Healthcare Briefs

Samples

Gilbert Market Research
and Data Analytics

Oncologists and Genetic Testing Reimbursement

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(a 5-hour exploration)

PURPOSE

The purpose of this report is to explore the current reimbursement environment for cancer-related genetic testing. Do oncologists view the current process as working effectively or as inhibiting their willingness to order genetic tests?

SUMMARY

The National Human Genome Research Institute completed the sequencing of the human genome in 2003. At that time, there were a handful of genetic tests, mostly for prenatal purposes and medical conditions that required single gene identification. On May 19, 2023—a specific date is given because it changes daily—the number of genetic tests listed in the National Library of Medicine's NCBI Genetic Testing Registry, an essential global repository of record, was 79,775 for 23,415 conditions. The pool of genetic tests has become a tidal wave.

Spending on genetic testing, too, has skyrocketed. In 2016, Medicare spent $351 million for a volume of 627,000 genetic tests.[1] By 2021, it was spending $1.9 billion for 2.8 million tests.[2] Over a 5-year period, expenditures went up 441% while volume increased 347%. This is significant in that the CMS (Centers for Medicare and Medicaid Services) leads the way for other payers in approving insurance coverage for lab testing.

The abundance of new genetic tests and the corresponding rise in dollar outlays have left clinicians and payers alike struggling to keep up with the latest scientific literature and evaluations for effectiveness. As new tests are introduced to the market, they must be reviewed by all stakeholders: government, clinicians, labs, and insurers. This takes time. Of particular concern to medical professionals is payer guidelines lagging behind medical advances.

Oncologists are at the center of this struggle. Currently, the Genetic Testing Registry lists 1,738 cancer-related tests and 670 "oncology" tests available in the U.S.[3] Of these, only a portion is covered by insurance. According to a U.S. Inspector General's 2021 Data Brief, there were 172 cancer-related gene-testing CPT codes (the services and procedural codes used by the healthcare industry to classify and calculate coverage) paid for by Medicare. Oncologists are at the forefront of genetic testing, using next generation sequencing (NGS) to help patients battle disease. Yet, adoption of these groundbreaking tests by insurers has been slow.

According to Levit and Kim in "Implementing Precision Medicine in Community-Based Oncology Programs," clinicians, "Payers have been slow to develop new payment structures to cover NGS and precision medicine treatments.[4] This is clearly seen in low reimbursement rates.

In "Clinical Utilization, Utility, and Reimbursement for Expanded Genomic Panel Testing in Adult Oncology," published in 2020 in the *Journal of Clinical Oncology*, the authors quantified reimbursements for NGS testing: "on average, insurers reimbursed 10.75% (range, 0%-57%) of the total NGS service charges: 13% (range, 0%-100%) for commercial plans, 21% (range, 0%-57%) for managed government plans, and 1% (range, 0%-50%) for government plans."[5]

Importantly, insurance coverage has become a barrier to ordering NGS tests, and oncologists may forgo or delay their use for this reason. Levit and Kim summarized it succinctly: "Clinicians interviewed about their use of genomic testing identified cost and lack of insurance reimbursement as the primary reasons for avoiding genomic testing.[6]

Aside from not all tests being covered, an intricate web of CMS guidelines and "clinical utility" requirements have led to frustration and confusion among oncologists. ASCO's 2018 oncology practice census identified "payer pressures" as topping the list of strains on oncology and hematology practices. The most outstanding pressure, named by 78% of respondents, was prior authorizations.[7] Insurance prior authorizations are often required for NGS testing and "off-label" use.

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[1] (Office of the Inspector General, US Health and Human Services December 2021)
[2] (Office of Inspector General 2022)
[3] Clinical and Research Tests for Cancer-Genetic Testing Registry-National Center for Biotechnology Information (NCBI)
[4] (Levit and Kim 2019) as cited in Luh F, Yen Y: Benefits and harms of the Centers for Medicare & Medicaid Services ruling on next-generation sequencing. JAMA Oncol 4:1171-1172, 2018.
[5] The information in this paper was originally presented at the 2019 Annual ASCO Meeting in Chicago. It is based on a study of 349 patients and reimbursement data from 246.
[6] (Levit, et al. 2019) as cited in Ciardiello F, Adams R, Tabernero J, et al: Awareness, understanding, and adoption of precision medicine to deliver personalized treatment for patients with cancer: A multinational survey comparison of physicians and patients. Oncologist 21:292-300, 2016.
[7] The State of Oncology Practice in America, 2018: Results of the ASCO Practice Census Survey, https://ascopubs.org/doi/full/10.1200/JOP.18.00149.

Some of these issues may be ameliorated by the newer guidelines outlined in the CMS National Coverage Determination 90.2 (2020) on Next Generation Sequencing (see Appendix A), the many revisions to 90.2, and the local coverage determination proposals (for example, DL39365—see Appendix B). However, it appears that one of the biggest sticking points on obtaining approval of NGS tests is showing "clinical utility," one of the main criteria of coverage determination. Clinical utility demands complex evaluation that cannot be performed quickly enough to match the pace of innovation.

BACKGROUND

Some background in genetic testing may be helpful in understanding reimbursement and oncologists' attitudes toward the current payer environment.

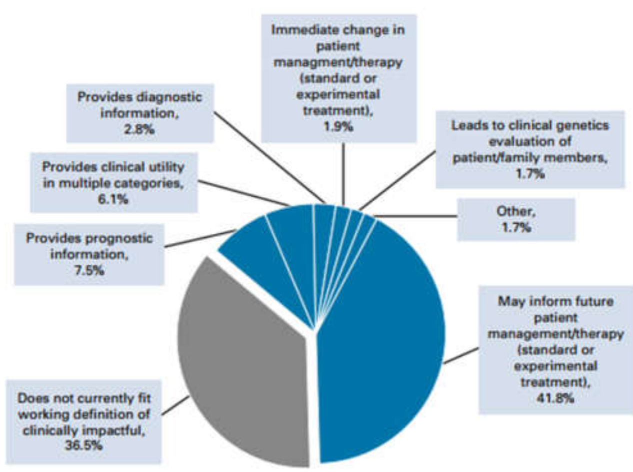
A. **What is the Purpose of Genetic Testing for Cancer?**

There are four reasons for genetic testing for oncology: diagnostic, prognostic, predictive, and therapeutic. This is from the Local Coverage Determination DL39365:

- *Diagnostic* detects or confirms the presence of a disease or condition.
- *Prognostic* provides information about the likely course of a disease process and potential patient outcomes if left untreated.
- *Predictive* forecasts a patient's response and/or benefit to a specific treatment.
- *Therapeutic* identifies potential targets for a medical intervention (e.g., targeted drug therapy).

Source: Proposed LCD – Genetic Testing for Oncology (DL39365)

Figure 1. Purpose of Cancer Testing



Source: Hsiao et al., Clinical Utilization, Utility, and Reimbursement for Expanded Genomic Panel Testing in Adult Oncology

B. **How is Coverage for Genetic Tests Determined?**

NDC 90.2 provides a general outline for Next Generation Sequencing for Medicare although it specifically identifies NGS use for ovarian and breast cancers as "reasonable and necessary." Following the lead of NDC 90.2, Local Coverage Determination (LCD) guidelines offer, on a regional basis, additional requirements for genetic testing. Below is from DL39365, Genetic Testing for Oncology, which provides a definition of the terms used to determine if genetic tests are "medically reasonable and necessary." (See Appendix B).

- *Actionable use* describes a scenario when the genotype information identified via genetic testing may lead to selection of or avoidance of a specific intervention.
- *Analytical validation* is a process intended to determine if a test, tool, or instrument has acceptable technical performance (sensitivity, specificity, accuracy, precision, etc.). Analytical validation: is an assessment of the test's technical performance (that it measures what it was intended to measure), not its

usefulness or clinical significance.

- *Clinical validity* is defined as the ability of a test to classify a patient's specific circumstance into a diagnostic, prognostic, or predictive functional category. It should be noted that clinical validity is not a fixed value.

- *Clinical utility* can be defined as the ability of a test to provide information related to the patient's care and management, and thus, its ability to inform treatment decisions.

Patrick James, MD, Quest Labs chief clinical officer, recommends that insurers focus on the ACCE (analytic validity, clinical validity, clinical utility, and ethical, legal, and social implications) model supported by the CDC.[8] That is most likely the common source for insurer statements on coverage.

C. **What is Next Generation Sequencing?**

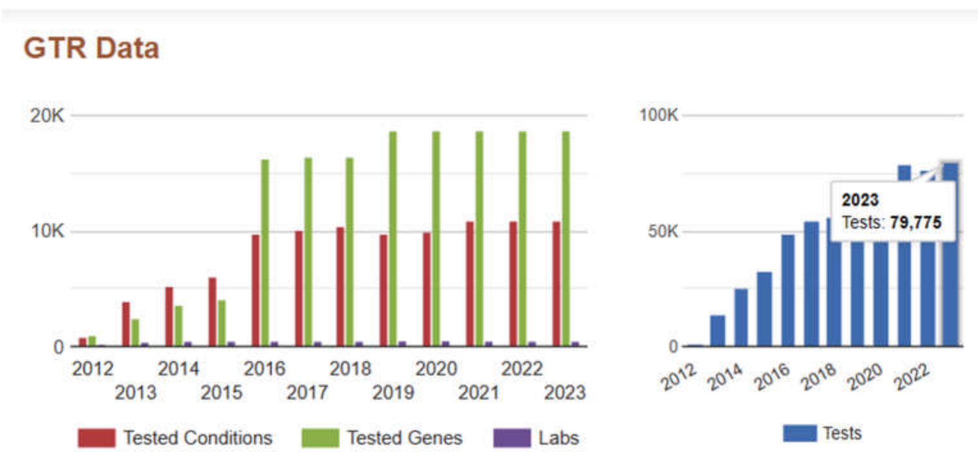
Next Generation Sequencing is an advanced, high throughput sequencing of the genome that identifies gene variants. It is "a mainstay of today's cancer testing for solid tumors and hereditary cancers."[9] It replaces the previous Sanger system to produce a faster, higher capacity, lower-cost result of whole exome (WES) and whole genome (WGS) sequencing. "While the cost efficiency of NGS has improved significantly, from deciphering the entire genome for $10,000 in 2011 to approximately $1000 in 2021,"[10] it is still the highest priced type of testing in the panoply of genetic tests. The *Top 25 Lab Tests in 2021* portion of the "Inspector General's data brief on Medicare Part B spending included five NGS tests with costs ranging from $509 to $3,873.[11]

MAIN FINDINGS

1. Finding: The number of genetic tests recorded by the Genetic Testing Registry has mushroomed.

The Genetic Testing Registry shows that the number of provider-reported genetic tests soared from 13,427 in 2013 to 79,775 in May 2023.[12]

Figure 2. Tests Recorded in the Genetic Testing Registry 2013-2023



2. Finding: The volume of genetic tests under Medicare Part B and the spending on those tests have surged.

In 2021 and 2022 reports by the Office of the Inspector General for the US Department of Health and Human Services found the following in their audits:[13]

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[8] (James 2019)
[9] (James 2019)
[10] (Patel and Clinton 2021)
[11] Data Brief: Medicare Part B Spending on Lab Tests Increased in 2021, Driven By Higher Volume of Tests OEI-09-22-00400, Top 25 Lab Tests, Exhibit 5.
[12] https://www.ncbi.nlm.nih.gov/gtr/. Accessed 05/20/2023. This number, 79,775 is accurate as of May 20, 2023. It changes daily.
[13] Note that some of the numbers in the 2021 and 2022 Inspector General, Health and Human Services Data Briefs do not match.

