



**PENNSYLVANIA
PATIENT SAFETY
AUTHORITY**
2011 ANNUAL REPORT

Analyzing
Educating
for and Collaborating
Patient Safety

Letter from the Board Acting Chair



April 30, 2012

Dear Fellow Pennsylvanians:

In 2011, the Pennsylvania Patient Safety Authority continued its work to improve patient safety in the Commonwealth by partnering with the Hospital and Healthsystem Association of Pennsylvania (HAP) through a federal grant program developed with goals to “keep patients from getting injured or sicker” and to “help patients heal without complication.” Through the \$5.2 million grant the Authority will receive approximately \$1.8 million to focus on reducing falls, wrong-site surgery and adverse drug events statewide. More about the “Partnership for Patients” U.S. federal grant is detailed in this annual report.

Along with the statewide collaborations, the Authority has continued to regionally educate thousands of Patient Safety Officers by doubling its educational courses and more than doubling the attendance for those offerings. Some collaboratives include: the ambulatory surgery facility infection prevention program, Just Culture™ project, surgical site infection reduction and the ambulatory surgical facility preoperative screening and assessment project. The Authority has also partnered with HAP to educate hospital boards of trustees in patient safety. To date, over 20 Pennsylvania facilities’ boards of trustees have participated in the program.

For 2012, Patient Safety Liaisons plan to add new educational programs including: using teamwork and communication to improve patient safety, root cause analysis, from data to information: measuring and metrics in patient safety and Just Culture™.

In 2011, the Authority also partnered with the Pennsylvania Department of Health to encourage healthcare worker vaccinations to prevent influenza. Studies show the vaccinations help reduce the number of influenza outbreaks in healthcare facilities.

Last year, the Authority also continued educating nursing homes on how to prevent healthcare-associated infections through the “Long-Term Care Best Practice Assessment Project.” The program strives to assess the structure and function of nursing home infection control programs by measuring the level of implementation of current best practices in seven domains: hand hygiene, environmental infection control, outbreak control, prevention of urinary tract, respiratory, skin and soft tissue, gastrointestinal and resistant organism infections.

As acting chair of the Pennsylvania Patient Safety Authority’s Board of Directors, I look forward to working with Pennsylvania healthcare facilities and nursing homes to further improve patient safety through these new educational initiatives and programs detailed in this report.

On behalf of the Board, I am pleased to submit this annual report for your review.

Stanton N. Smullens, M.D.
Acting Chair, Board of Directors
Pennsylvania Patient Safety Authority



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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 certain abortion facilities. In June 2009, the Authority began collecting infection reports from nursing homes. The Authority's role is nonregulatory and nonpunitive.

The Authority initiated statewide mandatory reporting in June 2004, making Pennsylvania the only state in the nation to require the reporting of Serious Events and Incidents (near misses). All reports are confidential and nondiscoverable, and they do 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, 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 Pennsylvania Patient Safety 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 HAIs. During 2011, the Authority began additional modification of PA-PSRS 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 2011, 261,596 reports were submitted by Pennsylvania facilities to PA-PSRS (this does not include Infrastructure Failure reports, which are forwarded to DOH and not seen by

Authority staff). Table 1 identifies the number of reports submitted to PA-PSRS, by facility type.

Table 1. Number of reports submitted to PA-PSRS, by facility type

| Facility Type | Harm | No Harm | NH HAI | Total |
|----------------------------|--------------|----------------|---------------|----------------|
| Acute Hospital | 5,748 | 188,631 | | 194,379 |
| Other Hospital | 818 | 28,798 | | 29,616 |
| Ambulatory Surgery Centers | 1,424 | 3,163 | | 4,587 |
| Other | 55 | 198 | | 253 |
| Nursing Homes | | | 32,761 | 32,761 |
| Total | 8,045 | 220,790 | 32,761 | 261,596 |

Reports submitted in 2011

Prior to 2010, event reporting increased significantly every year. During the past few years, reporting appears to have leveled off (see Table 2). However, there has been significant growth in reporting by acute nonhospital facilities, such as ASFs. ASFs submitted 15.8 reports per facility in 2011 compared with 13.2 reports per facility in 2010. The Authority believes this 20% increase is due to the implementation of the Patient Safety Liaison (PSL) program, which provides for a closer relationship with these providers.

Table 2. Reports by Acute Facility Types since 2009

| Year | Hospitals | | ASFs, Birthing Centers, and Abortion Facilities | | Total |
|--------|-------------------|--------------------|---|--------------------|-----------|
| | Number of Reports | % of Facility Type | Number of Reports | % 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 |
| Total* | 1,525,079 | 98.47 | 23,662 | 1.53 | 1,548,737 |

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

On the next page, Table 3 shows the percentage of reports submitted under each top-level event type in 2011. The most frequently reported occurrences were Errors Related to Procedure/Treatment/Test (21%) and Medication Errors (20%). These two event types account for 41% of all reports submitted. While Errors Related to Procedure/Treatment/Test was the event type most frequently reported through PA-PSRS, these errors were not the ones most frequently associated with harm to the patient.

Also shown in Table 3, the largest number of Serious Event reports was under the event type category Complications of Procedure/Treatment/Test, accounting for 49% of all Serious Event reports.

Relative to the overall average of 3.5% of reports indicating harm (see “% of Type” in Table 3), harm was significantly less likely to be reported under the event type categories Medication Errors, Equipment/Supplies/Devices, Transfusions, and Errors Related to Procedure/Treatment/Test (1% or less).

Table 3. Reports by Event Type and Submission Type for 2011

| Event Type | Serious Events | | | Incidents | | | Total | % of Total |
|---|-------------------|-----------|------------|-------------------|-----------|------------|---------|------------|
| | Number of Reports | % of Type | % of Total | Number of Reports | % of Type | % of Total | | |
| Medication Errors | 224 | 0% | 3% | 44,740 | 100% | 20% | 44,964 | 20% |
| Adverse Drug Reactions (not a medication error) | 260 | 6 | 3 | 4,407 | 94 | 2 | 4,667 | 2 |
| Equipment / Supplies / Devices | 63 | 1 | 1 | 4,224 | 99 | 2 | 4,287 | 2 |
| Falls | 1,210 | 3 | 15 | 34,430 | 97 | 16 | 35,640 | 16 |
| Errors Related to Procedure / Treatment / Test | 710 | 1 | 9 | 47,364 | 99 | 21 | 48,074 | 21 |
| Complications of Procedure / Treatment / Test | 3,933 | 12 | 49 | 29,495 | 88 | 13 | 33,428 | 15 |
| Transfusions | 27 | 1 | 0 | 2,978 | 99 | 1 | 3,005 | 1 |
| Skin Integrity | 800 | 2 | 10 | 34,654 | 98 | 16 | 35,454 | 15 |
| Other / Miscellaneous ¹ | 818 | 4 | 10 | 18,498 | 96 | 8 | 19,316 | 8 |
| Total | 8,045 | 4 | 100 | 220,790 | 96 | 100 | 228,835 | 100 |

The Authority analyzes the data received through PA-PSRS in many different ways. To see PA-PSRS reporting data broken down by gender, age, region, and other characteristics, see **Addendum B**.

¹ 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, and electric shock to the patient.

[The Pennsylvania Patient Safety Advisory](#)

The *Pennsylvania Patient Safety Advisory* is the Authority's flagship publication. This quarterly, peer-reviewed, online journal is the Authority's primary means of communicating with healthcare facilities about the significant trends identified in events submitted through its reporting system. Articles in the *Advisory* also contain the Authority's advice to facilities on prevention strategies they can use to reduce or eliminate the events healthcare facilities have reported. Accompanying many articles are electronic tools healthcare workers can use to monitor adherence to safety practices or to educate the staff in their organizations.

The *Advisory* is disseminated through the Authority's website at <http://www.patientsafetyauthority.org>, and announcements of new issues are distributed via e-mail. The Authority's site received up to 27,000 visitors and up to 85,000 page hits monthly in 2011. 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 C**.



The *Advisory's* primary audience includes patient safety officers and other facility staff working on safety, risk management, and quality improvement, as well as department and unit managers—individuals who can make system-level changes to improve safety. Where topics are useful for frontline healthcare workers, the Authority often develops educational programs, checklists, and other tools that can help to change practices at the bedside. Where safety improvements can be made only by changing clinician behavior, the Authority publishes its analysis and guidance in the journal for the appropriate clinical specialty.

Since the first *Advisory* was issued in March 2004, the Authority has published more than 390 articles on a variety of clinical issues. In 2011, the Authority published 34 articles, such as:

- Medication Errors in the Emergency Department: Need for Pharmacy Involvement?
- Skin and Soft Tissue Infections in Long-Term Care
- Reducing Errors in Blood Specimen Labeling: A Multihospital Initiative

To review summaries of selected articles from 2011, please see **Addendum D**.

The Authority distributes the *Advisory* to more than 5,700 officials and other affiliates responsible for event reporting from Pennsylvania hospitals, other acute care facilities, and nursing homes. There are many other individuals—more than 3,000—who voluntarily subscribe to the *Advisory* from Pennsylvania, the rest of the United States, and other countries. The Authority's subscribers include individuals from every state in the United

States and from 30 other countries. During 2011, the general distribution list of voluntary subscribers continued to grow by 18%, with the majority of these new subscribers (60%) coming from Pennsylvania. For more detail on the Authority's subscriber base, please see **Addendum C**.

Training and Education Efforts

The Authority offers numerous education and training events to healthcare providers. These events include regional sessions that attract representatives from numerous facilities or can be focused and given within a particular facility. Since 2009, the Authority has significantly increased the number of education and training events conducted for providers. In 2010, the Authority conducted approximately 80 events attended by approximately 1,750 providers. In 2011, these numbers increased by almost 250% to approximately 190 events with 4,400 individuals trained. See Figure 1 below.

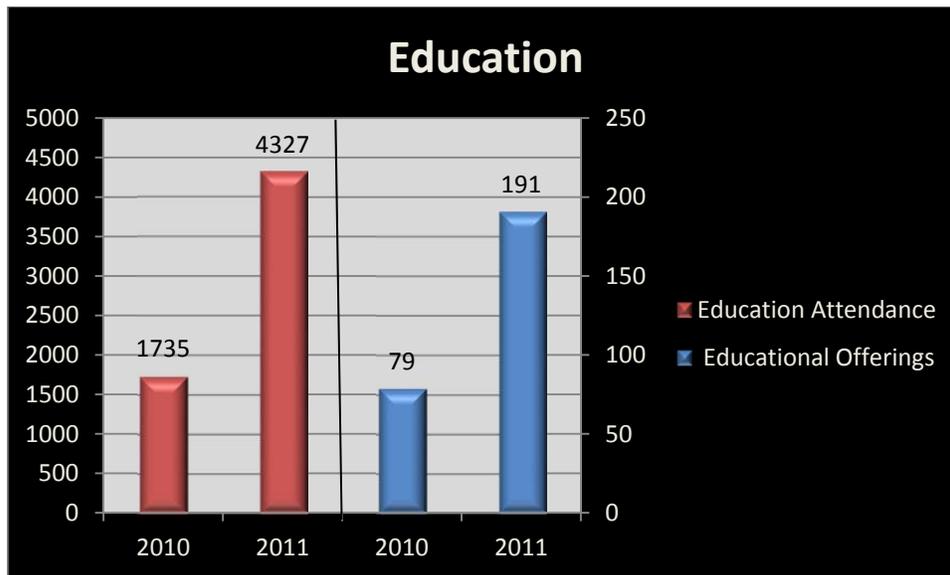


Figure 1. Training and Education

Interest in patient safety education through the Authority's programs is increasing from a variety of clinical disciplines, as well as from executive leadership. The Authority is addressing facility-specific needs on topics such as the prevention of wrong-site surgery, Just Culture™, why reporting matters, falls prevention, medication safety, teamwork and communication, and workplace safety, to name a few. Plus, the Authority continues to introduce itself and its mission to new patient safety officers to explain the elements of Act 13 of 2002 and Act 52 of 2007 as they apply to the officers' role in helping to reduce and eliminate medical errors.

The Authority has partnered with local, regional, and statewide associations and organizations to offer topics of interest ranging from lessons learned from collaboration projects focused on issues such as wrong-site surgery prevention, falls prevention, and

specimen labeling to safe medication practices in the emergency department. National organizations are also using the Authority's work in Pennsylvania, which includes the Authority's evidence-based practices for the prevention of wrong-site surgery and risk reduction strategies to prevent specimen mislabeling.

Quality of care is at the center of the mission in every hospital in Pennsylvania. There is an increased demand for the Authority's board's active role in inspiring even better quality and patient safety performance. This safety and quality mission is recognized as fundamental to a healthcare facility's mission of providing safe, trusted, affordable, and cost-effective healthcare. The Pennsylvania Patient Safety Authority has partnered with the Hospital and Healthsystem Association of Pennsylvania (HAP) and American Hospital Association's Center for Healthcare Governance to provide the Quality Curriculum for Trustees to hospital boards throughout Pennsylvania. As a governance resource, this curriculum offers unique support to boards and hospital leadership to take a new look at their oversight of quality and patient safety programs. Those who have participated in the program include hospital trustees, administrators, and clinical leaders. As of December 31, 2011, slightly over 20 facilities have completed this training.

In 2012, the Authority will launch new regional educational offerings tailored to the learning needs of the individual healthcare professional. The Authority has developed four curricula on the following topics: Just Culture™, Data Matters, Teamwork, and Root-cause Analysis. Each curriculum is supported by a three-hour presentation that will dive deep into the content of a particular topic. The participants will have the option to choose any two topics they feel will expand their knowledge. A detailed description of these four programs is provided in **Addendum E**.

The Patient Safety Liaison Program

The PSL program has been operational for a little over three years. Since inception, the depth of the PSL program has grown tremendously. The Authority's PSLs are each responsible for a region of the Commonwealth and are assigned to approximately 85 Pennsylvania hospitals, ASFs, birthing centers, and abortion facilities. The PSLs act as researchers, educators, consultants, facilitators, collaborators, and conduits for sharing and learning. Their primary contacts within the facilities are the facilities' patient safety officers. However, as the program has taken root, the PSL has become a patient safety resource to many in a given facility. At an increasing rate, the PSLs are invited to assist with patient safety analysis, review of processes and procedures, and education of hospital staff within the walls of the facilities. This invited access is unique for a state agency and is due to the independence of the Authority, which allows a singleness of purpose and focus on education and training and the absence of a punitive agenda. The PSLs also develop and conduct all regional training and form and manage collaborative improvement efforts.

One example of how the PSLs work with facilities is related to wrong-site surgery events. The Authority has developed a comprehensive, interdisciplinary program for those facilities that have experienced a wrong-site surgery event. PSLs work collaboratively with these

facilities and assist them, as requested, in facilitating root-cause analysis and failure mode and effects analysis. Guidance, assistance, tools, and educational support is provided. The PSLs act as consultants for Pennsylvania's healthcare facilities to provide the numerous wrong-site surgery educational resources developed by the Authority, including the 22 principles for prevention of wrong-site surgery and tools for assessment and monitoring. Using facility baseline and follow-up data related to the wrong-site surgery event, the PSL is available to assist the patient safety officer with the implementation of new interventions developed by the facility to reduce the likelihood of reoccurrence.

Whether it is used to gain new knowledge or confirm existing knowledge, networking can be a great benefit. Networking provides a forum for patient safety officers to learn what works and what doesn't work, to establish contacts with other patient safety officers for future collaboration, to garner support, and to spark new ideas. In 2011, the PSLs conducted 16 networking sessions that included both ASF and hospital patient safety officers. Due to the unique nature of the demographics, structure, function, and standards of their settings, hospital and ASF sessions are held separately. Topics of interest include, but are not limited to: PA-PSRS, infection prevention, mitigation for natural disasters, influenza vaccinations, handoff communication, event investigation, survey activities, emergency department bath salts cases, psychiatric patient assessment, HYDROMorphone safety, and prevention of wrong-site surgery.

Collaborative Efforts to Improve Patient Safety

The Authority has done a tremendous amount of work in Pennsylvania to engage facilities in projects to improve patient safety. The outcomes of the collaborations are shared statewide through articles in the *Advisory* to allow all facilities to learn from the work of other Pennsylvania facilities.

Results from the collaborations have been encouraging as we have witnessed downward trends in wrong-site surgery events. Figure 2 shows that facilities that participated in the collaborative experienced decreases in wrong-site surgery events, while those that did not engage in collaborative programs experienced increases. Overall, the facilities participating in the blood specimen mislabeling collaborative experienced a 37% decrease in mislabeled specimens. For more on these topics and other collaboration information, visit the Authority's website at <http://www.patientsafetyauthority.org> and access the June 2011 *Advisory* article "The Value of Collaborative Learning for Disseminating Best Healthcare Delivery Practices" by Dr. John R. Clarke.

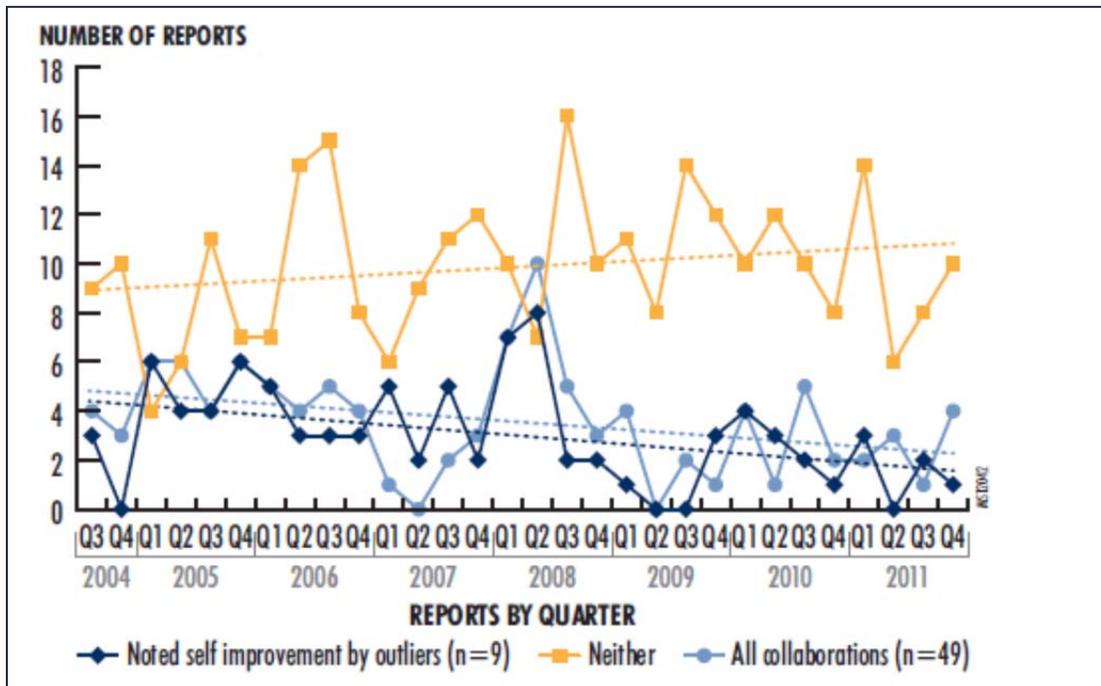


Figure 2. Wrong-Site Surgery Trends, by Intervention

Other Authority collaborations under way in 2011 include the following (see **Addendum F** for additional details):

Ambulatory Surgical Facilities—In 2011, the Authority completed a statewide needs assessment of ASFs to identify potential contributing factors to same-day cancellation of procedures and transfers to acute care. This information will be used to help develop and pilot a screening and assessment process based on best practices and consensus in participating ASFs in the northeast region of Pennsylvania.

Surgical Site Infection Prevention Collaborative (PA-NSQIP)—The Authority and the Pennsylvania National Surgical Quality Improvement Program (PA-NSQIP) have been collaborating 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 a best-practice survey tool and on-site visits with a survey team consisting of a nurse, physician, and Authority representative. This collaboration team is specifically focusing on two types of surgical procedures. They include colectomy and bariatric surgery.

Wrong-Site Surgery—During the 2011 calendar year, the Authority continued its collaboration with 19 hospitals and ASFs to implement evidence-based best practices for preventing wrong-site surgery in their operating rooms. Collaboration efforts included engagement of leadership support, identification of physician champions, data collection and gap analyses, educational workshops and conference calls, compliance monitoring, and surgical team debriefings. The collaboration resulted in no wrong-site events in any participating operating room for more than one year. This experience reaffirmed the value

of collaboration: achieving optimal outcomes through implementation of and compliance with best practices.

Southeast Pennsylvania Falls Reduction Project—In an effort to reduce falls and falls with harm in southeastern Pennsylvania hospitals, the Authority and the Health Care Improvement Foundation began collaborating in 2008 on a falls reporting initiative to help hospitals focus on falls prevention. Following standardized definitions of falls and falls with harm, the initiative provided participating hospitals with two full years of hospital-specific and deidentified comparison reports to measure and benchmark progress in falls prevention. Analysis of the data collected showed five continuous quarters of steady decline in falls with harm rates.

Pennsylvania Hospital Engagement Network—In December 2011, the Patient Safety Authority significantly expanded efforts to improve patient safety through collaborative efforts with Pennsylvania facilities. The U.S. Department of Health and Human Services launched a campaign called Partnership for Patients that brings together leaders of major hospitals, employers, physicians, nurses, and patient advocates, along with state and federal governments, in a shared effort to make hospital care safer, more reliable, and less costly by reducing healthcare-acquired conditions.

To further this initiative, the Centers for Medicare and Medicaid Services (CMS) awarded \$218 million to 26 state, regional, and national hospital system organizations to serve as Hospital Engagement Networks (HENs). The Authority partnered with HAP, the Health Care Improvement Foundation, and Quality Insights of Pennsylvania in developing a Pennsylvania HEN. This group was awarded a two-year contract to work with hospitals to reduce healthcare-acquired conditions. Approximately 130 Pennsylvania hospitals are participating in these collaborative projects.

The Authority is responsible for three specific patient safety event types: wrong-site surgery, patient falls, and the incorrect use of opioids. In addition, the Authority is responsible for providing initial and ongoing patient safety education to all participating facilities. This education will convey patient safety philosophy, principles, and strategies to ensure the best chance of success for both new and seasoned patient safety leaders. More detail on these projects is presented in **Addendum F**.

The Authority's HAI Reduction Efforts

Pennsylvania is seen as a national leader in the effort to eliminate HAIs based on the comprehensive framework for HAI reduction established by Act 52 of 2007. This act modified the MCARE Act (the Authority's authorizing legislation) to implement a framework of HAI surveillance, quality improvement, and transparency. The Authority's approach to HAI prevention—as with other issues in patient safety—is based on data analysis, education, and collaboration.

The Authority worked with the Pennsylvania DOH and the Pennsylvania Health Care Cost Containment Council to develop and publish the surveillance and reporting requirements for hospitals. The Authority's approach gave the hospitals a single system for reporting HAIs to all three agencies through the Centers for Disease Control and Prevention's National Healthcare Safety Network. Since no government or commercial systems existed for HAI reporting from nursing homes, the Authority developed a new module for PA-PSRS that provides the nursing homes with a single system for reporting that makes the data accessible to both the Authority and DOH. For all facilities, these approaches prevented any duplication of reporting.

The Authority's infection prevention analysts use the HAI reports to identify patterns in the data that can be used to direct facilities' efforts to the areas in most need of attention. For example:

- The Authority's analysis of norovirus outbreaks across the state helped to identify gaps in many nursing homes' outbreak prevention and containment plans, which led to the development of the education program "Designing a Norovirus Prevention and Rapid Response Program," which was broadcast to nursing homes throughout Pennsylvania in 2011.
- The Authority identified that nearly three-quarters of infections from central lines (i.e., catheters used to deliver drugs into the bloodstream near the heart) are associated with poor catheter *maintenance* rather than poor technique at the time of catheter *insertion*. While Pennsylvania hospitals have used many of the safe practices for insertion to reduce these infections by 24% over the past few years, the Authority is working with the Pennsylvania HEN to refocus efforts on improved maintenance practices, as this is the next frontier in reducing these infections.
- The Authority collaborated on a multiagency campaign sponsored by DOH to encourage healthcare facilities to adopt mandatory vaccination programs for healthcare workers. The Authority's analysis of infection data demonstrated a statistically significant association between nursing homes with mandatory worker vaccination policies and lower rates of respiratory tract infection.

These are just a few examples of the Authority's HAI reduction efforts. For more detail on these and other initiatives, please refer to **Addendum H**. This addendum also includes a summary of HAI data reported from Pennsylvania nursing homes.

Recommendations

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.²

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 egregious 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 DOH in January 2012 to discuss the process for making recommendations and obtained DOH's 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 requested feedback from these stakeholders on whether they envisioned any barriers to implementation of the principles. As of mid-April, the Authority has received approximately 120 responses. After incorporating the feedback received, the Authority plans to send recommendations to DOH in 2012.

Looking Forward

In 2007, the Pennsylvania Patient Safety Authority Board of Directors completed a strategic planning process. The resulting plan sought to significantly broaden the work of the Authority in the areas of education and collaboration in order to try to have a greater impact on patient safety using the data collection and analysis that had been the hallmark of the Authority in its first few years of existence. The results of this plan are clear:

- The number of healthcare providers trained by the Authority annually increased from approximately 100 to approximately 4,600.
- The PSL program was developed and implemented. The PSLs are welcomed into most facilities and are serving as consultants, teachers, mentors, and facilitators to facility patient safety officers.

² Pennsylvania Patient Safety Authority. The evidence base for the principles for reliable performance of the universal protocol [online]. Dec 2011 [cited 2012 Apr 12]. Available from Internet: http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/PWSS/Documents/u_principles.pdf.

- The Authority has conducted numerous collaborations with groups of hospitals and ASFs and seen progress in many areas, including wrong-site surgery, patient falls, and blood specimen mislabeling.
- The development and use of the Patient Safety Knowledge Exchange (PassKey) as a collaborative learning tool.
- Proven ability to manage significant collaborative projects as evidenced by inclusion in the Pennsylvania HEN project with CMS.

In December 2011, the Board engaged in another strategic planning process. The Board invited many interested parties to assist with the planning. Representatives from the following organizations participated in the strategic planning:

- CMS
- National Patient Safety Foundation
- Highmark
- The Hospital and Health System Association of Pennsylvania
- Patient advocate Mary Ellen Mannix
- ECRI Institute
- Health Care Improvement Foundation
- Pennsylvania Medical Society
- Institute for Safe Medication Practices

In addition, over 60 individuals from various organizations and Pennsylvania healthcare facilities completed surveys that informed the planning process.

In 2012, the Authority will continue its current programs. In addition, the following directions and/or activities will be operationalized based on the results of the 2011 strategic planning process:

- Increase focus on measurement of patient safety in Pennsylvania and the activities of the Authority.
- Improve consistency of patient safety event reporting.
- Increase the level of patient involvement in carrying out the Authority's mission.
- Align the Authority with national healthcare priorities and trends critical to patient safety.
- Effectively influence facilities and providers to implement recommendations made by the Authority.

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. The Authority's PSLs also ensure patient safety officers are making the anonymous report forms accessible to employees while making their routine visits to facilities in their region.

