

PATIENT SAFETY

September 2020 | Vol. 2, No.3

Process breakdowns
that increase the risk of
respiratory infection

An in-depth look at
nonsuicidal self-injury

Fall prevention: Think you've
already tried everything?
Think again.

National Action Plan:

Yes, every
healthcare
system is unique.
But we have
more in common
than you think.



LETTER

From the Editor



*Regina Hoffman,
Editor-in-Chief
Patient Safety*

I can't believe it's been a year since we launched the inaugural issue of *Patient Safety*. Over the course of the past year *Patient Safety* has reached almost 29,000 readers from around the world. We'd like to thank all our authors, reviewers, readers, and staff for contributing to this success. We continue to focus on publishing information that both advises and inspires providers and patients to take action to improve patient safety. We encourage researchers, clinicians, and patients everywhere to share their successes, their challenges, and their stories with us so we can share them with you.

Today, September 17, we celebrate World Patient Safety Day with all patients, healthcare workers, and healthcare organizations. This issue features an interview with Dr. Tejal Gandhi and Dr. Jeff Brady, who discuss the recently released National Action Plan for Patient Safety in the United States and share their personal views on its background and importance. I had the honor and privilege of being part of the team that developed this guiding document, and while I am proud of the work, it underscores the challenging road that lies ahead and the need to work in alliance with each other. Together we can make a difference, and we need to start right now. From culture and leadership to learning organizations and workforce safety, this plan encompasses real actions that healthcare facilities can take today to reduce harm to patients.

In further support of global patient safety, you will find an old topic in this issue with a fresh twist: authors Caitlyn Allen and Susan Wallace take you on a trip around the world in search of innovative solutions to patient falls. In this issue we also include a very timely original article that discusses process breakdowns that can lead to failure to recognize, treat, and prevent the spread of respiratory infections. In the time of COVID-19 and with flu season quickly approaching, the recommendations in this manuscript are critical to keeping some of our most vulnerable patients safe. You will also find two unique perspec-

tive pieces related to the current pandemic, one from a patient who discusses his illness and recovery, and one from a social worker who brings attention to another danger during periods of isolation—intimate partner violence. Other highlights from this issue include an original article that explores nonsuicidal self-injury among children and adolescents, and an inspiring piece that introduces us to a high schooler who has her eye on the prize of making the world a safer place!

If you have research, improvement initiatives, or perspectives that contribute to our collective knowledge, please consider submitting your next manuscript to *Patient Safety* at patientsafetyj.com.

Stay safe and be well!

A handwritten signature of Regina in black ink.

ABOUT PATIENT SAFETY

As the journal of the Patient Safety Authority, committed to the vision of "safe healthcare for all patients," *Patient Safety* (ISSN 2689-0143) is fully open access and highlights original research, advanced analytics, and hot topics in healthcare.

The mission of this publication is to inform and advise clinicians, administrators, and patients on preventing harm and improving safety, by providing evidence-based, original research; editorials addressing current and sometimes controversial topics; and analyses from one of the world's largest adverse event reporting databases.

We invite you to submit manuscripts that align with our mission. We're particularly looking for well-written original research articles, reviews, commentaries, case studies, data analyses, quality improvement studies, or other manuscripts that will advance patient safety.

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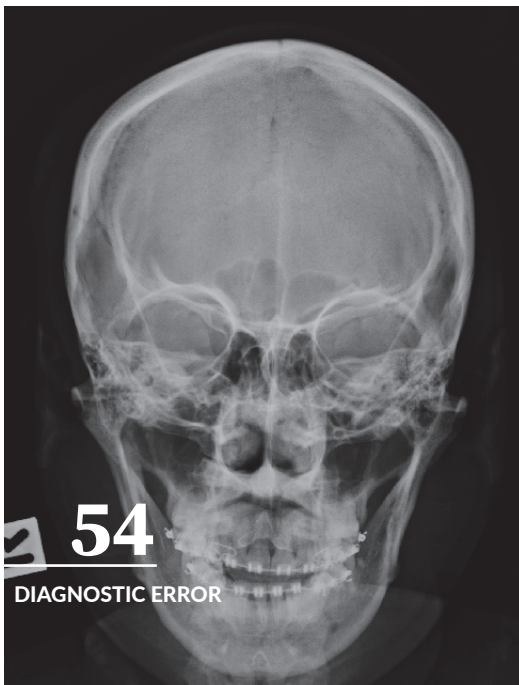
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Together we save lives



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SURVIVING COVID



FROM 18 HOLES TO 18 STEPS



One New Yorker's Journey
Surviving COVID-19

By Neil Sidrane

The first confirmed case of COVID-19 in New York was on March 1. Forty-one days later, on Saturday, April 11, I was among 9,946 New Yorkers to test positive, joining the 180,458 others across the state who had gone before us. The following Tuesday, following two trips to urgent care, an ambulance ride to the ER, and supplemental oxygen, I was admitted to the hospital. But let me back up.

My wife, Risa, and I own a printing business on Long Island that my parents started in the 40s. Since then, it's expanded from mostly labels and now includes food, beverage, and medical device packaging—all of which were considered “essential” during the pandemic. When the case count started to rise, the governor began issuing lockdowns. But those products allowed us to continue operation and help our employees weather the growing financial tempest.

We had to make difficult decisions on how to balance maintaining production and keep everyone safe.

Despite more vigorous cleaning, shorter shifts with fewer people, and more distancing, several of our employees contracted the virus, many of whom we've worked alongside for years. Then it was our turn.

Every survivor's story is a little different. Before the pandemic hit, I was an avid golfer, hitting the links a few times a week. Then I was struck with “COVID fatigue.” Imagine staying up for 48 hours straight then running a marathon. And throw shortness of breath on top of it.

Being short of breath feels like no matter what you do, you can never get enough air into your lungs. It's tough to inhale and exhale, so you end up gasping to get enough oxygen to survive. Sometimes there's a tightness in your chest, like you're lying under a boulder.

The most basic life functions were all I could manage. And at the same time, Risa also had contracted the virus. So in between breaths, I worried she would fall as ill as I was. Thankfully, her condition never got as bad.

Meanwhile, our older son was leaving us groceries on our doorstep, and our younger son moved back home. He was living in Manhattan with his girlfriend, a nurse training to be a nurse practitioner, who was risking her life working on a COVID unit in the city.

After I spent three days living in a recliner, my younger son took me to urgent care to get tested—even though we already knew what it was. The test results wouldn't be available for 24 hours, but enough was wrong that the staff sent me in an ambulance to the ER for oxygen. The next day, April 11, we got confirmation it was COVID. Following a few more days in the recliner, struggling to breathe, I went back to urgent care on April 14. But this time, I didn't come home.

Hospitals can be lonely, even more so during a pandemic. While I was there, visitors were restricted. Technology provided a means to connect with loved ones, though FaceTime is not a perfect substitute. And it was difficult to schedule “virtual visitation” with my family and friends when so many of them were also virus-stricken. Calls with Risa were the highlight of my day, despite the ever-present cloud of not knowing what would happen.

Also haunting us was that two friends had just passed away from the virus. So always on our minds was the worry that I could be next. If it took them, why not me?

Especially given that I used to smoke and had a partial lobectomy as a result. And my grandfather died from the Spanish flu. Nature seems to have a cruel appreciation for ironic symmetry.

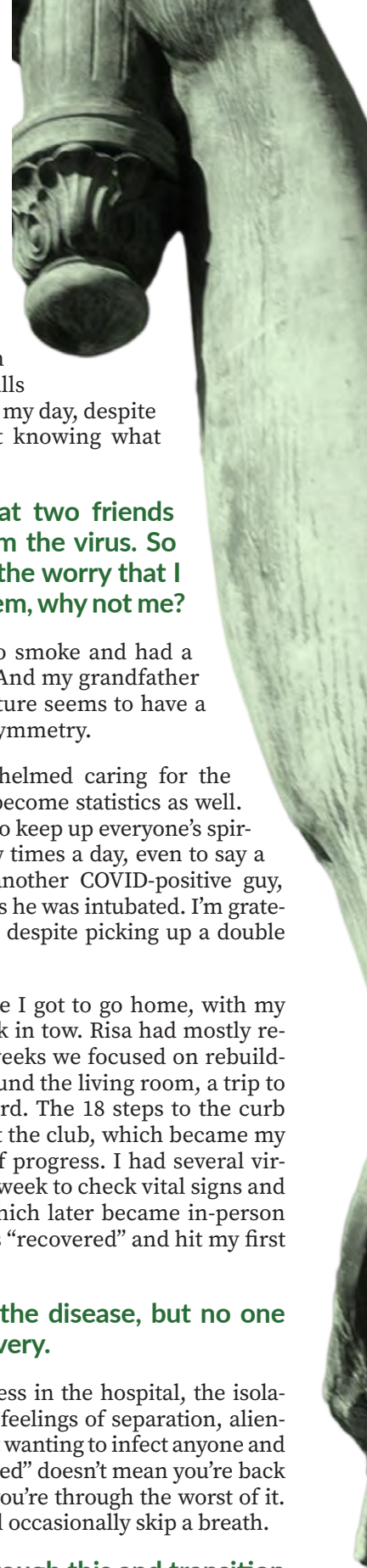
The hospital staff was overwhelmed caring for the thousands of others who had become statistics as well. They tried the best they could to keep up everyone's spirits and visited our rooms a few times a day, even to say a quick hello. My roommate, another COVID-positive guy, wasn't much company either, as he was intubated. I'm grateful to have escaped that piece, despite picking up a double case of pneumonia.

It was eight days of this before I got to go home, with my nasal cannula and oxygen tank in tow. Risa had mostly recovered, so for the next few weeks we focused on rebuilding my energy level—a lap around the living room, a trip to the mailbox, a stroll in the yard. The 18 steps to the curb were a far cry from 18 holes at the club, which became my goal and unofficial measure of progress. I had several virtual visits with my nurse each week to check vital signs and closely monitor symptoms, which later became in-person visits. By the end of May, I was “recovered” and hit my first golf ball in months.

You hear so much about the disease, but no one warns you about the recovery.

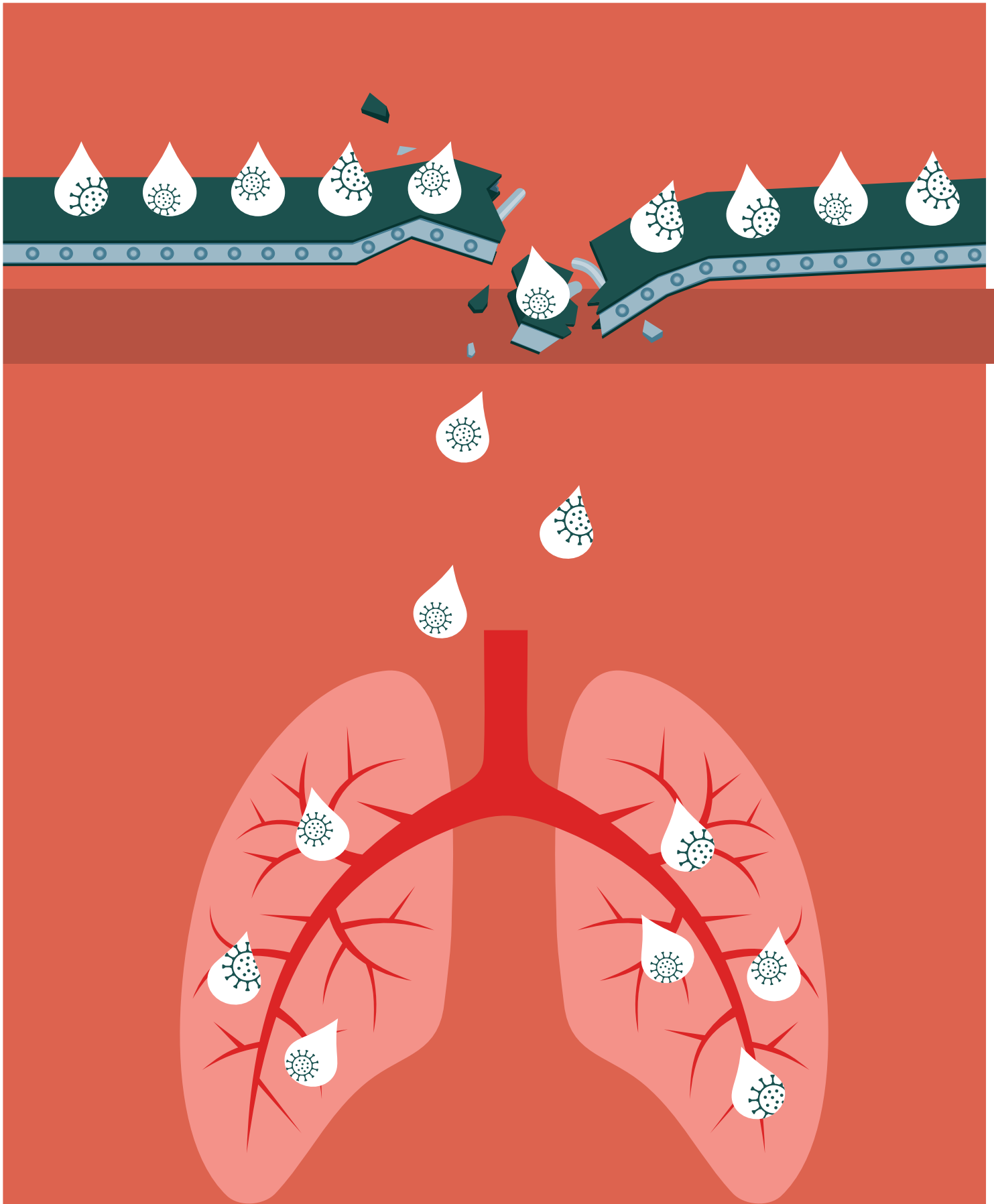
Though you anticipate loneliness in the hospital, the isolation afterward is much worse: feelings of separation, alienation, and total pariahdom. Not wanting to infect anyone and fearing a relapse. And “recovered” doesn't mean you're back to your old self, it just means you're through the worst of it. Even now, months later, I'll still occasionally skip a breath.

We will eventually get through this and transition to whatever the new normal is. But we'll get there faster and stronger if we get there together. So wear a mask. Socially distance.





***This is not about
you or me.
It's about all of us.***



◆ Corresponding author
◇ Patient Safety Authority

Disclosure: The authors declare that they have no relevant or material financial interests.

Process Failures That Increase the Risk of Infection Through Respiratory Droplets:

A Study of Patient Safety Events Reported by Hospitals Across Pennsylvania

By Amy Harper, PhD, RN♦♦
Elizabeth Kukiela, PharmD, MA, RPh♦
Rebecca Jones, MBA, RN♦

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Respiratory pathogens can lead to pneumonia, bronchiolitis, and death. Rapid identification, along with appropriate standard and isolation precautions, are necessary to prevent the spread of infectious agents causing respiratory infections. We analyzed patient safety events reported to the Pennsylvania Patient Safety Reporting System that were related to viruses and bacteria spread through respiratory droplets. An analysis of events that occurred from January 1, 2019, through December 31, 2019, led to the identification of 338 events involving process failures related to recognizing infectious agents that are spread through respiratory droplets, implementing measures to prevent their spread, or providing timely treatment. Detailed analysis of the process failures showed that 54.9% were associated with processes in testing or processing of laboratory specimens; 29.7% were associated with isolation-related procedures; and 15.4% were associated with medications, triage/assessment, documentation/verbal communication, or not providing the standard of care for patients in missed/delayed orders, procedures, or referrals.

Implementation of risk-reduction strategies can help to further reduce the spread of pathogens through respiratory droplets in the hospital setting and further enhance patient safety. These strategies include evaluating collection processes for testing/laboratory specimens, consistently using empiric isolation precautions based on initial triage and patient presentation, and evaluating processes for admissions and transfers.

Keywords: *respiratory, pneumonia, isolation, droplet precautions, influenza, syncytial*

Introduction

In the United States, an estimated 21 million patients seek medical treatment for respiratory infections each year.¹ Severe respiratory infections such as croup, bronchiolitis, and pneumonia are caused by bacterial and viral agents spread through respiratory droplets.²⁻⁵ Most viral pneumonias in the United States are caused by influenza and

Most viral pneumonias in the United States are caused by influenza and respiratory syncytial virus (RSV), but other causes of viral pneumonia include human metapneumovirus, human parainfluenza virus, rhinovirus, coronavirus, adenovirus, and measles.⁶⁻⁹

respiratory syncytial virus (RSV), but other causes of viral pneumonia include human metapneumovirus, human parainfluenza virus, rhinovirus, coronavirus, adenovirus, and measles.⁶⁻⁹ Other infectious illnesses, such as mumps, rubella, meningitis, and pertussis, are also spread through respiratory droplets.¹⁰

Numerous outbreaks of infectious agents (e.g., influenza, rhinovirus, RSV, measles, and pertussis) have been described in hospital settings.¹¹⁻²⁰ Thus, streamlined processes to quickly identify patients and staff that may be contagious, effectively isolate or exclude those individuals, and efficiently treat the suspected infection have the potential to significantly reduce the spread of nosocomial (i.e.,

hospital-associated) infectious agents through respiratory droplets.²¹

In order to determine the types of process failures that may place patients and staff at the greatest risk for exposure to infectious agents that cause respiratory infections or are spread through respiratory droplets, we examined patient safety events submitted to the Pennsylvania Patient Safety Reporting System (PA-PSRS)* that were related to failures in the processes of early identification and prevention of the spread of infectious agents through respiratory droplets. Based on our analysis and a review of the medical literature, we developed risk-reduction strategies to help guide facilities to improve staff and patient safety.

Methods

We queried the PA-PSRS acute care database for events that occurred from January 1, 2019, through December 31, 2019. We searched free-text fields (i.e., Event Details, Event Recommendations, and Event Comments) for keywords relating to viral or bacterial agents that are spread through respiratory droplets: “RSV,” “syncytial,” “influenza,” “adenovirus,” “coronavirus,” “rhinovirus,” “enterovirus,” “pertussis,” “metapneumo,” “meningitis,” “mumps,” “measles,” “rubella,” and “rubeola.” These keywords were selected based on common viral agents detected in a typical laboratory respiratory panel and other highly infectious diseases that can be spread through droplets, such as pertussis, meningitis, mumps, and rubella.^{10,21,23-26} The keyword “rubeola” was included because measles is also highly infectious; causes symptoms similar to that of rubella (e.g., cough, runny nose, sore throat, and rash); and is spread through small respiratory droplets.^{26,27}

An analyst manually reviewed each report to identify events that included process failures related to early identification and prevention of the

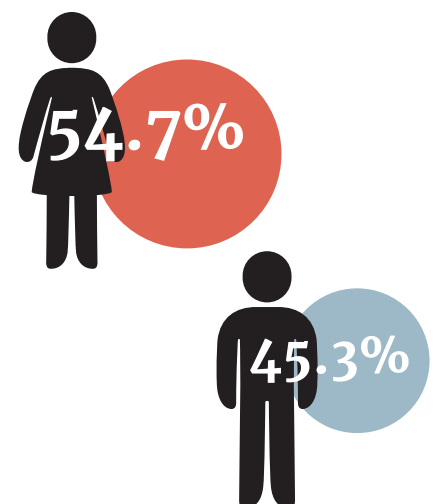
spread of infectious agents through respiratory droplets. Specifically, we included events with process failures related to identification of an infectious agent through testing and processing of specimens; prevention of the spread of the potential infectious agent through isolation and precautions; medications/treatment; initial triage or assessment; documentation or verbal communication; or missed/delayed orders, procedures, or referrals. Several events included multiple process failures, which were analyzed individually. We excluded events that did not directly relate to identification, isolation, containment, or treatment to eliminate an infectious agent, such as transfers to higher levels of care, canceled procedures, vaccination errors, additional complications, or delayed delivery of oxygen.

Results

The initial query of the PA-PSRS acute care database produced 602 events that occurred in 2019. An analyst manually reviewed the details for each event and identified 338 events that met inclusion criteria. All 338 events were reported by hospitals.

Patient age/gender

For the 338 event reports, 54.7% occurred in females and 45.3% occurred in males. In **Figure 1**, we present the number of events by the following age groups: 0 through 5 years (young children), 6 through 18 years (school-aged children), 19 through 35 years



*PA-PSRS is a secure, web-based system through which Pennsylvania hospitals, ambulatory surgical facilities, abortion facilities, and birthing centers submit reports of patient safety-related incidents and serious events in accordance with mandatory reporting laws outlined in the Medical Care Availability and Reduction of Error (MCARE) Act (Act 13 of 2002).²² All reports submitted through PA-PSRS are confidential and no information about individual facilities or providers is made public.

(young adults), 36 through 64 years (middle-aged adults), and 65 years and older (older adults). Patients 5 years and younger (32.2%) or 65 years and older (25.4%) were most frequently associated with the included events.

Harm Scores

Facilities assigned harm scores to each event at the time of reporting. **Figure 2** summarizes the frequency of harm scores, which ranged from A–E. No events were assigned harm scores F–I, meaning that no events led to a temporary harm that resulted in initial or prolonged hospitalization, permanent harm, near-death, or death. Harm score C was most frequently associated with the events analyzed (50.9%, **Figure 2**).

