Between Data and Dialogue: *Clinical Judgment Revisited*

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'Clinicians can bring science to clinical judgement by better exercise of the very human capacities that appear to impair it, and by giving increased attention not to laboratory substances and inanimate technology, but to sick people and the human methods of evaluating sick people'

—Alvan Feinstein Clinical Judgment (1967)

Although Alvan Feinstein’s book Clinical Judgment (1967) is no longer found in most medical school curricula, this classic volume contains valuable wisdom for physicians, offering many salient lessons that continue to resonate fifty years since its initial publication (1). Feinstein became widely known for his work on clinical observation and measurement, and as an early advocate for mathematical approaches to clinical reasoning, which he termed ‘clinimetrics’ (2). He even pioneered one of the original ‘big data’ projects in medicine, building a machine learning algorithm for prognosis in lung cancer (3). Hailed as the ‘father of clinical epidemiology’ (4), he made significant contributions to the growth of quantitative methods in clinical medicine, and was an important influence in the development of evidence-based medicine (EBM), although he later became an outspoken critic of this movement (5).

A half-century later, quantitative approaches to clinical reasoning have undergone a rapid proliferation, from the rise of EBM in the 1990s (6), through to more recent trends in artificial intelligence and big data analytics (7). The concurrent launch of precision medicine aims to move beyond EBM’s population-based approaches and concern for the ‘average patient,’ leveraging genomic data to individualize diagnosis and treatment decisions (8). However, what all of these movements share in common—from EBM, to precision medicine, to big data analytics—is that they remain ‘disease-centered,’ not ‘person-centered.’ Precision medicine will not solve the problem that clinicians care for people, not diseases or genetic profiles, and that ultimately there can be no science of individuals (9).

Attempts to restore the ‘human’ side of medicine have re-invigorated age-old debates surrounding medicine’s ‘two cultures,’ and re-animated stale arguments of medicine’s ‘art’
versus ‘science’ (10-12). Rapid technological advances, however, have created new tensions, and given a new sense of urgency to better understand the meaning and nature of physicians’ work (13). The possibility that, one day, computers and artificial intelligence could replace physicians begs the question: What is it that we are seeking to replace? What is the nature of clinical judgement? To answer this question it is worth turning back to Feinstein’s original text to see what insights it offers for physicians today.

*The Physician as Measuring Instrument*

A metaphor throughout Feinstein’s work is the identification of the clinician as an apparatus of scientific measurement. Feinstein, however, argued that physicians should not pursue this scientific ideal by turning away from the clinic, seeking validity from ‘paraclinical’ domains—such as the laboratory or radiology suite—but rather should focus on the epistemology of everyday clinical practice (1). He believed that ‘clinicians can bring science to clinical judgement by better exercise of the very human capacities that appear to impair it, and by giving increased attention not to laboratory substances and inanimate technology, but to sick people and the human methods of evaluating sick people.’

Feinstein distinguishes two facets of clinical judgement: ‘therapeutic reasoning’ and ‘environmental reasoning.’ Whereas therapeutic reasoning treats the patient as a representative case of disease, environmental reasoning individualizes management of an illness for a particular patient. These two distinct types of reasoning occur in parallel during each clinical encounter. Feinstein’s environmental reasoning, however, goes beyond simply individualizing therapy for a specific case but further encompasses the humanistic aspects of clinical practice, guiding the ‘choice of methods of communication, accommodation, and human interchange that will best enable the sick host to bear the burdens of both ailment and treatment.’ According to Feinstein, ‘A clinician’s privilege and power in clinical therapy is his
[sic] ability to make both the therapeutic and the environmental decisions concomitantly. The clinician combines treatment for the patient as a personal case of disease, with concern for the patient, as a personal instance of mankind [sic], into the unified mixture that is clinical care.’

Although Feinstein expounded mathematical methods of clinical reasoning he was also cognizant of the limitations of this approach. His work in clinimetrics explicitly applies to therapeutic reasoning which treats the patient as ‘a representative instance of disease.’ This is the epistemic stance favored by EBM and other quantitative approaches to clinical reasoning. Since Feinstein, these approaches have undergone significant development, most recently represented by the rise of big data analytics (7). However, as Feinstein acknowledged, this leaves the rich domain of environmental reasoning open for further elucidation. This area has been relatively neglected by EBM and risks being further lost in the new wave of medical computing (14).

