SPECIAL REPORT

Top 10 Patient Safety Concerns 2023

ECRI

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Voice in Healthcare

Top 10 Patient Safety Concerns 2023

This annual report from ECRI and our affiliate, the Institute for Safe Medication Practices (ISMP), identifies serious issues that threaten the safety of patients and healthcare workers when processes and systems are not aligned. The solutions to these challenges are usually complex and require a systems-based approach to eliminate them. The recommendations in this report will help healthcare organizations create organizational resilience to navigate these threats and strive for total systems safety.

The List for 2023

1. **The pediatric mental health crisis**
2. **Physical and verbal violence against healthcare staff**
3. **Clinician needs in times of uncertainty surrounding maternal-fetal medicine**
4. **Impact on clinicians expected to work outside their scope of practice and competencies**
5. **Delayed identification and treatment of sepsis**
6. **Consequences of poor care coordination for patients with complex medical conditions**
7. **Risks of not looking beyond the "five rights" to achieve medication safety**
8. **Medication errors resulting from inaccurate patient medication lists**
9. **Accidental administration of neuromuscular blocking agents**
10. **Preventable harm due to omitted care or treatment**

The number-one concern on this year's list recognizes that children and youth are facing a true crisis. The proportion of youth experiencing mental health challenges is high and growing, yet resources and access are limited. The healthcare sector must act now to protect our youngest and most vulnerable population.

In addition, staffing shortages—the number-one challenge on last year's list of Top 10 Patient Safety Concerns—continue to influence many of the concerns on this year's list. Such challenges include the pediatric mental health crisis, violence against healthcare staff, mismatches between assignments and competencies, and missed care or treatment, among others. The recommendations in this report reflect the collaborative, total-systems approach that all these problems demand.

Repeat Patient Safety Concerns

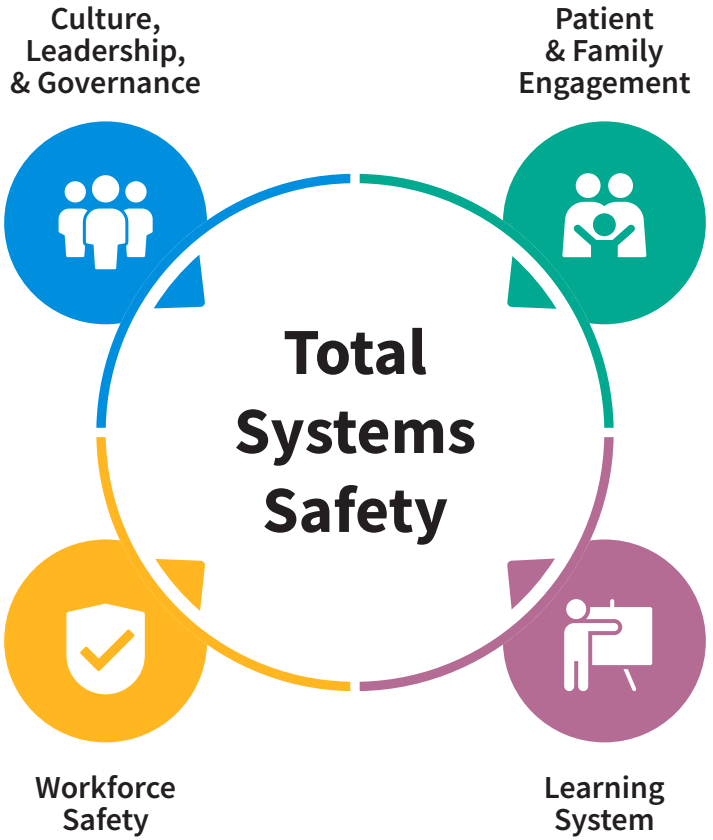
Over the years, several patient safety issues have made repeat appearances on ECRI's list of Top 10 Patient Safety Concerns. See Recurrent Patient Safety Challenges for a list of perennial patient safety issues.

Supporting Total Systems Safety

Change that creates a meaningful and sustainable impact requires that organizations think differently about how they redesign the environment, systems, and processes in which healthcare is delivered (Kaplan et al.). It demands the cross-stakeholder collaboration necessary to solve safety problems (NSC). In its National Action Plan to Achieve Patient Safety, the National Steering Committee for Patient Safety describes four interdependent foundations that are essential to achieving total systems safety (NSC):

- Cultivating leadership, governance, and cultures that reflect a deep commitment to safety
- Engaging patients and families as partners in designing and producing care
- Fostering a healthy, safe, and resilient environment for the workforce
- Supporting continuous and shared lessons learned to improve safety and quality of care and reduce the risk of harm

This annual Top 10 report is grounded on these four pillars. It shares lessons from ECRI and ISMP's analysis of a wide range of data sources and offers strategies to support continuous improvement in healthcare, emphasizing the roles of culture and leadership, patient and family engagement, and workforce safety. This report also illustrates ECRI and ISMP's deep understanding of how systems can contribute to harm—or drive safety.



More Resources and Tools for ECRI's *Top 10 Patient Safety Concerns 2023*

- Scorecard
- Customizable Risk Map

The 2023 Top 10: Achieving Excellence in Care

Reflecting the emphasis of total systems safety on system-wide processes and cross-collaboration, the theme for this year's Top 10 list is Achieving Excellence in Care.

For the items on this year's list, healthcare organizations may already have implemented measures to improve safety but have not achieved results that demonstrate excellent care. To address these gaps in performance, healthcare organizations and their partners may need to reach further. The items on this year's list require that leaders make safety the top priority in the organization, that patients and families be partners in the design of safe care, and that healthcare workers be seen not as commodities, but as a valued resource that is mission critical. For each item, this report offers multifactorial recommendations to help organizations achieve total systems safety.

Methods

The Top 10 list reflects ECRI and ISMP's deep and vast patient safety expertise. Our interdisciplinary staff includes experts in medicine, nursing, pharmacy, patient safety, quality, risk management, clinical evidence assessment, health technology, and many other fields. Our patient safety organization (PSO), ECRI and the ISMP PSO, analyzes our patient safety data—the nation's largest data set of adverse events—to improve patient care. ISMP is globally recognized as a leader in medication safety. Drawing on our diverse expertise, ECRI invited personnel throughout ECRI and ISMP to nominate important patient safety concerns to be evaluated for inclusion on this Top 10 list.

To develop each topic, nominators collected scientific literature. They also noted any trends in event reports, root cause analyses (RCAs), and research requests submitted to ECRI and the ISMP PSO; reports submitted to the ISMP National Medication Errors Reporting Program and the ISMP National Vaccine Errors Reporting Program; medical device alerts, problem reporting, and evaluation; reported medication safety problems; accident investigations; lessons learned from consultation work; and other internal and external data sources.

