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Contact Hours: **2**

Prevention of Medical Errors for Florida Physical Therapy

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LEARNING OUTCOME AND OBJECTIVES: Upon completion of this course, Florida physical therapists and physical therapist assistants will understand current, evidence-based interventions to prevent medical errors in the practice setting. Specific learning objectives include:

- Discuss the scope of medical errors in the U.S. healthcare environment.
- Define the terminology associated with medical errors.
- Describe the causes of medical errors.
- Review the most common medical errors.
- Summarize provider and institutional strategies for preventing medical errors.
- Discuss Florida's statutory requirements for addressing medical errors.

INTRODUCTION

It would seem essential that every healthcare encounter a person has should be safe and free from harm. Unfortunately, this is not always the case. Although the vast majority of Americans are having positive experiences with the healthcare system, nearly a quarter of adults report having personally experienced a medical error. Errors occur in hospitals, clinics, surgery centers, doctors' offices, nursing homes, pharmacies, and even in patients' homes.

These facts make medical errors a serious public health issue, with every patient involved in the healthcare system a potential recipient of harm. Injuries and death can occur, for example, when patients develop healthcare-associated infections, receive a wrong medication or dose of medication, experience mistakes in surgery, receive treatments meant for another patient, experience a fall in the hospital, develop a pressure ulcer/injury, are misdiagnosed, when orders are misinterpreted, or when equipment fails.

Those in leadership roles claim that the main reason for preventable medical mistakes is a healthcare system that is inadequate for the complexities of 21st-century medicine. It is acknowledged that the U.S. healthcare system is resistant to change because it is a fragmented, nonuniform system that lacks any centralized control and that many healthcare systems do not adequately invest in patient safety by putting well-known safety improvement strategies in place (Kavanagh et al., 2017).

Acknowledging that errors happen, learning from them, and working to prevent errors in the future are important goals and represent a major change in the culture of healthcare—a shift from blame and punishment to analysis of the root causes of errors and the creation of strategies to improve. In other words, healthcare organizations need to create a culture of safety that views medical errors as opportunities to improve the system. Every person on the healthcare team has a role in making healthcare safer for patients and workers.

SCOPE OF THE MEDICAL ERROR PROBLEM

Current studies estimate that medical errors are the third leading cause of death in the United States, trailing heart disease and cancer. In 2016, the Leapfrog Group estimated there were 206,201 avoidable deaths in hospitals, and a Johns Hopkins University team estimated deaths at greater than 250,000. Such numbers are hard to verify, however, as there are no well-established means for calculating mortality caused by medical harm, and death certificates lack a place to indicate whether a medical mistake caused or contributed to a patient's death (Kavanagh et al., 2017).

The U.S. Department of Health and Human Services' Agency for Health Research and Quality (AHRQ, 2016a) estimates the incidence of medical errors that occur each year in U.S. hospitals. AHRQ reports that 2015 data indicated a 21% decline in hospital-acquired conditions (HACs) compared to data from 2010. AHRQ estimates that nearly 125,000 fewer patients died in the hospital as a result of HACs, and that approximately $28 billion in healthcare costs were saved from 2010 to 2015.

The exact cause of the decline in patient harm is not fully understood; however, increased attention to safety to reduce adverse events by hospitals throughout the country has occurred. Likely reasons for this progress may be Medicare and Medicaid payment incentives, the U.S. Department of Health and Human Services Partnership for Patient Initiative, public reporting of hospital-level results, and technical assistance offered to hospitals by the Quality Improvement Organization program (AHRQ, 2016a).

The great majority of healthcare takes place in the outpatient setting, and over the past few years, efforts have been focused on improving patient safety in this area. The Joint Commission has developed National Patient Safety Goals to improve patient safety and has issued Ambulatory Health Care National Patient Safety Goals effective January of 2017 to provide further guidance in the enhancement of safety in all ambulatory facilities (AHRQ, 2017a).

Despite the decline, however, one medical error continues to be one too many. A national survey released in September 2017 found that patients who are the recipient of a medical error often experience lasting impact on their physical and emotional health, financial well-being, or family relationships (IHI, 2017).

TERMINOLOGY ASSOCIATED WITH MEDICAL ERRORS

Adverse Events

Medical error, also referred to as *adverse event,* is a broad term ascribed to an act of commission (doing something wrong) or omission (failing to do something right) in medical management that leads to an undesirable outcome or serious potential for such an outcome that is unrelated to the patient's underlying condition. Such adverse events are unintended and may require additional monitoring, treatment, hospitalization, or result in disability or death.

Important subcategories of adverse events include:

- **Unpreventable** adverse events result from a complication that cannot be prevented.
- **Preventable** adverse events occur due to error or failure to apply an accepted standard for prevention.
- **Ameliorable** adverse events are those that could have been less harmful if different actions or procedures had been performed or followed.
- **Negligence** is the result of care that falls below the standards expected of clinicians in the community.
  (AHRQ, 2017b)

Near Misses

Near misses are events that could have had an adverse consequence but did not. In a near miss, an error was committed but the patient did not experience clinical harm because of early detection or sheer luck. They are indistinguishable from adverse events in all but outcome.

Sentinel Events

The Joint Commission defines *sentinel event* as a patient safety event, incident, or condition that could have resulted or did result in any of the following:

- Death
- Permanent harm
- Severe temporary harm and intervention required to sustain life

Sentinel events are so named because they signal the need for immediate investigation and response. Sentinel events and medical errors are not identical. Not all sentinel events occur because of an error, and not all medical errors result in sentinel events (TJC, 2017a).

