A Guideline for Adult Enteral Nutrition via Percutaneous Enterogastric Tube.	
Developed by: Drogheda Services for Older People.	**Date Developed: May 2016. Revised October 2017, January 2018, October 2021, September 2023**
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Introduction.

Some adults are unable to swallow or eat and drink enough. Insertion of a percutaneous endoscopic gastrostomy (PEG) tube may enable long-term feeding, fluid and/or medication administration. The procedure involves gastroscopy under sedation to identify tube placement site, place the tube and check it has been placed correctly. Serious complications include peritonitis and perforation of the colon. Frequent observations immediately after placement are essential. With good nursing care, complications can be avoided or dealt with promptly.

This guideline sets out the procedures that nursing staff should follow in the aftermath of a PEG insertion and ongoing care of the PEG Tube and stoma site.

A number of conditions can compromise patients' ability to swallow, or take in sufficient food and drink orally. A proportion of these will require an enteral feeding tube to meet their nutrition requirements. Percutaneous endoscopic gastrostomy (PEG) tubes are long-term, artificial enteral feeding tubes that require endoscopic placement and allow direct access to the stomach from outside the abdominal wall. This route is generally used for supplementation of nutrition, fluids and medication administration.

Recent incidents

HIQA has been made aware of a number of incidents where the wellbeing of residents has been put at risk because of the poor management of PEG feeding.

As a matter of urgency, providers should take a number of safety precautions in relation to managing PEG feeding in designated centres:

 Ensure staff are trained and confident in the administration of PEG feeding and that staff can recognise and know how to appropriately respond to actual and potential risks associated with this type of feeding.

 Ensure that the centre has an up-to-date, evidenced based policy and procedure providing clear guidance for all categories of staff on the safe management of PEG feeding.

 Ensure there is an unequivocal care pathway for each resident who requires this intervention, to include pre assessment arrangements.

 Ensure the governance arrangements include robust quality assurance arrangements, including arrangements for review of the policy and procedure, and arrangements to ensure all staff understand and adhere to the PEG feeding policy and procedure.

 Ensure that staff maintain an accurate and timely record of the residents' prescribed PEG feeding regime.

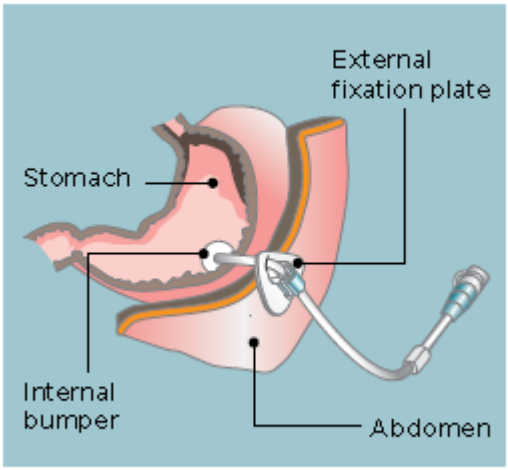
 Ensure that any actual or potential accident, incident or near miss is appropriately dealt with, the event accurately recorded in a timely manner in the centre's accident/incident register and is reviewed by the person in charge. Where appropriate, an action plan to prevent any reoccurrence

What is a PEG and who needs one?

A PEG delivers nutrition, hydration and medicines directly into the patient's stomach (Fig 1). PEG stands for:

- Percutaneous - inserted through the skin;
- Endoscopic - the procedure used to insert the tube;
- Gastrostomy - the opening into the stomach from the abdomen.

FIG 1. **PEG PLACEMENT**



The PEG tube

PEG tubes are usually made from flexible polyurethane and approximately 35cm in length, with a hollow lumen that allows for the passage of liquids. The external diameter is measured in French gauge, with each unit representing 0.33mm. In the UK 8-16 French-gauge tubes are commonly used - the exact gauge used is determined by the patient group and intended

use.

Fig 1 shows the PEG tube in the fistula tract between the anterior gastric wall and abdominal wall. The tube is held within the stomach by a retention bumper that lies against the anterior gastric wall. The bumper is commonly a button of soft malleable silicone or an air-filled foam sac.

