

Supplementary files

Text boxes:

Text box 1: Types of knowledge

Defining knowledge is challenging as many ideas and theories about what knowledge entails exist. In this paper, we regard other types of knowledge as any knowledge that would not be considered a systematic review or RCT. This would include, but not be limited to, a broad range of explicit understandings of knowledge such as knowledge from outbreak investigations, laboratory research, mathematical modelling, qualitative research, quality improvement processes and clinical audits but also tacit knowledge, practical knowledge and heuristics.

Text box 2: International and cultural differences in guideline production

Guideline development methods have been developed by international networks and presented as universally applicable. But there may be differences in what methods are most appropriate for different contexts. In the workshops and conference sessions organised by the AID Knowledge Working Group, guideline developers from Europe, Latin America and Australia have generally welcomed efforts to include a wider range of types of knowledge in guidelines. USA-based guideline developers have been more critical, especially voicing the idea that any guidance not based on the highest level of evidence derived from RCTs should not be called a guideline. Such different assessments of what knowledge can / should be included in guidelines may have to do with the context in which guidelines are developed, including factors such as how the health care system is organised, who develops a guideline, litigation, what additional risks for conflict of interest this implies, and therefore whether guideline methods are more rigid. Approaches towards guideline appraisal and inclusion need to suit the context in which they are used.

Text box 3: About GIN AID and the development of this paper

GIN AID is a working group of the Guidelines International Network (G-I-N). The AID Knowledge working group tries to contribute to bridging the gap in methods for Appraising and Including Different Knowledge. To support this ongoing challenge, the G-I-N AID Knowledge Working Group aims to:

1. identify methods and promising initiatives for appraising and including a range of knowledge sources in guidelines;
2. facilitate sharing experiences with such methods and their application in practice through workshops at G-I-N conferences and elsewhere;
3. identify areas / questions for methodological development;
4. work towards reporting standards for knowledge appraisal and inclusion, and;
5. develop a guide for appraising and including different knowledge.

For this paper, members of the G-I-N AID Knowledge Working Group met several times to discuss the issues of using different knowledge and reasoning in guideline development, based on examples from their own experience and from published literature. After several rounds of revision, the work was presented in a workshop at G-I-N 2016 conference in Philadelphia. Input of workshop attendees was compiled, reviewed and included in the final draft of this position paper.

For more information please visit: <http://www.g-i-n.net/working-groups/aid-knowledge>

Text box 4: Frequency based induction: rolling dice [Paraphrased from Hacking 2001]

The central reasoning in RCTs can be summarised simply as assuming that everything in the world (such as people, relations) behave like dice. That is, if dice roll perfectly, they are fair. If they are unfair – where one side is heavier than the others – they are biased.

We're aware of many types of bias a priori in real life situations: for example, known causes, confounders and differences between groups.

An RCT of patients with therapy A versus patients with therapy B is like trying to make two similar dice as fair as possible, rolling them many times, and comparing the results of the rolls to show their tendency. The assumption is that by rolling two fair dice, one would expect to see similar results in the end. If this does not happen then the reverse must be true; one of the dice is unfair or biased; one of the faces is heavier than the other. In that case one of the therapies was better at causing the outcome. We don't know why (rolling dice doesn't give us an explanatory mechanism), but we conclude that it just did, because we found an a priori 'unknown' bias.

It is important to note that frequency-type reasoning doesn't work for single case scenarios. A patient can get a first hip replacement only once, not a hundred times. It goes well or it goes wrong. There is no frequency about it. It's like throwing a dice once: you're never sure what will happen. You either throw a six or you don't.

Text box 5: Theoretic and empirical concepts of integrating knowledge

William James was a philosopher of science who developed the idea of pragmatism, where many kinds of evidence can serve to support and continuously update beliefs about reality and truth within communities of people [1]. Another philosopher of science, the physicist Thomas Kuhn described how researchers within a research tradition develop and nourish theories which are overthrown, leading to the emergence of new paradigms [2]. Based on an ethnographic research on knowledge translation Gabbay and Le May coined the term "mindlines" to denote the continuously evolving, socially shared and mostly tacit knowledge that informs clinical practice [3]. Explicit knowledge from guidelines is incorporated into mindlines – where it is made sense of, challenged and integrated (or not) with practitioners' existing knowledge-in-practice-in-context.

- 1 James W. *Pragmatism and The Meaning of Truth*. Rough Draft Printing 2011.
- 2 Kuhn TS. *The Structure of Scientific Revolutions*. The University of Chicago Press 1970.
- 3 Gabbay J, Le May A. Evidence based guidelines or collectively constructed 'mindlines?' Ethnographic study of knowledge management in primary care. *BMJ Br Med J* 2004;**329**:1013. doi:10.1136/bmj.329.7473.1013

Glossary

Inference:	To reach a conclusion from premises (points, reasons, evidence, etc.)
Induction:	A kind of inference that is risky. Even when the premises are correct, the conclusion may not be. This in contrast to deductive reasoning where the conclusion is necessarily correct.
The problem of induction	A concern in philosophy whether inductive inference is justifiable.
Evasion	A certain way of reasoning to deal with the problem of induction.