State of New York
Department of Health

Office of Health Systems Management
Division of Certification and Surveillance

NEW YORK PATIENT OCCURRENCE REPORTING and TRACKING SYSTEM - NYPORTS -

2005, 2006, 2007 REPORT

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NYPORTS Report 2005 - 2006 - 2007
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Executive Summary

New York State is working to promote patient safety in all health care settings. The New York Patient Occurrence Reporting and Tracking System (NYPORTS) is one of many tools used by the Department of Health (Department) to identify, correct and prevent patient safety deficiencies.[1] NYPORTS is a mandatory reporting system that collects information from hospitals and diagnostic treatment centers (D&TCs) concerning adverse events, which are defined as unintended, adverse and undesirable developments in a patient's condition.

Ten years ago, in a groundbreaking report, *To Err is Human,* the Institute of Medicine identified mandatory adverse event reporting systems as an important tool for improving patient safety.[2] According to the Institute of Medicine, most medical errors are not the result of bad actors, but rather are caused by flawed systems or processes that make it difficult for people to provide the right care. Adverse event reporting systems help to identify error-prone health care activities and, perhaps more importantly, provide information about what leads to adverse events so that systems and processes can be developed to prevent human errors from negatively affecting patient outcomes.

New York recognized the value of mandatory adverse event reporting long before the publication of the Institute of Medicine report. Established in 1985, NYPORTS provides a critical resource for the Department and for health care providers to study adverse events in facilities and to promote implementation of effective safety systems that reduce the likelihood of future errors and improve quality overall. NYPORTS currently requires the reporting of 31 categories of "occurrences." Only a small fraction of the overall reports are related to medical errors.

Serious NYPORTS occurrences — those with a significant impact on the patient — average about nine percent of all NYPORTS reports. These occurrences require a root cause analysis (RCA) of the human, equipment and/or system failures that led to the adverse event and a plan of correction, approved by the Department, to reduce the risk of similar failures in the future.

- **Data Collection**

Over the past 24 years, New York State has refined the NYPORTS system – expanding it beyond hospitals to include D&TCs, implementing an electronic reporting system, modifying reporting requirements to focus on events that are most critical to patient safety and to eliminate events that are reported in other systems. In 2007, New York

[1] Other patient safety initiatives include the hospital-acquired infection reporting system, the office-based surgery adverse event reporting system, the hospital complaint hotline, analysis of "near miss" events, the development of clinical guidelines, certification and surveillance activities, and investigation and prosecution of medical misconduct.

[2] "To Err is Human: Building a Safer Health System," Cohn, LT, Corrigan, JM, Donaldson, MS, eds., National Academy Press, 2000.

received 12,091 NYPORTS reports – a reduction of approximately 10,000 reports since 2005. Much of this decline is attributable to a reduction in the types of reportable events in 2005. When adjusted to exclude reports related to events that are no longer reportable, the number of reports submitted annually is stable.

Specifically, reports of serious medical errors fluctuated during the study period, but did not consistently decline. Annual reports on a statewide basis of incorrect procedures, unintentionally retained foreign body and loss of limb, for example, increased between 2005 and 2007 by roughly 10 percent to 25 percent. Reports of wrong patient or wrong side surgery decreased by about 5 percent (one report) between 2005 and 2007.

The data reveal wide variation in the rates of reporting by region, by facility and by year. The Department maintains that such variation should not be construed as an indicator of successful versus unsuccessful patient safety efforts. Rather, such variation may be an indicator of inconsistent compliance with reporting requirements. It may also reflect the nature of the admissions, types of procedures performed and services provided at particular facilities.

Between 1,600 and 2,000 RCAs were performed by facilities each year between 2005 and 2007. Each analysis was conducted by a team of health care professionals and was reviewed and approved by the Department. And, each resulted in a corrective action plan designed to reduce the likelihood of similar events. These investigations and corrective actions represent just a small portion of the patient safety activities undertaken by hospitals. Hospitals are routinely designing (and redesigning) processes with the recognition that because human error will occur, they need to prevent such errors from reaching the patient.

- **Patient Safety Initiatives**

In addition to using NYPORTS to promote facility-specific patient safety activities, the Department also uses NYPORTS data to advance patient safety on an industry-wide basis. The Department implemented several NYPORTS-related patient safety initiatives during the years 2005, 2006 and 2007, including:

- New York State Surgical and Invasive Procedure Protocol (NYSSIPP): Extensive analysis of Code 911 reports (wrong patient, wrong site, wrong side surgical procedures) and Code 912 reports (incorrect invasive procedure or treatment) led to the formation of a multi-disciplinary committee to develop and disseminate a protocol to address wrong-sided surgeries.
- Pulmonary Embolism Prevention: The project engaged six hospitals in a study that sought to improve physician compliance with known prophylaxis and to increase awareness of the relationship between pulmonary embolism events and proper prophylaxis.

- Medication Errors: The Department analyzed NYPORTS reports of medication errors and developed case studies reflecting common and serious preventable errors and lessons learned, which were disseminated to facilities statewide.
- Patient Safety Conferences: The Department sponsored two patient safety conferences between 2005 and 2007 to disseminate best practices and lessons learned to promote patient safety activities among health care professionals, facilities and industry associations.

- **Providing Guidance**

To maximize the utility of NYPORTS data and the validity of the RCAs produced by facilities, the Department provided training for hospitals and D&TC staff. The training sessions have focused on the creation of a culture of safety, how to utilize NYPORTS, and how to conduct a root cause analysis, and included:

- Extensive patient safety education including culture of safety, human factors engineering, RCA and medication errors to hospital NYPORTS coordinators and quality improvement specialists of various disciplines across the state;
- Patient safety and NYPORTS training for D&TC clinical and quality management personnel;
- Training in electronic reporting for D&TCs; and
- Ongoing technical and clinical support.

- **Future Plans**

In the 10 years following the Institute of Medicine report, much has been done by the Department, hospitals, professional societies and accrediting organizations to promote a culture of safety in all health care settings, identify risks and develop new safety strategies. While progress has been made, much remains to be done in identifying the causes of medical errors and developing practical solutions to reduce the risk of recurrence.

The Department is considering steps to improve the data collected through NYPORTS and the uses of those data to promote patient safety. It is evaluating the NYPORTS reportable events to determine whether they should be more closely aligned with the recommendations of national patient safety organizations, such as the National Qualify Forum's "never events." In addition, the Department will conduct extensive analyses of NYPORTS data related to maternal and neonatal deaths and medication errors. These analyses will be used to uncover preventable errors and develop protocols to avoid them in the future.

The targeting of patient safety activities and the development of appropriate safety protocols require a complete data set. To ensure that NYPORTS data are as complete as possible, the Department will strive to improve compliance with reporting requirements. The Department is considering measures to encourage compliance, including refining the definitions of certain reportable events to minimize confusion about what must be reported. Also being considered is the development of

benchmarks for appropriate rates of reporting and to measure facility compliance based on those benchmarks. Finally, increased penalties for non-compliance may be appropriate when unreported events are discovered.

Introduction and Background

Using the information contained within NYPORTS, the Department works to improve patient safety by identifying high-risk patient care activities, requiring the implementation of system improvements in response to adverse events and disseminating information to health care providers about medical errors and best practices in reducing them. NYPORTS is a mandatory adverse event reporting system established pursuant to Public Health Law §2805-l (see also Title 10 New York Code, Rules and Regulations §§405.8, 751.10). To promote complete and accurate reporting, Public Health Law prohibits public disclosure of NYPORTS reports (see Public Health Law §2805-m). This statutory provision prevents the Department from sharing adverse event data with the public, except in aggregate form.

NYPORTS is the third iteration of incident reporting for New York State. The evolution of NYPORTS spans 24 years, initially known as the Hospital Incident Reporting System (HIRS) followed by the Patient Event Tracking System (PETS). NYPORTS is a culmination of lessons learned through analysis, evaluation and use of the system.

The system captures predefined events referred to as "occurrences," which are an unintended adverse and undesirable development in an individual patient's condition. Not all adverse events collected in the system are medical errors. While NYPORTS does collect reports on actual medical errors, the volume of medical errors in the system remains relatively small compared to the overall volume of reporting. Within NYPORTS, some occurrences are meant to be monitored by facilities on an aggregate basis, while the most serious occurrences require an internal facility investigation including an RCA and corrective actions.