A cross-departmental team of ECRI and ISMP experts analyzed the supporting evidence and evaluated each topic using the following criteria:

- **Severity.** How serious would the harm to patients be if this safety issue were to occur?
- **Frequency.** How likely is it that the safety issue will occur?
- **Breadth.** If the safety issue were to occur, how many patients would it affect?
- **Insidiousness.** Is the problem difficult to recognize or challenging to rectify once it occurs?
- **Profile.** Would the safety issue place a lot of pressure on the organization?

Based on these criteria, the interdisciplinary team chose and ranked the Top 10 patient safety concerns.

References

Kaplan G, Bo-Linn G, Carayon P, Pronovost P, Rouse W, Reid P, Saunders R. Bringing a systems approach to health. Institute of Medicine, National Academy of Engineering. 2013 July 10 [cited 2022 Oct 31]. https://nam.edu/wp-content/uploads/2015/06/SAHIC-Overview.pdf

National Steering Committee for Patient Safety (NSC). Safer together: a national action plan to advance patient safety. Institute for Healthcare Improvement (IHI). 2020 [cited 2022 Oct 31]. https://www.ihi.org/Engage/Initiatives/National-Steering-Committee-Patient-Safety/Pages/National-Action-Plan-to-Advance-Patient-Safety.aspx

The Pediatric Mental Health Crisis

1

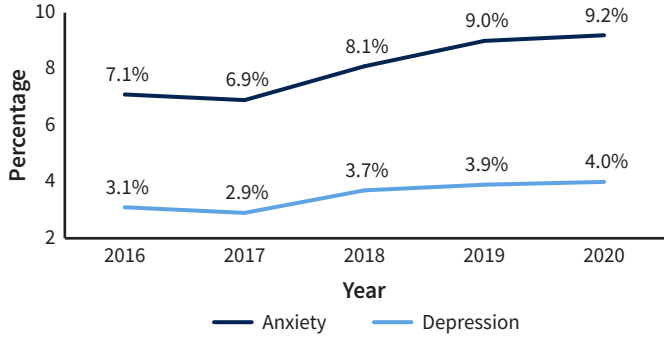
Concern for pediatric mental health was already high during the 2010s due to the growing use of social media, limited access to pediatric behavioral health providers, drug and alcohol use, gun violence, and socioeconomic impact, among other stressors.

Source: Office of the Surgeon General

However, pediatric mental health issues have been exacerbated by the COVID-19 pandemic, with a **29% increase in children age 3 to 17 experiencing anxiety** and a **27% increase in depression** in 2020 compared with 2016.

Sources: AAP; Lebrun-Harris et al.

Figure. Percentage of Children Age 3–17 Years Experiencing Anxiety and Depression, 2016–2020



Source: Lebrun-Harris et al.

The impact the pandemic has had on children and schools differs not only from its impact on adults, but even among children and adolescent subpopulations based on **age, gender, sexuality, race, or socioeconomic status**, with girls more likely to be diagnosed with anxiety and depression and boys more likely to be diagnosed with attention deficit hyperactivity disorder.

Sources: AAP; Office of the Surgeon General

Depression developed during the formative years is more likely to continue into adulthood if left untreated. However, only half of children and youth age 5 to 21 with major depression are diagnosed, and of those who are, only **40% receive any mental health treatment**.

Source: Reinert et al.

The increase in children experiencing extreme anxiety and depression has led to an increase in suicidal ideation, with **more young people age 12 to 25 presenting to the emergency department (ED) for suspected suicide attempts**. Although adolescent suicide attempts had decreased during spring 2020, **the mean weekly number of ED visits for suspected suicide attempts among those age 12 to 17 was 22% higher in summer 2020 and 39% higher during winter 2021 compared with the corresponding periods in 2019**.

Source: CDC

Hospital

Physician practice

Action Recommendations

While some solutions to the pediatric mental health crisis may fall beyond the control of hospitals and pediatric practices, there are steps that can be taken to protect our youngest and most vulnerable population.

Culture, Leadership, and Governance

- Secure leadership support and resources to evaluate the organization's pediatric behavioral health services.
- Form a strategic team of leaders and frontline staff to evaluate the facility's current strengths and gaps in meeting pediatric patients' behavioral health needs.
- Advocate for pediatric behavioral health improvement initiatives at the regional, state, and national level.

Patient and Family Engagement

- Implement universal screening for depression, anxiety, abuse, substance use, and suicidal ideation for pediatric patients during every office and hospital visit.
- Refer patients using warm handoffs to pediatric behavioral health services for a complete assessment if concerns are identified during the screening.
- Provide resources to patients and families, such as the new 988 Suicide and Crisis Lifeline, and referrals to other local behavioral health services and support groups.
- Assess for social determinants of health and provide additional support to children and caregivers identified as being at increased risk.

Workforce Safety

- Support healthcare workers who may be impacted by caring for increasing numbers of pediatric patients who present with mental health concerns and suicidal ideations.
- Form a behavioral emergency response team.

Learning System

- Train staff on the urgency of this mental health crisis, its pervasive effects, warning signs, and potential long-term health consequences.
- Create an interdisciplinary mental health team to evaluate relevant policies and procedures. Verify that treatment protocols reflect evidence-informed practices and provide organizational training on how to implement and monitor outcomes for a trauma-informed approach to care.

Sources: AAP; Children's Hospital Colorado; Forkey et al.; Office of the Surgeon General; SAMHSA

ECRI Resources

Self-Assessment Questionnaire: Behavioral Health: Patient Safety (Health System Risk Management)

Self-Assessment Questionnaire: Behavioral Health: Policies and Procedures (Health System Risk Management)

Deep Dive: Meeting Patients' Behavioral Health Needs in Acute Care (ECRI and the ISMP PSO)

Suicide Risk Assessment and Prevention in the Acute Care General Hospital Setting (Health System Risk Management)

Resource Collection: Behavioral Health (Health System Risk Management, Ambulatory Care Risk Management)

Resource Collection: Pediatrics and Child Safety (Health System Risk Management, Ambulatory Care Risk Management)

Some ECRI resources are publicly available. To obtain other ECRI reports, contact us by telephone at (610) 825-6000, ext. 5891, or by email at clientservices@ecri.org

Physical and Verbal Violence against Healthcare Staff

2

Violence directed toward healthcare staff may come from other staff members (disruptive providers, bullying) or from patients or family members. **Any violence toward staff is unacceptable.**

Source: BLS

The National Institute for Occupational Safety and Health (NIOSH) acknowledges that there are varying definitions of what constitutes workplace violence. NIOSH defines it as "**violent acts, including physical assaults and threats of assault**, directed toward persons at work or on duty."