Never Events

The National Quality Forum (NQF, 2017) has developed and endorsed a list of 29 events that are termed *serious reportable events* (SREs) and considered to be extremely rare medical errors. These errors are also referred to as *never events*—events that should never happen—and are grouped into seven categories, as follows:

- Surgical SREs (e.g., surgery performed on wrong body parts or the wrong patient)
- Product/device SREs (e.g., patient death/serious injury associated with use of devices provided by the healthcare setting)
- Patient-protective SREs (e.g., patient suicide while in a healthcare setting)
- Care management SREs (e.g., patient death/serious injury associated with a fall while in a healthcare setting)
- Environmental SREs (e.g., patient death/serious injury associated with the use of restraints while in a healthcare setting)
- Radiological SREs (e.g., patient/staff death/serious injury associated with the introduction of a metallic object into an MRI area)
- Criminal SREs (e.g., sexual abuse/assault on a patient while in a healthcare setting)
  (NQF, 2017)

Active and Latent Errors

Current knowledge about why humans make errors identifies two types of errors: active and latent.

- **Active errors** (human errors) involve individuals who are actually doing a task, and the effects are felt almost immediately (e.g., a surgeon amputates the wrong foot).
- **Latent errors** are errors in system or process design, faulty installation or maintenance of equipment, or ineffective organizational structure. They are accidents waiting to happen.
  (AHRQ, 2017c)

WHY DO MEDICAL ERRORS HAPPEN?

In the past, medicine has viewed errors as failures on the part of individual healthcare providers that are the result of inadequate knowledge or skill. The current understanding is that most errors occur due to predictable human failures in the context of poorly designed systems, and according to the AHRQ (2003), there are eight common causes of medical errors.

1. **Communication breakdowns** are the **most common causes** of medical errors. Poor communication of patient information is the most frequent cause of sentinel events.

2. Errors can occur during the **human information processing** involved in the performance of tasks. Such errors may occur in three levels of performance:

    a. **Knowledge-based:** Errors that occur in novel situations due to deficits in knowledge

    b. **Rule-based:** Errors that occur in familiar situations due to incorrect application of a rule or an inadequate plan

    c. **Skill-based:** Errors that occur in experienced situations due to an attention slip or lapse of memory

3. **Patient-related** errors may arise from inappropriate patient identification, incomplete assessment of the patient, failure to obtain consent, inadequate education of the patient, or patient characteristics that are beyond the control of staff.

4. **Organizational transfer of knowledge** errors can occur during the transfer of organizational, situational, or domain-specific knowledge and skills from one entity to another within or between organizations.

5. **Staffing and workflow factors** contribute to errors, such as unmanageable patient workloads, worker fatigue, high provider-to-patient ratios, and interruptions while providing care.

6. **Technical** issues involve failures of medical devices, equipment, implants, or grafts due to poor design, defects in material, or incorrect construction or set-up of equipment.

7. **Information flow** errors occur when there is inadequate flow of information vital to a patient's care on transfer to another facility or discharge from one area to another.

8. Poorly documented, nonexistent, or clinically inadequate **policies and procedures** may lead to errors while providing care.

COMMON MEDICAL ERRORS AND HOW TO PREVENT THEM

Surgical Errors

Wrong-site, wrong-procedure, and wrong-patient surgical errors are relatively rare. It is estimated that in the United States such errors occur in approximately 1 of 112,000 surgical procedures (AHRQ, 2017d). The number of cases in which a foreign body is left behind during a procedure is estimated at 1,500 per year. Sponges are the most common foreign body retained. Surgical instruments also can be left behind, especially in the abdominal cavity (Zejnullahu et al., 2017).

Other surgical errors may involve peripheral nerve injury and anesthesia-related harm. Specialties with the highest risk of errors are neurosurgery, thoracic, and cardiovascular surgery followed by general surgery (Welch, 2017; Novak, 2016). In recent decades it has been found that improvements in operating room technology and education have led to fewer adverse events.

The World Health Organization Surgical Safety Checklist was developed by an international team of researchers to decrease errors and adverse events and to increase teamwork and communication in surgery. Since its inception, it has shown significant reductions in both morbidity and mortality and is now used by a majority of surgical providers around the world to increase patient safety and reduce intraoperative complications (WHO, 2017a).

While originally intended for use in surgical procedures in both inpatient and outpatient operating rooms, the value of “time outs” and surgical safety checklists is now recognized by many as having more extensive applications. With appropriate modifications to fit specific clinical situations, they have been used to ensure patient safety in radiology, nonsurgical cardiac procedure rooms, endoscopy centers, and other healthcare settings where procedures are performed.

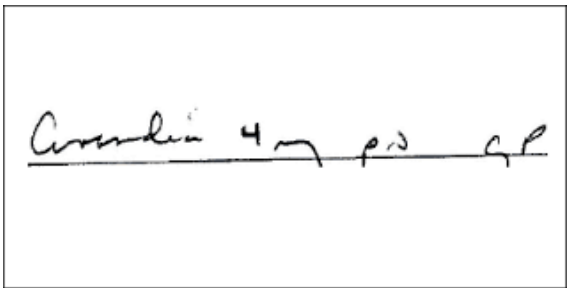
Medication Errors

Medication errors cause at least one death every day and injure approximately 1.3 million people annually in the United States (WHO, 2017b).

The National Coordinating Council for Medication Error Reporting and Prevention (2018) defines a medication error as:

> Any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient, or consumer. Such events may be related to professional practice, healthcare products, procedures, and systems, including prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use.

The U.S. Food and Drug Administration (FDA, 2017b) reports that the majority of errors occur when **prescribing or transcribing** a prescription onto the medication record (see image below).



Illegible prescription: Avandia (a diabetic medication) confused with Coumadin (an anticoagulant), both available as 4 mg oral tablets. (Source: PNNet, 2003.)

Dispensing errors can occur at any point from when the prescription arrives in the pharmacy through the supplying of the dispensed medication to the patient or the healthcare worker who will administer it.

Medication **administration** errors are very common in both inpatient and outpatient settings. Ten percent of errors cause harm to patients, and 11% require increased monitoring (Volpe et al., 2016).

Monitoring, an essential part of medication administration, involves observing the patient to determine if the medication is working, being used appropriately and is not harming the patient. Errors can occur, for example, when there is inadequate monitoring for side effects and failure to monitor a patient's response (NSO, 2017a).

