Mobilising Computable Biomedical Knowledge – A Global Opportunity

Philip Scott
Wendy Chapman
Enrico Coiera
Guilan Kong
Charles Friedman

MCBK
MobilizingComputableBiomedicalKnowledge

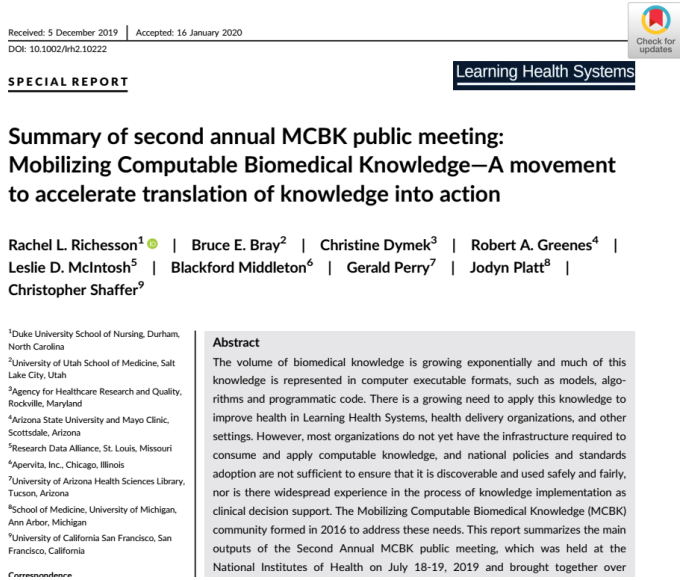
Workshop outline

- Introduction – who's in the room?
- Context
  - Global expansion of MCBK (5 min) – Philip Scott
  - MCBK in China (5 min) – Guilan Kong
  - MCBK in Australasia (5 min) – Wendy Chapman
- Discussion: MCBK in your region (25 min)
- Closing summary: Next steps? (10 min) – Philip / Wendy

Growth of the MCBK initiative

- Initiated 2017, University of Michigan.
- First public meeting, 2018, Manifesto developed.
- Further public meetings in 2019 & 2020.
- Working groups on infrastructure, standards, trust & policy, sustainability & inclusion.
- Regular papers in *Learning Health Systems* journal.

- https://mobilizecbk.med.umich.edu/



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Check for updates

SPECIAL REPORT

Learning Health Systems

Summary of second annual MCBK public meeting: Mobilizing Computable Biomedical Knowledge—A movement to accelerate translation of knowledge into action

Rachel L. Richesson[1] | Bruce E. Bray[2] | Christine Dymek[3] | Robert A. Greenes[4] | Leslie D. McIntosh[5] | Blackford Middleton[6] | Gerald Perry[7] | Jodyn Platt[8] | Christopher Shaffer[9]

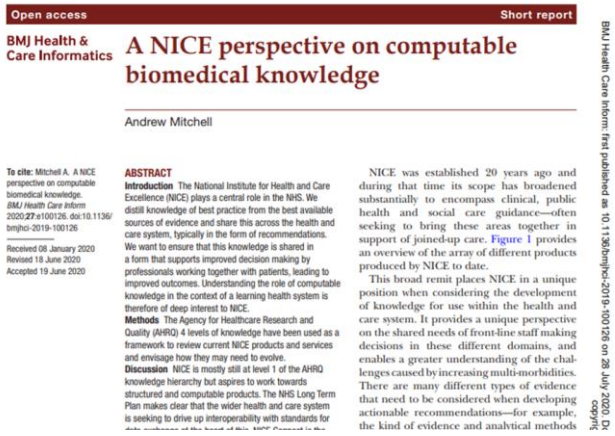
[1]Duke University School of Nursing, Durham, North Carolina
[2]University of Utah School of Medicine, Salt Lake City, Utah
[3]Agency for Healthcare Research and Quality, Rockville, Maryland
[4]Arizona State University and Mayo Clinic, Scottsdale, Arizona
[5]Research Data Alliance, St. Louis, Missouri
[6]Apervita, Inc., Chicago, Illinois
[7]University of Arizona Health Sciences Library, Tucson, Arizona
[8]School of Medicine, University of Michigan, Ann Arbor, Michigan
[9]University of California San Francisco, San Francisco, California