Figure 1: Percentage of Events by Age Group, N=338

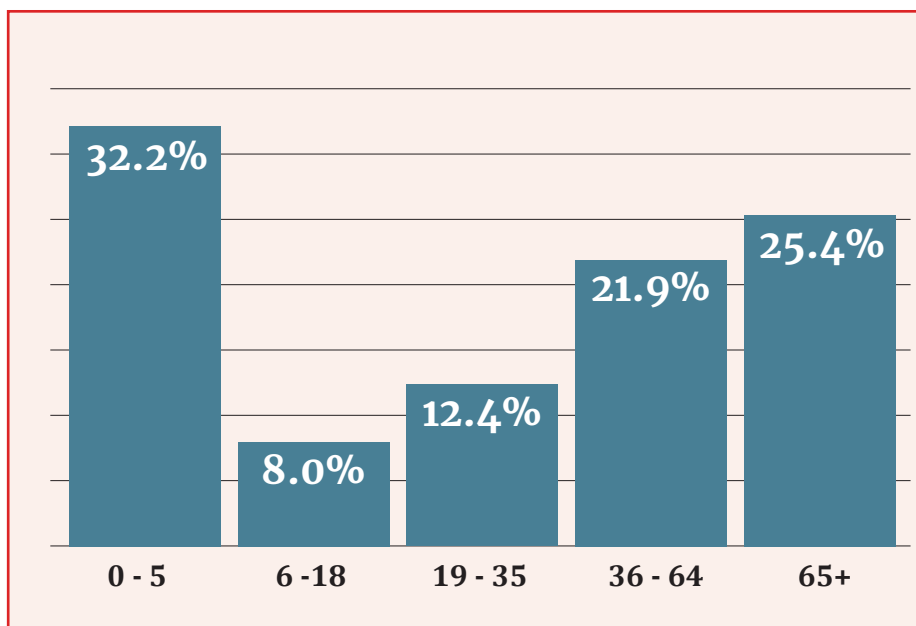
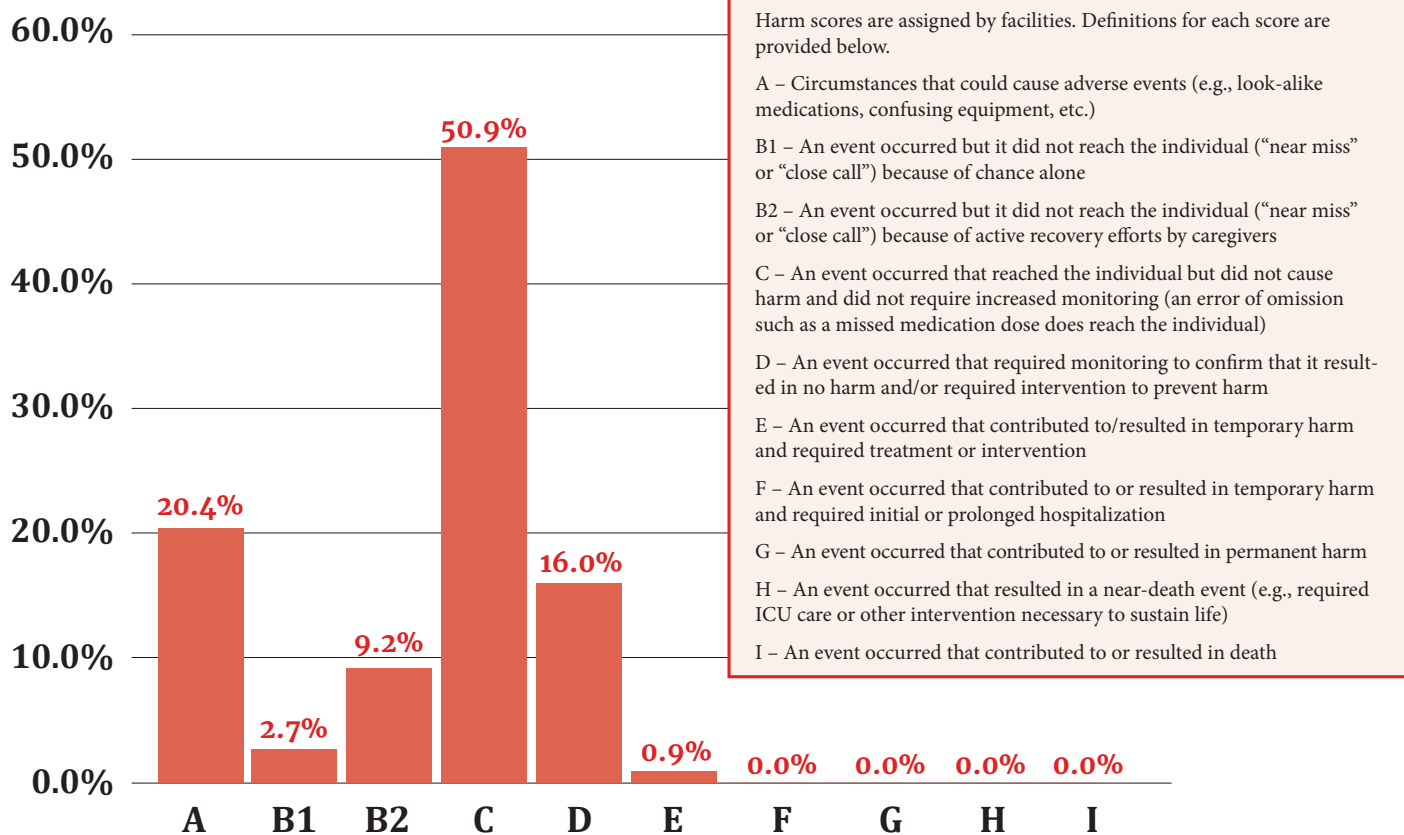


Figure 2: Percentage of Events by Harm Score, N=338



Process Failure Analysis

To gain a better understanding of steps needed to prevent the spread of infectious agents through respiratory droplets and to enhance staff and patient safety, we further analyzed the types of process failures identified in the event reports. Eighteen events involved two or more process failures. Thus, a total of 357 process failures were further analyzed. The process failures were categorized into three main categories: process failures in

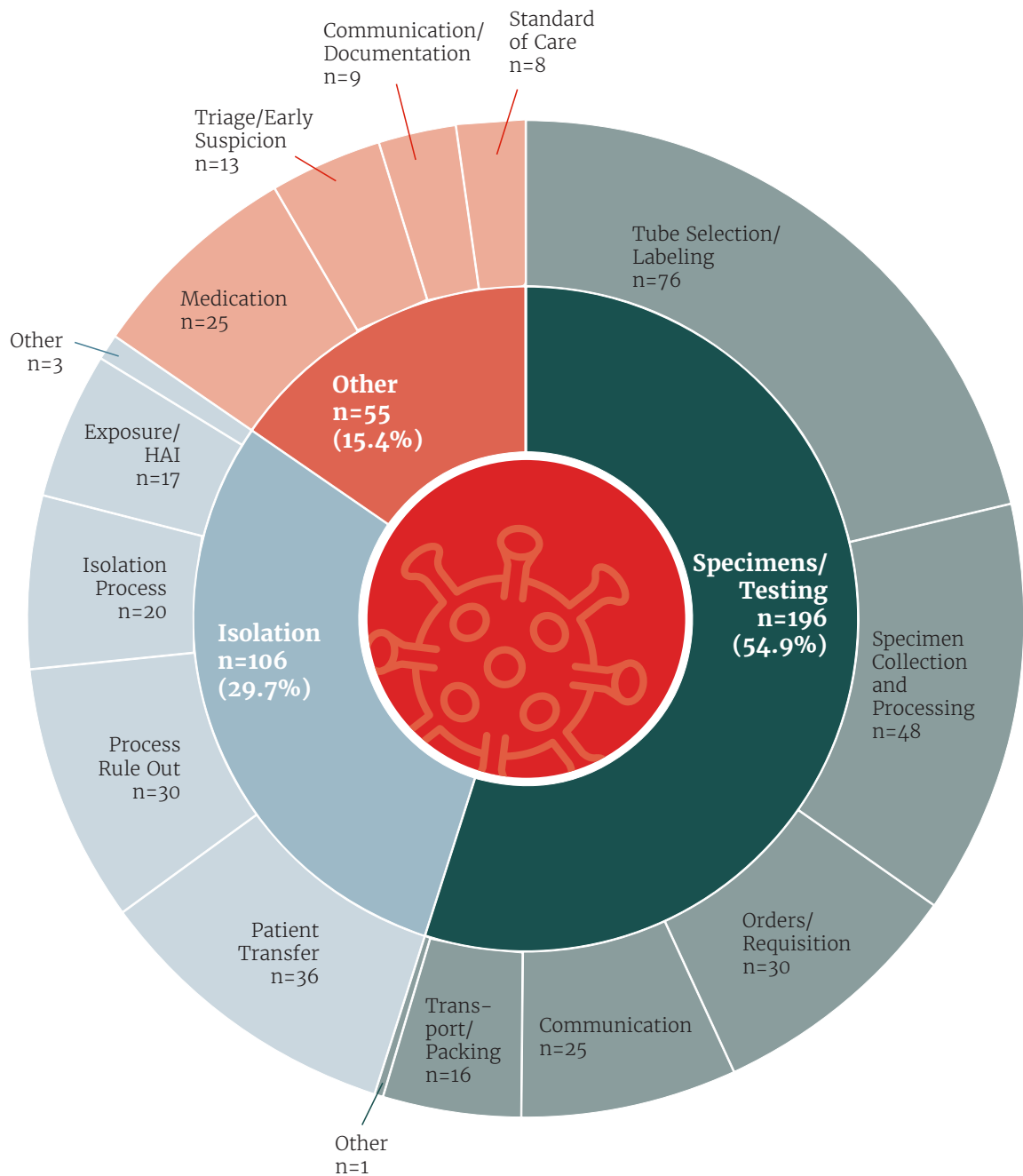
testing or processing of specimens (54.9%); process failures in isolation procedures (29.7%); and other process failures (15.4%), such as those related to medications; triage or initial assessment; documentation or verbal communication; or missed or delayed orders, procedures, or referrals (see **Figure 3**).

Specimens/Testing

We further subcategorized the types of process failures related to testing or

specimens. A total of 38.8% (76 of 196) of process failures for testing or specimens were related to errors involving the specimen container, such as selection of the wrong tube, swab, or media for specimen collection, or labeling errors, such as no label, wrong patient identification, or a missing label for specimen source. Another 24.5% (48 of 196) of process failures were related to specimen collection and processing. These types of process failures involved delays in specimen collection, delays in processing of specimens in

Figure 3: Process Failures in Preventing the Spread of Infectious Agents, N=357



the laboratory, or the quality or quantity of the specimen received.

A total of 15.3% (30 of 196) of the process failures involved errors in entering orders by the bedside team (i.e., physicians and nurses) or by laboratory staff when selecting laboratory tests based on paper requisitions or electronic orders. Specifically, events involved duplicate or missing orders; errors in entry from paper requisitions; confusion between similar types of respiratory panel tests (e.g. influenza/RSV, rapid influenza, and respiratory panels) or confusion among two tests for measles caused by different viruses (e.g. rubella versus rubeola). Another 12.8% (25 of 196) of these process failures were related to communication of incorrect laboratory results to the bedside team, missed alerts for critical results, or communication of incorrect lab results during verbal report.

An additional 8.2% (16 of 196) of the process failures were related to delays in transport of specimens to the laboratory, packaging of the specimens from several different patients into a single transport bag or container, or not attaching a printed order with the specimen.

Isolation/Precautions

We further subcategorized the process failures related to isolation or precautions. A total of 34.0% (36 of 106) of these process failures related to transfer of a patient with potentially contagious illness without placing a mask on the patient. Another 28.3% (30 of 106) of the events related to failures in isolating the patient while ruling out the diagnosis of an infectious agent spread through respiratory droplets. These types of errors related to not implementing isolation precautions while the patient was being tested for a potentially infectious agent, admission or transfer of a patient into a double occupancy room prior to completion of testing, or errors in following the protocols for isolation precautions while ruling out a diagnosis for a potential infectious agent.

A total of 18.9% (20 of 106) of these process failures were related to errors in following the isolation procedures after a patient already tested positive for an infectious agent spread through respiratory droplets. These types of process failures involved delays in isolating the patient; attempts to admit the patient into a double occupancy room; confusion in differences between contact, droplet, or airborne isolation protocols; or lack of signage for isolation or precautions.

Another 16.0% (17 of 106) related to process failures that resulted in exposure or development of a hospital-acquired infection (HAI) from an infectious agent spread through respiratory droplets. For many of these, the specific process failure that occurred was difficult to determine from the event report description. These failures were identified as exposures to or development of an HAI when a patient and/or their roommate developed symptoms and tested positive for an infectious agent spread through respiratory droplets several days after admission, when the patient was later identified to have an infectious agent and had not been placed in isolation precautions, or when a patient who tested positive for an infectious agent was placed in a room with another patient because no other rooms were available to appropriately isolate the patient.

A total of 2.8% (3 of 106) of isolation process failures related to miscellaneous factors, including a visitor seeing multiple patients, a patient diagnosed with an infectious agent leaving the hospital, and lack of appropriate personal protective equipment (PPE) or supplies outside an isolation room for providers.

Other Process Failures

We further categorized the other types of process failures. A total of 45.5% (25 of 55) of these process failures were related to medications. These process failures were related to errors in dosing or timing, delays, or missed doses of antibiotics or antivirals. One

medication process failure was related to the weight of the patient not being provided to the pharmacy. A total of 23.6% (13 of 55) of other process failures were related to not recognizing signs or symptoms of a potential infectious agent spread through respiratory droplets during triage or during initial assessment. They were categorized separately from isolation failures because they relate to process failures in associating the signs and symptoms with those caused by an infectious agent versus process failures in the specific isolation steps. These types of process failures included patients that were later realized to have presented with signs or symptoms of a highly contagious infectious agent yet remained in the waiting room area or without appropriate isolation precautions following triage, were not recognized as potentially contagious upon assessment by the initial providers, or were admitted to inpatient areas before a provider recognized the symptoms and ordered appropriate testing and isolation.

Another 16.4% (9 of 55) of other process failures were related to errors in communication or documentation. These process failures included entry of incorrect test results or patient information into the chart, or errors in verbal reports at admission, transfer, or shift change. A total of 14.5% (8 of 55) of other process failures were related to errors in maintaining the standard of care, such as missed orders from the standard hospital protocols for the diagnosis, providers not completing tests (e.g., lumbar puncture) prior to transfer to another unit, or missed or delayed referrals.

Admission/Transfer

Of the 357 process failures, we also noted that a combined 22.7% of the process failures were related to admission or transfer of the patient. These process failures were related to admission and transfer occurred across all three process failure categories, including testing/specimens (n=9), isolation (n=60), and other (n=12).

Children ages 5 and younger and patients ages 65 and older are most at risk for complications or death from respiratory pathogens.^{1,42}

Process Failures by Care Area and Age Group

The 357 process failures were further analyzed based on the care area where the events occurred (**Figure 4**). The process failures occurred over

20 care area groups. Process failures were most frequently associated with the emergency department (31.9%; 114 of 357), medical/surgical unit (21.3%; 76 of 357), laboratory (13.7%; 49 of 357), intensive care unit (ICU; 6.4%; 23 of 357), pediatric unit (5.3%; 19 of 357), and pediatric intensive care unit (PICU; 5.3%; 19 of 357). Testing or specimen-related errors most frequently occurred in the emergency department, which represents 36.2% (71 of 196) of the testing or specimen process failures. However, process failures also occurred in the laboratory, ICU, medical/surgical unit, pediatric unit, and PICU. A combined 69.8% (74 of 106) of process failures in establishing proper isolation or precautions occurred in the medical/surgical and emergency care area groups.

Similarly, a combined 54.5% (30 of 55) of other process failures occurred in the medical/surgical and emergency care area groups.

Figure 5 shows the 357 process failures cross tabulated with the patient age groups. Testing or specimen process failures were most frequent among patients who were age 0 through 5 years (43.3%; 85 of 196), while isolation process failures were most frequent among patients who were age 65 and over (48.1%; 51 of 106).

Discussion

Infection prevention requires efficient coordination of many hospital processes during a patient's stay. Rapid diagnosis of a contagious illness is essential not only to ensure timely treatment of patients but also to prevent the spread of disease. In fact, processes that lead to timely identification of the signs and symptoms of a contagious illness (e.g., fever, cough, and rash) as well as recent travel history are ever more critical in preventing the spread of novel infectious diseases (e.g., COVID-19 or other emerging infectious diseases), which can quickly spread through communities, may have increased risk of morbidity, and for which initial testing may not be immediately available.^{28,29} Thus, accurate and timely assessment of signs and symptoms along with effective screening and surveillance programs are crucial for infection prevention.^{30,31} The laboratory plays a key role, especially when rapid testing and accurate results are essential to infection prevention.^{30,32-36} Furthermore, cohorting and isolation of patients with initial symptoms, along with appropriate use of standard, droplet, and contact precautions, may also significantly reduce the risk for spread of infections.³⁷⁻³⁹ Finally, efficient delivery of treatments, such as antivirals and antibiotics, may improve outcomes, and theoretically reduce infectiousness of the infectious agent.^{40,41}

Figure 4: Cross Tabulation of Care Area Group with Process Failure Categories, N=357

Care Area Group	Process Failure Category			Grand Total
	Testing/Specimens	Isolation	Other	
Administration		1	1	2
Emergency	71	26	17	114
ICU	12	7	4	23
Imaging/Diagnostic	2		1	3
Intermediate Unit	5	4	1	10
Labor and Delivery	3	2	2	7
Laboratory	48	1		49
Med/Surg	15	48	13	76
NICU	3	2		5
OB-GYN Unit	1		4	5
Other	2	3	4	9
Outpatient/Clinic	2	1		3
Pediatric	13	4	2	19
Pharmacy			1	1
PICU	14	2	3	19
Psychiatric Unit		1		1
Rehab Unit	1			1
Respiratory	1			1
Specialty Unit	3	3		6
Surgical Services		1	2	3
Grand Total	196	106	55	357

Figure 5: Cross Tabulation of Age Group with Process Failure Categories, N=357

Age Group	Process Failure Category			Grand Total
	Testing/ Specimens	Isolation	Other	
0 – 5	85	12	15	112
6 – 18	21	2	4	27
19 – 35	25	9	9	43
36 – 64	34	32	14	80
65+	31	51	13	95
Grand Total	196	106	55	357

Review of the literature shows that children ages 5 and younger and patients ages 65 and older to be most at risk for complications or death from respiratory pathogens.^{1, 42} Given the increased risk of severity of respiratory illnesses in these age groups, it is concerning that we also found these same groups associated with more frequent event reports related to infectious agents spread through respiratory droplets (**Figure 1**). However, it is difficult to draw conclusions regarding this observation as the increased events related to respiratory pathogens also could have simply resulted because more patients in these age groups sought care, which would in turn increase the likelihood of a reportable event.

Our analysis of PA-PSRS-reported events identified process failures that were similar to those described in the literature as contributing factors to nosocomial outbreaks of infectious agents, such as influenza, rhinovirus, RSV, measles, and pertussis.¹¹⁻²⁰ These same process failures related to delayed suspicion, delayed identification, and delayed treatment of infectious agents.¹¹⁻²⁰ Thus, opportunities to reduce these types of process failures have the potential to reduce the spread of infectious agents in the hospital setting and to improve staff and patient safety.

Risk-Reduction Strategies

Our analysis has shown that the types of process failures identified in our study often involve systems problems, human factors, or knowledge deficits. Specific areas for implementation of process improvements or monitoring are outlined below and are summarized in **Table 1**.

Laboratory Samples

In our analysis of events related to agents spread through respiratory droplets, 54.9% of the 357 events involved testing or specimen process failures. Of these, 47.0% were related to selection of the incorrect tube/swab/media, not ensuring the lid was secure, not properly packaging for transport to the laboratory, not labeling samples, or labeling of tubes with the wrong patient name. These are relatively basic processes, but errors resulted in recollection of samples, delays in patient care, potential delays in isolation, and potential delays in admissions or discharges from the emergency department. Furthermore, 15.3% of these errors were related to difficulties in entering orders by physicians, nurses, or laboratory staff; many of these difficulties specifically related to confusion between similar types of tests, such as combination influenza/RSV tests, rapid influenza, and reflex orders for respiratory panel testing.

Risk-reduction strategies include automation for specific specimen collection instructions to be provided to the staff who will collect the specimen when laboratory tests are ordered. These instructions would include the specific type of tube/media/swab to be used and instructions for how to collect the sample. Other risk-reduction strategies include providing additional staff development/training with physicians and staff about available laboratory testing for infectious agents spread through respiratory droplets, how to properly enter orders for these tests, how to properly collect samples, which types of tubes/swabs/media are needed, and packaging/transport requirements for specimen delivery. Tables/charts of available tests and types of recommended swabs/media for collection could offer a way to stratify this information into easy-to-use references for staff to access.⁴³

Reinforcing policies and procedures through staff and physician champions as well as through orientation and staff training programs are also important steps in quality improvement and error reduction methods.⁴⁴⁻⁴⁶ A hospital collaborative also specifically addressed labeling errors of blood samples and noted that changes in workflow for printing labels, changes in staffing workloads, use of a patient-specific binder system, monthly laboratory/nursing staff meetings, mandatory competencies for specimen labeling processes, information technology system improvements in label printing, and increased leadership involvement through dashboards

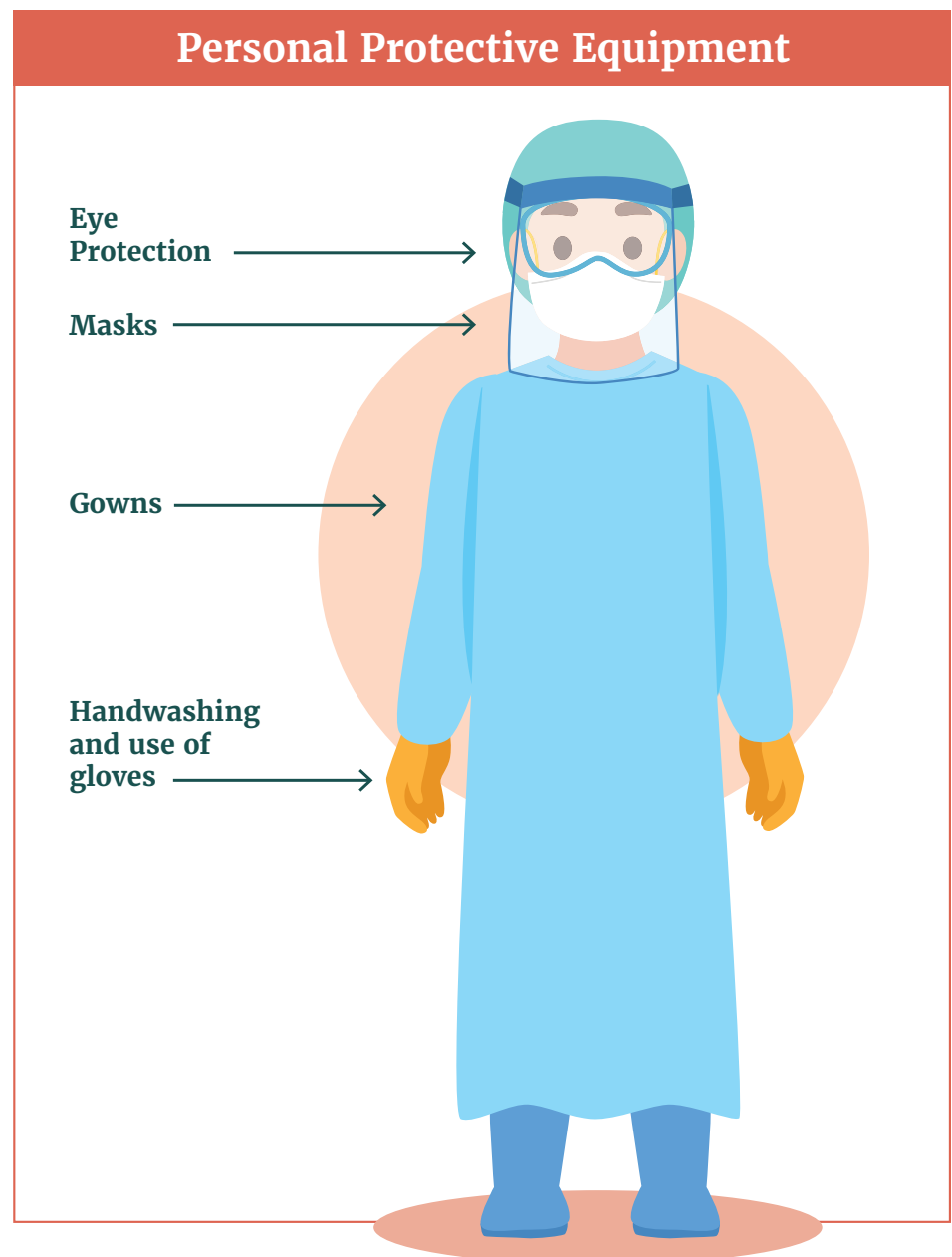
Rapid diagnosis of a contagious illness is essential not only to ensure timely treatment of patients but also to prevent the spread of disease.

were all important interventions in changing the culture and improving specimen labeling processes.⁴⁷⁻⁴⁹

Isolation/Precautions

Nearly one-third (29.7%) of the 357 analyzed process failures were related to isolation procedures and use of PPE and resulted in HAIs or potential exposure of patients and staff to infectious agents spread through respiratory droplets. Moreover, 28.3% of the isolation-related process failures involved not initiating isolation precautions while waiting on test results. Although standard precautions include many effective infection prevention processes, such as handwashing and use of gloves, masks, or gowns when there is potential for contact with body fluids or splashes, these precautions alone may not be effective in preventing the spread of infectious agents through respiratory droplets. The use of eye protection in addition to masks and handwashing have been found to be key measures to prevent the spread of infectious agents through respiratory droplets to other healthcare workers or patients.^{21,39,50} Furthermore, standard precautions require that each provider uses assessment and critical thinking skills for each patient encounter to determine what PPE may be needed. Thus, other staff, such as laboratory, respiratory, radiology, nurse aides, or housekeepers, may be placed at additional risk for exposure when entering these patient rooms if isolation protocols are delayed until after testing is completed.

Thus, risk-reduction strategies include establishment of empiric processes to initiate isolation precautions based on triage and/or initial nursing or physician assessment.⁵¹ Bundling specific isolation orders with laboratory testing orders until the test results are returned can help ensure that the orders are not missed or delayed and that the appropriate type of precautions (such as airborne or droplet) are implemented.^{52,53} These types of processes, especially when implemented in all areas of the



hospital (including the emergency department, physician offices, urgent care, and inpatient units) can ensure that other patients and staff are not exposed while the testing is performed to rule out the potentially infectious agent.