Healthcare workers are able to submit an anonymous report according to the protocols established through the PA-PSRS system. Persons 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 2011 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 2011. 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. That information is more appropriately referred to DOH or will be reported directly by a facility to a specific licensing board.

Fiscal Statements and Contracts

Act 13 of 2002 establishes the Patient Safety Trust Fund as a separate account in the State Treasury. Under Act 13 of 2002, 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 DOH on certain medical facilities. The department has 30 days following receipt of those moneys to transfer them to the Patient Safety Trust Fund. ***The Authority uses no general fund revenues.***

The Authority recognizes that Pennsylvania hospitals, birthing centers, ASFs, abortion facilities, and nursing homes bear financial responsibility for costs associated with

complying with mandatory reporting requirements. Accordingly, the Authority has focused on two fiscal goals: 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.

The Authority offers Pennsylvania healthcare facilities some unique benefits as an independent agency. PA-PSRS provides facilities one portal with which to submit events to the Authority and the PA Department of Health, while also offering interfacing for near misses with other internal reporting programs. Facilities can also use analytical tools for their internal patient safety and quality improvement programs and look to the *Pennsylvania Patient Safety Advisory* for aggregate data and preventative measures for events happening in their facility. Importantly, through the Patient Safety Liaison program the Authority has been able to break down barriers of communication among healthcare professionals either within the facility or competing with the facility to improve patient safety. The program offers numerous educational programs, generally for free. The collaborations also offer broader step toward working together as a group to decrease events such as wrong-site surgery, blood specimen mislabeling, infections and many more.

Funding Received from Hospitals, ASFs, Birthing Centers and Abortion Facilities

Act 13 of 2002 sets a limit of \$5 million on the total aggregate assessment on healthcare facilities for any one year beginning in 2002, plus an annual increase based on the Consumer Price Index for each subsequent year. On September 14, 2010, the Authority Board authorized a recommendation to DOH that the fiscal year (FY) 2010-2011 acute care surcharge assessment total \$5 million. This amount is equal to the surcharge assessment from the previous fiscal year and 19.7% less than the maximum annual amount that could have been assessed for the year pursuant to Act 13 of 2002. At the time of this recommendation, the Authority Board took several points into consideration, including:

- The Authority budget was kept at the same level as the FY 2009-2010 budget.
- The Authority FY 2010-2011 budget was approximately \$5.8 million, of which approximately \$5 million related to non-HAI program expenditures.

Act 13 of 2002 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 of 2007 and HAI program financial information:

Table 4. Facility Assessments

| Fiscal Year | Number of Facilities Assessed by DOH | ff | Approved Assessments | ff | Total Assessments Received by DOH | ff |
|-------------|--------------------------------------|----|----------------------|----|-----------------------------------|----|
| 2002-03 | 356 | | \$5,000,000 | | \$4,663,000 | 3 |
| 2003-04 | 377 | | \$2,500,000 | | \$2,542,316 | |
| 2004-05 | 414 | | \$2,500,000 | | \$2,508,787 | 4 |
| 2005-06 | 450 | 5 | \$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 | |
| | | | | | <u>\$34,049,770</u> | |

Funding Received from Nursing Homes

Act 52 of 2007 allows DOH to assess the nursing homes up to a base amount of \$1 million in the base year of 2008, plus an annual increase based on the Consumer Price Index for each subsequent year. In 2008, following the Authority's suggestion, DOH assessed 725 nursing home facilities \$1 million for FY 2008-2009. This money can only be spent on activities related to HAI prevention and implementation and maintenance of Act 52 of 2007. On September 14, 2010, the Authority Board authorized a recommendation to DOH that the FY 2010-2011 nursing home surcharge assessment total \$800,000. This amount is equal to the previous year's assessment and approximately 21.2% below the maximum assessment permitted under Act 52 of 2007, based on annual Consumer Price Index adjustments.

³ 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, DOH is pursuing action to enforce facility compliance with the assessment requirement of Act 13 of 2002.

⁴ Total assessments received are greater than assessments made because some funds received were late payments for the previous year's assessment.

⁵ The number of facilities assessed by DOH differs from the number of Act 13 of 2002 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.

Table 5. Nursing Home Assessments

| Fiscal Year | Number of Facilities Assessed by DOH | ff | Approved Assessments | ff | Total Assessments Received by DOH | ff |
|-------------|--------------------------------------|----|----------------------|----|-----------------------------------|----|
| 2008-09 | 725 | | \$1,000,000 | | \$1,000,782 | |
| 2009-10 | 711 | | \$800,000 | | \$799,382 | |
| 2010-11 | 707 | | \$800,000 | | \$799,829 | |
| | | | | | <u>\$2,599,993</u> | |

Annual Expenditures

During calendar year 2011, the authority spent approximately \$5.318 million. Please see Table 6 below.

Table 6. Actual Expenditures for Calendar Year 2011

| Major Object Code | Amount |
|-------------------|--------------------|
| 100: Personnel | \$1,344,818 |
| 300: Operating | \$3,973,450 |
| 400: Fixed Assets | \$0 |
| | <u>\$5,318,269</u> |

Pennsylvania Patient Safety Authority Contracts

Act 13 of 2002 requires the Authority to identify a list of contracts entered into pursuant to the act, including the amounts awarded to each contractor.

During the calendar year 2011, the Authority received services under the following contracts. Please note: While contract amounts are given for the fiscal or contract years, actual amounts expended are given for the calendar year.

[Key: FC (Funds Commitment); PO (Purchase Order)]

ECRI Institute, FC # 4000013036

Five-year contract for program administration, clinical analysis, training, and data collection and reporting infrastructure services

November 2008 to June 30, 2013

Total Contract Amount: \$20,170,397 over five years

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 (ECRI): \$3,854,487.96 (January through December)

IKON Office Solutions, PO #4300182251

Color Copier Lease

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

2011 Lease Expense: \$4,971.60

2011 Overage Expense: \$6,157.73

Amount Expended in 2011 (January-December): \$11,129.33

IKON Office Solutions, PO # 4500514314

B&W Copier Lease

July 1, 2010, to June 30, 2011, at \$232.03/month

First Half 2011 Lease Expense (January-June): \$1,392.18

IKON Office Solutions, PO # 4500514315

B&W Copier Lease

July 1, 2011, to June 30, 2012, at \$232.03/month

Second Half 2011 Lease Expense (July-December): \$1,392.18

Amount Expended in 2011 (IKON): \$13,913.69

Harrisburg Parking Authority, FC#490001139

Parking at the Chestnut Street Garage—Calendar Year 2011

Four spaces at \$145 per space, or \$580/month

Amount Expended in 2011 (HPA): \$6,960.00

Patient Safety Authority Balance Sheet

The following balance sheet reflects the status of the Patient Safety Trust Fund as of December 31, 2011:

Table 7. Patient Safety Trust Fund Balance Sheet as of December 31, 2011 (Unaudited)⁶

| | |
|---|--------------------|
| ASSETS | |
| Temporary Investments | \$4,127,367 |
| TOTAL ASSETS | \$4,127,367 |
| | |
| LIABILITIES AND FUND BALANCE | |
| Liabilities: | |
| Accounts Payable and Accrued Liabilities | \$53,911 |
| Invoices Payable | 347,698 |
| Accrued Payables Goods Receipt | |
| TOTAL LIABILITIES | \$401,609 |
| | |
| Fund Balance: | |
| Restricted for Encumbrances | \$2,837,180 |
| Health-Related Programs | 888,578 |
| TOTAL FUND BALANCE | \$3,725,758 |
| | |
| TOTAL LIABILITIES AND FUND BALANCE | \$4,127,367 |

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, 2011, members include:

Physician appointed by the Governor who serves as Chair: Vacant
Residence:

Appointee of the President pro tempore of the Senate: Marshall W. Webster, MD
Residence: Pittsburgh (Allegheny 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
Residence: Philadelphia (Philadelphia County)

Appointee of the Minority Leader of the House: Terry Hyman, 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, RPh
Residence: Red Lion (York County)

Hospital employee appointed by the Governor: Vacant
Residence:

Healthcare worker appointed by the Governor: Anita Fuhrman, RN, BS
Residence: Lebanon (Lebanon County)

Non-healthcare worker appointed by the Governor: Lorina L. Marshall-Blake
Residence: Philadelphia (Philadelphia County)

Physician appointed by the Governor: Vacant

Act 13 of 2002 requires the Board of Directors to meet at least quarterly. During 2011, the Board met frequently to assess and develop future patient safety educational and advocacy activities, including implementation of Act 52 of 2007 and 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 2011:

January 25, 2011

March 8, 2011

April 26, 2011

June 26, 2011 (Cancelled)

September 13, 2011

October 25, 2011

December 13, 2011 (Board Retreat)

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

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ADDENDA SECTION

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ADDENDUM A. Definitions

Act 13 of 2002 requires healthcare facilities to submit reports of the following three kinds of occurrences:

Serious Event—An adverse event resulting in patient harm. The legal definition, from Act 13 of 2002, 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 of 2002 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 healthcare 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 of 2002 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 (DOH).

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. In contrast, reports of Serious Events and Infrastructure Failures are submitted to DOH for the purposes of fulfilling their role as a regulator of Pennsylvania healthcare facilities.

Act 13 of 2002 requires the following types of facilities to submit reports of Serious Events, Incidents, and Infrastructure Failures to the Authority through PA-PSRS:

- **Hospitals**—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 2011, there were 242 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 2011, there were 277 ambulatory surgical facilities in the Commonwealth of Pennsylvania.
- **Birthing Centers**—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 2011, there were five birthing centers in the Commonwealth of Pennsylvania.
- **Abortion Facilities**— Act 30 of 2006 extended the reporting requirements in Act 13 of 2002 to abortion facilities that perform more than 100 procedures per year. For the purposes of this report, at the end of 2011, there were 24 qualifying abortion facilities in the Commonwealth of Pennsylvania.
- **Nursing Homes**—Act 52 of 2007 revised Act 13 of 2002 (Mcare) to require nursing homes to report healthcare-associated infections to the Authority. Reporting from these facilities began in June 2009. For the purposes of this report, at the end of 2011, there were 713 nursing homes in the Commonwealth of Pennsylvania. See **Addendum H** for data received to date from nursing homes.

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 Pennsylvania hospitals, ambulatory surgical facilities, 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). 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 or providers is requested. In addition, no information about individual facilities is made public.

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 that 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 Act 13 of 2002. However, the act 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 of 2002 reporting requirements may submit a report directly to the Authority. (See the section on Anonymous Reports on page 12.)

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, acute care 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 in June 2009, with the system posing different questions depending on what type of infection is reported. The system is very user-friendly, despite the software’s underlying complexity.

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,” 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, law, 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 reviews the reports as queued in the system. The team’s role is to identify situations of concern or trends that may compromise patient safety and to offer solutions for improvements.

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 more than 1,200 responses indicating that Pennsylvania facilities have implemented improvements as a result of information contained in this year’s issues of the *Advisory* and associated toolkits.

Primary distribution of the *Advisory* is through e-mail, 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 section The Pennsylvania Patient Safety Advisory in the Annual Report, as well as in **Addenda B and C**. In addition, all copies of the *Advisory* are accessible on the Authority website, <http://www.patientsafetyauthority.org>.

Another component of PA-PSRS is the set of analytical tools available to reporting facilities. These tools provide leaders in patient safety, quality improvement, and risk management 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 will help them identify trends and actual or potential adverse patient outcomes within their institutions.

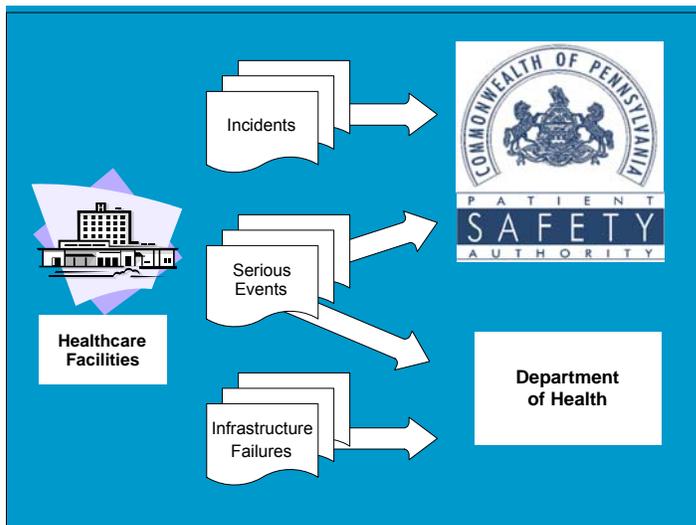


Figure 1. Submission of PA-PSRS Reports

PA-PSRS was developed under contract with ECRI Institute, a Pennsylvania-based independent nonprofit health services research agency, in partnership with Hewlett-Packard, a leading international information technology firm, and the Institute for Safe Medication Practices, also a Pennsylvania-based nonprofit health research organization.

Interpreting PA-PSRS Data

Considerable caution is advised when interpreting data from PA-PSRS. 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.

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 is 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:

- Data presented in this report includes 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.

- Unless otherwise noted, data presented in this report is based on reports submitted to PA-PSRS between January 1, 2011, and December 31, 2011. Data from acute care facilities are presented in this section. Healthcare-associated infection data from acute and long-term care facilities is presented in **Addendum H**.
- 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 is not adjusted to account for healthcare facility openings, closings, or changes of ownership.

The PA-PSRS program was developed within the context of Act 13 of 2002, 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. PA-PSRS is believed to be the only mandatory state program collecting data on “near misses”—events that did not harm patients. Data published by other patient safety reporting systems may not be as broad as the topics contained in this report.

Report Volume

Reports by Month and Submission Type

Between January 1 and December 31, 2011, Pennsylvania acute care facilities submitted 228,835 reports through PA-PSRS, bringing the number of reports submitted by these facilities since the program's inception to 1,548,737. Table 1 shows the distribution of submitted reports by month for calendar year 2011.

Table 1. Reports Submitted to PA-PSRS in 2011, by Month, Excluding Nursing Homes

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| Serious Events | 682 | 646 | 734 | 718 | 668 | 654 | 586 | 711 | 605 | 667 | 727 | 647 | 8,045 |
| Incidents | 17,674 | 20,540 | 21,321 | 18,352 | 16,355 | 19,356 | 17,317 | 19,658 | 18,809 | 17,373 | 17,551 | 16,484 | 220,790 |
| Total | 18,356 | 21,186 | 22,055 | 19,070 | 17,023 | 20,010 | 17,903 | 20,369 | 19,414 | 18,040 | 18,278 | 17,131 | 228,835 |

Approximately 3.5% of submitted reports were Serious Events, while 96.5% were Incidents. In 2011, the Authority received 19,070 reports per month on average, an increase of 1.4% from 2010. The number of Incident reports averaged 18,399 per month, an increase of 1.2% compared to the previous year. The number of Serious Event reports averaged 670 per month, which represents a 7.1% increase from 2010.

Reports by Facility Type

As shown in Table 2, the total number of reports submitted through PA-PSRS in 2011 was more than a quarter million. The vast majority of reports (85.6%) were submitted by hospitals. Among acute-level facilities (non-nursing homes), the majority is even more pronounced (97.9%). Nursing homes submitted 12.5% of the overall total.

Table 2. Reports through PA-PSRS by Facility Type (2011)

| Facility Type | Hospitals | Ambulatory Surgical Facilities | Birthing Centers and Abortion Facilities | All Acute-Level Facilities | Nursing Homes (HAI Only) | All Facilities Reporting via PA-PSRS |
|---|-----------|--------------------------------|--|----------------------------|--------------------------|--------------------------------------|
| Number of Reports Submitted | 223,995 | 4,587 | 253 | 228,835 | 32,761 | 261,596 |
| Number of Facilities Active for year ending December 31, 2011 | 242 | 277 | 29 | 548 | 713 | 1,261 |

The remainder of this data section will focus on acute care facilities; nursing homes will be addressed in the section on healthcare-associated infections (HAIs).

Table 3 shows reporting rates among nonhospital acute-level facilities—ambulatory surgical facilities, birthing centers, and abortion facilities—compared with hospitals from year to year. An increase in the percentage of reports submitted from nonhospitals is attributable to greater reporting from those facilities. Ambulatory surgical facilities submitted

15.8 reports per facility in 2011 compared with 13.2 reports per facility in 2010, a 20% increase in per-facility submissions.

Table 3. Reports by Acute-Level Facility Types since 2009

| Year | Hospitals | | Ambulatory Surgical Facilities, Birthing Centers, and Abortion Facilities | | All Facilities |
|--------|-------------------|--------------------|---|--------------------|----------------|
| | Number of Reports | % of Facility Type | Number of Reports | % 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 |
| Total* | 1,525,079 | 98.47 | 23,662 | 1.53 | 1,548,737 |

*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 continues to increase entering the eighth full year of the program.

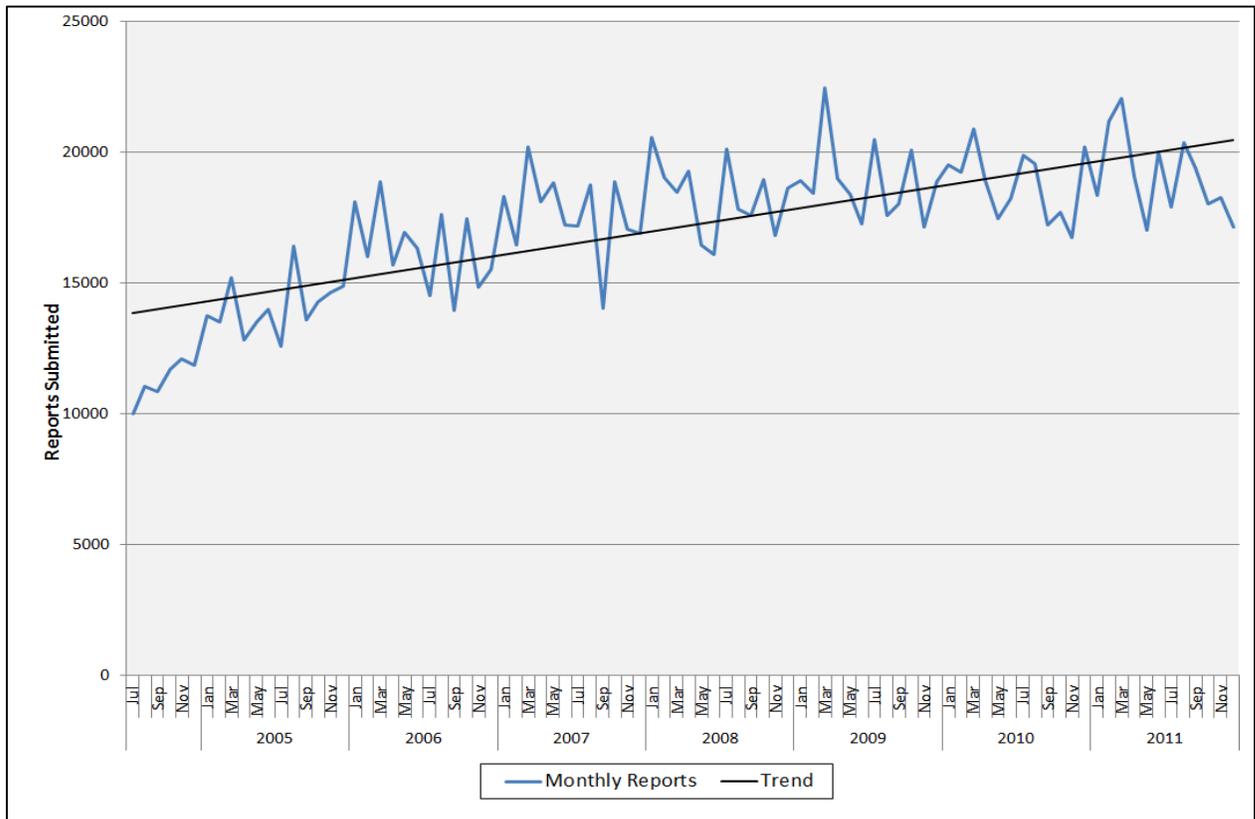


Figure 2. Number of Submitted Reports since Inception of PA-PSRS, by Month

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, given that Serious Events have been consistently about 4% of all submitted reports) shows that the volume of Serious Events has increased somewhat over the long-term but not as sharply as the volume of Incidents.

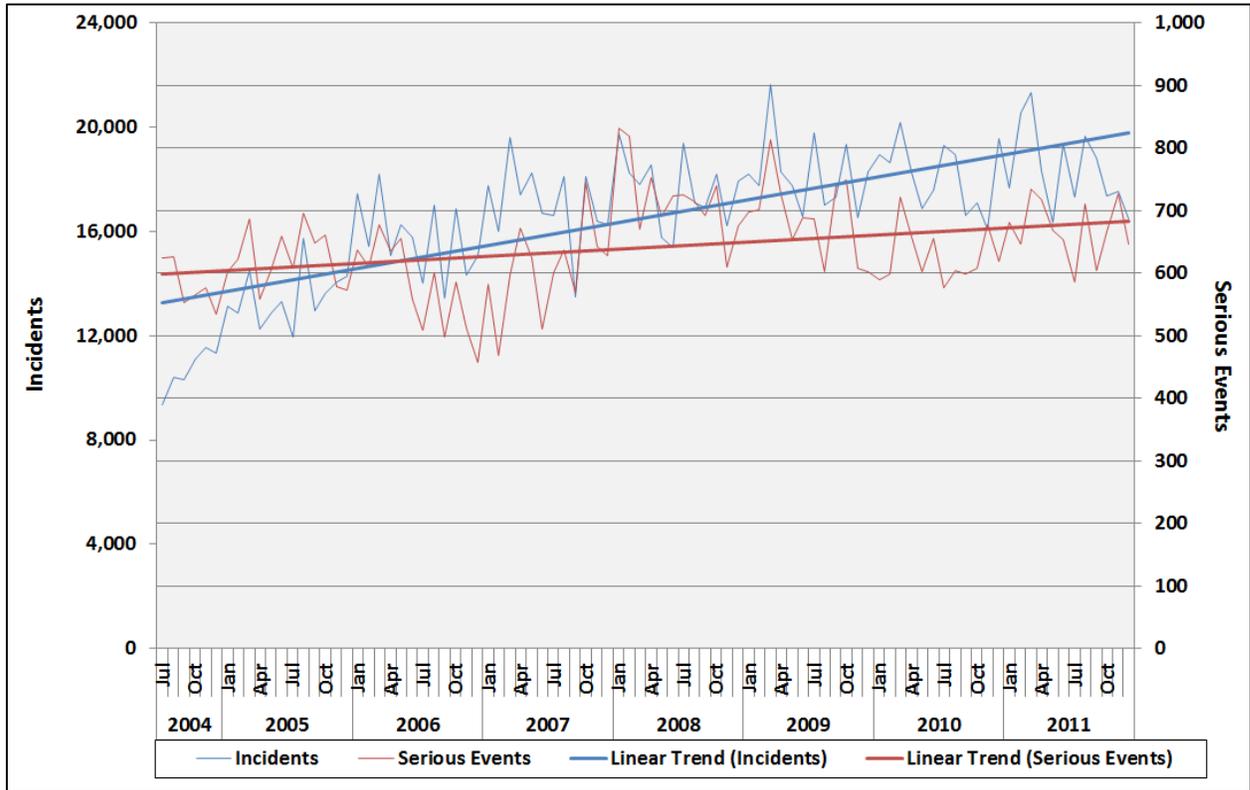


Figure 3. Number of Serious Event and Incident Reports since Inception of PA-PSRS, by Month

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 three years.

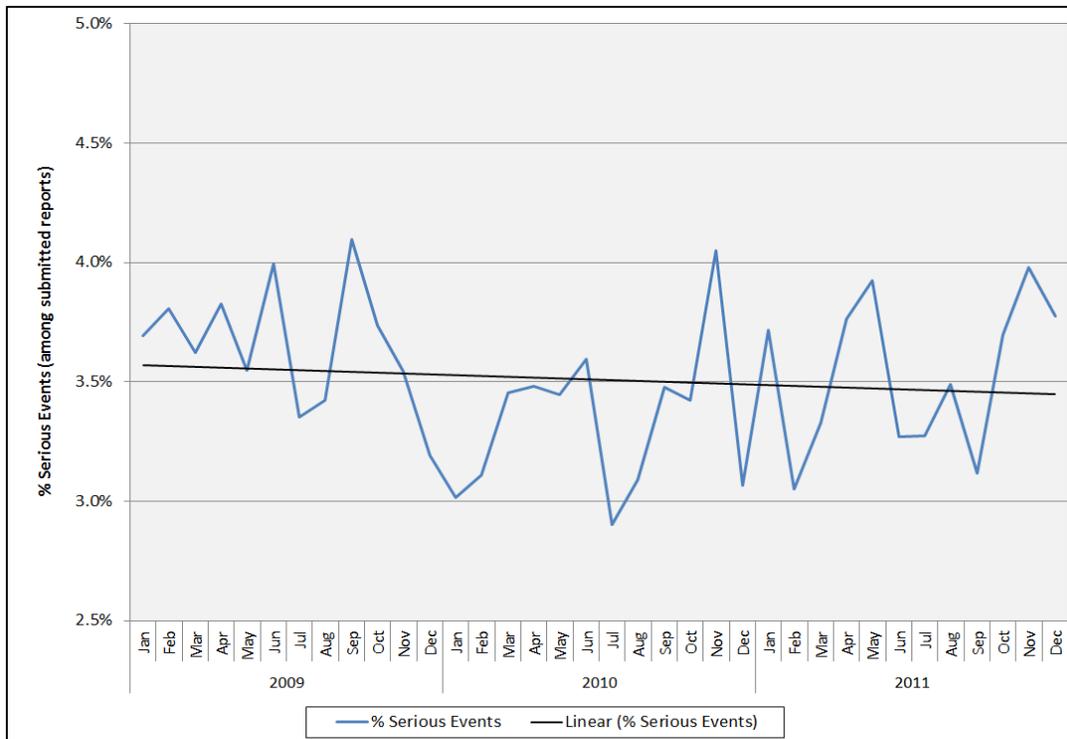


Figure 4. Percentage of Serious Event Reports, by Month

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 under each top-level event type in 2011. The most frequently reported occurrences were Errors Related to Procedure/Treatment/Test (21%) and Medication Errors (20%). These two event types account for 41% 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 Procedure/Treatment/Test, accounting for 49% of all Serious Event reports.

Relative to the overall average of 3.5% of reports indicating harm (see “% of type” in Table 4), harm was significantly less likely to be reported under Medication Errors, Equipment/Supplies/Devices, Transfusion Issues, or Errors Related to Procedures/Treatment/Test (1% or less).

