

Miriam Solomon

Making Medical Knowledge

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Reviewed by Leah McClimans, 2016

Narrated by Theodra Bane

Philosophy of medicine is a relatively young but thriving sub-specialty within philosophy of science. I was lucky to be at the center of its emergence, first as a research student at the London School of Economics and then as a post-doc at the University of Toronto, where Ross Upshur was already teaching what we now call "philosophy of epidemiology." Perhaps because of its beginnings, philosophy of medicine, especially its epistemology, is often associated with evidence-based medicine (EBM). And although there is much a philosopher can say about EBM, there is also much more to the epistemology of medicine than EBM. Miriam Solomon illustrates this point with great care and deliberation in *Making Medical Knowledge*. In this monograph Solomon provides a panoramic view of four methods in medicine that together illustrate the scope for knowledge-production in the field. It is the first attempt to capture what we might come to think of as a "general philosophy of medicine." It is an ambitious and timely project, which perhaps marks philosophy of medicine's coming of age. It should be of interest to feminist philosophers because of its inclusive approach to the subject, covering not only common themes in philosophy of medicine, for example, EBM, but also bringing patient narratives into the fold as legitimate sources of knowledge.

Four methods make up the content of this book: medical consensus conferences, evidence-based medicine, translational medicine, and narrative medicine. In juxtaposing these methods, Solomon illustrates the plurality of methods at work in creating medical knowledge. She argues, however, that these methods do not form a tidy jigsaw puzzle in which each method has its appropriate domain and counter-domain. Thus Solomon rejects the science/art divide in interpreting these methods: for example, EBM should not be understood as the scientific wing of medicine while narrative medicine represents the artistic branch. Rather, *Making Medical Knowledge* reveals an "untidy pluralism" in which multiple methods are sometimes applicable to the same problem, and sometimes these applications provide different and conflicting results. What's more--and for me particularly interesting--Solomon insists that our methods can surprise us. We often do not know before applying them which method will bear fruit. The result? Solomon argues we should not develop a meta-methodology for medicine. In a discipline where "meta" is often valued, this is a bold proposition. Furthermore, Solomon connects this element of surprise with the cultivation of epistemological humility and equipoise, qualities that mark an openness to considering the strengths and weaknesses that different methods have to offer. These virtues also characterize her approach to the text. In this case, *Making Medical Knowledge* is a distinctly feminist study. Solomon doesn't simply provide an analytic treatment of medical knowledge; she provides a conversation in which the reader is most definitely a partner.

In chapters 2-4 Solomon considers medical consensus conferences in significant detail. Indeed, she provides more historical and anecdotal detail in these chapters than elsewhere. Consensus conferences emerged in 1977 with the National Institutes of Health (NIH) Consensus Development Conference Program. This program then served as a model for other consensus conferences in the US and elsewhere. The NIH Program was developed in response to a worry in Congress that medical technologies, developed at the expense of taxpayers, were not being integrated effectively into clinical practice. The stated goals of the program were to speed up expert consensus regarding technical matters and disseminate the

consensus for clinical implementation (other, non-NIH consensus conferences considered broader ethical, social, and economic matters).

But as Solomon discusses, NIH consensus development conferences are not what they seem. Although panel members were tasked with developing a consensus, they rarely did so (the Program was discontinued in 2013). In the 1990s, NIH conferences were often held after a professional consensus had already emerged; in the 2000s an evidence report was commissioned for the questions being considered in advance of the conference. This evidence report essentially defined the consensus since anything more would be going beyond the available evidence. Nonetheless, these conferences were extremely popular.

There are other epistemic oddities regarding the use of consensus conferences as a whole. For instance, as Solomon points out, consensus conferences are not a common method by which scientists resolve controversy and yet that is partly what these conferences were/are meant to do. When a consensus statement is formally adopted by scientists, such as the Intergovernmental Panel on Climate Change (IPCC), it is not for the purpose of resolving controversy, but for the epistemic and political purpose of disseminating our most current scientific knowledge. Another curiosity is the empirical fact that group judgment is highly fallible. Face-to-face meetings that allow individuals to resolve disagreements may seem more objective and democratic than voting, but we know that they are subject to significant bias that can undermine the objectivity of the outcome.

In these chapters Solomon encourages the reader to take seriously the odd and surprising aspects of consensus conferences. She uses their idiosyncrasies to ask questions about the epistemic point of this methodology, and in doing so she illustrates a flair for interpretation (Gadamer 2013). Rather than conclude that consensus conferences are ill-conceived relics of a pre-evidence-based era, she reinterprets them as social epistemic rituals (I especially like this turn of phrase) important to the dissemination of trusted knowledge. What they actually accomplish is sometimes less important than what they are perceived to accomplish.

In chapters 5 and 6 Solomon turns her attention to another method in medicine: EBM. In the classic paper "Evidence-Based Medicine: A New Approach to the Teaching and Practice of Medicine," the Evidence-Based Medicine Working Group announced the arrival of a new paradigm for medicine (EBMWG 1992). But as Solomon discusses, EBM is not entirely new--it has roots in ancient "empiric medicine"--nonetheless, it is a forceful and attractive method that has changed the practice of medicine. Even so, however, it is not without vocal critics. In these chapters Solomon discusses three of these criticisms.