Moreover, 52.9% of the isolation process failures were related to either errors in following isolation procedures or transferring patients who tested positive for an infectious agent without a mask. Again, bundling these isolation order sets together can help

ensure that all steps for setting up isolation are implemented.^{52,53} Examples include bundling droplet precaution orders to include instructions for a mask for the patient during transfer; a private isolation room for admission; orders for droplet/contact precautions; specific PPE, such as mask, eye protection, gown, and gloves, to be worn during patient care; and signs or PPE to be placed outside the patient room. Similarly, bundled airborne precaution orders should also include orders to place a surgical mask on the patient during transfer,

Table 1: Risk-Reduction Strategies to Reduce Process Failures that Contribute to Spread of Infectious Agents

Risk-Reduction Strategies	
Laboratory Samples 	Automate inclusion of instructions for specimen collection when laboratory orders are entered Implement continuous quality improvement programs to monitor/improve 1. Workflow processes 2. Staffing 3. IT system processes 4. Leadership involvement 5. Specific processes, such as patient/binders for labels⁴⁸ Staff development training to include 1. Available laboratory testing 2. How to order specific laboratory tests 3. How to collect samples/specimens 4. Types of tubes/swabs/media that are needed for each type of specimen 5. Packaging/transport requirements to specimens 6. Reference tables and charts of available tests⁴³ a. Recommended tubes/swabs/media b. Collection method c. Specific order names to select in electronic medical record (EMR) Reinforce policies and procedures 1. Identify staff and physician champions 2. Orientation/residency programs 3. Monthly meeting of laboratory and nursing staff 4. Mandatory competencies on specimen labeling
Isolation/Precautions 	Establish empirical policies and procedures based on initial triage, assessment, and symptoms Bundle specific laboratory testing with isolation orders^{52,53} Bundle isolation orders into sets^{52,53} 1. Type of precautions (e.g. contact, droplet, airborne) 2. Type of personal protective equipment (PPE) a. Gloves b. Type of mask c. Gown d. Eye protection 3. Transport a. Place mask on patient b. Communicate to receiving unit c. Verify if oxygen is needed 4. Private isolation room a. Signs placed outside of room b. Negative-pressure room (if needed) c. Area to don and doff PPE
Admission and Transfer 	Review system processes 1. Standard of care – protocols/order sets for each diagnosis 2. Handoff/communication a. Standardize handoff reports between nurses b. Standardize handoff reports between physicians c. Standardize handoff for transport team 3. Admission room assignment protocols

a private patient room with negative air pressure, and PPE orders to include use of N95 respirators or positive-pressure purifying respirators (aka powered air-purifying respirators, or PAPRs) for staff caring for patients. Ultimately, these types of bundled orders may reduce the risk for additional exposures or HAIs.

Admission and Transfer

Events involving the admission or transfer of a patient were identified in 22.7% of all process failures analyzed. Admissions and transfers of care from one department or facility to another represent vulnerable points in the coordination of care for patients.^{54,55} At times, these processes could potentially be hurried by pressures to reduce the patient's time in the emergency room. Process failures include missed collection of specimens prior to admission and admission of patients into a double occupancy room while tests were pending or even after positive results were found. Furthermore, other process failures included nurse-to-nurse handoff/report errors, missed communication of isolation orders or test results during patient transfers to other units, and medications that were delayed or not given prior to admission.

Thus, recommended risk-reduction strategies include closer examination of the processes to maintain the standard of care for each diagnosis, such as developing written or electronic protocols or order sets for specific diagnoses, identifying communication requirements during provider or shift changes, and strengthening protocols for assigning patients to specific rooms based on their suspected diagnosis. Additional education and communication requirements with transport teams may help to ensure placement of a surgical mask on a patient during transport and to verify if other equipment, such as oxygen, is needed.

Limitations

It is important to note that many other processes in the hospital are also key to the prevention of the spread of infectious agents, and despite mandatory event-reporting laws in Pennsylvania, our data are subject to the limitations of self-reporting. This may be more likely for process failures that occur when a specific patient was not identified. It is also important to note that harm and the significance related to process failures in the steps to isolate and contain potentially infectious agents may not be immediately realized, and therefore, not reported. Thus, the number of events and severity of the outcomes may be more substantial than those captured through event reporting.

Conclusion

Preventing the spread of infectious agents in the hospital involves coordination of many processes. Our study has identified process failures related to identification, isolation and treatment for infectious agents spread through respiratory droplets in hospital settings. Based on our findings, patients ages 0 through 5 years and 65 years and older were most frequently associated with events involving infectious agents spread through respiratory droplets. Furthermore, analysis of the process failures provided insight to various risk-reduction strategies that can be implemented to further reduce the risk for spread of infectious agents. Monitoring of these processes in continuous improvement programs, along with implementation of risk-reduction strategies, may help reduce the risk for the spread of infectious agents as well as support a culture of safety for both patients and staff.

Notes

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AROUND THE WORLD IN 16 WAYS:

Searching Internationally for Fall Prevention Strategies

By Caitlyn Allen, MPH[◆] & Susan C. Wallace, MPH[◇]

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Abstract

Pennsylvania fall rates have remained relatively steady over the past six years, ranging from 3.09–3.33 falls per 1,000 patient days. Other studies estimate that hospital falls occur at a rate of 3.56 per 1,000 patient days¹ and 700,000 to 1 million patients fall each year.²

Falls in Pennsylvania continue to be one of the biggest contributors to patient harm and the fourth most frequently reported adverse event. Looking more broadly, falls are also a frequent cause of patient harm across the United States and globally. A review of international fall prevention strategies revealed that while no single country has been able to eradicate patient falls, several had implemented measures showing moderate levels of success. Those struggling with a high incidence of falls may benefit from reviewing and adopting one or more of these innovative techniques.

Keywords: *falls, fall prevention, international, inpatient falls*

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Despite significant attention from every major healthcare organization nationwide, including The Joint Commission³ and the Centers for Medicare & Medicaid Services (CMS)⁴, falls continue to pose a significant threat to patients. In Pennsylvania, falls are the fourth most frequently reported event,⁵ and fall rates have remained relatively steady from 2013–2018, with an average annual rate of 3.21 falls per 1,000 patient days.⁶

A fall affects not only the patient, especially if there is harm, but also family members who may lose confidence in the caregivers. The nursing staff may suffer from shame, embarrassment, or guilt. A new nursing graduate in Pennsylvania said she was “mortified” after assisting a falling patient to the floor. She cried after it happened and placed the blame for the patient falling on herself.⁷

Nurses in the United States stratify patients by fall risk using assessment tools such as the Morse Fall Scale, Hendrich II Fall Risk Model, and Johns Hopkins Fall Risk Assessment Tool. Those deemed “at risk” are provided prevention tools, including hip protectors, low beds, and visual cues for nursing staff, e.g., yellow socks or blankets.

Even with evidence-based prediction and prevention methods, 3 million older Americans (those 65 and older) are seen in emergency departments for fall-related injuries each year, and more than 800,000 are hospitalized.⁸ In 2015 alone, the total cost to treat falls topped \$50 billion.⁹ Globally, falls pose a similar threat and are the second leading cause of accidental or unintentional injury deaths worldwide.¹⁰

Because of the ubiquity and seriousness of this threat, we conducted a review of the literature to assess the effectiveness of prevention strategies worldwide to determine if any interventions may have shown success and would be worth implementing.

Methods

We conducted a review of the literature to identify international strategies and novel approaches to reduce falls and falls from injury, mainly in healthcare facilities published in the last decade. We also interviewed executive leaders, clinical practitioners, and nurse educators to identify best practices and resources to reduce falls and patient harm. Studies were included if they were deemed “innovative,” i.e., prevention strategies not commonly implemented such as using yellow socks or a wristband to indicate a patient is a fall risk. We also sought to include at least one study from each continent (excluding Antarctica).

Discussion

A review of the literature and interviews of patient safety experts abroad found that no one country holds the key to the elimination of falls. However, some strategies have been successful, and hospitals and communities struggling with this issue may want to consider their implementation.

Fall prevention is by no means a new area of focus in healthcare, and many of the strategies discussed in the literature feature those seeking novel methods in their approach, rather than ways to reinforce existing techniques. This may suggest that novelty itself may play a contributing factor by making fall prevention top of mind for clinicians, and that the act of attempting something new in and of itself may lead to some success.

The following is a close look at approaches countries have taken to reduce falls and prevent falls with harm.

United Kingdom

Portable nursing stations positioned outside patient rooms decrease falls

An intervention called “Stay in the Bay” (SITB) introduced portable nursing stations in ward bays (containing four or six beds), allowing nurses to do routine work and spend more time with their patients. The portable nursing stations consisted of a desk on wheels with a computer and a secure, attached drawer to store medical records. On hospital floors with single rooms, a portable station was positioned outside each room, where possible, leaving the patient’s door open to improve observation. Nurses were encouraged to SITB whenever possible instead of performing all their duties at the large single nursing station.¹³

Ali et al. found nurses were able to intervene in high-risk situations, such as reminding patients to use walking aids, and decrease falls by 27% over 12 months. The closer proximity of the nurses also increased both nurse-to-patient contact times and the time other healthcare workers spent closer to patients.

Universal fall precautions benefit all patients

Rather than screening patients to determine who is more likely to fall, hospitals in the U.K. assume that any inpatient may be at-risk and develop prevention plans specifically designed for each individual. Patients are assessed by several factors, including eyesight, mobility, and device need, and a customized plan is crafted around areas of concern. This allows hospitals to preserve resources expended on broad-based, panacean approaches, e.g., the cost of purchasing special socks to identify “high-risk” patients.¹⁴

Wales

Assess staff understanding of your assessment tool and provide training

Nurses cannot perform an accurate assessment if they do not understand the correct use of the falls risk assessment tool. A pre-training baseline was established which revealed inadequate falls assessment and low completion rate of the assessment tool. After participating in a geriatrician-led, systematic nurse training program, and using a Plan-Do-Study-Act methodology, post-training showed improvement in compliance.¹⁵

United States

Video monitoring can help decrease falls

Cournan et al. concluded after monitoring rehabilitation patients over 21 months that video monitoring can improve patient safety by decreasing falls; reducing sitter usage and cost; and improving patient, family, and staff satisfaction. Patients can be monitored from a remote location by a technician who can speak to the patient and contact staff.²⁵

Patients can be partners in their care when invited by staff

A Fall Risk and Prevention Agreement, which was introduced upon admission to all patients, helped incorporate patients and their families in discussions related to fall risk and prevention. Vannes and Wolf found that medical oncology patients often overestimate their abilities and functional status. Integrating patients and their families into care planning helped to reduce falls by 37%.²⁶

Brazil

Audit for gaps with international “best practices”

A public teaching hospital in São Paulo, Brazil, recognized the importance of adhering to best practices, as outlined by the World Health Organization (WHO). The hospital implemented the Joanna Briggs Institute Practical Application of Clinical Evidence System (JBI PACES) and Getting Research into Practice (GRiP) audit tool for promoting change in health practice. Researchers found a significant gap between best practice and current practice. Staff practices were adjusted, resulting in a reduction in patient falls.²⁴

Egypt

An evidence-based, coordinated fall program can be effective

Researchers implemented an evidence-based, multifactorial fall prevention strategy that assessed individual risk factors, including visual acuity, gait disorders, bone health, and home health hazards, for 100 elderly men and women in Egypt. There was a statistically significant decrease in falls (63.4 to 49.5%) and recurrent falls (40.8 to 25.8%) between the baseline and one-year follow-up.¹¹

Saudi Arabia

Using a Six Sigma approach decreases patient falls

The Six Sigma tool DMAIC (define, measure, analyze, improve, and control) helped drop the fall rate of King Fahd Hospital of the University from 6.57 to 1.91 per 1,000 patient days over three months. Eight strategies were suggested and implemented by unit staff, including awareness and communication about the patients’ fall risk status, staff training, rounding, and bed alarm usage.¹⁶

Spain

Audit to determine adherence to best practices

Researchers in Spain who replicated research performed in New Zealand, China, Australia, and Saudi Arabia found getting back to the basics and following best practices placed them in a better position to reduce their incidence of falls. Comino-Sanz et al. evaluated between 20 to 30 patients over a 15-month period in a neurology ward using a pre- and post-implementation audit method. A project team performed a baseline falls audit; designed and implemented strategies to address the noncompliance found in the baseline audit, including incomplete falls registration, lack of falls prevention protocols, and lack of falls knowledge, and conducted further audits to improve current practices.¹²

Process audit criteria included:

- Performing fall risk assessment upon admission
- Reassessing upon a change in condition or following a fall
- Assessing fall risk accurately using a falls assessment tool
- Targeting interventions according to risk factors

Project outcomes included both successfully increasing best practices for process audit criteria and sustaining these changes over time. Future audits will include incidence of falls with and without injury.

Japan

An animated movie with the theme to call for help can reduce falls

Osaka City University Hospital in Japan developed a 3D animated movie for patients and caregivers to help reduce falls. In *Fall Prevention Theater: Let's ring for nurses!*, Ichiko Nurse and a bunny named Koo-pyon illustrate different fall scenarios and stress, "Don't hesitate to ring for nurses." Pre- and post-intervention questionnaire surveys were conducted for patients and nurses over a two-week period to examine the difference between nurses' instructions and patients' understanding. Etsuko et al. indicated that animation could be an effective educational tool for inpatient fall prevention, even in older patients.¹⁹

Lavender can help to calm the agitated patient and reduce falls

Three nursing homes in Japan studied the effect of lavender olfactory stimulation on fall prevention. Residents in the study group who had lavender-scented patches placed on their pillows for 365 days fell less frequently than those in the placebo group. Those residents also showed improvement in a 29-item scale used to measure agitation.²⁰

China

Tai chi can help improve balance and decrease falls

A group of researchers in China studied whether tai chi could reduce falls in Parkinson's patients. The tai chi group did Yang style tai chi exercises for 60 minutes, three times per week, for 12 weeks. Those in the tai chi group showed improved balance as compared to the control group. They also had experienced fewer falls during the six months following the study (21.6% compared to 48.7%) These results could indicate that it's worth expanding to include non-Parkinson's patients.²¹

New Zealand

Apply skilled reasoning to take actions that are right for each patient

When planning fall interventions, there is no "one size fits all." The clinician must tailor intervention and support strategies to each patient's preexisting risk profile. Critical thinking and reasoning often matches or outperforms assessment tools for risk of falling. A patient admitted for dementia and dehydration, and another patient rehabilitating after a hip replacement following a fall may both be considered to have a "risk" of falling, but they have very different risk profiles.²³

South Korea

A multifactorial fall prevention program improves balance, gait ability, and fear of falling

Twenty-five stroke patients were separated into two control groups: one group received physical therapy and treadmill exercises, while the other group also received balancing and flexibility exercises with education addressing their fear of falling. Jung et al. concluded that the multifactorial fall prevention was effective at improving gait, balance, and fear of falling, and helped to build patients' self-confidence.¹⁷

Exergaming helps improve physical and cognitive functions in the elderly

Exergame interventions such as Nintendo Wii and Xbox Kinect improved physical and cognitive functions in the elderly. Various conventional exercise programs can improve strength and balance; however, poor adherence to the program can deter its effectiveness. Choi et al. found that an exercise program should be enjoyable and easy to perform in order to be successful. Exergames such as soccer heading and ski slalom helped to improve balance, compared to no intervention at all.¹⁸

Australia

Silent video clips with simple fall prevention messages reduce falls

Researchers used silent video clips featuring universal body language to inform patients, including those with cognitive impairment and regardless of their native language. Chan, et al., found visual memory in dementia patients is often affected later than verbal memory, suggesting video may be an effective way to convey themes. Researchers developed a concise, three-minute, silent video which instructs patients to ask for help when they want to ambulate to the toilet. A green check on the video scene indicates the correct method and an "X" indicates the wrong method. The visual instruction was strengthened by scenes of broken bones to arouse emotional memory since emotional scenes are better remembered than ordinary ones.²²

Limitations

There is very little published data representing international fall rates. The focus of this article is specifically around inpatient fall prevention, rather than community-based approaches, to try and provide more of a like comparison.

Conclusion

Falls prevention in Pennsylvania and worldwide continues to be an ongoing process. Not all falls are preventable and patient risk factors may vary, so different strategies may benefit fall prevention. By reaching outside of the United States, strategies used by other countries may be considered to reduce patient falls.

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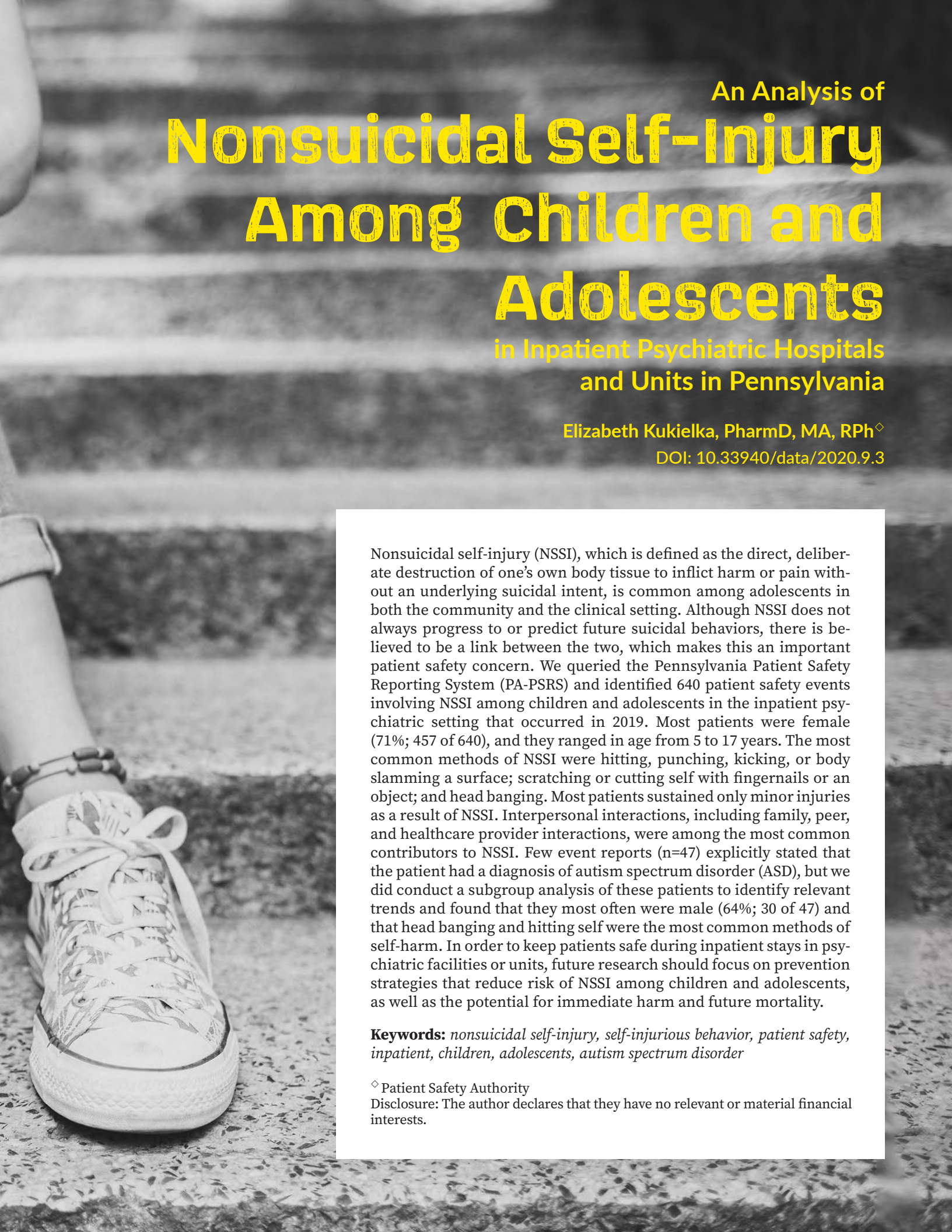
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An Analysis of Nonsuicidal Self-Injury Among Children and Adolescents in Inpatient Psychiatric Hospitals and Units in Pennsylvania

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Nonsuicidal self-injury (NSSI), which is defined as the direct, deliberate destruction of one's own body tissue to inflict harm or pain without an underlying suicidal intent, is common among adolescents in both the community and the clinical setting. Although NSSI does not always progress to or predict future suicidal behaviors, there is believed to be a link between the two, which makes this an important patient safety concern. We queried the Pennsylvania Patient Safety Reporting System (PA-PSRS) and identified 640 patient safety events involving NSSI among children and adolescents in the inpatient psychiatric setting that occurred in 2019. Most patients were female (71%; 457 of 640), and they ranged in age from 5 to 17 years. The most common methods of NSSI were hitting, punching, kicking, or body slamming a surface; scratching or cutting self with fingernails or an object; and head banging. Most patients sustained only minor injuries as a result of NSSI. Interpersonal interactions, including family, peer, and healthcare provider interactions, were among the most common contributors to NSSI. Few event reports (n=47) explicitly stated that the patient had a diagnosis of autism spectrum disorder (ASD), but we did conduct a subgroup analysis of these patients to identify relevant trends and found that they most often were male (64%; 30 of 47) and that head banging and hitting self were the most common methods of self-harm. In order to keep patients safe during inpatient stays in psychiatric facilities or units, future research should focus on prevention strategies that reduce risk of NSSI among children and adolescents, as well as the potential for immediate harm and future mortality.

Keywords: *nonsuicidal self-injury, self-injurious behavior, patient safety, inpatient, children, adolescents, autism spectrum disorder*

[◇] Patient Safety Authority

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Nonsuicidal self-injury (NSSI) is defined as the direct, deliberate destruction of one's own body tissue to inflict harm or pain without an underlying suicidal intent.¹ NSSI may include such behaviors as cutting, scratching, biting, hitting, and head banging, and excludes suicidal gestures, accidental injuries, indirect self-harm behaviors (e.g., eating disorders or drug abuse), and socially accepted forms of body modification (e.g., piercing or tattooing).² NSSI typically begins in adolescents around 13 or 14 years of age, and lifetime prevalence in the adolescent and young adult population is estimated to be 15% to 20%.³ Although NSSI does not always progress to or predict future suicidal behaviors, there is believed to be a link between the two, which makes this an important patient safety concern.⁴

NSSI has been observed in both the community and the clinical setting, although rates of NSSI are higher within the psychiatric population.^{2,3} NSSI may present as a symptom of numerous psychiatric conditions, including anxiety disorders; mood disorders; substance abuse; eating disorders; and personality disorders, such as borderline personality disorder (BPD).⁵ Although clinicians once considered NSSI primarily in the context of BPD, NSSI was added as a distinct condition in the *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5)* in 2013.⁶

In 2019, analysts at the Patient Safety Authority (PSA) conducted and published a study of events submitted to the Pennsylvania Patient Safety Reporting System (PA-PSRS)* involving patient self-harm in the nonpsychiatric setting.⁸ However, an analysis of events in PA-PSRS involving self-harm, and more specifically NSSI, in the psychiatric setting had yet to be undertaken. In this study, we conducted an in-depth review and analysis of patient safety events involving NSSI among children and adolescents in the inpatient psychiatric setting that took place in 2019. The purpose of this study was to examine patient-specific factors, such as age and gender, as well as other contributing circumstances, such as interpersonal interactions, that may precipitate NSSI in this patient population.

Methods

Patient-self harm was added to PA-PSRS as a distinct event type in April 2015. Event subtypes within this category include suicide (resulting in injury or death), self-mutilation, ingestion of a foreign body, eating disorders, and other types of self-harm specified by the reporting facility. A preliminary search of PA-PSRS for events that comprise NSSI (i.e., self-mutilation, ingestion of foreign object or substance, and other self-harm) in inpatient psychiatric care

areas returned thousands of events from 2015 to present.

We queried PA-PSRS for events that occurred from January 1, 2019, through December 31, 2019. We limited the search to the most recent one-year period because we wanted to do an in-depth analysis of individual event reports, and this would not have been feasible with a data set that included thousands of reports. We searched for events reported by all facility types, including acute care hospitals and psychiatric facilities, that took place in psychiatric care areas. We limited the search to events categorized by reporting facilities as patient self-harm, and retrieved only events specified as self-mutilation, ingestion of a foreign body or substance, and other. Inclusion and exclusion criteria for what constituted NSSI were based on current literature describing the behavior.² We reviewed all event reports to ensure they met the definition of NSSI; any event reports that described accidental or unintentional self-harm (e.g., accidental injuries sustained while playing) or suicide gestures (e.g., self-strangulation or intentional overdose following medication hoarding) were excluded. Duplicate event reports and event reports that described a situation in which a healthcare provider or staff member was harmed but the patient was not harmed were also excluded.

