Tabla de Contenidos

Causalidad en ciencias de la salud

Novedades

Causality, Probability, and Medicine, Donald Gillies

- Reseña del libro, por Ranil Lill Anjum

Medical scientists and philosophers worldwide appeal to EBM to expand the notion of 'evidence'

Bibliografía

- Metabiología
- Anjum, R.L., Mumford, S., Dispositional Modality (2011)
- Anjum, R.L., Causation in Scientific Methods (2016)
- Landes, J. et at, Epistemology of Causal Inference in Pharmacology: Towards a Framework for the Assessment of Harms (2016)
- Mumford, S. Causal Powers and Capacities (2010)
- Mumford, S., Lill Anjum, R., A Powerful Theory of Causation (2010)
- Mumford, S.; Lill Anjum, R, Getting Causes from Powers (2011)
- Mumford, S, Anjum, R.L., Causation in Science (forthcoming) (abstracts available)
- **Journal of Evaluation in Clinical Practice**, Special Issue: 2017, Philosophy Thematic Issue, October 2017, Volume 23, Issue 5, Pages 903–1131
    - Reasoning, evidence, and clinical decision-making: The great debate moves forward (pages 905–914) PDF
    - Managing uncertainty in diagnostic practice (pages 959–963), Ashley Graham Kennedy
    - A philosophical argument against evidence-based policy (pages 1045–1050), Rani Lill Anjum and Stephen D Mumford

http://extendedevolutionarysynthesis.com/getting-into-the-weeds-individual-plasticity-and-adaptive-variation/

https://www.researchgate.net/publication/322836323_Everything_Flows_Towards_a_Processual_Philosophy_of_Biology

Biología sintética vs. Biología evolutiva

http://isegoria.revistas.csic.es/index.php/isegoria/article/view/948

La Medicina Basada en Evidencia implica una ontología de la causalidad

Rani Lill Anjum: “the more common view is Evidence based medicine (EBM) in methodology plus some

person centered healthcare (PCH) in practice. Philosophically, however, I try to show that it also depends on it how we think about causation, probability & complexity. If probabilities are understood as singular and property based (propensities) methodology wouldn't favour statistical averages (or frequencies). So in that sense ontology can motivate scientific methods & interpretations of results. Contrary to the Standard Probability Theory [1)], in the #CauSciBook we argue for a **dispositionalist propensity singularist understanding of probability**." Twitter thread

Bibliografía

Landes, J. et at, Epistemology of Causal Inference in Pharmacology: Towards a Framework for the Assessment of Harms (2016)

Evidence based or person centered? An ontological debate
Evidence based medicine (EBM) is under critical debate, and person centered healthcare (PCH) has been proposed as an improvement. But is PCH offered as a supplement or as a replacement of EBM? Prima facie PCH only concerns the practice of medicine, while the contended features of EBM also include methods and medical model. I here argue that there are good philosophical reasons to see PCH as a radical alternative to the existing medical paradigm of EBM, since the two seem committed to conflicting ontologies. This paper aims to make explicit some of the most fundamental assumptions that motivate EBM and PCH, respectively, in order to show that the choice between them ultimately comes down to ontological preference. While EBM has a solid foundation in positivism, or what I here call Humeanism, PCH is more consistent with causal dispositionalism. I conclude that if there is a paradigmatic revolution on the way in medicine, it is first of all one of ontology.

A philosophical argument against evidence-based policy
Rationale, aims and objectives
Evidence-based medicine has two components. The methodological or ontological component consists of randomized controlled trials and their systematic review. This makes use of a difference-making conception of cause. But there is also a policy component that makes a recommendation for uniform intervention, based on the evidence from randomized controlled trials.
Methods
The policy side of evidence-based medicine is basically a form of rule utilitarianism. But it is then subject to an objection from Smart that rule utilitarianism inevitably collapses. If one assumes (1) you should recommend the intervention that has brought most benefit (the core of evidence-based policy making), (2) individual variation (acknowledged by use of randomization) and (3) no intervention benefits all (contingent but true), then the objection can be brought to bear.
Conclusions
A utility maximizer should always ignore the rule in an individual case where greater benefit can be secured through doing so. In the medical case, this would mean that a clinician who knows that a patient would not benefit from the recommended intervention has good reason to ignore the recommendation. This is indeed the feeling of many clinicians who would like to offer other interventions but for an aversion to breaking clinical guidelines.