Table 4. Reports by Event Type and Submission Type for 2011

| Event Type | Serious Events | | | Incidents | | | Total | % of Total |
|---|-------------------|-----------|------------|-------------------|-----------|------------|---------|------------|
| | Number of Reports | % of Type | % of Total | Number of Reports | % of Type | % of Total | | |
| Medication Errors | 224 | 0% | 3% | 44,740 | 100% | 20% | 44,964 | 20% |
| Adverse Drug Reactions (not a medication error) | 260 | 6 | 3 | 4,407 | 94 | 2 | 4,667 | 2 |
| Equipment / Supplies / Devices | 63 | 1 | 1 | 4,224 | 99 | 2 | 4,287 | 2 |
| Falls | 1,210 | 3 | 15 | 34,430 | 97 | 16 | 35,640 | 16 |
| Errors Related to Procedure / Treatment / Test | 710 | 1 | 9 | 47,364 | 99 | 21 | 48,074 | 21 |
| Complications of Procedure / Treatment / Test | 3,933 | 12 | 49 | 29,495 | 88 | 13 | 33,428 | 15 |
| Transfusions | 27 | 1 | 0 | 2,978 | 99 | 1 | 3,005 | 1 |
| Skin Integrity | 800 | 2 | 10 | 34,654 | 98 | 16 | 35,454 | 15 |
| Other / Miscellaneous ⁷ | 818 | 4 | 10 | 18,498 | 96 | 8 | 19,316 | 8 |
| Total | 8,045 | 4 | 100 | 220,790 | 96 | 100 | 228,835 | 100 |

⁷ 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, and electric shock to the patient.

Recalling the previous statements that there was a 7.1% increase in Serious Events from 2010, along with a relatively minor increase in Incidents and overall submissions, led to an interesting perspective when identifying the event type that contributed to most of the increase. The majority of the increase of Serious Event submissions can be attributed to an 11.6% rise in Complications of Procedure/Treatment/Test Serious Event reports, as shown in Figure 5.

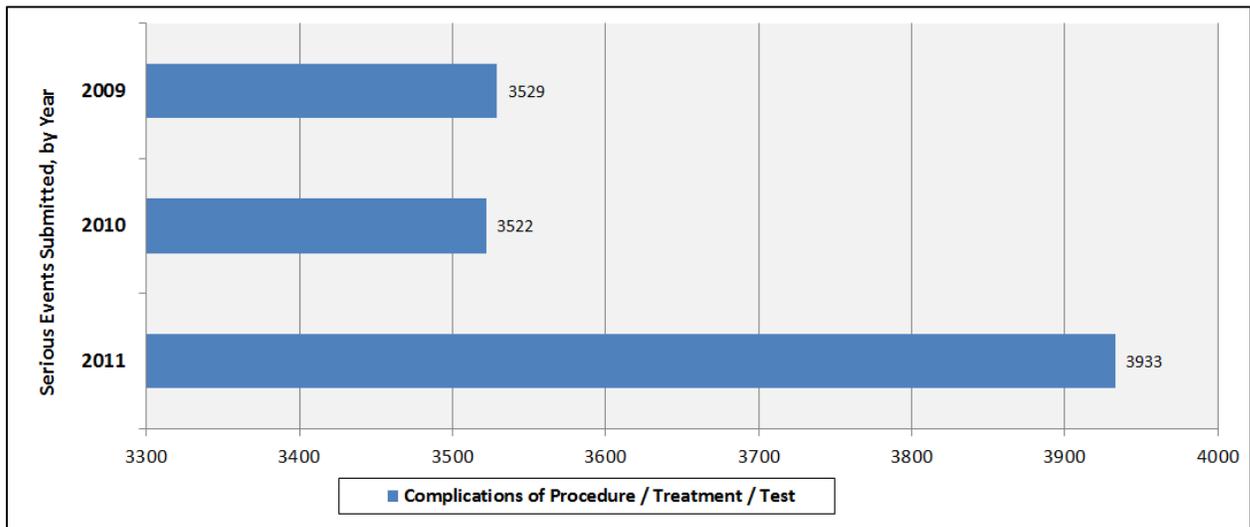


Figure 5. Serious Events of Report Type Complications of Procedure/Treatment/Test, since 2009

Table 5 below further illustrates the report submission fluctuation relative to harm level by event type. The second-level event type of Complication Following Surgery or Invasive Procedure accounted for 85.3% of the increase. Within that subtype, four third-level event types accounted for most of the increase: Unplanned Return to Operating Room, Deep Venous Thrombosis, Pneumothorax, and Other.

Table 5. Report Submission Increases in Selected Third-Level Event Types

| Complication Following Surgery or Invasive Procedure Event Subtypes | Increase in Number of Reports | % Increase from 2010 |
|---|-------------------------------|----------------------|
| Unplanned Return to Operating Room | 230 | 31.2% |
| Deep Venous Thrombosis | 18 | 72.0 |
| Pneumothorax | 35 | 44.9 |
| Other | 117 | 13.6 |
| Total Increase in the Above Event Types | 400 | |

Reports by Level of Patient Harm

For every report submitted through PA-PSRS, the healthcare 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 the scale can be summarized as follows:

- Unsafe Conditions—Circumstances that could lead to an adverse event (accounting for 13% 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 84% of all reports)
- Event, Harm—An event that reached the patient and caused temporary or permanent harm (3.4%)
- Event, Death—An event that resulted in or contributed to death (0.1%)

Table 6 shows the reports received during 2011 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 exceptions. For example, while Complications of Procedure/Treatment/Test comprised 15% of reports overall in 2011, they comprised 49% of the reports of events involving harm and 59% of all reports of events resulting in or contributing to the patient’s death.

At the other end of the spectrum, while Medication Errors comprised 20% of reports in 2011, they only comprised 3% of events involving harm and 1% of events contributing to or resulting in death. Reports of Errors Related to Procedure/Treatment/Test 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 13% of the reports submitted in 2011. As shown in Table 6, the event type in which unsafe conditions were most often reported was Skin Integrity (37%). 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, 0.2% 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 6. Reports by Event Type and Level of Patient Harm (2011)

| Event Type | Unsafe Conditions | | Event, No Harm | | Harmful Event | | Death Event | | Total | |
|--|-------------------|------------|-------------------|------------|-------------------|-----------|-------------------|-----------|-------------------|-------------|
| | Number of Reports | % | Number of Reports | % | Number of Reports | % | Number of reports | % | Number of reports | % |
| Medication Errors | 2,146 | 7% | 42,594 | 22% | 220 | 3% | 4 | 1% | 44,964 | 20% |
| Adverse Drug Reactions | 50 | 0.2% | 4,357 | 2% | 258 | 3% | 2 | 1% | 4,667 | 2% |
| Equipment / Supplies / Devices | 509 | 2% | 3,715 | 2% | 61 | 1% | 2 | 1% | 4,287 | 2% |
| Falls | 434 | 2% | 33,996 | 18% | 1,194 | 15% | 16 | 6% | 35,640 | 16% |
| Errors Related to Procedure / Treatment / Test | 5,098 | 18% | 42,266 | 22% | 696 | 9% | 14 | 5% | 48,074 | 21% |
| Complication of Procedure / Treatment / Test | 3,334 | 12% | 26,161 | 14% | 3,764 | 49% | 169 | 59% | 33,428 | 15% |
| Transfusions | 305 | 1% | 2,673 | 1% | 27 | 0% | 0 | 0% | 3,005 | 1% |
| Skin Integrity | 10,631 | 37% | 24,023 | 13% | 800 | 10% | 0 | 0% | 35,454 | 15% |
| Other / Miscellaneous | 6,272 | 22% | 12,226 | 6% | 738 | 10% | 80 | 28% | 19,316 | 8% |
| Total | 28,779 | 13% | 192,011 | 84% | 7,758 | 3% | 287 | 0% | 228,835 | 100% |

Also, to repeat figures shown previously, only 3.5% of all reports submitted involved harm to the patient, ranging from a simple laceration to a life-threatening situation or death. Figure 6 illustrates that the vast majority of reports do not result in patient harm.

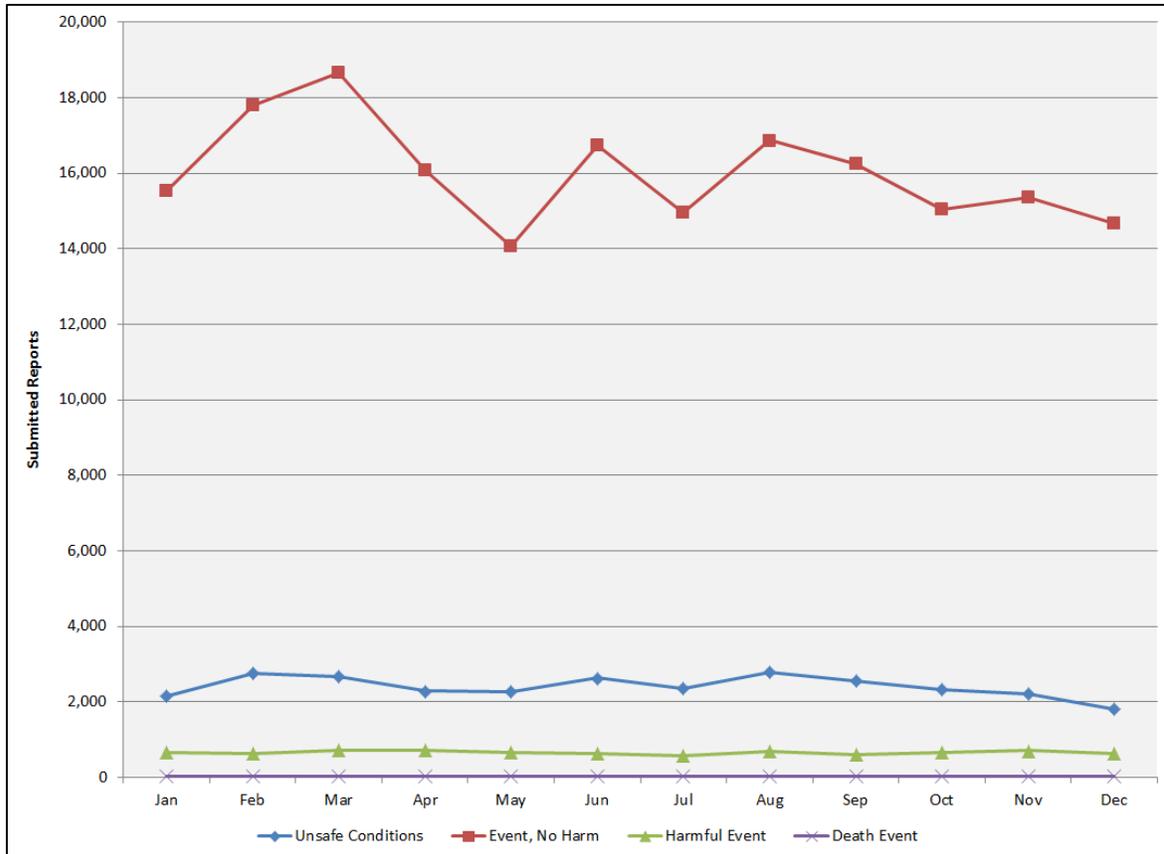


Figure 6. Reports by Level of Harm, by Month (2011)

Reports Involving Patient Death

In 2011, the Authority received 287 reports of events that may have contributed to or resulted in a patient’s death (see Table 7). 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 of 2002.

Table 7. Reports Involving Patient Death, by Event Type (2011)

| Event Type | Number of Reports | % |
|---|-------------------|------------|
| Medication Errors | 4 | 1% |
| Adverse Drug Reactions | 2 | 1 |
| Equipment /Supplies/Devices | 2 | 1 |
| Falls | 16 | 6 |
| Errors Related to Procedure/Treatment /Test | 14 | 5 |
| Complications of Procedure/Treatment/Test | 169 | 59 |
| Transfusions | 0 | 0 |
| Skin Integrity | 0 | 0 |
| Other/Miscellaneous | 80 | 28 |
| Total | 287 | 100 |

Reports involving the patient’s death account for 0.125% (one-eighth of one percent) of all submitted reports. In terms of particular event types, although 15% of all reports in 2011 were attributed to Complications of Procedure/Treatment/Test, about 59% of all reports involving patient death were of that event type. Of these reports involving death associated with complications, the majority describes patients who died following surgery or another invasive procedure (52%), patients who suffered cardiopulmonary arrest outside the intensive care unit setting (25%), or other complications (10%).

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, who went into respiratory arrest and resuscitation efforts failed, or who were admitted to the hospital and died of their disease.

Patient Demographics

PA-PSRS collects few demographic details about patients because the Authority is not authorized to collect individually identifying information. In general, most reports include only information on patient gender and age. Table 8 presents the number of reports received in 2011 by patient gender and age cohort.

Table 8. Reports Submitted by Age Cohort and Gender (2011)

| Age | Female | | Male | | All Patients | | % Patients |
|--------------|-------------------|------------|-------------------|------------|-------------------|------------|-------------|
| Cohort | Number of Reports | % | Number of Reports | % | Number of Reports | % | Female |
| 0-4 | 5,944 | 4.9% | 7,816 | 7.3% | 13,760 | 6.0% | 43.2% |
| 5-14 | 2,776 | 2.3 | 3,162 | 2.9 | 5,938 | 2.6 | 46.7 |
| 15-24 | 7,074 | 5.8 | 4,678 | 4.3 | 11,752 | 5.1 | 60.2 |
| 25-34 | 8,508 | 7.0 | 4,670 | 4.3 | 13,178 | 5.8 | 64.6 |
| 35-44 | 8,723 | 7.2 | 6,226 | 5.8 | 14,949 | 6.5 | 58.4 |
| 45-54 | 13,241 | 10.9 | 13,396 | 12.4 | 26,637 | 11.6 | 49.7 |
| 55-64 | 16,989 | 14.0 | 18,718 | 17.4 | 35,707 | 15.6 | 47.6 |
| 65-74 | 18,519 | 15.3 | 18,939 | 17.6 | 37,458 | 16.4 | 49.4 |
| 75-84 | 22,454 | 18.5 | 19,486 | 18.1 | 41,940 | 18.3 | 53.5 |
| 85+ | 16,861 | 13.9 | 10,648 | 9.9 | 27,509 | 12.0 | 61.3 |
| Unknown | 2 | 0.0 | 5 | 0.0 | 7 | 0.0 | 28.6 |
| Total | 121,091 | 100 | 107,744 | 100 | 228,835 | 100 | 52.9 |

Patient Gender

Of the 228,835 reports submitted in 2011, 121,091 (52.9%) involved female patients and 107,744 (47.1%) involved male patients. This pattern 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 simply 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 3.7% of reports involving female patients classified as Serious Events compared with 3.3% for reports involving males.

Table 9 shows the distribution of reports by patient gender and event type. Many of the same patterns observed in 2010 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 involved male patients in 2011, the only category with a male majority.

Table 9. Reports Submitted by Gender and Event Type (2011)

| Event Type | Female | | Male | | All Patients | |
|--|-------------------|-------|-------------------|-------|-------------------|------------|
| | Number of Reports | % | Number of Reports | % | Number of Reports | % of Total |
| Medication Errors | 23,892 | 53.1% | 21,072 | 46.9% | 44,964 | 19.6% |
| Adverse Drug Reactions | 2,947 | 63.1 | 1,720 | 36.9 | 4,667 | 2.0 |
| Equipment/Supplies/Devices | 2,171 | 50.6 | 2,116 | 49.4 | 4,287 | 1.9 |
| Falls | 17,592 | 49.4 | 18,048 | 50.6 | 35,640 | 15.6 |
| Errors Related to Procedure/Treatment/Test | 25,851 | 53.8 | 22,223 | 46.2 | 48,074 | 21.0 |
| Complications of Procedure/Treatment/Test | 18,781 | 56.2 | 14,647 | 43.8 | 33,428 | 14.6 |
| Transfusions | 1,661 | 55.3 | 1,344 | 44.7 | 3,005 | 1.3 |
| Skin Integrity | 18,257 | 51.5 | 17,197 | 48.5 | 35,454 | 15.5 |
| Other/Miscellaneous | 9,939 | 51.5 | 9,377 | 48.5 | 19,316 | 8.4 |
| Total | 121,091 | 52.9 | 107,744 | 47.1 | 228,835 | 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 age 65 or older account for 47% of all reports from hospitals through PA-PSRS in 2011. Also shown on this figure is the proportion of hospital inpatient admissions as reported by the Pennsylvania Healthcare Cost Containment Council.⁹ However, this chart does not suggest that older patients are necessarily more likely than younger patients to be

⁹ Based on publicly available data from the website of the Pennsylvania Health Care Containment Council (<http://www.PHC4.org>). Estimates were based on statewide inpatient data from 2010.

involved in a Serious Event or Incident. Rather, older patients' larger representation in the database simply reflects their larger representation in the healthcare system in terms of number of admissions and increased length of stay.

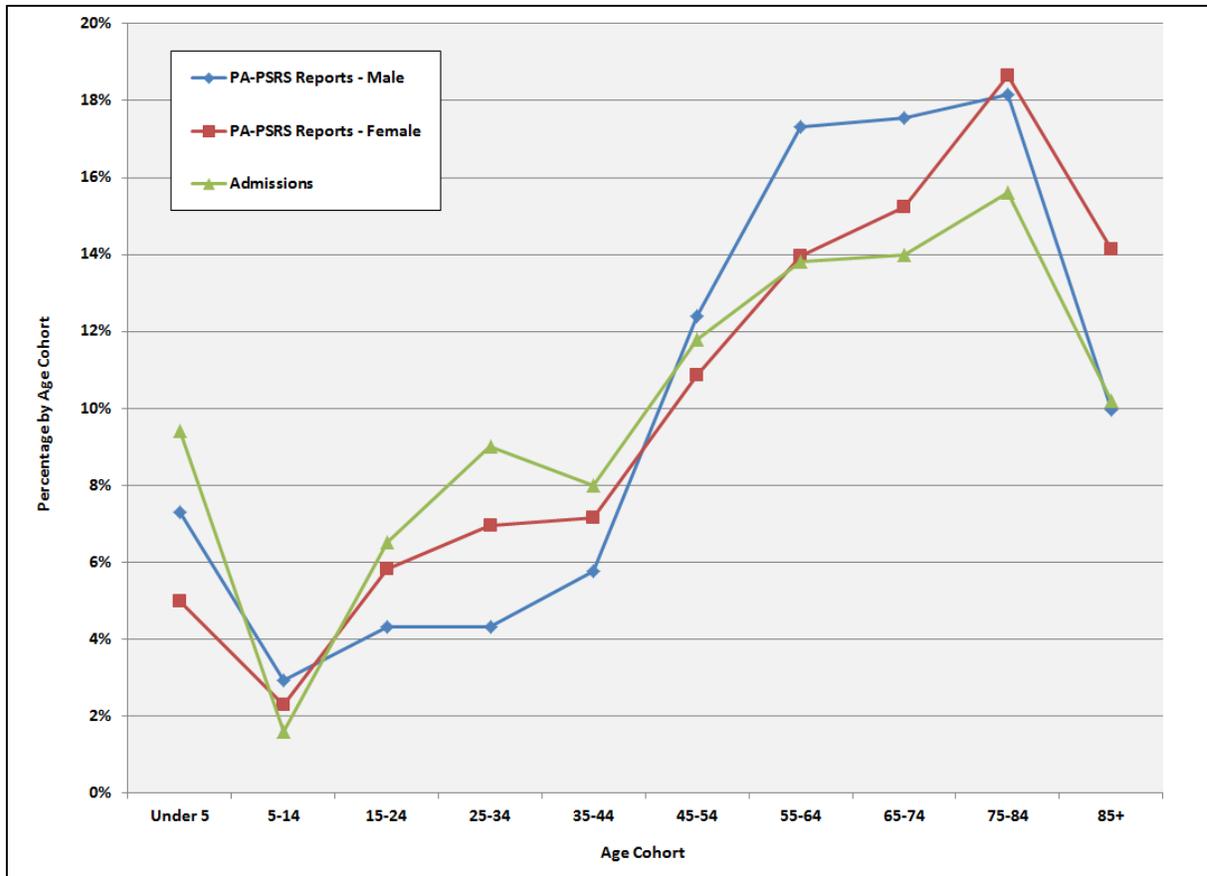


Figure 7. Proportion of Hospital Reports through PA-PSRS by Gender and Age Cohort (2011)

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 (those age 65 or older) were identified. For example, elderly patients accounted for 64% of Falls in 2004 and 2005. This figure declined steadily to 54.2% in 2011 (see Table 10).

Table 10. Percentage of Reports of Specific Event Types Submitted Involving Elderly Patients (2011)

| Elderly Patients (65 and older) | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---------------------------------|-------|-------|-------|-------|-------|-------|
| Falls | 62.4% | 61.2% | 60.2% | 57.9% | 56.2% | 54.2% |
| Skin Integrity | 73.1% | 73.5% | 73.1% | 71.2% | 70.6% | 69.5% |

In another area of interest concerning elderly patients, the percentage in this age group among Skin Integrity reports has dropped to 69.5% in 2011. In 2009, more than half of all reports (51.8%) involved patients age 65 or older; this figure dropped to 48.3% in 2010 and further in 2011 to 46.7%.

Perinatal Patients

There were 4,616 reports involving perinatal patients (those younger than 20 days), an increase of 5 reports (0.1%) from 2010, less than last year's 5.2% increase. Three percent of perinatal reports were classified as Serious Events, a bit lower than the overall percentage of 3.5%.

Just as last year, about two-thirds (66.8%) of reports for these patients were related to Errors or Complications of Procedure/Treatment/Test. 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.

About one-fifth (18.3%) of reports involving perinatal patients were related to Medication Errors. This is lower than the last three years (20.1% in 2010, 19.7% in 2009, and 19.4% in 2008). Complications of Procedure/Treatment/Test accounted for 80% of the Serious Events in this age group.

Children and Adolescents

Reports submitted through PA-PSRS in 2010 involving children and adolescents (i.e., those younger than 21 years) totaled 27,719, an increase of 14.7% over the previous year. This follows increases of 14.8% in 2010 and 16.8% in 2009. Consistent with last year, the top two reports were Medication Errors, accounting for 30.4% of the reports of this population, and Errors Related to Procedure/Treatment/Test at 23.9%. However, the event type Complications of Procedure/Treatment/Test made up 56.7% of all Serious Events for this 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 we see in Figure 8, the care areas that are considered General Medical/Surgical Units were cited as the location for the greatest number of all reports submitted in 2011, generating almost a quarter (22.2%) of the total. Other hospital departments with relatively high report rates are Critical Care (20.5%), Intermediate Unit (9.1%), Surgical Services (8.8%), and Pediatric Care (6.7%).

Examples of care areas by department include the following:

- General Medical/Surgical Units
 - General Medicine Unit
 - Medical/Surgical/Oncology Unit
- Critical Care
 - Emergency Department
 - Burn Unit
 - Medical/Surgical Intensive Care Unit
- Intermediate Unit
 - Telemetry
 - Cardiac Intermediate Unit
 - Respiratory Intermediate Unit

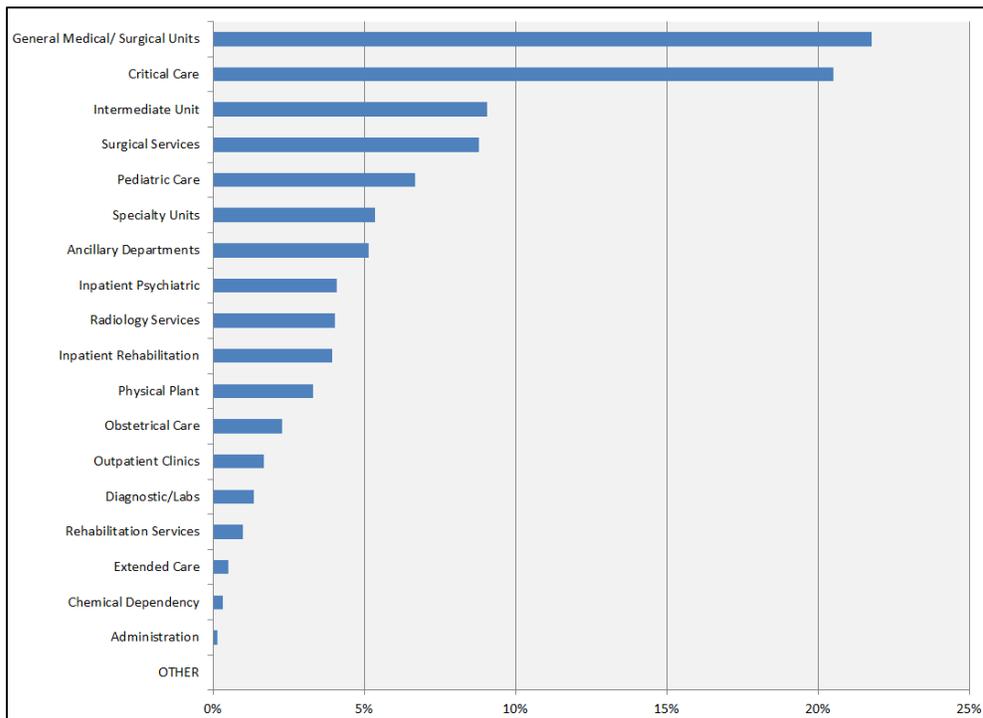


Figure 8. Reports by Location/Department (Hospitals Only, 2011)

Reports by Region and Submission Type

For the purposes of this report, the 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.

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.