Initially, the query was not limited to a specific age range, but after reviewing the dataset and relevant medical literature, we decided to focus the analysis on NSSI among children and adolescents. The search was then refined to limit results to patients under 18 years of age.

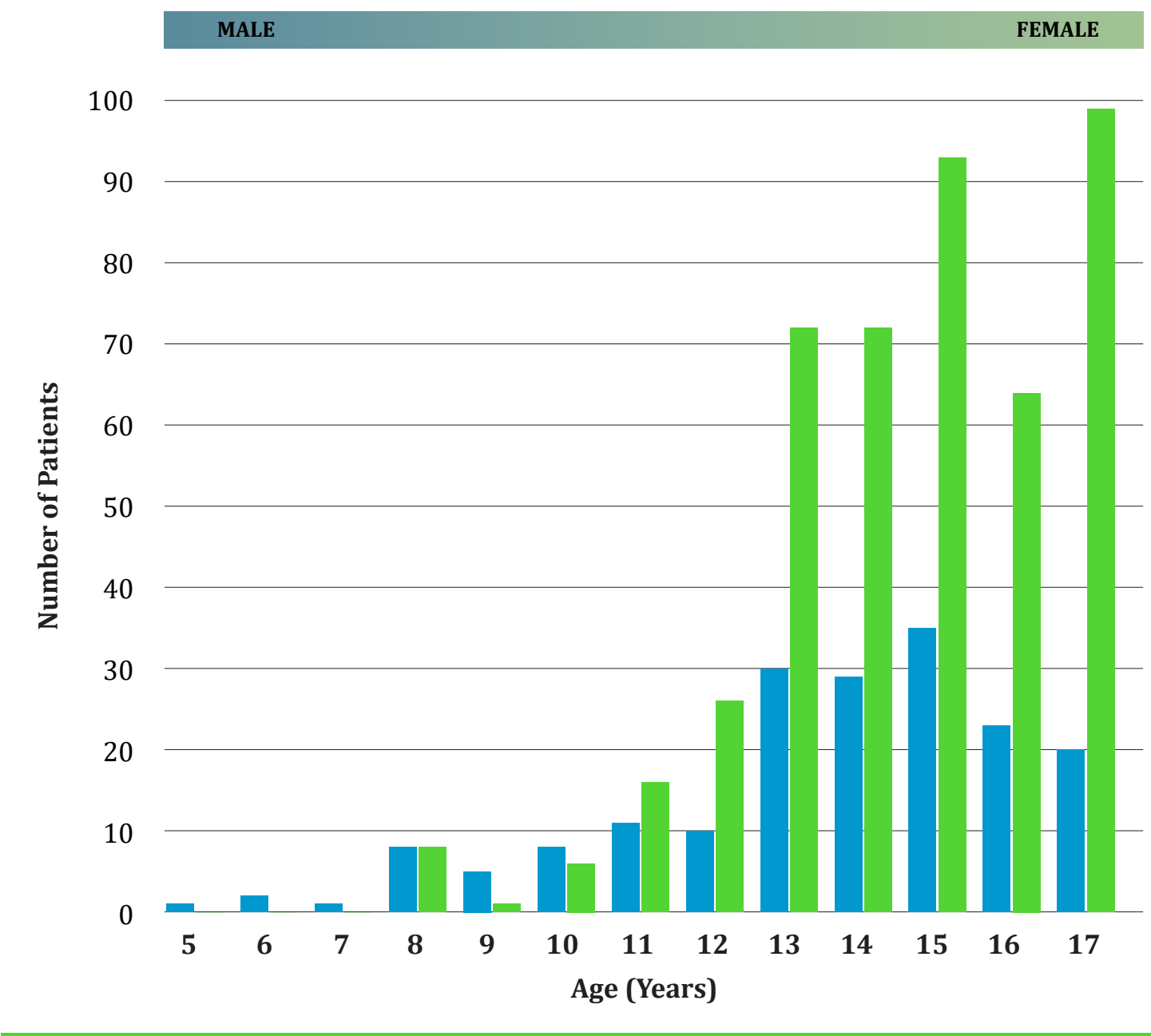
A descriptive analysis was performed to identify trends in patient age and gender, facility type, event type and subtype, and harm score. We reviewed and coded free-text fields (i.e., Event Details, Event Comments, and Event Recommendation) for each event for the following: method of self-injury and any objects employed, injury sustained, and any treatments employed by staff. We analyzed events to identify pre-event activities that may have contributed to the self-harm event as well as the emotional state reported by the patient or observed by the staff because these seemed to be important factors in understanding the motivation behind many of self-harm events.

Results

The query returned 702 event reports. A total of 62 events were excluded according to the predetermined criteria for the following reasons: suicide gesture, accidental self-injury, duplicate event, and event describing harm to staff without harm to patient. The final dataset included the remaining 640 events.

*PA-PSRS is a secure, web-based system through which Pennsylvania hospitals, ambulatory surgical facilities, abortion facilities, and birthing centers submit reports of patient safety-related incidents and serious events in accordance with mandatory reporting laws outlined in the Medical Care Availability and Reduction of Error (MCARE) Act (Act 13 of 2002).⁷ All reports submitted through PA-PSRS are confidential and no information about individual facilities or providers is made public.

Figure 1. Patient Age and Gender, N=640



Descriptive Analysis

Patients most often were female (71%; 457 of 640). Age and gender of patients are summarized in **Figure 1**.

Most events were reported by inpatient psychiatric facilities (92%; 587 of 640); the remaining 53 events were reported by acute care hospitals with inpatient psychiatric units.

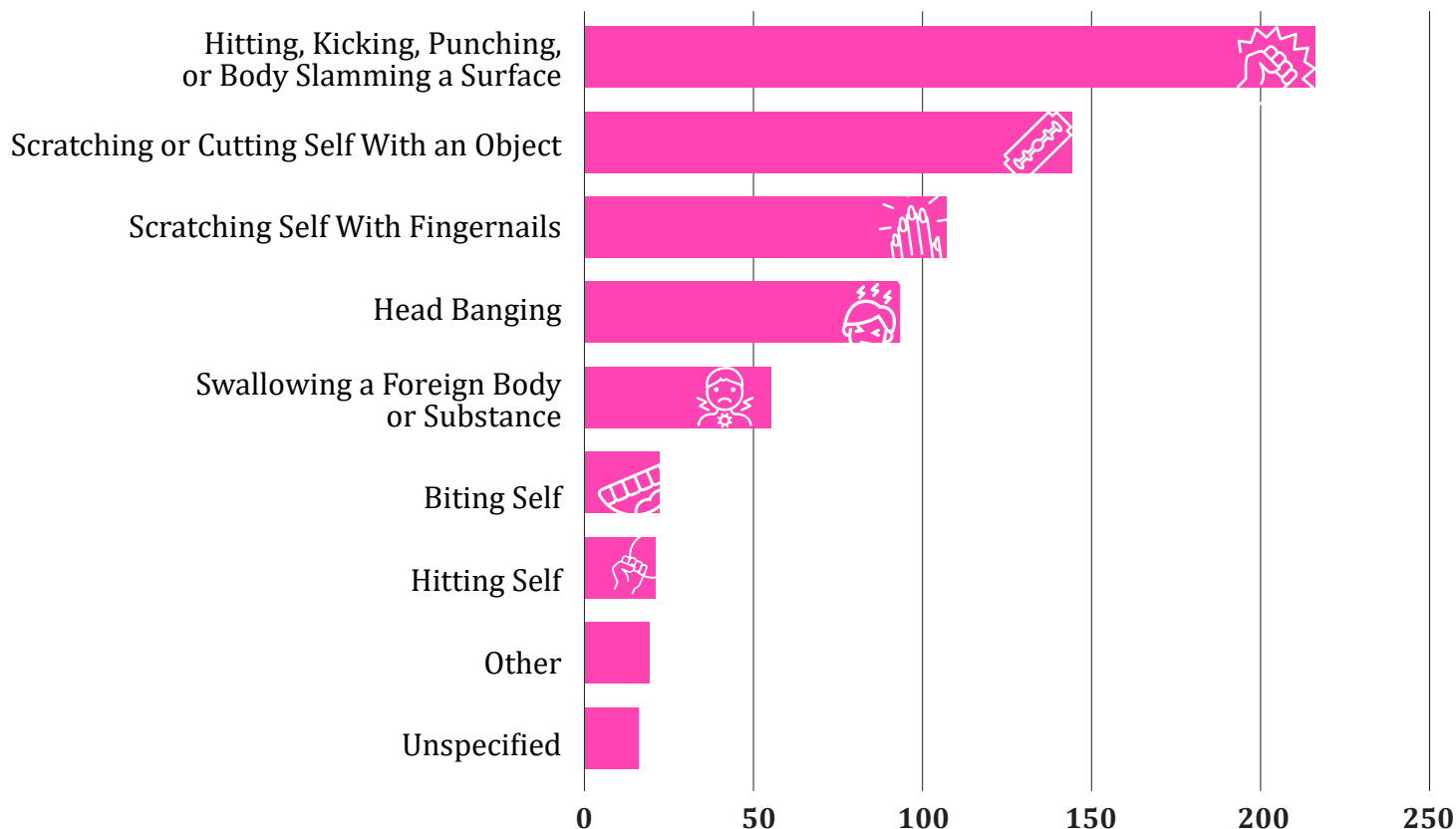
Nearly all events (95%; 611 of 640 events) were classified as incidents[†] by the reporting facilities, and the remaining

29 events were classified as serious events[‡]. No events in this analysis resulted in permanent harm to the patient or patient death.

All events were classified by the reporting facility as patient self-harm. Within this event type, events were specified by the reporting facility under the following subtypes: self-mutilation (44%; 279 of 640), ingestion of a foreign body or substance (7%; 45 of 640), or other (49%; 316 of 640).

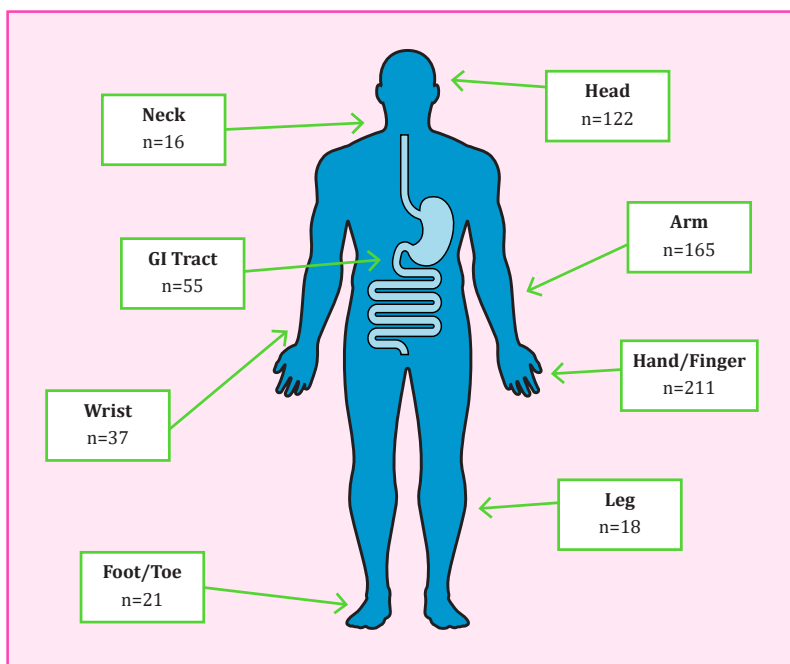
[†]An “incident” is defined as an event, occurrence, or situation involving the clinical care of a patient in a medical facility which could have injured the patient but did not either cause an unanticipated injury or require the delivery of additional healthcare services to the patient.⁷
[‡]A “serious event” is defined as an event, occurrence, or situation involving the clinical care of a patient in a medical facility that results in death or compromises patient safety and results in an unanticipated injury requiring the delivery of additional healthcare services to the patient.⁷

Figure 2: Method of Nonsuicidal Self-Injury, N=624



Note: "Other" includes inserting an object into a body cavity (such as the ear), hair pulling, picking a scab, burning self, pinching self, stabbing self, and stopping circulation.

Figure 3: Body Parts Targeted or Involved in Nonsuicidal Self-Injury, N=585



Qualitative Analysis

The method of NSSI was specified in 624 event reports, and these are summarized in **Figure 2**. Over 10% of event reports (64 of 624) described multiple methods of self-injury in a single event report. The most commonly reported methods of self-injury were hitting, kicking, punching, or body slamming a surface (35%; 216 of 624); scratching or cutting self with an object (23%; 144 of 624); scratching self with fingernails (17%; 107 of 624); head banging (15%; 93 of 624); swallowing a foreign body or substance (9%; 55 of 624); biting self (4%; 22 of 624); and hitting self (3%; 21 of 624). Notably, many occurrences of NSSI were not observed by a health-care provider and were only discovered because the patient or a peer reported the event to a health-care provider.

Among 216 event reports in which the patient engaged in hitting, kicking, punching, or body slamming, the most common surfaces mentioned were walls (n=168), doors (n=32), and windows (n=18), and some events involved more than one surface.

About three-fifths (62%; 58 of 93) of event reports in which the patient engaged in head banging included details about the surface involved; the most frequently mentioned were walls (n=40), doors (n=7), windows (n=6), beds (n=5), and floors (n=4), and some events involved more than one surface. The most common objects used for scratching or cutting were plastic utensils (n=17); sharps (e.g., blades, safety pins, or staples; n=16); miscellaneous pieces of plastic (e.g., found on the floor or broken off a larger item; n=11); pens (n=10); combs (n=9); miscellaneous pieces of metal (n=8); plastic caps (e.g., belonging to a pen, marker, or bottle; n=8); screws (n=5); paper clips (n=5); and toothbrushes (n=4). Some events involved more than one object; many of these items were broken to create a sharp edge. The most common foreign bodies or substances ingested by a patient were disposable gloves (n=7), liquid soap or cleaner (n=6), paper (n=4), blades (n=3), screws (n=3), and paper clips

(n=3). Some events involved more than one foreign body or substance.

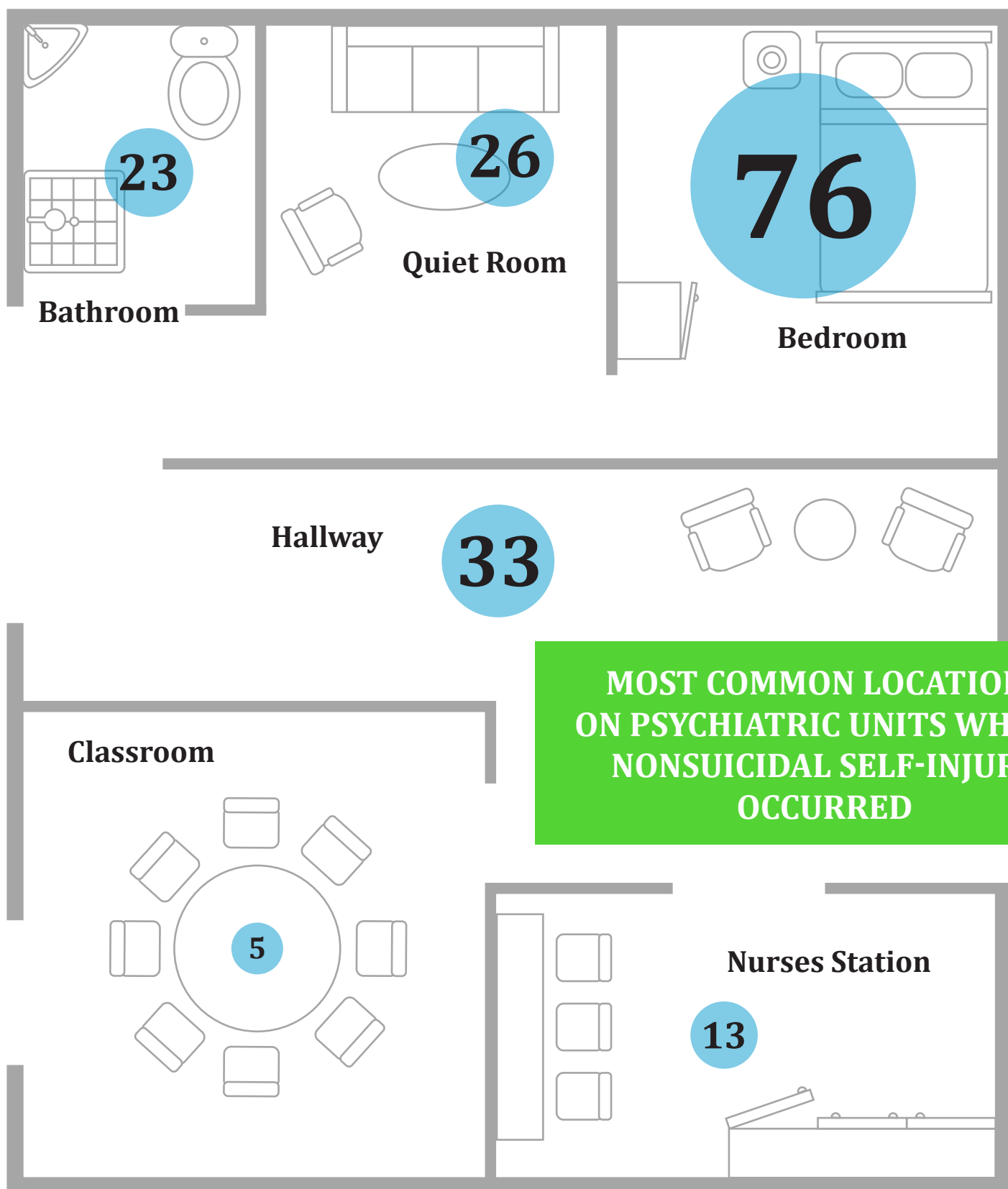
Self-injury episodes described in event reports targeted the entire body from head to toe. A total of 585 event reports specified the body part targeted or involved, and body parts mentioned in more than 10 event reports are summarized in **Figure 3**.

In most cases, patients sustained one or more minor or superficial injuries; the most common injuries were scratches (n=158), swelling (n=63), bruises (n=51), cuts (n=40), redness (n=38), and bleeding (n=38). Fifty patients reported pain, either alone or related to other injuries. Minor injuries were often treated with first aid or offered ice, and 41 patients were offered oral analgesics, such as ibuprofen (n=10) and acetaminophen (n=4), although some patients

Figure 4: Most Common Activities That May Have Precipitated an Episode of Self-Injury



Figure 5: Most Common Locations on Psychiatric Units Where Nonsuicidal Self-Injury Occurred, N=205



(n=14) refused. Patients with potentially serious injuries (e.g., fractures, head injuries, or wounds requiring stitches) were provided additional care; 83 patients (13%; n=640) underwent X-ray studies, and 48 patients (8%; n=640) were transferred to the emergency department for evaluation and treatment. Only 10 patients (2%; n=640) were confirmed to have a fracture resulting from the self-injury event.

Among 250 events that specified activities that may have precipitated an episode of self-injury, the most common were: family interactions (n=44), such as phone calls, meetings, and visits; peer interactions (n=44), such as verbal or physical altercations, discharge or readmission of a peer, room changes, and rejected romantic advances; interaction with healthcare providers and support staff (n=34), including social workers and physicians; group therapy sessions (n=31); mealtime or snack time (n=13); lying in bed or sleeping (n=10); showering or other hygiene activity (n=7); and pacing or running through the unit (n=5) (see **Figure 4**). In 13 event reports, patients expressed fear or anxiety surrounding post-discharge plans. Some patients verbalized suicidal ideation (n=14) and/or reported auditory or visual hallucinations (n=7). Details about the location or locations on the psychiatric unit where the self-injury occurred were included in 205 event reports; locations mentioned in at least 5 event reports are summarized in **Figure 5**.

Details about the emotional state of the patient prior to or during a self-injury event, as assessed by the reporter or stated directly by the patient, were included in 253 event reports, and some patients displayed or reported multiple emotions. Patients were most often agitated (n=109), upset (n=72), aggressive (n=30), angry (n=24), anxious (n=23), screaming (n=18), and crying or tearful (n=15).

Ninety-two event reports included details about the patient being offered an as-needed medication for anxiety or agitation in order to calm the patient and prevent further acts of self-injury. Specific medications that were mentioned were chlorpromazine (Thorazine), diphenhydramine (Benadryl), hydroxyzine (Atarax, Vistaril), lorazepam (Ativan), and olanzapine (Zyprexa), as well as the supplement melatonin. Some medications were offered orally while others were offered or administered as an intramuscular injection. Nine patients refused the offer of as-needed

Over half of the patients in our study that engaged in NSSI were high school-aged females—a finding supported by the literature



Figure 6: Summary of Self-Harm Events Among Patients With ASD, N=47



medication. In cases in which other interventions failed to de-escalate a patient engaging in NSSI, healthcare providers sometimes employed the use of one or more types of restraints (n=86), including a physical hold (n=82), a mechanical hold (n=24), or locked seclusion (n=4).

Self-Harm Among Patients With Autism Spectrum Disorder

The only notable diagnosis mentioned with any frequency was autism spectrum disorder (ASD), which was specified in 47 event reports. Self-harm events among patients with ASD are summarized in **Figure 6**. The majority of patients with ASD were male (64%; 30 of 47), and patients with ASD ranged in age from 8 to 17 years. There were no events among patients with ASD that were classified by the reporting facility as serious events. Among 43 reports that specified one or more self-harm behaviors performed by a patient with ASD, the most common were head banging (63%; 27 of 43) and hitting self (28%; 12 of 43). Among 29 reports that included details about a patient's emotional state, patients were most often described as aggressive (59%; 17 of 29) and/or agitated (48%; 14 of 29), and these were not mutually exclusive. A few patients were noted to be crying and/or screaming.

Thirteen event reports included details about location on the unit where the self-harm behavior took place, and the most common were the patient's bedroom (n=7) and the quiet room (n=3). Details about one or more activities that preceded a self-harm behavior were included in 25 event reports; the most common activities were group therapy (40%; 10 of 25), sleeping or lying in bed (20%; 5 of 25 events), staff interaction (16%; 4 of 25 events), and mealtime or snack time (16%; 4 of 25). Nearly half (49%; 23 of 47) of event reports involving patients with ASD specified that physical restraint by the staff was necessary to prevent harm; no event reports mentioned the use of a mechanical restraint or locked seclusion.

Discussion

Current Research on NSSI

Past research on NSSI in the adolescent population is extensive and continuously evolving. Much of the recent medical literature focuses on NSSI behaviors among children and adolescents in the community rather than in the inpatient setting. In a study of 665 students in third, sixth, and ninth grades recruited via school, researchers specifically identified ninth grade females as being at the greatest risk of NSSI.⁹ Similarly, half (51%; 329 of 642) of the event reports in our analysis involved a high school-aged (14 to 17 years) female.