The external part of the tube has an adjustable fixation plate commonly made from soft silicone. There is no consensus in the literature or manufacturers' guidance on exactly how far from the abdominal wall this should be positioned. The ideal is that the tube cannot move freely in the fistula tract nor fit too tightly (Westaby et al, 2010; Best, 2004).

TABLE 1. "RED FLAG" COMPLICATIONS POST GASTROSTOMY INSERTION

Complication	Symptoms	Possible cause
Peritonitis (inflammation of the abdominal wall)	Abdominal pain/distension Leakage of gastric contents Pain on feeding/flushing Pyrexia Tachycardia	Leakage of gastric contents into peritoneum Enteral feed leaking into peritoneum Infection
Bowel perforation (puncture of the bowel)	Abdominal pain/distension	Puncture of bowel during insertion
Bleeding	Bleeding around the site; heavy external bleeding can indicate serious internal bleeding	Puncture of gastric blood vessels during insertion
Pneumonia/respiratory depression (chest infection/difficulty breathing)	Altered respiratory rate Low oxygen saturation Increased oxygen requirements Chesty cough	Sedation used during procedure Aspiration of stomach contents into the lungs
Wound infection	Discharge/redness around site Pyrexia	Bacterial contamination of the stoma site

Indications

PEG tubes can be placed in older people of all ages. The general indicators are symptoms of dysphagia or an inability to eat or drink enough to meet nutritional requirements (Westaby et al, 2010). This is usually caused by neurological or anatomical disorders that affect swallowing, for example, motor neurone disease or an oesophageal tumour (Kurien et al, 2010; Löser et al, 2005) or with people with dementia. The decision to insert a PEG tube in a person with end stage dementia is an ethical and moral question and should be made in conjunction with a person's advanced wishes if available, the family and a multi disciplinary team.

Risks and potential complications

The resident's medical history should be thoroughly reviewed for outstanding risk factors or diagnoses that could make the procedure difficult, impossible or futile. For example, an intestinal obstruction beyond the duodenum could prevent liquids administered via the PEG from continuing to be digested, and risk aspiration. A multidisciplinary team should discuss the risks and benefits of tube placement thoroughly, informing the resident of these and alternative options, and only proceed in accordance with the resident's wishes and in their best interests.

PEG insertion

PEG insertions are usually carried out in an endoscopy department with the patient under sedation rather than under a general anaesthetic. An endoscope (camera) is passed through the patient's mouth and into the stomach. The stomach is inflated with air to improve visibility and the inflation moves the stomach wall closer to the anterior abdominal wall. When the endoscope is in the stomach the light at the end of it shines through the skin; at this point, the lights in the room are dimmed so the endoscopy light can be detected through the abdomen and used to help identify the position of the stomach. Local anaesthetic is administered into the insertion site, then a small incision is made, into which a cannula is inserted; through this, a wire is passed into the stomach.

Forceps are inserted through the endoscope to grab the wire and, as the endoscope is removed, the wire is also brought out of the patient's mouth. The PEG is attached to this wire then pulled from the stomach end, moving the tube down the oesophagus and out through the incision made in the

stomach. The tube is held in the stomach by an internal retention disc, commonly known as an internal bumper. An external fixation plate, clamp and connector are then fitted onto the tube to ensure the PEG is secure

NURSING CARE POST INSERTION OF A PEG

Safety concerns

After insertion of a PEG tube, the nurse should ensure that they obtain from the acute services information on procedure reports and/or in medical notes to identify potential issues that may arise after gastrostomy insertion .

Vital Sign monitoring and systemic observations including blood pressure, pulse, temperature and oxygen saturations be carried out every two hours for twenty four hours after PEG insertion to detect signs of deterioration. This should be done after PEG re insertion as well.

Nursing staff must be aware and document **red flag complications** and be given contact numbers for local out-of-hours services they can call for urgent advice (NPSA, 2010). Nursing Staff must have contact details on who to contact for advice if they experience any problems. This could be the medical team who inserted the tube, staff in Endoscopy Department of the Local Acute Hospital or the accident and emergency department in Our Lady of Lourdes Hospital if the feel the situation is urgent. This information should be requested before the resident is transferred back to this service.