Big data analytics, the latest incarnation of the quantitative method, shows a two-fold departure from Feinstein’s *Clinical Judgment*. Firstly, it further turns attention away from the patient towards paraclinical domains, now in the form of large electronic databases filled with genomic data generated by high throughput sequencers. Secondly, it diminishes the importance of environmental reasoning that is essential in clinical practice. The overarching aim of Feinstein’s project was to dispel the ‘mystique’ surrounding clinical judgement—to make it more transparent and teachable (1). Advancement of this project, therefore, requires that we enrich our understanding of environmental reasoning by further engaging with the humanistic side of clinical medicine. This task requires that we go beyond the limitations of quantitative data and into the realm of dialogue.
Dialogue and the Clinical Encounter

Dialogue is at the heart of the clinical encounter. The meeting between physician and patient is fundamentally dialogical, consisting in the exchange of questions and answers. It is through this exchange that the physician attempts to understand the patient’s chief concerns and to obtain a glimpse of the impact of their condition on their life as a whole. Dialogue is also central to developing a course of action, for example, by discussing the risks and benefits of a proposed treatment plan to allow for collaborative decision making. Dialogue, therefore, is the primary ‘human method’ of Feinstein’s environmental reasoning. It is what allows us to move beyond the question, ‘what is the best treatment for this particular disease?’, to ask ‘how should we care for this particular person?’ (1). Despite its swaths of ‘individualized’ data, precision medicine still only answers the disease-centered question, and not the person-centered one, which remains the most clinically relevant question.

Rather than dismissing dialogue as pertaining to the ‘art of medicine,’ with the attendant suggestion that it will remain vague and elusive (10,11), we must engage this ‘human’ side of clinical judgement head on. Twentieth-century philosopher Hans-Georg Gadamer did just this in applying his philosophical ideas to clinical medicine (15). A student of Martin Heidegger, Gadamer is best known for his work in the philosophy of interpretation, a field referred to as hermeneutics (16,17). Just as statistics and clinical epidemiology form the basis of Feinstein’s therapeutic reasoning, hermeneutic philosophy offers a central methodology for environmental reasoning. Indeed, a more recent wave of humanities scholars have applied hermeneutic philosophy to problems in clinical medicine and bioethics (18-20). There are also parallels between hermeneutics and narrative epistemologies in medicine, which share an attention to language and emphasize importance of first person engagement as essential for the creation of reliable knowledge (21-24).
Gadamer’s hermeneutic philosophy was concerned with the question of understanding—of how to reconcile two distinct perspectives, whether these be text and reader or partners in conversation. For Gadamer, mutual understanding is reached through a meeting of ‘life-worlds,’ of lived experiences, which he called a ‘fusion of horizons’ (16). Like the physician-patient encounter, this meeting is dialogical. As Gadamer argued ‘it is dialogue which constitutes the area of common ground between doctor and patient from beginning to end and which is able to break down the distance which lies between them’ (15).

‘The question’ is a key component of dialogue. Gadamer called this the ‘hermeneutic priority of the question’ (16). All interpretation begins with the question, which serves to open up one’s perspective to allow for the dialectical pursuit of mutual understanding. In medicine, as in interpretation, one must also give priority to the question both within dialogue but also by attending to the broader purpose and meaning of the clinical encounter. Reflecting on the question in the clinical encounter creates an ‘openness’—an openness to possibility, to fallibility, to learning, and being moved. This openness also necessitates epistemic humility in the recognition that interpretation is never final or complete. The dialectic of questions and answers allows the clinician to reconstruct the patient’s experience in an attempt to ‘bridge’ with their life-world (25). Through this hermeneutic approach, centered on the question, the physician can endeavor to meet with their patient’s lived experience, and in dialogue foster a shared understanding of health and illness.

Clinical Judgment and Phronesis

Hermeneutics also captures the moral dimension of clinical judgement. What constitutes a ‘good interpretation?’ , how can we know if we have reached a ‘right understanding?’ For Gadamer, understanding and interpretation requires the exercise of practical knowledge or phronesis. Phronesis can be defined as the ‘flexible, interpretive
capacity that enables moral reasoners to determine the best action to take when knowledge depends on the circumstance’ (20). The concept has found application in medical education, and is seen by some authors as a defining trait of a good physician (18,19,26,27).

