Lifting the fog of uncertainty from the practice of medicine

Benjamin Djulbegovic

BMJ 2004;329:1419-1420
doi:10.1136/bmj.329.7480.1419

Updated information and services can be found at:
http://bmj.com/cgi/content/full/329/7480/1419

These include:

Data supplement
"Extra references"
http://bmj.com/cgi/content/full/329/7480/1419/DC1

References
This article cites 4 articles, 2 of which can be accessed free at:
http://bmj.com/cgi/content/full/329/7480/1419#BIBL

1 online articles that cite this article can be accessed at:
http://bmj.com/cgi/content/full/329/7480/1419#otherarticles

Rapid responses
3 rapid responses have been posted to this article, which you can access for free at:
http://bmj.com/cgi/content/full/329/7480/1419#responses

You can respond to this article at:
http://bmj.com/cgi/eletter-submit/329/7480/1419

Email alerting service
Receive free email alerts when new articles cite this article - sign up in the box at the top left of the article

Notes

To order reprints follow the "Request Permissions" link in the navigation box

To subscribe to BMJ go to:
http://resources.bmj.com/bmj/subscribers
and on the internet they often encounter conflicting
more information is available for patients in the media
the doctor as agent.

Finally, patients want to know that their doctors
are committed to protecting their interests. Patients in
varying contexts may be more or less aware and willing
to accept that their doctors are allocators as well as giv-
ers of care, but they must feel that their doctors are on
their side. The availability of choice reinforces trust in
the doctor as agent.  

We still know little empirically about the transfer of
trust between personal doctors and managers, consult-
ants, hospitals, and the larger health system. Doctors
are the gateway to organisational trust. Health plans in
the United States elicit trust through the qualifications
and reputations of affiliated doctors. Whether the fail-
ures of these larger organisations diminish their
doctors as well is less clear. In instances where the
organisation is held in high public regard, as is the case
with the Harvard Medical School, Johns Hopkins
Medical School, and the Mayo Clinic, affiliated doctors
may also gain in reputation. Doctors and managers
stand to benefit by collaborating in building trust in
clinicians and in larger systems.

Most patients view medical care in terms of the
personal doctor-patient relationship and are not
sophisticated about organisational structures and
strategies, such as managed care, and how they work.
But they want their own doctors, not managers, to
to control their medical care. This creates a dilemma for
managers seeking to reduce variations in care,
eliminate inefficiencies, and introduce evidence based
standards of care. Managers have to tread carefully,
sensitive to the importance of the doctor-patient
alliance and the value of trust on which it is often based.
Patients may trust blindly when some scepticism is
warranted. Much care that is needed is never provided,
and ineffective and inappropriate care is common.  
As more information is available for patients in the media
and on the internet they often encounter conflicting
advice. Patients have many questions about their care
and, in the United States, advertising of pharmaceuticals
and medical treatments directly to the consumer
leads to even more questions.  

Few primary care doc-
tors have the time to respond adequately and to make
the patient a true partner in care.
Health administrators and managers attempt to deal
with such challenges by providing accessible and reliable
information to patients, by putting in place disease man-
agement programmes that make effective use of nurses
and other health professionals, and work with doctors to
help them improve their practices. Electronic informa-
tion systems offer opportunities to improve communi-
ication, avoid errors, and help patients become proactive
in their own care. Managerial interventions carefully
introduced can diminish trust among both health
professionals and patients. But if pursued collaboratively
they offer potential to promote quality and trust and
contribute to satisfaction of both patients and clinicians.

David Mechanic  
Rutgers, State University of New Jersey Institute for Health, Health
Care Policy and Aging Research, 30 College Avenue, New Brunswick,
NJ 08901, USA
(mechanic@rci.rutgers.edu)

Competing interests: None declared.

References
1 Muftul BA. Trust in modern society: the search for the bases of social order.
2 Nye JS Jr, Zelikow PD, King DC, eds. Why people don’t trust government.
3 Focus: News from Harvard Medical, Dental, and Public Health Schools.
focus.hms.harvard.edu/2003/Jan21/2003/research_briefs.html
(accessed 16 Sep 2004).
4 Jacobs LR, Shapiro RV. Polometrics don’t panderm political manipulation
and the loss of democratic responsiveness. Chicago, London: University
5 Mechanic D. The functions and limitations of trust in the provision of
6 The Kaiser Family Foundation, Agency for Healthcare Research and
Quality. National survey on Americans as health care consumers: an update on
the role of quality information, December 2000. www.kff.org/kaiserpoli/
loadf.htm?url=/commons/p0tp/security/getFile.cfm&PageID = 15575
(accessed 20 Sep 2004).
7 Mechanic D, Meyer S. Concepts of trust among patients with serious
8 Schumitdel J, Selby JV, Grumbach K, Queussenberry CP Jr. Choice of a
personal physician and patient satisfaction in a health maintenance
organization. JAMA 1997;278:1596–9.
The quality of health care delivered to adults in the United States. N Engl
10 Mechanic D. Physician discontent: challenges and opportunities. JAMA
11 Halvorson GC, Islam GJ. Epidemic of care: a call for safer, better, and more
12 Millenson ML. Demanding medical excellence: doctors and accountability

