Frontline health care can be improved by bringing research into the clinic

Progress in clinical research has played a huge role in the great improvements in frontline health care achieved over the last 50 years, both in general practice and in hospitals. But now as we enter the era of personalized medicine with new and more complex treatments becoming available, there is mounting evidence that a further leap forward can be made by bringing clinical research closer to the coal face of medicine with the greater involvement of both doctors and patients.

Such thinking led to a major report *Implementation of Medical Research in Clinical Practice* (European Science Foundation, 2011) by Europe's medical research councils, in the hope of establishing a firmer basis for building these closer ties. The report, published in May 2011, has confirmed that decisions relating to both diagnosis and treatment made by GPs and hospital doctors can be improved significantly by incorporating biomedical research more closely into their day-to-day practice. Equally the research itself will become better focused and more relevant through closer involvement not just of doctors, but also patients, in decisions over how to conduct clinical studies and what questions to ask.

More communication and transparency needed

The report calls for an overall strengthening of the three-way relationship between patients, doctors and researchers, which would provide all-round benefits. In an era where patients frequently consult the internet over the efficacy of treatments they have been given and often obtain misleading information that may conflict with what they have been told by their GP, it is increasingly important that reliable sources of clinical and toxicological information are available. Similarly GPs have much to gain through closer involvement in clinical trials by obtaining a broader picture of how treatments work and the variations in efficacy and side effects between different patients. This will also help incorporate new findings about treatments into clinical practice as quickly as possible, reducing the gap between discovery and application that has in some cases grown wider in recent years.

Patient-oriented research and research-oriented patients

At the same time research can be tuned more closely to the clinical needs and also aspirations of patients by involving them in determining the course of clinical research and in framing the questions that should be asked relating to efficacy and risk. The report was able to draw on previous studies, including Thornton (2006), assessing how health professionals can work better with patients to advance clinical practice. There are many different ways in which patients can be involved in clinical studies beyond being mere passive participants, depending on the nature of the treatment or drug under evaluation. Patients can contribute formally or informally, as individuals or in groups, and using a variety of methods to provide insight into how best to select and frame research questions.

Important: GPs and frontline hospital doctors

The greatest scope for more immediate impact on clinical practice comes from bringing researchers and doctors closer together, because in many cases the evidence base required for sound and effective health-care decisions is already there and just needs to be tapped at the frontline. Both GPs and hospital consultants, who treat patients on referral for a wide variety of conditions, can gain from clinical research feedback. However, it is GPs who perhaps have most to gain since they are typically more distant from clinical research processes than hospital doctors and certainly than senior consultants.

Now is the time to establish a framework and associated tools for bringing doctors closer into the clinical research process, for impending developments in medicine will make it even more important that frontline health-care practitioners are well informed. In recent years, following the Human Genome Project in the 1990s sequencing the fundamental layout of human genetic material, there have been major advances in the so-called 'omics' technologies such as genomics, proteomics and metabolomics. These make it increasingly possible to identify the role of underlying genetic differences between individuals in response to disease and treatments, ushering in a new era of personalized medicine. As the report identified, this will bring new challenges for doctors requiring access to research-based knowledge.

Clinical guidelines and communication

The report also addressed the issue of how best to stimulate the desired greater cooperation and interaction between clinical research and medical practice. Fortunately key parts of the necessary framework have been established in the two decades since the standard definition of clinical practice guidelines by Field and Lock (1990). Since then doctors have also had increased access to data about new studies via the internet, in particular through the Cochrane Library (www.cochrane.library.com). There is scope for building on these tools and initiatives, with one of the 10 key recommendations of the report (*Figure 1*) being to 'implement and improve guidelines in clinical practice through IT tools, audit and feedback, clinical indicators and continuous updates and strengthen the research evidence base for effective implementation strategies.'

In the case of Europe, there are considerable differences between countries in both the creation of clinical knowledge and its application. This is an opportunity in the

sense that best practices can be identified and then emulated across the whole continent. Denmark, for example, has already shown how collaboration between clinical experts, researchers, Health Technology Assessment experts and national authorities can deliver real benefits in diagnosing cancer, where early detection is often crucial for successful treatment. The various experts were set the task of designing new guidelines for cancer diagnosis, and after intensive debate among the various camps the task was completed in 2 years. The new guidelines have achieved a dramatic improvement in cancer diagnosis according to Stauss et al (2008).

Conclusions

Initial diagnosis is arguably the most important aspect of GPs' work and one where there is great scope for further improvement and dramatic impact on patient outcomes, as the Danish cancer experience has shown. Greater international collaboration can help spread such good practice while avoiding duplication of effort, and at the same time promoting successful tools for disseminating knowledge of the best evidence-based guidelines. This in turn can feed back into the clinical study process, for example relating the improved early diagnosis of cancer patients to proven follow-up treatment in hospitals under supervision of consultants. In this way GPs can achieve firm evidence that their improved diagnostic techniques really are benefiting their patients, which will boost motivation and morale. Bringing research and the clinic closer together is a win for all parties. BJHM

Figure 1. The ten key recommendations of the European Medical Research Council's Forward Look report (European Science Foundation, 2011).

- Strengthen European work, collaboration on, coordination in and funding of systematic reviews of existing evidence, comparative effectiveness research, health technology assessments and clinical practice guidelines
- Foster transparency and require evidence on comparative effectiveness and costs of drugs and other new technologies to demonstrate added value before approval
- Improve education and training of and career structure for health professionals
- When relevant, inform patients and the public about the prioritization, funding, planning, conduct and reporting of clinical comparative effectiveness research and evidence-based medicine
- Support and facilitate methodologically sound high-quality clinical research inspired by gaps and uncertainties identified in systematic reviews that answers the needs of patients, health professionals and society
- Promote rigorous reporting of all clinical studies
- Strengthen shared national and international open access databases on protocols, data, reports, systematic reviews and health technology assessments
- Generate, through multidisciplinary teams and with patient involvement, high-quality evidence-based clinical practice guidelines according to common standards and criteria
- Implement and improve guidelines in clinical practice through IT tools, audit and feedback, clinical indicators and continuous updates, and strengthen the research evidence base for effective implementation strategies
- Increase use and implementation of high-quality health technology assessment reports and clinical guidelines in hospitals, primary care and all administrative processes, including financing of treatment and technologies

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KEY POINTS

- Medical care has improved beyond recognition over the last century.
- There is still a need to implement new knowledge into clinical practice as speedily and efficiently as possible.
- Doctors, the public and patients should be more involved in medical research and its implementation.
- An important tool for research implementation is evidence-based clinical guidelines.

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