



Containing Costs or Restraining Health Care?

**Health Technology Assessments, Rational Use of Drugs,
Evidence-Based Medicine and Relative Effectiveness:
Four Names for One Action**

**Jacob Arfwedson
Peter J. Pitts**

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Introduction

This paper will examine the use of the policy referred to as Health Technology Assessment (HTA), rational use of medicine (RUM) and evidence-based medicine (EBM) as employed in strategies for cost-containment, based on recent policy initiatives in the European Union, the United States, Australia and relevant elements of the WHO agenda. We will first examine these to establish the essential purpose of the policies which, rather than empowering both the physician/provider and the individual health consumer to seek the most appropriate treatment, stresses a top-down approach reminiscent of the worst avatars of Soviet-style economics. To strengthen the demonstration, we will look at current practices in Europe, the United States and Australia where cost-containment strategies are being implemented. In conclusion, we offer some recommendations on how best to develop a patient-centred approach, going beyond administrative considerations of meeting public budget targets.

A brief history of a distorted concept

Conceptually, rational use of medicine is about **control** of both formularies and information. RUM encompasses various expressions used to define and promote three interrelated notions which are not entirely synonymous, but which act towards a common objective: reducing the role of medicines based on the belief in the relative ineffectiveness of drug innovation, prescription abuse and general unsustainability of the cost of medicines in developed and developing countries alike.

- 1) Rational use of medicines/drugs (RUM/RUD) reflects the top-down approach of national and international organisations, using “national drug policies”, “standard guidelines” and various government instruments to define a politically acceptable level of expenditure on medicines, according to centrally set targets. This is the control element of the strategy.
- 2) Evidence-based medicine (EBM): this is used essentially to measure the incremental benefit of new products, both as opposed to existing medicines and alternative treatments. This is the measurement part of the strategy, to evaluate the efficacy and effectiveness of pharmaceutical products.
- 3) Relative effectiveness of medicine/health technology assessment (HTA): this term is frequently used in EU documents to refer to the above, maintaining the

identical overall objective: evaluating the clinical and/or cost-effectiveness of medicines, but generally with primary concern for health budgets, rather than for patient outcomes. Again, this is a measure component.

Perhaps most importantly, the drive for RUM policies has an important component involving the restriction of information to patients. This may be analysed in the context of the current discussion on the advertising ban of prescription medicines in the EU. The main thrust is that RUM/EBM policies favour national approaches (i.e. public health administrative solutions) which tend to ignore practice variation, i.e. recognition that individuals have different needs and require individual solutions. Access to information which may be conducive to such an approach is therefore restricted, be it for physicians or for patients.

EBM is stuck in the past, broken and outdated. For the most part it is a retrospective look at clinical studies and head-to-head comparisons of medicines and medical procedures. EBM may involve a careful look at the science. But in practice, it's very limited. All of these studies are population-based, have rigid exclusion criteria and can't integrate new information or innovations. Today evidence-based medicine means cost-based medicines.

The result is decidedly and transparently a narrow one: to eliminate "practice variation" to what has been known to work – in the past.

The development of RUM - key dates

- A first definition of rational use of medicines was formulated at a Conference of Experts in Nairobi (1985), requiring that "patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community."
- In 1989, the Essential Drugs and Medicines Department of WHO founded the International Network for Rational Use of Drugs (INRUD)¹ together with Harvard University, Karolinska Institute, University of Newcastle (Australia) and Management Sciences for Health, which currently includes 23 groups.
- Many meetings have since been organised around the world to sponsor RUM, notably in collaboration with the Amsterdam-based advocacy group, Health

¹ <http://www.inrud.org>

Action International (which also was a partner in developing the WHO database on prescription and drug promotion).²

- In 1998, the WHO adopted the Revised Drug Strategy Resolution which promoted RUM, enforced the organisation's ethical criteria for advertising and promotion. It also asserted for the first time that public health interests should be given precedence over trade interests.³
- In the WHO 2000-2003 Medicines Strategy, RUM was defined as one of four "strategic priorities" (after national drug policy, access, quality and safety).⁴
- In March 2001, Hans Hogerzeil⁵ et al. published an article in Health Policy Planning, "Ten recommendations to improve use in medicines in developing countries",⁶ including RUM and reduction of drug expenditure.