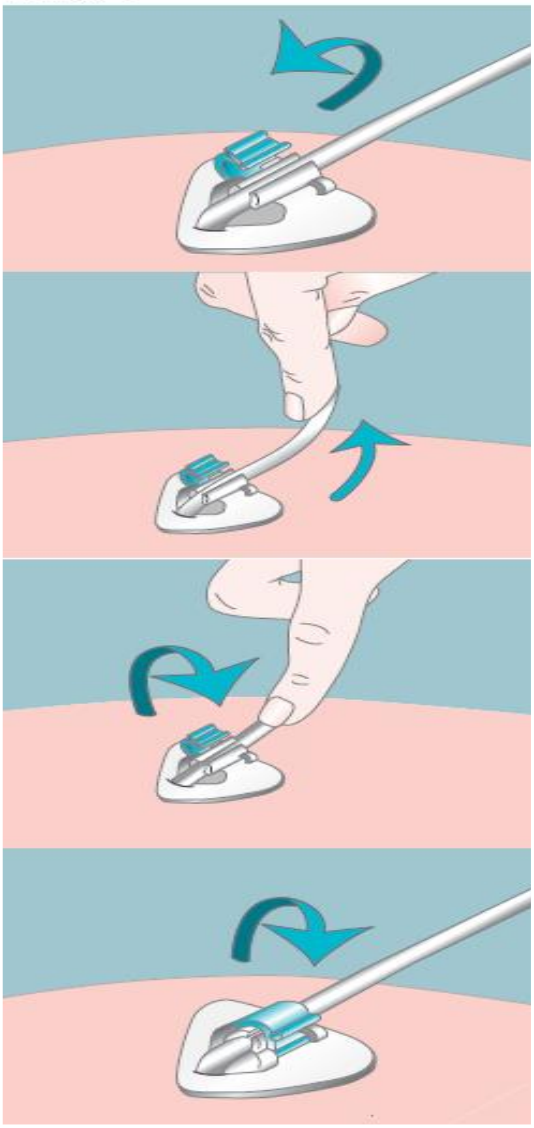
"Red-flag" alerts

- Severe pain that is not relieved by simple analgesia, or is made worse by using the tube
- Fresh bleeding* or gastric fluid or feed leaking from wound site
- Sudden change in clinical observations
- Change in level of responsiveness or behaviour

*A small amount of bleeding from the site is expected and may need a small dressing. Large, thick dressings should be avoided as they prevent thorough observation of the site

Symptoms of pain, leakage of some gastric fluid around the PEG tube, and bleeding after PEG insertion are all normal and expected; it is the severity of the symptoms that determine whether medical intervention is needed. It is important for patients and nurses to know who to contact if they are unsure, and to be aware of the difference between what is normal and abnormal. Normally a small amount of leakage can be expected to last for a few days after insertion but this should not be excessive (not requiring a dressing change more than twice a day) and should stop by itself. If the leakage is continuous and there are large volumes along with pain or problems using the tube, medical advice should be sought immediately.

FIG 3. **CORRECT POSITION FOR EXTERNAL FIXATION PLATE**



IF THERE IS PAIN ON FEEDING, OR PROLONGED OR SEVERE PAIN POST-PROCEDURE, OR FRESH BLEEDING, OR EXTERNAL LEAKAGE OF GASTRIC CONTENTS, STOP FEED/MEDICATION DELIVERY IMMEDIATELY. OBTAIN SENIOR ADVICE URGENTLY

Surgical review, CT scan or contrast study may be required

Source: National Patient Safety Agency (2010)

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2. Vital Sign monitoring and systemic observations including blood pressure, pulse, temperature and oxygen saturations be carried out every two hours for twenty four hours
3. Nursing staff must be aware and document red flag complications and be given contact numbers for local out-of-hours services

4. **"Red-flag" alerts**

- **Severe pain that is not relieved by simple analgesia, or is made worse by using the tube**
- **Fresh bleeding* or gastric fluid or feed leaking from wound site**
- **Sudden change in clinical observations**
- **Change in level of responsiveness or behaviour**

Managing complications

It is essential that nurses are aware of the issues highlighted by the NPSA alert so they can identify and manage the following complications.

1. If complications are identified, feeding and medication delivery down the tube should be stopped immediately and advice sought from the medical team responsible for the patient's care.
2. If complications occur after transfer discharge back to residential services, the nursing staff will arrange for the resident to attend their local accident and emergency department immediately.

