

No mere theory: Olli Miettinen's "The modern scientific physician"

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Knowledge of the fact differs from knowledge of the reasoned fact. — Aristotle, *Posterior Analytics*

What, exactly, are physicians up to when they pursue diagnoses and recommend treatments? What do they *think* they are doing? Suppose a physician is faced with two men in their fifties, each with anterior chest pain. The physician will likely have a definite and fairly standard way of proceeding toward a finding of, say, subacute coronary syndrome in one and gastroesophageal reflux in the other. He or she will be aware of, and will draw from as needed, any number of principles and protocols, algorithms and decision aids, physiologic and psychologic models and ethical frameworks. Any of these elements of practice may be held up by the wider community of medical practitioners to scrutiny, refinement or further trial. As they often are: the practice of medicine is engaged in an endless process of development and self-correction. But it would also be fair to say that medicine has not acquired the habit of reflecting on its own intellec-

tual habits. It does not have an articulated theory of itself. Despite the burgeoning of technologic marvels and improved rates of disease detection and survival, it could be that the quip "That's all very well in practice, but will it work in theory?" poses a valid question for medicine.

In this issue of *CMAJ* we begin a thought-provoking series of essays by Olli Miettinen.¹ An eminent member of the departments of epidemiology and biostatistics and of medicine at McGill University, and of the department of medicine at Weill Medical College at Cornell University, Miettinen has for many years been an influential figure in the development of epidemiologic theory and of medical research. In these 8 invited essays he provides a critical examination of contemporary medical reasoning and argues that medical practitioners and educators have been mistaken in their presumption that the basic sciences furnish an adequate theoretical underpinning for the practice of medicine. For generations since Osler, medical learning has been organized around a disease- and system-specific framework in the mould of the *Principles and Practice of*

Medicine. But this does not provide us with what Miettinen describes in the final essay of this series as “an intellectually tenable conceptualization of medicine itself, its essence.”

A fully realized critique of contemporary medicine would examine, among other things, the societal positioning of medical practice, modes of medical discourse and dissemination, conceptions of illness and suffering and of the mind–body (or body–soul) divide, ethical frameworks and the distribution of power. The focus of Miettinen’s critique is clinical reasoning. Fundamental to his analysis is a rejection of the Flexnerian understanding of modern medical practice as “science.” In so far as the practice of medicine is an art (or rather, a compendium of arts), it must strive to be a *scientific* art. In recent years, trial-based evidence has come to be seen as the guarantor of medicine’s “scientific-ness.” For Miettinen, however, there can be no claim to scientific practice where modes of reasoning lack rigour.

Thus Miettinen examines the illogicality of received notions such as sensitivity and specificity, the false distinction between effectiveness and efficacy, the “misguided” conception of diagnosis as intervention and confused ideas about the utility of screening. Perhaps most challengingly, he examines the logical difficulties of the probabilistic exercise we call diagnosis. The “proper theoretical framework” for pursuing a diagnosis, Miettinen argues, is a logistic regression model (an almost completely neglected model in diagnosis), and not the simplified, sequential application of Bayes’ theorem that is currently advocated. The patient’s diagnostic profile is continually “updated” and must be “*interpreted as a whole*,” taking into account the contextual implications of each piece of information.

For Miettinen, the essence of medicine is not intervention but the pursuit of particular forms of knowing, or gnosis. Diagnosis, etiognosis and prognosis (etiognosis meaning *knowledge of* the role of a potential cause, not the potential cause itself) reside in the physician’s mind and are the intellectual *telos* of medicine. The illness itself, its course, and its genesis reside in the experience of the patient. The physician’s knowledge of the patient’s health is particularistic, not abstract. Yet, in pursuing dia-, etio- and prognoses, the physician cannot view the patient as unique,

for then the patient’s health would be a completely unknown entity, his or her situation something never encountered before and hence unrecognizable, undecipherable. The challenge of diagnosis is to determine probabilities that are as specific as possible to a particular patient.

For Miettinen, the province of the physician is ultimately captured in the root of the word “doctor”: *docere*, to teach. In the penultimate essay he writes, “Might it not serve as a fundamental tenet of the theory of medicine that the clinician’s principal responsibility is to teach the client about his/her health — including ... how intervention might change it for the better?” At this point, the reader may step back from the often-surprising intricacies of Miettinen’s argument, to find that the patient comes, perhaps a little dimly, into view.

In part, Miettinen’s essays are a deconstructive exercise; with quietly assertive *politesse*, they take a velvet hammer to beliefs whose defence has become reflexive. (As in the statement: “No patient is unique.”) Not all readers will warm to their style. But critique and theory-building might be considered as creating positive and negative impressions of the same object: the former prods at what is missing or faulty; the latter asserts the principles that hold up structures of reasoning and action and that may be relied upon and imparted to others. Eventually, it is to be hoped, critical inquiry will find the statue in the marble it has fractured. If Miettinen succeeds, that figure will prove not to be the Aesculapian god-physician, whose practice is based on convention, supposition and mystique, but a new Hippocrates, whose scientific practice of the art of medicine is “learned, wise, modest and humane.”

Dr. Hoey is the Editor and Ms. Todkill the Deputy Editor of *CMAJ*.

Reference

1. Miettinen OS. The modern scientific physician: 1. Can practice be science? *CMAJ* 2001;165(4):441-2.

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