MEDICATION ERRORS

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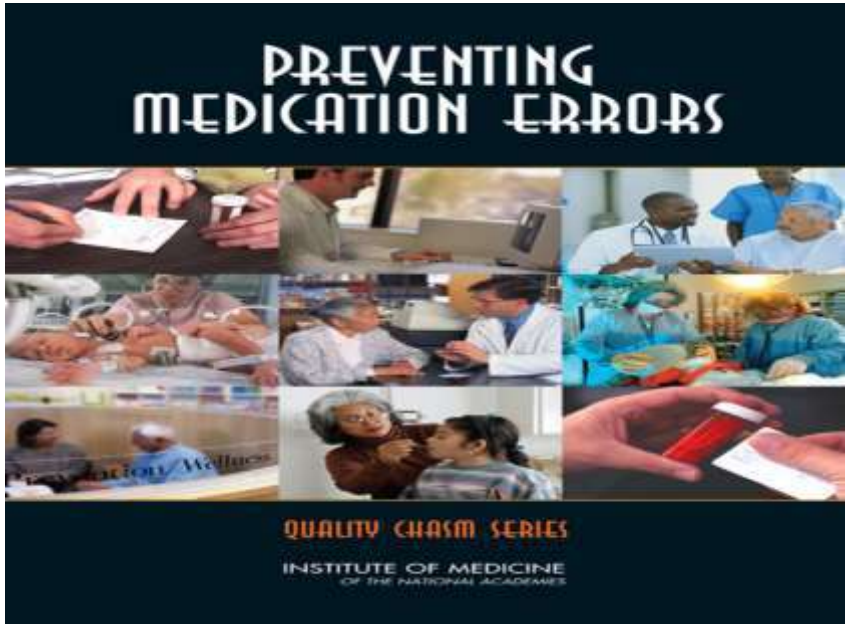

Introduction

- Patient safety is a public concern in health-care systems across the world.
- Medication errors and error-related adverse drug events (ADEs) are common and are responsible for considerable patient harm. More specifically, ADEs can lead to morbidity, hospitalisation, increased healthcare costs and, in some cases, death.
- It has been estimated that 5%–6% of all hospitalisations are drug-related, with one estimate suggesting that ADEs causing hospital admission in the UK occur in around 10% of inpatients; approximately half of these ADEs are believed to be preventable.
- The cost of medication errors world-wide has been estimated as US$42 billion/year.

Definition

- “A medication error (ME) 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. 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.”

Contd …

- They are the single most preventable cause of patient injury.
- They can occur at any stage in the drug use process, from prescribing to administration to the patient.
- They are responsible for about 25% of litigation/medicolegal cases against health care providers (practitioners).

Epidemiology of medication errors

- Many studies have described medication error rates in hospital settings, but data for primary care is relatively scarce. This is particularly true of low- and middle- income countries, despite the increasing use of medications.

- Estimating the prevalence of medication errors is difficult due to the varying definitions and classification systems employed.

- Rates can vary depending on the denominator used (e.g., patient, prescription or a specific medication).

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- The challenge is compounded by variations in health care system organization and the availability and use of incident reporting systems

- These issues are reflected in the widely varying error prevalence rates reported in different parts of the world.

- For example, a **UK** study found that 12% of all primary care patients may be affected by a prescribing or monitoring error over the course of a year, increasing to 38% in those 75 years and older and 30% in patients receiving five or more drugs during a 12-month period. Overall, 5% of prescriptions had prescribing errors.

Contd …

- A **Swedish** study found a medication error rate of 42%. However, two-third were related to a failure to state the purpose of the treatment on prescriptions and only 1% of errors resulted in an incorrect dose.

- A study from **Saudi Arabia** reported that just under 1/5 of primary care prescriptions contained errors, but only a small minority were considered serious.

- Another study in **Mexico** observed that 58% of prescriptions contained errors, with dosage regimen accounting for most cases (27.6%).

Contd …

- One systematic review found error rates of 3% at the dispensing stage
- These examples are provided to show that medication errors are a global issue.
- It has been estimated that in some countries approximately 6-7% of hospital admissions appear to be medication related, with over 2/3 of these considered avoidable and thus, potentially due to errors.

Contd …

- The problem is likely more pronounced in the elderly, because of multiple risk factors, one of which is polypharmacy (polymedication).

- In turn, these may have significant health and economic consequences, including the increased use of health services, preventable medication-related hospital admissions and death.

