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Component 2: The Culture of Health Care

Unit 9- Sociotechnical Aspects: Clinicians and Technology

Lecture a: Medical Errors

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Objectives For This Unit

- Describe the concepts of medical error and patient safety
- Discuss error as an individual and as a system problem
- Compare and contrast the interaction and interdependence of social and technical "resistance to change"
- Discuss the challenges inherent with adapting work processes to new technology
- Discuss the downside of adapting technology to work practices and why this is not desirable
- Discuss the impact of changing sociotechnical processes on quality, efficiency, and safety

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Focus Of This Lecture

- Medical Errors and Patient Safety
- Medical errors: mistakes that occur during medical care
- Patient Safety: reduction in patient harm
- Reducing medical errors and improving patient safety is a core aim of modern medicine

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Medical Errors

- In 1964, one study published in the Annals of Internal Medicine reported that:
  - 20% of patients admitted to a university hospital medical service suffered iatrogenic injury
  - 20% of those injuries were serious or fatal
- In the U.S., medical errors are estimated to result in 44,000 to 98,000 unnecessary inpatient deaths annually

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Adverse Events

- Adverse events occur in all healthcare systems and in all nations
- Data suggests a majority of these events occur in the hospital setting
- Other areas not immune to adverse events

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Issues Facing Developing Nations

- In developing countries, other significant issues contribute to errors:
  - Infrastructure and equipment are inadequate
  - Drug supply and quality are unreliable
  - Some healthcare workers may have insufficient technical skills due to inadequacy of training
  - Operating costs are often underfinanced

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Types Of Errors

- Errors Caused By Individuals:
  - Unintended acts of omission or commission
  - Acts that do not achieve their intended outcomes
- Errors Caused By Systems:
  - Complexity of healthcare and healthcare technology
  - Complexity of disease and dependence on intricate clinical collaborations and interventions

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History Of Error Inquiry

- Prior focus of inquiry for errors was on the individual, and on the mistakes themselves
  - Investigations often reflected "name and blame" culture
- Now the focus is on the system – fixing inadequacies in the system can improve patient safety
  - Focus on system allows individual to perform their tasks in an patient-care optimized environment

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Individual Errors – Slips

- Some errors or “slips” are unconscious
- Usually a “glitch” when performing repetitive, routine actions
- Usually attention is diverted, and there is an unexpected break in the routine
- Attention can be impaired by many factors

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Slips – Solving The Problem

- Need to limit opportunities for loss of attention
- Example: sleep deprivation during resident training
- Resident training in the US – limit to the number of duty hours per week to reduce slips due to fatigue and sleep deprivation

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Individual Errors – Mistakes

- Some errors or "mistakes" are rule-based or knowledge-based
  - These are errors of conscious thought
- Rule-based errors -- usually occur during problem-solving when a wrong rule is applied
- Knowledge-based errors – usually occur when the decision-maker confronts a novel solution

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Mistakes – Solving The Problem

- Rule-Based Errors
  - Use clinical decision support – order sets
  - Avoid bias in clinical reasoning
- Knowledge-Based Errors
  - Improve knowledge at the point of care
  - Foster culture of collaboration and consultation

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System Errors

- System errors: these errors occur because of inadequacies within the system
- Often committed by multiple individuals who intersect with patient care
- Often difficult to analyze

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Example: Medication Errors

- Unintended changes in medications occur in 33% of patients at the time of transfer from one unit to another within a hospital
- 14% of patients have unintended changes in their medications when they are discharged from the hospital
- More than half of patients have at least 1 unintended medication discrepancy at hospital admission

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Medication Reconciliation (continued)

- Medication reconciliation: process of avoiding unintended changes in medication across transitions in care
- Requires iterative reviews of patient's medications at different points of time during the hospital stay

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Medication Reconciliation

- Methods for medication reconciliation:
  - Only pharmacists order medications
  - Linking process to computerized provider order entry (CPOE)
  - Integrating medication reconciliation in the EHR
  - Patients reconcile their medications instead of clinicians
- Studies suggest reduction in errors but have not yet demonstrated improvement in outcomes

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Who Are Driving Patient Safety Initiatives?

- Clinicians
- Hospitals
- Regulatory bodies – for example, the Joint Commission on Accreditation of Healthcare Organizations
- Patients