

PENNSYLVANIA PATIENT SAFETY AUTHORITY 2013 ANNUAL REPORT

I AM PATIENT SAFETY



PHOENIXVILLE HOSPITAL

Winner of the "I Am Patient Safety" Poster Contest for Patient Safety Awareness Week 2014

Maria Stecko is patient safety. While checking medical device items in carts for packaging defects and expiration dates, Maria found several items missing expiration dates. After investigating other employees in storage, Maria realized there were others that did not have expiration dates on them so the company that supplied the items verified that they should have had expiration dates on them as well. All unexpired items were pulled from the shelves and checked. Also, the company requested the opportunity to do a site visit and review all unexpired items in the hospital and surgical center for any other items that were missing the expiration information to ensure safety.

Join the Pennsylvania Patient Safety Authority in congratulating Maria Stecko for her dedication to patient safety at Phoenixville Hospital.




Winner of the "I Am Patient Safety" Poster Contest for Patient Safety Awareness Week 2014
©2014 Pennsylvania Patient Safety Authority

I AM PATIENT SAFETY



UPMC ST. MARGARET

Winner of the "I Am Patient Safety" Poster Contest for Patient Safety Awareness Week 2014

Kathleen Fowler is patient safety. Kathleen's commitment to patient safety at UPMC St. Margaret has led to implementation of several process improvements to decrease falls with injury and a decrease in the number of injuries experienced by staff when handling or moving patients during care activities. Kathleen also modified the Just Culture™ initiative for UPMC St. Margaret to encourage staff to learn from events occurring in the facility.

Join the Pennsylvania Patient Safety Authority in congratulating Kathleen Fowler for making a personal commitment to patient safety.

I AM PATIENT SAFETY



EAGLEVILLE HOSPITAL

Winner of the "I Am Patient Safety" Poster Contest for Patient Safety Awareness Week 2014

Roslyn Sykora is patient safety. Roslyn overheard a patient having a distressing phone call with his mother. Once the patient went back into his room, Roslyn followed him to make sure he was okay. When Roslyn arrived in the room, the patient was trying to harm himself. Roslyn called the patient down and ensured he did not harm himself.

Join the Pennsylvania Patient Safety Authority in congratulating Roslyn Sykora for making a personal commitment to patient safety at Eagleville Hospital.

I AM PATIENT SAFETY



WELLSPAN YORK HOSPITAL

Winner of the "I Am Patient Safety" Poster Contest for Patient Safety Awareness Week 2014

Tim McEely is patient safety. As nurse manager of the Coronary Care Unit at York Hospital and chair of the Resuscitation Review Team, Tim ensures his team looks at every resuscitation event in the hospital. He works with his team to dig deep and find every reason why American Heart Association (AHA) Guidelines targets are not met. Tim regularly shares best practices with his nursing staff along with outcomes. Through Tim's leadership post cardiac arrest survival to discharge rates improved from 17.2 percent in 2011 to 31.6 percent in 2012.

Join the Pennsylvania Patient Safety Authority in congratulating Tim McEely for leading his team and making a personal commitment to patient safety at York Hospital.




Winner of the "I Am Patient Safety" Poster Contest for Patient Safety Awareness Week 2014
©2014 Pennsylvania Patient Safety Authority

I AM PATIENT SAFETY



PENN STATE HERSHEY CHILDREN'S HOSPITAL

Winner of the "I Am Patient Safety" Poster Contest for Patient Safety Awareness Week 2014

Rachel Wamba Yodanis is patient safety. As one of the founding members of the Chemotherapy Safety Task Force, Rachel led staff within the department and brought a "closed chemotherapy system" administration systems has decreased the nurses' exposure and risk of chemotherapy related spills for over three months. Rachel has also worked for two years to develop and implement an annual chemotherapy competency test to monitor the skills of the nurses on the unit. This competency test helps ensure patient safety by promoting consistency and safety in administration, and continued education on different administration techniques.

Join the Pennsylvania Patient Safety Authority in congratulating Rachel Wamba Yodanis for her leadership in chemotherapy patient safety at Penn State Hershey Children's Hospital.



Winner of the "I Am Patient Safety" Poster Contest for Patient Safety Awareness Week 2014
©2014 Pennsylvania Patient Safety Authority

Analyzing
Educating
for and Collaborating
Patient Safety

Letter from the Board Chair



April 30, 2014

Dear Fellow Pennsylvanians:

The Pennsylvania Patient Safety Authority (Authority) continues its efforts to improve patient safety in Pennsylvania's healthcare facilities through data analysis and collaboration. In December 2013, the number of Serious Events and Incidents reached over two million events. Our aggregate data research shows a 12 percent decline of Serious Event reports in hospitals and ambulatory surgery facilities over the last five years (2008-2013).

Through its Patient Safety Liaison (PSL) program, the Authority educational programs are reaching a wider audience with more targeted education for certain groups. The Authority has increased its educational sessions by 67 percent since 2010. Over five years, since the PSL program began, the audience educated by the PSLs has also grown to include not only Patient Safety Officers, but other disciplines such as quality assurance as well.

The Authority's efforts to improve patient safety in Pennsylvania healthcare facilities continued through its collaborations with the Hospital and Healthsystem Association of Pennsylvania (HAP) and other Pennsylvania healthcare organizations through the federal Partnership for Patients program. The Authority's collaborations with Pennsylvania facilities focus on reducing falls, wrong-site surgeries, and adverse drug events statewide. All collaborations have resulted in decreased harmful patient safety events. The collaborations have been extended an additional year. The Authority also collaborated with 11 ambulatory surgical facilities in the northeast to reduce day-of-surgery cancellations and unscheduled transfers to hospitals.

The Authority has continued to publish its *Pennsylvania Patient Safety Advisory*, which will mark its 10th Anniversary in March, 2014. The award-winning academic journal is the Authority's flagship publication based on analysis of adverse events and near misses occurring in Pennsylvania's healthcare facilities. The Authority has published more than 440 articles on a variety of clinical issues. In 2013, some highlighted articles include "Breakdowns in the Medication Reconciliation Process," "Distractions and Their Impact on Patient Safety," "Spotlight on Electronic Health Records Errors: Paper or Electronic Hybrid Workflows," and "Class III Obese Patients: Is Your Hospital Equipped to Address Their Needs?"

Last year, the Authority continued to educate nursing homes through *Advisory* articles covering infection topics such as best practice implementation. An 2013 *Advisory* article, "Infection Control Challenges: Pennsylvania Nursing Homes Are Making a Difference through Implementation of Best Practices," showed a 16 percent decrease in the mean overall infection rate for 10 nursing homes with high infection rates participating in a study of best practice implementation.

In the coming year the Authority's clinical director and editor-in-chief of the *Patient Safety Advisory*, Dr. John Clarke, will step aside to pursue retirement more fully. The Authority owes Dr. Clarke a debt of gratitude for his academic prowess and unfaltering commitment to patient safety throughout his 10 years as editor of the *Advisory*.

As chair of the Pennsylvania Patient Safety Authority Board of Directors, I look forward to working with Pennsylvania healthcare facilities and nursing homes to continue the tremendous work being done to improve patient safety in the commonwealth. On behalf of the board, I am pleased to submit this annual report for your review.

Carrie DeLone, MD, Physician General
Chair, Board of Directors
Pennsylvania Patient Safety Authority

Board of Directors

Radheshyam Agrawal, MD
Jan Boswinkel, MD
John Bulger, DO, MBA
Carrie DeLone, MD, Chair
Joan M. Garzarelli, RN, MSN
Daniel Glunk, MD
Lorina L. Marshall-Blake
Gary Merica, B.Sc., MBA/HCM
Clifford Rieders, Esq.
Stanton N. Smullens, MD, Vice Chair
Eric Weitz, Esq.

*

Michael Doering, MBA, Executive Director
Franchesca Charney, RN, MSHA, Director of Educational Programs
Laurene M. Baker, MA, Director of Communications
Howard Newstadt JD, MBA, Finance Director & CIO
Teresa Plesce, Office Manager
Karen McKinnon-Lipsett, Administrative Specialist
Shelly Mixell, Executive Assistant
Denise Conder, Administrative Specialist
Megan Shetterly, RN, MS, Senior Patient Safety Liaison, Northeast Region
Christina Hunt, RN, MSN, MBA, Senior Patient Safety Liaison, South Central Region
Denise Barger, Patient Safety Liaison, Delaware Valley South Region
Michelle Bell, RN, Patient Safety Liaison, Delaware Valley North Region
Jeff Bomboy, RN, Patient Safety Liaison, Northeast Region
Regina Hoffman, RN, Patient Safety Liaison, South Central Region
Richard Kundravi, Patient Safety Liaison, Northwest Region
Robert Yonash, RN, Patient Safety Liaison, Southwest Region

*

Theresa V. Arnold, DPM, Mgr., Clinical Analysis
Michael Baccam, MFA, Associate Editor
(Advisory)
Sharon Bradley, RN, Sr. Infect. Prev. Analyst
Phyllis Bray, System Developer
John R. Clarke, MD, Clinical Director, Editor
Emeritus (Advisory)
James Davis, MSN, RN, Sr. Infect. Prev. Analyst
Michelle Feil, MSN, RN, Sr. Patient Safety Analyst
Edward Finley, Data Analyst
Lea Anne Gardner, PhD, RN, Sr. Patient Safety
Analyst
Michael J. Gaunt, PharmD, Medication Safety
Analyst
Matthew Grissinger, RPh, Mgr., Medication Safety

Tom Ignudo, IT Manager
Shawn Kincaid, System Developer
Ben Kramer, System Administrator
Susan Lafferty, Administrative Assistant
Donna Lockette, Business Analyst
William M. Marella, MBA, Program Director
Mary C. Magee, MSN, RN, Sr. Patient Safety
Analyst
Miranda R. Minetti, Program Coord./Comm. Asst.
Jesse Munn, Operations Mgr., Managing Editor
(Advisory)
Carly Sterner, System Developer
Susan C. Wallace, MPH, Patient Safety Analyst
Karen P. Zimmer, MD, MPH, Acting Editor

TABLE OF CONTENTS

INTRODUCTION.....	1
DATA COLLECTION AND ANALYSIS.....	1
THE PENNSYLVANIA PATIENT SAFETY ADVISORY	7
TRAINING AND EDUCATION EFFORTS.....	9
THE PATIENT SAFETY LIAISON PROGRAM.....	12
SUCCESSFULLY IMPROVING PATIENT SAFETY THROUGH COLLABORATION	13
“I AM PATIENT SAFETY” POSTER CAMPAIGN RECOGNIZES HEALTHCARE WORKERS IN PENNSYLVANIA	17
THE AUTHORITY’S HAI REDUCTION EFFORTS.....	17
RECOMMENDATIONS TO THE DEPARTMENT OF HEALTH	20
ANONYMOUS REPORTS	21
REFERRALS TO LICENSURE BOARDS.....	21
FISCAL STATEMENTS AND CONTRACTS	21

ADDENDA SECTION

ADDENDUM A: DEFINITIONS	A1
ADDENDUM B: DETAILED OVERVIEW OF DATA REPORTED THROUGH PA-PSRS.....	B1
ADDENDUM C: THE PATIENT SAFETY ADVISORY AND SUMMARIES OF SELECT 2013 ARTICLES.....	C1
ADDENDUM D: DETAILED DESCRIPTION OF REGIONAL EDUCATION PROGRAMS	D1
ADDENDUM E: THE AUTHORITY’S ANNUAL SURVEY OF PATIENT SAFETY OFFICERS AND INFECTION PREVENTION DESIGNEES.....	E1
ADDENDUM F: HEALTHCARE-ASSOCIATED INFECTIONS	F1
ADDENDUM G: COLLABORATIVE EFFORTS TO IMPROVE PATIENT SAFETY	G1
ADDENDUM H: I AM PATIENT SAFETY	H1

(Page left intentionally blank)

Introduction

The Pennsylvania Patient Safety Authority is an independent state agency established under Act 13 of 2002, the Medical Care Availability and Reduction of Error (MCare) Act. It is charged with taking steps to reduce and eliminate medical errors through the collection of data, identification of problems, and recommendation of solutions that promote patient safety in hospitals, ambulatory surgical facilities (ASFs), birthing centers and abortion facilities. In June 2009, the Authority began collecting infection reports from nursing homes. The Authority's role is non-regulatory and non-punitive.

The Authority initiated statewide mandatory reporting in June 2004, making Pennsylvania the only state in the nation to require reporting of Serious Events and Incidents (near misses). All reports are confidential and non-discoverable, and they should not include any patient or provider names. In 2007, the legislature added a chapter to the MCare Act that addressed the reporting of healthcare-associated infections (HAIs) in Pennsylvania and required infection reporting from nursing homes. The law requires significant involvement by the Authority.

Data Collection and Analysis

The Pennsylvania Patient Safety Reporting System (PA-PSRS) is a secure, web-based system that permits Pennsylvania hospitals, ambulatory surgical facilities (ASFs), birthing centers and abortion facilities to submit reports of what Pennsylvania law defines as "Serious Events," "Incidents" and "Infrastructure Failures" (please see **Addendum A** for definitions). Data collection through PA-PSRS provides the base that supports all Authority activities and initiatives.

Statewide mandatory reporting through PA-PSRS went into effect June 28, 2004. All information submitted through PA-PSRS is confidential. By law, reports should not contain any identifiable information, and no information about individual patients and providers is requested. In addition, no information about individual facilities is made public. Facilities are required to report Infrastructure Failure events to the Pennsylvania Department of Health (DOH), Incidents to the Authority, and Serious Events to both agencies. PA-PSRS is designed so facilities are only required to submit this information one time. PA-PSRS automatically routes the reports to the appropriate agency.

In 2008, PA-PSRS was modified to enable nursing home facilities to report healthcare-associated infections (HAIs). The Authority further modified PA-PSRS in 2012 to accommodate the standardization of patient falls event reporting in order to support a statewide patient falls reduction collaboration that includes over 80 hospitals.

In 2013, 277,564 reports were submitted to the Authority by 1,272 Pennsylvania facilities through PA-PSRS (this does not include Infrastructure Failure reports, which are forwarded to DOH and not seen by Authority staff) bringing the number of reports submitted by these

facilities since the program’s inception to 2,030,592. Table 1 shows the distribution of submitted reports by month for 2013 (excluding nursing home HAI reports.)

Table 1. Reports Submitted to PA-PSRS in 2013, by Month, Acute Care Facilities

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Serious Events	660	614	690	696	627	609	674	655	606	624	560	528	7,543
Incidents	22,490	18,766	24,382	20,795	20,451	16,673	17,724	18,192	21,571	20,381	16,652	20,986	239,063
Total	23,150	19,380	25,072	21,491	21,078	17,282	18,398	18,847	22,177	21,005	17,212	21,514	246,606

Approximately 3.1% of submitted reports shown above were Serious Events, while 96.9% were Incidents. In 2013, the Authority received 20,551 reports per month on average, an increase of 4.8% from 2012. The number of Incident reports averaged 19,922 per month, an increase of 5.2% compared to the previous year. The number of Serious Event reports averaged 629 per month, which is a decrease of 6.2% from 2012.

Reports by Facility Type

As shown in Table 2, the total number of reports submitted through PA-PSRS in 2013 surpassed a quarter million. The vast majority of reports (87%) were submitted by hospitals. Among acute-level facilities (non-nursing homes), the majority is even more pronounced (97.9%). Nursing homes submitted 11.2% of the overall total.

Table 2. Reports through PA-PSRS by Facility Type (2013)

Facility Type	Hospitals	Ambulatory Surgical Facilities	Birthing Centers/ Abortion Facilities	All Acute Level Facilities	Nursing Homes (HAI Only)	All Facilities Reporting via PA-PSRS
Number of Reports Submitted	241,371	5,021	214	246,606	30,958	277,564
Number of Facilities Active for year ending December 31, 2013	239	300	23	562	710	1,272

Table 3 shows reporting rates among non-hospital acute-level facilities—ambulatory surgical facilities, birthing centers, and abortion facilities (ASFs/BCs/ABFs)—compared to hospitals from 2009 to 2013. Although both groups realized increased reporting from 2009 through 2013, the percentage was higher among the ambulatory facilities. That group of facilities saw 43.7% more reports submitted during the period. This increase is paired with the implementation of the Patient Safety Liaison (PSL) Program. The Authority believes this increase is, in part, due to the increased presence of PSLs to assist the facilities and enhanced training on how to report.

The Authority analyzes data received through the PA-PSRS in many different ways. **Addendum B** takes a closer look at data submitted by reporting facilities that are not nursing homes. Nursing home HAI reporting data is examined in **Addendum F**.

Table 3. Reports by Acute Facility Types since 2009

Year	Hospitals		Ambulatory Surgical Facilities/ Birthing Centers/ Abortion Facilities		All Facilities
	No.	% of Facility Type	No.	% of Facility Type	Total
2009	223,026	98.39%	3,644	1.61%	226,670
2010	221,855	98.33%	3,769	1.67%	225,624
2011	223,995	97.88%	4,840	2.12%	228,835
2012	230,017	97.78%	5,232	2.22%	235,249
2013	241,371	97.88%	5,235	2.12%	246,606
Total since 2004*	1,996,467	98.32%	34,129	1.68%	2,030,592

*The Pennsylvania Patient Safety Authority began mandatory reporting statewide on June 28, 2004.

Report Submission Trends

The trend line superimposed over the actual track of monthly reports in Figure 1 suggests that the annual volume of reports continue to increase though at a slower rate through the end of 2013.

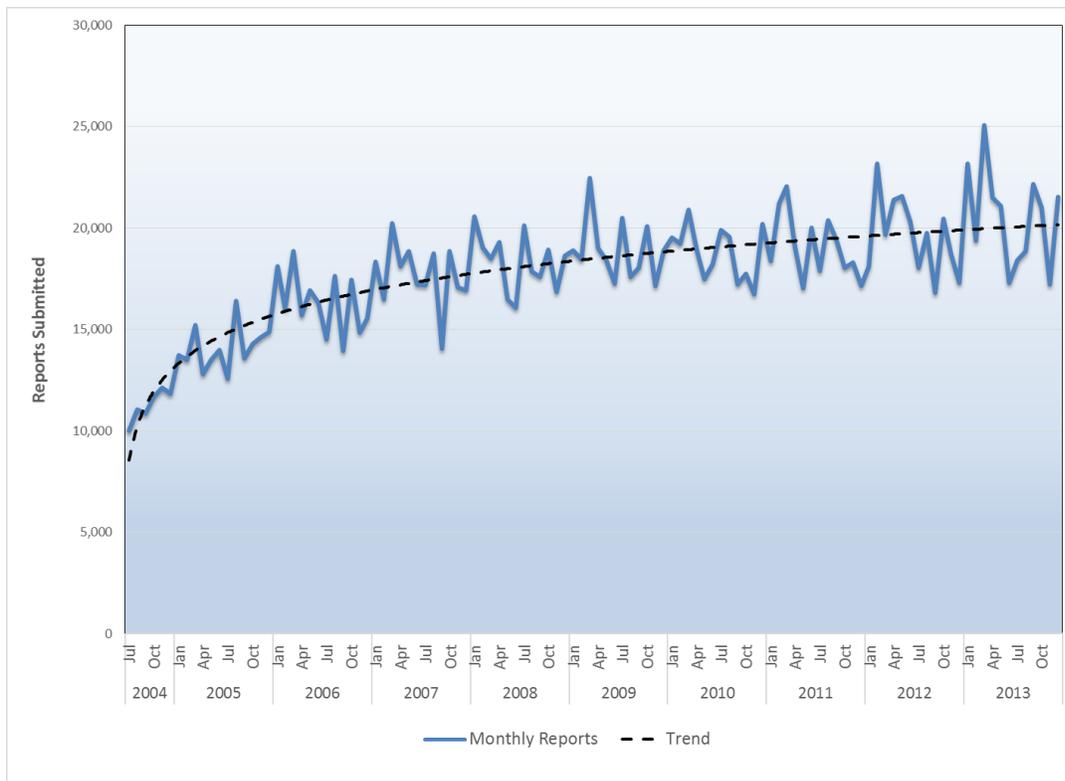


Figure 1. Number of Submitted Reports since Inception of PA-PSRS, by Month

Figure 2 depicts the volume of Serious Events and Incidents on a relative scale (24:1) shows that the volume of Serious Events has increased somewhat over the long-term, but not as sharply as the volume of Incidents. Since 2008 Serious Events show a trend of decreasing. This supports the proposition of improved reporting by facilities and a more consistent level of reporting.

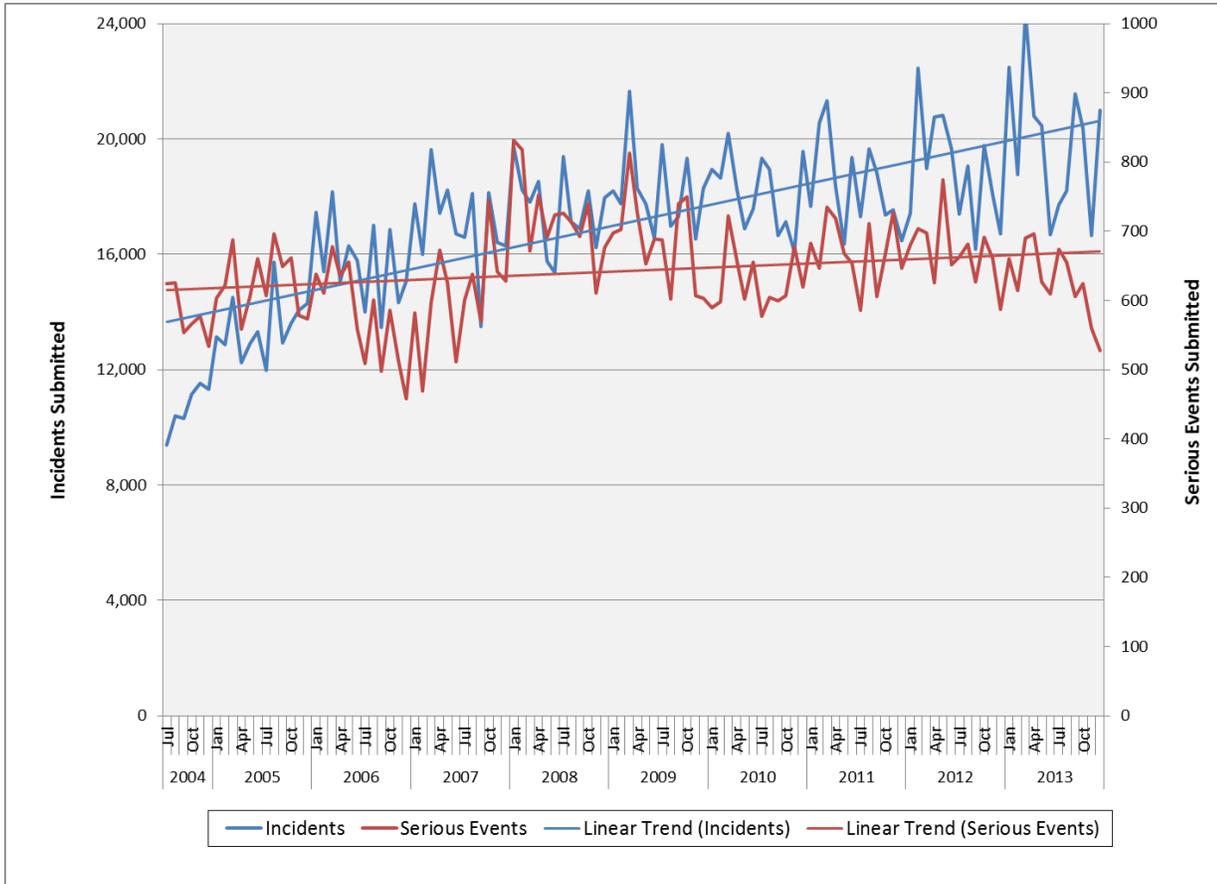


Figure 2. Number of Serious Event and Incident Reports by Month since Inception of PA-PSRS

Figure 3 illustrates the percentage of Serious Events among all submitted reports since 2009. Despite several months where this percentage rose to 4% or greater, there is a downward trend in the percentage of Serious Events among reports submitted to the Authority during the last five years. The two factors for this reduction are an increase in Incident (non-harm) reports submitted and a decrease in the number of Serious Events (harm) submitted. Incidents reported increased from 218,400 in 2009 to 239,063 in 2013. Reported Serious Events decreased from 8,270 in 2009 to 7,543 in 2013.

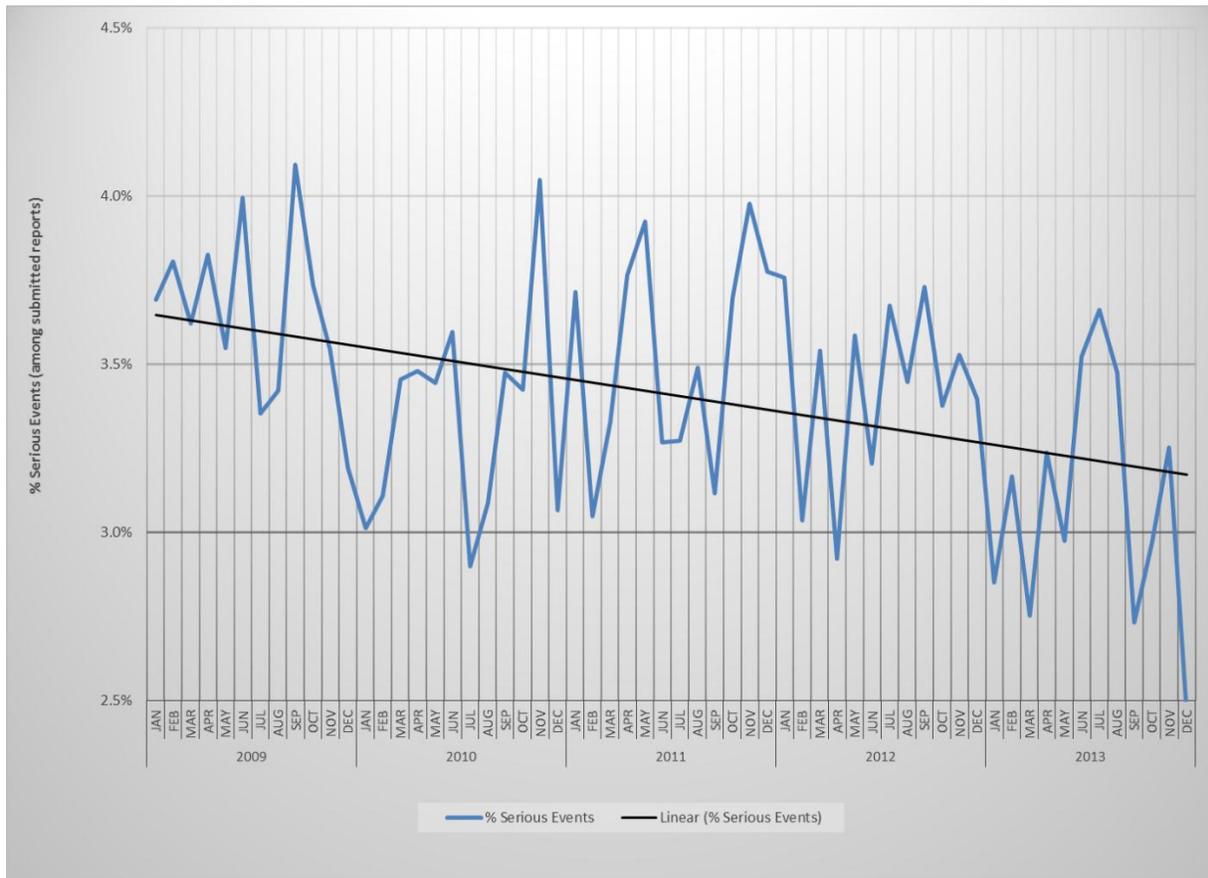


Figure 3. Percentage of Serious Event Reports by Month (2009-2013)

Reports by Event Type

When reporting an event through PA-PSRS, a facility uses a classification system to characterize the occurrence they are reporting. This is usually referred to as the “taxonomy.” At the outset, a facility classifies a report by identifying what PA-PSRS defines as the “Event Type.” The Event Type essentially answers the most basic question about an occurrence: “What happened?”

At its most basic level, PA-PSRS contains the following nine Event Types:

- Medication Errors
- Adverse Drug Reactions (not a medication error)

- Equipment, Supplies, or Devices
- Falls
- Errors Related to Procedures, Treatments, or Tests
- Complications of Procedures, Treatments, or Tests
- Transfusions
- Skin Integrity
- Other / Miscellaneous

These categories are further broken down 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

The complete Event Type dictionary is a three-level, hierarchical taxonomy with 212 distinct Event Types. This Event Type dictionary is one way PA-PSRS classifies and looks for patterns and trends in submitted reports.

Below, Table 4 shows the percentage of reports submitted from acute-level facilities under each top-level Event Type in 2013. The most frequently reported occurrences were Errors Related to Procedure/Treatment/Test (22%) and Medication Errors (21%). These two Event Types account for more than 40% of all reports submitted. While Errors Related to Procedure/Treatment/Test was the Event Type most frequently reported through PA-PSRS, they were not the ones most frequently associated with harm to the patient.

Also shown in Table 4, the largest number of Serious Event reports was under the Event Type category Complications of Procedures/Treatments/Tests, accounting for 49% of all Serious Event reports.

Recall that the percentage of reports submitted in 2013 that were Serious Events was 3.1%. Certain event types had noticeably lower percentages of Serious Events than the overall (see “% of Event Types” in Table 4). There were 54,481 Errors Related to Procedures/Treatments/Tests, equating to 22% of all reports submitted in 2013; however, 697 (1% of the event type) were Serious Events. Of 50,910 Medication Errors (21% of all submitted reports), only 200 (less than 1%) were Serious Events.

Table 4. Reports by Event Type and Submission Type for 2013

Event Type	Serious Events (SE)			Incidents (I)			Total Number of Reports	% of Total Reports
	Number of Reports	% of Event Types	% of Total SE	Number of Reports	% of Event Types	% of Total I		
Medication Errors	200	Less than 1%	3%	50,710	100%	21%	50,910	21%
Adverse Drug Reactions (not a medication error)	270	5%	4%	5,109	95%	2%	5,379	2%
Equipment / Supplies / Devices	60	1%	1%	5,947	99%	2%	6,007	2%
Falls	982	3%	13%	33,579	97%	14%	34,561	14%
Errors Related to Procedure / Treatment / Test	697	1%	9%	53,784	99%	22%	54,481	22%
Complications of Procedure / Treatment / Test	3,684	10%	49%	32,340	90%	14%	36,024	15%
Transfusions	21	1%	Less than 1%	3,533	99%	1%	3,554	1%
Skin Integrity	766	2%	10%	32,779	98%	14%	33,545	14%
Other / Miscellaneous *	863	4%	11%	21,282	96%	9%	22,145	9%
Total	7,543	3%	100%	239,063	97%	100%	246,606	100%

* This is not a single category of completely unclassified reports but rather a category that includes specific subcategories that did not logically fit under other existing top-level headings. Examples of subcategories under Other/Miscellaneous include inappropriate discharge, other unexpected death, electric shock to the patient, and others.

The Pennsylvania Patient Safety Advisory

Completes First 10 Volume Years

In 2013, the *Pennsylvania Patient Safety Advisory* completed a decade of communicating with healthcare facilities about the significant trends identified in events reported through the Pennsylvania Patient Safety Authority’s reporting system. The *Advisory*, a quarterly publication with periodic supplements, is disseminated through e-mail and is also available from the Authority’s [website](http://www.patientsafetyauthority.org) (www.patientsafetyauthority.org). Since the first *Advisory* was issued in March 2004, the Authority has published more than 440 articles on a variety of clinical issues in 40 issues and 12 supplements.

In its first decade, the *Advisory* has routinely been well received by its primary audience of acute and long-term care reporting facilities in Pennsylvania. Key to that positive reception

is the *Advisory* contents, as summarized in the following excerpt of a December 2013 *Advisory* article:¹

Aggregation of reports from all facilities in the commonwealth affords the Authority the luxury of analyzing many instances of an event, especially a rare event that no one facility might see more than once, such as surgical fires, and identifying multiple weaknesses that can result in an adverse outcome. The emphasis of the Advisory staff is on identifying each way a system fails, which is usually more useful than identifying each time a system fails. A comprehensive review of all the failure modes leads to a comprehensive critique of the system for delivering care, resulting in advice for making the entire system more robust, not just correcting the one weakness associated with a single event. This approach has allowed the Authority to develop meaningful strategies without worrying about whether the number of events reported or the number of situations at risk for such an event is accurate.

As facilities tried to implement system changes and educate their hospital and physician staffs about the need for change and the choices for safe practices, they found that physicians wanted scientific evidence that the changes would represent improvements. These sentiments were conveyed to the Authority and prompted the Advisory staff to develop and disseminate the evidence supporting safe practices. Collecting sufficient scientific evidence required more than counting relevant event reports and recounting their patterns and their narratives in a contextually de-identified manner. Once a topic was selected, based on novelty, frequency and severity, and the potential for improvement, the Authority sought supplemental information from the facilities, which many facilities readily contributed in an effort to provide themselves and others with a deeper understanding of the relationship between processes and outcomes.

In the complete December 2013 article from which this information is excerpted, John Clarke, MD, clinical director for the Authority and editor emeritus of the *Advisory*, recounts the first 10 years of the *Advisory* while he was editor, and thanks the Authority and its staff for their support.

The *Advisory* is disseminated through the Authority's website at <http://www.patientsafetyauthority.org>. Each year, the Authority asks patient safety officers and infection prevention staff to rate the *Advisory* on its quality, relevance, usefulness and other factors.

To review these ratings and other results from this annual stakeholder survey, please refer to **Addendum E**.



¹ Clarke JR. A decade of dedication to improvement. Pa Patient Saf Advis [online] 2013 Dec [cited 2014 Jan 21]. [http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2013/Dec;10\(4\)/Pages/146.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2013/Dec;10(4)/Pages/146.aspx)

To review summaries of selected articles from 2013, please see **Addendum C**. The Pennsylvania Patient Safety Authority distributes its Pennsylvania Patient Safety Advisory by e-mail to more than 5,000 program affiliates (i.e., acute healthcare facilities, nursing homes, board and panel members in Pennsylvania) as of December 31, 2013. About 24% of these recipients are patient safety officers in acute healthcare facilities or infection prevention designees in nursing homes (see Figure 1). The remaining majority constitutes other recipients affiliated with the Authority's reporting facilities or patient safety programs (e.g., senior corporate officials, other affiliates of the facilities reporting events to the Authority through its reporting system). As of December 31, 2013 there are approximately 4,120 non-program subscribers in Pennsylvania, nationally, and in other countries who receive the quarterly Advisory.

Training and Education Efforts

Patient Safety Authority sponsored patient safety education programs are ever-changing to meet the needs of its audience. The audiences' educational needs have changed in breadth, depth and scope. Key stakeholders within the healthcare system are actively seeking knowledge that can be applied to enhance patient safety in their own facilities. The educational programs contain material geared toward those who have a variety of roles and responsibilities. These programs provide information for everyone from front line staff, clinicians, executive leadership and facility boards. The Patient Safety Liaison program in 2009 developed its basic patient safety education course for patient safety officers (PSOs) as an introduction to the Authority and what patient safety means for them in their role as a PSO.

Today the Authority's educational programs are reaching a wider audience with more in-depth education on a variety of patient safety concepts (see Table 5). The Authority has expanded from offering an educational event every three work days in 2010 to approximately every work day in 2013 (see Figure 4). This represents a 200% increase of educational offerings per work day. Examples of education include but are not limited to topics such as the importance of event reporting, human factors, Just Culture™, TeamSTEPPS™, organizational patient safety and patient engagement, root cause analysis (RCA), failure mode effects analysis (FMEA), identifying and managing risk, disclosure, achieving and sustaining change, change agents, infection control and prevention, high reliability and board and trustee training.

Table 5. Calendar year 2013 educational matrix

EDUCATIONAL PROGRAM	TYPE OF EVENT	NUMBER OF EVENTS	ATTENDEES
Varied Topics*	Facility Specific	164	3248
Patient Safety You Design†	Statewide	3	114
Networking	Regional	4	106
Patient Safety Officer (PSO) Basics	Regional	1	49
PSO Beyond Basics	Regional	4	119
Ambulatory Surgical Facility Healthcare Associated Infections (HAI) Workshops	Regional	4	199
Webinars	Statewide & Hospital Engagement Network (HEN)	12	1578
Professional Organizations	Statewide	12	1016
TOTAL		204	6429

*One hour or more programs on topics including Human Factors, Why Reporting Matters, Teamwork and Communication, Culture of Safety, Just Culture, Methicillin Resistant Staphylococcus Aureus (MRSA), Fall Prevention, and OR Fire Safety.

† Half day programs with a more in-depth review of: Just Culture™, Teamwork and Communication, Measures and Metrics in Patient Safety, Root Cause Analysis.

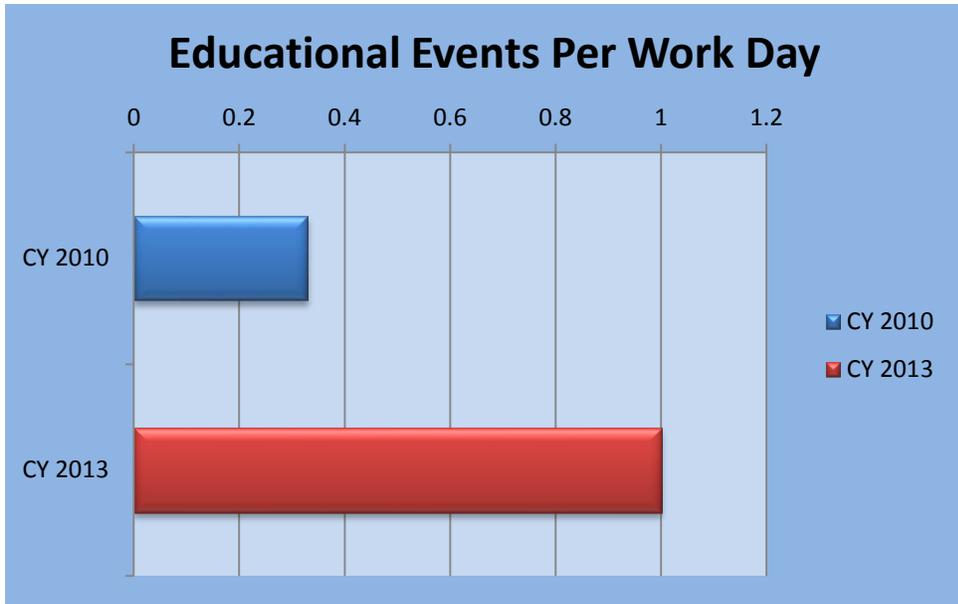


Figure 4. Pennsylvania Patient Safety Educational Events Per Work Day for Year 2010 compared to 2013

In 2013, the Authority reached an average of 21 individuals per work day through patient safety education as compared to seven individuals per work day in 2010 (Figure 5). This represents almost a 300% increase in attendees per work day since 2010.

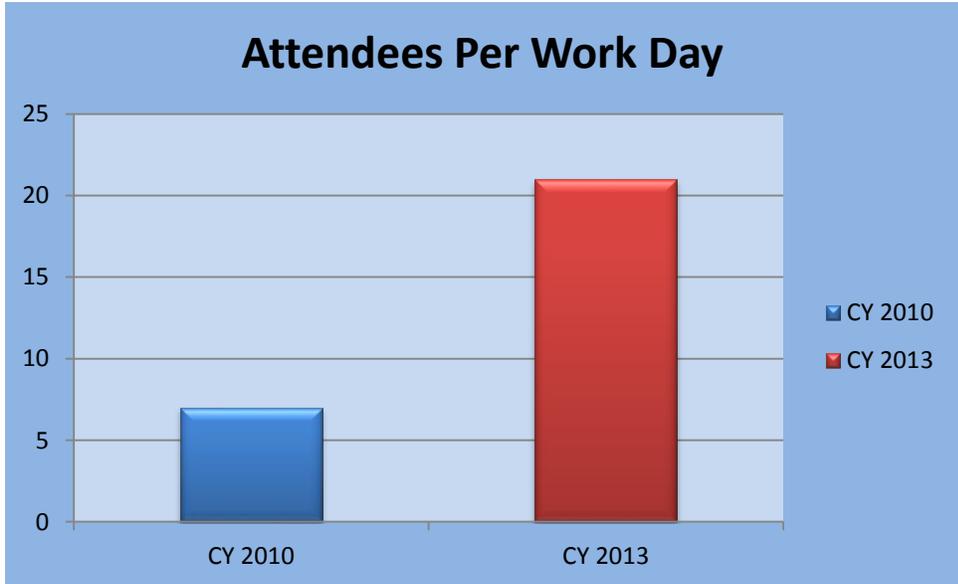


Figure 5. Pennsylvania Patient Safety Attendees per Work Day from year 2010 compared to year 2013

The Patient Safety Liaison Program

The Patient Safety Liaison (PSL) program has been in existence for over five years. Since its inception, the depth of the PSL program has grown tremendously. The Authority's eight PSLs are each responsible for a region of the Commonwealth. Every Pennsylvania hospital, ambulatory surgical facility (ASF), birthing center and abortion facility is assigned a regional PSL. The PSLs act as researchers, educators, consultants, facilitators, collaborators and conduits for sharing, collaboration and learning. Their primary contacts within the facilities are the patient safety officers (PSO). However, as the program has taken root, the PSL has become a patient safety resource to many disciplines within facilities. At an increasing rate, the PSLs are invited to assist with patient safety analysis, review of processes and procedures and education of hospital staff, executives and boards within facilities.

Several factors have affected the increased frequency of educational programs and the increased number of attendees per work day. Since hiring two new PSLs in the last year and a half, the Authority has had the opportunity to increase the exposure of Authority staff to facilities and the opportunities to engage PSOs and other facility staff in learning opportunities. Various resources are produced by the Authority in response to identified needs of facilities such as *Patient Safety Advisory* articles, toolkits, consumer tips and other items. These items have supported the educational programs progress. Recognizing that attending the educational programs can sometimes be difficult in person, the Authority has begun to offer webinars with more frequency and interest seems evident by the attendance (recently approximately 200 per webinar). The majority of PSL staff is certified by the National Patient Safety Foundation (NPSF) as certified patient safety professionals (CPPS). Stakeholders recognize the credibility of the Authority speakers and the value in the educational programs being offered. Topics of interest are varied and are customized as needed. They include, but are not limited to, topics such as human factors, situational awareness, teamwork and communication, patient engagement, system design, fair culture, identifying and managing risk, transparency, organizational leadership as well as clinically oriented programs focused on topics such as prevention of wrong site surgery, infection prevention and medication safety. In recognition of participation, each person attending an Authority event is offered a certificate of attendance.

The Authority will continue to develop, coordinate and offer educational programs that focus on identified patient safety education needs of healthcare providers and facilities. The Authority's focus is to reach out to all clinical and nonclinical staff, leadership and frontline staff, patients, and others who are part of the healthcare team in an effort to provide learning opportunities that will assist in the reduction and elimination of medical errors.

Interest in the Authority's educational programs has been influenced by many factors. A needs assessment is taken (in the form of program evaluations, verbal feedback from facilities, and statewide annual surveys) in an attempt to identify educational opportunities. The types of programs offered in 2013 included education on the Medical Care Availability and Reduction of Error (Mcare) Act, new patient safety officer (PSO) training, patient safety foundational concepts, specific clinical topics (e.g., infection prevention, medication safety), and collaboration-specific programs (e.g., falls, wrong-site surgery, adverse drug events).

