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Risk Management: Prevention of Medical Errors in the Dental Practice

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Objectives

Define the following terms:

- Errors of commission
- Errors of omission
- Errors of execution
- Adverse events
- Near misses
- Diagnostic errors
- Surgical/treatment errors
- Medication errors
- Malpractice and
- Know the responsibilities of a dentist or dental health care attendant when an adverse event or error occurs.
- List proximal factors contributing to medical errors.
- List nine safety goals for dental practice.
- List the four elements of negligence.
- Understand why vicarious liability is an important legal issue in dental practice.

Introduction

Dental healthcare professionals have a responsibility to be aware of the risk of medical errors and to be proactive with strategies to prevent or minimize potential risk. The dental professional must be proactive in every controllable area to minimize risk of liability to the practice and more importantly, the absolute safety of the dental patient.

In 1999 the Institute of Medicine (IOM) published an influential article entitled, “To Err Is Human: Building a Safer Health System”, which focused attention on the issue of medical errors and patient safety. The report indicated that as many as 44,000 to

98,000 people die in hospitals each year as the result of medical errors. As of 2016, effects of medical errors are the third leading cause of death in this country—a higher death rate than motor vehicle accidents (43,458), breast cancer (42,297) or AIDS (16,516).

According to the CDC, in 2013, 611,105 people died of heart disease, 584,881 died of cancer and 251,454 deaths stemmed from a medical error, which the researchers say now translates to 9.5 percent of all deaths each year in the U.S. **Patient safety is the number one priority throughout healthcare today.**

American Dental Association studies show that in 2005, one third of reporting, adult

patients experienced medical errors during dental treatment. This compares with 25% medical errors reported by patients in other countries. In 2006, in response to increasing incidences of medical errors, the American Dental Association's House of Delegates adopted a resolution calling for pay-for-performance or other third-party financial incentive programs to compel the dental profession to adhere to high quality standards and best practices for patient safety. (Made-to-Measure Dentistry, May 2017.)

Legal risks for doctors and dentists require that they carry malpractice insurance. However, preventing legal problems is primarily avoided by accident prevention. Medical errors are costly for healthcare professionals and for patients as well. And the overriding strategy is prevention. (Dental Learning offers a video course on Risk Management from a legal perspective.)

Errors occur in hospitals and in other health care settings such as physicians' offices, dental offices, nursing homes, pharmacies, urgent care centers, and care delivered in the home. Unfortunately, very little data exists on the extent of the problem outside of hospitals. The IOM report indicated many errors are likely to occur outside the hospital.

Dental professionals routinely perform procedures and administer medications that affect a patient's health and safety. As we see from the IOM report, dentistry is not immune from accidents, errors, and patient injuries. As a dental healthcare professional, you are responsible to be aware of the risk of medical errors and learn strategies to minimize them. Medical errors may occur at any point in treatment, including preventive care.

Risk management and patient safety have always been a concern in dental practice. In our litigious society, exposure to liability seemingly increases every year. In routine dental care, patient injury or death is less frequent compared to our medical counterparts. Yet patient safety is as important in the dental operator as it is in a hospital operating room. While dental practitioners do not perform life and death surgery, they perform procedures and administer medications that affect a patient's total health and safety.

Medical Errors as Related to Dental Treatment

Patient safety encompasses three complementary activities:

- Prevention of medical errors
- Making medical errors visible
- Mitigation of the effects of medical errors by a RCA (root cause analysis)

Not all undesirable outcomes for patients are due to medical errors. Patients may not be cured of their disease or disability despite the fact that they are provided the best

standard of care. Conversely, not all adverse events as a result of medical care are errors.

Adverse Event

An adverse event may be defined as "...an injury caused by medical management rather than by the underlying disease or condition of the patient.", or "...an injury that was caused by medical management and that resulted in measurable disability." (NEJM, 1991)

Unpreventable Adverse Events

Some adverse events, termed unpreventable adverse events, result from a complication that cannot be prevented given the current state of knowledge. Many drugs which are used appropriately may have undesirable side effects. For example, the occurrence of nausea is considered an adverse event. But it is not considered to be a medical error to have given the antibiotic if the patient had an infection which was expected to respond to a specific antibiotic.

Preventable Medical Errors

Medical errors are adverse events that are preventable given our current state of medical knowledge. Some adverse events are not preventable and reflect the risk associated with treatment. An example of an unpreventable error is a life-threatening allergic reaction to a drug when the patient had no known allergies to this drug.

However, the patient who receives an antibiotic to which an allergy is known, goes into anaphylactic shock and dies, represents a preventable adverse event.

Definition of Medical Errors and Commonly Used Terms

Healthcare errors fall into these major categories:

- Errors of commission
- Errors of omission
- Errors of execution

Definition of Medical Error:

"An unintended healthcare outcome caused by a defect in the delivery of care to a patient. Health care errors may be errors of commission, omission, or execution. Errors may be made by any member of the healthcare team in any healthcare setting." (National Patient Safety Foundation, 2017)

Errors of Commission

Errors of commission occur when the wrong thing is done, such as prescribing a medication for a patient with a documented allergy to that medication or taking x-rays on the wrong patient.

Errors of Omission

Errors of omission occur when a medication with proven benefits is not prescribed for an eligible patient. Not taking the necessary x-rays indicated by the patient's oral condition is another example of omission.

Errors of Execution

Errors of execution occur when the right thing is done incorrectly. Taking horizontal bitewings when vertical bitewings are clinically indicated is an example of an error of execution. Not properly washing one's hands is another example of doing the right thing but doing it incorrectly.

Adverse Events

Adverse events is a common term used to describe any event or situation that is not consistent with the routine delivery of care. Unexpected outcomes, deviations in practice patterns, or not following known standards are examples of adverse events.