What Evidence? Whose Medicine? And On What Basis?
The Philosophers' Magazine, Issue 77, 2nd Quarter 2017, Paradoxes, Rani Lill Anjum, Pages 35-40, DOI: 10.5840/tpm20177745
What's wrong with Evidence Based Medicine

EBM+

EBM+ is a consortium taking part in a 3-year, AHRC-funded research project called ‘Evaluating Evidence in Medicine’. Our aim is improve Evidence Based Medicine (EBM) by developing innovative new ways of finding and evaluating different types of clinical evidence, in order to better inform medical decisions.

Universal etiology, multifactorial diseases and the constitutive model of disease classification (PDF online)
Jonathan Fuller
Infectious diseases are often said to have a universal etiology, while chronic and noncommunicable diseases are said to be multifactorial in their etiology. It has been argued that the universal etiology of an infectious disease results from its classification using a monocausal disease model. In this article, I will reconstruct the monocausal model and argue that modern 'multifactorial diseases' are not monocausal by definition. ‘Multifactorial diseases’ are instead defined according to a constitutive disease model. On closer analysis, infectious diseases are also defined using the constitutive model rather than the monocausal model. As a result, our classification models alone cannot explain why infectious diseases have a universal etiology while chronic and noncommunicable diseases lack one. The explanation is instead provided by the Nineteenth Century germ theorists.

Políticas basadas en evidencia científica

El proyecto Ciencia en el Parlamento busca “promover una cultura de formulación de políticas basada en la evidencia (científica)”.

¿Cómo afecta la cuestión de qué es “evidencia” al tipo de conocimientos que pueden pasar a la legislación como “verdades”?

Proyecto CauseSci

Interdisciplinary research project CauSci - Causation in Science - project ended in 2015.

- https://en.wikipedia.org/wiki/Causation_in_Sciences_Project
- https://twitter.com/CauSci
- Mumford, S, Anjum, R.L., Causation in Science (forthcoming) (abstracts available)

Ver #CauSciBook

Proyecto CauseHealth

Research project at Norwegian University of Life Sciences. CAPS: Causation, Complexity and Evidence in Health Sciences.

- https://twitter.com/Cause_Health
- https://raniblogsaboutcausation.wordpress.com/
- http://www.sorites.org/Issue_19/anjum.htm
- https://sites.google.com/site/stephendmumford/home/unpublished-work

Blog

- Capturing the Colour: Classification and its Consequences. In this blog post, @blaatimen shares his thought about asking people to describe their pain on a 1-10 scale.

ERG Seminar Series presents...

Causation and Scientific Methods in Medicine and Beyond

Rani Lill Anjum

Wednesday 17th January, Room 1.17 Dugald Stewart Building, 3.30-5.00pm

Abstract:
The ideal of a metaphysics-free science is very much alive, and can be seen in the growing emphasis on so-called evidence-based approaches. Originating in medicine, this trend explicitly favours quantitative over qualitative methods, and large-scale observation data over theories of causal mechanisms. But what motivates the choice of one scientific method over another? And what justifies the claim that some methods are better for uncovering causation than others? Scientists need to get their hands dirty with ontology. Science cannot be free from ontology, nor should this be an ideal. Instead, scientists ought to be aware of which philosophical assumptions they are making when designing their own studies. In our forthcoming book, Causation in Science and the Methods of Scientific Discovery (OUP 2018), Mumford and I argue that all scientific methods carry with them some commitment about the nature of causation. A problem with this is that different methods are motivated by different notions of causation, which means that they might give diverging results. So which should we trust?

In this talk, I will show how philosophy and science are interconnected in their endeavours to understand causation, whether theoretically or empirically. My aim is to argue that the positivist metaphysics-free ideal, with its heavy influence from Hume, ought to be replaced with a different philosophical framework, better suited to deal with the messy, real-life causal phenomena with which we are concerned. I will use medicine as my main example.

