INNOVATION
/
REACH
/
IMPACT
# Executive Summary
Overview of highlights and accomplishments from the past year

# Strategic Plan
Four key areas of concentration: diagnostic error, patient focus, long-term care, and event reporting

# Educational Outreach
Campaigns and initiatives to improve safety and reduce harm across the care continuum

# Patient Safety Liaisons
Consultative services for Pennsylvania facilities to address specific patient safety challenges

# I Am Patient Safety
Annual contest to recognize innovation and dedication in Pennsylvania facilities

# Patient Safety Advisory
Quarterly peer-reviewed journal highlighting topics including handoffs, bullying, and opioids.

# Infection Preventionists
Dedicated experts to help facilities implement evidence-based best practices for prevention and care

# Healthcare-Associated Infections (HAI)
Comprehensive review of HAI data submitted by long-term care facilities

# Impact
Assessing the Authority’s presence across Pennsylvania, the United States, and abroad

# Collaboratives
Building strategic partnerships to expand the Authority’s offerings and level of expertise

# Medication Safety
A recent endeavor to improve the safety of outpatient pharmacies

# Standardization - Pressure Injury Reporting
Synopsis of the process to standardize pressure injury reporting across the state

# Acute Care Data
In-depth analysis from the nation’s most robust patient safety reporting system

# Definitions
Key terms and phrases used throughout this report

# Dept. of Health Recommendations

# Referrals to Licensure Boards

# Anonymous Reports

# Fiscal Statements & Contracts

# Board of Directors & Public Meetings

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View the report online at patientsafety.pa.gov
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Communication Specialist
In Pennsylvania, we are committed and dedicated to providing top-quality programs and services that benefit the health, safety and well-being of all Pennsylvanians.

When the MCARE Act was passed 16 years ago, requiring healthcare facilities to report all incidents of harm, real or potential, and to work with the Patient Safety Authority, we put our patients first. Pennsylvania was an example to the entire country of the importance of transparency in healthcare.

As the Physician General and Acting Secretary of Health, I have had the opportunity to oversee the Authority for the last three years and all it has accomplished. While this report views what was accomplished in 2017, it is just one year in the continued commitment to the health, safety, and well-being of Pennsylvanians.

Rachel Levine, MD  
Physician General, Commonwealth of Pennsylvania  
Chair, Board of Directors, Patient Safety Authority

“What you do makes a difference and you have to decide what kind of difference you want to make.” Jane Goodall

The Authority is the embodiment of that spirit, making a difference. We were founded 16 years ago by the Pennsylvania legislature, because they recognized the need for statewide guidance and support to protect the 47 million patients who entrust Pennsylvania facilities with their lives each year.

Our vision, safe healthcare for all patients, became a rallying cry, with all our efforts centered on a single question, “how can we make healthcare safer?”

Contained on these pages are stories about the differences we’ve made and our continued drive to keep Pennsylvania at the forefront of safe care.

Regina Hoffman, MBA, BSN, RN, CPPS  
Executive Director, Patient Safety Authority
2017 Highlights

- Executive Director, Regina Hoffman, presented to leaders at the American College of Medical Quality about Pennsylvania’s achievements in patient safety.

- Director of Innovation and Strategic Partnerships, Rebecca Jones, presented during a plenary session and pre-conference workshop at the Diagnostic Error in Medicine (DEM) conference in Boston, Massachusetts.

- Liaison Susan Wallace was invited to speak about the use of patient sitters at the 2017 Safe Patient Handling and Mobility/Falls Conference in Glendale, Arizona.

- Each of the Authority’s Infection Preventionists spoke at the annual conference for the Association for Professionals in Infection Control and epidemiology (APIC) in Portland, Oregon.

- Infection Preventionist JoAnn Adkins was accepted as an APIC fellow. She joined Terri Lee Roberts and Jim Davis who received the honor in 2016.

- Pharmacist Matthew Grassinger presented on prescribing errors at the National Patient Safety Foundation’s (NPSF) annual Patient Safety Congress in Orlando, Florida.

- In September, liaisons Kelly Gipson and Susan Wallace were asked to present to the Pennsylvania chapter of the Service Employees International Union (SEIU) about the effects of bullying.

- The Authority, in collaboration with key stakeholders, developed a standardized process for reporting pressure injuries to better capture information about this serious safety concern.

- A webinar on suicide prevention facilitated by liaisons Chris Mamrol and Rick Kundrav was attended by more than 250 people.

- Infection Preventionist Sharon Bradley spoke to 400 leaders in long-term care at the Pennsylvania Directors of Nursing Administration’s (PADONA) annual conference in Hershey.

- At the Respiratory Conference at the Slopes in March, liaison Bob Yonash presented on health literacy and proactive event reporting with a combined attendance of more than 400 people.

- Liaisons Cathy Reynolds, Melanie Motts, Jeff Bomboy, and Megan Shetterly and system developer Shawn Kincaid held a four-part webinar series on health literacy with 600 people in attendance.

- The Authority underwent a rebranding effort with a newly designed logo and website to better reflect its innovative spirit and distinct role in helping facilities protect patients.

- Paul Epner, CEO and Co-Founder of SIDM, and Dana Siegal, Director of Patient Safety for CRICO Strategies, presented during a meeting of experts and stakeholders for the HAP HIIN Diagnostic Errors project led by the Authority and HCIF to develop measures for improving diagnosis.

- The Authority continued its partnership with the Pennsylvania Society of Anesthesiologists to protect patients against wrong-site nerve blocks.

- Medical Director, Ellen Deutsch, presented at HAP’s 2017 Patient Safety & Quality Symposium breakout session, Safety: Are Humans the Problem or Can You Help Them Be the Solution?
Total Event Reports (Acute Care & HAI) .............................................. 302,514

Event Reports (Acute Care) ................................................................. 271,872

Event Reports (HAI - Nursing Homes) ............................................... 30,642

Event Reports by Facility Type

- Hospitals .......................................................... 87%
- Nursing Homes (HAI Only) ........................................ 10%
- Ambulatory Surgery ............................................... 3%
- Birthing Centers/Abortion Facilities ............................... 10%

Increase in Reporting ................................................................. 6.8%

Individuals Educated ................................................................. 12,920

Increase in Education ............................................................... 23%

National, State, & Regional Presentations ................................. 242

Patient Safety Advisory
Readers World-wide ................................................................. 4,046

Increase in Readership ......................................................... 23.5%

Countries Where the Advisory is Read .................................. 33
Mission

Improve the quality of healthcare in Pennsylvania by collecting and analyzing patient safety information, developing solutions to patient safety issues, and sharing this information through education and collaboration.

Vision

Safe healthcare for all patients

We will continue to provide these foundational services to support our current and future work.

Strategic Plan

2017 – 2020
Overview
Thirteen million people live in Pennsylvania, yet 47 million visit one of its hospitals each year. Patients from across the globe seek our facilities with the hopes of reversing a lifetime of blindness, regaining their ability to walk, or receiving the first cancer treatment that may offer a cure.

Our facilities sustain this excellence by constantly redefining medicine and providing patients the most revolutionary treatments for afflictions previously considered irremediable.

Equally as important is ensuring that this care is delivered free from harm and safety is not sacrificed at the hands of innovation. Enter the Patient Safety Authority.

With the nation’s most comprehensive state reporting structure, the Authority has access to millions of data points specific to Pennsylvania. This provides insight into emerging trends that may not be apparent at the facility level.

During a specialized eye surgery, a patient was injured when a piece of equipment became dislodged mid-procedure. The apparent cause was user error, but after reviewing reports from across the state, it emerged this instrument had a significant manufacturing defect that has since been corrected.

The Authority used this broad overview to identify four key pillars for healthcare facilities: 1) improving diagnosis, 2) focusing on the patient, 3) emphasizing long-term care, and 4) improving event reporting.

Each was selected for its relevance and potential impact and have been incorporated into all Authority offerings.

Improving Diagnosis
- Joined the Coalition to Improve Diagnosis to engage partners from other organizations committed to improving diagnosis
- Partnered with the Health Care Improvement Foundation (HCIF), HAP, and CMS in a multi-year collaborative to decrease the risk of diagnostic error
- Presented at the 2017 Diagnostic Error in Medicine (DEM) conference in Boston, Massachusetts
- Developed a methodology for identifying and categorizing diagnostic errors among the events reported to the PA-PSRS database

Patient Focus
- Reviewed current patient engagement programs to identify best practices
- Developed a Patient Voice Resource Pool to provide patients a forum to influence care
- Utilized current information-sharing platforms, e.g., Facebook and Twitter
- Developed consumer-focused education that explains key patient safety concepts

Long-term Care (LTC)
- Convened five regional focus groups to solicit input from LTC facilities and developed an antibiotic stewardship collaborative in response to their request for an increased focus on infections
- Partnered with LTC associations and professional organizations to identify key areas of opportunity
- Provided a broad range of education (including falls and pressure injuries) to LTC facilities during regional and statewide events

Event Reporting
- Conducted a systemic review of PA-PSRS to improve its relevance, function, and contribution to patient safety improvement
- Explored several opportunities to review other data sources to identify future enhancements within the PA-PSRS system, including court dockets, malpractice claims, and data from the Pennsylvania Insurance Department
- Continued a multi-year project to enhance the reporting system through the Authority’s PA-PSRS modernization project
Educational Outreach
By The Numbers

Total Individuals Educated, 2017

12,920

2016 vs. 2017

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<tr>
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<td>Events</td>
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Increase in Individuals Educated from 2016

23%

Increase in Participants per Event from 2016

12%

Hours Spent Educating

499

Events and Participants by Type, 2017

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In-person | Webinar | Other* | National | Online |
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<td>3,759</td>
<td>4,651</td>
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</table>

*Other events include speaking engagements with professional societies & schools

Increase in Webinar Participation from 2016

17%

Presentations at National Conferences

13

Continuing Education Credits Awarded

12,824
The purpose of education is to create change. Without change, improvement can't occur. Education allows sharing of information about why to change, practical strategies to create change, and theory about how to achieve effective and lasting change. Education must also be accessible, both in content and in availability.

This is the foundation for the Authority’s Educational Outreach- develop programs that address relevant topics, are interesting, and that recognize the realities and constraints on healthcare workers. To do so:

- Topics are selected at the request of facilities, via analysis of event reports, or by identifying gaps in available resources.
- Education is provided for a variety of knowledge levels from beginner to expert patient safety professionals, as well as programs designed for frontline staff and patients.
- Presentations defy the notion that serious topics cannot be engaging by incorporating real-world examples and pop culture parallels.
- Busy professionals can access resources, webinars, and toolkits on their smart phones when and where it is most convenient for them, and Authority staff frequently present on-site at facilities and organizations.

With this approach, participation in Authority events increased 23% from last year, educating more than 12,920 people across Pennsylvania. As the Authority continues to adapt its offerings, it expects to expand its reach and further protect more patients from harm.

Education Spotlight: Drexel University Law Students

While the bulk of patient safety focuses on frontline providers and administrators, there’s an often-overlooked segment that is equally as vested in protecting patients- healthcare attorneys. While the clinical staff is addressing any physical harm, communicating with families, and complying with reporting requirements, the legal team is responding to complex questions requiring a degree of analysis and interpretation.

“What does informed consent really mean?” “What can we do to mitigate risk and potential liability in the future?” “Would this patient have been treated differently if they were another race or gender?” “Should they have been?”

As a healthcare compliance consultant and former federal prosecutor who focused on healthcare prosecutions, David Hoffman recognizes how difficult these questions can be and how important it is for his colleagues to understand the nuances of patient safety.

When he became a Practice Professor of Law at the Kline School of Law at Drexel University, he took the opportunity to provide his students a foundational framework and invited the Authority to assist.

Patient safety is more than just a regulatory requirement. It’s a value that should be at the core of all of healthcare. The Patient Safety Authority are experts in this area. So when I decided to build this component into the curriculum, I knew they had to be involved. David Hoffman, JD, FCPP

"
Patient Safety Liaisons

The liaison program was started nine years ago to provide facilities guidance for navigating the MCARE Act and develop strategies to reduce harm. The original team of six now consists of eight professionals who bring a breadth and depth of knowledge and expertise.

This expertise translates into a broad range of services, from reviewing policies to identifying potential lapses in care to facilitating statewide collaboratives where frontline staff can discuss common issues and implement evidence-based best practices. Keystones are focused campaigns that reflect challenges reported throughout the state. Liaisons work closely with facilities to identify how a given topic is affecting them, develop potential solutions, and educate staff.

The current Keystone, Keys to Engaging Leaders, kicked off on July 1st and will run for 12 months. This campaign was designed to demonstrate to senior leadership that “patient safety” is more than just a regulatory requirement. It’s an opportunity to proactively prevent harm and improve care. More than 300 facilities met with their liaison in the first six months to identify opportunities to engage leaders within their organization.

Total Facility Interactions, 2017

2,211

2016 vs. 2017

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<td>280</td>
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<tr>
<td>December</td>
<td>270</td>
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</table>

Interactions per Facility

4

Interactions per Day

6

Increase from 2016

71

Orientations for New Patient Safety Officers

87

Keystone Visits: Keys to Engaging Leaders

370
Wrong-site surgery (WSS) is defined as a surgical procedure that involves operating on the wrong patient, wrong side of the body or body part, or when the wrong procedure is performed. As difficult as it can be to believe such an event could happen, approximately one WSS is reported in Pennsylvania every week. Because an occurrence can be so devastating, preventing WSS has become a focus for the Authority.

Excela Health, a large health system in Western Pennsylvania, had reached a plateau. While their rates for WSS were relatively low, they were still unable to sustain their goal of zero. Excela partnered with the Authority to conduct an in-depth analysis to answer the fundamental question, “What are we missing?”

Bob Yonash, Senior Patient Safety Liaison for the Southwest region of Pennsylvania, worked with Excela leadership to develop a multi-pronged approach: creating an awareness campaign, conducting OR observations with real-time feedback, and disseminating of WSS prevention strategies to surgical and anesthesia staff.

A few key areas of improvement were identified including revising the process for time-outs and site-marking, conducting teamwork training, and redefining strategies for pre-procedure verification.

As a result of these efforts, Excela has sustained rates of WSS to near zero, and the team has seen a noticeable improvement in safety culture across roles and disciplines.
NOMINATIONS PER CATEGORY

- VIDEO
- AUTHORITY RESOURCES
- AMBULATORY SURGERY
- LONG-TERM CARE
- IMPROVING DIAGNOSIS
- INDIVIDUAL IMPACT
- INNOVATION
- PATIENT FOCUS
- GOOD CATCH

206 NOMINATIONS

76 FACILITIES RESPONDED

NOMINATIONS PER REGION

- 20
- 5
- 15
- 29
- 37
- 100

INCREASE IN NOMINATIONS FROM 2016 TO 2017

12%
Thank you to everyone who participated in our annual I Am Patient Safety contest!

Healthcare can be challenging. Long hours requiring constant excellence as patients entrust us with their lives. It can be so easy to get caught up in the daily grind, constantly focusing on any shortfalls, that we never stop to take a breath and celebrate all our successes. Every life saved. Every error prevented. Every extra mile given. But those are the moments that remind us why we chose this path and keep propelling us forward.

Here at the Authority we understand how vital this is and are proud to recognize the individuals and teams who have gone above and beyond to protect their patients and revolutionize the care they provide them. This year marked the highest ever number of nominations, with more than 200 submissions from 78 organizations.

A panel of judges reviewed entries spanning all corners of the Commonwealth, representing large academic medical centers, long-term care facilities, and ambulatory surgery facilities.

For the first time, participants selected from one of nine categories:
- Good Catch
- Individual Impact
- Video
- Long-Term Care
- Improving Diagnosis
- Innovation
- Focus on the Patient
- Ambulatory Surgery
- Best Use of Authority Resources

The breadth and depth of the submissions- from a rapid response team who transformed their process for responding to a code to a registrar who prevented a wrong-site surgery through diligence and courage, reinforces why Pennsylvania continues to serve as the national leader in patient safety.

I’m proud to recognize this year’s winners and encourage everyone to continue to celebrate the positive.