The importance of facility boards of trustees embracing patient safety within their facilities is crucial for a culture of safety to occur. This safety and quality focus is recognized as fundamental to a healthcare facility's mission of providing safe, trusted, affordable and cost-effective healthcare. The Authority has partnered with the Hospital and Healthsystem Association of Pennsylvania and the American Hospital Association to educate a large number of hospital boards of trustee members about patient safety and its effect on quality in their healthcare facilities. Approximately 80 facilities in Pennsylvania have participated in the program since its inception. The program is supported by several healthcare organizations and agencies that provide pay-for-performance incentives and grant subsidies for participation in the program. They include Blue Cross of Northeastern Pennsylvania, Capital BlueCross, CHART Risk Retention Group, Highmark, Independence Blue Cross, and the Pennsylvania Office of Rural Health.

More information about the regional education programs offered by the Authority is provided in **Addendum D**.

Successfully Improving Patient Safety through Collaboration

In 2013, the Authority continued to work with Pennsylvania facilities in collaborative projects to improve patient safety. The outcomes of these collaborations are shared statewide through articles in the *Pennsylvania Patient Safety Advisory* to allow all facilities to learn from the work of other Pennsylvania facilities. They include the following:

The Ambulatory Surgical Facility Preoperative Screening and Assessment Collaboration

The Authority and 11 Ambulatory Surgical Facilities (ASFs) in the northeast region of Pennsylvania worked in collaboration to implement improvements to the preoperative screening and assessment process to reduce delays in surgery due to day of surgery (DOS) cancellations and avoid medical problems requiring transfer to a hospital. A standardized checklist, initiation of a second preoperative patient phone call, and evaluation of preoperative patient oral and written information were interventions implemented in the 18 month collaboration which began in January 2012 and ended in June 2013. The ASFs realized a 10% decrease in DOS (day of surgery) cancellation rates and a 6.3% decrease in ASF transfer rates to acute care hospitals. Additional details can be found in **Addendum G**.

Surgical Site Infection Prevention Collaborative

The Authority and the Pennsylvania National Surgical Quality Improvement Program (PA-NSQIP) collaborated on a program to reduce surgical site infections among the PA-NSQIP member hospitals and to transfer successful strategies and lessons learned to other Pennsylvania hospitals. This collaboration has included development of best-practice survey tools and on-site visits with a survey team consisting of a nurse, physician, and Authority representative. This collaboration team specifically focused on two types of surgical procedures: colectomy and bariatric surgery. Detailed information about the site assessment and findings are outlined in the December 2012 *Pennsylvania Patient Safety Advisory*. Collaborative outcome data, process measure data and lessons learned will be published in an upcoming Advisory issue. Additional details can be found in **Addendum C**.

Pennsylvania Hospital Engagement Network (PA-HEN)*

The Authority's efforts to improve patient safety with Pennsylvania healthcare facilities continued through its collaborations with the Hospital and Healthsystem Association of Pennsylvania (HAP) and other Pennsylvania healthcare organizations through the federal Partnership for Patients program. The Pennsylvania Hospital Engagement Network (PA-HEN) continued its work with hospitals to reduce healthcare acquired conditions and prevention of wrong-site surgery. Approximately 130 Pennsylvania hospitals are participating in the HEN collaborative projects.

The goals of the program are to:

- *Keep patients from getting injured or sicker.* By the end of 2013, decrease preventable hospital-acquired conditions by 40 percent compared with 2010.
- *Help patients heal without complication.* By the end of 2013, decrease preventable complications during a transition from one care setting to another so that hospital readmissions are reduced by 20 percent compared with 2010.

HAP is the primary lead with the federal government for this program. They have partnered with the Authority, the Health Care Improvement Foundation, the Pennsylvania Health Care Quality Alliance, and Quality Insights of Pennsylvania in developing PA-HEN.

Highlights of the Authority projects (adverse drug events, falls, and prevention of wrong-site surgery) are below.

Preventing Adverse Drug Events: Management of Opioids

The PA-HEN engaged the Authority to implement a statewide adverse drug event (ADE) project aimed at reducing and preventing harm related to the use of opioids based on PA-

PSRS and Institute for Safe Medication Practices (ISMP) data, coupled with the lack of standardized process and outcome measures for evaluating safety in relation to opioid use.

There are 29 PA-HEN hospitals participating in this project. The goal of this project was to decrease the number of harmful events when using opioids by December 2013 through increasing the awareness of patient harm occurring from using opioids within organizations; improving the knowledge of and processes associated with using opioids within organizations; assisting facilities in identifying risks currently present within their organizations and proactively reducing potential harm to patients; and decreasing the number of harmful events with the use of opioids within the HEN participants, by quarter, compared with concurrent and historical controls.

The project activities in 2013 included the publication of the results of the project's opioid knowledge assessment tool and opioid organizational assessment tool in the *Pennsylvania Patient Safety Advisory*. The project also included webinar-based education programs, one-on-one coaching calls, and sharing our experience from this project with HEN organizations across the country.

In looking ahead to 2014, the PA-HEN ADE opioid project will redistribute the original opioid knowledge and organization assessment to determine if there was progress in improving both the knowledge of opioids with practitioners as well as improved practices with the use of opioids within organizations. The project will continue to monitor the outcome and process measures, recruit organizations to present on monthly webinars and offer more collaborative opportunities among hospitals within the project.

In addition, two drug classes, insulin and anticoagulants, will be added to this project. The project activities for these medications include the development, dissemination, and analysis of an insulin and anticoagulant knowledge assessment tool as well as an insulin and anticoagulant organizational assessment. The project includes webinar-based education programs, one-on-one coaching calls, and implementation of a collaborative workspace for monthly data collection. Additional details regarding the preventing adverse drug events project are presented in **Addendum G**.

Preventing Patient Falls and Reducing Harm

Falls with injury are the most frequently reported hospital-acquired conditions and are one of the most frequently reported Serious Events in Pennsylvania. They continue to represent a patient safety challenge for many hospitals. As a partner with the PA-HEN, the Authority continued its collaboration with 79 Pennsylvania hospitals to reduce and prevent falls with harm. The project goal was to achieve a 40 percent reduction in the rate of falls with harm in participating facilities and units by December 2013.

Hospitals in the project use standardized definitions of falls and falls with harm to ensure consistent project data. PA-PSRS was modified in 2012 to provide hospitals with an opportunity to capture patient days and patient encounter data. These modifications allow for statewide and peer group comparisons and hospitals to have access to multiple reports for their outcome and process measures.

The falls project has provided enrolled hospitals with webinar-based educational offerings, coaching calls, hospital visits, a behavioral health workgroup, and in-person regional meetings to encourage program participation and collaboration among peers. The Authority provided a self-assessment tool to hospitals participating in the project. In addition, hospitals were asked to complete an audit on the unit or units where they are piloting small tests of change as part of the PA-HEN collaborative.

In 2014, the project hopes to increase the adoption of best practices in falls prevention across all categories through repeat administration of the falls self-assessment tool and encouragement of more hospitals to participate in completion of the quarterly unit audits. There will be new opportunities for webinar-based education, new workgroups for specific topic areas and increased collaboration with other HENs. The falls reduction and prevention team will continue to support the participating hospitals by meeting face-to-face with them, reviewing data for validity and reliability, and providing educational resources. Additional details regarding the falls reduction and prevention project are presented in **Addendum G**.

Preventing Wrong-Site, Wrong-Person, Wrong-Procedure Surgery Project

Since July 2004, 550 wrong-site surgery (WSS) events were reported through PA-PSRS. As a partner with the PA-HEN, the Authority continued its collaboration with 25 Pennsylvania hospitals and two ambulatory surgery centers to prevent wrong-site surgeries. The Authority's strategic program provided education, tools, technical assistance, resources, and interactive forums to help participants implement best practices to prevent the occurrence of WSS.

Two regionalized workshops were conducted for surgical leaders and their teams in April 2013. The workshop agenda included a summary of the collaboration's progress with meeting its process and outcome measure goals, presentations were given by participating facilities on successful strategies implemented to prevent WSS, and the Authority's WSS team facilitated group discussions in the following core areas: 1) preventing anesthesia blocks and spinal injections, 2) ensuring preoperative verification, site marking, and time-out, and 3) incorporating operating room (OR) culture of safety and patient/family engagement.

Activities conducted over the course of the year included reassessment of processes to prevent WSS and re-observation of 10 procedures to evaluate compliance with established practices, onsite visits, Grand Rounds presentations, and one-on-one coaching calls. Similarities observed during onsite visits were published in the *Pennsylvania Patient Safety Advisory*.

Because wrong-site anesthesia events represented 21% of all wrong-site events reported since July 2004 and nearly 32% of events reported through PA-PSRS during the first two years of the PA-HEN project, the Authority sponsored a statewide webinar in October 2013 entitled *Anesthesia Time-Outs: Why Are They Necessary?*. The featured speaker was anesthesiologist, Mark Taylor, M.D., from Allegheny Health Network. Participants gained

insight into the development of an anesthesia-time out policy and verification of a marked anesthesia administration site.

All WSS educational resources, programs, and activities including onsite visits and one-on-one coaching calls will continue in 2014 in a third year partnership with the PA-HEN. Additional details regarding the prevention of wrong-site surgery project are presented in **Addendum G**.

“I Am Patient Safety” Poster Campaign Recognizes Healthcare Workers in Pennsylvania

The Pennsylvania Patient Safety Authority held its inaugural “I Am Patient Safety” poster contest in 2013 with winners announced in the March *Pennsylvania Patient Safety Advisory* released during Patient Safety Awareness Week 2014. The Authority used the contest to highlight individuals and groups within Pennsylvania’s healthcare facilities who have made a personal commitment to patient safety. The Authority plans to hold the recognition poster contest each year.

Authority board members and management staff comprised the judging panel. Submissions were judged upon the following criteria: the person or group (1) had a discernible impact on patient safety for one or many patients, (2) demonstrated a personal commitment to patient safety, and (3) demonstrated that a strong patient safety culture is present in the facility. Bonus points were awarded for submissions that demonstrated initiative taken by an individual. Winners received their photo and patient safety efforts highlighted on posters that can be displayed within their facilities. They also received a certificate and an “I Am Patient Safety” recognition pin from the Authority. The individuals and groups recognized for the “I Am Patient Safety” poster contest and their achievements can be found in **Addendum H**. The addendum is a reprint of the 2014 March *Pennsylvania Patient Safety Advisory* article.

The Authority’s HAI Reduction Efforts

Healthcare-associated infections (HAI) acquired during healthcare treatment for other conditions can be devastating and even deadly. HAIs are associated with increased mortality and greater cost of care. In the worst cases, HAIs can lead to sepsis, which can result in organ failure and death. HAIs can occur in any healthcare setting, including hospitals, long-term acute care, dialysis clinics, ambulatory surgery facilities (ASF), and long term care facilities (LTCF). According to the Centers for Disease Control and Prevention (CDC) approximately 1 out of every 20 patients in US hospitals will contract an

HAI.² The most common types of HAI are bloodstream infections, urinary tract infections, surgical-site infections, gastrointestinal illnesses such as *Clostridium difficile* or norovirus, lower respiratory tract infections such as pneumonia, and skin and soft tissue infections. HAIs can also be associated with lapses in basic safe practices, such as reusing disposable syringes or inappropriate cleaning of equipment, and exposure to many types of invasive devices used in medical procedures, including catheters or ventilators. Pennsylvania is a recognized leader in healthcare-associated infection (HAI) reporting and subsequent event reduction. Through addressing the challenges presented by HAI, patient harm and excess treatment costs may be avoided. The Authority provides frontline staff, managers, infection preventionists, and administrators with data to help direct their infection prevention activities. Integration with current clinical practice through collaboration gives the Authority the ability to develop resources and tools designed for overall prevention of HAIs.

In order to leverage the unique resources and strengths of different organizations, the Authority works closely with the Pennsylvania Department of Health, the Pennsylvania Health Care Cost Containment Council, the Hospital and Healthsystem Association of Pennsylvania (HAP), the Association for Professionals in Infection Control and Epidemiology, the Health Care Improvement Foundation, the Pennsylvania Health Care Quality Alliance, and other government agencies and professional associations across the spectrum of healthcare delivery.

The Authority analyzes HAI data from the Pennsylvania Patient Safety Reporting System (PA-PSRS) and the National Healthcare Safety Network (NHSN). PA-PSRS data is used to monitor events and generate infection rates for LTCF, while NHSN data is primarily utilized by the Authority to analyze hospital trends. **Addendum F** presents the Authority's rate tables for LTCFs. Additional HAI-related analysis is presented in **Addendum C** which summarizes select articles from the *Pennsylvania Patient Safety Advisory*.

The Authority prioritizes the prevention of HAIs by monitoring and analyzing infection-related reports from hospitals, nursing homes, and ASFs. The Authority has expanded its portfolio of activities including HAI prevention programs, and toolkits to address new challenges. This expansion supports the Authority's endeavors to better guide and educate healthcare facilities in their methods to detect serious infection trends and to develop new strategies to prevent HAIs. As a result of the Authority's guidance and education to Pennsylvania healthcare facilities, protecting patients from infectious disease threats has been advanced and is illustrated by the noteworthy progress that has been made in

² Centers for Disease Control and Prevention. Healthcare Associated Infections (HAI): The burden [online][cited 2013 Nov 22] <http://www.cdc.gov/hai/burden.html>

Pennsylvania to reduce HAIs, as reported by the PA-DOH³ and the Authority's annual report.⁴

Highlights of HAI work completed by the Authority in 2013 include:

- Pennsylvania's National Surgical Quality Improvement Program (NSQIP) and the Authority completed a joint quality improvement collaboration to reduce surgical site infections (SSI) among NSQIP member hospitals and to share successful strategies and lessons learned with other Pennsylvania hospitals.
- In April and May 2013, the Authority offered statewide didactic and interactive full-day sessions for Pennsylvania ASFs on the topics of sterilization and disinfection and safe injection practices. Approximately 200 attendees participated, representing more than 100 ASF facilities.
- Continued to maintain and support the Pennsylvania HAI Advisory Panel
- In March and October 2013, the Authority presented the norovirus prevention program educational modules and toolkit at APIC conferences in the Delaware Valley and Northeastern Pennsylvania.
- At the September 2013 HHS "Road Map to Eliminate HAI Action Plan" conference in Washington DC, the Authority was invited to present on "Pennsylvania's Patient Safety Reporting System for Healthcare-Associated Infections in Nursing Homes." HHS staff and other national stakeholders were particularly interested in Pennsylvania's successful methods of supporting LTCFs to achieve a robust reporting and feedback process, management of reports, data integrity, and how reporting has made a difference in prevention of HAIs in Pennsylvania.
- In June 2013, the Authority published the successful outcome of the authority's LTCF best practice assessment outreach project. This project identified multidisciplinary implementation barriers in LTCF with high HAI rates at the leadership, physician, clinical, and support staff levels and recognized patterns of care that LTCFs could target for improvement. Through the Authority's outreach project and support, participating Pennsylvania LTCFs successfully implemented infection control best practices as noted by reduced infection rates. This project was featured at "The Joint Commission's High Reliability Practices to Reduce Transmission of Infections in Long Term Care Roundtable Meeting" in July 2013, as well as at an APIC national-sponsored LTCF infection control educational program. In addition, APIC reprinted the Authority's "Long-Term Care Best- Practice Assessment Tool" in the organization's "Infection Preventionists Guide to Long Term Care" published in December 2013. The Joint Commission has requested permission to reference the assessment tool and *Advisory* article in an educational resource guide currently under development for LTCF.

³ Pennsylvania Department of Health. Healthcare-Associated Infections in Pennsylvania 2011 Report[online [cited 2013 Nov 22]

⁴ Pennsylvania Patient Safety Authority 2012 annual report: ADDENDUM H: Healthcare-Associated Infections [online][cited 2013 Nov 22]

- Supported several HAI reduction efforts managed by HAP under the federal Partnership for Patients program.

These are just a few examples of the Authority's HAI reduction efforts. For more detail on these and other initiatives, please refer to **Addendums C and F**.

Recommendations to the Department of Health

Since its inception, the Pennsylvania Patient Safety Authority has had a special focus on preventing surgical procedures from being performed on the wrong patient, wrong body part, wrong side of the body, or wrong level of a correctly identified anatomic site—collectively referred to as “wrong-site surgery.” While this type of event is rare at the level of an individual hospital or ASF, the Authority has developed the largest database of reports on wrong-site surgery cases in the United States, and possibly the world. The Authority's analysis of several hundred of these reports allowed the Authority to identify principles that, when followed, can prevent these events.⁵

The Authority used these principles in two collaborative programs with multiple hospitals to help them reduce or eliminate wrong-site surgery. Working with the Health Care Improvement Foundation, the Authority helped a group of 30 hospitals in southeastern Pennsylvania to reduce these serious events by 73%. The Authority convened a second group of operating room staff from 19 facilities elsewhere in the state to try to achieve one year with no wrong-site surgeries.

Having developed the evidence base for these principles and demonstrated that facilities adopting these principles can drastically reduce the occurrence of wrong-site surgery, the Authority took the initial steps toward issuing formal recommendations on wrong-site surgery prevention. The Authority met with the Pennsylvania Department of Health (DOH) in January 2012 to discuss the process for making recommendations and obtained its agreement in principle that recommendations on this topic would benefit the commonwealth.

In March 2012, the Authority distributed draft recommendations for public comment to the patient safety officers of all acute care facilities that perform surgery, as well as to the Pennsylvania chapters of relevant clinical specialty societies and professional associations. The Authority received feedback from these stakeholders on whether they envisioned any barriers to implementation of the principles. In November 2012, the Authority published a supplementary *Pennsylvania Patient Safety Advisory* discussing the feedback received from the Pennsylvania professional organizations. The Authority and DOH expect to address the wrong-site surgery recommendations in late 2014.

⁵ Pennsylvania Patient Safety Authority. The evidence base for the principles for reliable performance of the Universal Protocol [online]. Dec 2011 [cited 2012 Apr 12].
http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/PWSS/Documents/u_principles.pdf.

Anonymous Reports

Act 13 of 2002 (MCare) includes an important provision that permits individual healthcare workers to submit what the MCare 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. Act 13 of 2002 requires facilities to make anonymous report forms available to healthcare workers. The Authority does not receive many anonymous reports. The Authority makes the forms available on the PA-PSRS website, which is accessible without a password. The reporting form is a simple, one-page questionnaire. To ensure healthcare workers are aware of the option to submit an anonymous report, the Authority developed an anonymous report pamphlet. The pamphlet includes an anonymous report form with guidelines for filing a report so patient safety officers can make them easily accessible for hospital staff. While making their routine visits to facilities in their region, the Authority’s patient safety liaisons also ensure patient safety officers are making the anonymous report forms accessible to employees.

Healthcare workers are able to submit an anonymous report according to the protocols established through the PA-PSRS system. Individuals completing the form do not need to identify themselves, and the Authority assigns professional clinical staff to conduct any subsequent investigations. The Authority encourages healthcare workers to submit anonymous reports when they believe their facility is not responding appropriately to Serious Events. Act 13 of 2002 requires that the annual report include the number of anonymous reports filed and reviews conducted by the Authority. The Authority received one anonymous report in 2013 that complied with Act 13 of 2002 requirements.

Referrals to Licensure Boards

Act 13 of 2002 requires the Authority to identify the number of referrals to licensure boards for failure to submit reports under the act’s reporting requirements. No such situations were identified during 2013. However, it is important to note that the Authority is unlikely to receive information related to a referral to a licensure board, as PA-PSRS reports do not include the names of individual licensed practitioners.

Fiscal Statements and Contracts

Act 13 of the MCare Act of 2002 establishes the Patient Safety Trust Fund as a separate account in the State Treasury. Under the MCare Act, the Authority, which has sole discretion to determine how those funds are used to effectuate the purposes of the patient safety provisions of the Act, administers funds in the Patient Safety Trust Fund. Funds for the Patient Safety Trust Fund come from assessments made by the Department of Health on certain medical facilities. The department has 30 days following receipt of those moneys to transfer them to the Trust Fund.

The Authority recognizes that Pennsylvania hospitals, birthing centers, ambulatory surgical facilities, 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: to be moderate in the use of moneys contributed by the healthcare industry and to assure that healthcare facilities paying for PA-PSRS receive direct benefits from the system in return.

In this regard, in designing PA-PSRS, the Authority included within the system a variety of integral and analytical tools that provide immediate, real-time feedback to facilities about their own adverse event and near-miss reports and activities and a report that aggregates reports in the National Patient Safety Goal categories. Facilities can use these tools for their internal patient safety and quality improvement programs. The Authority also publishes the *Pennsylvania Patient Safety Advisory*, a scholarly journal issued quarterly that includes detailed analysis and identification of trends of reports submitted through PA-PSRS. Finally, the Authority has provided numerous training and education programs including topics such as reporting basics, Beyond the Basics, regional root cause analysis, failure mode effect and analysis, reduction of MRSA in ambulatory surgical facilities, and new patient safety officer school, to name a few. These programs are generally offered for free. As identified elsewhere in this report, the Authority is expanding its services to be increasingly collaborative with reporting facilities and other patient safety-centric organizations. By directly offering clinical guidance, feedback, and educational programs to providers about actual events that occurred in Pennsylvania, the Authority provides value to the healthcare industry that funds this program.

FUNDING RECEIVED FROM HOSPITALS, ASFS, BIRTHING CENTERS AND ABORTION FACILITIES

On March 25, 2013, the Authority Board authorized a recommendation to the Department of Health that the FY 2012-2013 acute care surcharge assessment total \$5.5 million. This amount was an increase of \$400,000 over the surcharge assessment from the previous fiscal year, and was 15.7% less than the maximum annual amount that could have been assessed for the year pursuant to Section 305(d) of the MCare Act. At the time of this recommendation, the Patient Safety Authority Board took several points into consideration, including:

- The Patient Safety Authority budget increased by \$643 thousand or 10.8% over the previous fiscal year.
- The Patient Safety Authority FY 2012-2013 budget was approximately \$6.5 million, of which approximately \$5.6 million related to Non-HAI expenditures.

Act 13 requires that the annual report include a summary of fund receipts and expenditures, including a financial statement and balance sheet. The following tables are presented to meet these requirements and also include Act 52/HAI financial information:

Table 6. Acute Care Facility (ACF) Assessments

Fiscal Year	Number of Facilities assessed by DOH	ff	Approved assessments	ff	Total Assessments received by DOH	ff 1
2002-03	356		\$5,000,000		\$4,663,000	
2003-04	377		\$2,500,000		\$2,542,316	
2004-05	414		\$2,500,000		\$2,508,787	2
2005-06	450	3	\$2,500,000		\$2,500,149	
2006-07	453		\$2,500,000		\$2,500,034	
2007-08	526		\$5,400,000		\$5,391,583	
2008-09	524		\$4,000,000		\$3,972,677	
2009-10	519		\$5,000,000		\$4,989,781	
2010-11	542		\$5,000,000		\$4,981,443	
2011-12	550		\$5,100,000		\$5,063,723	
2012-13	545		\$5,500,000		\$5,504,549	
					\$44,618,042	

[1] Amounts assessed and amounts received will differ because a few facilities may have closed in the interim or are in bankruptcy. In a few cases, the Department of Health is pursuing action to enforce facility compliance with Act 13's assessment requirement.

[2] Total Assessments received are greater than assessments made because some funds received were late payments for the previous year's assessment.

[3] The number of facilities assessed by the Department of Health differs from the number of Act 13 facilities cited elsewhere in this report due to the differences in the dates chosen to calculate the number of facilities for these two different purposes.

FUNDING RECEIVED FROM NURSING HOMES

Act 13 of the MCare Act set a 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 for each subsequent year. This money can only be spent on activities related to HAI and implementation and maintenance of Chapter 4 of the MCARE Act. On March 25, 2013, the Authority Board authorized a recommendation to the Department of Health that the FY 2011-2012 nursing home surcharge assessment total \$900,000. This amount is \$100,000 more the previous year's assessment, and approximately 11.1% below the maximum assessment permitted under Act 52 based on annual CPI adjustments.

**Table 7. Nursing Home Assessments (long-term care)
Nursing Home Assessments and Receipts**

Fiscal Year	Number of Facilities assessed by DOH	Approved assessments	Total Assessments received by DOH
2008-09	725	\$1,000,000	\$1,000,782
2009-10	711	\$800,000	\$799,382
2010-11	707	\$800,000	\$799,829
2011-12	707	\$800,000	\$804,473
2012-13	711	\$900,000	\$913,315
			\$4,317,781

ANNUAL EXPENDITURES

During calendar year 2013, the Authority spent approximately \$6.0 million and received HEN related reimbursement of \$812 thousand resulting in Net Expenditures of approximately \$5.2 million. Please see the table below:

Table 8. Actual Expenditures for Calendar Year 2013

Control Level	Amount
61: Personnel	\$1,846,777
63: Operating	\$4,167,506
44: HEN Augmentation	-\$812,793
Net Expenditures	\$5,201,490

PATIENT SAFETY AUTHORITY CONTRACTS

Act 13 of 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 2013, the Authority received services under the following contracts. [Key: FC (Funds Commitment); PO (Purchase Order)]

Please note: Amount expended is shown for the period in which service was received.

ECRI Institute, FC # 4000013036

Five-year contract for program administration, clinical analysis, training and data collection and reporting infrastructure services, extended to June 2014.

November 2008 to June 30, 2014.

Total Contract Amount \$24,627,719 over 5 years and 8 months.

Amount Expended in 2008: \$496,373.04 (November and December)

Amount Expended in 2009: \$3,664,012.67 (January through December)
Amount Expended in 2010: \$3,747,379.11 (January through December)
Amount Expended in 2011: \$3,854,487.96 (January through December)
Amount Expended in 2012: \$4,253,118.44 (January through December)
Amount Expended in 2013: \$4,601,794.47 (January through December)

IKON Office Solutions, PO #4300182251

Color Copier Lease

October 1, 2009 to September 30, 2013 @ \$414.30/month plus overages

2013 Lease Expense: \$3,728.70

2013 Overage Expense: \$2,626.30

Total Amount Expended in 2013 (Jan-Dec 2013): \$6,355.00

IKON Office Solutions, PO # 4500514316

B&W Copier Lease

July 1, 2012 to July 30, 2013 @ \$232.03/month

7 Month Lease Expense (Jan-Jul): \$1,624.21

IKON Office Solutions, PO # 4500712922

B&W Copier Lease

August 1, 2013 to June 30, 2017 @ \$232.03/month

5 Month Lease Expense (Aug-Dec): \$1,013.10

Amount Expended on all IKON POs in 2013: \$8,992.31

XEROX Corporation, PO # 4500734462

Color Copier Lease

October 1, 2013 to August 31, 2017 @ \$393.39/month with no overage charge

3 Month Lease Expense (Oct-Dec): \$1,195.17

Harrisburg Parking Authority, FC#490001139

Parking at the Chestnut Street Garage – Calendar Year 2013

5 months, 5 spaces at \$165 per space, or \$825/month

7 months, 6 spaces at \$165 per space, or \$990/month

Amount Expended in 2013 (HPA): \$11,055.00

PATIENT SAFETY AUTHORITY BALANCE SHEET

The following Balance Sheet reflects the status of the Patient Safety Trust Fund as of December 31, 2013:

Table 9. Patient Safety Trust Fund Balance Sheet (Unaudited) ⁶ as of December 31, 2013

ASSETS	
Temporary Investments	\$5,477,796
TOTAL ASSETS	\$5,477,796
LIABILITIES AND FUND BALANCE	
Liabilities:	
Accounts Payable and Accrued Liabilities	\$73,702
Invoices Payable	1,322
Accrued Payables Goods Receipts	(4)
TOTAL LIABILITIES	75,020
Fund Balance:	
Restricted for:	
Encumbrances	5,419,046
Health Related Programs	(16,270)
TOTAL FUND BALANCE	5,402,776
TOTAL LIABILITIES AND FUND BALANCE	\$5,477,796

⁶ Source: Comptroller Operations, Commonwealth Office of the Budget

Board of Directors and Public Meetings

Members of the board of directors are appointed by the governor and the general assembly according to certain occupational or residence requirements. As of December 31, 2013, members include:

- Physician appointed by the Governor who serves as Chair: Carrie DeLone, MD, Physician General
Residence: Camp Hill (Cumberland County)
- Appointee of the President pro tempore of the Senate: Daniel Glunk, MD
Residence: Williamsport (Lycoming County)
- Appointee of the Minority Leader of the Senate: Cliff Rieders, Esq.
Residence: Williamsport (Lycoming County)
- Appointee of the Speaker of the House: Stanton N. Smullens, MD, Vice Chair
Residence: Philadelphia (Philadelphia County)
- Appointee of the Minority Leader of the House: Eric Weitz, Esq.
Residence: Carlisle (Cumberland County)
- Nurse appointed by the Governor: Joan M. Garzarelli, RN, MSN
Residence: Irwin (Westmoreland County)
- Pharmacist appointed by the Governor: Gary A. Merica, B.Sc., MBA/HCM
Residence: Red Lion (York County)
- Hospital employee appointed by the Governor: Radheshyam Agrawal, MD
Residence: Pittsburgh (Allegheny County)
- Healthcare worker appointed by the Governor: Jan Boswinkel, MD
Residence: Havertown (Delaware County)
- Non-healthcare worker appointed by the Governor: Lorina L. Marshall-Blake
Residence: Philadelphia (Philadelphia County)
- Physician appointed by the Governor: John Bulger, DO, MBA
Residence: Danville (Montour County)

Act 13 of 2002 requires the board of directors to meet at least quarterly. During 2012, the board met frequently to assess and develop future patient safety educational and advocacy activities, including developing another strategic plan and enhancing its PSL program. Representatives of healthcare, consumer, and other stakeholder groups, including the general assembly, have attended and spoken at public meetings. Following are the dates of all public board meetings held by the Authority during 2013:

January 22, 2013
March 5, 2013
April 23, 2013
July 23, 2013
September 10, 2013
October 22, 2013
December 3, 2013

Summary minutes of the public meetings are available on the Authority's website at <http://www.patientsafetyauthority.org>.

Address: Pennsylvania Patient Safety Authority
333 Market Street, Lobby Level
Harrisburg, PA 17120

Phone: 717-346-0469
Fax: 717-346-1090
E-mail: patientsafetyauthority@pa.gov

(page left intentionally blank)

ADDENDA SECTION

(Page left intentionally blank)

ADDENDUM A: DEFINITIONS

Definitions

Act 13 requires healthcare facilities to submit reports on the following three kinds of occurrences:

Serious Event—An adverse event resulting in patient harm. The legal definition, from Act 13, reads: “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.”

Incident—A “near miss” in which the patient was not harmed. Act 13 defines this as: “An event, occurrence or situation involving the clinical care of a patient in a medical facility which could have injured the patient but did not either cause an unanticipated injury or require the delivery of additional 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 healthcare facility, the availability of clinical services or criminal activity. Act 13 defines this as: “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.” Reports of Infrastructure Failures are not addressed in this report because these are submitted only to the Department of Health.

Reports of Serious Events and Incidents are submitted to the Pennsylvania Patient Safety Authority for the purposes of learning how the healthcare system can be made safer in Pennsylvania. Reports of Serious Events and Infrastructure Failure are submitted to the Department of Health for the purposes of fulfilling its role as a regulator of Pennsylvania healthcare facilities.

Act 13 requires the following types of facilities to submit reports of Serious Events, Incidents and Infrastructure Failures to the Authority through PA-PSRS:

- **Hospital**—The Health Care Facilities Act (35 P.S. §448.802a) 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 rehabilitative 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.” For the purposes of this report, at the end of 2013, there were 239 Hospitals in the Commonwealth of Pennsylvania.

- **Ambulatory Surgical Facility**—The Health Care Facilities Act defines an ambulatory surgical facility as “a facility or portion thereof not located upon the premises of a hospital which provides specialty or multispecialty outpatient surgical treatment. Ambulatory surgical facility does not include individual or group practice offices or 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.” For the purposes of this report, at the end of 2013, there were 300 ambulatory surgical facilities in the Commonwealth of Pennsylvania.
- **Birthing Center**—The Health Care Facilities Act defines a birthing center as “a facility not part of a hospital which provides maternity care to childbearing families not requiring hospitalization. A birthing center provides a home-like atmosphere for maternity care, including prenatal, labor, delivery, postpartum care related to medically uncomplicated pregnancies.” For the purposes of this report, at the end of 2013, there were five birthing centers in the Commonwealth of Pennsylvania.
- **Abortion Facility**— Act 30 of 2006 extended the reporting requirements in Act 13 to abortion facilities that perform more than 100 procedures per year. For the purposes of this report, at the end of 2013, there were 18 qualifying abortion facilities in the Commonwealth of Pennsylvania.
- **Nursing Home** – Act 52 of 2007 revised Act 13 of 2002 (MCare) to require nursing homes to report HAIs to the Authority. Reporting from these facilities began in June 2009. For the purposes of this report, at the end of 2013, there were 710 nursing homes in the Commonwealth of Pennsylvania. See the addendum for data received to date from nursing homes.

Other pertinent definitions used in this report include:

- **Medical Error**—This term is commonly used when discussing patient safety, but it is not defined in Act 13. The word “error” appears in PA-PSRS and in this report. For example, one category of reports discussed is “Medication Errors.” In PA-PSRS the word “error” is used in the sense intended by the Institute of Medicine Committee on Data Standards for Patient Safety, which defines an error as: The failure of a planned action to be completed as intended (i.e., error of execution), and 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).⁷

⁷ Committee on Data Standards for Patient Safety, Institute of Medicine, *Patient Safety: Achieving a New Standard of Care*. Washington, DC: National Academies Press; 2004.

- **Adverse Event**—This term also appears in this report, though it is not defined in Act 13. The Institute of Medicine Committee on Data Standards for Patient Safety defines an adverse event as: 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, as some adverse events may result from clinical care without necessarily involving an error.

Within Act 13, the term medical error is used in the *Declaration of Policy*: “Every effort must be made to 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.”

While PA-PSRS does include reports of events that result from errors, the program’s focus is on the broader scope of actual and potential adverse events—not only those that resulted from errors.

- **Patient Safety Officer**—Act 13 requires each medical facility to designate a single individual to serve as that facility’s Patient Safety Officer. Under Act 13, the Patient Safety Officer is responsible for submitting reports to the Authority. Act 13 also assigns other responsibilities to the Patient Safety Officer.

(page left intentionally blank)

ADDENDUM B: DETAILED OVERVIEW OF DATA REPORTED THROUGH PA-PSRS

Introduction

The Pennsylvania Patient Safety Reporting System (PA-PSRS) is a secure, web-based system that permits medical facilities to submit reports of what Act 13 defines as “Serious Events” and “Incidents.” Statewide mandatory reporting through PA-PSRS went into effect June 28, 2004. All information submitted through PA-PSRS is confidential, and no information about individual facilities is made public.

As defined by Act 13, PA-PSRS is a facility-based reporting system. It is important for Pennsylvania consumers to recognize there are other complaint and error reporting systems that are available for individuals. The Department of Health can issue sanctions and penalties, including fines and forfeiture of license, to healthcare facilities who fail to comply. Citizens can file complaints related to hospitals and ambulatory surgical facilities by calling the Department of Health at 1-800-254-5164; for complaints related to birthing centers, they can call the Department of Health at 717-783-1379. Complaints against licensed medical professionals can be filed with the Department of State’s Bureau of Professional and Occupational Affairs at 1-800-822-2113.

All reports are submitted by facilities through a process identified in their patient safety plans, as required by the Act. However, Act 13 provides for one exception to this facility-based reporting requirement. Under this exception, a healthcare worker who feels that his or her facility has not complied with Act 13 reporting requirements may submit an Anonymous Report directly to the Authority. (See the addendum on Anonymous Reports.)

To access PA-PSRS, facilities need only a computer with Internet access. There is no need for a facility to procure costly equipment or software to meet statutory reporting requirements, and only minimal self-directed training is necessary to learn how to navigate the PA-PSRS system.

In submitting a report, medical facilities respond to 21 core questions through check boxes and free-text narrative. The system directs the user through the process, offering drop-down boxes of menu options and guiding the user to the next series of questions based on the answers to previous questions. The process is similar for nursing homes, which began reporting healthcare-associated infections (HAIs) in June 2009, with the system posing different questions depending on what type of infection is reported.

Questions answered by the facilities include those related to demographic information (such as a patient’s age and gender), the location within a facility where the event took place, the type of event and the level of patient harm, if any. In addition, the report collects considerable detail about “contributing factors,” details related to staffing, the workplace environment and management, and clinical protocols. Facilities are also asked to identify

the root cause of a Serious Event and to suggest procedures that can be implemented to prevent a reoccurrence.

Once a report is submitted, the Authority's clinical team initiates an analysis. This team includes professionals with degrees and experience in medicine, nursing, pharmacy, health administration, risk management, product engineering and statistical analysis, among other fields. In addition, through its contract staff, the Authority has access to a large pool of subject matter experts in virtually every medical specialty.

After the system electronically receives and prioritizes each report, the clinical team performs additional review, following up with individual facilities as necessary. The team's role is to identify situations of immediate jeopardy, or trends that may compromise patient safety and to offer solutions for improvements.

As a result of this comprehensive analysis, the Authority issues the *Pennsylvania Patient Safety Advisory* based on data submitted through PA-PSRS, supplemented by a scholarly search of the medical and clinical literature. *Advisory* articles are directed primarily to healthcare professionals for use by both clinical and administrative staffs. The Authority encourages these providers to use the articles as learning tools for patient safety and continuous quality improvement. In a recent survey, there were many responses indicating that Pennsylvania facilities have implemented improvements as a result of information contained in this year's *Advisories* and associated toolkits.

Primary distribution of the *Advisory* is through email, enabling the Authority to circulate the *Advisory* to thousands of individual healthcare providers, hospitals and government and healthcare organizations around the world, including national patient safety and quality improvement organizations. As a result, the Authority is able to generate considerable interest in Pennsylvania's approach to promoting patient safety and in the lessons learned through PA-PSRS.

More information about the *Advisory* and the data collected through PA-PSRS is in the addendum discussing the *Advisory*. In addition, all copies of the *Advisory* are accessible on the Authority website, www.patientsafetyauthority.org.

Another component of PA-PSRS is the set of analytical tools available to reporting facilities. These tools provide patient safety professionals, quality improvement specialists, and risk managers with detailed reports analyzing data related to their specific facilities. Many reports can also be exported to other software programs for inclusion in facility publications or in reports and presentations to trustees and senior management. In addition, facility personnel have the ability to export all, or any portion, of their facility's data. Managers can use this information for their internal quality improvement and patient safety activities.

These analytical tools are an essential component of patient safety improvement efforts in Pennsylvania. While PA-PSRS allows the Authority to focus on analyzing statewide aggregate data, the analytical tools within the system provide immediate, real-time feedback to individual facility managers that help them identify trends in actual or potential adverse patient outcomes within their institutions.

PA-PSRS was developed under contract with ECRI Institute, a Pennsylvania-based independent, non-profit health services research agency, in partnership with HP, a leading international, information technology firm, and the Institute for Safe Medication Practices (ISMP), also a Pennsylvania-based, non-profit health research organization.

Interpreting PA-PSRS Data

Many factors influence the number of reports submitted by any particular facility or any group of facilities, of which safety and quality are just two. Additional factors include facility size, utilization or volume, patient case mix, severity of illness, differences in facilities' understanding of what occurrences are reportable, differences in facilities' success in detecting reportable occurrences and others.

PA-PSRS data is not a "report card" for individual healthcare facilities. For example, if Facility A has substantially more reports than a similar facility (Facility B), this would not mean that Facility A is necessarily less safe than Facility B. In fact, Facility A could be *safer* than Facility B, because they may have better systems in place for recognizing and reporting actual and potential adverse events.

However, the number of reports submitted by a facility is also impacted by how that facility interprets reporting requirements. The Authority Board established a strategic initiative to reduce reporting interpretation discrepancies. Staff is working with the Department of Health and other stakeholders to attempt to provide improved reporting standardization.

Numbers by themselves do not provide complete answers. For example, the number of incorrect medications administered is not meaningful without knowing the total number (known as the "denominator") of all medications administered. In other words, 10 incorrect medications out of a total of 50 administered doses are much different than 10 incorrect medications out of 10,000 administered doses.

Additional considerations when reviewing PA-PSRS data presented in this report include the following:

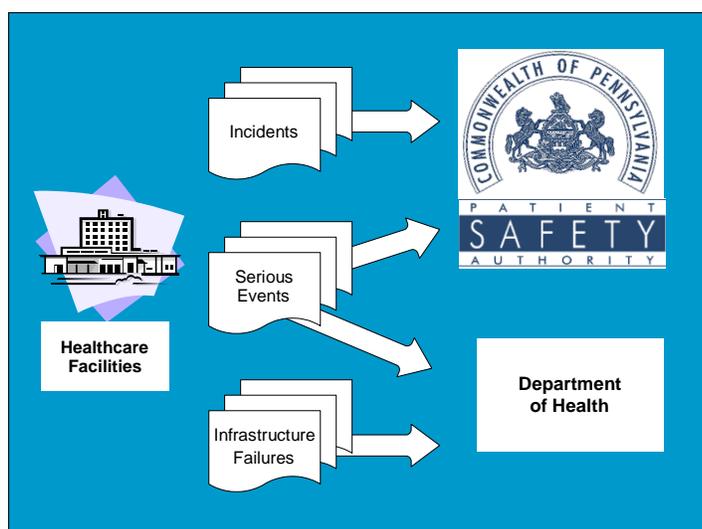


Figure 1. Submission of PA-PSRS Reports

- Data presented in this report include only reports of Serious Events and Incidents. While PA-PSRS also collects reports of Infrastructure Failures, these reports are submitted only to the Department of Health. The Authority does not receive reports of Infrastructure Failures. (See Figure 1.)
- Unless otherwise noted, data presented in this report are based on reports submitted to PA-PSRS between

January 1, 2013, and December 31, 2013. Data from acute care facilities are presented in this addendum. Healthcare-associated infection data (HAI) from acute and long-term care facilities is presented in its own addendum of this report.

- Unless specifically noted, numbers of reports in different categories are actual “raw numbers” and have not been adjusted for any facility- or patient-related factors that may influence differences in report volume among different facilities.
- The data are not adjusted to account for medical facility openings, closings or changes of ownership.

Caution is advised when comparing data contained in this report with data published by other patient safety reporting systems. PA-PSRS was developed within the context of Act 13, which has its own unique definitions for what is and what is not reportable to PA-PSRS. It also uses a specific list of Event Types that may be different than the lists used by other systems. Most important, PA-PSRS is believed to be the only mandatory state program collecting data on “near misses”—events which did not harm patients.

Many factors may influence differences between data from various patient safety reporting systems. The key comparisons to make are those made by individual healthcare facilities, as they monitor their own performance over time and in relation to specific patient safety goals relevant to their healthcare setting.

Report Volume

Reports by Month and Submission Type

Between January 1 and December 31, 2013, Pennsylvania acute care facilities submitted 246,606 reports through PA-PSRS, bringing the number of reports submitted by these facilities since the program’s inception to 2,030,592. Table 1 shows the distribution of submitted reports by month for calendar year 2013.

Table 1. Reports Submitted to PA-PSRS in 2013, by Month, Acute Care Facilities

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Serious Events	660	614	690	696	627	609	674	655	606	624	560	528	7,543
Incidents	22,490	18,766	24,382	20,795	20,451	16,673	17,724	18,192	21,571	20,381	16,652	20,986	239,063
Total	23,150	19,380	25,072	21,491	21,078	17,282	18,398	18,847	22,177	21,005	17,212	21,514	246,606

Approximately 3.1% of submitted reports were Serious Events, while 96.9% were Incidents. In 2013 the Authority received 20,551 reports per month on average, an increase of 4.8% from 2012. The number of Incident reports averaged 19,922 per month, an increase of 5.2% compared to the previous year. The number of Serious Event reports averaged 629 per month, which is a decrease of 6.2% from 2012.