The development of NYPORTS, an electronic Internet-based reporting system, began in 1995 utilizing a statewide workgroup of experts within the health care industry. The electronic version was extensively field tested, refined and implemented on a statewide basis in April 1998. The system made it easier for hospitals to report adverse occurrences, as required by law, and to obtain comparative data. Hospitals began submitting RCAs electronically in June 2000. Diagnostic and Treatment Centers began reporting electronically in 2006 after conversion from a paper-based system that required reports and investigations be faxed to the Department.

Individual facilities benefit from NYPORTS in a number of ways. The NYPORTS reporting and RCA process provides a structured framework and tools for identifying adverse events, developing and implementing system improvements that reduce the risk of recurrence and monitoring trends over time to assess the effectiveness of those improvements. Through NYPORTS, facilities can generate reports that detail the procedures and services in which their own adverse events are concentrated. Further, by using the comparative reports function within NYPORTS, a facility can compare its own reporting activity to that of facility peer groups in New York. Accordingly,

NYPORTS helps to identify the areas upon which a hospital may focus its patient safety and quality improvement efforts.

The health care delivery system as a whole benefits from the aggregate data collected through NYPORTS. With these data, the Department can identify and disseminate trends in patient safety, error-prone activities and successful strategies to reduce to the risk of those activities.

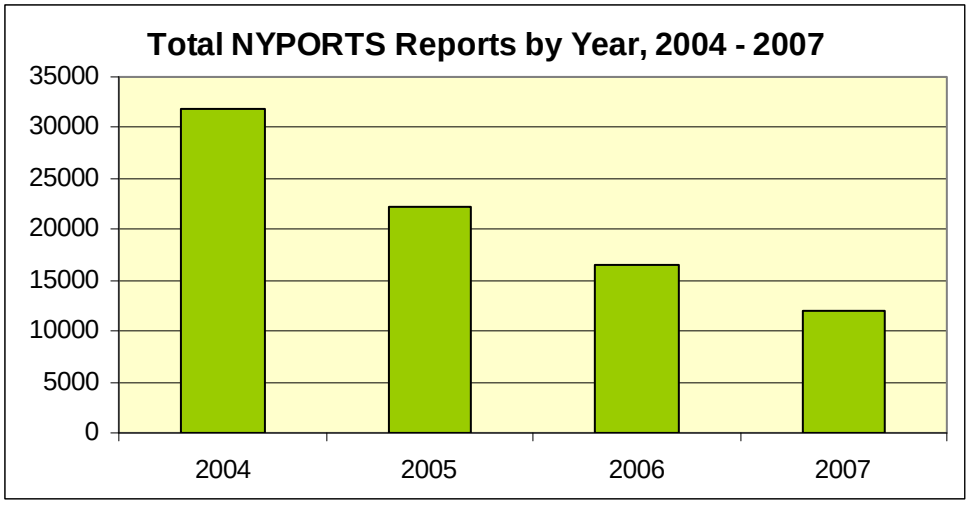
Data Collection and Analysis

- **Trends and Changes in Reportable Events**

Both hospitals and D&TCs are subject to NYPORTS reporting requirements. Collectively, they submitted 22,188 NYPORTS reports in 2005; 16,574 reports in 2006 and 12,091 reports in 2007. Reports from D&TCs comprised 5.8 percent, 5.0 percent and 5.2 percent of the database for the years 2005, 2006 and 2007 respectively.

Changes in the number of reportable codes[3] account for the decrease in reporting shown for years 2004 through 2007 (Exhibit 1). The Department undertook a detailed analysis in response to concerns that the program had expanded beyond its intended statutory scope and that reporting and analysis had become unduly burdensome. Effective June 1, 2005, the Department reduced the number of reportable events from 52 to 32. Codes were eliminated if they were not statutorily based or deemed useful for internal facility patient safety study. By reducing the number of reportable codes, facilities were expected to direct attention to the remaining reportable occurrence codes and were encouraged to continue internal monitoring of the deleted codes for quality improvement initiatives.

Exhibit 1



[3] Each type of reportable occurrence is assigned a code (e.g., medication error that resulted in permanent patient harm or misadministration of radiation or radioactive materials). A list of the occurrence codes is provided in Appendix A.

In addition, effective February 1, 2007, the code for Post-operative Wound Infection (Code 808) was eliminated from NYPORTS reporting to avoid duplication at the facility level with the Department's new Hospital Acquired Infection reporting system. As a result, a further reduction in NYPORTS reporting is noted for the year 2007. Information regarding Hospital Acquired Infection reporting is available at: http://www.nyhealth.gov/regulations/public_health_law/section/2819/

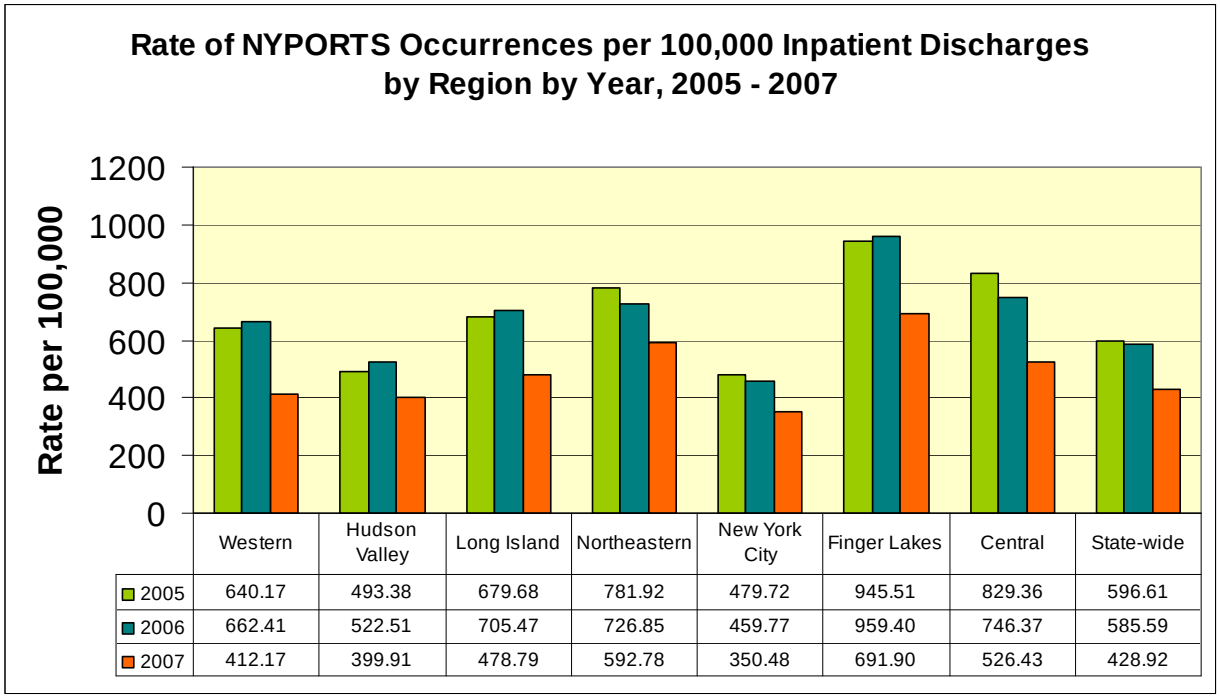
- **Completeness of Reporting and Regional Variation**

The completeness of reporting is an important concern when using NYPORTS for quality improvement and adverse event reduction purposes. If data are not complete and accurate, the occurrence frequency or the occurrence rate (the number of reported occurrences per number of discharges or the number of occurrences per number of procedures of a given type) for hospitals or for a region cannot be accurately computed.

