Clinical Decision Making
Lecture 2

Decision Making in Medicine

Faculty of Medicine

The Hashemite University

Arwa Al Anber(MD, PhD)

Office: 1018

Objectives

- Understand the importance and complexity of decision making in medicine
- Understand the different factors affecting clinical decision making
- Explain the difference between clinical versus actuarial prediction
- Practical applications of clinical decision making

Clinical Decisions in Medicine

- Have direct effect on human health
  - **We can save a life or kill/seriously harm someone**

- Time and frequency of clinical decisions
  - Doctors make critical decisions quickly and frequently

- Ethical and legal implication of clinical decisions
  - Special position

Why we study decision making in medicine?

- Medicine is the science of uncertainty
- Medicine as art vs. science
- Very complex
- Making decisions that affect patients and society

When do we make medical decisions?

- Diagnosis
- Investigations (labs, x-rays)
- Treatment
- Follow up
- Allocation of resources (time, money)
- Administrative

Difficulties of Decision Making in Medicine

- Decisions are complex
- Time and financial strains
- Usually involve more than one person
- Large amount of medical knowledge
- Medical knowledge is changing rapidly
- Many things still not studied and we don't understand
- Conflicts in medical knowledge and approaches
- Conflicts between doctors and patients approaches

Ideal vs. real world decisions

<u>Ideal world</u>   <u>Real World</u>

Objectively made   Often subjectively made
decisions   decisions

full set of evidence   Incomplete evidence

endless resources   Lack of resources

no time pressures   Short amount of time

minimal interruptions   Many interruptions

Factors that affect decision making

Knowing the Evidence

Knowing yourself

Knowing the Patient and Person

Knowing the environment

Patient related Factors

- 25-year-old man atheist patient in medical school is diagnosed with a brain tumor. He comes from a wealthy family and his father is a doctor. He has is a very anxious person and is very organized. He lives with his parents and siblings.

- Vs

- 75-year-old homeless man who is alcoholic is diagnosed with a brain tumor. He is a very depressed person and very disorganized.

- How might they each respond to the diagnosis?

Patient-related Factors

1. Socioeconomic status
2. Ethnicity/race
3. Age, gender and other personal characteristics
4. Adherence to treatment or inappropriate behavior that may influence adherence (e.g. chaotic life style, frequent missing of appointments)
5. Wishes and preferences
6. Attitude and behavior
7. Concerns and worries (medical and non-medical)
8. Others: Influences of faith, culture, quality of life, and family members + friends

Physician Related Factors

- 30-year old male physician who is very healthy, exercises, eats well, and is not taking any medicines sees a 50-year old obese female who has just been diagnosed with diabetes . The doctor has 5 patients waiting to be seen after this patient.

- Vs.

- 50-year old female physician who is obese, smokes, and has diabetes and high blood pressure sees a 50-year old obese female patient who has just been diagnosed with diabetes. Both of them are from same village. The doctor has no one waiting to be seen after this patient.

Physician-related Factors

1. Personal characteristics: age, gender, culture, faith and race

2. Time constraints and work overload

3. Professional interactions:
    1. Relationship with colleagues and hospital staff
    2. relationship with pharmaceutical industry

Practice-related Factors

- 50-year old patient with one week of chest pain comes into a small private clinic in Abdoun.

- Vs.

- 50-year old patient with one week of chest pain comes into a very large government clinic in Baqa camp.

Practice-related Factors

1. Type of practice (e.g. private vs public)
2. Size and organization of practice
3. Geographical location and availability of health resources
4. Management policies/treatment cost

Individual-related Factors

1. Values
2. Life experience
3. Individual preferences
4. Individual ways of thinking and decision making

1. Values

- Decisions are based on a person's value system
  - Conscious vs. subconscious
- Effects information gathering, information processing, and final outcome
  - Example: If you are afraid the patient might be mad if you ask them about sexual intercourse, you might miss the diagnosis of a STD
- Limits alternatives generated and final choice selected
  - Example: If you don't believe in giving medicine for depression, you won't offer that as an option

2. Life Experience:

- Education and decision-making experience.
    - How could this help?
    - How could this hurt?

- Examples: A doctor with 5 years vs. 20 years experience.