Reports by Facility Type

As shown in Table 2, the total number of reports submitted through PA-PSRS in 2013 surpassed a quarter million. The vast majority of reports (87%) were submitted by hospitals. Among acute-level facilities (non-nursing homes), the majority is even more pronounced (97.9%). Nursing homes submitted 11.2% of the overall total.

Table 2. Reports through PA-PSRS by Facility Type (2013)

Facility Type	Hospitals	Ambulatory Surgical Facilities	Birthing Centers/ Abortion Facilities	All Acute Level Facilities	Nursing Homes (HAI Only)	All Facilities Reporting via PA-PSRS
Number of Reports Submitted	241,371	5,021	214	246,606	30,958	277,564
Number of Facilities Active for year ending December 31, 2013	239	300	23	562	710	1,272

The remainder of this data addendum will focus on acute care facilities; nursing homes will be addressed in **Addendum F** on HAIs.

Table 3 shows reporting rates among non-hospital acute-level facilities—ambulatory surgical facilities, birthing centers, and abortion facilities (ASFs/BCs/ABFs)—compared to hospitals from 2009 to 2013. Although both groups realized increased reporting from 2009 through 2013, the percentage was higher among the ambulatory facilities. That group of facilities saw 43.7% more reports submitted during the period. This increase is paired with the implementation of the Patient Safety Liaison (PSL) Program. The Authority believes this increase is, in part, due to the increased presence of PSLs to assist the facilities and enhanced training on how to report.

Table 3. Reports by Acute Facility Types since 2009

Year	Hospitals		Ambulatory Surgical Facilities/ Birthing Centers/ Abortion Facilities		All Facilities Total
	No.	% of Facility Type	No.	% of Facility Type	
2009	223,026	98.39	3,644	1.61	226,670
2010	221,855	98.33	3,769	1.67	225,624
2011	223,995	97.88	4,840	2.12	228,835
2012	230,017	97.78	5,232	2.22	235,249
2013	241,371	97.88	5,235	2.12	246,606
Total*	1,996,467	98.32	34,129	1.68	2,030,592

*The Pennsylvania Patient Safety Authority began mandatory reporting statewide on June 28, 2004.

Report Submission Trends

The trend line superimposed over the actual track of monthly reports in Figure 2 suggests that the volume of reports is increasing at a slower rate through the end of 2013.

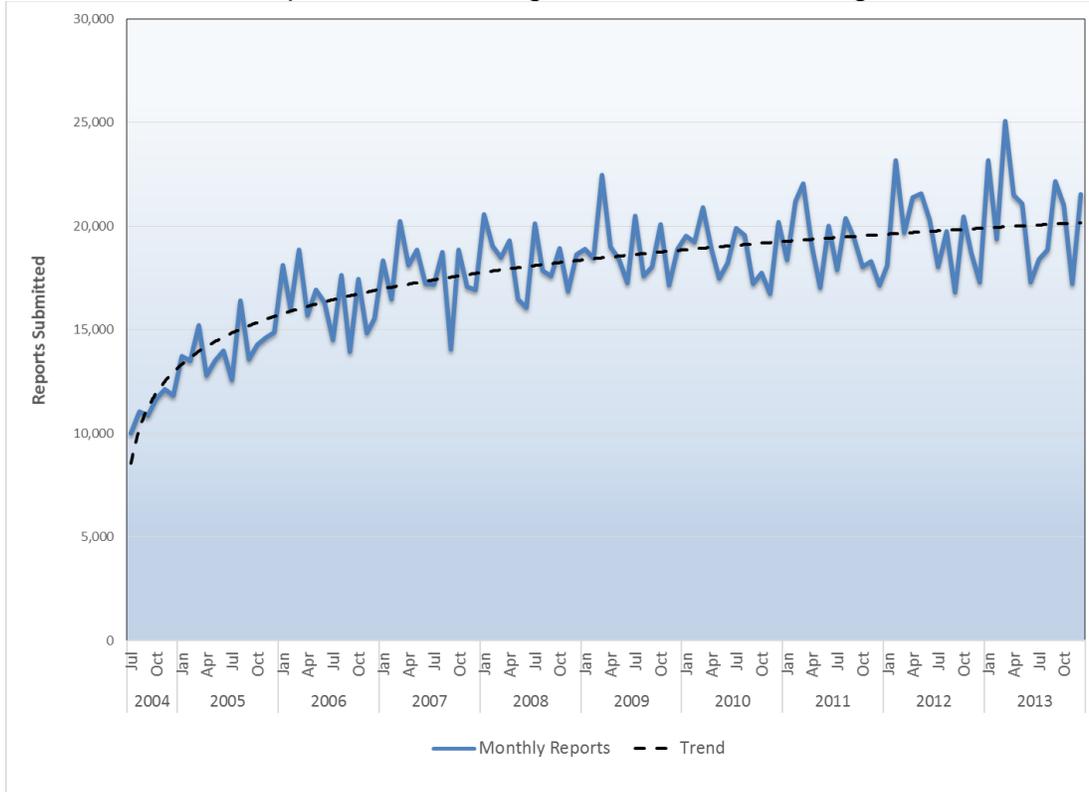


Figure 2. Number of Submitted Reports since Inception of PA-PSRS, by Month

Figure 3 supports the proposition of improved reporting and a more consistent level of reporting by facilities. Depicting the volume of Serious Events and Incidents on a relative scale (24:1) shows that the volume of Serious Events has increased somewhat since 2004, but not as sharply as the volume of Incidents.

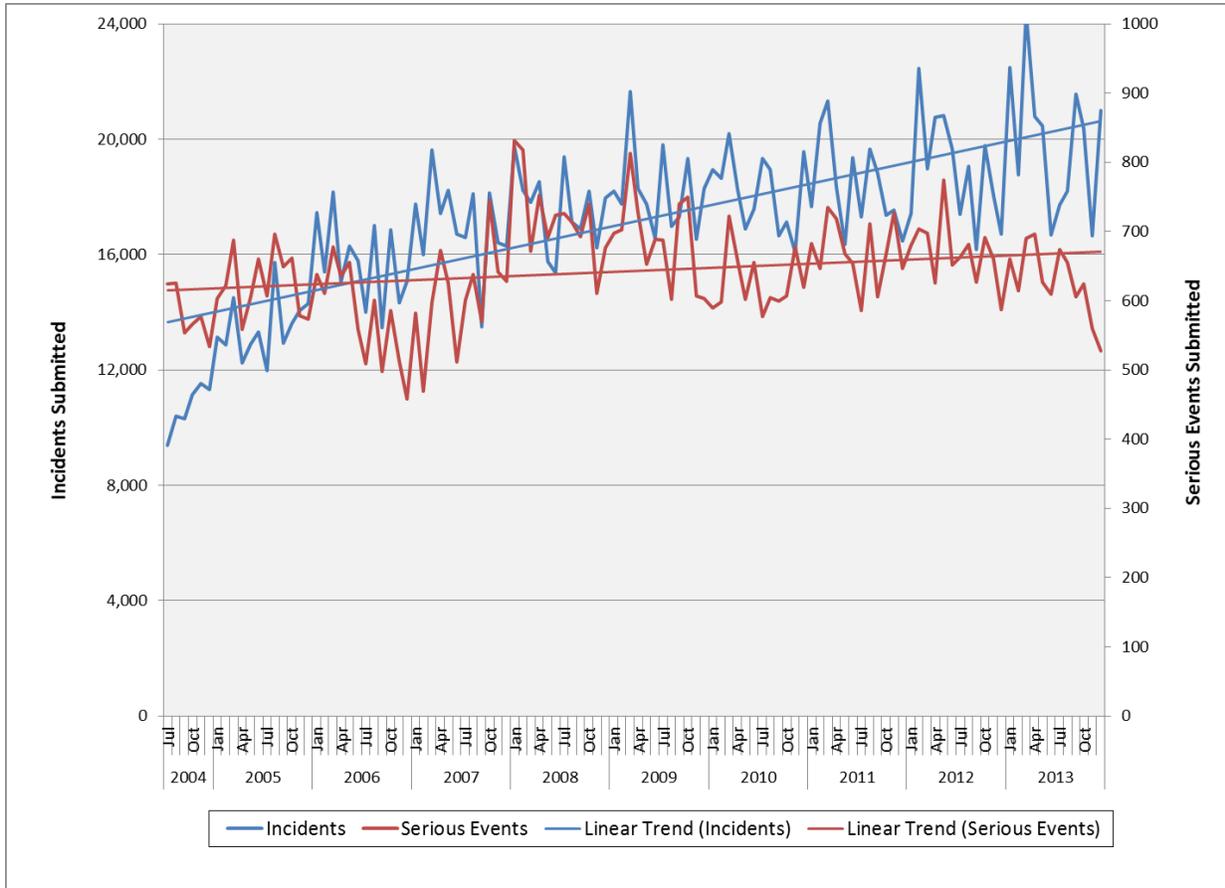


Figure 3. Number of Serious Event and Incident Reports by Month since Inception of PA-PSRS

Figure 4 illustrates the percentage of Serious Events among all submitted reports since 2009. Despite several months where this percentage rose to 4% or greater, there is a downward trend in the percentage of Serious Events among reports submitted to the Authority during the last five years. The two factors for this reduction are an increase in Incident (non-harm) reports submitted and a decrease in the number of Serious Events (harm) submitted. Incidents reported increased from 218,400 in 2009 to 239,063 in 2013. Reported Serious Events decreased from 8,270 in 2009 to 7,543 in 2013.

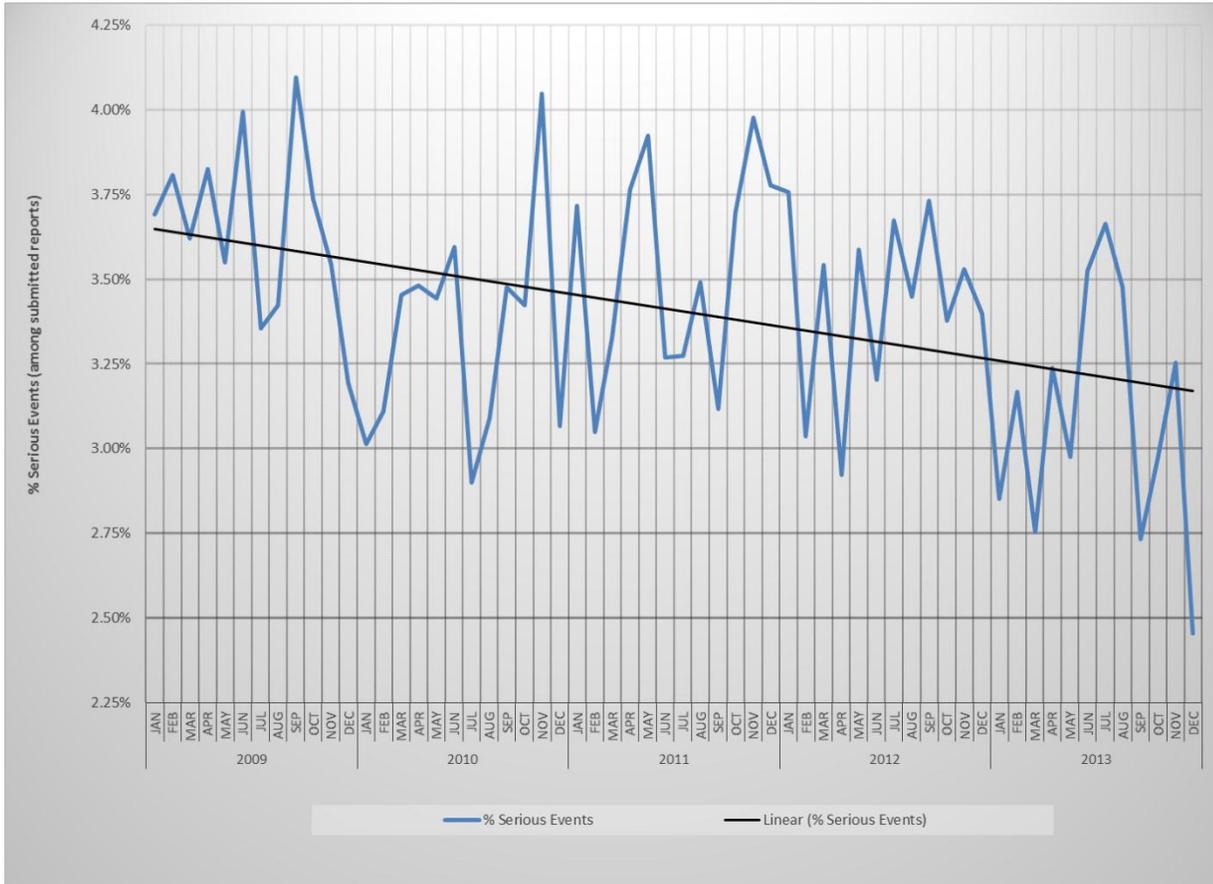


Figure 4. Percentage of Serious Event Reports by Month (2009-2013)

Reports by Event Type

When reporting an event through PA-PSRS, a facility uses a classification system to characterize the occurrence they are reporting. This is usually referred to as the “taxonomy.” At the outset, a facility classifies a report by identifying what PA-PSRS defines as the “Event Type.” The Event Type essentially answers the most basic question about an occurrence: “What happened?”

At its most basic level, PA-PSRS contains the following nine Event Types:

- Medication Errors
- Adverse Drug Reactions (not a medication error)
- Equipment, Supplies, or Devices
- Falls
- Errors Related to Procedures, Treatments, or Tests
- Complications of Procedures, Treatments, or Tests
- Transfusions
- Skin Integrity
- Other / Miscellaneous

These categories are further broken down 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

The complete Event Type dictionary is a three-level, hierarchical taxonomy with 212 distinct Event Types. This Event Type dictionary is one way PA-PSRS classifies and looks for patterns and trends in submitted reports.

Below, Table 4 shows the percentage of reports submitted from acute-level facilities under each top-level Event Type in 2013. The most frequently reported occurrences were Errors Related to Procedure/Treatment/Test (22%) and Medication Errors (21%). These two Event Types account for more than 40% of all reports submitted. While Errors Related to Procedure/Treatment/Test was the Event Type most frequently reported through PA-PSRS, they were not the ones most frequently associated with harm to the patient.

Also shown in Table 4, the largest number of Serious Event reports was under the Event Type category Complications of Procedures/Treatments/Tests, accounting for 49% of all Serious Event reports.

Recall that the percentage of reports submitted in 2013 that were Serious Events was 3.1%. Certain event types had noticeably lower percentages of Serious Events than the overall (see “% of Event Types” in Table 4). There were 54,481 Errors Related to Procedures/Treatments/Tests, equating to 22% of all reports submitted in 2013; however, 697 (1% of the event type) were Serious Events. Of 50,910 Medication Errors (21% of all submitted reports), only 200 (less than 1%) were Serious Events.

Table 4. Reports by Event Type and Submission Type for 2013

Event Type	Serious Events (SE)			Incidents (I)			Total Number of Reports	% of Total Reports
	Number of Reports	% of Event Types	% of Total SE	Number of Reports	% of Event Types	% of Total I		
Medication Errors	200	Less than 1	3	50,710	100%	21	50,910	21
Adverse Drug Reactions (not a medication error)	270	5	4	5,109	95	2	5,379	2
Equipment / Supplies / Devices	60	1	1	5,947	99	2	6,007	2
Falls	982	3	13	33,579	97	14	34,561	14
Errors Related to Procedure / Treatment / Test	697	1	9	53,784	99	22	54,481	22
Complications of Procedure / Treatment / Test	3,684	10	49	32,340	90	14	36,024	15
Transfusions	21	1	Less than 1	3,533	99	1	3,554	1
Skin Integrity	766	2	10	32,779	98	14	33,545	14
Other / Miscellaneous*	863	4	11	21,282	96	9	22,145	9
Total	7,543	3	100	239,063	97	100	246,606	100

* This is not a single category of completely unclassified reports but rather a category that includes specific subcategories that did not logically fit under other existing top-level headings. Examples of subcategories under Other/Miscellaneous include inappropriate discharge, other unexpected death, electric shock to the patient, and others.

The decrease in Serious Events, along with an increase in Incidents and overall submissions, leads to an interesting perspective when identifying the event type that contributed to the largest percentage of Serious Events. The event type with the highest number and percentage of Serious Events is Complications of Procedures/Treatments/Tests, which showed a 3% increase in number from 2012. Because of this, the overall decrease of Serious Events was realized among the other event types. Figure 5 shows that a large decrease occurred in the event type Other/Miscellaneous, with a 33.9% reduction in Serious Event submissions from 2012. Most of this decrease (96.4%) can be traced to facility changes in reporting practices. The black bar in the figure represents the point at which the purple line would fall if there were no change from year to year. Any percentage shown above this bar is an increase, and below is a decrease. For instance, a large increase in percentage occurred for the Equipment/Supplies/Devices event type, but the increase in number is relatively minor. Also note decreases in the number of Serious Event submissions for Falls and Medication Errors. These seem to coincide with collaborations and programs involving those event types, including the Hospital Engagement Network (HEN) collaborations, as described in detail in **Addendum G**.

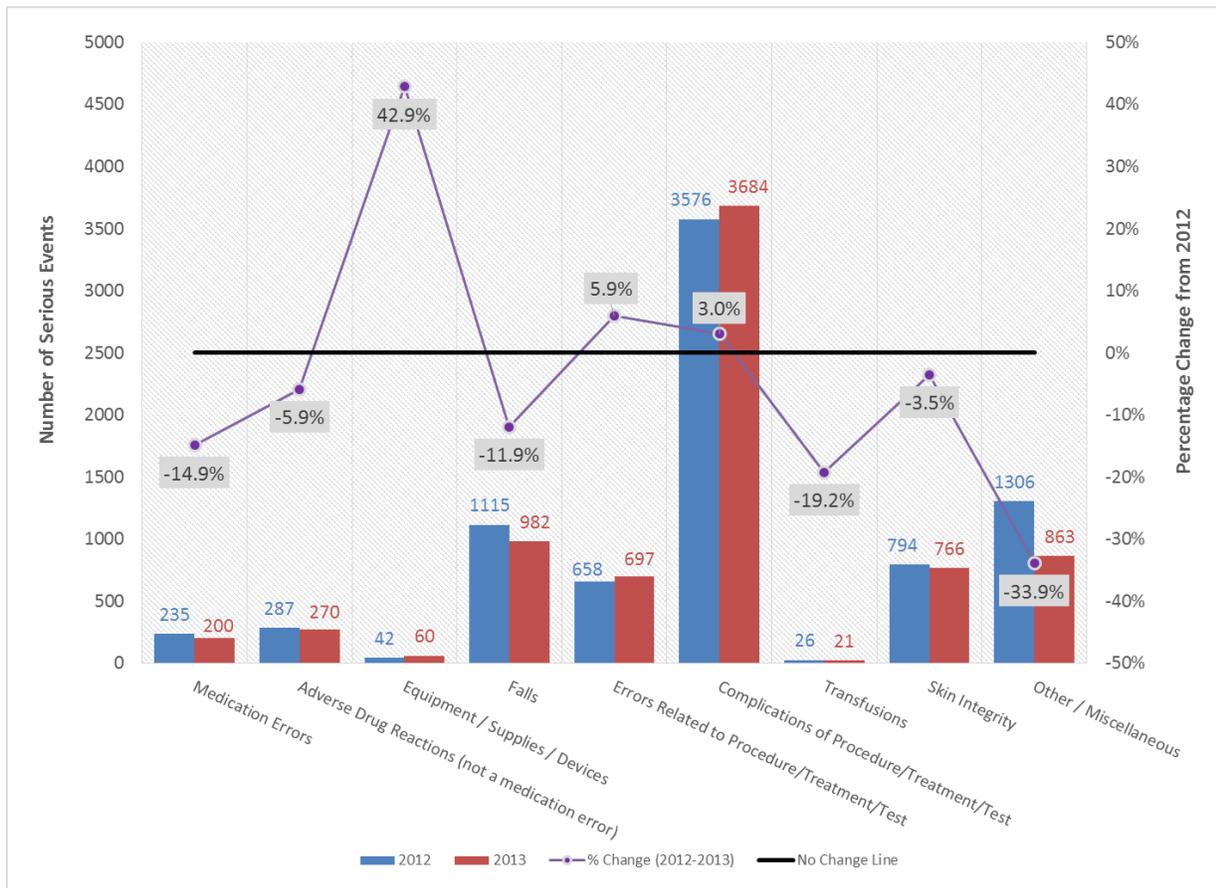


Figure 5. Serious Events by Event Type, with Percentage of Change, 2012 - 2013

Reports by Level of Patient Harm

For every report submitted through PA-PSRS, the associated medical facility applies a 10-item scale to measure whether an event “reached” the patient and, if so, how much harm it caused.⁸ This scale ranges from “unsafe conditions” (e.g., look-alike medications stored next to one another) to the death of the patient and can be summarized as follows:

- Unsafe Conditions—Circumstances that could lead to an adverse event (accounting for 12% of all reports)
- Event, No Harm—An event that either did not reach the patient or did reach the patient but did not cause harm (often called a “near miss,” accounting for 85% of all reports)
- Event, Harm—An event that reached the patient and caused temporary or permanent harm (3 %)
- Event, Death—An event occurred that resulted in or contributed to death (0.09%)

Table 5 shows the reports received during 2013 categorized by the level of harm (as described above) and by Event Type. For the most part, the reports at each level of harm follow a similar distribution by Event Type as they do in the database as a whole. However, there are significant exceptions. For example, while Complications of Procedures/Treatments/Tests comprise 15% of reports overall in 2013, they comprise 49% of the reports of events involving harm and 58% of all reports of events resulting in or contributing to the patient’s death.

At the other end of the spectrum, while Medication Errors comprise 21% of reports in 2013, they only comprise 3% of reports involving harm and 1% of reports of events contributing to or resulting in death. Reports of Errors Related to Procedures/Treatments/Tests were also associated with harm or death at a frequency lower than their representation in the database as a whole. No deaths were associated with Transfusions or Skin Integrity.

A certain portion of the reports could be referred to as examples of “unsafe conditions,” meaning that there was an observed situation in which some harm was a possibility if corrective action was not taken. Unsafe conditions were cited in 12% of the reports submitted in 2013. As shown in Table 5, the event type in which Unsafe Conditions were most often reported was Skin Integrity (32%); The event type where unsafe conditions were least reported by percentage was Adverse Drug Reactions. Of all reports of the Adverse Drug Reactions event type, 0.3% were reported as unsafe conditions.

⁸ For example, an event in which a phlebotomist goes to draw blood from the wrong patient but catches the error by checking the patient’s wristband, would be an event that did not reach the patient.

Table 5. Reports by Event Type and Level of Patient Harm (2013)

Event Type	Unsafe Conditions		Event, No Harm		Harmful Event		Death Event		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Medication error	2,157	7	48,553	23	197	3	3	1	50,910	21
Adverse Drug Reaction	89	0.3	5,020	2	268	4	2	1	5,379	2
Equipment / Supplies / Devices	813	3	5,134	2	57	1	3	1	6,007	2
Fall	313	1	33,266	16	975	13	7	3	34,561	14
Error related to Procedure / Treatment / Test	5,778	20	48,006	23	683	9	14	6	54,481	22
Complication of Procedure / Treatment / Test	3,482	12	28,858	14	3,556	49	128	58	36,024	15
Transfusion	442	2	3,091	1	21	<1	0	0	3,554	1
Skin Integrity	9,452	32	23,327	11	766	10	0	0	33,545	14
Other / Miscellaneous	6,626	23	14,656	7	799	11	64	29	22,145	9
Total Number/% of Total	29,152	12	209,911	85	7,322	3.0	221	0.09	246,606	100

As noted previously, only 3.1% of all reports submitted involve harm to the patient, ranging from a simple laceration to a life-threatening situation and death. Figure 6 illustrates that the vast majority of reports received do not result in patient harm.

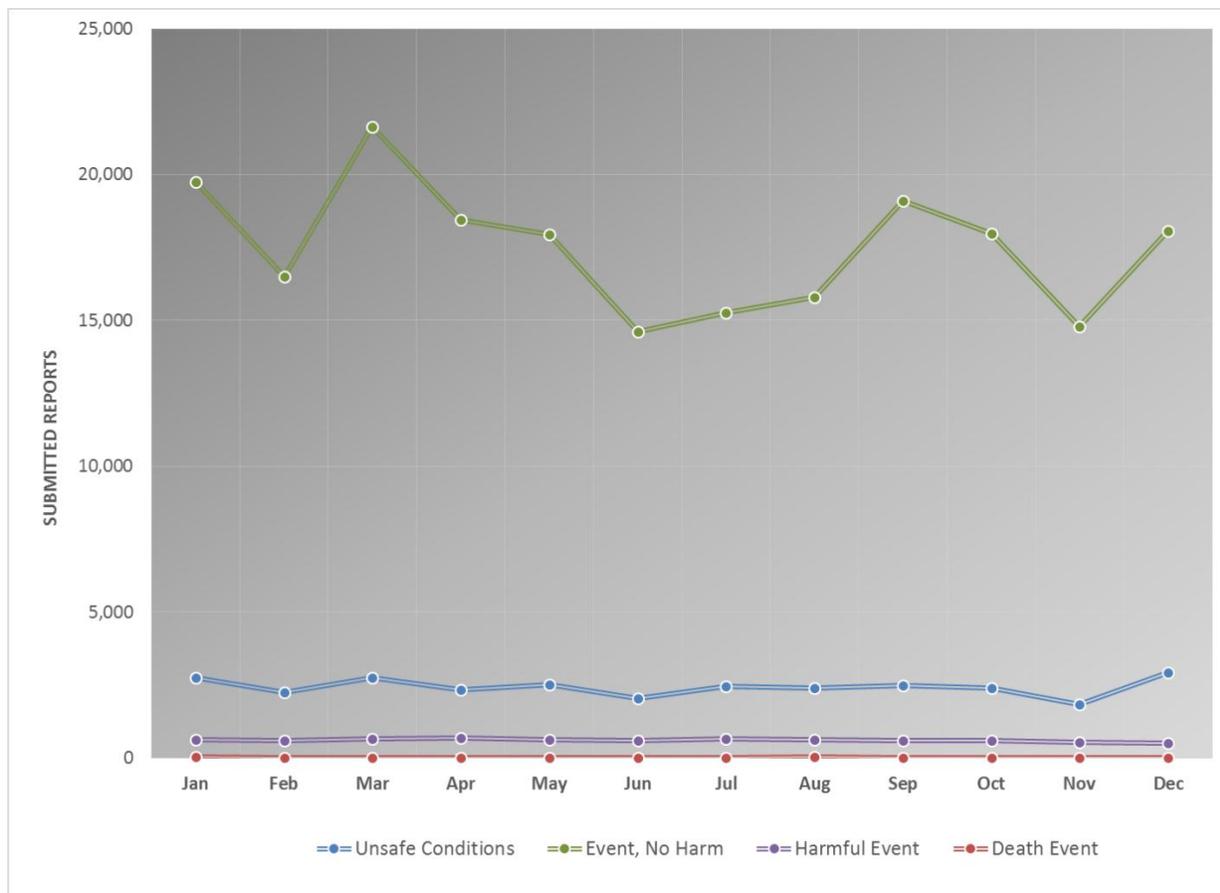


Figure 6. Reports by Level of Harm by Month (2013)

Reports Involving the Patient's Death

In 2013, the Authority received 221 reports of events that may have contributed to or resulted in the patient's death, a 13% decrease from 2012 (Table 6). Not all of these patient deaths were preventable, and they did not necessarily have to involve an error on the part of a healthcare provider to be reportable under Act 13.

Table 6. Reports Involving the Patient's Death, by Event Type (2013)

Event Type	No.	%
Medication error	3	1
Adverse Drug Reaction	2	1
Equipment/Supplies/Devices	3	1
Fall	7	3
Error related to Procedure/Treatment/Test	14	6
Complication of Procedure/Treatment /Test	128	58
Transfusion	0	0
Skin Integrity	0	0
Other / Miscellaneous	64	29
Total	221	99*

*Total percentage does not equal 100 due to rounding.

Reports involving the patient's death account for 0.09% (i.e., less than one tenth of one percent) of all submitted reports. In terms of particular event types, although 15% of all reports in 2013 were attributed to Complications of Procedures/Treatments/Tests, about 58% of all reports involving patient death were of that event type. Of these reports involving death associated with complications, the majority describe patients who died following surgery or another invasive procedure (57%), patients who suffered cardiopulmonary arrest outside the ICU setting (18%), or other complications (13.3%).

Many reports involving the patient's death were reported with the primary event type of "Other/Miscellaneous." This category in the taxonomy contains a subcategory "Other Unexpected Death," which explains the extensive use of this category. Many of these reports involve patients who were found unresponsive or who went into respiratory arrest and resuscitation efforts failed.

Patient Demographics

PA-PSRS collects few demographic details about patients because the Authority is not authorized to collect individually identifying information. As a result, patient disparity data is limited to gender and age. Table 7 presents the number of reports received in 2013 by patient gender and age cohort.

Table 7. Reports Submitted by Age Cohort and Gender (2013)

Age Cohort	Female		Male		All Patients		% Female Patients
	No.	%	No.	%	No.	%	
0 - 4	8,257	6.4	10,659	6.4	18,916	7.7	43.7
5-14	4,467	3.5	5,086	3.5	9,553	3.9	46.8
15-24	8,584	6.7	5,723	6.7	14,307	5.8	60.0
25-34	10,090	7.8	5,306	7.8	15,396	6.2	65.5
35-44	9,165	7.1	6,916	7.1	16,081	6.5	57.0
45-54	13,655	10.6	13,794	10.6	27,449	11.1	49.7
55-64	17,935	13.9	20,606	13.9	38,541	15.6	46.5
65-74	20,043	15.6	20,719	15.6	40,762	16.5	49.2
75-84	20,799	16.2	18,484	16.2	39,283	15.9	52.9
85+	15,732	12.2	10,454	12.2	26,186	10.6	60.1
Unknown	54	<1	78	<1	132	<1	40.9
Total	128,781	100	117,825	100	246,606	100	52.2

Patient Gender

Of the 246,606 reports submitted in 2013, 128,781 (52.2%) involved female patients, and 117,825 (47.8%) involved male patients. This proportion by gender is consistent with the Authority's observations since 2004. During childbearing years, women are more likely than men to have encounters with the healthcare system, and because women have a longer life expectancy than men, there are more women in the general population in the older age cohorts.

The proportion of reports classified as Serious Events differed slightly according to the patient's gender, with 3.2% of reports involving female patients classified as Serious Events, compared to 2.9% for reports involving males.

Table 8 shows the distribution of reports by patient gender and Event Type. Many of the same patterns observed in 2012 are evident this year as well. Among these observed patterns, the proportion of reports involving female patients was significantly higher among reports of Adverse Drug Reactions. Interestingly, the majority of falls reports and skin integrity reports involved male patients in 2013.

Table 8. Reports Submitted by Gender and Event Type (2013)

Event Type	Female		Male		All Patients	
	No.	%	No.	%	No.	% of Total
Medication Errors	26,410	51.9	24,500	48.1	50,910	20.6
Adverse Drug Reactions	3,423	63.6	1,956	36.4	5,379	2.2
Equipment / Supplies / Devices	3,043	50.7	2,964	49.3	6,007	2.4
Falls	16,922	49.0	17,639	51.0	34,561	14.0
Errors Related to Procedure / Treatment / Test	29,003	53.2	25,478	46.8	54,481	22.1
Complications of Procedure / Treatment / Test	20,247	56.2	15,777	43.8	36,024	14.6
Transfusions	1,937	54.5	1,617	45.5	3,554	1.4
Skin Integrity	16,453	49.0	17,092	51.0	33,545	13.6
Other / Miscellaneous	11,343	51.2	10,802	48.8	22,145	9.0
Total	128,781	52.2	117,825	47.8	246,606	100.0

Patient Age

Figure 7 shows the proportion of reports through PA-PSRS, from hospitals only, by gender and by patient age cohort. As noted above, this chart also illustrates that women are more likely than men to have encounters with the healthcare system during childbearing years. Patients aged 65 and older account for 43.2% of all reports from hospitals through PA-PSRS in 2013.

Also shown on this figure is the proportion of hospital inpatient admissions as reported by the Pennsylvania Healthcare Cost Containment Council (PHC4).⁹ The PHC4 data show that patients aged 65 and older make up 39.4% of the admissions to hospitals in 2012. However, this chart does not suggest that older patients are necessarily more likely than younger patients to be involved in a Serious Event or Incident. Rather, older patients' greater representation in the database simply reflects their greater representation in the healthcare system in terms of number of admissions and increased length of stay.

⁹ Based upon publicly available data from the website of the Pennsylvania Health Care Containment Council (www.PHC4.org). Estimates were based on statewide inpatient data from 2012.

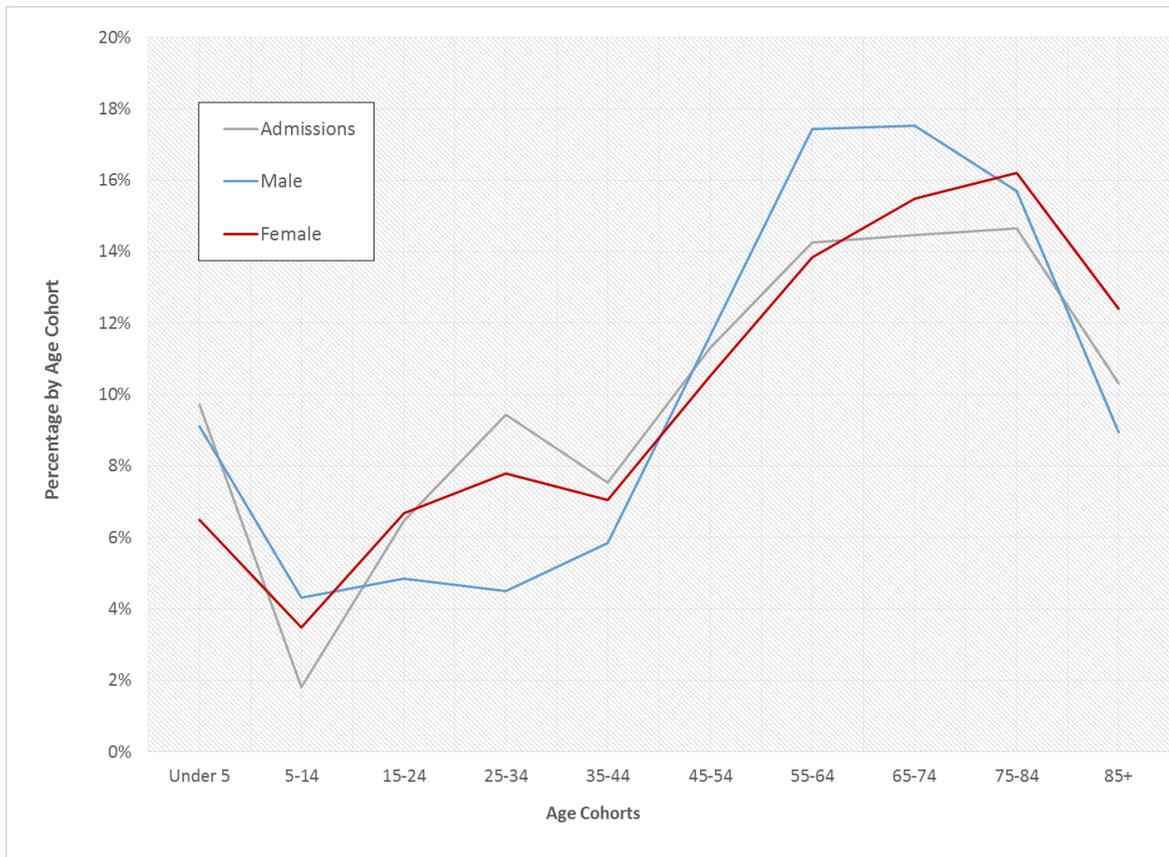


Figure 7. Proportion of Hospital Reports through PA-PSRS by Gender and Age Cohort (2013)

Patients in High and Low Age Cohorts

Elderly Patients

In the Authority’s previous annual reports, several patterns of interest in reports involving elderly patients (65 and older) were identified. For example, elderly patients accounted for 57.9% of Falls in 2009. This figure declined steadily to 51.1% in 2013 (Table 9).

Table 9. Percentage of Submitted Reports of Specific Event Types Submitted Involving Elderly Patients (65 and older), 2009 through 2013

Elderly Patients (65 and older)	2009	2010	2011	2012	2013
Falls	57.9%	56.2%	54.2%	52%	51.1%
Skin Integrity	71.2%	70.6%	69.5%	68.1%	68.0%
Total Reports	49.8%	48.1%	46.7%	45.8%	43.1%

In another area of interest concerning elderly patients, the percentage in this age group among Skin Integrity reports has dropped to 68% in 2013. As recently as 2009, almost half of all reports (49.8%) involved patients 65 and older; this figure dropped to 43.1% in 2013.

Perinatal Patients

There were 5,944 reports involving perinatal patients (those aged 20 days or younger), an increase of 930 reports (18.5%) from 2012. Less than two percent (1.95%) of perinatal reports were classified as Serious Events, noticeably lower than the overall percentage of 3.1% for the year.

About three fifths (61.2%) of reports for these patients were related to Errors or Complications of Procedures/Treatments/Tests. This does not necessarily mean that these patients are more likely to experience errors or complications. Rather, they may not be as prone to other types of events (e.g., falls, problems with skin integrity) as older patient age groups.

Less than one fifth (19.6%) of reports involving perinatal patients was related to Medication Errors. This is the highest percentage in the last three years (15.4% in 2012, 18.3 % in 2011) for this age cohort and event type. Complications of Procedures, Treatments and Tests accounted for 63.8% of the Serious Events in this age group.

Children and Adolescents

Reports submitted through PA-PSRS in 2013 involving children and adolescents (i.e., aged 21 and younger) totaled 38,398. The top two reports were Medication Errors, accounting for 40.7% of the reports of this population, and Errors Related to Procedures/Treatments/Tests at 21.2%. However, the event type Complications of Procedures/Treatments/Tests made up 48.2% of all Serious Events for this age group. This differs from 2012, when Other/Miscellaneous comprised 48.6% of Serious Events for the age group.

Reports by Location/Department (Hospitals Only)

PA-PSRS has 155 designated Care Areas for hospitals. These are the locations or departments of the hospital in which a patient receives care or is exposed to in the process of receiving care. As illustrated in Figure 8, the Care Areas considered Critical Care Areas and General Medical/Surgical Units were cited as the location for the greatest number of all reports submitted in 2013, each generating nearly a fifth (19.8% and 19.3%, respectively) of the total. Other hospital departments with higher report rates are Surgical Services (9.4%), Pediatric Care (9.2%) and Intermediate Unit (8.6%).

Examples of Care Areas by Department:

- General Medical/Surgical Units
 - General Medicine Unit
 - Medical/Surgical/Oncology Unit

- Critical Care
 - Emergency Department
 - Burn Unit
 - Medical/Surgical ICU

- Intermediate Unit
 - Telemetry
 - Cardiac Intermediate Unit
 - Respiratory Intermediate Unit

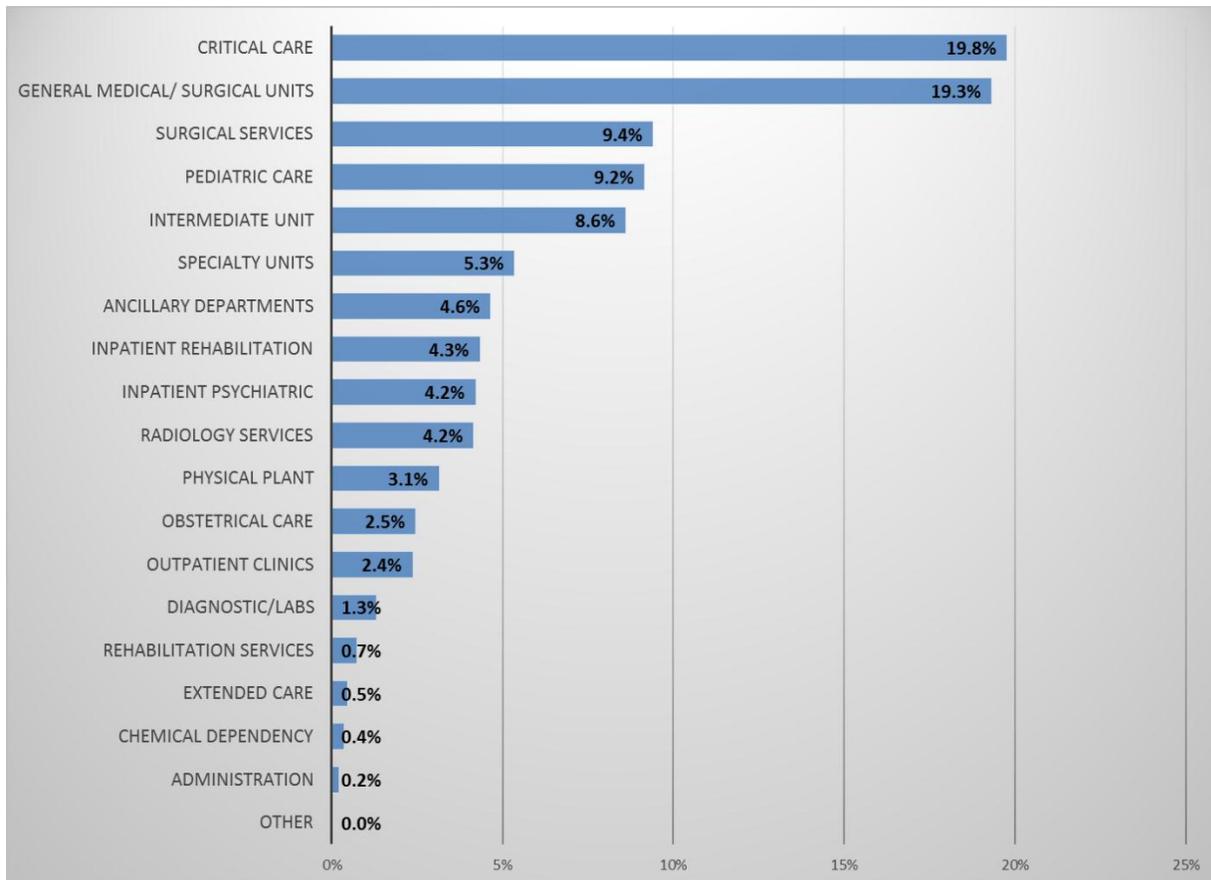


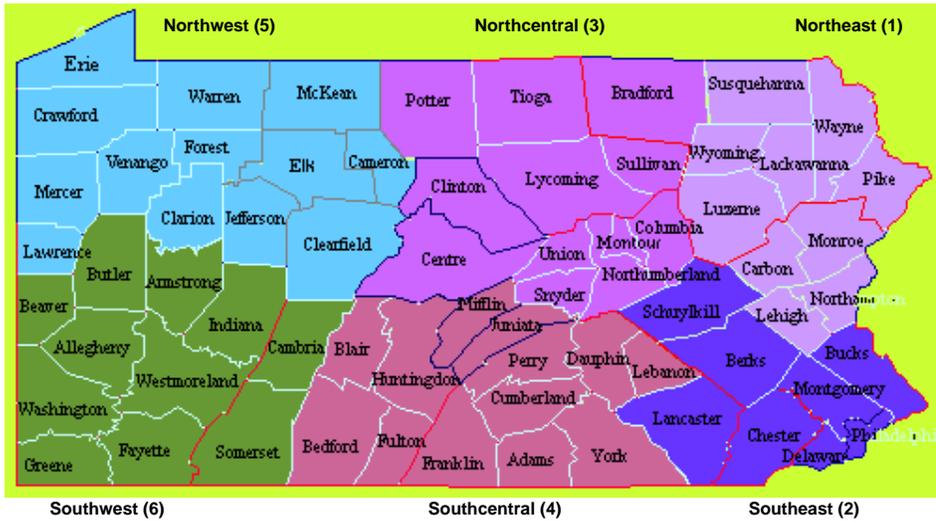
Figure 8. Reports by Location/Department (Hospitals Only, 2013)

While most hospital reports were submitted from the Critical Care and General Medical/Surgical Areas, the greatest number of Serious Events came from Surgical Services, accounting for more than a quarter of Serious Events from hospitals (25.6%). However, the Care Area with highest proportion of Serious Events per submitted report is the Diagnostic/Labs Care Group with 8.2% (Table 10).

