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NORC at the UNIVERSITY of CHICAGO

Americans' Experiences with Medical Errors and Views on Patient Safety

FINAL REPORT

AN IHI/NPSF RESOURCE

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The Institute for Healthcare Improvement (IHI) and the National Patient Safety Foundation (NPSF) began working together as one organization in May 2017. The newly formed entity is committed to using its combined knowledge and resources to focus and energize the patient safety agenda in order to build systems of safety across the continuum of care. To learn more about our trainings, resources, and practical applications, visit ihi.org/PatientSafety

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Executive Summary

Nearly 20 years after the Institute of Medicine's landmark study *To Err Is Human: Building a Safer Health System* brought national attention and focus to the issue of patient safety, the Institute for Healthcare Improvement (IHI)/ National Patient Safety Foundation (NPSF) Lucian Leape Institute and NORC at the University of Chicago have undertaken a major survey of Americans to measure their experiences with medical errors. The data show that while the majority of Americans are interacting regularly with the health care system and having positive experiences, medical errors do happen. And when errors occur, they often have lasting impacts on the patient's health and well-being.

The nationwide survey was conducted May 12-June 26, 2017, using the AmeriSpeak® Panel, the probability-based panel of NORC at the University of Chicago. Online and telephone interviews using landlines and cell phones were conducted with 2,536 adults. The margin of sampling error is +/- 3.2 percentage points.

The study provides a nuanced picture of how the public understands and perceives patient safety in the United States today and their personal experiences with and exposure to medical errors, and it gauges attitudes about the system and who bears the responsibility for ensuring the safety of patients. This study expands on a 1997 survey conducted by NPSF on the same topic.[1]

The vast majority of Americans have positive interactions with the health care system. Nine in 10 Americans report having visited a health care provider in some form in the past 12 months,[2] and when they are in need of medical treatment, most have experienced that care in a calm and organized setting, had the treatment carried out just as it was explained to them, and left knowing how to take care of themselves and whom to follow up with if they had any problems. Most respondents do not believe they are at risk of experiencing a medical error when they receive care.

However, the survey reveals that after having the term "medical error" defined for them, 21 percent report that they have personally experienced a medical error, and 31 percent say they have personally been involved with the care of someone who has experienced an error. Combined, 41 percent of adults in the United States have either experienced a medical error in their own care or were personally involved in a situation where a medical error was made in the care of someone close to them.

Among the chief findings of the survey:

- The vast majority of Americans have positive interactions with the health care system.
- After having the term "medical error" defined for them, 21 percent of respondents say they have experienced a medical error in their own care.
- A majority of self-reported errors are occurring in outpatient settings.
- Most respondents say they believe safety overall has stayed the same or improved in recent years.
- Most respondents believe that, while health care providers are chiefly responsible for patient safety, patients and their families also have a role to play.
- Not all medical errors result in harm, but when harm does occur, it often has a long-term or permanent impact.
- Medical misdiagnosis and mistakes related to provider and patient communications are the most commonly reported types of errors.
- Those with medical error experience identify an average of seven factors that contributed to the error.
- Nearly half of those who say they experienced a medical error say that they or someone else reported it.

[1] Louis Harris & Associates. (1997). *Public Opinion of Patient Safety Issues Research Findings*. Rochester, NY: Louis Harris.

[2] While the sample is representative of the US population, the survey relies on self-reports of medical and other behavioral data that are prone to measurement error. These self-reports may deviate from the statistics reported from other sources of administrative data.

While a range of errors are reported in the survey, the most commonly reported type of error is related to diagnosis. Fifty-nine percent of those with medical error experience report that the patient experienced a medical problem that was not diagnosed, was diagnosed incorrectly, or that a diagnosis was delayed.

These errors in care have significant short- and long-term impacts on the well-being of the person who experienced them, up to and including death. Seventy-three percent of those with medical error experience[3] say the error had a long-term or permanent impact on the patient's physical health, emotional health, financial well-being, or their family relationships, and many say they experienced lasting impacts on multiple aspects of their lives.

In one-third of the cases reported in the survey, patients were informed of the mistake by medical staff or other staff at the facility where they were treated. Nearly half of those who perceived an error had occurred brought it to the attention of medical personnel or other health care facility staff.

Among those who didn't report the error to a clinician or facility staff member, 4 in 10 say it was because they didn't know how to, and most say they felt that reporting the error wouldn't make a difference. Among those who say they did report the error, about half say a health care provider or facility staff spoke openly and directly about the perceived error.

The survey also reveals that patient safety issues are felt most acutely in some vulnerable populations. For example, the analysis revealed health literacy[4] to be a key indicator in attitudes toward, and experiences with, patient safety in the United States. Individuals with higher health literacy are more likely to know what medical errors are and, therefore, to be aware when they have personally experienced an error. Levels of health literacy were found to have an association with a person's understanding of the contributing factors that led to the error they experienced, as well as overall risk perception.

This survey was also designed to investigate if people differentiate between medical errors and medical harm since it is the case that not all errors result in harm, and not all harm is a result of a medical error. While 1 in 5 Americans say they have experienced a medical error in their own care, just 10 percent say that they have been harmed physically or emotionally when receiving medical care, possibly suggesting that Americans see medical errors and harm differently. However, there is a clear connection between medical errors and harm — 36 percent of those who have personally experienced a medical error say they have been harmed when receiving medical care.

Though few Americans worry about patient safety personally and many believe patient safety has improved in recent years, they do recognize that the responsibility for improving safety in the United States lies with many different stakeholders, such as health care providers, health care leaders, hospital administration, and patients themselves. Seven in 10 believe that patient safety has improved or remained unchanged over the past five years, and nearly two-thirds of Americans say it's not likely that a medical error will occur in their care. More than 8 in 10 believe that patient safety is the responsibility of health care providers and hospital leaders and administrators, as well as family members and patients themselves.

[3] Medical error experience is defined as having personally experienced a medical error or having been involved in a situation where a medical error was made in the care of someone close to the respondent where they were very familiar with the care this person received. Those who personally experienced a medical error and who were involved in a situation where a medical error was made in the care of a close relative or friend were asked to answer the follow-up questions based on the error that occurred in their own care.

[4] Health literacy was measured by self-report to the following question: "How confident are you filling out medical forms by yourself?" Those who say they are extremely or quite a bit confident filling out forms are coded as being higher in health literacy. Those who say they are somewhat confident, a little bit confident, or not at all confident are coded as being lower in health literacy.

Recent research has made the case that improving patient safety and preventing medical errors and harm should be viewed through a public health approach.[5,6,7] This call to re-assess the way patient safety is approached requires a coordinated effort amongst policymakers, health care leaders, stakeholders, and the general public.

I. Americans' general experiences with the health care system

The vast majority of Americans report interacting with the health care system on a regular basis and are having positive experiences with the care they receive.

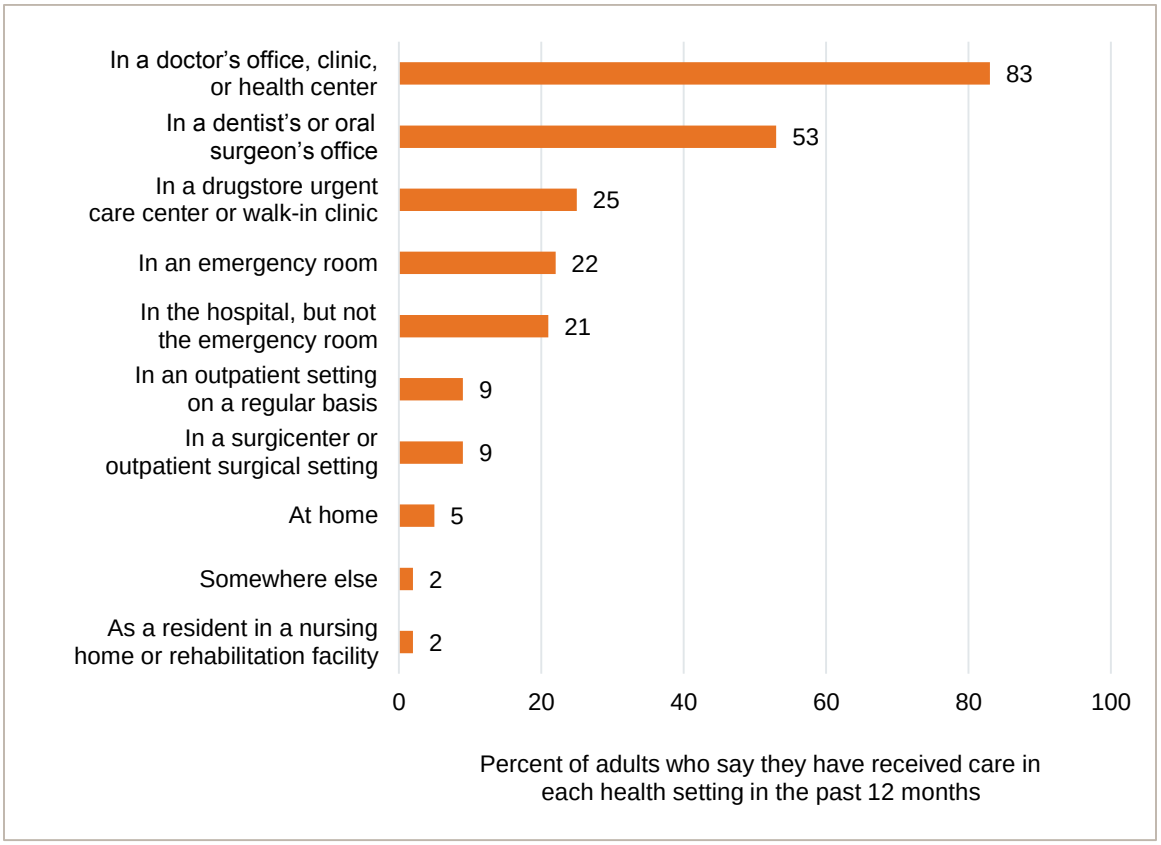
Nearly everyone reports receiving health care in some form in the past year. Ninety percent say they have visited some type of health care facility in the past 12 months, including 83 percent who have sought care at a doctor's office, clinic, or health center and 53 percent who have visited a dentist or oral surgeon. One in 4 say they have gone to an urgent care center or walk-in clinic at a pharmacy. About 1 in 5 report that they have gone to an emergency room (ER) or have received hospital care outside the ER. Fewer than 1 in 10 say they have received care — such as chemotherapy, radiation, or physical therapy — in an outpatient setting on a regular basis (9 percent), in a surgicenter or outpatient surgical setting (9 percent), in their own home (5 percent), in a nursing home or rehab facility (2 percent), or somewhere else (2 percent).

[5] Noble DJ, Panesar SS, and Pronovost PJ. (2011). A public health approach to patient safety reporting systems is urgently needed. *Journal of Patient Safety* 7(2): 109-112.

[6] Card AJ. (2014). Patient safety: this is public health. *Journal of Healthcare Risk Management* 34(1): 6-12.

[7] National Patient Safety Foundation (NPSF). (2017). *Call to Action: Preventable Health Care Harm Is a Public Health Crisis and Patient Safety Requires a Coordinated Public Health Response*. Boston, MA: NPSF.

More than 8 in 10 Americans say they have received care in a doctor's office, clinic, or health center in the past year.



Question: In the past 12 months, have you, personally received care…

Though the vast majority of the public reports interacting with the health care system regularly, the rates at which Americans receive care and where that care takes place vary by socioeconomic status, health literacy, insurance status, and overall health. Other demographic factors such as age, gender, and race are also known to impact health care access and utilization.[8,9]

Low socioeconomic status adults[10] are less likely than those with higher socioeconomic status to have visited a dentist (30 percent vs. 55 percent) in the past year. These individuals are also somewhat more likely to have gone to the ER. Twenty-eight percent of low socioeconomic status adults have visited the ER in the past year, compared with 22 percent of those with higher socioeconomic status.

Though still a large majority, 78 percent of those with limited health literacy have visited a doctor's office, clinic, or health center in the past year, compared to 85 percent of those with adequate or proficient literacy. Low health literacy individuals are also less likely to have visited a dentist or oral surgeon (45 percent vs. 57 percent).

[8] Centers for Disease Control (CDC). (2003). *Health Care in America: Trends in Utilization*. Washington, DC: CDC. https://www.cdc.gov/nchs/data/misc/healthcare.pdf

[9] Bertakis KD et al. (2000). Gender differences in the utilization of health care services. *Journal of Family Practice*. https://www.ncbi.nlm.nih.gov/pubmed/10718692

[10] Low socioeconomic status is defined as having an educational attainment of less than a high school education and a household income of less than $50,000.

Seventy-three percent of uninsured adults have received health care in any setting in the past 12 months, compared with 92 percent of those who have health insurance. Uninsured adults are less likely to have visited a doctor's office (56 percent vs. 86 percent) or a dentist or oral surgeon (37 percent vs. 55 percent), but are no more or less likely to use emergency care.