**Regina Hoffman, MBA, BSN, RN, CPPS**  
Executive Director, Patient Safety Authority

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**2018 Winners**

**Improving Diagnosis**  
Einstein Medical Center Montgomery  
Janet Cahill

**Ambulatory Surgery**  
Shriner’s Hospital for Children Erie  
Deborah Balogh

**Good Catch**  
Lehigh Valley Hospital Muhlenberg  
Dawn Emes

**Individual Impact**  
Einstein Medical Center Montgomery  
Raymond J. Cipollini

**Focus on the Patient**  
Cancer Treatment Centers of America, Eastern Regional Medical Center  
Hannah Do

**Video**  
UPMC Susquehanna - Williamsport  
Laura Fry, Melissa Furman, Becky Hess, Ellen Kramer

**Innovation**  
UPMC Presbyterian Shadyside  
Sarah Cua, Lisa Donahue, Kristian Feterik, Carol Mathews, Cecilia Zamarripa

**Best Use of Authority Resources**  
Chester County Hospital  
Katie Costantini, Ann-Louise Jeffery, Jodi Levine, Janeen Smith, Trish Ward, Liz Waterhouse

**Long-term Care**  
Crosslands  
Heather Kline

**Improving Diagnosis**  
UPMC Hamot  
Michelle Nelsen
Janet Cahill championed and presented a strong business case to implement accurate testing technology for identifying pathogens, improving diagnosis outcomes, and enhancing antibiotic stewardship for the entire facility.

Microbiologist Janet Cahill, in collaboration with the antibiotic stewardship team, championed a diagnostic change that improved patient care. Her project implemented a new use of polymerase chain reaction (PCR) testing for influenza (the flu). Cahill worked with the information technology (IT) team to ensure the PCR tests would interface properly and the information would flow to the prescribers and pharmacy.

Although the earlier type of test had a sensitivity of 85% in detecting influenza type A and 59% for influenza type B, the new PCR test was much better, being 100% sensitive for both flu types. This allowed the hospital to avoid giving oseltamivir, a drug commonly used to treat the flu, to flu-negative patients, who would not benefit. The proportion of patients who did not have the flu but did receive oseltamivir improved, falling from 19.1% during the flu season before the project to 1.9% the flu season after.

The mean length of hospital stay for patients who received at least one dose of the drug fell from 6.39 days to 3.95 days. Although the PCR test is costlier than the older test, its use prevented a significant amount of unneeded drug from reaching patients and shortened lengths of stay.

Cahill also championed use of another PCR test that identifies patients’ blood pathogens in 1 hour, down from 27-37 hours. Cahill’s efforts helped in pursuing the goal of reducing the use of inappropriate or unnecessary antibiotics.

Dawn Emes not only recognized that telemetry alarms were not being sent to her pager, but identified an absence of telemetry alarms for the entire hospital, which led to the system being rebooted and potentially preventing missed nursing notifications of cardiac alarms.

Late on a Sunday night, registered nurse (RN) Dawn Emes noticed that her telemetry pager, which tracks changes in patients’ heart rhythms, was not sending alarms for a patient she knew had arrhythmias.

The pager had been functioning properly at change of shift, three hours earlier. She found she was unable to send her pager a test page. Concerned, Emes tested all the RNs’ pagers on the unit and found they also were not working.

First, she stationed an RN at the telemetry monitoring station to watch all patients being monitored, recognizing the possibility of an event going unnoticed. Then she notified the nursing supervisor and asked if other units in the hospital were having this issue. Initially, she was told no; however, the nursing supervisor soon reported that the unit’s pagers were not sending alarms to the nurses on other units, which had gone unnoticed. The clinical engineering department rebooted the system and alarms functioned again.

Of all of the unit nurses with patients on telemetry, Emes was the only one to notice that it was a problem that alarms were absent and that the problem could be occurring across the hospital. While it cannot be said Emes prevented injury or death, she prevented all the patients in the hospital who were on telemetry from having a critical alarm go unnoticed and a serious problem potentially remain untreated.
**Focus on the Patient**
Cancer Treatment Centers of America, Eastern Regional Medical Center

Hannah Do, MD

Dr. Hannah Do observed that gastroenterology procedure times were inconsistent due to variations in operating room setup. She took the lead to work with surgery staff to ensure standardization of room setup and reduce procedure times.

Hannah Do, gastroenterologist and medical director of Total Parental Nutritional Services at Cancer Treatment Centers of America® at Eastern Regional Medical Center, is a key member of the medical center’s Patient Safety Committee.

From discussing serious safety events and making recommendations, to opening up discussions and reporting safety events, Dr. Do has improved patient care. She does not assign blame or make assumptions, but instead objectively reports the issue and then offers to become part of the solution.

For instance, Dr. Do observed that gastroenterology procedure times were inconsistent due to variations in operating room setup. To ensure that the operating room was ready as soon as the patient was, Dr. Do offered an in-service (education session) for the surgery staff to assist in standardizing operating room setup for gastroenterology procedures.

After the in-service, she reported that the staff were engaged, taking notes and asking questions. Dr. Do’s focus is always on the patient and on how she, as a patient safety professional, can deliver her clinical expertise in the safest and most efficient way possible. She is a leader in facilitating a culture of safety.

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**Innovation**

UPMC Presbyterian Shadyside

Carol Mathews, BSN, RN, CWOCN; Cecilia Zamarripa, MSN, RN, CWON; Lisa Donahue, DNP, RN, CPPS; Sarah Cua, MBA, MSN, RN; Kristian Feterik, MD

After finding that nasopharyngeal airway devices were being used as an alternative to body fluid management, which increased patient risk for harm, a nursing team utilized event reports to revise an existing facility policy. The policy addressed the utilization of the device, focused on patient assessment, and implemented nursing interventions for prevention of incontinence.

Nurses develop creative ways to manage their patients’ symptoms, especially when they involve bodily fluids such as diarrhea. The hospital found that nurses were using nasopharyngeal airway devices as off-label rectal trumpets to manage fecal incontinence. However, unintended problems developed, including patients experiencing rectal mucosal injury, bleeding, or perirectal injuries.

A team was convened with the goals of promoting best patient-care outcomes, eliminating serious events related to rectal injury, and more effectively managing diarrhea in hospitalized patients. The revised fecal containment policy now includes a focus on assessing reversible factors that lead to diarrhea and initiating nursing interventions to address those factors.

For example, dietitians are consulted to evaluate enteral feeding formulas to address the diarrhea. In addition, medical evaluation of the diarrhea is encouraged, including testing for infection.

When a fecal management system is ordered now, the wound, ostomy, and continence (WOC) nurse must assess the patient and rule as to whether a device can be used. The WOC nurse provides a detailed explanation to staff nurses with each case and a rationale if using the device is disallowed. The medical provider may override the WOC nurse’s refusal for the benefit of the patient. But the revised care protocol specifies that a formal patient consent must first be obtained and verified.

In the year before the revised policy and care protocol were implemented, there were 18 adverse fecal-containment-related events. The hospital had only a single adverse event in the eight months that followed.

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**Long-Term Care**

Crosslands

Heather Kline, RN

As an infection control preventionist (ICP), Heather Kline’s involvement includes surveillance, reporting, regulatory compliance, education, development of an antibiotic stewardship program, and leadership at the Infection Control and Prevention meetings and Quality Assurance Performance Improvement Program.

Heather Kline began her employment with the long-term care community in 2007, as a per diem nurse in the skilled-care facility. She was hired as the full-time registered nurse assessment coordinator (RNAC) in 2010. Not only does she perform her RNAC duties in an exemplary manner, she serves in key roles in essential programs, including Corporate Compliance, Department Health Services, Department Policy Development, and the Infection Prevention and Control Program. Kline is the facility’s infection control preventionist (ICP).

In this role, Kline conducts surveillance and reporting and ensures that the facility’s infection and prevention control practices meet regulatory requirements. Further, she conducts staff, resident, and family education and provides leadership at the monthly Infection Control and Prevention meetings and the quarterly Quality Assurance Performance Improvement Program.

Kline has demonstrated her commitment to excellence by initiating certification as a long-term care ICP. Kline has been instrumental in developing an antibiotic stewardship program and in the facility’s participation in the Authority’s Antibiotic Stewardship Initiative.

When she’s not delighting the staff with homemade Christmas cookies, Kline is demonstrating her commitment to patient safety through her enthusiasm, energy, and passion.
As a patient safety officer, Debbie Balogh ensures that patients and their families are well prepared for surgery, and she helps with many patient safety efforts, such as review of medical records for completeness, development of a preoperative checklist and antibiotic stewardship program, and opioid management.

Debbie Balogh’s commitment to patient safety is evident in her role as the patient safety officer for the ambulatory surgery center, effectively leading its Patient Safety Committee.

In her role as a nurse in the center’s Pre-op and Post-Anesthesia Care Unit (PACU) areas, Balogh ensures every patient and family are prepared for surgery. She reviews medical records for completeness, confirms patient and family understanding of preoperative education, and helps prevent any wrong-patient, wrong-procedure, or wrong-site surgery.

Hospital forms might seem like dry paperwork, but they drive patient care, and Balogh was involved in creating two important forms.

The first is a preoperative checklist she helped develop for use before the patient enters the operating room (OR). It aims to ensure that preparations are performed, such as removing hair, administering prophylactic antibiotics and nerve blocks, and positioning the patient on the OR table.

The second is the “Peds Ortho Emergency Medication Sheet.” This sheet, used in pediatric emergencies, includes the patient’s medications, defibrillation attempts, IV boluses, and postoperative medications, and provides the patient’s weight the day of the procedure (important for weight-based medication dosing). Balogh provides education on this form to all new physicians, residents, fellows, and RNs.

Finally, she was involved in developing an antibiotic stewardship program for the center, including policy development; education for providers, staff, patients, and families; and monitoring of antibiotic use.

As part of an initiative for all staff to be responsive to patient needs, Raymond visits with patients and families following his response to call lights in order to, “take their mind off their troubles and make them smile,” recognizing that being a patient can be lonely.

Maintenance mechanic Raymond J. Cipollini is a longtime employee in the maintenance department whose work can involve repairs in patient rooms.

One day, a patient had activated the nurse call button, and before anyone else could respond, Cipollini entered the room, using the hospital’s AIDET introduction protocol (Acknowledge, Introduce, Duration, Explanation, and Thank You). He learned the patient needed help getting to the bathroom and found a nurse to assist. The next day, a senior leader heard a lively conversation coming from the same patient’s room.

After introductions, the leader asked if the patient and Cipollini were friends. They both responded, “Since yesterday!” Nurses told the leader that Cipollini excels in making a difference for patients.

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A patient, who was previously seen for chest pain and had a negative cardiac work-up, started to develop entire body weakness. The patient was ultimately diagnosed with Lyme Disease after Michelle suspected and recommended testing because she was aware that Lyme Disease symptoms were “presenting differently” at that time.

A patient was first seen in the Emergency Department (ED) for chest and arm pain. He was evaluated for cardiac issues but all tests came back negative. The patient saw his primary care provider the next day. Over the following weeks, he developed additional symptoms, and was seen by his primary care provider and in the ED multiple times. During another visit to the ED one month later, the patient’s symptoms had progressed. Michelle Nelsen, his nurse, suggested that he had an atypical presentation of a specific disease. She presented her thoughts to the ED physician, who ordered testing, which confirmed Michelle’s suspicion. The patient was then treated for this condition. The patient’s wife said, “If it were not for [Michelle], I do not think a diagnosis would have been found.”

Michelle Nelsen, a senior nurse in the department, used her experience and expert assessment skills to drive the care of a patient. Her willingness to communicate with the ED team aided in the diagnosis that was long overdue for this patient. Her story is a prime example of why healthcare workers go to work every day—to help other people.

Note: Any included numbers and/or results were provided for publication by the recognized healthcare facilities. The Patient Safety Authority has not independently verified, and bears no responsibility or liability, for these numbers and/or results.
Total Advisory Readers, 2017

4,046

Increase in Advisory Readers from 2016

770

Number of States Where the Advisory is Read

46

Number of Countries Where the Advisory is Read

33

Most Popular Advisory Article, 2017

Promote a Culture of Safety with Good Catch Reports
The Patient Safety Advisory is a quarterly, peer-reviewed journal that highlights trending patient safety concerns and provides frontline staff tools for prevention and treatment. Topics span the care continuum and may reflect areas that are commonly reported, like falls, or they may address a single incident with the potential for wide-spread harm.

A Pennsylvania hospital reported that clinicians nearly failed to rescue a patient who had a heart attack because the patient had been mistakenly designated as “DNR” (do not resuscitate). The source of confusion was that a nurse had placed a yellow wristband on the patient, thinking that it signified “restricted extremity” (i.e., the arm should not be used for drawing blood or obtaining IV access), because that’s what yellow wristbands indicated at another facility where she worked. She didn’t realize there was no standardized system for color-coded wristbands or that in this hospital, yellow signified patients who were DNR. Fortunately, someone identified the mistake and intervened. This Advisory article alerted others about the potential risk and sparked a national movement to standardize wristband color that now includes more than 40 states and the United States military. Readers from across the nation and dozens of countries abroad turn to the Advisory for stories like this to protect their own patients from harm.

5,000 Ways the Advisory Has Made Healthcare Safer

According to this year’s annual PSO survey, facilities implemented several practice changes in response to one or more Advisory articles.

- Revamp of the Surgical Timeout Process
  Timeouts are a final safety check that occur just before starting a surgery or procedure.

- Implementation of a Good Catch Recognition Program
  Good Catch programs celebrate staff members who prevented harm.

- Revision of Language and Process for Handoffs
  Poor communication is consistently ranked among the top safety concerns nationwide.

- Initiation of a Monthly Safety Check for Sterile Processing
  Retained bioburden can put patients at an increased risk for infections.

- Inclusion of Anti-Bullying Training in Facility-wide Education
  Bullying is a silent epidemic that can lead to poor morale, depression, and suicide.

- Development of a Standardized Count for Equipment in the OR
  The most common retained foreign bodies during surgery include sponges and needles.

Each year, the Authority surveys PSOs about the Advisory feedback on past articles, suggestions for new topics, and whether they’ve incorporated any of its recommendations. Since the Advisory’s inception, there have been almost 5,000 documented practice changes attributed to its content.
Infection Preventionists
Providing Facilities the Resources Necessary to Combat Healthcare-Associated Infections

There was a 58% decline in healthcare-associated infections in the US between 2002 and 2011.1,2 While this marks significant progress, there is still much work to be done with almost 2,000 individuals contracting an infection from a healthcare facility every single day.

While infections can be especially complex because of the nuances between pathogens and a mindfulness of antibiotic stewardship, the CDC found that facilities can experience a 70% reduction in some healthcare-associated infections (HAIs) when providers, nurses, and care teams are aware of infection prevention practices and implement evidence-based solutions.3

Because of this, the Authority has a dedicated team of Infection Preventionists (IPs) who provide healthcare facilities guidance on such practices for prevention and treatment.

The team is a resource for every healthcare facility in the Commonwealth, though much of their efforts focus on the long-term care (LTC) community, who identified reducing infections as a top priority during focus groups in the spring.

With antibiotic stewardship being such a key component of prevention, 31 LTC facilities joined a collaborative in September aimed at reducing unnecessary cultures and orders for antibiotics. The collaborative will continue through 2018 and seeks reduction targets of 10% for identified measures.

In 2017, the Authority provided training to more than 3,300 healthcare professionals on a broad range of topics, including early sepsis recognition, safe injection practices, and Legionella.

Per the CDC’s most recent HAI Progress Report, last updated in 2016, Pennsylvania was one of only three states that scored better than the national standardized infection ratio (SIR) and the national benchmark for CLABSI, CAUTI, MRSA, C. Difficile, and surgical site infections for colon surgery (the others being Oregon and Wisconsin).