*Phronesis* arises from the Aristotelian distinction between ‘theoretical knowledge’ (*episteme*) and ‘practical knowledge’ (*phronesis*). While theoretical knowledge concerns universal laws—the remit of the sciences (Naturwissenschaften)—practical knowledge is what is essential in the humanities (Geisteswissenschaften) (16). Practical knowledge or *phronesis*, unlike theoretical knowledge, is ‘directed towards the concrete situation,’ which must ‘grasp the ‘circumstances in their infinite variety.’ *Phronesis*, in contrast to *episteme*, does not involve ‘the capacity to subsume the individual case under a universal category.’ Rather, it presupposes a moral and ethical will: ‘the goal that one is pursuing so that the right thing may result.’ For Gadamer, the exercise of *phronesis* is key to developing hermeneutical understanding and for achieving ‘authenticity’ in interpretation.

*Phronesis* is a key competency for the practicing physician, highlighting the inescapable value-laden aspects of clinical practice and the clinician’s role as a moral reasoner. This emphasis on moral reasoning and practical knowledge overlaps with other virtue-based epistemologies in philosophy of medicine and bioethics (28). Some have even argued that EBM—the very ‘paradigm’ of quantitative reasoning—might be re-conceptualized as a virtue-based account of clinical judgement (29). Indeed, the most influential definition of EBM, ‘the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients,’ includes explicit reference to intellectual and moral virtues of ‘conscientiousness’ and ‘judiciousness’ (30). The virtuous clinician is one who critically considers the ‘totality’ of the evidence and applies this evidence in a manner that best serves the patient.
Despite the recent trends in data-driven approaches to clinical judgement—from EBM to big data analytics—at the core of these epistemologies is a moral commitment to ‘conscientiously’ and ‘judiciously’ use data and evidence to improve the health of individual patients. As we have seen, this motivation is also found in Feinstein’s original writings, despite the fact that the quantitative epistemologies of today move medicine further and further away from the person—away from the primacy of the physician-patient encounter. How do we navigate this tension? The answer might lie in the very question itself.

*Between Data and Dialogue: The Priority of the Question*

Returning to the ‘priority of the question’ and the dialogue it engenders can help us to diagnose the predicament of modern medicine, and allow us to better understand the tensions that have arisen between its ‘human’ and quantitative methodologies. This return to ‘the question’ may also help us begin to see how a possible consilience might be achieved between these different approaches. Addressing our initial question: ‘What is the nature of clinical judgement?’, we can see that clinical judgement is pluralistic, a feature captured by Feinstein’s early work on the subject.

Medicine’s pluralism necessitates multiple different approaches tailored to the specific questions we are seeking to answer. For example, clinimetrics helped us answer the questions ‘Does this patient have aortic regurgitation?’ (31), or ‘Is this patient having a myocardial infarction?’ (32). EBM’s clinical trials helped us address questions such as ‘Do beta-blockers reduce mortality in heart failure?’ (33), or ‘Does early initiation of antiretroviral therapy improve survival in HIV?’ (34). Precision medicine’s genomic data may help tell us ‘Which treatment will be most effective in this woman with breast cancer?’, and together with big data analytics answer the question ‘What is the expected prognosis?’ But none of these approaches can answer ‘What is the meaning of breast cancer for this newly married mother of two? What is
the impact of this disease on her life?’ And none answer the normative question, ‘What should be done?’ which arises in each and every clinical encounter (35).

As Feinstein wrote, ‘In the reasoning of therapeutic decision, the patient is a case—a representative instance of disease and illness... In the reasoning of environmental decision, the patient is a unique person for whom each aspect of management must be individualized’ (1). Clinical judgement requires negotiating the tension between these modes of reasoning—between data and dialogue—a negotiation that is always guided by the question at hand. Medicine’s new technologies and new sources of data may lead to diagnostic and therapeutic advances but it is the constancy of the human interaction—of caring for the person—that ultimately defines our profession.
References