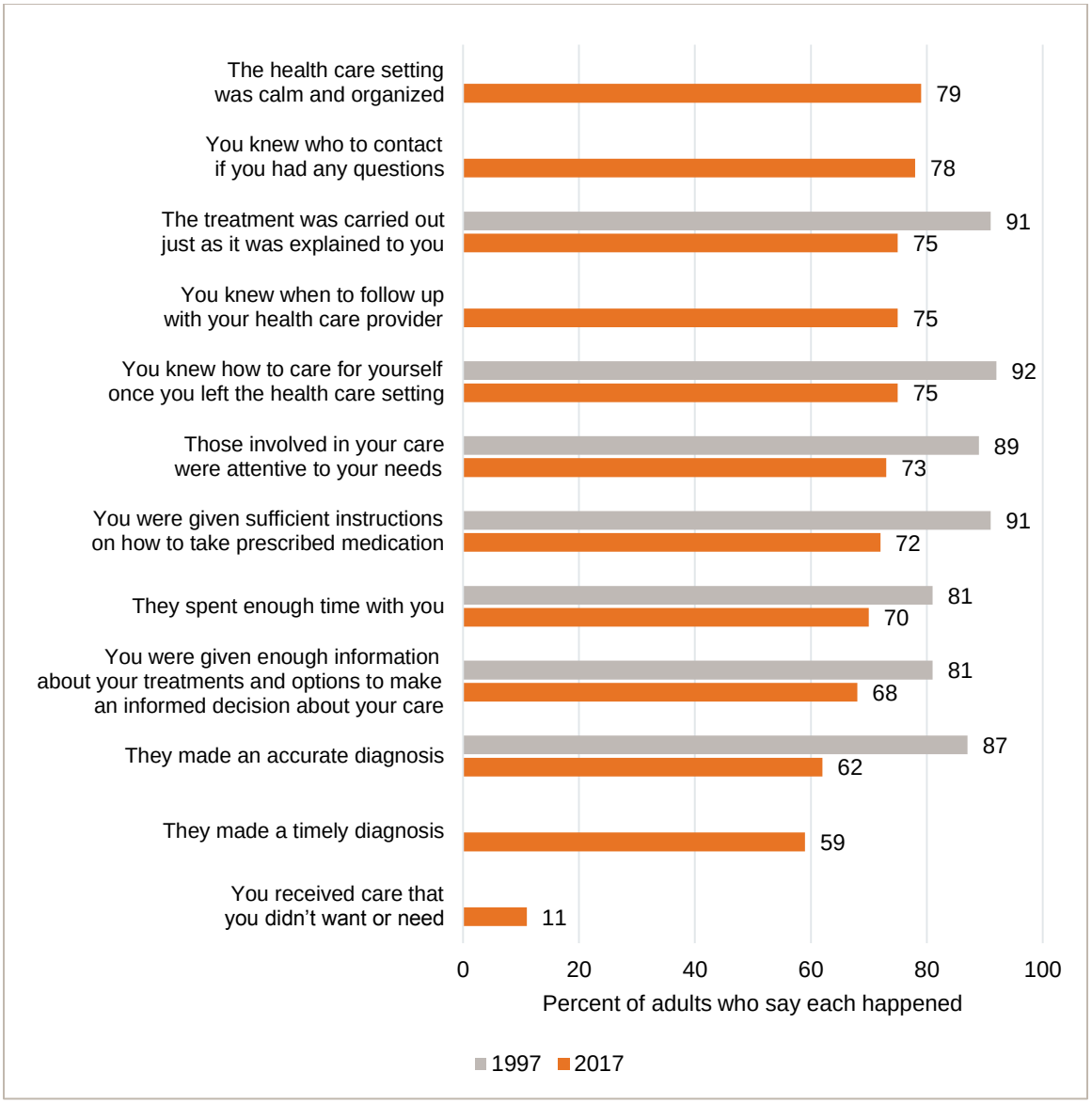
Those who rate their health as fair or poor are more likely than those in at least good health to have received care in the ER, a hospital, or an outpatient setting in the past year. However, just 41 percent of those with worse health status have visited a dentist or oral surgeon, compared with 57 percent of those who report being in good health.

When Americans use the health care system, they generally report positive experiences. At their most recent experience with a health care provider *when sick or in need of treatment for a specific condition*, not just for a physical, at least 3 in 4 say they knew how to care for themselves after they left the health care setting (75 percent), knew when to follow up with their provider (75 percent), had treatment carried out just as it was explained (75 percent), knew whom to contact with any questions (78 percent), and received health care in a setting that was calm and organized (79 percent). One in 10 say they received care that they didn't want or need.

However, while these evaluations are overwhelmingly positive, many of these measures have decreased somewhat over the past 20 years. The largest change is in perceptions of the ability of health care providers to make accurate diagnoses. In the 1997 survey, 87 percent said their health provider made an accurate diagnosis, compared to just 62 percent in 2017.[11] In 1997, roughly 9 in 10 Americans said that treatment was carried out just as it was explained, they knew how to care for themselves afterwards, those involved in their care were attentive to their needs, and they were given sufficient instructions. Eight in 10 said they felt the health care provider spent enough time with them and that they were given enough information.

[11] While both the 1997 and the current surveys were nationally representative and probability based, the 1997 survey was conducted via telephone only and the current survey was conducted via telephone and web.

Americans have largely positive experiences with the health care they receive.



Question: Thinking about your most recent experience with a health care provider when you were sick or needed treatment for a specific condition, not just a physical checkup, do you feel....

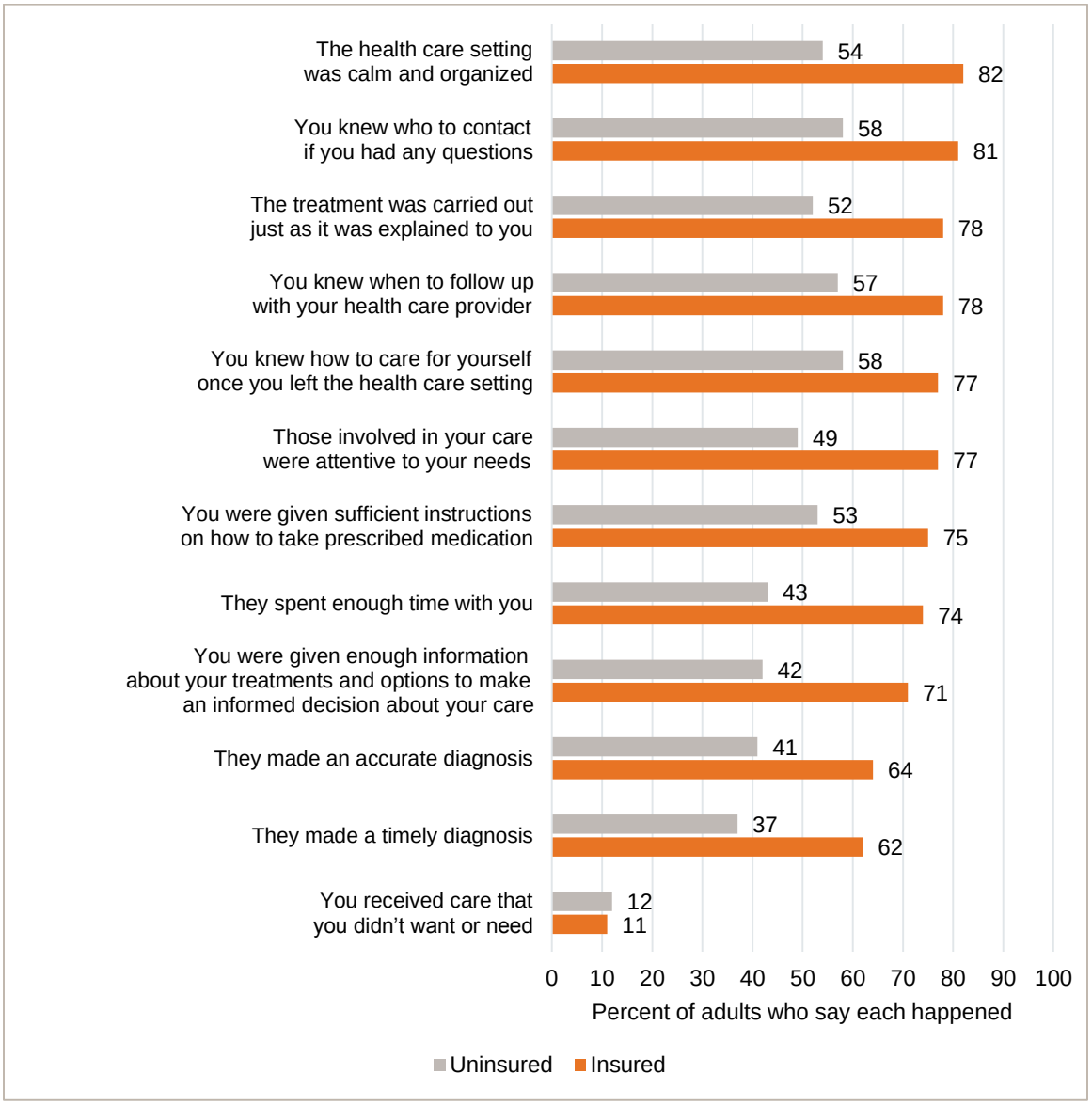
Adults with low socioeconomic status, those who speak another language other than English at home, those without insurance, and younger adults are less likely than others to have had positive interactions with the health care system when seeking care for a particular condition.

Forty-seven percent of low socioeconomic status individuals say their health care provider made an accurate diagnosis, compared with 63 percent of those with higher socioeconomic status. By the same token, low socioeconomic status adults are less likely to say their health care provider made a timely diagnosis (45 percent vs. 61 percent).

Similarly, those who speak a language other than English at home are less likely than those who do not to say that their health care provider made an accurate diagnosis (51 percent vs. 64 percent), they received a timely diagnosis (48 percent vs. 62 percent), they knew how to care for themselves after the appointment (67 percent vs. 77 percent), and those involved in their care were attentive (66 percent vs. 75 percent).

Those without insurance are less likely to say any of these things happened, except for receiving care they didn't need.

Insured Americans are more likely to report having positive health care experiences.



Question: Thinking about your most recent experience with a health care provider when you were sick or needed treatment for a specific condition, not just a physical checkup, do you feel....

Younger adults, who generally have less experience with the health care system and use it less frequently, are also less likely to say any of these positive experiences occurred but also more often say they received care they didn't need or want. Seventeen percent of adults age 18 to 44 say they got health care they didn't want or need, compared with just 7 percent of those 45 and older.

II. Error incidence

One in 5 Americans say they have personally experienced a medical error while receiving health care.

The language around patient safety issues isn't familiar to many Americans. Fifty-three percent of all adults say they have both heard of medical errors and know what they are, while 25 percent have heard this term but aren't sure what it means and 22 percent are not familiar with the term at all.

After having the term "medical error" defined,[12] 21 percent of Americans say they have experienced a medical error in their own care at some point in their lives, including 4 percent who experienced the error within the past year, 6 percent who experienced it within the past five years, and 11 percent who experienced it more than five years ago.

The 1 in 5 adults who say they have personally experienced a medical error at some point in their lives are among the millions of patients who experience various types of medical errors, adverse events, and harm in health care settings every year. Yearly, more than 700,000 Americans develop infections while receiving medical treatment in a health care facility,[13] and 12 million patients experience an outpatient diagnostic error.[14] Among Medicare beneficiaries in skilled nursing facilities, 1 in 5 experience adverse events during their stay, and another 1 in 10 experience temporary harm.[15] Adverse events are particularly common in hospital settings, occurring in one-third of hospital admissions.[16]

Beyond personally experienced errors, 31 percent of Americans report that someone else whose care they were closely involved with experienced a medical error. This includes 6 percent who were involved with an error that occurred within the past year, 10 percent who were involved with an error that occurred within the past five years, and 15 percent who were involved with an error that occurred more than five years ago.

[12] Respondents were given the following definition of medical errors: "Sometimes when people receive medical care, mistakes are made. These mistakes sometimes result in no harm, while other times they may result in additional or prolonged treatment, emotional distress, disability, or death. These types of mistakes are called medical errors."

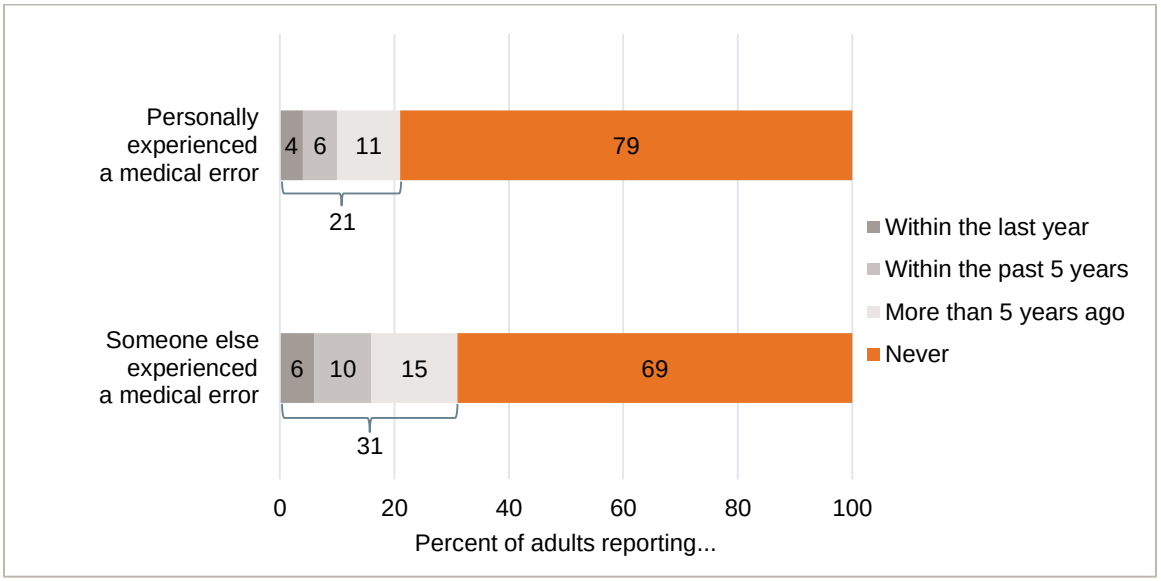
[13] Centers for Disease Control (CDC). (2016). HAI Data and Statistics. Washington, DC: CDC. https://www.cdc.gov/hai/surveillance/

[14] Singh H, Meyer AND, and Thomas EJ. (2014). The frequency of diagnostic errors in outpatient care: estimations from three large observational studies involving U.S. adult populations. *BMJ Quality & Safety* 23: 727-731. http://qualitysafety.bmj.com/content/23/9/727

[15] Levinson DR. (2014). *Adverse Events in Skilled Nursing Facilities: National Incidence among Medicare Beneficiaries*. Washington, DC: Department of Health and Human Services, Office of Inspector General. https://oig.hhs.gov/oei/reports/oei-06-11-00370.pdf

[16] Classen DC et al. (2011). "Global Trigger Tool" shows that adverse events in hospitals may be ten times greater than previously measured. *Health Affairs* 30(4): 581-589. http://content.healthaffairs.org/content/30/4/581.full.pdf+html

Twenty-one percent of Americans say they have experienced a medical error in their own care, and 31 percent have been involved in a situation where an error occurred in someone else's care.



