for staff). |
| Danis et al (2020) | EU/EEA | Long-term care facilities | Residents | Report of surveillance data - not a study | Cases and fatality reported | 5,459,526 COVID-19 cases globally. 1,361,098 cases in EU/ EEA and UK. 354,994 cases fatal of which 161,063 (6.5%) were in EU/EEA and UK. Majority of hospitalisations and deaths in oldest age groups 70 years+. In 2016/2017 number of beds in nursing homes, residential homes, mixed long-term care facilities was 64,471 with 3,440,071 beds. high risk of spread COVID 19 due to insufficient access to PPE, staff with limited IPC training, low or absent testing capacity, residents with few or atypical symptoms, asymptomatic staff or staff who work while symptomatic, staff who work in multiple facilities can facilitate entry of COVID-19 into LTCF. Few countries have surveillance of long-term care facilities. Need to introduce this with data collecting of residents and staff to limit transmission. Daily surveillance as routine to measure clinical outcomes including temperature, respiratory rate, sign of COVID-19. Testing of all residents and staff if confirmed case, including postmortem testing. Regular weekly testing of staff and monitoring and follow up. Visits to residents should be limited to absolute minimum. |
| Dora et al (2020) | California, USA | Skilled nursing facility the USA | Residents, staff and visitors | All SNF residents, regardless of symptoms, underwent serial approximately weekly) nasopharyngeal SARS-CoV-2 RT-PCR testing, | Testing of all residents between March 29 and April 23 (after 3+V2 residents found positive between March 28-29), all staff between March 29-April 10. Testing of all visitors March 6th. March 17th all visitors prohibited from buildings. Implemented infection control procedures and strategies for case identification. From 28th March each staff member assigned to a single ward. Infection control nurse reviewed and monitored use of PPE with all SNF staff members. PPE protocols unchanged during outbreak. Staff screened. | Resident testing 29-31 March: Ward A - 4/30 (13%), Ward B - 0/30, Ward C - 10/36 (28%). On April 3 all 22 remaining Ward A were negative, transferred to Wards B and C, Ward A converted to COVID-19 recovery unit. April 6, 28 ward C tested, 2 positive, moved to ward A. April 13 third round of testing, all 27 residents negative. April 22-23, all residents of wards B and C tested negative. 19/96 residents tested positive. 5/19 symptomatic, 8/19 presymptomatic, 6/19 asymptomatic. 1 died. 8/126 staff tested positive. 4/8 symptomatic. Reported swift isolating and cohorting of residents who were COVID positive to reduce transmission in the facility. Converted ward A into a COVID-19 recovery unit allowed quick cohorting of positive residents. Restricted staff movement between wards reduced transmission risks. No cases among staff identified after initial round of testing. No results for visitors reported. 13/19 residents has underlying medical conditions. 9/19 were Black or African American. 11/19 had symptoms at time of testing or after testing. In total 136 staff members tested, and 6% infections identified- all worked in wards A and C. Four if eight positive cases in staff were asymptomatic. Testing of symptomatic staff continued (not serial testing of all staff due to limited supplies). |

## Table 2S Outcomes for Residents

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Fisman et al (2020) | Ontario, Canada | Long-term care homes | Residents, staff and community | None reported | Estimated incidence rate ratios for COVID-19 deaths in LTC population compared to deaths in Ontario population aged >70; evaluated risk of death within LTC as a function of the number of lab-confirmed infected residents and confirmed infected staff at lags from 0-7 days. | A total of 627 LTC were included in the provincial dataset; of these 272 (43.4%) were identified as having either confirmed or suspected COVID-19 infection in residents or staff. No significant differences between LTC with and without confirmed COVID-19 infections were seen in number of licensed bed size, operator (e.g., for-profit vs. not-for profit), or geographic location in Ontario. The incidence of death due to COVID-19 was 13-fold higher in the LTC population than in Ontario residents aged > 69 years. When the whole population was used as the referent, the IRR for death was > 90 in this population; incidence was 23-fold higher when compared to those aged > 59 years, and 8-fold higher when compared to those aged 80 and over not resident in LTC. We identified significant interaction between time and risk associated with LTC residence. While risk of death in those not resident in LTC declined non significantly over time, the rate ratio for death in LTC residents rose sharply, from 8.03(90% CI 2.73 to 20.42) on March 29 to 87.28 (90% CI 9.98 to 557.08) by April 7, 2020. In analyses focused risk for death within LTC we found that lagged infections in institution staff were the strongest predictors of death in residents and were significant at all lags (0 to 7 days) after adjustment for date and numbers of infected residents. The strongest effects were seen with infected staff at a 2-day lag (relative increase in death per infected staff member 20%, 95% CI 14-26%) and a 6 day lag (17%, 95% CI 11%-26%). By contrast the association between infection in residents and subsequent resident death was variable, and far weaker than the effect seen for staff, and was statistically significant only at a zero-day lag (increased risk per infected resident 8%, 95% CI 1% to 15%).Incidence rate ratio of death in LTC compared to community residents aged >69 = 13.1, aged >79 = 7.6, aged >59 = 23.1, all ages = 90.4. Lagged infection in institution staff were the strongest predictors of death in residents. Infected staff at a 2-day lag: relative increase in resident death per infected staff member = 20% 95% CI 14-26%); 6 day lag = 17% 95CI 11-26%. |
| Graham et al (2020) | England | 4 nursing homes in London, England | Staff and residents | Comprehensive swabbing/testing of residents, mass testing; cohorting and implementation of additional infection measures where needed. Testing of a representative sample of staff commenced 15th April. | mortality rate, positive test prevalence, symptoms | All-cause mortality: 103/394 residents. 53/103 (54%) confirmed or suspected COVID-19 (from death certificate). COVID-19 related deaths happened later in outbreak than non-COVID-19. 4 death certificates unavailable, but all tested positive for COVID-19, and GP considered death likely due to COVID-19. All-cause mortality 26% 95% CI 22 to 32 n =103. Peak deaths in 1st week April. Marked increases in deaths in homes A, B and D compared with preceding years 203% (95% CI 70 to 336). Men has increased risk of death. 48% V 34% in those who survived. whole group males 38% p =0.020. Median age higher in those who died. and more deaths in three or more co morbidities. 126/313 (40%) tested positive. 5/173 (4%) remaining tested positive on re-test 1 week later. 3/70 (4%) staff tested positive (596 employees across 4 homes. (mean 149/home). Staff absence rates 1st March to 1st May 2020 elevated at more than three times the background level. 215.9% increase CI 95% 80 to 352). 70 staff were tested cross three nursing homes. 3 of the 19 staff in home A were positive. No staff tested in homes C and D. |

## Table 2S Outcomes for Residents

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Hand et al (2018) | Louisiana USA | Long-term care facility | Residents | Adherence to standard droplet precautions for symptomatic residents, reviewing hand and personal hygiene policies, and enhanced environmental cleaning environmental cleaning, symptoms during this outbreak. | Positive test Coronavirus NL63. Followed adherence to standard and droplet precautions for symptomatic residents. Reviewed hand hygiene polices and enhanced environmental cleaning on 15th November. | 20/130 residents suspected as cases. 13 had specimens tested, of which HCoV-NL63 positive in 7 (54%). During November 1–18,a total of 20 case-patients (60% male) of a median age of 82 (range 66–96) years were identified. The number of cases of respiratory illness peaked in mid-November. The most common symptoms were cough (95%) and chest congestion (65%). Shortness of breath, wheezing, fever, and altered mental status were also reported (Table). Sixteen (80%) case-patients had abnormal findings on chest radiograph; pneumonia was noted in 14. All case-patients had concurrent medical conditions; the most common were heart disease (70%, 14/20), dementia (65%, 13/20), hypertension (40%, 8/20), diabetes (35%, 7/20), and lung disease (35%, 7/20). Six (30%) case-patients required hospitalization; all had chest radiograph–confirmed pneumonia. Hospitalized LRTI case-patients demonstrated shortness of breath (50% vs. 10%), wheezing (50% vs. 0%), and altered mental status (33% vs. 0%) more frequently than did non-hospitalised LRTI case-patients. No new cases among residents after 18 November. No reports of staff members with reported symptoms (no data for staff). |
| Heung et al (2006) | Hong Kong | Residential care home in Hong Kong | Residents and staff | Staff took droplet and contact precautions when caring for residents | Seroprevalence of SARS-CoV antibodies. Symptoms and transmission | 3 /90 residents died. One moved out and 19 re-fused to participate. 32 staff, 6 refused to participate. None of remaining 93 participants were positive for SARS-CoV. Residents were aged 65+ years, 79% were female, 93% were ambulant, 90% did activities with others, 79% went out. 69% of staff were aged 31 t o50 years. 85% were female. 54% engaged in nursing care. Face to face interviews with staff were completed July 2003. 5 of remaining 86 residents and three of 32 staff has experienced symptoms of subclinical SARS-CoV during the study period. Resident A (died) had been transferred from hospital and was chair bound and dependent with care needs. Resident B was chair bound and had not left home or had visitors. She was brought to shared sitting area during mealtimes. This was only time residents A and B were located near each other. One resident shared a room with patient B and tested positive. Staff C was domestic worker and contact was via clinical waste in resident A room. |
| Ho et al.,(2003) | Hong Kong | A nursing home in Hong Kong | Residents and staff and visitors | Community based outreach teams incl. geriatricians, nurses, mobilised to closely monitor nursing home residents dis-charged from hospital. | Review of outbreak | 3 residents positive, 1 employee positive, 3 visitors positive. Single resident infected during hospital stay, returned and the virus spread to 6 people. 3/7 died (2 residents, 1 employee). 4 females ages 65 years to 93 years. 3 males aged 27 years , 28 years and 88 years. Three deaths recorded - two residents and one staff member. Transmission of exposures documented in nursing home, via visitor interactions. |

**Table 2S** Outcomes for Residents

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Kennelly et al (2020) | Ireland | Nursing homes | Staff and residents | Description of nursing homes reporting cases and outcomes | number of cases, symptomatic and asymptomatic numbers, clinical out-comes including mortality | Complete surveys returned from 62.2% (28/45) of NHs with a total of 2043 residents in 2303 beds (median occupancy 96.7%, IQR: 86.0–96.6%) on 29/02/2020. An outbreak was recorded in 75.0% (21/28) of facilities – four public and seventeen private. Occupancy rates at the start of the study period were 95.1% and 87.7% in public and private NHs respectively, decreasing to 75.2% in public and 73.2% in private NHs by 22/05/2020. Eight NHs (38.1%) had ≥80% single rooms in line with regulatory standards. There was no association between adherence to this standard and outbreak occurrence ($\chi 2=1.37$, p=0.24).710/1741 (40.1%) in outbreak NHs test-ed positive (193/710, 27.2%, asymptomatic; 183/710, 25.8% died). 54/1741 suspected infection. More residents with confirmed/suspected COVID-19 in public vs private NHs experiencing outbreak. During the eighty-three-day study period, 312/2043 (15.3%) residents died. 3/28 had <3 staff members and no residents positive. 300/312 (96.2%) of deaths occurred in an out-break NH, with mortality rate of 300/1741 (17.2%). Case-fatality higher in public vs private (22.3% vs 11.2%). Staff: resident ratio <1 had 46.7% infection rate, 52% fatality of case; Staff: resident =1-2, 48.5% infection rate, fatality 24.8% of cases; ratio >2 = 40.3% infection rate, 10.9% fatality of cases. 675 staff positive, across 24/28 NHs. 23.6% asymptomatic. Significant correlation between the proportion of symptomatic staff and number of residents with confirmed/suspected COVID-19 (Spearman's rho=0.81). No correlation between asymptomatic staff and COVID-19 residents. Al-most a quarter (23.6%, 159/675) were asymptomatic, identified by mass point-prevalence testing. While all NHs gave details on total staff numbers with COVID-19, twelve (42.9%, 12/28) re-ported information relative to total staffing levels (all grades). A total of 1392 staff members worked across these twelve sites with almost a quarter (23.8%, 331/1392) reported as con-firmed/suspected COVID-19. Over a quarter were asymptomatic (27.5%, 91/331). Ten of the twelve NHs (83.3%, 10/12) met criteria for an outbreak (one NH had no staff/residents with COVID-19, and another only two staff infected). In those NHs, 329/1227 (26.8%) of staff had con-firmed/suspected COVID-19 infection, and over a quarter were asymptomatic (27.1%; 89/329) |
| Kim (2020) | Korea (South) | Nursing home in Korea with 142 patients and 85 staff. | Residents and staff | Close contact patients of positive worker who were discharged and healthcare workers were isolated at home. Beds repositioned to maintain distance of >2m.. Meals for patients and staff provided from outside. | Infection rates following identification of positive case. Instigated isolation procedures and cohorting of residents with beds >2 m distances. | Staff movements in home were restricted. 14 nurses and assistants volunteered to be quarantined. Layout of space and movement planned. Parking lot used for removing PPE. Visitors prohibited from using elevator as it was used by medical staff in PPE. Preparedness for and response to COVID 19 reduced transmission. After management of outbreak there were no more infected persons. All patients and employees tested negative 14 days from start of quarantine. In-hospital movement of isolation cohort caregivers restricted. section setup as green zone for workers with no contact with infected residents. Parking lot used to remove PPE. Elevator only used for medical personnel in PPE |