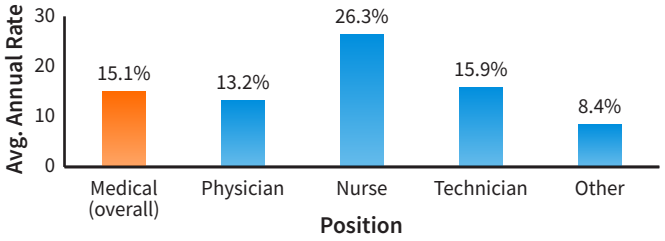
Source: NIOSH

Data reporting is limited and inconsistent. In addition, **many health professionals appear to accept** that a certain amount of violence directed toward them is an **expected part of the job**, thus normalizing the abnormal.

Source: Joint Commission

Healthcare workers suffer from more workplace violence than any other professionals except law enforcement and security personnel and mental health workers.

Figure. Average Annual Rate of Nonfatal Medical Workplace Violence per 1,000 Workers, Age 16 or Older, 2015 to 2019



Source: Harrell et al.

No federal enforcement regulations require employers to safeguard against workplace violence other than the Occupational Safety and Health Act's General Duty Clause, which **requires employers to provide a workplace free from recognized hazards that are causing or likely to cause death or serious physical harm**.

Source: OSHA "Guidelines"

In January 2022, Joint Commission **accreditation standards began requiring leadership to develop and enforce a workplace violence prevention program**. Joint Commission also states that effective workplace violence programs encourage reporting incidences of threatening language and verbal abuse in addition to physical abuse.

Source: Joint Commission

Hospital

Ambulatory surgery

Physician practice

Aging services

Home care

Action Recommendations

Healthcare organizations should prioritize protecting their workforce against workplace violence, from other staff as well as from patients and visitors.

Culture, Leadership, and Governance

- Charge organizational leaders with assessing the risk of workplace violence and providing resources (e.g., time, staffing, training) to reduce such events.
- Formalize a workplace violence program utilizing an oversight committee that monitors related metrics.
- Establish a zero-tolerance policy that extends to all who come into contact with organizational personnel.
- Set an organizational tone that any violence against healthcare workers is unacceptable.
- Encourage reporting of physical and/or verbal abuse from patients, including suspicious behavior.
- Enforce the code of conduct with a strong, consistent response.
- Establish and support compliant processes that permit clinicians to terminate patient relationships.
- Reduce environmental factors that can foster violent events, such as insufficient lighting and unrestricted building access.

Patient and Family Engagement

- Set realistic expectations by clearly communicating patient and visitor codes of conduct.
- Educate patients, families, and the community about the impact of workplace violence.

Workforce Safety

- Utilize a behavioral emergency response team of trained individuals; ensure that employees know when and how to activate this team.
- Use panic alarms in free-standing facilities.
- Develop a postincident response that ensures the mental, emotional, and physical safety of impacted employees and provides additional support and resources when needed.

Learning System

- Review reported incidents and create improvement plans to address identified system failures.
- Offer training for prevention, early recognition, management, and de-escalation of violent situations through simulation drills involving various violent scenarios.
- Build relationships with local law enforcement and organizational security and involve them in simulated drills.

Sources: AHA/IAHSS; AMA; ANA; CMS; ECRI; Joint Commission; OSHA "Workplace"

ECRI Resources

Patient Violence (Health System Risk Management [available without login])

Ask ECRI: Patient Violence: Zero Tolerance and Patients with Underlying Conditions (Health System Risk Management, Aging Services Risk Management)

Self-Assessment Questionnaire: Workplace Violence (Ambulatory Care Risk Management)

Security in the Ambulatory Setting: Dealing with Disruptive Patients and Visitors (ECRI and the ISMP PSO)

Behavioral Rapid Response Team for Acute Care Medical Units (ECRI and the ISMP PSO)

Resource Collection: Safety and Security (Ambulatory Care Risk Management)

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Clinician Needs in Times of Uncertainty Surrounding Maternal-Fetal Medicine

3

On June 24, 2022, the Supreme Court held that the Constitution does not provide a right to an abortion, overruling *Roe v. Wade*. In doing so, the Court returned the **full power to regulate abortion to the states**.

Source: *Dobbs*

Uncertainty has now arisen in many states regarding which reproductive services may be provided and when. This uncertainty can lead to **refusals of or delays in care** that ultimately may not be considered to violate the law.

Although some states with abortion bans allow abortions to save the life of or prevent harm to the pregnant patient, there is often **little guidance on where the line is**. If clinicians wait too long, patients may suffer serious harm.

Sources: AMA et al.; Coleman-Lochner et al.; ASRM

Cross-border care complicates matters, particularly given state variability (see "Table. Restrictiveness of State Abortion Laws"). Concerns may relate to nonresident patients, prescribing across state lines and via telehealth, and provision of assistance or funds (e.g., travel reimbursement).

Source: Sneed

Table. Restrictiveness of State Abortion Laws

State generally prohibits abortion	AL, AR, ID, KY, LA, MO, MS, OK, SD, TN, TX, WV
State has expressed desire to prohibit abortion	AZ, GA, IA, IN, NC, ND, NE, OH, PA, UT, WI, WY
State law does not provide right to abortion	NH, NM, VA
State provides right to abortion, with access limitations	AK, CO, DC, DE, FL, KS, MA, MD, ME, MI, MT, NV, RI, SC
State provides right to abortion and expanded access	CA, CT, HI, IL, MN, NJ, NY, OR, VT, WA

Source: Center for Reproductive Rights (as of February 2, 2023)

Legal uncertainty has **affected nonreproductive services** as well. For example, some patients have experienced delays getting methotrexate for other conditions (e.g., arthritis). Similar concerns may arise with chemotherapy.

Sources: AMA et al.; Coleman-Lochner et al.

Resource and capacity constraints have led to all-time highs of **healthcare provider burnout**, especially on the heels of the COVID-19 pandemic. The addition of uncertainty regarding roles and responsibilities for maternal-fetal care delivery also increases the risk of burnout.

Source: AMA

Hospital

Ambulatory surgery

Physician practice

Action Recommendations

Healthcare organizations must develop strategies to support clinicians in addressing changes in how maternal-fetal medicine is delivered by methodically identifying areas of uncertainty, creating clear communication channels, and implementing solutions to support effective and safe clinical decision-making.

Culture, Leadership, and Governance

- Convene leaders and clinical councils to review all maternal-fetal care processes that may be impacted by changes in state law.
- Leaders should engage in two-way communication channels to hear safety concerns from frontline staff and to share guidance for the clinical care of patients, e.g., tiered safety huddles.

