



Medical Ethics in the 21st Century: Challenges and Opportunities

Ross E.G. Upshur BA(Hons.)MA,MD,MSc,CCFP,FRCPC

Head, Division of Clinical Public Health, Dalla Lana School of Public Health

Scientific Director, Bridgepoint Collaboratory for Research and Innovation

Assistant Director, Lunenfeld Tanenbaum Research Institute, Sinai Health System

Professor, Department of Family and Community Medicine and DLSPH

University of Toronto

FACULTY/PRESENTER DISCLOSURE

- Faculty: Ross Upshur
- Relationships with commercial interests:

None

MITIGATING POTENTIAL BIAS

I have no conflicts of interest, I have many conflicts with interests!



"I just want to apologize beforehand if you miss."

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COLLECTION

Australian Contribution to Medical Ethics



Overview

- Personal Reflections
- Medical Codes of Ethics: Evolution and Limitations
- 5 Emerging Challenges
- Some Thoughts on the Future

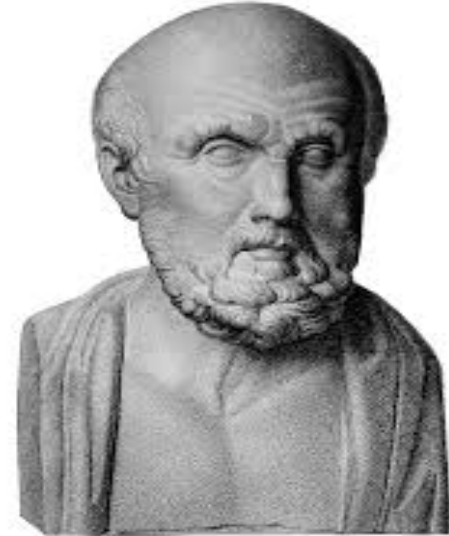


1986

- No computers
- No Internet
- No social media
- No EBM
- Genome not sequenced
- No statins
- HIV just recognized as important pathogen
- Etc etc!

Hippocrates

- The doctor should declare what has happened before, understand what is present and foretell what will happen in the future. That is what he should practice. As to diseases he should strive to achieve two things: to help or to do no harm.
- Distinguish that what is particular to each common to every



Goals of Medicine

- Preserve Health and Well-Being
- Promote Health
- Prevent Disease
- Treat Illness
- Cure Illness
- Minimize Suffering and Distress
- Assure the health of the community

Medical Ethics and Codes of Ethics

- Ancient lineage
- Most national medical associations support their own code or endorse World Medical Association
- Unclear the extent to which practicing clinicians engage with them

Codes of Ethics

- Typically specify obligations to patients, peers, the profession, and society
- Evolve over time through serial revision
- In no way fixed or eternal
- Often reflect pressing issues related to external pressures : e.g. radio, reproductive technologies, rights discourse

CMA Code of Ethics 1868

- 10 articles of patients obligations to physicians!
- “A patient should never weary his physician with a tedious detail of events or matters not appertaining to their disease.”
- “The obedience of a patient to the prescriptions of his physician should be prompt and implicit.”

Supererogation

- 1868-1928 CMA Codes of Ethics
- “When pestilence is upon the people it is their duty to continue their work for the alleviation of suffering even at the jeopardy of their own lives.”

Waxing and Waning Social Responsibility

- 1938 Code of Ethics
- “Every physician, whatever his special training, should be officially or unofficially, a servant of the state for the betterment of health.”

Medical Ethics

- Continues to be poorly taught in undergraduate and post graduate context
- Hidden curriculum predominates
- Very little engagement at the level of continuing professional development
- Eclipse by concerns with professionalism

Medicine is Changing

- Aging
- Chronic Diseases
- Big Data
- Quality and Accountability for performance
- Practice organization
- Globalization
- Need to engage social determinants

5 Key Challenges

1. Technology (particularly Information Technology)
2. Inter-professionalism
3. Intra-Professionalism
4. Globalization
5. Medicine itself

An effective, adaptive, and personalized learning experience

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Meaning and the Nature of Physicians' Work

David I. Rosenthal, M.D., and Abraham Verghese, M.D.