## **Table 2S** Outcomes for Residents

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Kimball et al 2020 | King County, Washington, USA | Long-Term Care Skilled Nursing Facility | Residents | Report of outbreak. Index case in facility A on March 1, nursing and administrative leadership instituted visitor restrictions, twice-daily assessments of COVID-19 signs and symptoms among residents, and fever screening of all health care personnel at the start of each shift. On March 6, Public Health – Seattle and King County, in collaboration with CDC, recommended infection prevention and control measures, including isolation of all symptomatic residents and use of gowns, gloves, eye protection, facemasks, and hand hygiene for health care personnel entering symptomatic residents' rooms. | A COVID-19 outbreak in a long-term care skilled nursing facility (SNF) | 82 residents in facility A; 76 (92.7%) underwent symptom assessment and testing; three (3.7%) refused testing, two (2.4%) who had COVID-19 symptoms were transferred to a hospital before testing, and one (1.2%) was unavailable. Among the 76 tested residents, 23 (30.3%) had positive test results. Demographic characteristics were similar among the 53 (69.7%) residents with negative test results and the 23 (30.3%) with positive test results (Table 1). Among the 23 residents with positive test results, 10 (43.5%) were symptomatic, and 13 (56.5%) were asymptomatic. Eight symptomatic residents had typical COVID-19 symptoms, and two had only atypical symptoms; the most common atypical symptoms reported were malaise (four residents) and nausea (three). Thirteen (24.5%) residents who had negative test results also reported typical and atypical COVID-19 symptoms during the 14 days preceding testing. Age positives 80.7 (mean) SD 8.4 Age negatives 75.1 MEAN 10.9 SD. One week after testing, the 13 residents who had positive test results and were asymptomatic on the date of testing were reassessed; 10 had developed symptoms and were recategorized as presymptomatic at the time of testing (Table 2). The most common signs and symptoms that developed were fever (eight residents), malaise (six), and cough (five). The mean interval from testing to symptom onset in the presymptomatic residents was 3 days. Three residents with positive test results remained asymptomatic. Real-time RT-PCR Ct values for both genetic markers among residents with positive test results for SARS-CoV-2 ranged from 18.6 to 29.2 (symptomatic [typical symptoms]), 24.3 to 26.3 (symptomatic [atypical symptoms only]), 15.3 to 37.9 (presymptomatic), and 21.9 to 31.0 (asymptomatic) (Figure). There were no significant differences between the mean Ct values in the four symptom status groups (p = 0.3). Screening could fail to identify half of COVID-19 positive residents. Unrecognized symptoms. Need to screen staff and restrict visitors. Once a facility has a positive case then enforcement of CDC recommended PPE. |

**Table 2S** Outcomes for Residents

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Lee et al (2020) | Korea | Long-term care hospital | Residents and staff | Post-exposure prophylaxis (PEP) using Hydroxychloroquine was administered to staff and residents following a large exposure event. | After second case diagnosed, healthcare workers and residents began the 14-day PEP intervention. Infection rate, compliance with PEP with HCQ for patients and care workers was started on February 26. Physicians and pharmacists were educated about potential ad-verse events. Hydroxychloroquine (HCQ) was administrated orally at a dose of 400 mg daily until the completion of 14 days of quarantine. A checklist for common adverse events was distributed. | 193 patients and 29 care workers were offered PEP. 189 patients, 22 care workers, initiated PEP. Mean age of patients (81.0, range 15-97, 137 female), of care workers (63.4, range 51-78, 25 female), other hospital (52.2, range 24-79, 79 female). Completed in 184 residents and 21 care workers. HCQ was associated with mild adverse events. One patient had skin rash re- quiring steroids but did not discontinue PEP. Five patients discontinued PEP because of gastrointestinal upset, bradycardia, and for fasting. All follow-up PCR tests after 14 day quarantine were negative. |

## **Table 2S** Outcomes for Residents

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| McMichael et al (2020) | King County, Washing-ton, USA | Skilled nursing facility in King County, Washington | Residents, staff, and visitors | Reporting event of outbreak | On February 28, 2020, four cases of COVID-19 confirmed among residents of King County; 1 per-son had presumed travel-related expo-sure, and 3 were identified by testing hospitalized patients who had severe respiratory illness (e.g., pneumonia) and who had tested negative for influenza and other respiratory pathogens. One of these was the index patient from Facility A; one was a Facility A staff member. When the index case was identified on February 28, at least 45 residents and staff dispersed across Facility A had symptoms of respiratory illness; PHSKC was notified of this increase by the facility on February 27. As of March 18, a total of 167 persons with COVID-19 that was epidemiologically linked to Facility A had been identified, 144 were residents of King County and 23 were residents | Most affected persons had respiratory illness; chart review of facility residents found that in 7 cases no symptoms had been documented. Clinical presentation ranged from mild (no hospitalization) to severe, including 35 deaths by March 18. Reported dates of symptom onset ranged from February 15 to March 13. The median age of the patients was 83 years (range, 51 to 100) among facility residents, 62.5 years (range, 52 to 88) among visitors, and 43.5 years (range, 21 to 79) among facility personnel; 112 patients (67.1%) were women . Most (94.1% of 101) facility residents had chronic underlying health conditions, with hypertension (67.3%), cardiac disease (60.4%), renal disease (40.6%), diabetes mellitus (31.7%),pulmonary disease (31.7%), and obesity (30.7%) being most common. Of the coexisting conditions evaluated, hypertension was the only underlying condition present in 7 facility residents with COVID-19. 50 health care personnel positive. Hospitalization rates for facility staff were 6.0%. As of March 18, a total of 30 long-term care facilities with at least one confirmed case of COVID-19 had been identified in King County. in the following occupational categories: physical therapist, occupational therapist assistant, speech pathologist, environmental care (housekeeping, maintenance), nurse, certified nursing assistant, health information officer, physician, and case manager. 16 visitors positive. Hospitalization rates for facility visitors were 50.0%.<br>On March 10, 2020, the governor of Washington implemented mandatory screening of health care workers and visitor restrictions Monitoring of staff absences. |

## Table 2S Outcomes for Residents

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| McMichael et al (2020) | King County, Washing-ton, USA | Long-Term Care Skilled Nursing Facility | Residents, staff and visitors | Report of outbreak | Outbreak information including fatalities. | Identification of index case 27th February from long-term care Facility A- review by CDC in Facility A. By 9th March in Facility A: 129 COVID-19 cases: (81 approx. of 130) residents, 34 staff members and 14 visitors. Cases in King County - 111 (86%) in Facility A residents, 17 staff and 13 visitors. 18 cases in residents in Snohomish County (17 staff and 1 visitor). Symptoms 16th Feb to 5th March. Median age 81 years. (range 54 -100) residents; 42.5 (22-79) staff, 62.5 years (52-88) visitors. 65.1% of patients were women. In Facility A 35.7% of cases were visitors. Case fatality residents 27.2% and visitors 7.1%. No deaths reported for staff. Underlying health : hypertension 69.1%, cardiac disease 56.8%, renal disease 43.2%, diabetes 37.0%, obesity 33.3%, pulmonary disease 32.1%. At 9th March at least 8 other outbreaks reported. Contributing to transmission = staff working while symptomatic, staff working in more than one location, inadequate knowledge standard precautions, eye protection, PPE, lack of sanitiser, delayed recognition of cases, delayed testing- based on signs and symptoms only. |
| Office for National Statistics (2020) | England | Care homes, England | Residents and staff | Survey of nursing homes and reporting outcomes | Outcomes based on responses of care home managers to survey, and not the swab tests. % residents aged 65 years and older and care home staff who have tested positive for COVID-19. Number and size of homes: 0 to 40 beds n=5196, 41- 80 beds= 3390, 81-120 beds n=436, 121-160 beds n=43, more than 160 beds n=16. | Across 9081 homes, estimated to be 293,301 residents (95% CI: 293,168 - 293,434), 441,498 staff (441,240 - 441,756). 92.9% (95%CI: 92.5 - 93.3%) of homes offer sick pay to staff, 11.5% (10.9 - 12.1%) have staff who work in multiple locations, 44.2% (43.4 - 45.0%) do not employ any bank or agency staff. 97.2% (95%CI: 96.8 - 97.6%) have been closed to visitors, 19.3% (18.5 - 20.1%) have been closed to new admissions. Of the 9081 homes, estimated that 55.6% (95% CI: 54.8 - 56.4%) reported at least one confirmed coronavirus case. Across those homes, estimated that 19.9% (18.5 - 21.3%) of residents tested positive, while 6.9% of staff (5.9 - 7.9%) tested positive, since start of pandemic. Across all homes, estimated 10.7% (10.1 - 11.3%) of residents positive, 4.0% (3.6 - 4.4%) staff positive. 15,606 deaths of residents across all homes due to COVID-19. For each additional member of infected staff working at the care home, the odds of resident infection increase by 11% ie OR = 1.11 (95%CI: 1.1-1.11). Care homes using bank or agency nurses or carers most or every day more likely to have cases in residents (OR= 1.58, 1.5 - 1.65), compared to those who never use bank or agency staff. Residents in care homes outside of London had lower chance of infection, except West Midlands (OR = 1.09, 1.0 - 1.17). Homes where staff receive sick pay are less likely to have resident cases (OR= 0.82 to 0.93, 95%CI: 7-18%), compared to homes where no sick leave. For each additional infected resident at a home, the odds of staff infection increase by 4% (4 - 4%) OR=1.04). Care homes using bank or agency staff most or every day OR=1.88 (95%CI: 1.77 - 2.0) compared to homes not using. Homes where staff regularly work elsewhere (most or every day) increase odds (OR=2.4, 1.92 - 3.0) com-pared to home who never work elsewhere. Staff at homes outside London had higher odds of infection. |

## **Table 2S** Outcomes for Residents

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Roxby et al (2020) | Seattle, Washing-ton, USA | Assisted living facility | Residents and staff | Surveillance report - link to main paper JAMA 2020 | Surveillance for SARS-CoV2 and describe symptoms of COVID-19 in residents of independent/ assisted living facility | 83 residents and 62 staff tested. 5 cases: 3 residents and 2 staff. Another resident tested positive day 7. Three residents no symptoms. SARS-CoV-2 was detected in three (3.8%) residents and two (3.2%) staff members. None of the residents with positive tests reported symptoms at the time of testing; however, one (resident C) re-ported resolved mild cough and loose stool during the preceding 14 days. All three residents with positive test results were living on separate floors in their own apartments; one received assistance with activities of daily living. One resident lived on the same floor as the two hospitalized residents with known COVID-19, and one had known close contact with one of the hospitalized residents; the third resident who had positive test results had no contact with either of the hospitalized residents. When the second round of testing was conducted 7 days later, one additional positive test result was reported for an asymptomatic resident who had negative test results on the first round. During the first round of testing and symptom screening, symptoms were reported by 42% of residents and 25% of staff members who had negative test results for SARS-CoV-2. Symptoms reported by residents who had negative test results included sore throat, chills, confusion, body aches, dizziness, malaise, headaches, cough, shortness of breath, and diarrhoea. Residents age 85.8 years (SD 7.6), 78% female, 48% smoked history, 5% current smokers, 59% asymptomatic, 41% any symptoms in last 14 days, comorbidities included chronic lung disease 47%, diabetes 15%, cardiovascular disease 60%., cognitive impairment 36%. Staff mean age 40 years (SD 15), 68% female, 10% current smokers, 72% asymptomatic , 28% any symptoms in last 14 days. |

