

# **A Guide to Medical Errors** **Prevention & Reporting (#093322)**

**Attention Florida Dietitians: Florida CE Provider #: 50-8625 CE Broker Tracking #: 20-251034**

**This course is mandated for all health care professionals by the state of Florida.** At the 2001 Legislative Session, there was an amendment to Chapter 456.013(7), Florida Statutes, requiring all health care practitioners licensed under the Department of Health to have a two-hour course relating to prevention of medical errors.

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## Section I: Course Objectives

### Introduction

Newspaper and television stories of catastrophic injuries occurring at the hands of clinicians spotlight the problem of medical error but provide little insight into its nature or magnitude. The prevalence of medical errors in the United States is a significant and ongoing problem. Medical errors are the eighth leading cause of wrongful death in the U.S. In November 1999, the Institute of Medicine (IOM) released a report estimating that as many as 44,000 to 98,000 patients die as the result of medical errors in hospitals each year. The causes of medical errors are many and varied. Medical errors can incorporate mistakes made in medication, surgery, laboratory results and diagnosis to name a few.

These errors occur not only in hospital settings but also in doctor's offices, nursing homes, pharmacies, urgent care centers, and in home care. Medical mistakes can arise from the physician, health practitioner, specialist, hospital administration, nursing staff, pharmacists, pathology laboratories, pharmaceutical companies, and many others. The patient also has a responsibility in ensuring their safety in regards to health care. All of these factors add up to the fact that medical mistakes are sadly common. It is our job as health care professionals to do all we can to decrease the risk of medical errors to any patient. As a health care professional, understanding the prevalence and problems of medical errors, reporting errors, and learning about tracking systems that detect and help correct future medical errors is crucial. Much can be learned from the analysis of errors that do occur whether they result in harm to the patient or not.

There have been numerous systems set up on the national, federal and state levels to help produce a better understanding of the nature of patient safety problems and where exactly they occur in the delivery of health care. One example is The Agency for Healthcare Research and Quality (AHRQ), which has awarded large amounts of money for new grants, contracts, and other activities to fund research directly aimed at reducing medical errors and improving patient safety.

Medical errors can carry a high financial cost. The IOM report estimates that the cost of medical errors each year cost the nation approximately 37.6 billion dollars each year and about 17 billion dollars of these costs are directly associated with medical errors that are preventable. These costs are absorbed into the high medical costs that each and every one of us must pay. In addition to financial costs, medical errors can cost the medical community the trust and confidence that is expected from the public.

The approach to improving patient safety needs to be that of a comprehensive and team nature. There is no one single solution to this on-going problem but rather many solutions and systems that must be in place and working properly to decrease the risk of medical errors once and for all. The focus must not be on blaming individuals but on learning from past errors and preventing future ones. The goal of health care professionals should be to learn the strategies and systems that are currently being put into place and to enable these systems by taking necessary action. It is simply not acceptable for patients to be harmed by a health care system that is there to offer healing and comfort.

The belief is that errors can be prevented or decreased significantly by designing systems that would make it hard for health care personnel to do the wrong thing and make it easier for them to consistently do the right thing. Reducing the risk of medical mistakes will take a huge commitment from all people that work within the health care community including registered dietitians.

The information in this course may be fairly new to many dietitians but non-the-less of vital importance. It is every single person of the patient's health care team that is responsible for his or her overall care. As dietitians we have access to a patient's medical chart therefore have access to vital information. We have direct contact with each patient and to his or her current medical treatment. It is important for dietitians to be a vital part of the health care team and to be a vital part of the team that works together to decrease the

risk of medical errors. As dietitians, it is our specific responsibility to pay special attention to prescribed diets, medications that may have a nutritional impact, and other significant nutritional issues as well as other specific issues that we may specialize in that may grasp our attention.

This course summarizes systems that are now being put into place to help decrease the risk of medical errors as well as recommendations that have been made. Dietitians need to make themselves aware of the issues surrounding medical errors and the scope of the problem as well as what is currently being done to correct them.

### **Course Objectives**

The prevalence of medical errors is a significant problem and after completing this course, the dietetics professional will be able to:

1. Explain the prevalence and root causes of medical errors
2. Discuss the 30 Safe Practices recommendations
3. Define the role of the Registered Dietitian in preventing medical errors
4. Identify issues arising from different standards and measurements to reduce medical errors
5. Describe the role of organizations promoting patient safety and quality
6. Discuss medical error reduction programs
7. Describe barriers to preventing medical errors
8. Discuss the role of the national medical errors reporting programs

## **Section II. Medical Errors Prevalence & Root Causes**

### **Medical Errors Prevalence**

Attention to medical errors escalated over seven years ago with the release of a study from the Institute of Medicine (IOM), *To Err is Human*, which found that between 44,000 and 98,000 Americans die each year in U.S. hospitals due to preventable medical errors. Hospital errors rank between the fifth and eighth leading cause of death, killing more Americans than breast cancer, traffic accidents or AIDS. Serious medication errors occur in the cases of five to 10 percent of patients admitted to hospitals. These numbers may understate the problem because they do not include preventable deaths due to medical treatments outside of hospitals.

Since the release of the IOM study, there has been greater focus on the quality of healthcare provided in the U.S. Quality experts agree that one of the most common cause of errors is the medical system itself, not the individuals functioning within the system. Publication of the IOM report triggered substantial public and private sector activity, including the formation of the National Patient Safety Foundation by the American Medical Association, the creation of a non-punitive sentinel events reporting system by the Joint Commission for the Accreditation of Healthcare Organizations, and the establishment of new public private partnerships by the Veterans Health Administration and others.

Still, experts agree that there is much more work to do. For example, fewer than 3% of hospitals have implemented computerized drug ordering systems which one study found to reduce medication errors by 86%. In a December 2002 Kaiser Family Foundation survey, only 5% of physicians identified medical errors as a top health care concern. Shortly after the release of the 1999 IOM report, Congress gave \$50 million to the U.S. Agency for Healthcare Research and Quality for research into the causes and prevention of medical errors.<sup>1</sup>

## Medical Errors Definition

The Institute of Medicine (IOM) defines medical errors and adverse events as: <sup>2</sup>

- Medical error - the failure to complete a planned action as intended or the use of a wrong plan to achieve an aim.
- Adverse event - an injury caused by medical management rather than by the underlying disease or condition of the patient.

The Food and Drug Administration (FDA) defines an adverse event as any undesirable experience associated with the use of a medical product in a patient. The event is **SERIOUS** and should be reported when the patient outcome is:<sup>3</sup>

- **Death** - Report if the patient's death is suspected as being a direct outcome of the adverse event.
- **Life Threatening** - Report if the patient was at substantial risk of dying at the time of the adverse event or if it is suspected that the use or continued use of the product would result in the patient's death. *Examples: Pacemaker failure; gastrointestinal hemorrhage; bone marrow suppression; infusion pump failure which permits uncontrolled free flow resulting in excessive drug dosing.*
- **Hospitalization (initial or prolonged)** - Report if admission to the hospital or prolongation of a hospital stay is a result of the adverse event. *Examples: Anaphylaxis; pseudomembranous colitis; or bleeding causing or prolonging hospitalization.*
- **Disability** - Report if the adverse event resulted in a significant, persistent, or permanent change, impairment, damage or disruption in the patient's body function/structure, physical activities or quality of life. *Examples: Cerebrovascular accident due to drug-induced hypercoagulability; toxicity; peripheral neuropathy.*
- **Congenital Anomaly** - Report if there are suspicions that exposure to a medical product prior to conception or during pregnancy resulted in an adverse outcome in the child. *Examples: Vaginal cancer in female offspring from diethylstilbestrol during pregnancy; malformation in the offspring caused by thalidomide.*
- **Requires Intervention to Prevent Permanent Impairment or Damage** - Report if suspected that the use of a medical product resulted in a condition, which required medical or surgical intervention to preclude permanent impairment or damage to a patient. *Examples: Acetaminophen overdose-induced hepatotoxicity requiring treatment with acetylcysteine to prevent permanent damage; burns from radiation equipment requiring drug therapy; breakage of a screw requiring replacement of hardware to prevent malunion of a fractured long bone.*

Some adverse events are not preventable and they reflect the risk associated with treatment, such as a life-threatening allergic reaction to a drug when the patient had no known allergies to it. However, the patient who receives an antibiotic to which he or she is known to be allergic, goes into anaphylactic shock, and dies, represents a preventable adverse event.

## Where Errors Occur

Errors occur not only in hospitals but in other health care settings, such as physicians' offices, nursing homes, pharmacies, urgent care centers, and care delivered in the home. Unfortunately, very little data exist on the extent of the problem outside of hospitals. The IOM report indicated, however, that many errors are likely to occur outside the hospital. For example, in a recent investigation of pharmacists, the

Massachusetts State Board of Registration in Pharmacy estimated that 2.4 million prescriptions are filled improperly each year in the State.

Medical errors happen when something that was planned as a part of medical care doesn't work out properly, or when the wrong plan was used in the first place. Medical errors can occur anywhere in the health care system:<sup>4</sup>

- Hospitals.
- Clinics.
- Outpatient Surgery Centers.
- Doctors' Offices.
- Nursing Homes.
- Pharmacies.
- Patients' Homes.

Errors can involve:

- Medicines.
- Surgery.
- Diagnosis.
- Equipment.
- Lab reports.

They can happen during even the most routine tasks, such as when a hospital patient on a salt-free diet is given a high-salt meal.

Most errors result from problems created by today's complex health care system. But errors also happen when doctors and their patients have problems communicating. For example, a recent study supported by the Agency for Healthcare Research and Quality (AHRQ) found that doctors often do not help their patients make informed decisions. Uninvolved and uninformed patients are less likely to accept the doctor's choice of treatment and less likely to do what they need to do to make the treatment work.