Near Misses

Deviations or unexpected outcomes not resulting in patient harm are called near misses. Certain adverse events are not entirely preventable, such as those associated with high-risk yet life-saving treatments.

The Medical Error Crisis

The IOM defines medical error as "...the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim." Research clearly shows that the majority of medical errors can be prevented. A landmark study on medical errors indicated 70% of adverse events found in a review of 1,133 medical records were preventable, 6 % were potentially preventable, and 24 % were not preventable. A study released last year, based on a chart review of 15,000 medical records in Colorado and Utah, found that 54 % of surgical errors were preventable. The lack of standardized nomenclature and a universal taxonomy for medical errors complicates the development of a response to the issues outlined in the IOM report.

Medical errors can occur at any point along the continuum of care—pre-treatment, treatment, and post treatment. Mistakes affecting quality of care and safety may occur

before the patient arrives at your office, during an office visit, or after the patient has left.

Consider these office scenarios and medical error prevention:

- Pre-treatment:

When pulling charts for the next day, the receptionist pulls the wrong chart because there are two patients with the same name. If this error is not noticed in time, treatment and/or medication could be provided to the wrong patient resulting in possible harm.

- Treatment:

During a difficult extraction, a bur tip breaks off and the dental treatment team is not aware a foreign body is in the surgical site. As a result, the patient develops a post operative infection.

- Post-treatment:

The pharmacy calls to verify information about a prescription for a patient of record. Again, the wrong chart is pulled because of duplicate patient names which results in the wrong information being given to the pharmacist.

Diagnostic Errors

Not performing appropriate diagnostic tests or performing them incorrectly may result in an incorrect diagnosis. An improper diagnosis can then lead to incorrect or ineffective treatment or additional unnecessary testing. In addition, inexperience with a technically difficult diagnostic procedure can affect the accuracy of the results. Optimal dental care starts with trustworthy test results.

Diagnostic errors are defined as:

- Errors or delay in diagnosis
- Failure to employ indicated tests
- Use of outmoded tests or therapy
- Failure to act on results of monitoring or testing

Surgical/treatment Errors

Extracting the wrong tooth is the most common surgical error. Yet, other mistakes can affect surgical outcome such as retained roots tips, breakage of surgical burs, improperly sterilized instruments, or biopsy of the wrong area. Adverse surgical events accounted for two thirds of all adverse events in a recent retrospective study conducted by the Agency for Healthcare Research and Quality.

Surgery/treatment errors are defined as:

- Errors in the performance of an operation, procedure, or test.
- Errors in administering the treatment.
- Errors in the dose or method of using a drug.
- Avoidable delays in treatment or in response to an abnormal test.
- Inappropriate care.

Medication Errors

The IOM estimates that as many as 7,000 patients die each year as a result of medication errors. Medication errors in the dental office include prescription errors as well as mishaps involving dental medicaments prescribed, dispensed, or otherwise used in patient care. Understanding the proper use and contraindications of the medications dispensed or prescribed in your office is critical for patient safety.

Medication errors are defined as:

- Any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient or consumer. Such events may be related to professional practice, healthcare products, procedures, or systems including prescribing, order communication, product labeling, packaging and nomenclature, compounding, dispensing, distribution, administration, education, monitoring, and use (IOM, 2017).

Medication errors can occur at any stage of medication administration. These stages include:

- Prescribing the wrong dose or wrong choice of drug.
- Prescribing the wrong frequency of drug administration.
- Wrong drug, wrong dose.
- Not monitoring and noting the effects of the given medication.

(IOM, 2017)

The Process of Care: Best Diagnosis and the Treatment Plan

Diagnostic Processes/Medical History

Diagnostic errors are the second most prevalent type of error and one of the most difficult claims to defend in court. 63.5% of claims are paid with average indemnity of over \$67,000. Common resultant injuries involve tooth loss, infection, fractured jaws, facial scarring, nerve damage, and temporomandibular joint injury.

(Common Dental Errors and Effective Solutions, <http://www.fpicmedmal.com/newsletter-pdf/Dental-winter-04.pdf>. Retrieved May 2017.)

A diagnostic error often involves faulty diagnosis of these oral conditions:

- Gingivitis and periodontal disease
- Disorders of the hard tissues of the teeth
- Disorders of the dental pulp and periapical tissues
- Malignant neoplasms or cancer of the mouth

An example of failure to diagnose is when a patient has periodontal disease and the dentist fails to diagnose or advise the patient of treatment options. If the dentist fails to treat the condition, this is error in diagnosis. If a patient's untreated periodontal disease causes the patient to lose teeth, this represents error in diagnosis.

Best practices rely on an analysis of the assessment data which is collected during an initial or routine examination of a patient. A reasoned diagnosis identifies patient treatment needs for which the dentist and team will provide the best intervention plan. The dentist is responsible for direction to staff and delivery of appropriate treatment based on the best diagnosis. A dental hygienist's recall assessments may also reflect behavioral aspects and deviations from normal oral health. Charting, radiographs, medical and dental histories, and all recorded patient data are analyzed together to form an opinion based on an aggregate of the data.

An important component of the process is to develop an appropriate written treatment plan for patient care. The plan should be one which can be explained in plain language to a patient. A good treatment plan is integrated and considers the whole patient. The overall clinical objectives of the dental healthcare team focuses on the oral health of the patient while treating the whole person.

Basis for Diagnosis

- Patient interview data (chief complaint, identification of oral problems and comprehensive personal/social, medical and dental health histories)
- Physical assessment data (vital signs, extraoral and intraoral tissue examination, and dental and periodontal chartings)
- Treatment or education needs that may be addressed by providing oral care services.
- Treatment needs that may be addressed by consultation with another licensed healthcare professional.