Patient and Family Engagement

- Monitor sources of patient safety event and patient experience data to assess for inequities and disparities in care related to maternal-fetal care.
- Create patient education materials to be shared with all frontline staff, including support and administrative staff that encounter patients seeking maternal-fetal services impacted by state laws.

Workforce Safety

- Ensure clinicians have guidance to mitigate challenging situations that could lead to potential conflicts including Emergency Medical Treatment and Labor Act requirements.
- Offer emotional and mental health support systems for clinicians that may experience higher levels of moral distress and burnout related to stressful patient interactions, clinical decision-making, and associated legal ramifications.
- Conduct mandatory debriefs after high-conflict patient interaction or treatment events to ensure that involved staff can reflect, share thoughts, and have concerns addressed.

Learning System

- Track, analyze, and share lessons learned from all instances of harm that result from delays or missed diagnostic opportunities related to the care of patients seeking treatment for maternal-fetal issues.
- Leverage health systems, PSOs, and other professional organizations that span across states to create learning networks that guide healthcare organizations and clinicians away from fragmentation of care and promote a collective mental model for providing safe care.

ECRI Resources

Enterprise Risk Management: An Overview (Health System Risk Management)

Identifying and Managing Risks (Health System Risk Management)

Managing Risks in Physician Practices (Ambulatory Care Risk Management)

Overview of the Risk Management Process (Ambulatory Care Risk Management)

Obstetrics and Neonatal Safety (Health System Risk Management, Ambulatory Care Risk Management)

Obstetrical Liability (Health System Risk Management, Ambulatory Care Risk Management)

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Impact on Clinicians Expected to Work Outside Their Scope of Practice and Competencies

4

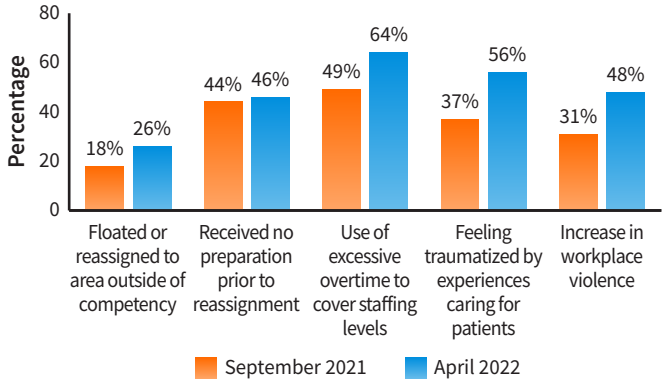
Healthcare organizations have a legal and ethical duty to ensure clinical staff **perform within their scope of practice and verified competencies**. When they do not, patients, staff, and the organization face significantly increased risk of harm and liability.

Many healthcare workers are still **asked to step outside these boundaries**, especially during public health emergencies and other societal circumstances such as staff shortages and turnover, increased patient volume, supply chain disruption, and rural facility closings.

A 2022 national survey of registered nurses found that **26% reported being floated or reassigned** to a clinical area outside their competency or that required new skills, and **46% reported not receiving any preparation** before reassignment.

Survey respondents also reported that their organizations use excessive overtime in order to staff units. This level of staffing crisis heavily affected respondents' reports of **increased workplace violence and mental health issues** compared with prepandemic surveys—all of which can contribute to **staff burnout and adverse events**.

Figure. Reported Resident Nurse Challenges Related to Preparation and Safety



Source: National Nurses United

Education and training of healthcare workers in patient and worker safety has been an **underused and undervalued tool** as most medical education programs lack an emphasis on safety as a core component of care delivery.

Source: WHO

This often results in healthcare organizations assuming responsibility for such education through comprehensive patient safety, worker safety, and competency assessment programs.

Hospital

Ambulatory surgery

Physician practice

Aging services

Home care

Action Recommendations

Maintaining comprehensive patient and worker safety and competency assessment is essential to ensure healthcare workers are equipped to deliver safe, effective care and reduce patient and provider harm.

Culture, Leadership, and Governance

- Embody a safety culture that proactively identifies unsafe conditions, supports professional development, encourages diversity of staff, and ensures safe staffing levels.
- Implement targeted patient and worker safety improvement initiatives regarding clinical best practices.

Patient and Family Engagement

- Utilize patient and family advisory councils to solicit feedback regarding how care is provided. Examine trends to identify competency gaps.
- Optimize patient and family communication through verified engagement strategies (e.g., shared decision-making, cultural and linguistic competency, health literacy tools).

Workforce Safety

- Empower staff to report concerns that may place themselves, their coworkers, or patients at risk, including their objection to reassignment, performing tasks outside their scope of practice, or their need for additional training.
- Prioritize staff mental health and physical safety initiatives (e.g., violence prevention, burnout, second-victim support, infection prevention). Conduct staff satisfaction surveys, 1:1 check-ins, and culture of safety surveys.
- Ensure that floated workers are familiar with the use of equipment, supplies, and overall environment when working in reassigned areas.

Learning System

- Provide ample professional development opportunities for all levels of staff. Consider in-house workshops, continuing education courses, and discipline-specific and patient safety conferences.
- Conduct ongoing professional practice evaluations of staff through periodic chart or case reviews, direct observation, simulations, and discussions with fellow staff members.
- Use available data such as patient outcomes, readmission rates, lengths of stay, mortality rates, and adverse event reports to support staff competency assessments.
- Use a clinically informed human factor engineering approach, including usability assessments, to identify high-risk processes that require focused competency training.

ECRI Resources

Scope of Practice Laws for Nurse Practitioners and Physician Assistants (Ambulatory Care Risk Management)

Ask ECRI: Emergency Credentialing amid National Emergencies (Health System Risk Management)

Responsive Staffing and Scheduling in Aging Services: A Systems REThinking Approach (Health System Risk Management, Aging Services Risk Management)

Medical Staff Credentialing and Privileging (Health System Risk Management, Ambulatory Care Risk Management)

Credentialing and Privileging for New Technology and Procedures (ECRI and the IMSP PSO)

Some ECRI resources are publicly available. To obtain other ECRI reports, contact us by telephone at (610) 825-6000, ext. 5891, or by email at clientservices@ecri.org

Delayed Identification and Treatment of Sepsis

5

Anyone can get an infection, and any infection can lead to sepsis. Sepsis is the body's overwhelming response to infection and can lead to **tissue damage, organ failure, and death**.

Each year, at least **1.7 million adult Americans develop sepsis and approximately 30% do not survive**, making it the **leading cause of death in U.S. hospitals**.