These and other medication errors reported to the FDA may stem from poor communication, misinterpreted handwriting, drug name confusion, lack of employee knowledge, and lack of patient understanding about a drug's directions. "But it's important to recognize that such errors are due to multiple factors in a complex medical system," says Paul Seligman, M.D., director of the FDA's Office of Pharmacoepidemiology and Statistical Science. "In most cases, medication errors can't be blamed on a single person."<sup>5</sup>

### Types of Errors

Most people believe that medical errors usually involve drugs, such as a patient getting the wrong prescription or dosage, or mishandled surgeries, such as amputation of the wrong limb. However, there are many types of medical errors. The following seven categories summarize types of medical errors that can occur:

1. **Medication Errors**, such as a patient receiving the wrong drug
2. **Surgical Error**, such as amputating the wrong limb.
3. **Diagnostic error**, such as misdiagnosis leading to an incorrect choice of therapy, failure to use an indicated diagnostic test, misinterpretation of test results, and failure to act on abnormal results.
4. **Equipment failure**, such as defibrillators with dead batteries or intravenous pumps whose valves are easily dislodged or bumped, causing increased doses of medication over too short a period.

5. **Infections**, such as nosocomial and post-surgical wound infections.
6. **Blood transfusion-related injuries**, such as a patient receiving an incorrect blood type.
7. **Misinterpretation of other medical orders**, such as failing to give a patient a salt-free meal, as ordered by a physician.

The Institute of Medicine report, *Preventing Medication Errors (July 2006)*, finds that medication errors are surprisingly common and costly to the nation, and it outlines a comprehensive approach to decreasing the prevalence of these errors. This approach will require changes from doctors, nurses, pharmacists, and others in the health care industry, from the Food and Drug Administration (FDA) and other government agencies, from hospitals and other health-care organizations, and from patients.<sup>6</sup>

The report estimates that between 380,000 and 450,000 adverse drug reactions occur in the United States each year in hospitals alone while those numbers more than double in long term care facilities.

### Medical Errors Root Causes

According to a variety of sources, the root cause of medical errors is due to the complexity of today's healthcare system.

- The IOM emphasized that most medical errors are systems related and not attributable to individual negligence or misconduct. The key to reducing medical errors is to focus on improving the systems of delivering care and not to blame individuals. Health care professionals are simply human and, like everyone else, they make mistakes.
- The FDA reports that many patient deaths and injuries are associated with the use of FDA-regulated medical products within a complex and time-pressured health care system. Reducing the incidence of medical errors can save thousands of lives and billions of dollars.<sup>7</sup>
- Donald M. Berwick, president of the Institute for Health Care Improvement has identified the leading cause of medical mistakes as the increasing complexity of health care. His general recommendations were for more simplification and greater standardization, such as the use of bar codes to ensure that the right patient receives the right dose of the right medication.

Additionally there are some specific factors that can increase the prevalence of medical errors.

- Incomplete patient information (not knowing about patients' allergies, other medicines they are taking, previous diagnoses, and lab results, for example);
- Unavailable drug information (such as lack of up-to-date warnings);
- Miscommunication of drug orders, which can involve poor handwriting, confusion between drugs with similar names, misuse of zeroes and decimal points, confusion of metric and other dosing units, and inappropriate abbreviations;
- Lack of appropriate labeling as a drug is prepared and repackaged into smaller units; and
- Environmental factors, such as lighting, heat, noise, and interruptions that can distract health professionals from their medical tasks.

Researchers for *The Journal of the American Medical Association* have identified several issues that have contributed the incidence of medical errors including:<sup>8</sup>

- Complexity of the health care system
- Reluctance of doctors to admit errors
- Lack of leadership

- Insurance reimbursement system that rewards errors since hospitals can still bill for additional services when patients are injured but often will not pay for practices that reduce those errors

### **Medical Errors Financial Cost**

Medical errors carry a high financial cost. The IOM report estimates that medical errors cost the Nation approximately \$37.6 billion each year; about \$17 billion of those costs are associated with preventable errors. About half of the expenditures for preventable medical errors are for direct health care costs.<sup>9</sup>

The Institute of Medicine report, *Preventing Medication Errors* notes that medication errors are undoubtedly costly—to patients, their families, their employers, and to hospitals, health-care providers, and insurance companies—but there are few reliable estimates of that cost. One study found that each preventable adverse drug events (ADE) that took place in a hospital added about \$8,750 (in 2006 dollars) to the cost of the hospital stay. Assuming 400,000 of these events each year - a conservative estimate - the total annual cost would be \$3.5 billion in this one group. Another study looked at preventable ADEs in Medicare enrollees aged 65 and older and found an annual cost of \$887 million for treating medication errors in this group. Unfortunately, these studies cover only some of the medication errors that occur each year in this country, and they look at only some of their costs—they do not take into account lost earnings, for example, or any compensation for pain and suffering.<sup>10</sup>

## **Section III. National Standard Improving Patient Safety**

### **National Standards**

Hospitals have been faced with a wide array of different standards and guidelines required by the government, insurance companies, and accrediting agencies. This has led to confusion as well as a high cost and the time spent trying to collect and analyze data.

In November 2006, National Quality Forum endorsed a 30 Safe Practices which cover a range of practices that, if utilized, would reduce the risk of harm in certain processes, systems or environments of care. The ultimate goal of these recommendations is to create a single set of standards for hospitals to improve safety.

### **Agency for Healthcare Research and Quality (AHRQ)**

The National Quality Forum, with support from the Agency for Healthcare Research and Quality (AHRQ), has identified 30 safe practices that evidence shows can work to reduce or prevent adverse events and medical errors.<sup>11</sup>

The Agency for Healthcare Research and Quality (AHRQ) is the lead Federal agency charged with improving the quality, safety, efficiency, and effectiveness of health care for all Americans. As one of 12 agencies within the Department of Health and Human Services, AHRQ supports health services research that will improve the quality of health care and promote evidence-based decision-making.

The mission of AHRQ is to improve the quality, safety, efficiency, and effectiveness of health care by:

- Using evidence to improve health care.
- Improving health care outcomes through research.
- Transforming research into practice. AHRQ's research is designed to address the most critical aspects of patient safety improvement.
- How to identify errors and their causes.
- Collect and report information on patient safety problems.

- Improve safety through the use of evidence-based interventions, tools, and practices, including health information technology.

The ultimate goal in the United States is to deliver safe, high-quality health care to patients in all clinical settings. Despite the best intentions, however, a high rate of largely preventable adverse events and medical errors occur that cause harm to patients. Adverse events and medical errors can occur in any health care setting in any community in this country.

### **National Quality Forum Safe Practices**

The National Quality Forum is a private, non-profit public benefit corporation, created in 1999 in response to the need to develop and implement a national strategy for health care quality measurement and reporting. Established as a unique public-private partnership, the National Quality Forum has broad participation from more than 170 organizations that represent all sectors of the health care industry, including health care providers, consumers, employers, insurers, and other stakeholders.

Among its members are the AARP, AFL-CIO, the American Hospital Association, the American Medical Association, the American Nurses Association, the American Society of Health-System Pharmacists, the Ford Motor Company, and General Motors.

### **30 Safe Practices for Improving Patient Safety**

The National Quality Forum-endorsed 30 Safe Practices cover a range of practices that, if utilized, would reduce the risk of harm in certain processes, systems or environments of care. Within the 30 practice areas, one practice relates to creating a culture of safety, four to matching care needs to service capability, nine to improving information transfer and communication, twelve to specific care processes, and four to events and medical errors.<sup>12</sup>

Culled from an initial set of 220 practices, the final set was endorsed following a formal Consensus Development Process undertaken by a diverse set of health care organizations, who then recommended which practices should be universally implemented.

The 30 safe practices that follow have been endorsed by the membership of the National Quality Forum, which includes representatives of 215 of the Nation's leading health care provider, purchaser, and consumer organizations.

These organizations strongly urge that these 30 safe practices be universally adopted by all applicable health care settings to reduce the risk of harm to patients.<sup>13</sup>

### **30 Safe Practices for Improving Patient Safety**

#### **Creating a Culture of Safety**

1. Create a health care culture of safety.

There is a need to promote a culture that overtly encourages and supports the reporting of any situation or circumstance that threatens, or potentially threatens, the safety of patients or caregivers and that views the occurrence of errors and adverse events as opportunities to make the health care system better.

#### **Matching Health Care Needs with Service Delivery Capability**

2. For designated high-risk, elective surgical procedures or other specified care, patients should be clearly informed of the likely reduced risk of an adverse outcome at treatment facilities that have demonstrated superior outcomes and should be referred to such facilities in accordance with the patient's stated preference.
3. Specify an explicit protocol to be used to ensure an adequate level of nursing based on the institution's usual patient mix and the experience and training of its nursing staff.
4. All patients in general intensive care units (both adult and pediatric) should be managed by physicians having specific training and certification in critical care medicine ("critical care certified").
5. Pharmacists should actively participate in the medication-use process, including, at a minimum, being available for consultation with prescribers on medication ordering, interpretation and review of medication orders, preparation of medications, dispensing of medications, and administration and monitoring of medications.

### **Facilitating Information Transfer and Clear Communication**

6. Verbal orders should be recorded whenever possible and immediately read back to the prescriber; that is, a health care provider receiving a verbal order should read or repeat back the information that the prescriber conveys in order to verify the accuracy of what was heard.
7. Use only standardized abbreviations and dose designations.
8. Patient care summaries or other similar records should not be prepared from memory.
9. Ensure that care information, especially changes in orders and new diagnostic information, is transmitted in a timely and clearly understandable form to all of the patient's current health care providers who need that information to provide care.
10. Ask each patient or legal surrogate to recount what he or she has been told during the informed consent discussion.
11. Ensure that written documentation of the patient's preference for life-sustaining treatments is prominently displayed in his or her chart.
12. Implement a computerized prescriber-order entry system.
13. Implement a standardized protocol to prevent the mislabeling of radiographs.
14. Implement standardized protocols to prevent the occurrence of wrong-site or wrong-patient procedures.