Diagnostic Statements

- Provide the basis for planning dental interventions and reflect expected outcomes.
- Identify treatable conditions that are changeable by dental treatment interventions.
- Exclude diagnoses that require treatments legally defined as dental practice.

A Diagnostic Model

Medical and dental models of diagnosis classify diagnostic statements according to disease processes. A diagnostic model:

- Addresses health functioning and behaviors.
- Describes actual or potential problems that a dentist and staff are educated and licensed to treat.

A sample diagnostic model has these six steps:

1. Initial interview
2. Hypothesis formation
3. Inquiry strategy
4. Problem synthesis
5. Diagnostic decision making
6. Learning from the process

(Adapted from Dental Hygiene Diagnosis and Care Planning. Available: http://downloads.lww.com/wolterskluwer_vitalstream_com/sample-content/9780781763226_Wilkins/samples/97568_ch21.pdf. Retrieved May 2017.)

Medical History

The first line of defense for all medical and dental risk management is a thorough and current medical history. This tool is essential to use with each patient no matter how familiar the practitioner might be with a particular patient. The written form that is used should be carefully designed to elicit specific information.

In spite of HIPAA law and ethics regarding patient confidentiality, many patients are reluctant to report sensitive information. Some patients may not inform the dental staff of important data regarding STDs or their HIV/AIDS status, or recreational drug use, because they may feel their health information may be disclosed. Absolute confidentiality of charts and medical/dental information should be routine and inviolate. Patients will answer questions more thoroughly and honestly if they feel that their records are confidential. It is good practice to tell patients that all information is strictly

confidential.

Following the written medical/dental history, the dental clinician should interview each patient and review each question. During this discussion, the patient may remember specifics that were not entered on the written form.

The interview is a good time to observe the patient and determine overall characteristics of health such as:

- speech
- skin color
- movements
- evidence of pain

Keep thorough documentation of any additional information from the interview. Reassure the patient all information is confidential. The next step is to take vital signs and to document this information carefully. Temperature, respiration, pulse, and blood pressure are basic data for record keeping. Vital signs are routinely taken with medical exams and are now the norm in most dental offices.

Vital Signs with Normal Ranges

- Temperature: 97.8 - 99.1 degrees Fahrenheit
- Pulse: 60 - 80 beats per minute (at rest)
- Respiration: 12 - 18 breaths per minute
- Blood Pressure: 120/80 mm/Hg

ASA Physical Status Classification System

The American Society of Anesthesiologists has set up a system that can easily be followed and is utilized in many dental practices (Malamed, 2008).

ASA I

Patients are considered to be normal and healthy. Patients are able to walk up one flight of stairs or two level city blocks without distress. Little or no anxiety. Little or no risk (Malamed 2008.)

ASA II

Patients have mild to moderate systemic disease or are healthy ASA I patients who demonstrate a more extreme anxiety and fear toward dentistry. Patients are able to walk up one flight of stairs or two level city blocks but will have to stop after completion of the exercise because of distress. Minimal risk during treatment (Malamed, 2008.)

Examples: History of well-controlled disease states including non-insulin dependent diabetes, pre-hypertension, epilepsy, asthma, or thyroid conditions.

Note: Patients who demonstrate a more extreme anxiety and fear toward dentistry have a baseline of ASA II even before their medical history is considered.

ASA III

Patients have severe systemic disease that limits activity but is not incapacitating. Patients are able to walk up one flight of stairs or two level city blocks but will have to stop en route because of distress. If dental care is indicated, stress reduction protocols, and other treatment modifications are indicated (Malamed, 2008.)

Examples: History of angina pectoris, myocardial infarction or cerebrovascular accident, congestive heart failure diagnosis over six months ago, slight chronic obstructive pulmonary disease, and controlled insulin dependent diabetes or hypertension. Requires medical consultation (Malamed, 2008.)

ASA IV

Patients have severe systemic disease that limits activity and is a constant threat to life. Patients are unable to walk up one flight of stairs or two level city blocks. Distress is present even at rest. Patients pose significant risk, since patients in this category have a severe medical problem of greater importance to the patient than the planned dental treatment. Whenever possible, elective dental care should be postponed until such time as the patient's medical condition has improved to at least an ASA III classification.

Examples: History of unstable angina pectoris, myocardial infarction or cerebrovascular accident within the last six months, severe congestive heart failure, moderate to severe chronic obstructive pulmonary disease and uncontrolled diabetes, hypertension, epilepsy or thyroid condition. If emergency treatment is needed, medical consultation is indicated (Malamed, 2008.)

ASA V

Patients are moribund and are not expected to survive more than 24 hours with or without an operation. These patients are almost always hospitalized, terminally ill patients. Elective dental treatment is definitely contraindicated; however, emergency care in the realm of palliative treatment may be necessary (Malamed, 2008.)

ASA VI

Clinically dead patients being maintained for harvesting of organs (Malamed, 2008.)

Medication Errors

Every year Americans take more prescription medicines. Medication errors cause at least one death every day and injure approximately 1.3 million people annually in the United States.

Since Americans take more medications, the occurrence of adverse drug events and medication errors is on the rise and the trend is clear. Dental professionals today need regular review and education about prescription medications. Vigilance by staff is required to detect possible harmful drug interactions and to effectively manage patient safety. Online programs that include dental-specific, drug-interaction screening tools are available to dentists, and programs such as Crew Resource Management have been developed that reduce human error by as much as forty-six percent (Medication Errors, 2017) (FDA, 2017).