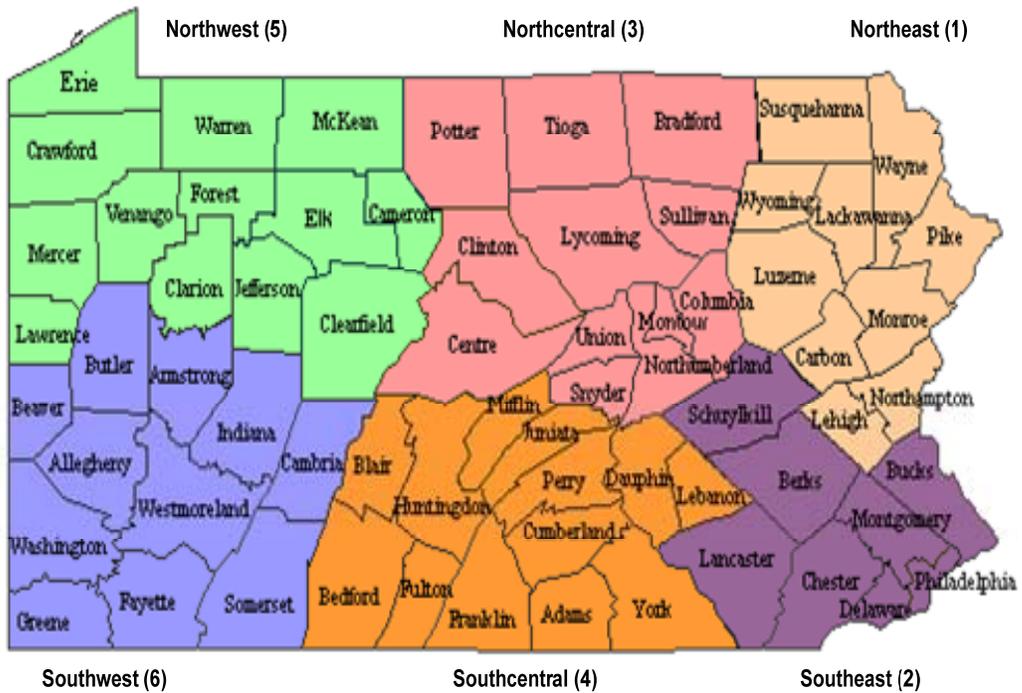


Figure 9. Public Health Districts

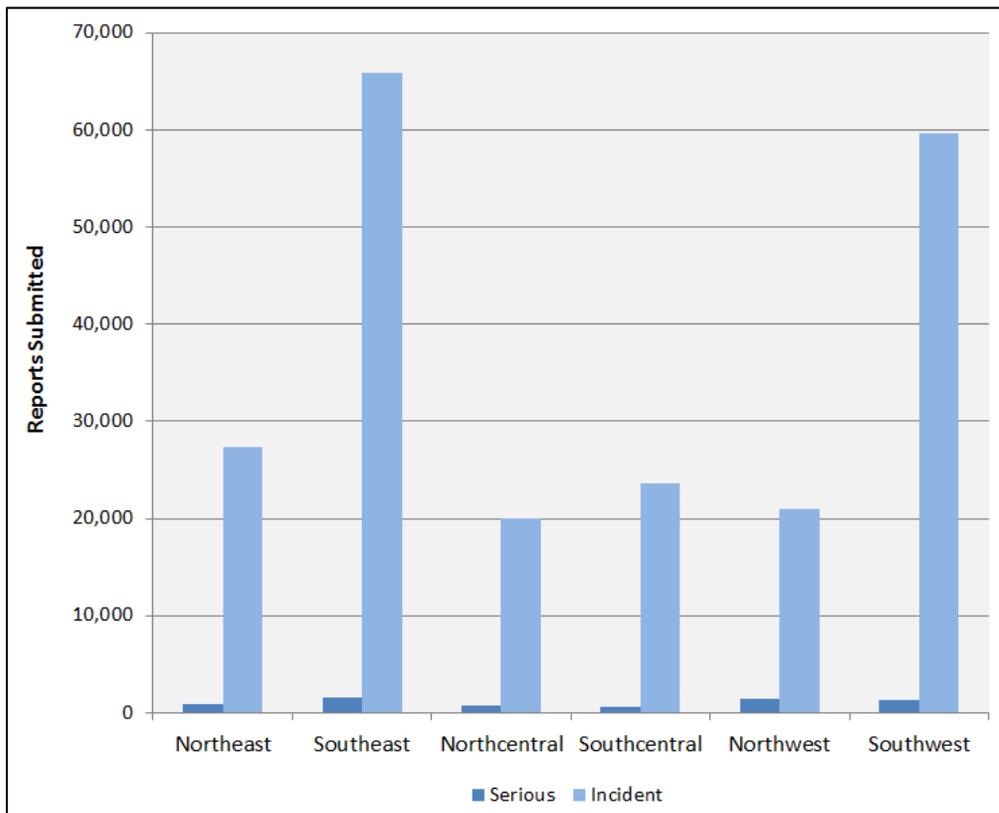


Figure 10. Number of Serious Event and Incident Reports from Hospitals, by Region (2011)

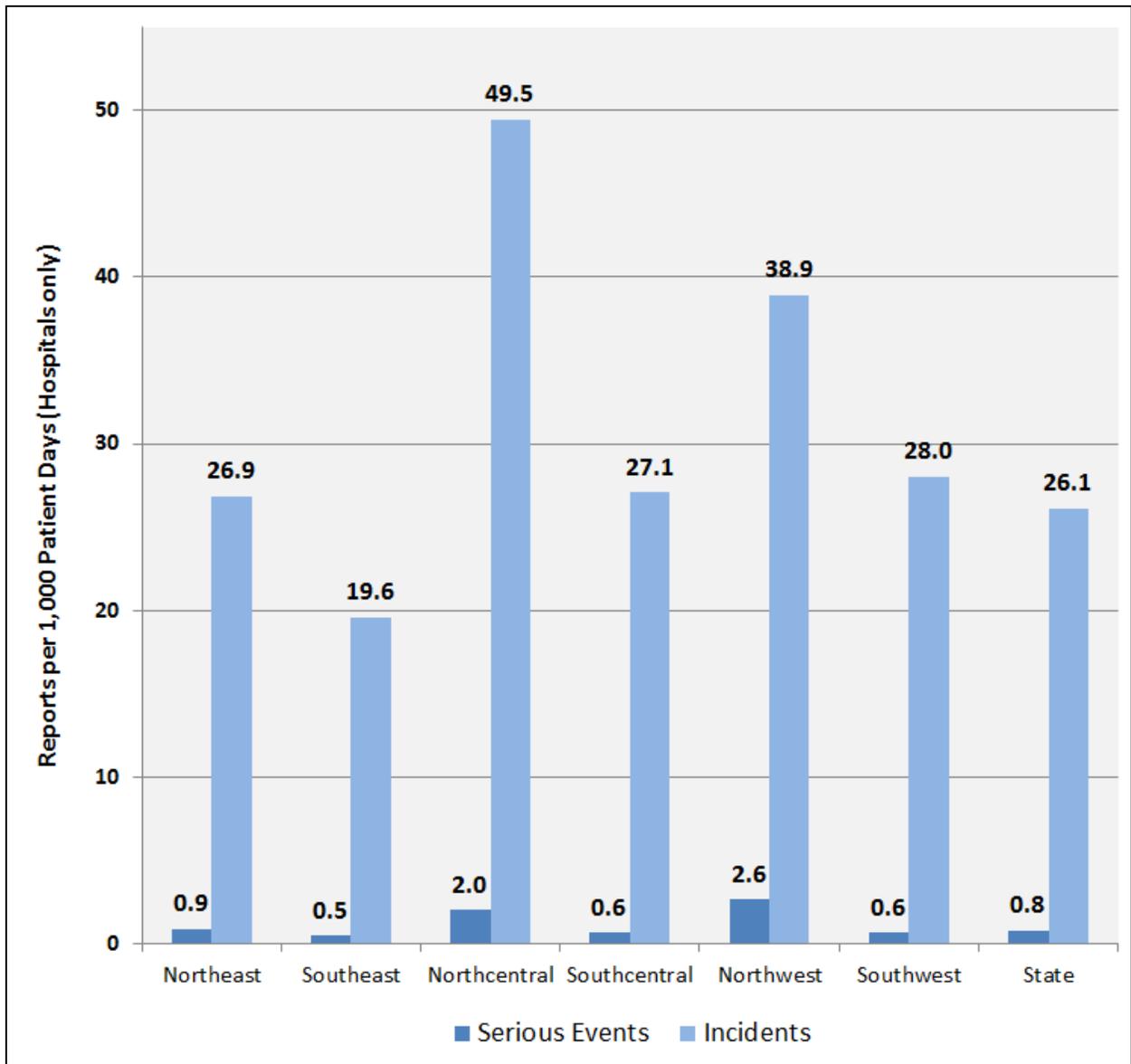


Figure 11. Reports from Hospitals per 1,000 Estimated Patient-Days by Region (2011)

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 northcentral region reported 49.5 Incidents per 1,000 patient-days, far more per 1,000 patient-days than any other region. The rest of the regions reported a range of 19.6 to 38.9 Incidents per 1,000 patient-days.

¹⁰ Based on publicly available data from the website of the Pennsylvania Health Care Containment Council (<http://www.PHC4.org>). Estimates were based on statewide inpatient data from 2010.

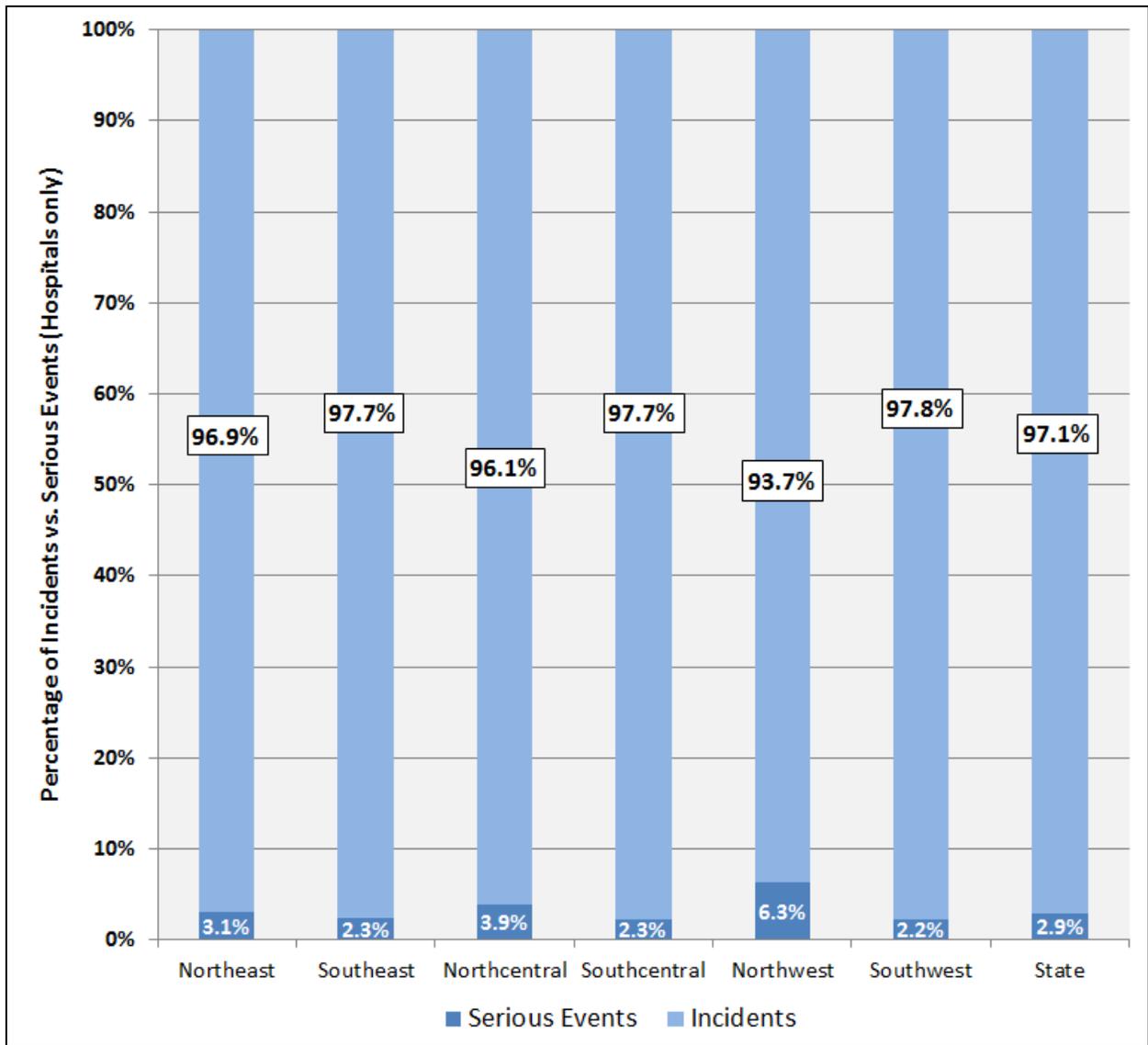


Figure 12. Percentage of Incident and Serious Event Reports from Hospitals, by Region (2011)

Figure 12 shows that the northwest region submitted a significantly greater proportion of Serious Events (6.3% of their reports) than the statewide pooled mean (2.9%). Conversely, the southwest region submitted the highest proportion of Incidents (97.8%), followed closely by the southeast and southcentral regions (97.7%).

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

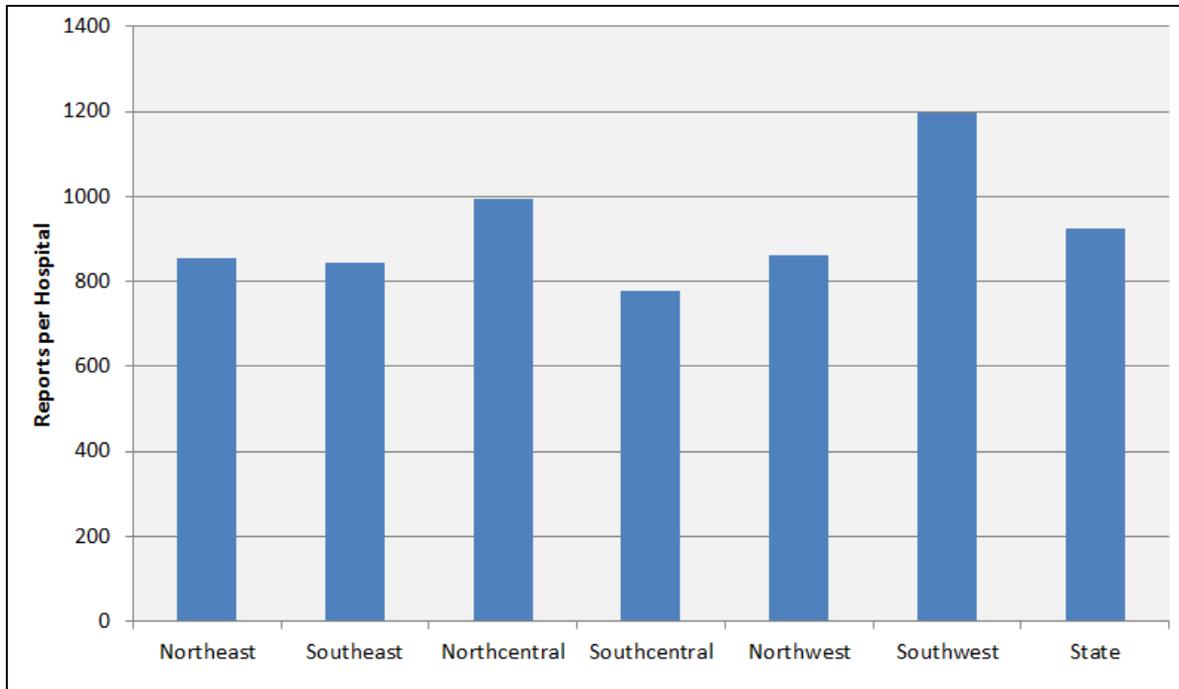


Figure 13. Number of Reports Submitted per Hospital, by Region (2011)

ADDENDUM C. 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 5,700 program affiliates (e.g., acute healthcare facilities, nursing homes, board and panel members in Pennsylvania) as of December 31, 2011. About 20% of these recipients are patient safety officers in acute healthcare facilities or infection prevention designees in nursing homes (see Figure 1).¹¹ 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).

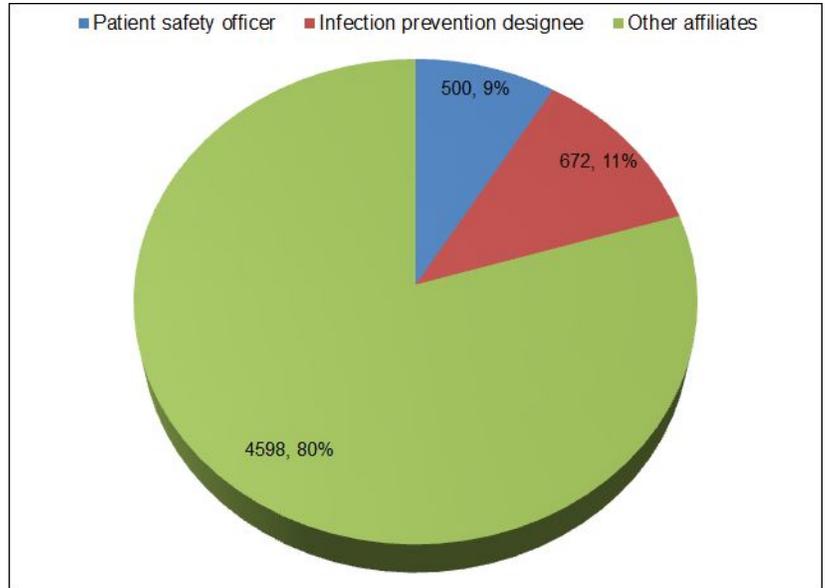


Figure 1. *Advisory Program Affiliate Distribution, as of December 31, 2011*

General Distribution

There are nonprogram subscribers in Pennsylvania, the rest of the United States, and in other countries who receive the quarterly *Advisory*. Of the total nonprogram subscribers (i.e., general distribution; n = 3,001 as of December 31, 2011), 96% are based in the United States. Of non-U.S. subscribers, the five highest by percentage are Canada (1.23%), Australia (0.40%), the United Kingdom (0.33%), Germany (0.17%), and Saudi Arabia (0.17%). (See Table 1 for a complete listing.)

¹¹ 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 Nonprogram Subscribers by Country, as of December 31, 2011

| Country | Subscribers | Percentage | (continued) Country | Subscribers | Percentage |
|----------------|-------------|------------|------------------------|--------------|-------------|
| United States | 2,881 | 96.00% | France | 2 | 0.07% |
| Canada | 37 | 1.23 | Hong Kong SAR | 2 | 0.07 |
| Australia | 12 | 0.40 | The Netherlands | 2 | 0.07 |
| United Kingdom | 10 | 0.33 | Switzerland | 2 | 0.07 |
| Germany | 5 | 0.17 | Taiwan | 2 | 0.07 |
| Saudi Arabia | 5 | 0.17 | Turkey | 2 | 0.07 |
| Malaysia | 4 | 0.13 | Aland Islands | 1 | 0.03 |
| Sweden | 4 | 0.13 | Austria | 1 | 0.03 |
| Argentina | 3 | 0.10 | China | 1 | 0.03 |
| Brazil | 3 | 0.10 | Indonesia | 1 | 0.03 |
| Lebanon | 3 | 0.10 | Israel | 1 | 0.03 |
| Philippines | 3 | 0.10 | Japan | 1 | 0.03 |
| Singapore | 3 | 0.10 | Malta | 1 | 0.03 |
| Spain | 3 | 0.10 | Mexico | 1 | 0.03 |
| Belgium | 2 | 0.07 | South Africa | 1 | 0.03 |
| Colombia | 2 | 0.07 | Total | 3,001 | 100% |

U.S. Locale

Of the U.S. subscribers (n = 2,881), Pennsylvania accounts for the greatest percentage (57.58%), followed by Illinois (2.71%), California (2.67%), Massachusetts (2.36%), New York (2.08%), and Florida (1.98%). About 6.28% of U.S. subscribers did not indicate a specific state in the subscription records and were otherwise unidentifiable by the information provided (e.g., zip code, city, e-mail address domain).

While there are no general distribution subscribers listed from Vermont, the *Advisory* does have an editorial board member who resides there; thus, the *Advisory* has subscribers located in all 50 states. (See Table 2.)

Table 2. *Advisory* U.S. Nonprogram Subscribers by State/District/Territory, as of December 31, 2011

| State | Subscribers | Percentage | (continued) State | Subscribers | Percentage |
|----------------|-------------|------------|-------------------|--------------|-------------|
| Pennsylvania | 1,659 | 57.58% | Maine | 13 | 0.45% |
| Illinois | 78 | 2.71 | South Carolina | 12 | 0.42 |
| California | 77 | 2.67 | Oregon | 11 | 0.38 |
| Massachusetts | 68 | 2.36 | Iowa | 10 | 0.35 |
| New York | 60 | 2.08 | New Hampshire | 9 | 0.31 |
| Florida | 57 | 1.98 | Oklahoma | 9 | 0.31 |
| Maryland | 50 | 1.74 | Hawaii | 7 | 0.24 |
| Ohio | 46 | 1.60 | Kansas | 7 | 0.24 |
| Texas | 46 | 1.60 | Puerto Rico | 7 | 0.24 |
| Virginia | 40 | 1.39 | New Mexico | 6 | 0.21 |
| New Jersey | 39 | 1.35 | Nevada | 6 | 0.21 |
| North Carolina | 32 | 1.11 | Mississippi | 5 | 0.17 |
| Indiana | 31 | 1.08 | Nebraska | 4 | 0.14 |
| Michigan | 29 | 1.01 | Rhode Island | 4 | 0.14 |
| Missouri | 24 | 0.83 | West Virginia | 4 | 0.14 |
| Alabama | 23 | 0.80 | Idaho | 3 | 0.10 |
| Tennessee | 22 | 0.76 | South Dakota | 3 | 0.10 |
| Washington | 22 | 0.76 | Wyoming | 3 | 0.10 |
| Washington, DC | 21 | 0.73 | Arkansas | 2 | 0.07 |
| Colorado | 19 | 0.66 | Montana | 2 | 0.07 |
| Georgia | 19 | 0.66 | North Dakota | 2 | 0.07 |
| Wisconsin | 19 | 0.66 | Utah | 2 | 0.07 |
| Louisiana | 16 | 0.56 | Alaska | 1 | 0.03 |
| Connecticut | 15 | 0.52 | Virgin Islands | 1 | 0.03 |
| Arizona | 14 | 0.49 | Vermont | 0 | 0.00 |
| Kentucky | 14 | 0.49 | Unknown | 181 | 6.28 |
| Minnesota | 14 | 0.49 | | | |
| Delaware | 13 | 0.45 | Total | 2,881 | 100% |

General Distribution Growth

The number of general subscribers has continued to grow since 2010. From January 1, 2011, through December 31, 2011, 546 new individuals personally subscribed to receive the *Advisory* (see Figure 12). Sixty percent of the new subscribers are located in Pennsylvania.

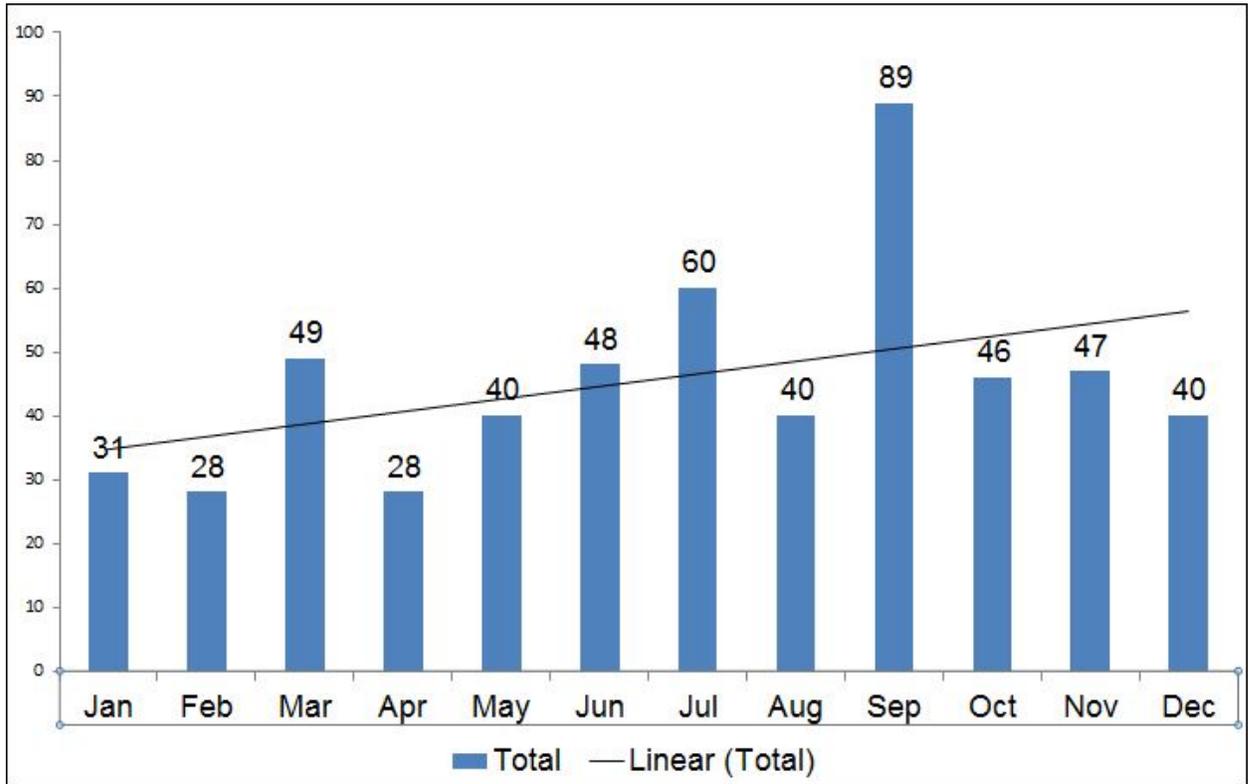


Figure 2. Advisory Nonprogram Subscribers, January 1, 2011, through December 31, 2011

Subscribers of Interest

Excluding the majority of healthcare systems and facilities, the *Advisory* is received by subscribers from organizations and agencies of note in Pennsylvania, the rest of the United States, and in other countries.

Pennsylvania organizations and agencies include the following:

- Pennsylvania Ambulatory Surgery Association
- Pennsylvania Department of Aging
- Pennsylvania Medical Society
- Pennsylvania Health Care Cost Containment Council
- Pennsylvania Department of Health
- Pennsylvania Office of the Budget
- Pennsylvania Capitol Police Department
- Planned Parenthood of Central Pennsylvania
- Pennsylvania State Board of Medicine

Federal government and other national healthcare improvement organizations include the following:

- Agency for Healthcare Research and Quality
- American Association of Critical-Care Nurses
- American College of Physicians (New York chapter)
- American Congress of Obstetricians and Gynecologists
- American Hospital Association
- American Medical News
- American Society of Health-System Pharmacists
- Association of periOperative Registered Nurses
- Board of Registration in Medicine
- Center for Devices and Radiological Health
- Centers for Disease Control and Prevention
- CHART Institute
- Consumers Advancing Patient Safety
- ECRI Institute
- Institute for Healthcare Improvement
- Institute for Safe Medication Practices
- Joint Commission
- National Academy for State Health Policy
- National Patient Safety Foundation
- National Quality Forum
- Physician Insurers Association of America
- The Empowered Patient Coalition
- U.S. Department of Health and Human Services
- U.S. Department of Veterans Affairs
- U.S. Food and Drug Administration

- U.S. National Institutes of Health
- U.S. Office of Inspector General
- United States Pharmacopeia

State government and other healthcare improvement organizations include the following:

- Alabama Department of Mental Health
- Connecticut Hospital Association
- Georgia Hospital Association
- Illinois Hospital Association
- Indiana Hospital Association
- Los Angeles County Department of Health Services
- Maryland Department of Health and Mental Hygiene
- Massachusetts Coalition for the Prevention of Medical Errors
- Massachusetts Department of Public Health
- Massachusetts Hospital Association
- Masspro
- Minnesota Hospital Association
- New Jersey Department of Health and Senior Services
- New Jersey Hospital Association
- New York City Health and Hospitals Corporation
- New York State Department of Health
- Oklahoma Department of Mental Health and Substance Abuse Services
- Oregon Patient Safety Commission
- South Carolina Department of Labor, Licensing and Regulation
- Washington State Department of Social and Health Services
- Wisconsin Department of Health Services
- Wisconsin Health and Hospital Association

Non-U.S. agencies and organizations include the following:

- Athabasca Health Authority (Canada)
- Cancer Care Ontario (Canada)
- Clinical Excellence Commission (Australia)
- Hospital Authority of Hong Kong
- Industrial Technology Research Institute of Taiwan
- New South Wales Department of Health (Australia)
- NHS Bedfordshire (United Kingdom)
- Queensland Health (Australia)
- The King's Fund (United Kingdom)

ADDENDUM D. Summaries of Select 2011 Advisory Articles

The *Pennsylvania Patient Safety Advisory* is the primary means through which the Pennsylvania Patient Safety Authority communicates with healthcare facilities about the significant trends identified in events reported through its 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 390 articles on a variety of clinical issues. In 2011, the Authority published four quarterly issues comprising 34 articles. Following are summaries of select 2011 articles.