### **In Specific Settings or Processes of Care**

15. Evaluate each patient undergoing elective surgery for risk of an acute ischemic cardiac event during surgery, and provide prophylactic treatment for high-risk patients with beta blockers.
16. Evaluate each patient upon admission, and regularly thereafter, for the risk of developing pressure ulcers. This evaluation should be repeated at regular intervals during care. Clinically appropriate preventive methods should be implemented consequent to the evaluation.

17. Evaluate each patient upon admission, and regularly thereafter, for the risk of developing deep vein thrombosis/venous thromboembolism. Utilize clinically appropriate methods to prevent both.
18. Utilize dedicated anti-thrombotic (anti-coagulation) services that facilitate coordinated care management.
19. Upon admission, and regularly thereafter, evaluate each patient for the risk of aspiration.
20. Adhere to effective methods of preventing central venous catheter-associated bloodstream infections.
21. Evaluate each pre-operative patient in light of his or her planned surgical procedure for the risk of surgical site infection, and implement appropriate antibiotic prophylaxis and other preventive measures based on that evaluation.
22. Utilize validated protocols to evaluate patients who are at risk for contrast media-induced renal failure, and utilize a clinically appropriate method for reducing risk of renal injury based on the patient's kidney function evaluation.
23. Evaluate each patient upon admission, and regularly thereafter, for risk of malnutrition. Employ clinically appropriate strategies to prevent malnutrition.
24. Whenever a pneumatic tourniquet is used, evaluate the patient for the risk of an ischemic and/or thrombotic complication, and utilize appropriate prophylactic measures.
25. Decontaminate hands with either a hygienic hand rub or by washing with a disinfectant soap prior to, and after, direct contact with the patient or objects immediately around the patient.
26. Vaccinate health care workers against influenza to protect both them and patients.

### **Increasing Safe Medication Use**

27. Keep workspaces where medications are prepared clean, orderly, well lit, and free of clutter, distraction, and noise.
28. Standardize the methods for labeling, packaging, and storing medications.
29. Identify all "high alert" drugs (for example, intravenous adrenergic agonists and antagonists, chemotherapy agents, anticoagulants and anti-thrombotics, concentrated parenteral electrolytes, general anesthetics, neuromuscular blockers, insulin and oral hypoglycemics, narcotics, and opiates).
30. Dispense medications in unit-dose or, when appropriate, unit-of-use form, whenever possible.

### **Voluntary Guidelines**

Although the guidelines are voluntary it will likely be incorporated into programs that reward those institutions that do implement the guidelines and penalize those that don't. This will also benefit the consumer because the guidelines will create a standardized report card to use in comparing the hospitals performance.

Some of the current groups that are promoting patient safety and quality include:

- **The Leapfrog Group** - Growing consortium of Fortune 500 companies and other large private and public healthcare purchasers provide health benefits to more than 37 million Americans in all 50 states. Survey hospitals for safety and quality.
- **Joint Commission on Accreditation of Healthcare Organizations (JCAHO)** - Evaluates and accredits nearly 15,000 health care organizations and programs in the United States.
- **The American Nurses Association** - Largest and most prestigious nursing credentialing organization in the United States.

## **Section IV. Academy of Nutrition and Dietetics Medical Nutrition Therapy Documentation**

### **Defining the Role of the Registered Dietitian and Medical Nutrition Therapy**

The registered dietitian is the health care provider with the most intensive experience necessary to provide nutrition services to individuals interested in medical nutrition therapy or preventive nutrition counseling.<sup>14</sup>

Medical nutrition therapy (MNT) is defined as a plan or set of steps, developed through a consultative process by a Registered Dietitian, which incorporates current professional knowledge and research, and clearly defines the level, content, and frequency of nutrition care that is appropriate for a disease or condition. Medical nutrition therapy begins with the nutritional assessment of a client, followed by a medically prescribed nutrition therapy based on standard protocols.

Medical nutrition therapy includes identifying treatment goals and developing the nutrition prescription, providing self-management training through individualized counseling and designing specialized nutrition therapies. During MNT, the registered dietitian provides clients with a comprehensive service that includes an assessment of the nutrition status of a client with a disease, condition, illness or injury that puts the patient at nutritional risk. This nutrition assessment consists of a review and analysis of medical and dietary history, laboratory test values, anthropometric measurements, and food/prescription drug interactions.

### **Academy of Nutrition and Dietetics Documentation**

In Academy of Nutrition and Dietetics's notes in their *Medical Nutrition Therapy Documentation* recommendations that communication among team members is important to provide consistent, quality care. Documentation is one form of communication and is a necessary part of medical care. Documentation is also essential for verifying the quality of care delivered and determining outcomes of care. One of the recommended activities is to document the circumstances and handling of errors.<sup>15</sup>

The medical record is a legal document that is maintained for communication of care, and includes a description of the care provided and delineation of who provided the care to the client. The government, private insurance companies and healthcare accrediting agencies mandate that the medical record be complete, accurate, and retained for a number of years as stipulated by Medicare or state laws. Reimbursement is also dependent on documentation.

### **Evidence Based Guides for Practice**

The RD will find that the AND MNT Evidence Based Guides for Practice (protocols and practice guidelines) provide resources for supporting that the RD meet the following documentation essentials. The dietitian documents the following in the patient's medical record:

**Initial MNT:**

- Receipt of referral, and name of primary dietitian
- Diagnosis
- Time and date of the visit.
- Demographic data, measurements
- Nutrition Assessments -- Nutrition history
- Baseline data intake
- Learning needs assessment r/t MNT
- Clinical and behavioral goals -- Care Plan
- Interventions -- MNT provided
- Adherence potential
- Scheduling of follow-up appointment

**Follow-up MNT Sessions:**

- Time and date of the visit.
- Lab data and measurements
- Progress to goals
- Adjustments to CarePlan
- Interventions -- New and reinforcement
- Barriers and solutions
- Next Follow-up appointment
- Appointment failures, and other ways that the patient is not cooperating with the therapeutic plan
- Follow-up plans

**Dos and Don'ts of Documentation**

Here are some tips recommended by the Academy of Nutrition and Dietetics to help improve the RD's charting:

**Do:**

- Check that you have the correct chart before you write.
- Chart a patient's refusal to allow treatment. Be sure to report this to the patient's physician.
- Write "late entry" and the date and time if you forgot to document something.
- Write often enough to tell the whole story.
- Chart preventive measures.
- Chart contemporaneously (contemporaneous notes are credible).
- Write legibly, offering concise, clear notes reflecting facts.
- Chart what you report to other healthcare providers.
- Chart solutions as well as problems.
- Document your observations. Write only what you see, hear, feel, or smell.
- Encourage others to document relevant information that they share with you.
- Document circumstances and handling of errors.
- Chart your efforts to answer your patients' questions.
- Chart patient/family teaching and response.
- Chart all referrals/support efforts.

Don't:

- Chart a verbal order unless you have received one.
- Chart a symptom (for instance: c/o excessive thirst), without also charting what you did about it.
- Wait until the end of the day and rely on memory.
- Ever alter a record. If you make an error, do mark through it with one line, indicate you are making a correction, and initial (or sign) and date.
- Document what someone else said they heard, saw, or felt (unless the information is critical -- then quote and attribute).
- Write trivia: "a good day." (What does that mean?)
- Be imprecise. Avoid terms like "large amounts" and "appears."
- Write your opinions.
- Blanket chart or pre-chart. It is considered fraud to chart that you've done something you didn't do.

It is the position of The Academy of Nutrition and Dietetics that medical nutrition therapy is effective in treating disease and preventing disease complications, resulting in health benefits and cost savings for the public. Therefore, medical nutrition therapy provided by dietetics professionals is an essential reimbursable component of comprehensive health care services.

## **Section V. Employer Supported Health Care Safety**

### **The Leapfrog Group**

The Leapfrog Group is a voluntary program aimed at mobilizing employer purchasing power to alert America's health industry that big leaps in health care safety, quality and customer value will be recognized and rewarded. Among other initiatives, Leapfrog works with its employer members to encourage transparency and easy access to health care information as well as rewards for hospitals that have a proven record of high quality care.

The Leapfrog Group's mission is to trigger giant leaps forward in the safety, quality and affordability of health care by:

- Supporting informed healthcare decisions by those who use and pay for health care; and,
- Promoting high-value health care through incentives and rewards.

### **The National Quality Forum Safe Practices Leap**

There are many aspects of a hospital's operations that contribute to overall quality and safety of care. In an effort to recognize a more expansive set of hospitals' quality and safety activities, and bring information to consumers about the level of safety they can expect, The Leapfrog Group has created a new leap based on the National Quality Forum's (NQF) *Safe Practices for Better Healthcare: A Consensus Report*.

Included in the 30 practices are the original 3 Leapfrog leaps: Computer physician order entry, ICU physician staffing and Evidence-based Hospital Referral for certain high-risk procedures. For this new Leap, hospitals' progress on the remaining 27 safe practices will be assessed. After completion of the online Leapfrog hospital survey, each hospital's relative ranking compared with other hospitals will be displayed on the Leapfrog Web site, along with their results for the initial 3 Leaps. Hospitals may choose to update their survey monthly.<sup>16</sup>

Leapfrog's initial 3 Leaps targeted urban hospitals. Non-urban hospitals are now invited on a voluntary basis to complete the survey for the NQF Safe Practices Leap. They may also choose to complete the survey for the first 3 Leaps. Results of submitted surveys will be posted on The Leapfrog Group Web site.

### **Safe Practices Measurements**

The Texas Medical Institute of Technology (TMIT), on behalf of The Leapfrog Group, consulted more than 100 clinical, administrative, and scientific experts to assess the NQF-endorsed Safe Practices and to develop the survey and hospital ranking system. The relative weightings for each individual safe practice were developed by the TMIT Medical Advisory Board, which consisted of 10 internationally recognized patient safety leaders.