Abstract

The volume of biomedical knowledge is growing exponentially and much of this knowledge is represented in computer executable formats, such as models, algorithms and programmatic code. There is a growing need to apply this knowledge to improve health in Learning Health Systems, health delivery organizations, and other settings. However, most organizations do not yet have the infrastructure required to consume and apply computable knowledge, and national policies and standards adoption are not sufficient to ensure that it is discoverable and used safely and fairly, nor is there widespread experience in the process of knowledge implementation as clinical decision support. The Mobilizing Computable Biomedical Knowledge (MCBK) community formed in 2016 to address these needs. This report summarizes the main outputs of the Second Annual MCBK public meeting, which was held at the National Institutes of Health on July 18-19, 2019 and brought together over

Genesis of MCBK-UK

- First discussions June 2019, first conference October 2019.
  - Reports in special issue of *BMJ Health & Care Informatics*: https://informatics.bmj.com/content/27/2
  - Videos on YouTube: https://www.youtube.com/playlist?list=PLn7CfTWFFBSzTZtK4bTpo7Q2kBLjr0RUM



Open access Short report

BMJ Health & Care Informatics

A NICE perspective on computable biomedical knowledge

Andrew Mitchell

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ABSTRACT

Introduction The National Institute for Health and Care Excellence (NICE) plays a central role in the NHS. We distill knowledge of best practice from the best available sources of evidence and share this across the health and care system, typically in the form of recommendations. We want to ensure that this knowledge is shared in a form that supports improved decision making by professionals working together with patients, leading to improved outcomes. Understanding the role of computable knowledge in the context of a learning health system is therefore of deep interest to NICE.

Methods The Agency for Healthcare Research and Quality (AHRQ) 4 levels of knowledge have been used as a framework to review current NICE products and services and envisage how they may need to evolve.

Discussion NICE is mostly still at level 1 of the AHRQ knowledge hierarchy but aspires to work towards structured and computable products. The NHS Long Term Plan makes clear that the wider health and care system is seeking to drive up interoperability with standards for

NICE was established 20 years ago and during that time its scope has broadened substantially to encompass clinical, public health and social care guidance—often seeking to bring these areas together in support of joined-up care. Figure 1 provides an overview of the array of different products produced by NICE to date.

This broad remit places NICE in a unique position when considering the development of knowledge for use within the health and care system. It provides a unique perspective on the shared needs of front-line staff making decisions in these different domains, and enables a greater understanding of the challenges caused by increasing multi-morbidities. There are many different types of evidence that need to be considered when developing actionable recommendations—for example, the kind of evidence and analytical methods

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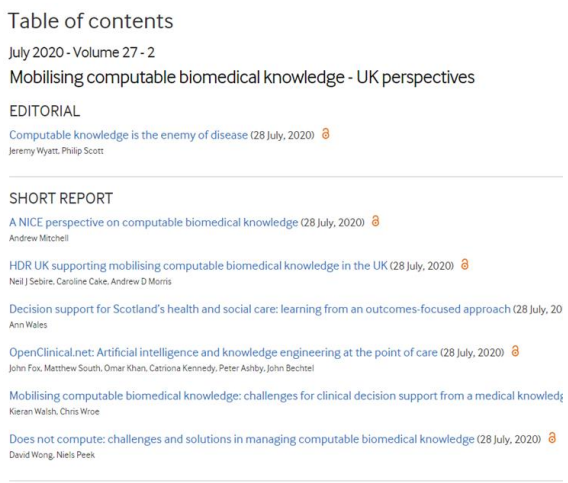