Causes of medication errors

- A number of studies have examined factors associated with medication errors.

- In 11% of patients experiencing a medication error, risk factors included poor coordination of care, cost-related barriers to medical services or medicines, multimorbidity and hospitalization.

- Some of the key factors associated with medication errors, include the provider, patient, care team, work environment, task, computer system and the primary-secondary care interface.

Factors that may influence medication errors

Factors associated with health care professionals:

- Lack of therapeutic training
- Inadequate drug knowledge and experience
- Inadequate perception of risk
- Overworked or fatigued health care professionals
- Physical and emotional health issues
- Poor communication between health care professional and with patients

Contd…

Factors associated with patients:

- Patient characteristics (e.g., personality, literacy and language barriers)
- Complexity of clinical case, including multiple health conditions, polypharmacy and high-risk medications

Factors associated with the work environment:

- Workload and time pressures
- Distractions and interruptions (by both primary care staff and patients)
- Lack of standardized protocols and procedures
- Insufficient resources
- Issues with the physical work environment (e.g., lighting, temperature and ventilation)

Contd…

Factors associated with medicines:

- Naming of medicines (Sound Alike)
- Labelling and packaging (Look Alike)

Factors associated with tasks:

- Repetitive systems for ordering, processing and authorization
- Patient monitoring (dependent on practice, patient, other health care settings, prescriber)

Contd…

Factors associated with computerized information systems:

- Difficult processes for generating first prescriptions (e.g. drug pick lists, default dose regimens and missed alerts)
- Difficult processes for generating correct repeat prescriptions
- Lack of accuracy of patient records
- Inadequate design that allows for human error

Primary-secondary care interface:

- Limited quality of communication with secondary care
- Little justification of secondary care recommendations

Types of medication errors

- Prescription errors
- Dispensing errors
- Drug administration errors
- Monitoring errors
- Compliance errors

Prescribing Errors

- Most common type of medication errors.
- Account for 80% of all medication mistakes.
- Use of dangerous abbreviations leads to a majority of the prescribing errors.

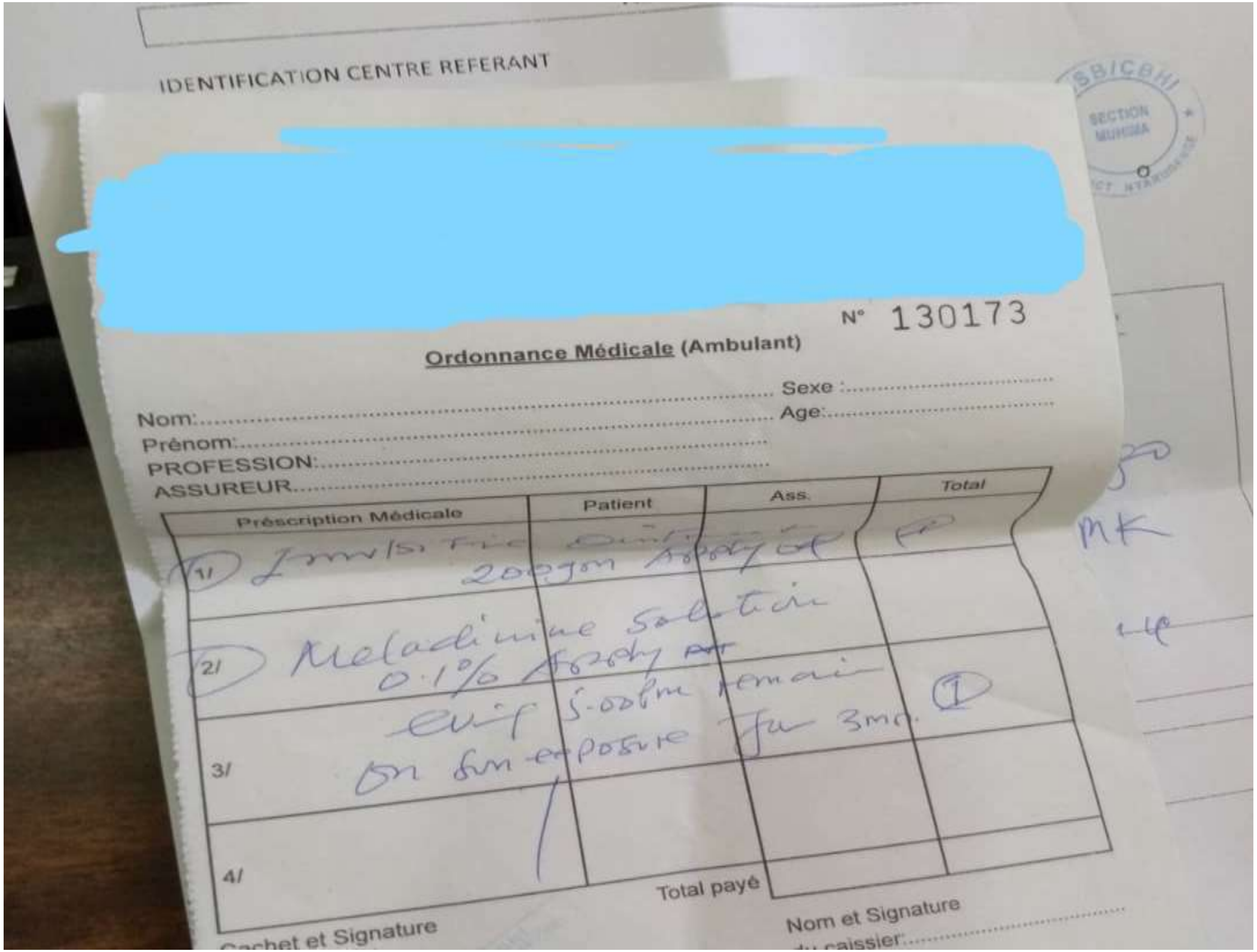
➢ Many pharmacists and/or nurses, misread the "u" abbreviated for units, for a (0) or a (4) causing a 10-fold overdose or greater.