Pediatric Task Forces were established to address the unique aspects of these hospitals.

Leapfrog scores hospitals' progress on the 27 NQF Safe Practice areas out of a total of 1,000 points. Each practice area is assigned an individual weight, which is factored into the overall score. Hospitals are then ranked by quartiles. The final ranking will be defined by one of four categories to be publicly displayed on the Leapfrog Group Web site.

Partial credit for partial progress and partial credit for commitments towards progress may be earned in each of 4 dimensions of adoption: awareness, accountability, ability, and action. For example, of 263 total possible points for progress on Practice #1 (Create a Healthcare Culture of Safety); a hospital may earn partial credit for partial progress and partial credit for commitment to undertake activities, in addition to credit earned for existing actions.

A hospital's total score will be used to initially rank hospitals into one of four groups:

- Fully meets progress goal
- Making good progress
- Good early stage effort
- Willingness to report

In order to achieve the highest level of recognition, a hospital must be in the top quartile of respondents and must have made real progress in those practices considered most significant by the expert panels. Full details regarding the survey, relative weighting, and ranking method is on The Leapfrog Group Web site at [www.leapfroggroup.org](http://www.leapfroggroup.org)

### **Challenges to Implementation**

It is unlikely that hospitals will fully satisfy all practice requirements, including the most sophisticated and well resourced; some hospitals do not have the financial and staff resources to direct at every safe practice; other hospitals simply have not directed their resources toward these patient safety practices. It is expected that completion of the survey will help to initiate a change process through the four dimensions of progress: awareness, ability, accountability and action that, if followed, will increase a hospital's investment in structural, process and clinical improvement aimed at patient safety.

A major challenge for hospitals has been the lack of national standards and measures resulting in duplicative or widely scattered efforts to meet slightly different standards for each quality and safety organization. This Leap utilizes consensus-based nationally endorsed standards, increasing the efficiency and coordination of hospital reporting.

### **Why Purchasers Need to Get Involved**

Using their leverage as purchasers, Leapfrog members can recognize and reward hospitals that meet NQF-endorsed Safe Practices standards. The addition of this fourth leap gives more tools with which to measure and reward hospital performance, and extends the reach of the survey to rural as well as urban hospitals, covering more of the hospitals providing services to purchasers and plans.

Purchasers, including health plans, can promote the NQF Safe Practices Leap by educating employees and consumers and calling attention to the importance of choosing the right hospital.

Purchasers through their community involvement in health care settings (as board members, volunteers, donors) can also be persuasive with health care providers about the need to extend their efforts in safety and quality.

Purchasers can also contract for specific safety and quality improvements with their health care providers and health plans, Public reporting of the results of The Leapfrog Group survey can serve to both inform and motivate improvements in the safety of care.

### **Benefits**

Unfortunately, there is continued evidence of problems in patient safety and the quality of care in inpatient settings. The NQF Safe Practices were endorsed by a broad group of stakeholders to provide high-impact improvements in patient safety. The criteria used to select these practices included reduction in mortality, experiential data from clinical practice and transferable evidence from other industries where research had shown efficacy. The implementation of these practices can reduce harm and save lives. Making hospital results available on the level of implementation will make more information available to consumers, enabling them to make more informed hospital choices.

## **Section VI. Health Care Organization Accrediting Requirements**

### **Joint Commission on Accreditation of Health Care Organizations**

The Joint Commission evaluates and accredits nearly 15,000 health care organizations and programs in the United States. An independent, not-for-profit organization, the Joint Commission is the nation's predominant standards-setting and accrediting body in health care. Since 1951, the Joint Commission has maintained state-of-the-art standards that focus on improving the quality and safety of care provided by health care organizations.

The Joint Commission's comprehensive accreditation process evaluates an organization's compliance with these standards and other accreditation requirements. Joint Commission accreditation is recognized nationwide as a symbol of quality that reflects an organization's commitment to meeting certain performance standards. To earn and maintain the Joint Commission's Gold Seal of Approval™, an organization must undergo an on-site survey by a Joint Commission survey team at least every three years.<sup>17</sup>

Joint Commission's Mission Statement is to continuously improve the safety and quality of care provided to the public through the provision of health care accreditation and related services that support performance improvement in health care organizations.

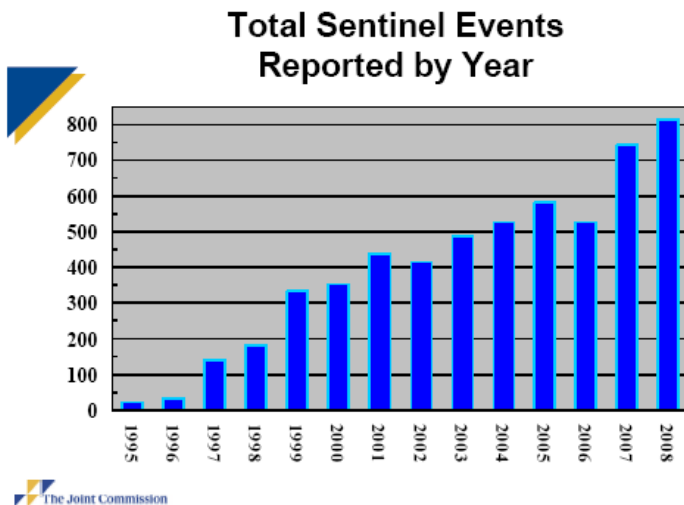
Joint Commission standards address the organization's level of performance in key functional areas, such as patient rights, patient treatment, and infection control. The standards focus not simply on an organization's ability to provide safe, high quality care, but on its actual performance as well. Standards set forth performance expectations for activities that affect the safety and quality of patient care. If an

organization does the right things and does them well, there is a strong likelihood that its patients will experience good outcomes. The Joint Commission develops its standards in consultation with health care experts, providers, measurement experts, purchasers, and consumers.

### Sentinel Event Statistics - September 30, 2009

A sentinel event is an unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof. Serious injury specifically includes loss of limb or function. The phrase, "or the risk thereof" includes any process variation for which a recurrence would carry a significant chance of a serious adverse outcome. Such events are called "sentinel" because they signal the need for immediate investigation and response.<sup>18</sup>

This sentinel event-related data reported to the Joint Commission from their accredited organizations, demonstrates the need of the Joint Commission and accredited health care organizations to continue to address these serious adverse events. This data also supports the importance of establishing National Patient Safety Goals and focusing our energies on addressing serious errors within health care organizations. By identifying causes, trends, settings and outcomes of sentinel events, the Joint Commission can provide critical information in the prevention of sentinel events to accredited health care organizations and the public.<sup>19</sup>



The majority of sentinel events occur in hospitals. There were a total of 4,347 general hospital sentinel events reported as of September 30, 2009. The following chart shows the number and percentage of the total sentinel events listed by type of facility.

Sentinel Event Setting	#	%
General hospital	4347	67.6%
Psychiatric hospital	687	10.7%
Psych unit in general hospital	319	5.0%
Emergency department	301	4.7%
Behavioral health facility	288	4.5%
Long term care facility	168	2.6%
Ambulatory care	166	2.6%
Home care	119	1.9%
Office-based surgery	21	0.3%
Clinical laboratory	10	0.2%
Health care network	2	0.0%

The top three categories listed in the following type of sentinel event are wrong site surgery, patient suicide and delay in treatment.

### 2008 Top 10 Sentinel Events by Type



Event	# reviewed in 2008
Wrong-site surgery	116
Suicide	102
Delay in treatment	82
Unintended retention of foreign body**	71
Patient fall	60
Op/post-op complication	63
Medication error	46
Assault/rape/homicide	41
Perinatal death/loss of function	32
Medical equipment-related	23



### National Patient Safety Goals

The purpose of the Joint Commission’s National Patient Safety Goals is to promote specific improvements in patient safety. The goals highlight problematic areas in health care and describe evidence and expert-based consensus to solutions to these problems. Recognizing that sound system design is intrinsic to the delivery of safe, high quality health care, the goals generally focus on system-wide solutions.

No adverse event should ever occur anywhere in the world if the knowledge exists to prevent it from happening. However, such knowledge is of little use if it is not put into practice. Translating knowledge into practical solutions is the ultimate foundation of the safety solutions.

The basic purpose of the solutions is to guide the re-design of care processes to prevent inevitable human errors from actually reaching patients. An individual solution will present the problem, the strength of evidence supporting the solution, potential barriers to adoption, risks of unintended consequences created by the solution, patient and family roles in the solution, and references and other resources.

Patient Safety Solutions are defined as: "Any system design or intervention that has demonstrated the ability to prevent or mitigate patient harm stemming from the processes of health care."

### **Nine Patient Safety Solutions**

The International Steering Committee of the Joint Commission has approved nine solutions for dissemination. The nine inaugural patient safety solutions are:<sup>20</sup>

#### **1. Look-Alike, Sound-Alike Medication Names**

Confusing drug names is one of the most common causes of medication errors and is a worldwide concern. With tens of thousands of drugs currently on the market, the potential for error created by confusing brand or generic drug names and packaging is significant.

#### **2. Patient Identification**

The widespread and continuing failures to correctly identify patients often leads to medication, transfusion and testing errors; wrong person procedures; and the discharge of infants to the wrong families.

#### **3. Communication During Patient Hand Overs**

Gaps in hand-over (or hand-off) communication between patient care units, and between and among care teams, can cause serious breakdowns in the continuity of care, inappropriate treatment, and potential harm for the patient.

#### **4. Performance of Correct Procedure at Correct Body Site**

Considered totally preventable, cases of wrong procedure or wrong site surgery are largely the result of miscommunication and unavailable, or incorrect, information. A major contributing factor to these types of errors is the lack of a standardized preoperative process.