Interpersonal interactions, including family, peer, and healthcare provider interactions, were among the most common contributors to self-injury in our analysis. Current research points to dysfunctional relationships, including

bullying, as a significant risk factor for NSSI among adolescents.² Several studies have highlighted the impact that peer interaction may have on self-injury among adolescents. In a study of 1,748 students across six middle schools, investigators found that risk factors for NSSI in this age group included female gender, suicidal tendencies, substance use, exposure to peer self-injury, and negative perception of life possibilities.¹⁰ Protective factors identified in this study included lack of substance use and not being a victim of bullying.¹⁰ An analysis of questionnaire responses from 640 high school students that specifically examined the relationship between NSSI and peer interactions found that both involvement in bullying and peer rejection increased the likelihood of NSSI among study respondents.¹¹

By its very nature, NSSI is not typically associated with serious harm, and our findings support this, with less than 8% of patients in our study requiring transfer to an emergency department for evaluation and treatment, and less than 2% of patients having a confirmed fracture. There are some patients, however, that inadvertently cause more serious harm than intended, and researchers estimate that 1 in 5 patients have harmed themselves more seriously than intended during an episode of NSSI.¹² A recent study of 102 college students who had engaged in NSSI during the previous year found that nearly one-third had harmed themselves more seriously than intended.¹² The addictive qualities of NSSI, including tolerance to the effects of NSSI, continued engagement in NSSI despite adverse consequences, and the time-consuming nature of NSSI, were a significant predictor of future occurrences of unintentionally severe harm, which suggests that clinicians should focus on these addictive qualities of NSSI when conducting a patient assessment.¹²

Although serious harm resulting from NSSI was uncommon in our study, the long-term implications for future mental health may be considerable. A study of NSSI and suicidal behaviors among adolescents demonstrated that the two behaviors commonly co-occur, and epidemiological research has demonstrated that individuals who engage in NSSI in adolescence have an elevated risk of future risk-taking behaviors and suicidality.^{2,13} These findings emphasize the importance of prevention and intervention for patients who engage in NSSI as adolescents to prevent future mortality.

More than half of patients in our study engaged in self-harm behaviors that did not require objects, including punching walls or doors and scratching with fingernails, suggesting that prevention strategies must go beyond removing potential objects for self-harm from the environment. Psychotherapy may be an effective treatment choice for adolescents engaging in NSSI, and the most common methods include dialectical behavioral therapy, cognitive behavioral therapy, and mentalization.^{2,14} Specific strategies for prevention of NSSI include recreational therapy,

Table 1: Comparison of Self-Injurious Behavior and Nonsuicidal Self-Injury^{3,4,16,17}

	Nonsuicidal Self-Injury (NSSI)	Self-Injurious Behavior (SIB)
Usual Age Group	Adolescents (≥ 10 years)	Young children (< 10 years)
Patient Population	Patients in the normative population who have underlying psychological conditions characterized by emotional dysregulation, such as eating disorders, major depressive disorder, posttraumatic stress disorder, and borderline personality disorder	Patients with developmental disabilities, such as autism spectrum disorders, or intellectual disabilities, especially those result from underlying genetic syndromes, such as Down syndrome, Prader-Willi syndrome, and fragile X syndrome
Typical Presentation	Wide range of behaviors that result in immediate damage of one's own body tissue in the absence of suicidal intent	Stereotypic and repetitive self-harming behaviors that are believed to serve a self-stimulatory function
Common Behaviors	• Cutting or scratching self • Hitting self or objects • Interfering with wound healing • Burning self	• Head banging • Hitting self • Biting self • Hair pulling

video gaming, puzzles, relaxation techniques, displacement strategies, journaling, identification of triggers, and conflict resolution.^{2,14} At present, there is insufficient evidence that psychiatric medication is beneficial in the treatment of NSSI in adolescents, although medications with sedating properties may be useful in some situations, as we saw with the use of as-needed medications for agitation or anxiety in our own analysis.^{2,14}

Focus on ASD and Self-Injurious Behavior

Both in our study and in the literature, NSSI was observed more often among adolescent females, but the majority of patients in our study with ASD were male. This gender difference may be reflective of the fact that males are four times more likely than females to be diagnosed with ASD in the United States.¹⁵ From a clinical perspective, self-injurious behavior (SIB) is generally considered separately from NSSI. One of the most notable differences between SIB and NSSI is that SIB tends to be repetitive; a comparison of the clinical presentation and features of SIB and NSSI is presented in **Table 1**.^{3,4,16,17}

In an analysis of patients with ASD and other developmental disorders hospitalized in specialized psychiatric facilities in the United States, aggression and SIB were the most common reasons for hospitalization.¹⁸ Similarly, patients with ASD who engaged in self-harm in our study were most often described as aggressive. To estimate the rate of SIB among patients with ASD, researchers conducted a meta-analysis of 37 primary studies that included 14,379 patients; 42% of patients with ASD engaged in SIB, compared to 8% of children and adolescents in the general population.¹⁹ A study of children and adolescents with ASD admitted to inpatient units in specialized psychiatric facilities identified potential predictors for self-injury, and researchers found that intellectual disability was the most common predictor of SIB among this patient population.²⁰

Treatment of SIB in patients with ASD can be challenging because these behaviors are believed to be shaped, strengthened, and maintained through both positive and negative reinforcement, and at times may even be self-reinforcing.²¹ Empiric research supports the use of behavioral treatments for SIB in patients with ASD, which are intended to increase

positive, adaptive behavior or decrease undesirable behavior.²¹ Behavioral treatment for SIB in patients with ASD relies on the principles of reinforcement, extinction, punishment, and skill building, and these are typically used in combination to achieve the desired effect.²¹ Pharmacologic treatments may be beneficial in treating SIB in patients with ASD, especially in combination with behavioral treatments when they have failed as monotherapy; the most commonly used classes of medications are selective serotonin reuptake inhibitors (SSRIs), such as fluoxetine (Prozac), fluvoxamine (Luvox), and sertraline (Zoloft); atypical antipsychotics, such as risperidone (Risperdal) and clozapine (Clozaril); and opioid antagonists, such as naltrexone.²²

Limitations

Despite mandatory event-reporting laws in Pennsylvania, our data are subject to the limitations of self-reporting. Because the details included in each event report are left up to the discretion of the reporter, information that may have provided more insight into NSSI was sometimes missing, including each patient's admitting diagnosis. Occurrences of NSSI may go undetected if the site of injury is hidden and the patient is not undergoing regular body checks. The applicability of our findings may be limited to the inpatient psychiatric setting because PA-PSRS does not collect reports of patient safety events from the outpatient setting; however, our findings may still provide a greater awareness of NSSI in other clinical settings.

Conclusion

NSSI among children and adolescents is reported frequently by psychiatric hospitals and units across Pennsylvania, and our data is likely only a snapshot of what actually occurs. NSSI has been observed more often in females than males in the adolescent population. The most common methods of NSSI among adolescents include hitting, punching, kicking, or body slamming a surface; scratching or cutting self with fingernails or an object; and head banging. Although NSSI resulted in only minor injuries to patients in our study, some patients may inadvertently cause more serious harm than intended, especially as self-injurious behaviors escalate. In addition, research has shown that NSSI and suicidal behaviors co-occur in adolescents and that NSSI may be a predictor of suicidality later in life. In any practice setting, identification of patients who may be at risk for NSSI, such as adolescents who are engaged in or who are the subject of bullying, may provide an opportunity to prevent and treat these behaviors before they progress to more serious injuries or suicidality later in life. For normative patients with underlying emotional dysregulation, current treatment strategies that rely on cognitive or dialectical behavioral therapy are preferred over other interventions. For SIB in patients with ASD, a combination of

behavioral treatments is often first-line, and pharmacologic treatment may be added if behavioral treatments alone have failed. In order to keep patients safe during inpatient stays in psychiatric facilities or units, future research should focus on prevention strategies that reduce risk of NSSI among children and adolescents.

Notes

This analysis was exempted from review by the Advarra Institutional Review Board.

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◇ Patient Safety Authority
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Accidental Choking Among Hospitalized Patients in Pennsylvania

A 15-Year Retrospective Review

By Elizabeth Kukielka, PharmD, MA, RPh[◇]

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Choking occurs when a foreign body becomes lodged in the airway and obstructs respiration. In the United States, over 5,000 deaths were attributed to choking in 2015. Among older adults, food is the most common cause of choking, and the death rate for choking events involving food is seven times higher among older adults than young children. We queried the Pennsylvania Patient Safety Reporting System (PA-PSRS) and identified 545 events related to accidental choking on food, beverages, medications, or other foreign bodies reported from 2004 to 2019. Patients who experienced a choking event were more often female (56%; 306 of 545), and they ranged in age from 6 months to 102 years, with a median patient age of 70 years (interquartile range = 54 to 83 years). Among choking events that specified the substance involved, food was the most common (80%; 424 of 528 events). The most common foods that patients choked on were meat or fish (n=77), sandwiches (n=38), and breads or cakes (n=31). Abdominal thrusts were the most common immediate response described in event reports, attempted in more than half of events (56%; 306 of 545). Prevention of accidental choking may involve timely assessment of risk factors that predispose a patient to choking, including age older than 60 years, tooth loss and presence of dentures, and underlying psychiatric or neurologic illness.

Keywords: *choking, foreign body, food bolus, airway obstruction, abdominal thrusts, patient safety*

Choking occurs when a foreign body becomes lodged in the airway and obstructs respiration. Choking most often affects young children and older adults.¹ In 2015, 5,051 individuals in the United States choked to death, and more than half (57%; 2,858) were over 74 years old.² Among older adults, food is the most common cause of choking.¹ From 2007 through 2010, the death rate for choking events involving food was seven times higher among patients 65 years and older than among children 1 to 4 years old.³ Older adults may be predisposed to food-related choking death due to underlying health conditions that affect chewing and swallowing of food.³

Choking deaths, especially those involving food, are considered preventable, which makes this an important patient safety topic.³ We queried the Pennsylvania Patient Safety Reporting System (PA-PSRS)* to identify patient safety events related to choking that have occurred in Pennsylvania. The purpose of this analysis was to gain a better understanding of choking events that occur within healthcare facilities and to identify potential risk factors for choking, prevention strategies, and treatment options.

Methods

We queried PA-PSRS for events that occurred from May 1, 2004, through December 31, 2019. We searched free-text fields (i.e., Event detail, Event Recommendation, Event Comments, and Event Type Subtype Other) for the keyword “chok,” which was intended to capture all conjugations of the verb “choke.” Each event was reviewed by a patient safety analyst to determine inclusion or exclusion in the analysis.

An event was included in the analysis if it described accidental or unintentional choking on food, beverage, or medication. An event was also included if it described choking on an inedible foreign body, such as a bone, stem, or denture, if the ingestion was accidental or unintentional (e.g., a bone present in a piece of meat).

Events were excluded for the following reasons:

- Event described choking on a bodily fluid, such as blood or mucus.

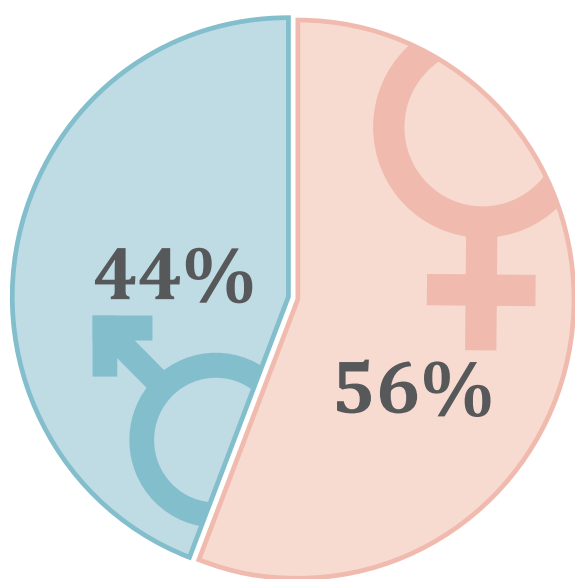
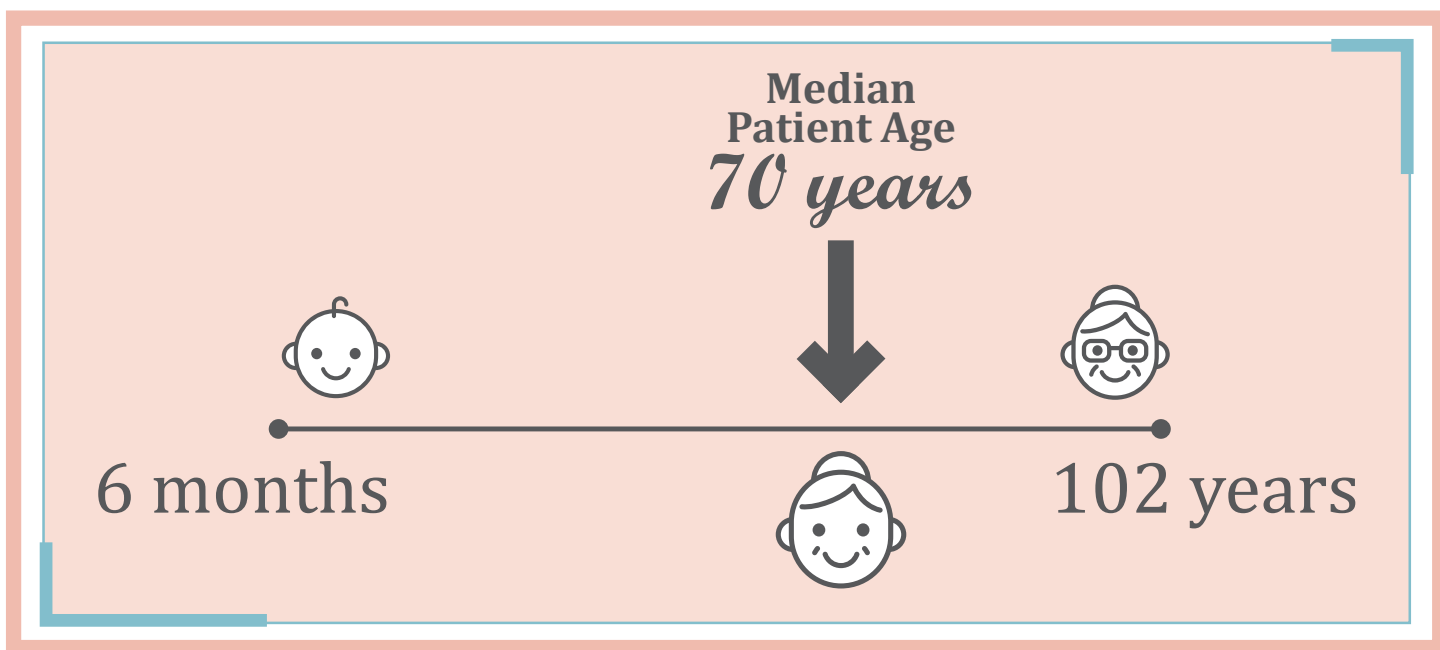
- Event described seizure activity without any actual choking.
- Event described strangulation, including self-strangulation (intentional or unintentional), strangulation of one patient by another patient, or strangulation of a healthcare provider.
- Event described an unplanned self-extubation which resulted from a patient experiencing the sensation of choking while intubated.
- Event described an adverse drug reaction which resulted in the throat closing and the patient experiencing respiratory distress as a result.
- Event described coughing and choking in an adult that did not result in blockage of the airway.
- Event described a choking event reported by the patient but not witnessed by any healthcare provider.
- Event described coughing and/or choking in a newborn patient who had difficulty clearing the airway of secretions.
- Event included the keyword “chok” in another context.

A descriptive analysis was performed to characterize trends in patient age, patient gender, event harm, facility type, and care area group. A qualitative analysis was also conducted to identify the specific substance on which the patient choked, whether there was a deviation from the prescribed diet, the response and remedies employed by the healthcare team, any transfers to a higher level of care that were required, and whether the patient expired as a result of the choking event.

Results

The query returned 1,543 events submitted to PA-PSRS from May 1, 2004, through December 31, 2019. A total of 545 unique events were identified for inclusion in the analysis. The most common reasons for event exclusion were coughing or choking in a newborn resulting from excess secretions, strangulation events, adverse drug reactions, choking on a bodily fluid, and a sensation of choking that led to self-extubation.

*PA-PSRS is a secure, web-based system through which Pennsylvania hospitals, ambulatory surgical facilities, abortion facilities, and birthing centers submit reports of patient safety-related incidents and serious events in accordance with mandatory reporting laws outlined in the Medical Care Availability and Reduction of Error (MCARE) Act (Act 13 of 2002).⁴ All reports submitted through PA-PSRS are confidential and no information about individual facilities or providers is made public.



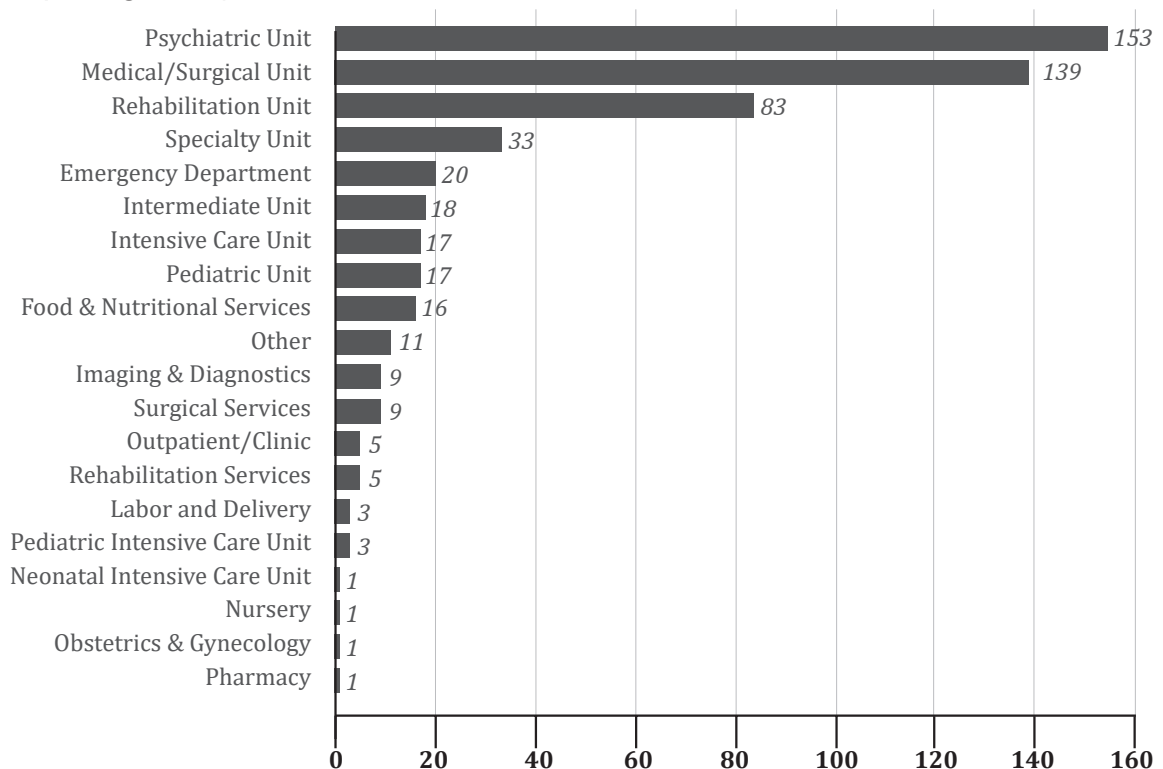
97%
of choking
events
involved
an adult

Descriptive Analysis

Patients who experienced a choking event were more often female (56%; 306 of 545) than male (44%; 239 of 545). Patients ranged in age from six months to 102 years. The median patient age was 70 years (interquartile range = 54 to 83 years). Most events (97%; 526 of 545) involved an adult (age 18 years or older). Based on the assessment of the reporting facility, 90% (491 of 545) of events did not result in harm to the patient. Of events that resulted in harm to the patient, the harm was usually temporary (6%; 35 of 545). The reporting facility specified that 14 events (3%; 14 of 545) contributed to or resulted in the death of the patient.

About three-quarters of events (73%; 396 of 545) occurred at an acute care hospital. The remaining events occurred at a rehabilitation hospital (12%; 66 of 545), a psychiatric hospital (5%; 28 of 545), a long-term acute care hospital (4%; 21 of 545), a critical access hospital (3%; 18 of 545), a children's hospital (2%; 13 of 545), and an ambulatory surgery facility (1%; 3 of 545). The most common care area groups where a choking event took place were a psychiatric unit (28%; 153 of 545) and a medical/surgical unit (26%; 139 of 545). The care area groups where each choking event occurred are summarized in **Figure 1**.

Figure 1. Number of Events by Care Area Group Where Event Occurred, Assigned by Reporting Facility, N=545



Qualitative Analysis

Each event report was reviewed to identify pertinent trends, including the substance involved in the choking event, the response enacted by the healthcare team, and transfers to a higher level of care. A subgroup analysis of events that caused or contributed to the patient's death was also performed.

Substances Implicated in Choking Events

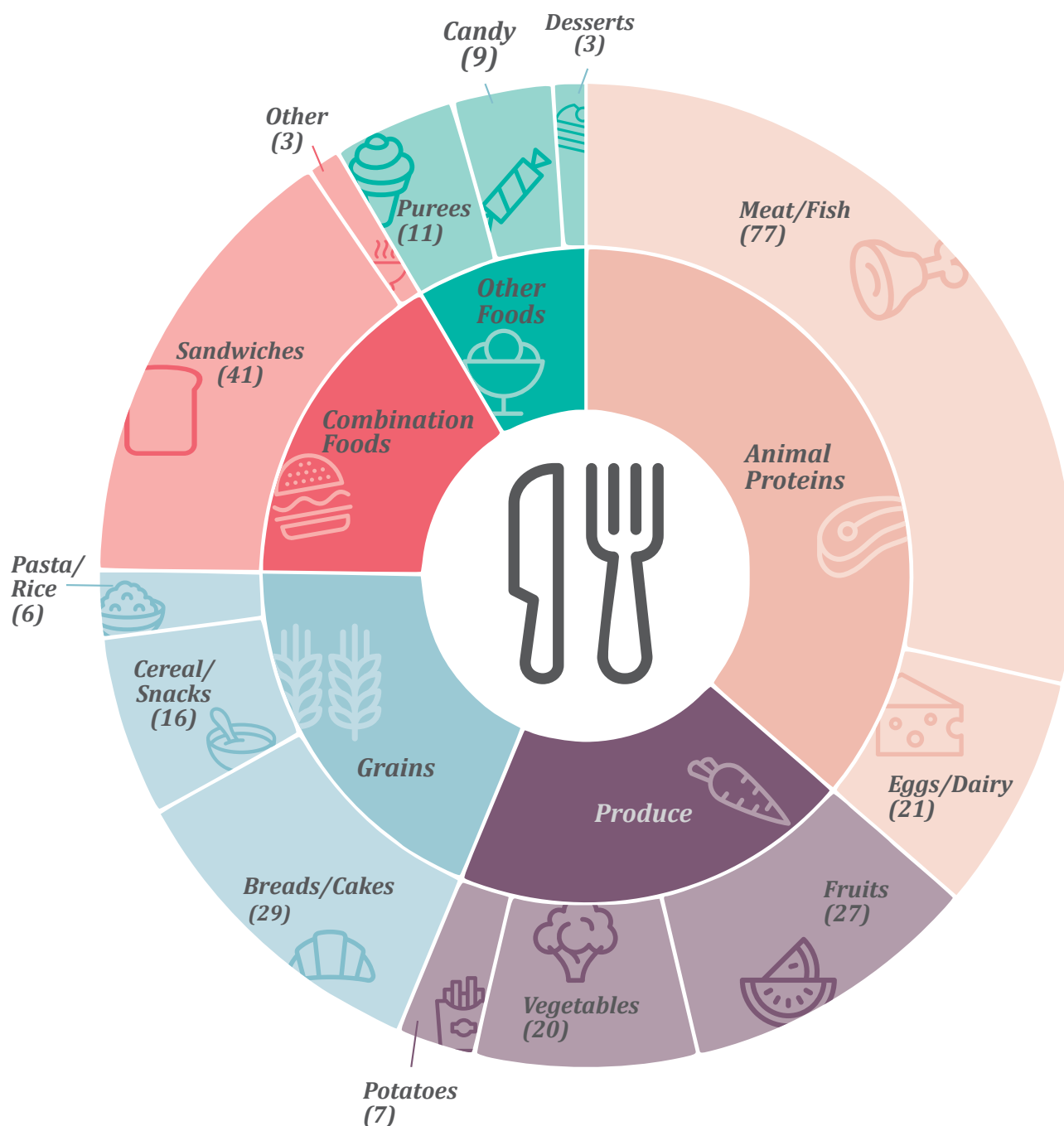
Events were classified according to whether the substance implicated in each choking event was a food, beverage, medication, or another foreign body. The specific substance was noted if that detail was included in the event report. The substance implicated in each choking event was identified in 528 events, while the other 17 events did not specify the substance. Choking events involving food were by far the most common, with food being mentioned in 80% (424 of 528) of events. Among 424 events that specified the patient choked on food, 262 events included information about the specific food or food group, and 6 of those events each involved two foods, for a total of 268 specific foods (summarized in **Figure 2**). The single most common food that patients choked on was chicken (n=24). Other com-

mon foods were eggs (n=19) and mashed potatoes (n=7). The most common food groups were meat or fish (n=77), sandwiches (n=38), and breads or cakes (n=31).