N Engl J Med 2016; 375:1813-1815 | November 10, 2016 | DOI: 10.1056/NEJMp1609055

 Comments open through November 16, 2016

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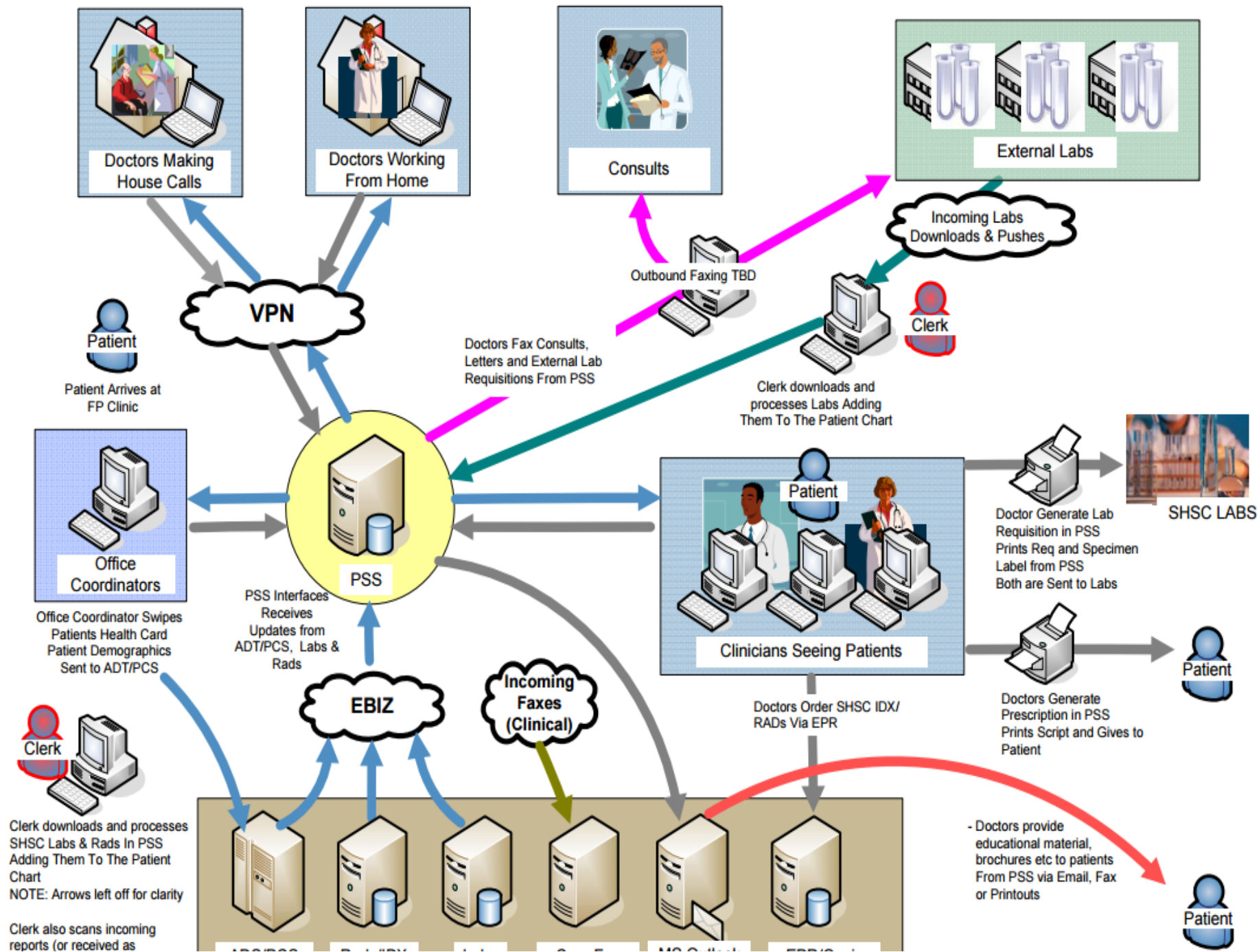
Metrics

Technology

- Complexity
- Internet/Information
- Social Media
- Challenges to expertise
- Trust in medicine
- Resource Allocation



"I'm sorry, the doctor no longer makes diagnoses."