#### **5. Control of Concentrated Electrolyte Solutions**

While all drugs, biologics, vaccines and contrast media have a defined risk profile, concentrated electrolyte solutions that are used for injection are especially dangerous.

#### **6. Assuring Medication Accuracy at Transitions in Care**

Medication errors occur most commonly at transitions. Medication reconciliation is a process designed to prevent medication errors at patient transition points.

#### **7. Avoiding Catheter and Tubing Mis-Connections**

The design of tubing, catheters, and syringes currently in use is such that it is possible to inadvertently cause patient harm through connecting the wrong syringes and tubing and then delivering medication or fluids through an unintended wrong route.

#### **8. Single Use of Injection Devices**

One of the biggest global concerns is the spread of Human Immunodeficiency Virus (HIV), the Hepatitis B Virus (HBV), and the Hepatitis C Virus (HCV) because of the reuse of injection needles.

## 9. Improved Hand Hygiene to Prevent Health Care-Associated Infection

It is estimated that at any point in time more than 1.4 million people worldwide are suffering from infections acquired in hospitals. Effective hand hygiene is the primary preventive measure for avoiding this problem.

### The Official "Do Not Use" List of Abbreviations

In May 2005, The Joint Commission affirmed its "do not use" list of abbreviations. The list was originally created in 2004 by The Joint Commission as part of the requirements for meeting National Patient Safety Goal Requirement 2B (*Standardize a list of abbreviations, acronyms and symbols that are not to be used throughout the organization*).<sup>21</sup>

While no additions will be made to the "do not use" list at this time, the following items will be reviewed annually for possible inclusion as part of the development of future Joint Commission NPSGs:

- The symbols ">" and "<"
- All abbreviations for drug names
- Apothecary units
- The symbol "@"
- The abbreviation "cc"
- The abbreviation "µg"

As of March 2009, the Official "Do Not Use" List is:



Official "Do Not Use" List<sup>1</sup>

Do Not Use	Potential Problem	Use Instead
U (unit)	Mistaken for "0" (zero), the number "4" (four) or "cc"	Write "unit"
IU (International Unit)	Mistaken for IV (intravenous) or the number 10 (ten)	Write "International Unit"
Q.D., QD, q.d., qd (daily)	Mistaken for each other	Write "daily"
Q.O.D., QOD, q.o.d, qod (every other day)	Period after the Q mistaken for "I" and the "O" mistaken for "I"	Write "every other day"
Trailing zero (X.0 mg)* Lack of leading zero (.X mg)	Decimal point is missed	Write X mg Write 0.X mg
MS	Can mean morphine sulfate or magnesium sulfate	Write "morphine sulfate" Write "magnesium sulfate"
MSO <sub>4</sub> and MgSO <sub>4</sub>	Confused for one another	

<sup>1</sup> Applies to all orders and all medication-related documentation that is handwritten (including free-text computer entry) or on pre-printed forms.

For accreditation purposes, the official "do not use" list applies, at a minimum, to all orders and all medication-related documentation that is handwritten (including free-text computer entry) or on pre-printed forms. This requirement does not currently apply to preprogrammed health information

technology systems (for example, electronic medical records or CPOE systems), but remains under consideration for the future. Organizations contemplating introduction or upgrade of such systems should strive to eliminate the use of dangerous abbreviations, acronyms, symbols, and dose designations from the software.

## **Section VII. Strategies to Reduce Medication Errors: Working to Improve Medication Safety**

### **Hospital Medication Errors Management**

The FDA is working on strategies to reduce medical errors by technology, improving processes, zeroing in on errors that cause harm, and building a culture of safety.<sup>22</sup>

When Jacquelyn Ley shattered her elbow on the soccer field, her parents set out to find her the best care in Minneapolis. "We drove past five other hospitals to get to the one we wanted," says Carol Ley, M.D., an occupational health physician. Her husband, an orthopedic surgeon, made sure Jacquelyn got the right surgeon. After a successful three-hour surgery to repair the broken bones, Jacquelyn, who was 9 at the time, received the pain medicine morphine through a pump and was hooked up to a heart monitor, breathing monitor, and blood oxygen monitor. Her recovery was going so well that doctors decided to turn off the morphine pump and to forgo regular checks of her vital signs.

Carol Ley slept in her daughter's hospital room that night. When she woke up in the middle of the night and checked on her, Jacquelyn was barely breathing. "I called her name, but she wouldn't respond," she says. "I shook her and called for help." The morphine pump hadn't been shut down, but had accidentally been turned up high. The narcotic flooded Jacquelyn's body. She survived the overdose, but it was a close call. "If three more hours had gone by, I don't think Jacquelyn would have survived," Ley says. "Fortunately, I woke up."

Ley was pleased with the way the hospital handled the error. "They came right out and said the morphine pump was incorrectly programmed, they told me the steps they were going to take to make sure Jacquelyn was OK, and they also told me what they were going to do to make sure this kind of mistake won't happen again. And that's very important to me." The hospital began using pumps that are easier to use and revamped nurses' training. Ley believes there were many contributors to the error, including the fact that it was Labor Day weekend and there were staff shortages. "It goes to show that this can happen to anyone, anywhere," says Ley, who now chairs the board of the National Patient Safety Foundation.

### **Medical Errors Multiple Factors**

Since 1992, the Food and Drug Administration has received nearly 30,000 reports of medication errors. These are voluntary reports, so the number of medication errors that actually occur is thought to be much higher. There is no "typical" medication error, and health professionals, patients, and their families are all involved. Some examples:

- A physician ordered a 260-milligram preparation of Taxol for a patient, but the pharmacist prepared 260 milligrams of Taxotere instead. Both are chemotherapy drugs used for different types of cancer and with different recommended doses. The patient died several days later, though the death couldn't be linked to the error because the patient was already severely ill.
- An older patient with rheumatoid arthritis died after receiving an overdose of methotrexate--a 10-milligram daily dose of the drug rather than the intended 10-milligram weekly dose. Some dosing mix-ups have occurred because daily dosing of methotrexate is typically used to treat people with

cancer, while low weekly doses of the drug have been prescribed for other conditions, such as arthritis, asthma, and inflammatory bowel disease.

- One patient died because 20 units of insulin was abbreviated as "20 U," but the "U" was mistaken for a "zero." As a result, a dose of 200 units of insulin was accidentally injected.
- A man died after his wife mistakenly applied six transdermal patches to his skin at one time. The multiple patches delivered an overdose of the narcotic pain medicine fentanyl through his skin.
- A patient developed a fatal hemorrhage when given another patient's prescription for the blood thinner warfarin.

These and other medication errors reported to the FDA may stem from poor communication; misinterpreted handwriting; drug name confusion; confusing drug labels, labeling, and packaging; lack of employee knowledge; and lack of patient understanding about a drug's directions. "But it's important to recognize that such errors are due to multiple factors in a complex medical system," says Paul Seligman, M.D., director of the FDA's Office of Pharmacoepidemiology and Statistical Science. "In most cases, medication errors can't be blamed on a single person."

A medication error is "any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer," according to the National Coordinating Council for Medication Error Reporting and Prevention. The council, a group of more than 25 national and international organizations, including the FDA, examines and evaluates medication errors and recommends strategies for error prevention.

## A Regulatory Approach

The U.S. Department of Health and Human Services (HHS) and other federal agencies formed the Quality Interagency Coordination Task Force in 2000 and issued an action plan for reducing medical errors. In 2001, former HHS Secretary Tommy G. Thompson announced a Patient Safety Task Force to coordinate a joint effort to improve data collection on patient safety. The lead agencies are the FDA, the Centers for Disease Control and Prevention, the Centers for Medicare and Medicaid Services, and the Agency for Healthcare Research and Quality.

The FDA enhanced its efforts to reduce medication errors by dedicating more resources to drug safety, which included forming a new division on medication errors at the agency in 2002. "FDA works to prevent medication errors before a drug reaches the market and monitors any errors that may occur after that," says Jerry Phillips, R.Ph., former director of the FDA's Division of Medication Errors and Technical Support.

Key areas in which the FDA is working to reduce medication errors include:

**Bar code label rule:** After a public meeting in July 2002, the FDA decided to propose a new rule requiring bar codes on certain drug and biological product labels. Health care professionals would use bar code scanning equipment, similar to that used in supermarkets, to make sure that the right drug in the right dose and route of administration is given to the right patient at the right time.

"It's a promising way to automate aspects of medication administration," says Robert Krawisz, former executive director of the National Patient Safety Foundation. "The technology's impact at VA hospitals so far has been amazing." The Department of Veterans Affairs (VA) already uses bar codes nationwide in its hospitals, and the result has been a drastic reduction in medication errors. For example, the VA medical

center in Topeka, Kan., has reported that bar coding reduced its medication error rate by 86 percent over a nine-year period.

When patients enter the hospital, they get a bar-coded identification wristband that can transmit information to the hospital's computer, says Lottie Lockett, R.N., a nursing administrator at the Houston VA Medical Center. Nurses have laptop computers and scanners on top of medication carts that they bring to patients' rooms. Nurses use the scanners to scan the patient's wristband and the medications to be given. The bar codes provide unique, identifying information about drugs given at the patient's bedside. "Before giving medications, nurses use the scanner to pull up a patient's full name and social security number on the laptops, along with the medications," Lockett says. "If there is not a match between the patient and the medication or some other problem, a warning box pops up on the screen."

The FDA's final rule on bar code labeling was published on Feb. 26, 2004. The rule, which took effect on April 26, 2004, applies to prescription drugs, biological products (other than blood, blood components, and devices regulated by the Center for Biologics Evaluation and Research), and over-the-counter (OTC) drugs that are commonly used in hospitals. Manufacturers, repackers, relabelers, and private label distributors of prescription and OTC drugs would be subject to the bar code requirements. The agency continues to study whether it also should develop a rule requiring bar code labeling on medical devices.