## **Table 2S** Outcomes for Residents

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Roxby et al (2020) | Seattle, Washing-ton, USA | Long-term care facilities | Residents and staff | Surveillance for SARS-CoV-2 infection in a congregate setting implementing social isolation and infection prevention protocols. | SARS-CoV-2 real-time polymerase chain reaction was performed on nasopharyngeal swabs from residents and staff; a symptom questionnaire was completed assessing fever, cough, and other symptoms for the preceding 14 days. Residents were retested for SARS-CoV-2 7 days after initial screening. Residents and staff completed a questionnaire assessing symptoms of COVID-19 including fever, cough, malaise, diarrhea, and sore throat, covering the preceding 14 days, and documenting existing health conditions. | SARS-CoV-2 was detected in 3 of 80 residents (3.8%); 1 male resident reported resolved cough and 1 loose stool during the preceding 14 days. Virus was also detected in 2 of 62 staff (3.2%); both were symptomatic. One week later, resident SARS-CoV-2 testing was repeated and 1 new infection detected (asymptomatic). All residents remained in isolation and were clinically stable 14 days after the second test. as not collected at the 7-day follow-up testing. The surveillance team collected nasopharyngeal (NP) swabs and administered questionnaires in person; residents were visited in their rooms and staff were surveyed in the dining area. Of 83 facility residents, 2 were hospitalized with COVID-19 and 1 was off site with family for the entire evaluation period. Testing of NP swabs for SARS-CoV-2 was completed for 142 persons (Table 1): all 80 residents on site and 62 staff. Symptom questionnaires were collected from all 80 residents and from 57 (92%) staff. Sixty-two residents were women (77%), with mean (range) age of 86 (69-102) years. Staff had a mean (range) age of 40 (16-70) years, and 42 were women (68%). 63 of 80 residents (79%) had at least 1 serious chronic medical condition and 33 (41%) reported symptoms including cough (7 [9%]) dizziness (4 [5%]), headache (5 [6%]), and diarrhea (5 [6%]) (Table 1). Of 57 staff who completed a questionnaire, 16 (28%)reported illness symptoms including malaise (6 [11%]); sore throat (7 [12%]), and body aches (5 [9%]). SARS-CoV-2 was detected in 3 residents: 1 man in his 70s (Ct, N1 = 24.4 N2 = 23.0); a woman in her 90s (Ct, N1 = 31.6, N2 = 31.3); and a woman in her 80s (Ct, N1 = 30.9 N2 = 29.7). All 3 residents with incident SARS-CoV-2 detected were living in their own apartments. On day 7, 1 additional asymptomatic resident, a woman in her 80s who had negative screening results the week prior, had SARS-CoV-2 detected (Ct, N1 = 35.7; N2 = 37.1). 1 case developed a mild cough, but continued to feel well, On day 21, all cases continued to exhibit their usual state of health, and no new cases of COVID-19 9 were found among residents. SARS-CoV-2 was detected in 2 symptomatic female staff; 1 worked in dining services and 1 was a health aide. The symptoms reported by staff were headache for 10 days, and body aches, headache, and cough for 5 days. The staff member with 5 days of symptoms had not worked while ill. |
| Smith et al (2020) | France | Simulated Long-term Care | Residents and Staff | Statistical simulation | Surveillance strategies were evaluated based on their ability to detect nosocomial outbreaks using three measures of timeliness and efficacy. | COVID-19 epidemics were simulated using a dynamic, stochastic, individual-based transmission model, describing dynamic inter-individual con-tacts among and between hospital patients and personnel in a five-ward, 170-bed Long-term care facility. There were on average 154 patients and 239 members of staff present in the hospital per day, the latter partitioned across 13 distinct categories (e.g. nursing, administrative or operations staff). Both patients and staff could potentially become infected with COVID-19 and/or experience COVID-like symptoms. Hospital structure, demographics, and dynamic contact networks were estimated from close-proximity interaction data, measured via sensors worn by all patients and personnel over a 12-week period in a five-ward rehabilitation hospital in northern France. |

**Table 2S** Outcomes for Residents

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Stow et al (2020) | England | Care home units and from local authority areas in England. | Residents | Established baseline levels for NEWS and its component observations, in our population | Time series comparison with Office for National Statistics (ONS) weekly reported registered deaths of care home residents where COVID-19 was the underlying cause of death, and all other deaths (excluding COVID-19) up to 10/05/2020 | Care home data were available from 6,464 individuals, 2,007 men (mean age 80.1 years, SD=12.6) and 3,373 women (mean age 83.0 years, SD=12.9). Information on gender was missing from 1,086 (16.8%) people, and age information was missing for 116 (1.8%) people. Geographical variation in reporting 29,656 NEWS recordings were made across 46 Local Authority (LA) areas, from 480 unique care home IDs (identifiers for the device used to record the measurement, representing a care home, or a distinct unit within a care home). Most recordings were made in two LAs in the north east of England (n=11,029 and n=10,347), and in one London borough (n=3,411). Deaths in care homes There were 10,407 registered deaths in care homes in the 46 LA and CCG areas between 29/12/2019 and 10/05/2020. The first death from COVID-19 was registered in week commencing 23/03/2020. From 23/03/2020 to 10/05/2020, there were 5,753 deaths of care home residents - 1,532 with an underlying cause of COVID-19 and 4,221 due to causes excluding COVID-19. Deaths due to COVID-19 between 23/03/2020 and 10/05/2020 = 5,753 deaths (1,532 involving COVID-19 and 4,221 other causes). The proportion of above-baseline NEWS increased from 16/03/2020 and closely followed the rise and fall in COVID-19 deaths over the study period. The proportion of above-baseline oxygen saturation, respiratory rate and temperature measurements also increased approximately two weeks before peaks in care home deaths in corresponding geographical areas. NEWS may make a useful contribution to disease surveillance in care homes during the COVID-19 pandemic. Oxygen saturation, respiratory rate and temperature could be prioritised as they appear to signal rise in mortality almost as well as total NEWS. This study reinforces the need to collate data from care homes, to monitor and protect residents' health. |
| Trabucchi et De Leo (2020) | Italy | Nursing homes | Residents | None | | Events in Italy are causing pain and demoralization to a still incredulous and shocked general population. It is particularly distressing that outbreaks of infection have developed rapidly in many nursing homes, where staff have been completely neglected by health authorities and can offer only little protection to many frail and needy older people. In the province of Bergamo, more than 600 nursing home residents, from a total capacity of 6400 beds, died between March 7 and 27, 2020. A similar is occurring in many other parts of the administrative regions of Lombardy, Veneto, and Emilia-Romagna, where nursing homes commonly have 10–15 deaths due to COVID-19 out of 70 guests. In some cases, 3–4 guests died in a single day. Exhausted medical staff and burden on society. Psychological supports required. Challenges of lack of PPE. |

**Table 2S** Outcomes for Residents

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Tse et al (2003) | Hong Kong | Nursing home | Residents, staff | No intervention. Reporting knowledge of SARS. | Knowledge of SARS | Very few of the participants in the nursing home could be described as knowledgeable regarding SARS and its prevention. Some of these residents were worried about contracting the disease themselves. However, the majority of the residents studied had either little or no knowledge about SARS. 7/40 (17.5%) residents had good knowledge of SARS, 16/40 (40%) little knowledge, 17/40 (42.5%) knew virtually nothing about SARS. Half of those with good knowledge were worried about contracting SARS, 66% of those with little knowledge were worried about contracting SARS, 10% of those with no knowledge were concerned about contracting. Good knowledge of SARS had good knowledge of prevention strategies, those with little knowledge named 1-2 preventive measures, those with no knowledge named only 1 measure. Manager, Physiotherapist, domestic staff, health care assistants felt fear and concern, concern about visitors bringing in SARS. Manager and RN not concerned about an outbreak as they recognised hygiene procedures and conditions were satisfactory. Not surprisingly perhaps, those with the least knowledge also had the least concerns about contracting the disease. The lack of knowledge and concern may make them more vulnerable in terms of contracting SARS. The majority of staff worried about contracting SARS at work and was concerned about an outbreak in the nursing home. These worries were caused largely by a tragic large-scale outbreak in a housing estate triggered by a single visitor with SARS and accounted for more than 300 SARS cases and more than 30 deaths. In addition, staff were very much aware that several medical staff and a health care assistant in a nursing home had died recently of SARS in Hong Kong. To minimize the risk of an outbreak, the nursing home proactively implemented preventive measures including sending letters to visitors and shortening the visiting period. To further alleviate the worry and fear of the staff, especially the health care assistants and domestic staff, in service workshops and seminars are indicated, and more channels for communication and support to all staff are recommended. |

## Table 2S Outcomes for Residents

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Zazzara et al (2020) | London, England | Hospital (and community based cohort | Residents/ Facilities | Assessment of frailty. We use point-of-care data from patients admitted to a large UK hospital trust, supported by community-based COVID-19 Symptom Study mobile application ("app") data, to assess how frailty affects presentation of confirmed+ve COVID-19 infection in older adults. Multivariate logistic regression analysis performed on age-matched samples from hospital and community-based cohorts to ascertain association of frailty with symptoms of confirmed COVID-19. | Frailty | Hospital cohort: significantly higher prevalence of delirium in the frail sample, with no difference in fever or cough. Frailty significantly predicted delirium (p=0.013, OR(95% CI)= 3.22(1.44, 7.21). Community-based cohort: significantly higher prevalence of probable delirium in frailer, older adults, and fatigue and shortness of breath. Frailty significantly predicted delirium. Frailty found to predict delirium (p=0.038, OR(95%)= 2.29 (1.33, 4.0). Frailty predicted fatigue (p=0.038, OR=2.23(1.27, 3.96); SOB (p=0.043, OR= 2.0 (1.19, 3.39)). This is the first study demonstrating higher prevalence of delirium as a COVID-19 symptom in older adults with frailty compared to other older adults. This emphasises need for systematic frailty assessment and screening for delirium in acutely ill older patients in hospital and community settings. Clinicians should suspect COVID-19 in frail adults with delirium. After age-matching, delirium was reported in 40 (38%) of frail and 13 (12%) of non-frail patients with COVID-19. Frailty was found to significantly predict delirium (P-value: 0.013; Odds Ratio (OR) (95% Confidence Interval (CI)) = 3.22 (1.44, 7.21). There were no significant differences be-tween frail and not frail for other symptoms (fever (temperature ≥ 37.5C) and cough). After age-matching, frailty was found to significantly predict delirium (P-value 0.038; OR (95% CI) = 2.29 (1.33, 4.00)). Frailty also predicted fatigue (P-value: 0.038; OR = 2.23 (1.27, 3.96)) and shortness of breath (P-value: 0.043; OR = 2.00 (1.19, 3.39)). There were no differences between frail and not frail for the other 11 symptoms analysed. |

## Table 3S Outcomes for Staff

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| American Geriatrics Society Policy Brief: COVID-19 and Nursing Homes | USA | NH and LTCFs | Staff, residents and facilities | None, reporting recommendations | CMS has rolled out several policy changes to support healthcare professionals and systems on the frontline of caring for individuals with COVID-19. These include changes in how Medicare reimburses for telehealth visits and updates to eliminate the 3-day hospital stay rule to allow Medicare to cover earlier admissions to NHs. | Issue 1: Defense Production Act and Supply Chain: increase the supply of ventilators. However, there are current and potential shortages of equipment and supplies across settings. NHs, LTCFs, other congregate living settings (eg, assisted living), and home healthcare agencies are priorities. Use of PPE, availability of Testing kits, symptom management for end of life care including medications. Management of safe Transfer of COVID-19 Patients. For individuals who test positive for COVID-19 or are strongly suspected of contracting the disease, several important factors will impact transitions between care settings: Hospital to NH Individuals who test positive for COVID-19 should not be discharged to a mainstream NH unless the facility can safely and effectively isolate the patient from other residents and has adequate infection control protocols and PPE for staff and residents. This includes the ability to isolate or cohort the resident(s) separately from the rest of the community and provide dedicated staff for people with COVID-19 in line with CDC guidance. Public Health Planning Public health planning including collaborating with stakeholders and across several different priorities including Consultants and health professionals, administrators, palliative care specialists, local expertise collaborations can help states encourage NHs and hospitals to create their own transfer policies, which may require frequent adjustment based on local conditions and based on hospital resources. Hospital discharge also plays an important role in COVID-19 planning and use of telemedicine. Workforce planning including expertise, training and supports, ratios. Consideration of tax reliefs and payments. |
| Arons et al (2020) | King County, Washington USA | Nursing home facility, King County, Washington USA | Residents / staff | (March 6) Onsite infection prevention and control measures including recommended all health care staff entering symptomatic residents' rooms wear eye protection, gown, gloves, face mask. | Positive test; typical or typical symptoms; non-symptomatic; presymptomatic. Growth rate, doubling time. | 57 of 89 (64%) residents tested positive during point-prevalence surveys, clinical evaluation, or postmortem examination as of March 26 (first survey done on March 13). 48 of 76 (63%) who did first survey tested positive in either initial or subsequent point-prevalence surveys. 17 of 48 (35%) reported typical symptoms, 4(8%) only atypical symptoms, 27(56%) reported no new symptoms or changes in chronic symptoms at time of testing. Of 27 asymptomatic - 12 reported only stable chronic symptoms, 15 reported no symptoms. In the 7 days after test, 24 of 27 asymptomatic developed symptoms (therefore presymptomatic). Median time to symptom onset was 4 days. Doubling time estimated at 3.4 days. Mortality 26% (15 of 57). 11 of 136 full time staff positive at first survey. By March 26, 55 reported symptoms, 51 were tested, 26 were positive. 17/26 were nursing staff, 9 had occupations across multiple units (therapists, environmental service, dietary service) |