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Viewpoint | Innovations in Health Care Delivery



December 13, 2016

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Adapting to Artificial Intelligence Radiologists and Pathologists Specialists

Saurabh Jha, MBBS, MRCS, MS¹; Eric J. Topol, MD²

» Author Affiliations

JAMA. 2016;316(22):2353-2354. doi:10.1001/jama.2016.17438

Editorial
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Editorial



December 13, 2016

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Translating Artificial Intelligence Into Clinical Care

Andrew L. Beam, PhD¹; Isaac S. Kohane, MD, PhD¹

» Author Affiliations

JAMA. 2016;316(22):2368-2369. doi:10.1001/jama.2016.17217

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Predicting the Future — Big Data, Machine Learning, and Clinical Medicine

Article • October 10, 2016

Ziad Obermeyer, MD & Ezekiel J.
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Viewpoint | May 22, 2014

Finding the Missing Link for Big Biomedical Data

FREE

ONLINE FIRST

Griffin M. Weber, MD, PhD^{1,2}; Kenneth D. Mandl, MD, MPH^{1,3}; Isaac S. Kohane, MD, PhD^{1,3}

[\[+\] Author Affiliations](#)

JAMA. Published online May 22, 2014. doi:10.1001/jama.2014.4228

Text Size: **A** A A

Article

Figures

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From: Finding the Missing Link for Big Biomedical Data

