Prioritizing High-Risk Diseases and Non-Trauma-Mediated Diseases in a Triage on Medical Sapiens Platform

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Brief Overview

Medical Sapiens is a medical support computer system, whose main objective is to increase the diagnostic certainty.

It is supported by a database of more than 1000 diseases, which have been configured based on 35 models of the human body. These models represent the different parts of the body in detail.

Goal: create a platform (**Medical Sapiens 2.0**) that will triage 16 immediate high-risk diseases.

High-Risk (non-trauma mediated diseases)

1. Myocardial infarction
2. Cerebral vascular accident
3. Thyrotoxic crisis
4. Pulmonary embolism
5. Meningitis / encephalitis
6. Addisonian crisis
7. Profuse upper gastrointestinal bleeding
8. Suicidal Attempt
9. Carbon monoxide poisoning
10. Lower gastrointestinal bleeding
11. Severe asthma
12. Hypertensive crisis
13. Cardiac arrhythmia with hemodynamic compromise
14. Hyperthermia
15. Severe hypothermia
16. Sting or bite from poisonous organism or to which one is allergic (bee, spider, snake, etc.)

How would MS 2.0 work?

- Looking at 5 criteria:
  1. Pain
  2. Fever
  3. Loss of consciousness
  4. Shortness of breath
  5. Loss or alteration of some function

Why This Methodology Works?

- The decision criteria for triage have weights which were obtained through the AHP (Analytical Hierarchy Process)
  - The Analytic Hierarchy Process (**AHP**) is a **method** for organizing and analyzing complex decisions, using math and psychology
  - Provides a rational framework for a needed decision by quantifying its criteria and alternative options, and for relating those elements to the overall goal.
- Therefore, obtaining a measure of similarity (compatibility) with one of the 16 diseases is not a problem.
- Medical Sapiens 2.0, through the triage module, would output a good first approximation to one of the 16 diseases but now in terms of diagnostic lethality.

Breakdown of Each Criteria

Pain

Questions to ask:

1. Where is the pain?
2. On a scale of 1-10, how bad is the pain (10 being the worst)?
3. How long ago did the pain start?
4. What is the intensity of the pain?
    - Mild (1-3)
    - Moderate (4-6)
    - Severe (7+)
5. What happened to the pain?
6. Does it run somewhere?
7. Does the pain increase/decrease with something?

Fever

Questions to ask:

1. How did it start? Was it sudden or gradual?
2. Has the temperature varied over time or has it stayed constant?
3. Is the fever accompanied by pain?
4. Is the fever accompanied by diarrhea, nausea, vomiting, or cough?
5. Is the fever accompanied by wounds or skin alterations?

Loss of consciousness

Questions to ask:

1. How long ago did this happen?
2. Was this sudden or had this started earlier? Is there a wound?
3. Was the patient hit? Was there trauma?
4. How long is the patient losing consciousness for?
5. Describe how they were.
6. Is this the first time this has occurred?
7. Is the patient taking medications or in the middle of treatment? Stopped treatment?

Shortness of breath

Questions to ask:

1. What is the difficulty level of breathing?
    - High/Moderate/Severe
2. When did this start?
3. Is the shortness of breath accompanied by pain, coughing, fever, heart or pulse acceleration?
4. Did something trigger the shortness of breath?

Loss or alteration of some function

Factors to consider:

1. Altered movements in the face
2. Sudden disorientation
3. Face deformity
4. Loss of extremity strength
5. Loss of sphincters control
6. Does the patient have intense headaches?
7. Is there chest pain?
8. Is the patient speaking incoherently?

Conclusions

Based on these components and the questions within each component, Medical Sapiens MS 2.0 would be able to properly triage patients based on the severity of their condition.

Properly Triage = prioritizing patients' attention, according to the severity of their condition.