At the heart of EBM is the use of epidemiological and biostatistical ways of thinking to create and determine the best evidence for making clinical decisions. As the 1992 paper states, "Evidence-based medicine deemphasizes intuition, unsystematic clinical experience and pathophysiologic rationale as sufficient grounds for clinical decision making . . ." (p. 2420). This proclamation led to one of the first criticisms of EBM: the charge of "cookbook medicine." As Solomon repeatedly reminds us, this criticism is aimed to reveal EBM's (and occasionally other methods') depersonalized, one-size-fits-all methodology. Although EBM has attempted to redefine itself to be more sensitive to clinical expertise and experience, the criticism of "cookbook medicine" remains.

In chapter 5 Solomon discusses a second criticism of EBM: it devalues theoretical and mechanistic knowledge. As a method, EBM is not interested in how or why a particular intervention is effective; it is simply concerned with whether an intervention *is* effective. Some

see this narrow interest in success as problematic, arguing (rightfully) that knowledge of basic science and causal mechanisms is necessary for the implementation of the trials and studies that make up our evidence base. Solomon discusses in some detail Jeremy Howick's argument that pathophysiological and/or mechanistic understanding should be regarded as a kind of evidence with its own place in the evidence hierarchy (Howick 2011). Her response is to emphasize mechanistic reasoning over mechanistic evidence and thus the multiple roles that mechanisms can play in medical epistemology. Mechanistic reasoning is important, but rarely do mechanisms provide strong evidence. Rather than make room for them in the evidence hierarchy, Solomon suggests quite sensibly that we should resist thinking of EBM as a complete epistemology of medicine.

In chapter 6 Solomon considers a group of criticisms of EBM. These focus on the failures of one particular kind of EBM: the randomized controlled trial (RCT). RCTs are at or near the top of many hierarchies of medicine. These hierarchies rank study designs according to the perceived strength of their evidence (freedom from potential bias). The ranking of RCTs at or near the top of the hierarchy has meant that other study designs, for example, observational studies, are less epistemically valued. In part of this chapter Solomon discusses criticisms from a number of philosophers, such as John Worrall, who argue that RCTs are not so free from bias. For instance, randomization does not preclude selection bias. Criticisms such as this one aim to encourage more flexibility in taking seriously evidence from nonrandomized, nonblinded study designs. In another part of this chapter Solomon considers Nancy Cartwright's work concerning the difficulty of transporting the outcomes of a RCT to another, more realistic context (sometimes this is referred to as external validity). Cartwright argues and Solomon agrees that more than knowledge of mere effectiveness is needed when applying an intervention in a new context. In order to achieve external validity we also need local causal/mechanistic knowledge--which is another reminder that EBM is not a complete epistemology of medicine.

Chapter 7 examines the method of translational medicine. Here Solomon does an excellent job of making sense of a somewhat elusive method that has come to dominate funding calls and many journal articles. This chapter is particularly helpful for readers like me who have found this new terminology somewhat mysterious. Solomon structures the chapter around two kinds of translational medicine: T1 and T2. T1 focuses on translating discoveries at the "bench" to interventions at the "bedside" and then back again, hence the slogan "bench to bedside." T2 translates new medical interventions to clinical practice ("beside to community").

Solomon spends most of the chapter discussing T1. The first thing she helps us to understand is that although the language is new, the idea behind translational medicine is not. Applying scientific insights to develop therapeutic interventions has always been a goal of medicine. But translational medicine repackages this goal in the era of EBM and recontextualizes it as a need for interdisciplinary collaboration. To make this clearer, Solomon provides the following contrast: EBM typically focuses on the outcomes from Phase III trials, for example, trials that compare a new treatment with a standard treatment. There is thus pressure on researchers to move quickly to Phase III trials, and this pressure reduces the likelihood that risky and time-intensive efforts will be made to bring basic scientific insights to Phase I and II trials, for example, testing safety and dosage (Solomon writes that only a quarter of the findings from basic research make it to Phase III trials, and they take up to twenty years to get there). Nonetheless, Phase I and II trials are an essential if precarious link between the "bench" and "bedside." The point of translational medicine is to target pathophysiological and mechanistic thinking acquired in basic science and move it forward to early phase trials.

In her characterization of translational medicine, Solomon exhibits a spirit of risk-taking and genuine inquiry. It is an attitude that seems to embrace the messiness of science, acknowledging that we cannot know in advance what might work and that failure is easier than success, but nonetheless worthwhile and important. After almost twenty-four years of EBM, such a methodology is refreshing. Solomon goes on to interpret those working in this area as practicing applied social epistemology and argues that they are "re-engineering the scientific enterprise--perhaps for the first time since the birth of the 'Big Science' era in the post-World War II years" (167). Doesn't that sound exciting? In positioning translational medicine in such a way she opens (I hope) a new area of inquiry for social epistemologists interested in biomedical practice.