Tubing Misconnections

Medical device misconnections can occur when one type of medical device is attached in error to another type of medical device that performs a different function. New standards have been set for manufacturing connectors that make it physically impossible for misconnections to occur. As these become more available, the likelihood of risk for misconnection errors is expected to decrease (FDA, 2017a).

Problems Related to Medical Devices and Equipment

Each year, the FDA receives several hundred thousand reports of suspected medical device and equipment-associated deaths, serious injuries, and malfunctions. Poor medical device design and lack of usability testing have been repeatedly discussed as being key factors in many device-related incidents. Also, an increasing number of medical devices are being implanted in patients, and any malfunction can be serious and even life threatening (FDA, 2017b).

Healthcare-Associated Infections (HAIs)

HAIs are considered system failures and are often preventable. The CDC reports that HAIs occur in approximately 1 in 25 hospital patients on any given day.

Common HAIs include:

- Catheter-associated urinary tract infections (CAUTIs)
- Surgical site infections (SSIs)
- Central line–associated bloodstream infections (CLABSIs)
- IV catheter–related bloodstream infections (CRBSIs)
- *Clostridium difficile (C. diff)* infections (CDIs)
- Healthcare-acquired pneumonia (HAP) and ventilator-associated pneumonia (VAP) (CDC, 2015; File, 2017)

Efforts have been made to reduce these infections, and research shows that when healthcare facilities and teams, individual doctors, and nurses become aware of the issue and take steps to prevent them, rates of some HAIs can decrease by more than 70%. Failure of physicians, nurses, and other caregivers to practice basic hand hygiene helps spread bacteria. Studies show that on average healthcare providers clean their hands less than half the times they should, contributing to the spread of HAIs (CDC, 2017a).

Falls

Falls are common, especially for older adults, both in the community and in healthcare settings. The CDC estimates that 1 in 3 U.S. adults ages 65 or older and 50% to 75% of nursing home residents fall every year. The AHRQ states that between 70,000 and 1 million people fall in hospitals each year (ECRI Institute, 2016). Hip fractures are one of the most common types of serious injury resulting from a fall.

The CDC and ECRI consider both intrinsic and extrinsic factors that increase risk for falls. **Intrinsic factors** include issues that generally cannot be changed and concern the patient's medical, psychological, and physical issues (e.g., advanced age). **Extrinsic factors** are those that generally can be changed and involve environmental risks that patients encounter (e.g., lack of bathroom grab bars) (ECRI Institute, 2016; CDC, 2017b).

In 2008 the Centers for Medicare and Medicaid Services (CMS, 2015) stopped reimbursing for care resulting from injuries due to any in-hospital fall that could have been prevented.

Health Information Technology Problems

In 2015, 96% of hospitals and 78% of physician offices use certified electronic health record (EHR) technology. Compared to paper records, EHRs improve healthcare quality and safety. For example, a computerized prescriber order entry (CPOE) system can eliminate transcription errors due to illegible handwriting. However, if technology is designed and applied inappropriately, it can add additional complexity to an already complex delivery of healthcare, and errors can occur at the interface between a computer user and the health IT system. Glitches can also occur in how the equipment software functions (U.S. DHSS, 2016; ONC:HealthIT, 2017).

PRACTICE ERRORS IN REHABILITATION THERAPY

Of the few studies that have been conducted, most errors in the fields of physical and occupational therapy have been shown to occur in the intervention phase, which includes:

- Communication
- Patient education
- Documentation
- Supervision
- Treatment

Errors have been attributed to:

- Misjudgment
- Lack of preparation
- Lack of experience
- Overload or time constraints
- Insufficient or miscommunication
- Lack of knowledge
- Issues related to the patient
- Inadequate preparation

Source: Van Zytveld et al., 2016.

ERROR RISKS AMONG POPULATIONS OF SPECIAL VULNERABILITY

Some patients—for example, the very young, the very old, and the very sick—are particularly vulnerable to the effects of medical errors, often due to their inability to participate actively as a member of the healthcare team due to communication issues. In addition, their physical status (including but not limited to body weight and body mass composition, nutritional status, and metabolism) may also cause them to react differently to interventions, putting them at special risk.

Older Adults

Failure to recognize the unique problems of this age group can result in adverse events. Issues of concern include:

- **Polypharmacy** is the use of more than five medications. Older adults often have multiple comorbidities requiring several different medications, increasing the risk for adverse drug events. With aging there are also changes in how the body responds to a drug and how the drug affects the body. These changes can cause increased sensitivity to drug effects.
- **Confusion and/or delirium,** especially in someone with preexisting cognitive impairment, can be due to certain aspects of hospitalization, the result of polypharmacy, and reduced sensory input, such as when the patient does not have access to eyeglasses or hearing aids.
- **Functional decline** may result from lack of mobility resulting in physical deconditioning and muscle weakness. Functional decline can occur as early as the second day of hospitalization. In 30% of hospitalized older people, functional decline is unrelated to their primary diagnosis, and only 50% recover post-discharge.

Other issues of concern with the older adult include increased risk for falls, skin integrity issues related to immobility, malnutrition, and dehydration (Mattison, 2017; Cantlay et al., 2016; SA Health, 2016).

Infants and Children

The potential for adverse drug events is higher in the pediatric population than in hospitalized adults. The factors that place them at higher risk include:

- Different and changing pharmacokinetic parameters between patients at various ages and stages in development
- Fewer internal reserves to buffer any medication errors that may occur
- Need for calculation of individualized doses based on the patient’s age, weight, body surface area, and clinical condition

- Inadequate availability of appropriate dosage forms and concentrations
- Need for precise dosage measurement and appropriate delivery systems
- Lack of communication abilities

A recent study identified an 11% rate of adverse drug events in pediatric patients, and the most common error is **improper dose or quantity** (PSMF, 2017).

Children and Adolescents with Special Needs

Children and adolescents with medical complexity and special needs are a fast-growing population in pediatrics. Because of the complexity of their care, these children and their families depend upon a variety of services from multiple disciplines. As a result, their health services are rarely integrated or reliable, resulting in the highest rates of adverse events. The development of a shared plan of care can minimize such errors and adverse outcomes (Berry, 2015).