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Hispanic Millennials and Healthcare Coverage in the U.S.

Prepared: February 2020 (secondary research)

PURPOSE

The main purpose of this project was to gather data on a short deadline that corresponded to questions posed by the Client in an examination of Hispanic Millennials and the state of healthcare coverage in the U.S. These questions explored a range of characteristics and behaviors among Hispanic Millennials that could lead to a better understanding of trends, correlations, and causes relative to enollment in healthcare coverage.

SUMMARY

Hispanics in America are not a monolithic block and neither are Millennials. Hispanics differ in country of origin, culture, attitudes, and activities, among other characteristics. The Millennial generation, individuals born between the years of 1981 and 1996,[1] differ in all of these attributes, and more. What is not so variable, however, is that Hispanics are the largest racial segment of uninsured in the U.S., 17.8%, according to the U.S. Census Bureau's *Health Insurance in the United States: 2018*. Millennials, of all generational cohorts, report the highest percentage, 16%, without healthcare coverage (TCHS, 2019).

The reasons for the lack of healthcare coverage, particularly among Hispanic populations, may be several. Household income, lack of employer-sponsored insurance, language and cultural barriers, citizenship status, and even the "invincible" syndrome among males may all contribute. But it is important to note that the reduction in uninsured across all groups in the U.S. has been dramatic since the passage of the Affordable Care Act and the Medicaid expansion. As one example, the rate of uninsured among Spanish-speaking Latinos in Oregon fell from a high of 64.3% to 13.7% (Alcala et al., 2017). However, in most recent reports, the rate of uninsured is again on the rise. In light of new regulations and modifications to the ACA in 2018 and 2019 (Table 5), there has been a gradual uptick.

Finally, Hispanics are the fastest growing and the youngest of all major ethnic or racial segments in the U.S. Half the population growth in the U.S. can be attributed to Hispanics (Ad Age Datacenter, Aug. 13. 2018). 58% of Hispanics are Millennials or younger, and nearly one-third are 18 years of age or younger (Pew Research Center, 2016)(Appendix A). By 2025, one out of every two new entrants in the labor market will be Hispanic (SHRM). This change in demographics will have sweeping implications for healthcare and health insurance coverage.

METHODOLOGY

The volume of data in all forms that is available on U.S. Health coverage, trends, and demographics requires a careful curation of information. Reputable sources include government databases and reports, well-known research firms, and trade associations. Most of the studies consulted in this report, which is essentially an overview, contain secondary or tertiary data, with the notable exception of the U.S. Census and some other primary sources.

[1] Pew Research Center. The specific birth years that constitute the Millennial generation differ among experts, research groups, and academics.

The main focus of this report is to present information, not necessarily to evaluate or synthesize it. Time constraints do not allow careful rumination or analysis. Therefore, much of what is provided here includes summary bullet points, many of which are quoted from the original source. All items are attributed to the appropriate author.

When information about Hispanic Millennials was unavailable, similar data for Millennials as a group, or Hispanics as a group, were gathered for potential extrapolation. Note that “Hispanic” and “Latino” are mostly used interchangeably in the studies cited here.

QUESTIONS

1. *What are the trends among Hispanic Millennials in terms of* ***healthcare coverage****, especially when it comes to private insurance versus Medicaid?*

Millennials

A. Hispanic Millennials made up 21% of U.S. Millennials in 2014. At that time, the number born in the U.S. was declining: 65% of Hispanic Millennials were born in the U.S. in 2014 vs. 81% in 2000 (Pew Research Center, 2016).

B. 16% of Millennials do not have health insurance (TCHS, 2019). This is the greatest number of any generational cohort.

C. “Millennial men were most likely to be uninsured out of all gender and age combinations, with a rate of 19 percent” Latino men have some of the highest rates (Leins, 2017).

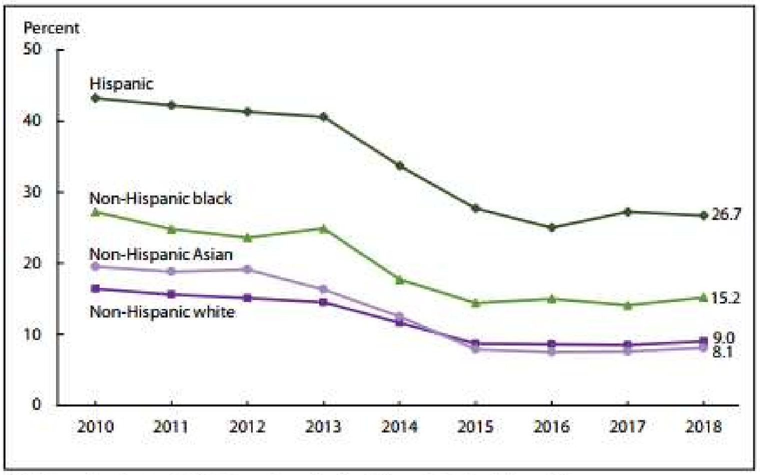
D. Millennials are less likely than other generations to rely on information from healthcare professionals (TCHS, 2019).

All Hispanic

E. Hispanic adults have the highest uninsured rates overall. 17.8% by U.S. Census calculations for 2018.

This was estimated to be as high as 26.7% in early reporting from the *U.S. Department of Health and Human Services’ Early Release of Estimates from the National Health Interview Survey, 2018* of those without insurance at the time of the interview.

Figure 6. Percentage of adults aged 18–64 who were uninsured at the time of interview, by race and ethnicity: United States, 2010–2018



NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.
SOURCE: NCHS, National Health Interview Survey, 2010–2018, Family Core component.

Note that the other major survey, *Health Insurance Coverage in the United States: 2018* is produced by the U.S. Department of Commerce, U.S. Census Bureau and defines uninsured as an individual who does not have coverage for an entire year. Uninsured Hispanics are calculated at 17.8% for the calendar year of 2018.

F. In 2018, Hispanics had the lowest rate of overall health insurance coverage and the lowest rate of private insurance but NOT the highest rate of public coverage, which was highest for those who identified as Black (Berchick, 2019). (See the table below.)

Insurance Coverage in the United States: 2018

Characteristic	2017	2018	Total: Any health insurance 2017		2018		Change (2018 less 2017)[1,*]	Private health insurance[3] 2017		2018		Change (2018 less 2017)[1,*]	Public health insurance[4] 2017		2018		Change (2018 less 2017)[1,*]	Uninsured[5] 2017		2018		Change (2018 less 2017)[1,*]
	Number	Number	Per-cent	Margin of error[2] (±)	Per-cent	Margin of error[2] (±)		Per-cent	Margin of error[2] (±)	Per-cent	Margin of error[2] (±)		Per-cent	Margin of error[2] (±)	Per-cent	Margin of error[2] (±)		Per-cent	Margin of error[2] (±)	Per-cent	Margin of error[2] (±)	
Total	**322,490**	**323,668**	**92.1**	**0.2**	**91.5**	**0.2**	***-0.5**	**67.7**	**0.3**	**67.3**	**0.4**	**-0.4**	**34.8**	**0.3**	**34.4**	**0.3**	***-0.4**	**7.9**	**0.2**	**8.5**	**0.2**	***0.5**
Family Status																						
In families	260,958	261,336	92.7	0.2	92.1	0.2	*-0.5	69.0	0.4	68.7	0.4	-0.3	33.3	0.3	32.9	0.4	*-0.4	7.3	0.2	7.9	0.2	*0.5
Householder	83,539	83,508	92.7	0.2	92.4	0.3	*-0.3	72.2	0.4	72.0	0.4	-0.2	34.6	0.4	34.4	0.4	-0.2	7.3	0.2	7.6	0.3	*0.3
Related children under age 18	71,971	71,750	95.2	0.3	94.7	0.3	*-0.4	61.8	0.6	62.0	0.7	0.2	36.8	0.6	35.6	0.7	*-1.2	4.8	0.3	5.3	0.3	*0.4
Related children under age 6	22,922	22,720	95.5	0.4	94.8	0.5	*-0.7	59.0	1.0	59.7	1.0	0.7	40.2	1.0	38.0	1.0	*-2.1	4.5	0.4	5.2	0.5	*0.7
In unrelated subfamilies	1,113	1,069	88.3	2.6	86.9	3.4	-1.4	53.1	4.9	50.0	5.1	-3.1	41.5	5.2	42.4	4.6	0.8	11.7	2.6	13.1	3.4	1.4
Unrelated individuals	60,419	61,264	89.6	0.4	88.9	0.4	*-0.6	62.4	0.7	61.5	0.6	-0.8	40.9	0.6	40.6	0.5	-0.3	10.4	0.4	11.1	0.4	*0.6
Residence																						
Inside metropolitan statistical areas	279,458	281,369	92.1	0.2	91.6	0.2	*-0.5	68.4	0.4	68.1	0.4	-0.3	33.6	0.3	33.2	0.4	-0.4	7.9	0.2	8.4	0.2	*0.5
Inside principal cities	103,823	104,716	90.4	0.4	90.4	0.4	Z	62.9	0.7	63.4	0.7	0.5	35.7	0.6	35.3	0.6	-0.5	9.6	0.4	9.6	0.4	Z
Outside principal cities	175,635	176,653	93.1	0.2	92.3	0.2	*-0.7	71.6	0.5	70.9	0.5	*-0.8	32.3	0.4	32.0	0.5	-0.3	6.9	0.2	7.7	0.2	*0.7
Outside metropolitan statistical areas[6]	43,032	42,300	91.9	0.5	90.9	0.7	*-1.0	62.9	1.1	62.0	1.3	-0.8	42.6	1.2	42.4	1.2	-0.2	8.1	0.5	9.1	0.7	*1.0
Race[7] and Hispanic Origin																						
White	247,193	247,472	92.3	0.2	91.8	0.2	*-0.6	69.9	0.4	69.3	0.4	*-0.5	34.1	0.3	33.8	0.3	-0.3	7.7	0.2	8.2	0.2	*0.6
White, not Hispanic	195,183	194,679	94.8	0.2	94.6	0.2	-0.2	75.1	0.4	74.8	0.4	-0.3	33.3	0.3	33.2	0.3	-0.1	5.2	0.2	5.4	0.2	0.2
Black	42,461	42,758	90.7	0.5	90.3	0.5	-0.4	55.5	1.0	55.4	1.1	-0.1	41.9	0.9	41.2	0.9	-0.7	9.3	0.5	9.7	0.5	0.4
Asian	19,498	19,770	93.6	0.7	93.2	0.6	-0.5	72.4	1.4	73.1	1.3	0.7	26.6	1.2	26.1	1.1	-0.5	6.4	0.7	6.8	0.6	0.5
Hispanic (any race)	59,033	59,925	83.8	0.6	82.2	0.6	*-1.6	50.7	0.9	49.6	1.0	*-1.1	37.5	0.7	36.5	0.8	*-1.0	16.2	0.6	17.8	0.6	*1.6
Nativity																						
Native-born	277,057	277,848	93.6	0.2	93.2	0.2	*-0.4	69.3	0.4	69.1	0.4	-0.2	35.4	0.3	34.9	0.3	*-0.5	6.4	0.2	6.8	0.2	*0.4
Foreign-born	45,433	45,820	82.6	0.6	81.1	0.6	*-1.6	57.7	0.8	56.0	0.9	*-1.6	30.9	0.8	31.2	0.7	0.2	17.4	0.6	18.9	0.6	*1.6
Naturalized citizen	21,880	22,296	92.2	0.6	91.2	0.6	*-0.9	65.4	1.0	64.0	1.0	-1.3	35.9	1.0	36.4	1.0	0.5	7.8	0.6	8.8	0.6	*0.9
Not a citizen	23,553	23,524	73.8	1.0	71.4	1.0	*-2.3	50.5	1.1	48.4	1.1	*-2.1	26.3	1.0	26.2	1.0	-0.1	26.2	1.0	28.6	1.0	*2.3