WHO – resolution on RUM

The WHO Secretariat produced a report in early December 2006, containing a draft resolution on RUM, for consideration at the WHA in January 2007.

The text focuses on RUM in the context of antimicrobial resistance and inappropriate use of antibiotics, allegedly arising from insufficient regulation of private sector health care in developing countries. Recommendations to the WHA 2007 included:

- independent information about medicines
- establishing national programmes on RUM
- enacting or reinforcing legislation to "ban inaccurate, misleading or unethical promotion of medicines" (including DTC and Internet sales)

Before reviewing the arguments surrounding RUM and evidence-based medicine (EBM) policies, it may be useful to return to the source in order to understand the use and abuse of the term. In an editorial published in the British Medical Journal in 1996,⁷ professor David L. Sackett (Oxford Radcliffe NHS Trust) who first coined the term has explained "what EBM is and what it isn't". The author defines it thus:

"Evidence based medicine is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.

² <http://www.haiweb.org>; www.drugpromo.info

³ http://www.who.int/medicines_technologies/resolutions_medicines/en/

⁴ http://whqlibdoc.who.int/hq/2000/WHO_EDM_2000.1.pdf

⁵ Director of Medicines Policy and Standards, WHO.

⁶ Health Policy Planning, Vol. 16, 13-20 (March 2001);

⁷ BMJ, 1996;312;71-72 (13 January)

The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research. (...) By best available external clinical evidence we mean clinically relevant research, often from the basic sciences of medicine, but especially from patient centred clinical research into the accuracy and precision of diagnostic tests (...)."

So far, so good. It would be very difficult to find anybody, physician or patient, to oppose an approach which stresses the importance of integrating the latest and best research to support clinical decisions while putting the individual needs at the centre. But practitioners and health administrators often use different definitions which skew Sackett's original intent, as we shall see. In his 1996 article, the author also seemed aware of this: "Some fear that evidence based medicine will be hijacked by purchasers and managers to cut the cost of health care. This would not only be a misuse of evidence based medicine but suggests a fundamental misunderstanding of its financial consequences."

Furthermore, "Good doctors use both individual clinical expertise and the best available external evidence, and neither alone is enough. Without clinical expertise, practice risks becoming tyrannised by evidence, for even excellent external evidence may be inapplicable to or inappropriate for an individual patient."⁸

Bernadine Healy, a former director of the National Institutes of Health, is critical of evidence-based medicine: "The implication is that the medicine that was practiced up until 1990 was not evidence-based, was not science-based."⁹ In an article (September 2006), she explains how EBM advocates have used randomized clinical trials and cost-benefit studies to emphasize medical expertise. Practising mammograms for women in their 40s is a case in point: cancer specialists pointed out that early screening would save lives. The opponents argued that randomized clinical trials didn't clearly show this, and that testing would drive up costs. The US Department of Health and Human Services in 1997 refused to recommend mammograms for women in their 40s; this was later reversed, as public opinion asserted itself.¹⁰

Brian Haynes, professor of clinical epidemiology and biostatistics at McMaster University (Hamilton, Ontario) is also editor of the *Evidence-Based Medicine Journal*. He stresses that "evidence doesn't make decisions. Evidence gives you some information about the possibilities of what will happen. The people who make decisions about care are the patient and the practitioner."¹¹

⁸ Idem.

⁹ "In medicine, evidence can be confusing", USA Today (16 October 2006).

¹⁰ "Who Says What's Best?" US News and World Report, ? September 2006

¹¹ Idem.

To better appreciate the hazardous implications of an indiscriminate use of evidence-based medicine, consider the following example. Parachutes are used to prevent death and injury when jumping from aircrafts. In 2003, two UK scientists undertook an EBM analysis¹² to establish the effectiveness of parachutes to this end, invoking “the medicalisation of free fall” as an example of physicians’ obsession with technology to improve prevention. Their devastating conclusion:

“As with many interventions to prevent ill health, the effectiveness of parachutes has not been subjected to rigorous evaluation by using randomised control trials. Advocates of evidence-based medicine have criticised the adoption of interventions evaluated by using only observational data. We think that everyone might benefit if the most radical protagonists of evidence based medicine organised and participated in a double blind, randomised, placebo controlled, crossover trial of the parachute.”