Patients with Low English Proficiency

About 20% of the U.S. population speaks a language other than English at home, and approximately 9% are defined as having low English proficiency (LEP). Individuals with LEP experience adverse events resulting in physical harm at rates over 50% higher than English-proficient persons. Omission of clinically relevant information is the most common error related to medical interpretation (Hilado & Lundy, 2017).

Patients with Low Health Literacy

Health literacy is the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions. Low health literacy contributes to longer length of hospital stays, delay in seeking care, and suboptimal adherence to plans of care (James, 2015).

Other Populations at Risk

Intensive care patients are severely ill and receive a greater number of medical interventions, making them prone to injury from medical errors related to the complex setting, use of multiple medications, and high-risk potent drugs (Chiche et al., 2015; Kruer et al., 2014).

Patients placed in isolation have been found to be at high risk of harm, including delays in treatment and increased incidence of adverse events. They risk physical as well as psychological harm with increased levels of anxiety and depression. Patients in isolation are eight times more likely to experience a failure in supportive care (James, 2015).

PROVIDER INTERVENTIONS TO PREVENT MEDICAL ERRORS

Certain types of medical errors are encountered more frequently among physical therapists, and these professionals can provide targeted interventions to help prevent such errors and promote patient safety.

Fall Prevention

Physical therapists play a major role in the prevention of falls by assessing a patient's risk for falling, by making a patient's home as safe as possible, by educating patients about the medical factors that may increase their risk for falling and by designing individualized therapeutic exercise and balance training protocols. The therapist may also prescribe a home exercise program to prevent future problems or injuries.

PATIENT ASSESSMENT

A physical therapy fall risk assessment includes a review of a patient's medical history, a review of medications, a simple vision test, and screening of cognitive abilities, heart rate, and orthostatic blood pressures. The therapist can use any of a number of tests and measures to determine a patient's risk of falling. These may include:

- **Falls Efficacy Scale** measures a patient's fear of falling.
- **Activities Specific Balance Confidence (ABC) Scale** measures a patient's confidence during the course of daily activities.
- **Berg Balance Scale** assesses static balance and fall risk.
- **Timed Up and Go (TUG)** assesses an older adult's mobility, balance, walking ability, and fall risk.
- **Dynamic Gait Index** measures a patient's ability to modify balance while walking in the presence of external demands.
- **6 Minute Walk Test** assesses distance a patient walked over 6 minutes.
  (APTA, 2017)

INPATIENT FALL PREVENTION

AHRQ (2017h) states that the cornerstone of any hospital's fall prevention program is the use of **universal fall precautions** because they apply to all patients at all times, regardless of fall risk. These precautions include:

- Familiarize the patient with the environment.
- Have the patient demonstrate call light use.

- Maintain call light within reach.
- Keep the patient's personal possessions within patient safe reach.
- Have sturdy handrails in patient bathrooms, room, and hallway.
- Place the hospital bed in low position when a patient is resting in bed; raise bed to a comfortable height when the patient is transferring out of bed.
- Keep hospital bed brakes locked.
- Keep wheelchair wheel locks in locked position when stationary.
- Keep nonslip, comfortable, well-fitting footwear on the patient.
- Use night lights or supplemental lighting.
- Keep floor surfaces clean and dry; clean up all spills promptly.
- Keep patient care areas uncluttered.
- Follow safe patient handling practices.

Once risk assessment is completed and universal fall precautions are in place, additional interventions are tailored to individual patient's needs. Examples may include:

- More intense supervision such as sitters, or 15-minute checks for a cognitively impaired patient who is agitated or tries to wander
- Participation in a mobility program through physical or occupational therapy for a patient with impaired gait or mobility at risk for deconditioning
- An hourly (scheduled) rounding protocol for all patients, during which toileting needs are assessed

FALL RISK INTERVENTIONS

When an assessment indicates that a patient is at risk for falls, a physical therapist can design an exercise program to address individual needs. Such a program may address areas such as:

- **Mobility.** Individualized treatments and exercises to gradually build strength and movement skills
- **Balance.** Exercises for both static and dynamic balance
- **Strength.** Exercises to address muscle weakness or to improve overall muscle strength and various forms of weight training
- **Flexibility.** Stretches for any major muscles determined to be tight
- **Posture.** Exercises to improve ability to maintain proper posture

- **Vestibular rehabilitation.** Inner ear/balance rehabilitation involving head, body and eye exercises to retrain the brain to recognize the process signals from the vestibular system and coordinate them with information from vision and proprioception (Ayruskin, 2017; Weightman et al., 2015)

If necessary, a physical therapist may refer a patient to other healthcare providers such as ophthalmologists, neurologists, or otolaryngologists, or contact the patient's referring physician to review current medications to see if any of them may be affecting balance (Sherrington & Tiedemann, 2015).

Another area in which physical therapists can intervene to prevent falls is in the patient's home. This may include removing throw rugs, rerouting electrical cords, improving lighting and installing handrails. All of these modifications are especially important for older adults who use walking aids (Sherrington & Tiedemann, 2015).

Preventing Medication Errors Due to Nonadherence

Physical therapists are part of a patient's healthcare team responsible for management of medications and are qualified to act as a safeguard by reviewing patients' current medications and medications taken in the past when conducting an initial evaluation. A **review of the patient's medications** and an assessment of the patient's response to the medication are conducted with each patient contact.

The physical therapist designs a safe and effective rehabilitation program that addresses or makes accommodations for possible common **medication side effects**. It is the responsibility of the physical therapist to observe patients for both subjective and objective evidence of positive or negative responses to medications and to report these to the referring practitioner (HTS, 2016).

It is considered within the scope of practice for physical therapists to gather information about the **patient's ability to take the proper dosage** and to discuss basic information on medications and side effects with the patient, as well as the impact a medication may have on the physical therapy (PT) plan of care. If a physical therapist believes that a medication could result in harm or injury to the patient, or that it may negatively impact PT treatment, the therapist should immediately notify the referring practitioner.

