Learning How to Build Illness Scripts

Clinical reasoning is a necessary capability for all clinicians and a difficult concept to teach students. We designed this AM Last Page for medical students to help explain how they can enhance clinical reasoning by using illness scripts.

**NOVICE**

**How do they do that?**

Have you ever observed a physician ask a focused set of questions and seemingly pull the correct diagnosis out of thin air? You may assume that accuracy is directly related to increased medical knowledge: physicians have been practicing longer, know more, and are thus better problem solvers. It’s not so simple.

One underlying factor in diagnostic accuracy is the way expert clinicians organize their medical knowledge.

**What is an illness script?**

Illness scripts are mental cue cards used to represent individual diseases.1

**Why are scripts important?**

They…

1. Enable pattern recognition of epidemiological features.2
2. Inform history taking based on the contextual patterns identified.3
3. Enhance the integration of new clinical knowledge with prior knowledge.3
4. Improve diagnostic efficiency and accuracy.3

**INTERMEDIATE**

**How do physicians at the intermediate level build illness scripts?**

1. Gain clinical exposure to classic presentations of common illnesses.4
2. Organize clinical features within an illness script.
3. Compare and contrast distinguishing features between similar diseases.4
4. Ask more experienced physicians (e.g., a resident or attending) to discuss the distinguishing features they used to rank their differential diagnosis.1,4

**EXPERT**

**How are scripts used in practice?**

When expert physicians encounter a case, they quickly retrieve appropriate illness scripts from their long-term memory to create a differential diagnosis.1 In contrast to a novice’s illness script, which is overflowing with detailed biomedical knowledge, the expert’s illness script consists of highly organized cues derived from clinical features. In difficult cases, experts weigh biomedical knowledge, laboratory findings, and imaging data to further refine the differential and to determine management. Experts elaborate upon illness scripts by adding atypical disease presentations over time. Each patient presentation is an opportunity to learn and to build more integrated illness scripts.

**HOW DO PHYSICIANS BECOME EXPERTS? THEY BUILD ILLNESS SCRIPTS**

At the novice level, they rely on biomedical knowledge to explain disease.

At the intermediate level, they organize biomedical knowledge using signs and symptoms to explain disease.

At the expert level, they create a narrative framework of clinical features to rule in or rule out differential diagnoses.

**ILLNESS SCRIPT FEATURES FOR ACUTE APPENDICITIS**

1. **Epidemiological factors**
   - Gender: men = women; Age: peak incidence 10–30 years old; Risk factors: lymphoid hyperplasia
2. **Signs and symptoms of disease**
   - Vague, unprovoked periumbilical pain that gradually becomes intense; severe, right lower quadrant pain.
   - Pain is associated with loss of appetite, fever, and vomiting. Pain improves with narcotics.
3. **Pathophysiology**
   - Appendix obstruction from appendicolith, carcinoid tumor, or lymphoid hyperplasia. Inflamed appendix may cause peritoneal signs (e.g., Rovsing’s sign).

**References:**


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