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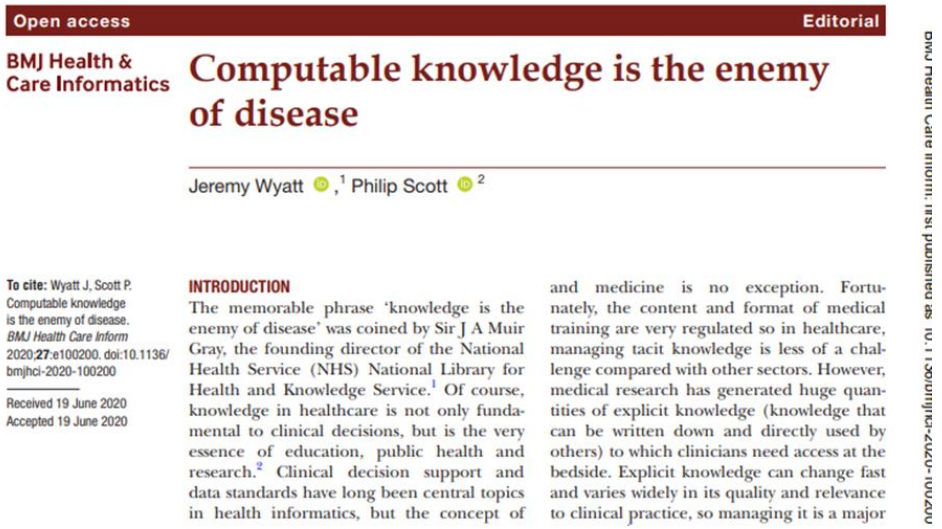

Open access Editorial

BMJ Health & Care Informatics

Computable knowledge is the enemy of disease

Jeremy Wyatt ,[1] Philip Scott [2]

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INTRODUCTION

The memorable phrase 'knowledge is the enemy of disease' was coined by Sir J A Muir Gray, the founding director of the National Health Service (NHS) National Library for Health and Knowledge Service.[1] Of course, knowledge in healthcare is not only fundamental to clinical decisions, but is the very essence of education, public health and research.[2] Clinical decision support and data standards have long been central topics in health informatics, but the concept of and medicine is no exception. Fortunately, the content and format of medical training are very regulated so in healthcare, managing tacit knowledge is less of a challenge compared with other sectors. However, medical research has generated huge quantities of explicit knowledge (knowledge that can be written down and directly used by others) to which clinicians need access at the bedside. Explicit knowledge can change fast and varies widely in its quality and relevance to clinical practice, so managing it is a major

BMJ Health Care Inform: first published as 10.1136/bmjhci-2020-100200

MCBK-UK project summary

- 2020-21: Health Data Research UK ‘learning loops’ and collaborathon using HL7 CQL:
  - https://www.hdruk.ac.uk/news/computable-knowledge-part-1-of-2-what-is-it-and-why-do-we-need-it-to-build-a-learning-health-system/
  - https://www.hdruk.ac.uk/news/computable-knowledge-part-2-of-2-learning-from-the-hdr-uk-collaborathon-make-it-fair/
- 2021-22: NHS Scotland Right Decision Service.
- 2022: BCS white paper:
  - https://www.bcs.org/policy-and-influence/health-and-care/building-a-clinical-satnav-for-practitioners-and-patients/
- 2022-23: NHS England CDS programme.
- 2022-23: NICE computable guideline project including two collaborathons.
- 2023: Regulatory workshop with MHRA, NICE, MAAS.

MCBK: global interest/outreach

- Virtual MCBK Global conference in 2022.
- MCBK US has become MCBK North America.
- Active interest in China and Australia.
- Presentation to South American informatics group.
- Workshop at MIE 2023 in Sweden.
- This session to encourage global participation.

1.	United States of America	235
2.	United Kingdom	81
3.	Australia	26
4.	China	19
5.	Canada	17

MCBK in Australasia

- Wendy Chapman

Workshop: MCBK in your region

- What are the priorities and potential barriers for MCBK?
- What is most important in your context for MCBK?
  - Health policy/funding
  - Data and knowledge interoperability standards
  - Regulation
  - Digital maturity
  - Learning Health System mindset
- Who are the community of interest/collaboration?
  - What does an MCBK ‘chapter’ look like?

Closing summary: MCBK in your region

- What are the priorities and potential barriers for MCBK?
- What is most important in your context for MCBK?
- Is there scope to start a collaborative community?
- Next steps…