The physical therapist should be familiar with the list of **high-risk/high-alert medications** for the facility where employed and should be watchful for potential injury, especially when a patient is receiving an anticoagulant such as warfarin or heparin. Physical therapists must recognize that medication absorption can be affected by modalities such as exercise or hot and cold applications.

The physical therapist needs to review a patient's medications, particularly **in home-care settings** in which the therapist may be the only medical provider the patient is currently seeing. PTs are also often the first provider following discharge from a hospital, long-term acute-care hospital, inpatient rehabilitation facility, or skilled nursing facility. They must review the

discharge paperwork, instructions, and medications, and communicate concerns to the appropriate clinician (FSBPT, 2017; Arney, 2015).

The APTA recommends that therapists engaged in direct access in the outpatient sector take **continuing education** courses on pharmacology and rehabilitation to maintain clinical competency (HTS, 2016).

In Florida, pursuant to a physician's prescription for a patient, a physical therapist may retain custody of that patient's nonscheduled topical medications and administer those medications to the patient. Physical therapists also administer medications by iontophoresis and phonophoresis. Therefore, it is useful for physical therapists to be familiar with the ten "rights" followed by nurses when administering drugs:

1. Right patient
2. Right medication
3. Right dose
4. Right route
5. Right time
6. Right assessment prior to administering
7. Right evaluation following administration
8. Right patient education
9. Right documentation
10. Right to refuse to take a medication

(Nwagwu, 2016)

Documenting to Prevent Errors

There is a great deal of support for the development of effective documentation in the provision of safe patient care. Documentation must be credible and timely and must accurately reflect the patient's condition as well as the care given. Illegible writing and poor transfer of information (both within a department and when a patient transfers to another department or facility) can cause medical errors. Healthcare professionals must learn and follow their facility's policies and procedures about charting and documentation.

Following these **charting guidelines** will help prevent medical errors:

- Document in the correct chart. Always read the name on the chart and compare it to the patient's ID band.
- If handwriting is difficult to read, print.

- Sign full name and title on each page used.
- Do not leave blank spaces, lines, or boxes. If space is not used, draw a line through it or write “N/A” (not applicable).
- Record all entries in ink.
- Use only facility-approved abbreviations.
- Chart in chronological order.
- Record actions as soon as possible following their completion.
- Never alter a record. If an error is made, mark through with one line, indicate correction made, and initial or sign the correction.
- Record only the facts. Charting should contain only what is seen, heard, felt, smelled, measured, and counted, not assumptions or opinions (e.g., do not chart “the patient fell out of bed” unless it was witnessed or the patient reports it. Instead chart “patient found lying on the floor”).
- Do not document what someone else said, heard, felt, or smelled unless it is pertinent, and if so, place it in quotation marks, and identify the other individual.
- Document in a timely manner throughout the shift.
- Never document before completing an action.
- Avoid documenting for another person. However, if it is necessary to document care, tasks, or procedures performed by another provider, indicate clearly the individual who rendered the care.
- Never document the existence of an incident report; it is an internal document meant to facilitate improvement of systems and processes within the healthcare facility.

(NSO, 2017b)

INSTITUTIONAL STRATEGIES FOR ADDRESSING ERRORS

Changes in organizational culture, involvement of leadership, education of providers, development of patient safety committees, adoption of safe protocols and procedures, and use of technology are all essential strategies healthcare facilities must consider in their efforts to reduce medical errors.

Creating a Culture of Safety

The mistaken attitude in healthcare that errors are solely the fault of individual practitioners has proven a major barrier to reporting. Instead of analyzing the multiple factors that contribute to errors, past efforts have often focused on making clinicians more careful and reinforced by fear

of punishment when they fail. This "culture of blame" bypasses the opportunity for analysis and corrective measures to prevent recurrence.

One of the main goals of organizations working to improve patient safety should be to encourage the creation of a "culture of safety" in which medical errors are discussed openly and addressed thoroughly. When an organization values safety, this commitment is evident throughout the organization from top management to the bedside. Creating a culture of safety requires:

- Recognition that errors occur and are a part of the healthcare industry, requiring a nonpunitive approach unless specific behavior warrants disciplinary action
- Effective teamwork, communications, and shared learning
- Recognition that it is everyone's role to watch for errors or system failures
- Openness or transparency, which indicates an acceptance of the human elements in error, and a conscious means of reporting any error, near miss, or identified potential for an error
- A "just culture" where retribution is confined to reckless or malicious behavior (see below)
- Accountability to ensure everyone is aware of their responsibility to maintain safety (AHRQ, 2016b)

JUST CULTURE MODEL

A culture of safety promotes open reporting of adverse events and risky situations, and even stop-work in certain situations, in a blame-free context. However, leaders must include the necessary component—a just culture. Such a culture does not default to punishment but rather makes an effort to determine if discipline is necessary when an incident occurs.

An important aspect of a just culture is the systematic, fair, and nonarbitrary method of determining system versus individual accountability. A just culture seeks to determine whether an incident was due to human error, at-risk behavior, or reckless behavior. Reckless behavior may be grounds for disciplinary action and civil and/or criminal charges. Punishment may be the appropriate consequence, including termination (Moriates & Wachter, 2015).

Leadership

Organizational leadership plays a significant role in prioritizing patient safety, and there is a shift toward more direct oversight at the organizational level. Hospital boards use strategic initiatives to influence quality and safety, such as visits by management (walkarounds) to engage in open and frank discussions with frontline staff. To be credible among frontline staff during these walkarounds, however, it is important that issues raised by the staff be addressed promptly and that leaders follow up sufficiently after an error has been reported.

Health Information Technology

Health information technology has great potential for improvement in the quality and safety of healthcare. Electronic health records (EHRs) should help reduce medication errors, avoid the need to repeat laboratory tests, and improve continuity of care across the healthcare system. Facilities should carefully select the best system available, adopt best practices for EHR implementation and management, monitor how the health information technology system is used, and report any adverse events.