JAMA. 2014;():. doi:10.1001/jama.2014.4228

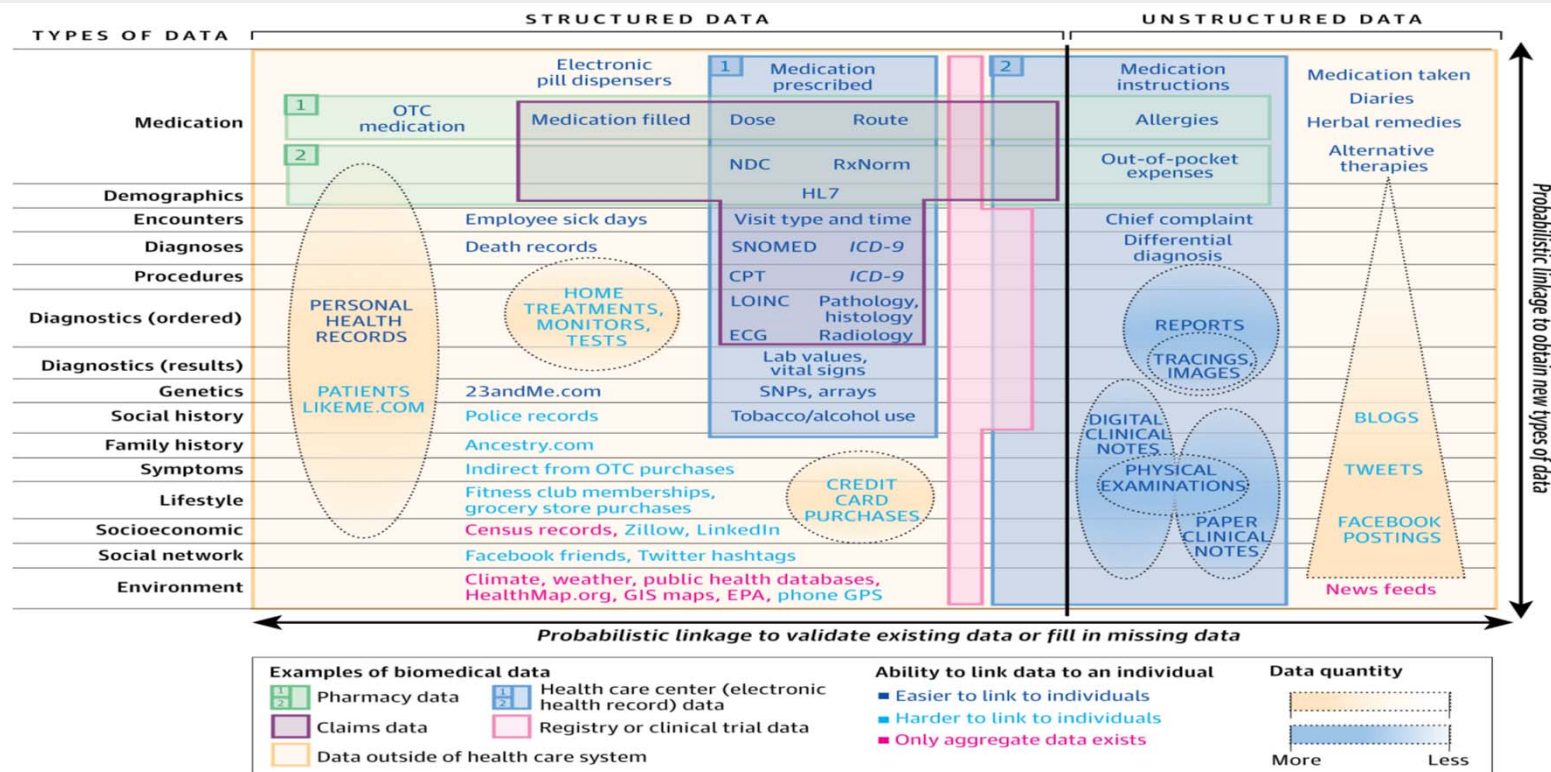


Figure Legend:

The Tapestry of Potentially High-Value Information Sources That May be Linked to an Individual for Use in Health Care CPT indicates current procedural terminology; ECG, electrocardiography; EPA, US Environmental Protection Agency; GIS, geographic information systems; GPS, global positioning system; HL7, Health Level 7 coding standard; ICD-9, Institutional Classification of Diseases, Ninth Revision; LOINC, Logical Observation Identifiers Names and Codes; NDC, National Drug Code; OTC, over-the-counter; SNOMED, Systematized Nomenclature of Medicine; SNP, single-nucleotide polymorphism.

Date of download: 5/23/2014

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Implications of New Technology

- **Second, machine learning will displace much of the work of radiologists and anatomical pathologists.** These physicians focus largely on interpreting digitized images, which can easily be fed directly to algorithms instead. Indeed, radiology is already partway there: algorithms can replace a second radiologist reading mammograms and will soon exceed human accuracy.

Implications of New Technology

- Improved diagnostics, prognostics, reduction of error
- More efficiency, better costing
- Improved research and quality improvement
- Concerns regarding overpromising
- Hollowing out of cognitive labour
- Impact of 4th Industrial Revolution:
technological unemployment of physicians

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doi:10.1016/S0140-6736(10)61854-5 [\(?\) Cite or Link Using DOI](#)

Published Online: 29 November 2010

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Health professionals for a new century: transforming education to strengthen health systems in an interdependent world

Prof [Julio Frenk MD](#)  , Dr [Lincoln Chen MD](#)  , Prof [Zulfiqar A Bhutta PhD](#) , Prof [Jordan Cohen MD](#) , [Nigel Crisp KCB](#) , Prof [Timothy Evans MD](#)  , Prof [Harvey Fineberg MD](#) , Prof [Patricia Garcia MD](#) , Prof [Yang Ke MD](#) , Prof [Patrick Kelley MD](#) , Prof [Barry Kistnasamy MD](#)  , Prof [Afaf Meleis PhD](#) , Prof [David Naylor MD](#) , Prof [Ariel Pablos-Mendez MD](#) , Prof [Srinath Reddy MD](#) , Prof [Susan Scrimshaw PhD](#)  , Prof [Jaime Sepulveda MD](#) , Prof [David Serwadda MD](#) , Prof [Huda Zurayk PhD](#) 

Lancet Commission

- To advance third generation reforms the Commission puts forward a vision: all health professionals in all countries should be educated to mobilize knowledge and to engage in critical reasoning and ethical conduct so that they are competent to participate in patient and population-centred health systems...
- In other words, all health professionals need to be applied philosophers!