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### Healthcare-Associated Infections By the Numbers (United States)

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of HAIs in Long-Term Care Facilities (LTCF) per year</td>
<td>1-3 million</td>
</tr>
<tr>
<td>Number of deaths attributed to HAIs in LTCF per year</td>
<td>380,000</td>
</tr>
<tr>
<td>Number of HAIs in US Acute Care Hospitals per year</td>
<td>721,800</td>
</tr>
<tr>
<td>Number of US Hospital Deaths attributed to HAIs per year</td>
<td>75,000</td>
</tr>
<tr>
<td>Number of Americans who reside in or are admitted to a LTCF each year</td>
<td>5 million</td>
</tr>
<tr>
<td>Percentage of HAIs that result in death in LTC Facilities</td>
<td>13-38%</td>
</tr>
<tr>
<td>Percentage of HAIs that result in death in acute care hospitals</td>
<td>10.3%</td>
</tr>
</tbody>
</table>

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2. [https://www.cdc.gov/hai/pdfs/hai/infections_deaths.pdf](https://www.cdc.gov/hai/pdfs/hai/infections_deaths.pdf)

LTCF statistics: [https://www.cdc.gov/longtermcare/index.html](https://www.cdc.gov/longtermcare/index.html)
2017 Infection Preventionist Highlights

- Each of the Authority’s Infection Preventionists spoke at the annual conference for the Association for Professionals in Infection Control and epidemiology (APIC) in Portland, Oregon. Topics covered included reducing CAUTIs in LTC patients and early detection of sepsis.

- JoAnn Adkins was accepted as an APIC fellow. She joined Terri Lee Roberts and Jim Davis who received the honor in 2016.

- Terri Lee Roberts was appointed as a faculty member for APIC. Faculty members not only present course content but also provide mentorship to learners.

- Jim Davis was named Research Chair for APIC after previously holding the position of Vice Chair.

- Sharon Bradley spoke to 400 leaders in long-term care at the Pennsylvania Directors of Nursing Administration’s (PA-DONA) annual conference in Hershey.

- Terri Lee Roberts was featured in the Certification Board of Infection Control and epidemiology’s (CBIC) weekly CIC® in the Spotlight. This program recognizes the accomplishments of professionals Certified in Infection prevention and Control (CIC).

- Sharon Bradley was elected to APIC of Delaware Valley and Philadelphia’s Board of Directors for the 11th time. She also served as Director and Chapter Legislative Representative.

- Jim Davis conducted Ebola center assessments with DOH and HAP.

- JoAnn Adkins and Sharon Bradley co-led a collaborative on antibiotic stewardship. Thirty-one LTC facilities began working together to achieve a 10% reduction in three main process measures.

- Terri Lee Roberts was a facilitator for Allegheny County’s Antibiotic Stewardship Workshop for Acute Care and Long-term Care Facilities in June.

- Sharon Bradley was approached by the Society for Post-Acute and Long-Term Care Medicine (AMDA) to present a workshop on infection in LTC facilities at their annual conference in Texas.
Data Analysis – HAI
Pennsylvania LTC Facilities

Analysis
Of the 700 facilities active as of December 31, 2017, validation criteria were met by 619 (88.4%). Eighty-one facilities were excluded because of the following criteria:
- The number of resident days were not reported for one or more months during the year; 54 LTC facilities were excluded from 2017 data analysis, compared to eight in 2016.
- Occupancy for one or more months was above 100% or below 50%. In 2017, 25 LTC facilities were excluded, compared to 16 in 2016.
- In 2017, two LTC facilities were excluded from unit level analysis for not reporting resident days at the unit level, compared to one in 2016.

For the annual comparisons displayed in the figures, rates were calculated based on the appropriate denominator for each infection type. Confidence intervals for these rates were calculated by multiplying the standard error by 1.96 to approximate 95% confidence.

Urinary Tract Infection (UTI)
Mixed units and ventilator-dependent units exhibited statistically significant increases in catheter-associated urinary tract infection (CAUTI) compared to rates in 2015. No statistically significant changes were evident in the other units.

Skilled nursing/short-term rehabilitation (SN/STR) units demonstrated a statistically significant increase in symptomatic urinary tract infection (SUTI) rates compared to 2015.

SN/STR units demonstrated a statistically significant increase in device-related asymptomatic bacteremic urinary tract infection (DR-ABUTI) compared to 2015, and dementia units showed a statistically significant increase in non-device related ABUTI compared to 2015.

ABUTI signals the conversion of asymptomatic bacteriuria into bacteremia or sepsis. Even if rates are low, ABUTI should remain a focus because these bloodstream infections can be fatal.

Skin and Soft Tissue Infection
Rates of cellulitis remained constant throughout the defined care areas, which is consistent with 2015 and 2016 (Figure 6). Scabies and conjunctivitis occurred in all care areas, but ventilator-dependent patients seemed to experience more conjunctivitis and cellulitis.

Central Line–Associated Blood Stream Infections (CLABSI)
CLABSIs are divided into three categories: dialysis lines, temporary lines, and permanent lines. The definition for each line type appear in Table 3. When CLABSI rates are very low, even zero, there may still be infections, i.e., when the median rate per 1,000 central line days is 0, it does not necessarily mean that there no infections occurred.

The Authority encourages facilities to assess practices related to the care and maintenance of central lines, adhere to accepted clinical standards, and engage dialysis centers in conversations about care and maintenance of dialysis lines.

Respiratory Tract Infection
There was statistically significant variability in the rate of influenza from 2015 to 2017. The cause of this variability was likely multi-factorial, including seasonality, vaccine effectiveness, pathogen virulence, and vaccine uptake. All units except the ventilator-dependent units had significant decreases in influenza rates from 2015 to 2016, followed by significant increases from 2016 to 2017 (Figure 9).

The rate of influenza-like illness (ILI) mimicked the statistically significant decrease in rates of Influenza from 2015 to 2016 except for the ventilator-dependent units (Figure 10). Between 2016 and 2017, the only statistically significant increase in ILI was noted in the mixed units.

The ventilator-dependent units showed a statistically significant increase in the rate of pneumonia from the 2015 baseline rate to 2016 and a trend toward further increase in the rate in 2017.

Gastrointestinal Infection
Gastrointestinal infections in 2017 were primarily attributed to *Clostridium difficile* (*C. difficile*) and norovirus (Table 5). A norovirus outbreak is defined as three or more cases of norovirus identified within a three-day period.
Total HAI Event Reports, 2017

30,624

Total HAI Event Reports, 2016

27,544

Most Frequently Reported Infection Types, 2017

Pneumonia (5,808)
Cellulitis (5,263)
SUTI (4,258)
Conjunctivitis (3,454)

Increase in Reports

11.2%

Facilities that Met all Validation Criteria (out of 700)

619

Urinary Tract Infections (UTIs)

5,546

Skin & Soft Tissue Infections

8,970

Respiratory Tract Infections

10,893

Number of HAI Event Reports by Type, 2017

<table>
<thead>
<tr>
<th>Infection Type</th>
<th>Number of Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Tract Infections</td>
<td>10,893</td>
</tr>
<tr>
<td>Skin and Soft Tissue Infections</td>
<td>8,970</td>
</tr>
<tr>
<td>Urinary Tract Infections</td>
<td>5,546</td>
</tr>
<tr>
<td>Gastrointestinal Infections</td>
<td>3,334</td>
</tr>
<tr>
<td>Device-Related Bloodstream Infections</td>
<td>54</td>
</tr>
</tbody>
</table>
Urinary Tract Infections

Device Utilization Rates (DUR) in most care areas have remained fairly flat since 2015. However, patients in ventilator-dependent units have used more catheters and experienced higher rates of CAUTI.

Table 1. Urinary Tract Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2017

<table>
<thead>
<tr>
<th>Unit Name (n)</th>
<th>Number of Infections</th>
<th>Resident Days</th>
<th>Catheter Days</th>
<th>Device Utilization Rate</th>
<th>Pooled Infection Rate (95% C.I.) † ‡</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAUTI</strong> - Catheter in place with localizing urinary signs or symptoms or catheter removed within the last 2 calendar days at the facility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (18)</td>
<td>25</td>
<td>2,096,654</td>
<td>35,244</td>
<td>0.017</td>
<td>0.71 (0.43 - 0.99)</td>
</tr>
<tr>
<td>Mixed Unit (111)</td>
<td>362</td>
<td>7,089,563</td>
<td>344,034</td>
<td>0.049</td>
<td>1.05 (0.94 - 1.16)</td>
</tr>
<tr>
<td>Nursing Unit (102)</td>
<td>260</td>
<td>7,929,463</td>
<td>331,118</td>
<td>0.042</td>
<td>0.79 (0.69 - 0.88)</td>
</tr>
<tr>
<td>SN/STR Unit (156)</td>
<td>381</td>
<td>8,291,239</td>
<td>441,810</td>
<td>0.053</td>
<td>0.86 (0.78 - 0.95)</td>
</tr>
<tr>
<td>Vent Unit (6)</td>
<td>36</td>
<td>125,374</td>
<td>31,866</td>
<td>0.254</td>
<td>1.13 (0.76 - 1.5)</td>
</tr>
<tr>
<td><strong>Total (334)</strong></td>
<td>1,064</td>
<td>25,532,293</td>
<td>1,184,072</td>
<td>0.046</td>
<td>0.9 (0.84 - 0.95)</td>
</tr>
<tr>
<td><strong>DR-ABUTI</strong> - Catheter in place without localizing urinary signs or symptoms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (2)</td>
<td>2</td>
<td>2,096,654</td>
<td>35,244</td>
<td>0.017</td>
<td>0.06 (0 - 0.14)</td>
</tr>
<tr>
<td>Mixed Unit (12)</td>
<td>17</td>
<td>7,089,563</td>
<td>344,034</td>
<td>0.049</td>
<td>0.05 (0.03 - 0.07)</td>
</tr>
<tr>
<td>Nursing Unit (11)</td>
<td>15</td>
<td>7,929,463</td>
<td>331,118</td>
<td>0.042</td>
<td>0.05 (0.02 - 0.07)</td>
</tr>
<tr>
<td>SN/STR Unit (23)</td>
<td>29</td>
<td>8,291,239</td>
<td>441,810</td>
<td>0.053</td>
<td>0.07 (0.04 - 0.09)</td>
</tr>
<tr>
<td>Vent Unit (4)</td>
<td>4</td>
<td>125,374</td>
<td>31,866</td>
<td>0.254</td>
<td>0.13 (0 - 0.25)</td>
</tr>
<tr>
<td><strong>Total (51)</strong></td>
<td>67</td>
<td>25,532,293</td>
<td>1,184,072</td>
<td>0.046</td>
<td>0.06 (0.04 - 0.07)</td>
</tr>
<tr>
<td><strong>SUTI</strong> - Catheter not present or catheter removed for more than 2 calendar days within the facility with localizing urinary signs or symptoms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (83)</td>
<td>246</td>
<td>2,096,654</td>
<td></td>
<td></td>
<td>0.12 (0.1 - 0.13)</td>
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<tr>
<td>Mixed Unit (155)</td>
<td>1341</td>
<td>7,089,563</td>
<td></td>
<td></td>
<td>0.19 (0.18 - 0.2)</td>
</tr>
<tr>
<td>Nursing Unit (161)</td>
<td>1117</td>
<td>7,929,463</td>
<td></td>
<td></td>
<td>0.14 (0.13 - 0.15)</td>
</tr>
<tr>
<td>SN/STR Unit (243)</td>
<td>1547</td>
<td>8,291,239</td>
<td></td>
<td></td>
<td>0.19 (0.18 - 0.2)</td>
</tr>
<tr>
<td>Vent Unit (4)</td>
<td>7</td>
<td>125,374</td>
<td></td>
<td></td>
<td>0.06 (0.01 - 0.1)</td>
</tr>
<tr>
<td><strong>Total (468)</strong></td>
<td>4,258</td>
<td>25,532,293</td>
<td></td>
<td></td>
<td>0.17 (0.16 - 0.17)</td>
</tr>
<tr>
<td><strong>ABUTI</strong> - Catheter not present or catheter removed for more than 2 calendar days within the facility without localizing urinary signs or symptoms (may have fever)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (6)</td>
<td>15</td>
<td>2,096,654</td>
<td></td>
<td></td>
<td>0.01 (0 - 0.01)</td>
</tr>
<tr>
<td>Mixed Unit (23)</td>
<td>42</td>
<td>7,089,563</td>
<td></td>
<td></td>
<td>0.01 (0 - 0.01)</td>
</tr>
<tr>
<td>Nursing Unit (25)</td>
<td>49</td>
<td>7,929,463</td>
<td></td>
<td></td>
<td>0.01 (0 - 0.01)</td>
</tr>
<tr>
<td>SN/STR Unit (32)</td>
<td>49</td>
<td>8,291,239</td>
<td></td>
<td></td>
<td>0.01 (0 - 0.01)</td>
</tr>
<tr>
<td>Vent Unit (2)</td>
<td>2</td>
<td>125,374</td>
<td></td>
<td></td>
<td>0.02 (0 - 0.04)</td>
</tr>
<tr>
<td><strong>Total (81)</strong></td>
<td>157</td>
<td>25,532,293</td>
<td></td>
<td></td>
<td>0.01 (0.01 - 0.01)</td>
</tr>
</tbody>
</table>

*Device utilization rate: number of urinary catheter days ÷ number of resident days
† Basic UTI rate calculation: number of UTI ÷ number of resident days x 1000
‡ CAUTI rate calculation: number of CAUTI ÷ number of catheter days x 1000
SN/STR Unit = Skilled Nursing/ Short-Term Rehabilitation Unit
Vent Unit = Ventilator-Dependent Unit
Figure 1. CAUTI Rates by Care Unit, by Year

RATES PER 1,000 CATHETER DAYS

Figure 2. DR-ABUTI Rates by Care Unit, by Year

RATES PER 1,000 CATHETER DAYS
The Authority encourages staff to assess infection control practices for hand hygiene, aseptic technique during medication administration and dressing changes, universal precautions, and isolation practices, and to conduct root-cause analyses when event clusters emerge.
Table 2. Skin and Soft Tissue Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2017

<table>
<thead>
<tr>
<th>Unit Name (n)</th>
<th>Number of Infections</th>
<th>Resident Days</th>
<th>Pooled Infection Rate (95% C.I.) (^\dagger)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cellulitis, soft tissue, or wound infection</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (104)</td>
<td>331</td>
<td>2,096,654</td>
<td>0.16 (0.14 - 0.17)</td>
</tr>
<tr>
<td>Mixed Unit (176)</td>
<td>1,480</td>
<td>7,089,563</td>
<td>0.21 (0.2 - 0.22)</td>
</tr>
<tr>
<td>Nursing Unit (184)</td>
<td>1,528</td>
<td>7,929,463</td>
<td>0.19 (0.18 - 0.2)</td>
</tr>
<tr>
<td>SN/STR Unit (274)</td>
<td>1,894</td>
<td>8,291,239</td>
<td>0.23 (0.22 - 0.24)</td>
</tr>
<tr>
<td>Vent Unit (8)</td>
<td>30</td>
<td>125,374</td>
<td>0.24 (0.15 - 0.32)</td>
</tr>
<tr>
<td><strong>Total (523)</strong></td>
<td>5,263</td>
<td>25,532,293</td>
<td>0.21 (0.2 - 0.21)</td>
</tr>
<tr>
<td><strong>Conjunctivitis</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (97)</td>
<td>316</td>
<td>2,096,654</td>
<td>0.15 (0.13 - 0.17)</td>
</tr>
<tr>
<td>Mixed Unit (146)</td>
<td>970</td>
<td>7,089,563</td>
<td>0.14 (0.13 - 0.15)</td>
</tr>
<tr>
<td>Nursing Unit (169)</td>
<td>1077</td>
<td>7,929,463</td>
<td>0.14 (0.13 - 0.14)</td>
</tr>
<tr>
<td>SN/STR Unit (203)</td>
<td>1063</td>
<td>8,291,239</td>
<td>0.13 (0.12 - 0.14)</td>
</tr>
<tr>
<td>Vent Unit (6)</td>
<td>28</td>
<td>125,374</td>
<td>0.22 (0.14 - 0.31)</td>
</tr>
<tr>
<td><strong>Total (445)</strong></td>
<td>3,454</td>
<td>25,532,293</td>
<td>0.14 (0.13 - 0.14)</td>
</tr>
<tr>
<td><strong>Scabies</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (13)</td>
<td>43</td>
<td>2,096,654</td>
<td>0.02 (0.01 - 0.03)</td>
</tr>
<tr>
<td>Mixed Unit (27)</td>
<td>69</td>
<td>7,089,563</td>
<td>0.01 (0.01 - 0.01)</td>
</tr>
<tr>
<td>Nursing Unit (25)</td>
<td>45</td>
<td>7,929,463</td>
<td>0.01 (0 - 0.01)</td>
</tr>
<tr>
<td>SN/STR Unit (32)</td>
<td>95</td>
<td>8,291,239</td>
<td>0.01 (0.01 - 0.01)</td>
</tr>
<tr>
<td>Vent Unit (1)</td>
<td>1</td>
<td>125,374</td>
<td>0.01 (0 - 0.02)</td>
</tr>
<tr>
<td><strong>Total (87)</strong></td>
<td>253</td>
<td>25,532,293</td>
<td>0.01 (0.01 - 0.01)</td>
</tr>
<tr>
<td><strong>Total Skin and Soft Tissue Infections</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (133)</td>
<td>690</td>
<td>2,096,654</td>
<td>0.33 (0.3 - 0.35)</td>
</tr>
<tr>
<td>Mixed Unit (193)</td>
<td>2,519</td>
<td>7,089,563</td>
<td>0.36 (0.34 - 0.37)</td>
</tr>
<tr>
<td>Nursing Unit (203)</td>
<td>2,650</td>
<td>7,929,463</td>
<td>0.33 (0.32 - 0.35)</td>
</tr>
<tr>
<td>SN/STR Unit (292)</td>
<td>3,052</td>
<td>8,291,239</td>
<td>0.37 (0.36 - 0.38)</td>
</tr>
<tr>
<td>Vent Unit (11)</td>
<td>59</td>
<td>125,374</td>
<td>0.47 (0.35 - 0.59)</td>
</tr>
<tr>
<td><strong>Total (555)</strong></td>
<td>8,970</td>
<td>25,532,293</td>
<td>0.35 (0.34 - 0.36)</td>
</tr>
</tbody>
</table>