AGENCY, FEDERAL, AND STATE OVERSIGHT EFFORTS

Oversight of healthcare quality in the United States is accomplished through both professionally based accrediting bodies in the private sector and through federal and state regulatory agencies.

The Joint Commission

The Joint Commission (TJC) is an independent, not-for-profit agency whose mission is to continuously improve the safety and quality of care provided to the public. The TJC certifies healthcare organizations and programs in the United States that voluntarily seek accreditation and certification. The standards of the Joint Commission focus on patient safety and quality of care.

SENTINEL EVENT POLICY

The Joint Commission encourages, but does not require, reporting of any sentinel event. However, in the interest of continuous improvement in safety and quality of care, the Joint Commission requires that healthcare organizations:

- Have a process in place to recognize sentinel events
- Conduct thorough and credible root cause analyses that focus on process and system factors, not on individual blame
- Document a risk-reduction strategy and internal corrective action plan within 45 days of the organization becoming aware of the sentinel event

The sentinel event policy has four **goals**:

1. To have a positive impact in improving patient care, treatment, and services and preventing sentinel events
2. To focus the attention of an organization that has experienced a sentinel event on understanding the factors that contributed to the event (such as underlying causes, latent conditions and active failures in defense systems, or organizational culture) and on

changing the organization's culture, systems, and processes to reduce the probability of such an event in the future

3. To increase the general knowledge about sentinel events, their contributing factors, and strategies for prevention

4. To maintain the confidence of the public and accredited organizations in the accreditation process
(TJC, 2017a)

Although accredited facilities are expected to identify and respond appropriately to all sentinel events, but not to report them, if the Joint Commission becomes aware of an event, facilities are required to submit the findings of their root cause analyses and corrective action plans. This information can be included in the Joint Commission's review of sentinel events, helping to track national trends and develop strategies for improving patient safety.

NATIONAL PATIENT SAFETY GOALS

The Joint Commission's National Patient Safety Goals program assists accredited organizations to address emerging areas of concern regarding patient safety and advises on how best to address them. Such areas of concern include:

- Hand hygiene
- Hand-off communications
- Preventing avoidable heart failure hospitalizations
- Preventing falls
- Preventing surgical site infection
- Reducing sepsis mortality
- Safety culture
- Safe and effective use of insulin
- Safe surgery
(TJC, 2017b)

Misreading medical abbreviations can also be a cause of serious medication errors, and the Joint Commission has created a "do not use" list of abbreviations that endanger patients' safety and that it requires its members to follow.

ROOT CAUSE ANALYSIS

The Joint Commission has mandated the use of root cause analysis (RCA) to analyze sentinel events since 1997. It requires that a thorough, credible root cause analysis and corrective action plan be performed for each reported sentinel event within 45 days of the event's occurrence or of the organization's becoming aware of the event (TJC, 2017c). RCA is conducted by a multidisciplinary team through record review and participant interviews with the **purpose** of identifying:

- What happened (the course of events)
- Why an incident happened (the root cause or causes)
- How to prevent it from occurring again in the future (corrective actions)

Root cause analysis does not seek to lay blame on individuals for errors but rather to work toward preventing them.

Strategies for an effective root cause analysis include:

- Find and resolve latent conditions as well as root causes.
- Treat the cause rather than trying to change people.
- Follow through to ensure change.

A thorough and credible root cause analysis should:

- Be precise
- Be accurate
- Be relevant
- Be complete
- Be systematic
- Possess depth
- Possess breadth of scope
  (AHRQ, 2017c)

CASE

David, a physical therapist, is instructing two nursing assistants (CNAs) in the use of a Hoyer lift to transfer a 350-lb. woman from her wheelchair back to her bed. Although the lift is rated for use only up to 250 lbs., the facility is unable to rent (and unwilling to purchase) a larger and stronger lift for this patient. Instead, administrators determined that transferring her with improper equipment outweighed the risks associated with her confinement to bed. Supervisors

further decided that having a physical therapist supervise the transfers reduced the risk of an adverse event that might occur with misuse of the equipment.

With David supervising, the patient was placed in the lift and elevated into the air above her wheelchair. As the CNAs turned the lift toward the bed, it began to sink because the lift arm could not handle the weight of the patient. The CNAs swung the lift quickly toward the bed as it tilted dangerously to the side and the legs started to move together, narrowing the base of support. The patient was deposited heavily, with her body positioned half on and half off the bed. No one was injured, and there was a sigh of relief that the transfer had been completed. At this point, David warned the CNAs that the lift was not sturdy enough for this patient, but the CNAs said they were under orders to get the woman out of bed using whatever equipment was available.

David reported the near-fall to his rehab director as well as to the charge nurse and the facility administrator but did not document the incident. He (or another therapist) continued to supervise the CNAs during subsequent transfers in the belief that skilled supervision was better than no supervision.

Despite continual supervision, several days later the lift fell over during a transfer, the patient was dropped to the floor, and the lift fell on top of her. When David learned of this incident, he called the Florida Department of Health and reported the equipment malfunction. An investigator was sent to the facility. A citation was issued, and David was privately admonished by the charge nurse, who said, “You shouldn’t have called the state.”

A root cause analysis showed:

What happened?

- A patient was repeatedly transferred out of bed using a lift that was inappropriate for her weight.

What should have happened?

- The facility should have obtained an appropriate lift for this patient or should not have taken her into the facility.

What caused the adverse event?

- Therapists and nursing assistants made repeated **active errors** when they knowingly used inappropriate equipment for a patient transfer. Their actions may be deemed as **negligence**.
- The use of the inadequate lift could also be described as a **preventable** adverse event due to the failure to apply an accepted prevention standard (using a lift weight-rated for this patient).
- The incident was inappropriately identified as an equipment malfunction.

Discussion
By failing to use reasonable care, resulting in damage or injury to another, David exercised poor judgment and was negligent in his duty to provide safe patient care, as was the institution, the charge nurse, and the CNAs. He should have acted upon his knowledge that a physical therapist's supervision cannot substitute for proper equipment in safely transferring a patient.