Medication Errors in the Emergency Department: Need for Pharmacy Involvement? 2011 Mar;8(1):1-7

One of the most common care areas where medication errors take place in Pennsylvania healthcare facilities is the emergency department (ED), cited in 6% of all medication error reports to the Pennsylvania Patient Safety Authority. From August 1, 2009, through July 31, 2010, 2,569 medication error events occurred in the ED. The predominant types of errors included wrong dose/overdosage, drug omission, and wrong drug (see Table).

Table 1. Predominant Medication Error Event Types Associated with the ED (n = 1,825, 71%), August 1, 2009, through July 31, 2010

| EVENT TYPE | NUMBER | % OF TOTAL REPORTS (N = 2,569) |
|------------------------|--------|-----------------------------------|
| Wrong dose/overdosage | 452 | 17.6% |
| Drug omission | 353 | 13.7 |
| Other (specify) | 301 | 11.7 |
| Wrong drug | 269 | 10.5 |
| Wrong dose/underdosage | 180 | 7.0 |
| Extra dose | 140 | 5.4 |
| Wrong route | 130 | 5.1 |

The predominant classes of drugs associated with wrong-dose/overdosage errors were antibiotics, steroids, anticoagulant/antithrombotics, nonsteroidal anti-inflammatory drugs, and opioids. Cases involving harm suggest problems related to inaccurate patient weight and inappropriate use of HYDRomorphone. Additionally, almost half of the reported wrong-dose/overdosage events among the pediatric population involved prescribing an excessive dose.

While the majority of events involving the ED reported to the Authority did not reveal all the causes and contributing factors, healthcare facilities can strive to identify systems-based causes of the medication errors and implement effective strategies, including the following:

- Incorporate the pharmacy department into the ED medication use process.

- Institute a multidisciplinary approach to patient care in the ED (e.g., collective decision making for medication dosing, medication administration, and weight documentation).
- Limit the number and variety of medications in the ED, as well as the number of available concentrations of a medication.
- Introduce redundancies throughout the medication-use process, such as requiring independent double checks for high-alert medications and using “read-back” confirmation when communicating an order verbally or by telephone.
- Address issues involving patient weight and medication dosing, including the following:
 - Ensuring availability of equipment to obtain accurate patient weight (e.g., floor scales)
 - Expecting that obtaining accurate weights for adult patients is mandatory for medication dosing, just as it is for pediatric patients
 - Standardizing measurement systems to kilograms
- Address problems with drug information, including the following:
 - Ensuring nurses can access standardized emergency drug preparation sheets
 - Adopting a standardized approach to providing weight-based, pediatric emergency drug references in all areas of the ED
 - Providing staff with access to online, up-to-date drug information resources

For the complete article, go to

[http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/mar8\(1\)/Pages/01.aspx](http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/mar8(1)/Pages/01.aspx).

Falls in Radiology: Establishing a Unit-Specific Prevention Program

2011 Mar;8(1):12-7.

Analysis of events reported in 2009 to the Pennsylvania Patient Safety Authority found 602 falls events in radiology departments. In that reporting year, falls accounted for 8% of all events reported in radiology departments. The event data suggests that radiology staff may take precautions with patients who obviously need assistance, but radiology staff are less likely to evaluate a patient’s ability to withstand radiologic positioning modes when a falls risk is less apparent.

Radiologic service areas evident in the event reports included breast health services, computed tomography, diagnostic and interventional radiology, magnetic resonance imaging, nuclear medicine, and ultrasound. Five percent of reported falls in radiology departments were reported as Serious Events (see Figure 1) compared with 4% of reported Serious Events involving falls from all departments.

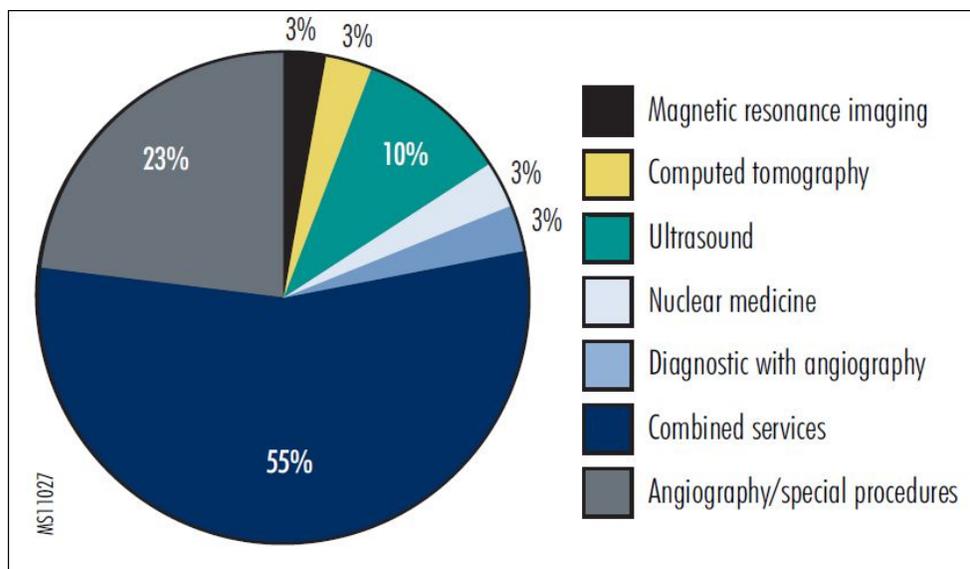


Figure 1. Radiologic Service Areas Reporting Serious Events to the Authority, 2009

More than half of the 602 reported falls events were associated with syncope; slips, trips, and loss of balance; falls from stretchers, procedure tables, or stools; and medication-related effects.

The adoption of standardized strategies to reduce falls risks helps to identify patient risk factors and could mitigate injurious patient falls in radiology departments. Strategies include the following:

- Implement unit-specific falls prevention strategies (e.g., offer falls prevention training, assess patient falls risk, involve patient and families, share event analysis results).
- Communicate patient risks between departments (e.g., use a pretransport form).
- Assess environmental safety, including patient footwear and floor spill control and slip resistance.
- Evaluate and document fall injuries in the medical record, including height of fall, whether there is loss of consciousness or resulting memory loss, position when syncope occurred, complaints of nausea or vomiting after a head injury, and obvious signs of trauma.

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

Skin and Soft-Tissue Infections in Long-Term Care

2011 Mar;8(1):34-8.

Skin and soft-tissue infections (SSTIs) are the third most common infection in long-term care facility residents, with a prevalence reported in the medical literature of 1% to 9% and

an incidence rate of 0.9 to 2.1 cases per 1,000 resident-days. SSTIs occur as skin integrity becomes more compromised with advancing age, and cellulitis and decubitus ulcer infection are two of the common types in this resident population.

From July 2009 through June 2010, Pennsylvania nursing homes reported 5,881 SSTI events (see Table 2), or a rate of 0.26 per 1,000 resident-days, which is lower than the national average.

Table 2. Rate of Nursing Home SSTIs Reported to the Authority, July 2009 through June 2010

| SKIN AND SOFT-TISSUE INFECTION TYPE | INFECTIONS | INFECTIONS PER 100,000 RESIDENT DAYS* (95% CONFIDENCE INTERVAL) |
|--|-------------------|--|
| Cellulitis | 2,849 | 12.68 (12.21 - 13.14) |
| Decubitus ulcer | 419 | 1.86 (1.69 - 2.04) |
| Vascular or diabetic ulcer | 288 | 1.28 (1.13 - 1.43) |
| Device-associated | 200 | 0.89 (0.77 - 1.01) |
| Burn-associated | 10 | 0.04 (0.02 - 0.07) |
| Other/unspecified | 2,115 | 9.41 (9.07 - 9.81) |

* Rates represented in infections per 100,000 resident days for readability.

For provision of optimal skin care, facilities can develop a formal skin breakdown and ulcer prevention program that includes the following strategies:

- Conduct skin breakdown risk assessments for all residents and reassess risk on a regular basis.
- Inspect residents' skin daily.
- Optimize residents' nutrition and hydration to maintain skin integrity.
- Manage moisture (e.g., incontinence, perspiration) to protect skin from breaking down.
- Minimize pressure on residents (e.g., turn/reposition residents every two hours, use support and pressure-reducing surfaces).

For the complete article, go to

[http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/mar8\(1\)/Pages/34.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/mar8(1)/Pages/34.aspx)

Reducing Errors in Blood Specimen Labeling: A Multihospital Initiative

2011 Jun;8(2):47-52.

Specimen identification error analysis, combined with interventions to reduce specimen labeling errors, can decrease rates of specimen identification error and contribute to improvements in patient safety. From August 2009 through October 2010, the Authority sponsored a multihospital blood specimen labeling collaboration to measure blood specimen labeling error rates, document interventions to reduce the error rate, and measure the outcomes of interventions. During the collaboration, participating facilities reported results of 485 event investigations, including 520 contributing factors. The top three contributing factors were (1) procedures not followed (n = 256), (2) distractions and interruptions (n = 70), and (3) unplanned workload increases (n = 32). The participants implemented more than 20 interventions between April and July 2010 to counter six major categories of barriers to accuracy (see Table 3).

Table 3. Summary of Blood Specimen Labeling Collaboration Barriers

| DOMAIN | BARRIERS | INTERVENTIONS |
|----------------------|--|--|
| Technology | <ul style="list-style-type: none"> Technology issues with label printing Lack of strong wireless signal throughout facility Collection technology used only by phlebotomy staff but nursing staff also collect blood specimens in some locations Lack of financial resources for information technology (IT) equipment updates Inability to print blank labels between patient label sets | <ul style="list-style-type: none"> Changed to new laboratory IT system Installed laboratory printers for labels in care areas Implemented "hold" labels with patient identification versus patient chart labels Investigated label printing option to add blanks between patient label sets Standardized location of all labels Created a bidirectional interface between multiple IT systems |
| Communication | <ul style="list-style-type: none"> Communication issues between nursing and laboratory staff Lack of teamwork and cooperation across service lines | <ul style="list-style-type: none"> Held monthly meetings with laboratory and nursing staff Addressed staff printing multiple sets of labels at once Shared case studies with staff responsible for laboratory blood specimen draws and labeling Facilitated transferring labels with patients transferred to another department; ensured all labels followed patient to next care setting Implemented a patient-specific binder system for labels |
| Education | <ul style="list-style-type: none"> Lack of knowledge regarding phlebotomy policies/procedures Physicians ordering all labs STAT to get timely results | <ul style="list-style-type: none"> Implemented mandatory competency testing for specimen labeling process Updated laboratory handbook; provided electronic version to all employees Educated staff regarding proper patient identification procedures Addressed printing of multiple label sets at same time Educated physicians regarding STAT orders |
| Staffing | <ul style="list-style-type: none"> High turnover in laboratory staff Short-staffed; phlebotomists performing 45 to 50 morning draws from a normal high of 25 morning draws Float pool staff not always aware of proper specimen labeling procedures | <ul style="list-style-type: none"> Leveled work loads Implemented new processes for student phlebotomists Permitted nursing home phlebotomists to work overtime in mornings to assist with blood specimen collection |
| Workflow | <ul style="list-style-type: none"> Lack of care area specific procedures that expedited workflow | <ul style="list-style-type: none"> Developed mini emergency department (ED) registration to make labels available at time of blood draw in ED Created patient folders to hold labels; patients to give labels to person drawing blood Added third printer to ED to facilitate label printing Began immediate bedside labeling of peripherally inserted central catheter line draws Started hourly batch printing of labels to smooth workflow |
| Leadership | <ul style="list-style-type: none"> Lack of management support Lost momentum for collaborative work; other initiatives with higher priority Loss of clinical leadership; difficult to sustain compliance with improved procedures | <ul style="list-style-type: none"> Created dashboard/scorecard for collaborative team Used dashboard for laboratory draws to focus staff attention on labeling issues Increased awareness via Pennsylvania Patient Safety Authority-sponsored posters and pins |

Of participating hospitals, six acute care hospitals submitted data about more than 1.3 million opportunities for errors. At the facility level, the decrease in labeling errors ranged from 57% to 84%.

The collaboration ended with a 37% aggregate, statistically significant decrease in specimen labeling errors (see Table 4).

Table 4. Reduction in Facility-Specific and Program-Wide Error Rates

| FACILITY | BASELINE ERROR RATES (August through October 2009) | | | POSTINTERVENTION ERROR RATES (August through October 2010) | | | CHANGE | HOSPITAL-SPECIFIC CHARACTERISTICS |
|--------------------|--|-------------|-------------|---|-------------|-------------|--------------|---|
| | Rate per 1,000 | LCL | UCL | Rate per 1,000 | LCL | UCL | | |
| A | 4.1 | 1.8 | 6.4 | 0.8 | 0.0 | 1.7 | -81%* | One care area of focus; adequate leadership support; targeted interventions |
| B | 0.6 | 0.4 | 0.9 | 0.3 | 0.1 | 0.4 | -57% | Multiple care areas of focus; adequate leadership support; targeted interventions |
| C | 0.1 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | -84%* | Multiple care areas of focus; adequate leadership support; targeted interventions |
| D | 2.5 | 1.6 | 3.3 | 0.7 | 0.4 | 1.1 | -71%* | Multiple care areas of focus; adequate leadership support; targeted interventions |
| E | 3.2 | 1.5 | 4.9 | 1.3 | 0.2 | 2.4 | -61% | One care area of focus; adequate leadership support; targeted interventions |
| F | 0.3 | 0.2 | 0.4 | 0.5 | 0.3 | 0.7 | 67% | One care area of focus; inadequate leadership support; targeted interventions |
| Pooled Mean | 0.44 | 0.36 | 0.52 | 0.28 | 0.21 | 0.34 | -37%* | |

**p* < 0.05. Test of two proportions (z-test).

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

Applying the Universal Protocol to Improve Patient Safety in Radiology Services 2011 Jun;8(2):63-9.

While much attention is garnered by patient and procedure verification that occurs in surgery, the four wrong events (wrong-patient, wrong-procedure, wrong-side, and wrong-site events) occur more frequently in radiology services than healthcare providers and patients may realize. The consequences of these events (e.g., unnecessary exposure to radiation, delay in treatment) can affect patients' well-being.

In 2009, the Pennsylvania Patient Safety Authority received 652 event reports related to wrong-procedure or wrong-test, wrong-patient, wrong-site, or wrong-site radiology errors. Failed processes accounted for these events, namely incorrect order or requisition entry, failure to confirm patient identity, and failure to follow site and procedure verification or procedure qualification processes. See Table 5.

In radiology, inadequate communication can lead to patient harm or delay in treatment. However, communication programs can improve poor safety culture if they address information gathering, documentation, handoff, and verification. Furthermore, the principles of the Joint Commission Universal Protocol for Preventing Wrong Site, Wrong Procedure,

and Wrong Person Surgery™ are transferable to radiology and can help ensure accurate patient identification and procedure scheduling and performance.

Table 5. Wrong Events by Radiologic Study Reported to the Authority, 2009

| RADIOLOGIC STUDY | WRONG EVENT | | | | NUMBER OF WRONG EVENTS | PERCENTAGE OF WRONG EVENTS |
|-----------------------------------|---------------|-----------------|-------------|------------|------------------------|----------------------------|
| | Wrong Patient | Wrong Procedure | Wrong Side | Wrong Site | | |
| Radiography | 93 | 104 | 75 | 24 | 296 | 45.4% |
| Computed tomography | 36 | 69 | 4 | 6 | 115 | 17.6 |
| Mammography | 7 | 87 | 4 | 0 | 98 | 15.0 |
| Magnetic resonance imaging | 7 | 27 | 5 | 0 | 39 | 6.0 |
| Ultrasound | 13 | 13 | 6 | 3 | 35 | 5.4 |
| Nuclear medicine | 4 | 8 | 0 | 1 | 13 | 2.0 |
| Interventional | 3 | 3 | 0 | 0 | 6 | 0.9 |
| Dexa scan | 1 | 1 | 0 | 0 | 2 | 0.3 |
| Positron emission tomography | 1 | 0 | 0 | 0 | 1 | 0.2 |
| Not specified | 31 | 14 | 2 | 0 | 47 | 7.2 |
| Total Number of Events | 196 | 326 | 96 | 34 | 652 | |
| Total Percentage of Events | 30.1% | 50.0 | 14.7 | 5.2 | | 100 |

Other strategies to mitigate preventable harm include the following:

- Advocate (at the leadership level) the development and implementation of policies and procedures that ensure that the correct patient and the correct site undergo the correct procedure before any intervention begins.
- Verify that the requisition and the medical record order are consistent in the acute care setting.
- Empower staff, before performing any study, to verify orders with the ordering physician if the orders are unclear or inconsistent with patient expectations.
- Ensure two unique patient identifiers are consistently obtained and identified by two independent technologists to accurately identify patients and meet Joint Commission standards.
- Provide technologists with the necessary training to perform radiologic studies correctly.
- Train technologists to perform radiologic studies correctly.
- Advise referring physicians to actively acknowledge misidentified patient reports or unordered results, and have radiologists report miscommunicated information to referring physicians.

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

Prevent the Occurrence of Bloodborne Disease Transmission Associated with Unsafe Injection Practices

2011 Jun;8(2):70-6.

Lapses in basic safe injection practices and infection control principles (e.g., unsafe injection practices) can expose patients to bloodborne pathogens. The Centers for Disease Control and Prevention and U.S. public health officials have identified 51 outbreaks of hepatitis B virus (HBV) and hepatitis C virus (HCV) from 1998 through 2009. More than 75,000 patients were notified about potential exposure, and at least 620 patients became infected or died with HBV or HCV as a result of exposure.

From 2004 through 2010, Pennsylvania healthcare facilities reported events of unsafe syringe use to Pennsylvania Patient Safety Authority that were associated with the delivery of injectable medications during surgery, vaccination, and bedside care.

During outbreak investigations at the national level, investigators identified the following breaches in protocol: unsafe syringe use (see Figure 2); contamination of shared medication by reused syringes; and contamination of medical equipment, supplies, and the environment.

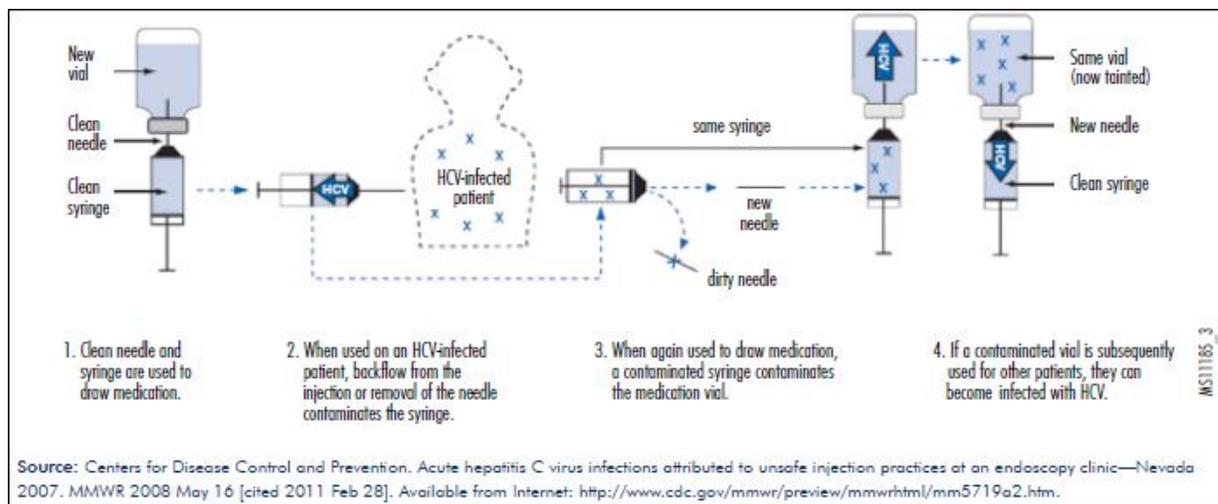


Figure 2. Unsafe Injection Practices and Disease Transmission

Preventing unsafe syringe reuse involves the following actions:

- Never use the same syringe on more than one patient, even if the needle is changed.
- Never use the same syringe to inject more than one patient, even if the user only pushes the syringe plunger and does not draw back before injecting.
- Never use the same syringe that was used to draw blood or infuse medications into an intravenous (IV) port, including from the fluid path port that is several feet away from the IV site.

Preventing contamination of shared medications involves the following actions:

- Never access a medication vial with a syringe or a needle that has already been used to administer medication to another patient.
- Never reuse medications packaged as a single dose vial on more than one patient.
- Never use a common bag of IV solution as a source of a flush or medication diluent for more than one patient.
- Never pool leftover contents from multiple vials to obtain a sufficient dose.
- Never leave a needle, cannula, or spike device inserted into a medication vial rubber stopper (even if the stopper has a one-way valve).

Preventing contamination of equipment, supplies, and the environment involves the following actions:

- Never use equipment designed for single-person use (e.g., reusable finger-stick devices, insulin pens, lancets) on more than one patient.
- Never prepare injectable medications in a contaminated workspace (e.g., where needles and syringes are dismantled and discarded).

Ultimately, the occurrence of outbreaks indicates an urgent need for a multifaceted approach focusing on improved education; surveillance, oversight, and enforcement; and safely engineered technologies aimed at ensuring safe injection practices at all levels of healthcare delivery.

For the complete article, go to

[http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/jun8\(2\)/Pages/70.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/jun8(2)/Pages/70.aspx)

Ambulatory Surgery Facilities: A Comprehensive Review of Medication Error Reports in Pennsylvania

2011 Sep;8(3):85-93.

Finding little discussion in the medical literature that quantitatively addresses medication errors occurring in the ambulatory surgical setting, Pennsylvania Patient Safety Authority analysts queried the Authority's report database for such event reports. From June

Table 5. Predominant Medication Error Event Types Associated with ASFs, June 28, 2004, through December 31, 2010 (453 of 502 events)

| EVENT TYPE | NUMBER | % OF TOTAL REPORTS (N = 502) |
|-------------------------------------|--------|------------------------------|
| Drug omission | 134 | 26.7% |
| Wrong drug | 112 | 22.3 |
| Monitoring error/documented allergy | 86 | 17.1 |
| Extra dose | 21 | 4.2 |
| Wrong dose/overdosage | 18 | 3.6 |
| Wrong dose/underdosage | 11 | 2.2 |
| Other | 71 | 14.1 |

28, 2004, through December 31, 2010, Pennsylvania ambulatory surgery facilities (ASFs) reported 502 medication error events to the Authority. For context, between July 1, 2008,

and June 30, 2009, there were 265 licensed ASFs that performed more than 960,000 procedures.

The most common types of medication errors reported to the Authority included drug omission, wrong drug, and monitoring error/documented allergy (see Table 5).

The medications mentioned in reports are representative of the variety of services provided by ASFs (see Table 6). Common reported routes of administration were intravenous (46%, n = 54), ophthalmic (23.9%, n = 120), and oral (14.1 %, n = 71).

ASFs can identify system-based causes of medication errors and implement effective risk strategies to prevent patient harm, including the following:

- Antibiotic omission
 - Use prompts in the electronic documentation of perioperative care that include time of selection and time of administration.
 - In select surgical diagnoses, review preoperative order forms to ensure inclusion of antibiotic administration, as well as specified antibiotics and timing for surgical procedures.
 - In the preoperative holding area, introduce a process to screen preoperative antibiotic orders and immediately notify physicians about problems.
 - Change the preoperative processes for antibiotic administration (e.g., ensure consistent administration of antibiotics within 60 minutes of the incision).
- Wrong-drug errors
 - Label medications and solutions that are not immediately administered, label any medication or solution that is transferred from the original packaging to another container, and verify all medication or solution labels both verbally and visually, according to the Joint Commission.
 - Provide labels that can be opened on the sterile field during all procedures.
 - Require labels on all medications, medication containers, or other solutions on and off the sterile field.
 - Differentiate look-alike drug names and products (e.g., use tall man lettering).
 - Confirm medications and labels (e.g., concurrently verify the product name, strength, and dosage from the labels).
 - Standardize and limit the variety of strengths and concentrations of medications.
 - Store medications safely and separate look-alike products.
- Documented allergies
 - On all paper and online data collection forms, standardize the location where practitioners will document and retrieve allergy information.

Table 6. Predominant Classes of Medications Mentioned in Events in ASFs, June 28, 2004, through December 31, 2010 (296 of 502 events)

| MEDICATION | NUMBER | % OF TOTAL REPORTS (N = 502) |
|--|--------|------------------------------|
| Antibiotics | 170 | 33.9% |
| Local anesthetics* | 40 | 8.0 |
| Corticosteroids | 23 | 4.6 |
| Opioid analgesic combinations* | 23 | 4.6 |
| Benzodiazepines* | 21 | 4.2 |
| Nonsteroidal anti-inflammatory agents (NSAIDS) | 19 | 3.8 |

* High-alert medication

- On prescriber order forms, add prompts at consistent locations to document allergy information.
- On patient admission forms, list patient allergies and allergic reactions, and ensure this information is transferred to subsequent forms.
- Educate prescribers and nurses about medication allergies.
- Measure the use of drugs used to treat allergic reactions to determine potential preventable adverse drug events and whether patients with documented allergies are erroneously receiving medication.

For the complete article, go to

[http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/sep8\(3\)/Pages/85.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/sep8(3)/Pages/85.aspx)

Gap Assessment of Hospitals' Adoption of the Just Culture Principles

2011 Dec;8(4):138-43.

Respondents to the Pennsylvania Patient Safety Authority's 2007 survey of Pennsylvania healthcare facilities—hospitals (n = 118) and other facilities, including ASFs (n = 82)—indicated varying degrees of implementation of just culture principles. Seventy percent of hospital respondents indicated at least some level of implementation of just culture, and 59% indicated that the just culture model was implemented hospitalwide. Similar results were reported by ASFs.

In 2010, wanting to ensure Pennsylvania facilities have an accurate understanding of just culture tenets, the Authority initiated a project to test whether facilities have more verbal commitment to just culture than is codified in facility policies and reflected in facility handling of adverse events and staff error. Ten hospitals volunteered to participate in the project in which the Authority partnered with Outcome Engineering. The latter firm developed a two-part just culture self-assessment tool that (1) measured organizational culture and (2) measured leadership perception of organizational culture.

In part 1, only one of the participating hospitals scored well, earning 20 out of 22 possible points, indicating compliance with key just culture tenets in policies, human resource practices, and investigation documentation. The majority of hospitals (seven) met just culture expectations on fewer than 50% of the assessment elements.

For part 2 (see Table 7), key leaders evaluated 20 statements that assessed perception of organizational culture. No participating hospital scored well on part 2. Of a possible score of 40 points, the average score for all participating hospitals was 9.56, or 24%.

Overall, the results of this Authority project suggest that Pennsylvania hospitals may have overestimated the degree to which the hospital is in alignment with the core principles of the just culture approach. There are opportunities to improve staff awareness about the value of reporting, the need to focus on system process redesign, and the nature and cause of human error.