## Table 3S Outcomes for Staff

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Brainard et al (2020) | England | Care homes, Norfolk | Staff | PPE availability: most to least availability | Staff status, positive cases, access to PPE. Related in-crease in case counts to levels of staff and PPE. Positive resident count, access to PPE. Stage modelling for detection of COVID-19 in homes, then relate any increase in case counts after introduction to staff-ing or PPE levels | 248 homes included in analysis, of which 25 re-ported cases (133 cases in total during monitor-ing). Number of non-care workers predicted if an outbreak would occur in a home (hazard ratio increases as number of workers increases). Ab-sence of masks and eye protection had biggest impact on cases. Reduced availability of PPE for eyes (B=1.66) and facemasks (B=1.26) had greatest impact on spread. Survey 1 (13 March): 23/76 positive (1 asymptomatic, 11 presympto-matic, 9 typical symptoms, 2 atypical symptoms); 1 previously positive tested negative (had symp-toms). Survey 2 (19-20 March, on the remaining 52 negatives, 49 were tested due to 3 leaving): 24/49 positive (2 asymptomatic, 13 presympto-matic, 7 had typical symptoms, 2 had atypical symptoms). Timing to infection was significantly related to the number of non-care workers em-ployed (Figure 1). Risk of infection was 6.502 times higher (CI: 2.614 -16.17) in care homes that employed 11 to 20 non-care workers; 9.870 times higher ( CI: 3.224 -30.22) in homes employ-ing 21-30 care workers and 18.927 times higher (CI 2.358 :151.90) times higher in care homes employing more than 30 noncare workers. Hazard ratio of outbreak occurring: only non-care worker number significant - <10 HR=1.0, 11-20 HR=6.502, 21-30 HR=9.87, >30 HR=18.927. Spread of COVID-19 regression incremental in-crease in cases per unit of predictor variable: eye protection (B=1.66), facemask (B=1.26), count of care workers employed (B=1.04), count of nurses employed (B=1.18) |
| Dora et al (2020) | California, USA | Skilled nursing facility USA | Residents, staff and visitors | All SNF residents, regardless of symptoms, underwent serial approximately weekly) nasopharyngeal SARS-CoV-2 RT-PCR testing, | Testing of all residents between March 29 and April 23 (after 3+V2 residents found positive between March 28-29), all staff between March 29-April 10. Testing of all visitors March 6th. March 17th all visitors prohibited from buildings. Implemented infection control procedures and strategies for case identification. From 28th March each staff member assigned to a single ward. Infection control nurse reviewed and monitored use of PPE with a SNF staff members. PPE protocols unchanged during outbreak. Staff screened. | Resident testing 29-31 March:Ward A - 4/30 (13%), Ward B - 0/30, Ward C - 10/36 (28%). On April 3 all 22 remaining Ward A were negative, transferred to Wards B and C, Ward A converted to COVID-19 recovery unit. April 6, 28 ward C tested, 2 positive, moved to ward A. April 13 third round of testing, all 27 residents negative. April 22-23, all residents of wards B and C tested negative. 19/96 residents tested positive. 5/19 symptomatic, 8/19 presymptomatic, 6/19 asymptomatic. 1 died. 8/126 staff tested positive. 4/8 symptomatic. Reported swift isolating and cohorting of residents who were COVID-19 positive to reduce transmission in the facility. Converted ward A into a COVID-19 recovery unit allowed quick cohorting of positive residents. Restricted staff movement between wards reduced transmission risks. No cases among staff identified after initial round of testing. No results for visitors reported. 13/19 residents has underlying medical conditions. 9/19 were Black or African American. 11/19 had symptoms at time of testing or after testing. In total 136 staff members tested and 6% infections identified- all worked in wards A and C. Four if eight positive cases in staff were asymptomatic. Testing of symptomatic staff continued (not serial testing of all staff due to limited supplies). |

## Table 3S Outcomes for Staff

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Fisman et al (2020) | Ontario, Canada | Long-term care homes | Residents, staff and community | None reported | Estimated incidence rate ratios for COVID-19 deaths in LTC population compared to deaths in Ontario population aged >70; evaluated risk of death within LTC as a function of the number of lab-confirmed infected residents and confirmed infected staff at lags from 0-7 days. | A total of 627 LTC were included in the provincial dataset; of these 272 (43.4%) were identified as having either confirmed or suspected COVID-19 infection in residents or staff. No significant differences between LTC with and without confirmed COVID-19 infections were seen in number of licensed bed size, operator (e.g., for-profit vs. not-for profit), or geographic location in Ontario. The incidence of death due to COVID-19 was 13-fold higher in the LTC population than in Ontario residents aged > 69 years. When the whole population was used as the referent, the IRR for death was > 90 in this population; incidence was 23-fold higher when compared to those aged > 59 years, and 8-fold higher when compared to those aged 80 and over not resident in LTC. We identified significant interaction between time and risk associated with LTC residence. While risk of death in those not resident in LTC declined non significantly over time, the rate ratio for death in LTC residents rose sharply, from 8.03(90% CI 2.73 to 20.42) on March 29 to 87.28 (90% CI 9.98 to 557.08) by April 7, 2020. In analyses focussed risk for death within LTC we found that lagged infections in institution staff were the strongest predictors of death in residents and were significant at all lags (0 to 7 days) after adjustment for date and numbers of infected residents. The strongest effects were seen with infected staff at a 2 day lag (relative increase in death per infected staff member 20%, 95% CI 14-26%) and a 6 day lag (17%, 95% CI 11%-26%). By contrast the association between infection in residents and subsequent resident death was variable, and far weaker than the effect seen for staff, and was statistically significant only at a zero-day lag (increased risk per infected resident 8%, 95% CI 1% to 15%). Incidence rate ratio of death in LTC compared to community residents aged >69 = 13.1, aged >79 = 7.6, aged >59 = 23.1, all ages = 90.4. Lagged infection in institution staff were the strongest predictors of death in residents. Infected staff at a 2 day lag: relative increase in resident death per infected staff member = 20% 95% CI 14-26%); 6 day lag = 17% 95CI 11-26%. |
| Geury et al (2020) | Nantes, France | Nursing home, France | Staff | Testing of all staff members upon occurrence of a confirmed case of COVID-19. | Positive test outcome | 136 staff members tested (112 female), age (median IQR) = 39 [27-48.5]. 3/136 tested positive (2.2%), 1 was symptomatic, 1 was presymptomatic (symptoms developed 24 hours post-testing), 1 was asymptomatic. At time of testing 98 staff (72%) were asymptomatic. Prompt point prevalence testing after first positive case has limited effectiveness as only 2.2% of staff positive and two of the staff had symptoms and would have been isolated. Results could suggest incubation of 5 days, or viral transmission during incubation varies and reduces impact of single testing. The survey was carried out 4 weeks after lock down, so low rate of community virus. |

## Table 3S Outcomes for Staff

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Graham et al (2020) | England | 4 nursing homes in London, England | Staff and residents | Comprehensive swabbing/testing of residents, mass testing; cohorting and implementation of additional infection measures where needed. Testing of a representative sample of staff commenced 15th April . | mortality rate, positive test prevalence, symptoms | All cause mortality: 103/394 residents. 53/103 (54%) confirmed or suspected COVID-19 (from death certificate). COVID-19 related deaths happened later in outbreak than non-COVID-19. 4 death certificates unavailable, but all tested positive for COVID-19, and GP considered death likely due to COVID-19. All cause mortality 26% 95% CI 22 to 32 n =103. Peak deaths in 1st week April. Marked increases in deaths in homes A , B and D compared with preceding years 203% (95% CI 70 to 336). Men has increased risk of death. 48% V 34% in those who survived. whole group males 38% p =0.020. Median age higher in those who died. and more deaths in three or more co morbidities. 126/313 (40%) tested positive. 5/173 (4%) remaining tested positive on re-test 1 week later. 3/70 (4%) staff tested positive (596 employees across 4 homes. (mean 149/home). Staff absence rates 1st March to 1st May 2020 elevated at more than three times the background level. 215.9% increase CI 95% 80 to 352). 70 staff were tested cross three nursing homes. 3 of the 19 staff in home A were positive. No staff tested in homes C and D. |
| Heung et al (2006) | Hong Kong | Residential care home in Hong Kong | Residents and staff | Staff took droplet and contact precautions when caring for residents | Seroprevalence of SARS-CoV antibodies. Symptoms and transmission | 3 /90 residents died. One moved out and 19 refused to participate. 32 staff, 6 refused to participate. None of remaining 93 participants were positive for SARS-CoV. Residents were aged 65+ years, 79% were female, 93% were ambulant, 90% did activities with others, 79% went out. 69% of staff were aged 31 t o50 years. 85% were female. 54% engaged in nursing care. Face to face interviews with staff were completed July 2003. 5 of remaining 86 residents and three of 32 staff has experienced symptoms of subclinical SARS-CoV during the study period. Resident A (died) had been transferred from hospital and was chair bound and dependent with care needs. Resident B was chair bound and had not left home or had visitors. She was brought to shared sitting area during mealtimes. This was only time residents A and B were located near each other. One resident shared a room with patient B and tested positive. Staff C was domestic worker and contact was via clinical waste in resident A room. |
| Ho et al.,(2003) | Hong Kong | A nursing home in Hong Kong | Residents and staff and visitors | Community based outreach teams incl. geriatricians, nurses, mobilised to closely monitor nursing home residents discharged from hospital. | Review of outbreak | 3 residents positive, 1 employee positive, 3 visitors positive. Single resident infected during hospital stay, returned and the virus spread to 6 people. 3/7 died (2 residents, 1 employee). 4 females ages 65 years to 93 years. 3 males aged 27 years, 28 years and 88 years. Three deaths recorded - two residents and one staff member. Transmission of exposures documented in nursing home, via visitor interactions. |

## Table 3S Outcomes for Staff

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Kennelly et al (2020) | Ireland | Nursing homes | Staff and residents | Description of nursing homes reporting cases and outcomes | number of cases, symptomatic asymptomatic numbers, clinical outcomes including mortality | Complete surveys returned from 62.2% (28/45) of NHs with a total of 2043 residents in 2303 beds (median occupancy 96.7%, IQR: 86.0–96.6%) on 29/02/2020. An outbreak was recorded in 75.0% (21/28) of facilities – four public and seventeen private . Occupancy rates at the start of the study period were 95.1% and 87.7% in public and private NHs respectively, decreasing to 75.2% in public and 73.2% in private NHs by 22/05/2020. Eight NHs (38.1%) had ≥80% single rooms in line with regulatory standards. There was no association between adherence to this standard and outbreak occurrence ($\chi 2=1.37$, p=0.24).710/1741 (40.1%) in outbreak NHs test-ed positive (193/710, 27.2%, asymptomatic; 183/710, 25.8% died). 54/1741 suspected infection. More residents with confirmed/suspected COVID-19 in public vs private NHs experiencing outbreak. During the eighty-three-day study period, 312/2043 (15.3%) residents died. 3/28 had <3 staff members and no residents positive. 300/312 (96.2%) of deaths occurred in an out-break NH, with mortality rate of 300/1741 (17.2%). Case-fatality higher in public vs private (22.3% vs 11.2%). Staff: resident ratio <1 had 46.7% infection rate, 52% fatality of case; Staff: resident =1-2, 48.5% infection rate, fatality 24.8% of cases; ratio >2 = 40.3% infection rate, 10.9% fatality of cases. 675 staff positive, across 24/28 NHs. 23.6% asymptomatic. Significant correlation between proportion of symptomatic staff and number of residents with confirmed/suspected COVID-19 (Spearman's rho=0.81). No correlation between asymptomatic staff and COVID-19 residents. Al-most a quarter (23.6%, 159/675) were asymptomatic, identified by mass point-prevalence testing. While all NHs gave details on total staff numbers with COVID-19, twelve (42.9%, 12/28) re-ported information relative to total staffing levels (all grades). A total of 1392 staff members worked across these twelve sites with almost a quarter (23.8%, 331/1392) reported as con-firmed/suspected COVID-19. Over a quarter were asymptomatic (27.5%, 91/331). Ten of the twelve NHs (83.3%, 10/12) met criteria for an outbreak (one NH had no staff/residents with COVID-19, and another only two staff infected). In those NHs, 329/1227 (26.8%) of staff had con-firmed/suspected COVID-19 infection, and over a quarter were asymptomatic (27.1%; 89/329) |
| Kim (2020) | Korea (South) | Nursing home in Korea with 142 patients and 85 staff. | Residents and staff | Close contact patients of positive worker who were discharged and healthcare workers were isolated at home. Beds repositioned to maintain distance of >2m. | Infection rates following identification of positive case. Instigated isolation procedures and cohorting of residents with beds >2 m distances. | Staff movements in home were restricted. 14 nurses and assistants volunteered to be quarantined. Layout of space and movement planned. Parking lot used for removing PPE. Visitors prohibited from using elevator as it was used by medical staff in PPE. Preparedness for and response to COVID-19 reduced transmission. After management of outbreak there were no more infected persons. All patients and employees tested negative 14 days from start of quarantine. in-hospital movement of isolation cohort caregivers restricted. section setup as green zone for workers with no contact with infected residents. Parking lot used to remove PPE. Elevator only used for medical personnel in PPE. Meals for patients and staff provided from outside. |

## Table 3S Outcomes for Staff

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Lee et al (2020) | Korea | Long-term care hospital | Residents and staff | Post-exposure prophylaxis (PEP) using Hydroxycholoroquine was administered to staff and residents following a large exposure event. | After second case diagnosed, healthcare workers and residents began the 14 day PEP intervention. Infection rate, compliance with PEP with HCQ for patients and care workers was started on February 26. Physicians and pharmacists were educated about potential adverse events. Hydroxycholoroquine (HCQ) was administrated orally at a dose of 400 mg daily until the completion of 14 days of quarantine. A checklist for common adverse events was distributed. | 193 patients and 29 careworkers were offered PEP. 189 patients, 22 careworkers, initiated PEP. Mean age of patients (81.0, range 15-97, 137 female), of careworkers (63.4, range 51-78, 25 female), other hospital (52.2, range 24-79, 79 female). Completed in 184 residents and 21 care workers. HCQ was associated with mild adverse events. One patient had skin rash re- quiring steroids but did not discontinue PEP. Five patients discontinued PEP because of gastrointestinal upset, bradycardia, and for fasting. All follow-up PCR tests after 14 day quarantine were negative. |