Although deaths caused by medication errors are infrequent, the importance of accuracy with patient medications cannot be underestimated. Medication errors can occur in the following processes:

- Prescribing
- Dispensing
- Administering
- Monitoring

Types of medication errors include:

- Wrong drug
- Wrong dose or quantity of the drug
- Wrong method of drug preparation
- Wrong patient
- Wrong administration technique
- Wrong time of administration

There are many factors that can contribute to medication errors that are often preventable. These include:

- Poor staff communication
- Incorrect abbreviations or directions for use
- Poor administrative technique
- Similarities in medication names
- Staff fatigue or distraction
- Inadequate experience or knowledge
- Failure to monitor the patient adequately

- Poor handwriting on prescription pads or patient charts leading to misinterpretation

Several studies have demonstrated that up to 18% of serious adverse medication errors occur because the practitioner lacks sufficient knowledge of the medical history of the patient before prescribing, dispensing, and administering drug therapy. The responsibility lies with the practitioner to assess the need for a drug before prescribing one. Once the need is assessed, the next step is to select the correct drug.

One study suggests the most common cause of medication errors is inadequate knowledge of new drug therapies. This lack of knowledge could result in a patient receiving the wrong drug or wrong dosage inadvertently resulting in serious injury or death (Medication Errors, 2017) (FDA, 2017).

Resources for healthcare providers to obtain up-to-date drug information:

- Texts, medical journals, and monthly prescribing references
- Computerized software programs that integrate patient information for screening purposes
- Frequent contact with pharmacists
- Seminars and continuing education courses
- Drug protocols
- Controlled drug formularies
- FDA-sponsored e-mail updates or internet websites
- Drug.com

The practitioner must establish in each individual factors that may affect drug therapy including the following:

- Previous medication allergies or sensitivities
- Contraindications to a particular drug
- Possible adverse reactions with other medication the patient may be taking including over-the-counter medicine, supplements, food or drink.

Age, weight, diagnoses, pregnancy status, vital signs, and lab results are also important considerations. Before prescribing any drug, the indications, contraindications, drug interactions, warnings, side effects, complications, and laboratory tests required before or during the drug therapy need to be fully understood. The desired therapeutic response must be clearly designated before drug therapy is administered (Medication Errors, 2017) (FDA, 2017).

Prescriptions need to be written clearly and carefully, with intent to be well-understood by the pharmacist. Mistakes occur when prescriptions are written with:

- Poor penmanship
- Incorrect abbreviations
- Vague directions for use

Be aware of look-alike and sound-alike drugs. The following is a partial list of frequently confused drugs.

- Lanoxin and Levoxine Tobrex and Tobradex
- Alustra and Lustra Donnagel and Donnatal
- Elavil and Eldepryllsomil and Esimil
- Accupril and Accutane Perdiem and Pyridium
- Prazepine and Prazepam Prednisone and Prednisolone
- Restoril and Zestril Septa and Septra
- Xanax and Zantac Slo-Bid and Dolobid
- Uracid and Urised and Urocit and Uracel

Additional recommendations:

- Medications should never be abbreviated. Extra care should be taken to write clearly and in a manner that is not ambiguous.
- Verbal orders should be spelled out clearly to avoid being misunderstood.
- A telephone order protocol should be established by clearly restating the patient's name, spelling the drug name, and pronouncing the dose in single digits such as—one-five to indicate 15. Saying fifteen can result in someone hearing fifty as both can sound alike during fast conversation, transcription, or telephone conversation.
- Ask that the prescription be repeated back to make certain the instructions were heard correctly.
- Carefully dictate patient notes to avoid inaccurate transcriptions into the patient's chart.

Another leading cause of medication errors is incorrect decimal point placement. Important rules to remember when using decimal points are (Medication Errors, 2017) (FDA, 2017):

- A zero should always precede the decimal if the dose is less than 1 mg.

For example, 0.5 mg is equal to a half of 1 mg. Writing this dosage without the zero preceding the decimal may result in the administration of an overdose of 5 mg if the decimal were to be overlooked.
- Never place a decimal and a zero after a whole number. This may result in a ten- fold overdose of the medication.

For example, 5.0 mg might easily be mistaken for 50 mg. The correct way to write the dosage would be 5 mg.

Occasionally, drugs with similar names and packaging are confused so every attempt should be made not to store such drugs near one another. Standardize and restrict drug storage, stock and distribution to help identify discrepancies. Before dispensing the drug, check that the expiration date has not passed. Warning labels should be affixed to certain drugs when appropriate. To reduce the risk of serious medication error or death, pre-filled and pre-labeled syringes should be dispensed whenever possible. Bulk supplies and unit stock can potentially be dangerous.

Protocols when an Error Occurs

The first few minutes after an error occurs are the most critical. A patient's emergency medical needs take first priority. Once the patient is cared for, follow these steps as soon as possible.

1. Apologize and disclose. Poor communication, arrogance or an unwillingness to be open with the patient results in a breakdown of the patient/provider relationship and invites lawsuits.
2. Document the incident and the disclosure in the patient's record. Determine if the event is reportable to state authorities and/or your malpractice carrier.
3. Analyze the event in order to prevent recurrence. Patients always want assurance the same mistake is not going to happen to someone else. The best way to prevent recurrence is to analyze the event.

Dental professionals have an ethical, moral and legal obligation to disclose medical or treatment errors. Disclosing errors can strengthen your relationship with the patient and foster a culture of safety in your practice. Patients are more likely to be understanding if you are truthful.