Table 10. Number and Percentage of Serious Events among all Serious Events and of Submitted Reports, by Care Area Location (Hospitals Only, 2013)

Location	Serious Events	Total	% Serious Events by Group	% Serious Events of Total
Diagnostic/Labs	258	3,130	8.2	3.8
Surgical Services	1,531	22,684	6.7	25.6
Inpatient Rehabilitation	548	10,476	5.2	9.2
Inpatient Psychiatric	363	10,163	3.6	6.1
Specialty Units	407	12,889	3.2	6.8
14 Other Care Groups	2,863	181,999	1.6	47.9

Reports by Region and Submission Type



For the purposes of this report, the Pennsylvania Patient Safety Authority Board of Directors has adopted a geographic breakdown of the Commonwealth into six regions, as shown in Figure 9. This breakdown is based on the Department of Health’s Public Health Districts.

Figure 9. The six regions of the Commonwealth

The variation in the number of reports submitted through PA-PSRS by geographic region (Figure 10) is not particularly surprising. One expects more reports to be submitted in regions with larger populations and greater numbers of healthcare facilities. Consistent with this expectation, the regions with the largest number of reports (Southeast and Southwest) were those with the Commonwealth’s two largest population centers: Philadelphia and Pittsburgh, respectively.

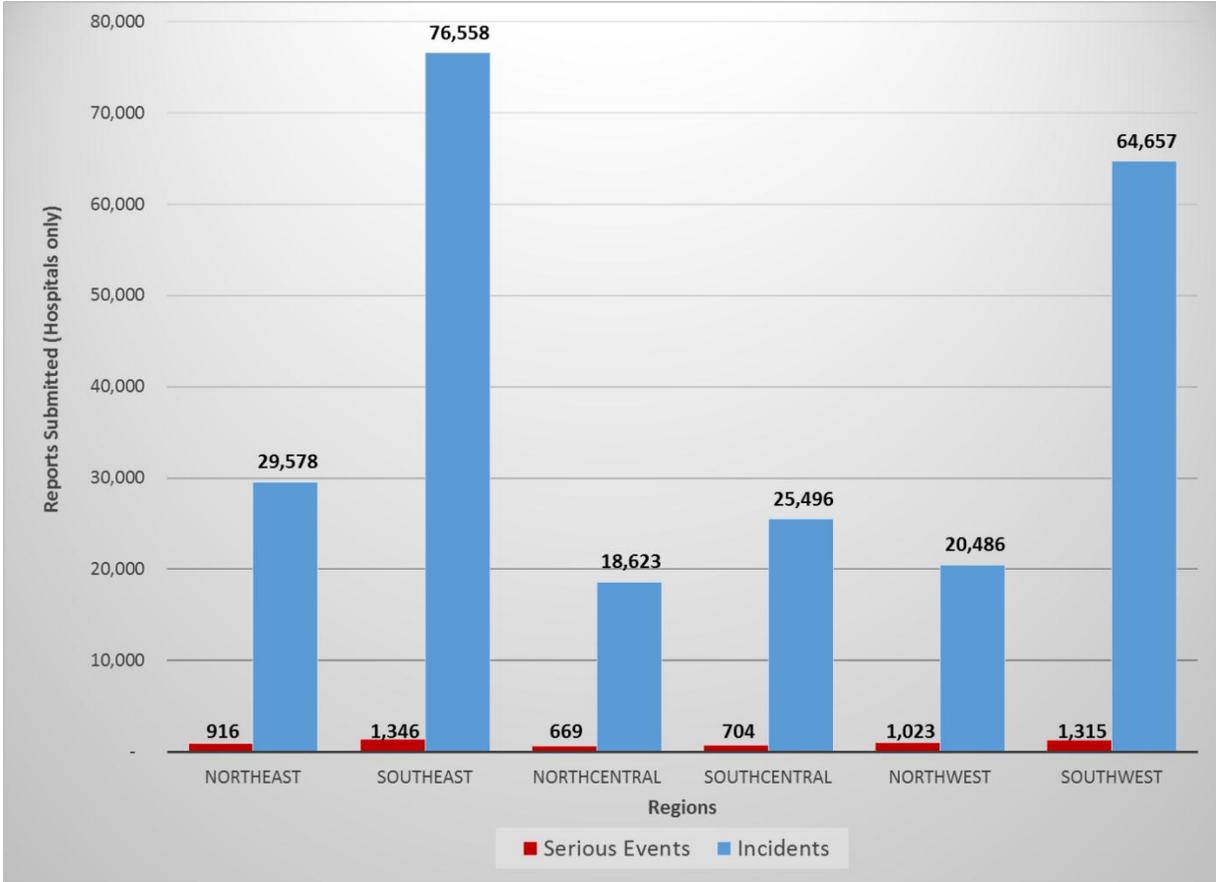


Figure 10. Number of Serious Event and Incident Reports from Hospitals by Region (2013)

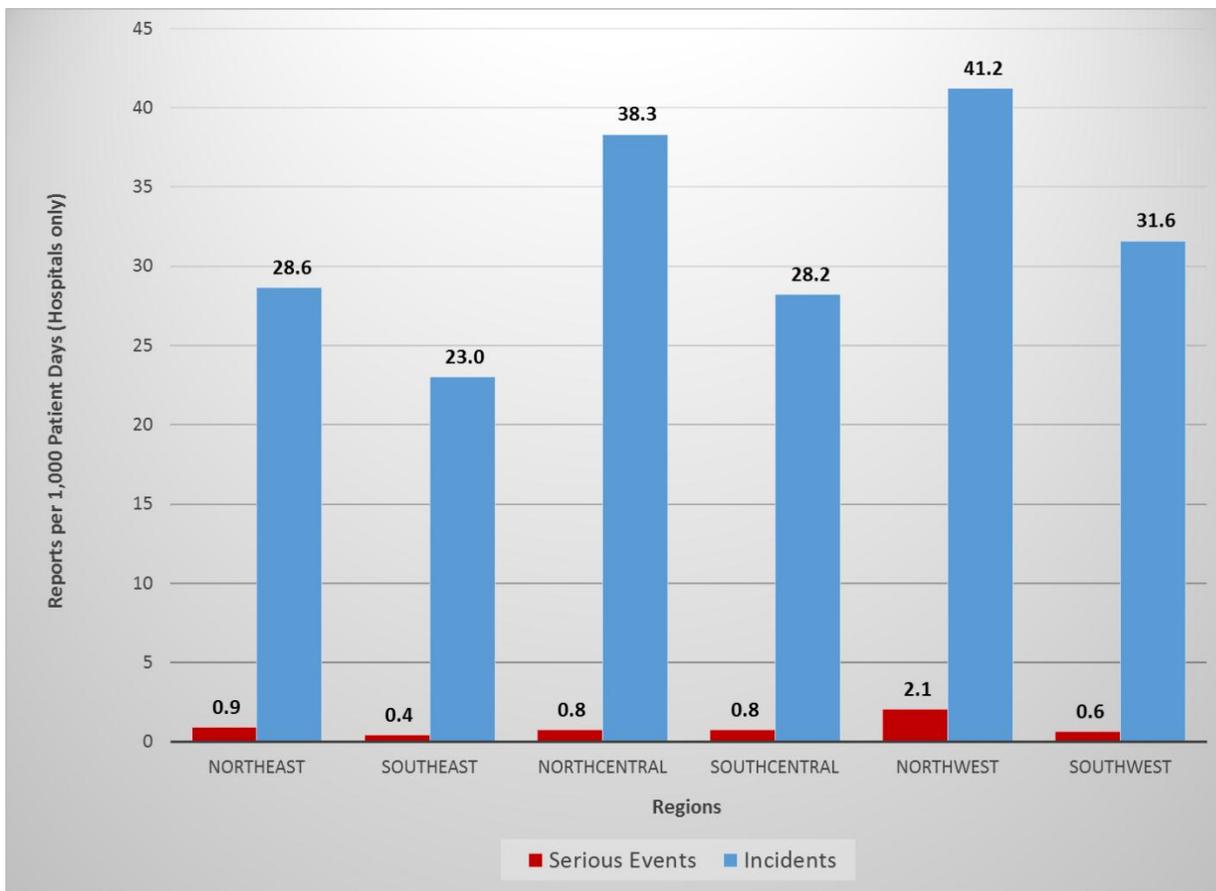


Figure 11. Reports from Hospitals per 1,000 Estimated Patient Days by Region (2013)

Adjusting the report volume for a measure of healthcare utilization paints a different picture. Figure 11 shows, by region, the number of reports from hospitals per 1,000 patient days.¹⁰ This figure shows that, after accounting for the differences in the volume of healthcare provided in each region, facilities in the Northwest region reported 41.2 Incidents per 1,000 patient days, more per 1,000 patient days than any other region. The rest of the regions reported from 23 to 38.3 Incidents per 1,000 patient days.

¹⁰ Based upon publicly available patient days data from the website of the Pennsylvania Health Care Containment Council (www.PHC4.org). Estimates were based on statewide inpatient data from 2012.

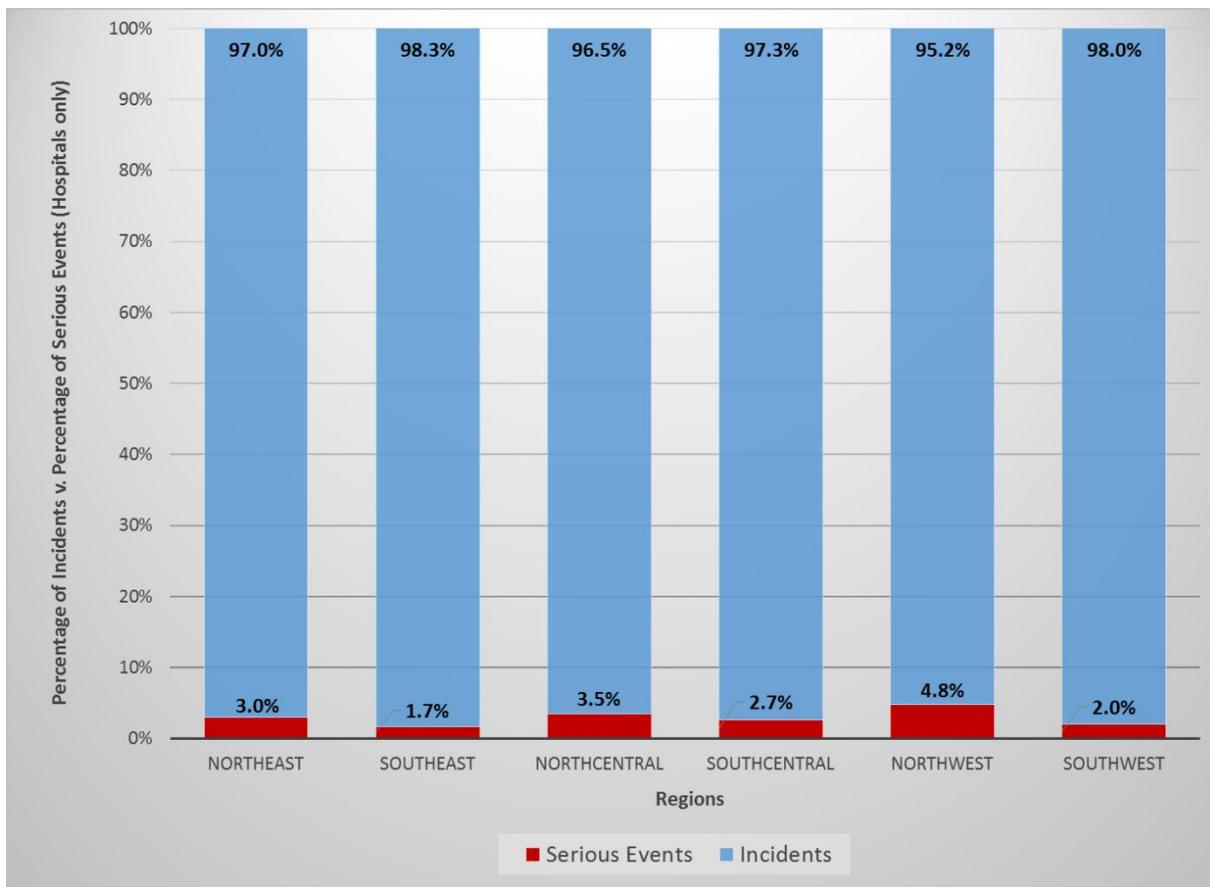


Figure 12. Percentage of Incident and Serious Event Reports from Hospitals by Region (2013)

Figure 12 shows that the Northwest region submitted a significantly greater proportion of Serious Events (4.8% of their reports) than the statewide pooled mean (2.5%). Conversely, the Southeast region submitted the highest proportion of Incidents (98.3%) followed closely by the Southwest region (98%).

This does not necessarily suggest that facilities in any of the regions were less or more safe than those in other regions. It may mean that the healthcare providers in certain facilities or regions were better at identifying and reporting potential patient safety issues. Below, Figure 13 shows that the Southwest region has the largest number of reports submitted per hospital.

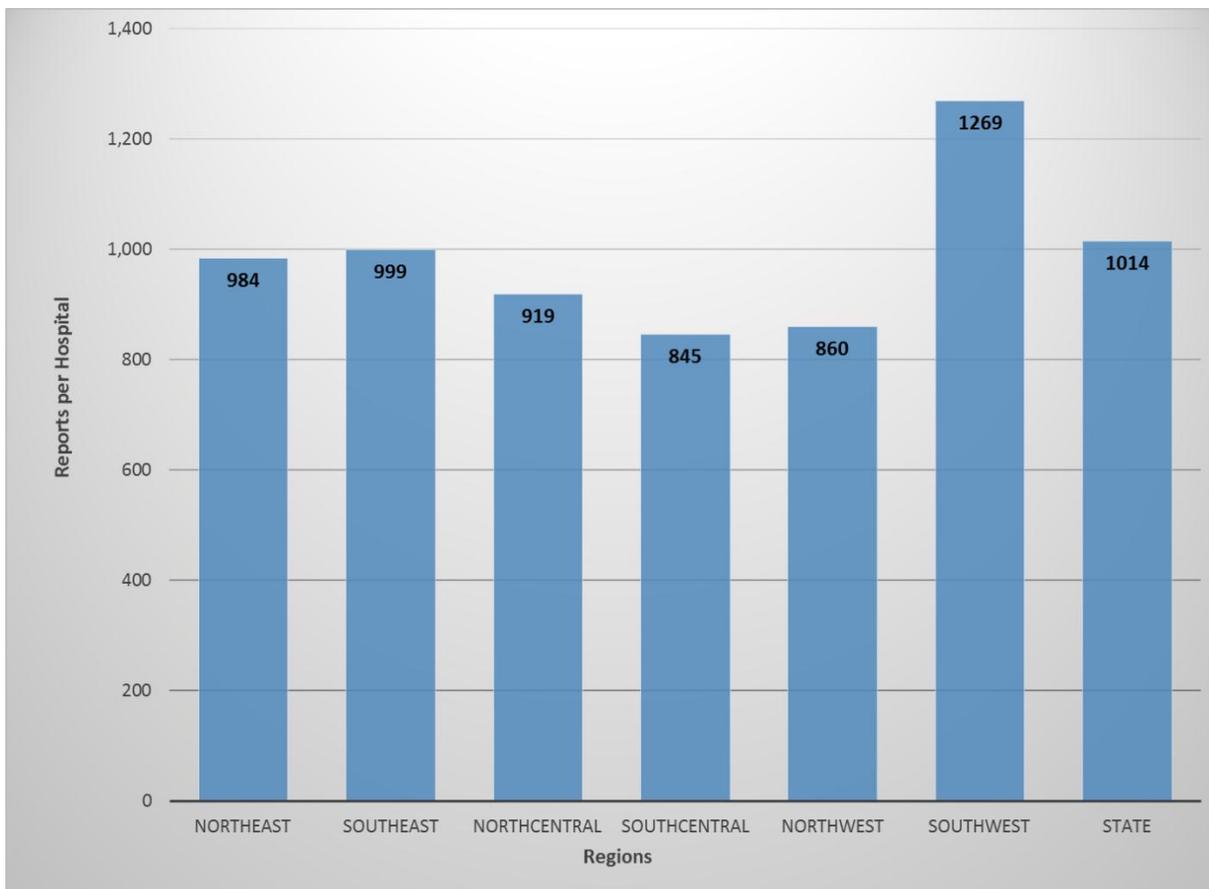


Figure 13. Number of Reports Submitted Per Hospital by Region (2013)

Conclusion

The data presented in this addendum illustrates the continued progress among medical facilities in the Commonwealth to identify and report patient safety events while decreasing the proportion of Serious Events among those reports. The monthly average number of Serious Events decreased 6.2%. The number of Serious Events related to death continued to decline annually. The Authority is in its tenth year of collecting, analyzing, writing about, and providing guidance related to medical errors. The Authority Board and staff, and the entire healthcare community in Pennsylvania, must continue to identify patient safety issues and further the work being done to support patient safety improvements.

ADDENDUM C: THE PATIENT SAFETY ADVISORY AND SUMMARIES OF SELECT 2013 ARTICLES

PATIENT SAFETY INFORMATION BASED ON REPORT ANALYSIS AND RESEARCH

Advisory Completes First 10 Volume Years

In 2013, the *Pennsylvania Patient Safety Advisory* completed a decade of communicating with healthcare facilities about the significant trends identified in events reported through the Pennsylvania Patient Safety Authority's reporting system. The *Advisory*, a quarterly publication with periodic supplements, is disseminated through e-mail and is also available from the Authority's website at <http://www.patientsafetyauthority.org>. Since the first *Advisory* was issued in March 2004, the Authority has published more than 440 articles on a variety of clinical issues in 40 issues and 12 supplements.

In its first decade, the *Advisory* has routinely been well received by its primary audience of acute and long-term care reporting facilities in Pennsylvania (see **Addendum E**). Key to that reciprocal relationship is the *Advisory* contents, as summarized in the following excerpt of a December 2013 *Advisory* article:¹¹

Aggregation of reports from all facilities in the commonwealth affords the Authority the luxury of analyzing many instances of an event, especially a rare event that no one facility might see more than once, such as surgical fires, and identifying multiple weaknesses that can result in an adverse outcome. The emphasis of the *Advisory* staff is on identifying *each way* a system fails, which is usually more useful than identifying *each time* a system fails. A comprehensive review of all the failure modes leads to a comprehensive critique of the system for delivering care, resulting in advice for making the entire system more robust, not just correcting the one weakness associated with a single event. This approach has allowed the Authority to develop meaningful strategies without worrying about whether the number of events reported or the number of situations at risk for such an event is accurate.

As facilities tried to implement system changes and educate their hospital and physician staffs about the need for change and the choices for safe practices, they found that physicians wanted scientific evidence that the changes would represent improvements. These sentiments were conveyed to the Authority and prompted the *Advisory* staff to develop and disseminate the evidence supporting safe practices. Collecting sufficient scientific evidence required more than counting relevant event reports and recounting their patterns and their narratives in a contextually deidentified manner. Once a topic was selected, based on novelty, frequency and severity, and the potential for improvement, the Authority sought supplemental information from the facilities, which many facilities readily contributed in an effort to provide themselves and others with a deeper understanding of the relationship between processes and outcomes.

¹¹ Clarke JR. A decade of dedication to improvement. Pa Patient Saf Advis [online] 2013 Dec [cited 2014 Jan 21]. [http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2013/Dec;10\(4\)/Pages/146.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2013/Dec;10(4)/Pages/146.aspx)

In the complete December 2013 article from which this information is excerpted, John Clarke, MD, clinical director for the Authority and editor emeritus of the *Advisory*, recounts the first 10 years of the *Advisory* while he was editor, and thanks the Authority and its staff for their support.

Continuing Education

As part of an ongoing effort in conjunction with the Authority, the Pennsylvania Medical Society (PAMED) provides web-based continuing medical education (CME) credit to physicians who complete its *Studies in Patient Safety: Online CME Cases*.¹² The articles included in this online publication are first published in the *Advisory*. The Authority selects articles for submission to PAMED based on the frequency and severity of the patient safety issue, the availability of known solutions to the problem, and the topic's relevance to a physician audience. The Authority develops the CME questions that accompany the articles as post tests.

In 2013, 14 *Advisory*-based CME activities were available from PAMED. Physicians passed a total of 766 post tests associated with the 14 activities, and obtained a total of 749 CME credits as a result.¹³ See Figure 1. The Authority also works with the Pennsylvania State Nurses Association to offer nursing continuing education credits for selected portions of the *Advisory*. Go to <https://psna.hostingharrisburg.com> to view the course catalog.

¹² See the *Studies in Patient Safety: Online CME Cases* at <http://www.pamedsoc.org/MainMenuCategories/Publications/StudiesinPatientSafety>.

¹³ Not all activities equate to 1.0 credits. Credits associated with past CME activities have ranged from 0.75 to 2.0 depending on criteria including content difficulty and the duration of time to complete the activity. Before 2010, activities of *Studies in Patient Safety: Online CME Cases* were composed of as many as three *Advisory* articles. During 2010, activities began to be composed of only one activity, to better target areas of need for education about patient safety.

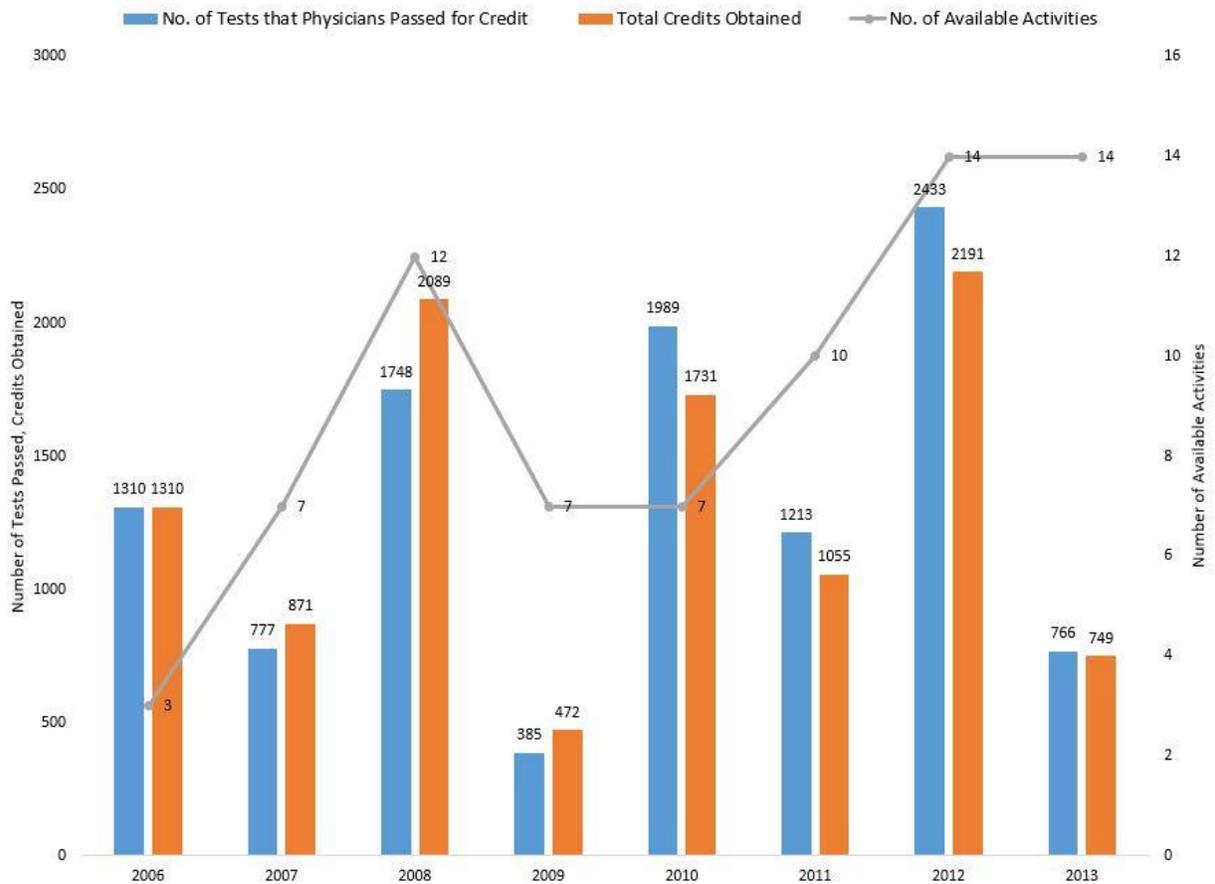


Figure 1. Summary of Pennsylvania Medical Society Continuing Medical Education Efforts Associated with Articles from the *Pennsylvania Patient Safety Advisory*^{14,15}

¹⁴ The apparent spike in the even-numbered calendar years may be explained by physician licensure cycles in Pennsylvania ending on December 31 of each even year. The State Board of Medicine regulations state that among items needed for physicians to renew a medical license, a physician will need 12 credit hours in the areas of patient safety or risk management (either Category 1 or Category 2). (Pennsylvania Medical Society. FAQ: state CME licensure requirements for MDs [online]. [cited 2013 Feb 19]. <http://www.pamedsoc.org/AudienceNavigation/Physicians/MD-CME-requirements.html>.)

¹⁵ In 2013, the apparent decrease among tests passed and credits obtained may be further explained by noting that more than 50% of the available activities were also available for up to two previous years.

Overview of Subscribers to the Pennsylvania Patient Safety Advisory

Program Distribution

The Pennsylvania Patient Safety Authority distributes its *Pennsylvania Patient Safety Advisory* by e-mail to more than 5,000 program affiliates (i.e., acute healthcare facilities, nursing homes, board and panel members in Pennsylvania) as of December 31, 2013. About 24% of these recipients are patient safety officers in acute healthcare facilities or infection prevention designees in nursing homes (see Figure 2).¹⁶ The remaining majority constitutes other recipients affiliated with the Authority's reporting facilities or patient safety programs (e.g., senior corporate officials, other affiliates of the facilities reporting events to the Authority through its reporting system).

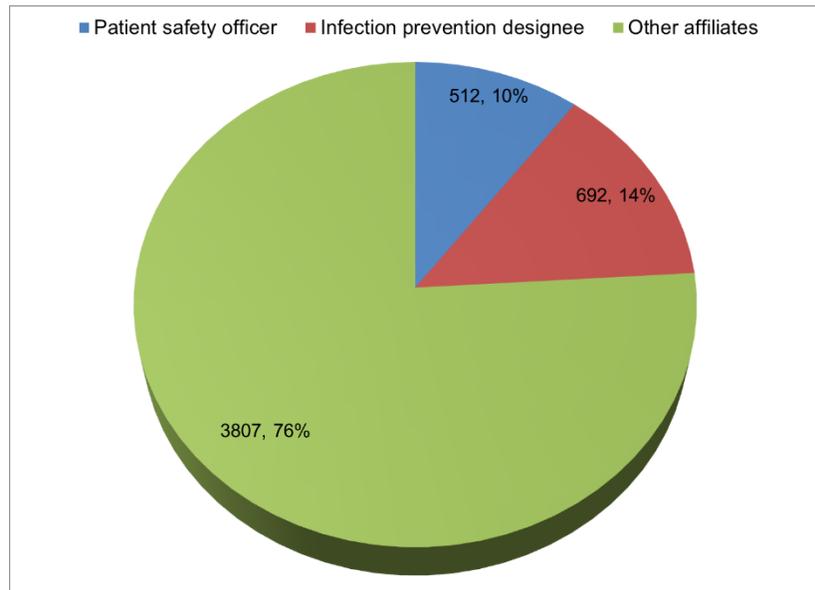


Figure 2. Advisory Program Affiliate Distribution, as of December 31, 2013

General Distribution

There are non-program subscribers in Pennsylvania, the rest of the United States, and in other countries who receive the quarterly *Advisory*. Of the total non-program subscribers (i.e., general distribution; n = 4,120 as of December 31, 2013), 95.83% are U.S. based. Of non-U.S. subscribers, the five highest by percentage are Canada (1.17%), Australia (0.58%), the United Kingdom (0.24%), Saudi Arabia (0.22%), and Argentina (0.15%). (See Table 1.)

U.S. Locale

Of the U.S. subscribers (n = 3,948), Pennsylvania accounts for the greatest percentage (58.71%), followed by California (2.74%), Illinois (2.41%), Massachusetts (2.25%), Maryland (1.95%), and Florida (1.90%) as the next five states by percentage. About 6.16% of U.S. subscribers did not indicate a specific state in the subscription records and were otherwise unidentifiable by the information provided. The *Advisory* has subscribers located in all 50 states. (See Table 2.)

¹⁶ The number of patient safety officers and infection prevention designees represents the number of unique e-mail addresses for the individuals, not the number of corresponding facilities in Pennsylvania, because some of these individuals may represent one or more facilities.

Table 1. Advisory Non-Program Subscribers by Country, as of December 31, 2013

Country	Subscribers	Percentage	<i>(continued)</i> Country	Subscribers	Percentage
United States	3,948	95.83	Indonesia	2	0.05
Canada	48	1.17	Netherlands	2	0.05
Australia	24	0.58	Portugal	2	0.05
United Kingdom	10	0.24	Turkey	2	0.05
Saudi Arabia	9	0.22	Aland Islands	1	0.02
Argentina	6	0.15	Armenia	1	0.02
France	5	0.12	Austria	1	0.02
Germany	5	0.12	Bahrain	1	0.02
Philippines	5	0.12	China	1	0.02
Spain	5	0.12	Egypt	1	0.02
Malaysia	4	0.10	Finland	1	0.02
Singapore	4	0.10	Israel	1	0.02
Sweden	4	0.10	Italy	1	0.02
Brazil	3	0.07	Japan	1	0.02
Colombia	3	0.07	Malta	1	0.02
Lebanon	3	0.07	New Zealand	1	0.02
Mexico	3	0.07	South Africa	1	0.02
Taiwan	3	0.07	Switzerland	1	0.02
Belgium	2	0.05	Thailand	1	0.02
Hong Kong SAR	2	0.05	Uruguay	1	0.02%
			Total	4,120	100

Table 2. Advisory U.S. Non-Program Subscribers by State/District/Territory, as of December 31, 2013

State	Subscribers	Percentage	(continued) State	Subscribers	Percentage
Pennsylvania	2,318	58.71	Oregon	17	0.43
California	108	2.74	Kentucky	16	0.41
Illinois	95	2.41	South Carolina	16	0.41
Massachusetts	89	2.25	Iowa	14	0.35
Maryland	77	1.95	Delaware	13	0.33
Florida	75	1.90	Oklahoma	13	0.33
New York	66	1.67	Nebraska	11	0.28
Texas	64	1.62	Kansas	10	0.25
Ohio	60	1.52	Rhode Island	10	0.25
Virginia	55	1.39	Hawaii	9	0.23
New Jersey	53	1.34	New Mexico	8	0.20
North Carolina	42	1.06	Nevada	7	0.18
Michigan	39	0.99	Puerto Rico	7	0.18
Indiana	38	0.96	Utah	7	0.18
Missouri	31	0.79	Mississippi	6	0.15
Tennessee	31	0.79	West Virginia	6	0.15
New Hampshire	30	0.76	Alaska	4	0.10
Georgia	26	0.66	Montana	4	0.10
Colorado	25	0.63	Arkansas	3	0.08
Alabama	24	0.61	Idaho	3	0.08
Washington	24	0.61	North Dakota	3	0.08
Washington, DC	22	0.56	South Dakota	3	0.08
Wisconsin	22	0.56	Wyoming	3	0.08
Louisiana	21	0.53	Vermont	2	0.05
Connecticut	19	0.48	Army Post	1	0.03
Arizona	18	0.46	Virgin Islands	1	0.03
Maine	18	0.46	Unknown	243	6.16
Minnesota	18	0.46	Total	3,948	100

Advisory Summaries

In 2013, the Authority published four quarterly issues, composed of 33 articles and other material. Summaries of select *Advisory* articles published during 2013 are included below.

Breakdowns in the Medication Reconciliation Process

2013 Dec;10(4):125-36

Medication reconciliation is a process that involves collecting an accurate list of a patient's medications, ensuring the medications collected and ordered are correct and appropriate for the patient, and reviewing any changes in therapy with each change in level of care.

The goals are to obtain accurate and complete information and to use the information within and across the continuum of care to ensure safe and effective medication use.

Pennsylvania Patient Safety Authority analysts identified 501 events involving breakdowns in the medication reconciliation process with event dates from November 2011 through November 2012. Analysts classified the events by type of reconciliation, event type, and possible causes and contributing factors. The majority of events occurred during admission medication reconciliation (69.3%, n = 347). Events most often originated during prescribing (40.3%, n = 202) and transcribing (26.9%, n = 135). Drug omission was the most frequently reported (26.7%, n = 134) event type overall. Other top event types included wrong dose (20.4%, n = 102) and additional drug or dose (18%, n = 90) (see Table 3).

Table 3. Top Five Event Types Associated with Medication-Reconciliation-Related Events That Occurred from November 1, 2011, through November 31, 2012, as Reported to the Pennsylvania Patient Safety Authority

EVENT TYPE	NO. OF EVENTS (%) BY CARE TRANSITION				
	Overall (N = 501)	Admission (N = 347)	Transfer (N = 43)	Discharge (N = 50)	Unknown (N = 61)
Drug omission	134 (26.7)	90 (25.9)	11 (25.6)	12 (24.0)	14 (23.0)
Wrong dose	102 (20.4)	75 (21.6)	2 (4.7)	11 (22.0)	14 (23.0)
Additional drug or dose	90 (18.0)	55 (15.9)	14 (32.6)	9 (18.0)	12 (19.7)
Unknown	61 (12.2)	31 (8.9)	13 (30.2)	8 (16.0)	9 (14.8)
Wrong drug	40 (8.0)	31 (8.9)	1 (2.3)	4 (8.0)	4 (6.6)

Important risk reduction strategies include the following:

- Standardizing processes for obtaining and communicating complete and accurate medication history
- Using a standardized medication reconciliation form with a scripted list of questions or prompts
- Working to eliminate documentation of medication reconciliation information on multiple assessment tools
- Clearly defining the roles and responsibilities of staff involved in the medication reconciliation process
- Engaging patients when obtaining their history and determining treatment

For the complete article, go to [http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2013/Dec;10\(4\)/Pages/125.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2013/Dec;10(4)/Pages/125.aspx).

Summary of Select Advisory Articles

Distractions and Their Impact on Patient Safety

2013 Mar;10(1):1-10

Distraction is a common source of potential error that is well established within the fields of human factors research and cognitive psychology. High levels of distraction in healthcare settings pose a constant threat to patient safety. New technologies have increased the number and types of distractions present in these settings.

Analysis of events reported to the Pennsylvania Patient Safety Authority in 2010 and 2011 containing relevant terms, namely “distract,” “interrupt,” or “forgot,” identified 1,015 events that could be attributed to distraction. The majority of events were classified as medication errors (59.6%), followed by errors related to procedures, treatments, or tests (27.8%) (see Figure 3). Thirteen events were reported that resulted in patient harm. Forty event reports specifically mentioned distractions from phones, computers, or other technologic devices contributing to errors.

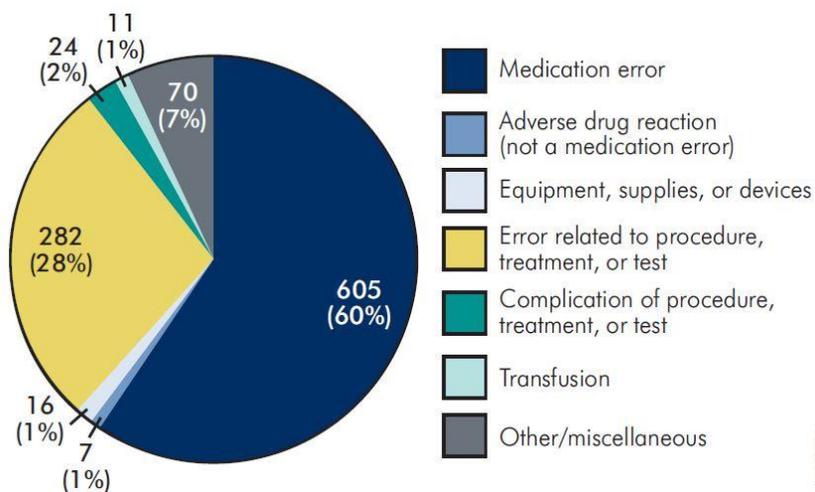


Figure 3. Event Reports to the Pennsylvania Patient Safety Authority Attributed to Distraction, by Event Type, 2010 through 2011

Clinicians can take steps to reduce the impact of distraction by recognizing common sources of distraction and situations that are distraction-prone, identifying clinical tasks or procedures that are most likely to result in medical error and patient harm as a result of distraction, and applying specific risk reduction strategies, such as the following:

- Avoid communication of irrelevant information, especially when performing tasks with high-cognitive load. Similarly, minimize interruptions that place high demands on working memory.

- Designate tasks that are not to be interrupted, and develop a system to communicate when staff are engaged in these tasks.
- Develop and use checklists for complex tasks that are known to be distraction-prone.
- Use written reminders as event-based cues to complete future tasks.

For the complete article, go to [http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2013/Mar;10\(1\)/Pages/01.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2013/Mar;10(1)/Pages/01.aspx).

Spotlight on Electronic Health Record Errors: Paper or Electronic Hybrid Workflows

2013 Jun;10(2):55-8

The use of a hybrid workflow, in which both electronic and paper systems are used for documentation, is often found in care areas transitioning from a paper-based to fully electronic (i.e., electronic health record [EHR]) documentation procedure. Hybrid workflows may occur as a planned transitional step during the implementation of an EHR system or may arise as a workaround in which paper is used to supplement electronic systems. Regardless, hybrid workflows raise the potential for medical error.

For a previous *Pennsylvania Patient Safety Advisory* article ([http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2012/Dec;9\(4\)/Pages/113.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2012/Dec;9(4)/Pages/113.aspx)), analysts reviewed 3,099 narrative reports relevant to health information technology (HIT) reported through the Pennsylvania Patient Safety Authority's Pennsylvania Patient Safety Reporting System. During that review, analysts identified 85 reports of errors related to miscommunication arising from dual use of electronic and paper documentation. Of the 85 events, 77 (91%) were reported as "event, no harm," 7 (8%) were reported as "unsafe conditions" that did not result in a harmful event," and 1 event involved temporary harm to a patient associated with receiving the wrong dosage form of a narcotic. Pennsylvania healthcare facilities predominantly reported medication errors among the 85 events (n = 63, 74%), of which the most common types were wrong medication (22%), dose omission (19%), extra dose (13%), and other (13%).

Facilities that have transitioned to EHRs may wish to periodically monitor clinical workflow to determine whether hybrid workflows are developing in response to user challenges. Additional considerations for successful implementation are as follows:

- Rather than lingering in a transition or hybrid state, focus on completing transition from wholly paper to wholly electronic as quickly as possible.
- Make someone responsible and accountable for successful implementation.
- Select an EHR platform appropriate to workflow needs, attending to the user interface (i.e., ensure users can efficiently work with the system).
- Study current workflows to determine what changes will be needed in the transition. Pilot test with enough clinical locations that the results are application to the overall organization. Seek participation from end users during implementation.
- Continually evaluate the implemented systems.

For the complete article, go to [http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2013/Jun;10\(2\)/Pages/55.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2013/Jun;10(2)/Pages/55.aspx).

Infection Control Challenges: Pennsylvania Nursing Homes Are Making a Difference through Implementation of Best Practices

2013 Jun;10(2):67-75

In 2010, the Pennsylvania Patient Safety Authority began to study the impact of various levels of implementation of infection prevention best practices on healthcare-associated infection (HAI) rates in Pennsylvania nursing homes and to assess patterns of care that could be targeted for improvement. Ten nursing homes with high HAI rates (H-HAI) and 10 with low HAI rates (L-HAI) were evaluated and compared using a standardized assessment tool and site visits by an Authority analyst. The evaluation showed limited adoption of best practices in H-HAI nursing homes.

In 2012, the 10 H-HAI nursing homes were reassessed using the same standardized assessment tool and a follow-up interview. Improvements to implementation of best practices were reported for all infection control domains and implementation categories. Infection rates from March through May 2012 were compared with the same baseline period for 2010. (See Table 4 for facility pre- and postintervention infection rates, by infection type.) The analysis showed a 16% decrease in the mean overall infection rate for these 10 H-HAI facilities.

Table 4. H-HAI Nursing Home Pre- and Postintervention Infection Rates (per 1,000 resident-days), by Infection Type

INFECTION TYPES	FACILITY 1	FACILITY 2	FACILITY 3	FACILITY 4	FACILITY 5	FACILITY 6	FACILITY 7	FACILITY 8	FACILITY 9	FACILITY 10	POOLED MEAN RATES
Gastrointestinal tract infection											
2010	0.64	2.88	0.20	0.07	0.54	0.95	0.74	0.37	0.41	0.11	0.40
2012	0.00	1.99	0.41	0.13	0.27	0.33	0.54	0.88	0.20	0.00	0.44
Respiratory tract infection											
2010	2.86	0.00	2.76	1.57	1.79	1.12	0.87	0.91	0.21	0.22	1.20
2012	1.30	0.00	0.21	0.99	1.15	0.33	0.18	2.22	1.21	0.34	1.21
Skin and soft-tissue infection											
2010	2.86	0.96	0.00	0.65	0.18	0.52	0.62	0.54	0.62	0.90	0.61
2012	0.65	0.00	1.24	0.33	0.00	0.57	0.18	0.75	0.40	0.11	0.48
Symptomatic urinary tract infection											
2010	0.95	0.96	0.59	1.20	0.63	0.69	0.00	0.32	0.21	0.56	0.61
2012	0.33	0.00	0.21	0.36	0.09	0.25	0.00	0.56	0.20	0.00	0.33
Other											
2010	0.00	0.00	0.00	0.07	0.27	0.09	0.87	0.00	0.62	0.22	0.15
2012	0.00	0.00	0.00	0.03	0.00	0.08	0.00	0.00	0.20	0.22	0.04
<p><i>Note: Shaded cells indicate decreased infection rates or sustained zero infections. Data is for March to May for 2010 and 2012, respectively. Pennsylvania nursing homes were sorted into performance quartiles based on healthcare-associated infection (HAI) reports submitted to the Pennsylvania Patient Safety Authority from March through May 2010. For the purposes of this study, "H-HAI" nursing homes are the 10 facilities identified from the bottom quartile with high rates of HAIs.</i></p>											

Follow-up assessment identified facilitators and successful methods for implementing best practices in infection control, as well as continued barriers and opportunities for improvement. Examples include the following:

- Facilitators
 - Supportive and engaged leaders
 - Medical director engagement in infection control practices

- Leadership rounding
- Multidisciplinary teamwork
- Accessibility of supplies necessary for infection control practices at the point of care
- Use of checklists
- Root-cause analysis for infections of concern or outbreaks
- Peer monitoring
- Provision of infection-control-specific education to staff
- Sharing process and outcome data with staff
- Barriers
 - High acuity
 - Low staffing
 - Infection preventionist “wears multiple hats”
 - Limited consultant services
 - Limited ability to make environmental modifications

Overall, the results suggest that incorporation of infection control best practices in nursing homes may be associated with decreased infection rates, and that identification of focus areas for improvement may be achieved through self-assessment using a standardized assessment tool, such as the one available through the hyperlink below.