And they add:

“Only two options exist. The first is that we accept that, under exceptional circumstances, common sense might be applied when considering the potential risks and benefits of interventions. The second is that we continue our quest for the holy grail of exclusively evidence based interventions and preclude parachute use outside the context of a properly conducted trial.”

One size – many people

"One size fits all" rarely does. From clothes to shoes to hats, few people find that items carrying that label work with their individual bodies. So why do we entrust the health of our bodies -- one of the most important assets we have -- to a one-size-fits-all mentality?

Unfortunately, that's exactly what the influential movement known as "evidence-based medicine" does. Of course, we want our health care based on evidence. But the phrase is misleading. As it turns out, "evidence-based medicine" often ignores the most critical evidence of all: the individual patient.

The idea behind EBM – empowering physicians with sound evidence to incorporate into their treatment decisions for individual patients – is a good one. Unfortunately, EBM now is being distorted by health administrators (and HMOs in the United States) in ways that impose top-down, one-size-fits-all restrictions on patients and their doctors.

¹² “Parachute use to prevent death and major trauma related to gravitational challenge: systematic review of randomised control trials”, *BMJ*, vol. 327 (20-27 Dec. 2003).

This EBM model relies heavily on findings from randomized clinical trials. While these trials are essential to demonstrating the safety and efficacy of new medical products, the results are based on large population averages that rarely if ever will tell us which treatments are “best” for which patients. That is why it is so critically important for the physician to maintain his or her ability to combine study findings with their expertise and knowledge of the individual in order to make the optimal treatment decisions.

Medicine is a relatively young science, and errors are always possible. Evidence based medicine aims at providing practitioners and patients with the best available information on the latest treatments. Considering the enormous achievements in the past fifty years, it is practically impossible for physicians to keep up with the latest news. According to Paul Keckley, executive director of the Vanderbilt Center for Evidence-Based Medicine (Nashville), “an average of 82 randomized controlled trials are published every day in the medical literature. An internist who doesn’t read and remember 19 of them is behind the times, he says.”¹³

Practice variation is any treatment that varies from the norm that EBM prescribes. The canard of evidence-based medicine is the belief that practice variation is bad and that one-size-fits-all medicine is good. EBM presupposes that all people respond precisely the same way to all medicines. But that’s simply not true. Disease varies by individual, and selection of treatment must be driven by diagnostics, not just guidelines. At its core evidence-based medicine is cost-based rather than patient-based. Disease varies by individual and selection of treatment must be driven by diagnostics and judgment not simply “guidelines.”

The existing philosophy and practice of evidence-based medicine try to eliminate practice variation. **But, since they are population-based, EBM’s analyses and the guidelines that flow from them are so flawed that they generally eliminate about 60 percent of the variation that actually exists in individuals.** The effort to develop *predictive* approaches to health care using *retrospective* evaluation of population-based studies is *dangerously outdated*, in an era where new medical products use the integration of complex biology in both the screening of patients and the development of medicines.

Evidence-based medicine, while a laudable enterprise, uses the tools and concepts of the last century when a new toolkit is required to assess this century’s new targeted and evolving health solutions.

The triumph of modern medicine is that it can be so precisely targeted to a single patient’s needs. It is a dramatic leap forward from EBM’s sweeping approach, which sees only through the broad lens of population-based studies, and the individual patient is kept out of focus.

¹³ “In medicine, evidence can be confusing.” USA Today, 16 October 2006

“Mindlines” rather than guidelines

A corollary of the RUM concept is the extensive use of clinical practice guidelines (CPGs), which in turn derive from data gathered from randomized control trials (RCTs). The latter rely on large patient populations or trial groups.

We may oppose to this perspective the fact that clinicians often have recourse to the notion of tacit knowledge. This cognitive tool is intuitive: “something you know without knowing you know it”. Whereas clinical judgment necessarily entails the possibility of human error, CPGs largely ignore practice variation among individuals. Comprehensive guidelines, even broadly based and thoroughly tested, cannot integrate individual reactions contingent on dosage, heritage, antecedentia, allergies, etc.

Ethnographic studies bear this out: there are significant differences between ethnic groups which CPGs cannot take into account.¹⁴

Instead, as argued by one clinician, there is room for tacit knowledge in the form of “mindlines”. These are based both on solid scientific evidence, but more importantly on professional exchange with peers. Mindlines evolve over time as new experience is incorporated, remaining firmly rooted in empirical knowledge from clinical experience of individual cases.