2. *What are the trends among Hispanic Millennials in terms of* ***healthcare service****s. Are their hospital, clinic, and physician choices different than those of other cultural groups?*

Hispanic Americans may have a preference for health care providers who speak Spanish and offer services in their community.

The Commonwealth Fund reported that disparities in healthcare such as the low rate of cervical cancer screenings among Hispanic women could be addressed with "promotores de salud" or community health workers who speak Spanish and understand the culture of the surrounding patients. This implies that Hispanics may have a preference for physicians and other health providers with whom they can communicate and who can address their needs (Hostetter, 2018).

In fact, a newsletter from the National Latina Institute for Reproductive Health revealed that "[i]n many states, a Title X funded health center is one of the few places a person of any immigration status can access reproductive health care and preventive health care services in a linguistically-appropriate manner." Title X is a federally funded program for family planning services.

3. *What are Hispanic Millennial trends in terms of* ***healthcare utilization****? Are they using more services when they have coverage? Are they expected to be more chronically ill than previous generations?*

Millennials

From *The TransAmerica Center for Health Studies* report published in 2019. **How do Millennials use healthcare?**

A. **Millennials are less likely than other cohorts to visit the doctor.** Millennial respondents are most likely (32% vs. 27% of Gen X and 19% of Boomers) to report zero visits to the doctor's office in the past twelve months.

B. **However, Millennials are more likely than older generations to have one or more mental health visits** (20% vs. 11% of Gen X and 7% of Boomers), chiropractor/massage therapy visits (19% vs. 12% of Gen X and 9% of Boomers), and acupuncture visits (13% vs. 3% of Gen X and 2% of Boomers).

C. **Millennial satisfaction with the quality of healthcare systems has decreased since 2016.** Millennials (21% vs. 18% of Gen X and 13% of Boomersstating "not at all" or "not very satisfied") are the least satisfied with the quality of healthcare.

D. **Most Millennials consider preventive healthcare and self-care their most important health-related priorities.** More than half of Millennials (55%) say their current, most important health-related priority is "staying healthy and covering basic preventive healthcare expenses."

Hispanics and Hispanic Millennials

E. 50% of Hispanic Millennials surveyed agreed to the statement "I don't need to get check-ups or see a doctor unless it's absolutely necessary" (vs. 29% of all Hispanics 35-64 and 44% of non-Hispanic Millennials). This was according to research conducted by marketing firms Sensis and ThinkNow. This survey has not been throughly reviewed, so consider it suggestive rather than absolute.

F. The Commonwealth Fund suggests that barriers to accessing healthcare among Hispanic American populations may include "the lack of trust in the health care system bred both by immigration challenges and the underrepresentation of Hispanics in health care professions" (Hostetter, 2018).

Chronic Diseases Among the Hispanic Population

G. U.S. **Hispanics live longer and have a 24% lower death rate** from many of the ten leading causes of death that afflict whites (Hispanic Health/Vital Signs, 2015).

H. But there are two exceptions to the above. Hispanics are more likely to die from diabetes or liver disease than whites.

I. The following is from VitalSigns, published by the CDC in 2015.

Hispanics have different degrees of illness and health risks than whites.

- 35% less heart disease and 49% less cancer;
- A lower death rate overall, but about a 50% higher death rate from diabetes;
- 24% more poorly controlled high blood pressure;
- 23% more obesity;
- 28% less colorectal screening.

Whether Hispanics were born in the US makes a difference.

- Cancers related to infections (cervical, stomach, and liver) are more common among Hispanics born in another country.
- Compared with US-born Hispanics, foreign-born Hispanics have:
    - About half as much heart disease;
    - 48% less cancer;
    - 29% less high blood pressure;
    - 45% more high total cholesterol.

Source: https://www.cdc.gov/vitalsigns/hispanic-health/index.html

4. *In the 2016 PwC US-Based Hispanic Consumer study, it says: "Hispanic's* ***spending power*** *continues to multiply." Are there any data or forecasts that show specific areas of financial growth for this group and why? (Example: job growth?) And, in particular, are there data that show Millennials having greater spending power than other groups?*

Millennials

"The median adjusted income in a household headed by a Millennial was $69,000 in 2017. That is a higher figure than for nearly every other year on record, apart from around 2000, when households headed by people ages 22 to 37 earned about the same amount – $67,600 in inflation-adjusted dollars."

Source: Richard Fry. Millennial households earn more than young adult households did in the past | Pew Research Center. https://www.pewresearch.org/fact-tank/2018/12/11/young-adult-households-are-earning-more-than-most-older-americans-did-at-the-same-age/

<u>Hispanics</u>

Although 50% of Hispanics are in "traditionally low-income" jobs (retail, hospitality, food, construction, and agriculture) there are some trends that indicate that their spending power will multiply. This includes the following:

A. **Workforce:** "Hispanics currently make up 16 percent of the overall U.S. labor market and will account for one out of every two new workers entering the workforce by 2025 and 66,000 are turning 18 every month" (SHRM).

B. **Education and Better-Paying Jobs:** "Hispanics are enrolling in college in record numbers, on par with rates of white students and outpacing the rates of enrollment for black students."

> "While general college attendance has increased among the nation's high school graduates as a whole, it has risen the most—by 20 percentage points—among Hispanic high school graduates. In fact, in the Class of 2012, Hispanic high school graduates (69 percent) were more likely to be enrolled in college in October 2012 than either white (67 percent) or black (63percent) students" (SHRM).

C. **Buying Power:** According to The New American Economy, a bipartisan group founded by Michael Bloomberg, "Hispanics have an estimated after-tax income of nearly $690 billion. In states with large Latino populations, such as Texas and California, more than one of every five consumer dollars available is due to the spending power of Hispanic households" (qtd. Joint Economic Committee, 2019).

5. *Can you provide recent data showing the states/DMAs with the most prominent growing Hispanic populations correlated with the strongest and/or increasing purchasing power and/or acculturation?*

The following chart from the *Ad Age Data Center Hispanic Fact Pack 2018* shows sizeable discretionary spending by DMA in 2017.

Discretionary spending in 2017

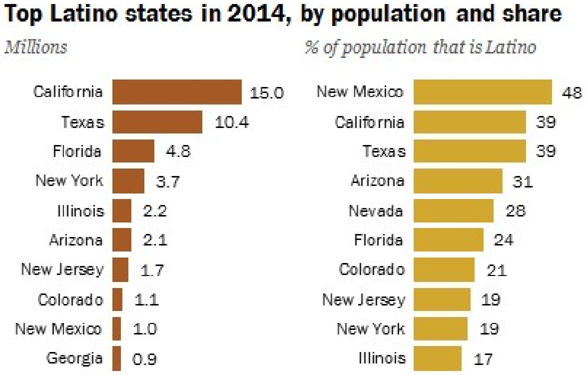
Dollars in billions by region and designated market area.

Region	Hispanic total discretionary spending	Hispanic percent of total	Total spending in region or DMA	Non-Hispanic spending
Northeast	**$26.3**	6.6%	$399.0	$372.7
Midwest	**17.6**	4.3	406.8	389.1
South	**84.0**	12.1	695.7	611.7
West	**78.9**	15.6	507.0	428.1
Designated market area				
Boston	**2.0**	2.8	71.0	69.0
Chicago	**5.1**	8.4	61.1	56.0
Dallas	**7.2**	15.9	45.0	37.8
Houston	**10.1**	25.0	40.5	30.4
Los Angeles	**35.9**	27.0	132.9	97.1
Miami	**15.4**	45.4	34.0	18.6
New York	**18.8**	12.4	152.1	133.3
Philadelphia	**1.7**	3.0	56.8	55.1
San Antonio	**13.3**	39.1	34.1	20.8
San Francisco	**9.2**	11.2	82.2	73.0
Washington	**4.0**	7.0	56.3	52.3
Total U.S.	**$206.9**	**10.3%**	**$2,008.5**	**$1,801.6**

Source: Simmons Research (simmonsresearch.com). Data based on Simmons National Hispanic Consumer Study, Winter 2018, for the dates of Jan. 24, 2017, through March 9, 2018. Table shows amount and proportion of nation's total discretionary spending contributed by Hispanics and their household by region and market, 2017. Discretionary purchases include household spending on items such as tobacco, alcohol, education, reading, personal care, apparel, dining out, donations, household furniture and numerous forms of entertainment.