For the complete article and associated resources, go to http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/nh_practices/Pages/home.aspx.

Class III Obese Patients: Is Your Hospital Equipped to Address Their Needs?

2013 Mar;10(1):11-8

Class III obese patients are identified as having a body mass index (BMI) of greater than or equal to 40 or weighing 100 pounds or more than their ideal body weight. Safely caring for class III obese patients brings a unique set of demands to healthcare facilities and providers. Class III obese patients require special equipment that is big enough and strong enough to support them safely while in the care of others.

A review of five years of events reported to the Pennsylvania Patient Safety Authority identified 180 equipment-use event reports involving class III obese patients. Authority analysts identified seven common issues among the event reports (see Table 5).

Table 5. Pennsylvania Patient Safety Reporting System Morbidly Obese Patient Event Report Issues (N = 180)

CATEGORY*	NO. OF REPORTS†	% OF REPORTS
Morbidly obese patient hospital policies and procedures not followed, insufficient, or absent	125	69.4
Hospital does not have bariatric equipment	78	43.3
Needed to wait for equipment (lack of access)	51	28.3
Inadequate staffing for safe patient transfers or direct patient care	43	23.9
Bariatric equipment failed	32	17.8
Facility not completely retrofitted	10	5.6
Equipment limitations	5	2.8
<p>* Twenty-nine reports identified the appropriate use of bariatric equipment. † Event report narratives could have indicated more than one issue.</p>		

In July 2012, a statewide survey was sent to Pennsylvania hospitals to determine how prepared they were to care for this patient population. The survey identified that 36.5% (n = 23 of 63) of respondents indicated that their hospital does not have an evacuation plan in place for moving class III obese patients to a safe location in an emergency. An additional finding was that more hospitals rent versus own bariatric equipment (for example, see Table 6), which may provide insight into why, in some of the Authority event reports, bariatric equipment was not available or why patients had delays in care.

Strategies to address class III obese patient equipment needs include the following:

- Update policies and procedures for class III obese patients.
- Develop and test an evacuation plan.
- Identify the population of class III obese patients at the facility to determine level of demand and purchasing needs for equipment.
- Provide sensitivity training to all healthcare staff.
- Educate staff about the acquisition and use of bariatric equipment.
- Upon patient admission (including the emergency department), measure patients' height and weight (i.e., to calculate their BMI), and abdominal girth to determine equipment of the appropriate size.

Table 6. Survey Response: Bariatric Equipment Rented by Hospitals (N = 72)

EQUIPMENT	NO. OF FACILITIES	% OF FACILITIES
Beds	56	77.7
Wheelchairs	16	22.2
Lifts	6	8.3
Scales	5	6.9
Stretchers	4	5.5
Bedside commodes	4	5.5
Shower chairs	3	4.2
Unspecified (e.g., rent equipment when need exceeds equipment owned by facility, dependent on patient needs)	3	4.2
Bariatric recliners	1	1.4
Chairs	1	1.4
Hover mats	1	1.4
Specialty bariatric beds	1	1.4
Walkers	1	1.4

For the complete article and associated resources, go to <http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/obesity/Pages/home.aspx>.

Quarterly Update on Wrong-Site Surgery: Areas to Focus Attention

2013 Dec;10(4):142-5

Pennsylvania operating suites reported 10 wrong-site surgery procedures during July through September 2013, which is the lowest number of wrong-site surgery procedures reported for the first quarter of any academic year since event reporting began through the Pennsylvania Patient Safety Reporting System. As of publication of the December 2013 *Pennsylvania Patient Safety Advisory*, Pennsylvania operating suites have reported 551 events of wrong-site surgery (see Figure 4).

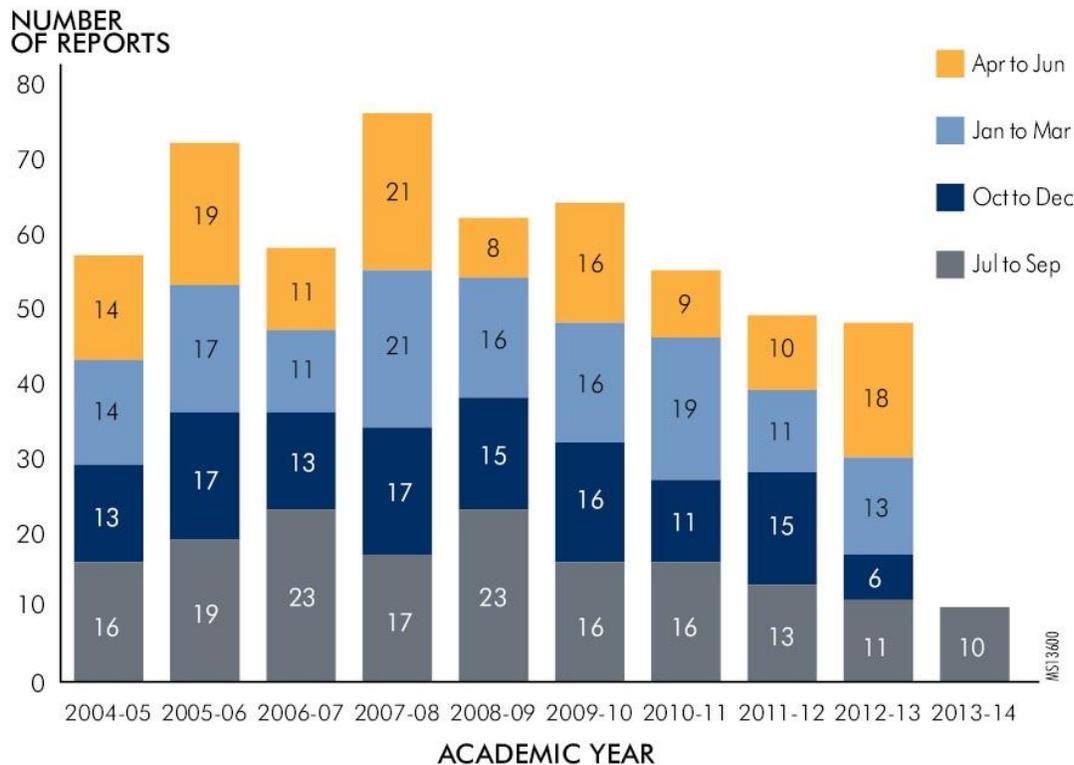


Figure 4. Pennsylvania Patient Safety Authority Wrong-Site Surgery Reports by Academic Year

In a previous *Advisory* article (September 2013), the Pennsylvania Patient Safety Authority identified the six most common procedures, ranging from 5% to 21% of all wrong-site surgery procedures. Authority analysts tracked these wrong-site surgery procedures by year and compared them with the remaining wrong-site procedures (see Figure 5). Overall, wrong-site procedures have trended down 3.4% per year in reference to the overall yearly average. Compared with the remaining 38% of wrong-site procedures, which have trended down an average of 8.5% per year in reference to their yearly average, only eye surgery has seen a similar downward trend (9.5%). Ureteral stenting and hand surgery have less downward trending than the overall yearly average (3.1% and 2.2%, respectively). Anesthesia blocks have been relatively unchanged (trending down 0.4% per year), while spinal surgery and pain management procedures have trended toward more wrong-site procedures (upward 3.0% and upward 3.8% per year, respectively).

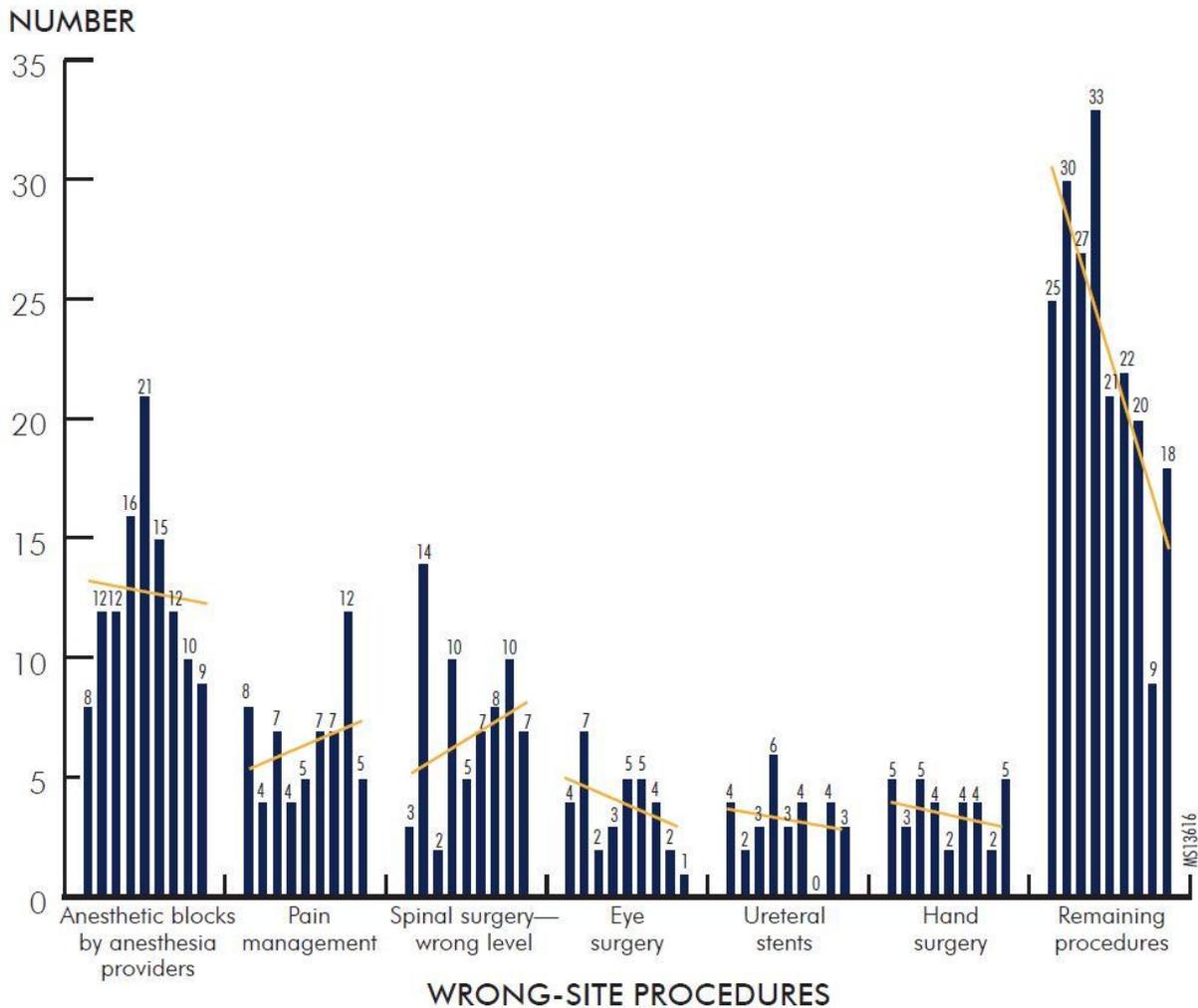


Figure 5. Trends in Pennsylvania Patient Safety Authority Wrong-Site Surgery Reports by Procedure

These yearly trends suggest that the focus should be directed toward improving the three most common types of wrong-site procedures: anesthesia blocks, pain management procedures, and wrong-level spinal surgery.

For the complete article and associated resources, go to <http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/PWSS/Pages/home.aspx>.

Oral Medications Inadvertently Given via the Intravenous Route

2013 Sep;10(3):85-91

The inadvertent intravenous (IV) administration of oral medications, while rarely reported, has contributed to serious patient harm, as seen in events reported to the Pennsylvania Patient Safety Authority and in the clinical literature.

Analysts identified 20 events of inadvertent IV administration of oral medications reported to the Authority between June 2004 and December 2012. All of the events reached the patient, and 20% (n = 4) resulted in patient harm, including one death. A common contributing factor implicated in many of these events was that the oral drug was administered using a parenteral syringe, or other device with a needleless connector. Use of parenteral syringes that can be attached to a needleless IV systems to administer oral (and enteral) liquids can present a serious danger of misadministration.

While the clinical literature on these errors predominantly addresses the administration phase of the medication-use process, events and decisions that precede administration may play a role. Avoiding these types of errors requires more than one error reduction strategy. Consider strategies to mitigate such errors, including the following:
Assessing the current processes and medical devices within the facility to understand key system factors playing a role in this type of medication error (see Figure 6)

Purchasing medication administration equipment and systems that have parenteral tubing with ports that are incompatible with oral syringes and enteral devices
Ensuring oral syringes are available in requisite areas

Dispensing oral liquid medications from the pharmacy in the most ready-to-use forms (e.g., labeled, patient-specific doses in oral syringes)
Communicating patients' inability to swallow capsules or tablets to the pharmacy department

Obligating staff to prepare and administer oral and enteral liquids with oral syringes.
Affixing labels to oral syringes that indicate that administration of the contained medication is intended via the oral route
Improving healthcare professionals' understanding of such medication errors and use of safe practices (e.g., through training and competency measures)

<p>Failure mode and effects analysis (FMEA) is a tool that can be used to evaluate processes, medications, and medical equipment used within the facility to identify potential factors and breakdowns that can lead to medication errors. Facilities can use FMEA to determine the risks and issues leading to oral medications inadvertently being administered intravenously. Grouped according to the applicable key elements from the Institute for Safe Medication Practices' Key Elements of the Medication Use System™,¹ the following are some questions to consider when performing an FMEA.</p>	<p>(i.e., they do not have female Luer connectors)? (Exception: A Luer connector may be used for the inflation balloon that anchors some long-term-use feeding devices.)</p>
<p>Drug Standardization, Storage, and Distribution</p>	<ul style="list-style-type: none"> — Who procures specially designed oral syringes for use within the facility?
<ul style="list-style-type: none"> — Does pharmacy use oral syringes to prepare and dispense doses of oral liquid medications? — Does pharmacy prepare and dispense oral liquid medications in labeled, ready-to-use, patient-specific doses? — Is the oral formulation of the medication packaged by the manufacturer in a vial that looks like a vial typically used for an injectable product (e.g., acetylcysteine)? 	<p>Staff Competency and Education</p>
<p>Medication Device Acquisition, Use, and Monitoring</p>	<ul style="list-style-type: none"> — Is the availability and storage location of oral syringes shared with all practitioners? — Are practitioners taught how and when oral syringes are to be used? — Are practitioners taught the safety reasons and importance of using oral syringes to prevent medication errors? — Is this education provided upon hire and reinforced on an ongoing basis? — Do practitioners receive ongoing information about medication errors occurring within the organization, error-prone conditions, errors occurring in other healthcare facilities, and strategies to prevent such errors?
<ul style="list-style-type: none"> — Does the facility purchase specially designed oral syringes that cannot be connected to parenteral tubing for preparation and administration of oral liquid medications that are not available in commercially prepared unit-dose cups? — Are oral syringes available in the pharmacy for preparation and dispensing of oral liquid medications? — Are oral syringes available and readily accessible in all patient care areas for use by nurses and other practitioners? — Are the oral syringes visually different from parenteral and other syringes used within the facility? — Are the oral syringes prominently labeled by the manufacturer with a warning statement similar to "Oral Use Only"? — Does parenteral tubing used within the facility have ports that are incompatible with oral syringes and enteral devices? — Do the ports on enteral feeding tubes used within the facility only connect to oral syringes and catheter tip connectors 	<p>Quality Processes and Risk Management</p>
	<ul style="list-style-type: none"> — Is the use of oral syringes in pharmacy to prepare patient-specific doses of oral medications continually monitored and assessed? — Is the use of oral syringes to administer oral liquid medications in patient care areas continually monitored and assessed? — What procedures are in place to identify and manage the risk of errors when an alternative product is introduced to clinical areas? (Note: This applies to newly approved products as well as those brought into the facility in response to drug shortages.)
	<p>Note</p>
	<ol style="list-style-type: none"> 1. Cohen MR. Causes of medication errors. Chapter 4. In: Cohen MR, ed. <i>Medication errors</i>. 2nd ed. Washington (DC): American Pharmacists Association; 2007:56-65.

Figure 6. Questions to Consider during Failure Mode and Effects Analysis of Potential Wrong-Route Errors Involving Oral Medications

For the complete article and associated self-assessment questions, go to [http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2013/Sep;10\(3\)/Pages/85.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2013/Sep;10(3)/Pages/85.aspx).

Healthcare Outbreaks—Risk Assessment and Mitigation Based on Pathogen, Population, and Environmental Factors: The P²E Concept

2013 Mar;10(1):27-33

Beginning in 2009, Pennsylvania experienced one of the largest and most prolonged outbreaks of invasive group A streptococcus (GAS) within a nursing facility to date. Thirty people had culture-confirmed GAS. The only known reservoirs for GAS in nature are the skin and mucous membranes of the human host. Therefore, one of the highest-risk patient populations is those who have nonintact skin.

In the case example from Pennsylvania, the patient population, at any given time, had several known GAS risk factors (including nonintact skin). Such an observation may indicate that outbreak risk can be assessed, and initiation of proactive intervention may provide opportunities to mitigate risk in order to decrease the probability of an outbreak. An approach for describing proactive outbreak prevention based on pathogen, population, and environment (P²E) may be the best method to prevent outbreaks. The included P²E risk assessments are intended as examples for staff to help develop awareness of risk and promote behaviors that mitigate risk (see Table 7 and Table 8). Pennsylvania GAS outbreak facts are included, and the framework is expanded to include carbapenem-resistant Enterobacteriaceae, demonstrating the framework’s applicability to a multitude of outbreak scenarios.

Table 7. Example Factor-Based Risk Assessment, with Selected Interventions and Rationale for Group A Streptococcus (GAS)

P²E* CATEGORY	INCLUSION CRITERIA (TRANSMISSION-BASED)	INCLUSION RATIONALE	AT RISK?	MITIGATION STRATEGY†
Pathogen: GAS	How is the pathogen transmitted?	GAS is commonplace on skin and in mucous membranes ¹ Contact (direct and indirect) and droplet transmission ²	Yes	A hand hygiene program, including surveillance, should be in place. Personal protective equipment should be readily available. Isolation precautions and treatment for known patient cases may be used. Infected healthcare providers may be excluded from clinical care and treated. Sick contacts may receive prophylaxes. Ongoing targeted screening of patients and healthcare workers may be needed to establish prevalence for the purpose of situational awareness related to potential risk. ³
Patient	Do the majority of patients in this facility or unit exhibit at least one risk factor for the development of invasive disease?	Population-based patient demographics (per the Morbidity and Mortality Weekly Report article): ⁴ Diabetes One or more wounds Physical and/or occupational therapy Resides in a pulmonary unit Tracheostomy Urinary catheter	Yes	Group risk factors of similar clinical implication, then assign appropriate evidence-based prevention and control measures. (For example: The majority of the patients involved in this outbreak had breaks in skin integrity and/or were dependent of respiratory care. Therefore, interventions could be designed that focus on hand hygiene compliance, with particular attention paid toward decreasing the chance of bacterial translocation.)
	Do any of the patient-specific risk factors that are exhibited provide a	Gastrostomy or jejunostomy At least two underlying	Yes	Methods to decrease bacterial load both on the patient and immediate environment could be explored.

	vehicle for transmission from one person to another?	<p>conditions</p> <p>Congestive heart failure or myocardial infarction</p> <p>Male</p> <p>Length of stay less than or equal to 10 months</p>		Systems that encourage sharing supplies between patients could be discouraged.
Environment	Do the majority of patients routinely have skin or mucous membrane contact with common surfaces?	Indirect transmission happens when pathogens are transferred through a contaminated intermediate object or person. ²	Yes	Surfaces, equipment, and devices that are in contact with skin should be disinfected in between patients.
	Does the potential for introduction of this pathogen from external sources exist?	Direct transmission occurs when pathogens are transferred from one person to another without a contaminated intermediate object or person. ²	Yes	Visitation by those who exhibit signs and symptoms of infection may be limited.

Sources:

¹ Stevens DL, Bryant A. Group A streptococcus: virulence factors and pathogenic mechanisms [online]. UpToDate 2012 Aug 1 [cited 2012 Oct 6]. <http://www.uptodate.com/contents/group-a-streptococcus-virulence-factors-and-pathogenic-mechanisms>.

² Siegel JD, Rhinehart E, Jackson M, et al. 2007 guideline for isolation precautions: preventing transmission of infectious agents in healthcare settings [online]. [cited 2012 Oct 7]. <http://www.cdc.gov/ncidod/dhqp/pdf/isolation2007.pdf>.

³ Girou E, Azar J, Wolkenstein P, et al. Comparison of systemic versus selective screening for methicillin-resistant *Staphylococcus aureus* carriage in a high-risk dermatology ward. *Infect Control Hosp Epidemiol* 2000 Sep;21(9):583-7.

⁴ Centers for Disease Control and Prevention. Invasive group A streptococcus in a skilled nursing facility—Pennsylvania, 2009-2010. *MMWR Morb Mortal Wkly Rep* 2011 Oct 28;60(42):1445-9.

* P²E = pathogen, population, and environment

[†] Refer to the appendix accompanying the complete article for Pennsylvania Department of Health recommendations specific to invasive GAS outbreak intervention.

Table 8. Example Factor-Based Risk Assessment, with Selected Interventions and Rationale for Carbapenem-Resistant Enterobacteriaceae (CRE) Organisms

P²E* CATEGORY	INCLUSION CRITERIA (TRANSMISSION-BASED)	INCLUSION RATIONALE	AT RISK?	MITIGATION STRATEGY
Pathogen: CRE	How is the pathogen transmitted?	Contact	Yes	<p>A hand hygiene program, including surveillance, should be in place.</p> <p>Personal protective equipment (PPE) should be readily available.</p> <p>Isolation precautions and treatment for known patient cases may be used.</p> <p>If organism is prevalent in the facility, the facility may consider surveillance, screening cultures, and preemptive isolation of transfers and admissions of high-risk patients or patients from high-risk areas.¹</p>

Patient	Do the majority of patients in this facility or unit exhibit at least one risk factor for the development of invasive disease?	Selected CRE patient-related risk factors: ²⁻⁴ Length of stay prior to positive culture Admission to the intensive care unit Foreign material in the body Tracheostomy	Yes	Group risk factors of similar clinical implication, then assign appropriate evidence-based prevention and control measures. For example, grouped risks may include intensive care admission, the use of ventilation equipment (tracheostomy and endotracheal tubes), and antibiotic use. ²⁻⁴
	Do any of the patient-specific risk factors that are exhibited provide a vehicle for transmission from one person to another?	Chronic obstructive pulmonary disease Age 65 or older Mechanical ventilation Nasogastric tube Prior antibiotic use Immunosuppression Central venous catheter Foley catheter Dialysis Nonsurgical invasive procedure Malignancy	Yes	Refer to Centers for Disease Control and Prevention's Guidance for Control of Carbapenem-resistant Enterobacteriaceae (CRE) ⁵
Environment	Do the majority of patients routinely have skin or mucous membrane contact with common surfaces?	Indirect transmission happens when pathogens are transferred through a contaminated intermediate object or person. ⁶	Yes	Surfaces, equipment, and devices that are in contact with skin should be disinfected in between patients.
	Does the potential for introduction of this pathogen from common sources exist?	Direct transmission occurs when pathogens are transferred from one person to another without a contaminated intermediate object or person (for example, healthcare workers moving from high-risk areas to low-risk areas). ⁶	Yes	PPE should be used properly, and effective hand hygiene practices and policies should be in place.
	Is the pathogen present in the environment?	Positive patient cultures	Yes	Ensure situational awareness related to communication with laboratory personnel and facility epidemiologist.
<p>Sources:</p> <p>¹ Ben-David D, Maor Y, Keller N, et al. Potential role of active surveillance in the control of a hospital-wide outbreak of carbapenem-resistant <i>Klebsiella pneumoniae</i> infection. <i>Infect Control Hosp Epidemiol</i> 2010 Jun;31(6):620-6.</p> <p>² Bratu S, Landman D, Haag R, et al. Rapid spread of carbapenem-resistant <i>Klebsiella pneumoniae</i> in New York City: a new threat to our antibiotic armamentarium. <i>Arch Intern Med</i> 2005 Jun 27;165(12):1430-5.</p> <p>³ Falagas ME, Rafailidis PI, Kofteridis D, et al. Risk factors of carbapenem-resistant <i>Klebsiella pneumoniae</i> infections: a matched case-control study. <i>J Antimicrob Chemother</i> 2007 Nov;60(5):1124-30.</p> <p>⁴ Schwaber MJ, Klarfeld-Lidji S, Navon-Venezia S, et al. Predictors of carbapenem-resistant <i>Klebsiella pneumoniae</i> acquisition among hospitalized</p>				

adults and effect of acquisition on mortality. *Antimicrob Agents Chemother* 2008 Mar;52(3):1028-33.

⁵ Centers for Disease Control and Prevention. Guidance for control of carbapenem-resistant Enterobacteriaceae (CRE) [online]. 2012 Jun 19 [cited 2012 Oct 17]. <http://www.cdc.gov/hai/organisms/cre/cre-toolkit/index.html>.

⁶ Siegel JD, Rhinehart E, Jackson M, et al. 2007 guideline for isolation precautions: preventing transmission of infectious agents in healthcare settings [online]. [cited 2012 Oct 7]. <http://www.cdc.gov/ncidod/dhqp/pdf/isolation2007.pdf>.

* P²E = pathogen, population, and environment

For the complete article, go to [http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2013/Mar;10\(1\)/Pages/27.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2013/Mar;10(1)/Pages/27.aspx).

ADDENDUM D: DETAILED DESCRIPTION OF REGIONAL EDUCATION PROGRAMS

Educational Programs 2013

The Pennsylvania Patient Safety Authority continues to offer educational programs aimed at promoting patient safety and reducing harm. In 2013, the Authority conducted a total of 204 educational sessions with over 6,429 individuals in attendance. Audience composition has included patient safety officers, quality directors, risk managers, infection preventionists, executive leaders (CEO, COO), clinical leaders (CMO, CNO), front line staff, patient safety committee members and others. Attendees learn foundational concepts of patient safety and learn key principles which influence a culture that sustains patient safety. Patient Safety culture is a transformative journey that moves from a culture of blame and shame, communication silos, hiding errors, work-arounds and “business as usual” to one of an atmosphere of teamwork and communication, just and fair culture, patient centeredness and transparency. Programs are geared towards achieving active learning and high reliability. Since the inception of the Authority’s educational programs, these key elements have been the core of patient safety curriculums and continue to this day.

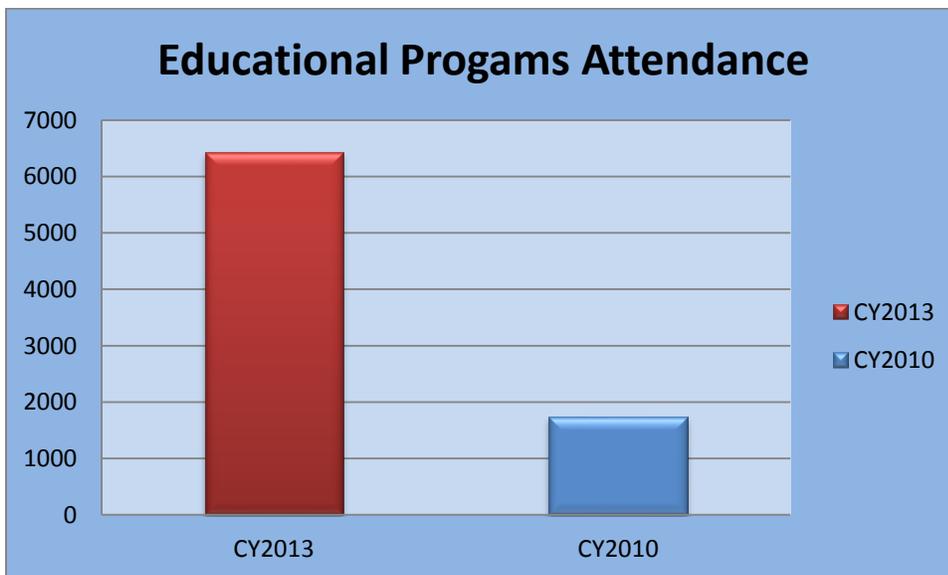


Figure 1. Total Educational Programs Attendance

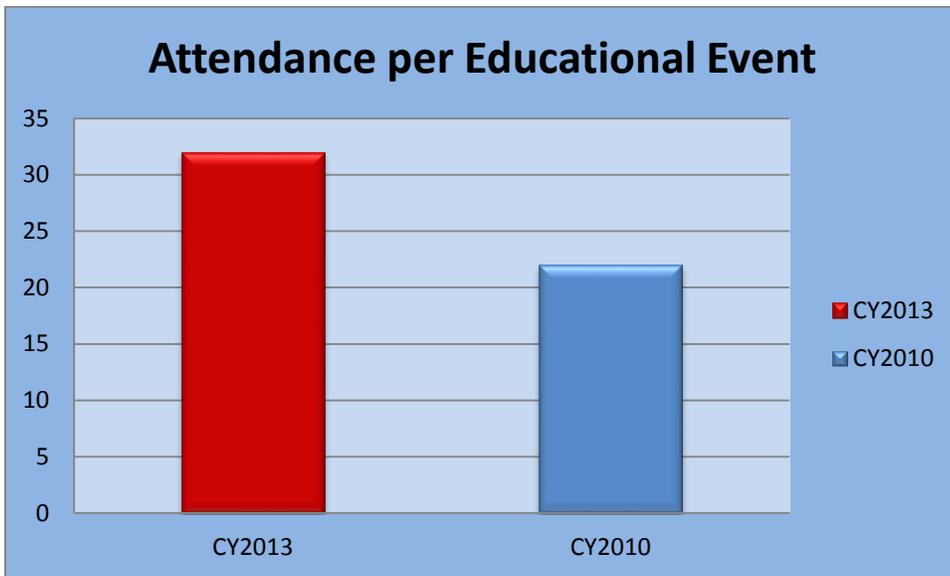


Figure 2. Attendance per Educational Event

Facility-Specific Education

The largest category of educational offerings by volume is facility-specific education (see Table 1 'varied topics'). These specific individual requested programs are offered based upon individual facility requests and/or identified needs. The Authority has provided education to healthcare workers on topics such as the importance and value in event reporting, culture, human factors, teamwork and communication, infection prevention focused topics, prevention of wrong-site surgery, fall prevention, medication safety, fire safety in the operating room, disclosure and others. We also have master trainers who assist facilities in conducting TeamSTEPPS™ train the trainer programs as well as Authority staff who are certified in Just Culture™.

Most educational offerings start with background information about the Medical Care Availability and Reduction of Error Act (MCare) and the role of the Authority. There are also programs that are solely dedicated to in-depth explanation of MCare, including but not limited to: reporting requirements, definitions, investigation, disclosure, anonymous reporting and roles and responsibilities of the patient safety officer and patient safety committee. Offerings have been made to both small and large groups from one to one education for new patient safety officers and their delegates, to patient safety committee members, to executive leaders, physicians and entire health systems.

Site-specific education occurs with every new PSO. Patient safety liaisons visit the facility to do in-depth training on the MCare law, responsibility of the PSO and Pennsylvania Patient Safety Reporting System (PA-PSRS) training. Several Authority tools and resources are provided to the new PSO to assist him/her in their new role. Hands-on training for the PSO is offered to ensure he/she knows how to log-in to PA-PSRS, enter reports, the role of facility system manager (FSM), PA-PSRS analytical tools, export data, etc.

Webinars

Over time, the programs have been enriched in order to reach broader audiences using a variety of modalities. Webinars have captured the second largest volume by educational type (see Table 1 “webinars”). The Authority’s intent is to offer patient safety programs of interest to diverse types of healthcare facilities [ambulatory surgery facilities, hospitals, abortion facilities and nursing homes] and disciplines. Registration titles of attendees indicate that there is interest by both clinical as well as non-clinical healthcare workers ranging from front-line staff to executive leadership and clinical providers. Programs have focused on risk identification and mitigation of topics such as prevention of wrong-site anesthesia blocks, fall prevention, fire safety in the operating room, infection prevention in long-term care and bariatric safety.

Educational outreach using this webinar modality in 2013 showed an average of 211 attendees for all statewide webinars. The first webinar had 91 and was the lowest attendance with the third webinar being the highest attendance at 389. Evaluation responses to programs indicate a high degree of satisfaction. An average of 98% said that information was useful and would be implemented within their facility. Examples of comments included [per webinar title]:

Clinical Guidance on Surgical Fire Prevention and Management

“I have had many surgical fire in-services over my 20-plus years in the OR and I have never seen one that demonstrated the impact as well as this one did. The rate at which fire spreads; the ETT in flames; it was a great educational experience”.

Anesthesia Time Outs-Why Are They Necessary?

“I downloaded the information and passed it along to the anesthesia department, tons of great info, and a wonderful review”.

Class III Obese Patients: Is Your Facility Equiped to Provide Safe Care?

“[We will be] Using the assessment tool. Looking at our current equipment and bariatric policies. Looking at environmental issues for these patients”
“Further evaluation of our evacuation procedure”

In recognition of attendance, each registered participant is given a certificate of attendance. For those unable to attend and/or for those interested in sharing the webinar with others in their facility, recordings of statewide webinars have been placed on the Authority’s web site which can be viewed at any time. These can be accessed under the heading of “patient safety tools.”

Ambulatory Surgery Facility (ASF) Healthcare Associated Infection (HAI) workshops

The Authority offered statewide ASF HAI educational sessions. This educational offering was a combination of didactic and interactive full-day sessions covering sterilization and disinfection as well as safe injection practices. ASF HAI education was conducted

regionally by the Authority infection prevention staff during April and May 2013. Patient Safety Liaisons (PSLs) for each respective region were in attendance at these sessions and helped to facilitate discussion/interaction of the audiences. Overall, there were approximately 200 attendees with an estimate of more than 100 out of 300 ASF's statewide represented. Evaluation scores showed 100% satisfaction for all regional offerings. Highest rated categories were: instructors knowledgeable; adequate time for questions and interaction; information presented will be implemented at medical facility; handouts were useful. Some changes in practice [as a result of attending this program] that were identified on evaluations were: immediate reduction of use of flash sterilization ; using safety checklist for safe injection practices; visual check of equipment [sterilization] by second person; taking information back to group of practitioners (anesthesia) about safe injection practices . One of the comments from an attendee: "Every one of these workshops are better and better! I don't know how you do it. Thank you for helping us be better health care providers; thank you for a fast paced, knowledge and information filled day. Very nice work".

There were a variety of topics suggested for future educational sessions including root cause analysis, prevention of wrong-site surgery, risk assessments, etc. PSLs offer ASFs additional information/assistance as needed. All documents (Power Points, handouts) as well as a document with frequently asked questions (FAQs) and their respective answers have been posted to the Authority web site under the patient safety tools section.

Professional Organizations

Professional organizations on a regional, state and national level have sought out the Authority to speak on various patient safety topics. This is the third largest attendee volume by educational type in 2013. Leaders in healthcare are recognizing their role as patient safety change agents. Leaders are seeking information about basic and advanced patient safety concepts and skills needed to be successful in today's ever-changing healthcare delivery models. Average attendance has been approximately 85 per session. Attendees include those from risk management, quality, infection prevention, operating room nurses, emergency room nurses, nursing leadership, gastroenterology clinicians, executive leadership, medical executives, national and state leaders in healthcare as well as others. The Authority has opened patient safety national offerings as a plenary speaker and has shared the stage with other state and national leaders in patient safety.

Board Training

The importance of facility boards of trustees embracing patient safety within their facilities is crucial for a culture of safety to occur. This safety and quality focus is recognized as fundamental to a healthcare facility's mission of providing safe, trusted, affordable and cost-effective healthcare. The Authority has partnered with the Hospital and Healthsystem Association of Pennsylvania (HAP) and the American Hospital Association (AHA) to educate a large number of hospital boards of trustee members about patient safety and its

effect on quality in their healthcare facilities. Approximately 80 facilities in Pennsylvania have participated in the program since its inception. The program is supported by several healthcare organizations and agencies that provide pay-for-performance incentives and grant subsidies for participation in the program. They include Blue Cross of Northeastern Pennsylvania, Capital BlueCross, CHART Risk Retention Group, Highmark, Independence Blue Cross, and the Pennsylvania Office of Rural Health.

Statewide Offering made Regional

In 2012, the Authority developed a statewide program called *Patient Safety You Design*. This full-day educational offering provided attendees the opportunity to select from four individual curriculums (root-cause analysis, data analysis, teamwork and just culture). Those in attendance represented patient safety officers, quality directors, and other clinical and administrative leaders from hospital, ambulatory surgery and abortion facilities. An overwhelming majority of the evaluations indicated that the attendees were satisfied with the program. Some comments were “I thought this was a great opportunity; a lot of information and resources were provided” and “Thank you for this program.” However, the participants were limited in choices because two sessions would run concurrently and so there was a possibility of attending two out of the total four modules per educational offering.

With this in mind, a pilot program was conducted in the southeast region in 2013 in which attendees were given the opportunity to attend each one of the modules. The modules were designed into half-day sessions. Each educational offering was at least one month apart. Attendees who completed all four modules received a certificate recognizing their completion of the ‘Patient Safety You Design’ course. Approximately 90% of all registrants registered for all four modules. Results of the participant evaluations indicated a high degree of satisfaction. Some recommendations for revisions are being made to the program and subsequent offerings will be scheduled in other regions throughout the state in 2014.

Patient Safety Officer Basics Course

The introductory program for new Patient Safety Officers (PSO) called ‘Patient Safety Officer Foundational Curriculum’ was offered for the combined Southeast/Northeast/South Central regions in January 2013. The educational offering was well received and there was good audience interaction and participation. Attendees were representative of a diverse group of professionals (titles of participants were quality leaders, risk management leaders, patient safety leaders and clinical leaders). Evaluations showed all attendees felt there was a change in knowledge as a result of the program and that information presented would be implemented at their respective medical facility. A few of the comments offered were: “I learned how to help staff become better at reporting;” “better able to understand MCare;” “this was a great use of my time;” “I learned resources available through the [Patient] Safety Authority.”

Beyond the Basics

This two-day program is a sequel to the Patient Safety Officer Foundational Curriculum. Beyond Basics educational offering is intended to give the participant a more in-depth review of the following: Human Factors; Root Cause Analysis (RCA); Failure Mode and Effects Analysis (FMEA); Just Culture™; Measuring and Monitoring Change; Disclosure; and Crew Resource Management and Teamwork. Day one provides a didactic presentation of the materials and day two involves role play and exercises to put the newly learned ideas/tools to use.

This program was offered twice in 2013. One educational offering was offered in the western part of the state and another in the eastern part of the state. Attendees represent both seasoned and new PSOs from different entities (ASF, hospital). Participants continue to comment that they find the two-day program beneficial because once they learn the content on day one they are able to actually apply the new information in a simulated situation on day two.

Networking

Regionally throughout the state, networking sessions are offered routinely to PSOs and their delegates through the Patient Safety Liaison (PSL) program. Networking is a forum to share information about barriers and successes to individual facility patient safety efforts. Networking is also a place to support one another in our efforts to improve patient safety by changing processes and maintaining those process improvements in the name of patient safety. As part of these programs, there is a short educational offering provided by the Authority as an update on patient safety topics of interest to that group (hospital or ASF).

All regions incorporate an educational program into this experience. The western regional session has a one-hour educational program called “Author in the Room” in which Authority staff offer didactic presentations on recent *Pennsylvania Patient Safety Advisory* articles and entertain questions from the audience. As an example, one of the Authority analysts provided information on the *Advisory* article titled “Distractions and Their Impact on Patient Safety.” Some of the comments included: “This is my first month in this position, so this conference was very beneficial to me in expanding my knowledge base.” Another said: “As a staff RN at a small hospital, these programs have been very beneficial to take information back to make changes.”

Outside of this one-hour educational session, attendees are given a forum to openly share and talk about items of interest. These could be conversations about things like recently released standards or regulations and/or how facilities are addressing certain patient safety topics, issues, or barriers within their organization. It is an opportunity for collective sharing, lessons learned and ideas for new approaches to patient safety issues.

Teamwork and Communication

The value of teamwork and communication as a patient safety principle has been recognized by healthcare organizations within Pennsylvania. Implementing programs such as TeamSTEPPS™ has improved patient safety by producing highly effective medical teams that optimize the use of information, people and resources to achieve the best clinical outcomes for patients. The Authority has worked with large healthcare systems to implement TeamSTEPPS.

A two-day train the trainer program was offered to change teams within two different health systems in 2013. The Authority worked with the key representatives from both facilities to identify their unique needs and customize this program accordingly. Feedback from the participants was very positive. Comments included: “Very informative. Nicely packaged. Thanks for the push to becoming proactive.” “Great day with application of content via activities.” Each health system is in process of developing a strategic plan to roll out this program incrementally to all departments and has been very open to discussing their lessons learned with others.

In addition, the Authority was invited to return to provide education and training on teamwork and communication during a one-day program to an Orthopedic Group from a large organization in the South Central (SC) Region in 2013. Each year the Authority provides education on this topic in partnership with other nationally known speakers. This year the Director of Educational Programs and the Senior Patient Safety Liaison joined with Dwight Burney III, MD (Chair, Communicating Skills Mentoring Program Project Team, and American Academy of Orthopedic Surgeons).

Interest in this training continues to grow and additional TeamSTEPPS™ training for Pennsylvania healthcare organizations and the Authority will continue to respond to requests in 2014.

Academic Institutions

Clinically oriented students are also key stakeholders in the future delivery of healthcare. Medical and nursing educational programs train students as individuals; yet, as practitioners, they must work in teams within healthcare organizations. Both nursing and medical student curriculums have reached out to the Authority for patient safety centered programs. Authority-sponsored programs teach the value of teamwork and communication using the TeamSTEPPS model. This is a teamwork program developed by the U.S. Department of Defense (DoD) Patient Safety Program in collaboration with the Agency for Healthcare Research and Quality (AHRQ) that has been scientifically rooted in 20 years of research and lessons from the application of teamwork principles. It has been shown to produce highly effective medical teams that optimize the use of information, people and resources to achieve the best clinical outcomes for patients. This education is a powerful solution to improving patient safety within healthcare organizations.

Next Steps

Making healthcare safer is the challenge for all those working in this industry. It is a complex system comprised of multiple disciplines providing patient care in a world that is constantly adapting to changes, including complex technology, powerful drugs and new devices. Humans are providing care to humans. The Authority has learned over the last decade that adverse events overwhelmingly occur not because bad people intentionally hurt patients but rather because the system of healthcare today is so complex that the successful treatment and outcome for each patient depends on a range of factors, not just the competence of an individual healthcare provider. With this knowledge, healthcare systems are challenged to mitigate the risk of patient harm due to medical errors.

The Authority will continue to develop, coordinate and offer educational programs that focus on identified patient safety education needs of healthcare providers. The ongoing goal is to reach out to all clinical and nonclinical staff, leadership and frontline staff, patients and others who are part of the healthcare team in an effort to provide learning opportunities that will assist to reduce and eliminate medical errors.

