

Is Clinical Gestalt Good Enough?

Practicing clinicians rely on their clinical reasoning skills in order to make pertinent and appropriate care decisions when faced with a large amount of data and uncertainty¹. This process involves 1) selection of the appropriateness of the patient for treatment within their domain of care, 2) differential diagnoses to improve one's understanding of the condition at hand, and 3) selection of the most appropriate intervention for the patient's condition¹. At present, there is no single, accepted clinical-reasoning method involving the mundane elements of this process that is routinely advocated in the medical literature. Most commonly, this process is altered by experience, exposure, and internal biases and is propelled by clinical gestalt.

Clinical gestalt is the theory that healthcare practitioners actively organize clinical perceptions into coherent construct wholes. This implies that clinicians have the ability to indirectly make clinical decisions in absence of complete information and can generate solutions that are characterized by generalizations that allow transfer from one problem to the next. In essence, clinical gestalt is pattern recognition and is characterized as a heuristic approach to decision-making². At present, the literature suggests that experience does positively influence decision-making accuracy as experienced clinicians have better pattern recognition skills².

Gestalt is commonly used during healthcare decision-making, namely because this method allows a quick global interpretation within seconds of data collection³. This process is considered "top down"; i.e., clinicians organize data in a manner that creates the most coherent,

seamless, perception possible⁴. Germane to this assumption are the number of Gestalt perceptual principles (Table 1)³, which assist the decision-maker in collating perceptual inputs. A modern version that uses related associative principles is the classification of disorders into common diagnostic or prescriptive traits.

Seasoned clinicians often advocate the usefulness of gestalt. Arguably, without a working knowledge of gestalt principles, clinicians would be hopelessly bogged down with "bottom up" assessments of their patients, begrudgingly plowing through reams of clinical data to form a workable hypothesis. Yet despite the utility of clinical gestalt, we must realize that this useful method is not without error. At present, most healthcare providers use tools for decision-making that have marginal value⁵. Most clinicians also make errors in diagnosis when faced with complex and even non-complex cases⁵. Up to 35% of these errors can cause harm to patients⁶. In truth, we must face the reality that in most cases, clinical gestalt is just not good enough.

Although intuitive, gestalt-based decision-making is riddled with five tangible errors⁷: 1) the *representative heuristic* (if it's similar to something else, it must be like that); 2) the *availability heuristic* (we are more inclined to find something if it's something we are used to finding); 3) the *confirmatory bias* (looking for things in the exam to substantiate what we want to find); 4) the *illusory correlation* (linking events when there is actually no relationship); and 5) *overconfidence*. Of these 5 decision-making errors, overconfidence may be the most compelling. Most diagnosticians feel that they are better decision-makers than what they demonstrate in actual clinical practice⁶. In

fact, the least skilled diagnosticians are also the most overconfident and most likely to make a mistake⁶.

These mistakes can occur in two domains: 1) the empirical aspect (real-world observation of findings, or the data collection phase) and 2) the rational aspect (the clinical decision-making phase during which clinicians make sense of the data at hand)⁸. Although both are common, the reasoning (rational) aspect is by far the most common⁸. It is essential to recognize that all clinicians are biased by these errors in decision-making regardless of expertise, capability, or environment. Yet it is more important to realize that these decision-making errors can be improved through scientific methods such as predictive modeling.

Predictive modeling is a specialization within research that deals with creation of decision rules that marginalize errors in decision-making during diagnosis and intervention. The specialization includes well-known elements such as "clinical prediction or decision rules" but also includes methods to improve decision-making such as *improving pre-test probability*, *maximizing post-test probability*, and *computational decision-making*. Improving pre-test probability allows removal of contending diagnoses or interventions in order to improve the outcome of the diagnosis or intervention. Maximizing pre-test probability deals with identification of tests and measures that harbor the best decision-making power and removal of tests and measures that offer very little information to inform decision-making. Computational decision-making incorporates the use of ontologies or computational algorithms to allow a more sophisticated recognition of patterns that may lay beyond the clini-

TABLE 1. Concepts associated with Gestalt theory³

Concept	Operational Definition
Figure-Ground	Clinicians may have the tendency to focus on the most prevalent visual perspective, often missing critical elements outside one's perception.
Closure	Clinicians may have the tendency to fill empty spaces by connecting findings in a unified manner.
Proximity	Clinicians may have the tendency to group findings if they are in close proximity to one another.
Similarity	Clinicians may have the tendency to group findings if they are similar to one another.
Common Region	Clinicians may group findings if they fall within a common region or associative group.
Symmetry	Clinicians may group findings if they are in symmetry with one another.

cian's initial perceptions. These methods require careful construction of study designs to target the best information to analyze⁹.

I've encountered a number of colleagues who are apprehensive of the changes associated with predictive modeling research. I feel this fear is rooted in a misunderstanding of the effect of the findings. These tools will not remove our capacity as skilled clinicians; instead, these serve to improve patient outcomes. Skilled application of the examination, recognition of the key parameters of the clinical findings, and appropriate administration and education of the best interventions is irreplaceable and will remain so. In lieu of fearing this research, I advocate that we spearhead the process. When it comes to giving our

patients the very best care possible, clinical gestalt is just not good enough.

Chad Cook, PT, PhD, MBA, OCS,
FAAOMPT
Associate Professor
Duke University

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