Patients were reported to have received the wrong diet in 59 events. Among these events, the wrong diet was supplied by the food services department or a staff member caring for the patient in 48 events and by a family member in 8 events; the patient obtained food from another source, such as from another patient's food tray, in 3 events.

Choking events involving medications were the second most common, with medication being mentioned in 13% (73 of 528) of events. Among 41 events that mentioned a specific medication, the most frequently implicated medications were potassium (n=7), acetaminophen (n=5), barium (n=4), cough lozenges (n=4), opioid/acetaminophen combinations (n=4), gas crystals (n=3), and docusate (n=2). Other medications specified in event reports included clopidogrel, ibuprofen, lorazepam, oxycodone, prednisone, sucralfate, and tramadol. In some cases, the medications were tablets that had been split in half, and in other cases the patient attempted to swallow two or more pills at once.

Figure 2: Foods Identified in Choking Events, N=268



Other foreign bodies were specified in 3% (17 of 528) of events. The most common other foreign bodies were bones (n=5), presumably from meat or fish; dentures (n=3); and plastic (n=3). Several foreign bodies implicated in choking events were the inedible parts of fruits or vegetables, such as a fruit pit, a stem, and a leaf. In most cases, these other foreign bodies were mixed in with food and not visible to the patient. Beverages were specified in 3% (15 of 545) of choking events. The most common beverage involved in choking events was water (60%; 9 of 15); other beverages included juice, coffee, and formula.

Response to Choking Events

Many events included details about the response or responses enacted by the healthcare team. These responses ranged from encouraging the patient to cough in order to move the foreign body out of the throat to calling for an internal or external emergency response team. In 44 event reports, the patient was able to expel the foreign body without the intervention of a healthcare provider by coughing, gagging, and/or vomiting. The most common immediate response described in event reports was the administra-



Most Common Responses to Choking:

- Heimlich maneuver
 - Suctioning
 - Back blows
 - Finger sweeps

tion of abdominal thrusts (commonly referred to as the Heimlich maneuver⁵), which was attempted in more than half of events (56%; 306 of 545). Details about the individual(s) who administered abdominal thrusts were specified in 180 event reports, and these included healthcare providers or staff members (n=172), another patient (n=6), or a visitor or family member (n=2). In 3 events, a visitor or another patient started abdominal thrusts until a healthcare provider or staff member was able to take over. Nurses were the most common healthcare provider (n=77) to administer abdominal thrusts to the patient. Other immediate responses included suctioning (n=47), back blows (n=23), and finger sweeps (n=14).

A code, condition, or rapid response was called to assist in the treatment of 108 patients. Seventy-six patients were transferred to a higher level of care, either within the same facility or at an outside hospital. Chest X-rays were ordered in 32 event reports to determine if the patient aspirated or sustained an injury as a result of treatment.

Comorbid Health Conditions

One or more comorbid conditions were mentioned in 95 event reports, and these were diverse and affected every body system. The most frequently mentioned comorbid conditions were neurological disorders (n=24), including stroke, seizures, Parkinson's disease, Alzheimer's disease; cardiovascular disorders (n=22), including coronary artery disease, congestive heart failure, and hypertension; psychiatric conditions (n=16), including psychosis, agitation, depres-

sion, and anxiety; and gastrointestinal disorders (n=15), including esophageal abnormalities, peptic ulcer disease, and gastrointestinal reflux disease (see **Figure 3**). Recent surgery was described in 12 event reports, including hip replacements, knee replacements, heart surgery, and amputation. Patients with underlying neurologic conditions most often had a history of stroke (n=7) or seizures (n=7). A recent history of choking, aspiration, or dysphagia was mentioned in 10 event reports. Some event reports specified that patients had partial or complete tooth loss (n=10), and most of these patients were noted to have ill-fitting or missing dentures.

Deaths Associated With Accidental Choking

As stated above, the facility specified that the event contributed to or resulted in the patient's death in 14 event reports. Two additional patient deaths were identified in the qualitative analysis, and the primary cause of death in these two cases was attributed to cardiac arrest. Among these 16 patient deaths, patients more often were male (63%; 10 of 16), and the majority (75%; 12 of 16) of patients were over the age of 60.

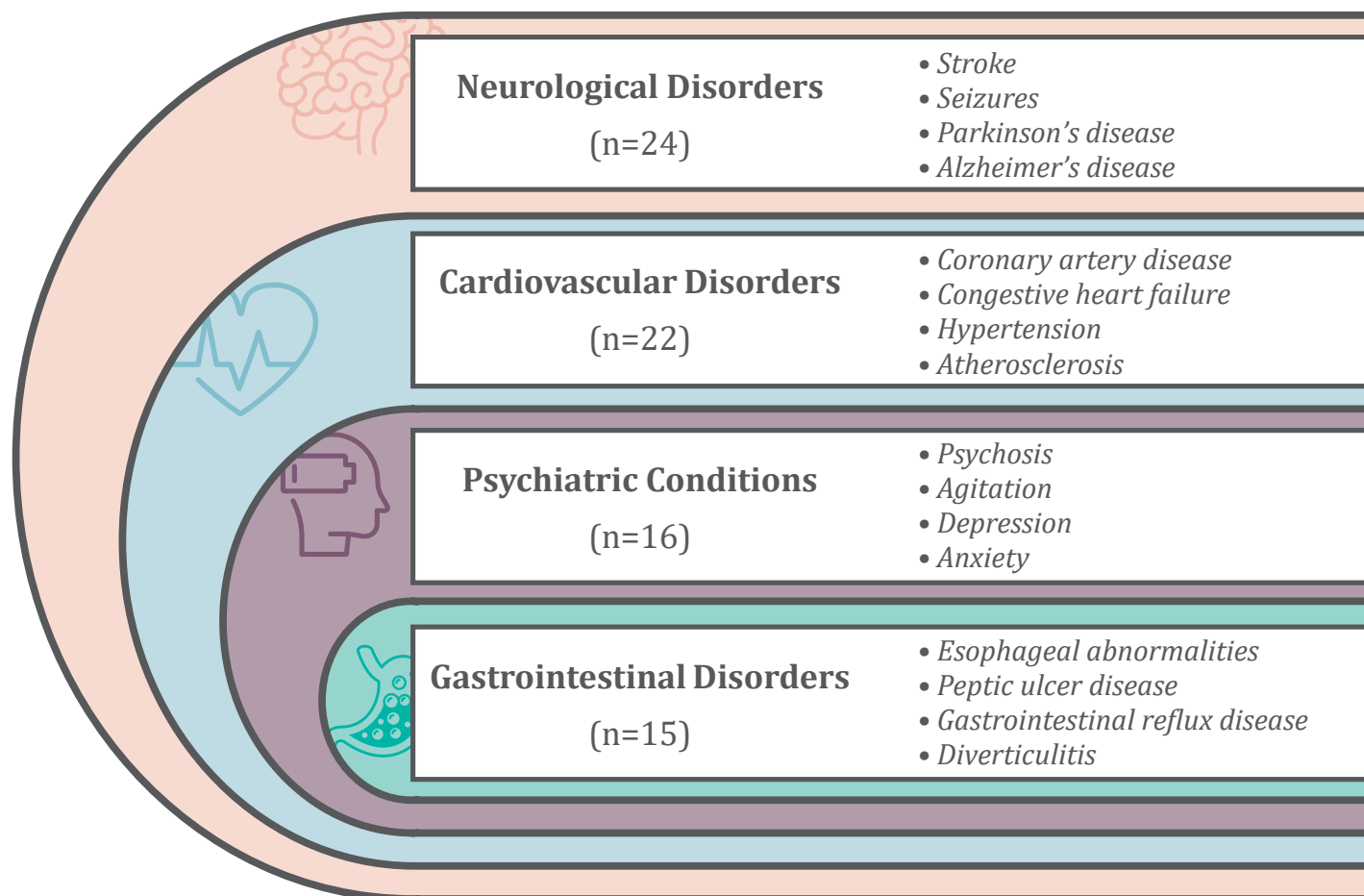
All but two deaths occurred at an acute care facility (88%; 14 of 16). The most common care area groups where a patient experienced a choking event that resulted in the death were a medical/surgical unit (38%; 6 of 16) and a psychiatric unit (31%; 5 of 16).

All but two events involved choking on food (88%; 14 of 16). Of the 8 food-related choking deaths that mentioned a specific food, 3 events involved a sandwich. Males (n=8) were more likely to experience a food-related choking death than females (n=6).

Abdominal thrusts were attempted in half of events (50%; 8 of 16), and a code or rapid response was called in over two-thirds of events (69%; 11 of 16). In some instances, resuscitative measures were stopped due to the patient having a do not resuscitate and/or do not intubate order in place.

Underlying or preexisting conditions mentioned in event reports that resulted in death of the patient included dysphagia or a recent history of choking or aspiration, neurologic conditions (e.g., seizures and stroke), and psychiatric conditions or changes in mental status (e.g., dementia and agitation).

Figure 3: Most Common Comorbid Conditions for Patients Who Experienced a Choking Event, N=61



Discussion

Our analysis primarily identified events among adult patients, so this discussion focuses on choking events in the adult population. Investigations of accidental choking among hospitalized patients are scarce in the medical literature, and to the author's knowledge, our study appears to be the largest to date.

An analysis of 75 near-fatal choking events in both community and inpatient (e.g., hospitals and nursing homes) settings revealed that events were more common in females (59%; 44 of 75), and the median patient age was 70 years, which was similar to what we found in our study (57% of patients were female, and median patient age was 70 years).⁶ A review of 2,214 food-related choking deaths in patients 65 years and older spanning a four-year period in the United States revealed that males were more likely than females to experience a food-related choking event, and the difference became more pronounced as patient age increased.³ Fatal choking in general has been more frequently reported among males than females.^{7,8} Similarly, we found that males more frequently experienced a fatal choking death in general and more specifically a fatal choking death related to food.

Identifying choking on a foreign body as the cause of death can be challenging in elderly patients with multiple and complex underlying conditions. Elderly patients may have a diminished cough reflex, and as a result, an apparent cardiac arrest may actually be the result of silent asphyxiation. The only definitive way that the cause of death can be accurately identified is via an autopsy, which may not be routinely performed in patients with underlying cardiac conditions. A small case series and a case report describe 4 events in which the cause of death was initially attributed to a cardiac arrest, but following autopsy, the patients were determined to have choked to death on food.^{9,10} The results of a larger retrospective study of fatal choking in the elderly also demonstrated that an autopsy was necessary to accurately identify the cause of death as fatal choking.⁷ Notably, there were two deaths in our analysis that the reporting facility attributed to cardiac arrest, and it was not clear that an autopsy was performed in either case to confirm the cause of death.

The most common treatment method employed to relieve choking in our analysis was the administration of abdominal thrusts. Studies attempting to identify a preferred technique for the treatment of choking are largely anecdotal

and retrospective in nature.¹¹ The most recent guidelines from the American Heart Association (AHA) indicate that an adult who is conscious and choking with signs of severe obstruction can be treated with abdominal thrusts, chest thrusts, or back blows.¹¹ For the sake of simplicity, AHA recommends that adults and children age one year and older who are conscious and choking be treated with abdominal thrusts applied in rapid succession. Patients who are obese or in the late stages of pregnancy should be treated with chest thrusts.¹¹ Healthcare providers involved in direct patient care, such as physicians and nurses, are trained to administer abdominal thrusts, and individuals in the community who take courses in basic life support and advanced cardiac life support also receive this training.¹² If the patient becomes unconscious, treatment should then progress to cardiopulmonary resuscitation.¹¹

Researchers have hypothesized that screening of high-risk patients in the primary care setting is the best way to prevent choking deaths in older patients.¹⁰ Primary care providers may consider risk factors that predispose patients to choking, which are summarized in **Table 1**. Taking this strategy a step further, healthcare providers in the acute care setting may also be able to prevent choking events within their facilities by screening patients on admission and identifying those who may be at the greatest risk.

Meat/fish and sandwiches were some of the most common foreign bodies implicated in accidental fatal and nonfatal choking.⁶⁻⁸ In a study of the influence of both salivation and the consistency of food products on swallowing, researchers found that adding butter to food products that were hard or dry decreased the number of chewing

Strategies to Prevent Choking on Medication

One study estimated that 7% of aspirated foreign bodies are pills, compared to 13% observed in our study.¹⁷ Even among healthy patients, swallowing medication may be difficult.¹⁸

Several strategies may be employed to prevent medication-related choking events, including postural adjustments, pill-swallowing aids, pill-swallowing techniques, deprescribing unnecessary medications, or changing to an alternative dosage form (e.g., changing from a tablet to a suspension).^{18,19}



If these methods are not possible or are unsuccessful, alternative methods include modifying a dosage form or include mixing medications with food (e.g., yogurt or applesauce) or beverage (e.g., juice); however, these methods should be used with caution because they may impact the integrity of the medication, cause irritation of the gastrointestinal tract, or lead to interactions between a food or beverage and a medication.¹⁸ Especially among patients with swallowing disorders, pills should be administered one at a time, and the healthcare provider should ensure that each pill had been swallowed before giving the next pill.¹⁷

Table 1: Risk Factors for Choking in Adults^{6-8,10,13-15}

Age 	>60 years of age	
Health Conditions 	Parkinson's disease Dementia, including Alzheimer's disease Schizophrenia Stroke Cerebral palsy Multiple sclerosis Seizure disorder Cancer, especially of the larynx	
Dental Health 	Tooth loss	<i>Partial</i> <i>Complete</i>
	Dentures	<i>Ill-fitting</i> <i>Missing</i>
Medications 	Antipsychotics	<i>chlorpromazine</i> <i>clozapine</i> <i>lithium</i> <i>haloperidol</i> <i>olanzapine</i> <i>risperidone</i> <i>quetiapine</i>
	Anticholinergics/Antimuscarinics	<i>benztropine</i> <i>dicyclomine</i> <i>oxybutynin</i> <i>ipratropium</i> <i>tolterodine</i>
	Neuromuscular Blockers	<i>cisatracurium</i> <i>pancuronium</i> <i>rocuronium</i> <i>vecuronium</i>
	Antineoplastics/Immunosuppressants	<i>azathioprine</i> <i>cyclosporine</i> <i>paclitaxel</i> <i>daunorubicin</i> <i>vinorelbine</i>

“ Researchers found that adding butter to food products that were hard or dry decreased the number of chewing cycles required to swallow the food bolus. ”



cycles required to swallow the food bolus.¹⁶ This is a simple technique that could be helpful for patients with underlying salivation or swallowing disorders. Alternatively, patients with dietary restrictions related to underlying health conditions (e.g., hyperlipidemia) may simply avoid foods that are hard or dry to prevent the possibility of choking.

Collaboration across the healthcare team is essential to ensure safe delivery of food and medication for patients in the inpatient setting. For patients with suspected swallowing difficulty, a speech language pathologist may be consulted to evaluate the patient's swallowing and make recommendations to alter the patient's dietary and medication orders.²⁰ For any proposed changes to medication delivery, the pharmacist should be consulted to ensure that a medication may be safely mixed with a food or beverage or to identify whether it is safe to split or crush a pill.^{18,20}

Limitations

Despite mandatory event-reporting laws in Pennsylvania, our data are subject to the limitations of self-reporting. Because a standard taxonomy for reporting accidental choking events does not exist, we may have missed relevant event reports with our query. Other search terms were considered, including “dysphagia” and “aspiration;” however, many reports mentioned these terms only peripherally and most went beyond the scope of our study. The applicability of our findings may be limited to the inpatient setting because PA-PSRS does not collect reports of patient safety events from nursing homes.

Conclusion

Although accidental choking events occur regularly among hospitalized patients in Pennsylvania, most events are quickly addressed by clinical staff to prevent harm to the patient, and death is uncommon. Food contributed to three-quarters of accidental choking events in the hospital and all but two deaths. Common foods implicated in accidental choking events include meat/fish, sandwiches, breads/cakes, and eggs. Abdominal thrusts were utilized in more than half of events to clear the patient's airway, indicating that this remains one of the most effective tools to manage accidental choking regardless of setting. Prevention of accidental choking, specifically in the inpatient setting and also in the broader community, may involve timely assessment of risk factors that may predispose a patient to choking, including age older than 60 years, tooth loss and presence of dentures, and underlying psychiatric or neurologic illness. Future research may explore choking events that occur in other healthcare settings, such as nursing homes, as well as in other locations in community.

Notes

This analysis was exempted from review by the Advarra Institutional Review Board.

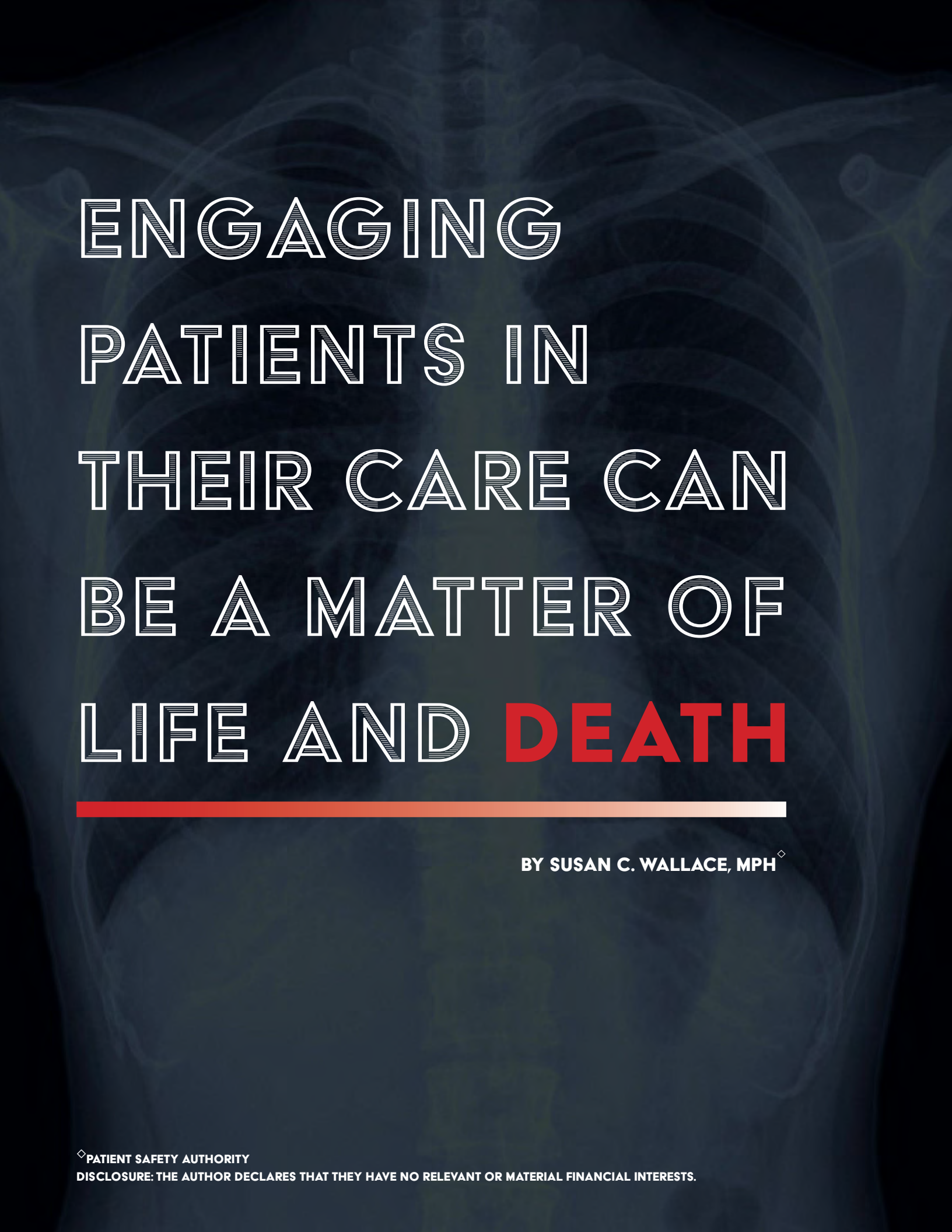
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ENGAGING PATIENTS IN THEIR CARE CAN BE A MATTER OF LIFE AND **DEATH**

BY SUSAN C. WALLACE, MPH [◇]

[◇] PATIENT SAFETY AUTHORITY

DISCLOSURE: THE AUTHOR DECLARES THAT THEY HAVE NO RELEVANT OR MATERIAL FINANCIAL INTERESTS.

Marcella Schankweiler's husband, Peter Bossov Jr., was feeling consistent fatigue and shortness of breath. He reported his symptoms to his doctor, who performed a computerized tomography (CT) scan and told him that the result was normal. It was not until a second provider gave Bossov a chest X-ray four years later that he discovered he had a tumor the size of a football in his chest cavity.

When the initial CT scan was used as a comparison, Peter found that the tumor had been detected and noted in the imaging report; however, he was never given this information. "His life would have been spared if we had received a copy of the test results four years earlier," Schankweiler says.

Bossov's case and similar patient events were instrumental in helping to pass a law in Pennsylvania named the Patient Test Result Information Act, aka Pennsylvania Act 112 of 2018, that requires radiologists and their facilities to report significant abnormality findings directly to patients.¹ The Act helps to engage patients in their care and prevent a missed or delayed diagnosis.

Before the law was passed, patients usually were informed about the results only through their ordering healthcare provider. When the test was ordered at their provider's office they may have been told, "No news is good news," and assumed the result of their test was negative because they did not hear anything further. Or the abnormal result may have been missed by their provider if it was an incidental finding.

Former state representative Marguerite Quinn wanted to change the flow of test result information. Two of her constituents had died after their physicians failed to notify them of a detected malignancy, so she sponsored the bill to provide a safety net by communicating significant abnormal test results directly to patients. "Communication of the diagnosis can be just as important as the diagnosis itself," she says. "If the patient does not know of the results, the patient will not pursue the proper medical treatment. Act 112 can prevent this critical information from falling through cracks by closing this loop."

Pennsylvania is the first and only state in the United States to take a hard look at this communication issue and focus on the rights of patients to know the results of a significant abnormal imaging test directly from radiologists and their facilities.

INTRODUCTION OF THE BILL

When Quinn first introduced the bill in 2007, she received considerable pushback from other legislators and radiology stakeholders, mainly because in its original form the bill required that a summary or the impression of the full radiology report be mailed to patients. Providers worried about a patient learning of findings from a test that may be relatively normal given other health factors related to that specific patient. They also raised concerns about patients not under-

standing scientific terminology and the results potentially increasing patient anxiety. "We agreed they could be disturbing but not fatal," she says. "The findings may have scared us, but we would have then had the opportunity to address it. Being 'scared to death' doesn't actually happen."

In fact, according to Quinn, patients and others affected by the test results, including family members, wanted the bill to go even further—requiring radiologists to send the actual test results to patients. Bernard J. McLafferty was among those who advocated for patients to receive the full, written radiology report, for a personal reason: his wife, Florence, had not been told of the abnormal findings from a pelvic ultrasound until almost two years after the scan. As soon as she found out, she underwent an emergency hysterectomy, but it was too late and the cancer was inoperable.

"In our case the doctor dropped the ball, the radiologist dropped the ball, and my wife died," McLafferty says. "Florence was let down by the medical profession. Patients should be timely informed of their test results. Their life is on the line. All my wife needed to know was that she had uterine cancer."

Stakeholders also felt the bill was costly; lacked a definition of a "significant abnormality;" and required notification to a large patient population, including outpatient, inpatient, and emergency department settings.²

PASSAGE OF THE BILL

For four legislative sessions, over a period of 10 years, changes were incorporated into the bill based on technology advances, such as patient portals, and feedback Quinn received from the Pennsylvania Radiological Society and other stakeholders. It finally passed the Pennsylvania House of Representatives in January 2018 with a near unanimous vote, and then passed the Pennsylvania State Senate in October 2018 with a unanimous vote.