Disclosing an Error

Take time to prepare before disclosing an error to a patient. Be sensitive to the HIPAA Privacy Rule by conducting the conversation in a private area. Treat the patient with respect and compassion while focusing on the patient's situation. Begin with a statement of apology. Using the words, "I'm sorry" conveys your sincerity. It also opens the door for continued communication with the goal of maintaining the patient relationship. In addition to a clear conveyance of apology, include the following items in your discussion:

- Statement of what happened disclosing the facts you currently know. If you do not know all the facts, then be honest and say so. Avoid opinions or assumptions.
- Changes, if any, which will be made in subsequent care as a result of the error.
- Steps you will take to prevent recurrence of this situation in the future. In other words, what changes do you plan to make to improve patient safety in your office.

Inform the patient who will be the point of contact while the situation is being remedied (the dentist, office manager, etc.) and when the patient can expect to be contacted next. Use good communication techniques, and maintain a calm and caring demeanor.

Documenting Errors

The patient record or chart is the single, most important document in your practice. Records must be accurate, factual, and complete. Missing documentation or poorly written entries detracts from the credibility of the record. Faulty records jeopardize patient safety and could hinder a legal defense.

Guidelines for documentation:

- Be factual.
- Use objective words and descriptions when explaining the error.
- Avoid subjective statements.
- Omit personal opinions, judgments, or rationalizations.
- Refrain from blaming staff or a product.
- Refrain from blaming the patient.
- Document the disclosure of the error to the patient.

Reporting Errors to Proper Authorities

Adverse outcomes resulting from dental treatment may be reportable to state licensing boards and malpractice carriers. Be familiar with the definition of reportable events and reporting requirements. Failure to notify the proper authorities may jeopardize your license or certification.

Analyzing Errors Using Root Cause Analysis

Root Cause Analysis (RCA) is a process that identifies the basic factors or root cause which produced the error. Examples of root causes are variations in:

- Clinical performance
- Business practices

- System failure

A Root Cause Analysis should focus on systems and processes rather than individual performance. Avoid blaming individuals for errors. The goal of RCA is process improvement. To avoid future errors, all staff must feel safe in reporting errors as well as near misses.

Steps to Conduct a RCA:

1. Describe the details of the error. Write a narrative description or a step-by-step outline which details the situation, including all events which preceded the error. Obtain input from everyone involved to ensure the facts are correct and complete.
2. Identify the step(s) where deviation occurred.
3. Identify the proximate factors. Identify contributing factors that influenced the deviation of behavior or process. This may include human action, equipment issues, or communication.

Factors Contributing to Errors

Areas of Potential Causal Factors:

- Training and education
- Task factors
- Equipment problems
- Office processes
- People factors
- Patient factors
- Personal factors
- Team factors

Errors in healthcare are frequently compared to those in aviation. Research shows factors which impact flight crew errors include:

Fatigue

- Distractions
- Procedural errors
- Communication

Similar factors affect the practice of dentistry. Fatigue alone does not cause loss of skill when performing a dental procedure. Yet fatigue is known to have a negative effect on judgment and decision-making. Distractions, procedural errors, and miscommunication may also impact judgment and decision-making abilities. To maintain a culture of safety,

the dental team must avoid complacency and continually focus on prevention of errors.

Safety Goals in Dentistry (adapted from the Joint Commission)

Patients and healthcare professionals must work together to maintain patient safety. Patient Safety Goals for Dentistry (PSG-D) as adapted from the Joint Commission's National Patient Safety Goals are listed below. These goals encourage a team approach to patient safety and the delivery of quality care. Error-prone situations exist at any point along the continuum of care.

1. Improve the accuracy of patient identification in dental settings.
2. Improve the effectiveness of communication among all dental providers.
3. Improve the safety of medication use in dental settings.
4. Eliminate wrong-site, wrong-patient, wrong-procedure, treatment, or surgery.
5. Reduce the risk of healthcare-acquired infections in dentistry.
6. Improve the safety of using dental equipment.
7. Accurately and completely reconcile medications with other dental and medical providers as needed.
8. Encourage patients to participate in the decision-making process of dental care.
9. Identify safety risks inherent to the client population treated.

Goal 1: Patient Identification

Proper patient identification is critical. Before treatment, confirm that the right patient and the right patient-related information is at hand. Confirm that chart and radiographs are the correct patient and most current version. Progress notes, radiographs, or documents attached to the wrong chart can easily lead to errors. When using electronic data capture, remember to complete all check boxes, pop-up screens, and data fields to ensure proper patient identification.

Patient Safety Tips:

- Verify the patient's identity before providing treatment or services. Confirm additional information such as date of birth, address, middle name, etc.
- Use good verbal and listening skills when confirming the patient's identity to minimize opportunity for error.
- Confirm patient identity with another dental team member before treatment.

Goal 2: Effective Communication

Research shows the majority of errors in medical and dental offices are attributed to miscommunication. When referring a patient to another professional, provide all the important information and give the other person the opportunity to ask and respond to

questions. Referrals, test results, and post-op instructions require documentation and attention to detail. Effective written communication is also vital. Develop a set of standard abbreviations so all staff members understand the intended meaning in the documentation process.

Patient Safety Tips:

- Confirm that important patient information is understood by others.
- Develop a list of acceptable abbreviations and symbols to be used throughout the office.
- Standardize communication about critical patient information to other members of the team.

Goal 3: Medication Safety

Medication errors can be deadly. In 2006, the IOM reported that medication errors injure 1.5 million people annually. Thankfully statistics are decreasing in 2016, as the Food and Drug Administration states, “approximately 1.3 million people annually in the United States experience medication errors causing at least one death every day.”

Another prudent safety tip is to follow what is known in nursing as the “Five Rights”:

1. Right patient
2. Right drug
3. Right dose
4. Right route
5. Right time

Patient education about any drug administered or prescribed is also important. An informed patient is a safe patient.

Patient Safety Tips:

- Limit the types of drugs used in your office.
- Prevent confusion of look-alike or sound-alike drugs.
- Label all unmarked medications and medication containers.