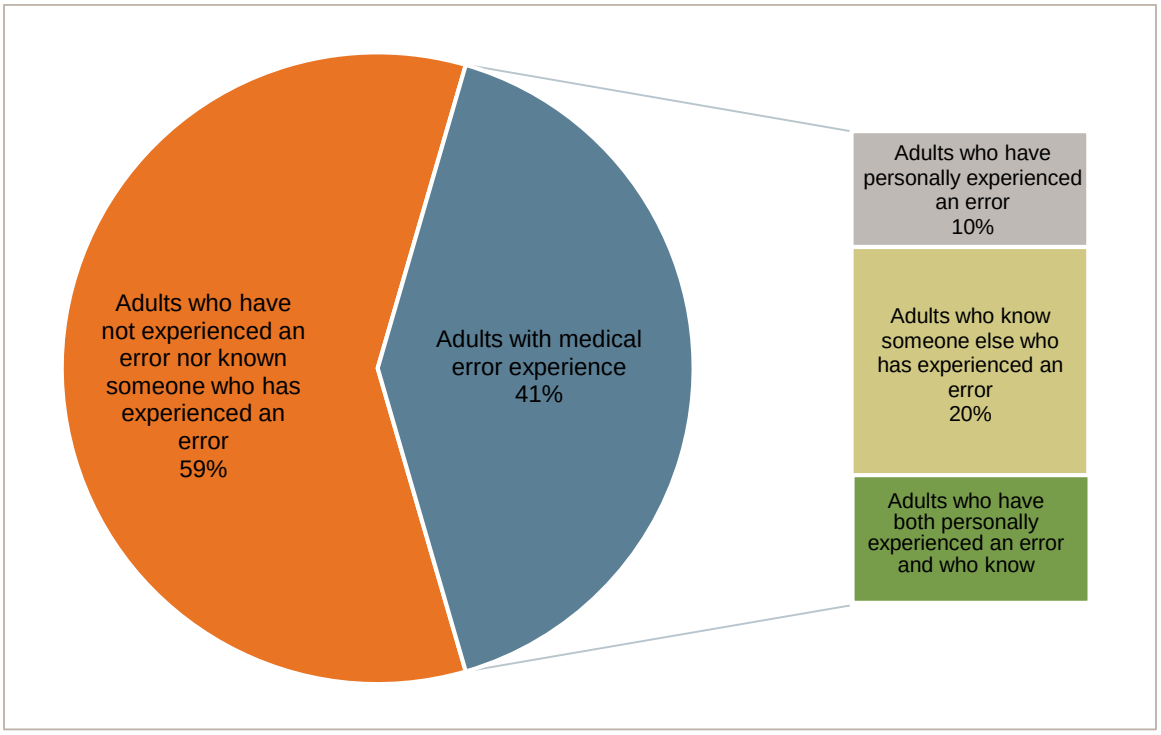
Questions: Have you ever personally been involved in a situation where a medical error was made in your own medical care, or has that not happened? Have you ever personally been involved in a situation where a medical error was made in the care of someone close to you where you were very familiar with the care they were receiving, or has that not happened?

Combined, 41 percent of Americans report having been involved with a medical error either personally or secondhand. While there has been improvement in some areas of patient safety in the past 20 years,[17] this figure falls in line with results of the 1997 survey when 42 percent said that, "[they], a close friend, or a relative [have] ever been involved in a situation where a medical mistake was made."[18]

[17] National Patient Safety Foundation (NPSF). (2015). *Free from Harm: Accelerating Patient Safety Improvement Fifteen Years after "To Err Is Human."* Boston, MA: NPSF. http://c.ymcdn.com/sites/www.npsf.org/resource/resmgr/PDF/Free_from_Harm.pdf

[18] http://c.ymcdn.com/sites/www.npsf.org/resource/collection/ABAB3CA8-4E0A-41C5-A480-6DE8B793536C/Public_Opinion_of_Patient_Safety_Issues.pdf

Overall, 2 in 5 Americans say they have either personally experienced a medical error or had a medical error occur in the care of someone close to them.



Questions: Have you ever personally been involved in a situation where a medical error was made in your own medical care, or has that not happened? Have you ever personally been involved in a situation where a medical error was made in the care of someone close to you where you were very familiar with the care they were receiving, or has that not happened?

Those higher in health literacy are more likely to know what medical errors are. Fifty-nine percent of those with higher levels of health literacy say they know what the term "medical error" means, compared to 42 percent of those with lower levels of health literacy. Twenty-three 23 percent of those higher in health literacy say they have personally experienced a medical error, compared with 17 percent of those with limited health literacy.

Demographic factors associated with Americans' experience of medical errors in their own care.

		Percent who report personally experiencing a medical error
Gender	Men	17
	Women	25
Chronic condition	Being treated for a chronic condition	27
	Not being treated for a chronic condition	17
Socioeconomic status	Low socioeconomic status	17
	Higher socioeconomic status	22
Health literacy	Limited health literacy	17
	Adequate or proficient health literacy	23

Question: Have you ever personally been involved in a situation where a medical error was made in your own medical care, or has that not happened?

Patients currently receiving treatment for a chronic condition and women are more likely to say they have personally experienced medical errors, while those with lower socioeconomic status are less likely to say they have experienced a medical error. Twenty-seven percent of those with a chronic condition say they have experienced an error, compared with 17 percent of those without a chronic condition. Twenty-five percent of women have had a medical error occur, compared with 17 percent of men. Seventeen percent of low socioeconomic status adults say they have personally experienced a medical error, compared with 22 percent of higher socioeconomic status adults.

Women are more likely to have been involved in a situation where a close family member or friend experienced a medical error, which may be attributable to women's larger involvement relative to men in attending to caregiving and family health care.[19] Thirty-five percent of women say they have been involved in a situation where someone else experienced a medical error, compared with 26 percent of men.

Among those who say they have been involved with a medical error that occurred to someone close to them, it was most likely to happen to a parent or parent-in-law, spouse, or partner. Thirty-three percent say it was their parent or parent-in-law, and 16 percent say it was their spouse or partner. Fewer said it was another relative (14 percent), a non-relative (14 percent), a child (9 percent), grandparent (9 percent), or sibling (5 percent).

Few Americans say they have been harmed when receiving medical care.

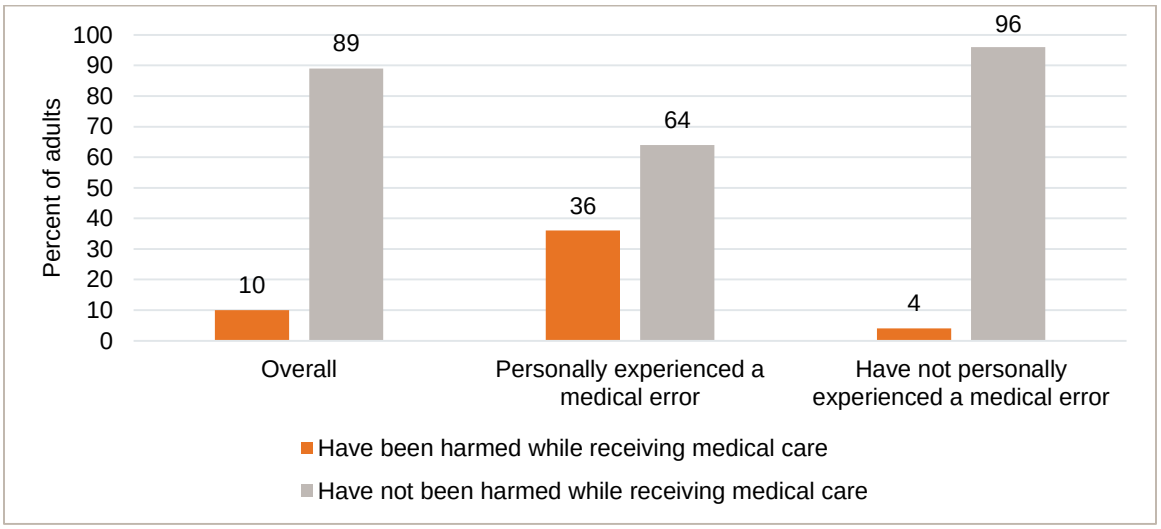
This survey was designed to investigate Americans' experience with and the prevalence of medical errors and whether they differentiate between medical errors and medical harm. Physical, social, or psychological harm, disability, or impairment can occur outside the context of a medical error, and not all medical errors result in harm.[20]

While 1 in 5 Americans say they have experienced a medical error in their own care, just 10 percent say that they have been harmed physically or emotionally when receiving medical care, possibly suggesting that Americans see medical errors and harm differently. However, there is a clear connection between medical errors and harm — 36 percent of those who have personally experienced a medical error say they have been harmed when receiving medical care, compared with 4 percent of those without firsthand error experience.

[19] Kaiser Family Foundation (KFF). (2005). *Women and Health Care: A National Profile, Key Findings from the Kaiser Women's Health Survey*. Menlo Park, CA: KFF. https://kaiserfamilyfoundation.files.wordpress.com/2013/01/women-and-health-care-a-national-profile-key-findings-from-the-kaiser-women-s-health-survey-chapter-7.pdf

[20] For more information on the relationship between harm and medical errors, see: National Patient Safety Foundation (NPSF). (2015). *Free from Harm: Accelerating Patient Safety Improvement Fifteen Years after "To Err Is Human."* Boston, MA: NPSF. http://c.ymcdn.com/sites/www.npsf.org/resource/resmgr/PDF/Free_from_Harm.pdf

Though few say they have been harmed physically or emotionally when receiving medical care, more than one-third of those who have personally experienced a medical error have also been harmed.

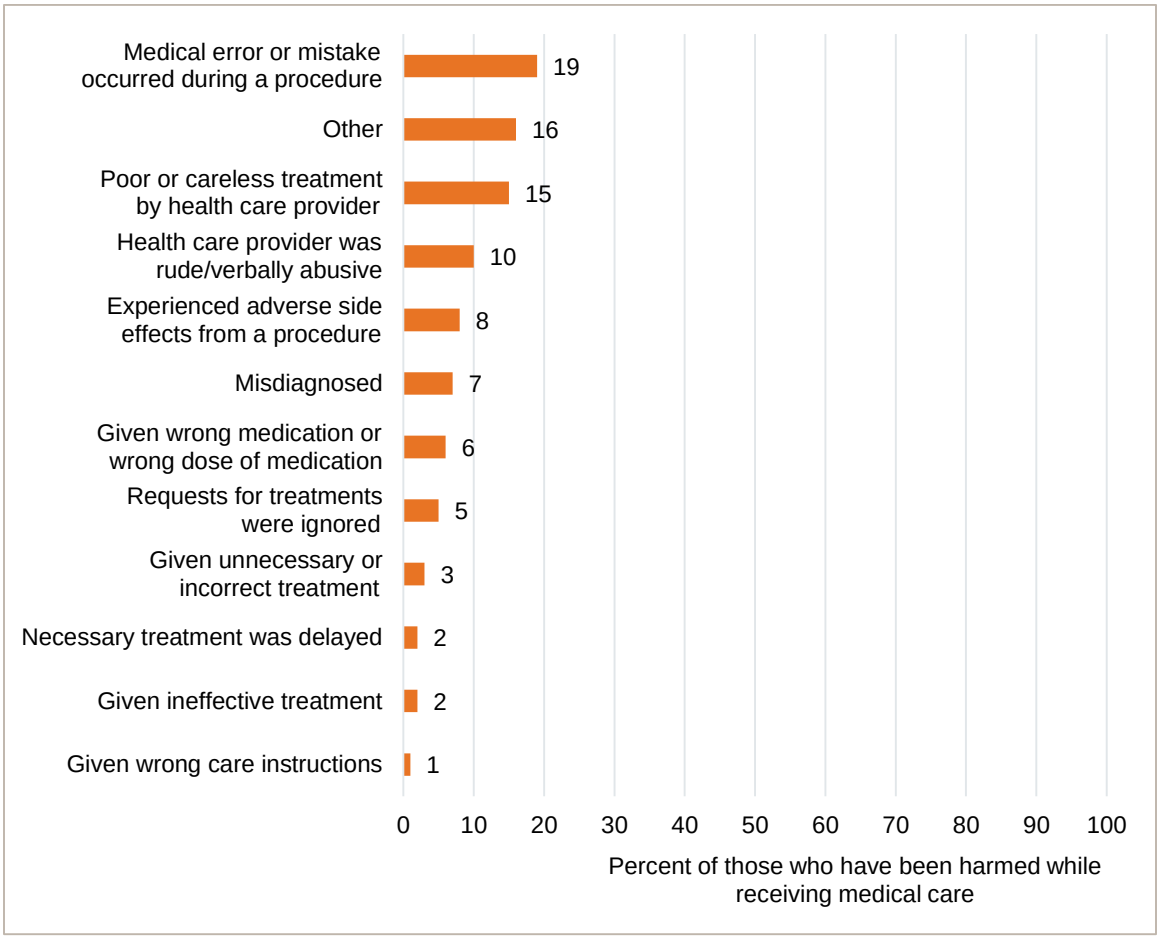


Question: Have you ever been harmed, either physically or emotionally, when you received medical care, or has that not happened?