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3. Aspiration

Aspiration of stomach content/feed into the lungs can occur during insertion of the PEG tube because the oesophageal sphincter that stops gastric contents from refluxing into the oesophagus is held open by the endoscope. This can allow fluid in the stomach to enter the lungs; the risk is reduced by keeping patients nil by mouth for at least six hours before the procedure.

It can also occur if patients lie flat during feeds, allowing feed to reflux up into the oesophagus. To avoid this, the patient should be sitting/tilted upwards to 30° when receiving feed or medications (Best et al, 2008). Aspiration can also occur between feeds if the patient is known to suffer with reflux problems. These patients are advised to lie at an angle of up to 30° between feeds to reduce this risk.

1. Aspiration is the entrance of any material including feed into the airway
2. Residents on PEG FEEDS SHOULD NEVER LIE FLAT
3. ENSURE THE RESIDENT'S HEAD AND SHOULDERS ARE RAISED TO AN ANGLE OF AT LEAST 30 DEGREES DURING FEEDING AND FOR AT LEAST 60 MINUTES AFTER FEEDING.

4. Blockage

PEG blockages occurs in about 20% of cases (McClave and Neff, 2006) and are mainly caused by inadequate flushing regimens after administration of feed and medicines (McClave and Neff, 2006; British Association for Parenteral and Enteral Nutrition and British Pharmaceutical Nutrition Group, 2003). The medicines and feeds can also block the feeding tube.

Blocked tubes are detrimental to patients and costly to replace. They prevent patients receiving their medications and feed, causing dehydration and potential complications from the effects of omitted medications. If the tube becomes irreversibly blocked, it may need to be changed; this means the patient will have to have an unnecessary procedure, so it is easier to prevent blockages than to fix

them (Remington and Simons, 2013).

To prevent a blockage associated with drugs, BAPEN and BPNG (2003) recommend flushing the tube with 30ml of water before and after medication administration and at least 10ml between each medicine to clear the tube. Should the tube become blocked, BAPEN and BPNG (2003) suggest using warm water as a flush. A push–pull plunger technique can be used to break up the blockage and allow the tube to be flushed. Rolling the tube between the thumb and forefinger before and while it is being flushed can also help to break up the blockage (Remington and Simons, 2013). Using fruit juices and carbonated drinks is ineffective as they can cause blockages to curdle, making it more difficult to unblock the tube. The technique described for blockages caused by medicines should also be used to unblock tubes that are blocked with feed.

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4. The technique described for blockages caused by medicines should also be used to unblock tubes that are blocked with feed
5. Rolling the tube between the thumb and forefinger before and while it is being flushed can also help to break up the blockage

5. Leakage of feed/gastric contents around the PEG site can occur due to poor positioning of the external fixation plate (it is not flush to the skin) after insertion.

Leakage may also occur if the tube is too small for the stoma, as gastric contents can leak around the tube. This could happen in patients who have had routine tube changes and a smaller size tube has been placed into the stoma. Over a few days the stoma shrinks to fit better around the tube, which means the leakage should stop.

An incorrectly positioned external flange will allow the internal bumper to come away from the stomach wall and leakage can occur. An incorrectly placed external fixation plate – more than 0.5cm from the skin – will allow the tube to move in and out of the stoma and gastric content to leak out of the stoma.

To prevent leakage, pull gently on the PEG until you can feel resistance from the internal bumper. To secure the PEG, slide the external fixation plate down the tube towards the skin, resting no further than 0.5cm away from the skin (Fig 3), thus forming a seal. If a dressing is used to absorb leakage, select a thin dressing such as gauze and secure the flange against it to prevent further leakage. If the leakage is persistent, applying a barrier cream can protect the skin from the gastric content.

IF PEG TUBE DISLODGES, INSERT A MALE SIZE FOLEY CATHETER SIZE 18 .DO NOT INFLATE BALOON. TAPE SECURELY TO SKIN. CONTACT DOCTOR AND FAMILY. ARRANGE FOR TRANSFER TO ENDOSCOPY.

