Illness Scripts

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An ***illness script*** is an organized mental summary of a provider's knowledge of a disease (1-3). It represents a clinician's knowledge about a particular disease, and may be as short as a 3x5 pocket card description for a rare disease, or as long as a book chapter for a commonly encountered illness. Classically, the components of a thorough ***illness script*** fall into three main categories: "the predisposing conditions, the pathophysiological insult, and the clinical consequneces (4)." Within these categories, illness scripts often include a disease's pathophysiology, epidemiology, time course, salient symptoms and signs, diagnostics, and treatment. For example, a provider's ***illness script*** for community acquired pneumonia (CAP) may include:

Components of Illness Script	Community Acquired Pneumonia
Pathophysiology	• Infection of the lower respiratory tract • Most commonly caused by *Streptococcus pneumoniae*
Epidemiology	Increased risk with: • Age • Post upper respiratory tract viral infection • Structural lung disease • Immunodeficiency
Time course	• Acute: Days • Progressively worsens if not treated
Salient Symptoms and Signs	• Fever • Cough • Shortness of breath • Tachycardia • Tachypnea • Hypoxemia
Diagnostics	Labs and imaging: • Leukocytosis • Lobar infiltrate on chest x-ray • Bacteria in sputum or blood cultures
Treatment	• Antibiotics typically lead to improvement over days

With experience, providers hone their ***illness scripts*** in three important ways (5):

1. They encode a predictive value for each feature of the disease, enabling them to estimate the likelihood of a diagnosis when that feature is present or absent.

Example: The absence of a fever does not exclude the diagnosis of community acquired pneumonia (CAP) in an elderly patient.

2. They emphasize distinguishing characteristics whose presence or absence significantly alters the likelihood of the diagnosis, and helps differentiate it from another related diagnosis.
   Example: A lobar infiltrate on chest x-ray without cardiomegaly or cephalization of vessels is highly suggestive of CAP and makes congestive heart failure less likely.

3. They develop a list of disease mimickers to consider when an ***illness script*** of a particular diagnosis is invoked.
   Example: Chronic obstructive pulmonary disease (COPD) exacerbation and congestive heart failure resemble CAP.

This iterative process, continued throughout a clinician's career, adds depth, precision and differentiating power to the foundational scripts developed during training (5). Diseases encountered less frequently will have less robust scripts.

Attached Illustrative Teaching Case:
In the case of **A 22-Year-Old Woman with Abdominal Pain** an approach to ***illness scripts*** for rarer diseases is explored (6). The clinician, analyzing the case using ***System 1***, or pattern recognition, quickly determines that the ***problem representation*** of recurrent, acute abdominal pain with non-diagnostic imaging in a young woman does not adequately match his illness script for a common disease. This realization prompts the transition to a systematic and deliberate mode of reasoning, ***System 2***. The clinician notes that his ***illness script*** for acute intermittent porphyria (AIP) is not comprehensive because it is a disease that he has rarely encountered. Yet, his ***limited script*** is still sufficient to prompt him to think of the disease in the context of dark urine and the introduction of a new medication. The clinician appropriately entertains the diagnosis, and then researches the medication list, uncovering a drug that can precipitate an acute pain crisis, and ultimately clinching the diagnosis of AIP.

While also highlighting the importance of ***problem representation*** and the two modes of clinical reasoning, this case emphasizes another fundamental feature of diagnostic excellence: the ability of experts to select, encode and retain key features of rare diseases in their more limited ***illness scripts***, prompting them to consider an unusual diagnosis when appropriate (5, 7).

The ***slides*** for this case include an embedded teaching guide and provide a didactic approach for teachers interested in developing their trainees' understanding of the clinical reasoning process.

For additional resources useful to both learn and teach your trainees about the clinical reasoning process, visit: http://www.improvediagnosis.org/?ClinicalOverview.

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