## Table 3S Outcomes for Staff

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| McMichael et al (2020) | King County, Washington, USA | Skilled nursing facility in King County, Washington | Residents, staff and visitors | Reporting event of outbreak | On February 28, 2020, four cases of COVID-19 confirmed among residents of King County; 1 person had presumed travel-related exposure, and 3 were identified by testing hospitalized patients who had severe respiratory illness (e.g., pneumonia) and who had tested negative for influenza and other respiratory pathogens. One of these was the index patient from Facility A; one was a Facility A staff member. When the index case was identified on February 28, at least 45 residents and staff dispersed across Facility A had symptoms of respiratory illness; PHSKC was notified of this increase by the facility on February 27. As of March 18, a total of 167 persons with COVID-19 that was epidemiologically linked to Facility A had been identified, 144 were residents of King County and 23 were residents | March 18, a total of 167 confirmed cases of COVID-19 affecting 101 residents. Most cases among residents included respiratory illness consistent with COVID-19; however, in 7 residents no symptoms were documented. Hospitalization rates for facility residents were 54.5%. The case fatality rate for residents was 33.7% (34 of 101). As of March 18, a total of 30 long-term care facilities with at least one confirmed case of COVID-19 had been identified in King County. Among facility residents, 118 were tested; 101 results were positive and 17 negative. Most affected persons had respiratory illness; chart review of facility residents found that in 7 cases no symptoms had been documented. Clinical presentation ranged from mild (no hospitalization) to severe, including 35 deaths by March 18. Reported dates of symptom onset ranged from February 15 to March 13. The median age of the patients was 83 years (range, 51 to 100) among facility residents, 62.5 years (range, 52 to 88) among visitors, and 43.5 years (range, 21 to 79) among facility personnel; 112 patients (67.1%) were women . Most (94.1% of 101) facility residents had chronic underlying health conditions, with hypertension (67.3%), cardiac disease (60.4%), renal disease (40.6%), diabetes mellitus (31.7%),pulmonary disease (31.7%), and obesity (30.7%) being most common. Of the coexisting conditions evaluated, hypertension was the only underlying condition present in 7 facility residents with COVID-19. 50 health care personnel positive. Hospitalization rates for facility staff were 6.0%. As of March 18, a total of 30 long-term care facilities with at least one confirmed case of COVID-19 had been identified in King County. in the following occupational categories: physical therapist, occupational therapist assistant, speech pathologist, environmental care (housekeeping, maintenance), nurse, certified nursing assistant, health information officer, physician, and case manager. 16 visitors positive. Hospitalization rates for facility visitors were 50.0%. On March 10, 2020, the governor of Washington implemented mandatory screening of health care workers and visitor restrictions Monitoring of staff absences. |

## Table 3S Outcomes for Staff

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| McMichael et al (2020) | King County, Washington, USA | Long-Term Care Skilled Nursing Facility | Residents, Staff and visitors | Report of outbreak | Outbreak information including fatalities. | Identification of index case 27th February from long-term care Facility A- review by CDC in Facility A. By 9th March in Facility A: 129 COVID-19 cases: (81 approx. of 130) residents, 34 staff members and 14 visitors. Cases in King County - 111 (86%) in Facility A residents, 17 staff and 13 visitors. 18 cases in residents in Snohomish County (17 staff and 1 visitor). Symptoms 16th Feb to 5th March. Median age 81 years. (range 54 -100) residents; 42.5 (22-79 ) staff, 62.5 years (52-88) visitors. 65.1% of patients were women. In Facility A 35.7% of cases were visitors. Case fatality residents 27.2% and visitors 7.1%. No deaths reported for staff. Underlying health : hypertension 69.1%, cardiac disease 56.8%, renal disease 43.2%, diabetes 37.0%, obesity 33.3%, pulmonary disease 32.1%. At 9th March at least 8 other outbreaks reported. Contributing to transmission = staff working while symptomatic, staff working in more than one location, inadequate knowledge standard precautions, eye protection, PPE, lack of sanitiser, delayed recognition of cases, delayed testing- based on signs and symptoms only. |
| Office for National Statistics (2020) | England | Care homes, England | Residents and staff | Survey of nursing homes and reporting outcomes | Outcomes based on responses of care home managers to survey, and not the swab tests. % residents aged 65 years and older and care home staff who have tested positive for COVID-19. Number and size of homes: 0 to 40 beds n=5196, 41- 80 beds= 3390, 81-120 beds n=436, 121-160 beds n=43, more than 160 beds n=16. | Across 9081 homes, estimated to be 293,301 residents (95% CI: 293,168 - 293,434), 441,498 staff (441,240 - 441,756). 92.9% (95%CI: 92.5 - 93.3%) of homes offer sick pay to staff, 11.5% (10.9 - 12.1%) have staff who work in multiple locations, 44.2% (43.4 - 45.0%) do not employ any bank or agency staff. 97.2% (95%CI: 96.8 - 97.6%) have been closed to visitors, 19.3% (18.5 - 20.1%) have been closed to new admissions. Of the 9081 homes, estimated that 55.6% (95% CI: 54.8 - 56.4%) reported at least one confirmed coronavirus case. Across those homes, estimated that 19.9% (18.5 - 21.3%) of residents tested positive, while 6.9% of staff (5.9 - 7.9%) tested positive, since start of pandemic. Across all homes, estimated 10.7% (10.1 - 11.3%) of residents positive, 4.0% (3.6 - 4.4%) staff positive. 15,606 deaths of residents across all homes due to COVID-19. For each additional member of infected staff working at the care home, the odds of resident infection increase by 11% ie OR = 1.11 (95%CI: 1.1-1.11). Care homes using bank or agency nurses or carers most or every day more likely to have cases in residents (OR= 1.58, 1.5 - 1.65), compared to those who never use bank or agency staff. Residents in care homes outside of London had lower chance of infection, except West Midlands (OR = 1.09, 1.0 - 1.17). Homes where staff receive sick pay are less likely to have resident cases (OR= 0.82 to 0.93, 95%CI: 7-18%), compared to homes where no sick leave. For each additional infected resident at a home, the odds of staff infection increase by 4% (4 - 4%) OR=1.04). Care homes using bank or agency staff most or every day OR=1.88 (95%CI: 1.77 - 2.0) compared to homes not using. Homes where staff regularly work elsewhere (most or every day) increase odds (OR=2.4, 1.92 - 3.0) compared to home who never work else-where. Staff at homes outside London had high-er odds of infection. |

## Table 3S Outcomes for Staff

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Quicke et al (2020) | Colorado, USA | | Staff | Weekly nasopharyngeal (NP) swabs were collected for a five to six week. Sample Collection. Nasopharyngeal swabs were performed by trained personnel at participating facilities on consented staff members. | To assess the prevalence and incidence of SARS-CoV-2 among SNF workers, determine the extent of asymptomatic infection by SARS-CoV-2, and provide information on the genomic epidemiology of the virus within these unique care settings, we sampled workers weekly at five SNFs in Colorado. | The percentage of NP swabs that tested positive for viral RNA each week varied considerably by facility, but showed a general downward trend over the course of the study period. Staff at Site A remained uninfected throughout the entire six week study period. In contrast, 22.5% of workers at site D had prevalent infections at the start of the study and incidence was high initially (12.2 per 100 workers per week), declining over time. At site C, initial infection prevalence was lower (6.9%) and the incidence declined to zero by week 3. However, two facilities with low prevalence in week 1 (sites B and E) saw an increase in cases – including, at site B, incident infections detected after four weeks of no infections. Infections were observed in workers across all job types, including roles with typically high patient contact (e.g. nursing) and low patient contact (e.g., maintenance). Levels of viral RNA tend to decline over the duration of infection and correspond to low levels of infectious virus. Within the study period, incident infections varied in length from one to four weeks. |
| Roxby et al (2020) | Seattle, Washington, USA | Assisted living facility | Residents and staff | Surveillance report - link to main paper JAMA 2020 | Surveillance for SARS-CoV2 and describe symptoms of COVID-19 in residents of independent/ assisted living facility | 83 residents and 62 staff tested. 5 cases : 3 residents and 2 staff. Another resident tested positive day 7. Three residents no symptoms. SARS-CoV-2 was detected in three (3.8%) residents and two (3.2%) staff members . None of the residents with positive tests reported symptoms at the time of testing; however, one (resident C) reported resolved mild cough and loose stool during the preceding 14 days. All three residents with positive test results were living on separate floors in their own apartments; one received assistance with activities of daily living. One resident lived on the same floor as the two hospitalized residents with known COVID-19, and one had known close contact with one of the hospitalized residents; the third resident who had positive test results had no contact with either of the hospitalized residents. When the second round of testing was conducted 7 days later, one additional positive test result was reported for an asymptomatic resident who had negative test results on the first round. During the first round of testing and symptom screening, symptoms were reported by 42% of residents and 25% of staff members who had negative test results for SARS-CoV-2. Symptoms reported by residents who had negative test results included sore throat, chills, confusion, body aches, dizziness, malaise, headaches, cough, shortness of breath, and diarrhoea. Residents age 85.8 years (SD 7.6), 78% female, 48% smoked history, 5% current smokers, 59% asymptomatic, 41% any symptoms in last 14 days, comorbidities included chronic lung disease 47%, diabetes 15%, cardiovascular disease 60%., cognitive impairment 36%. Staff mean age 40 years (SD 15), 68% female, 10% current smokers, 72% asymptomatic , 28% any symptoms in last 14 days. |

## Table 3S Outcomes for Staff

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Roxby et al (2020) | Seattle, Washington, USA | Long-term care facilities | Residents and staff | Surveillance for SARS-CoV-2 infection in a congregate setting implementing social isolation and infection prevention protocols. | SARS-CoV-2 real-time polymerase chain reaction was performed on nasopharyngeal swabs from residents and staff; a symptom questionnaire was completed assessing fever, cough, and other symptoms for the preceding 14 days. Residents were retested for SARS-CoV-2 7 days after initial screening. Residents and staff completed a questionnaire assessing symptoms of COVID-19 including fever, cough, malaise, diarrhea, and sore throat, covering the preceding 14 days, and documenting existing health conditions. | SARS-CoV-2 was detected in 3 of 80 residents (3.8%); 1 male resident reported resolved cough and 1 loose stool during the preceding 14 days. Virus was also detected in 2 of 62 staff (3.2%); both were symptomatic. One week later, resident SARS-CoV-2 testing was repeated and 1 new infection detected (asymptomatic). All residents remained in isolation and were clinically stable 14 days after the second test. as not collected at the 7-day follow-up testing. The surveillance team collected nasopharyngeal (NP) swabs and administered questionnaires in person; residents were visited in their rooms and staff were surveyed in the dining area. Of 83 facility residents, 2 were hospitalized with COVID-19 and 1 was off site with family for the entire evaluation period. Testing of NP swabs for SARS-CoV-2 was completed for 142 persons (Table 1): all 80 residents on site and 62 staff. Symptom questionnaires were collected from all 80 residents and from 57 (92%) staff. Sixty-two residents were women (77%), with mean (range) age of 86 (69-102) years. Staff had a mean (range) age of 40 (16-70) years, and 42 were women (68%). 63 of 80 residents (79%) had at least 1 serious chronic medical condition and 33 (41%) reported symptoms including cough (7 [9%]) dizziness (4 [5%]), headache (5 [6%]), and diarrhea (5 [6%]) (Table 1). Of 57 staff who completed a questionnaire, 16 (28%)reported illness symptoms including malaise (6 [11%]); sore throat (7 [12%]), and body aches (5 [9%]). SARS-CoV-2 was detected in 3 residents: 1 man in his 70s (Ct, N1 = 24.4 N2 = 23.0); a woman in her 90s (Ct, N1 = 31.6, N2 = 31.3); and a woman in her 80s (Ct, N1 = 30.9 N2 = 29.7). All 3 residents with incident SARS-CoV-2 detected were living in their own apartments. On day 7, 1 additional asymptomatic resident, a woman in her 80s who had negative screening results the week prior, had SARS-CoV-2 detected (Ct, N1 = 35.7; N2 = 37.1). 1 case developed a mild cough, but continued to feel well, On day 21, all cases continued to exhibit their usual state of health, and no new cases of COVID-19. 9 were found among residents. SARS-CoV-2 was detected in 2 symptomatic female staff; 1 worked in dining services and 1 was a health aide. The symptoms reported by staff were headache for 10 days, and body aches, headache, and cough for 5 days. The staff member with 5 days of symptoms had not worked while ill. |
| Smith et al (2020) | France | Simulated Long-term Care | Residents and Staff | Statistical simulation | Surveillance strategies were evaluated based on their ability to detect nosocomial outbreaks using three measures of timeliness and efficacy. | COVID-19 epidemics were simulated using a dynamic, stochastic, individual-based transmission model, describing dynamic inter-individual contacts among and between hospital patients and personnel in a five-ward, 170-bed Long-term care facility. There were on average 154 patients and 239 members of staff present in the hospital per day, the latter partitioned across 13 distinct categories (e.g. nursing, administrative or operations staff). Both patients and staff could potentially become infected with COVID-19 and/or experience COVID-like symptoms. Hospital structure, demographics, and dynamic contact networks were estimated from close-proximity interaction data, measured via sensors worn by all patients and personnel over a 12-week period in a five-ward rehabilitation hospital in northern France. |

