

GOVERNMENT OF THE DISTRICT OF COLUMBIA

DEPARTMENT OF HEALTH



HEALTH REGULATION AND LICENSING ADMINISTRATION

Patient Safety Reporting System District of Columbia

Annual Report
Fiscal Year
2014

FOR THE REPORTING PERIOD OF:

OCTOBER 1, 2013, through SEPTEMBER 30, 2014

Prepared April 2015 by:

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Executive Summary

I. Background

In December 2006, the District of Columbia passed the Medical Malpractice Amendment Act of 2006. The act requires that any licensed healthcare provider or medical facility must report adverse events, which include the 29 serious reportable events defined by the National Quality Forum (NQF) as events that are unambiguous (identifiable and measurable), serious (resulting in death or significant injury), and usually preventable. In 2009, the act was amended to require that adverse event reports must be reported within 60 days of their occurrence. In January 2010, the web-based District of Columbia Department of Health Regulations and Licensing Administration Patient Safety Reporting System, hosted by ECRI Institute, was implemented in the ongoing effort to improve healthcare delivery. Starting in October 2010, District facilities were required to report central-line-associated bloodstream infections (CLABSIs) in intensive care units (ICUs) through the National Healthcare Safety Network (NHSN) system, allowing the epidemiologists at the District of Columbia Department of Health to monitor and validate infection rates for District facilities and contribute District information to the Centers for Disease Control and Prevention's (CDC) national database.

The current users of the web-based adverse event reporting system include hospitals (adult and pediatric acute care, long-term acute care, behavioral health, and rehabilitation) and ambulatory surgical facilities. Adverse event reports are submitted to the Department of Health through its subcontractor, ECRI Institute. These reports are confidential. The web-based reports are analyzed to identify patterns or trends, recommend methods to reduce systematic adverse events, and disseminate information and advice on best practices through various methods. In addition, technical assistance to healthcare providers and medical facilities is provided. All other facilities and providers can submit adverse event reports using the original paper-based form. The District of Columbia Department of Health Center for Policy, Planning and Evaluation's Division of Epidemiology Disease Surveillance and Investigation (CPPE DE-DSI) provides CLABSI data from CDC's NHSN to ECRI Institute to include in the analysis.

This seventh annual report provides an update on the District of Columbia Patient Safety Reporting System, including an overview of the program's offerings, analysis of adverse event reports, and descriptions of the most significant findings from events submitted from October 1, 2013, through September 30, 2014.

II. Data Collection—Patterns and Trends in Adverse Event Reports

Collecting and analyzing reports of adverse events is a vital component of the District of Columbia's goal to improve healthcare delivery. During the reporting period of October 2013 through September 2014, the District's healthcare providers and medical facilities submitted a total of 164 events in fiscal year (FY) 2014 to the District of Columbia Department of Health.^{1,2} Fifty-seven adverse event reports were

¹ ECRI Institute PSO Database. Component of ECRI Institute, Plymouth Meeting, Pennsylvania.

² CLABSI data is provided by the District of Columbia Department of Health CPPE DE-DSI from the reports submitted to CDC's NHSN.

submitted to the District of Columbia Patient Safety Reporting System, and 107 reports of CLABSI³ were submitted to CDC's NHSN (these events are reported to and validated by the District of Columbia Department of Health CPPE DE-DSI). The NQF events analysis is based off of events submitted from October 2013 to September 2014, regardless of event occurrence date, due to the lag in reporting time within the reporting requirement. Acute care hospitals, adult and pediatric, submitted 154 (94%) of the reports; 4 (2%) were submitted by behavioral health facilities and 6 (4%) were submitted by long-term acute care facilities. Analysis of the 57 adverse events, not including CLABSIs, revealed 5 (9%) of the reports involved a patient death; however, many of these reports did not fall into the required NQF serious reportable event categories.

The Department of Health continued to adopt NQF's list of serious reportable events as a classification system for reportable events during FY 2014; the updated NQF list from 2011 of 29 events will now be used. Similar to past years, the most commonly reported event types, representing 152 (93%) of reports submitted, were CLABSIs, pressure ulcers, falls, retained foreign objects, or "other" events.

Highlights of the data submitted to the Department of Health for the reporting period of October 2013 through September 2014 include the following:^{4,5}

- A total of 164 event reports were received.
- The majority of reports, 154 (94%), were submitted by acute care hospitals.
- There were 13 event types reported this fiscal year.

Figure 1 shows an overview of the number of serious reportable events by NQF event type that have been reported over the past five fiscal years. The graph includes only those NQF event categories that are the same from the 2006 list used in the first 4 fiscal years, to the 2011 list used in FY 2014; however some specifics within the definitions may have been adjusted by NQF.

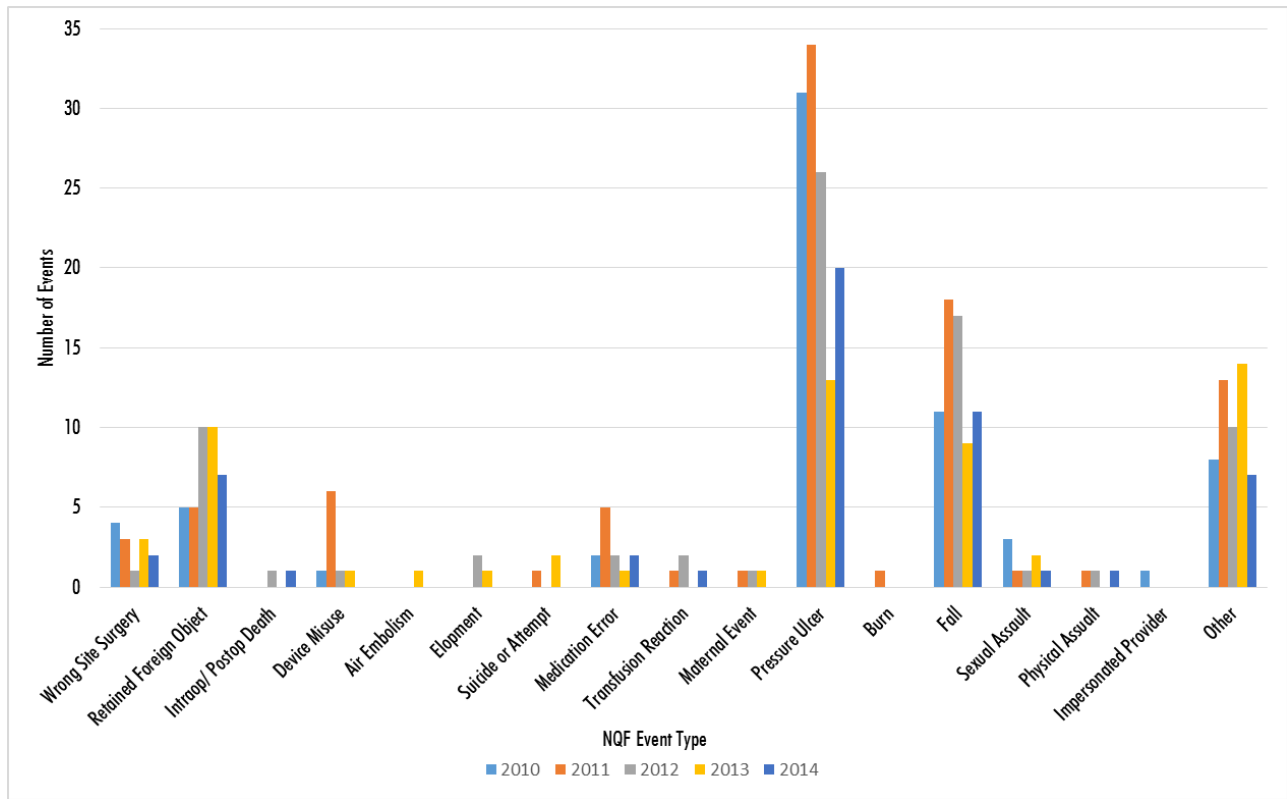
The adverse event reports submitted by healthcare providers and medical facilities in the seventh year of the District's reporting program represent a continued effort by District healthcare providers and medical facilities to improve patient safety. Facilities continue to show engagement by reporting events categorized as "other" events and by reviewing feedback provided through various publications or directly back to them.

³ CLABSI data is provided by the District of Columbia Department of Health CPPE DE-DSI from the reports submitted to CDC's NHSN.

⁴ ECRI Institute PSO Database. Component of ECRI Institute, Plymouth Meeting, Pennsylvania.