\(^\dagger\)Rate calculation: number of infections ÷ number of resident days x 1000

SN/STR Unit = Skilled Nursing/ Short-Term Rehabilitation Unit
Vent Unit = Ventilator-Dependent Unit
Device-Related Bloodstream Infections

CLABSI remained a focus for all care areas regardless of low infection rates because mortality rates are between 12% and 25% and costs range between $3,700 and $36,000 per occurrence.¹²

Table 3. Device-Related Bloodstream Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2017

<table>
<thead>
<tr>
<th>Unit Name (n)</th>
<th>Number of Infections</th>
<th>Resident Days</th>
<th>Pooled Infection Rate (95% C.I.) ‡</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CLABSI Dialysis</strong> - Resident has a vascular catheter used for dialysis access</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (0)</td>
<td>6</td>
<td>2,096,654</td>
<td>5,335</td>
</tr>
<tr>
<td>Mixed Unit (6)</td>
<td>4</td>
<td>7,089,563</td>
<td>116,549</td>
</tr>
<tr>
<td>Nursing Unit (3)</td>
<td></td>
<td>7,929,463</td>
<td>99,534</td>
</tr>
<tr>
<td>SN/STR Unit (8)</td>
<td>10</td>
<td>8,291,239</td>
<td>186,137</td>
</tr>
<tr>
<td>Vent Unit (1)</td>
<td>1</td>
<td>125,374</td>
<td>10,317</td>
</tr>
<tr>
<td><strong>Total (18)</strong></td>
<td>21</td>
<td>25,532,293</td>
<td>417,872</td>
</tr>
<tr>
<td><strong>CLABSI Temporary Line</strong> - Resident has a central line (temporary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (1)</td>
<td>1</td>
<td>2,096,654</td>
<td>5,335</td>
</tr>
<tr>
<td>Mixed Unit (7)</td>
<td>8</td>
<td>7,089,563</td>
<td>116,549</td>
</tr>
<tr>
<td>Nursing Unit (2)</td>
<td>2</td>
<td>7,929,463</td>
<td>99,534</td>
</tr>
<tr>
<td>SN/STR Unit (7)</td>
<td>9</td>
<td>8,291,239</td>
<td>186,137</td>
</tr>
<tr>
<td>Vent Unit (1)</td>
<td>1</td>
<td>125,374</td>
<td>10,317</td>
</tr>
<tr>
<td><strong>Total (18)</strong></td>
<td>21</td>
<td>25,532,293</td>
<td>417,872</td>
</tr>
<tr>
<td><strong>CLABSI Permanent Line</strong> - Resident has an implanted line (port or tunneled line, not used for dialysis)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (0)</td>
<td></td>
<td>2,096,654</td>
<td>5,335</td>
</tr>
<tr>
<td>Mixed Unit (1)</td>
<td>1</td>
<td>7,089,563</td>
<td>116,549</td>
</tr>
<tr>
<td>Nursing Unit (2)</td>
<td>2</td>
<td>7,929,463</td>
<td>99,534</td>
</tr>
<tr>
<td>SN/STR Unit (7)</td>
<td>9</td>
<td>8,291,239</td>
<td>186,137</td>
</tr>
<tr>
<td>Vent Unit (0)</td>
<td></td>
<td>125,374</td>
<td>10,317</td>
</tr>
<tr>
<td><strong>Total (10)</strong></td>
<td>12</td>
<td>25,532,293</td>
<td>417,872</td>
</tr>
<tr>
<td><strong>Total Device-Related Bloodstream Infections</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (1)</td>
<td>1</td>
<td>2,096,654</td>
<td>5,335</td>
</tr>
<tr>
<td>Mixed Unit (15)</td>
<td>15</td>
<td>7,089,563</td>
<td>116,549</td>
</tr>
<tr>
<td>Nursing Unit (6)</td>
<td>8</td>
<td>7,929,463</td>
<td>99,534</td>
</tr>
<tr>
<td>SN/STR Unit (21)</td>
<td>28</td>
<td>8,291,239</td>
<td>186,137</td>
</tr>
<tr>
<td>Vent Unit (2)</td>
<td>2</td>
<td>125,374</td>
<td>10,317</td>
</tr>
<tr>
<td><strong>Total (42)</strong></td>
<td>54</td>
<td>25,532,293</td>
<td>417,872</td>
</tr>
</tbody>
</table>

¹Rate calculation: number of infections + number of resident days x 1000
SN/STR Unit = Skilled Nursing/ Short-Term Rehabilitation Unit
Vent Unit = Ventilator Dependent Unit
Figure 7. Bloodstream Infections, by Subcategory, 2015-2017

<table>
<thead>
<tr>
<th>Year</th>
<th>Subcategory</th>
<th>Reports 2015</th>
<th>Reports 2016</th>
<th>Reports 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Resident has a permanent line (port or tunneled line, not used for dialysis)</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2015</td>
<td>Resident has a central line (temporary)</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2015</td>
<td>Resident has a vascular catheter used for dialysis access</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 8. Bloodstream Infections, by Care Unit, 2015-2017

<table>
<thead>
<tr>
<th>Year</th>
<th>Care Unit</th>
<th>Reports 2015</th>
<th>Reports 2016</th>
<th>Reports 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Dementia Unit</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2015</td>
<td>Mixed Unit</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2015</td>
<td>Nursing Unit</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2015</td>
<td>Skilled Nursing/Short-Term Rehabilitation Unit</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2015</td>
<td>Ventilator Dependent Unit</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
The Authority uses resident days in lieu of ventilator days in rate calculations because ventilator use may vary among patients (i.e., patients may only use ventilators nocturnally as a component of long-term weaning efforts). As such, normalization rates for ventilator-dependent units may be underestimated.

Table 4. Respiratory Tract Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2017

<table>
<thead>
<tr>
<th>Unit Name (n)</th>
<th>Number of Infections</th>
<th>Resident Days</th>
<th>Pooled Infection Rate (95% C.I.) ‡</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Influenza (flu)</strong></td>
<td>the resident has tested positive for flu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (18)</td>
<td>106</td>
<td>2,096,654</td>
<td>0.05 (0.04 - 0.06)</td>
</tr>
<tr>
<td>Mixed Unit (40)</td>
<td>539</td>
<td>7,089,563</td>
<td>0.08 (0.07 - 0.08)</td>
</tr>
<tr>
<td>Nursing Unit (45)</td>
<td>512</td>
<td>7,929,463</td>
<td>0.06 (0.06 - 0.07)</td>
</tr>
<tr>
<td>SN/STR Unit (62)</td>
<td>561</td>
<td>8,291,239</td>
<td>0.07 (0.06 - 0.07)</td>
</tr>
<tr>
<td>Vent Unit (1)</td>
<td>1</td>
<td>125,374</td>
<td>0.01 (0 - 0.02)</td>
</tr>
<tr>
<td><strong>Total (81)</strong></td>
<td>1,719</td>
<td>25,532,293</td>
<td>0.07 (0.06 - 0.07)</td>
</tr>
<tr>
<td><strong>Flu</strong></td>
<td>fever, flu is suspected. Testing for flu is negative or not performed, there may be a dry cough, but no other overt signs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (9)</td>
<td>14</td>
<td>2,096,654</td>
<td>0.01 (0 - 0.01)</td>
</tr>
<tr>
<td>Mixed Unit (13)</td>
<td>83</td>
<td>7,089,563</td>
<td>0.01 (0.01 - 0.01)</td>
</tr>
<tr>
<td>Nursing Unit (17)</td>
<td>42</td>
<td>7,929,463</td>
<td>0.01 (0 - 0.01)</td>
</tr>
<tr>
<td>SN/STR Unit (29)</td>
<td>55</td>
<td>8,291,239</td>
<td>0.01 (0 - 0.01)</td>
</tr>
<tr>
<td>Vent Unit (0)</td>
<td>0</td>
<td>0</td>
<td>0 (0 - 0)</td>
</tr>
<tr>
<td><strong>Total (137)</strong></td>
<td>194</td>
<td>25,532,293</td>
<td>0.01 (0.01 - 0.01)</td>
</tr>
<tr>
<td><strong>Lower Respiratory Tract Infection</strong></td>
<td>chest radiograph is negative for pneumonia/new infiltrate &amp; no fever; or no chest radiograph performed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (81)</td>
<td>265</td>
<td>2,096,654</td>
<td>0.13 (0.11 - 0.14)</td>
</tr>
<tr>
<td>Mixed Unit (137)</td>
<td>903</td>
<td>7,089,563</td>
<td>0.13 (0.12 - 0.14)</td>
</tr>
<tr>
<td>Nursing Unit (152)</td>
<td>892</td>
<td>7,929,463</td>
<td>0.11 (0.11 - 0.12)</td>
</tr>
<tr>
<td>SN/STR Unit (198)</td>
<td>1077</td>
<td>8,291,239</td>
<td>0.13 (0.12 - 0.14)</td>
</tr>
<tr>
<td>Vent Unit (9)</td>
<td>35</td>
<td>125,374</td>
<td>0.28 (0.19 - 0.37)</td>
</tr>
<tr>
<td><strong>Total (426)</strong></td>
<td>3,172</td>
<td>25,532,293</td>
<td>0.12 (0.12 - 0.13)</td>
</tr>
<tr>
<td><strong>Pneumonia (PNA)</strong></td>
<td>chest radiograph is positive for pneumonia or a new infiltrate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (120)</td>
<td>375</td>
<td>2,096,654</td>
<td>0.18 (0.16 - 0.2)</td>
</tr>
<tr>
<td>Mixed Unit (186)</td>
<td>1692</td>
<td>7,089,563</td>
<td>0.24 (0.23 - 0.25)</td>
</tr>
<tr>
<td>Nursing Unit (206)</td>
<td>1,648</td>
<td>7,929,463</td>
<td>0.21 (0.2 - 0.22)</td>
</tr>
<tr>
<td>SN/STR Unit (283)</td>
<td>2,001</td>
<td>8,291,239</td>
<td>0.24 (0.23 - 0.25)</td>
</tr>
<tr>
<td>Vent Unit (9)</td>
<td>92</td>
<td>125,374</td>
<td>0.73 (0.58 - 0.88)</td>
</tr>
<tr>
<td><strong>Total (198)</strong></td>
<td>5,808</td>
<td>25,532,293</td>
<td>0.23 (0.22 - 0.23)</td>
</tr>
<tr>
<td><strong>Total Respiratory Tract Infections</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dementia Unit (136)</td>
<td>760</td>
<td>2,096,654</td>
<td>0.36 (0.34 - 0.39)</td>
</tr>
<tr>
<td>Mixed Unit (194)</td>
<td>3217</td>
<td>7,089,563</td>
<td>0.45 (0.44 - 0.47)</td>
</tr>
<tr>
<td>Nursing Unit (217)</td>
<td>3094</td>
<td>7,929,463</td>
<td>0.39 (0.38 - 0.4)</td>
</tr>
<tr>
<td>SN/STR Unit (303)</td>
<td>3694</td>
<td>8,291,239</td>
<td>0.45 (0.43 - 0.46)</td>
</tr>
<tr>
<td>Vent Unit (11)</td>
<td>128</td>
<td>125,374</td>
<td>1.02 (0.84 - 1.2)</td>
</tr>
<tr>
<td><strong>Total (577)</strong></td>
<td>10,893</td>
<td>25,532,293</td>
<td>0.43 (0.42 - 0.43)</td>
</tr>
</tbody>
</table>

‡Rate calculation: number of infections / number of resident days x 1000
SN/STR Unit = Skilled Nursing/Short-Term Rehabilitation Unit
Vent Unit = Ventilator-Dependent Unit
Figure 11. Lower Respiratory Tract Infection Rates by Care Unit, by Year

Figure 12. Pneumonia Rates by Care Unit, by Year
Gastrointestinal infections in 2017 were primarily attributed to *Clostridium difficile* (*C. difficile*) and norovirus. There were few reports of bacterial gastrointestinal infections.

### Table 5. Gastrointestinal Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2017

<table>
<thead>
<tr>
<th>Unit Name (n)</th>
<th>Number of Infections</th>
<th>Resident Days</th>
<th>Pooled Infection Rate (95% C.I.)</th>
</tr>
</thead>
</table>
| **Clostridium difficile**

- Diarrhea and a stool sample is positive for *C. difficile* toxin A or B, or a toxin producing *C. difficile* organism is identified from stool culture or by molecular testing; or, Pseudomembranous colitis identified through endoscopic examination, surgery, or biopsy.

- Dementia Unit (25) | 53 | 2,096,654 | 0.03 (0.02 - 0.03) |
- Mixed Unit (137) | 453 | 7,089,563 | 0.06 (0.06 - 0.07) |
- Nursing Unit (144) | 394 | 7,929,463 | 0.05 (0.04 - 0.05) |
- SN/STR Unit (240) | 885 | 8,291,239 | 0.11 (0.1 - 0.11) |
- Vent Unit (8) | 33 | 125,374 | 0.26 (0.17 - 0.35) |
| Total (453) | 1,818 | 25,532,293 | 0.07 (0.07 - 0.07) |

| **Norovirus**

- Diarrhea and/or vomiting and laboratory results are positive for Norovirus.

- Dementia Unit (3) | 14 | 2,096,654 | 0.01 (0 - 0.01) |
- Mixed Unit (8) | 21 | 7,089,563 | 0 (0 - 0) |
- Nursing Unit (11) | 43 | 7,929,463 | 0.01 (0 - 0.01) |
- SN/STR Unit (9) | 31 | 8,291,239 | 0 (0 - 0.01) |
- Vent Unit (0) | | 125,374 | 0 (0 - 0) |
| Total (26) | 109 | 25,532,293 | 0 (0 - 0.01) |

| **Bacterial gastroenteritis**

- Diarrhea and/or vomiting and laboratory results are positive for a bacteriologic pathogen.

- Dementia Unit (2) | 5 | 2,096,654 | 0 (0 - 0) |
- Mixed Unit (9) | 10 | 7,089,563 | 0 (0 - 0) |
- Nursing Unit (5) | 5 | 7,929,463 | 0 (0 - 0) |
- SN/STR Unit (12) | 12 | 8,291,239 | 0 (0 - 0) |
- Vent Unit (0) | | 125,374 | 0 (0 - 0) |
| Total (26) | 32 | 25,532,293 | 0 (0 - 0) |

| **Norovirus**

- Suspected based on Kaplan criteria; the resident has diarrhea and/or vomiting and *C. difficile* results are negative.