With additional time, the Hispanic population of these DMAs could be extracted from Census.gov and indexed to spending. To get some idea of Hispanic population by state, see the chart below from the Pew Research Center.

Top Latino states in 2014, by population and share



Note: Charts show the top 10 states for the number of Latinos and the share of the population that is Latino.

Source: Pew Research Center tabulations of the 2014 American Community Survey (IPUMS) "U.S. Latino Population Growth and Dispersion Has Slowed Since Onset of the Great Recession"

PEW RESEARCH CENTER

6. *Why are Hispanics and Asians in particular not eligible for* ***financial assistance*** *under the ACA in higher numbers than Whites, Blacks, and American Indian populations? How much of this is related to lack of citizenship/residency vs. other reasons?*

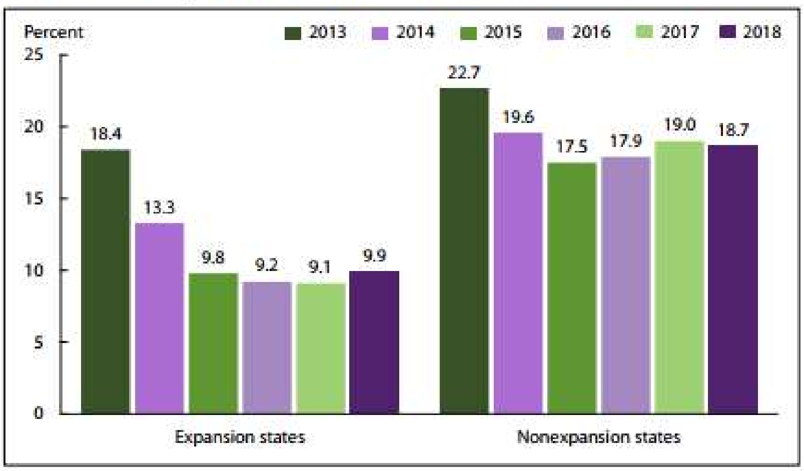
There may be three main reasons why Hispanics may not be eligible for financial assistance under the Affordable Care Act.

1. They may be ineligible because of their citizenship status. Only U.S. citizens and noncitizens with special status can purchase insurance on the exchange. See Table 5 for the rate of uninsured among noncitizens (28.6%, the highest of any demographic characteristic provided)

2. They may not file tax returns and therefore are ineligible.

3. They may reside in a non-Medicaid expansion state. See the chart below for almost double the rate of uninsured in non-expansion states (National Center for Health Statistics; Cohen, Robin A, and Emily Terlizzi, Micheal Martinez, 2019).

Figure 9. Percentage of adults aged 18–64 who were uninsured at the time of interview, by year and state Medicaid expansion status: United States, 2013–2018



NOTES: For 2013 and 2014, there were 26 Medicaid expansion states. For 2015, there were 29 Medicaid expansion states. For 2016–2018, there were 32 Medicaid expansion states. Data are based on household interviews of a sample of the civilian noninstitutionalized population.
SOURCE: NCHS, National Health Interview Survey, 2013–2018, Family Core component.

7. *Is there any research regarding* ***healthcare brand loyalty*** *among U.S. Hispanics/Multicultural Hispanics and resulting business outcomes?*

No publicly-available source was found on this topic. There is general information that Hispanic Millennials may follow in the footsteps of parents and other family members in choosing providers.

8. *Are there any other interesting **Census** figures related to Hispanics vs. Millennial Hispanics and health insurance or healthcare?*

To see other trends or correlations would require downloading custom tables and running some cross tabs. There is also a lot of parsing on Hispanic whites vs. other Hispanics, U.S. born vs. non-U.S. born, and countries of origin, specifically Mexico. Unfortunately, time did not permit this type of exploration and is beyond the scope of this report. However, see question #10 for more information on HHI and health insurance coverage.

Of significance, too, are the numbers of U.S. Hispanics having access to healthcare insurance. The majority of Americans receive their health insurance through employers. Low income, blue-collar jobs are often ones in which employers do not offer health insurance.

9. *Is there a correlation between Hispanic Millennial healthcare coverage and household income?*

There appears to be a correlation between household income and healthcare coverage.

"In 2018, people in households with lower income had lower health insurance coverage rates than people in households with higher income.

"For example, 86.2 percent of people in households with an annual income of less than $25,000 had health insurance coverage, compared with 96.8 percent of people in households with income of $150,000 or more" (Berchick, 2019). See Table 4 below.

Table 4. Health Insurance Coverage in the United States: 2018.

Table 4.

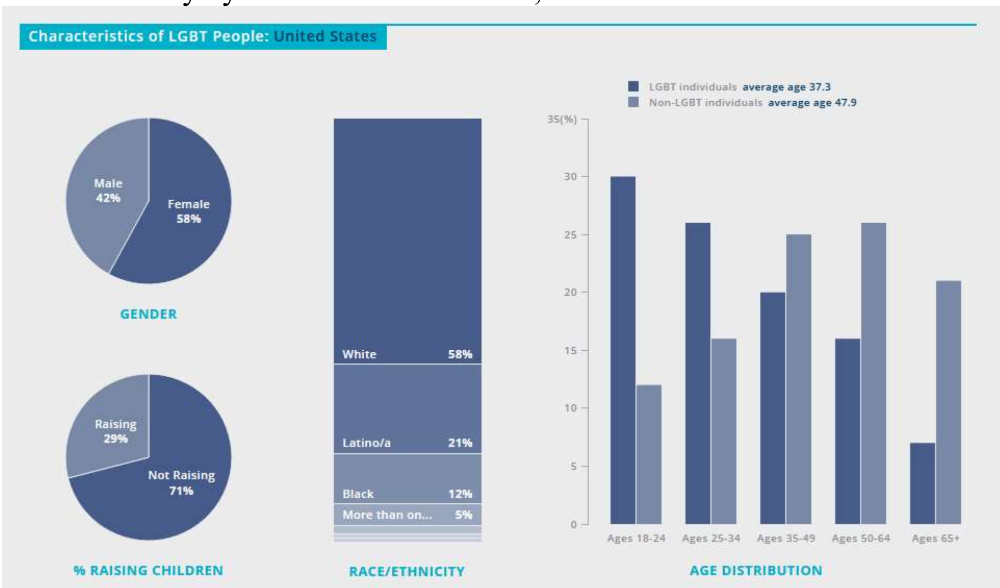
Percentage of People by Type of Health Insurance Coverage by Household Income and Income-to-Poverty Ratio: 2017 and 2018

(Numbers in thousands. Margins of error in percentage points. Population as of March of the following year. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see <https://www2.census.gov/programs-surveys/cps/techdocs/cpsmar19.pdf>)

Characteristic	Total																					
	2017	2018	Any health insurance															Uninsured[5]				
			2017		2018		Change (2018 less 2017)[1,*]	Private health insurance[3]					Public health insurance[4]					2017		2018		Change (2018 less 2017)[1,*]
								2017		2018		Change (2018 less 2017)[1,*]	2017		2018		Change (2018 less 2017)[1,*]					
	Number	Number	Per-cent	Margin of error[2] (±)	Per-cent	Margin of error[2] (±)		Per-cent	Margin of error[2] (±)	Per-cent	Margin of error[2] (±)		Per-cent	Margin of error[2] (±)	Per-cent	Margin of error[2] (±)		Per-cent	Margin of error[2] (±)	Per-cent	Margin of error[2] (±)	
Total	**322,490**	**323,668**	**92.1**	**0.2**	**91.5**	**0.2**	***-0.5**	**67.7**	**0.3**	**67.3**	**0.4**	**-0.4**	**34.8**	**0.3**	**34.4**	**0.3**	***-0.4**	**7.9**	**0.2**	**8.5**	**0.2**	***0.5**
Household Income																						
Less than $25,000	45,388	43,320	86.7	0.6	86.2	0.6	-0.5	26.2	0.7	24.7	0.8	*-1.5	70.8	0.8	71.2	0.7	0.4	13.3	0.6	13.8	0.6	0.5
$25,000 to $49,999	61,072	59,133	87.8	0.5	87.7	0.5	-0.1	47.9	0.8	47.9	0.8	Z	53.8	0.7	53.4	0.8	-0.4	12.2	0.5	12.3	0.5	0.1
$50,000 to $74,999	53,665	55,304	90.3	0.5	89.3	0.5	*-1.1	67.2	0.8	65.9	0.8	*-1.2	34.6	0.7	35.9	0.8	*1.3	9.7	0.5	10.7	0.5	*1.1
$75,000 to $99,999	43,645	44,539	93.4	0.5	92.9	0.5	-0.5	79.0	0.8	78.5	0.8	-0.5	25.1	0.8	24.5	0.8	-0.6	6.6	0.5	7.1	0.5	0.5
$100,000 to $124,999	32,895	34,142	95.1	0.5	94.4	0.5	*-0.7	85.2	0.8	84.2	0.8	-1.0	19.0	0.8	19.0	0.8	-0.1	4.9	0.5	5.6	0.5	*0.7
$125,000 to $149,999	22,674	23,291	96.4	0.5	95.1	0.6	*-1.3	88.9	0.8	86.9	0.9	*-1.9	15.6	0.9	16.0	0.8	0.4	3.6	0.5	4.9	0.6	*1.3
$150,000 or more	63,151	63,939	97.4	0.2	96.8	0.3	*-0.6	92.4	0.4	91.2	0.4	*-1.2	12.4	0.5	12.4	0.5	Z	2.6	0.2	3.2	0.3	*0.6
Income-to-Poverty																						

10. *Are there* a*ny specific insights regarding **LGBTQ** Hispanics (size of market, response to culturally authentic marketers?)and/or LGBTQ millennial Hispanics?*

A. The second largest racial group within the U.S. LGBTQ community is Latino, 21% according to a 2019 study by The Williams Institute, UCLA School of Law. Whites make up 58%.