⁵ CLABSI data is provided by the District of Columbia Department of Health CPPE DE-DSI from the reports submitted to CDC's NHSN.

Figure 1. Number of Events by Type from FY 2010 - FY 2014 (excluding CLABSI)s⁶



⁶ ECRI Institute PSO Database. Component of ECRI Institute, Plymouth Meeting, Pennsylvania.

Introduction

I. The District's Patient Safety Reporting System

The District's Patient Safety Reporting System's goals include the following:

- Promoting patient safety
- Improving the culture of safety
- Learning from and preventing adverse events
- Providing feedback and best practices to District facilities

Aggregation of adverse event data gathered from facilities and providers throughout the District is a powerful tool to identify trends that undermine safe and effective healthcare and assists to achieve the primary goal of the reporting program to prevent the occurrence of similar adverse events in the future. The web-based adverse event reporting system provides access to aggregate data at the District level and at the ECRI Institute Patient Safety Organization (PSO) national level. Analysis of the information received through the District's reporting program serves as the basis for meaningful insights, lessons learned, and best practices that can improve patient safety. For three event categories—pressure ulcers (including device-related pressure ulcers), surgical (including a missing specimen), and contributing factors overall—this report presents guidance and recommendations to help look further into the practices surrounding these topics and to prevent related events from reoccurring.

Aside from the annual report, in FY 2014, the District of Columbia Patient Safety Reporting System offered the following benefits in which facilities could engage:

- **Patient safety webinars**—Offered quarterly and included the following topics:
 - The Highs and Lows of Insulin Errors and How to Prevent Them
 - Reporting System Update
 - SAFER Guides
 - Laboratory Testing & Diagnostic Error: What an Organization Should Do
 - Reporting System Update
 - Developing Corrective Action Plans: The Do's and the Don'ts
 - Post-Operative Risk to Children: Severe Hyponatremia after Hypotonic IV Fluids
 - Top 10 Health Technology Hazards for 2014: Keep These Patient Safety Risks in Check!
 - Top 10 Patient Safety Concerns for Healthcare Organizations for 2014
 - Investigating Transportation Accidents: What Lessons Can We Transfer to Patient Safety?
- **Quarterly Navigators**—Patient safety advisory articles offered quarterly, which include a *National Navigator* article and a *District Navigator* article. Articles were provided on the following topics over FY 2014:
 - **National:**
 - Count Early and Often to Prevent RSIs in L&D
 - Medication Safety: Inaccurate Patient Weight Can Cause Dosing Errors
 - Patient Flow: It's Not Just an ED Issue

- Medical Devices' Role in Causing Pressure Ulcers
 - **District:**
 - Labor and Delivery: Leave No Sponge Behind
 - Taking Weight: A Delicate Balance
 - Optimizing Obstetric Patient Flow
 - Sticky Situations: Skin Tears Caused by Tape and Bandages
- **Custom feedback on adverse events**—Resources and best practices are provided to the facilities directly on selected adverse event reports. The following are some of the topics in which feedback was provided during FY 2014:
 - Documentation
 - Emergency Equipment
 - Falls
 - Intravenous Infiltrates
 - Lab Results
 - Medical Devices and Pressure Ulcers
 - Non-radiopaque Items
 - Patient Violence
 - Retained Foreign Objects: Gauze, Guidewires, Needles
 - Specimen Loss
- **Root-cause analyses and corrective action plans (CAPs)**—If a thorough root-cause analysis and CAP are submitted along with an event, it is analyzed through ECRI Institute PSO's root-cause analysis review process and then the facility can be provided with a report to further assist them in improving their process.
- **Patient Safety Membership Update**—A monthly electronic newsletter that compiles updated patient safety news over the past month.
- **Patient Safety E-Alerts**—Unplanned special notices on major patient safety issues that have been seen at a national level. Topics in FY 2014 included the following:
 - Patient Fall Risk Associated with Bed-Exit Alarm Reset Time
 - At the Sticking Point: When Sharps Fail to Protect
 - When Patients Leave against Medical Advice: A Lack of Talking Leads to Walking

Data Collection and Analysis

I. Reportable Events

The District has mandated the reporting of adverse events by a broad range of healthcare providers and medical facilities. Adverse events that are required to be reported include the 29 NQF serious reportable events listed in 2011. During this past fiscal year, CLABSI events continued to be submitted to CDC's NHSN, and these events are reported to and validated by the District of Columbia Department of Health CPPE DE-DSI. Since January 2010, hospitals and ambulatory surgical centers have been required to report adverse events and CAPs using the web-based reporting system. A standardized adverse event reporting form is available to all other medical facilities and healthcare providers for this purpose. Reports must be submitted within 60 days of the occurrence of an adverse event. The Department of Health collects and analyzes the reports, providing an annual report that includes summary data and recommendations. The Medical Malpractice Amendment Act contains well-defined confidentiality provisions related to reporters and information provided to the system administrator. This annual report compiles and provides analysis on both the CLABSI data from NHSN and the NQF events submitted to the web-based reporting system.

II. Reports by Event Type

In the seventh reporting period, which covers events submitted between October 1, 2013, and September 30, 2014, District medical facilities and healthcare providers submitted 164 reports to the Department of Health. The most frequently reported types of events were CLABSIs, pressure ulcers, falls, retained foreign objects, and other events, representing 152 (93%) of the reports submitted. Figure 2 summarizes the reports submitted by event type, and Figure 3 provides a graphic version.

Figure 2. Number and Percentage of Reports by Event Type in FY 2014^{7,8,9}

Event Category	Event Type	No.	%
Surgical or Invasive Procedure Events	1A - Surgery or other invasive procedure performed on the wrong site	2	1.2
	1B - Surgery or other invasive procedure performed on the wrong patient	0	0
	1C - Wrong surgical or other invasive procedure performed on a patient	0	0
	1D - Unintended retention of a foreign object in a patient after surgery or other invasive procedure	7	4.3
	1E - Intraoperative or immediately postoperative/postprocedure death in an ASA Class 1 patient	1	0.6
Product or Device Events	2A - Patient death or serious injury associated with the use of contaminated drugs, devices, or biologics provided by the healthcare setting	0	0

⁷ CLABSI data is provided by the District of Columbia Department of Health CPPE DE-DSI from the reports submitted to CDC's NHSN.

⁸ ECRI Institute PSO Database. Component of ECRI Institute, Plymouth Meeting, Pennsylvania.

⁹ National Quality Forum. Serious reportable events in healthcare—2011 update [online]. 2011 [cited 2015 Mar 2]. http://www.qualityforum.org/Publications/2011/12/Serious_Reportable_Events_in_Healthcare_2011.aspx

Event Category	Event Type	No.	%
	2B - Patient death or serious injury associated with the use or function of a device in patient care, in which the device is used or functions other than as intended	0	0
	2C - Patient death or serious injury associated with intravascular air embolism that occurs while being cared for in a healthcare setting	0	0
Patient Protection Events	3A - Discharge or release of a patient/resident of any age, who is unable to make decisions, to other than an authorized person	0	0
	3B - Patient death or serious injury associated with patient elopement	0	0
	3C - Patient suicide, attempted suicide, or self-harm that results in serious injury, while being cared for in a healthcare setting	0	0
Care Management Events	4A - Patient death or serious injury associated with a medication error	2	1.2
	4B - Patient death or serious injury associated with unsafe administration of blood products	1	0.6
	4C - Maternal death or serious injury associated with labor or delivery in a low-risk pregnancy while being cared for in a healthcare setting	0	0
	4D - Death or serious injury of a neonate associated with labor or delivery in a low-risk pregnancy	0	0
	4E - Patient death or serious injury associated with a fall while being cared for in a healthcare setting	11	6.7
	4F - Any Stage 3, Stage 4, and unstageable pressure ulcers acquired after admission/presentation to a healthcare setting	20	12.2
	4G - Artificial insemination with the wrong donor sperm or wrong egg	0	0
	4H - Patient death or serious injury resulting from the irretrievable loss of an irreplaceable biological specimen	2	1.2
	4I - Patient death or serious injury resulting from failure to follow up or communicate laboratory, pathology, or radiology test results	2	1.2
Environmental Events	5A - Patient or staff death or serious injury associated with an electric shock in the course of a patient care process in a healthcare setting	0	0
	5B - Any incident in which systems designated for oxygen or other gas to be delivered to a patient contains no gas, the wrong gas, or are contaminated by toxic substances	0	0
	5C - Patient or staff death or serious injury associated with a burn incurred from any source in the course of a patient care process in a healthcare setting	0	0
	5D - Patient death or serious injury associated with the use of physical restraints or bedrails while being cared for in a healthcare setting	0	0
Radiologic Events	6A - Death or serious injury of a patient or staff associated with the introduction of a metallic object into the MRI area	0	0
Potential Criminal Events	7A - Any instance of care ordered by or provided by someone impersonating a physician, nurse, pharmacist, or other licensed healthcare provider	0	0
	7B - Abduction of a patient/resident of any age	0	0
	7C - Sexual abuse/assault on a patient or staff member within or on the grounds of a healthcare setting	1	0.6

Event Category	Event Type	No.	%
	7D - Death or serious injury of a patient or staff member resulting from a physical assault that occurs within or on the grounds of a healthcare setting	1	0.6
Healthcare-Associated Infections	8 - Central-catheter-associated bloodstream infection ²	107	65.2
“Other” Event Type Reported	X - “Other” non-NQF type of event reported	7	4.3
Total		164	99.9*

*Total percentage does not equal 100 due to rounding.