- Dementia Unit (17) | 148 | 2,096,654 | 0.07 (0.06 - 0.08) |
- Mixed Unit (23) | 362 | 7,089,563 | 0.05 (0.05 - 0.06) |
- Nursing Unit (26) | 336 | 7,929,463 | 0.04 (0.04 - 0.05) |
- SN/STR Unit (36) | 529 | 8,291,239 | 0.06 (0.06 - 0.07) |
- Vent Unit (0) | | 125,374 | 0 (0 - 0) |
| Total (74) | 1,375 | 25,532,293 | 0.05 (0.05 - 0.06) |

| **Total Reported Gastrointestinal Infections**

<table>
<thead>
<tr>
<th>Unit Name (n)</th>
<th>Number of Infections</th>
<th>Resident Days</th>
<th>Pooled Infection Rate (95% C.I.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dementia Unit (42)</td>
<td>220</td>
<td>2,096,654</td>
<td>0.1 (0.09 - 0.12)</td>
</tr>
<tr>
<td>Mixed Unit (144)</td>
<td>846</td>
<td>7,089,563</td>
<td>0.12 (0.11 - 0.13)</td>
</tr>
<tr>
<td>Nursing Unit (153)</td>
<td>778</td>
<td>7,929,463</td>
<td>0.1 (0.09 - 0.11)</td>
</tr>
<tr>
<td>SN/STR Unit (255)</td>
<td>1457</td>
<td>8,291,239</td>
<td>0.18 (0.17 - 0.18)</td>
</tr>
<tr>
<td>Vent Unit (8)</td>
<td>33</td>
<td>125,374</td>
<td>0.26 (0.17 - 0.35)</td>
</tr>
<tr>
<td>Total (471)</td>
<td>3,334</td>
<td>25,532,293</td>
<td>0.13 (0.13 - 0.14)</td>
</tr>
</tbody>
</table>

---

‡Rate calculation: number of infections + number of resident days x 1000

SN/STR Unit = Skilled Nursing/Short-Term Rehabilitation Unit

Vent Unit = Ventilator-Dependent Unit
Figure 13. *Clostridium difficile*, Rates by Care Unit, by Year

**RATES PER 1,000 RESIDENT DAYS**

- Upper Confidence Limit (95%)
- Lower Confidence Limit (95%)
- Rate (per 1,000 resident days)

Figure 14. Norovirus Outbreaks by Month, 2017

<table>
<thead>
<tr>
<th>Month</th>
<th>Number of Outbreaks</th>
<th>Number of Cases Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>34</td>
<td>506</td>
</tr>
<tr>
<td>Feb</td>
<td>25</td>
<td>370</td>
</tr>
<tr>
<td>Mar</td>
<td>17</td>
<td>249</td>
</tr>
<tr>
<td>Apr</td>
<td>5</td>
<td>54</td>
</tr>
<tr>
<td>May</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Jun</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Jul</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Aug</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sep</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Oct</td>
<td>0</td>
<td>85</td>
</tr>
<tr>
<td>Nov</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Dec</td>
<td>12</td>
<td>159</td>
</tr>
</tbody>
</table>
Two and a half years before the Patient Safety and Quality Improvement Act was signed into federal law, the Patient Safety Authority was founded to improve the quality of healthcare in Pennsylvania. Three employees accepted a seemingly unachievable challenge—define patient safety, develop a system to track it, and foster a reporting culture across 1,200 facilities. Fifteen years later, the Authority has surpassed all expectations. While staying true to its mission of preventing harm across the Commonwealth, the Authority has emerged as a trusted leader in patient safety nationally and abroad. In 2017 alone, almost 13,000 individuals attended an education session. More than 4,000 people worldwide read the Patient Safety Advisory, and Authority staff spoke at thirteen national conferences. Thanks to these efforts, healthcare facilities have been saving hundreds of lives and millions of dollars every year.¹

The Authority’s success has come from its willingness to adapt to the ever-shifting healthcare environment. Frontline providers are facing increasing demands, sicker patients, and fewer resources. Rather than expecting them to conform to traditional paradigms, the Authority transformed its offerings to maximize its effectiveness while minimizing time requirements. Webinars, social media, and mobile-friendly content are used routinely to provide life-saving information at the bedside.

With innovation as a core value, the Authority will continue to revolutionize patient safety and advance healthcare across Pennsylvania, the United States, and the world.

Collaboratives
Antibiotic Stewardship, Anesthesiology, & HIIN

Antibiotic Stewardship

Evidence shows that antibiotics are some of the most commonly ordered but misused medications in nursing homes, with 40 to 75% prescribed without the presence of a bacterial infection.

To remedy this, infection preventionists from the Authority partnered with 31 LTC facilities across Southeastern and Southcentral Pennsylvania to develop, implement, and sustain an antibiotic stewardship program.

Through this collaborative, facilities receive personalized on-site consultation, access to a webinar series, monthly coaching calls, and robust data analysis.

The goals of this program are to achieve an overall 10% decrease in:

- Urine cultures and antibiotics ordered for asymptomatic bacteriuria
- Urinary tract infections (UTIs) that are treated with antibiotics but do not meet clinical criteria for a UTI
- Urine cultures performed and new antibiotic orders for UTIs

This 15-month collaborative began in September 2017. The first three months (September through November) consisted of on-boarding participants and collecting baseline data. December 2017 through August 2018 marks the implementation phase, with an additional three-month phase for sustainability.

Wrong-site Anesthesia Nerve Blocks

From July 1, 2004 to December 31, 2016, wrong-site nerve blocks comprised 25.9% of all wrong-site procedures reported through the Pennsylvania Patient Safety Reporting System (PA-PSRS). This percentage is notable given that only a fraction of patients who are vulnerable to wrong-site surgery receive anesthesia in the form of blocks.

The Authority partnered with the Pennsylvania Society of Anesthesiologists for the following:

- To evaluate current practices for preventing wrong site/side blocks through interviews with expert panel members and stakeholders including, anesthesiologists, surgeons, nurses, and patient representatives
- To conduct a systematic literature review that will be used as a knowledge base for developing a guidance document
- To draft and disseminate guidance and resource document(s) to address wrong-site/side regional anesthesia block prevention for physicians, nurses, and healthcare facilities
The Authority continued its partnership with the Hospital and Healthsystem Association of Pennsylvania (HAP) for the Hospital Improvement Innovation Network (HIIN) under contract with CMS. The goals of the HIINs are to achieve a 20% decrease in overall patient harm and a 12% reduction in 30-day readmissions from the 2014 baseline.

The Authority managed three focus areas: 1) adverse drug events (ADE), 2) injury falls and immobility, and 3) culture of safety.

At the end of September, the Authority transitioned management for reducing Emergency Department (ED) radiologic diagnostic error to the Health Care Improvement Foundation (HCIF), but maintained active involvement.

**ADVERSE DRUG EVENTS**
Adverse drug events include medication errors or unexpected reactions. Resources provided to these participating organizations included:
- Education opportunities such as webinars and one-on-one coaching calls
- Tip sheets developed to reinforce methods for data collection, reporting, and outcome measurement
- Project-specific outcome and process measures worksheet
- Newsletters from the Institute for Safe Medication Practices and relevant journal articles

**INOJURY FALLS & IMMOBILITY**
One of the most commonly reported serious events by Pennsylvania hospitals are patient falls with injury. Participants in this collaborative received:
- Patient Safety Authority post-fall investigation tool, self-assessment, subsequent action plan, point prevalence audits
- Networking regional meetings, webinars, coaching calls, on-site consultation
- Data analysis and trend identification
- Facility needs assessment

**CULTURE OF SAFETY**
A culture of safety is the foundation for reducing harm and proving the quality of care. This collaborative was open to all HAP HIIN enrolled facilities. Resources provided to participants included:
- Participation in a safety leadership simulation managed by the Johns Hopkins University School of Medicine
- Collaboration with Person and Family Engagement for shared learning opportunities
- Partnership with the American Institute of Researchers and the Institute for Patient and Family Centered Care to develop a pre-admission patient checklist

**DIAGNOSTIC ERROR**
Reducing diagnostic error is an emerging area of study and continues to be a focus for the Authority. Participants received:
- Webinars and on-site consultation
- Establishment of a multidisciplinary stakeholder meeting with participants including radiologists, technologists, emergency medicine physicians, nurses, and executive leadership
- Development of a process to identify and measure diagnostic errors
- Selection of measurable targets, including two process measures and one outcome measure, with analysis that began in November 2017

The analyses upon which this publication is based were performed under contract number HHSM-500-2016-00066C, entitled, “Partnership for Patients Hospital Improvement Innovation Network Contract, sponsored by the Centers for Medicare & Medicaid Services, Department of Health and Human Services.”
Medication Safety
Preventing Error in Outpatient Pharmacies

Outpatient pharmacies exist in a variety of settings, including entities affiliated with or located within hospitals, health systems, and clinics, as well as freestanding pharmacies. These pharmacists provide a variety of services to the community, including dispensing prescriptions, administering immunizations, providing medication-therapy management, providing patient education, and making recommendations for over-the-counter medications.

When dispensing medications, pharmacists perform tasks that can be repetitive, yet require high levels of training and optimal performance under considerable time constraints. Dispensing a prescription can involve more than 40 separate steps. Combine this with the distractions from telephones, emails, customers, and supervising technicians, and a system emerges that is perfectly positioned to facilitate errors at any step in dispensing process.

The outpatient pharmacy setting provides a unique problem where errors might go unnoticed for a significant period of time. Patients usually receive a 30- to 90-day supply of a prescription, which may cause them to take an incorrect therapy or dose for months. Potentially serious outcomes could occur as a result.

Analysis & Prevention Strategies

Analysts reviewed medication errors that occurred in outpatient pharmacy settings. Of the 1,044 errors, the top three event types were wrong drug (19.6%), incorrect medication list (17%), and wrong dose/overdosage (14.7%).

One of the key differences that was identified from an inpatient pharmacy was that once an error occurred in an outpatient setting, fewer clinicians handled the medication and could catch an error before it reached the patient. The final dispensed prescription was in the control of the patient rather than a nurse or healthcare practitioner.

In response, the team developed risk reduction strategies to prevent as many potential errors as possible before a medication reaches the patient. Some examples include:

- When searching for a drug in the pharmacy computer system during order entry, type the drug name using at least the first four or five letters and its strength.
- Implement barcode scanning to identify when the wrong product is selected from the shelf. Conduct audits to review compliance.
- Employ technological solutions that require the pharmacy to ask for the patient’s date of birth.
- Open the prescription bag and have the patient review the labels and contents of each prescription to verify that the medication is correct.
- Educate patients by using scripts and checklists, especially for high-alert medications. This should include a discussion of the medication’s purpose to help ensure the correct medication is being dispensed to the correct patient.
- Develop a continuous quality improvement program to enhance safety, identify and evaluate incidents, and enhance the efficiency and effectiveness of quality-related infrastructure.
Outpatient Pharmacy Medication Errors
By the Numbers

Reported Medication Errors, 2005-2016

1,044

Percent of Patients Receiving a Wrong Dose

12.7% of people received a wrong dose from an outpatient pharmacy. Of those, 82% took the wrong strength for at least a month. 18.2% of patients took at least one dose but less than a month’s worth of medication.

Top Three Event Types

Wrong Drug
Incorrect Medication List
Wrong Dose/Overdosage

Received the Wrong Dose for One or More Months
81.8%

Received a Dose at least Double Its Prescribed Strength
36.6%

Took an Incorrect Drug for at least One Month
36.1%

Wrong Patient Errors Involving a Home Delivery Service
35.4%

Received the Correct Dose but Incorrect Dosing Instructions
11.8%

Received a Dose Ten Times Its Prescribed Strength
3.9%

Where the Wrong Patient Error Occurred

Dispensing 73.9%
Order Entry 23.9%
Other 2.2%
Standardization
Pressure Injury Reporting

More than 2.5 million people develop a pressure injury each year in the United States, with almost 60,000 dying as a direct result. Costs for treatment range from $20,900 to $151,700 per pressure injury, with annual estimates totaling between $9.1 and $11.6 billion.

Though pressure injuries are an expensive, life-threatening condition, existing reporting practices varied widely among Pennsylvania facilities.

Pressure injuries are classified by their severity, or “stage”, ranging from Stage 1 (least severe) to Stage 4 (most severe). Stage 3 and 4 pressure injuries typically require specialized treatment, such as a consult from wound care nurses, and may place patients at an elevated risk of infection. Despite this, 80% of hospital-acquired Stage 3, 4, unstageable, and deep tissue injuries were being reported as incidents and not a serious event.

Additionally, 50% of reports related to pressure injuries were for those present on admission (POA), though only pressure injuries that occurred during a patient stay must be reported. Twenty percent of acute care hospitals weren’t reporting any pressure injuries, though it was unlikely that there were no incidents over the course of a year. These erratic and insufficient reporting practices made analyzing trends and developing prevention strategies difficult.

As such, the Authority and its Board of Directors identified standardization of pressure injury reporting as a priority. Collecting consistent and standardized reports of healthcare-acquired pressure injuries would allow the Authority to better understand the impact they have on patients and assist healthcare facilities with their prevention.

A draft guidance document was published in the Pennsylvania Bulletin 46 Pa.B. 6198 on October 1, 2016. Fifteen organizations provided feedback during the public comment period. The Authority, in collaboration with the Pennsylvania Department of Health (DOH), revised the reporting guidelines reflective of their comments.

A final guidance document was approved and published in the Pennsylvania Bulletin 47 Pa.B. 2163 on April 8, 2017. The final guidance went into effect on January 1, 2018 and contained five main reporting principles and a decision tree to assist healthcare facilities in reporting determinations.

Pressure Injuries
By the Numbers (US)

- Annual collective cost of treating pressure injuries: $11 billion
- Annual incidence of pressure injuries: 2.5 million
- Cost to treat each pressure injury can reach $152k
- Annual deaths directly attributed to pressure injuries: 60,000
- Percentage of Stage 3, 4, unstageable & deep tissue injuries reported as incidents: 80%
- Percentage of total pressure injury reports for wounds present on admission: 50%
- Percentage of acute care hospitals reporting zero pressure injuries: 20%

1https://www.ahrq.gov/professionals/systems/hospital/pressureulcertoolkit/putoolkit.html
PA-PSRS was modified to meet these reporting requirements. Online learning modules were also developed and made available to all Authority staff, DOH staff, and Pennsylvania healthcare facilities in November 2017. The online learning modules include education on the reporting requirements and pressure injuries prevention.
Why Are There so Many More Event Reports from Pennsylvania?

- The MCARE Act requires Pennsylvania healthcare facilities to report serious events and incidents to the Authority.
- Liaisons work closely with facilities to build a culture of safety.
- The Authority is the only state agency with a peer-reviewed journal focusing on patient safety.
- A dedicated team reviews millions of reports and alerts facilities of emerging trends, prompting further reporting.

The states in blue comprise the members of CHPSO, formerly the California Hospital Patient Safety Organization. 400 members are represented across ten states (WA, OR, CA, NV, AZ, NM, CO, TX, HI, RI). Total event reporting for 2016 was 234,711.

1https://indd.adobe.com/view/07687990-9790-48a8-a674-df213eced49b
3http://www.marylandpatientsafety.org/documents/jones.pdf (Data from FY16)
4https://www.jointcommission.org/assets/1/18/Summary_4Q_2017.pdf
5http://www.health.state.mn.us/patientsafety/ae/2017ahereport.pdf (Data from Oct 2015 to Oct 2016)

The total number of events reported to the Authority in 2016 was 248,166. Other report totals were: Florida (2,112); Maryland (342); Minnesota (336); New Jersey (627).
PA-PSRS is a secure, web-based system for healthcare facilities to submit reports confidentially. No patient or provider names are solicited, and no information about individual facilities is made public.

Reporters answer 22 core questions, including patient demographics, level of harm, if any, and event type. The report also collects details about “contributing factors,” such as staffing, clinical protocols, and the impact of health information technology (HIT). Users are asked to identify the root causes of serious events and to suggest procedures that can be implemented to prevent a recurrence.

Analysts review hundreds of thousands of event reports each year and alert healthcare facilities about any concerns and potential methods for prevention.