**Drug name confusion:** To minimize confusion between drug names that look or sound alike, the FDA reviews about 300 drug names a year before they are marketed. "About one-third of the names that drug companies propose are rejected," says Phillips. The agency tests drug names with the help of about 120 FDA health professionals who volunteer to simulate real-life drug order situations. "FDA also created a computerized program that assists in detecting similar names and that will help take a more scientific approach to comparing names," Phillips says.

After drugs are approved, the FDA tracks reports of errors due to drug name confusion and spreads the word to health professionals, along with recommendations for avoiding future problems. For example, the FDA has reported errors involving the inadvertent administration of methadone, a drug used to treat opiate dependence, rather than the intended Metadate ER (methylphenidate) for the treatment of attention-deficit/hyperactivity disorder (ADHD). One report involved the death of an 8-year-old boy after a possible medication error at the dispensing pharmacy. The child, who was being treated for ADHD, was found dead at home. Methadone substitution was the suspected cause of death. Some FDA recommendations regarding drug name confusion have encouraged pharmacists to separate similar drug products on pharmacy shelves and have encouraged physicians to indicate both brand and generic drug names on prescription orders, as well as what the drug is intended to treat.

The last time the FDA changed a drug name after it was approved was in 2004 when the cholesterol-lowering medicine Altacor was being confused with the cholesterol-lowering medicine Advicor. Now Altacor is called Altoprev, and the agency hasn't received reports of errors since the name change. Other examples of drug name confusion reported to the FDA include:

- Serzone (nefazodone) for depression and Seroquel (quetiapine) for schizophrenia
- Lamictal (lamotrigine) for epilepsy, Lamisil (terbinafine) for nail infections, Ludiomil (maprotiline) for depression, and Lomotil (diphenoxylate) for diarrhea
- Taxotere (docetaxel) and Taxol (paclitaxel), both for chemotherapy
- Zantac (ranitidine) for heartburn, Zyrtec (cetirizine) for allergies, and Zyprexa (olanzapine) for mental conditions
- Celebrex (celecoxib) for arthritis and Celexa (citalopram) for depression.

**Drug labeling:** Consumers tend to overlook important label information on OTC drugs, according to a Harris Interactive Market Research Poll conducted for the National Council on Patient Information and

Education and released in January 2002. In May 2002, an FDA regulation went into effect that aims to help consumers use OTC drugs more wisely.

The regulation requires a standardized "Drug Facts" label on more than 100,000 OTC drug products. Modeled after the Nutrition Facts label on foods, the label helps consumers compare and select OTC medicines and follow instructions. The label clearly lists active ingredients, uses, warnings, dosage, directions, other information, such as how to store the medicine, and inactive ingredients.

As for health professionals, the FDA proposed a new format in 2000 to improve prescription drug labeling for physicians, also known as the package insert. One FDA study showed that practitioners found the labeling to be lengthy, complex, and hard to use. The proposed redesign would feature a user-friendly format and would highlight critical information more clearly. The FDA is still reviewing public comments on this proposed rule. The agency also has been working on a project called DailyMed, a computer system that will be available without cost from the National Library of Medicine next year. DailyMed will have new information added daily, and will allow health professionals to pull up drug warnings and label changes electronically.

**Error tracking and public education:** The FDA reviews medication error reports that come from drug manufacturers and through MedWatch, the agency's safety information and adverse event reporting program. The agency also receives reports from the Institute for Safe Medication Practices (ISMP) and the U.S. Pharmacopeia, or USP.

A recent ISMP survey on medication error reporting practices showed that health professionals submit reports more often to internal reporting programs such as hospitals than to external programs such as the FDA. According to the ISMP, one reason may be health professionals' limited knowledge about external reporting programs.

The FDA receives and reviews about 300 medication error reports each month and classifies them to determine the cause and type of error. Depending on the findings, the FDA can change the way it labels, names, or packages a drug product. In addition, once a problem is discovered, the FDA educates the public on an ongoing basis to prevent repeat errors.

In 2001, the agency released a public health advisory to hospitals, nursing homes, and other health care facilities about the hazards of mix-ups between medical gases, which are prescription drugs. In one case, a nursing home in Ohio reported four deaths after an employee mistakenly connected nitrogen to the oxygen system.

The ISMP reports medication errors through various newsletters that target health professionals in acute care, nursing, and community/ambulatory care. The ISMP also has launched a newsletter for consumers called Safe Medicine.

In December 2003, the USP released an analysis of medication errors captured in 2002 by its anonymous national reporting database, MedMARX. Of the errors reported to MedMARX, slightly more than one-third reached the patient and involved a geriatric patient. Many of these medication errors were found to be harmful.

### **What Consumers Can Do**

In one case reported to the ISMP, a doctor called in a prescription for the antibiotic Noroxin (norfloxacin) for a patient with a bladder infection. But the pharmacist thought the order was for Neurontin (gabapentin), a medication used to treat seizures. The good news is that the patient read the medication leaflet stapled to his medication bag, noticed the drug he received is used to treat seizures, and then asked

about it. ISMP president Michael Cohen, R.Ph., Sc.D., says, "You should expect to count on the health system to keep you safe, but there are also steps you can take to look out for yourself and your family."

- Know what kind of errors occur. The FDA evaluated reports of fatal medication errors that it received from 1993 to 1998 and found that the most common types of errors involved administering an improper dose (41 percent), giving the wrong drug (16 percent), and using the wrong route of administration (16 percent). The most common causes of the medication errors were performance and knowledge deficits (44 percent) and communication errors (16 percent). Almost half of the fatal medication errors occurred in people over 60. Older people are especially at risk for errors because they often take multiple medications. Children are also a vulnerable population because drugs are often dosed based on their weight, and accurate calculations are critical.
- Find out what drug you're taking and what it's for. Rather than simply letting the doctor write you a prescription and send you on your way, be sure to ask the name of the drug. Cohen says, "I would also ask the doctor to put the purpose of the prescription on the order." This serves as a check in case there is some confusion about the drug name. If you're in the hospital, ask (or have a friend or family member ask) what drugs you are being given and why.
- Find out how to take the drug and make sure you understand the directions. If you are told to take a medicine three times a day, does that mean eight hours apart exactly or at mealtimes? Should the medicine be stored at room temperature or in the refrigerator? Are there any medications, beverages, or foods you should avoid? Also, ask about what medication side effects you might expect and what you should do about them. And read the bottle's label every time you take a drug to avoid mistakes. In the middle of the night, you could mistake ear drops for eye drops, or accidentally give your older child's medication to the baby if you're not careful. Use the measuring device that comes with the medicine, not spoons from the kitchen drawer. If you take multiple medications and have trouble keeping them straight, ask your doctor or pharmacist about compliance aids, such as containers with sections for daily doses. Family members can help by reminding you to take your medicine.
- Keep a list of all medications, including OTC drugs, as well as dietary supplements, medicinal herbs, and other substances you take for health reasons, and report it to your health care providers. The often-forgotten things that you should tell your doctor about include vitamins, laxatives, sleeping aids, and birth control pills. One National Institutes of Health study showed a significant drug interaction between the herbal product St. John's wort and indinavir, a protease inhibitor used to treat HIV infection. Some antibiotics can lower the effectiveness of birth control pills. If you see different doctors, it's important that they all know what you are taking. If possible, get all your prescriptions filled at the same pharmacy so that all of your records are in one place. Also, make sure your doctors and pharmacy know about your medication allergies or other unpleasant drug reactions you may have experienced.
- If in doubt, ask, ask, ask. Be on the lookout for clues of a problem, such as if your pills look different than normal or if you notice a different drug name or different directions than what you thought. Krawisz says it's best to be cautious and ask questions if you're unsure about anything. "If you forget, don't hesitate to call your doctor or pharmacist when you get home," he says. "It can't hurt to ask."

## Hospital Strategies

Hospitals and other health care organizations work to reduce medication errors by using technology, improving processes, zeroing in on errors that cause harm, and building a culture of safety. Some specific examples include:

**Pharmacy intervention:** It was a challenge for health care providers, especially surgeons, at Fairview Southdale Hospital in Edina, Minn., to ensure that patients continued taking their regularly prescribed medicines when they entered the hospital, says Steven Meisel, Pharm.D., director of medication safety at Fairview Health Services. "Surgeons are not typically the original prescribers," he says. The solution was to have pharmacy technicians record complete medication histories on a form. In a pilot program, the technicians called most patients on the phone a couple of days before surgery. A pharmacist reviewed the information, and then the surgeon decided which medications should be continued. After three months, the number of order errors per patient dropped by 84 percent, and the pilot program became permanent.

**Computerized Physician Order Entry (CPOE):** Studies have shown that CPOE is effective in reducing medication errors. It involves entering medication orders directly into a computer system rather than on paper or verbally. The Institute for Safe Medication Practices conducted a survey of 1,500 hospitals in 2001 and found that about 3 percent of hospitals were using CPOE, and the number is rising. Eugene Wiener, M.D., medical director at the Children's Hospital of Pittsburgh, says, "There is no misinterpretation of handwriting, decimal points, or abbreviations. This puts everything in a digital world."