Figure 3. Number of Events by Type in FY 2014 (excluding CLABSIs)¹⁰

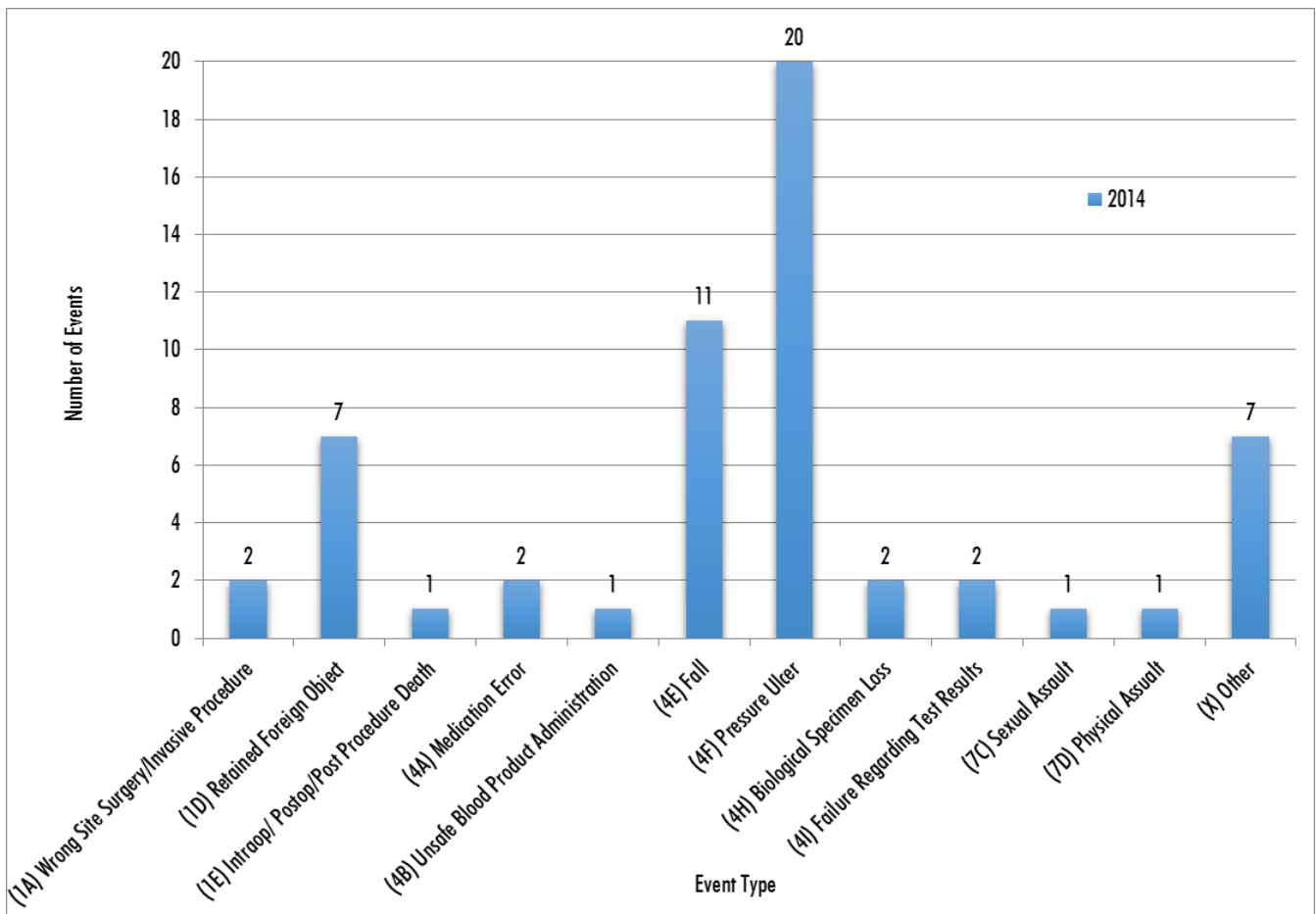


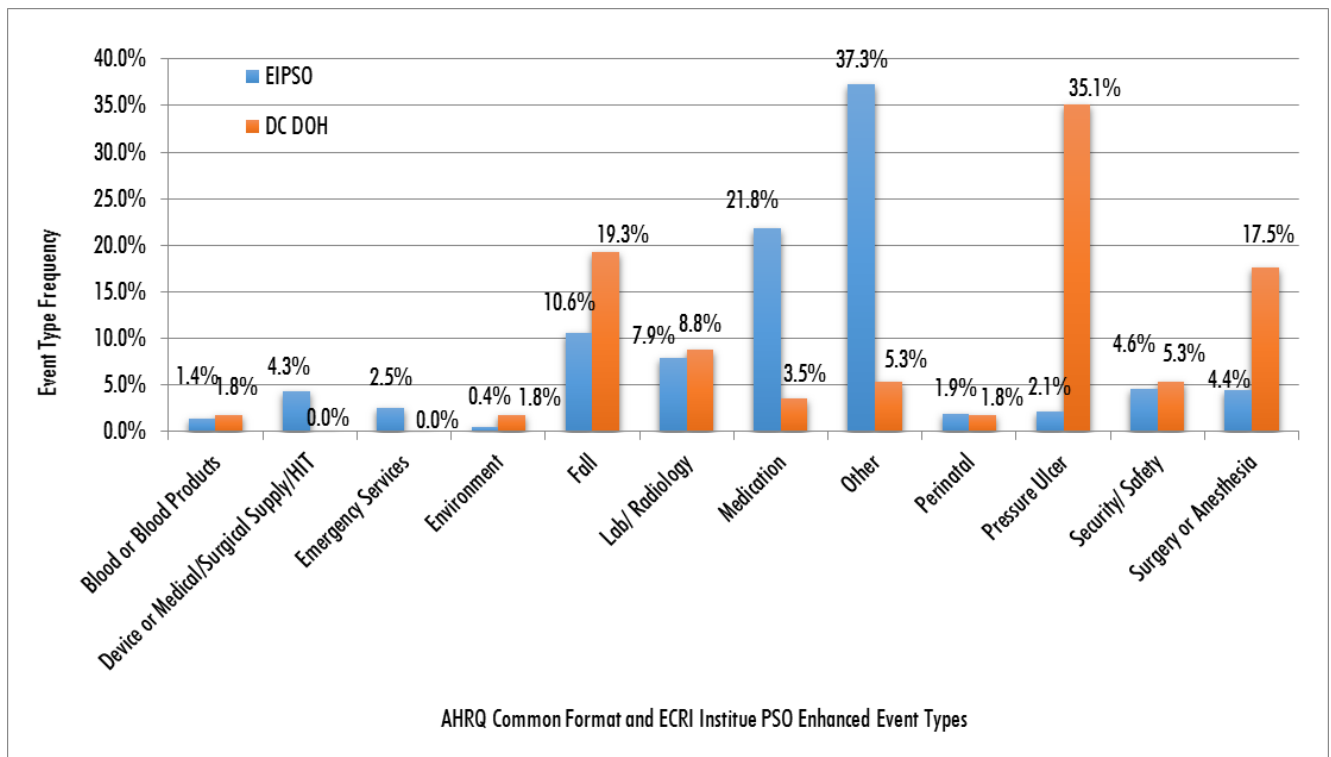
Figure 3 details the event types that had one or more events reported in that category during the FY 2014 reporting period; there were 13 total event types reported. This fiscal year, there were two new event types that were reported: (4H) loss of a biological specimen, which is discussed further in the

¹⁰ ECRI Institute PSO Database. Component of ECRI Institute, Plymouth Meeting, Pennsylvania.

recommendations section, and (4I) failure regarding test results. Falls and pressure ulcers continue to be the most commonly reported NQF event types.