Among those who have been harmed, 1 in 5 said in an open-ended question that a medical error or mistake occurred during a treatment or procedure. Another 15 percent say the harm was a result of poor or careless treatment by a health care provider, and 10 percent say their health care provider was rude or verbally abusive.

Other forms of harm Americans report experiencing include adverse side effects during or following a treatment or procedure, being misdiagnosed, being given the wrong medication or wrong dose of medication, health care providers ignoring requests for treatment, being given unnecessary or incorrect treatment, delays in necessary treatment, being given ineffective treatment, or receiving the wrong care instructions.

Errors or mistakes during a treatment or procedure are the most common forms of harm Americans experience when receiving medical care.



Question: Thinking about the most recent time you were harmed when you received medical care, please describe in a few words what happened to you. [Open-ended response]

III. In-depth experiences with errors

Diagnostic error and mistakes related to provider and patient communications are the most commonly reported types of errors.

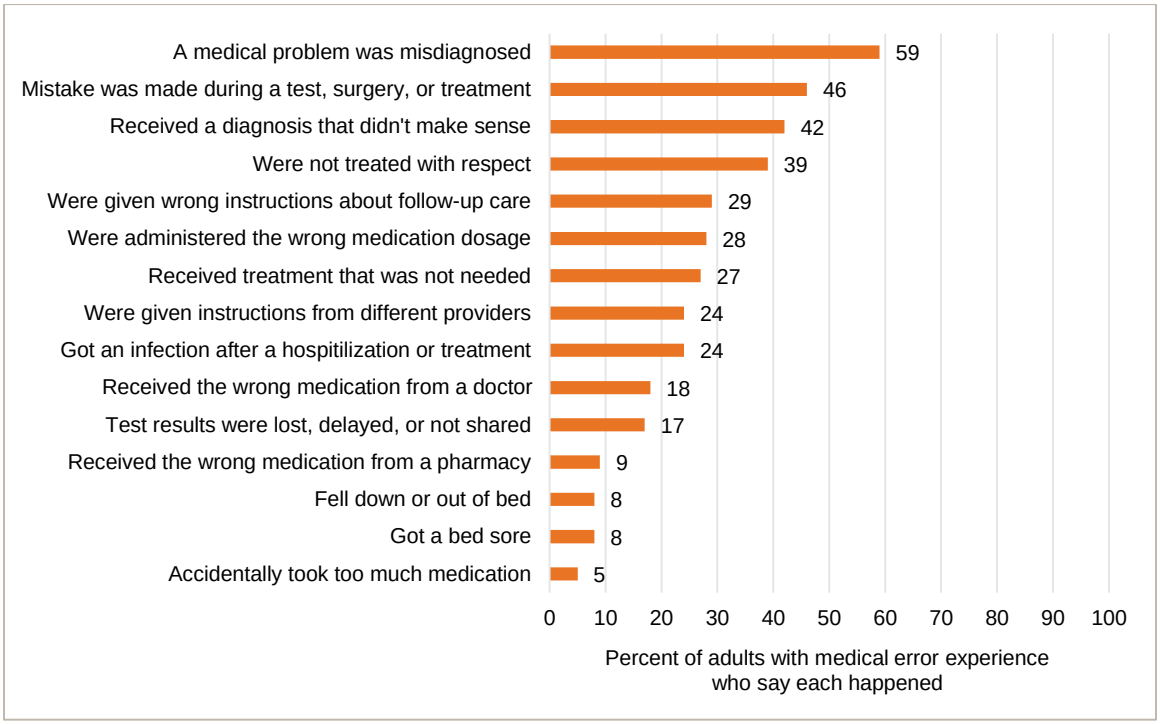
Respondents were given a list of 15 types of medical errors and were asked if any described the situation they personally experienced or that their relative or close friend experienced. Respondents were allowed to select as many categories as needed to describe their experience. Of the list of 15 types of medical errors, the most common are diagnostic errors. Fifty-nine percent of those with medical error experience say the medical problem was not diagnosed, was diagnosed incorrectly, or a diagnosis was delayed. Forty-two percent say they received a diagnosis that didn't make sense. Forty-six percent say a mistake was made during a test, surgery, or treatment.

Thirty-nine percent say they were not treated with respect by a health care provider. Feelings of disrespect were no more likely among lower socioeconomic, lower health literacy, or those with limited English language proficiency than others. Age differences do emerge when it comes to

being treated with respect by a health care provider; 46 percent of adults age 18 to 44 say they were not treated with respect, more than the 34 percent of adults age 45 and older who say the same. And those who say they have been harmed when receiving medical care are more likely to say they were not treated with respect than those who say they have not been harmed (51 percent vs. 35 percent).

Fewer say they were given wrong, unclear, or no instructions about follow-up care (29 percent), administered the wrong amount of medication or incorrect medication (28 percent), received a treatment that wasn't needed or wanted (27 percent), were given different instructions from different health care providers (24 percent), acquired an infection soon after a test, surgery, hospitalization, or treatment (24 percent), received the wrong medication from a doctor (18 percent), or had test results lost, delayed, or not shared (17 percent). Fewer than 1 in 10 report they received the wrong medication from a pharmacy (9 percent), fell down or out of bed (8 percent), got a bed sore (8 percent), or accidentally took too much of a prescription medication (5 percent).

Six in 10 adults with medical error experience say a medical problem was misdiagnosed and 4 in 10 say they weren't treated with respect.



Question: Again, thinking about the most recent time a medical error was made in [your care/the care of someone close to you], for each of the following, please indicate whether or not it is the sort of medical error that occurred.

Those who say they have experienced harm when receiving medical care are more likely than those who have not experienced harm to say the patient was given different instructions from different health care providers (34 percent vs. 22 percent) or that a mistake was made during a test, surgery, or treatment (58 percent vs. 42 percent).

Previous studies have shown that patients with limited English proficiency are more likely than others to experience adverse medical events as a result of communication errors.[21] The results of

[21] Divi C, Koss RG, Schmaltz SP, and Loeb JM. (2007). Language proficiency and adverse events in U.S. hospitals: a pilot study. *International Journal for Quality Health Care* 19: 60-67.

this study suggest that those who speak a language other than English at home are especially vulnerable to experiencing an error related to their medication. They are twice as likely as those who do not speak another language at home to receive the wrong medication from a doctor (34 percent vs. 15 percent).

There are few other demographic differences when it comes to the types of medical errors adults report having experience with. There's a slight difference when it comes to income and test results; adults with incomes of less than $50,000 are more likely than those with incomes of $100,000 to say test results were lost, delayed, or not shared (20 percent vs. 13 percent).

In addition to the list of medical errors, respondents were also given the opportunity to describe their experience in their own words. In describing the medical error experience, 28 percent say they or their close relative or friend were misdiagnosed. For example, one respondent had a relative who was initially diagnosed with strep throat and later found out it was actually a staph infection. Twenty-one percent say an error or mistake occurred during a treatment or procedure. One respondent experienced a cut artery during a procedure that required additional surgery. Eleven percent say they were given the wrong medication or wrong dose of medication, and 8 percent say they were given poor or careless treatment by a health care provider.

Americans are most likely to say they experienced an error in outpatient settings.

Previous studies have shown that medical errors and adverse events can happen virtually anywhere that medical care is given. The 1999 landmark study *To Err Is Human: Building a Safer Health System* by the Institute of Medicine estimated that 44,000 to 98,000 people a year die in hospitals as a result of medical errors.[22] A 2015 study by Nanji et al. estimated that a medication error and/or an adverse drug event occurred in roughly half of surgeries.[23] Budnitz et al. (2006) found that more than 700,000 people are treated in the ER each year as a result of a medication-related adverse event.[24] Singh et al. (2014) estimated that diagnostic errors in outpatient care are experienced by more than 12 million patients every year.[25] A 2014 report from the Office of Inspector General found that roughly one-third of Medicare beneficiaries living in nursing homes experienced an adverse event.[26]

The current study finds that a majority of self-reported errors are occurring in outpatient settings. Thirty-four percent occurred in a doctor's office, clinic, or health center, and another 14 percent occurred in the ER. Other outpatient settings where errors occurred are surgicenters or outpatient surgical settings (4 percent), dentist's or oral surgeon's offices (3 percent), and urgent care centers or walk-in clinics found in pharmacies (2 percent). Thirty-four percent of the medical errors reported occurred in the hospital, but not the ER. Fewer were reported having occurred in a nursing home or rehabilitation facility (4 percent), in a person's home (1 percent), and elsewhere (1 percent).

[22] Institute of Medicine. In: Kohn LT, Corrigan JM, and Donaldson MS, editors. (1999). *To Err Is Human: Building a Safer Health System*. Washington, DC: National Academies Press.

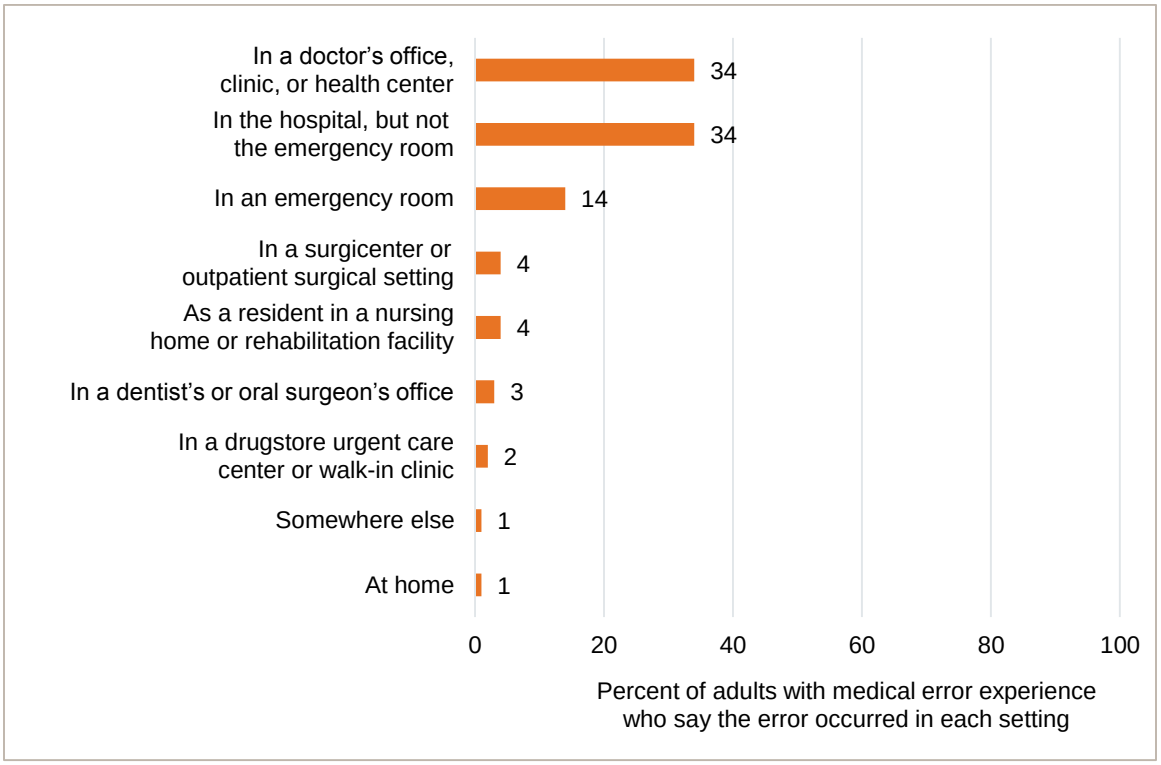
[23] Nanji KC, Patel A, Shaikh S, Seger DL, and Bates DW. (2016). Evaluation of perioperative medication errors and adverse drug events. *Journal of the American Society of Anesthesiologists* 124(1): 25-34.

[24] Budnitz DS, Pollock DA, Weidenbach KN, Mendelsohn AB, Schroeder TJ, and Annest JL. (2006). National surveillance of emergency department visits for outpatient adverse drug events. *JAMA* 296(15): 1858-1866.

[25] Singh H, Meyer AND, and Thomas EJ. (2014). The frequency of diagnostic errors in outpatient care: estimations from three large observational studies involving U.S. adult populations. *BMJ Quality & Safety* 23: 727-731. http://qualitysafety.bmj.com/content/23/9/727

[26] Office of Inspector General (OIG). (2014). *Adverse Events in Skilled Nursing Facilities: National Incidence among Medicare Beneficiaries*. Washington, DC: OIG. https://oig.hhs.gov/oei/reports/oei-06-11-00370.pdf

More than half of adults with medical error experience say the error occurred in an outpatient setting.



Question: In this most recent time when a medical error was made in [your care/the care of someone close to you], where did this error take place?

