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Medical Decision Making

Decision: choosing a course of action to achieve some goals.

-Types of decision:

- 1- **Inconsequential** (unimportant): walk to work.
- 2- **Easy or habitual**: wake up in the morning.
- 3- **Consequential**: medical decisions.

Components of medical decision:

1. Alternatives: actions that can be taken.

Examples: - treat a man with localized prostate cancer:

- With surgery. • treat with radiation therapy.
- Or leave untreated (**not acting** is an alternative).

2. States of the world: conditions that **may or may not be present**, that are **relevant to the results** of the decision, and that **are not under the control of the decision maker** (ظروف ما يتقدر نعرفها)

- Examples:**
- whether the cancer will respond to radiation therapy. • Whether it has metastasized.
 - How soon the man would die of natural causes. • Whether it will recur.

3. Outcomes = chosen alternative + state of the world.

- **Example:** radiation therapy is chosen + cancer responds to radiation therapy = outcomes (increased life expectancy for the patient OR side effects of the therapy).

- Outcomes can be **immediate or delayed**.

4. Utilities: psychological or subjective values of an outcome. (مدى الاستفادة من القرار الذي تم اتخاذه)

Very important: utility (or disutility) is **a measure of how good** (or bad) **the outcome is to decision maker**.

- **Example:** if one outcome of the radiation therapy is **nausea**, some people will find that outcome worse than other people.

5. Objectives (GOALS): the desired end of the decision that had been taken.

-sometimes these goals are **explicitly stated** and can **conflict** and **tradeoffs become necessary**.

Decision Situations (SEE SLIDE 9 AFTER FINISHING THIS TOPIC)

1. Certainty: states of the world are

known. - The problem is :

a- to determine the outcomes that will result from each alternative (easy).

b- To decide what the utilities of those outcomes are (harder).

c- To decide how to resolve tradeoffs.

- **Low** Level of ambiguity and chances of making bad decision.

2. Risk: states of the world are unknown, but **probabilities are known**.

- **Moderate** Level of ambiguity and chances of making bad decision.

- In addition certainty problems, we must also **evaluate probabilities**, and **combine information** about probabilities and outcomes.

3. Uncertainty: states of the world are unknown, and **probabilities are unknown**.

- **No clinical trials** about the **effectiveness of some treatment**.

-**Higher** Level of ambiguity and chances of making bad decision.

- All the problems of decisions **under risk**.

4. Conflict: states of the world also **include other peoples' choices**.

- The study of decision under conflict is usually called =**game theory**.

- All the problems of decisions under **uncertainty**, and we have **to think about strategy-how to respond to or influence someone else's actions**.

The approach is aimed to:

- **Obtain** complete and perfect information.
- **Evaluate** all information rationally and logically.
- **Eliminate** uncertainty.

Classical decision making model are **six steps**:

1. **Recognizing the need for a decision**: decision is necessary when there is a gap between **the actual state and the desired state**.
2. **Diagnosing the problem**: allows to understand **why** a gap between actual and desired states exists
3. **Developing alternatives**: identifying the cause, doctors begin to develop alternative solutions.
4. **Selecting alternatives**: Doctors must decide which alternatives to implement.
5. **Implementing alternatives**: the ideas and principles are put into operation by doctors.
6. **Exercising control and follow-up**

Three main areas where professionals made their decisions:

1. **Intervention decisions**: the decision had the aim of modifying the patient situation.
2. **Communication decisions**: give or receive information.
3. **Evaluation decisions**: review or evaluate patient data so that the current health status of the patient could be determined.

Characteristics of decision making in dynamic settings (e.g. healthcare settings) in the following way:

1. Presence of **incomplete dynamic information** and multiple interacting goals make the problem **ill-structured and ambiguous**.
2. Decision-making environment is **uncertain** and may change while decisions are being made.
3. Goals may be **shifting, ill-defined or competing**.
4. **Multiple players**.
5. Decisions contain elements of **time pressure, personal stress**.
6. Decision making occurs in the form of **action–feedback loops**.
7. Goals and norms influence decision making.

Surrogate decision making: HealthCare practitioners making decisions on behalf of patients.

Nowadays clinical decision making as a **collaborative process** (shared and parallel decision making with patients and teams of health professionals together).

The decision-making approaches, we use:

1. Patterns:

Examples:

- 28-year-old woman with new onset chest pain, has a 6-week-old infant, her first child, she's healthy and has no chronic medical conditions. We're probably thinking about anxiety or musculoskeletal issues. She tends to notice this chest pain most often when she's going to the park carrying her new infant. We're still thinking about anxiety or musculoskeletal problems, or may be gastroesophageal reflux disease (GERD).

- 65-year-old man with new onset chest pain, we're probably thinking about cardiac issues. His past medical history is notable for hypertension and hyperlipidemia. He notices the chest pain most when he's going to the park with his new grandchild. Now we're almost certainly considering a cardiac problem.