Figure 4 shows a comparison of event categories reported by District facilities between October 1, 2013, and September 30, 2014, and those in the ECRI Institute PSO (EIPSO) system overall aggregate. It should be noted that this graph cannot be considered a benchmark, as the ECRI Institute PSO system is a voluntary national event reporting database, whereas the District of Columbia Patient Safety Reporting System requires mandatory reporting of adverse events. For this graph, the event types are categorized according to the Agency for Healthcare Research and Quality’s (AHRQ) Common Formats and ECRI Institute enhanced event types rather than NQF event types.

Figure 4. Comparison of Event Type Frequency¹¹



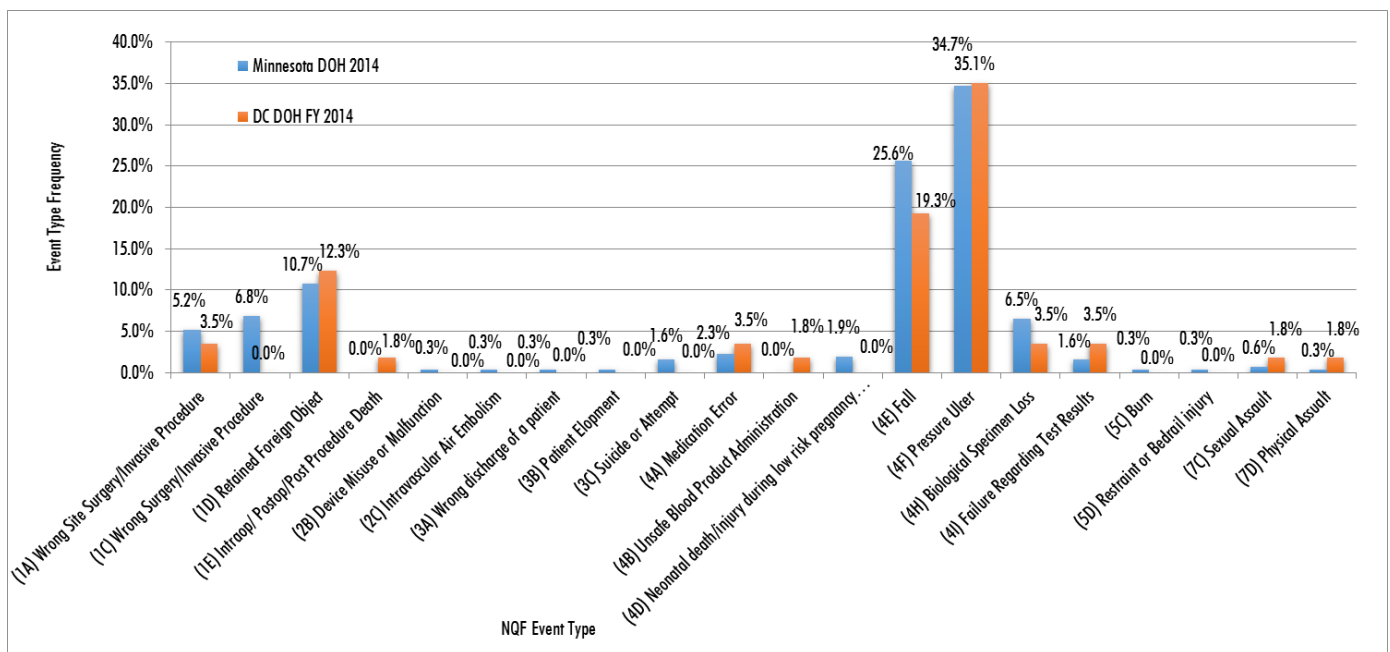
When viewed in this fashion, and excluding healthcare-associated infections (HAIs) and CLABSIs, the District’s most frequently reported event categories were pressure ulcers, falls, surgery or anesthesia events, lab/radiology events, other events, and safety/security events. The most frequently reported events in the ECRI Institute PSO database were “other” events, medication errors, falls, lab/radiology events, safety/security events, and surgery or anesthesia events. Both the District and EIPSO share five of the same most frequently reported event types; however, they are of different ranking order. Again, pressure ulcers clearly stand out as the most frequently reported event type in the District (35.1%), whereas they were reported 2.1% of the time in the ECRI Institute PSO aggregate. Also, similar to FY 2013, medication errors were apparent 21.8% of the time in the reports to ECRI Institute PSO but only make up 3.5% of the District’s reports. However, conclusions cannot be drawn when comparing

¹¹ ECRI Institute PSO Database. Component of ECRI Institute, Plymouth Meeting, Pennsylvania.

mandatory and voluntary reporting programs. The District’s best benchmark is comparing their data trends over time.

Comparison with other mandatory reporting systems may also be valuable. For example, the Minnesota Department of Health’s *Adverse Health Events in Minnesota* report published in 2015 noted 308 NQF events reported, with a total of 213 facilities required to report. Minnesota Department of Health adverse health events are also based on NQF’s serious reportable events updated in 2011. Although there are many more facilities required to report, when broken down by event type percentages, Minnesota’s most frequently reported events were similar to the District of Columbia Department of Health’s in that they included pressure ulcers (34.7%), falls (25.6%), and retained foreign objects (10.7%). However, Minnesota reports wrong-site surgery or invasive procedures (6.8%) as the third most commonly reported event. It also reported in seven additional event categories that the District of Columbia did not receive reports in (e.g., wrong discharge of a patient). Figure 5 shows the NQF event report type frequency from the District of Columbia for FY 2014 and from the Minnesota Department of Health’s 2014 reporting year; the percentages are based on the total number of NQF and “other” events, excluding CLABSI.^{12,13}

Figure 5. Comparison of Event Type Frequency (excluding CLABSI)^{14,15,16}



¹² ECRI Institute PSO Database. Component of ECRI Institute, Plymouth Meeting, Pennsylvania.

¹³ Minnesota Department of Health. Adverse health events in Minnesota: 11th annual public report [online]. 2015 Feb [cited 2015 Mar 30]. <http://www.health.state.mn.us/patientsafety/ae/2015ahereport.pdf>

¹⁴ ECRI Institute PSO Database. Component of ECRI Institute, Plymouth Meeting, Pennsylvania.

¹⁵ National Quality Forum. Serious reportable events in healthcare—2011 update [online]. 2011 [cited 2015 Mar 2]. http://www.qualityforum.org/Publications/2011/12/Serious_Reportable_Events_in_Healthcare_2011.aspx

¹⁶ Minnesota Department of Health. Adverse health events in Minnesota: 11th annual public report [online]. 2015 Feb [cited 2015 Mar 30]. <http://www.health.state.mn.us/patientsafety/ae/2015ahereport.pdf>

III. Reports by Level of Harm

The 2011 list of NQF serious reportable events changes the language from “serious disability” to “serious injury” in applicable event types.¹⁷ Not all reportable events necessarily imply the same degree of harm, and it is often useful to distinguish among degrees of harm. To this end, the harm scale developed by the National Coordinating Council for Medication Error Reporting and Prevention continues to be applied to the event reporting system, and 57 events could be categorized based on the information provided. The CLABSI events that the Department of Health provided from NHSN do not include information on level of harm; therefore, those events could not be included in this analysis.¹⁸ Figure 6 summarizes the level of harm among the 57 reports, and Figure 7 illustrates the percentage of the levels of harm identified.