**Table 3S** Outcomes for Staff

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Tse et al (2003) | Hong Kong | Nursing home | Residents, staff | No intervention. Reporting knowledge of SARS. | Knowledge of SARS | Very few of the participants in the nursing home could be described as knowledgeable regarding SARS and its prevention. Some of these residents were worried about contracting the disease themselves. However, the majority of the residents studied had either little or no knowledge about SARS. 7/40 (17.5%) residents had good knowledge of SARS, 16/40 (40%) little knowledge, 17/40 (42.5%) knew virtually nothing about SARS. Half of those with good knowledge were worried about contracting SARS, 66% of those with little knowledge were worried about contracting SARS, 10% of those with no knowledge were concerned about contracting. Good knowledge of SARS had good knowledge of prevention strategies, those with little knowledge named 1-2 preventive measures, those with no knowledge named only 1 measure. Manager, Physiotherapist, domestic staff, health care assistants felt fear and concern, concern about visitors bringing in SARS. Manager and RN not concerned about an outbreak as they recognised hygiene procedures and conditions were satisfactory. Not surprisingly perhaps, those with the least knowledge also had the least concerns about contracting the disease. The lack of knowledge and concern may make them more vulnerable in terms of contracting SARS. The majority of staff worried about contracting SARS at work and was concerned about an outbreak in the nursing home. These worries were caused largely by a tragic large-scale outbreak in a housing estate triggered by a single visitor with SARS and accounted for more than 300 SARS cases and more than 30 deaths. In addition, staff were very much aware that several medical staff and a health care assistant in a nursing home had died recently of SARS in Hong Kong. To minimize the risk of an outbreak, the nursing home proactively implemented preventive measures including sending letters to visitors and shortening the visiting period. To further alleviate the worry and fear of the staff, especially the health care assistants and domestic staff, in service workshops and seminars are indicated, and more channels for communication and support to all staff are recommended. |

**Table 4S** Outcomes related to facilities

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Abrams et al (2020) | USA | All nursing eligible homes | Facilities | Description of facilities including: Nursing home size, ownership, chain membership, high medicaid share, high % of African American residents, urban location, CMS overall 5 star rating, prior infection violation, state | Likelihood of having a COVID-19 case. Logistic regression to estimate Odds ratio of each characteristic on the likelihood of having a document COVID-19 case | 2949 of 9395 NH (31.4%) had COVID-19 case; average number of cases was 19.8. Larger facility size (OR =6.52 for large vs small, OR=2.63 for medium vs small), urban location (OR=3.22 V rural), greater % African American residents (OR=2.05 V low %), non-chain status (OR=0.89 for chain vs non-chain status), and state were significantly related with probability of having COVID-19 case. Outbreak size significantly associated with facility size (large= -15.88, medium= -10.8, small is reference i.e. smaller greater outbreak size), for-profit status (=1.88 vs non-profit), and state. Medicaid dependency, ownership of five-star rating and prior infection violation were not significantly related to COVID-19 cases. Average number of cases was 19.8 per facility. New Jersey (88.6%, OR 7.16) and Massachusetts (78%, OR 4.36) have highest number of affected facilities. Georgia (61,5%, OR 1,98), Connecticut 68.1%, OR 2.62) Maryland (63.9%, OR 1.57). |
| American Geriatrics Society Policy Brief: COVID-19 and Nursing Homes | USA | NH and LTCFs | Workers, residents and facilities | None, reporting recommendations | CMS has rolled out several policy changes to support healthcare professionals and systems on the frontline of caring for individuals with COVID-19. | Issue 1: Defense Production Act and Supply Chain: increase the supply of ventilators. However, there are current and potential shortages of equipment and supplies across settings. NHs, LTCFs, other congregate living settings (eg, assisted living), and home healthcare agencies are priorities. Use of PPE, availability of Testing kits, symptom management for end of life care including medications. Management of safe Transfer of COVID-19 Patients. For individuals who test positive for COVID-19 or are strongly suspected of contracting the disease, several important factors will impact transitions between care settings: Hospital to NH Individuals who test positive for COVID-19 should not be discharged to a mainstream NH unless the facility can safely and effectively isolate the patient from other residents and has adequate infection control protocols and PPE for staff and residents. This includes the ability to isolate or cohort the resident(s) separately from the rest of the community and provide dedicated staff for people with COVID-19 in line with CDC guidance. NHs and hospitals to create their own transfer policies, which may require frequent adjustment based on local conditions and based on hospital resources. Hospital discharge also plays an important role in COVID-19 planning and use of telemedicine. Workforce planning including expertise, training and supports, ratios. Consideration of tax reliefs and payments. |
| Lynch et al (2020) | USA | Long-term care facilities | Facilities | Five Steps to Modify Patient Rooms to Negative Pressure | Recommendations. | In acute care facilities, airborne infection isolation (AII) rooms are designed to be under a slight negative pressure with respect to adjacent rooms and hallways. This reduces the potential for airborne respiratory droplets to be carried on air currents from the patient into hallways. Estimate Total Room Volume, Ventilation, and Differential Pressure. Step 2: Install Supplemental Exhaust Ventilation Through Dedicated Exhaust Portals. Step 3: Increase Efficiency of Filtration. Step 4: Keep Doors to Hallways Closed. Step 5: Follow Infectious Disease Prevention Guidelines for Health Care Workers. |
| Rios et al (2020) | Canada | Long-term care facilities | Facilities | None | The 17 clinical practice guidelines judged to be of very low quality. | Prevention strategies were hand hygiene, wearing PPE, social distancing, isolation, disinfecting surfaces, policies for staff, residents and visiting ,cough, managing respiratory illness. Guidelines are based on expert opinions. None addressed resident issues including frailty, comorbidities and respiratory illness. |

**Table 4S** Outcomes related to facilities

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Stall et al (2020) | Ontario, Canada | Nursing homes | Facilities, residents | We obtained all data for this study from the Ontario Ministries of Health and Long-Term Care as part of the province's emergency "modeling table". This included nursing home level data from the Long-Term Care Inspections Branch on the cumulative number of resident COVID-19 cases and deaths. Additional nursing home level data obtained from the Ontario Ministry of Long-Term Care | The primary exposure of interest was the nursing home profit status (for-profit, non-profit or municipal). The main outcomes of interest were: nursing home COVID-19 outbreaks (at least one resident case), COVID-19 outbreak sizes | Of 623 Ontario nursing homes 360 (57.7%) were for profit, 162 (26.0%) were non-profit, and 101 (16.2%) were municipal homes. There were 190/623 (30.5%) COVID-19 nursing home outbreaks involving 5218 residents (mean of 27.5 ± 41.3 residents per home), resulting in 1452 deaths (mean of 7.6 ± 12.7 residents per home) with an overall case fatality rate of 27.8%. The odds of a COVID-19 outbreak was associated with the incidence of COVID-19 in the health region surrounding a nursing home (adjusted odds ratio [aOR], 1.94; 95% confidence interval [CI] 1.23-3.09) and number of beds (aOR, 1.40; 95% CI 1.20-1.63), but not profit status. For-profit status was associated with both the size of a nursing home outbreak (adjusted risk ratio [aRR], 1.96; 95% CI 1.26-3.05) and the number of resident deaths (aRR, 1.78; 95% CI 1.03-3.07), compared to non-profit homes. These associations mediated by a higher prevalence of older nursing home design standards in for-profit homes. For-profit status is associated with the size of a COVID-19 nursing home outbreak and the number of resident deaths, but not the likelihood of outbreaks rooms. Overall, the crude incidence of COVID-19 nursing home outbreaks was 85.1 per thousand among for-profit homes, 61.4 per thousand among non-profit homes, and 23.4 per thousand among municipal homes. The crude rate of COVID-19 nursing home resident deaths was 23.4 per thousand among for-profit homes, 18.2 per thousand among non-profit homes, and 5.8 per thousand among municipal homes. The case-fatality rate among nursing home residents was 27.5% among for-profit homes, 29.7% among non-profit homes, and 25.0% among municipal homes. |
| Wasserman et al (2020) | USA | Nursing Facilities | Facilities | Recommendations from modified Delphi | Consensus with 6 scenarios from experts | On April 19, 2020 posed the following question: "Asymptomatic staff can be contagious. Why wouldn't we want to identify staff who will become the vector for transmission? What is the downside to widespread testing of staff in nursing homes. These communications began the first stage of the modified Delphi process. The single most important finding from this Delphi panel is that its members consistently support point prevalence facility wide testing, with no dissent, of all staff and residents when testing is readily available. The panel feels strongly that longterm care providers, as well as federal, state, and local officials should listen to experienced health professionals on the front lines, fighting this pandemic, when making policy decisions. The panel favors testing every 1 to 2 weeks based on the fact that the incubation period for developing symptoms varies from 3-5 days up to 2 weeks. The frequency can be reduced to every month as community prevalence declines. The other important conclusion from the panel relates to the availability of PPE. The ideal situation for protecting both residents and staff is aggressive use of testing, intensive infection control procedures, and PPE. Unanimous agreement that residents who test positive and/or have both typical and atypical symptoms should be isolated. Staff in these circumstances should fully take advantage of PPE and be trained in its proper use. There are differing opinions in the scenario with limited PPE and/or limited testing. There very strong consensus around isolating residents with typical or atypical symptoms. The only scenario without a clear consensus is the option of isolating all residents when there is abundant PPE and limited testing. |

**Table 4S** Outcomes related to facilities

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Zazzara et al (2020) | London, England | Hospital (and community based cohort | Residents/ Facilities | Assessment of frailty. We use point-of-care data from patients admitted to a large UK hospital trust, supported by community-based COVID-19 Symptom Study mobile application ("app") data, to assess how frailty affects presentation of confirmed+ve COVID-19 infection in older adults. Multivariate logistic regression analysis performed on age-matched samples from hospital and community-based cohorts to ascertain association of frailty with symptoms of confirmed COVID-19. | Frailty | Hospital cohort: significantly higher prevalence of delirium in the frail sample, with no difference in fever or cough. Frailty significantly predicted delirium (p=0.013, OR(95% CI)= 3.22(1.44, 7.21). Community-based cohort: significantly higher prevalence of probable delirium in frailer, older adults, and fatigue and shortness of breath. Frailty significantly predicted delirium. Frailty found to predict delirium (p=0.038, OR(95%)= 2.29 (1.33, 4.0). Frailty predicted fatigue (p=0.038, OR=2.23(1.27, 3.96); SOB (p=0.043, OR= 2.0 (1.19, 3.39)). This is the first study demonstrating higher prevalence of delirium as a COVID-19 symptom in older adults with frailty compared to other older adults. This emphasises need for systematic frailty assessment and screening for delirium in acutely ill older patients in hospital and community settings. Clinicians should suspect COVID-19 in frail adults with delirium. After age-matching, delirium was reported in 40 (38%) of frail and 13 (12%) of non-frail patients with COVID-19 . Frailty was found to significantly predict delirium (P-value: 0.013; Odds Ratio (OR) (95% Confidence Interval (CI)) = 3.22 (1.44, 7.21). There were no significant differences between frail and not frail for other symptoms (fever (temperature ≥ 37.5C) and cough). After age-matching, frailty was found to significantly predict delirium (P-value 0.038; OR (95% CI) = 2.29 (1.33, 4.00)). Frailty also predicted fatigue (P-value: 0.038; OR = 2.23 (1.27, 3.96)) and shortness of breath (P-value: 0.043; OR = 2.00 (1.19, 3.39)). There were no differences between frail and not frail for the other 11 symptoms analysed. |

## Table 5S Outcomes for Visitors

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| Dora et al (2020) | California, USA | Skilled nursing facility USA | Residents, staff and visitors | All SNF residents, regardless of symptoms, underwent serial approximately weekly) nasopharyngeal SARS-CoV-2 RT-PCR testing, | Testing of all residents between March 29 and April 23 (after 3+V2 residents found positive between March 28-29), all staff between March 29-April 10. Testing of all visitors March 6th. March 17th all **visitors prohibited from buildings**. Implemented infection control procedures and strategies for case identification. From 28th March each staff member assigned to a single ward. Infection control nurse reviewed and monitored use of PPE with a SNF staff members. PPE protocols unchanged during outbreak. Staff screened. | Resident testing 29-31 March:Ward A - 4/30 (13%), Ward B - 0/30, Ward C - 10/36 (28%). On April 3 all 22 remaining Ward A were negative, transferred to Wards B and C, Ward A converted to COVID-19 recovery unit. April 6, 28 ward C tested, 2 positive, moved to ward A. April 13 third round of testing, all 27 residents negative. April 22-23, all residents of wards B and C tested negative. 19/96 residents tested positive. 5/19 symptomatic, 8/19 presymptomatic, 6/19 asymptomatic. 1 died. 8/126 staff tested positive. 4/8 symptomatic. Reported swift isolating and cohorting of residents who were COVID-19 positive to reduce transmission in the facility. Converted ward A into a COVID-19 recovery unit allowed quick cohorting of positive residents. Restricted staff movement between wards reduced transmission risks. No cases among staff identified after initial round of testing. No results for visitors reported. 13/19 residents has underlying medical conditions. 9/19 were Black or African American. 11/19 had symptoms at time of testing or after testing. In total 136 staff members tested and 6% infections identified- all worked in wards A and C. Four if eight positive cases in staff were asymptomatic. Testing of symptomatic staff continued (not serial testing of all staff due to limited supplies). |
| Ho et al.,(2003) | Hong Kong | A nursing home in Hong Kong | Residents and staff and visitors | Community based outreach teams incl. geriatricians, nurses, mobilised to closely monitor nursing home residents discharged from hospital. | Review of outbreak | 3 residents positive, 1 employee positive, **3 visitors positive**. Single resident infected during hospital stay, returned and the virus spread to 6 people. 3/7 died (2 residents, 1 employee). 4 females ages 65 years to 93 years. 3 males aged 27 years, 28 years and 88 years. Three deaths recorded - two residents and one staff member. Transmission of exposures documented in nursing home, via visitor interactions. |