Absent generally accepted benchmarks for the rate of adverse event reporting, it is difficult to ascertain the level of compliance with – or completeness of – NYPORTS reporting. The Department hopes to develop such benchmarks, but in the interim, the most efficient option for estimating rates of compliance is a simple variation analysis. The Statewide Planning and Research Cooperative System (SPARCS) SPARCS currently collects patient level detail on patient characteristics, diagnoses and treatments, services, and charges for every hospital discharge, ambulatory surgery patient and emergency department admission in New York State. Using the number of discharges reported in the SPARCS system as the denominator, with NYPORTS reports as the numerator, rates of reporting can be estimated. The Department is working to maximize compliance by examining facilities with below-average rates of reporting and identifying unreported occurrences through the surveillance process, complaint investigations and a retrospective medical record review process.

Exhibit 2 compares the rate of reported events per 100,000 inpatient discharges from SPARCS data for the years 2005 through 2007 by region and statewide. Exhibit 2 shows that the reported rates have increased from 2005 to 2006 for the Finger Lakes, Hudson Valley, Long Island and the Western regions. The rates have decreased from 2005 to 2006 in Central New York, New York City and the Northeastern regions. As noted above, it is difficult to compare rates of reporting in 2007 to prior years due to the elimination of certain reportable codes.

Exhibit 2



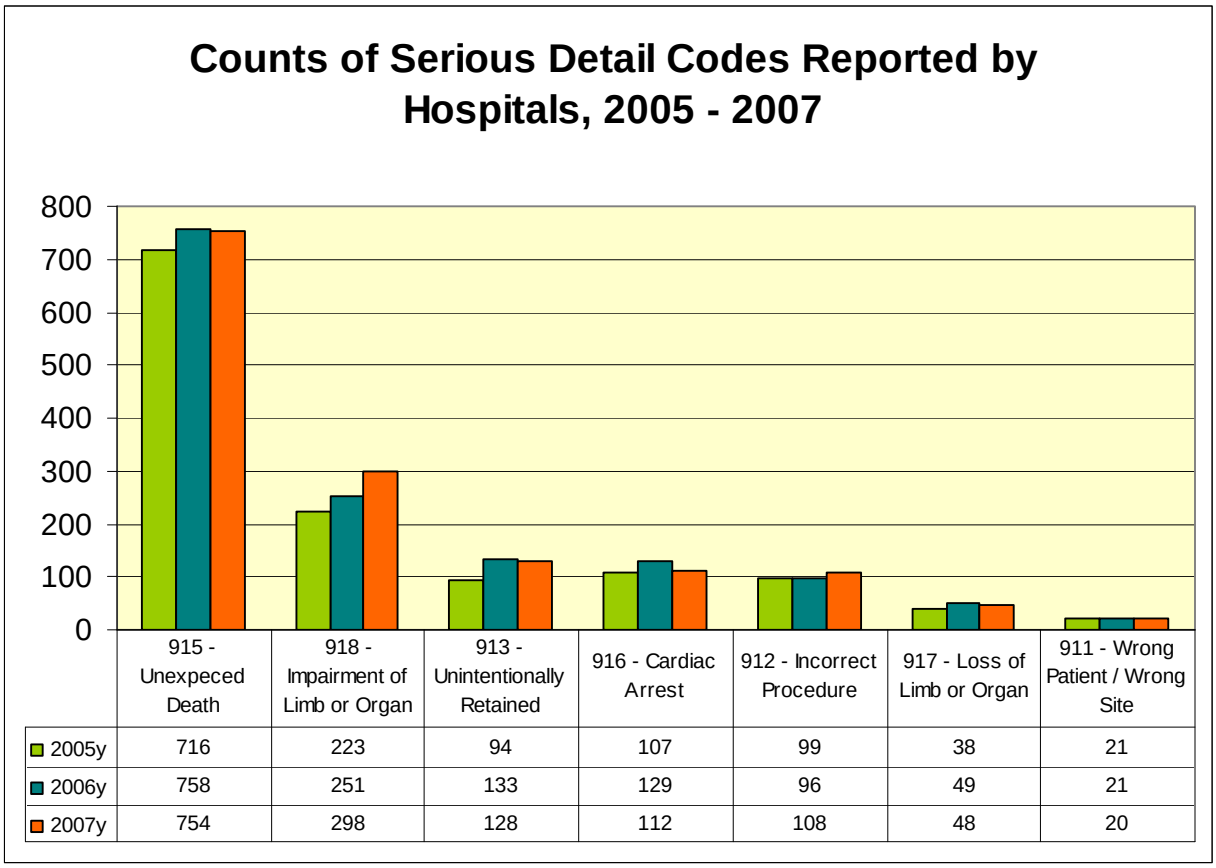
	Western	Hudson Valley	Long Island	Northeastern	New York City	Finger Lakes	Central	State-wide
2005	640.17	493.38	679.68	781.92	479.72	945.51	829.36	596.61
2006	662.41	522.51	705.47	726.85	459.77	959.40	746.37	585.59
2007	412.17	399.91	478.79	592.78	350.48	691.90	526.43	428.92

- **Serious Events**

"Serious events" are those which have a significant or lasting impact on patients, such as unexpected death or permanent impairment. When a serious event occurs, the reporting facility is required to conduct an internal investigation called a RCA. An RCA examines the particular circumstances surrounding an occurrence and determines the factors that contributed to it. Facilities must not only identify the root causes of such events, but also adopt systems improvements and "fail-safe" strategies to prevent reoccurrence. Facilities are required to monitor the implementation and effectiveness of identified systems improvements through their quality assurance activities to ensure that strategies function as intended. For events of lesser patient consequence, facilities are expected to collect and aggregate data regarding these occurrences to identify systems weaknesses before more consequential events occur.

From 2005 to 2007, selected serious events comprised, on average, nine percent of hospital NYPORTS reports related to occurrence codes that are currently in use. Specifically, 6 percent of these reports were serious events in 2005, 8.7 percent in 2006 and 12 percent in 2007. Exhibit 3 shows represents the distribution of selected serious events reported in the years 2005 through 2007. Additional NYPORTS data are displayed at Appendix B.

Exhibit 3



	915 - Unexpeced Death	918 - Impairment of Limb or Organ	913 - Unintentionally Retained	916 - Cardiac Arrest	912 - Incorrect Procedure	917 - Loss of Limb or Organ	911 - Wrong Patient / Wrong Site
2005y	716	223	94	107	99	38	21
2006y	758	251	133	129	96	49	21
2007y	754	298	128	112	108	48	20

NYPORTS System Enhancements

To maximize compliance with NYPORTS reporting requirements and to improve the utility of the data collected, the Department has implemented system enhancements that have made NYPORTS more user-friendly and efficient.

During the years 2005 through 2007, the Department undertook an extensive revision of the electronic system that included the following:

- Conversion of D&TC reporting from a paper-based process to a Web-based reporting effective September 1, 2006.
- Restructure of the Web-based NYPORTS RCA framework in 2007, with implementation in 2008.
- Update of the report production and data exporting features which enable hospitals and D&TCs to query the database to compare their experience with such events to the statewide, regional or peer group experience. While the identity of individual hospitals in the comparative groups is not disclosed, the comparative database is a useful tool in support of hospital quality improvement activities. Additionally, hospitals can use the system to create comparative reports in a variety of graphic formats. With this new functionality, hospitals can produce assorted reports that can be used to

identify patient safety deficiencies and to target their performance improvement efforts.

Patient Safety Initiatives

NYPORTS data and analysis are utilized extensively in the Department's patient safety initiatives. A summary of these initiatives is provided below.

- **New York State Surgical and Invasive Procedure Protocol (NYSSIPP)**

The Department convened a multi-disciplinary committee in February 2006 to analyze 254 cases of wrong side, wrong patient and wrong procedure data. As a result of this extensive analysis of NYPORTS data, the committee developed NYSSIPP, which is a protocol intended to reduce the potential for wrong-sided events to occur. NYSSIPP became effective March 1, 2007, establishing policies and procedures for hospitals, D&TCs, ambulatory surgery centers and individual practitioners. To prepare for the statewide implementation date, the Department provided extensive regional education to facilities in the fall of 2006 and early 2007. More than 700 health care professionals in risk management, performance improvement, hospital administration and clinical staff attended this training program.