Although the bill was signed into law in December 2018, the Pennsylvania Department of Health did not begin enforcing it until December 2019, in response to several questions regarding implementation and concerns about the impact on providers.^{3,4} (See **Box 1** for "Provisions of the Patient Test Result Information Act.")

ADDRESSING THE LAW

The law forced radiologists and their associated facilities to look at their communication systems, including information technology (IT), and determine how to effectively send out notifications to patients, according to Timothy Mosher, MD, chair of the Department of Radiology at Penn State Health.

"Sending a letter to the patient does not ensure the communication was effective," Mosher says. "Some patients who get the letter may ignore it or just toss it into the trash. Ultimately, we want to see that not only do patients get notified of the results but that their care has been appropriately managed."

BOX 1: PATIENT TEST RESULT INFORMATION ACT (ACT 112 OF 2018)

Provisions of the Patient Test Result Information Act¹ include the following:

- Outpatients or their designee receive notification of a significant abnormal result within 20 days by the entity performing the diagnostic imaging service.
- Notification can include electronic alternatives, such as email.
- A significant abnormality was defined as a finding that would cause a reasonably prudent person to seek additional or follow-up medical care within three months.
- Option of sending a summary of the report or a letter informing the patient of a significant abnormality with the following wording:
 - “You are receiving this notice as a result of a determination by your diagnostic imaging service that further discussions of your test results are warranted and would be beneficial to you. The complete results of your test or tests have been or will be sent to the healthcare practitioner that ordered the test or tests. It is recommended that you contact your healthcare practitioner to discuss your results as soon as possible.”
- Notification would also contain contact information necessary for the patient to obtain a full report, as well as the name of the ordering practitioner, test date, and date the results were sent to the practitioner.
- The following tests or services are exempt from these requirements:
 - Routine obstetrical ultrasounds used to monitor the development of a fetus.
 - Diagnostic imaging services performed on a patient who is being treated on an inpatient basis or in an emergency room.
 - Diagnostic radiographs.

At Penn State Health, the imaging report sent to the ordering provider will indicate if a letter (triggered by Act 112) was sent to the patient. Wording in the letter to the patient is also important so that patients who receive it after they have seen their provider do not assume that something was missed or that it includes additional information. At the time of testing, patients receive a pamphlet explaining why their imaging results matter; key information about Act 112, including the need for follow-up with their provider; and why they may receive a letter or other communication about a significant abnormality.

PROACTIVE PATIENT

Mosher advocates for patients to be proactive in their care and actively engaged in managing their test results. “Don’t become reliant on the system,” he advises patients. “The system has failure modes because of the complexity and lack of interconnectivity between healthcare records. When failures occur, test results may not be brought to the attention of the provider who needs to act on it.”

Each day, a large health system generates thousands of test results that must be communicated to hundreds of practitioners. Despite efforts on the part of healthcare systems to improve the management of patient test results, including implementing Act 112, the system still can fail. “We are certainly trying to fix those problems, but the best defense is a very proactive patient,” Mosher says. (See **Box 2** for “Ways to be a Proactive Patient.”)

CATALYST TO IMPROVE PATIENT SAFETY

The law was a catalyst for radiology to work with other groups, such as risk management, IT, medical departments, and patient/family advisory councils, and provides a specific focus to fix the flow of information and improve patient safety.

According to Mosher, it also provided critical resources like IT to solve a challenging problem. Although many groups within healthcare organizations were working to improve the communication of test results, they were often working in isolated pockets, he says.

“I’m not sure if Marguerite knew that Act 112 would be the catalyst to align these forces to address the problem as an integrated system,” Mosher says.

Act 112 has been a step forward in improving patient safety, by placing a valuable tool in the hands of patients so they can be actively engaged in their care.

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BOX 2: WAYS TO BE A PROACTIVE PATIENT

The National Academy of Medicine estimates that most of us will experience a diagnostic error in our lifetime, some with devastating consequences—impacting an estimated 12 million Americans each year.¹ Here are ways to be proactive in your care when interacting with your healthcare system.²⁻⁵

- Become your own advocate and speak up about concerns
 - Get involved with your care and let your provider know that you are interested in all your information.
- Consider yourself part of the healthcare team and the diagnostic process
 - Be specific when conveying information and give an accurate history. Keep a journal with your symptoms and any other information that will help provide an accurate diagnosis.
- Bring a family member/partner to appointments
 - Another person in the room will help in remembering information and reminding you of important concerns to convey to your provider. Follow up on all test results and ask to see the reports
 - Test results may be overlooked in a busy office. You can take your time reviewing the information and making sure it is appropriately acted upon.
- Access your patient portal to review test results and provider notes
 - Portals provide a historical list of tests, provider notes, and communication method with office staff, and may have the results of test performed.

Intimate Partner Violence and a Pandemic:

What Healthcare Workers Need to Know

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DOI: 10.33940/med/2020.9.5

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Disclosure: The author declares that they have no relevant or material financial interests.

*Trigger Warning: This article may be triggering to read as it is based on factual information about violence and abuse in relationships.



This is Sarah's second week at Virginia Mason Hospital in Seattle, Washington, as a certified nursing assistant. Sarah is in her early 20s, and she's working on getting more experience in patient care to help her in applying to nursing schools in the future. This week she has been getting more familiar with her clinic and patient care, remembering names and schedules. It is all new and exciting for Sarah as she heads to her clinic.

Walking into the first exam room of the day, Sarah finds a 35-year-old female patient sitting with her partner, just a few feet between them. The woman's arms are folded as she smiles at Sarah.

Sarah introduces herself and explains that she is going to conduct vitals on

Sarah's gut feels like there is something off. Her stomach plummets to the floor as she thinks, *What do I do?*

The Situation

Our nation and the entire world have been experiencing the impact of quarantine due to COVID-19. Patients and families of Virginia Mason have limited their travel to and from procedures and appointments due to restrictions and precautionary measures. COVID has the dual risk of both increasing domestic violence (DV) and intimate partner violence (IPV), as well as preventing victims from receiving help due to quarantine.

Past pandemics have shown increases in domestic violence, based on "COVID-19 and Ending Violence Against Women and Girls," a brief pub-

With the wide array of stressors during COVID-19, interpersonal relationships in confined living situations can increase volatility and impulsivity between partners in which IPV can occur. It should be noted that while it is more likely the pandemic is increasing and exacerbating an abuser's controlling tendencies and violent behaviors, the pandemic should not be seen as a causal force of IPV—rather, it plays a part in increasing risk and vulnerability to victims as well as delay in response due to restrictions.

DV and IPV can involve four main categories: physical, sexual, threats of physical or sexual violence, and emotional and verbal abuse, as well as financial exploitation.

Reports have shown that though both men and women have experienced IPV, categorically and historically domestic violence occurs disproportionately toward women. The National Violence Against Women Survey found that women are significantly more likely to experience physical violence, sexual violence, and stalking than men in an intimate partner relationship with a previous or current partner.

Of note, medical doctor clinic visits, emergency department, and urgent care are the only help people may receive during pandemic lockdowns, or help they may receive in general. This means not attending mental health appointments, outpatient physical therapy, dentist visits, massage therapy, and dermatology exams.

People living in rural areas who do not frequently travel may be less likely to be screened and assessed for DV. It is critical to note that there are no outlets, no external opportunities for connection for people currently in a cycle of abuse, because perpetrators of abuse commonly use coercion and hostage-like tactics to isolate the victim in their home.

Studies have also shown that abusive partners have prevented and interfered with healthcare and medical appointments of a victim as a control

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You must do the things you think you cannot do.

—Eleanor Roosevelt

the patient before the doctor comes in to see her. Sarah begins assessing and when she rolls up the woman's sleeve, she notices bruises on her arm. Sarah's curiosity increases.

Sarah asks about health concerns. "I'm fine," the patient says while staring at the floor. Sarah continues questioning about her background, the reason for her visit, her living situation.

The patient's partner puts an arm over the patient and starts answering for her. "She's just shy. I can tell you."

lished by the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women). This living document discusses the alarming and violent impact of COVID-19 on women, including "increasing reports of domestic violence during the crisis, and/or increased demand for emergency shelter." UN Women also reflects on past pandemics in Ethiopia, which showed to exacerbate IPV. Reports of IPV were not addressed as a top priority for women, as the previous Ebola pandemic reduced access to resources with closing schools and institutions.

tactic. Make no mistake, coming in contact with a patient, no matter how small the interaction, may actually be saving their life, apart from the physical condition they are being seen for.

We have an opportunity and responsibility to advocate and protect our patients through **awareness**, **assessment**, and **action**.

Awareness

As we put our awareness lenses on in viewing patient's behaviors, body postures, and physical impacts, as well as potential perpetrator behavior, **what should you look for?**

Behavior of the victim

- Body language toward perpetrator, fearful posture
- Limited eye contact
- Missing appointments and noncompliance with medication or self-care
- Asking healthcare staff not to call them at home

There may be a wide variety of behaviors and flags that may be more subtle and more obvious.

Behavior flags of an abuser in a clinic include but are not limited to public insults; public humiliation; possessiveness and keeping the victim in close proximity away from staff; and efforts to sever relationships of the victim. This includes severing relationships tied to basic needs, e.g., medical care through relationships with clinic staff.

A perpetrator of abuse may maintain control by keeping a victim separate from support and resources in order for the victim to rely on the abuser. Isolation and controlling the victim's relationships, conversations, and connections is in focus.

In parallel with a partner answering questions on behalf of a patient, if the suspected abuser refuses to leave an exam room for an assessment, this can be seen as a marker for potential

abuse. Some partners may be anxious to get the victim out of the clinic if they suspect that staff is aware of the victim's exposure to domestic violence. Appointments may be limited or rushed by the leadership of the perpetrator; the partner of the victim may be quick in answering questions but limited in giving information.

Additional signs of a perpetrator:

- Arguing with staff or threatening staff
- Encouraging patient to leave against medical advice (AMA)
- Stonewalling staff that are assisting patient

Assessment

If there is something in your gut telling you this is your opportunity to connect with the victim, it most definitely is. It is recommended that this window of time be brief but thorough, as to limit risk to staff and patients.

Take a moment to explore uncertainty, discomfort, or why you're afraid or anxious. It's OK to be anxious. But the key is to not let that fear prevent you from offering someone help. ***If you personally have experienced domestic violence and the situation is triggering, and you don't feel that you are fit for the scenario, it is entirely appropriate to connect with your team and your supervisor.***

If possible, ask questions about possible DV without the partner in the room. A study in Belgium regarding IPV assessments over a lifespan showed a significant decrease in reporting in patients with their partners in the room versus those patients without partners in the room.

Creating a safe assessment space for you and the patient can also prevent risk to your safety as a staff member and safety of the patient. This also allows the patient to be able to express him/herself honestly without needing to withhold information. If you intend to do an assessment, it is appropriate

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? Open-Ended Questions
"I notice bruising on your arms, do you feel comfortable telling me about that?"
"I noticed you were emotionally upset when you walked in, and I heard someone yelling at you. Is there a chance you don't feel safe with the person you're with?"
"Do you need help?"
"How can I help you?"
"Does your partner usually drive you to appointments? Do you feel supported by them?"
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to request for a spouse to temporarily leave. You can say things like, "I want to check in with your partner about their health, and to offer that privacy to them. I wonder if it's possible for you to step out for a moment?" If there is pushback, this is where you can ask exploratory questions or get staff involved.

Barriers to why healthcare workers may not ask about DV

Unfortunately, healthcare staff may miss opportunities to assess for IPV, as was true in 2014 with a medical study revealing that 88 percent of human trafficking victims had interactions with medical providers, but none of them were assessed or offered support.

A common reason for this is fear of offending or disturbing a patient if inquiring about DV. In such a situation, it is much better to inquire than not, as the risk of not asking can be detrimental.

For the greater good of individuals that have experienced domestic violence, it is essential as healthcare workers

Reasons why a healthcare worker may not ask:

- Lack of time, lack of awareness
- Concern about offending a patient
- Concern about crossing boundaries or breaching privacy
- Avoidance of discomfort in conversation

to engage in trauma-informed care, meaning that we as healthcare providers not only are sensitive to a patient's experience with us, but also are more than willing to have an open dialogue with the patient about ongoing delivery of services, and adjust as needed to prevent reevoking trauma or trauma-provoking dynamics with them when we assess for DV.

Patients and healthcare workers build relationships over time, and it is a gift that patients trust us with their physical care. What an opportunity we have, to treat more than physical symptoms by stepping in when we know it is the right thing to do.

Action

1. Offer a safe space for patients with their consent. Remove barriers to patients getting to a safe place.

Depending on the scenario, helping patients get to a safe space is the best option. Discretion is vital here; if the perpetrator is aware of law enforcement being involved before they arrive, there is a possibility for volatile behavior, removing the patient, and fleeing.

Because this involves the well-being and safety of the patient, it is our responsibility as healthcare workers to assess and report to law enforcement if there is suspected physical or sexual assault to a vulnerable adult or child.

In all U.S. states, if you are a healthcare worker or have reasonable cause to believe there is abuse occurring, it is mandatory to report abuse of the elderly and of a child. It is important to note that criteria vary state by state on who is required to report abuse to law enforcement, based on the context.

It is important to note that in some scenarios and some states, healthcare staff are not mandated to report to law enforcement if a victim of domestic violence is not a vulnerable adult. In reiteration, due to the criteria of mandatory reporting varying state by state, it is vital for you to individually review your state's mandatory reporting laws of adult victims of domestic violence. Depending on the state, healthcare staff may be required to report to law enforcement if there are physical injuries or wounds to a patient due to battery or assault, or by means of a weapon, such as a knife or gun. Make no mistake, there are always opportunities to support someone that has experienced domestic violence despite your state's criteria for mandatory reporting while adhering to the law, as well as holding space for the victim to contact law enforcement if they choose.

2. Contact Security. If there is ever a risk of safety or threats of violence, this deems a hospital code and Security needs to be contacted.

3. Use "Jane Doe" and "John Doe" status when privacy restriction is seen in an electronic health system. If you have a patient that has requested privacy restriction status, it is vital that we honor that for every appointment, and that staff at the front desk of clinics have increased awareness of individuals looking for patients with privacy restriction.

4. Maintain and increase confidentiality when discussing patient information. If you sense that a patient is in danger and a spouse or partner is looking for them, it is in your discretion and responsibility to not give away information. "I cannot confirm

or deny that they are a patient here" is a perfectly appropriate response.

5. Give resources. National Domestic Violence Hotline: **1-800-799-7233**

Discretion requires openness, patience, and insight. There are a variety of reasons why a patient that is being abused remains in a relationship with the perpetrator. Many victims are not leaving perpetrators during this time because there is more at stake during a pandemic. It is up to you, the healthcare worker, to use sound judgement with the awareness, assessment, and action required to care for victims of domestic violence during a worldwide crisis.

About the Author

Bethany Davis (bethanydavis43@gmail.com) is a clinical social worker in Seattle, Washington, and also owns a private practice for psychotherapy. She enjoys writing about mental health and the resilience and strength of the human spirit. Davis is an alumna of the University of Washington School of Social Work. When she is not working, she enjoys reading, running, spending time with family, and taking her niece and nephew on walks.

Discretion is key.



Clinical and Nonclinical Implications of Misplaced Nasogastric Tubes

Tools for Implementation of Standardized Best Practices

By Olivia Lounsbury,^{◆◇} Jennifer Tatro, MSN, RN,[†]
Beth Lyman, MSN, RN,[‡] Donna M. Prosser, DNP, RN,[◆]
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The consequences of misplaced nasogastric tubes extend far beyond the clinical setting and have implications for the hospital's reputation and economic stability. A systematic approach for nasogastric tube insertion and verification is necessary in order to prevent misplaced nasogastric tubes which are, indeed, “never events.” The Actionable Patient Safety Solutions (APSS) from the Patient Safety Movement Foundation outline best practices for implementation of nasogastric tube placement protocols in hospitals to ensure consistency across the organization and preserve patient safety at the forefront of all clinical endeavors.

Background

Nasogastric tube (NGT) placement is a common procedure used to provide nutrition, medications, hydration, or gastric decompression. Inadvertent misplacement of these tubes can lead to serious and potentially deadly consequences for the patient and result in lawsuits, fines, or a loss of reputation for the hospital within the community.¹⁻⁴ Clinical complications related to the misplacement of nasogastric tubes include pneumonia, pneumothorax, feeding into the lung, esophageal perforation, and even death.⁵ The Patient Safety Authority (PSA) documented 166 nasogastric tube misplacements with 137 into the lung from 2011–2016, with 56 documented to have caused serious patient harm.⁶ One United Kingdom National Health Service (NHS) analysis found that 2% of nasogastric tubes placed in the intensive care unit (ICU) were inserted into the pulmonary system. Of these, 0.7% were associated with a significant complication and 0.3% caused death in the patient.⁷ A pediatric study of NGT placement verification methods documented that most hospitals use aspiration of gastric contents or auscultation followed by pH measurement and radiograph to verify tube placement.⁸ The multifaceted severity of this issue has been recognized in many parts of the world. For example, the U.K.'s NHS classifies NGT misplacement as a “never event” which carries a financial penalty of €10,000 to hospitals proven to have caused preventable harm.⁹





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relevant or material financial interests.

While the clinical implications of misplaced NGTs are well documented, the nonclinical implications are significant and often present covertly. These nonclinical implications can include a compromised hospital reputation and economic losses, as illustrated in examples such as *Summerford v. Abington Memorial Hospital*, a wrongful death lawsuit concerning enteral formula administration into the left lung which resulted in a 5 million dollar settlement.¹⁰ The tube was inserted twice and the X-ray was misinterpreted. In another case investigated by the California Department of Public Health, a \$100,000 fine was imposed on Hancock Park Rehabilitation and Nursing Center primarily due to the staff's failure to follow established protocols related to assuring proper feeding tube placement. In addition to the well-known clinical implications, these examples demonstrate the crucial need to develop a systematic approach for hospitals to ensure that misplaced NGTs are, indeed, never events.¹¹

Solution Introduction

The Patient Safety Movement Foundation (PSMF) is an organization of 4,793 hospitals from 48 countries that work together to develop evidence-based approaches to prevent patient harm in an effort to achieve zero deaths from medical errors by 2030.¹² In 2016, Deahna Visscher told PSMF members about how her son died at 10 days old when a nasogastric feeding tube was inadvertently placed into his lung. What was supposed to be his last day in the pediatric intensive care unit (PICU) became his last day of life as enteral formula was pushed into the lung for several hours before the misplacement was discovered. Shortly thereafter, the PSMF voted to convene a workgroup to write an Actionable Patient Safety Solution (APSS) on NGT placement and verification; APSS #15 was first published in 2017 and was updated in 2019.¹² The development of this APSS was an international effort to promote best practice for NGT placement and verification, which is modeled after the NHS approach to this issue.

The first part of the APSS is the executive summary, which details in bullet points the specific actions that should be taken at the senior leadership level. It is a call for change. This is followed by a succinct review of the literature to define the problem. Leadership, action, and technology plans follow with a comprehensive list of ways to prevent NGT misplacement and verification errors.

The Leadership Plan

Data in the literature indicates practice changes require a top-down approach.^{8,13} Many institutions' current procedures allow nurses to use non-evidence-based methods to verify NGT placement.⁸ The APSS leadership plan calls for institutions to perform a gap analysis pertaining to NGT placement and verification and to compare the findings with the ideal, best practice state. There are best practice documents across a lifespan.^{15,16} Senior administrators are asked to engage in this process by mandating practice change if warranted. They are also asked to conduct a root cause analysis of all NGT misplacement-related events to identify common causes and improvement opportunities. In order to promote the desired practice changes, leadership needs to first understand the current state of NGT placement and verification within their organization. After understanding the current state, best practices can be identified and effectively implemented. For example, if pH is the first-line method for NGT placement verification, the supplies need to be readily available on the nursing units. Issues regarding point-of-care testing need to be addressed, as well. The leadership plan recommends using a video from the PSMF website detailing the story of Deahna and Rich Visscher to put a face to this medical error.

The Action Plan

The action plan outlines best practices for the prevention of NGT misplacement and verification errors. The first recommendation is to use safe equipment such as NGTs that are radiopaque and have centimeter markings along their entire length. Based on a PSA

report, the APSS also recommends frequent and thorough education of staff when product changes occur.¹⁷ The best method to estimate insertion length is the Nose→Earlobe→Mid-Umbilicus (NEMU) method.

All staff who place NGTs should be trained to do so using evidence-based procedures, as established by leadership, that include contraindications for placement, signs and symptoms of misplacement, and adequate training on any technology used to assist with placement. The APSS also recommends training for all providers who interpret radiographs done for the purpose of confirming NGT placement.

The four criteria that must be considered when interpreting a radiograph are:

- Does the tube path follow the esophagus and avoid the contours of the bronchi?
- Does the tube clearly bisect the carina or bronchi?
- Does the tube cross the diaphragm in the midline?
- Is the tip clearly visible below the left hemidiaphragm rather than solely viewing the tip of the NGT?¹⁶

After the NGT is in place, the APSS recommends checking pH as the first-line method to confirm placement. The recommended cut-off is ≤ 5.5 . This mirrors the standard set by the NHS. The procedure to check pH is embedded within the APSS. It recommends checking pH even if the patient is receiving acid-suppressing medications. A radiograph is recommended if staff are unable to obtain a gastric aspirate and in special circumstances, such as clinical deterioration after NGT placement or if an endotracheal tube is present. Measures to reconfirm placement and supplementary checks are detailed as well, such as observing for a change in the centimeter mark on the tube at the nares. Finally, the APSS recommends *never* using the following methods to verify NGT placement: the use of litmus paper, auscultation, visual inspection of fluid from the tube, and observation of bubbles when the end of the tube is placed in a cup of water.

The Technology Plan

The use of assistive technology to guide NGT placement and verification is becoming more popular as it gives the clinician real-time information. These technologies tend to allow the clinician to forego a radiograph, but in the U.K., pH measurement is recommended as an adjunct verification method. Nurse members of the APSS #15 workgroup completed a thorough review of the literature to evaluate evidence supporting the use of pH testing, radiographs, capnography, direct anatomical visualization using a camera, electromagnetic placement device, and ultrasound. The technology plan provides a summary of more recent studies done using these devices and methods. There is no endorsement of any one device, as the method is specific to the patient's circumstance and the clinician should evaluate the patient on an individual level to determine the best method. For example, the use of ultrasound may be more relevant to a critical care population.

Conclusion

Insertion of an NGT is common practice in healthcare settings in order to provide nutritional support and medications, yet often clinical staff fail to appreciate the potential multifaceted implications of a misplaced NGT. Patient harm from the incorrect placement of NGTs can result in significant injury or death and lead to potential lawsuits or regulatory fines. Best practice recommendations for NGT placement and verification are available, yet these practices are still not widely employed or hardwired in every organization. In order to reduce the risk of patient harm, organizations should ensure that clinical staff are employing current, evidence-based practices during NGT insertion, verification, and ongoing utilization. The PSMF APSS #15 is one of 18 blueprints developed by experts in the field across the globe, which are designed to provide organizations with the necessary tools and resources to complete a gap analysis and implement best practices. It is imperative that organizations focus on the application of current, evidence-based practices as represented

in the APSS during ongoing efforts to reduce significant harm to patients.

