

Treatment Errors: An Overview

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Magnitude of The Problem

- Preventable health care-related injuries costs the American economy from \$17 to \$29 billion annually.
- Medical errors are responsible for 44,000 to 98,000 deaths per year. In the United States, deaths due to medical errors rank eighth among the leading cause of death in the United States.



Medical Errors

Common types of medical errors include:

I-Drug - medication - errors

II- Surgical errors

III-Tracking errors

IV-Diagnostic inaccuracies

V-System Failure

Monitoring patterns of error are essential to create safety checks that prevent common errors from happening again.



I- Drug - Medication - Errors

According to the National coordinating council for medication error reporting and prevention, a medication error is defined as any preventable event that may lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer.

Medication errors are of four types:

- 1-Prescribing (physician) errors.
- 2-Transcription and verification errors.
- 3-Pharmacy dispensing and delivery errors.
- 4-Administration (nurse-to-patient) errors.



Drug - Medication - Errors

- When medication errors lead to patient injuries, they are called adverse drug events (ADEs)—which affect approximately 6% of hospitalized patients.
- Errors in order writing most often cause the almost 60% of ADEs considered preventable.



Drug Errors (Cont.)

Drug errors can be avoided by taking some precautions:

- 1-Obtain complete patient's history (e.g. patients' drug allergies, any concomitant treatment to avoid drug interactions whether agonistic or antagonistic, previous diagnoses and lab investigations)
- 2-Be sure to give the drug to the right patient not a different one.
- 3-Avoid abbreviations in writing names of drugs. Some abbreviations may be misinterpreted for others. e.g. MgSo₄ stands for magnesium sulfate but may be misinterpreted for morphine sulfate. Similarly, MSo₄ stands for morphine sulfate may be mistaken for magnesium sulfate.



Drug Errors (Cont.)

- 4- Drug dosage should be clearly written to minimize confusions. e.g. doses in micrograms should always be written complete. The abbreviation μg (nanogram) can be mistaken for microgram creating 1000 fold overdose. The same applies for the route of administration.
- 5-Obtain complete drug information and teach the patient about them. This may help patient to spot a mistake when it's dispensed or administered.
- 6-Distinguish between sound-alike drugs (e.g. Coumadin and avadin)



How to Avoid Drug Errors (Cont.)

7-Avoid factors which may distract health professionals on duty. E.g. heat, noise, and interruptions.

8-Use electronic systems for generating and transmitting prescriptions, such as computerized physician order entry, which can reduce drug errors.



II- Surgical Errors

50% of all adverse events among inpatients were associated with a surgical procedure, the commonest of these is wound infection. According to the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), surgical errors may involve:

- 1- The wrong part or side of the body.
- 2- The wrong procedure.
- 3- The wrong patient.



Surgical Errors (Cont.)

JCAHO says these factors can raise the risk of wrong-site surgery:

- 1-Too many surgeons involved in the surgery.
- 2-Too many procedures during a single surgical visit.
- 3-Unusual time pressures to start or complete the procedure.
- 4-Patient's unusual physical characteristics (morbid obesity, deformity).



How to Avoid Surgical Errors (Cont.)

JCAHO has suggested a Universal Protocol as follows:

1-at the morning of surgery, surgeons must verify all documents, laboratory tests, imaging studies and sign the patient's incision site.

2-At the theatre, the surgeon, assistants, anesthetist, nurses and operating room technician should confirm the patient's identity and the intended surgical site .



How to Avoid Surgical Errors (Cont.)

3-Appropriate use of prophylactic antibiotics to prevent surgical infections.

The antibiotic used must be safe, broad spectrum, with low toxicity & reach effective concentration in tissues at surgical sites at the time of the incision.

It is important to use sound proper equipment that is necessary to accomplish a particular surgery. Equipment failure may lead to canceling a necessary intervention and delayed intervention which may worsen the patient's outcome. E.g. the use of complete laparoscopic endoscopic set, instruments, electrocautery unit while performing laparoscopic surgery for malignant uterine tumor.



III-Tracking Errors

The professional responsibility of a physician includes:

- 1-Confirms a patient's compliance with a test or treatment instructions.
- 2-Communicate the test results and plan of management to patient.
- 3-Interpret treatment outcome.

The chances for errors exist at any of these stages and are known as tracking errors.



How to Prevent Tracking Errors (Cont.)

- 1- Establish a formal tracking system to confirm patient compliance with ordered tests. e.g. imaging and laboratory tests.
- 2- Never consider the approach “no news is good news”. Adequate communication with patient is essential to avoid losing test result.
- 3- Track phone calls and after-hours care. An example of these is an emergency room visit, especially results of tests ordered at such visit.



How to Prevent Tracking Errors (Cont.)

- 4- Tracking systems must also remind patients to obtain routine screening tests. One study that used a regular mail reminder system showed a 40% increase in getting patients to go in for a Pap smear.

- 5- Some diagnostic tests must be repeated to follow up certain conditions. A computerized reminder system is an excellent option. Similarly, an automated alerting system for communicating critical laboratory results reduced the time until appropriate treatment is started when compared with the existing hospital paging system.



IV-Errors Due To Inaccurate Diagnosis (Cont.)

Incorrect or delayed diagnoses may lead to incorrect and ineffective treatment. Failure to use the proper diagnostic test may similarly lead to unwanted effects. Also, inexperience with a technically difficult diagnostic procedure may compromise the accuracy of the results. e.g. One study showed that physicians who performed 100 or more colposcopies a year had more accurate findings than physicians who performed the procedure less often. Another example is that measuring blood pressure with the most commonly used type of equipment often gives incorrect readings that may lead to mismanagement of hypertension.



V-System Failure

Errors may result from the organization of health care delivery & the way that resources are provided to the delivery system. Such failures accounts for 75% of adverse events.

Examples:

1-Failures to disseminate pharmaceutical information. e.g. drug doses and drug allergies.

2-Professional standards for the nursing staff influence the incidence of adverse events at the OR and the outcome after serious infections.



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Thank You