Links to the following NYSSIPP materials are available on the Department's Web site:

NYSSIPP:
http://www.nyhealth.govs/professionals/protocols_and_guidelines/surgical_and_invasive_procedure/docs/protocol.pdf

NYSSIPP Frequently Asked Questions:
http://www.nyhealth.gov/professionals/protocols_and_guidelines/surgical_and_invasive_procedure/nyssipp_faq.htm

Letter to Facility Administrators:
http://www.nyhealth.gov/professionals/hospitals_administrator/dal_2006-1--19.htm

Complete data analysis of 254 Code 911 and Code 912 RCAs that guided the multi-disciplinary panel in NYSSIPP development is available in Appendix C of the NYPORTS 2002-2004 Report:
http://www.nyhealth.gov/nysdoh/hospital/nyports/annual_report/2002-2004/docs/2002-2004_nyports_annual_report.pdf

To aid in the national dissemination of the Department's process, findings and protocol development, the Department published an article in partnership with the Agency for Health Care Research and Quality (AHRQ) titled, **The New York Model: Root Cause Analysis Driving Patient Safety Initiative to Ensure Correct Surgical and Invasive Procedures**, authored by Lawrence L. Faltz, MD; John N. Morley, MD; Ellen Flink, MBA; and Peg DeHont Dameron, BSN. This article reviews the process that the panel of industry experts utilized to update New York State's 2001 Pre-operative Protocol. The panel reviewed 254 RCAs submitted to NYPORTS, as well as the Joint Commission's Universal Protocol and other current literature and standards in the

health care industry. Themes that emerged in wrong surgical and invasive procedures events included communication, team dynamics, patient identification, orientation/training, use of available information, site marking, "time-out" and time pressures. Both the specificity and scope of NYSSIPP are expected to increase awareness of these events, improve overall prevention strategies and reduce the incidence of these events. The AHRQ published article is available at: http://www.ahrq.gov/downloads/pub/advances2/vol1/Advances-Faltz_56.pdf

- **Process Measures Project to Prevent Pulmonary Embolism**

This project aimed to reduce the incidence of Pulmonary Embolism (PE) in hospitalized patients, thereby reducing the risks for complications or death during their inpatient stay. Nationally, one of the most effective patient safety practices is appropriate use of prophylaxis to prevent venous thromboembolism (VTE), which includes PE, in patients at-risk. The project sought to both improve physician compliance with known prophylaxis and increase awareness of the relationship between PE events and proper prophylaxis. It engaged six hospitals in an effort to apply a PE assessment and prophylaxis protocol to at-risk patients. Key components of the project included: administrative support, physician champions, education on prophylaxis tools, follow-up on risk assessment and guideline adherence, process measures usage, data collection via standardized tools, audit and feedback data utilization and addressing barriers to acceptance and adoption of these guidelines. The study showed a significant increase in utilization of VTE prophylaxis associated with the intensive training on the protocol and follow-up, especially in areas where prophylaxis was lowest before the project. The findings were presented in the AHRQ published article: **Using Process Measures to Improve Patient Safety Practices to Prevent Pulmonary Embolism** authored by Ellen Flink, MB; Harold Kilburn, MA; John Morley, MD; Tong Wang, MS; Robert Panzer, MD. This article is available at: http://www.ahrq.gov/downloads/pub/advances2/vol3/Advances-Flink_57.pdf

- **Medication Error Analysis**

The Department convened a Medication Error Committee to analyze NYPORTS medication error data submitted in 2003-2005. Physicians, clinical and administrative pharmacists, hospital quality managers and registered nurses representing facilities in all regions of New York State reviewed the root cause analyses, extracted lessons learned and identified risk reduction strategies. Committee members and Department staff provided statewide training for hospitals using information extracted from NYPORTS medication error cases. The medication case studies were presented with a complete description of the error, chronology of the event, root causes of the event, contributing factors to the event, systems fixes including forcing function fixes, measures of effectiveness, potential unintended outcomes, sustainability of fixes, outside reviewer fixes, relevant medical literature, optimal RCA team composition, applicability to other medications, standard of care determination, summary and conclusions. As noted below, the case studies and findings were widely disseminated through trainings conducted in 2006 and 2007.

- **Patient Safety Conferences**

The Department partnered with AHRQ to present the first Patient Safety Conference in March 2005 and then co-sponsored the second Patient Safety Conference with the Greater New York Hospital Association (GNYHA) and the Healthcare Association of New York State (HANYS) in May 2007. Conference attendees received education on medication safety practices, health information technology, culture of safety, wrong-site surgery, emergency department overcrowding, team training and hospital-acquired infections. Detailed information about these conferences can be found at the following links:

  - Working Together – Partnering for Patient Safety (March 2005). http://www.nyhealth.gov/nysdoh/hospital/nyports/annual_report/2002-2004/docs/2002-2004_nyports_annual_report.pdf

  - Evolving the Culture of Safety in Health Care (May 2007). http://www.nyhealth.gov/professionals/patients/patient_safety/conference/2007/index.htm

Providing Guidance

The Department has taken extensive steps to assure that hospitals and D&TCs understand and comply with NYPORTS reporting requirements. The Department's education activities include the following:

- **Revised NYPORTS RCA Evaluation Protocol**

The NYPORTS RCA Evaluation Protocol is designed for use by both facilities, that are conducting and developing the RCA and internal DOH staff who are evaluating the submitted RCA for thoroughness and credibility. The revised protocol fully describes the Department's expectations so that facilities are aware of the specific criteria that comprise a thorough and credible RCA.

- **NYPORTS Manuals**

NYPORTS User's Manuals for both hospitals and D&TCs were revised in 2005 and 2006 respectively. The manuals included updated guidance on reporting requirements and completion of an RCA. The D&TC manual offers step-by-step guidance to report occurrences using the electronic system. Prior to the introduction of the manual, D&TCs utilized a paper reporting system.

- **Training**

Department staff presented 14 sessions in fall 2004 and winter 2005 for more than 750 hospital administrative, clinical and quality and performance improvement staff. Agenda topics included: culture of safety, human factors engineering, RCA and health care failure modes and effects analysis.

During spring 2005, Department staff provided regional teaching days to roll out Version 4.0 of the Hospital NYPORTS Manual which became effective on June 1, 2005. NYPORTS reporting criteria, policies, code revisions and the User's Manual were agenda topics.

A third statewide patient safety and NYPORTS training was conducted for D&TC staff. Twenty-one sessions were held statewide in the spring, summer and fall of 2006. Department staff presented information on culture of safety, human factors engineering, NYPORTS reporting requirements and policies and procedures. More than 700 D&TC clinical, administrative and quality management personnel attended these forums. After a phase-in process during the summer, the conversion to electronic reporting took place on September 1, 2006.

Following the completion of analysis of medication error occurrences by the NYPORTS Medication Subcommittee, training was provided to hospitals in 2006 and 2007. Using data extracted from the medication error RCAs, in-depth case presentations provided feedback and lessons learned from medication occurrences statewide.

Future Plans

The Department intends to pursue several initiatives to improve the completeness of data collection, enhance the utility of the data collected, and develop and disseminate patient safety strategies based on the data.

- **NYPORTS System Initiatives:**

The Department's effort to improve data collection will include:

- Further modification and refinement of reportable events to conform to national reporting and patient safety initiatives.
- Monitoring of compliance with reporting through Article 28 surveillance activities, including complaint investigations.
- Continued collaboration with IPRO, the Department's review agent, in its review of medical records to identify unreported events, to improve NYPORTS reporting compliance.
- Sanction facilities that are not in compliance with Departmental statute and regulation.
- Enhance NYPORTS electronic systems to improve functionality for facility reporters and Departmental users.

The Department is also considering the appropriateness of existing penalties for non-reporting, in light of the strong disincentives to report adverse events. There are many reasons for noncompliance, including misinterpretation of the categories of reportable events, deficiencies in staff training, fear of malpractice liability, negative publicity and embarrassment. Under existing law, the maximum penalty for a violation is $2,000. While ongoing education of providers and clarification of reportable event

definitions are critical to compliance, stronger penalties for violations of the reporting requirements may be needed to induce more consistent compliance.