ADDENDUM E: THE AUTHORITY'S ANNUAL SURVEY OF PATIENT SAFETY OFFICERS AND INFECTION PREVENTION DESIGNEES

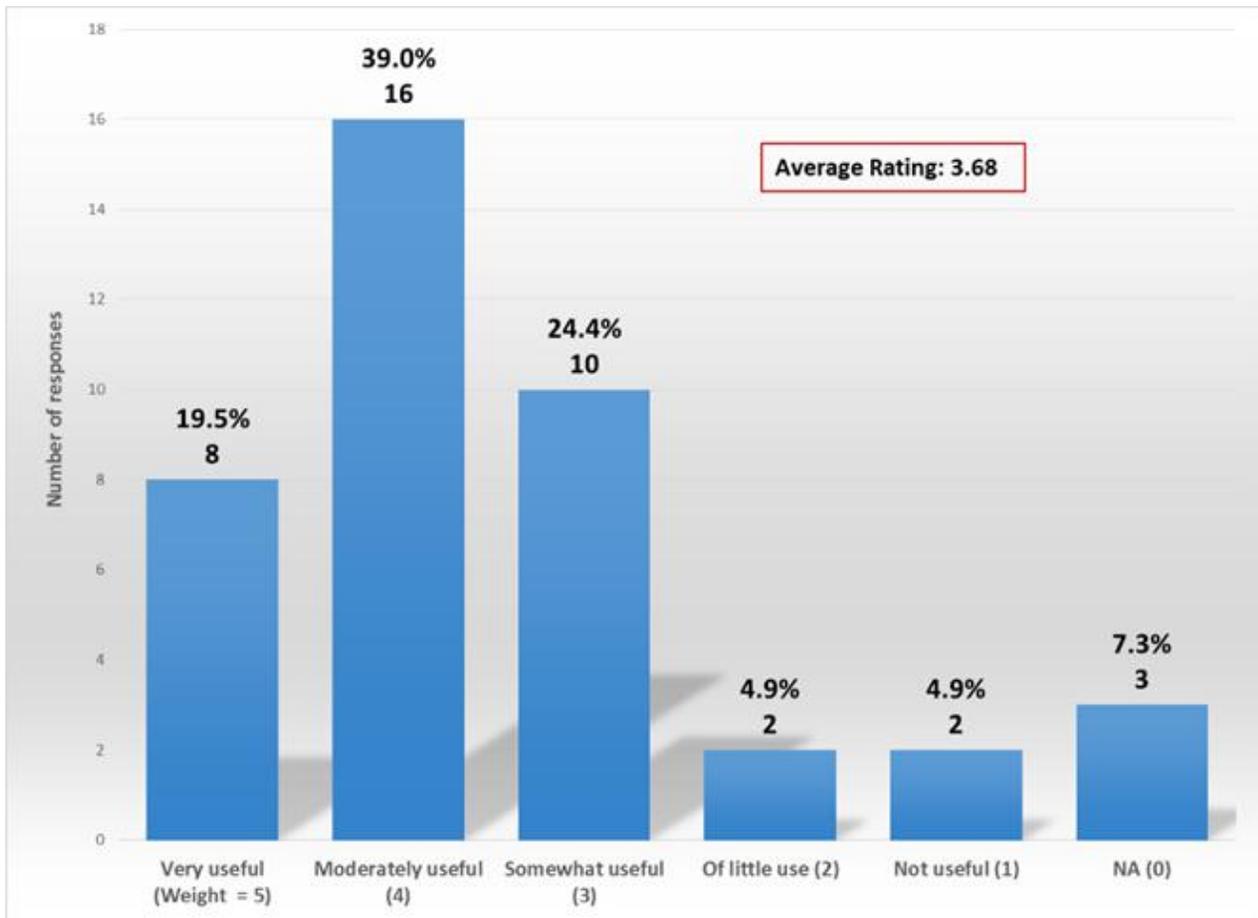
In December 2013, the Authority invited its registered primary contacts at medical facilities in the Commonwealth to participate in an online survey. Contacts at hospitals and other acute care facilities are Patient Safety Officers (PSOs), and contacts at nursing homes are Infection Prevention Designees (IPDs). The intent of the survey was to solicit participants' feedback about the Authority's activities and the performance of the Pennsylvania Patient Safety Reporting System (PA-PSRS). The survey also solicited participants' opinions on topics that would influence the Authority's direction and focus over the coming year, such as:

- the falls reporting program and accompanying analytical reports
- the infection control efforts of nursing homes
- the *Pennsylvania Patient Safety Advisory*
- the Patient Safety Liaison (PSL) program.

Responses were collected over a 21-day period. Of the 1,227 invitees, PSOs and IPDs from 99 hospitals (HSPs), 101 ambulatory surgery facilities (ASFs), two abortion facilities (ABFs) and 242 nursing homes (NHs) responded, resulting in an overall 36.2% (n=444) response rate. For purposes of data analysis, the birthing centers and abortion facilities were grouped with the ASFs when comparing responses from different types of facilities.

Falls Reporting Program

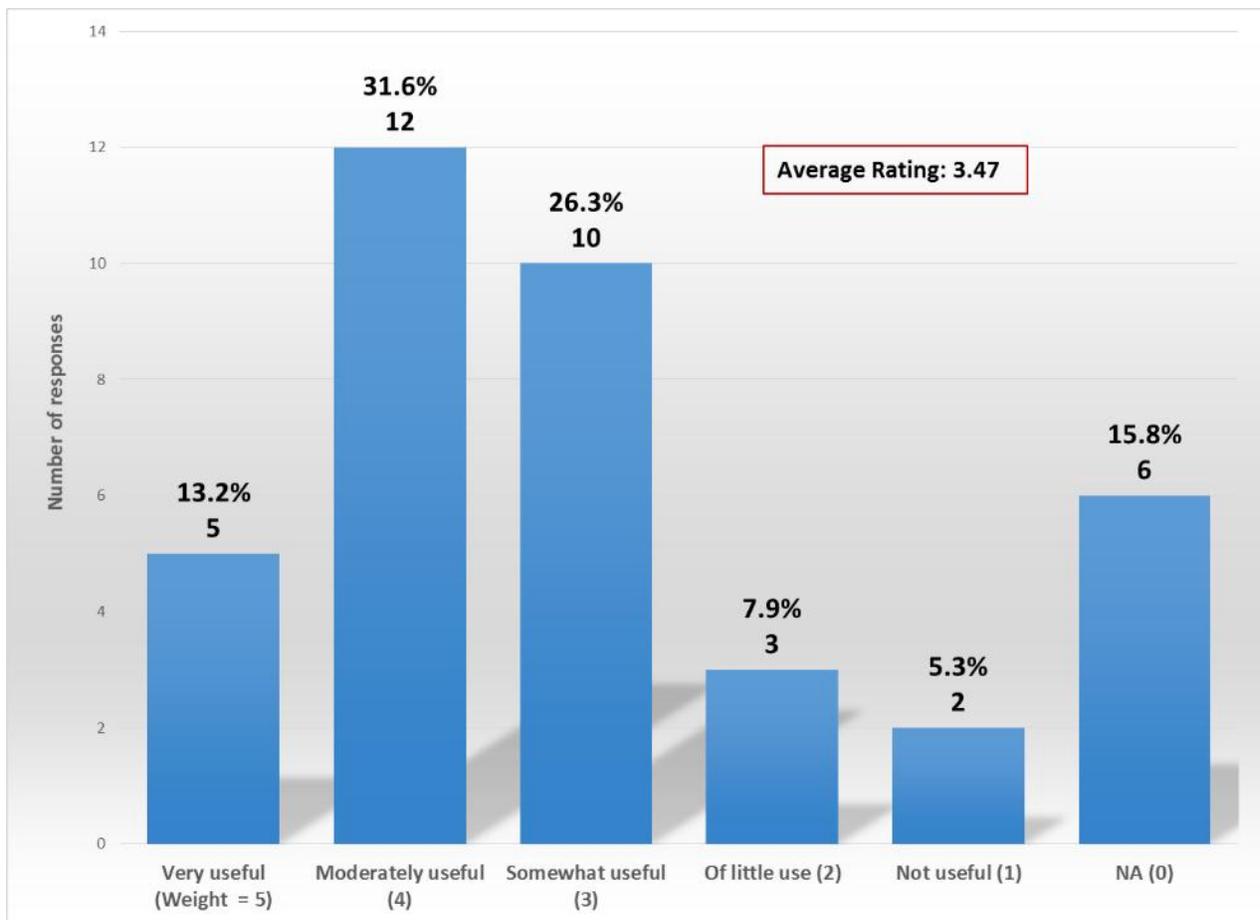
Starting in 2012, the Authority began collecting specific data on fall events associated with a collaboration of state facilities directed to standardize the definition of fall events, with the intention of reducing the number and severity of falls. To aid these efforts and to provide feedback, the Authority produced tools and enhanced analytical reporting in PA-PSRS for medical facilities. The Authority surveyed PSOs about the usefulness of the analytic reports; of the respondents, 82.9% found the reports useful while 9.8% found the reports not useful or of little use.



Note: Each response is given the weight associated with its position, i.e.: Very useful = 5. The average rating is calculated for each question by adding the total number of responses with the weighted sums of each response set, divided by the total number of responses for the question, excluding "N/A".

Figure S1. Usefulness of Analytic Reports Associated with the Falls Program (N=41)

The Authority also surveyed PSOs about the usefulness of one of the tools provided: the PA-PSRS Falls Event Type Decision tree to classify falls event types. About 71% of responding PSOs found this tool useful while approximately 13% found the tool not useful or of little use.



Note: Each response is given the weight associated with its position, i.e.: Very useful = 5. The average rating is calculated for each question by adding the total number of responses with the weighted sums of each response set, divided by the total number of responses for the question, excluding "N/A".

Figure S2. Usefulness of Event Type Decision Tree for the Falls Program (N=38)

Infection Control Efforts of the Nursing Homes

Nursing home IPDs were asked about their infection control efforts through nine questions on varying topics.

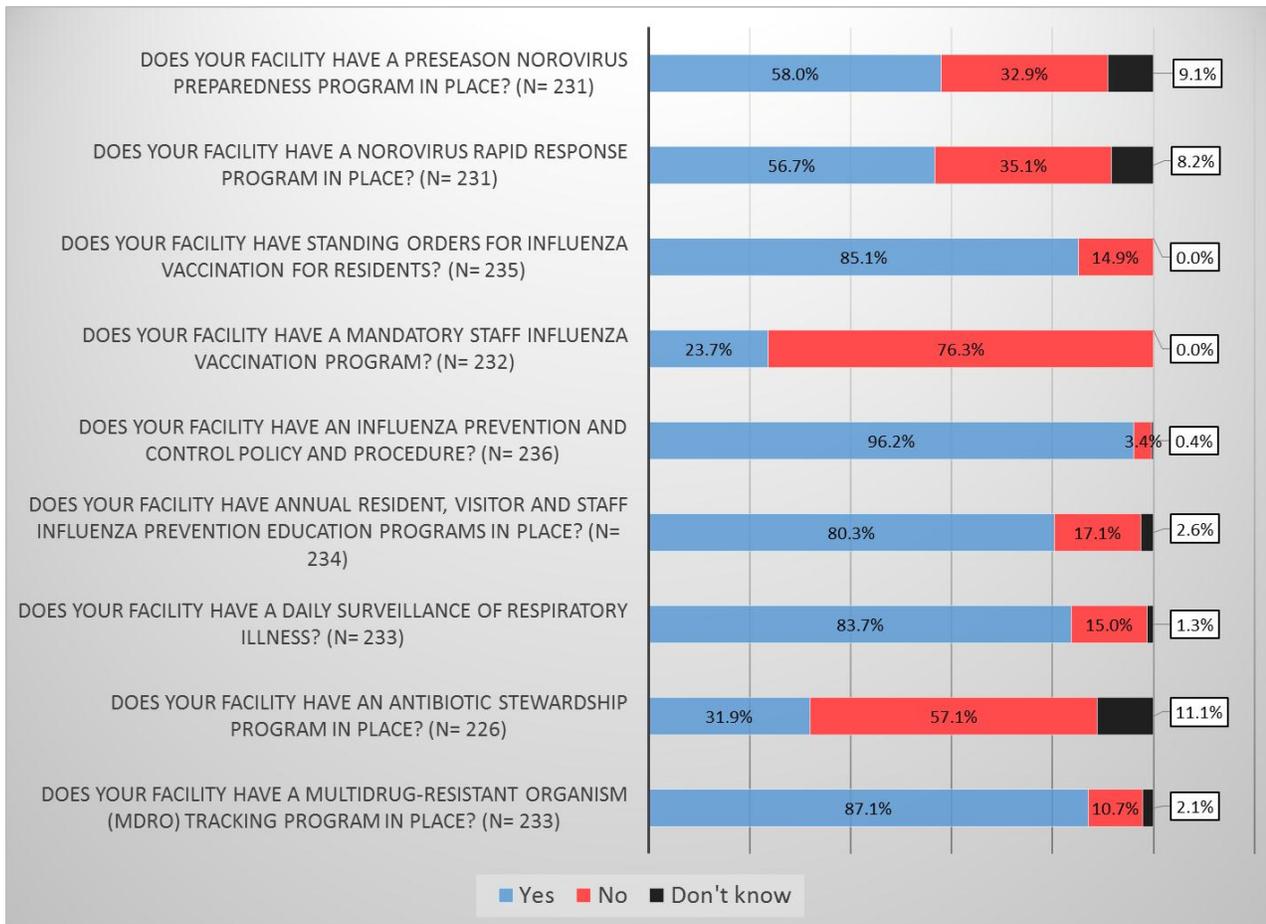


Figure S3. Nursing home survey responses regarding infection control efforts

Although 23.7% of nursing home respondents report having a mandatory staff influenza vaccination program, 96.2% responded that they do have an influenza prevention and control policy and procedure in place. About 85% say they have standing orders for influenza vaccination for residents and 80.3% have annual education programs on influenza prevention for residents, visitors and staff. Further, 83.7% of nursing home respondents report having a daily surveillance of respiratory illness.

Nursing home IPDs were also asked about whether they have preseason norovirus preparedness programs in place. Fifty-eight percent said they did have a program in place and 56.7% said they had a norovirus rapid response program in place.

While 87.1% of the respondents to the survey report having a multidrug resistant organism (MDRO) tracking system in place, 31.9% have an antibiotic stewardship in place.

Several of the questions above appeared in the 2012 survey. By comparing the responses between the years, we see that the percentage of positive responses to questions on antibiotic stewardship and norovirus increased in 2013 (see Table S1). There was a slight decrease in regard to MDRO tracking.

Table S1. Comparison of positive response percentages to several nursing home survey questions, 2012-13.

	(% Yes responses)	
	2012	2013
Does your facility have an antibiotic stewardship program in place?	20%	32%
Does your facility have a preseason norovirus preparedness program in place?	49%	58%
Does your facility have a norovirus rapid response program in place?	45%	57%
Does your facility have a multidrug-resistant organism (MDRO) tracking program in place?	89%	87%

Pennsylvania Patient Safety Advisory

As in previous surveys, PSOs and IPDs collectively gave the *Pennsylvania Patient Safety Advisory* high marks. Using the same weighted average calculations as noted above (maximum score of 5), the *Advisory* scored well on usefulness (4.12), relevance (4.12), readability (4.18), scientific quality (4.11) and educational value (4.20) among those responding.

Table S2 shows scores according to grouped reporting facility types. Hospitals submit the overwhelming majority of reports to the program, so most of the *Advisory* articles are geared toward those facilities. Some articles are just not relevant to the other facilities, which may be reflected in the higher satisfaction scores from hospitals.

Table S2. Acute facility and nursing home survey weighted average response regarding aspects of the *Advisory*

	Hospitals	ASF/ABF	NH	Overall
Usefulness	4.33	4.06	4.06	4.12
Relevance	4.26	4.10	4.07	4.12
Readability	4.34	4.08	4.16	4.18
Scientific quality	4.23	4.08	4.07	4.11
Educational value	4.41	4.21	4.12	4.20

Note: Each response is given the weight associated with its position, i.e.: Very useful = 5. The average rating is calculated for each question by adding the total number of responses with the weighted sums of each response set, divided by the total number of responses for the question, excluding "N/A".

Figure S4 shows the response ratings for all facility types, combining the positive response ratings (i.e., very, moderately, and somewhat useful) to contrast negative response ratings (i.e., of little use and not useful at all).

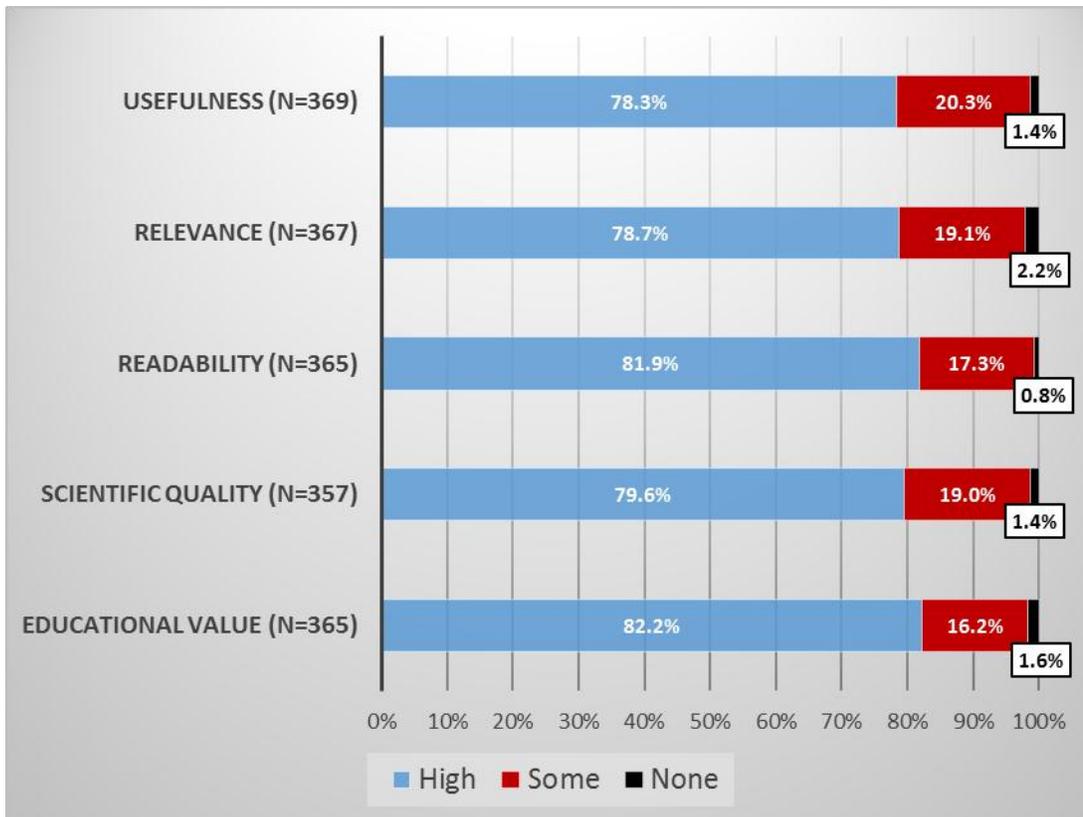


Figure S4. Responses by percentage in quality categories of the *Pennsylvania Patient Safety Advisory* (N = number of responses).

Patient Safety Liaisons

Another line of questioning focused on the PSL program. The Authority has regional PSLs who directly interact with and educate acute care facilities. A majority (83.6%) of PSOs rated the program as highly useful.

Table S3. Responses by weighted average rating on aspects of the PSL program.

	Number of Responses	Average rating
How would you rate the usefulness of the PSL program?	171	4.25
How would you rate the value of educational programs offered by the Patient Safety Authority?	173	4.12
How likely is it that you will request assistance from your PSL for future education programs?	175	3.91

Note: Each response is given the weight associated with its position, i.e.: Very useful = 5. The average rating is calculated for each question by adding the total number of responses with the weighted sums of each response set, divided by the total number of responses for the question, excluding "N/A".

Here are a few comments from the survey that capture the general perception of the PSL program:

“Our PSL is an integral member of our hospital team --- [our PSL] has always provided us with timely, pertinent, expert support for our safety journey (i.e., networking, educational programs, mentoring / advisement, Board Education). Thank you for helping us by offering the PSL as a personal connection with the PSA for this important work. Invaluable!”

“Implemented the staff recognition pins as a reminder of our culture of safety and quality care. We are currently setting up a meeting for our bariatric sub-committee to review equipment availability and emergency plans.”

“I call the Patient Safety Authority for advice, and [our PSL] teaches/updates the staff as needed.”

“We are very happy with our PSL. She has helped me figure out navigation of the PA-PSRS website and helped me understand the safety reporting system.”

“Our PSL provides great ideas and lets us know what is going on in the state. [Our PSL] has come and done a lunch and learn, which was very well received. ”

SUMMARY

In the Authority’s 2013 survey of acute care PSOs and nursing home IPDs, respondents voiced their opinion that they find the *Advisory* to be an informative and useful publication giving it high evaluations for all named categories once again. Infection control efforts continue to advance in nursing homes. PSOs indicated that PSLs are useful resources and help to stimulate positive change in their facilities.

(Page left intentionally blank)

ADDENDUM F: HEALTHCARE-ASSOCIATED INFECTIONS

Healthcare-associated infections (HAI) acquired during healthcare treatment for other conditions can be devastating and even deadly. HAIs are associated with increased mortality and greater cost of care. In the worst cases, HAIs can lead to sepsis, which can result in organ failure and death. HAIs can occur in any healthcare setting, including hospitals, long-term acute care, dialysis clinics, ambulatory surgery facilities (ASF), and long term care facilities (LTCF). According to the Centers for Disease Control and Prevention (CDC) approximately 1 out of every 20 patients in US hospitals will contract an HAI.¹⁷ The most common types of HAI are bloodstream infections, urinary tract infections, surgical-site infections, gastrointestinal illnesses such as *Clostridium difficile* or norovirus, lower respiratory tract infections such as pneumonia, and skin and soft tissue infections. HAIs can also be associated with lapses in basic safe practices, such as reusing disposable syringes or inappropriate cleaning of equipment, and exposure to many types of invasive devices used in medical procedures, including catheters or ventilators.

To leverage the unique resources and strengths of different organizations, the Pennsylvania Patient Safety Authority works with the Pennsylvania Department of Health (PA-DOH), the Hospital and Healthsystem Association of Pennsylvania (HAP), the Association for Professionals in Infection Control and Prevention (APIC), CDC, the US Department of Health and Human Services (HHS), and other government agencies and professional associations across the spectrum of healthcare delivery.

The Authority prioritizes the prevention of HAIs by monitoring and analyzing infection-related reports from hospitals, nursing homes, and ASFs. The Authority has expanded its portfolio of activities including HAI prevention programs, toolkits, and innovative responses to address new challenges. This expansion supports the Authority's endeavors to better guide and educate healthcare facilities in their methods to detect serious infection trends and to develop new strategies to prevent HAIs. As a result of the Authority's guidance and education to Pennsylvania healthcare facilities, protecting patients from infectious disease threats has been advanced and is illustrated by the noteworthy progress that has been

¹⁷ Centers for Disease Control and Prevention. Healthcare Associated Infections (HAI): The burden [online][cited 2013 Nov 22] <http://www.cdc.gov/hai/burden.html>

made in Pennsylvania to reduce the incidence of some HAIs, as reported by the PA-DOH¹⁸ and the Authority's annual report.¹⁹

The Authority analyzes HAI data from the Pennsylvania Patient Safety Reporting System (PA-PSRS) and the National Healthcare Safety Network (NHSN). PA-PSRS data is used to monitor events and generate infection rates for LTCF, while NHSN data is primarily utilized by the Authority to analyze hospital trends. This addendum presents the Authority's rate tables for LTCFs and presents a summary of the Authority's HAI activities, including the status of work initiated in 2013 and currently in progress. Additional HAI-related analysis is presented in **Addendum F**, which summarizes select articles from the *Pennsylvania Patient Safety Advisory*.

Prevention of Colectomy and Bariatric Surgical Site Infections

Pennsylvania's National Surgical Quality Improvement Program (NSQIP) and the Authority entered into a joint quality improvement collaboration to reduce surgical site infections (SSI) among NSQIP member hospitals and to share successful strategies and lessons learned with other Pennsylvania hospitals. Activities in the first phase of the project and the practice variances between hospitals with high and low SSI rates in the targeted areas of colectomy and bariatric surgery were published in the December 2012 *Advisory*. By June 30, 2013, both the colectomy and the bariatric intervention sites demonstrated improvement in their SSI rates in the targeted surgery category, accompanied by process and system improvement strategies. In November 2013, the project's successful outcome was presented to all PA-NSQIP consortium member hospitals and to the American College of Surgeons Administrative Director of Research & Optimal Patient Care (Quality Programs). The project was also selected for presentation at the December 2013 Institute for Healthcare Improvement 25th Annual National Forum in a poster entitled "Using Cross-Institutional Learning to Reduce Surgical Site Infection Rates in Pennsylvania". The project outcomes and lessons learned will be published in an upcoming issue of the *Advisory*. For more information on the collaboration, see the annual report section discussing Authority collaborations. For a copy of the assessment tool, see the December 2012 *Advisory* article "Multifaceted Differences in Implementation of Practices for Prevention of Colorectal and Bariatric Surgical Site Infections" and companion toolkit on the Authority's website at:

<http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/ssi/Pages/home.aspx>

¹⁸ Pennsylvania Department of Health. Healthcare-Associated Infections in Pennsylvania 2011 Report[online [cited 2013 Nov 22]

http://www.portal.state.pa.us/portal/server.pt/community/healthcare_associated_infections/14234/hai_annual_reports/1403644

¹⁹ Pennsylvania Patient Safety Authority 2012 annual report: ADDENDUM H: Healthcare-Associated Infections [online][cited 2013 Nov 22]

<http://patientsafetyauthority.org/PatientSafetyAuthority/Documents/Annual%20Report%202012%20.pdf>

Using Cross-Institutional Learning to Reduce Surgical Site Infection Rates in Pennsylvania

Sharon M. Bradley, RN, CIC*, Michelle Bell, RN, BSN, FISMP, CPPS*, and Vanita Ahuja, MD, MPH, FACS+
 *Pennsylvania Patient Safety Authority, Harrisburg, Pennsylvania, +WellSpan York Hospital, York, Pennsylvania



Context

The Pennsylvania Patient Safety Authority and the Pennsylvania National Surgical Quality Improvement Program (PA-NSQIP) initiated a collaborative project in December 2010 to reduce surgical site infections (SSIs) among the PA-NSQIP member hospitals and to transfer successful strategies and lessons learned to other Pennsylvania hospitals.

Aim

Determine if lower SSI rates are attributed to variation in implementation of practices.

Understanding the Problem

According to the Centers for Disease Control and Prevention (CDC), approximately 1 in 20 hospitalized patients acquires a healthcare-associated infection (HAI). Surgical site infections (SSIs) are cited as the second most common HAI, accounting for 17% to 22% of all HAIs among hospitalized patients. It has been estimated that SSIs may result in as many as 3.7 million additional hospitalization days and an annual overall cost of \$1.6 billion in the United States. The 2007 average attributable per-patient treatment costs are estimated at over \$34,000. US hospitals (2002) estimated the number of SSIs at 290,485, with 8,205 associated deaths, and a 2.8% case fatality rate. Using estimates from national reports and published studies related to HAIs, the study suggests that implementation of infection control practices in all US hospitals could reduce the number of SSIs and save 2,133 to 4,431 lives annually.

Action Plan

Authority staff provided overall coordination, project management, and logistics support for the collaborative and served as independent facilitators to collect, analyze, and report on relevant data to participating hospitals. Of the nine PA-NSQIP hospitals, eight participated in the study. The collaborative formed a steering committee consisting of NSQIP hospital surgeons, NSQIP nurse reviewers, and key Authority staff, including a patient safety liaison and an infection preventionist.

Site Visits

Cross-institutional learning was facilitated by arranging site visits between clinical teams from outlier hospitals and their colleagues from institutions that achieved and sustained low SSI rates.

The committee visited two high performers and two outlier hospitals in colorectal and bariatric procedures. All four hospital teams were provided with a copy of the SSI prevention assessment tool to perform a self-assessment prior to the visit and to collect supporting documentation such as policies and protocols.

Separate survey teams were formed to perform on-site visits at each of the two bariatric-procedure and the two colorectal-procedure high-performing and outlier hospitals.

The surgeon survey teams interviewed anesthesia providers and hospital surgeons from each surgical specialty. The nursing survey teams interviewed nursing staff at the pre-, intra-, and postoperative levels. The Authority staff (a patient safety liaison and an infection preventionist) interviewed the directors of the surgical services and quality and the medical-surgical nursing staff.

Interviews were conducted with each of these groups in each of the two high-performing and the two outlier hospitals using the SSI prevention assessment tool.

Results

Results were analyzed for a comparison of practice implementation. Analysis of the hospital assessment results was supported by the narrative summary completed for each facility outlining the strategies used to implement each practice. It was evident that the hospitals that were more diligent with a standardized approach on implementation of the items on the assessment tool were also the high-performing hospitals with the lowest rates of SSIs. The comparison found 8 major differences in performance between the high performers and the outliers for bariatric procedures and 16 major differences for colorectal procedures (see Tables).

Lessons Learned

Outliers in both the bariatric and the colorectal groups reported variation in implementing methods for bowel preparation, communication, safety briefings, and transport. While bowel preparation is a provider-specific item, communication, safety briefings, and transport are system- or hospital-controlled factors. At both high-performing hospitals, the transport was performed by registered nurses rather than by patient care technicians; safety briefings were conducted in a structured and specific manner; and communication channels were open and encouraged.

Table 6. Comparison of Colorectal Best Practices in High-Performing and Outlier Hospitals

Item	High-Performing Hospitals	Outlier Hospitals
Antibiotic	Standardized antibiotic regimen (periprocedure) per hospital. No antibiotic duration post-procedure. High were retained in culture.	No penicillin. No antibiotic duration. No high were retained.
Standardized timing	Standardized.	No standard. And not all hospitals have antibiotic duration. High were retained.
Surge prep	Number of hair removals and premedications and shower (day prior) standardized. Standardized timing for prep.	No prep. No shower. No hair removal. No prep. No prep.
Communication and safety briefing	Surgeon and anesthesia team on-site during prep. Surgeon and anesthesia team on-site during prep. Surgeon and anesthesia team on-site during prep.	No briefing. No briefing. No briefing.
Chaperone	Standardized chaperone for preoperative skin prep.	Standardized chaperone for prep.
Communication and patient	Team role and clear assignment of roles. Responsibility for communication clear. Communication clear. Communication clear.	Team role not defined. No assignment of roles. Communication not clear. Communication not clear.
Duration of stay	Surgeon and anesthesia team on-site during prep. Standardized timing for prep. Standardized timing for prep.	No prep. No prep. No prep.
Standard prep	Standardized timing for prep. Standardized timing for prep. Standardized timing for prep.	No prep. No prep. No prep.
Timing of arrival	Standardized timing for prep. Standardized timing for prep. Standardized timing for prep.	No prep. No prep. No prep.
Operating room (OR)	Preparation and maintenance of OR. Standardized timing for prep. Standardized timing for prep.	Preparation and maintenance of OR. Standardized timing for prep. Standardized timing for prep.
Surgeon prep	Surgeon prep. Standardized timing for prep. Standardized timing for prep.	Surgeon prep. Standardized timing for prep. Standardized timing for prep.
Standardized procedure	Standardized procedure. Standardized procedure. Standardized procedure.	Standardized procedure. Standardized procedure. Standardized procedure.
Site prep	Standardized procedure. Standardized procedure. Standardized procedure.	Standardized procedure. Standardized procedure. Standardized procedure.
Site preparation	Standardized procedure. Standardized procedure. Standardized procedure.	Standardized procedure. Standardized procedure. Standardized procedure.
Staffing	Standardized procedure. Standardized procedure. Standardized procedure.	Standardized procedure. Standardized procedure. Standardized procedure.
Transport	Standardized procedure. Standardized procedure. Standardized procedure.	Standardized procedure. Standardized procedure. Standardized procedure.

Table 1. Summary Using Periodic Tables: Pennsylvania National Surgical Quality Improvement Program Surgical Site Infection Summary Rates, January to December 2009

Procedure	High-Performing Hospitals	Outlier Hospitals
Overall (overall)	0.153 (0.045-0.261)	0.104 (0.024-0.184)
Colorectal surgery	0.170 (0.045-0.295)	0.104 (0.024-0.184)
Bariatric surgery	0.184 (0.111-0.257)	0.104 (0.024-0.184)
Urologic surgery	0.088 (0.022-0.152)	0.104 (0.024-0.184)



Link to Toolkit

Reference

Excerpted from: Bradley, SM, Bell, M, Ahuja V. Multifaceted Differences in Implementation of Practices for Prevention of Colorectal and Bariatric Surgical Site Infections. Pa Patient Saf Advis 2012 Dec;9(4):136-42. [http://patientsafetyauthority.org/ADVISORIES/Advisors/Libra/2012/Dec_9\(4\)/Pages/136.aspx](http://patientsafetyauthority.org/ADVISORIES/Advisors/Libra/2012/Dec_9(4)/Pages/136.aspx)

[Copy of poster located in SharePoint with 2013 HAI Annual Report documents]

Partnership for Patients

Through its Partnership for Patients initiative, Centers for Medicare and Medicaid Services (CMS) initiated the Hospital Engagement Network. The Network was formed by CMS contracting with state and national organizations with the goal of promoting practices and strategies through collaboration with health care facilities to enhance the culture of safety. HAP either led or sub-contracted HAI related Network projects. The collaboration through the Network offers participating hospitals the opportunity to take part in projects aimed at reducing patient harm. In partnership with HAP, Authority analysts developed content and consulted on programs that focused on the prevention of HAIs and mitigation of associated risks. The overall measure of success has been defined as a 40 percent reduction in preventable harm. Authority analysts continue to work with HAP on reducing central line-associated infections (CLABSI), surgical site infections (SSI), and infection related ventilator acquired events (IVAC). More information about the partnership and results obtained to date can be found here: <http://www.haponline.org/quality/engagement-network/>

Ambulatory Surgery Facilities (ASF) Infection Control Workshops

In April and May 2013, the Authority offered statewide didactic and interactive full-day sessions for Pennsylvania ASFs on the topics of sterilization and disinfection and safe injection practices. Approximately 200 attendees participated, representing more than 100 ASF facilities. As a result of attending this program, some changes in practice identified on workshop evaluations included the following:

- changing immediate use sterilization practices
- using a safety checklist for safe injection practices
- visual checking of equipment (sterilization) by a second person
- taking information back to anesthesia practitioners about safe injection practices

Patient Safety Liaisons (PSLs) followed up with ASFs who requested additional information/assistance. The September 2013 *Advisory* provides strategies to fully implement safe injections and sterilization processes, as well as other basic infection control measures for ambulatory care settings. The *Advisory* article “Strategies to Fully Implement Infection Control Practices in Pennsylvania Ambulatory Surgical Facilities” and companion toolkit can be accessed on the Authority Website at:

<http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/ASFic/Pages/home.aspx>

Updates to Healthcare-Associated Infection Reporting Criteria for Pennsylvania LTCF

In compliance with the Medical Care Availability and Reduction of Error (MCARE) statute, the PA-DOH and the Authority collect HAIs reported from Pennsylvania LTCF through PA-PSRS using nationally recognized standards. This has allowed the Authority, PA-DOH, and reporting facilities to identify infections that affect residents and to design solutions to improve safety.

The initial PA-PSRS LTCF modules and the reporting requirements developed under MCARE were adapted from the 1996 McGeer criteria. Recent revisions to the standardized infection surveillance definitions for LTCFs, as well as the release of the CDC’s LTCF infection reporting modules²⁰ and the release of the HHS “National Action Plan to Prevent Health Care-associated Infections: Road Map to Elimination” for LTCFs²¹ prompted the Authority and the PA-DOH to reevaluate the PA-PSRS HAI reporting criteria. In consultation with CDC, the Authority’s HAI Advisory Panel, and the PA-DOH, and after public comment, the Authority enhanced PA-PSRS to incorporate the revised McGeer

²⁰ Centers for Disease Control and Prevention's (CDC) National Healthcare Safety Network (NHSN) Tracking Infections in Long-term Care Facilities[online] <http://www.cdc.gov/nhsn/LTC/index.html>

²¹ Centers for Medicare and Medicaid Services (CMS) National action plan to prevent health care-associated infections: road map to elimination: chapter 8: long-term care facilities 2013 April [online] <http://www.hhs.gov/ash/initiatives/hai/actionplan/hai-action-plan-ltcf.pdf>

criteria²² along with other nationally recognized surveillance criteria. LTCFS were notified that the revised criteria took effect April 1, 2014. Prior to implementation, training and ongoing support was provided as with prior PA-PSRS releases and modifications.

The revised LTCF module adopts a new HAI taxonomy. These changes represent re-defining or grouping some categories as they currently exist, and in some cases establishing new categories. Even if a new category is the same as a current category in PA-PSRS, the criteria are sufficiently different that they are fundamentally different sets of data even though they might have the same name.

A copy of the Pennsylvania Bulletin final notice of the PA-PSRS LTCF HAI reporting criteria including public comment summary, the Authority decision, and rationale can be found online at: <http://www.pabulletin.com/secure/data/vol43/43-40/1880.html>

Bridging the Gap between Research and Practice in Long-Term Care

The outcome of the authority's LTCF best practice assessment outreach project identified multidisciplinary implementation barriers in LTCF with high HAI rates at the leadership, physician, clinical, and support staff levels and recognized patterns of care that LTCFs could target for improvement. Follow-up interviews with staff from participant LTCFs with high HAI rates were conducted in 2012 to determine application of the Authority's suggestions for improvement from the initial visits in 2010. The interviews assessed the potential impact on the facility's HAI rates, and provided continued guidance and education to remove barriers to HAI prevention best practices. Through the Authority's outreach project and support, Pennsylvania LTCFs successfully implemented infection control best practices as noted by reduced infection rates. The success of this project was published in the June 2013 *Advisory*, and was featured at "The Joint Commission's High Reliability Practices to Reduce Transmission of Infections in Long Term Care Roundtable Meeting" in July 2013, as well as at an APIC national-sponsored LTCF infection control educational program. In addition, APIC reprinted the Authority's "Long-Term Care Best- Practice Assessment Tool" in the organization's "Infection Preventionists Guide to Long Term Care" published in December 2013. The Joint Commission has requested permission to reference the assessment tool and *Advisory* article in an educational resource guide currently under development for LTCF.

²² Stone N, et al. Surveillance Definitions of Infections in Long-Term Care Facilities: Revisiting the McGeer Criteria. *Infect Control Hosp Epidemiol* 2012;33(10):965-977

The *Advisory* article “Infection Control Challenges: Pennsylvania Nursing Homes Are Making a Difference through Implementation of Best Practices” and companion toolkit can be found on the Authority website at:

http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/nh_practices/Pages/home.aspx

Designing a Norovirus Prevention and Rapid Response Program: An Evidence-Based Approach

In March and October 2013, the Authority presented the norovirus prevention program educational modules and toolkit at APIC conferences in the Delaware Valley and Northeastern Pennsylvania. Pennsylvania hospitals and LTCF received a reminder email notice of the upcoming norovirus season and the availability of the Authority tools to control the annual threat of norovirus-associated gastroenteritis outbreaks. The toolkit includes evidence-based strategies to modify risk factors for outbreaks including how to prepare for the norovirus season, ensure basic outbreak control measures, use enhanced precautions, and conduct leadership and post-outbreak activities.

An infection preventionist from Allied Services Integrated Health System shared this comment with Authority staff:

“I have found the Patient Safety Authority website to be an excellent resource. Having been in healthcare for many years, I have experienced Norovirus outbreaks within various healthcare settings. The articles and patient safety tools that were published on the Patient Safety Authority website regarding norovirus helped in the development of strategies and process improvement in order to halt the progression of the virus.”

The program, based on the December 2010 *Advisory* article, “Controlling the Annual Threat of Norovirus Gastroenteritis Outbreaks,” and companion toolkit can be found on the Authority’s website at:

<http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/norovirus/Pages/home.aspx>

US Department of Health and Human Services (HHS) Road Map to Eliminate HAI Action Plan

At the September 2013 HHS “Road Map to Eliminate HAI Action Plan” conference in Washington DC, the Authority was invited to present on “Pennsylvania’s Patient Safety Reporting System for Healthcare-Associated Infections in Nursing Homes.” HHS staff and other national stakeholders were particularly interested in Pennsylvania’s successful methods of supporting LTCFs to achieve a robust reporting and feedback process, management of reports, data integrity, and how reporting has made a difference in prevention of HAIs in Pennsylvania. In addition, the Authority participated in discussions with national LTCF stakeholders to expand appropriate process and outcome measures to support development of the HHS “National Action Plan to Prevent Health Care-associated Infections: Road Map to Elimination” for LTCFs.

Quality Insights Renal Network 4

Renal Network 4, is comprised of 294 dialysis facilities (as of 12/31/2013) in Pennsylvania and Delaware. Quality Insights Renal Network 4 has been tasked through the award of a grant by CMS to reduce adverse dialysis events. Three types of dialysis events are reported to NHSN and include: 1) IV antimicrobial start, 2) positive blood culture, and 3) pus, redness, swelling at the vascular access site. Focus areas include core patient safety culture training and development of interventions effective at reducing the above noted events. Authority analysts serve as consultants and content experts serving on the projects advisory panel, as well as lending data analysis when appropriate. More information about the Network's activities can be found here: <http://www.qirn4.org/Home.aspx>

The HAI Advisory Panel Activities

In response to the requirements of Act 52 of 2007, the Authority's board of directors approved a 15-member panel of infection control experts to help implement the Act. The role of the HAI Advisory Panel is to provide advice and guidance to the Authority and other state agencies in the implementation of the HAI legislation including:

- HAI reporting requirements for various healthcare settings
- Plans for analyzing infection-related data from covered healthcare settings
- Evidence-based practices in the control and prevention of HAIs
- Educational needs for various types of facilities and healthcare workers
- Reviewing infection-related *Advisory* content
- Methods for calculating statewide and national HAI rates
- Reasonable goals for HAI reduction

In 2013, a LTCF subcommittee was formed to guide the Authority's work with Pennsylvania's nursing homes. In August 2013, the LTCF subcommittee guided the Authority in the revision of the HAI reporting criteria for nursing homes. The committee reviewed a summary of the public comment description, proposed responses and rationale, and approved criteria changes which were published in the Pennsylvania Bulletin Final Notice. (See "Updates to Health Care-Associated Infection Reporting Criteria for Pennsylvania LTCF" section.)

NURSING HOME HAI DATA ANALYSIS

Nursing homes in Pennsylvania submitted a total of 30,958 infection reports through the Pennsylvania Patient Safety Reporting System (PA-PSRS) in 2013; a 4% decrease from the 32,257 submitted in 2012.

Analysis Method

Of the 707 facilities active as of December 31, 2013, 563 (79.6%), spanning five care areas, met validation criteria.

The Authority excluded 144 facilities for analysis based on the following:

1. Resident days were not entered for every month of 2013; 117 nursing homes were excluded, compared to 97 in 2012.
2. Nursing homes had a month during which occupancy was above 100% or below 50%. Occupancy is calculated by dividing the number of resident days by the number of beds listed for each facility. The quotient is then divided by the number of days in each month. In the 2013 data, 26 nursing homes were excluded, compared to 61 in 2012.
3. Facilities reported infections without accompanying resident days at the unit level. One nursing home was excluded in 2013 data.
4. Nursing homes may have had CAUTIs without accompanying catheter days. There were no nursing homes that were excluded for this infection type analysis in 2013 data.

Note: Table rows indicating totals show the number of nursing homes reporting for the given type of infection with each unit name. This is not to be confused with the sum of the unit types for that infection. There may be overlap of unit types reporting at any given facility.

Urinary Tract Infections

The CAUTI rate decreased from 1.10 per 1,000 urinary catheter days in 2012 to 0.93 in 2013. The urinary catheter device utilization ratio has remained constant at 0.05 since 2010. Reports of symptomatic urinary tract infections without an indwelling urinary catheter (SUTI) infection rate remained constant at 0.10 per 1,000 patient days since 2011.