The 1997 survey asked where the error occurred as an open-ended question.[27] In that survey, 60 percent specified that the error occurred in a hospital setting, including 5 percent who specified the error occurred in the ER, 7 percent who said it happened in an operating room, and 48 percent who said the error occurred in a hospital. Another 22 percent said the error occurrred in a doctor's office.

Medical errors have had long-term or permanent effects on the physical and emotional health of more than half of those who have experienced them.

Adults with medical error experience were asked about the impact the error had on the patient's physical health, emotional health, financial well-being, and family relationships. In most cases, the experienced medical error had a significant impact on the patient's life. Fully 73 percent say the error had a long-term or permanent impact on at least one of these aspects of the patient's life. On average, those with medical error experience say the medical error had two long-term or permanent impacts and one short-term impact. Just 7 percent say the error had no impact at all on physical health, emotional health, financial well-being, or relationships with family.

Impacts on a person's physical health were the most likely outcome of a medical error. Twenty-seven percent of those with medical error experience say the error had a short-term effect on their physical health that lasted less than a month, 27 percent say the error had a long-term effect that

[27] Question wording in the 1997 survey: "In what type of setting did that mistake take place?"

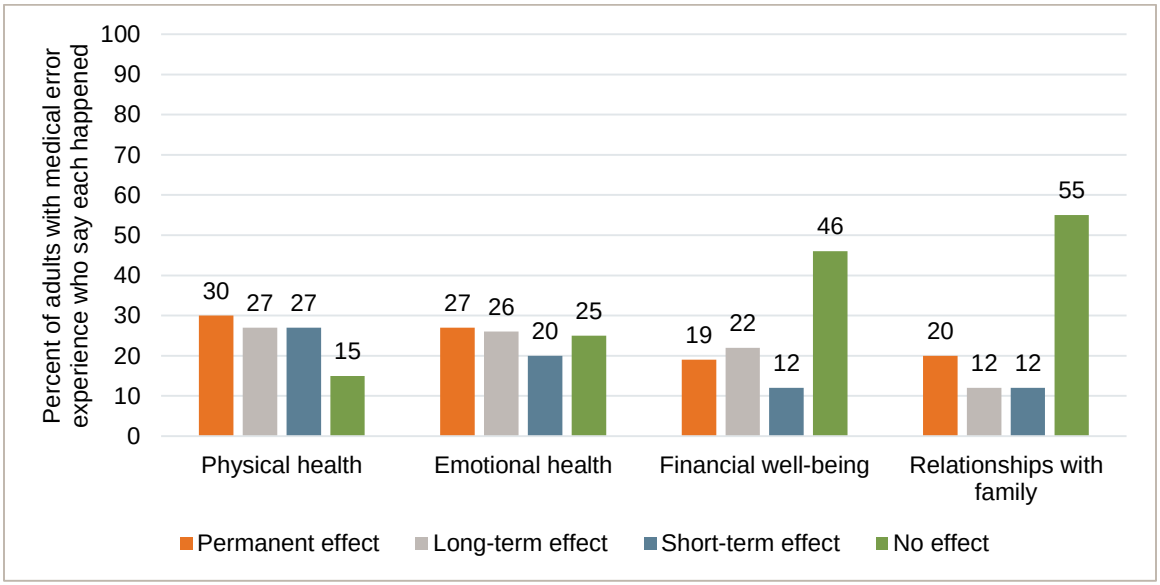
lasted more than a month, and 30 percent say the error had a permanent effect on their physical health. Just 15 percent say the medical error had no effect on their physical health.

When it comes to the effect the error had on a person's emotional health, 20 percent report that the error had a short-term effect that lasted less than a month, 26 percent say the error had a long-term effect that lasted more than a month, and 27 percent say the error had a permanent effect on their emotional health. Twenty-five percent say the medical error had no effect on their emotional health.

Errors are less likely to have had a permanent effect on the patient's financial well-being or on their relationships with family. Twelve percent say the error had a short-term effect on their financial well-being that lasted less than a month, 22 percent say the error had a long-term effect that lasted more than a month, and 19 percent say the error had a permanent effect on their financial well-being. Forty-six percent say the medical error had no effect on their financial well-being.

Twelve percent report that the error had a short-term effect on their relationships with family that lasted less than a month, 12 percent say the error had a long-term effect that lasted more than a month, and 20 percent say the error had a permanent effect on their relationships with family. Fifty-five percent say the medical error had no effect on their relationships with family.

Medical errors take a toll on the physical and emotional health of those who experience them.



Question: Did the error have a short-term effect that lasted less than one month, a long-term effect that lasted more than one month, a permanent effect, or did it have no effect on [your/the person close to you's]...?

These results are similar to those of the 1997 survey,[28] with one notable exception. Twice as many now say the medical error had a long-term impact on their physical health than in 1997 (27 percent vs. 13 percent).

Medical error outcomes are influenced by a person's educational attainment. Eighty-five percent of adults with no high school diploma report experiencing at least one long-term or permanent effect

[28] The 1997 survey did not ask about the impact the medical error had on familial relationships.

compared with 67 percent of adults with a bachelor's degree or more. Adults with a bachelor's degree are more likely than those without a high school diploma to say the error had a short-term effect (20 percent vs. 5 percent) or no effect at all (49 percent vs. 27 percent) on their financial well-being. When it comes to familial relationships, those with a bachelor's degree are more likely than those with less than a high school education to say the error had no effect (60 percent vs. 37 percent).

In addition, those who have experienced harm are more likely than those who have not experienced harm to say they have experienced at least one long-term or permanent effect (80 percent vs. 71 percent).

Respondents were given the opportunity to discuss, in their own words, the impact of the error. Among those who personally experienced the error, 25 percent say the error led to additional health problems or complications. For example, one respondent said they had to be hospitalized as a result of being given the wrong medication. Fourteen percent say their recovery was prolonged including one respondent who said they were bedridden for three months due to a mistake made during surgery. Among those who had a relative or close friend who experienced a medical error, 25 percent say their relative or close friend passed away as a result of the error.

Those with medical error experience identify an average of seven factors that contributed to the error.

Previous research suggests that medical errors are not the result of a single factor but instead occur as a result of the confluence of multiple factors.[29] The findings from this survey support this assertion and suggest that among those with medical error experience, there is an understanding that medical errors are not the result of "a few bad apples" but instead result from multiple systemic problems.

From a list of 23 items, adults with medical error experience were asked to provide what they perceive to be the factors that could have led to the error. Those with medical error experience identify an average of seven factors that contributed to the error. Just 5 percent identify a single contributing factor that led to the error.

Perceived failures in institutional supports for providers are some of the more commonly cited individual factors. Sixty-nine percent of adults with medical error experience believe that having a health care provider who lacked attention to detail contributed to the error, and 58 percent believe that having a poorly trained provider contributed to the error. Half say the medical error was a result of overworked, tired, and stressed health care providers. Forty-seven percent say lack of communication between multiple providers could have led to the error.

Other institutional supports are less commonly cited as contributing factors. One in four attribute the medical error to their health care provider spending too much time with computers and digital records. Twenty-two percent say the patient not being able to see or review their own medical records led to the error. Seventeen percent say the error may have resulted from health care providers not being aware of the medical care the patient received elsewhere. Fifteen percent say their health care provider didn't spend enough time with them. Twelve percent say out-of-date or incorrect medical records contributed to the error. Seven percent say the error was a result of health care providers not washing their hands or wearing masks.

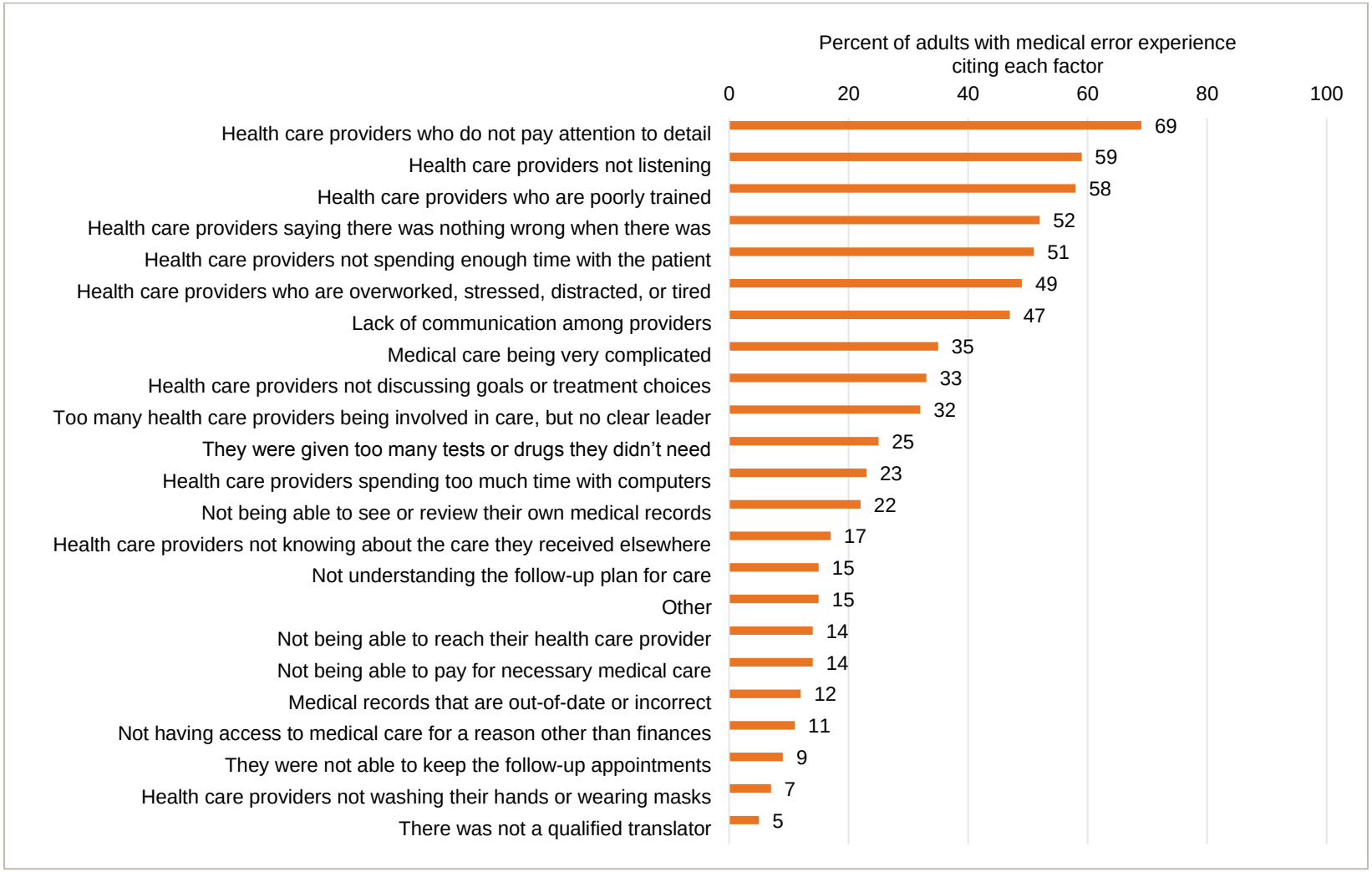
[29] Institute of Medicine. In: Kohn LT, Corrigan JM, and Donaldson MS, editors. (1999). *To Err Is Human: Building a Safer Health System*. Washington, DC: National Academies Press.

Factors related to poor communication are also commonly cited as contributing to the error. Fifty-nine percent of adults with medical error experience say having a health care provider who didn't listen to the patient may have led to the error. One-third say health care providers not discussing goals or treatment options with the patient may have been a factor, and another third say too many health care providers being involved in the care may have contributed to the problem. Fifteen percent believe the medical error may have been a result of the patient not understanding the follow-up care plan, and 14 percent believe the error may have resulted from the patient being unable to reach their health care provider when they had a problem. Five percent say that a lack of a qualified translator may have led to the error.

Respondents were asked about two factors relating to diagnostics and testing. Half of those with medical experience perceive that the error occurred as a result of health care providers saying there was nothing wrong when there really was a problem. Thirty-five percent attribute the error to the fact that medical care is very complicated.

Few see medication-related or other factors as contributing to the medical error that they or their relative or close friend experienced. Twenty-five percent believe that the patient being given too many unnecessary tests or drugs was a contributing factor. Fewer than 1 in 5 attribute the error to other causes such as not being able to pay for necessary medical care (14 percent), not having access to medical care for non-financial reasons such as difficulty getting an appointment or procedures or specialists not being available (11 percent), or not being able to keep follow-up appointments (9 percent).

People with medical error experience identified an average of seven factors that contributed to the error, with the most common being lack of attention to detail.



Question: What factors do you think could have led to the error?

Perceptions of the error's contributing factors vary by level of health literacy, age, and ethnicity.

Adults with lower health literacy have several substantial differences in perceptions about the factors that contributed to the medical error than those with higher levels of health literacy. Those lower in health literacy are more than twice as likely to say that each of the following contributed to the error: the patient not being able to reach their health care provider when a problem arose (25 percent vs. 9 percent), the patient not understanding the follow-up plan for their care (24 percent vs. 11 percent), the patient not being able to pay for necessary medical care (23 percent vs. 10 percent), the patient having out-of-date or incorrect medical records (22 percent vs. 8 percent), the patient lacking medical care access for non-financial reasons (19 percent vs. 8 percent), and the patient not having access to a qualified translator (10 percent vs. 3 percent). Those lower in health literacy are also more likely to say lack of communication among providers (57 percent vs. 43 percent), complicated medical care (45 percent vs. 31 percent), too many health care providers being involved in their care without a clear leader (39 percent vs. 28 percent), and the patient not being able to review their own medical records (30 percent vs. 18 percent) may have led to the error.