If CPGs may be conceived as a constitutional framework for medical practice, then mindlines form the equivalent of jurisprudence and case-law.

EBM Down Under

For evidence of the problems with the current EBM model, consider the Australian model of granting access only to treatments that government bureaucrats have decided are “cost-effective.” That is precisely what a new study by IMS Consulting study did. Consider the facts and be afraid – very afraid – of the implications. The IMS study included examination of two diseases, osteoporosis and Alzheimer’s disease, where the Australians are regularly denied access to medicines available to American patients. According to the new IMS study:

- By 2007, approximately 9.1 million patients in the United States with osteoporosis would be denied access to treatment choices if we adopted the

¹⁴ Gabbay H, Le May A: Evidence based guidelines or collectively constructed “mindlines”? Ethnographic study of knowledge management in primary care. *BMJ* 2004; 329: 1013.

Australian model of cost-based (aka, “evidence-based”) medicine. In Australia, for example, newer medicines for osteoporosis that are not “on the list” for reimbursement may be made available only after a patient suffers a fracture.

- IMS estimates that a 1.6 million Alzheimer’s patients could be impacted if we adopted the same system as Australia. The Aussie guidelines are identical for Aricept (donepezil), Exelon (rivastigmine), and Razadyne (galantamine) – and are highly restrictive compared with US guidelines. Australia also limits coverage of Alzheimer’s medicines to six months of treatment unless the patient shows “significant improvement.” In the US, the decision to continue treatment is based on patient (and care-giver) satisfaction – which includes maintenance of current mental status and prevention of mental decline – quite a difference from “significant improvement.”

Restrictive formularies (in the US both public and private) and health care systems (in Australia, the EU, Canada, and elsewhere) that deny access to the right drug for the right patient at the right time but pay for more expensive and invasive procedures later on have their priorities upside down.

Perverse in so many ways – not the least of which is that “savings” are entirely transitory.

Consider the facts. A longitudinal prospective study by Dr. Susan Horn, et al., examined the relationship between HMO cost-containment strategies and utilization and total cost of health care for a number of medical (non-psychiatric) illnesses. The study showed that the tighter the formulary restrictions, the higher the overall cost of care – and what drove the increased costs was the association between formulary restrictions and utilization of care.

A blunter way of putting this is that “efficient” (as the term has come to be defined) has nothing to do with patient care. “Efficient” is a cost-based word and patient-centric concerns be damned. Welcome to the world of health technology assessment, aka evidence-based medicine, aka rational use of medicine.

Unfortunately, the current, misguided EBM model is enjoying growing support among HMO and government bureaucrats. Why? Because it puts a veil of pseudo-science around blunt, one-size-fits-all cost controls that rely on denying patients access to effective treatments. This is extremely shortsighted, and out of step with emerging science and health care delivery models.

Evidence-based medicine may provide transitory savings in the short term, but the same patient who takes the cheapest available statin today may very well be the patient costing you -- the taxpayer, the policymaker, the thought-leader, the sister, the spouse --

big bucks when that patient ends up in the hospital because of improperly treated cardiovascular disease.

The repercussions of choosing short-term thinking over long-term results and cost-based medicine over patient-based are pernicious to both the public purse and the public health.

As Mark McClellan, the chief architect of American health care policy said, "Looking at a gigantic uniform solution for everything is never going to work." We must move forward by looking ahead.

Today, the science of genomics is ushering in an age of personalized medicine where people can be screened with a variety of molecular diagnostics to both reduce side effects, increase compliance, improve outcomes, *and even prevent* various forms of cancer, depression, hypertension, Alzheimer's and immune disorders. This is 21st century evidence-based medicine -- ***patient-centric and cost-efficient***. Evidence-based medicine and policy must be adapted to reflect this emerging science.

Today and increasingly in the future, clinical outcomes can be monitored more precisely and computers can control for hundreds of variables to help doctors and researchers identify what treatments steps matter most in improving care.

Conclusion

It should be stressed that the issues raised here concerning the trade-offs between medicines versus other therapies in the current context remain contingent on the budgetary constraints which increasingly shape the provision and financing of public health care services. The question of patient choice could be resolved if this paradigm were seriously questioned, to allow instead for competitive insurance solutions and market access for providers, insurers and products which remain largely excluded from the health market in many countries, mainly due to cumbersome regulations, taxes and tariffs, monopsonistic buyers and other vested interests.