Sources: CDC; Sepsis Alliance "What"

Up to half of survivors experience postsepsis syndrome, leading to **shortened life expectancy, an impaired quality of life, and worsened cognitive and physical function**. Children who survive can also experience lifelong cognitive difficulties and posttraumatic stress disorder.

Source: Sepsis Alliance "Post-Sepsis"

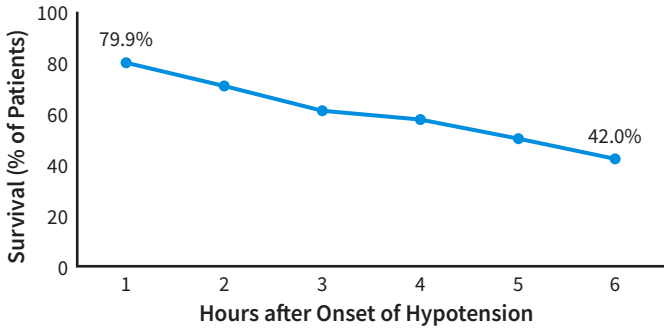
Rapid identification and treatment are vital. **Intravenous antimicrobials should be administered immediately**—ideally within an hour of recognition—for patients with shock and possible sepsis and for patients with a high likelihood of sepsis (including those without shock). Antimicrobials should be administered within three hours for patients with possible sepsis without shock.

However, rapid treatment should be weighed against potential harm associated with administering unnecessary antimicrobials. The administration of appropriate, narrow-spectrum antibiotics demands that a pathogen detection test be extremely sensitive with a high negative predictive value.

Sources: Evans et al.; He et al.

Starting antimicrobials within the first hour of recognizing septic shock is associated with a **79.9% survival rate**. Over the first six hours, survival decreases by **7.6 percentage points**, on average, for each hour that antimicrobials are delayed.

Figure. Decreasing Sepsis Survival with Delay in Antimicrobial Initiation



Source: Kumar et al.

Hospital

Ambulatory surgery

Physician practice

Aging services

Home care

Action Recommendations

Sepsis is a medical emergency where seconds count. The following are recommendations to ensure early identification of sepsis and timely intervention.

Culture, Leadership, and Governance

- Develop organizational sepsis treatment safety goals that have a dedicated executive sponsor and that are accompanied by a detailed action plan and metrics (e.g., frequent blood-lactate monitoring, blood culture, monitoring for organ dysfunction).
- Develop and clearly communicate sepsis treatment protocols or bundles that include an early warning scoring system that is built into the electronic health record (EHR).
- Implement clinically informed human factor engineering principles to understand the usability of sepsis prevention, diagnostic, and treatment equipment and technology.

Patient and Family Engagement

- Educate patients and family members in all settings and in a variety of circumstances (e.g., on admission, at clinic appointments, during bedside rounds, at discharge) about infection prevention and control, sepsis warning signs, and steps to take if such signs occur.

Workforce Safety

- Integrate sepsis diagnostic tools into the clinical workflow; the process should be easy to use and require minimal technical expertise from staff to process samples and interpret test results.
- Utilize daily safety huddles to provide real-time notifications to staff of recalls and hazards that can increase the risk of infection and sepsis.

Learning System

- Research diagnostic techniques that may enable earlier detection of sepsis.
- Evaluate near misses and safety events to identify risks and contributing factors associated with failures in sepsis prevention and treatment efforts.
- Enlist clinical leaders, clinical councils, and individuals with sepsis expertise in informing sepsis event investigations. The findings and action plans should be shared across the organization.

Sources: NSC; Sepsis Alliance "What"; Sepsis Alliance Clinical Community

ECRI Resources

Sepsis: Combating the Hidden Colossus (Health System Risk Management)

Sepsis at a Glance (Health System Risk Management)

Sepsis and Children in the Outpatient Setting (Ambulatory Care Risk Management)

Improving Recognition and Management of Sepsis and Septic Shock (ECRI and the ISMP PSO)

Sepsis and Septic Shock Adverse Events (ECRI and the ISMP PSO)

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Consequences of Poor Care Coordination for Patients with Complex Medical Conditions

6

In the United States, **6 in 10 adults have one chronic disease**, and **4 in 10 have two or more**. This prevalence also increases by age as senior housing and nursing home residents average more than 12 chronic conditions.

Sources: NCCDPHP "Chronic"; NORC

Because chronic conditions such as heart, lung, and kidney disease; cancer; Alzheimer's disease; diabetes; and arthritis affect more than 50% of the population, management of chronic conditions costs nearly **$3.69 trillion per year** in the U.S., accounting for 90% of total healthcare expenditures.

Source: NCCDPHP "Health"

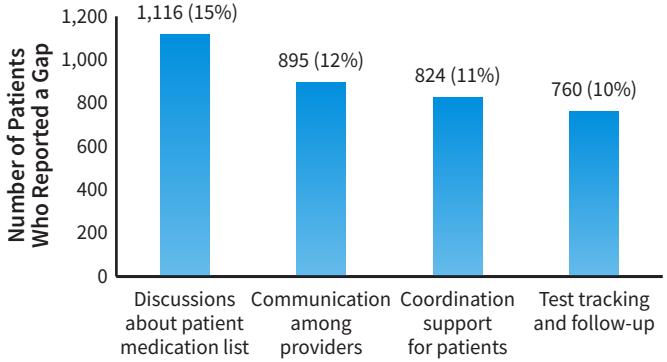
Patients with complex needs—such as those with multiple chronic conditions—are prone to care fragmentation, higher healthcare utilization and costs, and **worse health outcomes** than other patients.

These patients see higher numbers of physicians across care settings, experience more transitions of care, are affected by more social determinants of health, and **suffer more adverse events**.

Source: Samal et al.

In a recent survey of 7,568 patients, nearly 40% (2,884) reported at least one gap in care coordination and nearly 10% reported at least one preventable outcome such as repeat tests, medication interactions, and ED visits or hospital admissions.

Figure. Patient-Reported Gaps in Care Coordination



Source: Kern et al.

Improved care coordination can help mitigate these patient safety risks and preventable errors associated with common coordination pitfalls, including interprofessional communication, interoperability of health information technology (IT), medication reconciliation, test tracking and follow-up, and care transitions.

Hospital

Ambulatory surgery

Physician practice

Aging services

Home care

Action Recommendations

As the number of a patient's chronic medical conditions increases, so does care complexity. Optimizing multidisciplinary care team communication across the continuum is the crux of effective care coordination for patients with complex needs.

Culture, Leadership, and Governance

- Prioritize care coordination improvement initiatives by addressing health inequities, mobilizing stakeholders, assigning responsibilities, and allocating necessary resources and staff.
- Use clinical councils to develop key performance indicators that measure clinical, environmental, and behavioral effects on organizational culture and communication.
- Establish multidisciplinary care coordination teams of providers, nurses, pharmacists, social workers, and community health workers.