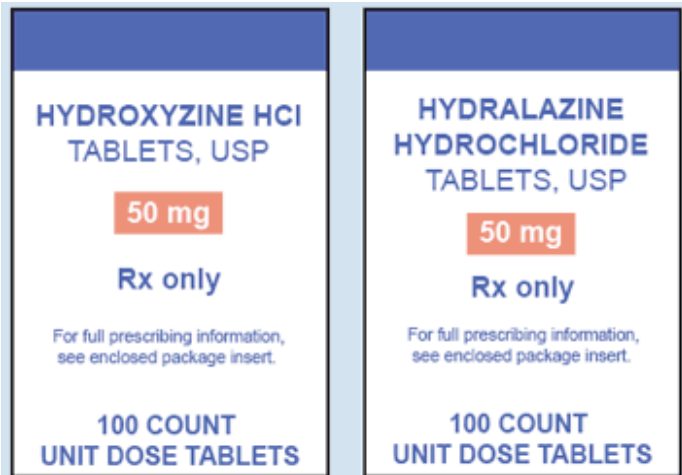
The Pittsburgh hospital unveiled its CPOE system in October 2002. Developed by the hospital and the Cerner Corp. in Kansas City, Mo., Children'sNet has replaced most paper forms and prescription pads. Wiener says that, unlike with adults, most drug orders for children are generally based on weight. "The computer won't let you put an order in if the child's weight isn't in the system," he says, "and if the weight changes, the computer notices." The system also provides all kinds of information about potential drug complications that the doctor might not have thought about. "Doctors always have a choice in dealing with the alerts," Wiener says. "They can choose to move past an alert, but the alert makes them stop and think based on the specific patient indications."

## **Section VIII. Barriers to Preventing and Eliminating Medical Errors**

### **Barriers to Preventing Medical Errors**

Medication errors are 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. These errors may be related to professional practice, the product itself, and/or the procedures and systems related to distribution, dispensing and administration of drugs. For instance, drugs may be given names, shapes, or colors similar to other medications. As illustrated below, similarities in product packaging may result in confusion among healthcare professionals charged with dispensing drugs or among patients taking drugs at home.<sup>23</sup>

The following illustration is an example of similar looking packaging from the same manufacturer for two unrelated drugs. On the left are 50 mg tablets of hydroxyzine HCL, a sedating antihistamine. On the right are 50 mg tablets of hydralazine HCL, an antihypertensive drug. The packaging of these products may lead to a serious medication error.



Although medication errors can and do occur it is difficult to assess how frequently such errors occur in medical and pharmacy practice. Medication errors such as those involving the wrong drug, an extra or wrong dose, omission of a drug, administering a drug by the wrong route or at an incorrect time are commonly reported to the FDA. Many of these errors can be prevented simply by communicating more effectively.

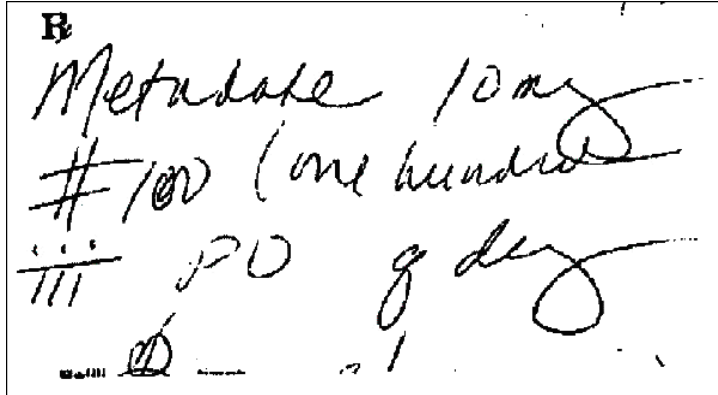
However, some types of errors may require additional interventions such as a change in the product name, labeling and/or packaging to help minimize the likelihood of further confusion. Continued training and vigilance is essential in helping healthcare professionals and FDA reduce the likelihood of an error being made. Reporting medication errors to FDA via MedWatch, or to FDA's partners in this effort, the Institute for Safe Medical Practices (ISMP) and the U.S. Pharmacopeia via their MedMarx program, helps FDA identify factors leading to errors that can be corrected, lessening the likelihood of their recurrence.

### Challenges to Preventing Medication Errors

There are numerous challenges to preventing medication errors. It is common practice, depending on the healthcare setting, to have many individuals involved in the prescribing, dispensing and administration of a medication (e.g., physicians, nurses, pharmacists, and the patient) with the potential for an error to occur at any step in the process. Healthcare professionals should be aware of the sources and types of medication errors so that they may better identify and avoid potential problems before they occur.

There are many steps that healthcare professionals can take to reduce the occurrence of medication errors at the point of prescribing a medication. Two major sources of errors in prescribing are poor penmanship and the use of error-prone abbreviations. For instance, healthcare professionals should be cognizant of their penmanship and use computerized prescriber order entry if available, to lessen any confusion that may result from poorly written prescriptions.

The following illustration is an example of a hand-written prescription for Metadate ER 10 mg tablets. Metadate is a drug used in the treatment of Attention Deficit Hyperactivity Disorder (ADHD). Due to the similarity in name, poor penmanship and the omission of the modifier "ER", the pharmacy filling the prescription incorrectly dispensed methadone 10 mg tablets. Methadone is a morphine-based product used as a heroin substitution therapy and analgesic. Methadone is not used for the treatment of ADHD.



As noted above, another way healthcare professionals can minimize the confusion over handwritten prescriptions, and/or potential errors that may result in a drug's misuse is through the use of technology. For example, CPOE technology is an electronic data entry system that allows healthcare professionals to communicate instructions about a patient at either the point-of-care or remotely. Although not every institution uses CPOE, data have shown that CPOE simplifies and streamlines a patient's care, and significantly reduces medication errors. Estimates of the proportion of hospital that have fully implemented CPOE systems range from 37% to 50%. CPOE is capable of storing medical histories and can alert healthcare professionals to, among other things, drug allergies, and dangerous drug-drug or drug-device interactions.

There are certain error-prone abbreviations, symbols and dose designations that healthcare professionals should avoid. For example, the abbreviation for microgram, " $\mu\text{g}$ ", is often misread for milligram, "mg", when written. FDA and ISMP recommend that the abbreviation "mcg" be used in lieu of " $\mu\text{g}$ ". Another common source of misinterpretation and error is the use of the decimal point and a trailing zero. Writing "1.0 mg" can be read as "10 mg" if the decimal point is not clearly visible. Similarly, ".1 mg" can be misinterpreted as "1 mg". FDA and ISMP recommend that no trailing zeros be used when denoting doses expressed as whole numbers and that preceding zeros be used whenever a decimal point is needed for a dose that must be administered as a fraction of a whole number. Certain abbreviations can also be misread, for example "HCL", hydrochloride, and "KCL", potassium chloride. FDA and ISMP recommend that the complete drug name be used unless expressed as a salt of the drug. By avoiding the use of abbreviations, symbols and dose designations that are easily confused with each other, the risk of error can be greatly reduced.

A 2008 review of the effects of CPOE on medication errors [MEDLINE (1966 to April 2006) and EMBASE (1976 to April 2006)] indicated that most studies report significant reductions in the relative risk of medication errors when CPOE is used. Specifically, 25 of the 27 studies evaluated show a relative risk reduction for medication errors of 13% to 99%. These data strongly support the use of CPOE for the reduction of medication errors.

Another important way to avoid prescribing errors is for healthcare professionals to be up-to-date on the latest information for a product, especially for a drug that may not be commonly used. The professional product label is the best source for information on indications, proper use, and adverse events associated with a drug. The product label is updated as new information becomes available. The label provides important information that healthcare professionals should know prior to prescribing a drug. For instance, a boxed warning, when used, often contains information about serious adverse reactions (e.g., life-threatening) that should be considered when weighing the benefits of prescribing a drug. Special restrictions and distribution programs are also highlighted in boxed warnings.

Starting in 2006, the professional product label has a new look. Included at the top of the label is a highlights section. This feature makes key prescribing information about the drug readily accessible and provides an index to the rest of the information in the label. Healthcare professionals should always consult the drug label prior to prescribing a drug they are unfamiliar with or when there has been an update to the prescribing information.

## Section IX. Reporting Medical Errors

### Medical Errors Reporting

FDA receives medication error reports on marketed human drugs (including prescription drugs, generic drugs, and over-the-counter drugs) and nonvaccine biological products and devices. The *National Coordinating Council for Medication Error Reporting and Prevention* 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 health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use." <sup>24</sup>

The American Hospital Association lists the following as some common types of medication errors:

- Incomplete patient information (not knowing about patients' allergies, other medicines they are taking, previous diagnoses, and lab results, for example);
- Unavailable drug information (such as lack of up-to-date warnings);
- Miscommunication of drug orders, which can involve poor handwriting, confusion between drugs with similar names, misuse of zeroes and decimal points, confusion of metric and other dosing units, and inappropriate abbreviations;
- Lack of appropriate labeling as a drug is prepared and repackaged into smaller units; and
- Environmental factors, such as lighting, heat, noise, and interruptions that can distract health professionals from their medical tasks.

### MedWatch

The Food and Drug Administration's reporting system for adverse events, founded in 1993. An adverse event is any undesirable experience associated with the use of a medical product. The MedWatch system collects reports of adverse reactions and quality problems, primarily with drugs and medical devices, but also for other FDA-regulated products (e.g., dietary supplements, cosmetics, medical foods, and infant formulas). Voluntary reporting by healthcare professionals, consumers, and patients is conducted on a single, one-page reporting form (Form FDA 350). Reporting can be conducted online, by phone 1-800-FDA-1088, or by submitting the MedWatch 3500 form by mail or fax 1-800-FDA-0178.

The MedWatch system is intended to detect safety hazard signals for medical products. If a signal is detected, FDA can issue medical product safety alerts or order product recalls, withdrawals, or labeling changes to protect the public health. Important safety information is disseminated to the medical community and the general public via the MedWatch web site and the MedWatch E-list."

Raw data from the MedWatch system, together with adverse drug reaction reports from manufacturers as required by regulation, are part of a public database. Online tools that analyze the database are available for both health care consumers and professionals. The database was used by journalists to investigate FDA's drug approval practice.

## **Organizations Tracking Medication Errors**

### The Food and Drug Administration

Accepts reports from consumers and health professionals about products regulated by the FDA, including drugs and medical devices, through MedWatch, the FDA's safety information and adverse event reporting program.