Inter-professional Ethics

- Health care increasingly team based
- No longer clear that the physician is always the most appropriate lead clinician
- Boundary wars/scope of practice
- Still do a poor job of educating health care professionals in team based care
- Even less attention to team based ethics

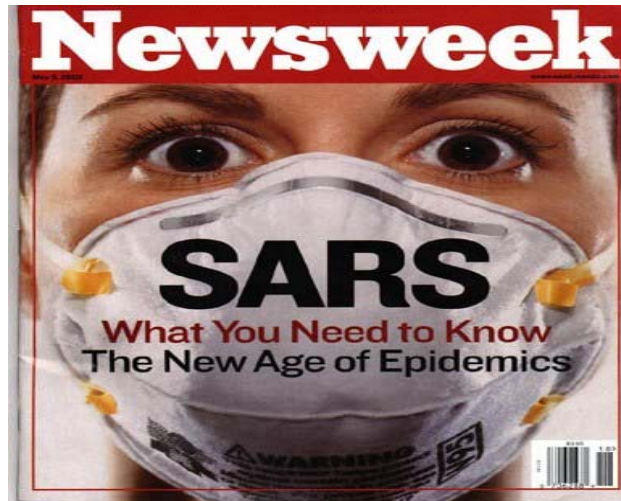
Intra-professional Ethics

- A common theme of codes of ethics over the years
- Responsibilities to self and others
- Governance of the profession
- Fees, referrals
- Intergenerational Issues
- Moral Conflict

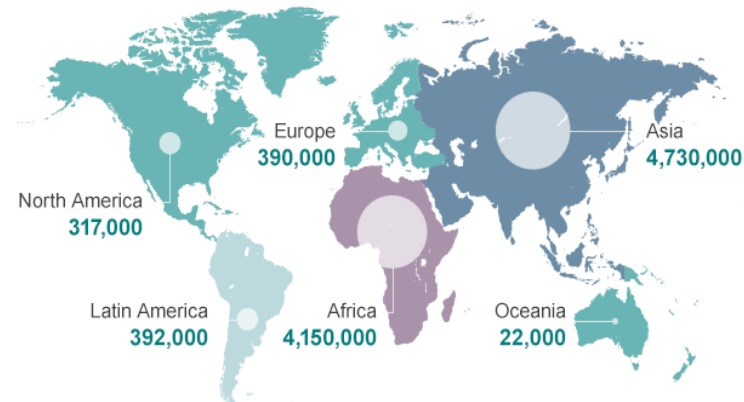
- Reconciliation of divergent moral world views is by no means straightforward and little in medical training prepares physicians for addressing these issues in their relationships with patients and with peers (both physicians and all other health disciplines.)



Globalization



Deaths attributable to antimicrobial resistance every year by 2050



Source: Review on Antimicrobial Resistance 2014



Vision of Medicine No Longer Unitary

More Science Leaning

- Evidence-based Medicine
- Precision Medicine
- Personalized Medicine

More Humanities/Social Sciences Leaning

- Values Based Medicine
- Narrative Based Medicine
- Person Centred Medicine
- Patient Centred Medicine

The Biggest Challenge in the 21st Century: Will We Still Need Physicians



Medicine is a science of uncertainty and an
art of probability





CME ➤



Uncertainty in the Era of Precision Medicine

N Engl J Med 2016; 375:711-713 | August 25, 2016 | DOI: 10.1056/NEJMp1608282

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Uncertainty

(From Djulbegovic, Hozo, Greenland 2011)