Patient and Family Engagement

- Prioritize patient and family education, shared decision-making, advance care planning, discharge planning, and postdischarge follow-up.
- Improve culturally and linguistically competent care by providing interpreters and translated patient education and decision-making materials when appropriate.
- Consider engagement initiatives such as patient and family advisory councils, inclusion of patients and families in interprofessional rounding, and bedside shift reports.

Workforce Safety

- Foster collaborative strategies (e.g., regular meetings among provider sites, routine discussions of suboptimal handoffs and transfers) to build mutual trust between hospital, postacute, and ambulatory providers.
- Maintain safe staffing levels. Provide proactive mental health support for staff and patients.
- Ensure staff are equipped to address and de-escalate frustrated patients and/or family members. Provide safety mechanisms for backup when needed.

Learning System

- Address competency gaps in interprofessional and patient communication, medication management and reconciliation, comorbidity management, the use of the organization's health IT, and the use of patient safety data for quality improvement.
- Consistently improve causal analysis of coordination- and communication-related adverse events to optimize results, action plan quality, and implementation efficiency.
- Use clinically informed human factor engineering to evaluate health IT interoperability to improve transmission and tracking of patient information across care settings and providers.

Sources: AHRQ; Ju; Samal et al.

ECRI Resources

Essentials: Care Coordination

Resource Collection: Care Coordination (Health System Risk Management)

Transitions of Care (Aging Services Risk Management)

Resource Collection: Communication (Health System Risk Management, Aging Services Risk Management, Ambulatory Care Risk Management)

Evaluation Background: Care Coordination Applications (Device Evaluation)

Some ECRI resources are publicly available. To obtain other ECRI reports, contact us by telephone at (610) 825-6000, ext. 5891, or by email at clientservices@ecri.org

7 Risks of Not Looking beyond the "Five Rights" to Achieve Medication Safety

The five "rights"—right patient, drug, dose, route, and time—have been held up as the standard for prevention of medication errors. They are emphasized in nursing education and in practice.

When a medication error occurs, the reason cited is often that the caregiver "didn't follow the five rights." The solution is often to reiterate the rights or add more rights without examining process failures that may have contributed to the error.

Source: ISMP

Strict adherence to the five rights falsely implies that medication errors will be prevented. However, **the five rights should be viewed as foundational goals or as a medication safety framework**—not as strategies to achieve medication safety.

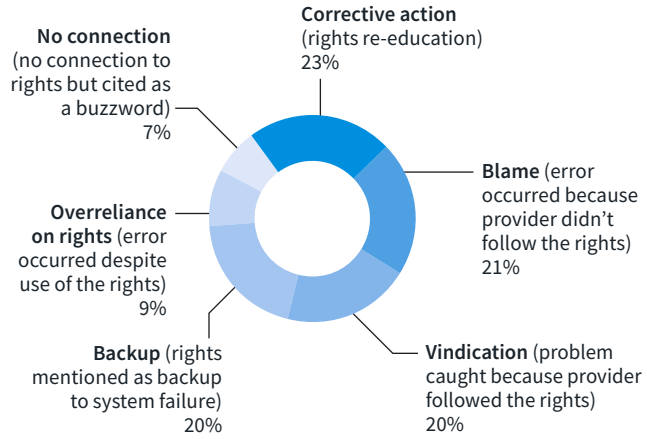
Nurses and other practitioners cannot be held solely accountable for adhering to the rights; they can be held accountable only for following their organizations' medication safety procedures.

Source: ISMP

Failure to back up the five rights with high-leverage strategies and actionable procedures—or to identify which system processes failed when medication errors occur—undercuts medication safety.

A search of ECRI and the ISMP PSO's database returned 81 events submitted between January 1, 2021, and October 7, 2022, that referenced the five rights, which were grouped into the following categories:

Figure. Categories of Reported Events Referencing the Five Rights



Source: ECRI and the ISMP PSO

Hospital

Ambulatory surgery

Physician practice

Aging services

Home care

Action Recommendations

Safe medication practices are a culmination of the interdisciplinary efforts of practitioners working within reliable systems and using advanced technologies. Although the rights work as a general guideline, they are no substitute for actionable procedures.

Culture, Leadership, and Governance

- Recognize the limitations of the five rights and how emphasizing clearly defined procedures over goals can improve patient safety.
- Evaluate the procedural steps the organization has established to support safe medication use and monitor the effectiveness of those procedures.
- Promote the implementation and consistent use of medication-related technologies in the organization to support medication safety.
- When a medication error occurs, empower staff to speak openly and help determine whether a procedural step was missed or followed incorrectly and if other latent failures contributed to the error.

Patient and Family Engagement

- Promote patient and family involvement in their care across all healthcare settings. Active, involved, and aware patients are a valuable resource for identifying errors.

Workforce Safety

- Avoid misusing the five rights to blame or punish individual staff involved in medication errors. Instead, focus on evaluating and improving procedures to advance medication safety for all staff and patients.

Learning System

- Utilize errors as opportunities to identify system process weaknesses and specific strategies for building safer work environments for patients and caregivers.
- Emphasize to practitioners that the five rights should be viewed as a concept or framework rather than as actual steps in a procedure.
- Reinforce to staff the importance of the consistent use of the procedural steps and high-leverage strategies the organization has established to support medication safety.

ECRI Resources

Medication Safety (Health System Risk Management, Ambulatory Care Risk Management)

Deep Dive—Safe Ambulatory Care: Medication Safety (ECRI and the ISMP PSO)

Ask ECRI: The Many "Rights" of Medication Administration (Ambulatory Care Risk Management)

Resource Collection: Medication Safety (Health System Risk Management, Ambulatory Care Risk Management)

Some ECRI resources are publicly available. To obtain other ECRI reports, contact us by telephone at (610) 825-6000, ext. 5891, or by email at clientservices@ecri.org

Medication Errors Resulting from Inaccurate Patient Medication Lists

8

Inconsistent knowledge and record keeping about medications cause up to **50% of medication errors in hospitals and up to 20% of adverse drug events**. At least one in six patients may have a clinically significant medication discrepancy on intrahospital transfers.

Sources: IHI; Duguid

Medication reconciliation errors at hospital admission are noted in 36% of patients and occur mostly during the medication history gathering phase.