1. Leakage can occur due to poor positioning of the external fixation plate or an incorrectly positioned flange.
2. To prevent leakage, pull gently on the PEG until you can feel resistance from the internal bumper. To secure the PEG, slide the external fixation plate down the tube towards the skin, resting no further than 0.5cm away from the skin
3. Monitor the integrity of the tube to make sure it is not cracked
4. Contact the endoscopy department in OLOL for advice.

Constipation can cause leakage around the site due to a build-up of pressure within the gastrointestinal tract that prevents the contents of the stomach from passing into the bowel. It is important to prevent constipation before it occurs, so bowel movements should be monitored. Residents living in our residential facilities should have their bowel movements monitored and nursing staff know what action to take if there are any problems.

Immediate Action: Increase fluid intake, use stool softener or laxative as per Doctor's instruction. Call Medical Officer if no bowel movement in several days and/or are experiencing vomiting, or severe abdominal distention or cramping. -

Prevention: Discuss prophylactic bowel regimen with Medical Officer (i.e. increasing fluid and fiber intake, and/or use of a stool softener of laxative). Discuss medications and possible side effects with Medical Officer. Maintain regular exercise program, if able. Take medication for dysmotility as prescribed by Medical Officer. Call Doctor Immediately if you suspect bowel obstruction. –

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6. Site infection

The most common complication is infection at and around the insertion site; this occurs in around 30% of cases (McClave and Neff, 2006). Infection can occur as a result of poor hygiene when handling the tube; the internal and external flange being too tight has also been associated with higher rates of infection (Ghevariya et al, 2009).

Infection can present as inflammation around the site, coupled with discharge and pain or discomfort. A swab should be taken if the site has clinical signs of infection.

Nurses are advised to clean insertion sites at least once a day and ensure the

area is well dried afterwards. The number of times per day that sites need to be cleaned will depend on the amount of

leakage; a dressing may be required to absorb any moisture from the wound. If an infection is confirmed by a swab, appropriate antibiotics should be prescribed.

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5. A swab should be taken if the site has clinical signs of infection

7. Granuloma formation

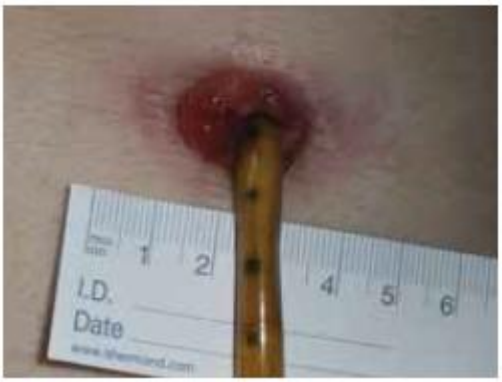
A granuloma is a nodule of granulation tissue at the PEG insertion site (Fig 4) and is an immune response by the body to a foreign body that it is unable to eliminate.

Granulation tissue is vascular and bleeds easily (Remington and Simons 2013); it is unsightly, can be painful and is an infection risk. It can also produce exudate, which can make the skin sore.

A common cause of granuloma formation is incorrect positioning of the external fixation plate, which may allow the tube to move freely. This movement causes friction at the site and initiates the production of granulation tissue.

The evidence base for the management of granulomas is weak (Warriner and Spruce, 2012); however, there are recommendations based on clinical expertise. It is vital to check the external fixation plate is in the correct position and that patients and/ or carers know the correct position. A barrier cream can be used to protect the skin from any exudate that may come from the granuloma. The amount of times the site needs to be cleaned and dressed per day will depend on the amount of exudate; a swab can be taken if an infection is suspected.

FIG 4. **GRANULOMA AT PEG SITE**



8. Buried bumper syndrome

Buried bumper syndrome is caused by the external fixation plate being placed too tightly against the patient's skin, which causes the internal bumper to erode into the lining of the stomach (Ramdass and Mann, 2013). The incidence of buried bumper has been reported by Venu et al (2002) to be 1.6% in patients who have a PEG tube. The reason for the PEG insertion and the type of tube used does not affect incidence (Pop, 2010). If buried bumper is undetected it can cause complications such as gastric bleeding, perforation of the stomach, peritonitis and even death (Anagnostopoulos et al, 2003).

Buried bumper syndrome is usually the result of poor care after insertion and is typically a late complication occurring more than three months after insertion.