3. Individual Preferences

- Alternative A preferred by one person but Alternative B preferred by another
- Based on personal risk and costs
  - Physical and emotional risks
  - Financial costs
  - Time and energy expenditures
- Example: Doing a surgery now vs. delaying surgery

4. Individual Ways of Thinking and Decision Making:

Individuals think very differently

a) Systematically (analytical)

b) Intuitively

c) Mixed

Approach to making Decisions:
Clinical (intuitive) Versus Actuarial(analytical) Prediction

1. <u>Clinical (intuitive) Prediction</u>: Reliance on clinical "expertise" and intuition.
    1. Preferred by most clinicians
    2. Doctors have strong belief in the value of their own experience

2. <u>Actuarial (analytical) Prediction</u>: Use of formulas based on empirically established relations. (Algorithms, guidelines, etc.)
    Does not exclude clinician judgments if those judgments have value

Clinical (intuitive) Versus Actuarial(analytical)

- Meehl (1954) – first to compare the two methods
- Now more than 100 studies
  - Evidence overwhelmingly favors actuarial approaches
- In general, experienced clinicians are not more accurate
  - WHY????!!!!!!

why doesn't experience improve clinical judgment?

1. Cognitive biases and errors
    - universal to human beings

2. Information overload situation
    - large amount of information and no way to determine what is important and what is not in clinical assessment

Clinical (intuitive) Versus Actuarial(analytical)

Table 1. General properties of the two systems

Property	System 1: Intuitive	System 2: Analytical
Reasoning style	Heuristic Associative Concrete	Normative Deductive Abstract
Awareness	Low	High
Prototypical	Yes	No, based on sets
Action	Reflexive, skilled	Deliberate, rule based
Automaticity	High	Low
Speed	Fast	Slow
Channels	Multiple, parallel	Single, linear
Propensities	Causal	Statistical
Effort	Minimal	Considerable
Cost	Low	High
Vulnerability to bias	Yes	Less so
Reliability	Low, variable	High, consistent
Errors	Common	Few
Affective valence	Often	Rarely
Predictive power	Low	High
Hard-wired	May be	No
Scientific rigour	Low	High
Context importance	High	Low

Sources: Adapted from Dawson (1993), Croskerry (2005) and Evans (2008).

How can we improve?

- Understand biases and errors
- Study how to think
  - critical vs. illogical thinking
- Reflection
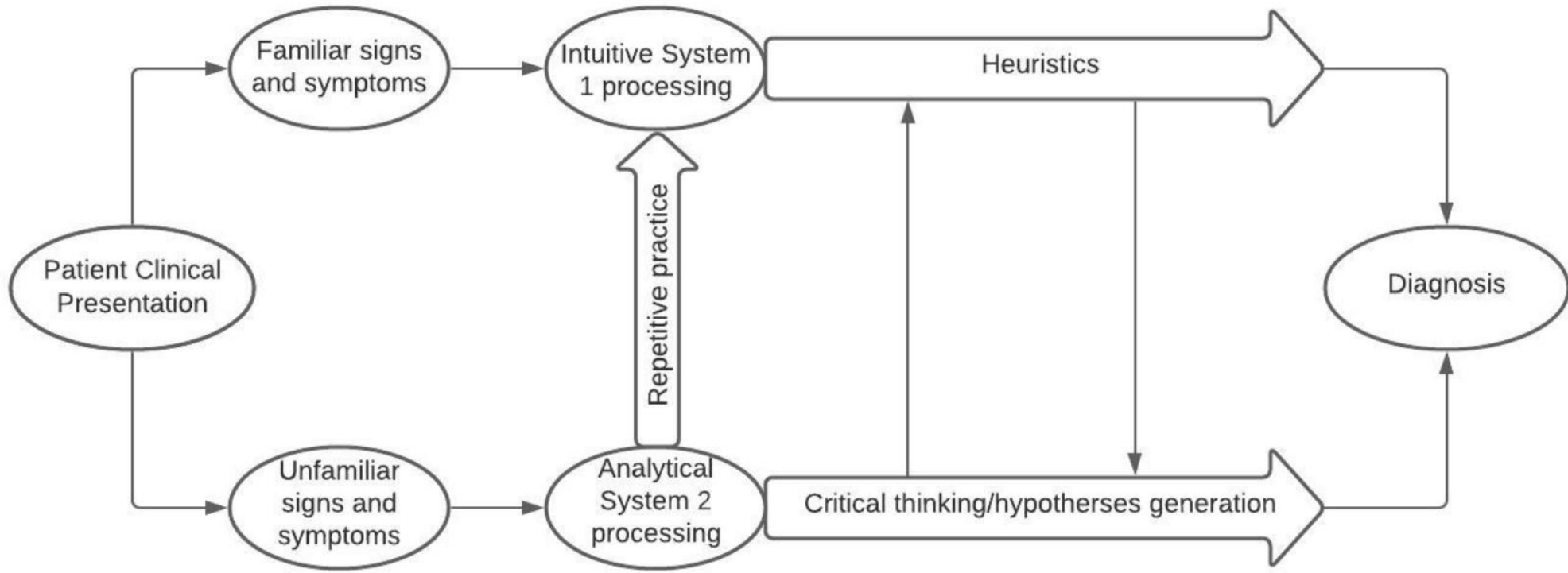
Critical Thinking vs thinking

