MEDICATION ERRORS

Medication errors and adverse drug events (ADE) are a significant patient safety concern in both inpatient and outpatient settings. The Agency for Healthcare Research and Quality (AHRQ) estimates that ADEs cause 700,000 ED visits and 100,000 hospitalizations each year. ADEs are one of the most common inpatient errors, affecting nearly 5% of hospitalized patients. ADEs in ambulatory settings are often under-recognized and may be occurring at an even higher rate. It is estimated that about half of ADEs are preventable. (https://psnet.ahrq.gov/primers/primer/23/medication-errors).

The World Health Organization (WHO) has identified medication-related errors as a worldwide issue and, over the next five years, aims to reduce severe, avoidable medication-associated harm by 50% in all countries. Globally, the cost associated with medication errors has been estimated at $42 billion USD annually. (http://www.who.int/patientsafety/medication-safety/en/).

Factors contributing to ADEs include:
- Flawed medication ordering, transcribing, dispensing, or administration;
- Depleted staffing levels, fatigue, inadequate training;
- Inaccurate information provided to patients;
- Polypharmacy (taking multiple medications) - likely the largest risk factor for ADEs with nearly one-third of adults in the U.S. take 5 or more medications;
- Elderly patients who may be more vulnerable to adverse effects due physical or cognitive challenges;
- Pediatric patients requiring dosing by weight;
- Use of anti-diabetic agents, oral anticoagulants, antiplatelet agents, and benzodiazepines (these account for nearly 50% of ED visits for ADEs in Medicare patients).

While medication errors can occur at any stage of the medication process, AHRQ has found that the majority of errors occur at the prescribing and transcribing stages. Administration errors are also common in both inpatient and outpatient settings.

According to WHO, plans to reduce medication errors should include:
- Addressing weaknesses in health care systems that create the errors;
- Increasing patient awareness about risks of improper use of medications; and
- Offering ways to enhance the prescribing and distribution of medications.


AHRQ makes the following recommendations to prevent ADEs at the four stages of the medication pathway:

1) Prescribing:
   - Adherence to conservative prescribing principles to avoid unnecessary medications;
   - Medication reconciliation during transitions of care; and
   - Computerized provider order entry (CPOE);
2) Transcribing: CPOE to eliminate errors in handwriting;
3) Dispensing: Use of “tall man” lettering and other methods to mitigate look-alike and sound-alike medication confusion;
4) Administration:
   - Adherence to the “5 Rights” of medication safety (right medication, dose, time, route, and patient);
   - Minimizing interruptions to nurses who are preparing and administering medications;
   - Barcoding medications to help ensure correct medications are given to the correct patient;
MEDICATION ERRORS, CONT.

- Use of smart infusion pumps for IV infusions; and
- Improved patient comprehension of administration instructions through patient education and revised medication labels.

Serious medication errors arise from a confluence of underlying systems’ issues and flaws. Root cause analysis (RCA) becomes extremely important in identifying the system components (environment, organization, technology, process, and people) that have interacted in unanticipated ways to provoke an error. For example: the RCA of a medication error might reveal that there was insufficient staffing to handle the high acuity of patients on the unit, leading to “task juggling” and frequent task interruptions. Interrupted in the midst of medication administration a nurse forgot to perform a key safety check when returning to the task, leading to a serious medication error.

Using a systems approach in conducting a RCA can help to make meaningful and sustainable changes that will prevent future medication adverse events. Below are common factors in system mishaps.

People, processes and systems:
- Staffing ratios, experience and competence levels (not always the same);
- Resources available and effectively used to assist when acuity is increased;
- Effectiveness and frequency of training/education;
- Administrative support;
- Understanding of and adherence to protocols;
- Policies and procedures reflect current standards of practice;
- Effective communication of new policies and practices to staff; and
- Patient acuity.

Environment:
- Environment conducive to safe medication preparation and administration;
- Frequency of nurses interruptions;
- Proximity of medication room to patient rooms;
- Number of nurses in the med room at the same time; and
- Administration of medications to patients in shared rooms.

Technology:
- Use of barcoding;
- Functioning of medication equipment (Pyxis);
- Availability of adequate medication supplies; and
- Use of work-arounds when medication equipment does not work and/or there is inadequate access to medications/supplies.

MEDICATION ERRORS, CONT.

Organization:
- Organizational culture supports patient and staff safety;
- Psychological safety of organization/unit;
- Information flow – top down and bottom up;
- High reliability concepts practiced;
- Just culture;
- Response of organization to adverse event reports;
- Effectiveness of communication between departments, within units and across disciplines;
- Presence of horizontal violence;
- Poor staff retention; and
- Engagement of employees in their work;

PUBLIC HEALTH CRISIS: PREVENTABLE HEALTH CARE HARM

In March 2017, the National Patient Safety Foundation (NPSF) issued a call to action for healthcare leaders and policymakers to initiate a coordinated public health response to improve patient safety and drive the collective work needed to ensure that patients and those who care for them are free from preventable harm. http://www.npsf.org/default.asp?page=public_health_crisis

NPSF asserts that “a public health approach – one that draws on the experience and expertise of public health professionals and public health organizations – will accelerate progress in the prevention of harm and establish the infrastructure needed to address this challenge across the U.S. healthcare system consistently and sustainably.”

