

Promoting evidence based orthopaedic surgery

An English experience

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Orthopaedic surgery is a high volume and high cost specialty. The global disease burden from musculo-skeletal conditions is increasing and this spurred the World Health Organisation to declare the 2000–2010 as the Bone and Joint Decade.

Simultaneously, there are concerns about provision of adequate services to meet the musculo-skeletal needs of the population. Long waiting times for access to elective procedures such as joint replacements have been of concern to policy makers, professionals and the public in many parts of Europe. Questions have been raised about the quality of some of the interventions also. For example, the number and variety of implants used for total hip replacement in the UK have been questioned and the lack of evidence of superiority of newer and more expensive implants over older designs highlighted (Murray et al. 1995, National Audit Office 2000). Standards of care of patients with hip fractures have shown striking variation in both, process and outcome (Todd et al. 1995).

Since the early 1990s there has been a growing interest, worldwide, in evidence based medicine (EBM) which seeks to integrate individual clinical expertise with best available clinical evidence from systematic research (Sackett et al 1997). Many clinicians have embraced the principles of EBM and there is considerable support from policymakers and health care managers who see EBM helping to provide effective health care and to increase efficiency.

In this paper, we describe our experiences of promoting evidence based orthopaedic surgery (EBOS) in Teesside, England and share future planned developments.

Teesside experience

Middlesbrough on river Tees in the north of England is the main town for the Teesside area. Orthopaedic surgery services to the resident population (circa 350,000) are provided by a team of 9 surgeons based at South Tees Acute NHS Trust.

Like many other places in the UK, the orthopaedic service has faced challenges because of limited resources and high demands over the last many years. Not with standing such challenges the service has been progressive and considered options for change including through adoption of evidence based approaches to planning and delivery of services.

Thus, this service was amongst the first in the country to establish nurse led clinics for patients with chronic low back pain (Madhok and Green 1994) and to centralise trauma services including fast track admissions of patients with hip fractures to reduce unnecessary waiting in accident and emergency departments.

Specific to teaching, measures were introduced in conjunction with the University of Teesside. In 1995 the MSc in Clinical Orthopaedic Course was established at the University of Teesside. Within the basic sciences component of the Course considerable emphasis was placed on clinical effectiveness issues with a specific module on clinical epidemiology and EBM. A range of methods were employed including didactic teaching, student directed learning and teaching, journal clubs and support for research dissertation.

In addition, efforts were directed at the Faculty which included the established orthopaedic sur-

geons and career trainees in orthopaedic surgery to introduce them to the principles of EBM.

Weekend workshops were held with each intake of students where the students and faculty got together to share views and learn from each other. Full and frank discussions took place and many students made very relevant comments. For example, one of our earlier students said this at the first Workshop:

When I am on call and somebody comes with a rupture of the Achilles tendon, before saying anything to the patient I look at the rota and depending on who is the consultant on call that patient may go home with a plaster and a pair of crutches, or may end up on the theatre table.

Whether a tibial fracture or a humeral fracture is treated by nailing or plating does not depend on the type of the fracture, but on the surgeon doing it.

At this point I am getting more and more confused and I asked "Why do you choose this treatment?"

I may get different answers. 'I have always done it this way and it works' is very common. Other people will give you lots of good reasons but without giving you any evidence to prove that is right.

Only very few are able to quote serious studies to support what they say.

So here I am being as ignorant as before and not even happy because I realise that finding answers is not easy anymore. But if we work together may be we will find some of these answers.

Looking at their practice, the students also came up with a list of conditions where they faced dilemmas on how to manage everyday common situations (Table 1).

The last workshop in 1998, in addition, focussed on a major topic of interest to orthopaedic surgeons: management of distal radius fractures and brought together systematic reviewers, practising surgeons and patient representatives through National Osteoporosis Society and other professionals to discuss the current state of scientific evidence and practice. The aim was to establish a programme of proactive research in the management of these fractures, a system of audit to ascer-

Table 1. Dilemmas faced by orthopaedic trainees in managing common orthopaedic conditions

Comdition	Management
Achilles tendon rupture	conservative/surgical
Subcapital fracture	cemented/uncemented
	hemiartroplasty
Patella in TKR	resurface/retention
Tibial fracture	plate/nail
Humeral fracture	plate/nail
Calcaneal fracture	conservative/surgical
Flexor tendon injury	repair FDP +/- FDS
Hallux valgus	fusion/excision
Ganglion	aspirate/excise

tain variations from consensual best practice and a programme of education and training to patients and professionals about their management.

Given the interest of the first author, RM is one of the founding editors of the Cochrane Musculo-Skeletal Injuries Group, work was undertaken to promote educational activities around Cochrane Collaboration's work (Gillespie et al).

In 1998 it was decided to consolidate these activities and establish the EBOS club with the remit to promote the agenda through research, audit and teaching.

Although we made some progress in raising awareness of EBOS in Teesside, we have faced many challenges too (Madhok and Stothard 1996, 1998).