- **Current and Future NYPORTS Data Analysis**

The Department will engage in the following data analysis and patient safety improvement activities:

- Collaborate with the Patient Safety Center (PSC) and Bureau of Health Care Research and Information (BHCRIS) on patient safety initiatives. Root causes and risk reduction strategies will be extracted from root cause analyses on specific areas selected for study.
- Collaborate with PSC and BHCRIS on a periodic patient safety newsletter, which will present best practices and lessons learned from NYPORTS RCA findings.
- Continued provision of training to Article 28 facilities related to NYPORTS improvements, changes in reporting requirements, data analysis and patient safety.
- Develop of standards of care and protocols based on data analysis and national standards in the following areas:
  - Maternal deaths
  - Neonatal deaths
  - Medication safety
- Implement Medication Safety Initiative:
  - A three-phase Medication Safety Initiative to support studies, research and the development and dissemination of best practices in pharmaceutical safety. The first phase will involve an evaluation of the NYPORTS-Medication Error Reportable Events. These data will be used to understand the magnitude of, and trends associated with, medication errors.
  - The second phase will involve a survey of all New York State hospitals to capture information about current hospital-based pharmaceutical safety practices and identification of best practices for sharing with the hospital community.
  - The third phase will include providing funds to 19 providers to support system improvements, health information sharing, and/or provider and public education programs.
  - Findings from all three project phases will be used to identify pharmaceutical safety best practices and will be distributed to health care providers.

Through these efforts and others, the Department seeks to engage hospitals and D&TCs statewide in effective, evidence based strategies to minimize adverse events and assure significant improvements in patient safety.

Appendix A
Occurrence Codes in Use 2005 – 2007

Codes	Description
108*	Medication error that resulted in permanent patient harm
109*	Medication error that resulted in near death event
110*	Medication error that resulted in patient death
401	New pulmonary embolism (PE)
402	New deep vein thrombosis (DVT)
604	Acute myocardial infarction (AMI)
701	Burns (2^{nd} or 3^{rd} degree burns occurring during inpatient or outpatient service encounters)
751	Falls resulting in x-ray proven fractures, subdural or epidural hematoma, cerebral contusion, traumatic subarachnoid hemorrhage and or internal trauma (e.g. Hepatic or splenic injury)
808**	Post-op wound infection requiring incision and drainage (I&D), intravenous (IV) antibiotics or hospital admission within 30 days

** Code 808 Post operative wound infection was discontinued effective February 1, 2007, thus reporting is available for only 2005 and 2006.

Detail Codes

Codes	Description
901	Other serious occurrence warranting DOH notification
902*	Specific patient transfers from D&TC to Hospital – for D&TC use only
911*	Wrong patient; wrong surgical site procedure
912*	Incorrect procedure or treatment -invasive
913*	Unintentionally retained foreign body
914	Misadministration of radiation or radioactive materials
915*	Unexpected death (including delay in treatment, admission or omission of care, including neonate ≥28 weeks AND ≥1000 grams AND no life threatening anomalies)
916*	Cardiac and or respiratory arrest requiring Advanced Cardiac Life Support (ACLS) intervention (including delay in treatment, admission or omission of care)
917*	Loss of limb or organ (including delay in treatment, admission or omission of care)
918*	Impairment of limb or organ (including delay in treatment, admission or omission of care)
921	Crime resulting in death or injury
922	Suicide, and attempted suicide related to an inpatient hospitalization, with serious injury
923	Elopement from hospital resulting in death or serious injury
931	Strike by hospital staff
932	External disaster outside the control of hospital staff that which effects

Codes	Description
	hospital operation
933	Termination of any services vital to the continued safe operation of the hospital or to the health and safety of its patients and staff
934	Poisoning occurring within the hospital (water, air, food)
935	Hospital fire or other internal disaster disrupting care or causing harm to patients or staff
937	Malfunction of equipment during treatment or diagnosis or a defective product which has a potential for adversely affecting patient or hospital personnel or results in a retained foreign body
938*	Malfunction of equipment during treatment or a defective product resulting in death or injury
961	Infant abduction
962	Infant discharged with wrong family
963	Rape of patient

* Codes requiring an investigation/RCA

Appendix B
NYPORTS Data

Exhibit 1: Number of Inpatient Discharges Reported to SPARCS by Year, 2004 – 2007

Data from NYPORTS and the Statewide Planning and Research Cooperative System (SPARCS) are frequently matched when analysis is conducted. SPARCS inpatient data is used as a denominator to determine rates of NYPORTS reports compared to inpatient discharges. For the years 2004-2007, SPARCS reporting shows variation of less than 2 percent per year for the period. When compared to the overall numbers of inpatient discharges, this year to year variation is minimal. This lack of variation in numbers of discharges implies that trends observed in NYPORTS are not likely related to overall changes in the size of inpatient discharges.