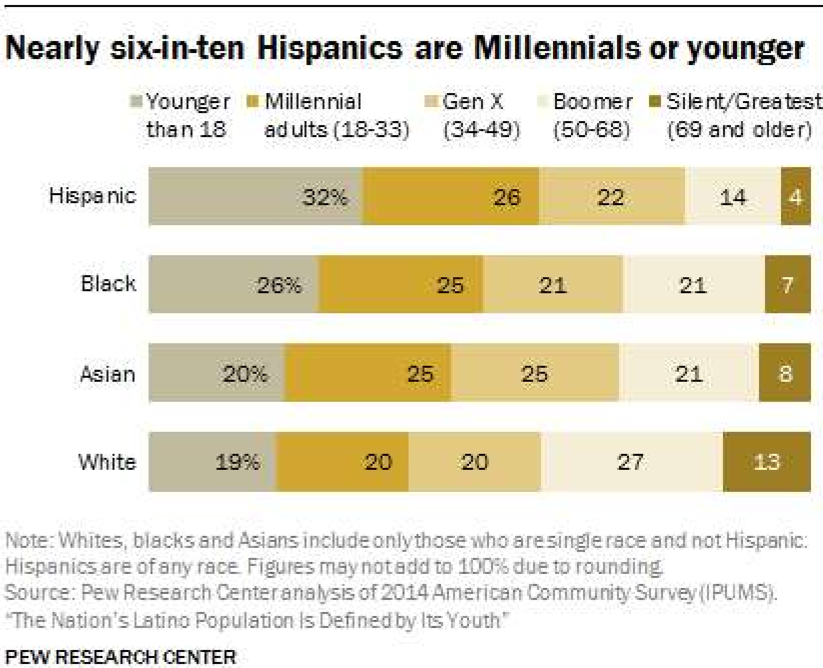
Source: The Williams Institute, UCLA School of Law, LGBT Data & Demographics – The Williams Institute. January 2019. California. Retrieved February 20, 2020, from https://williamsinstitute.law.ucla.edu/visualization/lgbt-stats/?topic=LGBT#demographic

B. In a Gallup Poll, 6.1% of Hispanics identified as LGBT in 2017, an increase of about 42% since 2012 (Newport, 2018) . (See Appendix C)

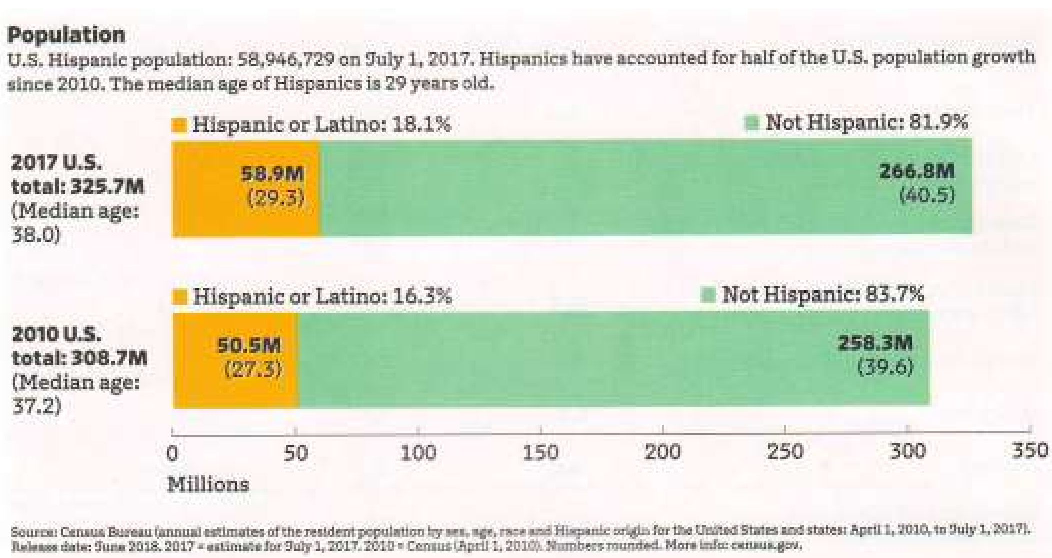
C. In 2017, 8.2% of American Millennials (Described by Gallup as having birth years between 1980-1999) identified as LGBT. (See Appendix C)

D. LGBTQ representation may appear more common among lower income groups due to lower earning power. Lower income groups experience a higher incidence of some conditions and diseases while being excluded from subsidized insurance in non-Medicaid expansion states.

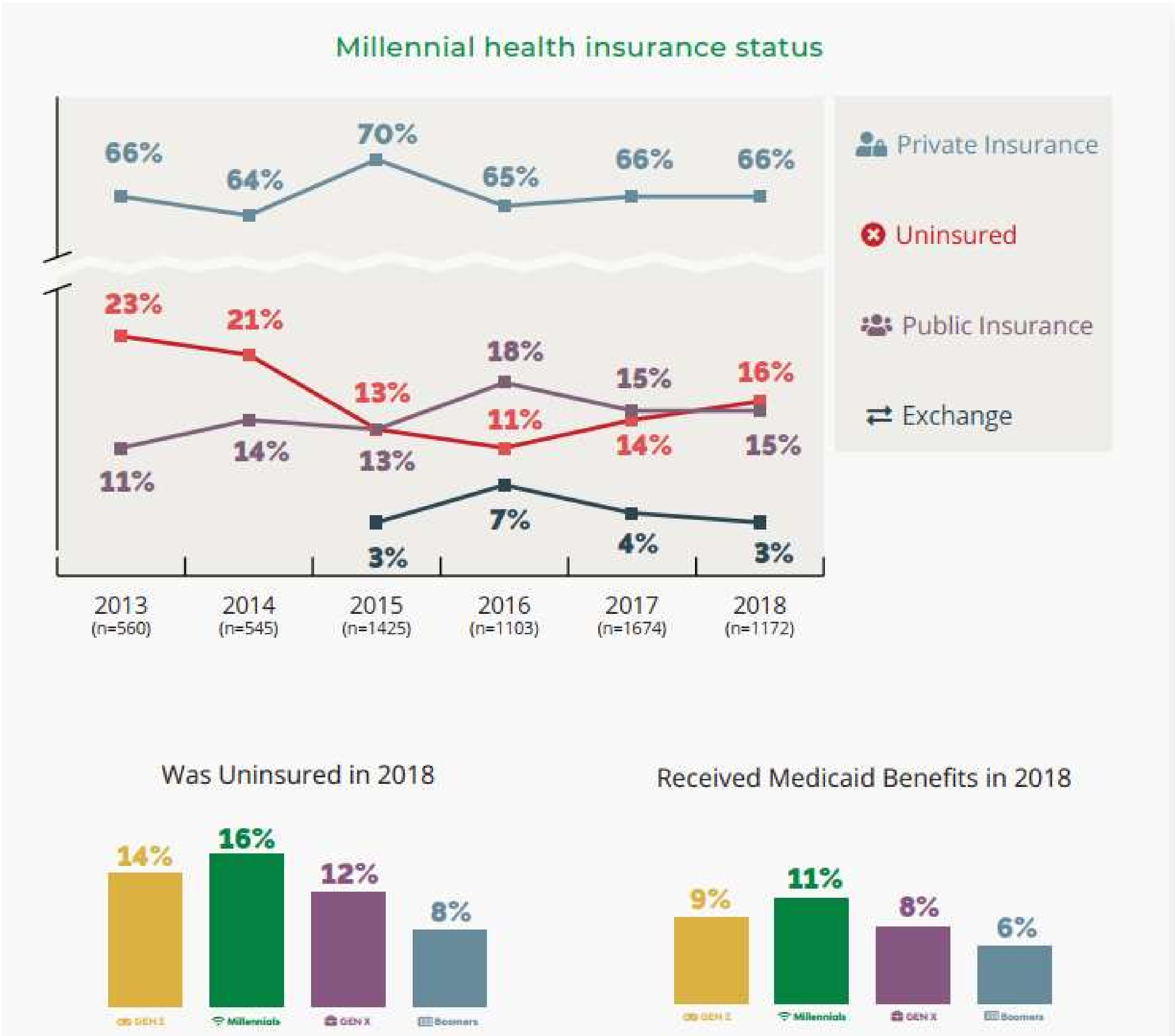
APPENDIX A – MILLENNIAL AND HISPANIC POPULATIONS AND GROWTH



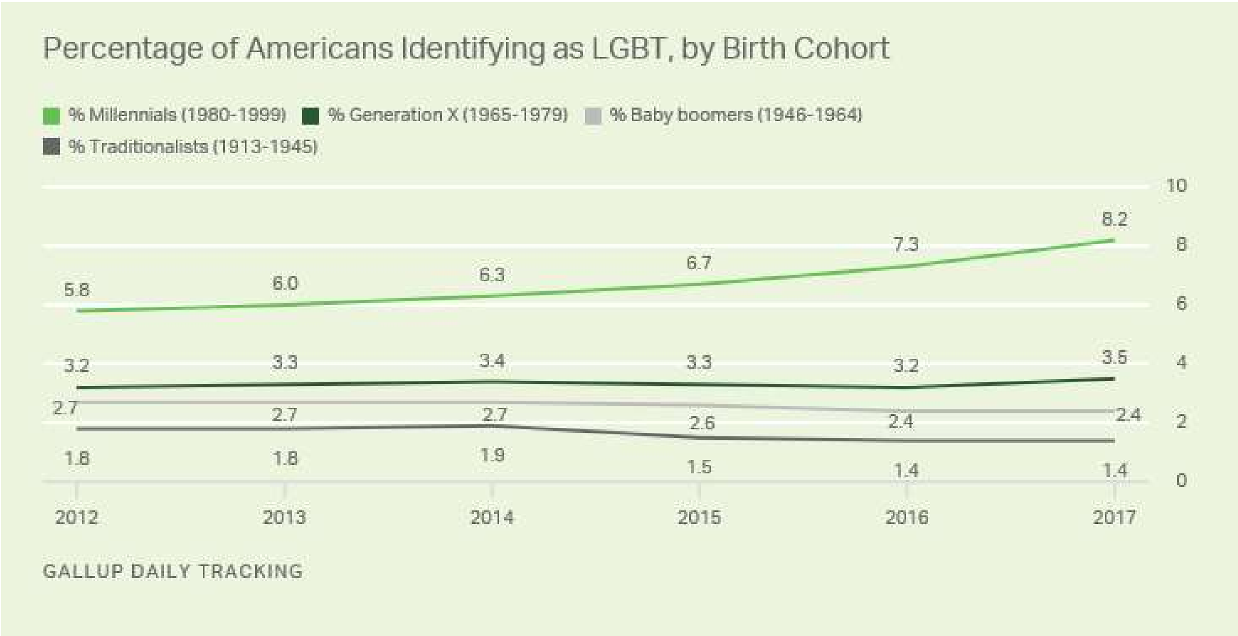
URL: https://www.pewresearch.org/hispanic/2016/04/20/the-nations-latino-population-is-defined-by-its-youth/