### Institute for Safe Medication Practices

Accepts reports from consumers and health professionals related to medication. Publishes Safe Medicine, a consumer newsletter on medication errors.

### U.S. Pharmacopeia

The Medication Errors Reporting (MER) Program, in cooperation with the Institute for Safe Medication Practices, is a voluntary national medication error reporting program.

### MedMARX

USP's anonymous medication error reporting program used by hospitals. These data are not submitted to the FDA.

## **Course Summary**

There are many different types of medical errors that can occur in all different types of facilities. Reducing the number of medical errors and improving the response to errors is the number one goal. Much work remains to be done and there is still much to be learned but the important issue is that systems, process improvements and recommendations are now being set into place. All that was discussed in this course proves a call to action to make health care safer for patients. A major force for the improvement of patient safety is the intrinsic motivation of all health care providers, which is shaped by their professional ethics, ongoing training, expectations and continuing education.

As dietitians it is part of our responsibility to look at a patient's entire continuum of care. When compiling a patient's medical history note medications and other problems that may be a red flag. Listen to what a patient tells you and communicate with the patient's attending physician. Communication can become one essential key to decreasing risk. Everyone caring for a patient must keep their eyes and ears open. Proper documentation is also essential for verifying the quality of care delivered, determining outcomes of care and communicating with others on the health care team. As dietitians we are accountable for keeping current on the most recent trends of treatment and information available as well as keeping abreast of protocol set forth by organizations such as JCAHO.

As health care professionals we are still human and we have to expect that some errors will occur. But it is our responsibility to do everything in our power to decrease the risk of any medical error to any patient. Learning all we can about the issue and staying abreast of new information and systems dealing with medical errors is a crucial first step. The issue of medical errors must continue to stay in the forefront of medical care until the problems are resolved and the statistical numbers drastically decrease.

## **Section X. Bibliography of Additional Resources**

### **Agency for Healthcare Research**

The Agency for Healthcare Research and Quality (AHRQ) research provides evidence-based information on health care outcomes; quality; and cost, use, and access.

540 Gaither Road, Rockville, MD 20850, 301-427-1364

<http://www.ahrq.gov/>

**The Joint Commission on Accreditation of Health Care Organizations**

JCAHO evaluates the quality and safety of care for nearly 17,000 health care organizations. To maintain and earn accreditation, organizations must have an extensive on-site review by a team of JCAHO health care professionals, at least once every three years.

One Renaissance Blvd., Oakbrook Terrace, IL 60181, 630-792-5000

<http://www.jcaho.org/>

**The Leapfrog Group**

c/o AcademyHealth

1801 K Street NW, Suite 701-L

Washington, DC 20006

202-292-6713

[www.leapfroggroup.org](http://www.leapfroggroup.org)

**The National Coordinating Council for Medication Error Reporting and Prevention**

NCC MERP is an independent body comprised of 24 national organizations. In 1995, USP spearheaded the formation of the National Coordinating Council for Medication Error Reporting and Prevention.

Leading national health care organizations are meeting, collaborating, and cooperating to address the interdisciplinary causes of errors and to promote the safe use of medications.

<http://www.nccmerp.org/>

**US Food and Drug Administration**

Accepts reports from consumers and health professionals about products regulated by the FDA, including drugs and medical devices, through MedWatch, the FDA's safety information and adverse event reporting program.

1-800-332-1088

[www.fda.gov/medwatch/how.htm](http://www.fda.gov/medwatch/how.htm)

**U.S. Pharmacopeia**

MEDMARX is an anonymous medication error-reporting program used by hospitals.

[www.medmarx.com](http://www.medmarx.com)

12601 Twinbrook Parkway Rockville, MD 20852, 1-800-822-8772

[www.usp.org](http://www.usp.org)

## Section XI. Continuing Education Answer Sheet & Test Questions

**Dietitians: RD, CDE, LDN, DTR.** Approved for **2 CPE credits.** VPE (Provider Number VA002) is a CPE Accredited Provider with the CDR. **We will mail you a Certificate of Completion for your Activity Log for the CDR reporting. Course Expiration Date: November 7, 2012.**

### (#093322) A Guide to Medical Errors Prevention & Reporting

Guarantee: We guarantee our Continuing Education Certificates. If for any reason your state does not accept our Continuing Education Credits, we will refund the amount paid by the student for the Certificate. A grade of 70% or better is required to pass this test.

Payment		Total
Credits	Per Credit	
<b>2 x</b>	<b>\$9.50</b>	<b>\$ 19.00</b>
Make Check Payable to: VPE		

#### Mail Answer Sheet & Payment:

Ms. Angela Turton, Registrar  
 Vantage Professional Education  
 P.O. Box 172835  
 Tampa, FL 33672

ANSWER SECTION			
a	b	c	d
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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 AND/CDR Lic# (Required) \_\_\_\_\_ FL Lic # \_\_\_\_\_  
 Dietitian:  RD  DTR  LDN Other \_\_\_\_\_  
 Time Required to Complete this Course? \_\_\_\_\_

#### Content Evaluation

	Disagree				Agree
1. Relationship of objectives appropriate to meet the goals of activity?	1	2	3	4	5
2. Effective as a learning resource?	1	2	3	4	5
3. Extended my knowledge on the topic?	1	2	3	4	5
4. Was consistent with the objectives?	1	2	3	4	5
5. Was related to my job?	1	2	3	4	5

#### Course Objectives Evaluation: Did the course content meet the stated objectives?

	Disagree				Agree
1. Explain the prevalence and root causes of medical errors.....	1	2	3	4	5
2. Identify the 30 Safe Practices for Improving Patient Safety.....	1	2	3	4	5
3. Define the role of the Registered Dietitian in preventing medical errors.....	1	2	3	4	5
4. Identify issues arising from different standards and measurements to reduce medical errors..	1	2	3	4	5
5. Describe the role of organizations promoting patient safety and quality.....	1	2	3	4	5
6. Discuss medical error reduction programs.....	1	2	3	4	5
7. Describe barriers to preventing medical errors .....	1	2	3	4	5
8. Discuss the role of the national medical errors reporting programs.....	1	2	3	4	5

## A Guide to Medical Errors Prevention & Reporting (#093322)

### 16 Test Questions: Please use the Answer Sheet

#### Dietitians: RD, CDE, LD/LCN, DTR.

This offering is approved for 2 Continuing Professional Education Credits by the Commission on Dietetic Registration (CDR).

1. According to the IOM, where do medical errors occur?
  - a. Hospitals, clinics, outpatient surgery center
  - b. Doctors offices and nursing homes
  - c. Pharmacies and patient's homes
  - d. All of the above
2. How many annual deaths does the IOM report estimate occur due to medical errors in hospitals?
  - a. Estimated 7,000 deaths
  - b. Between 22,000 and 44,000
  - c. Between 44,000 and 98,000
  - d. More than 98,000
3. Which of following is the most complete answer for the IOM's definition for the term "medical errors"?
  - a. Use the wrong plan to achieve an aim
  - b. Failure to complete a planned action as intended or use the wrong plan to achieve an aim
  - c. Failure to complete a planned action as intended
  - d. An injury caused by medical mismanagement
4. What does the IOM identify as the root causes of medical errors?
  - a. Related to the complexity of health care systems
  - b. Due to individual negligence or misconduct
  - c. Communications and diagnostic errors
  - d. Drug related and mishandled surgeries
5. Which of the following areas received the greatest number of recommendations in the 30 Safe Practices report?
  - a. Specific care processes
  - b. Culture of safety
  - c. Safe medication use
  - d. Improving patient care and communication
6. What does the AND recommend as the most important part of providing consistent, quality care?
  - a. Communication among team members
  - b. Patient empowerment
  - c. Drug information education
  - d. Documentation
7. According to The Leapfrog Group which of the following best describes the challenge facing hospitals relating to the lack of national standards and measures for reducing medical errors?
  - a. Waste associated with the duplication of efforts and widely scattered efforts
  - b. Lack of financial resources
  - c. Investment in new technologies
  - d. Improving patient care and communication
8. Which of the following organizations accredits healthcare facilities?
  - a. The Leapfrog Group
  - b. The FDA
  - c. The American Nurses Association
  - d. Joint Commission (JCAHO)
9. Which of the following best describes a Sentinel Event?
  - a. Accidental death or injury
  - b. Non-hospital related medical error
  - c. An unexpected occurrence involving death or serious physical or psychological injury or risk
  - d. Emergency room medical error
10. Which of the following did the Joint Commission report at the leading Sentinel Event?
  - a. Medical equipment related
  - b. Patient fall
  - c. Wrong site surgery
  - d. Delay in treatment

11. What is the primary preventive measure for avoiding infections acquired in hospitals?

- a. Patient identification
- b. Vaccines
- c. Catheter and tubing mis-connections
- d. Effective hand hygiene

12. What is the goal of the Joint Commission's "Do Not Use List"?

- a. Improve preprogrammed health information
- b. Build a culture of safety
- c. Upgrade medical records
- d. Standardized list of abbreviations, acronyms and symbols that are to be used throughout the organization

13. To minimize confusion between drug names that look and sound alike what fraction of drug names are rejected by the FDA annually?

- a. One-fifth
- b. One-third
- c. One-quarter
- d. One-half

14. In fatal medication errors what did the FDA report as the most common?

- a. Administering an improper dose
- b. Giving adult medication to children
- c. Giving the wrong drug
- d. Using wrong route of administration

15. What is the effect in the number of medication errors in institutions that switched over to CPOE?

- a. They increased by 13 to 99%
- b. They decreased by 13 to 99%
- c. They decreased by 10%
- d. They remained the same

16. What is the intent of the MedWatch?

- a. Reporting of medical errors and examining their root cause
- b. Pharmacy intervention
- c. Intended to detect safety hazard signals
- d. Education and training procedures

## Section XII. Footnotes

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