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EDITORIALS

Evidence based medicine manifesto for better healthcare

A response to systematic bias, wastage, error, and fraud in research underpinning patient care

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Informed decision making requires clinicians and patients to identify and integrate relevant evidence. But with the questionable integrity of much of today's evidence, the lack of research answering questions that matter to patients, and the lack of evidence to inform shared decision how are they expected to do this?

Too many research studies are poorly designed or executed. Too much of the resulting research evidence is withheld or disseminated piecemeal.[1] As the volume of clinical research activity has grown[2] the quality of evidence has often worsened,[3] which has compromised the ability of all health professionals to provide affordable, effective, high value care for patients."

The BMJ and the University of Oxford's Centre for Evidence Based Medicine have collaborated on Evidence Live, a yearly conference designed to "develop, disseminate, and implement better evidence for better healthcare." Through this work and other projects, we know of substantial problems but also progress and solutions spanning the breadth of the evidence ecosystem, from basic research to implementation in clinical practice.

The EBM manifesto offered here grew from that awareness. It is an open invitation for others to contribute to and join a movement towards better evidence by providing a roadmap for how to achieve the listed priorities and to share the lessons from achievements already made. Its aim is to complement and unite existing efforts as well as create new ones.

Why can't we trust the evidence?

Serious systematic bias, error, and waste of medical research are also well documented (box 1).[4] Most published research is misleading to at least some degree, impairing the implementation and uptake of research findings into practice. Lack of uptake into practice is compounded by poorly managed commercial and academic vested interests[15]; bias in the research agenda (often because of the failure to take account of the patient perspective in research questions and outcomes)[16 17]; poorly designed trials with a lack of transparency and independent scrutiny that fail to follow their protocol[18] or stop early[19]; ghost authorship[20]; publication and reporting biases[5-21]; and results that are overinterpreted or misused,[22] contain uncorrected errors,[14] or hide undetected fraud.[9 23]

Poor evidence leads to poor clinical decisions. A host of organisations has sprung up to help clinicians interpret published evidence and offer advice on how they should act. These too are beset with problems such as production of untrustworthy guidelines,[10] regulatory failings,[23] and delays in the withdrawal of harmful drugs.[24] Collectively these failings contribute to escalating costs of treatment,[25] medical excess (including the related concepts of medicalisation, overdiagnosis, and overtreatment)[26] and avoidable harm.[24]

Developing more trustworthy evidence: the EBM manifesto

The steps required to develop trustworthy evidence (box 2) have been refined through a series of activities with stakeholders, including seminars, round table discussions, online consultations, and direct feedback. Tackling the problems will take time, resources, and effort. The evidence based medicine community should take responsibility for this. However, it is a vast project that is being led, and will be led, by disparate groups around the world. We hope to focus attention on the tools and strategies most effective at delivering change, so that we can all work together to improve healthcare using better quality evidence. The manifesto document and priorities are a living document and will evolve over time to advocate for trusted evidence for better healthcare. If you want to have your say and join the discussion then visit (http://evidencelive.org/manifesto/).

The manifesto has been developed by people engaged at all points in the research ecosystem engaging in fixing the problem, including

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Box 1: Problems with current evidence

- A landmark review suggested that results from half of all trials are never published, and that positive trials are twice as likely to be published as results from negative trials[5]
- The cost of clinical drug trials rose fivefold in one decade and is hindering the development of new medicines[6]
- 85% of research spending currently goes to waste [4]
- In a study of systematic reviews, 86% of 92 Cochrane reviews did not include data from the main harm outcome [7]
- A systematic review of 39 studies found no robust studies evaluating shared decision making strategies[8]
- From 2009 to 2014 the drug industry received fines totalling $13bn (£10bn; €12bn) for criminal behaviour and civil infringements—few systematic changes have occurred to prevent such problems occurring again[9]
- "Despite repeated calls to prohibit or limit conflicts of interests among authors and sponsors of clinical guidelines, the problem persists"[10]
- One third (34%) of scientists report questionable research practices, including data mining for statistically significant effects, selective reporting of outcomes, switching outcomes, publication bias, protocol deviations, and concealing conflicts of interest[11]
- A 2012 survey of 9036 *BMJ* authors and reviewers found that of the 2782 (31%) who replied, 13% had witnessed or had firsthand knowledge of UK based scientists or doctors inappropriately adjusting, altering, or fabricating data during their research for the purpose of publication[12]
- 8% of authors from 630 articles admitted they had lied in their authorship statements[13]

Box 2: EBM manifesto for better health

- Expand the role of patients, health professionals, and policy makers in research
- Increase the systematic use of existing evidence
- Make research evidence relevant, replicable, and accessible to end users
- Reduce questionable research practices, bias, and conflicts of interests
- Ensure drug and device regulation is robust, transparent, and independent
- Produce better usable clinical guidelines
- Support innovation, quality improvement, and safety through the better use of real world data
- Educate professionals, policy makers, and the public in evidence based healthcare to make an informed choice
- Encourage the next generation of leaders in evidence based medicine

patients and the public, who indirectly fund and are directly affected by the outputs of the current system. We thank all those who have provided feedback: partners who hosted round tables and seminars and those who gave feedback are listed across www.evidencelive.org. We also thank Ruth Davis and Alice Rollinson for their support in facilitating the broader engagement of the evidence based medicine community with the manifesto. *The BMJ*'s late patient editor, Rosamund Snow, was a coauthor of early versions of the manifesto. We are seeking other inputs to continue her work and our commitment to patient involvement.

Competing interests: We have read and understood BMJ policy on declaration of interests and declare that all authors have both academic and financial conflicts of interest that inform this manifesto. Academically, all of the authors believe that improving the quality of evidence, its transparency, involving patients, and improving the communication of research is essential for providing informed treatment decisions. Financially, the BMJ and the Centre for Evidence Based Medicine run a non-profit conference (Evidence Live) together that focuses on better evidence for better health. Our respective institutions are involved in research, education, and publishing in many of the areas outlined in the manifesto. In addition, individually we do media work, books, training events, and talks. We consider all of these conflicts may have biased our opinions and therefore have sought a wide range of input to offset our preconceptions.

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