Over the past two decades, the Institute of Medicine (IOM) has published two reports (Crossing the Quality Chasm and To Err is Human) that identified substantial and widespread deficiencies in the U.S. health care system. In March 2016, Makary & Daniels published an article in the British Medical Journal citing medical errors as the third leading cause of death the U.S. (http://www.bmj.com/content/353/bmj.i2139).

Health care organizations and the public are becoming increasingly aware that preventable harm to patients can occur in healthcare settings. There is widespread acknowledgment that the quality of the U.S. health care system needs to improve, but there has been no consensus on how to do so. For the past several decades, patient safety efforts have been underway, yet the results are inconsistent, limited and tend to be reactionary.

According to NPSF, meaningful advancement in patient safety requires a different approach. The piecemeal safety efforts of individual organizations aren’t working. A
coordinated, system-wide approach that focuses on providing safe healthcare across the continuum is required. All stakeholders are urged to increase collaboration to address preventable healthcare harm through adoption of the NPSF public health framework (Figure 1).

An integrated, evidence-based public health approach would focus on patient safety for the entire population. The advantages of a public health focus are illustrated by the work done by the U.S. Department of Health and Human Services and the Centers for Disease Control and Prevention to reduce healthcare-associated infections (HAIs). A National Action Plan to Prevent Health Care-Associated Infections was released in 2009 to help coordinate efforts across agencies and to engage stakeholders toward the elimination of HAIs. Specific reduction goals were established. The success of this approach is evidenced by the most recent progress reports documenting significant reduction in HAIs, including a 50% decrease in central line-associated infections.

NPSF has defined six main areas of a public framework, and has identified recommended actions, suggested tactics and the stakeholders responsible for each. The six areas are as follows:

1. Define the problem and set national goals;
2. Coordinate activities across multiple sectors to ensure widespread adoption and evaluation;
3. Inform, educate and empower the community;
4. Effectively measure and monitor progress at all levels;
5. Identify causes and interventions that work; and
6. Educate and train.

The SET, in conjunction with the Maine Primary Care Association Patient Safety Organization (MePCA-PSO), hosted a highly interactive and well-attended educational session on May 8th in Augusta. This was part one of two collaborative learning sessions focused on systems analysis and the RCA process. Participants in the program shared strategies and methods for risk assessment and adverse event investigation. Hospitals, ambulatory surgical centers, ESRDs and Federally Qualified Health Centers were represented.

A key thread in discussions throughout the day was that patients do not perceive healthcare systems and facilities as discrete business entities—their concept of a health system is defined by the organizations and providers with whom they interact as they seek and receive care. Improving care coordination and information exchange in support of patient care requires a focus on the patient’s concept of the health system, as defined by their care path.

Jeff Brown, Director for Continuous Quality Improvement for MePCA and Angela Gibbs, V.P. Quality, Inland Hospital joined Joe Katchick and Madeline Orange as presenters and facilitators. The National Academy of Medicine’s (NAM) socio-technical system model for adverse event investigation and prospective risk identification was reviewed. This model shows how accidental injury and death can stem from unanticipated effects of interactions among system components—people, technology, processes, organization and environment. Small workgroups applied the presentation concepts to a case study that was utilized throughout the day.

Additionally, initial steps in conducting a RCA were discussed and practiced, including building a timeline showing the sequence of actions leading up to the event. Approaches to interviewing those involved in a patient safety event were discussed, including the identification and support of ‘second victims’. Participants shared their approaches to surveillance to ensure timely identification of possible sentinel events.

An afternoon presentation focusing on the importance of understanding how failures occur included information on human error, hindsight bias, and context during an adverse event investigation. Understanding the factors impacting decision-making at the time of an adverse event, from those involved, was also reviewed.
UPDATES FROM THE SENTINEL EVENT TEAM

Part II of the Systems Analysis and RCA training will be held on June 29th and will include continued discussion and practice of surveillance/event identification and interviewing, and creating and evaluating the effectiveness of action items.

The Agency for Healthcare Quality and Research (AHRQ) released a toolkit for the Ambulatory Surgery Center (ASC) environment in March 2017. According to AHRQ, ASCs can use the toolkit to apply the proven principles and methods of AHRQ’s Comprehensive Unit-based Safety Program (CUSP) to prevent surgical site infections (SSI) and other complications and improve safety culture in their facilities. The toolkit includes resources used by ASCs that participated in the AHRQ Safety Program for Ambulatory Surgery project. The toolkit is organized into three sections (implementation, sustainability, and resources) that facilities can use to teach team members how to apply CUSP to prevent surgical site infections and other complications. Each section contains guides, tools, slide sets, and videos to support implementation. All materials are publicly available and downloadable online. Many can be modified to meet local facility needs and criteria. The toolkit can be found at: https://www.ahrq.gov/professionals/quality-patient-safety/hais/tools/ambulatory-surgery/index.html

The 8th Annual Patient Safety Academy will be held on September 29, 2017 at the Abromson Center on the University of Southern Maine’s Portland campus. This day-long event is open to anyone interested or engaged in patient safety activities. Workshops will provide skill-building and best practice lessons in the areas of patient engagement, infection prevention, falls prevention, patient safety culture, and more! Registration is $50 general / $25 students. Registration is available at: https://conferences.usm.maine.edu/AttendeeOnline/RegistrationNew.aspx