Additionally, the Authority developed robust analytics within PA-PSRS that allow each facility to assess their own data in real-time.

This section includes only reports of serious events and incidents. Although PA-PSRS collects information about infrastructure failures and any additional items (other), those reports are submitted only to the Department of Health. (See below.)

### Interpreting PA-PSRS Data

Several factors influence the number of reports submitted by a particular facility, of which each facility’s safety and quality are just two.

Other factors include facility size, case volume, services provided, patient case mix, severity of illness, understanding of what is reportable, and success in detecting reportable events. The following factors should be considered when reviewing PA-PSRS data:

- PA-PSRS has its own unique definitions for what is reportable. Because it uses a specific taxonomy of event types that may differ from other systems, it may be difficult to draw direct comparisons.

- Data is based on reports submitted through PA-PSRS between January 1, 2017 and December 31, 2017 (unless otherwise noted).

- The data is not adjusted to reflect facility openings, closings, or ownership changes. Unless otherwise noted, report counts are actual “raw numbers” and have not been adjusted for any facility- or patient-related factors.

- Broad explanations of why some event types predominate in aggregate data are complex, especially because each event type may relate to numerous and diverse clinical situations.
Total Event Reports, 2017 (Acute Care)  
271,872

Total Event Reports Since 2005  
3,036,933

Increase in Reports from 2016  
6.3%

Incidents, 2017  
263,991

Serious Events, 2017  
7,881

Most Frequently Reported Event Types, 2017  
Errors Related to Procedure/Test/Treatment (30%)  
Medication Errors (18%)

Incidents per Month  
21,999

Serious Events per Month  
657

Number of Reports Submitted Through PA-PSRS, 2017 (Acute Care)
Events types are divided into second- and third-level subcategories. For example, the category “Falls” includes a series of subcategories such as:

- Falls while Lying in Bed
- Falls while Ambulating
- Falls in the Hallways of the Facility
- Other Types of Falls

Although *errors related to procedure/treatment/test* (EPTT) was the most commonly reported event type, it was not the one most often associated with patient harm. *Complications of procedure/treatment/test* (CPTT) accounted for more than half (52%) of the serious events submitted in 2017.

CPTT has historically had the largest percentage of serious events with respective rates of 54% and 53% in 2015 and 2016. EPTT had the largest increase in number, 6,145 more reports than in 2016, a 8.3% increase. This equates to 38% of the total report submission increase in 2017.

---

**Table 1. Highest Percentage Increases by Event Subtype**

<table>
<thead>
<tr>
<th>EVENT TYPES</th>
<th>INCREASE FROM 2016</th>
<th>CHANGE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other - Miscellaneous/ Unanticipated transfer to higher level of care/ Inter-facility transfer to higher acuity facility or unit</td>
<td>1,531</td>
<td>133.0%</td>
</tr>
<tr>
<td>Patient Self-Harm/ Ingestion of foreign object or substance</td>
<td>86</td>
<td>72.9%</td>
</tr>
<tr>
<td>EPPT: Referral or consult problem/ Delay in scheduling</td>
<td>183</td>
<td>63.5%</td>
</tr>
<tr>
<td>EPPT: Respiratory care/ Ventilator settings wrong or changed without authorization</td>
<td>58</td>
<td>52.7%</td>
</tr>
</tbody>
</table>

**Table 2. Highest Percentage Decreases by Event Subtype**

<table>
<thead>
<tr>
<th>EVENT TYPES</th>
<th>DECREASE FROM 2016</th>
<th>CHANGE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Integrity/ Pressure ulcer/ Admitted from other facility with ulcer</td>
<td>-1,370</td>
<td>-29.9%</td>
</tr>
<tr>
<td>Medication error: Dose Omission</td>
<td>-746</td>
<td>-10.9%</td>
</tr>
<tr>
<td>Fall: Ambulating</td>
<td>-433</td>
<td>-7.6%</td>
</tr>
<tr>
<td>EPPT: Laboratory test problem/ Mislabeled specimen</td>
<td>-414</td>
<td>-8.5%</td>
</tr>
</tbody>
</table>

---

*This is not a single category of completely unclassified reports. It includes specific subcategories that did not logically fit under other existing groups. Examples include *inappropriate discharge* and *electrical shock to a patient*. 

---

PA-PSRS uses a taxonomy designed to answer the most basic question about an occurrence: “What type of event happened?” The complete event-type taxonomy is a three-level, hierarchical taxonomy with 222 distinct event types.
Control Charts – How Do You Show Change Over Time?

How do you know if changes that occurred over time happened by chance or were expected? One way to measure variation is with control charts—statistical models that take into account all known causes of variability to determine if a true impact occurred.

You take the subway each morning to head to class. Your commute normally lasts between 10-15 minutes, depending on how many people enter or exit at each stop. One day, the engine experiences an electrical problem, and it takes you 26 minutes to get to school. Just because your commute was longer than usual on that one day, there’s no reason to assume that it will continue to be longer in the future.

However, if your subway line is overly crowded and the city plans to build another station on your line, you should expect that this extended travel time will persist.

The same variability can happen with event reporting. By using control charts, we can assess whether the number of event reports increased in a given year because more events occurred, or if, perhaps, the culture of safety is improving and people are more apt to report something than they were before.

Any points that fall outside of the upper or lower control limits indicate that changes occurred outside of what was expected.

Reports by Facility Type

There was an increasing percentage of reports from non-hospital acute-level facilities—ambulatory surgical facilities, birthing centers, and abortion facilities (ASFs/BCs/ABFs)—compared with hospital reports from 2005 to 2017.

Figure 2. Number and Percentages of Reports by Acute Facility Types, 2005-2017
### Table 3. PA-PSRS Reports by Facility Type

<table>
<thead>
<tr>
<th></th>
<th>HOSPITALS</th>
<th>AMBULATORY SURGICAL FACILITIES</th>
<th>BIRTHING CENTERS/ABORTION FACILITIES</th>
<th>ALL ACUTE LEVEL FACILITIES</th>
<th>NURSING HOMES (HAI ONLY)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NUMBER OF REPORTS</strong></td>
<td>263,320</td>
<td>8,279</td>
<td>273</td>
<td>271,872</td>
<td>30,642</td>
<td>302,514</td>
</tr>
<tr>
<td><strong>NUMBER OF FACILITIES</strong></td>
<td>237</td>
<td>315</td>
<td>23</td>
<td>575</td>
<td>700</td>
<td>1,275</td>
</tr>
<tr>
<td><strong>% OF REPORTS</strong></td>
<td>87%</td>
<td>2.7%</td>
<td>0.1%</td>
<td>89.9%</td>
<td>10.1%</td>
<td>100%</td>
</tr>
</tbody>
</table>

#### Ambulatory Facility Trend

![Ambulatory Facility Trend Graph](image)

#### Hospital Trend

![Hospital Trend Graph](image)

#### Range

![Range Graph](image)
While CPTT comprises 13.8% of all reports in 2017, it comprises 52.5% of the reports of events involving harm, including those resulting in or contributing to the patient’s death. Examples of CPTT include:

- Pneumothorax following surgery or invasive procedure—56.4% involved harm
- Wound dehiscence following surgery or invasive procedure—51.3% involved harm
- Unplanned transfer to ICU following surgery or invasive procedure—46.1% involved harm

At the other end of the spectrum, although medication errors comprise 17.9% of reports in 2017, they comprise only 2.6% of reports involving harm and 2.4% of reports of events contributing to or resulting in death.

Harm score A is intended to identify “unsafe conditions” (i.e., there was an observed situation or hazard), and patient harm was a possibility if corrective action was not taken. EPTT was the event type where unsafe conditions were most often reported (48.3%).

The event type in which unsafe conditions were least frequently reported was adverse drug reactions (ADR). Of all ADR events, 0.2% were reported as unsafe conditions. Falls (0.9%) and self-harm (1.1%) each accounted for about 1% of submitted reports of unsafe conditions.

Harm scores of E through I are considered serious events, because a patient experienced some level of harm. Harm scores of G, H, and I are deemed high harm events because they are associated with permanent harm or death.

<table>
<thead>
<tr>
<th>HARM LEVEL</th>
<th>HARM SCORE</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsafe Conditions</td>
<td>A</td>
<td>Circumstances that could lead to an adverse event</td>
</tr>
<tr>
<td>Event, No Harm</td>
<td>B1, B2, C, D</td>
<td>Often called a “near miss,” an event that either did not reach the patient or did not cause harm</td>
</tr>
<tr>
<td>Event, Harm, excluding Death</td>
<td>E, F, G, H</td>
<td>An event that reached the patient and caused temporary or permanent harm</td>
</tr>
<tr>
<td>Event, Death</td>
<td>I</td>
<td>An event that resulted in or contributed to death</td>
</tr>
</tbody>
</table>

The reports at each level of harm typically follow a similar distribution by event type as they do in the database as a whole (e.g., Harm score C is generally the most frequently submitted harm score for each event type). However, not all event types adhere to this distribution.
Figure 4. Reports by Event Type and Level of Patient Harm, 2017

Figure 5. Number, Percentage Among Serious Events, and Trends of High Harm Events Reported by Acute-Level Facilities through PA-PSRS by Year, 2005-2017

NUMBER OF HIGH HARM EVENTS
Patient Demographics: Age and Gender

Overall reporting increased 4% during this time period, while the rate of reported serious events increased only slightly. This discrepancy may be the result of any number of contributing factors, including a decrease in patients seeking healthcare or an improving culture of safety where facilities are more likely to report an event than in the past.

Of the 271,872 reports submitted in 2017, 141,450 (52%) involved female patients, and 130,422 (48%) involved male patients. This proportion by gender is in line with the Authority’s reported trends since 2004 and with evidence in the medical literature.

However, 3% of reports classified as serious events involved female patients, as compared to 2.8% of reports involving males.
Event Type and Gender

The proportion of reports involving female patients was greater than 60% among reports of ADR and self-harm. The three event types involving a greater proportion of male patients in 2017 included equipment issues, falls, and skin integrity reports.

Age Cohorts - Neonatal Patients

In all, 9,602 reports involved neonatal hospital patients (those aged 20 days or younger), an increase of 1,072 reports (12.3%) from 2016. Less than 2% (1.3%) of neonatal reports were classified as serious events, noticeably lower than the overall serious event percentage of 2.9% for 2017. More than two-thirds (68.3%) of reports for neonatal patients were related to events of EPTT. Because of specialized needs based on age and size, these patients are proportionally more likely to experience errors or complications.

About one-sixth (16.8%) of reports involving neonatal patients were related to medication errors. There is a slight but consistent decline in the percentage of reports involving medication errors since 2005 for this age cohort. CPTT accounted for 74.4% of the serious events in this age group, which was somewhat higher than for this event type in 2016 (73.3%).

Eighty percent are neonatal complications, such as birth injury or trauma (n = 44), other (n = 12), unplanned transfer to the neonatal intensive care unit (NICU; n = 6) and Apgar score <5 at 5 minutes (n = 6). Apgar score is a method to quickly summarize the physical condition of a newborn. Measures include heart rate, muscle tone, and skin coloration.

Age Cohorts - Patients 65 or Older

These patients account for 38.5% of hospital reports in 2017, 2.5% less than in 2016. Some highlights include:

- Since 2014, fewer than 50% of reported falls have involved patients 65 or older.
- Hospital patients 65 or older accounted for 71.2% of skin integrity reports, including pressure injuries, in 2009. This figure fell to 63.7% in 2017.

The decline in pressure injury reports may reflect the effect of standardization and exclusions in reporting (i.e., “It is not necessary to report a serious event that occurred in another healthcare setting”).

Age Cohorts - Children and Adolescents

52,965 reports involved children and adolescents (i.e., patients younger than 21 years) in hospitals. This total is 13.5% higher compared to 2016. The top two report types were EPTT (accounting for 35.0% of the reports of this population), and medication errors, at 30.0%. CPTT made up 47.7% of the 457 serious events for this age group.
Figure 9. Percentage of Medication Errors among All Event Types Involving Neonatal Hospital Patients (20 Days or Younger), 2005-2017

Figure 10. Percentage of Reports of Event Types Involving Hospital Patients Age 65 or older

PERCENTAGE OF REPORTS

- Falls
- Skin Integrity
- Total Reports
Table 4. Top Three Complication of Procedure/Test/Treatment Subtypes, by Percentage of Serious Events among Children and Adolescents, 2017

<table>
<thead>
<tr>
<th>SERIOUS EVENTS FOR CHILDREN &amp; ADOLESCENTS (HOSPITALS)</th>
<th>SERIOUS EVENTS</th>
<th>SERIOUS EVENTS (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complications of Procedures/Treatments/Tests (CPTT) Top 3 by Percentage Listed</td>
<td>218</td>
<td>47.7%</td>
</tr>
<tr>
<td>Neonatal complication/Birth injury or trauma</td>
<td>44</td>
<td>9.6%</td>
</tr>
<tr>
<td>Complication following surgery or invasive procedure/Unplanned return to Operating Room</td>
<td>30</td>
<td>6.6%</td>
</tr>
<tr>
<td>Complication following surgery or invasive procedure/Other</td>
<td>24</td>
<td>5.3%</td>
</tr>
</tbody>
</table>

Reports by Location/Department (Hospitals)

PA-PSRS has 155 designated care areas for hospitals that indicate the locations or departments in which a patient receives or is exposed to care.

The care areas designated as Critical Care and general medical/surgical units represented the greatest number of overall reports submitted in 2017, each generating nearly one-fifth of the total.

Other hospital locations with high report rates were Pediatrics, Surgical Services, and intermediate units. Although most hospital reports were submitted from Critical Care and general medical/surgical units, the greatest number of serious events came from Surgical Services, accounting for nearly one-third of serious events.

However, the care areas with the highest proportion of serious events per submitted report were Diagnostics/Lab and Surgical Services.

Table 5. Percentage of Submitted Reports by Location/Department (Hospitals Only), 2017

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>% OF REPORTS</th>
<th>UNIT</th>
<th>% OF REPORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Care</td>
<td>18.4%</td>
<td>Inpatient Psychiatric</td>
<td>4.3%</td>
</tr>
<tr>
<td>General Med./Surg.</td>
<td>16.8%</td>
<td>Outpatient Clinics</td>
<td>3.2%</td>
</tr>
<tr>
<td>Pediatric Care</td>
<td>12.3%</td>
<td>Obstetrical Care</td>
<td>3.0%</td>
</tr>
<tr>
<td>Surgical Services</td>
<td>9.7%</td>
<td>Physical Plant</td>
<td>2.3%</td>
</tr>
<tr>
<td>Intermediate Unit</td>
<td>7.1%</td>
<td>Diagnostic/Labs</td>
<td>1.6%</td>
</tr>
<tr>
<td>Specialty Units</td>
<td>5.6%</td>
<td>Rehab Services</td>
<td>0.8%</td>
</tr>
<tr>
<td>Ancillary Departments</td>
<td>5.4%</td>
<td>Extended Care</td>
<td>0.4%</td>
</tr>
<tr>
<td>Radiology Services</td>
<td>4.5%</td>
<td>Administration</td>
<td>0.2%</td>
</tr>
<tr>
<td>Inpatient Rehab</td>
<td>4.3%</td>
<td>Chemical Dependency</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

Table 6. Number and Percentage of Serious Events among all Serious Events and of Submitted Reports, by Percentage, by Care Area Location (Hospitals Only), 2017

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>SERIOUS EVENTS</th>
<th>TOTAL</th>
<th>SERIOUS EVENTS BY GROUP</th>
<th>SERIOUS EVENTS (% of TOTAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostic/Labs</td>
<td>333</td>
<td>4,220</td>
<td>7.9%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Surgical Services</td>
<td>1,807</td>
<td>25,642</td>
<td>7.0%</td>
<td>29.8%</td>
</tr>
<tr>
<td>Chemical Dependency</td>
<td>12</td>
<td>332</td>
<td>3.6%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Obstetrical Care</td>
<td>255</td>
<td>7,883</td>
<td>3.2%</td>
<td>4.2%</td>
</tr>
<tr>
<td>14 other care groups</td>
<td>3,655</td>
<td>225,243</td>
<td>1.6%</td>
<td>60.3%</td>
</tr>
</tbody>
</table>
Depicting the volume of serious events and incidents on a relative scale (25:1) shows that the volume of serious events has increased somewhat over the long term, but not as sharply as the volume of incidents.