***Dr. Rani Lill Anjum** is a research fellow in philosophy at the Norwegian University of Life Sciences. Her main research interests are in causation, philosophy of logic and health sciences. Her latest book Causation in Science - On the methods of scientific discovery was released in 2016.*

The Guidelines Challenge

The idea of the conference was to discuss some challenges facing anyone developing and implementing clinical guidelines in the evidence based era of medicine. Some challenges relate to philosophical foundations of medicine:

- How to study and understand causal complexity if causes must be established one by one, or in isolation?
- How to deal with large individual variations if the same cause is supposed to give the same effect, under some normal or ideal conditions?
- How to make causal decisions about an individual case if the causal evidence is largely statistical?
- How to understand illness as belonging to the whole person if this whole is studied through fragmentation; part-by-part?
- What is The Guidelines Challenge?
- Canal en YouTube con vídeos de las ponencias

Evidence-based medicine en "The Reasoner"

La revista online The Reasoner contiene una sección en cada número denominada **Evidence-based medicine** dirigida por Michael Wilde.

Systems Medicine

John Williamson, editor y fundador de la revista The Reasoner, investiga la denominada Systems Medicine y ha escrito en febrero de 2017 un paper titulado Models in Systems Medicine.

Systems medicine is a promising **new paradigm for discovering associations, causal relationships and mechanisms in medicine**. But it faces some tough challenges that arise from the use of big data: in particular, the problem of how to integrate evidence and the problem of how to structure the development of models. I argue that objective Bayesian models offer one way of tackling the evidence integration problem. I also offer a general methodology for structuring the development of models, within which the objective Bayesian approach fits rather naturally.

Systems medicine applies systems approaches, analogous to those used in systems biology, with the aim of improving medical treatment and progressing medical science. These approaches are often described as ‘data-intensive’ or ‘data-driven’ because they attempt to draw inferences from a variety of large datasets. This paper explores two problems that face systems medicine. First, there is the problem of diversity of evidence: in addition to large amounts of data (‘big data’), the available evidence tends also to be very heterogeneous, and the question arises as to how the whole range of evidence can be integrated in a coherent manner, to enable reliable inferences. The second problem is that of diversity of models: systems medicine employs different models for different purposes, and it is often far from clear as to how these models relate to one another. Can anything be done to shed light on the relationships between models?

This paper develops a normative response to these problems. It puts forward an approach based on Bayesian epistemology for integrating multiple datasets. It then puts forward a way to integrate evidence of mechanisms, which can often be qualitative, into the resulting quantitative models. (This approach can be thought of as a contribution to the EBM+ programme, which seeks ways of integrating evidence of mechanisms with evidence of associations in order to lead to better outcomes in medicine—see ebmplus.org.) The paper goes on to suggest that Bayesian networks can provide a unified modelling formalism. (This conclusion, if not the detail of the approach, is in line with that of Landes et al. (2017), who present a Bayesian network modelling framework for inference in pharmacology.) There is no claim that the framework developed here is the only way to tackle the foundational problems that face systems medicine, but it is hoped that the present attempt will encourage others to tackle these problems.

The paper is structured as follows.

1. §1 introduces systems medicine and notes that its appeal to a wide variety of data makes it a promising new paradigm for medical research. However, progress in systems medicine has not been as rapid as some have anticipated.
2. In §2 it is suggested that this slow progress might be explained by the enormity of the challenges faced by systems medicine. Two challenges stand out as particularly pressing: how should the massive amount of evidence in systems medicine be integrated? how should one go about modelling in systems medicine?

3. In §3 I classify models in systems medicine as being of four kinds: quantitative models of association; quantitative causal models; qualitative mechanistic models; and quantitative mechanistic models. In §4 I show how objective Bayesian epistemology can be applied to data integration and how an objective Bayesian net can be used as an association model. In §5 I then sketch a principled way of generating a causal model, and of structuring the development of models in systems medicine in general.

1)

Any standard logistic regression model with a continuous covariate can issue a separate probability for each patient. It's a commonplace of frequentist statistics. Stephen John Senn on Twitter