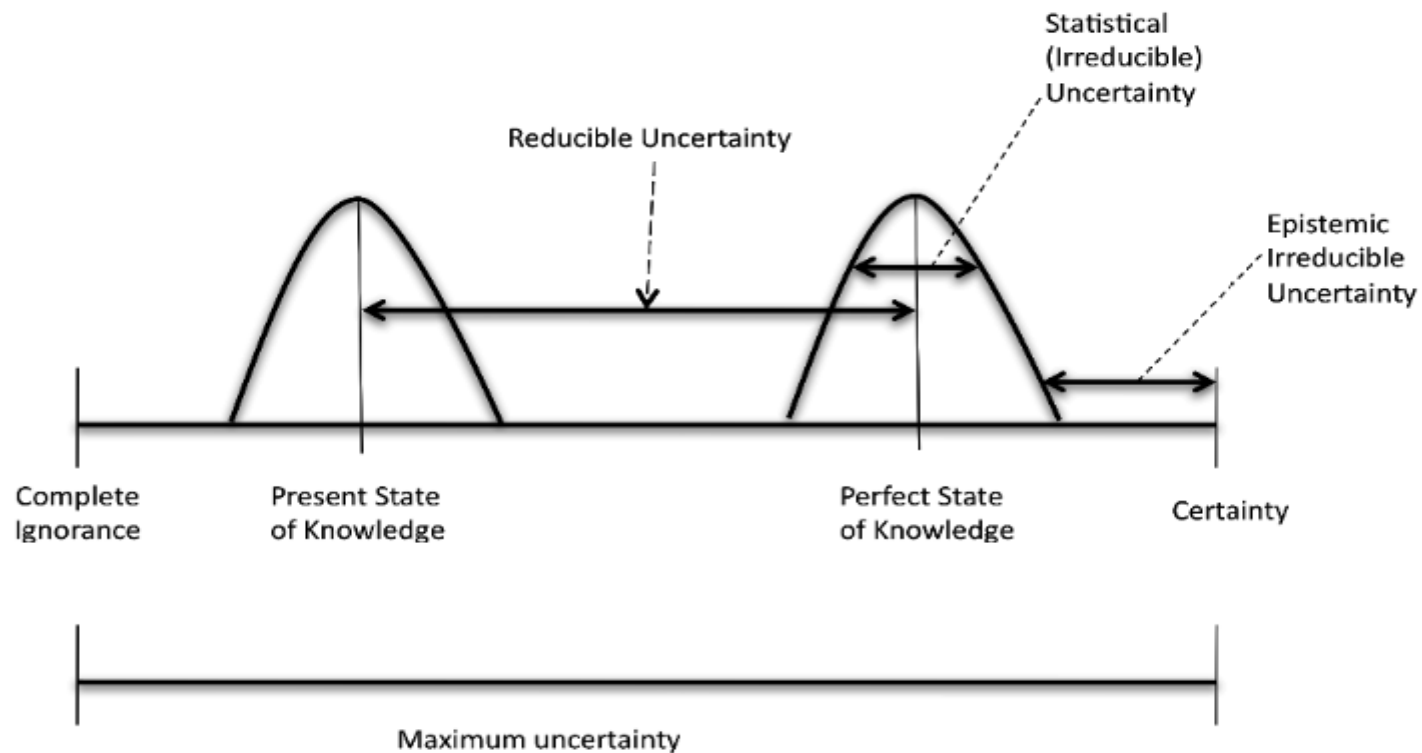


Figure 1. Relationship between knowledge and uncertainty

Uncertainty

- Science is one manner in which to reduce uncertainty.
- Uncertainty has various dimensions
- One stems from lack of knowledge when knowledge is available
- EBM seeks to inculcate life long learning strategies to reduce this

Uncertainty

- The more important sense of uncertainty relates to incomplete knowledge
- Research attempts to fill/ reduce this incompleteness
- At the time decisions are required, appropriate evidence may not be available or there may not be agreement on its interpretation

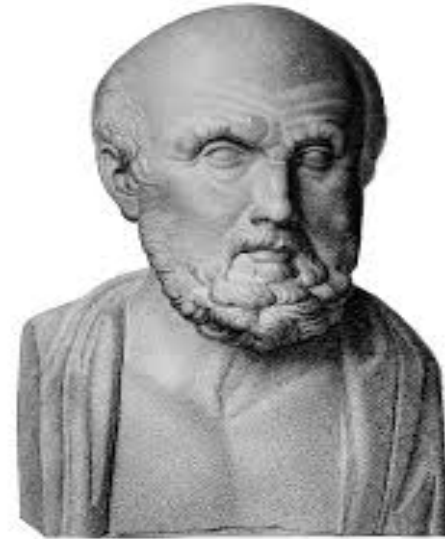
Uncertainty

- Uncertainty is ineradicable in medicine
- Therefore Valerie Mike proposed the following two imperatives for an ethics of evidence
- to create, disseminate, and use the best possible scientific evidence as a basis for every phase of medical decision making
- to increase awareness of, and come to terms with, the extent and ultimately irreducible nature of uncertainty.

Ethics and Medicine

- Will codes of ethics make a difference?
- What type of ethics: virtue based, principle based?
- Will professionalism eclipse ethics?
- Will the profession recognize that ethics are constitutive to their claims to legitimacy?

Life is short, the art
long, opportunity
fleeting, experiment
treacherous and
judgment difficult.





"You can't list your iPhone as your primary-care physician."