APPENDIX B – MILLENNIAL HEALTH INSURANCE TRENDS, TRANSAMERICA CENTER FOR HEALTH STUDIES, *MILLENNIALS: DIGITAL NATIVES DISRUPTING HEALTHCARE*



APPENDIX C – RACIAL AND GENERATIONAL MAKE-UP OF LGBTQ COMMUNITY



Percentage of U.S. Adults Identifying as LGBT by Gender and Race/Ethnicity, 2012-2017

	2012	2013	2014	2015	2016	2017
	%	%	%	%	%	%
Gender						
Male	3.4	3.5	3.6	3.7	3.7	3.9
Female	3.5	3.6	3.9	4.1	4.4	5.1
Race/Ethnicity						
White, non-Hispanic	3.2	3.3	3.4	3.5	3.6	4.0
Black, non-Hispanic	4.4	4.0	4.6	4.5	4.6	5.0
Hispanic	4.3	4.7	4.9	5.1	5.4	6.1
Asian, non-Hispanic	3.5	3.3	4.2	4.9	4.9	4.9

Table 5. Health Insurance Coverage in the United States: 2018, U.S. Census

Characteristic	Total																					
	2017	2018	Any health insurance																Uninsured[5]				
			2017		2018		Change	Private health insurance[3]					Public health insurance[4]								
								2017		2018		Change	2017		2018		Change	2017		2018		Change
	Number	Number	Percent	Margin of error[2] (±)	Percent	Margin of error[2] (±)	(2018 less 2017)[1,*]	Percent	Margin of error[2] (±)	Percent	Margin of error[2] (±)	(2018 less 2017)[1,*]	Percent	Margin of error[2] (±)	Percent	Margin of error[2] (±)	(2018 less 2017)[1,*]	Percent	Margin of error[2] (±)	Percent	Margin of error[2] (±)	(2018 less 2017)[1,*]
Total	322,490	323,668	92.1	0.2	91.5	0.2	*-0.5	67.7	0.3	67.3	0.4	-0.4	34.8	0.3	34.4	0.3	*-0.4	7.9	0.2	8.5	0.2	*0.5
Family Status																						
In families	260,958	261,336	92.7	0.2	92.1	0.2	*-0.5	69.0	0.4	68.7	0.4	-0.3	33.3	0.3	32.9	0.4	*-0.4	7.3	0.2	7.9	0.2	*0.5
Householder	83,539	83,508	92.7	0.2	92.4	0.3	*-0.3	72.2	0.4	72.0	0.4	-0.2	34.6	0.4	34.4	0.4	-0.2	7.3	0.2	7.6	0.3	*0.3
Related children under age 18	71,971	71,750	95.2	0.3	94.7	0.3	*-0.4	61.8	0.6	62.0	0.7	0.2	36.8	0.6	35.6	0.7	*-1.2	4.8	0.3	5.3	0.3	*0.4
Related children under age 6	22,922	22,720	95.5	0.4	94.8	0.5	*-0.7	59.0	1.0	59.7	1.0	0.7	40.2	1.0	38.0	1.0	*-2.1	4.5	0.4	5.2	0.5	*0.7
In unrelated subfamilies	1,113	1,069	88.3	2.6	86.9	3.4	-1.4	53.1	4.9	50.0	5.1	-3.1	41.5	5.2	42.4	4.6	0.8	11.7	2.6	13.1	3.4	1.4
Unrelated individuals	60,419	61,264	89.6	0.4	88.9	0.4	*-0.6	62.4	0.7	61.5	0.6	-0.8	40.9	0.6	40.6	0.5	-0.3	10.4	0.4	11.1	0.4	*0.6
Residence																						
Inside metropolitan statistical areas	279,458	281,369	92.1	0.2	91.6	0.2	*-0.5	68.4	0.4	68.1	0.4	-0.3	33.6	0.3	33.2	0.4	-0.4	7.9	0.2	8.4	0.2	*0.5
Inside principal cities	103,823	104,716	90.4	0.4	90.4	0.4	Z	62.9	0.7	63.4	0.7	0.5	35.7	0.6	35.3	0.6	-0.5	9.6	0.4	9.6	0.4	Z
Outside principal cities	175,635	176,653	93.1	0.2	92.3	0.2	*-0.7	71.6	0.5	70.9	0.5	*-0.8	32.3	0.4	32.0	0.5	-0.3	6.9	0.2	7.7	0.2	*0.7
Outside metropolitan statistical areas[6]	43,032	42,300	91.9	0.5	90.9	0.7	*-1.0	62.9	1.1	62.0	1.3	-0.8	42.6	1.2	42.4	1.2	-0.2	8.1	0.5	9.1	0.7	*1.0
Race[7] and Hispanic Origin																						
White	247,193	247,472	92.3	0.2	91.8	0.2	*-0.6	69.9	0.4	69.3	0.4	*-0.5	34.1	0.3	33.8	0.3	-0.3	7.7	0.2	8.2	0.2	*0.6
White, not Hispanic	195,183	194,679	94.8	0.2	94.6	0.2	-0.2	75.1	0.4	74.8	0.4	-0.3	33.3	0.3	33.2	0.3	-0.1	5.2	0.2	5.4	0.2	0.2
Black	42,461	42,758	90.7	0.5	90.3	0.5	-0.4	55.5	1.0	55.4	1.1	-0.1	41.9	0.9	41.2	0.9	-0.7	9.3	0.5	9.7	0.5	0.4
Asian	19,498	19,770	93.6	0.7	93.2	0.6	-0.5	72.4	1.4	73.1	1.3	0.7	26.6	1.2	26.1	1.1	-0.5	6.4	0.7	6.8	0.6	0.5
Hispanic (any race)	59,033	59,925	83.8	0.6	82.2	0.6	*-1.6	50.7	0.9	49.6	1.0	*-1.1	37.5	0.7	36.5	0.8	*-1.0	16.2	0.6	17.8	0.6	*1.6
Nativity																						
Native-born	277,057	277,848	93.6	0.2	93.2	0.2	*-0.4	69.3	0.4	69.1	0.4	-0.2	35.4	0.3	34.9	0.3	*-0.5	6.4	0.2	6.8	0.2	*0.4
Foreign-born	45,433	45,820	82.6	0.6	81.1	0.6	*-1.6	57.7	0.8	56.0	0.9	*-1.6	30.9	0.8	31.2	0.7	0.2	17.4	0.6	18.9	0.6	*1.6
Naturalized citizen	21,880	22,296	92.2	0.6	91.2	0.6	*-0.9	65.4	1.0	64.0	1.0	-1.3	35.9	1.0	36.4	1.0	0.5	7.8	0.6	8.8	0.6	*0.9
Not a citizen	23,553	23,524	73.8	1.0	71.4	1.0	*-2.3	50.5	1.1	48.4	1.1	*-2.1	26.3	1.0	26.2	1.0	-0.1	26.2	1.0	28.6	1.0	*2.3

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Top-Line Report for Bundled Orthopedic Surgical Procedures and Health Care Coverage in the U.S.

Date: June 15, 2019

INTRODUCTION

The following is a summary of select data about the health care market as requested in the "Information Needed" brief on health insurance coverage and orthopedic procedures. Whenever an exact match between the data and the questions could not be gleaned from publicly available sources, a near approximation was provided. Additionally, some previously accessible government data may have been removed from public view, including the *Annual Report to Congress on Self-Insured Group Plans from the Department of Labor*, which could not be retrieved.

There is an overwhelming amount of data available on health insurance coverage and health care delivery in the U.S. Large databases are often parsed by hundreds of CPT and ICD-10 codes as well as by other variables. To access, sort, crosstab, calculate frequency, and provide projections would require statistical software not in use for this report.

Because the health care sector is complex and ever-changing, data aggregated from government or private institutions are not always comparable, as the year and type of data collected may be at odds. Often, numbers from government sources are provided as percentages (raw numbers not given) and may be inconsistent even when extracted from the same source. These numbers, particularly across different documents and agencies, may vary in their inclusion of groups, in their definition or description, and in their calculation. They may also include estimates or may have large margins of error. This report has attempted to present these numbers in as accurate a way as possible.

Therefore, the numbers recorded here should be viewed as indicators of the size or amount of the categories being described rather than as absolute quantities. Moreover, there is much more information out there than has been used or represented by this short report. A continued search for data may result in a truer picture of the current state of health care coverage in the U.S.

KEY FACTS

- About Self-Insured Companies

How many companies in the U.S. are self-insured for orthopedic surgeries (knee replacement, spinal fusions, hip replacements, etc.)?

In 2017, 39.2 percent of private sector companies self-insured at least one health plan for their employees (Statista.com, https://www.statista.com/statistics/664641/share-of-self-insured-private-sector-firms-usa/).

How many employees are covered by this type of self-insurance plan?

61% of workers are covered by a partially or fully-funded self-insured employer plan (Henry J. Kaiser Family Foundation (KFF), 2018).

How many people are covered by an employer self-insurance plan?

According to an article on collectivehealth.com, 108 million people are covered by a self-insured employer plan. (https://blog.collectivehealth.com/employer-driven-healthcare-270bfb7ee8c7) Source not validated.

Can we get a breakdown of the number of self-insured employees by state?

A list of self-insured employers by state is available from CMS from 2010 (unsorted) here: https://www.cms.gov/CCIIO/Resources/Files/Downloads/Employer_01062012.pdf. In addition, many states make this information available to the public. As an example, a partial list is provided in Appendix B.

- Health Insurance Overall

How many employees have health-insurance in the U.S.?

In 2017, 91.2% of all people in the U.S. had health insurance coverage. 56% of the insured had employer-based insurance. (Berchick, 2018).

Below are numbers from various government agencies as noted and from the Kaiser Family Foundation. Total population of U.S. in 2017 was estimated at 323,156,000 (insured plus uninsured) for the purpose of the *Health Insurance Coverage* report from the U.S. Census Bureau. (See Appendix A)

Description Year 2017	# (000)	%	Source
Number of people in U.S. with health insurance	294,613	91.2% U.S.	(Berchick, 2018, p. 4) U.S. Census 2017
Number of **people** in U.S. with employer-based health insurance[1]	181,036 156,300	56.0%	(Berchick, 2018, p. 4) U.S. Census 2017 KFF (Rae, 2019)
Number of **people** in U.S. with private health insurance[2]	217,007	67.2%	(Berchick, 2018, pp. 4, Table 1) U.S. Census 2017
Number of **workers** in (U.S.)[3]	150,487		(Berchick, 2018, pp. 27, Table A-2)
Number of **workers** with employer-based insurance (U.S.)[4]	72,170 (Low?)		(U.S. Bureau of Labor Statistics, 2018)

[1]May include family members and those who have more than one type of insurance.
[2]The CPS ASEC defines private health insurance as a plan provided through an employer or a union and as coverage purchased directly by an individual from an insurance company or through an exchange. Government insurance coverage includes federal programs, such as Medicare, Medicaid, the Children's Health Insurance Program (CHIP), individual state health plans, TRICARE, CHAMPVA (Civilian Health and Medical Program of the Department of Veterans Affairs), as well as care provided by the Department of Veterans Affairs and the military.
[3]All workers aged 19 to 64, full-time, part-time, any.
[4]Accuracy of number in question.