Medication Safety Tips:

Accurate prescription writing is one of the most important ways to prevent medical errors. For written or electronic prescriptions, write or type the following:

- Quantity to be dispensed in both text and numerals (10/ten).
- Date of the prescription in text (April 9, 2009 not 4/9/09).
- Full name and strength of the drug prescribed (Erythromycin, not EES).

- Clear directions for using the drug rather than saying “use as directed.”
- Limit to one medication per prescription to avoid confusion.
- Add the patient's age (or weight) to protect against age-related errors.
- Use leading zeros not trailing zeros (for fractions write 0.5mg and for whole numbers write 5 mg not 5.0mg)
- Circle the dispensing practitioner’s name when using preprinted forms with more than one practitioner listed.

(Teichman and Caffee, 2002).

Goal 4: Surgical Errors

Surgical errors can be devastating and irreversible. Extraction of the wrong tooth is a typical surgical error in dentistry. Administration of local anesthesia in the wrong site is another type of procedural error. Consider use of a version of the Joint Commission’s Universal Protocol for preventing wrong site, wrong procedure, and wrong person surgery.

The Joint Commission’s steps include:

- Conduct a pre-procedure verification with the patient—verbally. At the time of check-in and again when the patient is being seated, confirm the procedure or treatment scheduled.
- Mark the procedure site. Intraoral site marking in dentistry is not always possible; however, it is possible to mark x-rays or dental charts using a sticker or marker. Digital x-rays and records can be verbally confirmed.
- Perform a time-out. All members of the team should pause prior to starting the procedure, or administering anesthetics to confirm the correct patient, procedure and equipment.
- Document the time-out in the chart.

Goal 5: Healthcare Acquired Infections

At any given time, about 1 in every 25 patients has an infection related to their hospital care. Healthcare-associated infections (HAIs) not only affect patient lives, but also add to our growing healthcare costs. HAIs are commonly caused by antibiotic-resistant bacteria, which may lead to sepsis or death. One in seven catheter- and surgery-related HAIs in acute care hospitals, and one in four catheter- and surgery-related HAIs in long-term acute care hospitals, is caused by any of six resistant bacteria (not including *C. difficile*) (CDC, 2017).

CDC has identified eliminating HAIs as a Winnable Battle. Progress has been made in preventing HAIs, including a 50% decrease in central line-associated blood stream

infections from 2008 to 2014, but more work is needed. With additional effort and support for evidence-based, cost-effective strategies that we can implement now, we can have a significant impact on our nation's health (CDC, 2017).

Two simple methods to reduce disease transmission are (CDC, 2107):

1. Hand Hygiene

Research shows proper hand hygiene is the single most important way of preventing the spread of infections. Using effective products and washing your hands for the recommended amount of time (> 15 seconds) are two important elements of hand hygiene. For optimal efficacy, use healthcare grade soaps and sanitizers.

2. Disinfection and Sterilization

The best practices for the prevention of healthcare acquired infections in dentistry are to follow the CDC's guidelines for disinfection and sterilization in dental settings (CDC, 2017). (Dental Learning Network offers several Infection Control courses and training videos suitable for all members of the dental team.)

Patient Safety Tips:

- Follow the current Centers for Disease Control and Prevention (CDC) or World Health Organization (WHO) hand-hygiene guidelines.
- Follow OSHA and CDC guidelines for proper disinfection and sterilization.

Goal 6: Equipment Safety

Rapidly changing technology continues to bring new and advanced equipment into modern dental practices. Digital radiography, lasers, oral cancer screening tools, biomedical products, and tele-dentistry are examples of emerging technology in dentistry. Patient safety directly relates to the proper use and maintenance of dental equipment. Follow the manufacturer's guide and operating instructions to ensure reliable equipment performance. Conduct initial and ongoing training for all staff who use the equipment.

Patient Safety Tips:

- Ensure all equipment is regularly checked and maintained in proper working order.
- Ensure the materials and workspace where equipment is utilized are hazard free.
- Provide adequate training for staff who utilize or maintain equipment.

- Notify the dentist or supervisor of unsafe or potential hazardous conditions.

Goal 7: Reconcile Medications

All medications have side effects. In rare cases, drug interactions can be deadly. Before prescribing or dispensing, conduct a thorough review of the patient's medical history including over-the-counter, nutritional, and herbal supplements.

Patient Safety Tips:

- Compare the patient's current medications with those prescribed or recommended during the course of dental treatment.
- When referring patients to another dental or medical facility, provide subsequent treating providers with a complete list of the patient's medications.

Goal 8: Patient Participation

Engaging patients in meaningful dialogue ensures active participation in oral care decisions. Communication must be patient-centered. Avoid idle chit-chat at the expense of obtaining and conveying critical information.

Cite these steps for effective patient communication:

1. Talk to patients. Explain to patients why it's important to fully disclose their health status, including medication changes, medical appointments or tests and over-the-counter medications, nutritional supplements or herbs.
2. Ask questions. Encourage patients to ask questions, so they are fully informed.
 1. Let the patient know they are an important part of the team.
 2. Learn. Encourage the patient to learn something new at each appointment. Have current information or resources readily available to share.
3. Keep scheduled appointments. Explain the importance of following treatment recommendations, especially as related to total body health.

Patient Safety Tip:

- Distribute dental health and patient safety information as appropriate for each patient.

Goal 9: Patient Population Risks

Each patient is unique. Clinicians need to understand the individual healthcare needs of each patient. All patient populations are diverse and may include:

- Special needs due to a physical or mental condition

- Medical status
- Health literacy needs
- Age-related needs

Some special needs are more obvious, such as physical conditions. Level of health literacy is less obvious yet requires careful clinical evaluation.