## Table 5S Outcomes for Visitors

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| McMichael et al (2020) | King County, Washington, USA | Skilled nursing facility in King County, Washington | Residents, staff and visitors | Reporting event of outbreak | On February 28, 2020, four cases of COVID-19 confirmed among residents of King County; 1 person had presumed travel-related exposure, and 3 were identified by testing hospitalized patients who had severe respiratory illness (e.g., pneumonia) and who had tested negative for influenza and other respiratory pathogens. One of these was the index patient from Facility A; one was a Facility A staff member. When the index case was identified on February 28, at least 45 residents and staff dispersed across Facility A had symptoms of respiratory illness; PHSKC was notified of this increase by the facility on February 27. As of March 18, a total of 167 persons with COVID-19 that was epidemiologically linked to Facility A had been identified , 144 were residents of King County and 23 were residents | March 18, a total of 167 confirmed cases of COVID-19 affecting 101 residents. Most cases among residents included respiratory illness consistent with COVID-19; however, in 7 residents no symptoms were documented. Hospitalization rates for facility residents were 54.5%. The case fatality rate for residents was 33.7% (34 of 101). As of March 18, a total of 30 long-term care facilities with at least one confirmed case of COVID-19 had been identified in King County. Among facility residents, 118 were tested; 101 results were positive and 17 negative. Most affected persons had respiratory illness , chart review of facility residents found that in 7 cases no symptoms had been documented. Clinical presentation ranged from mild (no hospitalization) to severe, including 35 deaths by March 18. Reported dates of symptom onset ranged from February 15 to March 13. The median age of the patients was 83 years (range, 51 to 100) among facility residents, 62.5 years (range, 52 to 88) among visitors, and 43.5 years (range, 21 to 79) among facility personnel; 112 patients (67.1%) were women Most (94.1% of 101) facility residents had chronic underlying health conditions, with hypertension (67.3%), cardiac disease (60.4%), renal disease (40.6%), diabetes mellitus (31.7%),pulmonary disease (31.7%), and obesity (30.7%) being most common. Of the coexisting conditions evaluated, hypertension was the only underlying condition present in 7 facility residents with COVID-19. 50 health care personnel positive. Hospitalization rates for facility staff were 6.0%. As of March 18, a total of 30 long-term care facilities with at least one confirmed case of COVID-19 had been identified in King County. in the following occupational categories: physical therapist, occupational therapist assistant, speech pathologist, environmental care (housekeeping, maintenance), nurse, certified nursing assistant, health information officer, physician, and case manager. 16 visitors positive. **Hospitalization rates for facility visitors were 50.0%**.<br>On March 10, 2020, the governor of Washington implemented mandatory screening of health care workers and visitor restrictions Monitoring of staff absences. |

**Table 5S** Outcomes for Visitors

| Study ID | Country | Setting | Population | Describe/ type of intervention | Outcome measures | Outcomes |
|---|---|---|---|---|---|---|
| McMichael et al (2020) | King County, Washington, USA | Long-Term Care Skilled Nursing Facility | Residents, staff and visitors | Report of outbreak | Outbreak information including fatalities. | Identification of index case 27th February from long-term care Facility A- review by CDC in Facility A. By 9th March in Facility A: 129 COVID-19 cases: (81 approx. of 130) residents, 34 staff members and 14 visitors. Cases in King County - 111 (86%) in Facility A residents, 17 staff and 13 visitors. 18 cases in residents in Snohomish County (17 staff and 1 visitor). Symptoms 16th Feb to 5th March. Median age 81 years. (range 54 -100) residents; 42.5 (22-79 ) staff, 62.5 years (52-88) visitors. 65.1% of patients were women. In Facility A 35.7% of cases were visitors. Case fatality residents 27.2% and visitors 7.1%. No deaths report-ed for staff. Underlying health : hypertension 69.1%, cardiac disease 56.8%, renal disease 43.2%, diabetes 37.0%, obesity 33.3%, pulmonary dis-ease 32.1%. At 9th March at least 8 other out-breaks report-ed. Contributing to transmission = staff working while symptomatic, staff working in more than one location, inadequate knowledge standard precautions, eye protection, PPE, lack of sanitiser, delayed recognition of cases, delayed testing- based on signs and symptoms only. |

**Table 6S.** Focussed resident outcomes from studies examining COVID-19 in residential care homes

| Study | Sample size | Age | Outcomes |
|---|---|---|---|
| Abrams et al (2020) | N = 9395 nursing homes | | Likelihood of having a COVID-19 case:<br>Facility size: (large vs small) OR = 6.52<br><br>Location (urban vs rural) OR=3.22,<br><br>Greater % African American residents, OR=2.05 vs low %),<br><br>Non-chain status (OR=0.89 for chain vs non-chain status),<br><br>State were significantly related with probability of having COVID-19 case.<br><br>Outbreak size significantly associated with facility size (large= -15.88, medium= -10.8, small is reference i.e. smaller greater outbreak size),<br><br>For-profit status ( OR = 1.88 vs non-profit),<br><br>State. |
| Arons et al (2020) | N = 89 residents in facility<br>N = 76 in first point-prevalence survey<br>N = 49 in second point-prevalence survey | Positive residents = 78.6±9.5<br><br>Negative residents = 73.8±11.5 | 57 of 89 (64%) residents tested positive between 13 March (survey 1) and 26 March (survey 2).<br><br>23/76 residents tested positive in survey 1 (1 asymptomatic, 11 presymptomatic, 11 symptomatic of which 9 typical symptoms, 2 atypical symptoms).<br>24/49 tested positive in survey 2 (2 asymptomatic, 13 presymptomatic, 9 symptomatic of which 7 had typical symptoms, 2 had atypical symptoms).<br><br>48/76 (63%) of residents who participated in first survey tested positive in either initial or subsequent point-prevalence survey (including 1 resident who had previously tested positive but tested negative during the two point-prevalence surveys).<br><br>Doubling time estimated at 3.4 days. Mortality 26% (15 of 57). |
| Brainard et al (2020) | Care homes, n = 248 | | Spread of COVID-19 regression coefficients: eye protection (B=1.66), facemask (B=1.2), count of care workers employed (B=1.04), count of nurses employed (B=1.18)<br><br>Hazard ratio of outbreak occurring: (only non-care worker number significant) - <10 workers HR=1.0,<br>11-20 workers HR=6.502,<br>21-30 workers<br>HR=9.87,<br>>30 workers HR=18.927 |

**Table 6S.** Focussed resident outcomes from studies examining COVID-19 in residential care homes

| Study | Sample size | Age | Outcomes |
|---|---|---|---|
| Dora et al (2020) | N = 96<br>Ward A, n = 30<br>Ward B, n = 30<br>Ward C, n = 36 | Positive residents = 75 (66-85) | 19/96 residents in total tested positive. 5/19 symptomatic, 8/19 presymptomatic, 6/19 asymptomatic. 1/19 died.<br><br>Initial testing (29-31 March):<br>Ward A – 4/30 (13%), Ward B – 0/30, Ward C - 10/36 (28%).<br><br>Second round testing (April 6): 2/28 ward C tested positive<br><br>Third round testing (13 April): 0/27 positive |
| Fisman et al (2020) | N = 627 LTC facilities<br>Total residents n = 79498 | | 272/627 (43.4%) either confirmed or suspected COVID-19 infection in residents or staff.<br><br>Incidence rate ratio of death in LTC compared to community:<br>residents aged >59 = 23.1,<br>aged >69 = 13.1,<br>aged >79 = 7.6,<br>all ages = 90.4.<br><br>Infected staff at a 2-day lag: relative increase in resident death per infected staff member = 20% (95% CI 14-26%);<br>6 day lag = 17% 95CI 11-26%. |
| Graham et al (2020) | N = 394 residents total<br><br>N = 313 residents tested | | 126/313 (40%) residents tested positive for COVID-19 (54 asymptomatic, 72 symptomatic, of which 50 typical and 22 atypical symptoms).<br><br>5/173 (4%) negative residents tested positive on re-test 1 week later<br><br>53/103 (54%) deaths confirmed or suspected COVID-19 |
| Hand et al (2018) | N = 130 residents | Median age 82 (range 66-96) of case patients | 20/130 residents suspected as cases (between 1-18 November). 13/20 suspected cases were tested, of which 7/13 (54%) were positive for HCoV-NL63.<br><br>No new cases among residents after 18 November |
| Heung et al (2006) | N = 67 residents participated | 65-75 years: n = 7<br>76-85: n = 32<br>>85 years: n = 28<br>Female: n = 53 | 0/67 residents were positive for antibodies |
| Ho et al (2003) | N = 3 infected residents | 3 infected resi-dents aged 81, 87, 93. | Single resident infected during hospital stay, returned and the virus spread to 6 people (3 residents, 1 staff, 3 visitors)<br><br>2/3 residents died |

**Table 6S.** Focussed resident outcomes from studies examining COVID-19 in residential care homes

| Study | Sample size | Age | Outcomes |
|---|---|---|---|
| Kennelly et al (2020) | N = 2043 residents<br><br>N = 24 nursing homes, 21 of which had outbreak | | 710/1741 residents were positive across 21 NHs. 54/1741 suspected. 764 in total. 193/710 confirmed cases were asymptomatic.<br><br>Case fatality rate 25.8% in residents with confirmed COVID-19. 27.6% when suspected residents were included.<br><br>Significant correlation between proportion of symptomatic staff and number of residents with confirmed/suspected COVID-19 (Spearman's rho=0.81).<br>No correlation between asymptomatic staff and residents with COVID-19. |
| Kim (2020) | N = 142 residents in facility | | No more infected persons. All patients tested negative 14 days from start of quarantine. |
| Kimball (2020) | N = 76 residents tested (of the 82 residents in facility)<br><br>Female n = 48 | Positive residents = 75.1±10.9<br><br>Negative residents = 80.7±8.4 | 23/76 (30.3%) tested residents were positive.<br>10 (43.5%) were symptomatic (8/10 typical symptoms, 2/10 atypical symptoms), and 13 (56.5%) were asymptomatic (10 of which later redefined as presymptomatic).<br>The mean interval from testing to symptom onset in the presymptomatic residents was 3 days.<br>Thirteen (24.5%) residents who had negative test results also reported typical and atypical COVID-19 symptoms during the 14 days preceding testing |
| Lee et al (2020) | N = 189 residents administered treatment | | 0/189 residents tested positive at conclusion of the 14-day intervention.<br>Treatment was discontinued in 5 patients due to gastrointestinal upset (n = 2), bradycardia (n = 2), need for fasting (n = 1). |
| McMichael (2020) | N = 118 residents tested<br><br>69 females positive | Positive residents: Median = 83 (range 51-100) | 101 residents positive (118 were tested).<br>Case fatality rate 33/7% (34/101 residents) |
| Office of National Statistics (2020) | N = 293301 (95% C.I. 293168 – 294434)<br><br>N = 9081 nursing homes | | 10.7% (95% C.I. 10.1-11.3%) of residents positive. 15606 deaths of residents across all homes due to COVID-19.<br><br>Resident infection increased: with each additional infected staff working (OR 1.11, 95% C.I. 1.1-1.11); in homes using bank/agency nurses/carers most or every day (OR 1.58, 95% C.I. 1.5-1.65).<br>Resident infection decreased: in homes where staff receive sick pay (OR 0.82-0.93, 95% C.I. 7-18%). |
| Roxby et al (2020) | N = 80 residents tested<br><br>62 females tested | Mean = 86 (range 69-102) | 3/80 residents (3.8%) tested positive.<br><br>Re-testing conducted 1 week later, 1 new positive test (asymptomatic).<br><br>All residents were clinically stable 14 days after the second test, after remaining in isolation.<br><br>On day 21, all cases continued to exhibit their usual state of health, and no new cases of COVID-19 were found among residents |