Table 1. Urinary Tract Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2013					
Unit Name (n)	2013				
	Number of Infections	Resident Days	Catheter Days	Device Utilization Rate *	Pooled Infection Rate† (95%C.I.)‡
CAUTI - Resident with indwelling urinary catheter					
Dementia Unit (19)	30	2,020,483	29,547	0.015	1.02 (0.65 - 1.38)
Mixed Unit (101)	345	6,914,171	334,480	0.048	1.03 (0.92 - 1.14)
Nursing Unit (107)	295	7,132,229	312,715	0.044	0.94 (0.84 - 1.05)
SN/STR Unit (132)	362	7,695,251	420,553	0.055	0.86 (0.77 - 0.95)
Vent Unit (2)	11	119,698	26,957	0.225	0.41 (0.17 - 0.65)
Total (301)	1,043	23,881,832	1,124,252	0.047	0.93 (0.87 - 0.98)
UTI - Resident without indwelling urinary catheter					
Dementia Unit (59)	181	2,020,483			0.09 (0.08 - 0.10)
Mixed Unit (107)	809	6,914,171			0.12 (0.11 - 0.13)
Nursing Unit (120)	552	7,132,229			0.08 (0.07 - 0.09)
SN/STR Unit (151)	778	7,695,251			0.10 (0.09 - 0.11)
Vent Unit (4)	17	119,698			0.12 (0.07 - 0.18)
Total (344)	1,543	23,881,832			0.10 (0.09 - 0.10)

*Device utilization rate: number of urinary catheter days ÷ number of resident days

†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

Respiratory Tract Infections

Lower respiratory tract infections accounted for 92.6% of all respiratory tract infections reported in 2013, but showed a slightly decreased infection rate from 0.42 per 1,000 patient days in 2012 to 0.4 in 2013. The rate of influenza-like illness (ILI) increased to 0.03 per 1,000 patient days in 2013, up from 0.01 in 2012. According to the Centers for Disease Control and Prevention, the 2012-2013 influenza season was a worse than average season, particularly for the elderly.²³ This was evident in the higher nursing home ILI rates in January (0.89), February (0.51), and March (0.45), as compared to the average ILI rates for the rest of 2013 (0.32).

Unit Name (n)	Number of Infections	Resident Days	Pooled Infection Rate (95% C.I.) † ‡
Lower respiratory tract infection (pneumonia/ bronchitis/ tracheobronchitis) (LRTI)			
Dementia Unit (110)	636	2,020,483	0.31 (0.29 - 0.34)
Mixed Unit (174)	3048	6,914,171	0.44 (0.43 - 0.46)
Nursing Unit (184)	2567	7,132,229	0.36 (0.35 - 0.37)
SN/STR Unit (255)	3176	7,695,251	0.41 (0.40 - 0.43)
Vent Unit (7)	57	119,698	0.48 (0.35 - 0.60)
Total (497)	9,484	23,881,832	0.40 (0.39 - 0.41)
Influenza-like illness (ILI)			
Dementia Unit (28)	68	2,020,483	0.03 (0.03 - 0.04)
Mixed Unit (60)	231	6,914,171	0.03 (0.03 - 0.04)
Nursing Unit (68)	170	7,132,229	0.02 (0.02 - 0.03)
SN/STR Unit (91)	287	7,695,251	0.04 (0.03 - 0.04)
Vent Unit (1)	1	119,698	0.01 (0 - 0.02)
Total (209)	757	23,881,832	0.03 (0.03 - 0.03)
Total Respiratory Tract Infections			
Dementia Unit (122)	704	2,020,483	0.35 (0.32 - 0.37)
Mixed Unit (170)	3279	6,914,171	0.47 (0.46 - 0.49)
Nursing Unit (174)	2737	7,132,229	0.38 (0.37 - 0.40)
SN/STR Unit (242)	3463	7,695,251	0.45 (0.44 - 0.47)
Vent Unit (10)	58	119,698	0.48 (0.36 - 0.61)
Total (502)	10,241	23,881,832	0.43 (0.42 - 0.44)

†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

²³ Centers for Disease Control and Prevention. Telebriefing on Flu Season and Vaccine Effectiveness Friday, January 18, 2013 at 12:00 p.m. ET (online) (cited 2014 March 12). Available from the Internet at: http://www.cdc.gov/media/releases/2013/t0118_flu_season.html

Skin and Soft-tissue Infections

Reports of cellulitis have decreased from the 2012 rate of 0.108 per 1,000 patient days to 0.094 in 2013. Total reports of skin and soft tissue infections also decreased, from 0.22 per 1,000 patient days in 2012 to 0.193 in 2013.

Table 3. Skin and Soft Tissue Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2013			
Unit Name (n)	Number of Infections	Resident Days	Pooled Infection Rate (95% C.I.) † ‡
Vascular or diabetic ulcer (chronic/non-healing)			
Dementia Unit (12)	8	2,020,483	0 (0 - 0.01)
Mixed Unit (46)	92	6,914,171	0.01 (0.01 - 0.02)
Nursing Unit (40)	48	7,132,229	0.01 (0 - 0.01)
SN/STR Unit (42)	84	7,695,251	0.01 (0.01 - 0.01)
Vent Unit (1)	0	119,698	0 (0 - 0)
Total (144)	232	23,881,832	0.01 (0.01 - 0.01)
Decubitus ulcer (pressure-related)			
Dementia Unit (7)	10	2,020,483	0 (0 - 0.01)
Mixed Unit (55)	99	6,914,171	0.01 (0.01 - 0.02)
Nursing Unit (50)	63	7,132,229	0.01 (0.01 - 0.01)
SN/STR Unit (57)	76	7,695,251	0.01 (0.01 - 0.01)
Vent Unit (4)	3	119,698	0.03 (0 - 0.05)
Total (148)	251	23,881,832	0.01 (0.01 - 0.01)
Burn-associated			
Dementia Unit (0)	0	2,020,483	0 (0 - 0)
Mixed Unit (1)	4	6,914,171	0 (0 - 0)
Nursing Unit (0)	0	7,132,229	0 (0 - 0)
SN/STR Unit (4)	1	7,695,251	0 (0 - 0)
Vent Unit (0)	0	119,698	0 (0 - 0)
Total (5)	5	23,881,832	0 (0 - 0)
Device-associated			
Dementia Unit (0)	0	2,020,483	0 (0 - 0)
Mixed Unit (20)	39	6,914,171	0.01 (0 - 0.01)
Nursing Unit (15)	22	7,132,229	0 (0 - 0)
SN/STR Unit (35)	47	7,695,251	0.01 (0 - 0.01)
Vent Unit (1)	1	119,698	0.01 (0 - 0.02)
Total (67)	109	23,881,832	0 (0 - 0.01)

Table 3, continued. Skin and Soft Tissue Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2013			
Unit Name (n)	Number of Infections	Resident Days	Pooled Infection Rate (95% C.I.) † ‡
Cellulitis			
Dementia Unit (80)	147	2,020,483	0.07 (0.06 - 0.08)
Mixed Unit (139)	783	6,914,171	0.11 (0.11 - 0.12)
Nursing Unit (140)	604	7,132,229	0.08 (0.08 - 0.09)
SN/STR Unit (188)	701	7,695,251	0.09 (0.08 - 0.1)
Vent Unit (6)	4	119,698	0.03 (0 - 0.07)
Total (405)	2,239	23,881,832	0.09 (0.09 - 0.1)
Other			
Dementia Unit (54)	132	2,020,483	0.07 (0.05 - 0.08)
Mixed Unit (129)	573	6,914,171	0.08 (0.08 - 0.09)
Nursing Unit (133)	481	7,132,229	0.07 (0.06 - 0.07)
SN/STR Unit (140)	572	7,695,251	0.07 (0.07 - 0.08)
Vent Unit (8)	8	119,698	0.07 (0.02 - 0.11)
Total (380)	1,766	23,881,832	0.07 (0.07 - 0.08)
Total Skin and Soft Tissue Infections			
Dementia Unit (99)	297	2,020,483	0.15 (0.13 - 0.16)
Mixed Unit (159)	1590	6,914,171	0.23 (0.22 - 0.24)
Nursing Unit (167)	1218	7,132,229	0.17 (0.16 - 0.18)
SN/STR Unit (222)	1481	7,695,251	0.19 (0.18 - 0.2)
Vent Unit (9)	16	119,698	0.13 (0.07 - 0.2)
Total (473)	4,602	23,881,832	0.19 (0.19 - 0.2)

†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

Gastrointestinal Tract Infections

The rate reported for total gastrointestinal infections decreased slightly, from 0.37 per 1,000 patient days in 2012 to 0.36, with non-*C. difficile* associated gastroenteritis accounting for 74.3% of the number of gastrointestinal infections.

Table 4. Gastrointestinal Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2013			
Unit Name (n)	Number of Infections	Resident Days	Pooled Infection Rate (95% C.I.) † ‡
Gastrointestinal Infections Reported w ith Associated Clostridium difficile			
Dementia Unit (37)	60	2,020,483	0.03 (0.02 - 0.04)
Mixed Unit (139)	679	6,914,171	0.1 (0.09 - 0.11)
Nursing Unit (123)	455	7,132,229	0.06 (0.06 - 0.07)
SN/STR Unit (228)	985	7,695,251	0.13 (0.12 - 0.14)
Vent Unit (10)	42	119,698	0.35 (0.24 - 0.46)
Total (428)	2,221	23,881,832	0.09 (0.09 - 0.1)
Gastrointestinal Infections Reported w ithout Associated Clostridium difficile			
Dementia Unit (91)	714	2,020,483	0.35 (0.33 - 0.38)
Mixed Unit (108)	1891	6,914,171	0.27 (0.26 - 0.29)
Nursing Unit (112)	1620	7,132,229	0.23 (0.22 - 0.24)
SN/STR Unit (163)	2200	7,695,251	0.29 (0.27 - 0.3)
Vent Unit (3)	6	119,698	0.05 (0.01 - 0.09)
Total (333)	6,431	23,881,832	0.27 (0.26 - 0.28)
Total Gastrointestinal Infections Reported			
Dementia Unit (99)	774	2,020,483	0.38 (0.36 - 0.41)
Mixed Unit (168)	2570	6,914,171	0.37 (0.36 - 0.39)
Nursing Unit (154)	2075	7,132,229	0.29 (0.28 - 0.3)
SN/STR Unit (261)	3185	7,695,251	0.41 (0.4 - 0.43)
Vent Unit (12)	48	119,698	0.4 (0.29 - 0.51)
Total (484)	8,652	23,881,832	0.36 (0.35 - 0.37)

†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

Other Infections

Primary bloodstream infection reports have remained steady since 2011, with a current effective rate of 0.01 per 1,000 patient days.

Table 5. Other Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2013			
Unit Name (n)	Number of Infections	Resident Days	Pooled Infection Rate (95% C.I.) † ‡
Intra-abdominal infection (Peritonitis/deep abscess)			
Dementia Unit (1)	1	2,020,483	0 (0 - 0)
Mixed Unit (5)	6	6,914,171	0 (0 - 0)
Nursing Unit (2)	2	7,132,229	0 (0 - 0)
SN/STR Unit (1)	1	7,695,251	0 (0 - 0)
Vent Unit (0)		119,698	0 (0 - 0)
Total (9)	10	23,881,832	0 (0 - 0)
Meningitis			
Dementia Unit (0)		2,020,483	0 (0 - 0)
Mixed Unit (0)		6,914,171	0 (0 - 0)
Nursing Unit (0)		7,132,229	0 (0 - 0)
SN/STR Unit (0)		7,695,251	0 (0 - 0)
Vent Unit (0)		119,698	0 (0 - 0)
Total (0)	0	23,881,832	0 (0 - 0)
Viral hepatitis			
Dementia Unit (0)		2,020,483	0 (0 - 0)
Mixed Unit (0)		6,914,171	0 (0 - 0)
Nursing Unit (0)		7,132,229	0 (0 - 0)
SN/STR Unit (0)		7,695,251	0 (0 - 0)
Vent Unit (0)		119,698	0 (0 - 0)
Total (0)	0	23,881,832	0 (0 - 0)
Osteomyelitis			
Dementia Unit (2)	2	2,020,483	0 (0 - 0)
Mixed Unit (16)	23	6,914,171	0 (0 - 0)
Nursing Unit (25)	28	7,132,229	0 (0 - 0.01)
SN/STR Unit (17)	24	7,695,251	0 (0 - 0)
Vent Unit (0)		119,698	0 (0 - 0)
Total (57)	77	23,881,832	0 (0 - 0)

Table 5, continued. Other Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2013			
Unit Name (n)	Number of Infections	Resident Days	Pooled Infection Rate (95% C.I.) † ‡
Primary bloodstream infection			
Dementia Unit (5)	6	2,020,483	0 (0 - 0.01)
Mixed Unit (37)	56	6,914,171	0.01 (0.01 - 0.01)
Nursing Unit (27)	47	7,132,229	0.01 (0 - 0.01)
SN/STR Unit (52)	87	7,695,251	0.01 (0.01 - 0.01)
Vent Unit (3)	3	119,698	0.03 (0 - 0.05)
Total (113)	199	23,881,832	0.01 (0.01 - 0.01)
Total Other Infections Reported			
Dementia Unit (7)	9	2,020,483	0 (0 - 0.01)
Mixed Unit (48)	85	6,914,171	0.01 (0.01 - 0.01)
Nursing Unit (45)	77	7,132,229	0.01 (0.01 - 0.01)
SN/STR Unit (56)	112	7,695,251	0.01 (0.01 - 0.02)
Vent Unit (3)	3	119,698	0.03 (0 - 0.05)
Total (155)	286	23,881,832	0.01 (0.01 - 0.01)

†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

Infection Rate Trends

The summary tables below represent comparison data for each infection type by calendar year. The data is presented in this way to show the overall changes in rates over time. The trend-line graphic helps visualize rate performance data over time by care area, and combined totals for each infection type are provided. The majority of the infection rates for 2013 are less than 0.50 per 1,000 resident-days (catheter-days for CAUTI).

An area of particular interest is CAUTI, for which there is a downward trend in four of the five care areas in 2013. With CAUTI, DUR is important for consideration, as it plateaued in two of the five care areas (mixed, and nursing), dropped in ventilator-dependent units, and is on the rise in the dementia and skilled nursing/short-term rehabilitation units.

Another point of interest is a decrease in rates for certain infection types. Lower respiratory tract infection rates decreased from 2012 for all care units. Rates for gastrointestinal tract infections associated with *C. difficile* dropped across all care units except the mixed units, where the rate remained the same since 2011.

Table 6. Urinary Tract Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2010-2013

Unit Name	2010		2011		2012		2013		Trend
	No. of NHs Reporting	Pooled Infection Rate ^{††} (95% CI)	No. of NHs Reporting	Pooled Infection Rate ^{††} (95% CI)	No. of NHs Reporting	Pooled Infection Rate ^{††} (95% CI)	No. of NHs Reporting	Pooled Infection Rate ^{††} (95% CI)	
CAUTI—Resident with Indwelling Urinary Catheter									
Dementia Unit	20	1.62 (1.07 to 2.16)	24	1.22 (0.83 to 1.61)	18	0.92 (0.57 to 1.26)	19	1.02 (0.65 - 1.38)	
Mixed Unit	105	1.27 (1.14 to 1.40)	106	0.99 (0.89 to 1.09)	110	1.16 (1.04 to 1.28)	101	1.03 (0.92 - 1.14)	
Nursing Unit	92	1.11 (0.99 to 1.23)	111	0.87 (0.77 to 0.97)	104	1.10 (0.98 to 1.22)	107	0.94 (0.84 - 1.05)	
SN/STR Unit**	148	1.07 (0.97 to 1.17)	155	0.88 (0.79 to 0.96)	131	1.09 (0.99 to 1.19)	132	0.86 (0.77 - 0.95)	
Vent Unit ^{††}	6	0.93 (0.60 to 1.26)	9	0.69 (0.44 to 0.94)	8	0.87 (0.55 to 1.18)	11	0.41 (0.17 - 0.65)	
Total	484	1.15 (1.08 to 1.21)	339	0.91 (0.86 to 0.96)	329	1.10 (1.04 to 1.16)	301	0.93 (0.87 - 0.98)	
DUR—Device Utilization Rate Associated with Indwelling Urinary Catheter [§]									
Dementia Unit	0.01		0.01		0.01		0.02		
Mixed Unit	0.05		0.05		0.05		0.05		
Nursing Unit	0.04		0.04		0.04		0.04		
SN/STR Unit**	0.06		0.06		0.05		0.06		
Vent Unit ^{††}	0.26		0.23		0.25		0.23		
Total	0.05		0.05		0.05		0.05		
UTI—Resident without Indwelling Urinary Catheter									
Dementia Unit	63	0.11 (0.10 to 0.13)	67	0.09 (0.08 to 0.10)	63	0.09 (0.08 to 0.10)	59	0.09 (0.08 - 0.10)	
Mixed Unit	116	0.15 (0.14 to 0.16)	121	0.12 (0.11 to 0.12)	119	0.12 (0.11 to 0.13)	107	0.12 (0.11 - 0.13)	
Nursing Unit	124	0.12 (0.11 to 0.12)	137	0.09 (0.08 to 0.10)	120	0.08 (0.07 to 0.09)	120	0.08 (0.07 - 0.09)	
SN/STR Unit**	156	0.10 (0.09 to 0.11)	178	0.10 (0.09 to 0.10)	167	0.10 (0.09 to 0.11)	151	0.10 (0.09 - 0.11)	
Vent Unit ^{††}	3	0.06 (0.02 to 0.11)	5	0.05 (0.02 to 0.08)	5	0.12 (0.07 to 0.18)	4	0.12 (0.07 - 0.18)	
Total	353	0.12 (0.11 to 0.12)	394	0.10 (0.10 to 0.10)	361	0.10 (0.09 to 0.10)	344	0.10 (0.09 - 0.10)	

[†]UTI rate calculation: number of UTI ÷ number of resident days x 1000

[‡]CAUTI rate calculation: number of CAUTI ÷ number of catheter days x 1000

[§]Device utilization rate: number of urinary catheter days ÷ number of resident days

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

^{††}Vent Unit = Ventilator Dependent Unit

Table 7. Respiratory Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2010-2013

Unit Name	2010		2011		2012		2013		Trend
	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	
Lower Respiratory Tract Infection (pneumonia/ bronchitis/ tracheobronchitis) (LRTI)									
Dementia Unit	117	0.36 (0.34 to 0.39)	130	0.35 (0.33 to 0.38)	121	0.34 (0.31 to 0.36)	110	0.31 (0.29 - 0.34)	
Mixed Unit	171	0.48 (0.46 to 0.49)	199	0.49 (0.47 to 0.50)	169	0.48 (0.46 to 0.50)	174	0.44 (0.43 - 0.46)	
Nursing Unit	169	0.44 (0.42 to 0.45)	200	0.39 (0.38 to 0.41)	174	0.39 (0.38 to 0.41)	184	0.36 (0.35 - 0.37)	
SN/STR Unit [‡]	234	0.42 (0.41 to 0.44)	272	0.43 (0.41 to 0.44)	240	0.42 (0.40 to 0.43)	255	0.41 (0.40 - 0.43)	
Vent Unit [§]	7	0.60 (0.47 to 0.74)	12	0.43 (0.33 to 0.52)	10	0.93 (0.77 to 1.09)	7	0.48 (0.35 - 0.60)	
Total	484	0.44 (0.43 to 0.45)	562	0.43 (0.42 to 0.44)	492	0.42 (0.42 to 0.43)	497	0.40 (0.39 - 0.41)	
Influenza-like Illness (ILI)									
Dementia Unit	6	0.00 (0.00 to 0.01)	23	0.02 (0.01 to 0.03)	4	0.01 (0.00 to 0.01)	28	0.03 (0.03 - 0.04)	
Mixed Unit	11	0.00 (0.00 to 0.00)	37	0.01 (0.01 to 0.02)	21	0.01 (0.01 to 0.01)	60	0.03 (0.03 - 0.04)	
Nursing Unit	16	0.00 (0.00 to 0.00)	32	0.01 (0.01 to 0.01)	24	0.01 (0.00 to 0.01)	68	0.02 (0.02 - 0.03)	
SN/STR Unit [‡]	12	0.00 (0.00 to 0.00)	50	0.01 (0.01 to 0.02)	23	0.01 (0.00 to 0.01)	91	0.04 (0.03 - 0.04)	
Vent Unit [§]	0	0.00 (0.00 to 0.00)	0	0.00 (0.00 to 0.00)	0	0.00 (0.00 to 0.00)	1	0.01 (0 - 0.02)	
Total	42	0.00 (0.00 to 0.01)	121	0.01 (0.01 to 0.01)	65	0.01 (0.01 to 0.01)	209	0.03 (0.03 - 0.03)	
Total Respiratory Tract Infections									
Dementia Unit	117	0.37 (0.34 to 0.39)	131	0.37 (0.35 to 0.40)	122	0.34 (0.32 to 0.37)	116	0.35 (0.32 - 0.37)	
Mixed Unit	171	0.48 (0.46 to 0.50)	199	0.50 (0.48 to 0.52)	170	0.49 (0.47 to 0.50)	177	0.47 (0.46 - 0.49)	
Nursing Unit	169	0.44 (0.42 to 0.45)	201	0.40 (0.39 to 0.42)	174	0.40 (0.39 to 0.41)	187	0.38 (0.37 - 0.40)	
SN/STR Unit [‡]	234	0.43 (0.41 to 0.44)	275	0.44 (0.43 to 0.46)	242	0.42 (0.41 to 0.44)	258	0.45 (0.44 - 0.47)	
Vent Unit [§]	7	0.60 (0.47 to 0.74)	12	0.43 (0.33 to 0.52)	10	0.93 (0.77 to 1.09)	7	0.48 (0.36 - 0.61)	
Total	484	0.44 (0.43 to 0.45)	565	0.44 (0.43 to 0.45)	494	0.43 (0.42 to 0.44)	502	0.43 (0.42 - 0.44)	

[†]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

Table 8. Skin and Soft Tissue Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2010-2013

Unit Name	2010		2011		2012		2013		Trend
	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	
Vascular or Diabetic Ulcer (Chronic/Non-healing)									
Dementia Unit	6	0.003 (0.001 - 0.006)	8	0.004 (0.001 - 0.006)	12	0.007 (0.003 - 0.010)	8	0.004 (0.001 - 0.007)	
Mixed Unit	43	0.013 (0.01 - 0.016)	49	0.014 (0.011 - 0.016)	46	0.011 (0.008 - 0.013)	49	0.013 (0.011 - 0.016)	
Nursing Unit	43	0.009 (0.007 - 0.011)	48	0.009 (0.007 - 0.011)	40	0.009 (0.007 - 0.011)	38	0.007 (0.005 - 0.009)	
SN/STR Unit [‡]	62	0.012 (0.01 - 0.015)	62	0.010 (0.008 - 0.012)	42	0.009 (0.007 - 0.011)	57	0.011 (0.009 - 0.013)	
Vent Unit [§]	0	0 (0 - 0)	0	0 (0 - 0)	1	0.007 (0 - 0.022)	0	0 (0 - 0)	
Total	142	0.011 (0.009 - 0.012)	155	0.01 (0.009 - 0.012)	130	0.009 (0.008 - 0.01)	144	0.010 (0.008 - 0.011)	
Decubitus Ulcer (Pressure-related)									
Dementia Unit	14	0.009 (0.005 - 0.013)	16	0.010 (0.006 - 0.015)	7	0.005 (0.002 - 0.008)	8	0.005 (0.002 - 0.008)	
Mixed Unit	63	0.019 (0.016 - 0.022)	71	0.015 (0.012 - 0.017)	55	0.013 (0.010 - 0.015)	60	0.014 (0.011 - 0.017)	
Nursing Unit	48	0.013 (0.01 - 0.015)	53	0.011 (0.009 - 0.013)	50	0.011 (0.008 - 0.013)	43	0.009 (0.007 - 0.011)	
SN/STR Unit [‡]	71	0.019 (0.015 - 0.022)	75	0.014 (0.011 - 0.016)	57	0.014 (0.011 - 0.017)	46	0.010 (0.008 - 0.012)	
Vent Unit [§]	2	0.024 (-0.003 - 0.051)	1	0.028 (0.003 - 0.052)	4	0.029 (0.001 - 0.058)	3	0.025 (0 - 0.053)	
Total	175	0.016 (0.014 - 0.018)	195	0.013 (0.012 - 0.014)	160	0.012 (0.011 - 0.013)	148	0.011 (0.009 - 0.012)	
Burn-associated									
Dementia Unit	1	0.001 (-0.001 - 0.002)	1	0 (0 - 0.001)	0	0 (0 - 0)	0	0 (0 - 0)	
Mixed Unit	1	0 (0 - 0)	2	0 (0 - 0.001)	1	0 (0 - 0.001)	4	0.001 (0 - 0.001)	
Nursing Unit	0	0 (0 - 0)	2	0 (0 - 0.001)	0	0 (0 - 0)	0	0 (0 - 0)	
SN/STR Unit [‡]	3	0 (0 - 0.001)	1	0 (0 - 0)	4	0.001 (0 - 0.001)	1	0 (0 - 0)	
Vent Unit [§]	0	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	
Total	5	0 (0 - 0)	6	0 (0 - 0)	5	0 (0 - 0)	5	0 (0 - 0)	
Device-associated									
Dementia Unit	5	0.005 (0.002 - 0.008)	1	0.004 (0.001 - 0.006)	1	0.001 (0 - 0.001)	0	0 (0 - 0)	
Mixed Unit	43	0.009 (0.007 - 0.011)	31	0.014 (0.011 - 0.016)	33	0.007 (0.005 - 0.009)	20	0.006 (0.004 - 0.007)	
Nursing Unit	35	0.006 (0.004 - 0.008)	27	0.009 (0.007 - 0.011)	20	0.003 (0.002 - 0.005)	15	0.003 (0.002 - 0.004)	
SN/STR Unit [‡]	47	0.008 (0.006 - 0.01)	39	0.010 (0.008 - 0.012)	38	0.006 (0.004 - 0.008)	35	0.006 (0.004 - 0.008)	
Vent Unit [§]	3	0.032 (0.001 - 0.064)	4	0 (0 - 0)	1	0.007 (-0.007 - 0.022)	1	0.008 (0 - 0.025)	
Total	104	0.007 (0.006 - 0.009)	98	0.010 (0.009 - 0.012)	87	0.005 (0.004 - 0.006)	67	0.005 (0.004 - 0.005)	

Table 8, continued. Skin and Soft Tissue Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2010-2013

Unit Name	2010		2011		2012		2013		Trend
	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	
Cellulitis									
Dementia Unit	77	0.108 (0.093 - 0.123)	87	0.093 (0.08 - 0.106)	80	0.092 (0.079 - 0.106)	59	0.073 (0.061 - 0.085)	
Mixed Unit	133	0.130 (0.122 - 0.139)	157	0.118 (0.11 - 0.126)	139	0.114 (0.106 - 0.122)	144	0.113 (0.105 - 0.121)	
Nursing Unit	140	0.110 (0.103 - 0.118)	159	0.083 (0.077 - 0.089)	140	0.105 (0.097 - 0.112)	145	0.085 (0.078 - 0.091)	
SN/STR Unit [‡]	186	0.105 (0.098 - 0.113)	204	0.095 (0.088 - 0.101)	188	0.111 (0.104 - 0.118)	184	0.091 (0.084 - 0.098)	
Vent Unit [§]	4	0.104 (0.048 - 0.161)	8	0.117 (0.067 - 0.167)	6	0.110 (0.054 - 0.166)	2	0.033 (0.001 - 0.066)	
Total	409	0.114 (0.11 - 0.119)	456	0.098 (0.095 - 0.102)	415	0.108 (0.104 - 0.113)	405	0.094 (0.090 - 0.098)	
Other									
Dementia Unit	52	0.063 (0.051 - 0.074)	66	0.072 (0.061 - 0.083)	54	0.073 (0.061 - 0.085)	63	0.065 (0.054 - 0.076)	
Mixed Unit	119	0.097 (0.089 - 0.104)	148	0.086 (0.079 - 0.092)	129	0.092 (0.085 - 0.099)	128	0.083 (0.076 - 0.090)	
Nursing Unit	122	0.086 (0.079 - 0.093)	146	0.084 (0.078 - 0.091)	133	0.092 (0.084 - 0.099)	133	0.067 (0.061 - 0.073)	
SN/STR Unit [‡]	163	0.074 (0.068 - 0.08)	167	0.066 (0.061 - 0.071)	140	0.075 (0.069 - 0.081)	161	0.074 (0.068 - 0.080)	
Vent Unit [§]	8	0.088 (0.036 - 0.14)	7	0.089 (0.045 - 0.133)	8	0.176 (0.106 - 0.247)	4	0.067 (0.021 - 0.113)	
Total	361	0.083 (0.079 - 0.087)	417	0.078 (0.074 - 0.081)	371	0.085 (0.081 - 0.089)	380	0.074 (0.070 - 0.077)	
Total Skin and Soft Tissue Infections									
Dementia Unit	96	0.188 (0.169 - 0.208)	110	0.183 (0.165 - 0.201)	99	0.177 (0.158 - 0.195)	93	0.147 (0.130 - 0.164)	
Mixed Unit	158	0.268 (0.255 - 0.281)	183	0.246 (0.235 - 0.257)	159	0.237 (0.225 - 0.248)	170	0.230 (0.219 - 0.241)	
Nursing Unit	167	0.224 (0.213 - 0.235)	190	0.196 (0.186 - 0.206)	167	0.220 (0.209 - 0.231)	167	0.171 (0.161 - 0.180)	
SN/STR Unit [‡]	231	0.218 (0.208 - 0.229)	256	0.195 (0.186 - 0.205)	222	0.215 (0.205 - 0.226)	228	0.192 (0.183 - 0.202)	
Vent Unit [§]	9	0.249 (0.161 - 0.336)	10	0.234 (0.163 - 0.304)	9	0.330 (0.234 - 0.427)	5	0.134 (0.068 - 0.199)	
Total	471	0.232 (0.226 - 0.238)	526	0.210 (0.205 - 0.216)	471	0.220 (0.214 - 0.226)	473	0.193 (0.187 - 0.198)	

[†]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

Table 9. Gastrointestinal Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2010-2013

Unit Name	2010		2011		2012		2013		Trend
	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	
Gastrointestinal Infections Reported with Associated Clostridium difficile									
Dementia Unit	35	0.03 (0.02 - 0.04)	50	0.04 (0.03 - 0.05)	50	0.05 (0.04 - 0.06)	37	0.03 (0.02 - 0.04)	
Mixed Unit	133	0.09 (0.09 - 0.10)	165	0.10 (0.09 - 0.11)	142	0.10 (0.09 - 0.11)	139	0.10 (0.09 - 0.11)	
Nursing Unit	127	0.06 (0.06 - 0.07)	142	0.07 (0.07 - 0.08)	128	0.07 (0.06 - 0.07)	123	0.06 (0.06 - 0.07)	
SN/STR Unit [‡]	217	0.13 (0.12 - 0.14)	245	0.14 (0.14 - 0.15)	223	0.14 (0.13 - 0.14)	228	0.13 (0.12 - 0.14)	
Vent Unit [§]	5	0.30 (0.21 - 0.40)	14	0.32 (0.23 - 0.40)	12	0.39 (0.28 - 0.49)	10	0.35 (0.24 - 0.46)	
Total	412	0.09 (0.09 - 0.10)	472	0.10 (0.10 - 0.11)	424	0.10 (0.10 - 0.10)	428	0.09 (0.09 - 0.10)	
Gastrointestinal Infections Reported without Associated Clostridium difficile									
Dementia Unit	77	0.35 (0.32 - 0.38)	92	0.30 (0.28 - 0.33)	80	0.34 (0.31 - 0.36)	91	0.35 (0.33 - 0.38)	
Mixed Unit	102	0.29 (0.28 - 0.30)	135	0.28 (0.27 - 0.29)	114	0.30 (0.29 - 0.32)	108	0.27 (0.26 - 0.29)	
Nursing Unit	107	0.25 (0.24 - 0.26)	134	0.22 (0.21 - 0.24)	110	0.24 (0.22 - 0.25)	112	0.23 (0.22 - 0.24)	
SN/STR Unit [‡]	158	0.30 (0.29 - 0.31)	175	0.27 (0.26 - 0.28)	161	0.27 (0.26 - 0.28)	163	0.29 (0.27 - 0.30)	
Vent Unit [§]	1	0.03 (0.00 - 0.06)	5	0.06 (0.02 - 0.09)	4	0.08 (0.03 - 0.13)	3	0.05 (0.01 - 0.09)	
Total	315	0.29 (0.28 - 0.29)	382	0.26 (0.26 - 0.27)	335	0.27 (0.27 - 0.28)	333	0.27 (0.26 - 0.28)	
Total Gastrointestinal Infections Reported									
Dementia Unit	95	0.38 (0.35 - 0.41)	118	0.34 (0.32 - 0.36)	99	0.39 (0.36 - 0.41)	105	0.38 (0.36 - 0.41)	
Mixed Unit	158	0.38 (0.37 - 0.40)	193	0.38 (0.36 - 0.39)	168	0.40 (0.39 - 0.42)	157	0.37 (0.36 - 0.39)	
Nursing Unit	157	0.32 (0.30 - 0.33)	186	0.30 (0.28 - 0.31)	154	0.30 (0.29 - 0.32)	163	0.29 (0.28 - 0.30)	
SN/STR Unit [‡]	246	0.43 (0.42 - 0.45)	287	0.42 (0.40 - 0.43)	261	0.41 (0.39 - 0.42)	263	0.41 (0.40 - 0.43)	
Vent Unit [§]	6	0.34 (0.24 - 0.44)	14	0.37 (0.28 - 0.46)	12	0.47 (0.35 - 0.58)	10	0.40 (0.29 - 0.51)	
Total	471	0.38 (0.37 - 0.39)	552	0.36 (0.36 - 0.37)	488	0.37 (0.37 - 0.38)	484	0.36 (0.35 - 0.37)	

[†]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

Table 10. Other Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2010-2013

Unit Name	2010		2011		2012		2013		Trend
	No. of NHs Reporting	Pooled Infection Rate† (95% CI)	No. of NHs Reporting	Pooled Infection Rate† (95% CI)	No. of NHs Reporting	Pooled Infection Rate† (95% CI)	No. of NHs Reporting	Pooled Infection Rate† (95% CI)	
Intra-abdominal infection (Peritonitis/deep abscess)									
Dementia Unit	0	0 (0 - 0)	1	0 (0 - 0)	0	0 (0 - 0)	1	0 (0 - 0)	↔↔↔↔↔
Mixed Unit	5	0 (0 - 0)	4	0 (0 - 0)	9	0 (0 - 0)	5	0 (0 - 0)	↔↔↔↔↔
Nursing Unit	6	0 (0 - 0)	1	0 (0 - 0)	1	0 (0 - 0)	2	0 (0 - 0)	↔↔↔↔↔
SN/STR Unit ‡	4	0 (0 - 0)	2	0 (0 - 0)	3	0 (0 - 0)	1	0 (0 - 0)	↔↔↔↔↔
Vent Unit§	0	0 (0 - 0)	1	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	↔↔↔↔↔
Total	15	0 (0 - 0)	9	0 (0 - 0)	12	0 (0 - 0)	9	0 (0 - 0)	↔↔↔↔↔
Meningitis									
Dementia Unit	0	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	↔↔↔↔↔
Mixed Unit	0	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	↔↔↔↔↔
Nursing Unit	1	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	↔↔↔↔↔
SN/STR Unit ‡	0	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	↔↔↔↔↔
Vent Unit§	0	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	↔↔↔↔↔
Total	1	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	↔↔↔↔↔
Viral hepatitis									
Dementia Unit	0	0 (0 - 0)	1	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	↔↔↔↔↔
Mixed Unit	0	0 (0 - 0)	0	0 (0 - 0)	1	0 (0 - 0)	0	0 (0 - 0)	↔↔↔↔↔
Nursing Unit	0	0 (0 - 0)	0	0 (0 - 0)	1	0 (0 - 0)	0	0 (0 - 0)	↔↔↔↔↔
SN/STR Unit ‡	1	0 (0 - 0)	1	0 (0 - 0)	1	0 (0 - 0)	0	0 (0 - 0)	↔↔↔↔↔
Vent Unit§	0	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	↔↔↔↔↔
Total	1	0 (0 - 0)	2	0 (0 - 0)	3	0 (0 - 0)	0	0 (0 - 0)	↔↔↔↔↔

Table 10, continued. Other Infections, Pooled Mean Rates, by Subcategory and Care Unit, 2010-2013

Unit Name	2010		2011		2012		2013		Trend
	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	No. of NHs Reporting	Pooled Infection Rate [†] (95% CI)	
Osteomyelitis									
Dementia Unit	2	0 (0 - 0)	4	0 (0 - 0)	2	0 (0 - 0)	2	0 (0 - 0)	
Mixed Unit	19	0 (0 - 0)	17	0 (0 - 0)	16	0 (0 - 0)	16	0 (0 - 0)	
Nursing Unit	20	0 (0 - 0)	21	0 (0 - 0.01)	24	0 (0 - 0.01)	25	0 (0 - 0.01)	
SN/STR Unit [‡]	26	0 (0 - 0.01)	24	0 (0 - 0)	14	0 (0 - 0)	17	0 (0 - 0)	
Vent Unit [§]	0	0 (0 - 0)	1	0 (0 - 0)	0	0 (0 - 0)	0	0 (0 - 0)	
Total	66	0 (0 - 0)	63	0 (0 - 0)	55	0 (0 - 0)	57	0 (0 - 0)	
Primary bloodstream infection									
Dementia Unit	1	0 (0 - 0)	7	0 (0 - 0)	2	0 (0 - 0)	5	0 (0 - 0.01)	
Mixed Unit	46	0.01 (0.01 - 0.02)	38	0.01 (0.01 - 0.01)	38	0.01 (0.01 - 0.01)	37	0.01 (0.01 - 0.01)	
Nursing Unit	31	0.01 (0.01 - 0.01)	23	0.01 (0 - 0.01)	28	0.01 (0.01 - 0.01)	27	0.01 (0 - 0.01)	
SN/STR Unit [‡]	56	0.01 (0.01 - 0.02)	52	0.01 (0.01 - 0.01)	42	0.01 (0.01 - 0.01)	52	0.01 (0.01 - 0.01)	
Vent Unit [§]	5	0.07 (0.03 - 0.12)	9	0.12 (0.07 - 0.17)	7	0.15 (0.09 - 0.22)	3	0.03 (0 - 0.05)	
Total	132	0.01 (0.01 - 0.01)	121	0.01 (0.01 - 0.01)	106	0.01 (0.01 - 0.01)	113	0.01 (0.01 - 0.01)	
Total Other Infections Reported									
Dementia Unit	3	0 (0 - 0)	13	0 (0 - 0)	4	0 (0 - 0)	7	0 (0 - 0.01)	
Mixed Unit	56	0.02 (0.01 - 0.02)	48	0.01 (0.01 - 0.01)	58	0.01 (0.01 - 0.02)	48	0.01 (0.01 - 0.01)	
Nursing Unit	47	0.02 (0.01 - 0.02)	42	0.01 (0.01 - 0.01)	45	0.01 (0.01 - 0.01)	45	0.01 (0.01 - 0.01)	
SN/STR Unit [‡]	81	0.02 (0.01 - 0.02)	69	0.01 (0.01 - 0.01)	56	0.01 (0.01 - 0.01)	65	0.01 (0.01 - 0.02)	
Vent Unit [§]	5	0.07 (0.03 - 0.12)	10	0.12 (0.07 - 0.17)	7	0.15 (0.09 - 0.22)	3	0.03 (0 - 0.05)	
Total	183	0.02 (0.01 - 0.02)	170	0.01 (0.01 - 0.01)	153	0.01 (0.01 - 0.01)	155	0.01 (0.01 - 0.01)	

[†]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

ADDENDUM G: COLLABORATIVE EFFORTS TO IMPROVE PATIENT SAFETY

The Pennsylvania Patient Safety Authority continues to do a significant amount of work in Pennsylvania to engage facilities in projects to improve patient safety. The outcomes of these collaborations are shared statewide through articles in the *Pennsylvania Patient Safety Advisory* to allow all healthcare facilities to learn from the patient safety improvement efforts of Pennsylvania healthcare facilities.

The Authority's collaborative learning model has five components:

1. The collection and analysis of reports to support the development of evidence-based healthcare delivery best practices
2. Personal communications between the Authority's patient safety liaisons, patient safety analysis, and content experts and safety specialists within each licensed healthcare facility in Pennsylvania
3. A confidential electronic network, the Patient Safety Knowledge Exchange (PassKey), permits confidential communications among patient safety officers and all collaborative team members
4. Partnering with other institutions on focused patient safety projects
5. The Pennsylvania Patient Safety Reporting System (PA-PSRS) to assist in monitoring outcomes

Ambulatory Surgical Facility Preoperative Screening and Assessment Collaboration

During an 18 month period from January 2012 to June 2013, 11 Ambulatory Surgery Facilities (ASFs) worked in collaboration with the Pennsylvania Patient Safety Authority to decrease day of surgery (DOS) cancellations and transfers to acute care. External studies have shown that DOS cancellations and transfers to acute care may represent an inadequate preoperative screening process. The goal of the collaboration was to strengthen and improve patient safety by improving the preoperative screening and assessment process. Patients lacking a preoperative screening and assessment were associated (p-value = 0.001) with DOS no show cancellations during the collaboration.

Through this collaboration the participating facilities and the Authority developed a standardized preoperative screening checklist tool based on evidence in the literature and facility input regarding appropriate screening and assessment items. Additional tools were developed to collect data on cancellations and transfers in order to determine any contributing factors associated with these events.

The data was analyzed monthly with facility specific reports provided to the ASFs. Action plans were developed by the facilities based on the monthly reports to address opportunities for improvement identified with their DOS cancellations and transfers.

As part of the project, a conference call was offered with a presentation by healthcare staff from the University of North Carolina (UNC) Ambulatory Surgery Center (ASC). The UNC ASC staff provided information regarding their successes in reducing DOS cancellations through the use of an additional preoperative phone call that clarified preoperative instructions and answered questions patients may have had regarding their procedure. The ASFs were offered an educational webinar about health literacy principles and the effects on a patients understanding of their upcoming care. The combination of the standardized preoperative screening checklist, additional preoperative phone call, and attention to health literacy issues were all used to decrease the DOS cancellations and transfers.

The ASFs realized a 10% decrease in DOS (day of surgery) cancellation rates and a 6.3% decrease in ASF transfer rates to acute care hospitals (see Figure 1). ASF transfer rates for this collaboration were below the national average for three out of the four quarters. The lower transfer rates may be due to small numbers of reported ASF transfers and may explain one reason for the smaller reduction in ASF transfer rates reached in this collaboration. The work produced during this collaboration provided a starting point to identify the scope and reasons for DOS cancellations and transfers and identify solutions to reduce these events.