Guidance published in April 2015 clarified interpretations of the serious event definition and its component terms may have been temporally associated with changes in reporting of these events.

The data suggests that the timing of the guidance was associated with decreased variability and greater standardization in the number of serious events reported.
Despite this increase, the general trend still shows a decreasing number of patient deaths since 2005. The majority of reports involving a patient’s death are associated with CPTT. Although only 15% of all reports in 2017 were attributed to CPTT, 56.5% of all reports about patient death were related to a complication.

Of the reports involving death associated with complications, the majority describe patients who died after surgery or another invasive procedure (38.1%), with the next highest percentages reported as patients who suffered cardiopulmonary arrest outside the intensive care unit (ICU) setting (14.4%) and other complications (8.6%).

**Figure 13. Number of Death Events Reported by Acute-Level Facilities by Quarter, 2012-2017**

![Graph showing number of death events reported by quarter from 2012 to 2017.](image)

Even as overall reporting increased by 10.2% between 2012 and 2017, the number of reported deaths fell by 2.7% (256 reported deaths in 2012 to 243 in 2017).

Deaths associated with falls experienced the highest rate of decline (72%) during that time. (See Figure 15.)

**Figure 14. Trend of Death Events Reported by Acute-Level Facilities by Quarter, 2005-2017**

![Graph showing trend of death events reported over several years.](image)
Summary

The data presented in this section suggest that healthcare facilities in the Commonwealth continue to make progress in their efforts to identify and report patient safety events. The increased reporting may suggest earlier recognition and proactive mitigation of hazards with fewer events reaching the patient and causing serious harm.

Increase in Events Reports from 2016

6.3%

Increase in Reported Incidents from 2016

6.4%

Increase in Reported Serious Events from 2016

4.4%

Percentage of Reports Involving a Patient’s Death, 2017

0.09%
For this report, Pennsylvania was divided into six regions based on DOH’s Public Health Districts. The differences in events reported by region may be explained by noting variation of reporting patterns, i.e., more reports may be submitted in regions with larger populations and greater numbers of healthcare facilities.

However, Figure 17 shows that when factoring in the volume of care, hospitals in the Northwest and Southcentral regions reported the highest number of incidents per 1,000 patient days.

Many factors contribute to reporting variation. It would be speculative to consider facilities in any of the regions as more or less safe than those in other regions based solely on this data. The data is also not risk-adjusted. Larger numbers of reports may mean that the healthcare providers in certain facilities or regions were better at identifying and reporting potential patient safety issues.

*Based upon publicly available data from the website of the Pennsylvania Health Care Containment Council (www.PHC4.org). Estimates based on statewide inpatient data from 2016.

### Table 7. Total Reports from Hospitals and Reports per 1,000 Patient Days by Region, 2016-2017

<table>
<thead>
<tr>
<th>REGION</th>
<th>TOTAL REPORTS</th>
<th>REPORTS PER 1,000 PT DAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2016</td>
<td>2017</td>
</tr>
<tr>
<td>Northwest</td>
<td>18,638</td>
<td>20,929</td>
</tr>
<tr>
<td>Northcentral</td>
<td>15,749</td>
<td>16,212</td>
</tr>
<tr>
<td>Northeast</td>
<td>26,967</td>
<td>28,942</td>
</tr>
<tr>
<td>Southeast</td>
<td>84,938</td>
<td>88,275</td>
</tr>
<tr>
<td>Southcentral</td>
<td>37,977</td>
<td>43,009</td>
</tr>
<tr>
<td>Southwest</td>
<td>63,299</td>
<td>65,953</td>
</tr>
</tbody>
</table>
Northwest

12% Change in Total Hospital Event Reports from 2016 to 2017

15 SURGERY CENTERS
75 NURSING HOMES
25 HOSPITALS
0 BIRTHING CENTERS/ABORTION FACILITIES

Reports from Hospitals per 1,000 Estimated Patient Days in 2017

- 42.0 INCIDENTS
- 1,000 PATIENT DAYS
- 1.0 SERIOUS EVENTS
- 1,000 PATIENT DAYS

Most Common Types of Reported Events in 2017

1. Error Related to a Procedure, Treatment, or Test: e.g., incorrectly placing a central line
2. Other: e.g., patient experienced an electroshock in the waiting area
3. TIE: Medication Error/Complication Related to a Procedure, Treatment, or Test
4. Fall: e.g., a patient slipped on a wet floor when entering the building
3% Change in Total Hospital Event Reports from 2016 to 2017

15 SURGERY CENTERS
47 NURSING HOMES
21 HOSPITALS
0 BIRTHING CENTERS/ABORTION FACILITIES

33.0 INCIDENTS
1,000 PATIENT DAYS
1.8 SERIOUS EVENTS
1,000 PATIENT DAYS

Most Common Types of Reported Events in 2017

1. Error Related to a Procedure, Treatment, or Test: e.g., incorrectly ordering an MRI instead of an x-ray
2. Complication Related to a Procedure, Treatment, or Test: e.g., a skin tear caused by a mammogram
3. Medication Error: e.g., ordering the wrong medication or an incorrect dose for a patient
4. Other: e.g., a patient incorrectly received a food tray with a known allergen
Northeast

7%
Change in Total Hospital Event Reports from 2016 to 2017

40 SURGERY CENTERS
90 NURSING HOMES
29 HOSPITALS
2 BIRTHING CENTERS/ABORTION FACILITIES

Reports from Hospitals per 1,000 Estimated Patient Days in 2017

25.6 INCIDENTS
1,000 PATIENT DAYS
0.8 SERIOUS EVENTS
1,000 PATIENT DAYS

Most Common Types of Reported Events in 2017

1. Error Related to a Procedure, Treatment, or Test: e.g., incorrectly placing a central line
2. Complication Related to a Procedure, Treatment, or Test: e.g., an undiscovered allergy to a device
3. TIE: Fall/Skin Integrity: e.g., a fall from bed or a pressure injury
4. Medication Error: e.g., two known lookalike drugs were stored next to each other

Percentage of Reports Submitted by Hospitals per Event Type

- Medication Error
- ADE (Not Med. Error)
- Equipment
- Fall
- Error: P/T/T*
- Complication: P/T/T*
- Transfusion
- Skin Integrity
- Patient Self-harm
- Other

Change in Total Hospital Event Reports from 2016 to 2017: 7%
Southeast

4%
Change in Total Hospital Event Reports from 2016 to 2017

144 SURGERY CENTERS
251 NURSING HOMES
79 HOSPITALS
16 BIRTHING CENTERS/ABORTION FACILITIES

Reports from Hospitals per 1,000 Estimated Patient Days in 2017

23.3 INCIDENTS
1,000 PATIENT DAYS
0.4 SERIOUS EVENTS
1,000 PATIENT DAYS

Most Common Types of Reported Events in 2017

1. Error Related to a Procedure, Treatment, or Test: e.g., mis-reading an MRI scan
2. Medication Error: e.g., administering a medication to a patient with a known allergy
3. Fall: e.g., a patient falls while ambulating after surgery
4. Complication Related to a Procedure, Treatment, or Test: e.g., a patient experienced a fracture during surgery

Percentage of Reports Submitted by Hospitals per Event Type
13% Change in Total Hospital Event Reports from 2016 to 2017

47 SURGERY CENTERS
93 NURSING HOMES
32 HOSPITALS
2 BIRTHING CENTERS/ABORTION FACILITIES

Reports from Hospitals per 1,000 Estimated Patient Days in 2017

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Incidents</th>
<th>Patient Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>38.5 INCIDENTS</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>0.9 SERIOUS EVENTS</td>
<td>1,000</td>
<td></td>
</tr>
</tbody>
</table>

Most Common Types of Reported Events in 2017

1. Error Related to a Procedure, Treatment, or Test: e.g., placing a central line on the wrong side

2. Medication Error: e.g., crushing a pill that delivers a time-released dosage

3. Complication Related to a Procedure, Treatment, or Test: e.g., pneumothorax following surgery or invasive procedure

4. Fall: e.g., a patient fell while attempting to get up from bed
4% Change in Total Hospital Event Reports from 2016 to 2017

- 55 Surgery Centers
- 144 Nursing Homes
- 51 Hospitals
- 3 Birthing Centers/Abortion Facilities

Reports from Hospitals per 1,000 Estimated Patient Days in 2017

- 31.2 Incidents
- 0.7 Serious Events
- 1,000 Patient Days

Most Common Types of Reported Events in 2017

1. Error Related to a Procedure, Treatment, or Test: e.g., contaminating a specimen during a biopsy
2. Complication Related to a Procedure, Treatment, or Test: e.g., Unplanned transfer to ICU following surgery or invasive procedure
3. Falls: e.g., a patient falls while toileting
4. Medication Error: e.g., a patient received an expired medication
Definitions
Key Terms Contained within This Report

ABORTION FACILITY
Act 30 of 2006 extended the reporting requirements in the Medical Care Availability and Reduction of Error (MCARE) Act to abortion facilities that perform more than 100 procedures per year. At the end of 2017, Pennsylvania had 19 qualifying abortion facilities.

ADVERSE EVENT
This term also appears in this report, although it is not defined in the MCARE Act. The Institute of Medicine Committee on Data Standards for Patient Safety defines an adverse event as follows: “An event that results in unintended harm to the patient by an act of commission or omission rather than by the underlying disease or condition of the patient.”

The Authority considers this term to be broader than “medical error,” because some adverse events may result from clinical care without necessarily involving an error.

Although PA-PSRS includes reports of events that result from errors, the Authority’s focus is on the broader scope of actual and potential adverse events, not only those that result from errors.

AMBULATORY SURGICAL FACILITY
The Health Care Facilities Act (HCFA) defines an ambulatory surgical facility (ASF) as “a facility or portion thereof not located upon the premises of a hospital which provides specialty or multi-specialty outpatient surgical treatment.

ASF does not include individual or group practice offices of private physicians or dentists, unless such offices have a distinct part used solely for outpatient treatment on a regular and organized basis. …Outpatient surgical treatment means surgical treatment to patients who do not require hospitalization but who require constant medical supervision following the surgical procedure performed.” At the end of 2017, there were 309 qualifying ASFs in Pennsylvania.

ANALYST
The analyst is a member of the Authority team with education and experience in medicine, nursing, pharmacy, product engineering, statistical analysis, and risk management. Analysts review events submitted through PA-PSRS and compose the majority of the articles included in the Patient Safety Advisory.

BIRTHING CENTER
The HCFA defines a birthing center as “a facility not part of a hospital which provides maternity care to child-bearing families not requiring hospitalization. A birth[ing] center provides a home-like atmosphere for maternity care, including prenatal labor delivery and postpartum care related to medically uncomplicated pregnancies.” At the end of 2017, Pennsylvania had six qualifying birthing centers.

HOSPITAL
The HCFA defines a hospital as “an institution having an organized medical staff established for the purpose of providing to inpatients, by or under the supervision of physicians, diagnostic and therapeutic services for the care of persons who are injured, disabled, pregnant, diseased, sick or mentally ill or rehabilitation services for the rehabilitation of persons who are injured, disabled, pregnant, diseased, sick or mentally ill. The term includes facilities for the diagnosis and treatment of disorders within the scope of specific medical specialties, but not facilities caring exclusively for the mentally ill.” At the end of 2017, Pennsylvania had 238 qualifying hospitals.

INCIDENT
An event which either did not reach the patient “near miss” or an event that did reach the patient but in which the level of harm did not require additional healthcare services. The legal definition from the MCARE Act: “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 health care services to the patient. The term does not include a serious event.”

INFRASTRUCTURE FAILURE
A potential patient safety issue associated with the physical plant of a health-care facility, the availability of clinical services, or criminal activity. The legal definition from the MCARE Act: “An undesirable or unintended event, occurrence or situation involving the infrastructure of a medical facility or the discontinuation or significant disruption of a service which could seriously compromise patient safety.” Infrastructure failures are submitted only to the Pennsylvania Department of Health (DOH) and are not addressed in this report.
MEDICAL ERROR
This term is commonly used when discussing patient safety, but it is not defined in the MCARE Act.

The word “error” appears in PA-PSRS and in this report. For example, one category of reports discussed is “medication errors.” The Institute of Medicine’s Committee on Data Standards for Patient Safety defines an error as the “failure of a planned action to be completed as intended (i.e., error of execution) or the use of a wrong plan to achieve an aim (i.e., error of planning).” It also includes failure of an unplanned action that should have been completed (omission).

“Within the MCARE Act, the term “medical error” is used in section 102: “Every effort must be made to reduce and eliminate medical errors by identifying problems and implementing solutions that promote patient safety.” It is also used in defining the scope of chapter 3, “Patient Safety”: “This chapter relates to the reduction of medical errors for the purpose of ensuring patient safety.”

NURSING HOME
Act 52 of 2007 revised the MCARE Act to require nursing homes to report healthcare-associated infections (HAIs) to the Authority. Specifically, the act states that “the occurrence of a healthcare-associated infection in a healthcare facility shall be deemed a serious event as defined in section 302.” Reporting from these facilities began in June 2009. For this report, Pennsylvania had 703 qualifying nursing homes at the end of 2017. (See the Data Analysis - HAI section of this report for data received from nursing homes.)

OTHER EVENT TYPE
The Centers for Medicare and Medicaid Services (CMS) requires hospitals to report to DOH any death of patients in restraints or in seclusion or in which restraints or seclusion were used within 24 hours of death (other than soft wrist restraints).

Deaths in which the restraints or seclusion are suspected of or confirmed as having played a role in the death should be reported as serious events. Other deaths in which the restraint or seclusion use was incidental or not suspected should be reported under this “Other” category.

Reports of serious events and incidents are submitted to the Authority for the purposes of learning how the healthcare system can be made safer in Pennsylvania. Reports of serious events and infrastructure failures are submitted to DOH so it can fulfill its role as a regulator of Pennsylvania healthcare facilities.

PATIENT SAFETY LIAISON
The patient safety liaison (liaison) is a unique resource to Pennsylvania MCARE facilities. Serving as the face of the Authority, the PSL provides education and consultation to MCARE facilities and ensures that facilities are aware of the resources available to them through the Authority, such as educational toolkits, presentations, and webinars. The program has eight liaisons located regionally throughout Pennsylvania.

PATIENT SAFETY OFFICER
The MCARE Act requires each medical facility to designate a single individual to serve as that facility’s patient safety officer (PSO). In addition to other duties, the MCARE Act requires the PSO to submit reports to the Authority.

SERIOUS EVENT
An adverse event resulting in patient harm. The legal definition from the: “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 health care services to the patient. The term does not include an incident.”

STANDARDIZATION
Twenty-eight guiding principles went into effect on April 1, 2015 to improve consistency in event reporting through PA-PSRS. The guidance was developed to help provide consistent standards to acute healthcare facilities in Pennsylvania in determining whether occurrences within facilities meet the statutory definitions of serious events, incidents, and infrastructure failures as defined in section 302 of the MCARE Act.

The Authority, DOH, and healthcare facility staff have worked together toward a shared understanding of the requirements. The reporting guidelines were identified based on frequently asked questions (FAQs), controversies, and inconsistencies that were evident in the data collected by the Authority and DOH.
Legislative Activity

Recommendations, Referrals, & Anonymous Reports

Department of Health Recommendations
The MCARE Act calls upon the Authority to suggest recommendations for statutory or regulatory changes that may help improve patient safety Pennsylvania. In 2017, the Board had no formal recommendations for any such changes. However, the Authority continues to work in partnership with DOH to standardize reporting requirements. (See Standardization.)

Referrals to Licensure Boards
The MCARE Act also requires that the Authority identify referrals to licensure boards for failure to submit reports under the Act’s reporting requirements. MCARE specifies that it is the medical facility’s responsibility to notify the licensee’s licensing board of failure to report. No such situations were reported to the Authority during 2017. However, the Authority is unlikely to receive information related to a referral to licensure board because PA-PSRS reports do not include the names of individual licensed practitioners.