**Table 6S.** Focussed resident outcomes from studies examining COVID-19 in residential care homes

| Study | Sample size | Age | Outcomes |
|---|---|---|---|
| Stall et al (2020) | N = 623 nursing homes | | Case fatality rate 27.8% (1452/5218)<br><br>The odds of a COVID-19 outbreak was associated with the incidence of COVID-19 in the health region surrounding a nursing home (adjusted odds ratio [aOR], 1.94; 95% confidence interval [CI] 1.23-3.09) and number of beds (aOR, 1.40; 95% CI 1.20-1.63), but not profit status.<br><br>For-profit status was associated with both the size of a nursing home outbreak (adjusted risk ratio [aRR], 1.96; 95% CI 1.26-3.05) and the number of resident deaths (aRR, 1.78; 95% CI 1.03-3.07), compared to non-profit homes. |
| Stow et al (2020) | N = 6464 residents<br>2007 men, 3373 women, 1086 missing gender<br>N = 460 care home units | Men age = 80.1±12.6<br>Women age = 83.0±12.9 | Between 23/3/2020 and 10/5/2020 there were 1532 COVID-19 related deaths.<br><br>The proportion of above-baseline NEWS increased from 16/03/2020 and closely followed the rise and fall in COVID-19 deaths over the study period. The proportion of above-baseline oxygen saturation, respiratory rate and temperature measurements also increased approximately two weeks before peaks in care home deaths<br><br>The highest correlation was observed for a two-week lag (r=0.82, p< 0.05 |
| Tse (2003) | N = 40 (33 female) residents | Range 65-82 | Those residents with the least knowledge about SARS also had the least concerns about contracting the disease. |
| Zazzara et al (2020) | N = 322 (hospital patients)<br>N = 210 after age-matching (82 female)<br><br>N = 535 (community patients)<br>N = 238 after age-matching (82 female) | Hospital: all participants, mean = 78.58±7.93<br>Age-matched, mean = 77.9±6.83<br><br>Community: age-matched, mean = 73.0±5.86 | Hospital cohort: significantly higher prevalence of delirium in the frail sample<br>Frailty significantly predicted delirium (p=0.013, OR(95% CI)= 3.22(1.44, 7.21).<br><br>Community cohort:<br>Frailty found to predict delirium (p=0.038, OR(95%)= 2.29 (1.33, 4.0). Frailty predicted fatigue (p=0.038, OR=2.23(1.27, 3.96); SOB (p=0.043, OR= 2.0 (1.19, 3.39))<br><br>After age-matching, delirium was reported in 40 (38%) of frail and 13 (12%) of non-frail patients with COVID-19. |
| | | | |

## Table 7S. Focused worker outcomes from studies examining COVID-19 in residential care homes

| Study | Sample size | Age | Outcomes |
|---|---|---|---|
| Arons et al (2020) | N = 138 facility workers total<br>N = 51 workers tested | | 11 of 138 full time staff positive at first survey. By March 26, 55 reported symptoms, 51 were tested, 26 were positive |
| Dora et al (2020) | N = 136 staff, all tested | | 8/136 staff tested positive (4 symptomatic) |
| Geury et al (2020) | N = 136 staff members (112 female) | Median = 39 (range 27-48.5) | 3/136 (2.2%) staff tested positive. 1 presymptomatic (symptoms developed 24 hours after testing), 1 was asymptomatic. At time of testing, 98 staff were asymptomatic (72%). |
| Graham et al (2020) | N = 70 tested<br>(N = 596 workers in total across the facilities) | | 3/70 (4%) staff tested positive |
| Hand et al (2018) | | | No staff reported respiratory symptoms during outbreak. |
| Heung et al (2006) | N = 26 tested (22 female)<br>(N = 32 workers in facility) | Aged 31-50: n = 18<br>Aged >50: n = 8 | 0/26 staff were positive for antibodies |
| Ho et al (2003) | N = 1 infected staff member | Staff aged 65 | 1/1 infected staff died |
| Kennelly et al (2020) | N = 1392 staff members (across 12 nursing homes reporting total staff numbers) | | 675 staff positive, across 24/28 NHs.<br><br>Significant correlation between proportion of symptomatic staff and number of residents with confirmed/suspected COVID-19 (Spearman's rho=0.81).<br><br>No correlation between asymptomatic staff and COVID-19 residents.<br><br>Almost a quarter (23.6%, 159/675) were asymptomatic, identified by mass point-prevalence testing. |
| Kim et al (2020) | N = 85 | | No more infected persons. All employees tested negative 14 days from start of quarantine. |
| Lee et al (2020) | N = 22 care workers administered treatment | | 0/22 staff tested positive at conclusion of 14-day treatment period. |
| McMichael (2020) | N = 170 facility staff<br><br>N = 50 positive health care workers<br>(38 females) | Median = 43.5 (range 21-79) | 50 health care personnel positive |

## Table 7S. Focused worker outcomes from studies examining COVID-19 in residential care homes

| Study | Sample size | Age | Outcomes |
|---|---|---|---|
| Office of National Statistics (2020) | N = 441,498 (95% C.I. 441,240 - 441,756) staff | | 4.0% (95% C.I. 3.6-4.4%) staff positive.<br><br>Staff infection increased: for each additional infected resident (OR 1.04); in homes where bank/agency staff work most or every day (OR 1.88, 95% C.I. 1.77-2.0); homes where staff regularly work elsewhere (OR 2.4, 95% C.I. 1.92-3.0). Staff at homes outside London had higher odds of infection. |
| Quicke et al (2020) | N = 454 workers<br>N = 5 facilities | | Staff at Site A remained uninfected throughout the entire six-week study period.<br><br>22.5% of workers at site D had prevalent infections at the start of the study and incidence was high initially (12.2 per 100 workers per week), declining over time.<br><br>At site C, initial infection prevalence was lower (6.9%) and the incidence declined to zero by week 3.<br><br>Two facilities with low prevalence in week 1 (sites B and E) saw an increase in cases – including, at site B, incident infections detected after four weeks of no infections. Infections were observed in workers across all job types<br><br>Six individuals exhibited two positive tests, separated by a period of negative tests |
| Roxby et al (2020) | N = 62 (42 females) | 40.0±15 | 2/62 (3.2%) staff tested positive, both symptomatic. |

**Table 8S.** Focussed resident outcomes from studies examining COVID-19 in residential care homes

| Study | Sample size | Age | Outcomes |
|---|---|---|---|
| Ho et al (2003) | 3 visitors positive | Aged 27, 28, 88 | 0/3 infected visitors died |
| McMichael et al (2020) | 16 visitors epidemiologically linked to the facility (5 females positive) | Positives age: median = 62.5 (52-88) | 16 visitors positive |

## 30. Reference List 1 Review of Policies

June 2020 – HIQ- Rapid Review of Public health Guidance for Residential Care
Available: https://www.hiqa.ie/reports-and-publications/health-technology-assessment/rapid-review-public-health-guidance

March 2020 - TILDA - TILDA report to inform demographics for over 50s in Ireland for COVID-19 crisis
Available: https://tilda.tcd.ie/publications/reports/Covid19Demographics/

May 2020 - TILDA - TILDA nursing home data: A short report to inform COVID-19 responses for our most vulnerable 2020
Available: https://tilda.tcd.ie/publications/reports/Covid19NursingHomes/index.php

May 2020 - HIQA - Analysis of NF01 and NF02 notifications to HIQA*

May 2020 - The International Long Term Care Policy Network - International examples of measures to prevent and manage COVID-19 outbreaks in residential care and nursing home settings
Available: https://ltccovid.org/wp-content/uploads/2020/05/International-measures-to-prevent-and-manage-COVID19-infections-in-care-homes-11-May-2.pdf

May 2020 - The European Centre for Disease Prevention and Control - Surveillance of COVID-19 at long-term care facilities in the EU/EEA
Available: https://www.ecdc.europa.eu/en/publications-data/surveillance-COVID-19-long-term-care-facilities-EU-EEA

March 2020 - The World Health Organisation - Infection Prevention and Control guidance for Long-Term Care Facilities in the context of COVID-19
Available: https://apps.who.int/iris/bitstream/handle/10665/331508/WHO-2019-nCoV-IPC_long_term_care-2020.1-eng.pdf

March 2020 - ECDC Technical Report - Infection prevention and control for COVID-19 in healthcare settings - first update
Available: https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-infection-prevention-and-control-healthcare-settings-march-2020.pdf

May 2020 - The International Long Term Care Policy Network - Mortality associated with COVID-19 outbreaks in care homes: early international evidence
Available: https://ltccovid.org/wp-content/uploads/2020/06/Mortality-associated-with-COVID-21-May.pdf

International Long Term Care Policy Network - Country reports: COVID-19 and Long-Term Care - Examples of 9 countries listed in this report
Available: https://ltccovid.org/country-reports-on-covid-19-and-long-term-care/

* *Could not find on HIQA website – was given by DoH*

## 31. Reference List 2 Systematic Review

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Brainard, J. S., Rushton, S., Winters, T. & Hunter, P. R. 2020. Introduction to and spread of COVID-19 in care homes in Norfolk, UK. medRxiv, 2020.06.17.20133629.

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## 32. Appendix Example of Search Strategy

**Pubmed**

Search #1

“Residential facilit*” OR “Residential aged care” OR Convalescent home* OR “Nursing Home*” OR “Homes for the aged” OR “Housing for the elderly” OR “Skilled nursing facilit*” OR “long term care” OR “Longterm care” OR Home* for the aged OR “Old Age Home*” OR “long-term care” OR "Nursing Homes"[Mesh] OR “long-term care”[MeSH] OR "Residential Facilities"[Mesh] OR "Housing for the Elderly"[Mesh]

213,035 Results

**Intervention**

Search #2

(“Infection control” OR Infection prevention and control* OR “Patient Safety” OR “Patient harm” OR “Patient risk” OR “Health care Delivery” OR transmission OR body substance isolation* OR physical barrier* OR physical intervention* OR physical protection* OR personal protection* OR person protection* OR BSI OR IPC OR N95 OR ffp1 OR ffp3 OR ffp2 OR transmission* OR contamination* OR shedding OR fomite* OR gap* OR non-pharm intervention* OR non-pharmaceutical intervention* OR Shield OR N99 OR N97 OR Ventilator* OR Space OR spacing or separation OR “Communicable Disease Control” OR "Primary Prevention" OR facemask* OR face mask* OR face-mask* OR "Delivery of Health Care" OR “Disease transmission” OR “Infectious Disease Transmission” OR PPE OR “Personal Protective Equipment” OR mask* OR virucide* OR antivirus agent* OR Handwashing OR “Hand washing” OR “Hand Disinfection” OR “hand hygiene” OR distancing OR distances OR aerosol-generating procedure* OR patient isolation* OR patient isolator* OR person isolator* OR “individual isolation” OR individual isolator* OR filtering face piece* OR face protection* OR face shield* OR face protective device* OR face protective gear* OR eye protection* OR eye shield* OR eye protective device* OR eye protective gear* OR Eye mask* OR airborne precaution* OR droplet precaution* OR safety supply OR safety supplies* OR safety device* OR safety equipment* OR safety measure* OR safety gear* OR protective supply* OR protective supplies* OR protective device* OR protective equipment* OR protective measure* OR protective gear* OR “personal isolation” OR respirator* OR respiratory protection* OR respiratory protective device* OR “respiratory protective supply” OR “respiratory protective supplies” OR “respiratory protective equipment” OR “respiratory protective gear” OR “safely equipped” OR meter OR metre OR foot OR feet OR meters OR metres OR head cover* OR face cover* OR eye cover* OR goggle* OR protective clothing* OR "Infection Control"[Mesh] OR "Personal Protective Equipment"[Mesh] OR "Hand Disinfection"[Mesh] OR "Communicable Disease Control"[Mesh:NoExp] OR "Disease Transmission, Infectious"[Mesh] OR "Primary Prevention"[Mesh] OR "Delivery of Health Care"[Mesh:NoExp] OR "Fomites"[Mesh] OR "Ventilators, Mechanical"[Mesh] OR "Communicable Disease Control"[Mesh] OR "Primary Prevention"[Mesh] OR "Delivery of Health Care"[Mesh] OR "Patient Isolation"[Mesh] OR "Patient Safety"[Mesh] OR "Patient Harm"[Mesh])

5,741,706 results

And

Search #3

(Coronavirus* OR “Corona virus” OR Betacoronavirus or Beta-coronavirus OR Corona* OR coronaviral OR coronavirdae OR coronavirida OR coronaviridae OR coronaviridea OR coronaviridiae OR coronavirinae OR coronavirion OR coronavirions OR coronaviroses OR coronavirous OR coronavirues OR coronaviruscpe OR coronaviruse OR coronaviruses OR coronaviruslike OR coronaviser OR coronaviurs OR coronaviuses OR coronavrius OR coronavvirus OR COVIDOR SARS OR SARS-CoV OR “Middle East respiratory syndrome” OR MERS OR MERS-CoV OR “Severe Acute Respiratory Syndrome” OR “severe acute respiratory pneumonia outbreak” OR 2019-nCoV OR nCoV OR COVID-2019 OR “COVID 2019” OR cov2 OR Covid19 OR COVID-19 OR COVID 19 OR SARS-CoV* OR coronaviridae OR "corona virus" OR "SARS-CoV-2" OR "sars cov2" OR "SARS-CoV-19" OR 2019nCoV OR "SARS-CoV" OR SARSCOV2 OR "2019 coronavirus" OR "SARS2" OR "2019 corona virus" OR covid19 OR "novel corona virus" OR "new corona virus" OR "novel coronavirus" OR "new coronavirus" OR “coronavirus infection” OR "nouveau coronavirus" OR "COVID-19" [Supplementary Concept] OR "severe acute respiratory syndrome coronavirus 2" [Supplementary Concept] OR "Coronavirus Infections"[Mesh] OR "Coronavirus"[Mesh] OR "Middle East Respiratory Syndrome Coronavirus"[Mesh] OR "Coronavirus Infections"[Mesh] OR "SARS Virus"[Mesh] OR "Betacoronavirus"[Mesh])

595,661 results

Search #4 = #2 AND #3 116,217 results

**Outcomes**

Search #5

Mortality OR “Death rate*” OR “Mortality Rate*” OR Morbidity OR “Risk of Infection” OR “infection risk” OR "Mortality"[Mesh:NoExp] OR "Morbidity"[Mesh]

3,204,107 results

Search #6 = #1 AND #4 AND #5 593 results