Figure 6. Number and Percentage of Reports by Level of Harm (FY 2014, excluding CLABSIs)¹⁹

Harm Score	Description	Reports	%
A	Circumstances that could cause adverse events (e.g., look-alike medications, confusing equipment)	1	2
B1	An event occurred but did not reach the individual (“near miss” or “close call”) because of chance alone	0	0
B2	An event occurred but did not reach the individual (“near miss” or “close call”) because of active recovery efforts by caregivers	0	0
C	An event occurred that reached the individual but did not cause harm and did not require increased monitoring (an error of omission, such as a missed medication dose, does reach the individual)	1	2
D	An event occurred that required monitoring to confirm that it resulted in no harm and/or required intervention to prevent harm	3	5
E	An event occurred that contributed to or resulted in temporary harm and required treatment or intervention	37	65
F	An event occurred that contributed to or resulted in temporary harm and required initial or prolonged hospitalization	8	14
G	An event occurred that contributed to or resulted in permanent harm	2	4
H	An event occurred that resulted in a near-death event (e.g., required ICU care or other intervention necessary to sustain life)	0	0
I	An event occurred that contributed to or resulted in death	5	9
	Reports with harm score not identified	0	0
Total		57	101*

**Total percentage does not equal 100 due to rounding.*

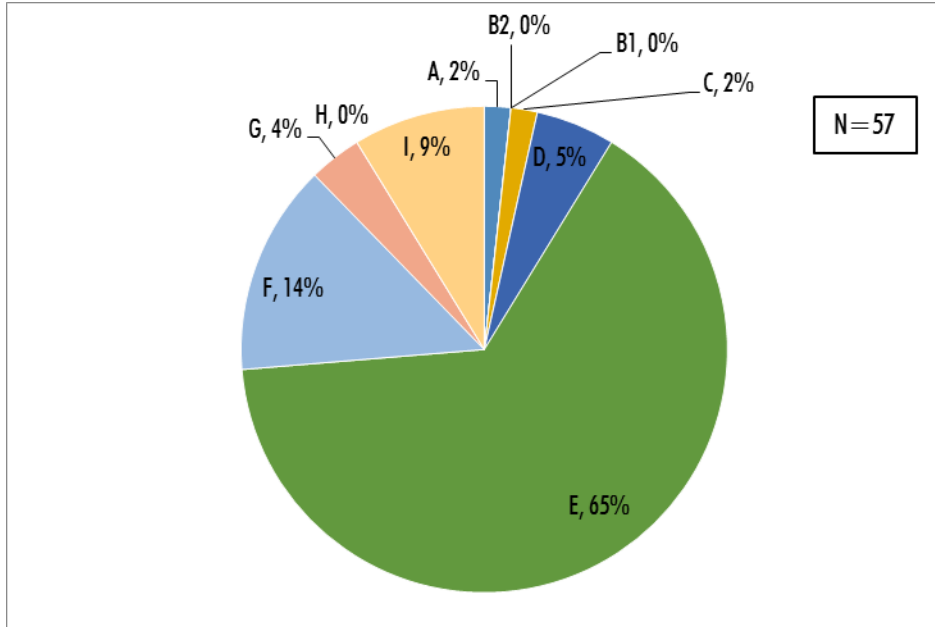
¹⁷ National Quality Forum. Serious reportable events in healthcare—2011 update [online]. 2011 [cited 2015 Mar 2].

http://www.qualityforum.org/Publications/2011/12/Serious_Reportable_Events_in_Healthcare_2011.aspx

¹⁸ CLABSI data is provided by the District of Columbia Department of Health CPPE DE-DSI from the reports submitted to CDC’s NHSN.

¹⁹ ECRI Institute PSO Database. Component of ECRI Institute, Plymouth Meeting, Pennsylvania.

Figure 7. Percentage of Reports by Harm Score (FY 2014, excluding CLABSIs)²⁰

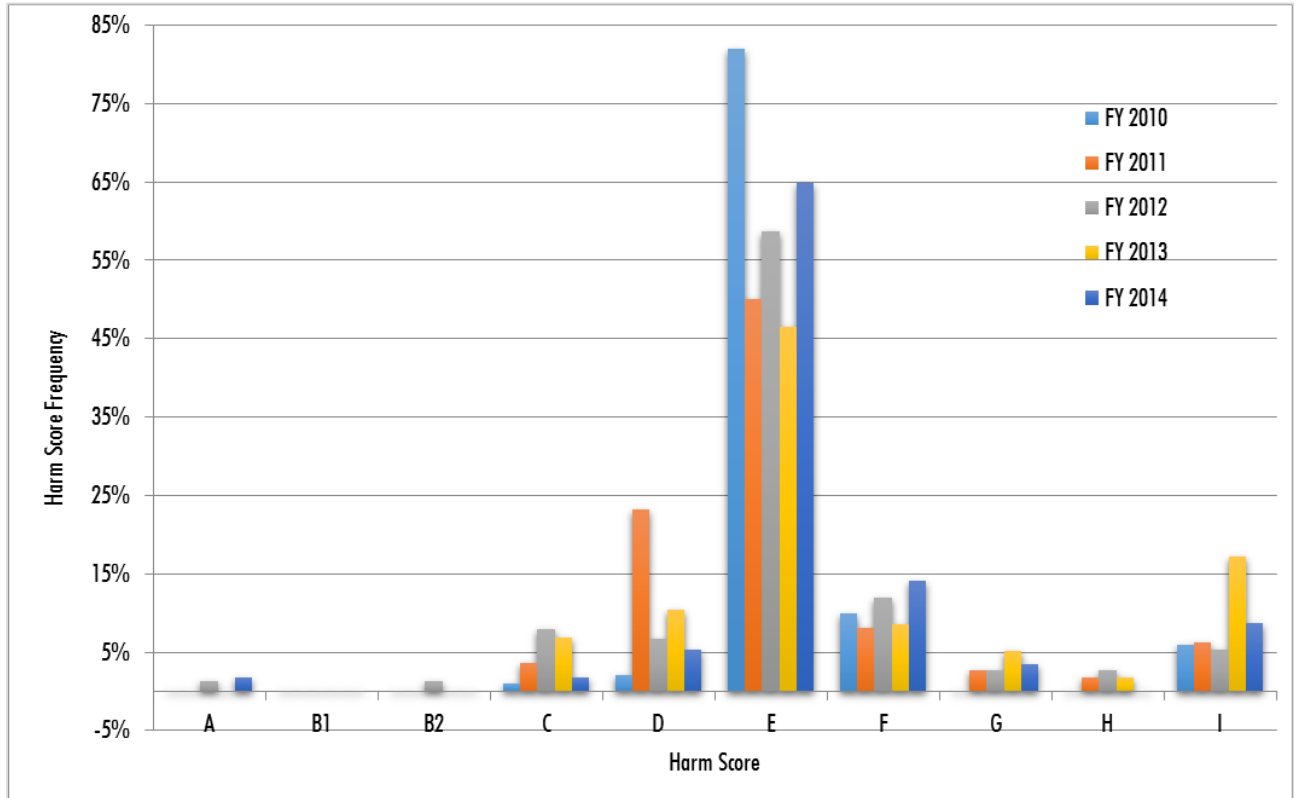


The reports submitted ranged from a harm score of A (2%), circumstances that could cause adverse events, to I (9%), an event occurred that contributed to or resulted in death. The majority of the events were categorized as having a harm score of E (65%), an event that resulted in temporary harm and required treatment or intervention, which is consistent with the minimal harm score severity level described in the NQF events.

District facilities continue to be engaged in the program and are voluntarily reporting events that did not cause patient harm. Harm scores reported during FY 2014 included A, C, and D; NQF serious reportable events typically have a harm score of E or above. Compared with the previous year (FY 2013), there was a decrease in the percentage of events with harm score I, which are events involving a death; it was 17% for FY 2013 and 9% for FY 2014 (see Figure 8). It is also important to note that 80% of the events with harm score I were categorized as “other” events.

²⁰ ECRI Institute PSO Database. Component of ECRI Institute, Plymouth Meeting, Pennsylvania.

Figure 8. Comparison of Harm Score Frequency²¹



IV. Report Quality

During the FY 2014 reporting period, most of the web-based event report forms were completed sufficiently and the quality of the information provided was adequate. The “Event Description” field is a free-text field on the web-based form and can capture the most important details of the event when completed. Of the 57 reports from the District of Columbia Patient Safety Reporting System, excluding CLABSI, 74% had thorough event descriptions and 26% had minimal event descriptions. This area of reporting has shown continued improvement and coincides with the implementation of the electronic reporting systems.