The experience of harm while receiving medical care also influences perceptions about what contributed to the medical error. Sixty-five percent of adults who have experienced harm say the error was a result of poorly trained health care providers, compared with 55 percent of adults who have not experienced harm. Sixty-seven percent of adults who have experienced harm say health care providers not listening to the patient contributed to the error, compared with 56 percent of adults who have not experienced harm.

Older and younger adults have different perceptions about what factors contributed to the errors they or their relative or close friend experienced. Adults age 18 to 44 are about twice as likely as adults age 45 and older to believe that the patient not having access to medical care for non-financial reasons led to the medical error (15 percent vs. 9 percent). Younger adults are more likely than those who are older to believe that poorly trained health care providers (66 percent of 18 to 44 year olds vs. 51 percent of adults age 45 and older) and overworked, stressed, distracted, or tired health care providers (54 percent of 18 to 44 year olds vs. 45 percent of adults age 45 and older) may have led to the error.

Whites and Hispanics have differing experiences when it comes to a couple of communication-related errors. Hispanics were more likely to say they believe that not having a qualified translator or health care provider who spoke the patient's language (16 percent vs. 2 percent) and health care providers not discussing their goals or treatment choices with the patient led to the error (43 percent vs. 28 percent).

IV. Medical error disclosure and patient-reported errors

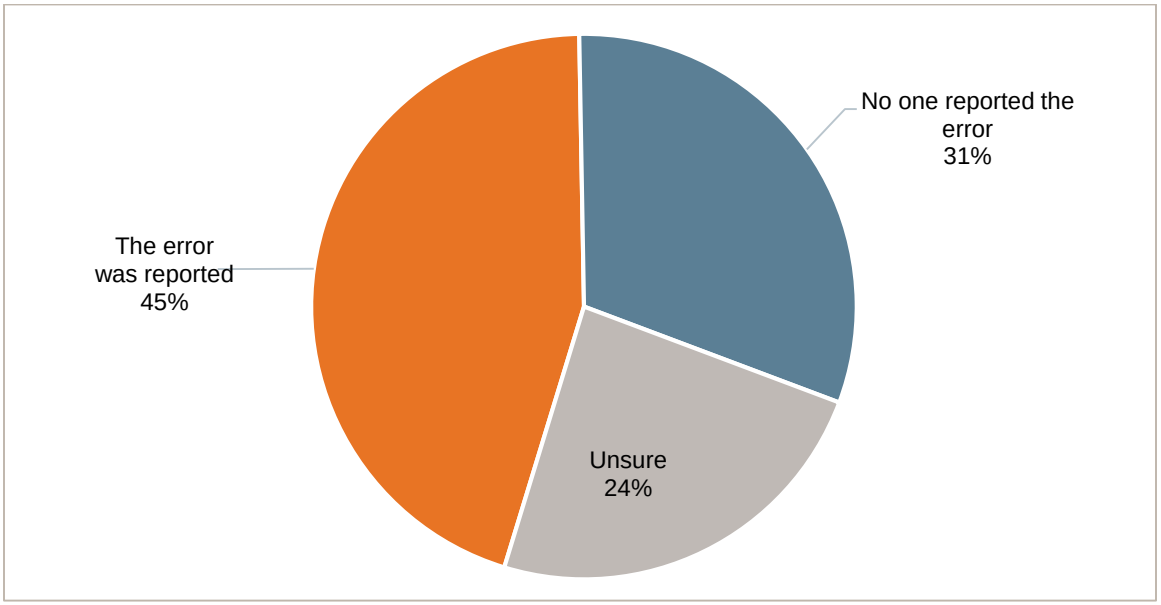
Most who experienced an error were not informed of the error and in about one-third of the cases, the error went unreported by the patient or by someone acting on the patient's behalf.

In 32 percent of cases where an error was experienced, the person who experienced the error says they were informed of the mistake by a health care provider or someone else at the facility where the error happened. Sixty-seven percent say they were not.

Nearly half of those who reported experiencing a medical error brought it to the attention of medical personnel or other health care facility staff. Looking specifically at those who personally experienced a medical error, 31 percent reported it themselves, 10 percent had someone report it on their behalf, 37 percent say no one reported the error, and 22 percent are unsure. Adults of low socioeconomic status are less likely than those with higher socioeconomic status to report the medical error themselves (15 percent vs. 31 percent).

Among those who were involved in the care of someone who experienced a medical error, 12 percent reported it on the patient's behalf, 20 percent say the patient reported it themselves, 17 percent say someone else reported the error, 25 percent say no one reported the error, and 25 percent are unsure.

Nearly half of survey respondents who say they experienced a medical error say that it was reported to medical personnel, other health care facility staff, or to someone else.

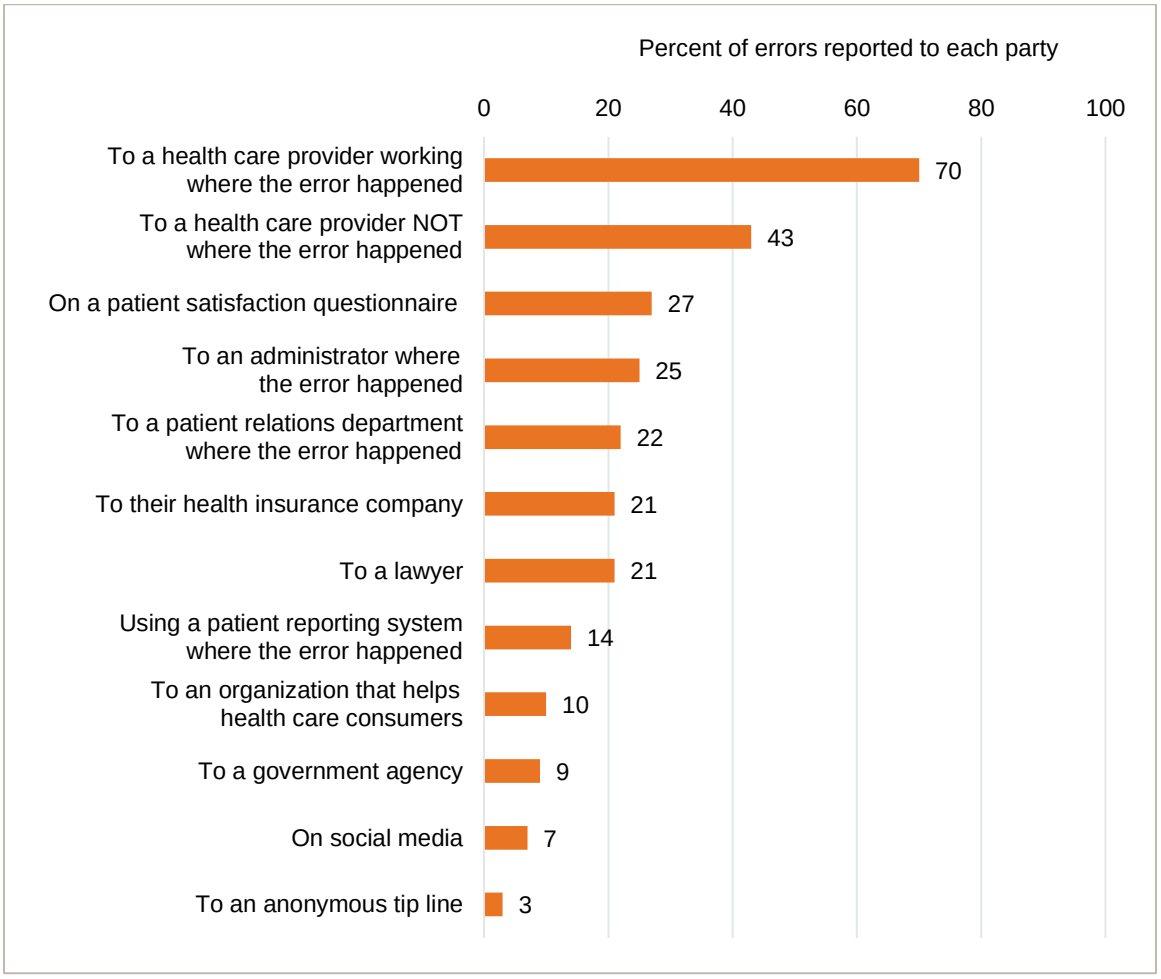


Question: Did [you/you or the person close to you] report the medical error, did someone else report it on [your/their] behalf, or did no one report it?

Of the 436 errors that respondents say were brought to the attention of providers or facility personnel, the errors tended to be reported at the facility where they occurred. Seventy percent were reported to a doctor, nurse, or other health care provider working where the error happened, 27 percent were reported on a patient satisfaction questionnaire; a quarter of the errors were reported to the administration or board of directors; 22 percent of the errors were reported to a patient safety, risk, or patient relations department; and 14 percent were reported using a patient reporting system where the error occurred.

Patients and their caregivers are less likely to go outside of the facility to report the error. Forty-three percent of errors were reported to a doctor, nurse, or other health care provider at a different facility. Twenty-one percent reported it to their health insurance company, 21 percent reported it to a lawyer, 9 percent reported it to a government agency, 7 percent took it to social media, and 3 percent used an anonymous tip line.

Errors are most often reported to the medical staff working at the facility where the error occurred.



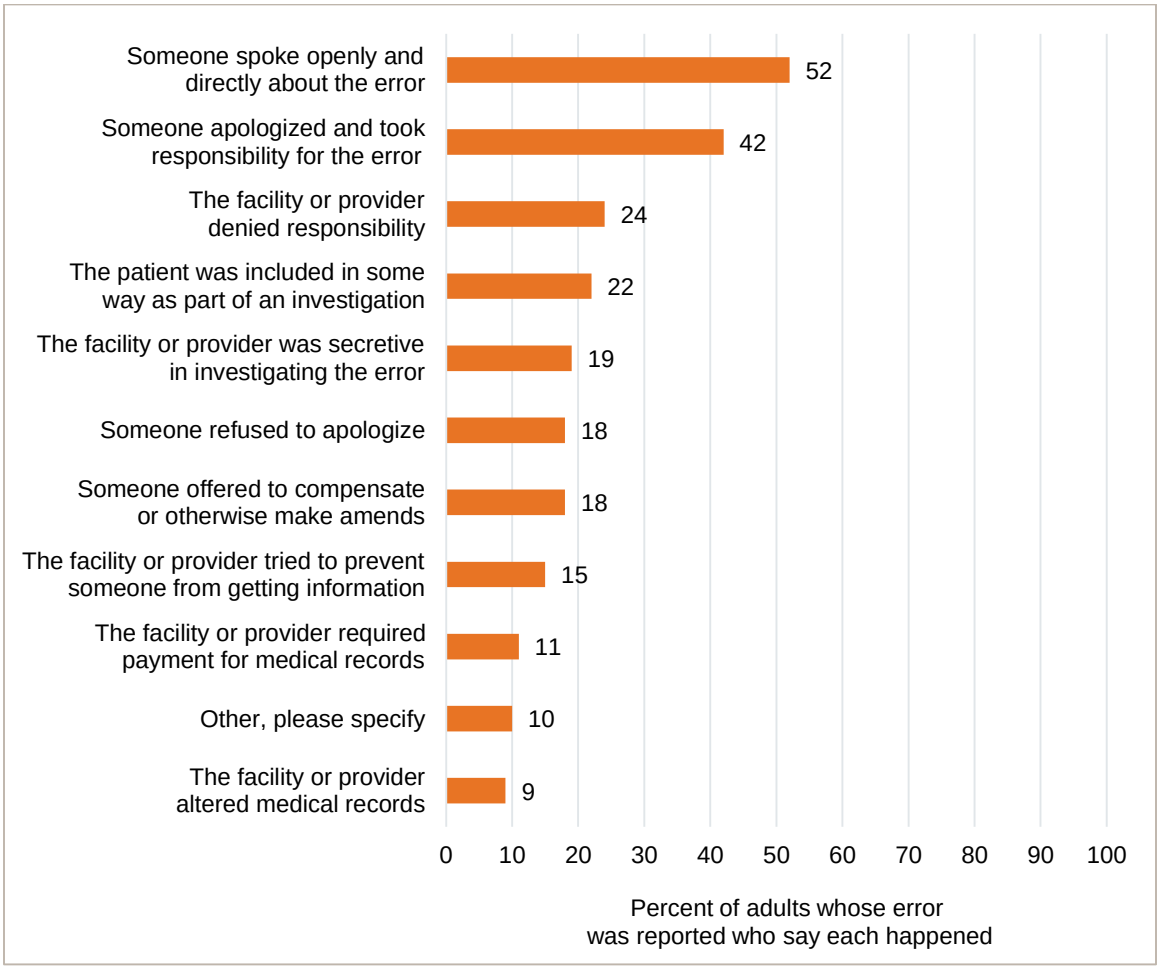
Question: Did [you/they] report the error in any of the following ways, or not?

When cases of medical errors are either reported by the patient or relayed to the patient, health care providers and facilities accept responsibility about half the time.

Survey responses suggest a possible disconnect between what the public perceives to be errors and what medical personnel and facility staff perceive as errors. Cases where the respondent said the medical error was reported to the patient and cases in which the patient or someone else reported the error to the facility or provider were both asked about the official response to the error. In about half of the cases, the health care provider or health care staff member spoke openly about the error, but fewer (about 4 in 10) apologized and took responsibility. One-quarter denied responsibility for the error, and 18 percent refused to apologize.