Table 7. Survey of Hospital Leaders

| EVALUATION STATEMENTS | LOWEST HOSPITAL SCORE | HIGHEST HOSPITAL SCORE | AVERAGE HOSPITAL SCORE |
|---|-----------------------|------------------------|------------------------|
| 1. Managers in this organization discipline employees who make mistakes that might impact patient safety.* | -0.79 | 0.09 | -0.43 |
| 2. When a safety concern is reported, the way we work is changed to make things safer. | 0.72 | 1.76 | 1.20 |
| 3. If employees are doing something unsafe, their managers will talk to them and explain a safer way to behave or work. | 0.7 | 1.38 | 1.06 |
| 4. If employees are doing something unsafe, their coworkers will talk to them and explain a safer way to behave or work. | -0.22 | 0.84 | 0.26 |
| 5. Managers in this organization treat all employees and staff, regardless of their position in the hospital, fairly after an event involving harm to a patient. | 0.0 | 1.38 | 1.01 |
| 6. Over the past 12 months, this organization has reduced its number of safety events resulting in harm to patients. | 0.0 | 1.6 | 0.90 |
| 7. Employees and staff at this organization are reporting things they see that could impact the safety of the patients. | 0.0 | 1.3 | 0.96 |
| 8. This organization looks into "close calls"—things that could have harmed the patients but did not—to understand the underlying causes. | 0.0 | 1.82 | 1.26 |
| 9. Physicians are less likely than other staff to be disciplined in similar circumstances.* | -1.11 | 0.69 | -0.40 |
| 10. Managers in this organization talk to employees and staff about adverse events and lessons learned. | 0.53 | 1.31 | 0.95 |
| 11. Managers in this organization discipline employees and staff who intentionally endanger safety, whether or not harm occurs. | 0.8 | 1.43 | 1.16 |
| 12. Managers in this organization address safety events only if a patient is seriously harmed.* | -0.17 | 1.3 | 0.75 |
| 13. Employees will report their own mistakes that could have resulted in patient harm. | -0.11 | 0.71 | 0.31 |
| 14. Employees will report their own mistakes that did result in patient harm. | 0.21 | 1.17 | 0.83 |
| 15. Occasionally our core organizational values will be in conflict. | -0.45 | 0.8 | 0.15 |
| 16. Some patient safety events are 100% preventable.*† | -1.75 | -0.5 | -1.33 |
| 17. Our employees know they will be consoled if they make a human error. | -0.5 | 1 | 0.24 |
| 18. Our employees know they will be coached if they engage in at-risk behavior (e.g., taking shortcuts). | 0.0 | 1 | 0.54 |
| 19. Our employees know they will be disciplined for reckless behavior regardless of whether harm results. | 0.5 | 1.23 | 0.96 |
| 20. There is never an acceptable reason for an employee to violate patient safety policies and procedures.* | -1.54 | 0.17 | -0.82 |
| Score Sum (maximum possible = 40) | | | 9.56 |
| * Reverse worded and reverse scored, so that a higher score is always indicative of higher just culture alignment. | | | |
| † The project team determined after survey administration that this question, on which hospitals scored the lowest, would have been better worded to read, "Some human errors are 100% preventable." The just culture model incorporates the notion that humans are fallible and will always make errors. Systems should be improved so that they are resistant to such errors without resulting in patient harm. | | | |

For the complete article, go to

[http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/dec8\(4\)/Pages/138.aspx](http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/dec8(4)/Pages/138.aspx).

ADDENDUM E. Detailed Description of New Regional Education Programs

In 2012, the Authority will launch new educational offerings tailored to the learning needs of the individual. The Authority will develop four curricula on Just Culture™, data matters, teamwork, and root-cause analysis. Each curriculum will be a three-hour presentation that will dive deep into the content of each topic. The participants will have the option to choose any two topics they feel will expand their knowledge.

Using Teamwork and Communication to Improve Patient Safety

Due to the importance of effective teamwork and communication in the healthcare setting, the patient safety liaisons (PSLs), with the director of educational programs, will develop an in-depth program to foster the delivery of safe care to the patient. This half-day program will expand on a variety of topics related to teamwork and communication, including effective team principles, culture of safety, barriers to team performance, high-performing teams, reliability and highly reliable organizations, crew resource management, and TeamSTEPPS.

The education program will also introduce a number of useful tools to improve communication in the healthcare environment. The program will also discuss the principles of situational awareness and the shared mental model.

In September 2011 The Joint Commission identified communication as one of the top-three root causes of sentinel events over the past several years. Through this course, the PSLs hope to show participants how simple tools and a thorough understanding of the principles of teamwork and communication can increase the safety of patients at their respective institutions.

Root-Cause Analysis

Root-cause analysis is an investigative tool used for identifying the system causes of an adverse event. In response to requests for additional education regarding the use of root-cause analysis, the Authority developed a new program to fill this need. The course objectives include identifying when a root-cause analysis could be used as well as the steps involved to complete the investigation using this method.

From Data to Information: Measuring and Metrics in Patient Safety

The Pennsylvania Patient Safety Authority's new course, "From Data to Information: Measuring and Monitoring Patient Safety," offers a deeper look into the skills, tools, and techniques that are essential to the patient safety officer's role and responsibilities. Patient safety officers will have the opportunity to acquire or enhance their skills in this often-

challenging part of their work. This course is also an introduction to essential data terminology, statistical techniques, and measurement. For patient safety officers who want to gain a better understanding of how to use data and information in their patient safety program, this session will explore topics such as the identification of appropriate measures, data collection, analysis, presentation, and how to put data to work to improve patient safety.

Just Culture Education Program

One of the defining qualities of a just culture is its commitment to values that include a learning environment, an open and fair culture, safe system design, and effective management of behavioral choices. All of these concepts are addressed in the Authority's current two-day Beyond the Basics Education Program. However, attendees of the Beyond the Basics Education Program indicated that they would like to participate in a more comprehensive and detailed Just Culture™ Education Program addressing the principles of just culture and the application of the Just Culture™ Algorithm.

As a result, the Authority developed an education module designed to provide its participants the opportunity to review the principal elements of a just culture. The course helps clinicians understand Just Culture™ concepts and lets participants discuss the methodology for evaluating errors and adverse outcomes.

ADDENDUM F. 2011 Pennsylvania Collaboration Update

The Pennsylvania Patient Safety Authority has done a tremendous amount of work in Pennsylvania to engage facilities in projects to improve patient safety. The outcomes of the 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.

The Authority's collaborative learning model has the following five components:

1. The collection and analysis of reports to support the generation of evidence-based healthcare delivery best practices
2. Personal communications between the Authority's patient safety liaisons and safety experts within each licensed healthcare facility in Pennsylvania
3. A confidential electronic network—the Patient Safety Knowledge Exchange, or PassKey—to permit confidential communications among patient safety officers
4. Partnering with other institutions on focused patient safety projects
5. Use of the patient safety reporting system to assist in the monitoring of outcomes

Results from the use of this model have been encouraging as the Authority has witnessed downward trends in wrong-site surgery events for facilities that have participated in collaborative programs (see Figure 1) and a 37% decrease in mislabeled specimens for those who participated in these respective collaborations. For more information on this topic, visit the Authority's website at <http://www.patientsafetyauthority.org> and access the June 2011 *Advisory* article "The Value of Collaborative Learning for Disseminating Best Health Care Delivery Practices" by Dr. John R. Clarke.

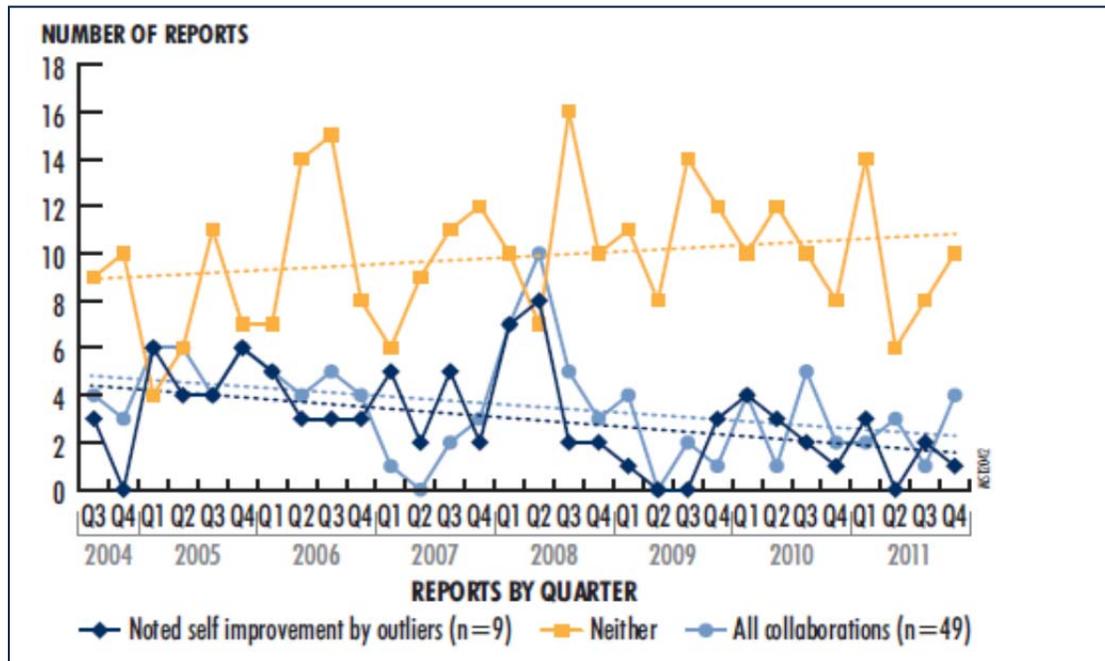


Figure 1. Wrong-Site Surgery Trends, by Intervention

The Authority's 2011 collaborations are outlined below.

Ambulatory Surgical Facility Preoperative Screening and Assessment Collaboration

In 2011, the Authority completed a statewide needs assessment of ambulatory surgical facilities (ASFs) to identify potential contributing factors to same-day cancellation of procedures and transfers to acute care. This information will be used to help in developing and piloting a screening and assessment process based on best practices and consensus in participating ASFs in the northeast region of Pennsylvania.

This collaboration began in January 2012, and the Authority is working with 11 ASFs for the 18-month project. This joint collaboration is intended to strengthen and improve patient safety by improving preoperative screening and assessment of patients in the ambulatory surgical setting. The goals of this collaboration are as follows:

- Identify potential contributing factors to the rate of same-day cancellations and transfers to acute care facilities in the ASF setting
- Develop and implement an assessment tool based on the results of the statewide needs assessment
- Develop and pilot a standardized transfer and same-day cancellation data collection tool
- Decrease rates of cancellations of procedures on the day of surgery and decrease rates of unexpected transfer or admission to an acute care hospital
- Publish deidentified results and increase awareness of safety concerns in the ambulatory setting

Surgical Site Infection Prevention Collaborative

The Authority and the Pennsylvania National Surgical Quality Improvement Program (PA-NSQIP) have been collaborating on a program to reduce surgical site infections (SSI) among the PA-NSQIP member hospitals and to transfer successful strategies and lessons learned to other Pennsylvania hospitals. 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 team is specifically focusing on two types of surgical procedures: colectomy and bariatric surgery.

In the short term, the principal outcome measures 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 site visits. Over the longer term, the consortium's goal is to demonstrate improvement by reducing the ratio of observed-to-expected SSIs based on risk-adjusted data published by the American College of Surgeons NSQIP. The consortium will track these outcomes prospectively for all participating facilities.

Wrong-Site Surgery Collaboration

During the 2011 calendar year, the Authority continued its collaboration with 19 hospitals and ASFs to implement evidence-based best practices for preventing wrong-site surgery in their operating rooms. Collaboration efforts included engagement of leadership support, identification of physician champions, data collection and gap analyses, educational workshops and conference calls, compliance monitoring, and surgical team debriefings.

The collaboration resulted in no wrong-site events in any participating operating room for more than one year. This experience reaffirmed the value of collaboration: achieving optimal outcomes through implementation of and compliance with best practices.

Southeast Pennsylvania Falls Project

In an effort to reduce falls and falls with harm in southeastern Pennsylvania hospitals, the Authority and the Health Care Improvement Foundation, an independent nonprofit organization supporting innovative efforts to improve patient care, began collaborating in 2008 on a falls reporting initiative to help hospitals focus on falls prevention. Following standardized definitions of falls and falls with harm, the initiative provided participating hospitals with two full years of hospital-specific and deidentified comparison reports to measure and benchmark progress in falls prevention. Analysis of the data collected showed five continuous quarters of steady decline in falls with harm rates.

The Authority was hopeful that this decline was the result of effective interventions and approached those hospitals that saw steady improvement to learn more about their falls prevention programs. Assessment of those prevention programs revealed that several regional hospitals had implemented effective and innovative strategies to boost falls prevention. The improvements realized by these organizations led to an Authority-sponsored, region-wide conference in June 2011, where the hospitals shared their innovative strategies in falls prevention. The success of this evidence-based initiative has led to a statewide focus on falls as part of the Hospital Engagement Network partnership with the Hospital and Healthsystem Association of Pennsylvania.

Western Pennsylvania SSI Reduction Collaborative

The Authority, in partnership with the Three Rivers Association of Professionals in Infection Control, the National Association of Professionals in Infection Control, and the Pennsylvania Department of Health initiated and facilitated a collaboration developed to promote evidence-based strategies to reduce SSIs in western Pennsylvania and to establish a list of measures to track and benchmark SSIs. The project aimed to expand the bundle of best practices advocated by the Surgical Care Improvement Project. A total of 23 facilities joined the collaborative, including two ambulatory surgery centers. The data collection was facilitated through a dedicated collaborative site on PassKey provided and maintained by the Authority. The final data collection and summary will take place in 2012.

Pennsylvania Hospital Engagement Network

In December 2011, the Authority significantly expanded efforts to improve patient safety through collaborative efforts with Pennsylvania facilities. The U.S. Department of Health and Human Services launched a campaign called Partnership for Patients that brings together leaders of major hospitals, employers, physicians, nurses, and patient advocates, along with state and federal governments, in a shared effort to make hospital care safer, more reliable, and less costly by reducing 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
- Obstetrical adverse events
- Pressure ulcers
- SSIs
- Venous thromboembolism
- Ventilator-associated pneumonia
- Preventable readmissions

The two goals of this new 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. Achieving this goal would mean approximately 1.8 million fewer injuries to patients, with more than 60,000 lives saved over the next three years.
- *Help patients heal without complication.* By the end of 2013, decrease preventable complications during a transition from one care setting to another would so that hospital readmissions are reduced by 20 percent compared with 2010. Achieving this goal would mean more than 1.6 million patients will recover from illness without suffering a preventable complication requiring rehospitalization within 30 days of discharge.

To further this initiative, the Centers for Medicare and Medicaid Services awarded \$218 million to 26 state, regional, and national hospital system organizations to serve as Hospital Engagement Networks (HENs). The Pennsylvania Patient Safety Authority partnered with the Hospital and Healthsystem Association of Pennsylvania, the Health Care Improvement Foundation, the Pennsylvania Health Care Quality Alliance, and Quality Insights of Pennsylvania in developing a Pennsylvania HEN. This group was awarded a two-year

contract to work with hospitals to reduce healthcare-acquired conditions. Approximately 130 Pennsylvania hospitals are participating in these collaborative projects.

Under the contract, the Authority is responsible for three specific patient safety event types: wrong-site surgery, patient falls, and the incorrect use of opioids. In addition, the Authority is responsible for providing initial and ongoing patient safety education to all participating facilities. This education will convey patient safety philosophies, principles, and strategies to ensure the best chance of success for both new and seasoned patient safety leaders.

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ADDENDUM G. The Authority's Annual Survey of Patient Safety Officers

In November 2011, the Pennsylvania Patient Safety Authority invited its registered primary contacts at healthcare facilities in the Commonwealth to participate in an online survey. Those contacts at hospitals and other acute care facilities are patient safety officers, and at nursing homes, these contacts are infection prevention designees. The intent of the survey was to solicit their feedback on the Authority's activities and the performance of the Pennsylvania Patient Safety Reporting System (PA-PSRS). To help influence the Authority's direction and focus over the coming year, the survey also solicited the contacts' opinions on topics such as:

- The quality of the *Pennsylvania Patient Safety Advisory*
- Their impression of the Patient Safety Liaison (PSL) program
- The infection control efforts of ambulatory surgical facilities (ASFs)
- The infection control efforts of nursing homes

Responses were collected over a 16-day period. Of the 1,168 invitees, patient safety officers and infection prevention designees from 108 hospitals, 110 ASFs, two birthing centers, six abortion facilities, and 330 nursing homes responded, resulting in a 47.6% 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.

Pennsylvania Patient Safety Advisory

As in previous surveys, patient safety officers and infection prevention designees who responded to the survey collectively gave the *Advisory* high marks on usefulness (98.9%), relevance (98.1%), readability (99.6%), scientific quality (99.8%), and educational value (99.6%). These percentages combine the positive response ratings (i.e., very or somewhat useful) to contrast negative response ratings (i.e., not useful at all). Figure 1 breaks out the response ratings in detail.

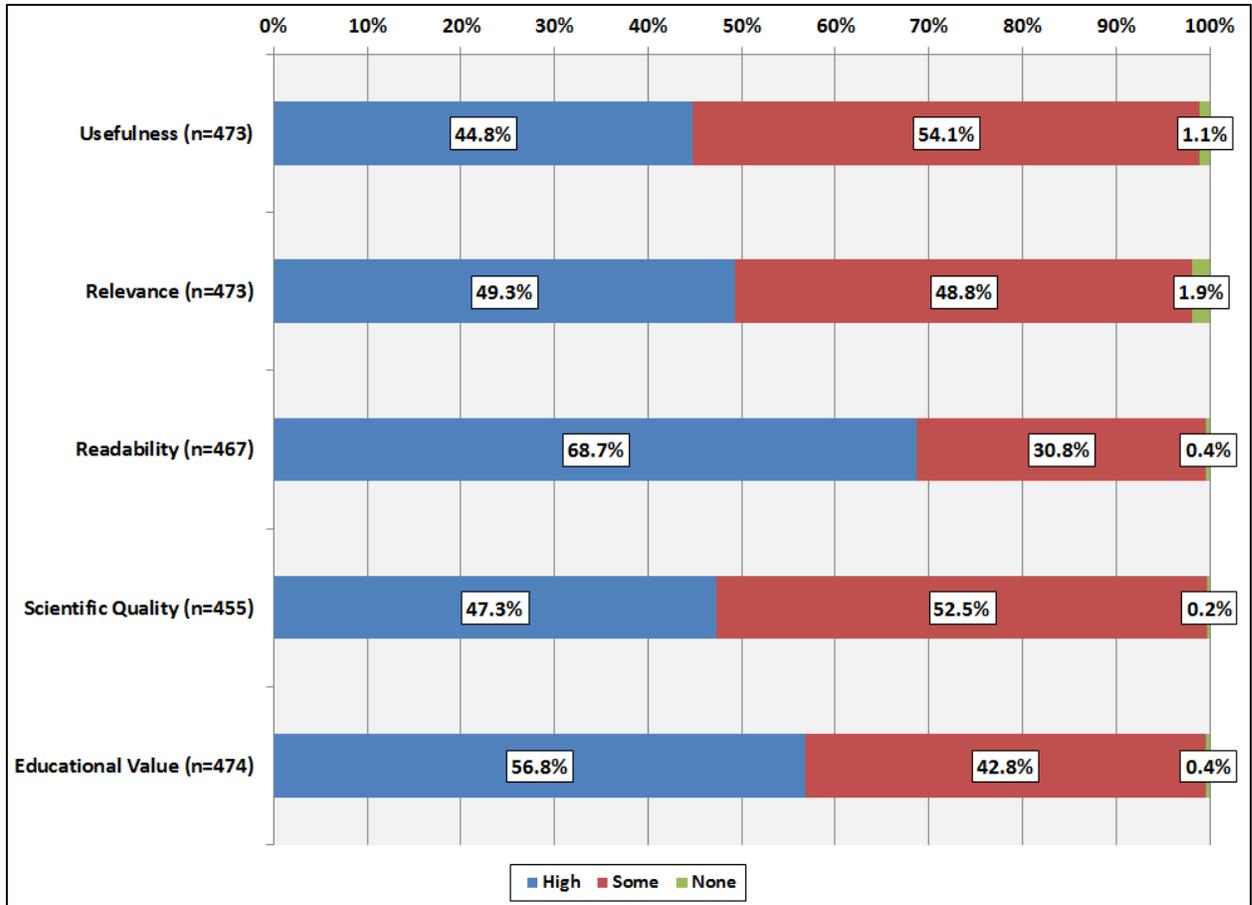


Figure 1. Responses by Percentage in Quality Categories of the *Pennsylvania Patient Safety Advisory* (n = number of responses)

Compared with last year’s marks, the percentage of responses rating each characteristic “Very” or “High” increased in three out of five cases: relevance (from 48.5% to 49.3%), scientific quality (from 40.1% to 47.3%), and educational value (from 51.6% to 56.8%). To delve into these numbers further, we see that acute care facilities had a relatively more positive view of the *Advisory* than nursing homes (see Table 1). This may be because the *Advisory* contains more articles on a broader variety of topics pertaining to acute care based on the reports the Authority receives from acute care facilities. Nursing homes are only required to report healthcare-associated infections (HAIs), limiting the scope of topics somewhat. However, the *Advisory* does contain articles on topics other than HAIs that may be of interest to nursing homes.

Table 1. Comparison of Response Percentages Related to the Advisory (n = number of responses)

| | Acute Facilities | | | | Nursing Homes | | | |
|--------------------|------------------|-------|-------|------|---------------|-------|-------|------|
| | n | High | Some | None | n | High | Some | None |
| Usefulness | 186 | 51.1% | 48.4% | 0.5% | 287 | 40.8% | 57.8% | 1.4% |
| Relevance | 185 | 55.7% | 42.2% | 2.2% | 288 | 45.1% | 53.1% | 1.7% |
| Readability | 183 | 78.1% | 21.3% | 0.5% | 284 | 62.7% | 37.0% | 0.4% |
| Scientific Quality | 176 | 52.8% | 46.6% | 0.6% | 279 | 43.7% | 56.3% | 0.0% |
| Educational Value | 184 | 56.0% | 44.0% | 0.0% | 290 | 57.2% | 42.1% | 0.7% |

Patient Safety Liaisons

Another line of questioning focused on the PSL program. The Authority has established regional PSLs who directly interact with and educate healthcare facilities. A majority (59.8%) of those who responded to the question regarding the PSL program rated the program as providing high value (see Figure 2).

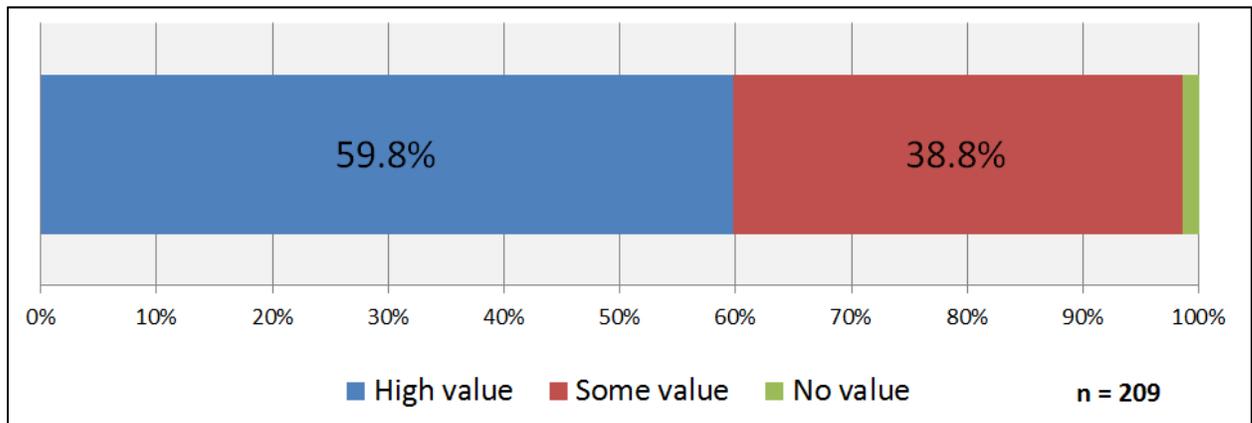


Figure 2. Responses by Percentage Rating the PSL Program (n = number of responses)

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

"I find the PSL program valuable as it puts a face to the PSA and allows easy access to someone who is knowledgeable and has a passion to be helpful in improving patient safety at our facility. Thank you!"

"All the PSLs are an outstanding group of professionals who are very approachable and knowledgeable. [PSLs have been a great support to me since I assumed the patient safety officer role."

"Initiation of the PSL program was a major improvement as it literally 'put a face' on the PSA and allows us to discuss patient safety issues in a secure, confidential setting without fear of reprisal. The networking sessions are very helpful, especially when they include an educational presentation, which I then share with our clinical staff."

"Our PSL is very approachable, making it likely that I will go to him for assistance when needed. Loved the patient safety officer Basic and Advanced Training opportunities. Would like to see this continued."

“Excellent program—bridges the Pennsylvania Patient Safety Authority with individual hospitals, PSOs [patient safety officers], and local patient safety programs.”

Infection Control Efforts of the Ambulatory Surgical Facilities

While most ASFs surveyed indicated that infection surveillance was performed at their facility, the methods used for that surveillance was wide ranging (see Table 2).

Table 2. ASF Survey Response regarding Infection Surveillance

| 192 responses (from 104 facilities) | Response ratio (of 104) |
|---|--------------------------------|
| Notification from hospital on admission for infection | 33.7% |
| Letter or phone call to patient within 30 days of procedure | 49.0% |
| Letter or phone call to patient's physician | 61.5% |
| Follow up from home healthcare professional | 12.5% |
| Other | 27.9% |

ASFs were also asked if they had an antibiotic stewardship program in place. About 15% responded that they did have a program in place; over 30% responded that they would like to learn more about antibiotic stewardship.

These facilities were also asked about methods used for handwashing surveillance, a key component of infection control (see Table 3).

Table 3. ASF Survey Response regarding Handwashing Surveillance

| 109 responses (from 107 facilities) | Response ratio (of 107) |
|--|--------------------------------|
| Observe staff openly | 38.3% |
| Observe staff secretly | 50.5% |
| Rely on staff to tell the truth about compliance | 3.7% |
| Monitor product use | 6.5% |
| Do not survey | 2.8% |

Infection Control Efforts of the Nursing Homes

Nursing homes were also asked about their infection control efforts. In a question similar to the one asked of ASFs, nursing homes were asked about handwashing surveillance (see Table 4).

Table 4. Nursing Home Survey Response regarding Handwashing Surveillance

| 320 responses | Response ratio |
|--|-----------------------|
| Observe staff openly | 51.9% |
| Observe staff secretly | 23.1% |
| Rely on staff to tell the truth about compliance | 5.0% |
| Monitor product use | 8.1% |
| Do not survey | 4.4% |

Asked about antibiotic stewardship, the nursing homes had similar response ratios as the ASFs. About 15% responded that they did have a program in place, but over 47% indicated that they would like to learn more about antibiotic stewardship.

Nursing homes were also asked whether they have a pre-season norovirus preparedness program in place. Almost 40% said they did have a program in place and one-third said they would like to learn more about such programs. When asked about having a norovirus rapid response program in place, similar numbers emerged. About 38% said they did have a program in place, and one-third said they would like to learn more about such programs.