Patient Safety Tips:

- Identify safety risks inherent for various cohorts of patients.
- Develop safeguards for special needs patients. Make appropriate referrals.

Legal and Ethical Considerations

Malpractice

The careless conduct of an oral healthcare provider may result in malpractice. Dental malpractice is defined as the "...failure of an oral health care provider to exercise the degree of care, skill and learning expected of a reasonably prudent oral health care provider in the class to which they belong within the state, acting in the same or similar circumstances."

Malpractice is evident when the standard of care is altered or violated by the oral healthcare provider. There are many reasons for the increased numbers of malpractice lawsuits in dentistry. More people are increasingly informed about their own healthcare by their independent investigation of signs, symptoms, treatment choices of illnesses, and related conditions. Patients' use of the Internet may contribute to an erosion of the relationship between the healthcare provider and the patient. Misdiagnosis or delayed treatment are common causes for initiation of a malpractice suit.

Negligence

Negligence lies under a tort action where a social or personal wrong is apparent. It is the unintentional commission or omission of an act that a reasonably practical person would not or would do, respectively, under given circumstances. Negligence constitutes a departure from the recognized standard of care, which is then imposed on society.

Four elements of negligence must be present for a person to be rewarded damages:

1. Duty to care: This is an obligation to conform to an accepted standard of care.
2. Breach of duty: A deviation from the accepted standard of care must be present, as well as a failure to adhere to an obligation.
3. Injury: Actual harm must be established.

4. Causation: The act or conduct or deviating from the accepted standard of care must be the cause of the person's injury.

If all four elements of negligence are proven, the injured party may be rewarded:

- Compensatory damages
- Punitive damages

Vicarious Liability

Vicarious liability is an important aspect of legal issues concerning dental practitioners. This type of liability holds employers accountable for the actions and torts of employees. In the dental office, the dentist is liable for the actions of the dental hygienist and assistant as well as office staff. In order for liability to be attributed to the dentist, the wrongful or negligent act of the dental hygienist must have occurred within the scope of the profession. If the dental hygienist commits a negligent act, the injured party may file suit against both the dentist and the dental hygienist. Since the dentist is held liable for the negligent act of employees under vicarious liability, the dentist may then file suit against the dental hygienist for compensation of the financial loss that was a result of the negligent act.

Domestic Violence and Child Abuse Training

Most states require dental practitioners to complete a course in identification and reporting domestic abuse and child abuse prior to licensure. Any oral healthcare provider or institution that is mandated to report a case of alleged abuse or maltreatment, and deliberately or intentionally fails to do so will be civilly liable for the damages caused by failure to report. Discussed in detail in another Dental Learning Course!

Legal Issues and Dental Records

The purpose of dental records is to provide a system for members of the dental team to communicate with one another and to ensure continuity of patient care. Oral healthcare providers are required to maintain complete, accurate, and timely records. Patient dental records are considered a legal document. Records may be subpoenaed for various investigations, workers compensation, and personal injury cases. In the legal sense, a patient's dental record establishes the facts about whether the healthcare provider carried out professional obligations to the patient.

Medical histories should be updated and accurate at all times. The dental practitioner should ask questions when reviewing the medical history with the patient. The actual medical history and treatment rendered forms belong to the office that provided care for the patient. The patient owns the information on the treatment rendered forms. In

accordance with Federal Law and HIPPA Act, dental records must be absolutely confidential and protected against unauthorized use. Good record keeping has been cited as crucial element in defending lawsuits filed against dentists.

Computerized Dental Records

Computerized dental records have revolutionized record-keeping many dental offices. The trend is moving toward paperless record-keeping. According to Pozgar (2004), and as of 2017 there are many advantages and disadvantages of computerized dental records also known as EDRs (electronic dental records) coming to surface, in this digital age.

Some advantages include:

- Consistently legible entries on the treatment rendered form.
- Immediate access to patient information.
- Assistance in the identification of drug interactions.
- Ability to share patient's information with other medical providers patient sees.
- Increase in productivity due to decreasing paperwork and charting.

Although computers are becoming essential in dental offices, some disadvantages include:

- Potential loss of confidentiality and unauthorized disclosure of patient information.
- Potential modification or destruction of patient records.
- Entry of inaccurate patient information.
- Ineffective use of computer software due to inadequate training for staff.
- Computer-fatigue can cause medical errors if practitioners stop paying close attention to detail, if, overly stimulated by computer alerts etc.

As computerized records become more widely used in dental practices, the potential for computer-related liability will continue to increase. Computer-generated records are often entered as evidence in malpractice suits.

X-rays

X-rays are a crucial component of patient treatment. Poor quality x-rays can have serious treatment and legal consequences. X-rays which fail to disclose existing diseases or pathology are a liability to both the dentist and patient. If a patient brings legal action against an oral healthcare provider and the x-rays are used as evidence, and are of poor diagnostic quality, the dentist may face legal consequences.

Most dental offices consider a full-mouth series to consist of 18 to 20 x-rays. This may

not be sufficient depending on the number of teeth present in the oral cavity. The x-rays taken must allow for a complete diagnosis of dental conditions. Edentulous patients need the maxilla and mandible evaluated by x-rays taken of appropriate anatomical areas. The patient may have an underlying pathological condition or retained roots.

Edentulous or partially edentulous patients should be evaluated with a panoramic or periapical x-ray of the remaining teeth and edentulous areas for a complete radiographic examination. If a panoramic x-ray machine is not available, take periapical x-rays of all areas of both the maxilla and mandible to meet legal standards of care. Exposing the "correct" number of x-rays does not fulfill the legal obligation of the oral health care provider. The standard of care requires the patient dental chart to be completed with the correct number of adequate quality x-rays.