Twenty-two percent say they were personally included in some way as part of an investigation into the error, while 19 percent say the facility or provider was secretive or unwilling to include them in the investigation. Fifteen percent say the facility or provider tried to prevent them from getting crucial information, 9 percent say the facility or provider removed information or altered medical records, and 11 percent were required to pay for their medical records. Eighteen percent say someone offered compensation or to otherwise make amends, and 10 percent say the facility or provider had another response.

In half of reported cases, someone spoke openly and directly about the medical error.



Question: How did the facility or health care provider respond to the error?

Comparing the instances where a health care provider or facility representative notified the patient about the error with those where the patient was not informed, communication about the error was much more fluid. Those who were informed of the error are more likely than those who were not to say that someone spoke openly and directly about the error (60 percent vs. 42 percent) and that someone apologized and took responsibility for the error (55 percent vs. 28 percent). They are less likely to say that someone refused to apologize (11 percent vs. 26 percent), the facility or provider was secretive or unwilling to include them in investigating the error (13 percent vs. 26 percent), and that the facility or provider denied responsibility (17 percent vs. 31 percent).

In a few ways, the respondent's perception of how the provider or facility responded to the error varied by educational attainment. Nine percent of adults without a high school diploma say the facility or provider denied responsibility for the error, compared with 27 percent of adults with a high school diploma, 25 percent of adults with some college experience, and 25 percent with a bachelor's degree. Adults without a high school diploma (6 percent) were also less likely than adults with some college experience (20 percent) and adults with a bachelor's degree (16 percent) to say the facility or provider tried to prevent them from getting crucial information.

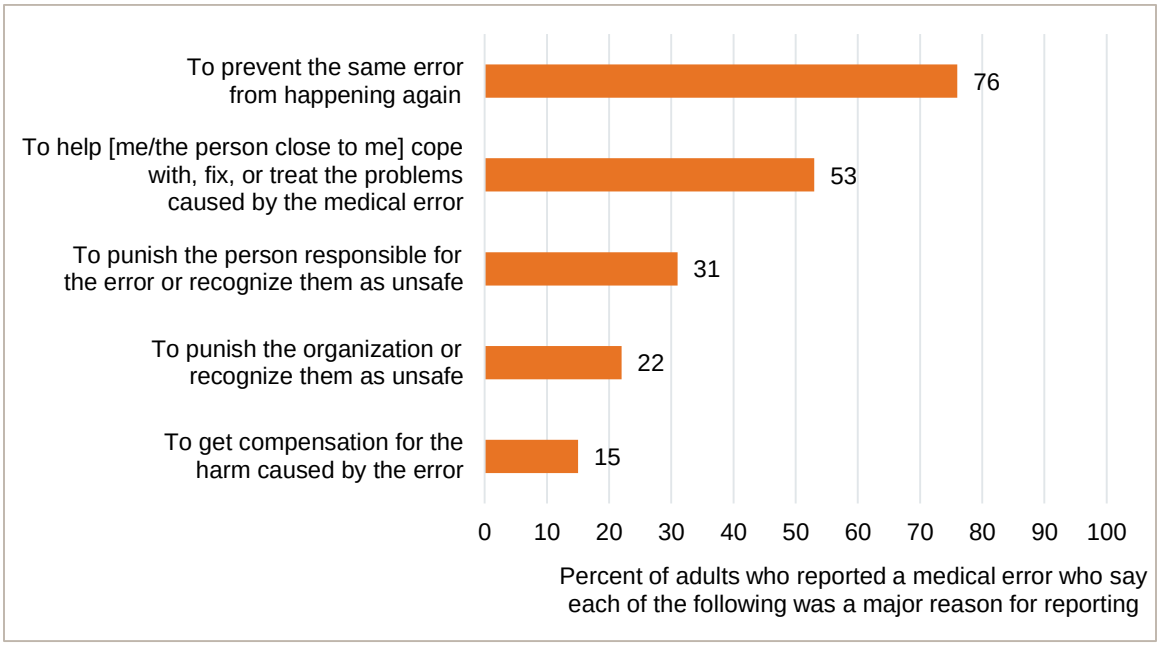
Most who reported the error did so in an effort to prevent it from happening to someone else.

Adults who say they reported the error point to various factors that motivated them to do so. Chief among them is to prevent the same error from happening again, as 76 percent of adults say this is a major reason. The next most common motivation for reporting the error comes more out of personal necessity. Fifty-three percent of adults who reported the error say a major reason for doing so was to help them cope with, fix, or treat problems caused by the error.

Thirty-one percent say a major reason why they reported the error was to punish the person responsible or to recognize them as unsafe, 22 percent say they wanted to punish the organization or recognize them as unsafe, and 15 percent say a major reason was to get compensation for the harm the error caused.

Sixty percent of those who reported the error on someone else's behalf say a major reason why they reported it was that they thought it should be reported and the person who experienced the error was unable to report it themselves.

The biggest motivation for reporting a medical error comes from trying to prevent it from happening again to others.



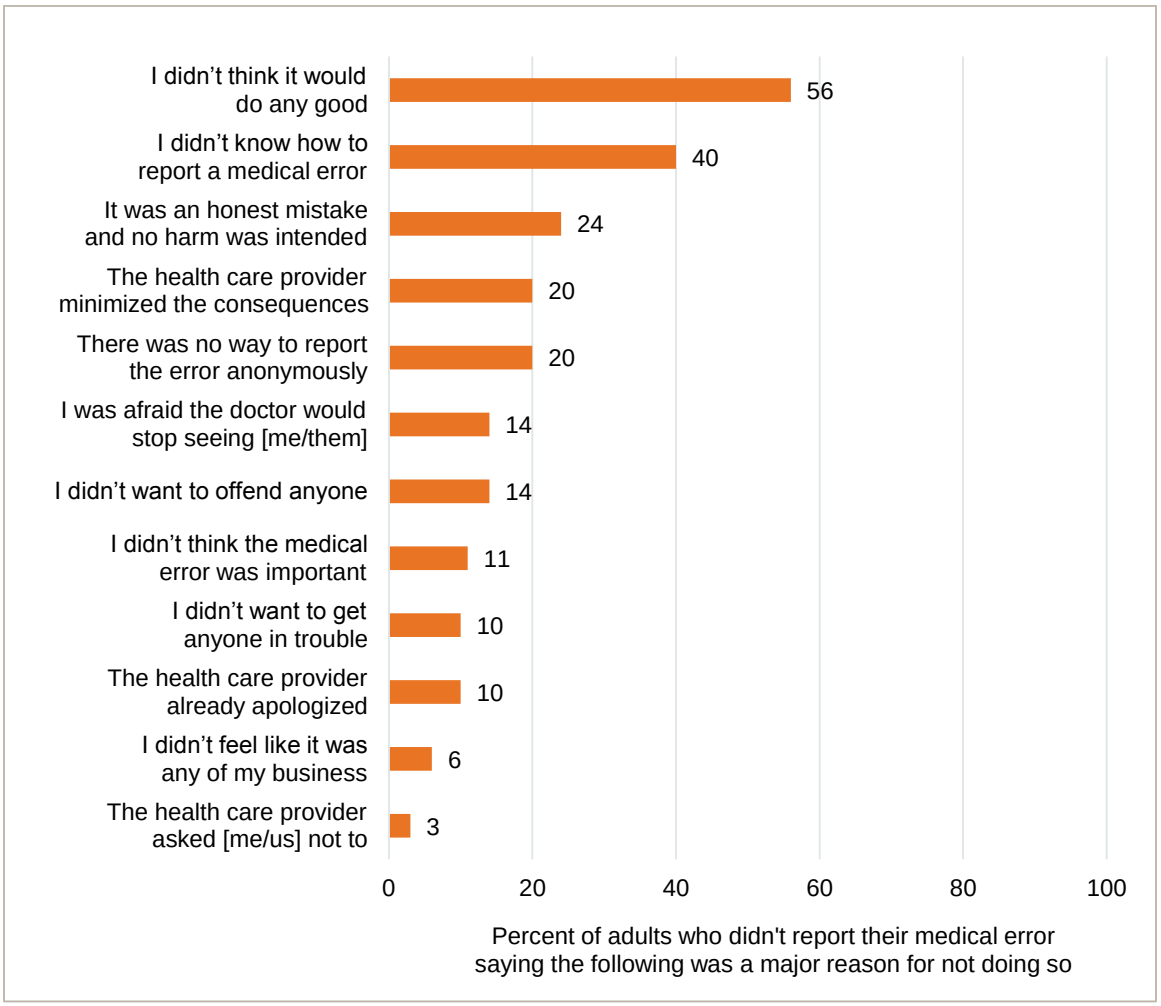
Question: For each of the following, please indicate if it was a major reason, a minor reason, or not a reason at all that you reported the medical error.

A majority who chose not to report the error say they didn't think it would do any good, but many errors also go unreported because people aren't sure how to report them.

Among those who chose not to report the medical error, 56 percent say a major reason why they did not do so was because they didn't think reporting it would do any good, and 40 percent say they didn't know how to report the error. Nearly a quarter say they didn't report the error because they believe it was an honest mistake and the health care provider didn't intend to do any harm.

Twenty percent point to their health care provider minimizing the consequences of the error as a major reason for not reporting it, while another 20 percent say they didn't do so because there was no way to report the error anonymously. Fewer say they didn't report the error out of fear that the doctor would stop seeing the patient (14 percent), not wanting to offend anyone (14 percent), not thinking the medical error was important or no harm having been done (11 percent), not wanting to get anyone in trouble (10 percent), the health care provider having already apologized (10 percent), or feeling like it wasn't any of their business (6 percent). Very few report that they were asked or threatened by a health care provider to not report the error (3 percent).

Errors most often go unreported because people don't think reporting will make a difference or because they don't know how to report it.



Question: For each of the following, please indicate if it was a major reason, a minor reason, or not a reason at all that you did not report the medical error.

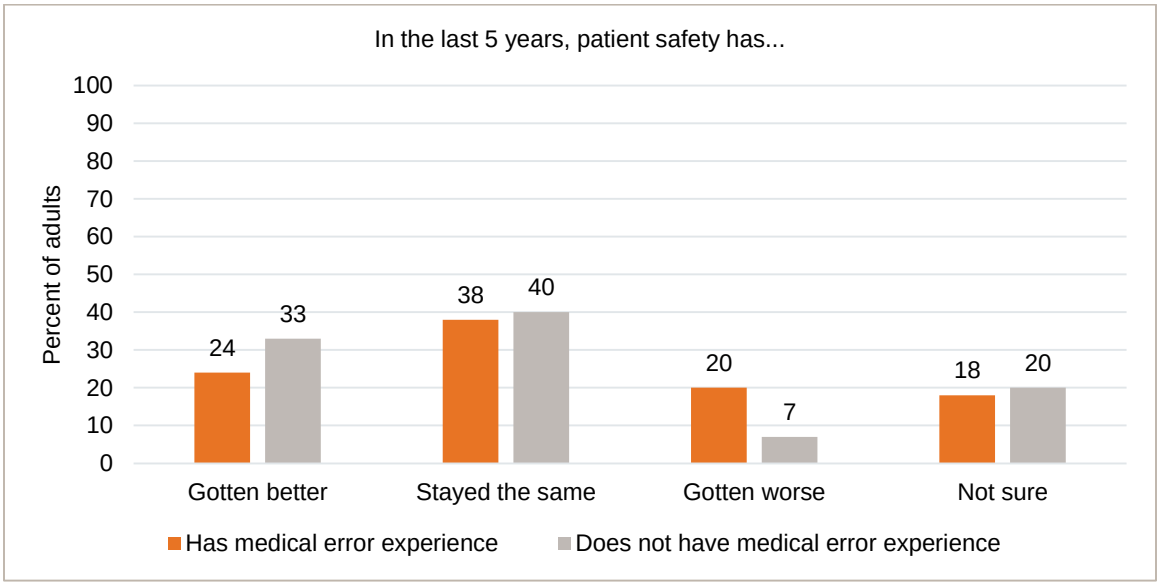
Among those who did not personally experience the error, 19 percent say they didn't think they could report an error related to someone else's care, and 15 percent say a major reason why they didn't report the error was because the person close to them did not want them to do so.

V. Americans' perceptions of the patient safety landscape

Most Americans say patient safety has stayed the same or gotten better over the past five years, and few think they will experience a medical error when receiving care.

In assessing the state of patient safety, 39 percent of Americans say patient safety has stayed the same over the last five years, 29 percent say it has gotten better, and 12 percent say it has gotten worse. Nineteen percent are unsure. Perhaps not surprisingly, adults who have experience with a medical error are more likely than adults without medical error experience to say patient safety has gotten worse (20 percent vs. 7 percent).

Adults with medical error experience are less positive about the state of patient safety in the United States.



Question: Over the past five years, do you think that patient safety has...?

Sentiment about patient safety has generally improved compared to two decades ago. In the 1997 survey, Americans were much more evenly split in how they viewed progress in patient safety, with 33 percent saying it had gotten better, 31 percent saying it had gotten worse, 33 percent saying it had stayed the same, and 3 percent saying they did not know. [30]

Most Americans do not believe they are at risk of experiencing a medical error when they receive care. Nearly two out of every three adults believe it's not too likely or not at all likely that an error will occur, while 26 percent say it's moderately likely and 9 percent say it's extremely or very likely.