Source: AHRQ

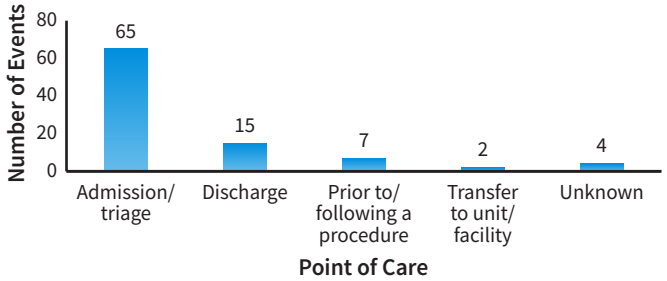
Errors in medication histories are common, appearing in 50% to 67% of histories in a study of serious events reported by Pennsylvania hospitals, most frequently because they included medications that the patient was no longer taking or because a medication was omitted.

Discrepancies also occur at discharge and may cause problems in general practice. Up to **91% of medication reconciliation errors are clinically significant** and 1% to 2% are serious or potentially life-threatening.

Source: Harper et al.

The following 5.5-year study of care **transitions revealed 93 serious events related** to medication reconciliation.

Figure. Transitions of Care Associated with Medication Reconciliation Errors



Source: Harper et al.

The top event types associated with medication reconciliation events:

- Drug omission
- Wrong dose
- Additional drug or dose
- Wrong drug
- Unknown

Source: Gao et al.

Multidisciplinary medication reconciliation teams should review current processes, identify gaps and opportunities for improvement, and lead process design and redesign within the healthcare facility or practice. Team members should include executive leadership, physician champions, pharmacists, discharge planners, IT personnel, and patient safety and quality staff.

Source: AHRQ

Hospital

Ambulatory surgery

Physician practice

Aging services

Home care

Action Recommendations

An effective medication reconciliation process within and among care settings that emphasizes standardization of practice for doctors, nurses, pharmacists, pharmacy technicians, and medical assistants is vital for patient safety.

Culture, Leadership, and Governance

- Standardize the medication reconciliation processes to support ongoing quality and patient safety initiatives, regulatory and accreditation requirements, and operational efficiencies.
- Identify and address organizational factors that contribute to rushed or inaccurate medication histories, such as shortened appointment times and incomplete medication lists.
- Recognize "good catches" when staff identify medication reconciliation errors before they reach a patient.

Patient and Family Engagement

- Engage patients when prescribing new medication and prior to medication administration to reinforce the importance of maintaining a current medication list and bringing it to every healthcare encounter.
- Include the reason for taking the medication on the home medication list and throughout all documentation systems for medication orders, care planning, and discharge planning.
- Use patient navigators to educate patients on the use of portals and encourage their use to double-check current medication lists.

Workforce Safety

- Ensure staff have a distraction-free environment during the intake or admission process to collect and document a patient's medication information.
- Nurture a culture of high reliability, where staff are sensitive to operations and feel safe to report system issues that can lead to medication reconciliation errors.

Learning System

- Develop a flowchart of current processes to highlight unnecessary steps, define roles and responsibilities, and provide information to standardize processes and target improvements.
- Drive continuous improvement activities by sharing postimplementation audit findings such as staff-related knowledge deficits and barriers to staff engagement with the process.
- Conduct multidisciplinary training sessions and identify medication reconciliation coaches to provide one-on-one training and assistance.

Source: AHRQ

ECRI Resources

Critical Opportunities for Medication Reconciliation in Acute Care (Health System Risk Management)

Critical Opportunities for Medication Reconciliation in Ambulatory Care (Ambulatory Care Risk Management)

Medication Reconciliation (Health System Risk Management, ISMP)

Medication Reconciliation Checklist (Health System Risk Management)

Medication Reconciliation: Identify All Medications to Prevent Drug-Drug Interactions (Ambulatory Care Risk Management)

Medication Reconciliation Strategies (Aging Services Risk Management)

Roles in Medication Reconciliation (Health System Risk Management, Ambulatory Care Risk Management)

Some ECRI resources are publicly available. To obtain other ECRI reports, contact us by telephone at (610) 825-6000, ext. 5891, or by email at clientservices@ecri.org

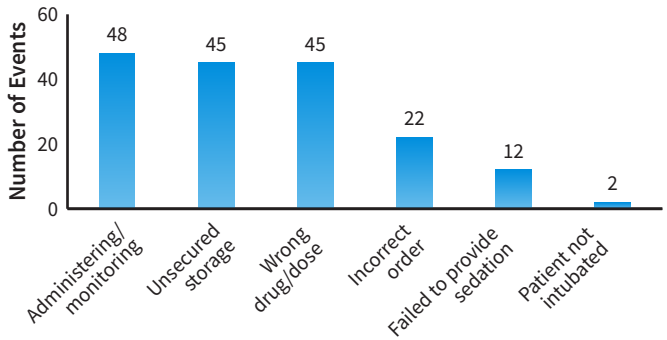
Accidental Administration of Neuromuscular Blocking Agents

9

Neuromuscular blocking agents (NMBs)—which paralyze skeletal muscles during mechanical ventilation—are high-alert medications because of their well-documented history of causing catastrophic injuries or death when used in error.

ECRI and the ISMP PSO analyzed 261 events related to NMBs. Of these, 174 events demonstrated that errors with these medications can cause harmful events during all nodes of the medication use process:

Figure. Errors Involved in NMB-Related Events



Source: ECRI and the ISMP PSO

A separate 2009 analysis of 154 events over a five-year period showed that a **NMB was not the intended drug in approximately half of all wrong-drug errors**.

Of those errors, **more than 80% reached the patient**, resulting in patient harm in 25% of those cases—a rate significantly higher when compared with less than 1% of patient harm events with all other wrong-drug errors during the same period.

Source: PA PSA

ISMP has received **well over one hundred reports concerning accidental NMB administration since 1996**. Most NMB errors resulted from administering or compounding a NMB instead of the intended drug.

Administering a NMB to a patient who does not have ventilator support is deadly. Even when the error is caught quickly, nonventilator-assisted patients can suffer **severe psychological trauma** recalling the feeling of not being able to breathe.

NMB errors can be attributed to **one or more common causes**:

- Look-alike packaging, labeling, or drug names
- Unlabeled and mislabeled syringes
- Unsafe storage
- Orders entered into the wrong EHR
- Syringe swaps
- Drug administration after extubation
- Residual drug left in intravenous tubing
- Dose or rate confusion

Source: ISMP "Paralyzed"

Hospital

Ambulatory surgery

Action Recommendations

When used in error, NMBs can cause significant patient harm and even death. Organizations should ensure policies are in place to mitigate risks associated with such medication errors.