V. Root Causes and Corrective Action Plans in Reports

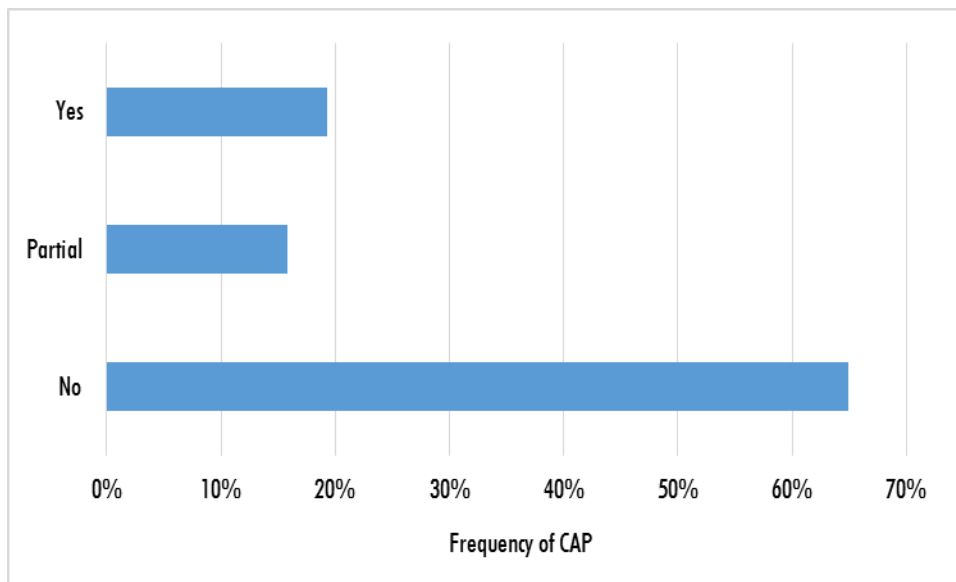
The District requires the submission of a CAP as a follow-up to the reported adverse event; a root-cause analysis can be submitted if applicable or if the facility would like a review. The goals of the program include handling an adverse event in the following steps:

²¹ ECRI Institute PSO Database. Component of ECRI Institute, Plymouth Meeting, Pennsylvania.



A CAP describes how the facility or provider plans to prevent or reduce the risk of similar events in the future and should be based on the findings from the event investigation. The investigation of an event must look beyond the direct patient care provider to identify system failures. Of the 57 reports submitted, not including CLABSIs, 20 (35%) included some mention of corrective action(s), which is a slight decrease from FY 2013. Figure 9 show a breakout of the percentage of CAPs submitted for the reported events during FY 2014, excluding CLABSIs. Although some reports identified contributing factors or root causes, there were no complete root-cause analyses submitted for review during FY 2014.

Figure 9. Frequency of CAP Submissions (excluding CLABSIs)²²



There is an additional field within the reporting system labeled “Supplemental Information” that some facilities have found as an easy way to incorporate their CAPs. This also allows the event details and the action plans to be stored in the same location. Currently, some facilities use this method, and others

²² ECRI Institute PSO Database. Component of ECRI Institute, Plymouth Meeting, Pennsylvania.

continue to submit their CAPs via secure communication. Facilities have the ability to update an event report after the event has been submitted if the RCA and CAP have not been completed at the time of the event submission.

VI. CLABSIs

Facilities in the District of Columbia are required by law to report CLABSIs to CDC's NHSN. NHSN is an online tracking system that provides a reporting mechanism to the District and its 10 hospitals covered by the mandate. Epidemiologists at the District of Columbia Department of Health CPPE DE-DSI perform validation studies on CLABSIs reported to NHSN.

The following data was provided by the District of Columbia Department of Health CPPE DE-DSI in advance of publication by CDC, from the reports submitted to CDC's NHSN. During FY 2014, units from 10 hospitals reported a total of 107 CLABSIs and 92,932 central-line-days. Data viewed in this way represents a different mix of hospitals and units for each year. This raw, unadjusted rate provides the actual number of events over a specified time frame. This rate is useful in assessing the overall burden of HAI in the healthcare system.²³

To take this data one step further, a standardized infection ration (SIR) was calculated for eight of the facilities that submitted data in the District. The SIR is an indirect standardization method that is used to summarize the HAI experience across any number of stratified groups.²⁴ The SIR allows for comparison of data across risk groups, procedures and hospital characteristics to gain a better understanding of the incidence, trends and patterns of HAIs while adjusting for underlying patient or hospital factors that may affect occurrence of healthcare related infections.²⁵ The SIR is calculated by taking the number of CLABSIs divided by the number of expected CLABSIs. "The SIR for the District significantly decreased from 0.741 in 2012 to 0.546 in 2013."²⁶ For FY 2014, the SIR for eight facilities in the District came to 0.576.²⁷

Additional Resources:

- Centers for Disease Control. District of Columbia: Healthcare Associated Infection Progress. Jan 2015. <http://www.cdc.gov/hai/pdfs/stateplans/factsheets/dc.pdf>

²³ CLABSI data is provided by the District of Columbia Department of Health CPPE DE-DSI from the reports submitted to CDC's NHSN.

²⁴ CLABSI data is provided by the District of Columbia Department of Health CPPE DE-DSI from the reports submitted to CDC's NHSN.

²⁵ CLABSI data is provided by the District of Columbia Department of Health CPPE DE-DSI from the reports submitted to CDC's NHSN.

²⁶ District of Columbia Department of Health, Office of the Director, Division of Epidemiology – Disease Surveillance and Investigation. District of Columbia Healthcare-Associated Infections Report: January 2013 – December 2013, May 2014.

²⁷ CLABSI data is provided by the District of Columbia Department of Health CPPE DE-DSI from the reports submitted to CDC's NHSN.

VII. Patient Safety Webinars and Trainings

Webinars are provided on various patient safety topics as well as training for the reporting system. The following represents the ten webinars offered and the number of lines that called in (however this does not show the number of participants on each line). These webinar recordings and handouts are then posted to the web portal for future viewing.

Figure 10. Frequency of Webinar Attendance FY 2014

Webinar Topic	Number of Lines
The Highs and Lows of Insulin Errors and How to Prevent Them	1
Reporting System Update	1
SAFER Guides	1
Laboratory Testing & Diagnostic Error: What an Organization Should Do	0
Reporting System Update	2
Developing Corrective Action Plans: The Do's and the Don'ts	1
Post-Operative Risk to Children: Severe Hyponatremia after Hypotonic IV Fluids	0
Top 10 Health Technology Hazards for 2014: Keep These Patient Safety Risks in Check!	0
Top 10 Patient Safety Concerns for Healthcare Organizations for 2014	2
Investigating Transportation Accidents: What Lessons Can We Transfer to Patient Safety?	0

Guidance and Recommendations

The Department of Health is charged with providing facilities and providers with recommended methods to reduce systematic adverse events and disseminating information and advice on best practices. The following is a summary of three important event categories and a discussion of lessons learned about these types of events. Strategies are presented for helping to prevent reoccurrence. The three event types that will be presented are as follows:

- Contributing factors
- Pressure ulcers and devices
- Surgical events and lost specimens

As required by the Medical Malpractice Amendment Act, the information is deidentified and anonymous with regard to the facility, provider, and patient. Root causes, contributing factors, and preventive strategies identified by healthcare facilities and providers are shared if available. Finally, recommended best practices are provided to further assist facilities and providers in improving healthcare delivery in the District.

I. Contributing Factors to Events

A review of the DC Department of Health reportable events dated October 1, 2013, through September 30, 2014, revealed that human factors (within the staff individual factors category) were the most common contributing factors noted.

“Human factors” and “ergonomics” are synonymous in the discipline often referred to as “human factors and ergonomics” (HFE).²⁸ HFE is a proactive approach to system design as it relates to human factors and mitigation efforts to improve patient safety. There are five domains addressed in HFE: usability of technology, understanding the mechanisms that lead to human error, worker performance processes (physical and social/behavioral), system resilience (optimize error detection, correction, and recovery), and HFE system design/redesign.²⁹

The Human Factors Analysis and Classification System (HFACS) was developed by Shappell and Wiegmann to provide an applicable methodology for the investigation of human accident or incident causation. HFACS describes human error and system failures. It provides a method for systematic analysis of common causes of adverse events, ensuring standardization of the investigative process.³⁰ There are four tiers of causal factors:³¹

1. **Unsafe act.** The actual actions of the healthcare provider that lead to the event/error (decision, skill-based, or perceptual) or **violation** (intentional departures from accepted practices). **Routine**

²⁸ Shappell, SA and Wiegmann, DA. The Human Factors Analysis and Classification System-HFACS. U.S. Department of Transportation, Federal Aviation Administration, Feb 2000.

²⁹ Carayon P, Xie A and Kianfar S. Human Factors and ergonomics as a patient safety practice. *BMJ Qual Saf* 2013;0:1-10.