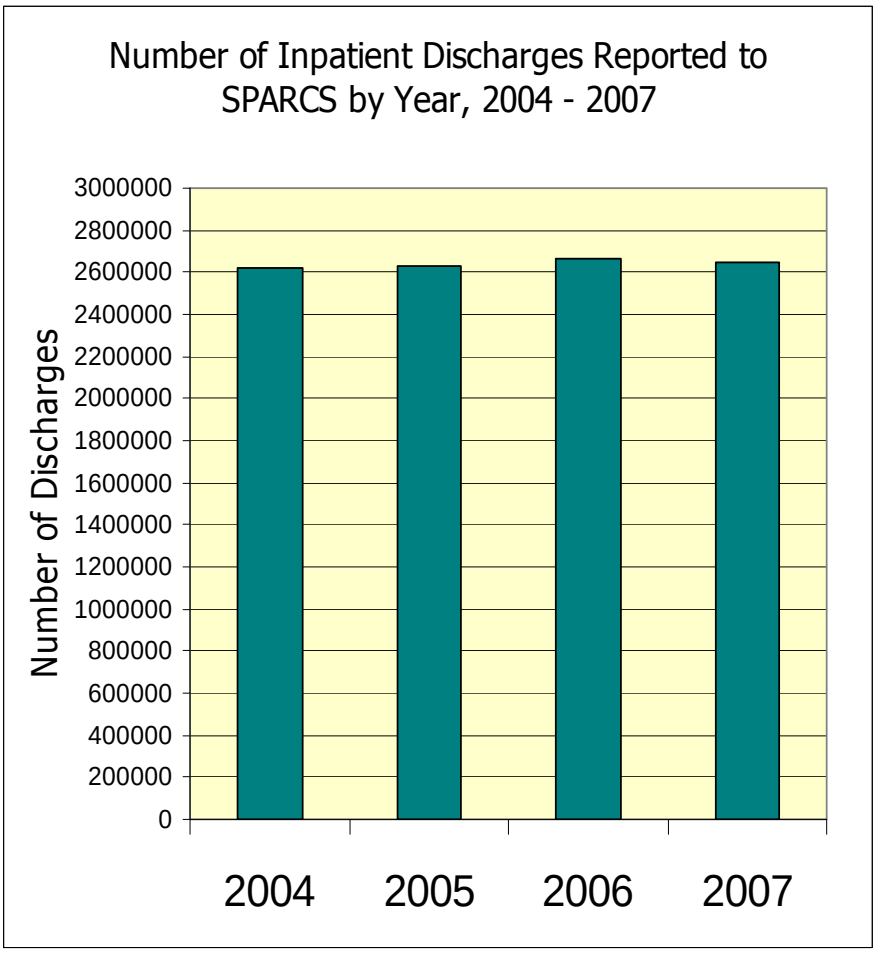


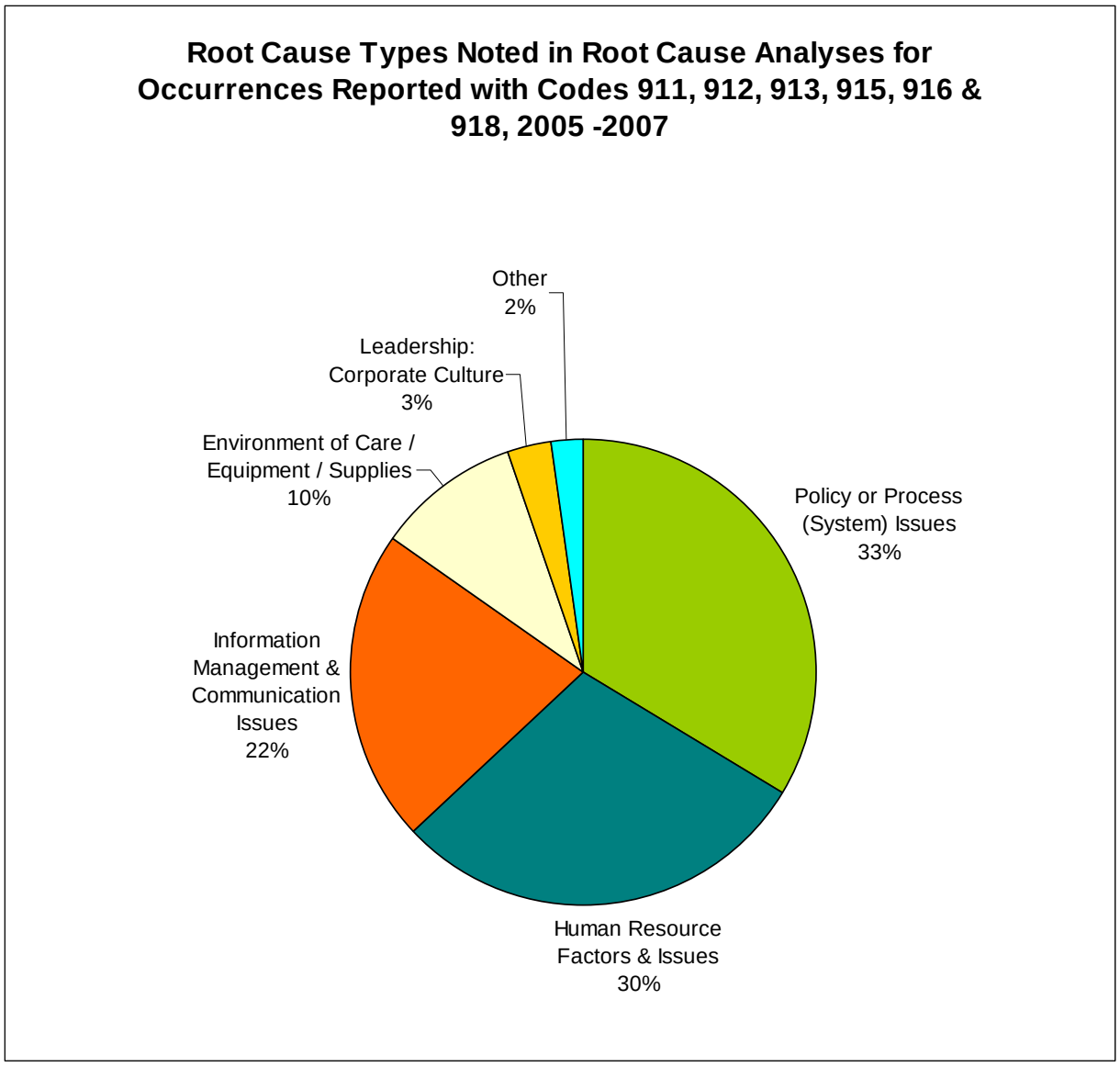
Exhibit 2: Counts of Selected Serious Detail Codes by Year 2005 – 2007

The following serious events are required to be reported with a corresponding Root Cause Analysis (RCA). In order to conduct the RCA properly, the facility must do an in-depth analysis of the event and identify corrective actions that will prevent recurrence.

Code	Description	2005 Count	2006 Count	2007 Count
915	Unexpected death	716	758	754
918	Impairment of limb or organ	223	251	298
916	Cardiac arrest	107	129	112
912	Incorrect procedure	99	96	108
913	Unintentionally retained foreign body	94	133	128
917	Loss of limb or organ	38	49	48
911	Wrong patient / wrong site	21	21	20
938	Malfunction of equipment during treatment resulting in injury or death	5	2	5
Total		1303	1439	1473

Exhibit 3: Percentage of Root Cause Types by Year, 2005 – 2007 for selected Detail Codes

There are 34 factors that are considered in identifying the root cause of an event, otherwise know as aspects for analysis, that fall into one of six root cause categories or types as follows: policy and process(system) issues, human resource factors and issues, environment of care/equipment/supplies, information management and communication issues and leadership/corporate culture and other. For all three years policy and process (system) issues was the most frequently identified root cause type, followed closely by human resource factors and issues, information management and communication issues in descending order. Together these three root cause types accounted for 85 percent of the root causes for these events.



Exhibits 4 and 5: Occurrence Codes Arranged by Frequency by year 2005 to 2007

Short Form Codes known as trackable codes are collected for trending purposes and patient safety initiatives within facilities. Short Form Codes are arranged by frequency for the three year period. Codes 108, 109 and 110 require an RCA. The other Codes only require an RCA if associated with Serious Detail Codes 911- 918, or Code 938.

For all three years, Code 402: Deep vein thrombosis, was the most frequently reported short form code. For 2005 and 2006, Code 808: Post-operative wound infection, was the second most reported code; as of February 1, 2007, this code was no longer reportable and overall reporting counts dropped significantly. For the remaining codes the counts decrease in the following order: Code 401: Pulmonary embolism; Code 751: Falls; Code 604: Acute Myocardial Infarction; and Code 701: Burns.

Exhibit 4:

Code	Occurrence	2005 Count	2006 Count	2007 Count
402	Deep vein thrombosis	5025	5666	5511
808	Post-op wound infection	4525	3875	71
401	Pulmonary embolus	2415	2506	2386
751	Fall with fracture or head injury	1116	1126	1016
604	Post-op AMI	833	747	670
701	Second or third degree burn	122	113	86
109	Medication error – near death event	14	13	11
110	Medication error – resulted in death	12	8	12
108	Medication error – resulted in permanent harm	5	2	7

Exhibit 5:

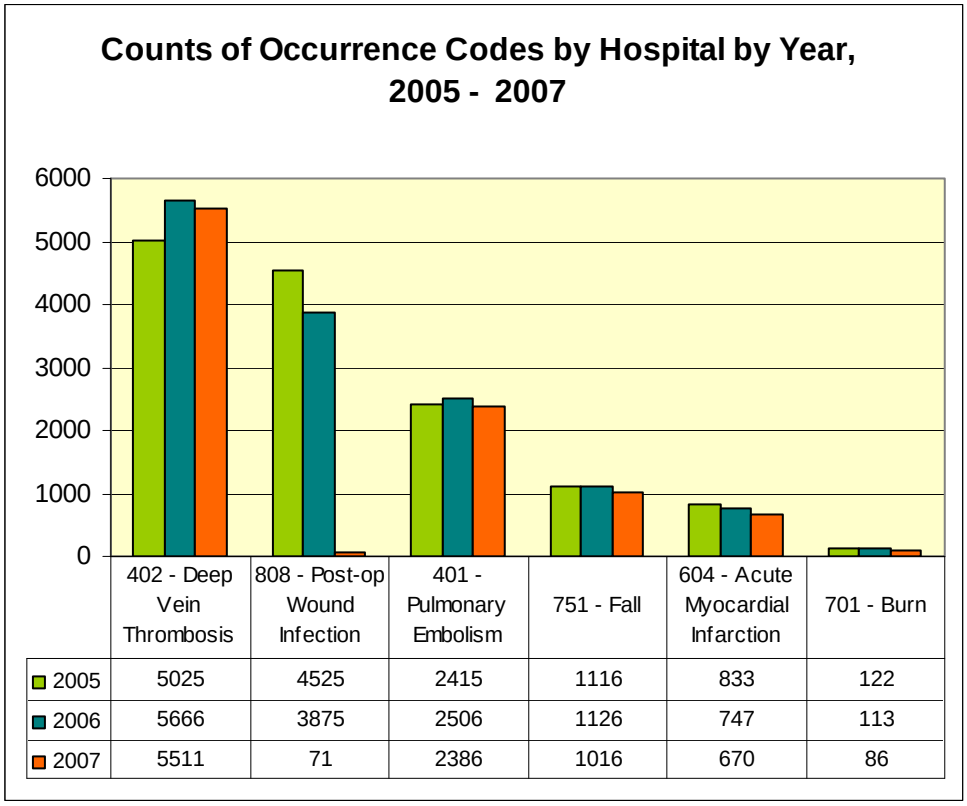
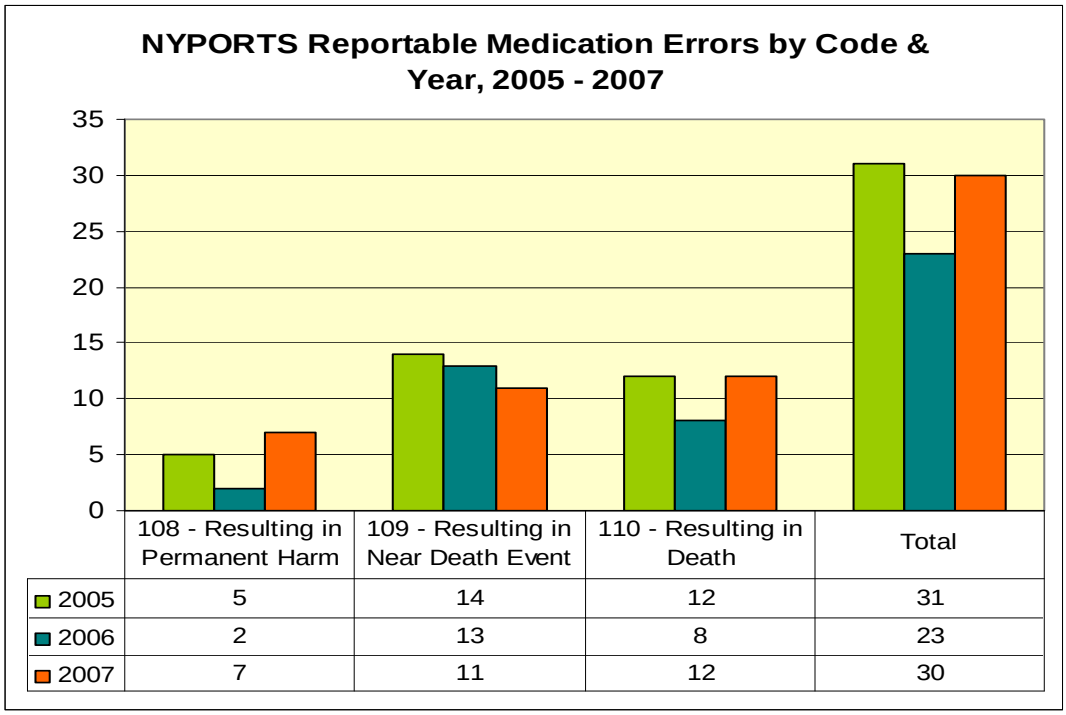


Exhibit 6: **NYPORTS Reportable Medication Errors by Code and Year, 2005 – 2007**

There are three types of medication errors reportable in NYPORTS. These errors are categorized by patient outcome: Code 108: medication errors that result in permanent patient harm; Code 109: those that resulted in a near death event; and Code 110: those which resulted in patient death.



	108 - Resulting in Permanent Harm	109 - Resulting in Near Death Event	110 - Resulting in Death	Total
2005	5	14	12	31
2006	2	13	8	23
2007	7	11	12	30

Exhibit 7: Top Ten Most Frequently Reported Detail Codes Reported by Hospitals

Code	Occurrence	2005 Count	2006 Count	2007 Count
915	Unexpected death	716	758	754
901	Other serious occurrences	471	417	315
918	Impairment of limb or organ	223	251	298
937	Malfunction of equipment during treatment	417	280	281
933	Termination of vital services	205	175	128
913	Unintentionally retained foreign body	94	133	128
916	Cardiac arrest	107	129	112
912	Incorrect procedure or treatment - invasive	99	96	108
932	External disaster	23	53	59
935	Fire or internal disaster	28	47	51

Exhibit 8: Counts of Detail Codes 911 - Wrong Site, Wrong Patient Surgical Procedure and 912 - Incorrect Procedures by Year, 2005 - 2007

Code 912 events significantly outnumber Code 911 events because of the code definition. Code 911 events are limited to procedures that occur in the operating room or ambulatory surgery suite. Code 912 events can occur in all other hospital locations, which accounts for the large differential in reporting these codes.

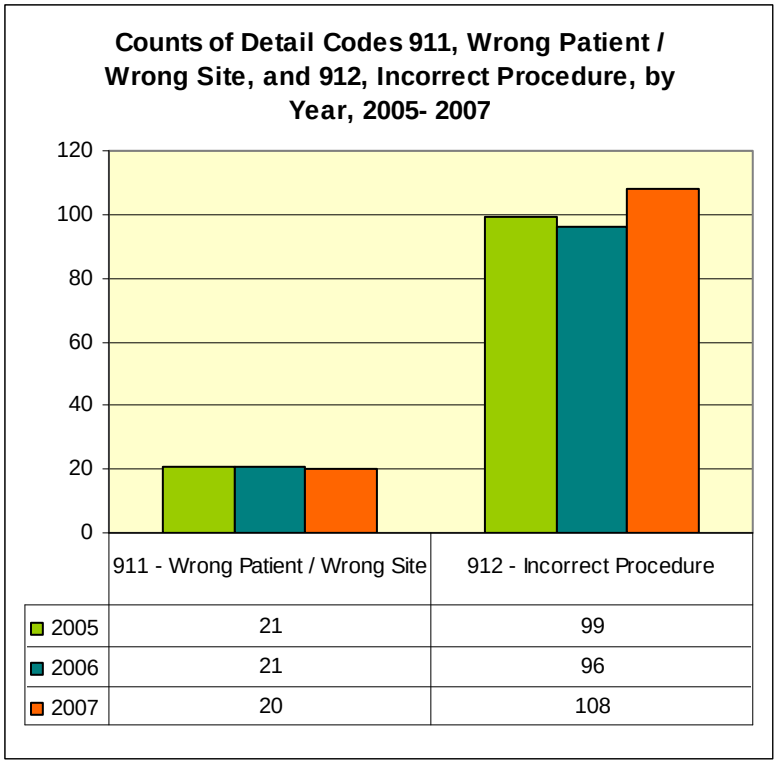


Exhibit 9: Counts of NYPORTS Occurrences Reported with Selected Detail Codes 911, 912, 913, 915, 916 & 917 by Year 2005 – 2007

Code	Occurrence	2005 Count	2006 Count	2007 Count
911	Wrong patient, wrong site surgical procedure	21	21	20
912	Incorrect procedure or treatment - invasive	99	96	108
913	Unintentionally retained foreign body	94	133	128
915	Unexpected death *	716	758	754
916	Cardiac arrest and/or respiratory arrest §	107	129	112
917	Loss of limb or organ ¶	38	49	48
Total	Total – All Selected Codes by year	1075	1186	1170

* including delay in treatment, diagnosis or an omission of care, including neonate ≥ 28 weeks AND ≥ 1000 grams AND no life-threatening abnormalities

§ requiring ACLS Intervention including delay in treatment, diagnosis or an omission of care including delay in treatment, diagnosis or an omission of care

Exhibit 10: Counts of NYPORTS Occurrences Reported with Code 911, Wrong patient, wrong site, surgical procedure, by Clinical Service by Year

2005		2006		2007	
Service	**Count**	**Service**	**Count**	**Service**	**Count**
Orthopedics	8	Surgery/General	6	Orthopedics	6
Surgery/General	5	Neurosurgery	5	Surgery/ General	6
Neurosurgery	2	Orthopedics	3	Neurosurgery	4
Vascular Surgery	2	Medicine	2	Dentistry	2
Otolaryngology/ ENT	1	Radiology	1	Otolaryngology/ ENT	1
Thoracic Surgery	1	Obstetrics	1	Vascular Surgery	1
Urology	1	Urology	1		
GYN	1	Dentistry	1		
		Clinical Dentistry	1		
Total	**21**		**21**		**20**

Exhibit 11: Counts of NYPORTS Occurrences Reported with Code 912, Incorrect procedure or treatment – invasive, by Clinical Service by Year