Legal Ramifications and Oral Cancer

The standard of care for dental professionals includes a thorough head-and-neck examination on each patient. The standard of care is a review of the patient's medical history and includes a social assessment and physical examination. A comprehensive head-and-neck exam includes the palpation of the floor of the mouth and lateral borders of the tongue.

Dental malpractice claims alleging failure to diagnose oral cancer are the second most common types of claim and often result in the highest amounts paid. With these claims on the rise, they can be divided into four categories:

1. Failure to follow up or relying solely on a negative biopsy report instead of repeating a biopsy if clinical abnormalities persist.
2. Failure to screen patients appropriately or failure to provide screening examinations on patients in high-risk groups.
3. Evaluation delays are a frequent cause of litigation, because of delayed diagnosis of oral cancer. This involves repeated patient visits with progressive clinical abnormalities without proper testing or referrals.
4. Accurate record keeping, documentation, and quality radiographs are crucial to avoid malpractice litigation.

2017 Medical Errors & Caleb's Law

According to Caleb's Law Page: <http://www.calebslaw.org/htm>

"In 2015, six year-old Caleb died as a result of unsafe dental anesthesia practices. As a result, a team of family and friends made up of medical, legal and policy professionals were motivated to find out why it happened and could it

have been prevented. What we found was alarming. We learned of other Californian children who have died in similar circumstances. Anonymized reports obtained from the Dental Board of California indicate that there were at least four pediatric deaths in 2015. And, most disconcerting is that some oral surgeons are the only healthcare professionals who operate and administer anesthesia simultaneously, without a separate anesthesia provider, and many do not use modern monitoring technologies.”

Taken from The California Legislative Information site, Assembly Bill No. 2235,
CHAPTER 519:

The Dental Practice Act provides for the licensure and regulation of dentists by the Dental Board of California. That act authorizes a committee of the board to evaluate all suggestions or requests for regulatory changes related to the committee and to hold informational hearings in order to report and make appropriate recommendations to the board, after consultation with departmental legal counsel and the board’s chief executive officer. The act requires a committee to include in any report regarding a proposed regulatory change, at a minimum, the specific language or the proposed change or changes and the reasons therefor, and any facts supporting the need for the change.

The act governs the use of general anesthesia, conscious sedation, and oral conscious sedation for pediatric and adult patients. The act makes it unprofessional conduct for a licensee to fail to report the death of a patient, or removal of a patient to a hospital or emergency center for medical treatment, that is related to a dental procedure, as specified. The act also makes it unprofessional conduct for any dentist to fail to obtain the written informed consent of a patient prior to administering general anesthesia or conscious sedation. In the case of a minor, the act requires that the consent be obtained from the child’s parent or guardian.

This bill, which would be known as “Caleb’s Law,” would require the board, on or before January 1, 2017, to provide to the Legislature a report on whether current statutes and regulations for the administration and monitoring of pediatric anesthesia in dentistry provide adequate protection for pediatric dental patients and would require the board to make the report publicly available on the board’s Internet Web site. The bill also would require the board to provide a report on pediatric deaths related to general anesthesia in dentistry at the time of its sunset review by the appropriate policy committees of the Legislature.

This bill would require that the report of the death of a patient, or removal of a patient to a hospital or emergency center for medical treatment, be on a form or

forms approved by the board and that the report include specified information. The bill authorizes the board to assess a penalty on any licensee who fails to make the required report.

This bill, with regard to obtaining written informed consent for general anesthesia or conscious sedation in the case of a minor, would require that the written informed consent include specified information regarding anesthesia, as provided.

Conclusion

Dental practice is a state-regulated profession. It is the obligation and responsibility of dental practitioners to become familiar with the dental practice act in the state(s) in which they practice. Dental practitioners can avoid medical errors and subsequent legal liability with the use of best practices while delivering clinical care. Dental team members must be professional and ethical, and treat patients within their scope of practice or licensed duties. Care must be provided care with consistent protocols, thorough treatment plans, complete assessments, and strict infection control. Dental professionals have an ethical and legal duty to provide quality care in a safe environment. And it is the right thing to do.

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Course Exam: Risk Management: Prevention of Medical Errors In The Dental Practice

1. Medical errors always result in patient injury or death.
 - a. True
 - b. False
2. The key to reducing medical errors is to focus on improving the systems of delivering care and not to blame individuals.
 - a. True
 - b. False
3. Research clearly shows that the majority of medical errors cannot be prevented.
 - a. True
 - b. False
4. Near-misses are occurrences that could have resulted in an adverse event but the event was averted and the patient was not harmed.
 - a. True
 - b. False
5. Root-cause analysis is the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim.
 - a. True
 - b. False
6. When an error occurs it is important to disclose the error because:
 - a. It may leave you vulnerable to a lawsuit.
 - b. In some states it is mandatory.
 - c. Ethically and morally, it's the right thing to do.
 - d. You may be obligated to report the incident to the authorities.
 - e. All of the above
7. When documenting the error, it is important to:
 - a. Document every single detail.
 - b. Only document what you want the authorities to know.
 - c. Be accurate and factual.
 - d. Never document an error.

8. When analyzing an error, the most important finding relates to:
 - a. What the root cause is so the process can be improved
 - b. Who did something wrong
 - c. Who needs to be disciplined.
 - d. Why someone didn't do their job

9. Factors influencing an error might include:
 - a. Training and Education
 - b. Task Factors
 - c. Equipment Problems
 - d. All of the above

10. As you seek to improve patient safety in your practice, remember that:
 - a. Change takes more time than you will ever have available.
 - b. It's important to develop a culture of safety throughout your practice.
 - c. Safety matters more to the referring offices than it will to your office.
 - d. It might be too expensive to promote safety