Lifting the fog of uncertainty from the practice of
medicine

Strategy revolves around evidence, decision making, and leadership

Despite the exponential growth of medical
information, the effects of healthcare interven-
tions are often uncertain or controversial.  
This unreliability or uncertainty of all information is
what the military philosopher Clausewitz called the fog
of war. Clausewitz maintained that the key to a
rational approach to warfare was understanding the
impact of chance and the laws of the probability and its
interplay with the other factors in war—such as people,
governments, and, in particular, the commander in the
field. This approach may also benefit health care.

Recently, McNeil argued that the major hidden
barriers to better health care result from a lack of dis-
cussion of the impact of uncertainty in medicine.  
She enumerated several sources of uncertainty that cloud
decision making in modern health care: uncertainty as a result of lack of convincing evidence because of delayed or obsolete data from clinical studies; uncertainty about applicability of evidence from research at the bedside; and uncertainty about interpretation of data. Others have noted that failure to learn how to make decisions under uncertainty is the leading cause of excessive diagnostic testing and inappropriate treatments.

Can the fog that enshrouds the medical practice be lifted? The strategy for this revolves around evidence, decision making, and leadership.

Identifying relevant evidence
Most existing evidence is irrelevant or unreliable. Research in medicine indicates that using filters to identify relevant and valid evidence can reduce the background noise by 99.96%, resulting in only five to 50 research articles per year that may need to be incorporated in systematic reviews. In oncology, less than 1% of new evidence has been judged to be important for practising doctors. Therefore, it is an achievable goal to identify relevant and valid evidence which can be delivered when needed at the point of care ideally in its totality as a systematic review.

Improving connectivity between data, information, and knowledge
Many avoidable shortcomings in health care occur because evidence is inaccessible at the time and place it is needed. If evidence was provided when needed the decisions could have been different 30-60% of times. Here again a lesson from the military is relevant to medicine: investment in the infrastructure for information and communication to improve connectivity between users enabling management of data, information, and knowledge will go a long way in lifting the fog from the practice of medicine.

Training doctors for decision making under uncertainty
Although reliable evidence is the backbone of effective decision making, too often evidence is confused with decision making. Evidence is expressed on a continuum scale of credibility, whereas decision making is about choice and is a categorical exercise—we decide or do not. Rationality of choice is a matter of choosing, not of what is chosen—that is, a good decision can result in bad outcomes and a bad one in good outcomes. Normative theories of decision making hold that rational decision making is the one that maximises the value of consequences on the basis of the probabilities of consequences and the values associated with each consequence of a choice.

Although formal decision models and other prescriptive aids will have an increasing role in integration of evidence within theoretic decision frameworks, some friction or uncertainty at the point of care will probably always remain. Similarly to modern descriptive decision theories which noticed that people often violate normative precepts, Clausewitz also noted that theory and experience often clash.

Here he believed that action should remain in the hands of the capable commander in the field whose creativity, talent, and genius will be able to guide his troops through the fog of the battle. Likewise, decisions for individual patients will always remain with skilled doctors able to navigate successfully through the sea of uncertainty of clinical practice. However, the current generation of doctors is not well trained to deal with clinical uncertainty. The failure to train doctors about clinical uncertainty has been called “the greatest deficiency of medical education throughout the twentieth century.” The new generations of doctors need to be properly trained to face inherent uncertainty in clinical encounters.

Bold leadership is needed to inform the public about uncertainties
None of the above will happen until our leaders and the public understand the inherent limitations of medical knowledge and the role of research in reducing uncertainty. The increasing gap between the research agenda and the needs of patients and practitioners will not decrease until leaders are ready to tell the public what knowledge exists to guide management by practitioners. Adopting business models in medicine seems to have led current leaders in medicine to value perception over substance, marketing over open discourse. Only when the public finally grasps how little reliable knowledge exists will it have the motivation to become actively involved in prioritising the research agenda. Ultimately improving in clinical care and patients’ outcomes will come from conducting the right kind of research, research that is of importance in the real world, as advocated in the recently established James Lind Alliance.

Acknowledging uncertainties and informing patients about them is a key strategy for improving health care and lifting the fog from the practice of medicine.

Benjamin Djulbegovic  professor of oncology and medicine
H Lee Moffitt Cancer Center and Research Institute, University of South Florida, Department of Interdisciplinary Oncology, 12902 Magnolia Drive, Tampa, FL 33612, USA (djulbebm@moffitt.org)

Competing interests: None declared.