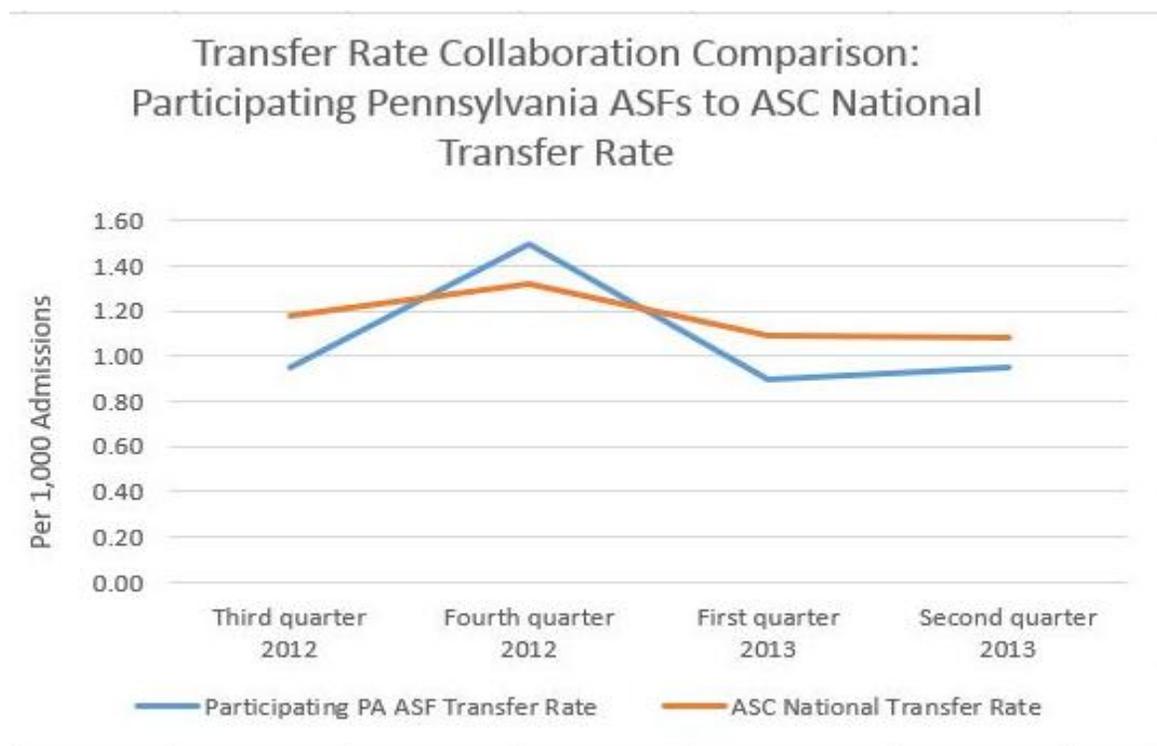


Figure 1

Surgical Site Infection Prevention Collaborative

The Authority and the Pennsylvania National Surgical Quality Improvement Program (PA-NSQIP) collaborated on a program to reduce surgical site infections (SSIs) among nine PA-

NSQIP member hospitals. Their successful strategies and lessons learned will be published for other Pennsylvania hospitals to implement.

This collaboration has included development of a best-practice survey tool and on-site visits with a survey team consisting of a nurse, physician, and Authority representative. This collaboration specifically focused on two types of surgical procedures: colectomy and bariatric surgery. The principal outcome measure that will indicate the success of this project is a reduction in the SSI rate at the institutions selected for the initial intervention. Secondary measures will include process metrics known to have an impact on SSI reduction, as identified during the on-site visits. The consortium's goal was to demonstrate improvement by reducing the ratio of observed-to-expected SSIs based on risk-adjusted data published by the American College of Surgeons (ACS) NSQIP.

The collaborative on-site visits revealed the potential of multiple process measures that the hospitals with low colorectal and bariatric surgical site infection rates are doing differently than the hospitals with high rates of infection. The facilities identified as needing improvement in preventing bariatric or colorectal SSIs selected new process improvement measures.

Bariatric measures:

- Numerator
 - Number of patients who had a HgbA1C drawn prior to surgery
 - Number of patients with a HgbA1C over eight who had surgery
 - Number of patients who received both chlorhexidine gluconate wipes and a Peridex swish the morning of the procedure
- Denominator
 - Number of patients who underwent bariatric surgery during the month

Colorectal measures:

- Numerator
 - Number of patients who have documentation that the surgical bundle was fully implemented
 - Number of patients who had skin edge protection used during surgery
 - Number of patients who had an antibiotic redosed
- Denominator
 - Number of patients who underwent a colectomy during the month
 - Number of colectomy patients who had a procedure time greater than four hours

Detailed information on site assessment findings and selected process measures are outlined in the December 2012 *Advisory* article "Multifaceted Differences in Implementation of Practices for Prevention of Colorectal and Bariatric Surgical Site Infections," available at [http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2012/Dec;9\(4\)/Pages/136.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2012/Dec;9(4)/Pages/136.aspx).

In phase two of the collaborative, the outlier facilities for both bariatric and colorectal SSIs monitored and documented their steps, barriers, successes and outcome measures for implementation of selected SSI prevention practices in bariatric and colectomy procedures from June 2012 until March 2013. Authority staff, including a patient safety liaison and an infection preventionist provided the collaborative with overall coordination, project management and technical support. The Authority served as an independent facilitator to analyze facility-level SSI data, to collect any additional data provided directly by the participating hospitals, and to produce reports for the collaborative. The Authority hosted topic-specific coaching and educational conference calls for collaborative leadership and team members.

The principal outcome measures that indicate the success of this project include: 1) reduction in the SSI rates at the two outlier institutions selected for the intervention, 2) reduction in the SSI observed/expected ratio based on risk-adjusted data published by ACS NSQIP, and 3) improvement in multiple process metrics identified through the project thought to have an impact on SSI reduction in bariatric and colorectal surgery. PA-NSQIP intervention sites demonstrated a variety of successes with engaging hospital stakeholders in system improvements, and shared that success with other hospitals in the PA-NSQIP consortium at the March meeting of all PA consortium hospitals.

Collaborative outcome data, process measure data and lessons learned will be published in an upcoming Advisory issue.

Pennsylvania Hospital Engagement Network (PA-HEN)

In 2013, the Authority continued to participate in many collaborative efforts to improve patient safety as part of the Hospital Engagement Network's (HEN) Partnership for Patients (PfP) campaign. The PfP campaign focuses on reducing healthcare-acquired conditions. The two goals of this partnership are to:

- *Keep patients from getting injured or sicker.* By the end of 2013, decrease preventable hospital-acquired conditions by 40 percent compared with 2010.
- *Help patients heal without complication.* By the end of 2013, decrease preventable complications during a transition from one care setting to another so that hospital readmissions are reduced by 20 percent compared with 2010.

The Hospital and Healthsystem Association of Pennsylvania (HAP) is the primary contractor, and they have partnered with the Authority, the Health Care Improvement Foundation, Pennsylvania Health Care Quality Alliance and Quality Insights of Pennsylvania to develop the Pennsylvania HEN (PA-HEN). This group was awarded a two-year contract to work with hospitals to reduce healthcare-acquired conditions. Healthcare-acquired conditions include adverse drug events, catheter-associated urinary tract infections, central-line-associated bloodstream infections, injuries from falls and immobility, obstetric adverse events, pressure ulcers, surgical-site infections, venous thromboembolism, ventilator-associated pneumonia, and preventable readmissions.

Approximately 130 Pennsylvania hospitals are participating in these PA-HEN collaborative projects.

In December 2013, the Centers for Medicare and Medicaid (CMS) awarded the PA-HEN a third year PfP contract. This will allow building upon the successful work accomplished in years 1 and 2 to improve quality and patient safety by reducing preventable harm and readmissions in PA hospitals.

The Authority will continue to be responsible for three projects: preventing wrong-site surgery, falls reduction and prevention, and preventing adverse drug events related to the use of opioids, anticoagulants and insulin.

Preventing Adverse Drug Events: Management of Opioids

Opioid drugs are a necessary component of pain management for many patients. When used inappropriately, or in error, they present serious risks that can lead to patient harm. For example, in 2004, among medication error reports submitted to PA-PSRS, approximately one out of four reports involved high-alert medications; of those reports, 44% involved opioids. According to 2007 data from the Institute for Safe Medication Practices (ISMP), opioids are among the most frequent medications to cause patient harm. Coupled with the lack of formalized and standardized process and outcome measures for evaluating safety in relation to opioid use, PA-HEN felt that it was important to implement a statewide adverse drug event (ADE) project aimed at reducing and preventing harm related to the use of opioids based on the PA-PSRS and ISMP data. There are 29 PA-HEN hospitals participating in this project.

The goals of this project are to decrease the number of harmful events with the use of opioids by December 2014 by doing the following:

- Increasing awareness of patient harm occurring from the use of opioids within organizations
- Improving the knowledge of and processes associated with the use of opioids within organizations
- Assisting facilities in the identification of risks currently present within their organizations and proactively reducing potential harm to patients
- Decreasing the number of harmful events with the use of opioids within the HEN participants, by quarter, compared with concurrent and historical controls

The project activities in 2013 included the publication of the results of the project's opioid knowledge assessment tool and opioid organizational assessment tool in the Pennsylvania Patient Safety *Advisory*. Additional activities in 2013 include the following:

- Conducted one on one coaching calls with participating facilities to determine their level of involvement in the project, urge data submission, address any challenges or concerns and gauge willingness to present on a future project webinar. The patient

safety liaisons (PSLs) assisted in reaching out to organizations that have not responded to initial outreach from the project team.

- Initiated the second round of the Opioid Knowledge Assessment tool to allow organizations to re-assess their practitioners' knowledge on the use of opioids. This tool will also be opened to all HEN organizations in 2014.
- Continued to share material on the ADE collaboration page on PassKey, for example, relevant tools and articles published by the Authority and ISMP have been posted as resource materials for organizations. Examples of materials shared with our group include:
 - Information on a webinar series presented by the Pennsylvania Medical Society on extended release (ER) and long-acting (LA) Opioid REMS: Achieving Safe Use While Improving Patient Care
 - Warnings from the Food and Drug Administration (FDA) on the dangers associated with the use of fentanyl patches
 - Answers to a question, "Is It Safe to Eliminate CO2 Monitoring for IV PCA after Administering Neuraxial Opioids for C-section?" posted in the Anesthesia Patient Safety Foundation newsletter
 - Information on an online tool, "IHI Global Trigger Tool CE course," that is included with their Global Trigger Tool for Measuring Adverse Events.
 - ISMP Medication Safety Alert! newsletters with articles involving problems with the use of opioids
 - Patient counseling sheets, developed by ISMP, on the safe use of fentanyl patches
 - "Practice Guidelines for the Prevention, Detection, and Management of Respiratory Depression Associated with Neuraxial Opioid Administration" from the American Society of Anesthesiologists
 - Audio as well as presentation material for all of the webinars to date are available for facilities to download and share among their staff
- Collaborated with HENs across the country, to share our experiences from the PA-HEN project. For example;
 - Involved in four onsite educational programs for participants of the HANYS HEN
 - Spoke with the Carolina's and AHA/HRET HEN about our experience with our project, including the assessments and outcome measures
 - Presented the tools used on our project on CMS Medication Safety Affinity phone calls

- Held conversations with and shared information learned and published in the Pennsylvania Patient Safety *Advisory* with the American Medical Association (AMA).

To establish a baseline as well as continually monitor and measure the progress of this project, two outcome measures were established:

- Naloxone reversal related to opioid use: The numerator is the number of patients receiving naloxone to reverse adverse effects from opioids, and the denominator is the total number of patients prescribed opioids.
- Rapid response team (RRT) calls related to intravenous opioid use: The numerator is the number of RRT calls due primarily to opioid use, and the denominator is the total number of RRT calls.

Baseline outcome measures were established based on the first month's results that were submitted for all participating organizations. Analysis of the project results for the rate of naloxone use for the 4th quarter of 2013 showed a 24% decrease from baseline in the rate of use of naloxone in patients prescribed opioids from baseline since July 2012, with the current average rate of 0.0038, reflecting 148 episodes of naloxone use for 39,139 patients prescribed opioids (see Figure 2).

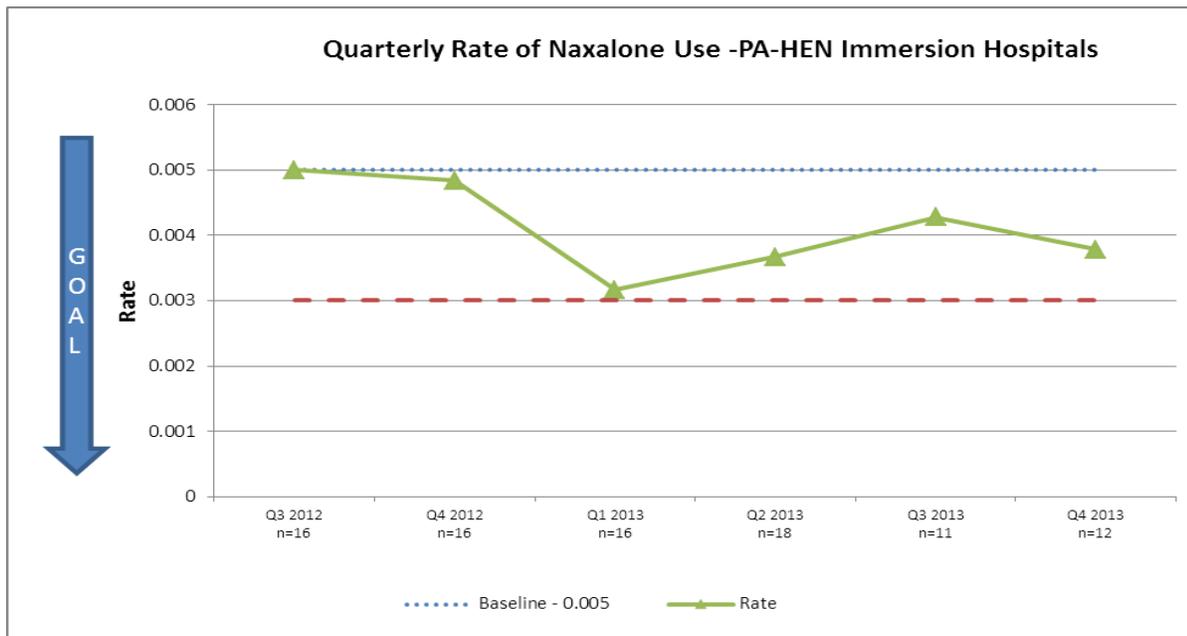


Figure 2

Overall analysis of RRT calls data reflects continued improvement from baseline. Analysis for the 4th quarter showed a 42% decrease from baseline in the rate of rapid response team deployment for events due primarily to the effects of an opioid compared to all rapid response team events from baseline since July 2012, with the current average rate of

0.0391, reflecting 35 rapid response team calls out of 896 overall rapid response team calls (see Figure 3).

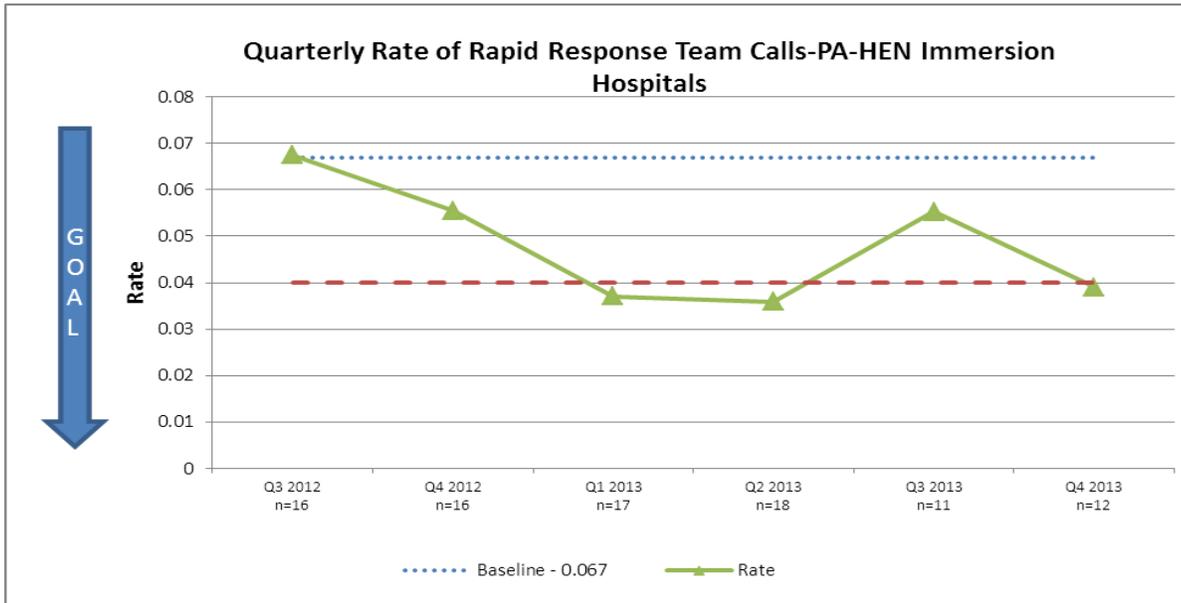


Figure 3

The process measures for this project have been established. PA-HEN used the results of the opioid organization assessment to determine the most appropriate measures for all facilities involved in the ADE project. They include:

- Documentation of assessment of opioid status/patients prescribed opioids in the PACU (20 random charts)
- Documentation of assessment of opioid status/patients prescribed long-acting opioids (20 random charts)
- Documentation of reassessment of respiratory rate, quality of respirations, level of sedation, and blood pressure/patients on a medical-surgical unit, with PRN (prorenata or as needed) orders for and administered IM (intramuscular) or intravenous (IV) opioids (20 random charts)

The data collection for the process measures for this project began in April 2013, with the expectation that most facilities will not score well on these measures for some time since they will have to implement new policies, forms and processes to begin improvement in the process measures as well as conduct staff-wide education on the changes within their facilities. For example:

- For the 3rd quarter of 2013, 12 facilities submitted results measuring the documentation of assessment of opioid status for patients prescribed opioids in the PACU but only two hospitals showed a positive measure of 90% and higher compliance. All of the other facilities had zero as their numerator.
- For the documentation of assessment of opioid status for patients prescribed long acting opioids, with two hospitals showing, in some months, 100% compliance. Two

facilities demonstrated improvement, while all of the other facilities had zero as their numerator.

- For the documentation of reassessment (post administration) of respiratory rate, quality of respirations, level of sedation, and blood pressure for patients on a medical-surgical unit, with PRN orders for and administered IM or IV opioids, facilities showed marginally better results, with three facilities revealing positive measures with over 30% compliance. All of the other facilities had zero as their numerator.

In 2014, the PA-HEN ADE opioid project will redistribute the original opioid knowledge and organization assessment to determine if there was progress in improving both the knowledge of opioids with practitioners as well as improved practices with the use of opioids within organizations. We will also continue to monitor the project's outcome and process measures, recruit organizations to present on monthly webinars and offer more collaborative opportunities among hospitals within the project.

In addition, we will also be adding two drug classes to this project, insulin and anticoagulants. According to data from the Pennsylvania Patient Safety Authority, ISMP Medication Errors Reporting Program (MERP) and MEDMARX database, both anticoagulants and insulin are among the most frequently reported high-alert medication to cause patient harm. In 2004, among medication error reports submitted to the Pennsylvania Patient Safety Reporting System (PA-PSRS), approximately one out of four reports involve high-alert medications. Of those reports, 16.3% involved insulin and over 20% involved anticoagulants. The U.S. Pharmacopeia MEDMARX 2008 data report showed that both anticoagulants and insulin were the leading product involved in harmful medication errors (i.e., National Coordinating Council for Medication Error Reporting and Prevention [NCC MERP] harm index E to I).

Budnitz et al analyzed data from the National Electronic Injury Surveillance System–Cooperative Adverse Drug Event Surveillance (NEISS-CADES) System, a nationally representative, size-stratified probability sample of hospitals (excluding psychiatric and penal institutions) in the United States and its territories with a minimum of six beds and a 24-hour emergency department (ED). Between January 1, 2004 and December 31, 2005, the researchers found that nine of the 10 medications that most commonly caused patients 65 years of age and older to visit EDs were in three medication classes (oral anticoagulants, antidiabetic agents (e.g., insulin), and narrow therapeutic index agents). Together, these three medication classes caused nearly half of all ED visits for adverse drug events but were prescribed in only 9.4% of outpatient visits. Other studies of adverse drug events in older adults have also found that high percentages of adverse drug events are caused by these medication classes.

The project activities in 2014 for these medications include the development, dissemination, and analysis of an insulin and anticoagulant knowledge assessment tool as well as an insulin and anticoagulant organizational assessment. The project also included webinar-based education programs, one-on-one coaching calls, and implementation of a collaborative workspace for monthly data collection.

Preventing Patient Falls and Reducing Harm

Patient falls are one of the most frequent healthcare-associated events. The National Quality Forum has included falls prevention as one of its 34 Safe Practices for Better Healthcare. In 2011, Pennsylvania facilities reported 35,640 falls events into PA-PSRS. Of these, 1,210 are classified as Serious Events. Because falls with injury represent the most frequently reported hospital-acquired condition and are one of the most frequently reported Serious Events in Pennsylvania, they continue to represent a patient safety challenge for many hospitals.

The goal was to achieve a 40% reduction in the rate of falls with harm in participating facilities and units by December 2013. Analysis of 2010 PA-PSRS falls data identified an average of 0.155 falls with harm per 1,000 patient-days, which would make the project goal 0.093 falls with harm per 1,000 patient-days. The Authority did not collect patient-days information in 2010 and relied on the use of patient-days data from the Pennsylvania Health Care Cost Containment Council to create the 2010 rates. It is also important to note that the 2010 data does not reflect the use of a standardized falls definition.

- There are 79 hospitals formally enrolled in the PA-HEN falls reduction and prevention project. The project includes 71 acute care hospitals, six rehabilitation hospitals, and two long-term acute care hospitals.

Hospitals enrolled in the project agreed to use a standard definition. The definitions that have been adopted are:

- A **“fall”** is defined as any unplanned descent to the floor (or other horizontal surface, such as a chair or table) with or without injury to the patient.
- *This definition of falls includes the following:*
 - Assisted falls, in which a caregiver sees a patient about to fall and intervenes, lowering them to a bed or the floor
 - Therapeutic falls, in which a patient falls during a physical therapy session with a caregiver present specifically to catch the patient in case of a fall
 - Physiological falls, in which a patient falls as a result of a seizure or syncope
- *This definition of falls excludes the following:*
 - Failures to rise, in which a patient attempts but fails to rise from a sitting or reclining position
- A **“fall with harm”** is defined as any fall that requires more than first-aid care. Treatment beyond first-aid care *includes* a laceration that requires physician intervention (e.g., sutures), more serious injury (e.g., fracture), or death.

Hospitals enrolled in the PA-HEN Falls Program were required to enroll in facility or unit level reporting in the PA-PSRS Falls Reporting Program. This provided an electronic means for hospitals to provide patient-days and patient-encounter data and enables hospitals to obtain peer and statewide comparison data.

The project monitors two process measures and four outcome measure, as follows:

- Process measures:
 - Completion of falls risk assessment
 - Patients at risk to fall and the fall precaution/protocol was in place for falls with harm among the patients who were assessed and identified at risk per the number of patients (out of all the patients who fell) who were assessed and identified at risk.
- Outcome measure:
 - HEN-wide facility level falls with harm per 1,000 patient-days
 - HEN-wide unit level falls with harm per 1,000 patient-days
 - Immersion project facility level falls with harm per 1,000 patient-days
 - Immersion project unit level falls with harm per 1,000 patient-days

The HEN-wide data for December 2013 has shown an aggregate reduction of 54% in unit level falls with harm and a 45% reduction in facility level falls with harm. Immersion project data for December 2013 has shown an aggregate reduction of 56% in unit level falls with harm and a 47% reduction in facility level falls with harm (see Figure 4). The project has had up to six months of greater than 40% reduction in falls with harm. There are eight hospitals in the project that have had 16 months of zero falls with harm and many other hospitals are starting to see sustainable results.

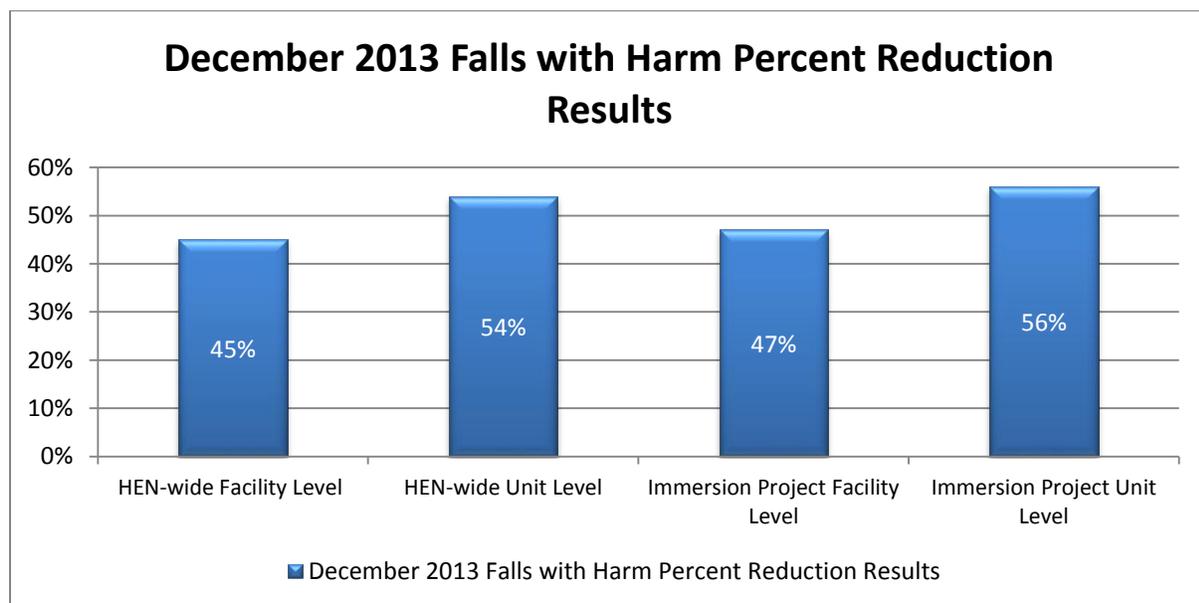


Figure 4

This project has provided enrolled hospitals with webinar-based educational offerings, use of an online collaborative workspace, coaching calls, self-assessment survey tools, quarterly audit tools, quarterly reports, and in-person regional meetings to encourage program participation and collaboration among peers.

The Authority adapted the falls self-assessment survey from an existing questionnaire²⁴, which was designed to evaluate the current structure and content of hospital falls prevention programs compared with evidence-based best-practice guidelines, and to identify opportunities for improvement. An article, *Falls Prevention: Pennsylvania Hospitals Implementing Best Practices*, was published in the December 2013 *Advisory*. This article reviewed the initial self-assessment tool results with the quarterly audits hospitals were submitting and hospital falls with harm rates. The self-assessment survey tool was re-administered to participating hospitals in July 2013 and a follow-up article will be published in a future issue of the *Advisory*.

In addition, an audit tool for falls prevention process measures was used to assess compliance with falls prevention practices most commonly included in hospitals' falls prevention plans. Individual facility falls prevention teams were advised that this audit tool should not be interpreted as a prescription of falls prevention practices that must be implemented. Rather, it is a tool designed to monitor which falls prevention practices are being implemented and to measure changes in levels of implementation of these practices over time, which may be shown to correlate with changes in falls and falls-with-injury rates. Facilities were asked to complete an audit on the unit or units where they are piloting small tests of change as part of the PA-HEN collaborative. The audit consists of documentation review and visual observation of patients and the environment. Sixty-two out of 79 hospitals have completed baseline audits for the quarter ending December 31, 2013, and have submitted their data for analysis.

In 2014, the project hopes to increase the adoption of best practices in falls prevention across all categories will be measured through repeat administration of the falls self-assessment tool and encouragement of more hospitals to participate in completion of the quarterly unit audits. There will be opportunities for webinar-based education, new workgroups on specific focus areas and increased collaboration with other HENs. The falls reduction and prevention team will continue to support the participating hospitals by meeting face-to-face with them, reviewing data for validity and reliability, and providing educational resources.

Preventing Wrong-Site, Wrong-Person, Wrong-Procedure Surgery Project Summary

Since July 2004, more than 550 wrong-site surgery (WSS) events have been reported through PA-PSRS and analyzed by the Authority. Over a nine-year period, Pennsylvania data indicates that WSS events are reported at a rate of one event per week.

As a partner in the PA-HEN, the Authority collaborates with 25 Pennsylvania hospitals and two ambulatory surgery centers to prevent the occurrence of WSS. The Authority developed and implemented a strategic and cohesive program that provided education, tools, technical assistance, resources, and interactive forums to facilitate participants'

²⁴ ECRI Institute. Falls (self-assessment questionnaire). Health Risk Control, 1: Self-assessment questionnaires.

efforts to achieve an overall 20% improvement with identified process and outcome measures for preventing WSS.

A shared collaborative website (PassKey) hosted all necessary assessment and monitoring documents, reference materials for educational sessions, and other resources, including automated benchmarking tools, a monthly electronic newsletter, prevention tips, a team leader contact list, workshop materials, audio conference recordings and transcriptions, monthly process and outcome measure results, and references to the medical literature, including that of the Authority.

Facilities responded favorably to onsite visits conducted by PSA's WSS team in 2013. Onsite observations were shared through publication in the *Pennsylvania Patient Safety Advisory*. Similarities observed included the following:

- Improper site markings (e.g., made distant to the surgical site)
- Failure to see and/or point out the site mark in the surgical field
- Surgeons did not actively empower surgical team to speak up if surgical team identified a safety concern during a time-out

Process Measure Results: An overall 19% improvement average was achieved for the five process measures that monitored surgeon verification of the site mark with various documents including 1) patient's or surrogate's understanding of the procedure, 2) consent, 3) schedule, 4) history and physical examination, and 5) pathology reports, radiology reports, and/or radiographs, as applicable.

Outcome Measure Results: A total of 33 WSS events were reported through PA-PSRS from the HEN participating facilities for the project period July 2012 through December 2013 (see Figure 5). Eighty-three percent of HEN wide facilities did not report a WSS event. Hospitals that identified and overcame barriers to best practice implementation and improved operating room culture of safety shared and mentored other facilities within the collaboration to promote overall improvement.

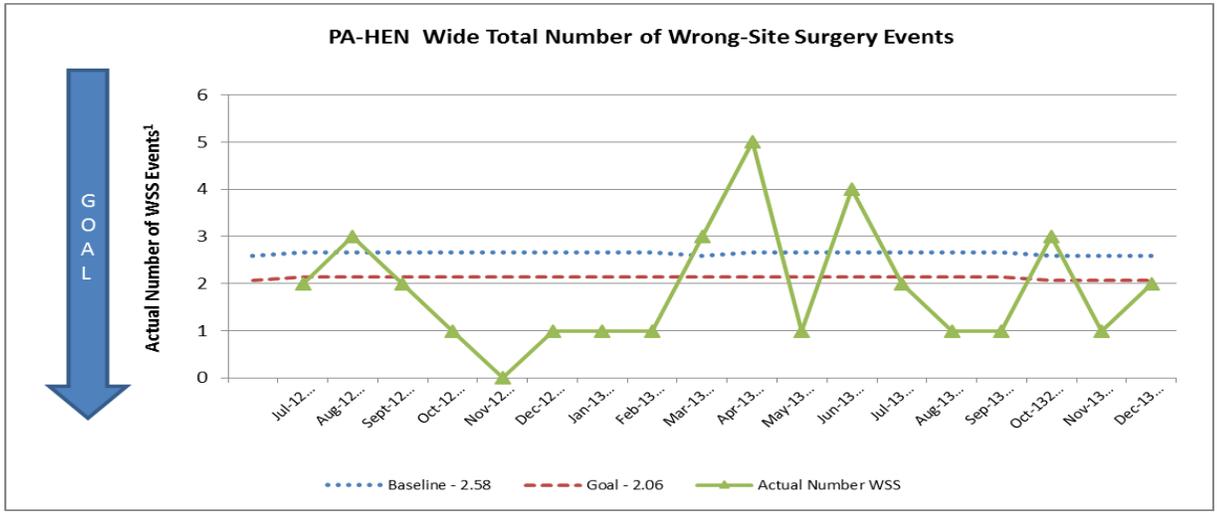


Figure 5

¹Actual number of WSS cases reflect an absolute number with no calculations as reported through the PA Patient Safety Reporting System.

All WSS educational resources, programs, and activities including onsite visits and one-on-one coaching calls will continue in 2014 in a third year partnership with the PA-HEN.

ADDENDUM H: I AM PATIENT SAFETY

The Pennsylvania Patient Safety Authority Recognizes Pennsylvania Healthcare Workers Committed to Patient Safety

The Pennsylvania Patient Safety Authority held its inaugural “I Am Patient Safety” poster contest during the last several months to highlight individuals and groups within Pennsylvania’s healthcare facilities who have made a personal commitment to patient safety. The Authority plans to hold the recognition poster contest each year, with posters delivered in time for Patient Safety Awareness Week. The contest recognizes those who have made the personal commitment to patient safety and helps patient safety officers promote what progress is being made within their facility to improve patient safety. As one of the judges for the competition, I am impressed by the number of patient safety improvements individuals and groups are making throughout Pennsylvania, and I want to thank everyone who made a submission for the contest. I appreciate the time taken to tell us what strides you are making to improve patient safety in Pennsylvania.

Authority board members and management staff comprised the judging panel. Submissions were judged upon the following criteria: the person or group (1) had a discernible impact on patient safety for one or many patients, (2) demonstrated a personal commitment to patient safety, and (3) demonstrated that a strong patient safety culture is present in the facility. Bonus points were awarded for submissions that demonstrated initiative taken by an individual. Winners received their photo and patient safety efforts highlighted on posters that can be displayed within their facilities. They also received a certificate and an “I Am Patient Safety” recognition pin from the Authority. The individuals and groups recognized for the “I Am Patient Safety” poster contest and their achievements are as follows (in alphabetical order): Authority also offers educational materials for healthcare facilities and consumers based upon topic of missed diagnosis for National Patient Safety Awareness Week March 3-9

Sharon Best, Housekeeper 1, Environmental Services (former employee) Children’s Hospital of Pittsburgh of UPMC

Sharon “knew something was not right” with a patient while she was cleaning his room. Sharon’s awareness and immediate action to get help for the patient, who was having a seizure, showed her commitment to patient safety.

Terri Bugnizet, RN, BSN, CEN, CPEN, Emergency Department Chester County Hospital-Penn Medicine

While Terri was reviewing a medication order for a diabetic patient in the emergency room, she noticed that a physician had incorrectly ordered a one-time dose and type of insulin that could have resulted in a serious medication event and injury to the patient. Thanks to Terri’s attention to detail, the patient received the correct type and dose of insulin.

Kelly Crist, Transcriptionist Unit Clerk, Imaging Services WellSpan Gettysburg Hospital

[Submitted with Kimberly Wolfe] Kelly pointed out to the appropriate staff the correct test results for her patient. Kelly ensured timely and accurate communication of critical test results, which allowed for immediate and necessary treatment of her patient.

Kathleen Fowler, MSN, RN, CMSRN, Quality Improvement Project Manager UPMC St. Margaret of Pittsburgh

Kathleen's commitment to patient safety led to implementation of several process improvements to decrease falls with injury. Kathleen facilitated the implementation of the Safe Patient Handling Campaign, which led to a reduction in the number of injuries experienced by staff when handling or moving patients during care activities. Kathleen also modified the just culture initiative for UPMC St. Margaret to encourage staff to learn from events occurring in the facility.

Tim McFeely, RN, BSN, NE-BC, Nurse Manager of the Coronary Care Unit WellSpan York Hospital

As nurse manager of the Coronary Care Unit and chair of the resuscitation review team at WellSpan York Hospital, Tim ensures his team looks at every resuscitation event in the hospital. He works with his team to dig deep and find every reason why American Heart Association guideline targets are not met. Tim regularly shares best practices with his nursing staff, along with outcomes. Through Tim's leadership, post-cardiac-arrest survival-to-discharge improved from 17.2% in 2011 to 31.6% in 2012.

Ann Norwich, CRNP WellSpan Gettysburg Hospitalist Service WellSpan Gettysburg Hospital Ann assumed care of a patient admitted with an altered mental status whose cognitive condition did not improve after treatment for an underlying infection. After hours of research, Ann discovered a significant medication error that occurred on admission and contributed to the patient's altered mental state. The medication error was corrected and reported immediately. During investigation of this event, a previously unknown problem with the electronic medication reconciliation and ordering process was revealed. Without Ann's persistence in trying to understand this patient's situation, this latent error might have gone undiscovered.

Regional Gastroenterology Associates of Lancaster (RGAL) Patient Safety Committee Team Leaders Jennifer Bean, BSN, RN, Clinical Coordinator and Infection Control; Trudy Chernich, Patient Safety Committee Community Representative; Judy Fry, Health Information Team Leader; Valerie Geyer, MSN, RN, NE-BC, Director of Clinical Services; Denise Jackson, Billing Associate; Linda Leayman, Manager, Patient Relations; Elsie Lunger, LPN, Open Access; Cindy Nichols, Surveillance Coordinator; Connie Ream, Clinical Administrative Assistant; Joan Schaum, RN, Patient Safety Officer; and Christopher Shih, MD

The patient safety committee at the Regional Gastroenterology Associates of Lancaster (RGAL) is comprised of individuals representing various departments from management, endoscopy and office nursing, infection control and community representation. The RGAL patient safety team worked together and reviewed its patient identification process from the

time of registration to discharge through a failure mode and effects analysis, resulting in proper patient identification and consistent labeling of all pathology specimens. Zero errors have been made with specimen mislabeling since this process was implemented.

In 2013, RGAL looked at potential complications for patients with implanted pacemakers and completed several performance improvement projects, including one that resulted in quicker insurance approval turnaround times for patients, which helped reduce the wait times of patients in need of infusions and reduce their out-of-pocket costs. Larger process improvements completed in 2013 included a revision of endoscopy medication management, including drug labeling and coding for look-alike, sound-alike medications. The RGAL staff also made suggestions for improved patient safety that included infection control stations in waiting areas for patients and new chairs for bariatric patient needs.

Maria Stesko, RN, Operating Room Phoenixville Hospital While checking medical device items in carts for packaging defects and expiration dates, Maria found several items missing expiration dates. After investigating other reprocessed items in storage, Maria noticed there were others that did not have expiration dates. A call to the company that supplied the items verified they should have had expiration dates on them as well. All reprocessed items were pulled from the shelves and checked. Also, the company requested the opportunity to do a site visit and review all reprocessed items in the hospital and surgical center for any other items that were missing the expiration information to ensure safety.

Roslyn (Roz) Syrkett, Unit Assistant Substance Detox/Behavioral Health Eagleville Hospital

Roz overheard a patient having a distressing phone call with his mother. Once the patient went back into his room, Roz followed him to make sure he was okay. When Roz arrived in the room, the patient was trying to harm himself. Roz calmed the patient down and ensured he did not harm himself.

Kimberly Wolfe, Transcriptionist Clerk, Imaging Services WellSpan Gettysburg Hospital

[Submitted with Kelly Crist] Kimberly alerted the appropriate staff to the correct test results for her patient. Kimberly ensured timely and accurate critical test results were given to staff which allowed for immediate and necessary treatment of her patient.

Rachel Wamba Yadrnak, RN, Pediatric Hematology/Oncology Penn State Hershey Children's Hospital

As one of the founding members of the Chemotherapy Safety Task Force, Rachel led staff within the department and brought a "closed chemotherapy system" into Penn State Hershey Children's Hospital. Through her work, this transition into chemotherapy administration systems has decreased the nurses' exposure and risk of chemotherapy related spills for over three months. Rachel has also worked for two years to develop and implement an annual chemotherapy competency test to monitor the skills of the nurses on the unit. This competency test helps ensure patient safety by promoting consistency and safety in administration, and continued education on different administration techniques.

The Authority will hold the “I am Patient Safety” poster contest each year from May to October. Winners will be announced during Patient Safety Awareness Week. To view the posters from this year’s “I am Patient Safety” contest, go to www.patientsafetyauthority.org.

I AM PATIENT SAFETY



CHILDREN'S HOSPITAL OF PITTSBURGH OF UPMC

Winner of the "I Am Patient Safety" Poster Contest for Patient Safety Awareness Week 2014
 Sharon Best is patient safety. Sharon "knew something was not right" with a patient while she was cleaning his room. Sharon's awareness and immediate action to get help for the patient she didn't know was having a seizure showed her commitment to patient safety at Children's Hospital of Pittsburgh of UPMC.
 Join the Pennsylvania Patient Safety Authority in congratulating Sharon Best for showing why patient safety involves every employee from Children's Hospital of Pittsburgh of UPMC.

I AM PATIENT SAFETY



WELLSPAN GETTYSBURG HOSPITAL

Winner of the "I Am Patient Safety" Poster Contest for Patient Safety Awareness Week 2014
 Ann Norwich is patient safety. Ann recently assumed care of a patient admitted with an altered mental status whose cognitive condition did not improve after treatment for an underlying infection. After hours of research, Ann discovered a significant medication error that occurred on admission which contributed to the patient's altered mental state. The medication error was corrected and reported immediately. During investigation of this event, a previously unknown problem with the electronic medication reconciliation and ordering process was revealed. Without Ann's persistence in trying to understand this patient's situation this latent error might have gone undetected.
 Join the Pennsylvania Patient Safety Authority in congratulating Ann Norwich for her thorough patient safety efforts at WellSpan Gettysburg Hospital.

I AM PATIENT SAFETY



CHESTER COUNTY HOSPITAL-PENN MEDICINE

Winner of the "I Am Patient Safety" Poster Contest for Patient Safety Awareness Week 2014
 Teri Bugrizer is patient safety. While Teri was reviewing a medication order for a diabetic patient in the emergency room, she noticed that a physician had ordered a one-time dose of insulin that was the wrong type of insulin and incorrect dose that could have resulted in a serious medication event and injury to the patient. Thanks to Teri's attention to detail, the patient received the correct type and dose of insulin.
 Join the Pennsylvania Patient Safety Authority in congratulating Teri Bugrizer for catching this medication error near miss and demonstrating her commitment to patient safety at Chester County Hospital-Penn Medicine.

I AM PATIENT SAFETY



REGIONAL GASTROENTEROLOGY ASSOCIATES OF LANCASTER (RGAL)

Recognized for their dedication to patient safety by the Pennsylvania Patient Safety Authority
 The patient safety committee at the Regional Gastroenterology Associates of Lancaster (RGAL) is patient safety. The patient safety committee is comprised of individuals representing various departments from management, endoscopy and office nursing, infection control and community representation.
 The RGAL patient safety team worked together and reviewed its patient identification process from the time of registration to discharge through a Failure Modes and Effects Analysis (FMEA) resulting in proper patient identification and consistent labeling of pathology specimens. Care errors have been made with specimen mislabeling since this process has been implemented.
 Larger process improvements completed in 2013 include a revision of endoscopy medication management including drug labeling and coding for look-alike, sound-like medications. The RGAL staff also made suggestions for improved patient safety that include infection control systems in waiting areas for patients and new chairs for bariatric patient needs.
 Join the Pennsylvania Patient Safety Authority in congratulating the RGAL patient safety team for each department's personal commitment to patient safety at RGAL.

I AM PATIENT SAFETY



WELLSPAN GETTYSBURG HOSPITAL

Winners of the "I Am Patient Safety" Poster Contest for Patient Safety Awareness Week 2014
 Kelly Cost and Kimberly Wolfe are patient safety at WellSpan Gettysburg Hospital. Kelly and Kimberly alerted the appropriate staff to the correct test results for two different patients. Kelly and Kimberly ensured timely and accurate communication of critical test results which allowed for immediate and necessary treatment of each patient.
 Join the Pennsylvania Patient Safety Authority in congratulating Kelly Cost and Kimberly Wolfe for taking patient safety at WellSpan Gettysburg Hospital a priority.



An independent agency of the Commonwealth of Pennsylvania

Phone | 717-346-0469
 Fax | 717-346-1090
 E-mail | patientsafetyauthority@pa.gov
 Web site | www.patientsafetyauthority.org

Address
 333 Market Street
 Lobby Level
 Harrisburg, PA 17120