Anonymous Reports
The MCARE Act includes a provision that permits individual healthcare workers to submit what the act defines as an “anonymous report.” Under this provision, a healthcare worker who has complied with section 308(a) of the act may file an anonymous report regarding a serious event.

The form is available on the Authority’s website and through the PA-PSRS system. The Authority developed an “Anonymous Reporting” guide to ensure healthcare workers are aware of their option to submit an anonymous report and encourages them to do so when they believe their facility is not appropriately reporting or responding to a serious event.

Liaisons also review the anonymous reporting process with new PSOs as part of their onboarding program. Individuals completing the form do not need to identify themselves, and the Authority assigns professional clinical staff to conduct any subsequent investigations. In 2017, the Authority received seven anonymous reports that complied with MCARE Act requirements.

Figure 12. Anonymous Reports Received by the Authority that Complied with MCARE Act Requirements

<table>
<thead>
<tr>
<th>YEAR</th>
<th>NUMBER OF REPORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>1</td>
</tr>
<tr>
<td>2005</td>
<td>2</td>
</tr>
<tr>
<td>2006</td>
<td>2</td>
</tr>
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<td>2007</td>
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<td>2015</td>
<td>3</td>
</tr>
<tr>
<td>2016</td>
<td>8</td>
</tr>
<tr>
<td>2017</td>
<td>7</td>
</tr>
</tbody>
</table>
The MCARE Act establishes the Patient Safety Trust Fund (Trust) as a separate account in the Pennsylvania Treasury. Under the MCARE Act, the Authority determines how those funds are used to effectuate the patient safety provisions of the Act and administers funds in the Trust. Funds mainly come from assessment surcharges made by DOH on certain medical facilities.

The Authority recognizes that Pennsylvania hospitals, birthing centers, ASFs, abortion facilities, and nursing homes bear financial responsibility for costs associated with complying with mandatory reporting requirements. Accordingly, the Authority has focused on two fiscal goals: (1) to be prudent in the use of moneys contributed by the healthcare industry, and (2) to assure that healthcare facilities paying for PA-PSRS receive direct benefits from the system and from Authority programs in return.

Pursuant to Section 304(A)(4) of the MCARE Act, as a general rule, the Authority is authorized to receive funds from any source consistent with the Authority’s purposes under the Act. As such, the Authority at times contracts with and receives funding from other healthcare-related entities to reduce medical errors and promote patient safety in the Commonwealth. These contracts in 2017 are described in the section, “Contracts under which the Authority Received Revenue in 2017 as a Contractor,” which lists contracts with HAP and HCIF.

### Funding from Hospitals, Birthing Centers, ASFs, & Abortion Facilities

The MCARE Act set an initial limit of $5 million on the total aggregate assessment on acute-care facilities for any one year beginning in 2002, plus an annual increase based on the consumer price index (CPI) for each subsequent year. For FY 2017–2018, the maximum allowable acute-care assessment is $7,206,856, against the Authority Board’s approved aggregate acute-care assessment of $6,860,000.

On December 12, 2017, the Authority Board authorized a recommendation to DOH for FY 2017–2018 acute-care assessment surcharges of $6.86 million. This amount is $185,000 or a 2.77% increase over the FY 2016–2017 acute-care assessment, and is 4.6% less than the maximum annual amount that could have been assessed for the year pursuant to Section 305(d) of the MCARE Act.

Beginning in 2015, the Authority Board authorized the use of the Northeast Medical Professional Services CPI to calculate annual adjustments to maximum assessments. At the time of this acute-care assessment recommendation, the Authority Board considered several points, including the following:

- The Authority’s FY 2017–2018 budget totals $8.60 million. Of this amount, approximately $7.40 million is budgeted for acute-care related expenditures, funded in-part by the $6.86 million in FY17-18 acute-care assessments.
- The Authority’s FY 2017–2018 budget of $8.60 million increased by $75,000, or 0.88%, from the previous fiscal year budget.
- The FY 2017–2018 acute-care assessment of $6.86 million increased by $1.86 million since the Authority’s initial FY 2002–2003 acute-care assessment of $5.0 million, a 2.48% per year average increase. Since the Authority’s FY 2007–2008 acute-care assessment of $5.4 million, the acute-care assessment has increased by an average of 2.70% per year.

Also considered in authorizing this increase were staff and program growth, increases in Commonwealth of Pennsylvania mandated burdened benefit rates, and projected contract revenue in FY 2017–2018.

Table 1 on the next page shows the number of acute-care facilities assessed, approved assessments, and assessments received for each fiscal year.

### Funding from Nursing Homes

Act 52 of the MCARE Act allows DOH to assess Pennsylvania nursing homes up to an aggregate amount of $1 million per year for any one year beginning in 2008, plus an annual increase based on the CPI for each subsequent year. In 2008, following the Authority’s suggestion, the Department assessed 725 nursing home facilities a total of $1,000,000 and transferred $1,000,782 to the Trust for FY 2008–2009. This money could be spent only on activities related to HAI and implementation and maintenance of Chapter 4 of the MCARE Act. For FY 2017–2018, the Act 52 maximum allowable assessment is $1,163,510, against the Authority Board’s approved aggregate assessment of $1,140,000.

On December 12, 2017, the Authority Board authorized a recommendation to DOH for FY 2017–2018 nursing home assessment surcharges of $1.14 million. This amount is $29,000 more than the previous year’s assessment and is approximately 2.0% below the maximum assessment permitted under Act 52, based on annual CPI adjustments. Beginning in 2015, the Authority Board authorized the use of the Northeast Medical Professional Services CPI to calculate annual adjustments to maximum assessments.

Table 2 on the next page shows the number of nursing homes assessed, approved assessments, and assessments received for each fiscal year.
### Table 1. Acute Care Facility Assessments

<table>
<thead>
<tr>
<th>FISCAL YEAR</th>
<th>NUMBER OF FACILITIES ASSESSED BY DOH a</th>
<th>APPROVED ASSESSMENTS</th>
<th>TOTAL ASSESSMENTS RECEIVED BY DOH b</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-03</td>
<td>356</td>
<td>$5,000,000</td>
<td>$4,663,000</td>
</tr>
<tr>
<td>2003-04</td>
<td>377</td>
<td>$2,500,000</td>
<td>$2,542,316</td>
</tr>
<tr>
<td>2004-05</td>
<td>414</td>
<td>$2,500,000</td>
<td>$2,508,787</td>
</tr>
<tr>
<td>2005-06</td>
<td>450</td>
<td>$2,500,000</td>
<td>$2,500,149</td>
</tr>
<tr>
<td>2006-07</td>
<td>453</td>
<td>$2,500,000</td>
<td>$2,500,034</td>
</tr>
<tr>
<td>2007-08</td>
<td>526</td>
<td>$5,400,000</td>
<td>$5,391,583</td>
</tr>
<tr>
<td>2008-09</td>
<td>524</td>
<td>$4,000,000</td>
<td>$3,972,677</td>
</tr>
<tr>
<td>2009-10</td>
<td>519</td>
<td>$5,000,000</td>
<td>$4,989,781</td>
</tr>
<tr>
<td>2010-11</td>
<td>542</td>
<td>$5,000,000</td>
<td>$4,981,443</td>
</tr>
<tr>
<td>2011-12</td>
<td>550</td>
<td>$5,100,000</td>
<td>$5,063,723</td>
</tr>
<tr>
<td>2012-13</td>
<td>545</td>
<td>$5,500,000</td>
<td>$5,504,549</td>
</tr>
<tr>
<td>2013-14</td>
<td>556</td>
<td>$5,500,000</td>
<td>$5,492,002</td>
</tr>
<tr>
<td>2014-15</td>
<td>564</td>
<td>$6,200,000</td>
<td>$6,209,459</td>
</tr>
<tr>
<td>2015-16</td>
<td>569</td>
<td>$6,500,000</td>
<td>$6,494,845</td>
</tr>
<tr>
<td>2016-17</td>
<td>575</td>
<td>$6,675,000</td>
<td>$6,656,359</td>
</tr>
<tr>
<td>2017-18 c</td>
<td></td>
<td>$6,860,000</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$69,470,707</strong></td>
<td></td>
</tr>
</tbody>
</table>

a. The number of facilities assessed by the Department of Health differs from the number of the Medical Care Availability and Reduction of Error (MCARE) Act’s facilities cited elsewhere in this report because of differences in the dates chosen to calculate the number of facilities for these two different purposes.

b. Amounts assessed and amounts received differ because a few facilities may have closed in the interim or are in bankruptcy. In a few cases, the Department of Health has pursued action to enforce facility compliance with the MCARE Act’s assessment requirement.

c. 2017-18 missing figures were unavailable at the time of publication and will appear in next year’s annual report.

### Table 2. Nursing Home Assessments

<table>
<thead>
<tr>
<th>FISCAL YEAR</th>
<th>NUMBER OF FACILITIES ASSESSED BY DOH</th>
<th>APPROVED ASSESSMENTS</th>
<th>TOTAL ASSESSMENTS RECEIVED BY DOH</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-09</td>
<td>725</td>
<td>$1,000,000</td>
<td>$1,000,782</td>
</tr>
<tr>
<td>2009-10</td>
<td>711</td>
<td>$800,000</td>
<td>$799,382</td>
</tr>
<tr>
<td>2010-11</td>
<td>707</td>
<td>$800,000</td>
<td>$799,829</td>
</tr>
<tr>
<td>2011-12</td>
<td>707</td>
<td>$800,000</td>
<td>$804,473</td>
</tr>
<tr>
<td>2012-13</td>
<td>711</td>
<td>$900,000</td>
<td>$913,315</td>
</tr>
<tr>
<td>2013-14</td>
<td>698</td>
<td>$1,000,000</td>
<td>$998,751</td>
</tr>
<tr>
<td>2014-15</td>
<td>703</td>
<td>$1,050,000</td>
<td>$1,049,842</td>
</tr>
<tr>
<td>2015-16</td>
<td>702</td>
<td>$1,080,000</td>
<td>$1,079,505</td>
</tr>
<tr>
<td>2016-17</td>
<td>704</td>
<td>$1,111,000</td>
<td>$1,110,185</td>
</tr>
<tr>
<td>2017-18 a</td>
<td></td>
<td>$1,140,000</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$8,556,064</strong></td>
<td></td>
</tr>
</tbody>
</table>

a. FY 2017-2018 missing figures were unavailable at the time of publication and will appear in the next year’s annual report.
### Annual Expenditures & Revenue

**Table 3a. 2017 Expenditures**

<table>
<thead>
<tr>
<th>CONTROL LEVEL</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>61: Personnel</td>
<td>$2,748,170</td>
</tr>
<tr>
<td>63: Operations</td>
<td>$5,273,406</td>
</tr>
<tr>
<td><strong>Total 2017 Expenditures</strong></td>
<td><strong>$8,021,576</strong></td>
</tr>
</tbody>
</table>

**Table 3b. 2017 Revenue Receipts**

<table>
<thead>
<tr>
<th>REVENUE RECEIPTS</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Care Assessments</td>
<td>$6,656,359</td>
</tr>
<tr>
<td>Nursing Home Assessments</td>
<td>$1,110,185</td>
</tr>
<tr>
<td>Non-Assessment Revenue</td>
<td>$641,784</td>
</tr>
<tr>
<td><strong>Total 2017 Revenue Receipts</strong></td>
<td><strong>$8,408,328</strong></td>
</tr>
</tbody>
</table>

### Patient Safety Authority Contracts

The MCARE Act requires the Authority to identify a list of contracts entered into pursuant to the Act, including the amounts awarded to each contractor. During calendar year 2017, the Authority received services under the following contracts (FC, funds commitment; PO, purchase order).

**ECRI Institute, FC # 4000018888**
Contract for program administration, clinical analysis, training and data collection, and reporting infrastructure services.  
Contract total: $24,227,233 over 4 years and 9 months from October 2014 to June 2019.  
Amount invoiced for 2014: $1,135,983.79 (Oct. through Dec.)  
Amount invoiced for CY2015: $4,824,833.20  
Amount invoiced for CY2016: $4,947,215.02  
Amount invoiced for CY2017: $4,757,501.80  

**Ricoh USA, Inc.**
Ricoh B&W copier lease, PO # 4500712936  
August 2013 to August 2017 at $202.62/month  
Ricoh Color MFD lease, PO # 4500841111  
September 2017 to August 2021 at $328.17/month  
Total 12-month Ricoh lease expense paid for CY2017: $2,528.40

**XEROX Corp.**
Xerox color copier lease, PO # 4500734496  
October 2013 to September 2017 at $398.39/month  
Xerox color MFD lease, PO # 4600015253  
October 2017 to September 2021 at $319.41/month  
Total 12-month Xerox lease expense paid for CY2017: $4,930.13

**DELL Marketing LP, PO # 4300540871**
SAS Visual Analytics software maintenance  
Valid from March 31, 2017 - March 31, 2018  
Amount expended in 2017: $11,880.00

**Contracts under which the Authority Received Revenue in 2017 as a Contractor:**
**HCIF (Health Care Improvement Foundation)**  
Agreements 1 (Completed) & 2 (Ongoing) – Health Literacy Projects  
HCIF 2 Total Receipts in 2017: $38,930.23  
HAP/CMS subcontract agreement–Hospital Innovation Improvement Networks (HIIN)  
Total Receipts in 2017: $599,266.46

### Patient Safety Authority Balance Sheet

**ASSETS**

Temporary Investments $6,092,109  
Receivables, net:  
Assessment Revenue 8,000,000  
**TOTAL ASSETS** $14,092,109

**LIABILITIES AND FUND BALANCE**

Accounts Payable and Accrued Liabilities $644  
Invoices Payable 1,108,370  
**TOTAL LIABILITIES** 1,109,014  
Deferred Assessment Revenue 8,000,000  
**TOTAL DEFERRED INFLOW OF RESOURCES** 8,000,000  
Restricted 4,983,095  
**TOTAL FUND BALANCE** 4,983,095  
**TOTAL LIABILITIES, DEFERRED INFLOW OF RESOURCES, AND FUND BALANCE** $14,092,109

*This balance sheet reflects the status of the Trust as of December 31, 2017.*

Members of the board of directors are appointed by the governor and the general assembly according to certain occupational or residency requirements. As of December 31, 2017, members included:

**Physician Appointed by the Governor**  
Rachel Levine, MD, Physician General (Chair)  
Residence: Middletown (Dauphin County)

**Appointee of the Speaker of the House**  
Stanton N. Smullens, MD (Vice Chair)  
Residence: Philadelphia (Philadelphia County)

**Healthcare Worker Appointed by the Governor**  
John Bulger, DO, MBA (Secretary/Treasurer)  
Residence: Danville (Montour County)

**Healthcare Worker Appointed by the Governor**  
Radheshyam Agrawal, MD  
Residence: Pittsburgh (Allegheny County)

**Healthcare Worker Appointed by the Governor**  
Jan Boswinkel, MD  
Residence: Havertown (Delaware County)

**Appointee of the President of Pro Tempore of the Senate**  
Daniel Glunk, MD, MHCDS  
Residence: Williamsport (Lycoming County)

**Pharmacist Appointee of the Governor**  
Arleen Kessler, PharmD, MBA, RPh  
Residence: Williamsport (Lycoming County)

**Non-healthcare worker appointed by the governor**  
Mary Ellen Mannix, MRPE  
Residence: Wayne (Delaware County)

**Appointee of the minority leader of the Senate**  
Veronica Richards, Esq.  
Residence: Warrendale (Allegheny County)

**Nurse appointee of the governor**  
Linda Waddell, RN, MSN, CJCP, CPPS  
Residence: New Kensington (Westmoreland County)

**Appointee of the Minority Leader of House**  
Eric Weitz, Esq.  
Residence: Lower Merion Twp. (Montgomery County)

The MCARE Act requires the board of directors to meet at least quarterly. During 2017, the board met frequently to assess and develop future patient safety educational and advocacy activities, including developing standards for more consistent reporting. Representatives of healthcare, consumer, and stakeholder groups, including the general assembly, have attended or participated in public meetings.

Dates for all public board meetings in 2017:
- January 23, 2017
- March 16, 2017
- April 20, 2017
- June 13, 2017
- September 12, 2017
- October 17, 2017
- December 12, 2017

Find summary minutes of public board meetings online at patientsafety.pa.gov