However, it may occur within one month of PEG insertion and can reoccur once healed (Lee and Lin, 2008); Venu et al (2002) have reported cases in which the bumper has become buried eight days after insertion.

A tube with a partially buried bumper can still be used for feeding but once a

bumper is completely buried feeding is not possible because the tip of the tube where the feed enters the stomach is

blocked. Removal of the tube can be complicated and patients may require surgery.

The signs of a buried bumper include:

» A tube that does not move in and out of the stoma;

» Problems with constant alarming from the pump to say that feed is not being administered or there is an obstruction;

» Difficulty with flushing the tube or not being able to do so;

» Leakage around the site when trying to flush the tube.

Nurses, can take efforts to avoid buried bumper syndrome by rotating the tube 360°, pushing it about a thumb's length (approximately 4cm) into the stomach, then pulling it back to its original

position and securing it; this is known as advancing and rotating the tube.

Nurses are asked to do this at least once a week to prevent tissue growing over the tube; however, nurses should be aware that patients can still develop buried bumpers despite doing this.

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PSYCHOLOGICAL CARE OF A RESIDENT ON PEG FEEDING

As nurses and care staff it is important that nutritional care of a resident with PEG support is treated in the same manner as a resident on a normal diet. Too often residents on PEG feeding regimes are left on their own, while other residents move to the dining room or enjoy a normal diet or modified diet orally. Staff need to be vigilant and conscious of the effects that this may have on a resident who is being artificially fed.

End-of-life care requires good person-centred care.

Living well with any illness or dementia also includes supporting a person with an illness or dementia to die well, or as they would have wished.

Be aware of the range of symptoms that an older person or a person with dementia may experience at the end of life.

Support family carers and help them to understand what is happening at the end of life.

ALWAYS INVOLVE FAMILY IN THE CARE PLANNING PROCESS. FAMILIES NEED TO BE KEPT INVOLVED AND INFORMED

DISCUSS WITH FAMILIES USING MY PREFERRED PRIORITIES FOR CARE WHERE THEY THINK THEIR RELATIVE IS AT CURRENTLY

ASK IS THERE ANYTHING THAT WE COULD BE DOING THAT WE ARE NOT

- **Keep the resident company**. Talk to the resident, read to him or her, watch movies together, or simply sit and hold their hand.
- **Honor their wishes.** Reassure the resident that you will honor their wishes, even if you don't agree with them. If you are uncertain, discuss with your manager
- **Respect the resident's need for privacy**. End-of-life care for many people is often a battle to preserve their dignity and end their life as comfortably as possible.

If you are going to sit with a person for longer than a few moments, consider the following:

- Your colleagues will need to know that you going to spend say 10 to 15 minutes in the person's room and should not be called away to another resident or task.
- You may want to take a book to read out to the person or a piece of music to play or perhaps something that you can do in front of the person such as folding towels.
- Make sure you are in the eye line of the person if they are lying in bed or staring in a particular direction.
- Pay particular attention to stimulating other senses other than taste.
- If a person liked fruit in the past, there is no issue in giving a person a small sip of apple juice, pear juice, orange juice on their tongue, just to allow for taste.

- Make the change of tube a meal event, and not just a clinical event.
- ENSURE THAT THE PRESCRIBED FEEDING REGIME IS FOLLOWED WITH THE PRECRIBED REST PERIOD.

Medications and PEG Feeding.

See Guidelines on Enteral Feedingand Drug Interactions.

PEG Feeding Recording Sheet.

PEG Feeding Regime Record Drogheda Services for Older People. Boyne View

Name_____

Date_____

Exact Instructions

_____

_____

Prescribed By_____ Date_____

Time	Nutrient Commenced	H20 Flushes Include medicines	Urinary output	Bowel Motion	Giving set change	PEG site inspected/balloon check	Oral care	Vomiting Quantity and describe
08.00								
09.00								
10.00								
11.00								
12.00								
13.00								
14.00								
15.00								
16.00								
17.00								

18.00								
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02.00								
03.00								
04.00								
05.00								
06.00								
07.00								
Total								

Total Intake_____ **Total Output**_____

Any actions required_____

_____

_____

Signed **Date**

Read and Understood.