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ADDENDUM H. Healthcare-Associated Infections

Healthcare-associated infection (HAI) refers to an infection occurring while a patient is receiving healthcare (acute or long-term) or as a result of that care. Infections are caused by bacteria, fungi, viruses, and parasites. When the patient's natural defenses are compromised because of illness, treatment, or use of advanced care, there is an increased risk of HAI. According to the Centers for Disease Control and Prevention (CDC), "approximately 1 out of every 20 hospitalized patients will contract an HAI."¹

Infections related to healthcare can be devastating for the patient. For example, when an artificial joint becomes infected, it may have to be removed, leaving the patient unable to walk. The Pennsylvania Patient Safety Authority works with clinicians to better comprehend how infections related to healthcare delivery are acquired. The Authority's access to infection event reports provides valuable insight into the systems of care that cause harm. The Authority's analysis of HAI events helps to identify trends and signals to direct infection prevention activities and to develop appropriate interventions on behalf of the patient.

Pennsylvania is a recognized leader in HAI reduction. Through addressing the challenges presented by HAI, patient harm and excess treatment costs may be avoided. The Authority pursues several avenues in order to provide frontline staff 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 Prevention, the Health Care Improvement Foundation, the Pennsylvania Health Care Quality Alliance, and other government agencies and professional associations across the spectrum of healthcare delivery.

This Addendum presents the results of the Authority's HAI activities—and in some cases the status of its work in progress. Other HAI-related analyses are presented in **Addendum D**, which summarizes selected articles from the *Pennsylvania Patient Safety Advisory*.

Encouraging Healthcare Worker Vaccination to Prevent Influenza

Despite the potential for healthcare workers to transmit the flu (i.e., influenza) to patients or residents, fewer than 65% of healthcare workers get vaccinated annually.² Low healthcare worker vaccination rates have been linked to hospital influenza outbreaks.³

In 2011, the Authority joined a multiagency collaboration to improve healthcare worker vaccination rates. The Authority's expertise in data acquisition from its Pennsylvania Patient Safety Reporting System (PA-PSRS) and CDC's National Healthcare Safety

Network was sought to see if there was a significant difference between high levels of facility-specific healthcare worker vaccination and infection rates.

Using CDC estimates of influenza deaths and mortality,⁴ combined with data from the Agency for Healthcare Research and Quality’s database on hospital inpatient admissions,⁵ the Authority conducted an impact assessment to estimate the potential effects of increasing healthcare worker vaccination rates and identified patient demographics relevant to the analysis of the link between patient safety and vaccination of healthcare workers.

Table 1 shows the age-related associations between influenza-associated death and the distribution of mortality by age group. Figure 1 shows the distribution of aggregate costs by age group. Table 2 shows the aggregate cost by payer associated with respiratory system illness.

Table 1. CDC Annual Estimates of Influenza-Associated Deaths and MortalityError! Bookmark not defined.

| Influenza-Associated Death Cause | < 19 years | 19 – 64 years | ≥ 65 years | Total |
|----------------------------------|------------|---------------|------------|-------|
| Pneumonia | 97 | 666 | 5546 | 6309 |
| Respiratory and circulatory | 124 | 2385 | 21098 | 23607 |

| Distribution of Mortality | < 19 years | 19 – 64 years | ≥ 65 years |
|-----------------------------|------------|---------------|------------|
| Pneumonia | 1.5% | 10.6% | 87.9% |
| Respiratory and circulatory | 0.5% | 10.1% | 89.4% |

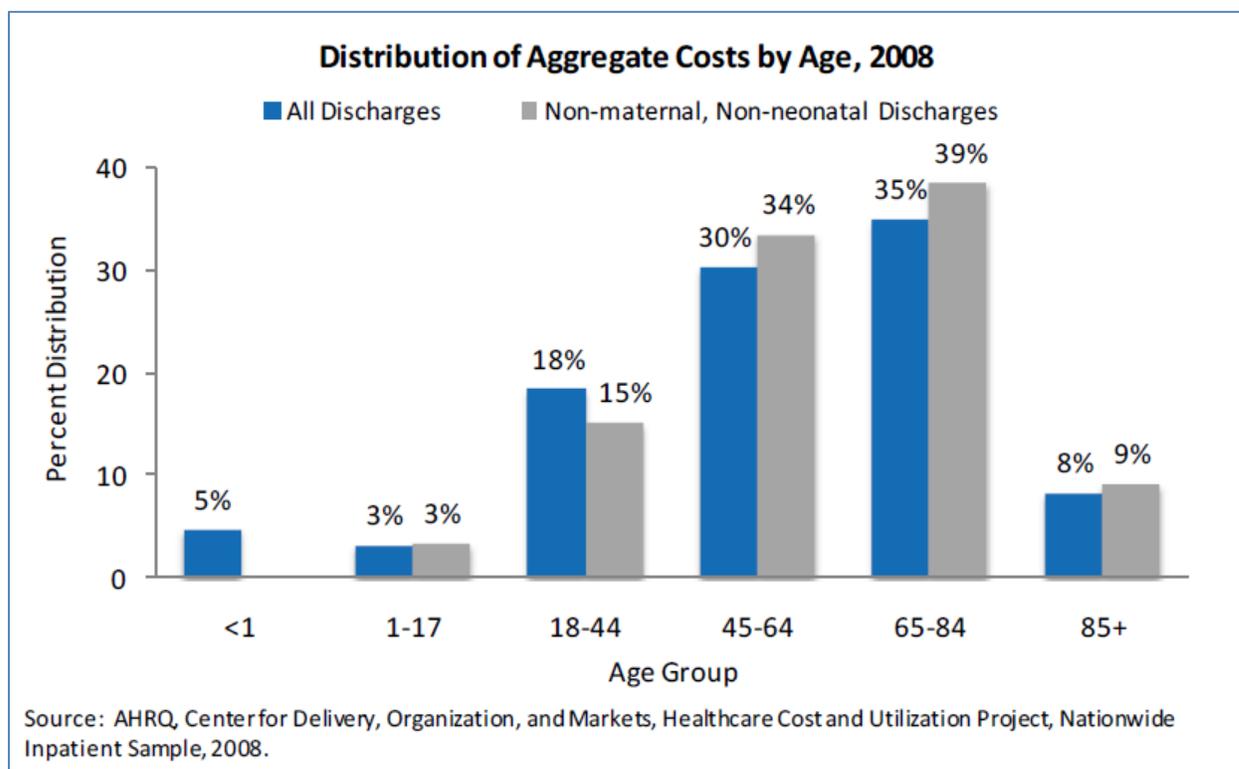


Figure 1. Discharge-Based Distribution of Cost by Age Group

Table 2. Aggregate Cost by Payer Associated with Respiratory System Illness
Aggregate Costs and Percent Distribution for each Payer by Diagnostic Category,† 2008

| | MEDICARE | | MEDICAID | | PRIVATE INSURANCE | | UNINSURED* | | OTHER** | |
|--|-----------------|---------|-----------------|---------|-------------------|---------|-----------------|---------|-----------------|---------|
| | Cost (Billions) | Percent | Cost (Billions) | Percent | Cost (Billions) | Percent | Cost (Billions) | Percent | Cost (Billions) | Percent |
| Total | \$167.9 | 100.0% | \$51.1 | 100.0% | \$117.1 | 100.0% | \$15.5 | 100.0% | \$12.6 | 100.0% |
| Circulatory System | 43.3 | 25.8 | 5.9 | 11.5 | 19.8 | 16.9 | 2.9 | 18.5 | 1.9 | 14.8 |
| Musculoskeletal System & Connective Tissue | 22.8 | 13.6 | 3.0 | 5.8 | 17.3 | 14.8 | 1.2 | 7.6 | 2.8 | 22.5 |
| Respiratory System | 24.2 | 14.4 | 5.2 | 10.2 | 9.0 | 7.6 | 1.4 | 8.9 | 1.0 | 8.1 |
| Digestive System | 16.6 | 9.9 | 3.6 | 7.1 | 11.6 | 9.9 | 1.6 | 10.5 | 1.0 | 8.2 |
| Maternal/Neonatal | 0.2 | 0.1 | 13.6 | 26.7 | 15.8 | 13.5 | 1.1 | 6.8 | 0.9 | 6.8 |
| Nervous System | 11.5 | 6.8 | 3.4 | 6.6 | 7.7 | 6.6 | 1.3 | 8.5 | 0.9 | 7.5 |
| All Other | 49.3 | 29.3 | 16.4 | 32.1 | 35.8 | 30.6 | 6.1 | 39.3 | 4.0 | 32.0 |

† Based on principal diagnosis defined by Major Diagnostic Category (MDC).
* Includes discharges classified as self-pay or no charge.
** Includes other payers such as Workers' Compensation, TRICARE, CHAMPUS, CHAMPVA, Title V, and other government programs.
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2008.

The Authority distilled several significant points from this national data. The highest percentages of individuals using healthcare services were between 65 and 84 years old. Healthcare workers are at risk for contracting influenza from, and spreading it to, this vulnerable population. The highest distribution of mortality from influenza-associated illness is in people age 65 or older. Protecting patients and healthcare workers through vaccination for influenza may decrease Medicare spending on respiratory illness.

The Authority then focused on the group identified from the national data as having the greatest influenza risk. Looking into PA-PSRS and the Authority’s annual survey for evidence of a link between healthcare worker vaccination and lower respiratory tract infections showed significantly lower infection rates in nursing homes with a mandatory influenza vaccination program. Nursing homes with mandatory worker vaccination programs had 21.5% lower combined seasonal lower respiratory tract infection (LRTI)/influenza-like illness (ILI) rates from October 2010 through March 2011 (see Table 3). Extrapolating from this difference in infection rates, 1,991 respiratory tract infections could have been prevented if all Pennsylvania nursing homes had mandatory worker vaccination programs.

Table 3. Difference in Infection Rates between Pennsylvania Nursing Homes with and without Mandatory Healthcare Worker Vaccination

| LONG-TERM CARE PROGRAM | LRTI/ILI RATE |
|------------------------|-----------------------------|
| Voluntary (n = 203) | 0.64 (95% CI = 0.62 - 0.66) |
| Mandatory (n = 18) | 0.50 (95% CI = 0.44 - 0.57) |

$p = 0.0001$ by z-test

This analysis used facilities’ self-reported mandatory worker vaccination policies as a surrogate for vaccination rates; therefore, other variables could also impact the observed difference in infection rates. For example, facilities with a mandatory policy could be more invested in infection prevention in general, and that may have influenced these findings.

The analysis conducted by the Authority was included in the statewide Pennsylvania Health Care Personnel Flu Immunization Campaign: A Patient Safety & Employee Health Initiative.⁶ Data points from this analysis were also included in HAP’s Universal Flu Immunization Programs for Health Care Personnel—Quality Best Practice Series.⁷

Strategies to Improve Outcomes in Nursing Home Residents with Modifiable Risk Factors for Respiratory Tract Infections

Pneumonia and other LRTIs are the second most common infections among nursing home residents and the leading cause of death from infections in the long-term care setting. From January through June 2011, the monthly average number of reported LRTIs in Pennsylvania nursing homes increased by 6.4%, and the number of ILIs increased by 28.2% compared with the first six months of 2010 (see Figure 2 and Table 4). The table and graph show that much of the difference between 2010 and 2011 is due to influenza. Influenza activity in early 2010 was highly unusual; the big wave of pH1N1 occurred in the fall of 2009, and there was virtually no influenza activity after that until early 2011. The pH1N1 strain that was circulating in early 2010 produced virtually no illness in the elderly, whereas the strain circulating in 2010-2011 flu season caused significant illness in the elderly. Therefore, the findings likely reflect differences in the circulating flu strains, not a dramatic difference in infection prevention quality between the two years.

Poor oral care, aspiration due to swallowing difficulty, and inadequate vaccination programs are modifiable risk factors for ILI and LRTI. Authority analysis found that Pennsylvania nursing homes with mandatory programs in place showed 42% lower mortality rates than nursing homes without mandatory programs.

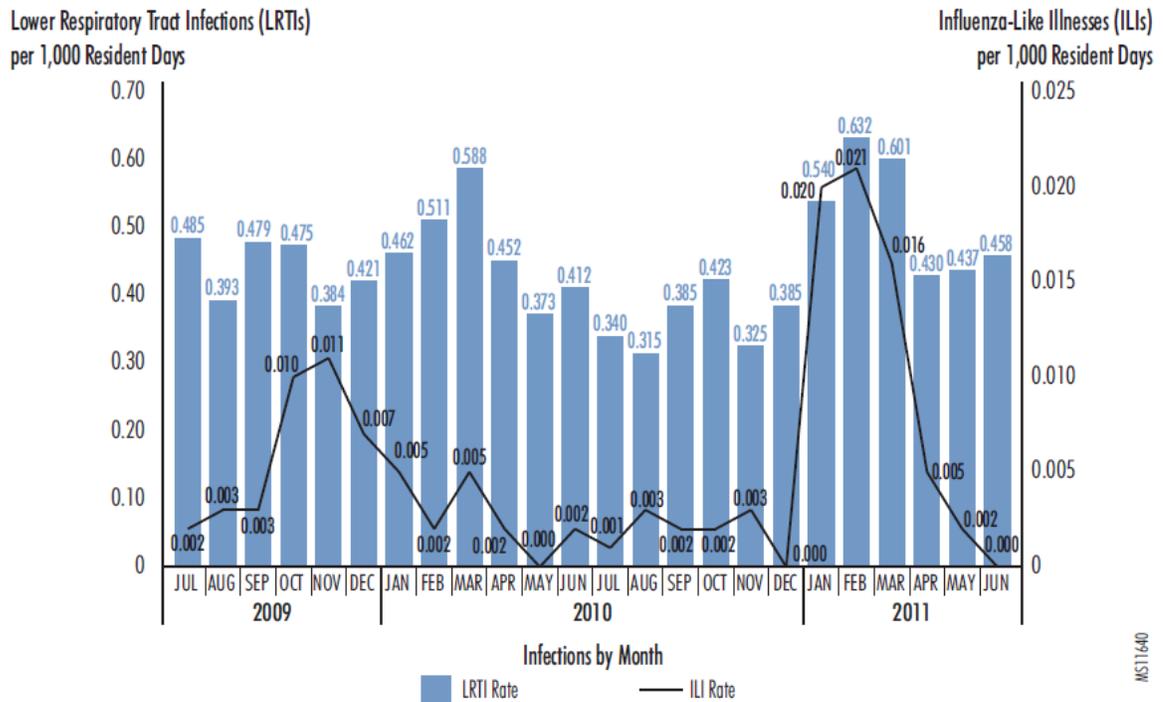


Figure 2. Respiratory Tract Infections in Pennsylvania Nursing Homes, by Month, July 2009 through June 2011

Table 4. Lower Respiratory Tract Infections in Pennsylvania Nursing Homes, January through June 2010 and 2011

| | YEARS | MONTHS | | | | | | MONTHLY AVERAGE | PERCENTAGE INCREASE |
|---|-------|---------|----------|-------|-------|-------|-------|-----------------|---------------------|
| | | January | February | March | April | May | June | | |
| No. of lower respiratory tract infections | 2010 | 1,119 | 1,137 | 1,434 | 1,060 | 903 | 968 | 1,103.5 | NA |
| | 2011 | 1,264 | 1,361 | 1,415 | 974 | 1,012 | 1,019 | 1,174.2 | 6.4% |
| No. of influenza-like illnesses | 2010 | 13 | 5 | 11 | 4 | 1 | 5 | 6.5 | NA |
| | 2011 | 47 | 46 | 37 | 12 | 4 | 0 | 8.3 | 28.2 |

The Authority provided guidance to nursing homes to address this notable increase in respiratory tract infections in the December 2011 *Advisory* article “Strategies to Improve Outcomes in Nursing Home Residents with Modifiable Risk Factors for Respiratory Tract Infections”

([http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/dec8\(4\)/Pages/131.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/dec8(4)/Pages/131.aspx).)

The *Advisory* outlines approaches to integrate evidence-based strategies into clinical practice including:

- A structured prevention program that targets intensive oral hygiene
- Identification of dysphagia
- Implementation of aspiration prevention protocols
- A commitment to implement a universal influenza vaccination program

Additional guidance was provided to nursing homes with the Authority's self-assessment questionnaire available online at [http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/dec8\(4\)/Pages/131.aspx#bm8](http://www.patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/dec8(4)/Pages/131.aspx#bm8).

The Authority will conduct a one-hour presentation titled "Targeted Methods to Improve Outcomes in Nursing Home Residents: Modifiable Risk Factors for Respiratory Infections" at the June 2012 Association for Professionals in Infection Control and Epidemiology International Conference.

Patient Safety Authority's Collaboration with the Pennsylvania National Surgical Quality Improvement Program (PA-NSQIP)

The Authority was invited to participate in a project of the Pennsylvania hospitals that are members of the National Surgical Quality Improvement Program (NSQIP), an initiative of the American College of Surgeons (ACS). The Authority was asked to facilitate and serve as the data aggregator and analyst for a program to reduce surgical site infections (SSIs) by helping the hospitals in the PA-NSQIP consortium identify how hospitals with low infection rates have extended the "bundle" of SSI prevention practices and achieved compliance with best practices. The Authority is helping the group to draw lessons on implementation and overcoming barriers to best practice implementation, and then working to transfer those lessons to other facilities.

Participating hospitals' SSI rates as reported to NSQIP were used to select two areas of study (colorectal and bariatric surgeries) and to determine which facilities are high and low outliers in those areas. The collaborative team developed an SSI Prevention Best-Practice Assessment Tool based on the ACS comprehensive list of best practices. This tool guided on-site assessment visits in November and December 2011. Interviews were facilitated by a NSQIP steering committee surgeon champion, a NSQIP hospital nurse reviewer, and an Authority staff member.

Interviews were conducted with hospital surgeons, anesthesiologists, operating room directors, quality directors, staff educators, and postanesthesia care unit and nursing staff to assess the level of implementation of specific preventive practices.

Collaborative activities for 2012 will include analyzing hospital survey results to determine differences in implementation of best practices, identifying specific interventions to be implemented in facilities needing improvement to reduce SSI in relevant areas, and developing plans to roll out those interventions in hospitals with higher infection rates.

A Pilot Program in Western Pennsylvania to Reduce SSIs

The Pennsylvania Patient Safety Authority was invited to serve as the data broker for hospitals participating in the western Pennsylvania SSI prevention bundle expansion pilot. This program aimed to expand the bundle of best practices advocated by the national Surgical Care Improvement Project (SCIP), decreasing the overall incidence of SSIs. The practices identified for adoption aimed at reducing colonization of patients with potential pathogens. Within the cohort of participating facilities, while compliance with the basic SCIP practices was high, the rate of SSIs has not decreased. Compliance with the SCIP measures is proven to reduce risk to the surgical population. However, the constellation of surgical procedures and patients is large and diverse. Many surgical cases are emergent, allowing no time for complete risk mitigation.

The western Pennsylvania SSI prevention bundle is a screening and decolonization intervention that targets all skin pathogens but focuses especially on *Staphylococcus aureus*. While the interventions target all endogenous (i.e., native to the patient) skin bacteria, *S. aureus* is usually the easiest to detect at screening so the proper interventions can be assigned for each patient.

Of the participating facilities, five were able to institute the expanded bundle. Among those five facilities, seven surgical service lines were targeted for analysis. The analysis included facilities with the most complete data sets available from March to November 2011. Compliance was measured with metrics such as the proportion of patients receiving screening, patient compliance with decolonization, and the proportion of patients identified as positive for *S. aureus* who use mupirocin treatments.

Even among the five facilities with complete data, compliance with the intervention never reached full implementation of all of the bundle components. Therefore, the Authority did not examine infection rates, as these would not be expected to change in the absence of high compliance. Participating hospitals that submitted data are to be commended for implementing the intervention to the extent represented. Although not noticeable in the aggregate, some facilities were able to achieve noticeably higher compliance in a rather short time. Barriers to implementation cited by participants in informal surveys included lack of time to commit to the project, inability to collect compliance data, underestimation of resources needed to implement the intervention, and inadequate administrative support, likely related to the underestimation of resources required to implement the intervention.

Based on the lack of facilities able to implement the intervention, the limitations seem to be significant without specific administrative support. Future planning of a project of this sort will require informed, involved, and committed administrative support. Once fully informed

of the needs related to such a comprehensive decolonization project, leadership needs to be instrumental in the following:

1. Assigning individual staff to the project and allowing adequate time to complete tasks
2. Becoming involved in allocating resources needed in order to design systems of care capable of delivering the intervention
3. Assigning resources for collecting compliance data
4. Being fully informed of the level of support and cost associated with such an endeavor

However, these limitations are lessons that are incredibly valuable for this type of intervention to be successful. There are always several disciplines of business and clinical systems to consider before and during implementation of a project across clinical lines. Through these lessons learned, it is possible to design improved systems through the analysis of the defects.

Lessons learned from this pilot program are being incorporated into the SSI reduction initiative under the Pennsylvania Hospital Engagement Network, in which the Authority is partnering with HAP and others.

Assessment of HAI Prevention Practices in Pennsylvania Nursing Homes

The ongoing number of deficiency citations for infection control problems and reports of variability in implementation of infection control practices suggests the need for increased emphasis and research focusing on identifying barriers to infection control best practices in long-term care facilities.^{8,9} In fall 2010, the Authority launched the Long-Term Care Best-Practice Assessment Project to:

- Identify best practices in nursing homes demonstrating successful infection prevention efforts
- Collaborate with facilities with high infection rates to remove barriers to implementation of evidence-based practices
- Provide education and best-practice strategies to nursing homes reporting high infection rates
- Study the impact and correlation of various levels of implementation of infection control best practices on nursing homes' infection rates
- Assess patterns of care that could be targeted for improved quality

Authority infection prevention analysts designed the Long-Term Care Best-Practice Assessment Tool to assess the structure and function of nursing home infection control programs by measuring the level of implementation of current best practices in seven domains: hand hygiene, environmental infection control, outbreak control, prevention of urinary tract infections, prevention of respiratory infections, prevention of skin and soft

tissue infections (SSTI), and prevention of gastrointestinal and resistant organism infections. Questions in each category are based on their consistency with the current evidence-based guidelines and on the following elements:

- Infection control goals are consistent with the facility infection control written plan and are updated at least annually.
- Infection control policies and procedures are up to date and reviewed annually.
- Education on infection control goals and policies is in place and documented.
- Standard documentation methods are in place.
- Process and outcome measures are evaluated.
- Accountability is assigned for administrative support, resources, and implementation of best-practice strategies.

The tool was provided to the nursing homes for self-assessment use prior to on-site visits. Based on the study results, Pennsylvania long-term care facilities will be invited to participate in a coaching program series aimed at sharing best practices and methods identified through the survey to overcome barriers to implementation.

Activities to date include:

- Ten nursing homes with high and low infection rates were identified (i.e., 10 in each group).
- Infection prevention analysts conducted on-site assessment visits for each of the facilities, utilizing the Long-Term Care Best-Practice Assessment Tool, interviews, clinical observation, and record reviews. Visits were completed in October 2011.
- The analysts collected metrics from the assessment tool to identify best-practice compliance or opportunities for improvement.
- The analysts developed a formal report for each nursing home containing the results of the assessment, opportunities for improvement, and information on follow-up activities.
- High-performing facilities have volunteered to participate in the coaching program to share their methods of success.

The findings from these assessments are now being synthesized for publication in an upcoming issue of the *Advisory* and to design the Nursing Home Best-Practice Coaching Program modules. The Long-Term Care Best-Practice Assessment Tool has been updated to reflect new guidelines for norovirus and will be published on the Authority website with the June 2012 *Advisory*. Interviews with staff from the nursing homes with high rates will be conducted to determine application of the Authority's suggestions for improvement from the initial visit, assess the potential impact on the facility's HAI rates, and provide continued guidance and education to remove barriers to HAI prevention best practices.

Central Line-Associated Bloodstream Infection (CLABSI)

According to the Pennsylvania Department of Health, the overall statewide CLABSI rate in 2010 was 0.93 per 1,000 central line-days, a 24.4% decrease over the previous year.¹⁰ While the Authority hopes to see this rate continue to decline, there are areas of CLABSI prevention that are being overlooked. The Authority analyzes not only facilities' infection rates, but also data on compliance with the clinical practices that can influence HAI rates. The aggregate statewide data on outcome and compliance can identify trends that may go unnoticed at the facility level.

For example, in 2010 the *Advisory* article “Beyond the Bundle: Reducing the Risk of Central Line-Associated Bloodstream Infections” ([http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2010/mar18_7\(suppl1\)/Pages/01.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2010/mar18_7(suppl1)/Pages/01.aspx)) highlighted a lack of compliance with best practices related to central line care. The article led to the development of a self-assessment tool designed to document gaps in the foundation of central line care and also provided surveillance techniques to help facilities assess best practice. The tools from that article were used by HAP as part of an assessment for their comprehensive unit-based safety program, which focused on CLABSI prevention.

The ability to assess the entire CLABSI prevention program utilizing a simple, straightforward tool is essential in order to guide resources. The CLABSI program assessment tools will be used in 2012 as part of prework for facilities that choose to participate with HAP in the Pennsylvania Hospital Engagement Network efforts in reducing CLABSI.

Infection preventionists are responsible for a wide gamut of prevention and control efforts across healthcare delivery systems. A survey of Society for Healthcare Epidemiology of America members found that hospital epidemiology and infection control departments experienced an increase in responsibilities and scope, while in many instances resources were below levels recommended by expert panels in the peer-reviewed literature.¹¹ Realizing preventionists have broad responsibilities, limited resources, and competing priorities, the Authority turned to the data to investigate ways to help Pennsylvania infection preventionists allocate resources.

The focus of the 2011 *Advisory* article “Central-Line-Associated Bloodstream Infection: Comprehensive, Data-Driven Prevention” ([http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/sep8\(3\)/Pages/100.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/sep8(3)/Pages/100.aspx)) was to look at central line care through the use of state data in order to make the best of available resources for the prevention of CLABSI. This analysis demonstrated that the majority of CLABSIs occurring in Pennsylvania acute care facilities have been late onset infection. Of the 653 central line-related infection events reported in 2010, 468 (71.7%) occurred after day five (see Figure 3). Having tackled most problems with catheter insertion, facilities now may need to direct their resources toward catheter maintenance.