- Critical thinking
  - Rational examination of ideas, inferences, assumptions, principles, arguments, conclusions, statements, beliefs & actions.
  - Controlled and purposeful
  - more likely to lead to beneficial results
  - Critical = requiring careful judgment.

Critical thinking vs. thinking

- Thinking
  - Includes almost any mental activity (having an opinion, pondering, remembering, devising a plan, forming a mental picture, reasoning)
  - can be aimless & uncontrolled
  - may serve a purpose, but we often aren't aware of its benefits
  - we might not even remember our thoughts at all

Characteristics of Critical Thinking

- rational & reflective.
- involves healthy, constructive skepticism.
- autonomous.
- includes creative thinking.
- fair thinking.
- focuses on what to believe & do

A good critical thinker:

- Examines decisions from all sides and takes into account varying points of view
- Generates new ideas and alternatives when making decisions
- Asks "why" questions about a situation in order to arrive at the best decision

ILLOGICAL THINKING

- **Overgeneralizing**
  - Because A has a particular characteristic, every other A also has the same characteristic.
  - Example: stereotypes used to justify arguments and decisions.
- **Affirming the consequences**
  - B is good but he is not doing A, so A must not be good.
  - Example: a surgeon you respect is not using a new tool in his surgeries, so the new tool must not be good

- ***Arguing from analogy.***
- Because A is present in B, then A and B are alike in all respects.
- Example: because two patients are both Syrian women living in the same neighborhood, they will have the same ideas about the treatment of cancer.

Reflective Thinking

- Observing oneself as one performs a task or makes a decision about a certain situation.

- Reflect on your whole decision making strategies to ensure that you hone your decision making skills and learn from experience.

- It's also important to use feedback from others, and the outcomes of the decisions to reflect on the decisions that were taken in order to enhance practice delivery in the future

Part 1: The narrative

- What happened?
- What were you thinking?
- What were you feeling?
- What did you do?

Part 2: The Learning

- What did you learn?

- Why do you think you responded the way you did?

- Did you do the right thing?

- Should or could you have done anything differently?

Part 3: The Change

- What would you do differently next time?

Example 1:

- 32-year old male patient admitted with right iliac fossa pain for 1 day. Examination indicated tenderness and rebound sign was positive. Investigation show normal WBCs and abdominal ultrasound was negative

- Does this patient have appendicitis?

- How did you decide?

- How you would explain a normal WBC count and normal ultrasound?

- What if the patient is extremely scared of doing surgery and wants medical treatment?

- Your colleague (a surgical resident) thinks that rebound tenderness was negative. Does this change your decision?

Example 2

- 44-year old pregnant female (first trimester) had high risk on blood screening test for Trisomy 21 (Down Syndrome). She had 1:50 risk of down syndrome and the normal range at her age is 1:300 . She came to you very distressed and discuss whether to do further testing including amniocentesis, chorionic villi sampling, or proceed with abortion because she does not want to have a baby with Down Syndrome?

- What would you do and how do you decide?

- Any ethical, legal, or social applications?