How many employees have health-insurance paid for all or in part by their employer?

—This question requires further research—

72.17 Million Employees (U.S. Bureau of Labor Statistics, 2018, p. Table A) by calculation:
72% of 137,310,900 x 73%

"Employees are defined as those employed in private industry and state and local government. Excluded from the civilian economy are workers employed in federal and quasi-federal agencies, military personnel, agricultural workers, volunteers, unpaid workers, individuals receiving long-term disability compensation, and those working overseas. In addition, private industry excludes workers in private households, the self-employed, workers who set their own pay (e.g., proprietors, owners, major stockholders, and partners in unincorporated firms)" (U.S. Bureau of Labor Statistics, 2018).

How many people pay for their own health insurance?

51,821,000 or 16% of total insured and uninsured (Berchick, 2018, pp. 4, Table 1) *Health Insurance Coverage in the United States: 2017*

- Health Insurance Companies

What percentage of the hospital billable rate is paid by insurance company on average?

—This question requires further research— (5% +, Average NA)

Medical bills vary widely from hospital to hospital, even within the same city. Because bills are not standardized, the amount an insurance company will pay as a percentage of that bill will be negotiated and differ from hospital to hospital.

According to the New York Times, a 2013 government study found that hospitals charged 10 to 20 times what Medicare would reimburse them. https://www.nytimes.com/2013/05/08/business/hospital-billing-varies-wildly-us-data-shows.html

- Surgeries

Orthopedic surgeries: How many of the following types of surgeries are done in the U.S. in a year?

National Estimates of Musculoskeletal Procedures *(More research needed)*			
Procedure	**2011 Hospital Discharges U.S.* (HCUP)**	**2014**(AAOS)**	**Other**
Total Knee Replacement	645,062	680,150	
Knee Arthroscopy			
Total Hip Replacement	306,600	370,770	
Partial Hip Replacement	105,509		
Total Shoulder Replacement	29,414		
Partial Shoulder Replacement	15,860		
Spinal Fusion	465,070		
ACL ~~and MCL~~ Replacement/Repair			129,836 (43.5 per 100,000 in 2006 (Mall, 2014) 68.6 per 100,000, 1990-2010 (Sanders, 2016)
*DATA SOURCE: HCUP Nationwide Inpatient Sample, 2011; Agency for			

Healthcare Research and Quality. Website Citation: *Department of Research & Scientific Affairs, American Academy of Orthopaedic Surgeons. Annual Incidence of Common Musculoskeletal Procedures and Treatment. http://www.aaos.org/research/stats/CommonProceduresTreatments-March2014.pdf . Published March 2014* **American Academy of Orthopedic Surgeons 2018 Annual Meeting Media Release, *https://aaos.new-media-release.com/2018_ annual_meeting_pf /clinicals/Sloan_TJR.pdf]*.	

How many of those same surgeries are done in each state?

Through HCUP, you may be able to find this information in their statistical databases for Arizona, Colorado, Florida, Kentucky, Maryland, North Carolina, Utah, and Wisconsin or through state agencies. This would take far longer to extract than is within the scope of this project.

For those same surgeries, how common are they in the overall population?

Each can be extrapolated based using the table above for number of procedures and the table below, procedures by age. Note data is from 2005.

Exhibit 3.6. Orthopedic Procedures

CCS Procedure Category and Name (All-listed Procedures)		Age Group						
		All ages†	<1	1-17	18-44	45-64	65-84	85+
Total all musculoskeletal procedures		3,399,600	7,200	198,400	596,200	1,114,000	1,225,500	251,300
142	Partial excision of bone	208,900	400	15,100	49,800	84,900	53,800	4,600
146	Treatment of fracture or dislocation of hip and femur	313,700	800	25,200	29,300	43,300	127,400	86,900
147	Treatment of fracture or dislocation of lower extremity (leg, other than hip or femur)	222,500	100	18,600	79,900	76,200	40,500	6,200
152	Arthroplasty knee (surgical reconstruction or replacement of knee)	555,800	*	2,800	18,300	207,800	309,700	16,400
153	Hip replacement, total and partial	383,500	*	300	17,900	108,900	199,700	56,100
157	Amputation of lower extremity (leg, foot, or toe)	124,500	100	1,000	11,000	46,700	54,000	11,700
158	Spinal fusion (correction of an unstable part of the spine by joining two or more vertebrae)	349,200	21	13,900	95,900	162,300	74,900	2,300
145	Treatment of fracture or dislocation of radius and ulna (lower arm)	80,800	*	13,400	22,000	18,900	19,500	6,600
Percent of all musculoskeletal all-listed procedures by age group								
Total all musculoskeletal procedures		100.0	100.0	100.0	100.0	100.0	100.0	100.0
142	Partial excision of bone	6.1	6.0	7.6	8.3	7.6	4.4	1.8
146	Treatment of fracture or dislocation of hip and femur	9.2	11.3	12.7	4.9	3.9	10.4	34.6
147	Treatment of fracture or dislocation of lower extremity (leg, other than hip or femur)	6.5	1.1	9.4	13.4	6.8	3.3	2.4
152	Arthroplasty knee (surgical reconstruction or replacement of knee)	16.3	*	1.4	3.1	18.7	25.3	6.5
153	Hip replacement, total and partial	11.3	*	0.1	3.0	9.8	16.3	22.3
157	Amputation of lower extremity (leg, foot, or toe)	3.7	1.2	0.5	1.8	4.2	4.4	4.7
158	Spinal fusion (correction of an unstable part of the spine by joining two or more vertebrae)	10.3	0.3	7.0	16.1	14.6	6.1	0.9
145	Treatment of fracture or dislocation of radius and ulna (lower arm)	2.4	*	6.7	3.7	1.7	1.6	2.6
Standard errors								
Total all musculoskeletal procedures		99,097	1,121	23,958	26,050	38,548	40,028	7,204
142	Partial excision of bone	9,492	97	2,450	2,756	4,213	2,591	255
146	Treatment of fracture or dislocation of hip and femur	7,643	150	3,254	2,036	1,354	3,457	2,503
147	Treatment of fracture or dislocation of lower extremity (leg, other than hip or femur)	7,489	22	1,426	3,943	2,671	1,175	247
152	Arthroplasty knee (surgical reconstruction or replacement of knee)	22,263	*	386	809	8,524	13,210	757
153	Hip replacement, total and partial	14,233	*	67	983	5,055	7,425	1,743
157	Amputation of lower extremity (leg, foot, or toe)	3,510	24	156	581	1,563	1,646	419
158	Spinal fusion (correction of an unstable part of the spine by joining two or more vertebrae)	18,995	10	2,303	5,756	9,411	4,358	168
145	Treatment of fracture or dislocation of radius and ulna (lower arm)	2,851	*	946	1,365	860	649	256

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2005.
†Includes a small number of discharges (about 7,000 or 0.2 percent) with missing age.
*Statistic has a relative standard error (standard error/weighted estimate) greater than 0.30 and is not considered reliable.

"Musculoskeletal diseases affect more than one out of every two persons in the United States age 18 and over, and nearly three out of four age 65 and over. Trauma, back pain, and arthritis are the three most common musculoskeletal conditions reported, and for which health care visits to physicians' offices, emergency departments, and hospitals occur each year." (United States Bone and Joint Initiative, 2019)

COSTS: What is the average cost paid by insurance for these surgeries?
—This question requires further research—

By state, see healthcarebluebook.com. Prices may vary 300% or more from state to state and up to 400% within the state (Blue Cross Blue Shield, 2019). Prices also vary by CPT code, of which there are many.

Procedure	**In-Patient Average**	**Out-Patient Average**	**National Average**	**CMS**
Total Knee Replacement	$30,249 (Blue Cross Blue Shield, 2019)*	$19,002 (BCBS)	$35,000 (Statista 2018)	$7240/$10,713 CPT 27438
Knee arthroscopy				
Total Hip Replacement	$30,685 (BCBS)	$22,078 (BCBS)	$40,364 (Statista 2018)	
Partial Hip Replacement				
Total Shoulder Replacement			$10,351 (JHU 2007)	
Partial Shoulder Replacement				
Rotator Cuff Repair			$18,780 (Average Vermont as proxy)	
Spinal Fusion			$110,000 (Statista 2018)	
ACL and MCL Replacement/Repair				
*2017				

--More research is required--

SATISFACTION: *I'd like some information that show how unhappy most people are with health care in general. (As an example: 55% of people rate their experience with their doctor as poor or disappointing. This information may be available through the Health and Human Services website.)*

Gallup Research, Feb. 2018: (https://news.gallup.com/poll/226607/news-americans-satisfaction-healthcare.aspx)

Americans are largely positive about the quality of the healthcare they receive: Three-quarters of employed Americans (75%) said the healthcare they received was "excellent" or "good" in Gallup's last survey on the issue, in November 2017. There is little difference between U.S. workers and the overall public, among whom 77% rate their personal healthcare as "excellent" or "good."

Ratings of healthcare on a national level are substantially worse than personal: Gallup also asks Americans to rate aspects of overall healthcare in the U.S. More than half of U.S. workers (54%) and the same percentage of overall Americans rate the quality of the U.S. healthcare system as "excellent" or "good." On national healthcare costs, one in six (16%) American workers and one in five (20%) Americans in general say they are satisfied.

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Appendix A - Two Tables from *Health Insurance Coverage in the United States: 2017*

Table 1.