The way forward—the Teesside model

Many attempts have been made nationally in the UK to promote EBM and improve health care quality. Requirements to undertake medical and clinical audit in the early 1990 were reinforced repeatedly throughout the decade and led to the institution of clinical governance in 1998 (Department of Health 1997 and 1998). There have been many examinations of why there has been a limited improvement in health care quality and the following contributory factors have been identified.

First, various initiatives such as audit, research and teaching have been running in parallel without major cross-linkages. Second, many of these initiatives have been seen as a total solution of their own. Third, initiatives have remained add-ons

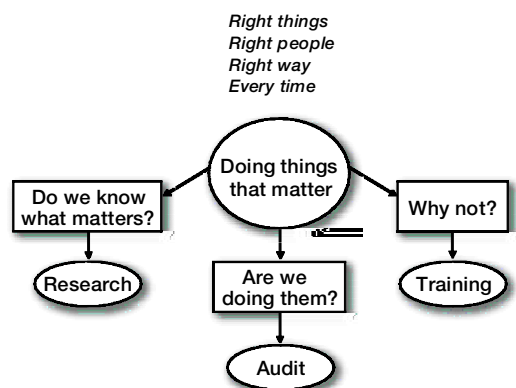


Figure 1. Teesside model for promoting evidence based orthopaedic surgery

and not become integrated into the mainstream work. Fourth, the limited success has been due to the work of enthusiasts whilst the majority of people remain apathetic or passive. Fifth, there has been an undue reliance on changing individual's behaviour rather than looking at the systems and the environment within which they operate and modifying these. Sixth, there have been resource constraints in terms of available time and money. Finally, there has been some tension between EBM and evidence based policy and management.

The Teesside experience confirmed that many of these challenges existed locally and hence we decided to start afresh in orthopaedic surgery. We wanted to design an integrated system to address them.

To begin with we clarified our thinking on EBOS, which to us is about "Doing things that matter" to the patients. Thus, EBOS should be about doing the right things, to the right people, by the right people, right way, every time. We came up with an integrated model to promote clinical- and cost- effectiveness linking together the three themes of:

- a) research,
- b) audit including risk management and
- c) teaching including professional performance assessment and life long learning (Figure 1).

Research

There is a considerable amount of primary research going on within the area and particularly by students on the Courses at the University of Teesside who all have to undertake a disserta-

tion. It is intended to examine the current research activities and see what scope is there to achieve a balance between curiosity-driven and needs-driven research. The specific proposal is to integrate research activities with the work of the Cochrane Musculo-skeletal Injuries Group which has been involved with the systematic reviews since 1994.

Increasingly not just the MSc students but other trainees and other professionals will be offered opportunities to participate in systematic reviews, develop proposals for future research in line with a programme of research based on priority areas and based on the results of systematic reviews.

Audit

Based on systematic reviews and other sources of best practice, standards will be established for common conditions such as the management of hip and distal radius fractures and joint replacements. These standards will then be systematically audited. More and more, audit activities will link with the output of the Cochrane Collaboration and other important initiatives to improve quality of clinical care with a special emphasis on patient safety.

Teaching

In addition to the MSc Programme, it is intended to build on the Workshop model whereby students and faculty are brought together to more regular meetings facilitated by experts to promote knowledge about principles of clinical epidemiology and evidence based medicine.

Because of the changes in training in the UK and as a result of the experience over the last few years the course has been revised. The future courses are targeted at senior house officers who have passed examination in clinical surgery in general (MRCS or the old FRCS) and are applying for posts on a structured higher surgical training scheme in traumatic and orthopaedic surgery. The course is also available to other clinical disciplines and given its modular structure there are options to study for a certificate and diploma qualification in addition to a masters.

The aims of the course are:

- To enable students to develop the skills and attitudes necessary to perform detailed evidence based practice and research in their area of specialist interest.

- To develop within the students an understanding of the necessary research methodologies to locate and appraise clinically related research
- To foster within students a commitment to life long learning and an inquisitive approach to clinical practice.

Those studying for a masters are required to complete a structured research project leading to publication in a peer reviewed journal and/or presentation at a national meeting. The first students are enrolled and will commence the course in September 2001.

Overall, to promote EBOS in Teesside we aim to:

1. Establish a local research register that will document ongoing research and research interests of the members.
2. Examine the output of the Cochrane Collaboration to identify what has already been done and what specific research has been identified in the areas studied.
3. Use the above information to identify priorities for primary research and systematic reviews.
4. Align the students on the courses with the above research agenda.
5. Initiate good quality audit against known standards from various initiatives and by building on the existing strengths of the team.
6. Develop a multidisciplinary approach to educational activities by enrolling other professions particularly Nursing and Professions Allied to Medicine (PAM).

Conclusion

There is now an increasing emphasis on EBM and health care quality. All organisations and professions are being exhorted to ensure safe and effective services. Whilst some progress has been made in orthopaedic surgery, there is a long way to go yet (Cowell 1999, Sledge 2000 and Buckwalter 2000, for example).

This paper has outlined an integrated model incorporating research, audit and teaching. These are early days for us in Teesside and we would be interested to work with other colleagues in order to advance EBOS. We believe that our project will be an integrated programme in a major specialty and which can be an example for other specialties in time.

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