Any meaningful evaluation of evidence based medicine as currently employed in cost-containment mechanisms and strategies must be carried out with careful consideration of market-based alternatives, be it in terms of providers or consumer preferences.

In the medium and long term – be it in terms of policy or communication – all stakeholders would be well served by giving greater weight to presenting the benefits of market-based solutions. Instead of spending time and resources on analysing the latest political gimmick of opponents and activists (e.g. cost-containment strategies), there are huge rewards in presenting a carefully conceived program of alternative

options. The current spectres of bureaucratic management (NICE, IQWiG, HAS etc) will multiply at will, following the logic of public choice and the automatic rise of public health expenditure.

We need a new approach to evidence for a new era of medicine. We must develop the studies, tools, and metrics that will provide policymakers (in Washington DC, Brussels and the capitals of Europe), payors (public and private), and providers with the ability to evaluate, support and use new medicines and medical technologies to improve patient well-being in a patient-based, cost-efficient environment.

We must provide the 21st century health care evidence so crucial to the decision process of policy-makers and the policy debate of thought leaders – and must do so in a coordinated, rigorous manner via evidence-based policy approaches that:

1. Recognize The Value of Medical Innovation

We need studies to evaluate the cost-effectiveness of molecular diagnostics and new medicines in terms of more rapid access to critical (often lifesaving) new drugs. Not just how much they “cost” versus alternative therapeutic choices.

Policies should support adoption of new medicines, molecular diagnostics, and health information technology as part of the solution to our health care challenge. We must recognize and address the fact that one of our single biggest health system failures – as demonstrated by evidence-based medicine – is the failure to make sure that patients receive and adhere to needed therapies.

This also requires policies that consider cost impacts across the health system rather than in narrow budget silos. Increasingly, evidence is revealing ways in which increased spending on medicines yields cost offsets in other parts of the system.

It also means we must recognize the limitations of single, centralized, decisions about the value of innovation based on population averages. Health policy must reflect the heterogeneity of treatment effect – that is, the fact that patients are not averages but will respond differently to medicines; and the ways that use and value of innovation evolve over time.

2. Support the Physician and Patient as Empowered Technology Assessors

We have a growing capability for rapid communication of medical evidence and information, and an increasing emphasis on the role of the consumer in health care decision-making. This creates new opportunities for EBM done right – that is, EBM that

delivers useful, accurate, and balanced information to physicians, patients and consumer at the point of decision-making.

3. Reflect the Emerging Science of Personalized Medicine

There is a growing body of evidence that tiered and restrictive formularies discourage appropriate utilization of medicines designed to prevent or delay onset of chronic disease.

In an era of personalized medicine, the goal should be (for example) to identify people at risk for metabolic syndrome and prescribe a medicine to proactively protect their heart and delay diabetes -- rather continue to prescribe the "least expensive" medicine.

We must compare preventive and personalized formulary outcomes with the tiered approach to demonstrate the impact in terms of health outcomes and total health care costs. We must evaluate the impact of restrictiveness on mortality, morbidity and social costs (disability, long term care, welfare benefits).

Policy-makers must work closely with the leading bioinformatic companies and health systems to develop state of the art approaches to both documenting and improving patient well-being, allowing us to demonstrate that the "looking backwards" approach and heavy reliance on randomized clinical trials is often overly burdensome and outdated.

There must be a partnership, at the federal level, a partnership of states, health systems, hospitals and health plans to develop actual programs that can be implemented to improve outcomes and the processes/best practices to achieve these results – ***patient-centric, cost-efficient results.***

A rapidly aging society demands a new health care capable of providing for its needs in the 21st century. **Equality of Care** must now be matched with **Quality of Care**. We need a new approach. The health care community must work together to develop new cost-efficient programs that account for modern genomics and individual screening. Because "one size fits all" treatments are dangerously outdated in this era of patient-centric medicine.

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Web resources

Vanderbilt Center For Evidence-Based Medicine:

http://ebm.vanderbilt.edu/about_ebm.htm

Stanford-UCSF Evidence-based Practice Center

<http://healthpolicy.stanford.edu/stanford-ucsf-epc/>