In chapter 8 Solomon concentrates on narrative medicine, her fourth and final method. The point of narrative medicine varies with different theorists (see McClimans 2016), but the general idea is that moral and epistemic benefits follow from paying attention to the narrative form of illness stories. Solomon concentrates on the epistemic benefits and in doing so identifies four narrative competences that she suggests are important to the employment of narrative medicine: listening to and witnessing, empathy, narrative detective work, and making meaning. In summary, those applying narrative medicine must be attuned to the story being told, must adopt the logic of the story, must allow the story to raise questions and ask them, and finally, strive to give the story significance by finding a part/whole relationship.

Solomon is more critical of narrative medicine than she is of the other three methods. She argues against some narrative theorists who believe narrative reasoning has a *sui generis* logic. She argues against those who emphasize the singularity of individual illness narratives. Here Solomon stresses the uniformity of plot devices, for example, the quest, restitution, and the way that these plots can limit the kinds of stories we are allowed to tell. For instance, in women's reproductive health, "the quest" and "rebirth" plots normatively shape the stories women--especially mothers--are allowed to tell (Kukla 2008). She considers it odd that narratives are often false or only partially complete, and yet proponents of narrative medicine often require that they be taken to be true (or provisionally true). Finally, she argues that narrative medicine is not suitable for many health care contexts, for example, when health care is delivered by teams of clinicians or when clinicians are not particularly skilled in attending to the psychosocial needs of their patients.

To my mind some of these criticisms are closer to the mark than others. Yet it is stimulating to

find narrative medicine given serious attention as a method of social epistemology. Indeed, for some narrative theorists (for example, Frank 1997) a good deal of the battle for narrative medicine is trying to convince others that illness stories are a form of *knowledge*. Solomon deserves credit for thinking outside disciplinary and tribal boundaries. In doing so she provides more convincing evidence of her claim to move beyond the science/art dichotomy than mere argument could do.

Yet arguments are helpful too, especially when they include concrete examples. In the final pages of *Making Medical Knowledge*, Solomon argues for a developing, untidy methodological pluralism. Here she illustrates by way of examples (cystic fibrosis, type 1 diabetes, and screening mammography for women aged 40-49) how these methods can complement, overlap, and sometimes contradict and clash. Although we can strive to minimize dissent among the outcomes of our methods, we cannot do away with it as a possibility. Solomon teaches us that methods in medicine may come and go and come back again (slightly altered), but a tidy division of labor is not needed or likely.

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Leah McClimans is an associate professor in the Philosophy Department and Undergraduate Director for Women's and Gender Studies at the University of South Carolina. Her research is at the intersection of philosophy of medicine, medical ethics, and philosophical hermeneutics. She is particularly interested in aspects of women's health. Recent publications include "Place of Birth: Ethics and Evidence" (in *Topoi*, 2015), "Outcome Measures in Measurement (in *Routledge Companion for Philosophy of Medicine*), and "A Dialogic Approach to Narrative Medicine" (in *Inheriting Gadamer: New Directions in Philosophical Hermeneutics*).

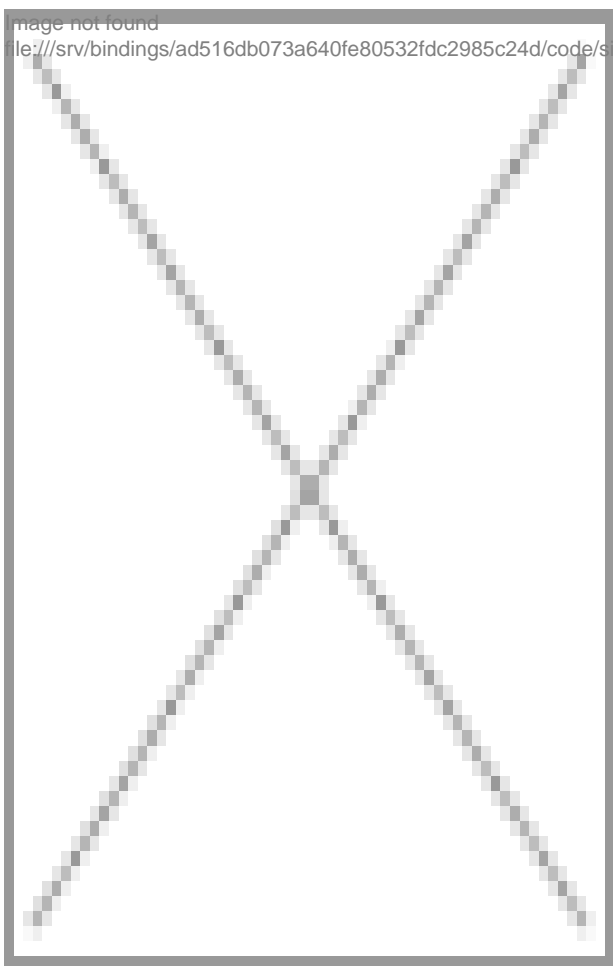


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