Coverage Numbers and Rates by Type of Health Insurance: 2013, 2016, and 2017

(Numbers in thousands, margins of error in thousands or percentage points as appropriate. Population as of March of the following year. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www2.census.gov/programs-surveys/cps/techdocs/cpsmar18.pdf*)

Coverage type	2013 Number	2013 Margin of error[1] (±)	2013 Rate	2013 Margin of error[1] (±)	2016 Number	2016 Margin of error[1] (±)	2016 Rate	2016 Margin of error[1] (±)	2017 Number	2017 Margin of error[1] (±)	2017 Rate	2017 Margin of error[1] (±)	Change in number 2017 less 2016	Change in number 2017 less 2013	Change in rate 2017 less 2016	Change in rate 2017 less 2013
Total	**313,401**	**109**	**X**	**X**	**320,372**	**96**	**X**	**X**	**323,156**	**123**	**X**	**X**	**X**	**X**	**X**	**X**
Any health plan	**271,606**	**636**	**86.7**	**0.2**	**292,320**	**541**	**91.2**	**0.2**	**294,613**	**662**	**91.2**	**0.2**	***2,293**	***23,007**	**–0.1**	***4.5**
Any private plan[2,3]	201,038	1,140	64.1	0.4	216,203	1,145	67.5	0.4	217,007	1,158	67.2	0.4	804	*15,969	–0.3	*3.0
Employment-based[2]	174,418	1,160	55.7	0.4	178,455	1,130	55.7	0.4	181,036	1,241	56.0	0.4	*2,582	*6,618	0.3	0.4
Direct-purchase[2]	35,755	615	11.4	0.2	51,961	874	16.2	0.3	51,821	1,008	16.0	0.3	–140	*16,066	–0.2	*4.6
Any government plan[2,4]	108,287	1,115	34.6	0.4	119,361	1,018	37.3	0.3	121,965	1,086	37.7	0.3	*2,604	*13,678	*0.5	*3.2
Medicare[2]	49,020	377	15.6	0.1	53,372	396	16.7	0.1	55,623	351	17.2	0.1	*2,251	*6,603	*0.6	*1.6
Medicaid[2]	54,919	969	17.5	0.3	62,303	931	19.4	0.3	62,492	1,007	19.3	0.3	188	*7,573	–0.1	*1.8
Military health care[2,5]	14,016	595	4.5	0.2	14,638	575	4.6	0.2	15,532	769	4.8	0.2	*893	*1,516	*0.2	*0.3
Uninsured[6]	41,795	614	13.3	0.2	28,052	519	8.8	0.2	28,543	634	8.8	0.2	492	*–13,252	0.1	*–4.5

X Not applicable.

* Changes between the estimates are statistically different from zero at the 90 percent confidence level.

[1] A margin of error (MOE) is a measure of an estimate's variability. The larger the MOE in relation to the size of the estimate, the less reliable the estimate. This number, when added to and subtracted from the estimate, forms the 90 percent confidence interval. MOEs shown in this table are based on standard errors calculated using replicate weights. For more information, see "Standard Errors and Their Use" at <www2.census.gov/library/publications/2018/demo/p60-264sa.pdf>.

[2] The estimates by type of coverage are not mutually exclusive; people can be covered by more than one type of health insurance during the year.

[3] Private health insurance includes coverage provided through an employer or union, coverage purchased directly by an individual from an insurance company, or coverage through someone outside the household.

[4] Government health insurance coverage includes Medicaid, Medicare, TRICARE, CHAMPVA (Civilian Health and Medical Program of the Department of Veterans Affairs), as well as care provided by the Department of Veterans Affairs and the military.

[5] Military health care includes TRICARE and CHAMPVA (Civilian Health and Medical Program of the Department of Veterans Affairs), as well as care provided by the Department of Veterans Affairs and the military.

[6] Individuals are considered to be uninsured if they do not have health insurance coverage for the entire calendar year.

Source: U.S. Census Bureau, Current Population Survey, 2014, 2017, and 2018 Annual Social and Economic Supplements.

Table A-2.

Number of People by Type of Health Insurance Coverage for Working-Age Adults Aged 19 to 64: 2016 and 2017

(Numbers in thousands, margins of error in thousands. Population as of March of the following year. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www2.census.gov/programs-surveys/cps/techdocs/cpsmar18.pdf*)

Characteristic	Total 2016 Number	Total 2017 Number	Any health insurance 2016 Number	Any health insurance 2016 Margin of error[2] (±)	Any health insurance 2017 Number	Any health insurance 2017 Margin of error[2] (±)	Any health insurance Change (2017 less 2016)[1,*]	Private health insurance[3] 2016 Number	Private 2016 Margin of error[2] (±)	Private 2017 Number	Private 2017 Margin of error[2] (±)	Private Change (2017 less 2016)[1,*]	Government health insurance[4] 2016 Number	Government 2016 Margin of error[2] (±)	Government 2017 Number	Government 2017 Margin of error[2] (±)	Government Change (2017 less 2016)[1,*]	Uninsured[5] 2016 Number	Uninsured 2016 Margin of error[2] (±)	Uninsured 2017 Number	Uninsured 2017 Margin of error[2] (±)	Uninsured Change (2017 less 2016)[1,*]
Total	**320,372**	**323,156**	**292,320**	**541**	**294,613**	**662**	***2,293**	**216,203**	**1,145**	**217,007**	**1,158**	**804**	**119,361**	**1,018**	**121,965**	**1,086**	***2,604**	**28,052**	**519**	**28,543**	**634**	**492**
Total, 19 to 64 years old	192,948	193,971	169,697	525	170,327	561	630	141,013	750	141,463	749	449	40,781	662	41,334	717	553	23,251	435	23,644	489	393
Marital Status																						
Married[6]	101,822	101,580	92,821	670	92,318	805	–503	81,594	666	80,988	773	–606	18,230	447	18,597	476	367	9,001	333	9,262	314	261
Widowed	3,633	3,586	3,127	158	3,107	162	–20	2,131	117	2,053	134	–79	1,218	101	1,290	99	71	506	61	479	62	–27
Divorced	19,460	19,510	16,753	363	16,858	380	105	12,503	317	12,753	338	250	5,223	212	5,136	203	–86	2,707	132	2,652	146	–55
Separated	4,495	4,372	3,632	169	3,486	161	–146	2,512	144	2,423	139	–89	1,394	96	1,309	90	–85	863	73	886	84	23
Never married	63,537	64,923	53,364	547	54,558	570	*1,195	42,272	552	43,246	517	*973	14,716	392	15,002	388	286	10,174	320	10,365	304	191
Disability Status[7]																						
With a disability	15,248	14,957	13,899	358	13,641	350	–258	6,633	231	6,702	240	70	8,933	287	8,639	300	–294	1,349	109	1,317	100	–32
With no disability	176,842	178,063	154,940	572	155,735	585	*795	174,162	765	174,502	751	340	30,989	558	31,744	572	*755	21,902	417	22,327	466	425
Work Experience																						
All workers	149,105	150,487	132,422	587	133,419	738	*996	119,497	661	120,622	767	*1,125	20,797	474	21,115	500	318	16,682	385	17,068	379	386
Worked full-time, year-round	107,577	109,511	97,049	652	98,770	713	*1,722	90,853	669	92,394	721	*1,540	11,224	313	11,927	367	*703	10,528	292	10,741	286	213
Worked less than full-time, year-round	41,528	40,976	35,374	514	34,648	511	*–725	28,643	441	28,228	468	–416	9,573	286	9,189	283	*–385	6,154	225	6,327	244	173
Did not work at least 1 week	43,843	43,484	37,275	507	36,908	547	–367	21,517	413	20,841	419	*–676	19,984	395	20,218	484	235	6,568	247	6,576	256	8
Educational Attainment																						
Total, 26 to 64 years old	163,133	164,049	143,780	473	144,599	534	*819	119,766	685	120,460	691	694	33,883	547	34,340	594	457	19,353	386	19,449	446	96
No high school diploma	15,389	15,150	11,184	300	11,161	297	–23	6,293	218	6,425	228	132	5,806	218	5,677	217	–129	4,205	189	3,989	197	–216
High school graduate (includes equivalency)	45,401	44,772	38,511	605	37,814	579	*–697	29,512	541	29,273	510	–239	11,961	328	11,756	328	–205	6,890	232	6,958	261	67
Some college, no degree	26,594	26,109	23,512	407	22,977	381	*–536	19,102	383	18,445	343	*–656	6,324	227	6,439	221	115	3,082	147	3,133	155	51
Associate's degree	17,739	17,659	16,096	354	15,987	348	–110	13,820	323	13,627	328	–193	3,454	171	3,449	153	–5	1,642	110	1,673	127	30
Bachelor's degree	36,528	38,465	34,032	503	35,690	577	*1,658	31,698	498	32,889	576	*1,191	4,239	172	4,765	204	*525	2,496	133	2,775	160	*279
Graduate or professional degree	21,482	21,894	20,444	437	20,971	431	*527	19,342	432	19,801	419	459	2,098	122	2,254	130	156	1,038	86	922	82	*–116

* Changes between the estimates are statistically different from zero at the 90 percent confidence level.

[1] Details may not sum to totals because of rounding.

[2] A margin of error (MOE) is a measure of an estimate's variability. The larger the MOE in relation to the size of the estimate, the less reliable the estimate. This number, when added to and subtracted from the estimate, forms the 90 percent confidence interval. MOEs shown in this table are based on standard errors calculated using replicate weights. For more information, see "Standard Errors and Their Use" at <www2.census.gov/library/publications/2018/demo/p60-264sa.pdf>.

[3] Private health insurance includes coverage provided through an employer or union, coverage purchased directly by an individual from an insurance company, or coverage through someone outside the household.

[4] Government health insurance coverage includes Medicaid, Medicare, TRICARE, CHAMPVA (Civilian Health and Medical Program of the Department of Veterans Affairs), and care provided by the Department of Veterans Affairs and the military.

[5] Individuals are considered to be uninsured if they do not have health insurance coverage for the entire calendar year.

[6] The combined category "married" includes three individual categories: "married, civilian spouse present," "married, armed forces spouse present," and "married, spouse absent."

[7] The sum of those with and without a disability does not equal the total because disability status is not defined for individuals in the armed forces.

Note: The estimates by type of coverage are not mutually exclusive; people can be covered by more than one type of health insurance during the year.

Source: U.S. Census Bureau, Current Population Survey, 2017 and 2018 Annual Social and Economic Supplements.

Appendix B - Links to Lists of Self-Insured Employers by State

Montana
http://erd.dli.mt.gov/work-comp-regulations/insurance-compliance/self-insurance/list-of-self-insureds

California
https://www.dir.ca.gov/OSIP/SelfInsuredEmployers.htm

Florida
www.fldfs.com/division/wc/Insurer/Active-List-of-Self-Insurers-Private.pdf

Louisiana
https://www.linkedin.com/company/louisiana-association-of-self-insured-employers-lasie

Pennsylvania
www.dli.pa.gov/Businesses/Compensation/.../insurance/.../Self-Insured-Employers-D-G.a...

Michigan
https://www.michigan.gov/documents/wca/wca_self_ins_list_217583_7.pdf

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