³⁰ Diller T, Helmrich G, Dunning S, et.al. The Human Factors Analysis Classification System (HFACS) applied to health care. *Am J Med Qual* 2014; 29(3):181-190.

³¹ Diller T, Helmrich G, Dunning S, et.al. The Human Factors Analysis Classification System (HFACS) applied to health care. *Am J Med Qual* 2014; 29(3):181-190.

violations tend to be habitual by nature, are often accepted by management, and are manifested by routine failure to follow policy or by developing a workaround. **Exceptional violations** are not condoned by management and are exceptions to routine behavior.

2. **Preconditions for unsafe acts.** The environment and causal conditions that led to the unsafe act. They include the following:
 - **Condition of the operator**—The operator may be distracted, incapable, in an adverse mental or physiological state, or have physical/mental limitations.
 - **Personnel factors**—Provider behaviors that led to the error. The most common cause is **communication and information flow** (direct miscommunication between individuals, unavailable communication, ineffective communication, transmission of incomplete information, or inaccessible information). Other personnel factors that may contribute to error include coordination failures (independent work instead of a teamwork approach), planning failures (failure to proactively implement appropriate treatment/interventions), and fitness for duty (compromised functional capacity).
 - **Environmental factors**—The effects of the environment on human error. There are two categories of environmental factors: the **physical environment** (e.g., lighting, noise, excessive clutter, room layout) and the **technological environment** (design of equipment or display/controls, interface capability, and checklist design).
3. **Supervision.** Supervisory failures are manifested by inadequate training, a lack of professional guidance/oversight, failure to correct known problems, and failure to provide exemplary supervisory ethics.
4. **Organizational influences.** These include the organizational culture/climate, resource management, and operational processes. These are sometimes difficult to identify during an investigative or root-cause analysis.

Recommendations:^{32,33,34}

1. Engage leadership.
2. Identify and prioritize actionable items.
3. Focus on specific performance/behavior activities.
4. Standardize processes to eliminate workarounds.
5. Implement communication approaches that optimize the transfer of information.
6. Employ valuable risk assessment techniques.
7. Develop methods/strategies for staff to optimize critical decision-making capacity, mitigate critical thinking failures, and minimize ignored warnings.
8. Improve skill-based tasks through simulation, supervision, and reinforcement.

II. Pressure Ulcers and Devices

Pressure ulcers continue to be one of healthcare’s biggest challenges. Section 5001(c) of the Deficit Reduction Act of 2005 required the Secretary of the Department of Health and Human Services (DHHS)

³² Carayon P, Xie A and Kianfar S. Human Factors and ergonomics as a patient safety practice. *BMJ Qual Saf* 2013;0:1-10.

³³ Shappell, SA and Wiegmann, DA. The Human Factors Analysis and Classification System-HFACS. U.S. Department of Transportation, Federal Aviation Administration, Feb 2000.

³⁴ Diller T, Helmrich G, Dunning S, et.al. The Human Factors Analysis Classification System (HFACS) applied to health care. *Am J Med Qual* 2014; 29(3):181-190.

to identify hospital-acquired conditions (HACs) that were high-cost, high-volume, or both and resulted in the assignment of an Medicare Severity Diagnosis Related Grouper (MS-DRG [CMS-DRG]) that had a higher payment when present as a secondary diagnosis, and were conditions thought to be reasonably preventable through the application of evidence-based guidelines.³⁵ The Centers for Medicare and Medicaid Services (CMS) presently designates eight conditions that, if they are listed as a secondary diagnosis, and are not coded as present on admission, are identified as one of the eight HACs. Stage III and stage IV pressure ulcers are included in one category of HACs.³⁶

The National Quality Forum's (NQF) Serious Reportable Events includes any stage III, stage IV, and unstageable pressure ulcers that are acquired after admission/presentation to a healthcare setting (hospitals, outpatient/office-based surgery centers, or long-term care/skilled nursing facilities). NQF categorizes their occurrence as a care management event.³⁷

Of the 20 pressure ulcers that were reported to DC Department of Health between October 1, 2013, and September 30, 2014, one was caused by a medical device, sutures, used to hold a tracheostomy in place.

A medical-device-related pressure ulcer is defined as a "localized injury to the skin or underlying tissue as a result of sustained pressure from a device (e.g., nasal cannula tubing, braces, splints, oxygen face masks, prostheses, etc.)," with the injury to the tissue often mimicking the device shape or outline.³⁸

Device-related pressure injuries are becoming more prevalent, whether because of the increased awareness among staff or the increased mandatory reporting of their occurrence. Apold and Rydrych reported that about one-third of Minnesota's mandatorily reported pressure ulcers were related to a medical device and that over 70% of device-related pressure ulcers were not identified until they were at a stage III or stage IV level.³⁹

According to the CMS *State Operations Manual*, Appendix F, F314,⁴⁰ "Pressure Points and Tissue Tolerance": "Pressure ulcers may develop at other sites where pressure has impaired the circulation to the tissue, such as pressure from positioning or use of medical devices. For example, pressure ulcers may develop from pressure on an ear lobe related to positioning of the head; pressure or friction on areas (e.g., nares, urinary meatus, extremities) caused by tubes, casts, orthoses, braces, cervical collars, or other medical devices; pressure on the labia or scrotum related to positioning (e.g., against a pommel type cushion); pressure on the foot related to ill-fitting shoes causing blistering; or pressure on legs, arms and fingers due to contractures or deformity resulting from rheumatoid arthritis, etc."

³⁵ Centers for Medicare and Medicaid Services. Hospital-acquired conditions (present on admission indicator) [online]. 2014 [cited 2015 Mar 13]. <http://cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HospitalAcqCond/index.html>

³⁶ Centers for Medicare and Medicaid Services. Hospital-acquired conditions (present on admission indicator) [online]. 2014 [cited 2015 Mar 13]. <http://cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HospitalAcqCond/index.html>

³⁷ National Quality Forum. Serious reportable events in healthcare—2011 update [online]. 2011 [cited 2015 Mar 13]. http://www.qualityforum.org/Publications/2011/12/Serious_Reportable_Events_in_Healthcare_2011.aspx

³⁸ Fletcher J. Device-related pressure ulcers made easy [online]. Wounds UK 2012 Jun [cited 2015 Mar 13]. https://www.smith-nephew.com/global/assets/pdf/products/wound/v1-aderma_link.pdf

³⁹ Apold J, Rydrych D. Preventing device-related pressure ulcers: using data to guide statewide change. J Nurs Care Qual 2012 Jan-Mar;27(1):28-34. PubMed: <http://www.ncbi.nlm.nih.gov/pubmed/21826028>

⁴⁰ Centers for Medicare and Medicaid Services (CMS). Appendix PP – guidance to surveyors for long term care facilities [online]. In: CMS. State operations manual. 2015 [cited 2015 Mar 13]. http://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_pp_guidelines_ltcf.pdfState

Individuals in all age groups and across all care settings were two to four times as likely to develop a pressure ulcer than those without devices. Individuals may be at a higher risk if they have impaired sensory perception to pain, pressure, or discomfort due to paralysis or neuropathy or if they have impaired ability to communicate pain, pressure, or discomfort due to an altered mental status, sedation, cognitive limitations, nonverbal/unconscious status, or language barriers. Obesity may pose some challenges due to impaired visualization of devices.⁴¹

According to Apold and Rydrych's article reviewing device-related pressure ulcers from Minnesota's mandatory reporting program, many device-related pressure ulcers occur in the head and neck region. They are often not over a bony prominence but occur in areas with little adipose tissue, lending to the occurrence of full-thickness injury. Within this data, the head/neck region was the most common location for a device-related pressure ulcer, accounting for 70% of those reported. The foot and ankle region and the coccyx and buttocks region were also noted on the list.^{42,43}

Factors that contribute to developing a device-related pressure ulcer include unrelieved pressure from the device; humidity, heat, and moisture between the device and the skin; fragile and often edematous skin that presents in high-acuity individuals; devices that are rigid; devices secured too tightly against the skin; or irritation from the apparatus used to secure the device. Because these devices are often critical to an individual's treatment, such as holding an endotracheal, tracheostomy, or oxygen tube in place, there is sometimes difficulty adjusting them, a fear of removing them off of the body, or a fear of dislodging them, all of which may contribute to the constant pressure of the device on the body part. There can also be problems with selecting the appropriate size of the device, problems with its placement, and problems with the nature of the location of the device and/or moisture associated with the location, such as secretions, gastric fluid, urine, and so on. It has been noted that some pressure ulcers go undetected and are mistaken for dried fluid buildup.^{44,45}

Recommendations⁴⁶

- Educate nursing and physician staff on medical-device-related pressure ulcers.
- Use hard stops in processes to remind staff to perform checks.
- Correct positioning of the device, especially after position change.
- Frequently inspect and assess the skin around and under the device and securement apparatus.
- Periodically release the device.