➢ Always use a leading zero (0.4mg) and never use a trailing zero (4.0 mg).

- Illegible handwriting and verbal orders → Prescribing errors.
- Incorrect drug selection (dose, strength, route, quantity, indication, and contraindications) for a patient → Prescribing Errors.
- A study suggests 4 prescribing errors occurred per 1000 medication orders. Of the errors drug allergies accounted for 12.1%, wrong drug name, dosage form or abbreviation for 11.4% incorrect dosage calculations for 11.1% and incorrect dosage frequency for 10.8%.

Methods to Minimise Prescribing Errors:

- Ensuring up-to-date reference sources.
- Use of computerised physician order entry.
- Ensuring knowledge of a drug before prescribing.
- Ensuring an accurate drug history is taken.
- Printing the drug name and patient details clearly on the prescription
- Including all details of drug therapy i.e. name of drug, dose, directions, duration of therapy
- A zero should always precede expression of values <1 e.g 0.1. Ten-fold errors in dose have occurred due to the use of a trailing zero.
- Avoiding the use of abbreviations e.g. AZT, FeSO4, U
- Being aware of Look alike and sound alike (LASA) products.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รายการยา Look alike Sound alike (LASA Drug) คู่ใหม่ของ MSMC จากที่ประชุม MSM 2/60

Look Alike

1

VS

Domperidone tablet

Allopurinol tablet

2 Depakine 200 mg และ 500 mg

3 Levophed
Heparin
Hydrocortisone

Sound Alike

VS

Budecort-200 Berodual

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Dispensing Errors:

- Occur at any stage during the dispensing process (from the receipt of a prescription to the supply of a dispensed product to the patient).

- Research estimates that 5% of all prescriptions are dispensed improperly.

- Dispensing errors reduce patient's confidence in the health care providers. Confusion occurs primarily with drugs that have a similar name or appearance, e.g. Lasix® (frusemide) and Losec® (omeprazole); Amiloride 5mg and Amlodipine 5mg tablets.

Methods to Minimise Dispensing Errors:

- Ensuring a safe dispensing procedure
- Using different brands or separating LASA (Look alike and Sound alike) products
- Focusing on the task in hand
- Keeping interruptions to a minimum
- Maintaining workload at a safe and manageable level
- Being aware of high risk drugs (HAM) e.g. Hypertonic Electrolytes (Potassium chloride, Calcium chloride, Magnesium Sulphate), cytotoxic agents, IV Insulin
- Introducing good housekeeping practices

Administration Errors:

- Discrepancy between the drug therapy received by the patient and the drug therapy intended by the prescriber.
- Administration errors account for 26% to 32% of total medication errors.
- Types:

➢Omission Error (e.g. lack of stock).
➢Extra Dose Error
➢Wrong dose error
➢Wrong route error (Left eye instead of Right)
➢Wrong rate error
➢Wrong dosage form (Crushing tablets)
➢Wrong time error
➢Wrong administration technique (e.g. Incorrect manipulation of Inhalers).
➢Use of expired drugs or medical consumable
➢Administration of wrong preparation

Methods to Minimise Administration Errors:

- Checking patients identity.
- Having dosage calculations checked independently by another healthcare professional before the drug is administered.
- Having the prescription, the drug and the patient in the same place so they can be checked against one another.
- Ensuring that medication is given at the correct time.
- Minimising interruptions during drug rounds.