From the beginning, David should have refused to use the equipment in a manner for which it was not intended, as it was an obvious safety risk for both the patient and the staff. Despite his supervisor failing to address his concerns, he should have documented his refusal to accept such a dangerous assignment and have been ready to deal with the consequences of his refusal.

If other physical therapists had accepted the assignment in his stead and the transfers continued, David should have immediately contacted the Florida Department of Health and reported the use of improper equipment for patient transfer.

When a facility accepts a patient for care, it must be able to provide the necessary equipment to ensure safe care for that patient, and if it cannot, the patient should be admitted elsewhere.

Accreditation Association for Ambulatory Health Care

The Accreditation Association for Ambulatory Health Care (AAAHC) was founded in 1999 by the AAAHC Institute for Quality Improvement, which offers ambulatory healthcare organizations opportunities to learn about and become involved in performance measurement, benchmarking, and quality improvement. Since its beginning, the AAAHC has promoted a voluntary, peer-based, consultative, and education survey process to advance patient care.

Ambulatory care organizations are offered accreditation by AAAHC to demonstrate that the organization takes part in ongoing self-evaluation, peer review, and education to continuously improve its care and services. The organization performs on-site surveys by healthcare professionals at least every three years (AAAHC, 2016).

Federal Government Efforts

In 2006, Congress passed the Deficit Reduction Act of 2005, authorizing Medicare and Medicaid to tie healthcare facilities' Medicare eligibility to the occurrence of preventable never events, and in 2007 the Center for Medicare and Medicaid Services issued a new rule denying reimbursement to hospitals for treatment of preventable errors, injuries, and infections (CMS, 2015).

PREVENTABLE COMPLICATIONS (NEVER EVENTS) NOT COVERED BY MEDICARE AND MEDICAID

The following preventable complications are not reimbursed by Medicare and Medicaid if acquired during an inpatient stay:

- Foreign object retained after surgery
- Air embolism
- Blood incompatibility
- Stage III and IV pressure ulcers
- Falls and trauma:
    - Fractures and dislocation
    - Intracranial injuries
    - Burns
    - Crushing injuries
    - Other injuries
- Manifestations of poor glycemic control:
    - Diabetic ketoacidosis
    - Nonketotic hyperosmolar coma
    - Secondary diabetes with ketoacidosis
    - Secondary diabetes with hyperosmolarity
- Catheter-associated urinary tract infection
- Vascular catheter-associated infection
- Surgical site infection following:
    - Mediastinitis following coronary artery bypass graft
    - Bariatric surgery for obesity
    - Laparoscopic gastric bypass
    - Gastroenterostomy
    - Laparoscopic gastric restrictive surgery
- Surgical site infection following certain orthopedic procedures:
    - Spine

  - Neck
  - Shoulder
  - Elbow
- Surgical site infection following cardiac implantable electronic device
- Deep vein thrombosis/pulmonary embolism following total knee or hip replacement
- Iatrogenic pneumothorax with venous catheterization

Medicare and Medicaid also will not reimburse for wrong-site, wrong-procedure, and wrong-patient surgery.

Source: CMS, 2015.

Florida Statutory Requirements

SENTINEL EVENT REPORTING

Reporting sentinel events to the Joint Commission is voluntary. However, Florida law makes such reporting mandatory. Florida's Comprehensive Medical Malpractice Reform Act of 1985 (F.S. 395.0197) mandates that each licensed hospital and ambulatory surgery center implement a risk-management program with state oversight and an internal incident-reporting system. State oversight is provided by the Florida Agency for Health Care Administration (AHCA). Each licensed facility is required to hire a risk manager, licensed under F.S. 395–10974, who is responsible for implementation and oversight of the risk management program.

INTERNAL RISK MANAGEMENT PROGRAM REQUIREMENT

Florida Statutes require every licensed facility to establish an internal risk management program that must include the following:

- The investigation and analysis of the frequency and causes of adverse incidents
- The development of appropriate measures to minimize risk, including:
  - Education and training of all non-physician personnel as part of initial orientation and at least one hour of such education and training annually for all personnel working in clinical areas and providing patient care, except for licensed healthcare practitioners who are required to complete continuing education coursework pursuant to chapter 456 or their respective practice act
- The analysis of patient grievances related to patient care

- A system for informing a patient or designee pursuant to state law that the patient was the subject of an adverse event

- Prohibition against a single staff person attending patients in recovery room unless there is live observation, electronic observation, or any other reasonable measure to ensure patient protection and privacy

- Prohibition against any unlicensed person from assisting or participating in any surgical procedure unless authorized to do so

- Have an incident reporting system to report adverse incidents to the risk manager or designee within three business days after their occurrence

ADVERSE INCIDENT REPORTING

F.S. 395.0197 mandates internal reporting within three business days of any adverse incident (event) over which healthcare personnel could exercise control, that is associated in whole or in part with medical intervention rather than the condition for which such intervention occurred. These include:

1. Adverse events resulting in one of the following injuries:
    - Death
    - Brain or spinal damage
    - Permanent disfigurement
    - Fracture or dislocation of bones or joints
    - Limitation of neurologic, physical, or sensory function which continues after discharge from the facility
    - Any condition that required specialized medical attention or surgical intervention resulting from nonemergency medical intervention, other than an emergency medical condition, to which the patient has not given his or her informed consent
    - Any condition that required the transfer of the patient, within or outside the facility, to a unit providing a more acute level of care due to the adverse incident rather than the patient's condition prior to the adverse incident
2. The performance of a surgical procedure on the wrong patient, a wrong surgical procedure, a wrong-site surgical procedure, or a surgical procedure otherwise unrelated to the patient's diagnosis or medical condition

3. Surgical repair of damage resulting to a patient from a planned surgical procedure, where the damage was not a recognized specific risk, as disclosed to the patient and documented through the informed-consent process

4. A procedure required to remove unplanned foreign objects remaining from a surgical procedure

AHCA CODE 15 AND ANNUAL REPORTING

Licensed facilities in Florida are required to submit two types of reports to AHCA: Code 15 reports and annual reports.