Culture, Leadership, and Governance

- Recognize the leadership-driven cultural transformation that must occur to implement and maintain a just culture in which employees are not blamed for system failures.
- Develop teams of medication safety champions in key units to conduct daily safety huddles to update and engage staff in adhering to medication safety priorities, to uncover safety gaps, and to celebrate successes.
- Direct medication safety leaders and committees to institute policies that:
  - Eliminate the storage of NMBs where they are not routinely needed.
  - Place NMBs in a sealed box or in a rapid sequence intubation kit in areas where NMBs are needed (e.g., intensive care unit).
  - Limit availability of automated dispensing cabinets to perioperative, labor and delivery, critical care, and ED settings.
  - Segregate NMBs in the pharmacy by placing them in separate, lidded containers in the refrigerator, or in other secure, isolated storage areas.

Patient and Family Engagement

- Design a communication, disclosure, and optimal resolution process to engage patients and families when a medication error occurs.

Workforce Safety

- Provide psychological and social support to practitioners if a medication error occurs.
- Assess clinical workflows to identify latent and active failures that may contribute to unsafe working environments that lead to increased risk of staff committing medication errors.

Learning System

- Review and incorporate strategies from organizations such as ISMP and the Joint Commission into high-alert medication safety protocols.
- Review information about medication safety risks and errors that have occurred in other organizations and take action to prevent similar errors.

Sources: ISMP "Paralyzed"; ISMP "Targeted"; Cook and Simons

ECRI Resources

Resource Collection: Medication Safety (Health System Risk Management, Ambulatory Care Risk Management)

Targeted Medication Safety Best Practices for Hospitals. Best Practice #7 (2022-2023) (ISMP)

Safety Enhancements Every Hospital Must Consider in Wake of Another Tragic Neuromuscular Blocker Event (2019) (ISMP)

Some ECRI resources are publicly available. To obtain other ECRI reports, contact us by telephone at (610) 825-6000, ext. 5891, or by email at clientservices@ecri.org

Preventable Harm Due to Omitted Care or Treatment

10

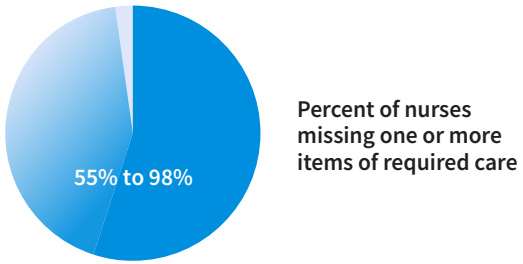
Missed care opportunities—instances where care deemed necessary as a course of treatment is delayed, partially completed, or skipped entirely—have become more common in healthcare, both in the United States and internationally.

Source: AHRQ

Missed care opportunities can occur across the healthcare spectrum in a variety of specialties (e.g., radiology, physical therapy, dietary, respiratory therapy) and in a variety of settings (e.g., acute care, outpatient).

One review of 42 studies found that **55% to 98% of nurses surveyed self-reported missing one or more items of required care during the time of assessment**. Many times, missed care occurred during the most recent shift worked.

Figure. Nurse Reports of Missing Items of Required Care



Source: Jones et al.

Some of the **most common predictors of missed care** include inadequate staffing levels; increased workload; poor work environment; limited staff experience, education, or competency; lack of material resources; poor communication; poor care transitions; limited skills mix of staff on the unit; and lack of teamwork.

Sources: AHRQ; Kalisch et al.; Chaboyer et al.

In an analysis of 1,064 **adverse events related to staffing shortages** reported from January 2020 to February 2022, ECRI and the ISMP PSO found that **49% (526) occurred in the treatment category** (e.g., daily care, coordination of care, medication administration).

Source: ECRI and the ISMP PSO

Consequences of missed care include delayed or omitted medications or treatments, complications (e.g., pressure injuries, falls, ventilator-associated pneumonia), increased length of stay, decreased employee satisfaction, and decreased patient satisfaction.

Sources: AHRQ; Jones et al.

Hospital

Ambulatory surgery

Physician practice

Aging services

Home care

Action Recommendations

Missed care opportunities are errors of omission that can result in adverse consequences for patients. Organizations should focus on improving factors such as work environment, staffing levels, and communication to reduce instances of missed care.

Culture, Leadership, and Governance

- Use leadership rounding to identify productivity pressures on staff that may prevent them from performing needed tasks.
- Take a clinically informed supply purchasing approach to ensure that adequate, appropriate supplies and equipment are available for staff to perform necessary care activities.
- Evaluate clinical areas experiencing staffing shortages for levels of expertise to ensure that appropriately skilled nursing staff are assigned to these areas.
- Consider creative staffing strategies to mitigate the risk of missed care opportunities (e.g., hiring a full-time ambulation specialist will alleviate the burden on nurses to turn patients).
- Evaluate nurse staffing plans, considering how frequently demand surges or patient complexity affects staffing adequacy.

Patient and Family Engagement

- Conduct purposeful rounding and bed shift reports to involve patients, families, and caregivers in plans of care.

Workforce Safety

- Ensure availability and conduct safety and usability assessments for medical devices and accessories necessary for safe patient handling and care (e.g., mechanical lifts and slings).
- Address any environmental safety issues, including medical equipment needs, during daily tiered huddles.

Learning System

- Utilize the EHR system and patient safety event database to identify trends in missed care and use that information to inform any process improvement work.
- Conduct RCAs on all serious safety events related to missed care opportunities.

Source: AHRQ

ECRI Resources

Essentials: Missed Diagnoses

Resource Collection: Care Coordination (Health System Risk Management)

Resource Collection: Patient and Public Relations (Ambulatory Care Risk Management)

Essentials: Care Coordination

Test Tracking and Follow-Up (Health System Risk Management)

Deep Dive: Care Coordination (ECRI and the ISMP PSO)

Some ECRI resources are publicly available. To obtain other ECRI reports, contact us by telephone at (610) 825-6000, ext. 5891, or by email at clientservices@ecri.org

Recurrent Patient Safety Challenges

Over the years, the following patient safety concerns have made repeat appearances on ECRI's list of Top 10 Patient Safety Concerns; the list begins with the most frequently mentioned:

- Medication safety
- Diagnostic stewardship and test result management
- Behavioral health
- Health IT
- Detecting changes in patient condition
- Workforce staffing, skills, and safety
- Culture of safety and the infrastructure for safety
- Device cleaning, disinfection, and sterilization
- Medical devices and supplies
- Telehealth and digital health
- Care fragmentation and poor care coordination
- Antimicrobial stewardship
- Emergency preparedness
- Infection prevention and control
- Health equity
- Patient identification

For links to key ECRI and ISMP resources for each of these topics, members can log in at ecri.org. For information on ECRI and ISMP memberships, contact client services at (610) 825-6000, ext. 5891, or clientservices@ecri.org.

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