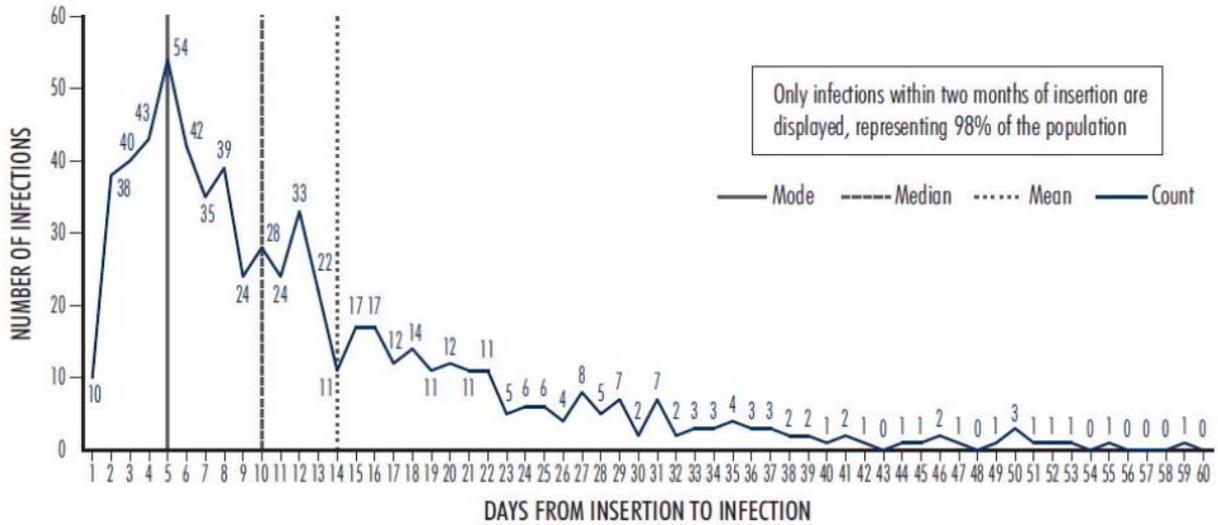


Figure 3. Time Distribution of CLABSI for Pennsylvania Facilities in 2010

Figure 4 below represents 104 Pennsylvania facilities that reported data for both CLABSI and time of central venous catheter insertion in 2010. Individual facilities were listed based on total number of infections, then numbered and deidentified. This distribution of infection implicates maintenance as the phase in which CLABSI most likely develops.

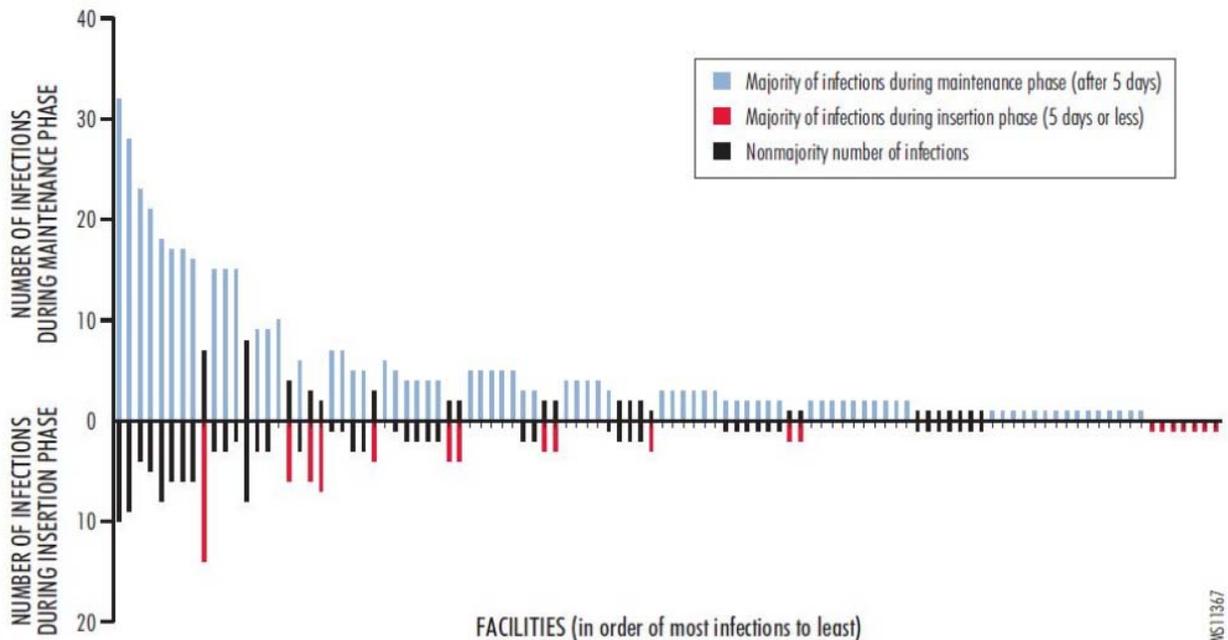


Figure 4. Time to CLABSI as Reported by Pennsylvania Facilities in 2010, Insertion versus Maintenance

In an interview for the Hospitalist (available at http://www.the-hospitalist.org/details/article/1435613/The_Five-Day_Blues_A_New_Delineation_for_Late-Onset_Central-Line_Infections.html), CLABSI expert Marcia Ryder, PhD, MS, RN, says “the [Authority] study is the first to obtain a clear picture of the average time to event from a large hospital-based data set.” Dr. Ryder also noted that “the results [of the Authority study] also strongly suggest that most CLABSIs [in Pennsylvania] are caused by maintenance failures and bacterial biofilm formation in the catheter’s internal lumen rather than insertion problems and the presence of an extraluminal biofilm.”¹²

This type of infection data analysis provided by the Authority analysts is a key to effective allocation of resources toward the further prevention of CLABSI.

Skin and Soft Tissue Infections in Long-Term Care

SSTIs are the third most common infection in long-term care facility residents, with a reported prevalence of 1% to 9% and an incidence rate of 0.9 to 2.1 cases per 1,000 resident-days.¹³ Cellulitis and infected pressure/decubitus ulcers are two of the most common types of SSTIs in the nursing home population.¹⁴

Twelve months of preliminary data on SSTIs from Pennsylvania nursing homes reflects a rate of 0.26 infections per 1,000 resident-days, which is lower than the national average. The most likely reason for the lower rate is the unique set of criteria that was developed in Pennsylvania for the purpose of mandatory reporting.¹⁵ The criteria do not include infections such as conjunctivitis, ear infections, and herpes zoster, which are included in national data. The criteria also narrow the risk of reporting noninfected decubitus ulcers as infections and hospital- or ambulatory-surgery-associated surgical site infections as SSTIs.

Table 5 presents the number of infections and rates for SSTI subtypes. Consistent with national findings, these reports reflect that cellulitis and decubitus ulcer infections were the most predominant among the specific etiologies.

Table 5. Rate of Nursing Home SSTIs Reported to the Authority (July 2009 to June 2010)

| SKIN AND SOFT-TISSUE INFECTION TYPE | INFECTIONS | INFECTIONS PER 100,000 RESIDENT DAYS* (95% CONFIDENCE INTERVAL) |
|-------------------------------------|------------|---|
| Cellulitis | 2,849 | 12.68 (12.21 - 13.14) |
| Decubitus ulcer | 419 | 1.86 (1.69 - 2.04) |
| Vascular or diabetic ulcer | 288 | 1.28 (1.13 - 1.43) |
| Device-associated | 200 | 0.89 (0.77 - 1.01) |
| Burn-associated | 10 | 0.04 (0.02 - 0.07) |
| Other/unspecified | 2,115 | 9.41 (9.07 - 9.81) |

* Rates represented in infections per 100,000 resident days for readability.

The Other/unspecified category includes reportable SSTIs that do not fit under the subtypes and those for which the etiology was not declared.

The March 2011 *Advisory* article titled “Skin and Soft-Tissue Infections in Long-Term Care” ([http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/mar8\(1\)/Pages/34.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/mar8(1)/Pages/34.aspx)) highlights key areas of infection delineated by type in order to provide long-term care facilities an assessment of where to direct resources to prevent the SSTIs that were the most prevalent. The article was a comprehensive guide to the best practices associated with prevention of skin breakdown and maintenance of skin integrity. If skin is intact, there is no portal for organisms to enter the skin and cause infection.

SSTIs are painful, expensive, and unnecessary, as well as associated with an increase in resident morbidity and mortality. The *Advisory* highlights that maintenance of skin integrity is an ongoing process in long-term care facilities and is vitally important to preserve the resident’s long-term health and well-being.

Controlling the Threat of Annual Norovirus Outbreaks

Norovirus is an emerging, highly contagious virus recognized nationwide as the principal cause of worldwide outbreaks of acute gastroenteritis.¹⁶ Recurring, annual attacks of norovirus in healthcare facilities often result in significant financial and operational burden, negatively impact patient and staff safety, and can cause severe and sometime fatal illness. According to CDC, outbreaks of acute gastroenteritis in Pennsylvania increased 443% from 2005 to 2006, significantly higher than the 250% increase from all other reporting states (Table 6).

Thirty-two percent (32%) of the outbreaks in Pennsylvania occurred in nursing homes. Norovirus was confirmed in 66% of the Pennsylvania outbreaks occurring in 2006 (see Table 6).¹⁷ The reports of non-*Clostridium difficile* acute gastroenteritis cases in Pennsylvania nursing homes increased from 633 cases in the third quarter of 2009 to 812 cases in the fourth quarter of 2009 and then surged to 4,040 cases in the first quarter of 2010. Pennsylvania hospitals also reported an increase in non-*C. difficile* acute gastroenteritis in the first quarter of 2010 (see Figure 5).

Table 6. Number and Percentage of Reported Acute Gastroenteritis Outbreaks, by State, Number in Long-Term Care Facilities, and Number with Norovirus Confirmed in Other States 2005 and 2006

| STATE* | NO. OF OUTBREAKS DURING OCTOBER–DECEMBER 2005† | NO. OF OUTBREAKS DURING OCTOBER–DECEMBER 2006† | % CHANGE FROM 2005 TO 2006 | OUTBREAKS IN LONG-TERM CARE FACILITIES, OCTOBER–DECEMBER 2006‡ | | OUTBREAKS WITH NOROVIRUS CONFIRMED,§ OCTOBER–DECEMBER 2006‡ | |
|---------------------|--|--|----------------------------|--|----|---|----|
| | | | | No. | % | No. | % |
| Pennsylvania | 7 | 38 | 443 | 12 | 32 | 25 | 66 |
| Other States Total* | 365 | 1,278 | 250 | 750 | 59 | 357 | 28 |

* Only states that reported at least five outbreaks during October through December 2005 and October through December 2006 were included.

† Date of outbreak onset.

§ Confirmed by reverse transcriptase–polymerase chain reaction.

Source: Norovirus activity—United States, 2006–2007. *MMWR Morb Mortal Wkly Rep* 2007 Aug 24;56(33):842–6.

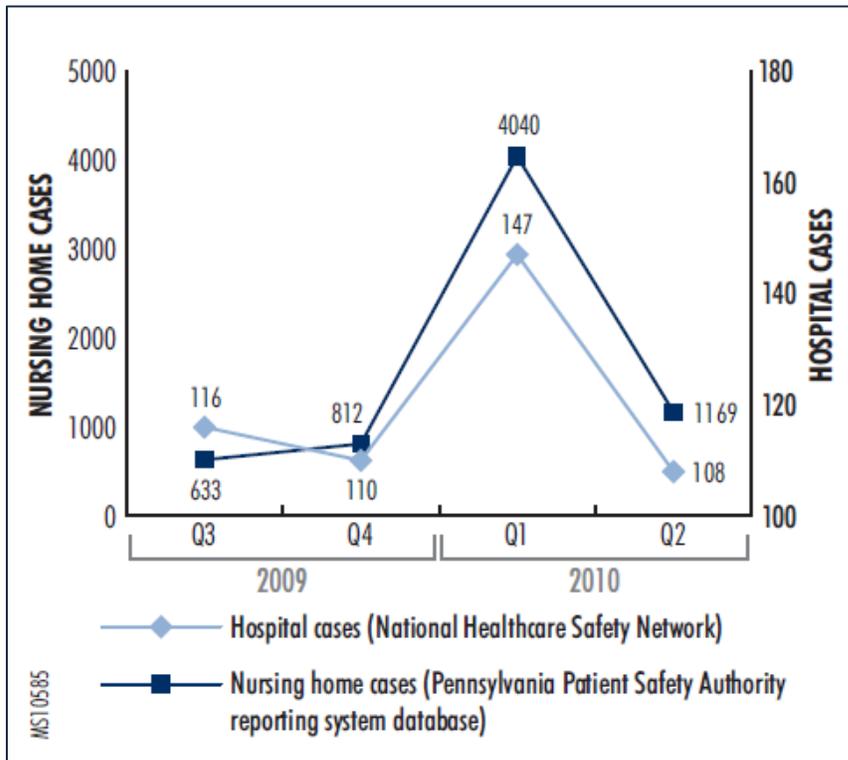


Figure 5. Non-*C. Difficile* Acute Gastroenteritis Reports from Pennsylvania Healthcare Facilities, July 2009 through June 2010

The Authority’s response to the ongoing high incidence of non-*C. difficile* acute gastrointestinal infections incorporated a multifaceted statewide educational program including :

- The December 2010 *Advisory* article, toolkit and self-assessment quiz “Controlling the Threat of Annual Norovirus Outbreaks” ([http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2010/dec7\(4\)/Pages/141.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2010/dec7(4)/Pages/141.aspx)).
- The September 2011 statewide webinar “Designing a Norovirus Prevention and Rapid Response Program: An Evidence-Based Approach” demonstrated methods to assess factors that increase the potential for a norovirus outbreak, identified key components of a norovirus prevention and rapid response plan, and outlined how to translate evidence-based interventions into actionable facility practices that impact norovirus. Approaches were explained to advance the infection prevention staff and leadership’s knowledge and skill in development of sustainable solutions to reduce and mitigate the impact of a norovirus outbreak in their facilities.
- The video Norovirus Preparedness posted on the Authority website and on YouTube emphasizes the importance of having protocols for preventive measures in place before norovirus season arrives, including assuring sufficient resources, preparing education materials, monitoring hand hygiene practices, and clearly designating staff tasks and communication responsibilities.

- The Authority’s unique norovirus program was also highlighted in the presentation “Designing a Norovirus Prevention and Rapid Response Program: An Evidence-Based Approach” at the annual meeting of the Association for Professionals in Infection Control and Epidemiology in June 2011.
- In fall 2011, there were orders of more than 1,250 copies of the Authority’s safety posters “Norovirus: What You Should Know” (for consumers) and “Stop the Spread of Norovirus” (for healthcare workers). These posters (see Figure 6) are also available for download from the Authority website.

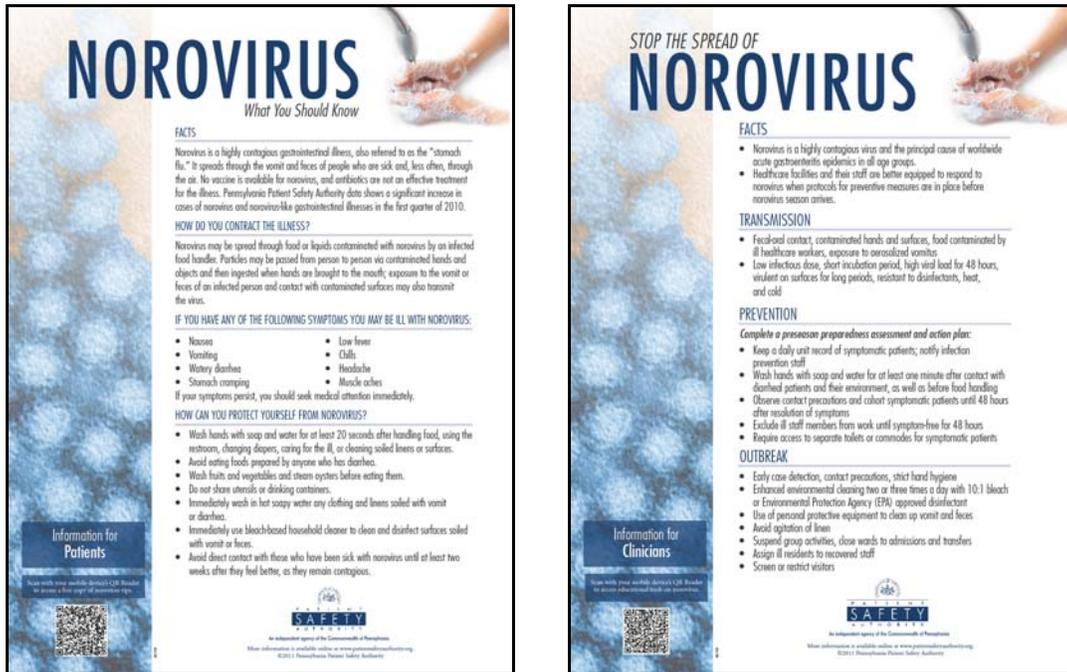


Figure 6. Norovirus Consumer and Clinical Posters

Of the nursing homes that responded to the Authority’s annual survey, 24.5% reported that the norovirus *Advisory* article led to changes in their facility, and 40.6% of respondents used the Norovirus Preparedness Checklist tool. Facilities commented that the norovirus tools were used for education, protocol design, team development, policy changes, and early response activities. Authority analysts will continue to examine the incidence of norovirus and acute gastroenteritis in Pennsylvania healthcare facilities and assess the need for continued education and guidance.

Injection Safety

Lapses in basic safe injection practices have resulted in outbreaks of hepatitis infections across the nation in hospitals, nursing homes, ambulatory surgical facilities, and outpatient clinics. The Authority addressed this widespread problem in the June 2011 *Advisory* article “Prevent the Occurrence of Bloodborne Disease Transmission Associated with Unsafe Injection Practices”

([http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/jun8\(2\)/Pages/70.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/jun8(2)/Pages/70.aspx))

highlighting PA-PSRS reports of unsafe injection practices and focusing on risk reduction strategies and the science behind safe injection best practices aimed at overcoming the myriad misperceptions leading to risky behavior and overt use of unsafe injection practices.

Ongoing guidance is available in the self-assessment quiz accompanying the article to educate clinicians to do the following:

- Distinguish between safe and unsafe injection practices
- Recognize misperceptions associated with unsafe injection practices
- Predict consequences of unsafe injection practices
- Identify appropriate approaches to integrate safe injection strategies into clinical practice

The audience for this self-assessment includes clinicians from all healthcare settings who are directly involved with administration of injectable medications as well as managers and administrators who must assure that best practices are being followed.

A comment from a senior quality improvement specialist at a federally designated Quality Improvement Organization stated, "I read the *Advisory* article 'Prevent the Occurrence of Bloodborne Disease Transmission Associated with Unsafe Injection Practices' and found it very helpful. It is frightening how often these types of behaviors manifest themselves in the clinical area. I worked for a multi-site staff model HMO, and we encountered practically every scenario you have so well presented. Unfortunately, these behaviors continue. Thanks for a well-written article."

A prerelease of the *Advisory* was also featured at the Premier Healthcare Alliance meeting Safer Designs for Safer Injections: Innovations in Process, Products, and Practices held in Washington, DC, in April 2011.

In August 2011, the Authority recorded a video to share key approaches to integrate safe injection strategies into practice.

<http://www.youtube.com/watch?v=bRA2v4MpijQ&lr=1&feature=mhee>

Ambulatory Surgical Facilities

In 2007, an outbreak of hepatitis C infection at a Nevada endoscopy clinic drew attention to how little is known about the infection prevention, surveillance, and control at these types of facilities.¹⁸ The investigation of this outbreak and the lack of information in general about patient safety at these facilities led to the 2008 Centers for Medicare and Medicaid Services (CMS) ambulatory surgical center audit tool pilot in several states. Between June and October 2008, CMS surveyors inspected 68 ambulatory surgical centers. Forty-six of 68 had at least one lapse in infection control. Twelve had three or more lapses.

Common lapses included the following:

- Using a single-dose vial for more than one patient

- Noncompliance with reprocessing standards
- Mishandling of blood glucose monitoring equipment

In June 2009, CMS announced a newly designed initiative and funding in order to increase the depth and breadth of ambulatory surgical center inspections at the state level.¹⁹ Several facilities in Pennsylvania were inspected in 2010. The Authority patient safety liaisons (PSLs) began to gain feedback on the scope of needs related to infection control at the ambulatory surgical centers within their regions. From the frontline intelligence gathered by the PSLs, the Authority was able to develop a needs-based comprehensive ASC educational program that focused on:

- Infection control basics
- Importance epidemiological surveillance for infection
- Surveillance methodology
- Data analysis
- Infection control program design and implementation
- Use of the CMS audit tool for self-assessment
- Safe injection practices

These programs are held live for the purpose of giving the participants the opportunity to ask questions and benefit from the expertise of the region's PSL and the Authority infection preventionist. The Authority conducted a postprogram survey to assess the workshop. Every respondent indicated that the educational materials were clinically useful, and 94% of respondents indicated that their knowledge of infection control had been influenced. Nearly all respondents (97%) indicated that the objectives stated within the program were effectively met, and 99% indicated that the lessons presented in the program were implementable at their facility. Moving forward, the PSLs and Authority infection preventionists will continue to assess and meet the needs of the ASC community in order to help them provide the safest care possible for Pennsylvania patients.

Control of Multidrug-Resistant Organisms (MDRO)

In October 2011, the Authority presented the program MDROs in the Long-Term Care Setting to the Delaware Valley Long-Term Care Association for Professionals in Infection Control and Epidemiology. This program provided guidance on the clinical aspects of infections due to MDRO in the long-term care setting, identification of the key components of an MDRO prevention and response plan applicable to long-term care, and translation of MDRO evidence-based interventions into actionable practices. Guidance on application of basic and intensified interventions based on current evidence-based best practice included:

- Surveillance
- Risk Assessment
- Standard/Contact precautions
- Environmental control

- Antibiotic stewardship
- Education/Communication
- Administrative support

The Authority continues ongoing assessment of MDRO infections in the long-term care setting.

Risk Management and Infection Control

Building on the September 2010 *Advisory* article “Demonstrating Return on Investment for Infection Prevention and Control” ([http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2010/Sep7\(3\)/Pages/102.aspx](http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2010/Sep7(3)/Pages/102.aspx)), the Authority presented the keynote address on infection control for risk managers to members of the CHART Risk Retention Group, an Agency for Healthcare Research and Quality-certified Patient Safety Organization representing 47 hospitals in Pennsylvania, New York, and West Virginia. The seminar, held in April 2011, for 30 Pennsylvania hospitals focused on recognizing the financial impact of HAIs, regulatory drivers, liability issues of HAIs, identification of sources of the standard of care for HAI prevention, and selection of a model to investigate and mitigate HAI serious events.

Collaboration with Quality Insights of Pennsylvania

The Authority participated in development of the Quality Insights of Pennsylvania (QIP) Best Practice Intervention Package (BPIP) to offer proven interventions to help healthcare providers lower the burden of HAIs in their workplace. Authority staff served on the expert technical review panels, and QIP selected multiple Authority educational programs and tools for inclusion in the document toolkit.

Released in spring 2011, the BPIP offers healthcare providers resources and a framework for utilizing quality improvement processes to further the goal of eliminating HAI. Authority educational articles in the *Advisory* and tools highlighted in the BPIP include:

- “Clostridium Difficile: A Sometimes Fatal Complication of Antibiotic Use” (June 2009)
- Act 52 requirements (2009)
- “Clostridium Difficile Infections in Nursing Homes” (March 2010)
- Checklists, protocols, tracking sheets, and long-term care facility care plan modules for catheter-associated urinary tract infection prevention
- Free checklists, order sets, program assessment and process and outcome measure worksheets, webinars, and slide sets for CLABSI prevention

Nursing Home Infection Reports – 2011

Nursing homes in Pennsylvania submitted a total of 32,761 infection reports through PA-PSRS in 2011. In the analysis to calculate rates, 289 facilities were excluded because

utilization data (resident-days and catheter-days) were incomplete for one or more months. An additional 20 facilities were excluded because they did not submit any infection reports during the year. Of the 713 active facilities, 404 were analyzed based on a total of 852,551 catheter-days and 16,405,030 resident-days. The rates in Table 7 below use the number of valid reports per 1,000 resident-days, and in the case of symptomatic urinary tract infection with an indwelling urinary catheter, 1,000 catheter-days.

Table 7. Nursing Home Infections and Rates, by Infection Type

| Infection Type | Subcategory 1 | Subcategory 2 | Actual Report Count | Validated Reports* | Rate† |
|-------------------------------------|--|--|---------------------|--------------------|-------|
| Symptomatic urinary tract infection | Resident with indwelling urinary catheter | | 1,245 | 742 | 0.87 |
| Symptomatic urinary tract infection | Resident without urinary catheter | | 2,819 | 1,647 | 0.10 |
| Respiratory tract infection | Lower respiratory tract infection (pneumonia/bronchitis/tracheobronchitis) | | 11,948 | 6,551 | 0.40 |
| Respiratory tract infection | Influenza-like illness | | 369 | 210 | 0.01 |
| Skin and soft tissue infection | Vascular or diabetic ulcer (chronic/nonhealing) | | 289 | 174 | 0.01 |
| Skin and soft tissue infection | Decubitus ulcer (pressure-related) | | 375 | 215 | 0.01 |
| Skin and soft tissue infection | Burn-associated | | 6 | 2 | 0.00 |
| Skin and soft tissue infection | Device-associated | Tracheostomy site | 3 | 3 | 0.00 |
| Skin and soft tissue infection | Device-associated | Peripheral/central intravenous catheter site | 19 | 10 | 0.00 |
| Skin and soft tissue infection | Device-associated | G-tube site | 80 | 46 | 0.00 |
| Skin and soft tissue infection | Device-associated | Suprapubic catheter site | 16 | 9 | 0.00 |
| Skin and soft tissue infection | Device-associated | Indwelling drain site | 8 | 5 | 0.00 |
| Skin and soft tissue infection | Device-associated | Other | 25 | 15 | 0.00 |
| Skin and soft tissue infection | Cellulitis | | 2,765 | 1,603 | 0.10 |
| Skin and soft tissue infection | Other | | 2,186 | 1,238 | 0.08 |
| Gastrointestinal tract infection | | | 10,279 | 5,909 | 0.36 |
| Other | Intra-abdominal infection (Peritonitis/deep abscess) | | 11 | 6 | 0.00 |
| Other | Meningitis | | - | - | 0.00 |
| Other | Viral hepatitis | | 2 | 1 | 0.00 |
| Other | Osteomyelitis | | 86 | 46 | 0.00 |
| Other | Primary bloodstream infection | | 230 | 153 | 0.01 |
| Total | | | 32,761 | 18,585 | 1.13 |

* Excludes infection reports from facilities with missing or suspect utilization data (i.e., resident-days or catheter-days)

† All rates are expressed as per 1,000 resident-days except symptomatic urinary tract infection, resident with an indwelling urinary catheter, which is expressed as per 1,000 catheter-days.

The total number of 32,761 infection reports submitted in 2011 is a 3.9% decrease from the total submitted in 2010. The number of resident-days and catheter-days both decreased 3.4%.

HAI ADVISORY PANEL

Act 52 of 2007 required the Authority to establish an external advisory committee comprising experts in HAI from throughout the state. Participants on this committee include hospital and nursing home infection preventionists, infectious disease physicians, and geriatricians. The HAI Advisory Panel assists the Authority and the Department of Health to:

- Identify benchmarking conditions for determining rates of HAIs and for comparing HAI rates between institutions
- Determine the approach to analyzing and reporting data collected within the National Healthcare Safety Network and PA-PSRS
- Establish conditions to be monitored in nursing homes for the purposes of HAI reporting

The HAI Advisory Panel met in June 2011 and reviewed PA-PSRS updates on hospitals, nursing home HAI reporting and analysis, educational programs, collaborations, and dissemination of HAI reduction strategies. Representatives from the Department of Health presented the results of the hospital HAI validation audits. The panel provided input for dissemination of the central line assessment, process and outcome measures, Foley catheter daily assessment, application of the nursing home assessment tool, and development of a nursing home coaching program, as well as MDRO and *C. difficile* prevention process measures. The panel also provided nursing home data validation and feedback for benchmarking for hospitals and nursing homes.

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