Code 15 reports must be submitted to the AHCA using the online Adverse Incident Reporting System (AIRS) within 15 calendar days after its occurrence for any of the following adverse incidents, whether occurring in the licensed facility or arising from healthcare prior to admission to the licensed facility:

- Death of a patient
- Brain or spinal damage
- Surgical procedure on the wrong patient
- Wrong-site surgical procedure
- Surgical procedure that is medically unnecessary or unrelated to patient diagnosis or medical condition
- Surgical report of damage from a planned surgical procedure, where damage is not a recognized specific risk
- Procedures performed to remove unplanned foreign objects remaining postoperatively

The annual report summarizes the incident reports that have been filed in the facility for that year, and includes:

- The total number of adverse incidents
- Types of adverse events listed by category and number of incidents occurring within each category
- Code numbers of each professional and individual directly involved and number of incidents each has been directly involved in
- Description of all malpractice claims filed against the facility, including number of pending and closed claims, the status and disposition of each claim

CONCLUSION

For nearly two decades, patient safety has been a topic of both national and international concern. Everyone has a stake in the safety of the healthcare system—healthcare workers as well as the general public. In the past, patient safety was not a traditional part of the education of most

healthcare workers, but today this is no longer true. All healthcare workers are being actively educated about their roles in the prevention of avoidable negative outcomes for those we care for. It is essential that we all understand the journey every patient makes through the system, recognizing how the system can fail and what can be done to prevent those failures.

To counter errors and safeguard patients, changes must continue to be made in how the workforce is deployed; in how work processes are designed; and in the leadership, management, and the culture of healthcare organizations. Because communication issues are so commonly involved in medical errors, it is crucial that physicians, nurses, therapists, and other healthcare personnel work together as a team, respecting each other's contributions to the well-being of the patients in their care. Collaborative teamwork is essential for optimizing quality and safety in healthcare.

RESOURCES

Florida Agency for Health Care Administration, Division of Health Quality Assurance
http://ahca.myflorida.com/MCHQ/index.shtml#1

Florida Statutes
http://www.leg.state.fl.us/statutes

Hospital Safety Score
http://www.hospitalsafetyscore.org

Institute for Healthcare Improvement
http://www.ihi.org

National Patient Safety Foundation
http://www.npsf.org

National Quality Forum
http://www.qualityforum.org

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TEST

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1. Which is a **correct** statement about the scope of the problem of medical errors?

a. The number of deaths from medical errors continues to rise.

b. There is well-established means for calculating mortality caused by medical harm.

c. Medical errors are declining in number.

d. Medical errors are the tenth leading cause of death in the United States.

2. An adverse event is defined as:

a. The use of the wrong plan to achieve a certain aim.

b. The failure of a planned action to be completed as intended.

c. A failure to solve problems of practice, procedures, or systems and to make appropriate changes.

d. An act leading to an undesirable outcome unrelated to a patient's underlying condition.

3. The National Quality Forum's list of extremely rare "serious reportable events" (SREs) are also referred to as:

a. Negligence.

b. Never events.

c. Near misses.

d. Latent events.

4. The most common cause of medical errors is:

a. Inadequate staff or supervision.

b. Technical failure of equipment.

c. Breakdown in communication.

d. Deficiency in education and training.

5. Which is a **correct** statement about a surgical safety checklist?

a. Checklists improve communication among operating room staff.

b. Checklists have had no impact on postoperative complications.

c. Checklists do not require extensive staff interaction.

d. Checklists are not effective in detecting potential safety hazards.

6. Which is an example of an **intrinsic** risk factor for falls?

a. Lack of stair handrails
b. Postural hypotension
c. Improper footwear
d. Dim lighting

7. A physical therapist is assisting a postsurgical patient to ambulate with partial weight bearing, using a standard walker and a gait belt for safety. After about 20 feet, the patient appears to be doing well, so when the physical therapist's phone rings, she lets go of the gait belt and answers the call. Unfortunately, the patient then loses her balance and falls to the floor. This is an example of a:

a. Documentation error.
b. Communication error.
c. Supervision error.
d. Patient education error.

8. Which is an issue that makes older adults in particular more vulnerable to adverse events?

a. The need for calculation of individualized medication doses
b. Dependency upon a variety of services from multiple disciplines
c. Low health literacy
d. Polypharmacy

9. A recent study has found that the most common type of harmful pediatric medication error is due to:

a. Incorrectly prepared drug.
b. Improper dose or quantity.
c. Wrong drug.
d. Omission.

10. In addition to universal fall precautions, which intervention is recommended for a hospitalized therapy patient with a fall risk related to impaired gait?

a. Frequent rounds to meet toileting needs
b. More intense supervision by sitters
c. Maintaining bedrest until discharge
d. Participation in a mobility program

11. During a patient's third physical therapy session for iontophoresis, the patient states, "I don't think this stuff even works," and requests to skip the iontophoresis. The therapist assures the patient that it may take some time to see results and applies the ionto patch anyway. Which patient "right" regarding drug administration may the therapist have violated?

a. Right medication
b. Right to refuse a medication
c. Right patient
d. Right route

12. A practice that promotes a culture of safety is:

a. Creating a blame-free environment.
b. Clearly spelling out the penalties for reporting safety violations.
c. Filing incident reports at the end of every month.
d. Establishing staff and patient error committees.

13. The purpose for a root cause analysis of an error is to:

a. Determine who was at fault.
b. Find ways to prevent the error from occurring again.
c. Reeducate the person who made the error.
d. Determine the impact of the error on the patient.

14. According to Florida law, reporting of sentinel events is:

a. Voluntary.
b. Mandatory.
c. Recommended.
d. Not required.

15. Florida statutes require Code 15 reports to be submitted within what time period after an incident's occurrence?

a. 48 hours
b. 3 days
c. 7 business days
d. 15 calendar days