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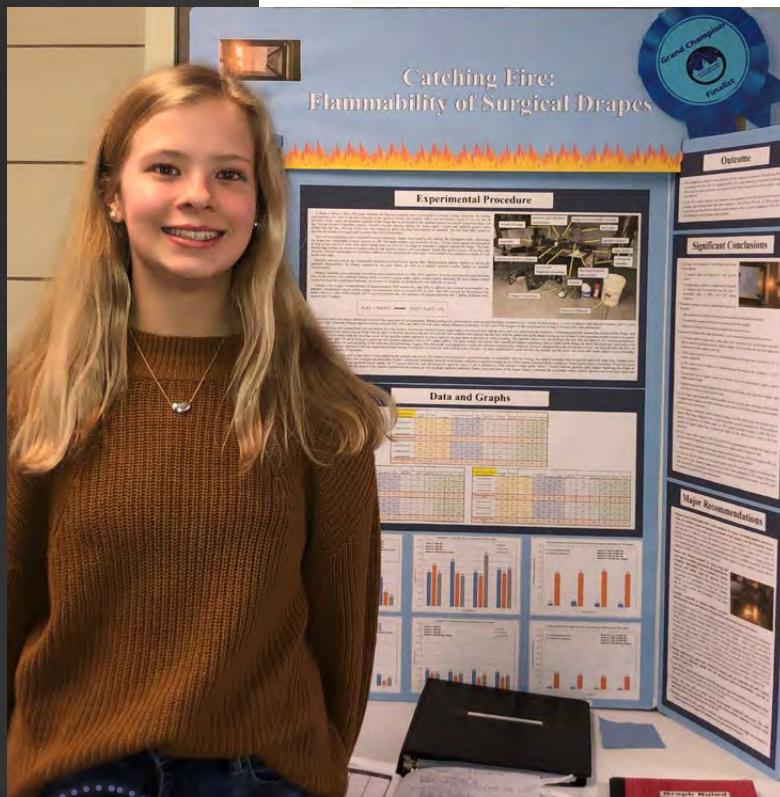
SCIENCE:

The Next Generation



Meet Danielle Miller, a high school junior from Enola, Pennsylvania. While most 16-year-olds are focused on prom, social media, and the latest Netflix series, Miller's interests lie in something bigger.





▲ Miller in front of her science fair display depicting her project on surgical fire safety, for which she was named "Senior Division Grand Champion"

Centers for Disease Investigations



Danielle Miller
Future Epidemiologist



“I want to contribute to the world that’s given me so much,” she says. “Either a career in science or medicine. I’d like to find a way to make a difference.”

Miller takes every science class her school offers, which unfortunately has been limited to environmental sciences during her freshman year and biology as a sophomore.

For last year’s Capitol Area Science and Engineering Fair (CASEF), she initially decided on a project to pursue the intersection of the two—creating a biodegradable surgical drape to reduce waste generated in operating rooms. But after discussing ideas with her advisor, he called her attention to a more acutely dangerous topic: surgical fires, a nearly twice-daily occurrence in the United States.¹

After conducting a thorough literature review, Miller decided to examine relative humidity and oxygen levels within the operating suite to determine if implementing environmental changes would reduce the likelihood of a fire. She created a Plexiglas chamber to burn samples of veterinary drapes, considered a suitable alternative to those commonly used during surgery, and varied the levels of humidity and oxygen within the box for two ignition types—

butane and plasma. She measured outcomes

like time to ignition and total burn time, recognizing that gaining even seconds could have a significant impact on the safety of staff and patients.

Miller was named “Senior Division Grand Champion” for her work and was invited to present at the Regeneron International Science and Engineering Fair 2020 in Anaheim, California, before the conference was canceled due to the pandemic.

Miller’s love of science began over a decade ago during Career Day in kindergarten. While most students were dressed as more typical professions like firefighters, police officers, and teachers, Miller showed up in a white jacket and scrub pants as something many adults have never heard of—an epidemiologist.

She traces her passion to her aunt, a nurse and influential figure in her life, who unfortunately passed away a few years ago. However, Miller carries her aunt with her through her drive and desire to help others.

Her parents have also been defining figures, particularly her father’s career as a Marine. “If I end up in medicine, I’m going to consider joining the military to care for those who are risking their lives to protect ours. Or maybe Doctors Without Borders,” she says. “Either in an urban setting or rural. Wherever I could be the most help.”

Next on the horizon? Continuing her research on surgical fires. “What I found in the first experiment was the negative impact caused by excess oxygen. For phase 2, I’m going to explore ways to control those levels and maybe pursue a patent.”

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Drafting Success: Creating a National Action Plan for Patient Safety

Caitlyn Allen, MPH

DOI: 10.33940/interview/2020.9.7

An informal conversation with Dr. Tejal Gandhi and Dr. Jeffrey Brady about their work as co-chairs of the National Steering Committee for Patient Safety and how the committee's new action plan, *Safer Together: A National Action Plan to Advance Patient Safety*, aims to change the patient safety landscape. The plan, released September 14, focuses on four foundational areas: culture, leadership, and governance; patient and family engagement; workforce safety; and learning systems.

Cait: We are officially two decades into the patient safety movement. As Monday morning quarterbacks, what have been the field's biggest successes and what would you have done differently?

Gandhi: Twenty years ago, patient safety was something that people were not even aware of, were not talking about, were not transparent about. People didn't even really acknowledge that errors occurred. Over the last 20 years, that has completely shifted. Now it's accepted that we have medical errors and safety issues, and leaders are transparently talking about patient safety. We also have ways to measure it.

We are measuring organizational culture now, which we weren't doing 20 years ago. We are training and educating. I think it is important to note that it has only been 20 years. We didn't expect to solve the problem of patient safety in that time, but we have made a lot of progress.

Now as a Monday morning quarterback, there certainly are lots of things that we could do differently or better. One of the things that we still continuously struggle with is the leadership and culture piece and ensuring that it is top of mind for our leaders in healthcare despite a lot of other competing priorities.

The issue of workforce safety was not prominent 20 years ago, and the idea that workforce safety is essential for patient safety was not something that we really were talking about until very recently. Yet it's an important, underlying, foundational driver that we should have been talking about much earlier.

Finally, we're really broadening patient safety to include the entire continuum of care. But again, as a Monday morning quarterback, we should have really been thinking across the entire care continuum from the start, because we know there's lots of harm happening outside of hospitals.

Brady: It's the level of attention and resources that we put on safety relative to how much of a concern it is, how much harm is still happening. Those things are coming closer to matching. We're making progress recognizing how big the problem is and what needs to be done to solve it. No one organization can do this alone. Coordination is critically needed and is possible. That's a key feature of the [National Steering Committee for Patient Safety's] National Action Plan.

In terms of AHRQ [Agency for Healthcare Research and Quality] specifically, we are proud of some of the contributions that we've made in the field. Things like healthcare-associated infection prevention, along with organizations like the CDC [Centers for Disease Control and Prevention] and many others. Medication safety events is another area. That's what keeps me positive we still have some good lessons to apply and learn.

Those are represented in programs like the Comprehensive Unit-Based Safety Program (CUSP). We've really worked hard to adapt that in a thoughtful way to problems beyond healthcare-associated infections. Along with this increased awareness and recognition, there's less and less tolerance for error.

What motivates people is when they see a problem and they appreciate it as a problem and the impact that it causes. There are bad things that happened that nobody wants to happen, yet they still do. That energy motivates people to do more.

Cait: Dr. Gandhi, some of your work focuses on international patient safety. Is global too large of a scale to affect change and each country too diverse? Or are there areas where every country can and should focus to raise all boats?

Gandhi: There are universal foundations to patient safety that we focus on in our National Action Plan that are relevant no matter what the context or geography. We have collaborated with leaders internationally, for example with the World Health Organization, which is working on a global patient safety action plan. They have been working on their plan and we have been working on ours in the United States, and there are many commonalities.

Most of the things that we are talking about in our U.S. plan, they were thinking about globally. I think that just gets to the fact that there are foundational things that are going to be relevant, no matter the context, for instance leadership and culture and needing to engage patients and communities in the kind of work you're doing.

Another commonality is the workforce safety piece, which I described earlier, where if you don't have a safe workforce, you can't take safe care of patients. This is important if you're in a developing country or a developed country, or East versus West. Now, the specific strategies and tactics may differ and have to be context specific. But those



▲ Dr. Tejal Gandhi (IHI Senior Fellow)
▼ Dr. Jeffrey Brady (AHRQ)



universal concepts are still consistent across the board. It's exciting to see that this kind of work is happening really throughout the world and not just in the U.S. and that we have a lot that we can learn from how other countries are approaching these problems as well.

Cait: How would you describe the National Action Plan to a clinician, and how would you describe it to a patient?

Gandhi: To a clinician, I would say, first, there are a lot of organizations in the U.S. working on patient safety. We know that sometimes that can be challenging to people on the front lines because there are different recommendations coming in from different areas. They're bombarded. Our goal with this plan was to say, let's try to coordinate and decide what we all think is important and get behind strategies and tactics to achieve it. We can then share that with hospitals, health systems, clinics, and frontline providers to have a coordinated approach.

The goal of this plan is to really drive safety for patients and the workforce, including those frontline providers, and to focus on those foundational areas that are relevant no matter what you're trying to improve. So you may be an outpatient primary care doctor thinking about missing test results or you may be an inpatient ICU doctor thinking about central line infections. But what we're working on in this plan will help advance the work in any of those areas because it is so foundational.

To patients, I would say, patients are at the center of this. Our goal is to get to a world where we have zero harm to patients and the workforce. When we talk about harm, we're talking not just about physical harm but also emotional harm. We have included patient advocates throughout the whole process. One of the foundational areas is focused on patient engagement. We want to work together with providers and with patients to try to get to that zero harm goal.

Brady: For frontline clinicians the simplest part of the message is that hopefully as a result of this work, they will see and benefit from better alignment across all these organizations that really are trying to achieve the same thing. As Tejal said really well, it's this vision of zero harm, which hopefully we will get closer and closer to.

Then for patients, a lot of things are different in a very good way. Some of them are confusing and maybe even a little disconcerting at first, but we really are engaging patients more. A specific example is just asking a patient their name to confirm the correct identity. We know that patient misidentification is unfortunately still a big problem.

Making sure we've got the right patient, for example, before a procedure. It's very commonplace that they'll get asked intentionally half a dozen or more times, who they are, what their procedure is, and which side? Is it supposed to

National Action Plan Components



Culture



Patient/Family
Engagement



Workforce
Safety



Learning
Systems

be, for example, an orthopedic surgery procedure? Again, patients at first may not understand that. But it's commonplace now for them not only to be asked their name multiple times, but also to get an explanation of why they're being asked so often.

The final thing I want to mention is this idea of co-creation—that patient care is not something that's just done to them but that it's all been planned and designed with their involvement. Involving the patients at all stages, including planning and designing care, is a fairly new concept. That's a much different concept than how care was in the past. Hopefully good things will come out of the National Action Plan, and those are just a few of them.

Cait: Why did now feel like the time to put this together and roll it out?

Brady: I'd probably go back to how aligned we are with our investments—our time and attention. How often we talk about patient safety. How aligned it is with the degree of how important the problem is. Based on the data we in safety see, and even with the progress that we're making, the pace of progress has really slowed and it's not keeping up with the challenges, quite frankly.

That was a big push in us starting this work. I give a lot of credit to the Institute for Healthcare Improvement (IHI); they really spearheaded this and got this committee started. This work began in earnest because of their time and attention. That need really has pushed us all. It was reassuring to hear that common observation almost without exception across the whole committee.

Everybody who has some awareness of patient safety appreciated this fact that while we are making progress, lots of people are working hard. Absolutely, frontline clinicians are working hard. We're just not quite at the same level of how enormous the problem is. And our current situation with COVID-19, as the healthcare system continues to respond to that pandemic, is a very clear example that patient safety is more important than ever, with the safety of clinicians and the healthcare workforce.

Gandhi: I'll just add that since *To Err Is Human* [an influential report that the Institute of Medicine, now the National Academy of Medicine, published in November 1999 which raised awareness of medical errors in the United States], there's been a recommendation that we need this national coordination, though I'm not sure that 1999 would have been the right time. It has taken some time for all of our collective organizations to really think about what makes sense to coordinate on and to build expertise and background in this area.

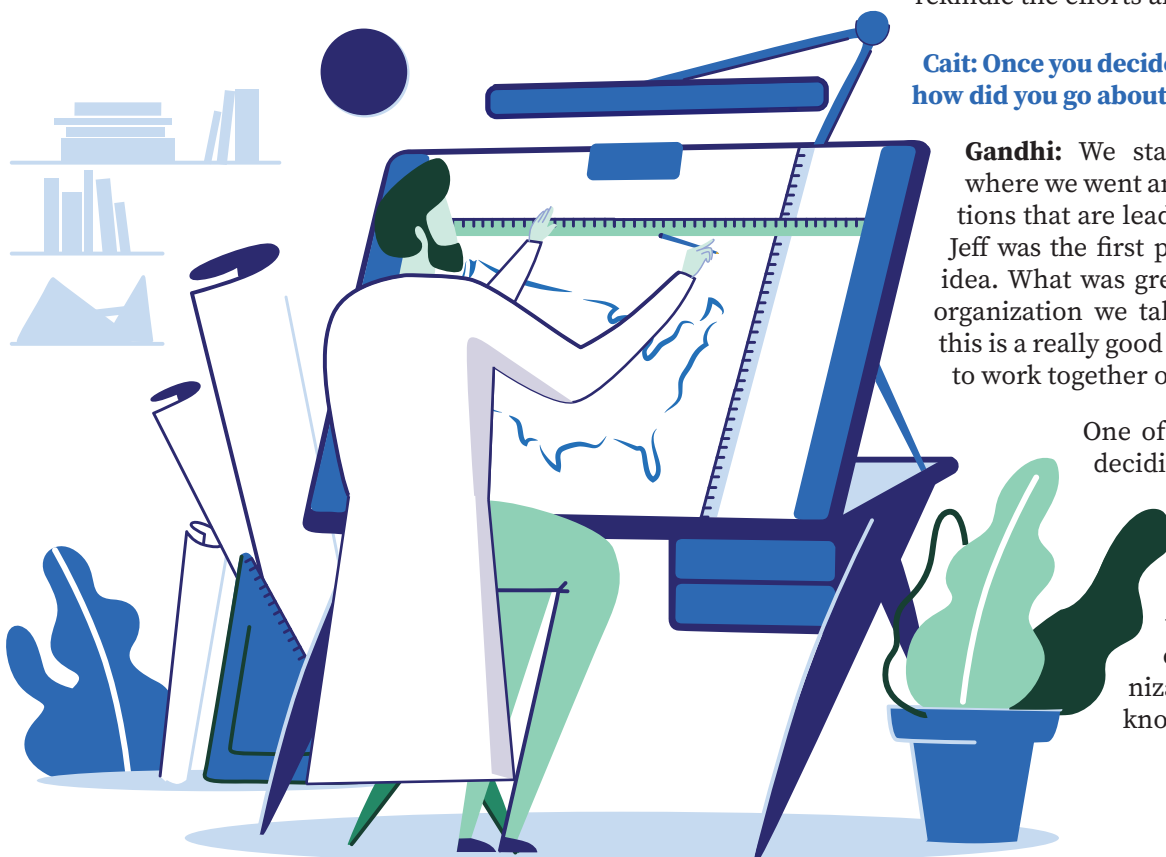
I also want to second what Jeff said: Part of the reason IHI merged with the National Patient Safety Foundation was a concern that things had become complacent. There was a bit of “been there, done that” thinking around patient safety where leaders felt we have been working on this for 15 or so years and it's time to move on to the next challenge.

That complacency was starting to really show itself at the National Patient Safety Foundation and at IHI, so the merger occurred to create a stronger voice for safety. After the merger, the National Steering Committee for Patient Safety was created to make our efforts even stronger yet and really rekindle the efforts around patient safety.

Cait: Once you decided that this was the moment, how did you go about developing this?

Gandhi: We started with a listening tour where we went and talked to several organizations that are leaders in safety. I actually think Jeff was the first person I talked to about this idea. What was great to see was literally every organization we talked to said, “Yes, we think this is a really good idea. And yes, we would love to work together on this.” That was validating.

One of our biggest challenges was deciding who would be on the committee, because there are so many organizations working on safety. One of the things that we want to make sure is clear is even though we had 27 organizations on the committee, we know that there are many more





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out there that we want to partner with who can help be real effectors of the recommendations in the plan.

But we had to start somewhere. We started with that group of 27 organizations. Then we came together and through some consensus work we decided on the four areas that would be in the plan, which were leadership and culture, workforce safety, patient engagement, and the learning system.

Then we created subcommittees that included members from our steering committee and members from outside the steering committee to really work through the specific recommendations in those areas. Those subcommittees did a huge amount of work iterating over time to get to the final plan. The work of those committees was really instrumental. Then we pulled that all together to create the final plan.

Brady: It was so helpful to have people on the committee who were very experienced in specific detailed areas. We had some deep experience in all the different areas that were covered, lots of wisdom, from the field and from these experts. In addition to that, everybody on the committee also had an appreciation for the detail and specificity but also the bigger picture and showing how everything fits together.

Cait: The plan addresses four core themes: culture, patient and family engagement, workforce safety, and learning systems. Why focus on these elements?

Brady: I think frustration with the complacency. Some of the frustration we all feel with our work is that patient safety is not just one thing. It’s prevention of harm, but unfortunately there are a lot of different ways that that harm can happen. Tejal has said this best, feeling like we’re playing whack-a-mole. All of these different problems that we keep hitting but they keep coming up. That’s just the nature of the complexity of healthcare.

The four areas are a way to get at that, be somewhat ever-green, and apply to a wide range of problems. Inevitably, we’re going to need to continue to advance safety and focus on individual technical issues. That’s always going to be the case, just like every other aspect of healthcare. But these

foundational things will almost surely be applicable for the long haul, even though they may need to be adapted or tweaked. We’ll hopefully learn more and more about them; we’re still learning. But these are things that have applicability to almost every safety problem. They also emphasize the importance of systems thinking and represent a lot of important basic aspects of the system.

Gandhi: We also wanted to make sure this work was not duplicative of existing great work that has gone on. We know there have been initiatives around specific topic areas for specific problems like medication safety or infection prevention and so forth. We wanted to make sure that this was different since there’s no point reinventing the wheel. We wanted to create fertile soil.

Because you may have your initiative on whatever the relevant safety issue is, but if you don’t have the fertile soil, it’s difficult for that initiative to thrive. To us, these four foundational areas create that fertile soil. So then, your initiative on medication safety or diagnostic error (or whatever it might be) is going to have more likelihood of success because you’ve built some of these foundational elements and have them in place.

Sometimes it can be hard to focus on the foundational things because of that game of whack-a-mole, where you’re just trying to put out the fire/issue of the day. To have this group really focused on those foundations, we thought was bringing something new to the field.

Cait: Many organizations, if not all, strive to be a learning organization but fall short on execution. Why do you think this may be? For those in this position, what are the first steps that they should take?

Gandhi: We certainly have recommendations in the plan that get into this in much more detail. One of the first steps is around transparency and really having transparency of information and data that’s being collected. Then the follow-up and feedback within the organization around what’s improving and what’s not improving. That continuous loop is often not happening all that effectively.



▲ Dr. Brady (left) and Dr. Gandhi (second from left) at a September 2019 meeting of the National Steering Committee for Patient Safety

Another piece that has been a struggle around learning is sharing within and outside of your organization. Often within organizations there are silos, so there might be something great that happens in one unit or one set of units that doesn't spread throughout the organization. We've also really struggled with cross-organizational learning and transparency. That's an area that we talk a lot about in the plan, the fact that we need to have better ways to share and learn across organizations, which will help speed up the process of that learning system.

Measurement has been a real challenge too. To be a learning system, you need to be able to measure in order to know if you're improving and identify areas where you need to improve. Safety measurement has had quite a few challenges. That's another area that we will touch on in the plan—how we can be thinking about measurement more robustly to learn and improve based on the information that we can collect. We have an assessment tool to help organizations think about what they can do.

Brady: Yeah. One of the biggest challenges for all of us in fulfilling this learning system concept is connecting measurement of data—what we know, what we learned—to action. It's certainly not the only challenge. But measurement is often so resource-intensive. A lot of effort goes into it. The timeliness of measuring all those challenges can serve to distance measurement from action. Some of the more successful patient safety improvement projects have connected measurement and action better. There's a much tighter loop.

Cait: Has the pandemic shifted focus or implementation around the National Action Plan? For instance, with more and more health systems transitioning to telehealth, a model likely to persist for at least the near term.

Gandhi: Mainly the pandemic delayed the release. However, the recommendations in the plan are just as relevant during pandemic or post-pandemic, and hopefully we'll get to that post-pandemic phase soon.

We haven't changed the plan actually because of the pan-

dem, because as we looked through it, it remains incredibly relevant. These are meant to be foundational things that are applicable no matter what the issue or crisis is. If you think about the four components of the plan, certainly leadership has been a huge piece of the response to COVID along with patient engagement and really engagement with the public. Workforce safety has been front and center.

Initially when we made the plan, we thought there would be a lot of questions about, why does a patient safety plan have workforce safety in it? We were kind of expecting a little pushback on that, and I would say the pandemic has only made it even more obvious that it needs to be there.

Lastly, the learning system has been front and center as well. If you think about the rapid learning and improvement that has needed to happen both within organizations and across organizations for COVID, it just reinforces the fact that we need more robust learning systems.

Cait: In addition to being physicians, you both have degrees in public health. What role does public health have in patient safety? How can we shift the national conversation to this broader perspective?

Brady: For some of us who have public health training and public health backgrounds, it's easy for us to see patient safety as a public health issue. Just like breast cancer, heart disease, what have you, each of those including patient safety has a toll that it exerts on the population, on the public's health. That translates into harm, into morbidity, mortality, people suffering consequences of these events.

We see in some estimates the same numbers of harm-related deaths as you see from breast cancer per year. We don't always think about it the same way because of how patient safety problems arise. But when you just look at it from that perspective, it does have the same effect. This is somebody's family member, somebody's friend who is either not here or has a significantly altered life path because of these unfortunate events, again, that nobody wants to happen.

Applying some of the same principles of epidemiology and surveillance and applying them in a way to take some action that prevents and mitigates the harm and mortality we see, that's the biggest takeaway. Hopefully, others are starting to see it that way too.

Gandhi: When I was CEO of the National Patient Safety Foundation, we had put out a call to action saying, "patient safety is a public health issue" based on the toll we know it takes physically and emotionally on patients. One of the key pieces of that was, as you think about other public health issues, whether it's smoking or breast cancer or whatever it might be, we wouldn't expect individual hospitals to solve that problem independently. We would expect that there would be a coordinated approach around things like measurement, surveillance, and identifying solutions.



▲ Group photo of the National Steering Committee taken at a September 2019 meeting at IHI headquarters (Dr. Gandhi, second from right; Dr. Brady, sixth from left)

Cait: Is there anything else that you would like to add?

Gandhi: I'll add one thing. For us, releasing the plan feels a bit like the end of a long journey, but it really is the beginning. We want to engage every stakeholder, whether it's a small practice, a hospital, a health system, patients and families or other associations or government agencies, whoever it is who's working in patient safety or affected by patient safety. We think that they can see themselves in this plan and see recommendations they can actively impact. We hope this is the beginning of the next phase of patient safety.

Dr. Tejal Gandhi is chief safety and transformation officer at Press Ganey Associates and a senior fellow at the Institute for Healthcare Improvement. Dr. Jeffrey Brady is director of the Center for Quality Improvement and Patient Safety at the U.S. Agency for Healthcare Research and Quality. Safer Together: A National Action Plan to Advance Patient Safety is now available at www.ihl.org/national-steering-committee-for-patient-safety.



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I AM Patient Safety

8th Annual Achievement Awards

Nomination Period: October 1 - November 30, 2020

Winner Announcement: February 2021

The “I AM Patient Safety” award is an annual contest that recognizes and celebrates healthcare staff for their individual or collective commitment to and influences on patient safety. It is a chance for us to celebrate the things that go right each day in healthcare to make our patients safer.

We are happy to announce three new award categories.

- **Nationwide Warriors:** While these awards are typically reserved for Pennsylvania residents, we are expanding the nomination criteria to recognize an individual or a group from outside the Commonwealth.
- **Conquering COVID-19:** This category allows us to honor the frontline heroes, leaders, and administrators fighting the pandemic.
- **Physician Offices:** Patient safety is not limited to acute or long-term care facilities. These outpatient clinics play an important role in preventing harm.

Additional Categories:

- Ambulatory Surgery Facility
- Focus on the Patient
- Improving Diagnosis
- Individual Impact
- Long-Term Care Facility
- Safety Story (Near Miss or Close Call)
- Transparency and Safety in Healthcare

Nominate a hero at:
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