⁴¹ Baharestani M, Quillen, J. Medical device related pressure ulcers: the hidden epidemic across the lifespan [online]. [cited 2015 Mar 13]. <http://www.npuap.org/wp-content/uploads/2012/01/pdf.-Baharestani-Medical-Device-Related-Pressure-Ulcers-1The-Hidden-Epidemic-Across-the-Lifespan.pdf>

⁴² Baharestani M, Quillen, J. Medical device related pressure ulcers: the hidden epidemic across the lifespan [online]. [cited 2015 Mar 13]. <http://www.npuap.org/wp-content/uploads/2012/01/pdf.-Baharestani-Medical-Device-Related-Pressure-Ulcers-1The-Hidden-Epidemic-Across-the-Lifespan.pdf>

⁴³ Apold J, Rydrych D. Preventing device-related pressure ulcers: using data to guide statewide change. J Nurs Care Qual 2012 Jan-Mar;27(1):28-34. PubMed: <http://www.ncbi.nlm.nih.gov/pubmed/21826028>

⁴⁴ Baharestani M, Quillen, J. Medical device related pressure ulcers: the hidden epidemic across the lifespan [online]. [cited 2015 Mar 13]. <http://www.npuap.org/wp-content/uploads/2012/01/pdf.-Baharestani-Medical-Device-Related-Pressure-Ulcers-1The-Hidden-Epidemic-Across-the-Lifespan.pdf>

⁴⁵ Fletcher J. Device-related pressure ulcers made easy [online]. Wounds UK 2012 Jun [cited 2015 Mar 13]. https://www.smith-nephew.com/global/assets/pdf/products/wound/v1-aderma_link.pdf

⁴⁶ Fletcher J. Device-related pressure ulcers made easy [online]. Wounds UK 2012 Jun [cited 2015 Mar 13]. https://www.smith-nephew.com/global/assets/pdf/products/wound/v1-aderma_link.pdf

- Use barrier devices between the device and the skin.
- Use dermal gel pads to reduce pressure.

III. Surgical Events: Lost Specimens

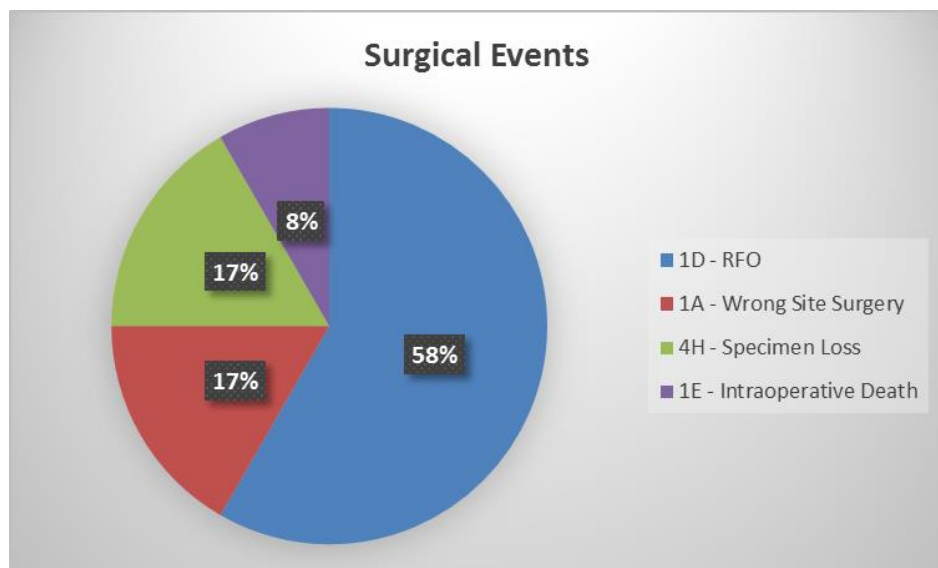
Surgical related events reported included the following:

- Surgery or other invasive procedure performed on the wrong site
- Unintended retention of a foreign object in a patient after surgery or other procedure
- Intraoperative or immediately postoperative/postprocedure death in an American Society of Anesthesiologists (ASA) class 1 patient
- Patient death or serious injury resulting from the irretrievable loss of an irreplaceable biological specimen

While 58% (7) of the surgical events reported for FY 2014 were retained foreign objects (also referred to as unintentionally retained surgical items), 17% (2) reported a retained guidewire post-central line insertion. The number of wrong-site surgeries (2) is a slight decrease from the prior year. Performing a proper time-out prior to surgery incorporates the concept of laterality. One of the events reported a wrong-site nerve block. A peripheral nerve block introduces the concept of laterality into anesthesia practice, and it exposes the practitioner to the possibility of administering a wrong-site peripheral nerve block. Performing an unintentional wrong-sided peripheral nerve block is a relatively rare event in anesthesia care, but the use of peripheral nerve blocks is increasing and subsequently so are the number of incorrect-site incidents. While the incidence is unknown, each time wrong-sided block occurs, it represents a mistake and the potential for harm.

Specimen loss accounted for 17% (2) of the reported events relating to surgery. The process of surgical/procedural specimen handling is a routine process common to healthcare facilities and is vulnerable to medical error. Thankfully, lost surgical/procedural specimens are rare events, but when they do occur, the effects can be damaging in terms of the poor clinical outcomes of delayed diagnoses, decreased patient satisfaction from increased anxiety and repeated procedures, and potential litigation secondary to these issues. See Figure 11 for breakdown of all surgical events.

Figure 11. Surgical Events Reported in FY 2014⁴⁷



Recommendations

According to AORN recommended practices, specimen management requires effective multidisciplinary communication, minimized distractions, and awareness of the potential opportunities for errors in the preanalytic phase of specimen management. The following recommendations are a modified list from AORN:⁴⁸

- The perioperative registered nurse (RN) should incorporate specimen management needs when developing the plan of care.
- The perioperative RN should complete a preoperative assessment that confirms the site and identification of specimens to be collected.

In addition, literature also recommends making a flowchart of the facility's specimen collection system to begin looking at the process from the time the specimen is obtained until it is received in the pathology department and incorporating specimen management on a surgical safety checklist.^{49,50}

Additional Resources

- OR Manager. Taking Steps to Protect Patients from Specimen-Handling Errors. Vol. 24 No. 12. December 2008. <http://www.ormanager.com/wp-content/uploads/pdf/001/ORMdec08.pdf>

⁴⁷ ECRI Institute PSO Database. Component of ECRI Institute, Plymouth Meeting, Pennsylvania.

⁴⁸ Recommended practices for specimen management. In: Perioperative Standards and Recommended Practices. Denver, CO: AORN, Inc.; 2014:e27-e56.

⁴⁹ Pennsylvania Patient Safety Authority. Lost Surgical Specimens. Vol. 2, No. 3(Sept. 2005)

⁵⁰ Patient Safety Tip of the Week. Lost Lab Specimens. November 16, 2010.

Conclusion

Medical facilities and providers in the District continue to take important steps to improve patient safety by submitting adverse event reports under the Medical Malpractice Amendment Act of 2006. The success of the reporting program continues to rely on the willingness of healthcare facilities and providers to disclose NQF events and submit meaningful reports. The focus of the District's Patient Safety Reporting System is to analyze events to better understand how and why adverse events occur. The vision for the reporting system is to provide a tool for quality improvement and education. Disseminating lessons learned and best practices facilitates system changes that consistently promote the delivery of safe patient care. In 2015, the District will have continued opportunities to benefit from custom feedback to support this objective as well as the ability to submit research requests, with the delivery of safe patient care as the ongoing goal of the program.

Technical Credits

This report was prepared for the Department of Health by ECRI Institute. ECRI Institute, a nonprofit organization, dedicates itself to bringing the discipline of applied scientific research in healthcare to uncover the best approaches to improving patient care. As pioneers in this science for over 40 years, ECRI Institute marries experience and independence with the objectivity of evidence-based research. More than 5,000 healthcare organizations worldwide rely on ECRI Institute's expertise in patient safety improvement, risk and quality management, and healthcare processes, devices, procedures, and drug technology.