Monitoring & Compliance Errors:

- **Monitoring Errors:**

Monitoring errors are caused by…

- Failure to review a prescribed regimen for appropriateness
- Failure to use appropriate clinical or laboratory data to assess the patients' response to prescribed therapy.

- **Compliance Errors:**

Compliance errors are caused by…

- Inappropriate patient behavior regarding adherence to a prescribed medication regimen

Ten key elements of medication use :

- ***There are 10 key elements:***

  Weaknesses in these → medication errors.

1. Patient information
2. Drug information
3. Adequate communication
4. Drug packaging, labeling, and nomenclature
5. Medication storage, stock, standardization, and distribution
6. Drug device acquisition, use, and monitoring
7. Environmental factors
8. Staff education and competency
9. Patient education
10. Quality processes and risk management

Eliminating medication errors:

- Computerized physician order entry reduces errors by identifying and alerting physicians to patient allergies or drug interactions, eliminating poorly handwritten prescriptions, and giving decision support regarding standardized dosing regimens.
- Use of computerized physician order entry and barcodes may reduce errors by up to 50%.
- Be sure to use the safety practices already in place in your facility.
- Eliminate distractions while preparing and administering medications.
- Learn as much as you can about the medications you administer and ways to avoid mistakes.
- Perform the “5 rights” principle of medication administration every time:

  right patient, ***right drug***, ***right dosage***, ***right time***, and ***right route***.

Preventing Medication Errors:

Review each medication to determine its necessity

- Make sure the list of medications is complete
- Identify the condition for which each medication is prescribed
- Determine the potential for any drug - drug interactions
- Determine potential for any drug - disease interactions
- Can the drug regimen be simplified?
- Are there any new, safer drugs available to substitute with current medication?
- Is it possible to discontinue any medication?

Preventing Medication Errors:

New medication tips

- Is the diagnosis correct?
- Can the condition be treated without medication?
- Can a lower dosage be used?
- Could the symptoms be related to another medication?
- Can one drug be used to treat multiple conditions?

Preventing Medication Errors:

Inappropriate medication use

- Don’t try to treat every condition. It is impossible to treat every physical condition
- Don’t try to treat the side effects of medications
- Try to have one physician prescribe all medications
- Make sure all physicians involved in a patients treatment are aware of each other

Underreporting of medication errors:

Most important Reasons:

- Disagreement over the definition of an error
- Staff's disability to recognize an error has occurred
- Staff's belief that the error does not warrant reporting
- Staff's belief that she/he has not committed the error
- Staff's embarrassment
- Staff fear for the reputation on of their service or unit
- Staff's fear of punishment/disciplinary actions
- Degree of reporting effort/ time to complete reports
- Wrong reporting time
- Local/unit's culture
- Confusing reporting mechanisms, policies, or procedures

Conclusion :

- Each healthcare professional is responsible for identifying contributing factors to medication errors and using that knowledge to reduce their occurrence.
- No one in the healthcare profession wants to make a mistake and they want to help people not harm them.
- Both experienced and inexperienced staff may be responsible for medication errors.
- Healthcare is changing from a system of blaming to a system that encourages finding the factors that caused the error.
- A multidisciplinary approach to solve this problem should be promoted.
- Hospitals should form committees to research all errors and “near misses” in order to make changes to keep patients more safe.
- All healthcare facilities should have safety systems to prevent errors, test those interventions, and reevaluate if the intervention is successful or not.

Conclusion :

- The safety systems must empower the facility's staff to question orders, treatments, or any situation that seems out of the norm.
- Healthcare providers should encourage patients to ask questions as well! Patients must actively participate in their healthcare.
- Mistakes will still occur.
- By implementing systems that examine, identify, and find root causes, some errors can be prevented from happening over and over again.
- Although it is a long and hard process, it is a valuable process that all healthcare facilities, as well as healthcare professionals, need to be involved in!
- Due to increasing risk of medical litigation means that healthcare professionals cannot ignore a medication error when it occurs .

THANKS

VISIT RWANDA