2. Scientific method:

Always apply this method when you do physical examination or history (**Scientific method**) to create hypothesis, collect data about it, to reject or confirm it. (**Example in slide 24**)

3. Probabilities:

- Concern about knowing your patient, establishing an opinion of the likelihood of a given outcome.
 - it is helpful in selecting the right test and helping to interpret the utility of its results.
 - **Example:** seeing cardiologist, testing is focused on the heart.
- Seeing a family physician, testing have yet to settle on a particular organ system or pathophysiologic process.

4. Differential diagnoses:

-do a list of DDX then make it narrower, then take a **probabilistic approach** by analyzing the diagnosis that seem most likely.

*** The disadvantage of this strategy:**

- Some may begin by focusing on **the worst diagnoses** and trying to rule those out.

***The advantage of this strategy:**

- Some take a more practical approach, focusing on the diagnoses that we can actually do something about today.

5. Tests:

It's important **to be aware of the limitations of the tests we choose** to do. (ex: ACTH stimulation test for adrenal insufficiency. The gold standard test in this case would be an **adrenal gland biopsy**, but that is probably **unnecessarily invasive**, so we use the **index blood** work instead)

We also have to remember that the **"normal" range** for a laboratory test. We must assure to use the available resources.

- **If there is any wrong with the test** repeat the test or consider taking a different approach to get the answer you need.

6. Treatment threshold :

- When the treatment has **marked benefit** for the diseased person and low risk for the non-diseased person, the **threshold is low**.

- When the treatment has only **limited benefit** for those with the disease and a moderate risk for those without the disease, the **threshold is higher**.

-For example: We have a much higher threshold for the use of **oral antifungals** for **onychomycosis**.
(Another example in slide 28)

The context: your patient's and your own

Physicians know how critical it is to consider the patient's context.

We must consider our patients' life circumstances, including:

- Their socioeconomic status - health insurance coverage - work schedule
- Support structure - religious and cultural preferences
- Ask ourselves how likely the patient is to adhere to our plan, both in terms of treatment and follow-up.

* The patient is **the ultimate determiner** of whether the plan is successful.

Shared decision making (SDM)

IT IS DEFINED AS:

1. Decisions are often made in partnership with our patients.
2. The process of interacting with patients to arrive at an **informed medically reasonable alternatives**.
3. The process of sharing two bodies of knowledge (**patient-centered care and informed decision making**.)
4. Not all patients are interested in this level of involvement

Factors influencing clinical decision-making

- 1-a multi-dimensional **professional knowledge** base.
- 2-a conceptual framework for care and practice.
- 3- Individual practice models.
- 4- Personal frames of reference that included their values, beliefs and attitudes.

Factors that affect decision making:

an ideal world decisions would be made objectively with:

- a full set of evidence.
- an endless bank of resources.
- No time pressures.
- minimal interruptions.
- decision support tools.

Clinical decision making is a **balance of known best practice:**

1-Knowing the subject area and evidence base

(Online journals, books and reference materials you can utilize to research the evidence base).

*The knowledge network is a useful starting point.

2-Knowing Yourself

(Being aware of your behavior, competencies, attitudes, emotions and values, know your limitations, being aware of when to seek help, advice and support)

3-Knowing the Patient and Person

(Knowing the patient's preferences, their experiences of illness, care needs, and what is normal for the pt's in terms of observation, mobility and level of function).

- It's important to consider **feedback** from decision making.

4-Knowing the Environment

(Awareness and recognition)

Cognitive capabilities

- Capability to **identify and collect relevant information**.
- Capability to **predict the consequences** of decisions.
- Capability to **process and interpret** a multitude of decision inputs.
- Capability to **make pragmatic** (practical) decisions.
- Capability to **adapt practice decisions** to new and changing circumstances.

Emotional capabilities

- **Awareness of emotions**, particularly awareness of self-efficacy.
- Capability to **deal with problematic emotions**.
- Motivation to learn and **improve quality** of decision making.
- Capability to **identify and deal with patients'** and care-givers' emotions.
- Capability to establish and maintain **effective relationships**.

Social capabilities

- Capability to **interact** effectively with others.
- Capability to **critically learn** from others.
- Capability to **manage** relationships and to achieve effective decision making **autonomy**.
- Capability to involve others meaningfully and appropriately in **collaborative decision making**.

GROUP DECISION MAKING (GDM): decision-making process that is performed by **several individuals**.

Advantages of Group Decision Making:

- The amount of information and experience **increased by including more individuals**.
- **Generate more alternatives**.
- Communication and understanding are **also increased when GDM is used**.
- **Increases** the likelihood of the decision's being accepted and supported.

Disadvantages of Group Decision Making:

- The amount of time needed for **GDM** is a **big drawback**.
- **GDM** can also force compromises when strong, decisive actions might be needed.
- **GDM** can **encourage groupthink**.