2005		2006		2007	
Service	**Count**	**Service**	**Count**	**Service**	**Count**
Radiology/ Imaging	18	Surgery/General	13	Surgery/General	19
Surgery/General	17	Medicine	13	Radiology/ Imaging	18
Medicine	8	Radiology/ Imaging	13	Orthopedics	13
Ophthalmology	8	Orthopedics	10	Ophthalmology	10
Orthopedics	7	Urology	7	Anesthesia	9
Anesthesia	7	Anesthesia	7	Medicine	6
Interventional Radiology	5	Ophthalmology	6	Obstetrics	6
ER	3	ER	5	Dentistry	2
Obstetrics	3	Other	4	Nursery/NICU	2
Gynecology	2	Interventional Radiology	3	Gynecology	2
Gastroenterology	2	Gynecology	2	Gastroenterology	2
Cardiology	2	Obstetrics	2	Trauma Surgery	2
Oncology	2	Pain/Palliative	2	Urology	2
Dentistry	2	Dentistry	1	Transplant Surgery	2
Nephrology	2	Pulmonary	1	Other	2
Hemodialysis	2	Pediatric ICU	1	Neurosurgery	1

2005		2006		2007	
Service	**Count**	**Service**	**Count**	**Service**	**Count**
Clinical Dentistry	1	Clinical Dentistry	1	Cardiothoracic Surgery	1
Thoracic Surgery	1	Thoracic Surgery	1	Clinical Dentistry	1
Family Medicine	1	Family Medicine	1	Thoracic Surgery	1
Pediatric Surgery	1	Transplant Surgery	1	Family Medicine	1
Plastic Surgery	1	Gastro-enterology	1	Pediatric Surgery	1
Pediatrics	1	Vascular Surgery	1	Plastic Surgery	1
Vascular Surgery	1			Pediatrics	1
Neurology	1			ER	1
Other	1			Oncology	1
				Pain/Palliative	1
Total	**99**		**96**		**108**

Exhibit 12: Counts of NYPORTS Occurrences Reported with Code 913, Unintentionally retained foreign body, by Clinical Service by Year

2005		2006		2007	
Service	**Count**	**Service**	**Count**	**Service**	**Count**
Surgery/ General	26	Surgery/ General	35	Surgery/General	25
Medicine	13	Obstetrics	18	Obstetrics	23
Obstetrics	12	Medicine	14	Medicine	18
Gynecology	6	Orthopedics	9	Gynecology	13
Orthopedics	5	Gynecology	9	Orthopedics	10
Cardiothoracic Surgery	5	Cardiothoracic Surgery	9	Cardiothoracic Surgery	8
Urology	4	Neurosurgery	8	Transplant Surgery	6
Vascular Surgery	3	Vascular Surgery	5	Urology	4
Transplant Surgery	3	Anesthesia	4	Cardiology	4
Anesthesia	2	Transplant Surgery	4	Anesthesia	2
ER	2	Ophthalmology	3	Vascular Surgery	3
Cardiology	2	Radiology/ Imaging	2	Otolaryngology/ ENT	2
Thoracic Surgery	2	Otolaryngology/ ENT	2	Dentistry	1

2005		2006		2007	
Service	**Count**	**Service**	**Count**	**Service**	**Count**
Otolaryngology/ ENT	2	ER	1	ER	1
Interventional Radiology	1	Clinical Dentistry	1	Clinical Dentistry	1
Ambulatory Surgery	1	Ambulatory Surgery	1	Ambulatory Surgery	1
Trauma Surgery	1	Trauma Surgery	1	Trauma Surgery	1
Neurosurgery	1	Family Medicine	1	Thoracic Surgery	1
Pediatric Surgery	1	Neurology	1	Neurology	1
Gastroenterology	1	Gastroenterology	1	Plastic Surgery	1
Other	1	Cardiology	1	Other	1
		Neonatology	1	Oncology	1
		Thoracic Surgery	1		
		Pediatrics	1		
Total	**94**		**133**		**128**

Exhibit 13: Counts of NYPORTS Occurrences at D&TCs by Detail Code by Year, 2005 - 2007

The geographic variability in reporting counts can be attributed in part to the variation in numbers of centers in different regions, numbers of patients utilizing D&TCs and the changeover from paper reporting to electronic reporting in 2007.

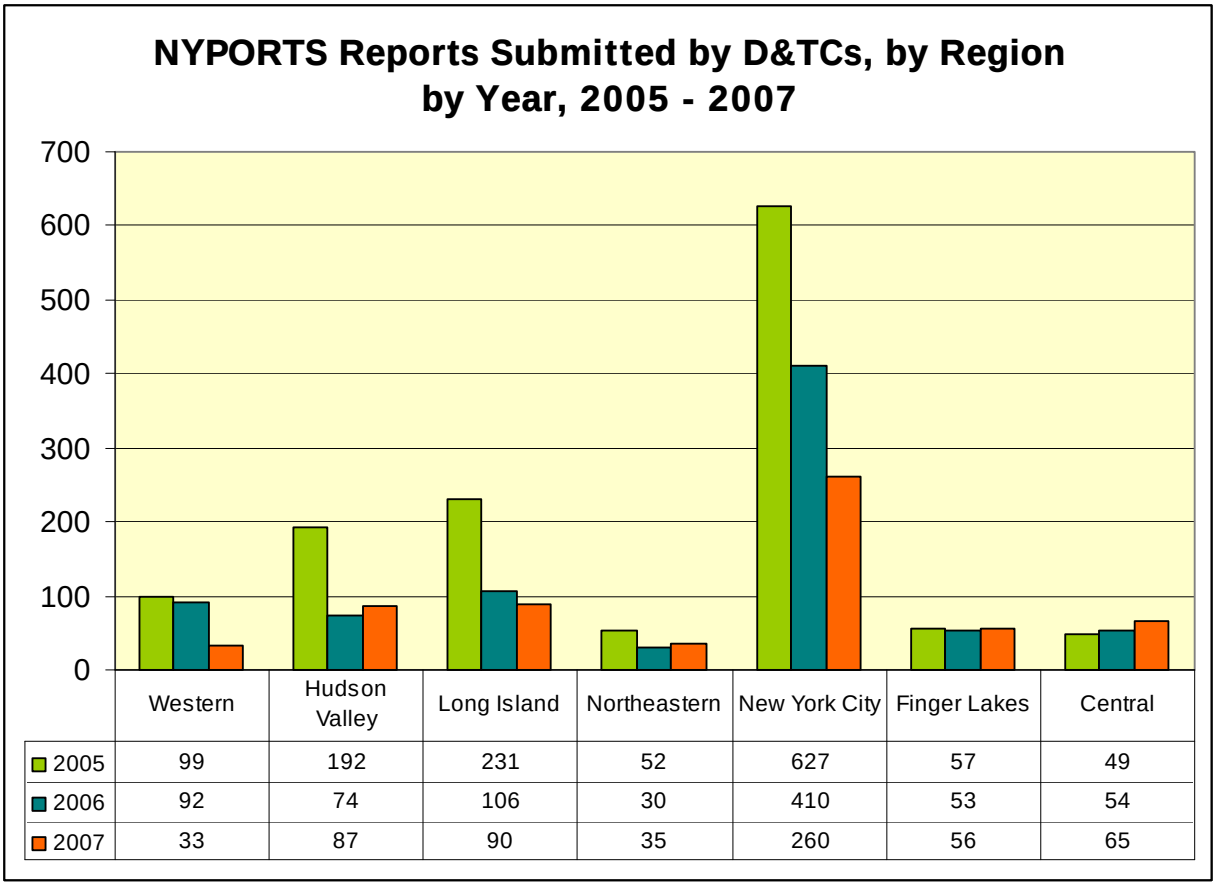


Exhibit 14: Counts of NYPORTS Occurrences at D&TCs by Detail Code by Year, 2005 - 2007

Code	Occurrence	2005 Count	2006 Count	2007 Count
901	Other serious occurrence	52	80	95
902 *	Transfer from D&TC to Hosp.	1140	643	413
911 *	Wrong patient	0	0	1
912 *	Incorrect procedure	1	0	1
915 *	Unexpected death	9	11	24
931	Strike	2	0	2
932	External disaster	18	31	44
933	Termination of vital services	82	46	38
Total		1307	819	626

* These occurrences require an investigation/RCA