[30] In the 1997 survey, the "not sure" response option was voluntary. See more from the 1997 survey here: http://www.ihi.org/about/news/Documents/Public_Opinion_of_Patient_Safety_Issues_1997.pdf

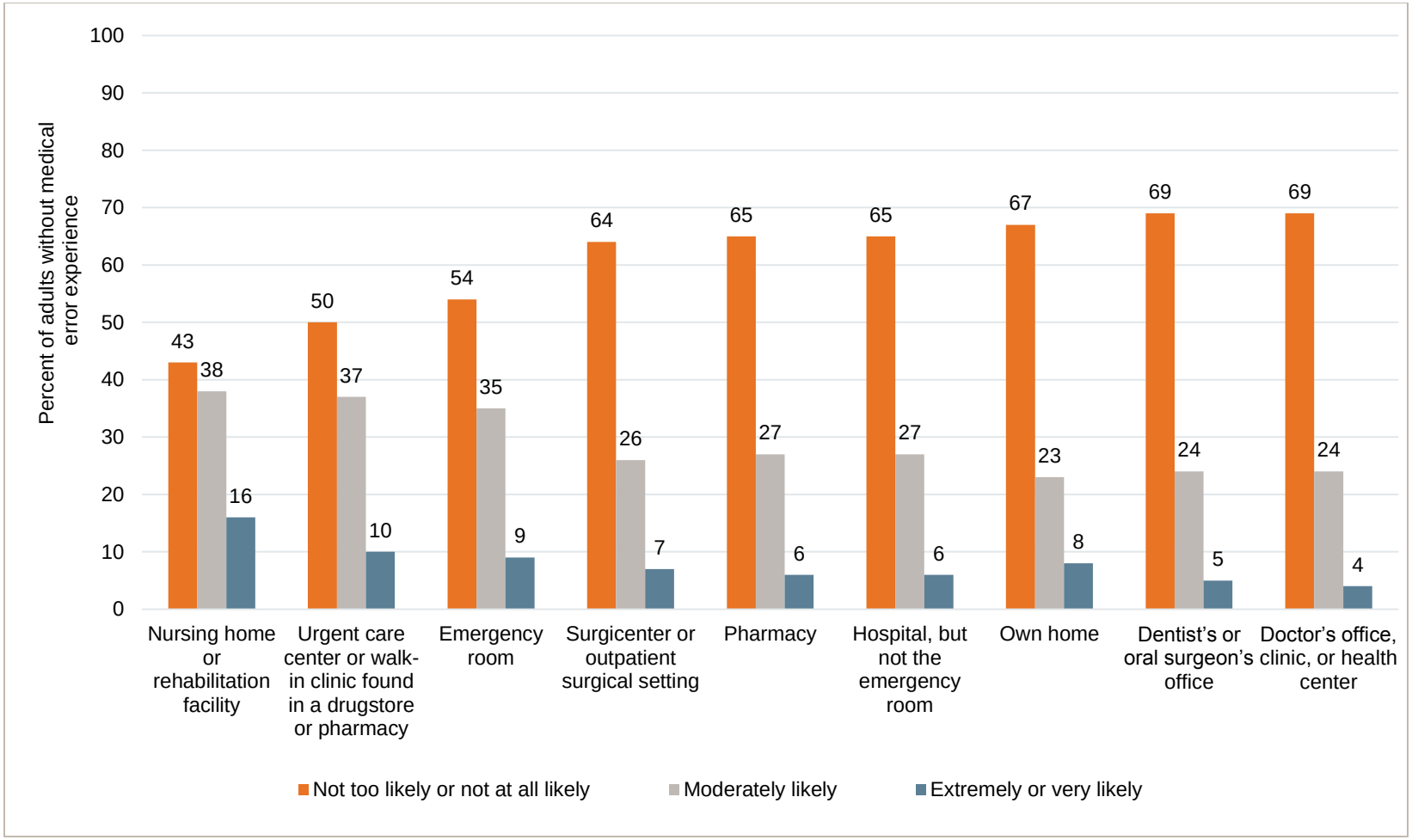
Those without medical error experience are more likely to say they are not at risk (75 percent vs. 48 percent).

Adults without health insurance and those in poorer health perceive a greater risk of experiencing a medical error. Seventeen percent of adults without health insurance say it is likely they will experience a medical error, compared with 8 percent of adults with health insurance who say the same.

Americans with better health are also more optimistic about the likelihood they will avoid a medical error. Sixty-six percent of Americans who say their health is good, very good, or excellent say it's unlikely that they will experience a medical error compared with 55 percent who say they are in fair or poor health.

Those who have not experienced an error generally aren't worried that they will, no matter the health care setting. Fewer than 1 in 5 Americans without error experience say they are likely to experience an error in any of the nine health care settings they were asked about. They are most likely to say they are at risk in a nursing home or rehabilitation facility, though just 16 percent say it's extremely or very likely. More than 6 in 10 say it is unlikely that they will experience an error in a doctor's office, a dentist's office, their own home, a hospital but not the ER, a pharmacy, or a surgicenter or an outpatient surgical setting. Fifty-four percent say it's unlikely that they will encounter an error in the ER, and 50 percent say it's unlikely to happen in an urgent care center.

Americans without a medical error history are largely not worried about experiencing an error in most health care situations.



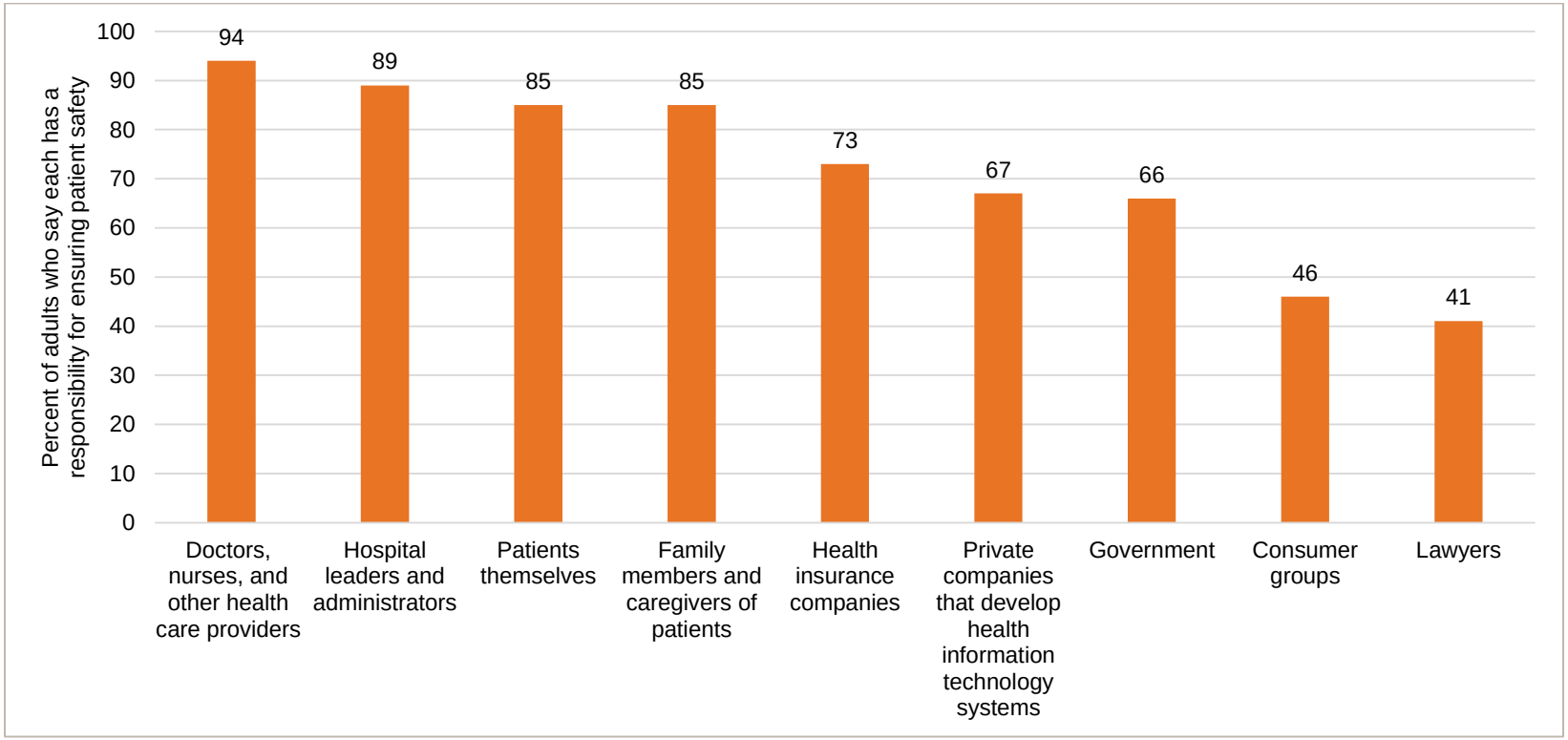
Question: How likely do you think it is that you will encounter a medical error in the following health care settings or situations?

Most Americans place the responsibility for ensuring patient safety on health care providers, hospital administration, and patients and family members.

In recent years, there has been a push to situate the issue of patient safety in a public health framework in which multiple stakeholders work together to promote safe practices throughout the health care field in an effort to prevent medical errors. The results of the survey suggest that Americans support such an interdisciplinary approach.

Americans believe the responsibility for ensuring patient safety lies with many health-related stakeholders. More than 9 in 10 Americans say doctors, nurses, and other health care providers bear a responsibility for ensuring patient safety. Eighty-nine percent say the responsibility is with hospital leaders and administrators, and 85 percent say patients themselves and family members and caregivers of patients are responsible for patient safety. More than 6 in 10 say health insurance companies (73 percent), private companies that develop health information technology (67 percent), and the government (66 percent) have a responsibility for ensuring safety for patients. Fewer than half say the responsibility lies with consumer groups (46 percent) or lawyers (41 percent).

More than 8 in 10 Americans say responsibility for patient safety should fall on health care providers, hospital administration, patients, and family members.



Question: Which of the following has a responsibility for ensuring a patient's safety?

Health insurance status, socioeconomic status, and health literacy are related to attitudes toward patient safety responsibility.

For most groups asked about, Americans with health insurance are more likely than those without health insurance to say they have a responsibility to ensure patient safety, including: doctors, nurses, and other health care providers (96 percent vs. 81 percent), hospital leaders and administrators (91 percent vs. 73 percent), patients themselves (87 percent vs. 72 percent), family members and caregivers of patients (86 percent vs. 73 percent), health insurance companies (74 percent vs. 62 percent), and private companies that develop health information technology systems (68 percent vs. 54 percent).

Adults with low socioeconomic status are less likely than adults with higher socioeconomic status to say that doctors, nurses, and other health care providers (86 percent vs. 95 percent), hospital leaders and administrators (78 percent vs. 90 percent), patients themselves (74 percent vs. 86 percent), and health insurance companies (65 percent vs. 73 percent) are responsible for ensuring patient safety.

Americans with higher health literacy are more likely than those with lower health literacy to place the responsibility of ensuring patient safety on patients themselves (88 percent vs. 80 percent).

Study Methodology

This survey was conducted by NORC at the University of Chicago with funding from the IHI/NPSF Lucian Leape Institute and its inaugural funder, Medtronic. NORC at the University of Chicago and IHI/NPSF Lucian Leape Institute staff collaborated on all aspects of the study design and reporting. The study design, analysis, and report are solely the responsibility of the authors and were in no way influenced or shaped by the views of Medtronic.

Data were collected using AmeriSpeak®, NORC's probability-based panel designed to be representative of the US household population. During the initial recruitment phase of the panel, randomly selected US households were sampled with a known, non-zero probability of selection from the NORC National Sample Frame and then contacted by US mail, email, telephone, and field interviewers (face-to-face). The panel provides sample coverage of approximately 97 percent of the US household population. Those excluded from the sample include people with P.O. Box only addresses, some addresses not listed in the USPS Delivery Sequence File, and some newly constructed dwellings.

Interviews for this survey were conducted between May 12 and June 26, 2017, with adults age 18 and over representing the 50 states and the District of Columbia. Panel members were randomly drawn from AmeriSpeak, and 2,536 completed the survey — 1,958 via the web and 578 via telephone. The sample also included an oversample of low socioeconomic status adults with less than a high school education and a household income of less than $50,000 a year (n=524). Interviews were conducted in both English and Spanish, depending on respondent preference.

The final stage completion rate is 36.8 percent, the weighted household panel response rate is 32.6 percent, and the weighted household panel retention rate is 93.4 percent, for a cumulative response rate of 11.2 percent. The overall margin of sampling error is +/- 3.2 percentage points at the 95 percent confidence level, including the design effect. For low socioeconomic adults, the margin of sampling error is +/- 5.8 percentage points at the 95 percent confidence level. For those who have experience with a medical error, the margin of sampling error is +/- 4.9 percentage points at the 95 percent confidence level. The margin of sampling error may be higher for some subgroups.

Once the sample has been selected and fielded, and all the study data have been collected and made final, a poststratification process is used to adjust for any survey nonresponse as well as any noncoverage or under- and oversampling resulting from the study-specific sample design. Poststratification variables included age, gender, Census region, race/ethnicity, and education. The weighted data reflect the US population of adults age 18 and over as reflected in the Current Population Survey March Supplement 2016.

All analyses were conducted using STATA (version 14), which allows for adjustment of standard errors for complex sample designs. All differences reported between subgroups of the US population are at the 95 percent level of statistical significance, meaning that there is only a 5 percent (or less) probability that the observed differences could be attributed to chance variation in sampling. Additionally, bivariate differences between subgroups are only reported when they also remain robust in a multivariate model controlling for other demographic, political, and socioeconomic covariates.

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