KNOWLEDGE MANAGEMENT IN THE NHS.
A SURVEY OF KNOWLEDGE-BASED PRACTICE AT NOTTINGHAMSHIRE HEALTHCARE NHS TRUST

DAVID ROGERS AND CHRIS MILBURN

R&D Office, Nottinghamshire Healthcare NHS Trust, Duncan Macmillan House, Porchester Road, Mapperley, Nottingham, NG3 6AA, UK.
Tel/fax: 0115 9555 368 , emails: david.rogers@nhc-tr.trent.nhs.uk **;**
chris.milburn@nhc-tr.trent.nhs.uk

BACKGROUND
Since the early 1990s, the National Health Service (NHS) has seen the encouragement and growth of research-based practice – described here on, as evidence-based practice (EBP). This policy has been promoted nationally by the UK Department of Health. As a consequence there has been a profusion of guidance, policy documents and service requirements disseminated to all levels of the NHS. The central message of EBP is that clinical professionals should integrate individual clinical expertise with the best available research (Sackett et al, 1997). All healthcare professionals are being urged to base their clinical decisions on the best available evidence (Geddes, 1997).

The UK Government is implementing the most comprehensive programme of modernisation the NHS has seen since its inception. The policy emphasis has shifted from cost effectiveness to clinical and organisational effectiveness (NHS White Paper: 'The New NHS: Modern, Dependable' (NHSE, 1997). NHS organisations are now legally obliged to ensure that the quality of services provided is effective, modern and reliable. The deployment of research evidence, best practices and other forms of evidence are regarded as pivotal in this context.

Underpinning these policy initiatives has been a more direct concern. The Government invests a huge amount of public money per year in R&D for the NHS. The evidence from much of this research has percolated to healthcare professionals at different rates of adoption across the UK. This represents a failure in getting research into practice, and offers a limited return on investment. The promotion of EBP by the Government, professional bodies, and opinion leaders can be seen as a policy-driven initiative to bridge this 'research-practice gap', ensure equity of effective care and ensure that R&D investment is recouped.

LOCAL CONTEXT
In Nottingham, a survey of EB practices in 1999, identified the need to create a framework to support EBP, and a programme of activity and initiatives to create cultural change. The framework was designed to take into account the spheres of influence and activity within the Trust and led to a four-tiered approach: organisational, directorate, team and individual interventions. The intention was to 'socially engineer' structural change and facilitate cultural change.

Over 18 months, a steering group and co-ordinator (CM) organised and co-ordinated, a quarterly an EBP 'knowledge bazaar', where knowledge and was exchanged and shared. A resource pack was created and distributed to each team. Team-based portfolios were designed and teams asked to include relevant evidence in these. A standardised pro-forma was designed to ensure that key learning was captured from each team and shared across the organisation. Each team fielded a "link facilitator" who was the contact point for each team, and acted as a boundary spanner for

knowledge sharing. A programme of training was established, which targeted the link facilitators as a priority. Key features of this training included change and project management, critical appraisal and evaluative skills training. Link facilitators were brought together in regular learning sets, facilitated by key staff in each area of the organisation.

AIM
Our aim was to conduct a follow-up study to assess the impact of the programme. This paper reports on some of the key findings from that study.

METHOD
In 1999 we conducted a survey using a novel team-based questionnaire, and have described the development of this elsewhere (Rogers and Milburn, 2000). In 2001, we undertook a more comprehensive follow-up through a postal survey of teams, and link facilitators, as well as an audit of team resources.

FINDINGS
The response rate was higher for the follow-up survey (81%) than for the baseline (73%). Understanding of EBP had improved in 74% of teams over the duration of the EBP programme (18mths). Awareness of EBP had improved in 67% of teams over the last year alone. The attitude of 85% of teams had changed towards EBP within the last year, and 95% of teams had discussed EBP-related issues more in the last year than before.

In 1999, 46% of teams argued that they had no approach to integrating evidence into practice. In 2001 these had reduced to 6% - a reduction 40%. In 1999, 9% of teams considered themselves unconfident at applying evidence to practice; in 2001 this had reduced to 3% - a reduction of two thirds. Psychiatrists were under-represented: 1% responded out of a potential 8%. Staff continue to rely on the tacit : informal and formal social networks and forums for their sense-making. However, the value of explicit, codified knowledge has risen in the estimation of staff. This is framed by a pragmatic awareness that codified knowledge has a place, but is not the whole answer. Team-based forums, interest groups and cross-team working have increased with a greater perceived impact. Clinical supervision, and the use of local expertise and 'experts' appear to have lost their impact.

The main barriers to managing knowledge in 2001, were the same as those highlighted in 1999: lack of time, workload and staffing levels. A key difference in 2001, was that fewer staff identified lack of skills or expertise as a barrier.

A high number of teams (72%) had developed portfolios of evidence to support their practice, been involved in knowledge-based projects (74%) and had an identified and established forum to make sense of evidence in relation to practice. Interestingly 81% of teams argued that they created time for reflective practice or supervision. Ninety-two percent of teams considered that the link facilitator role had created a positive impact.

DISCUSSION
The health-related literature concerning EBP is predominantly uncritical. It consists of papers that either cite it as a paradigm shift in health care decision making (Evidence-based Medicine Working Group, 1992), explain it (Sackett et al, 1997) or describe how it is used (Ellrodt et al, 1997). To date, the emphasis has been on explaining the techniques and providing examples of application. The limited critical literature that exists does however, suggest that the implementation and

appropriation of EBP is problematic. Much of what we are learning about EBP is from the knowledge management and innovation literature.

Influential has been the work of Swann et al (1999) who argue the case for a community networking model of KM, as opposed to a more IT based model, which they argue may in-fact undermine knowledge-sharing and creation. This perspective influenced us to build on the existing social networks, groups and alliances that exist in the organisation. We consider that this has been the correct decision. Our starting point was the notion of EBP as a new idea with 'interpretative flexibility' (Weick, 1995), which can and will be interpreted differently in different contexts of application, as those involved seek to 'make sense' of the idea – or 'evidence' in relation to their own practice. Taken from a process-based innovation perspective (Swann et al, 1999), EBP can be seen not as an entity with fixed features, but rather as a complex system which needs to be designed and appropriated within each unique context (Clark, 1987). The increased level of adoption is an extremely positive finding, and for us, validates the process-based, social network approach that we had adopted. This is evidenced by the high response rate to our survey, the questionnaire, of which, was in terms of content and utility, conceptually complex. The increased levels of understanding and awareness that we have found, are further evidence of the success of this approach. Furthermore, we found that more teams are now approaching EBP in a systematic and routine manner, again, a consequence of our input. Added to this, we found that levels of confidence in applying the skills of EBP have also increased. Although we did not discount an IT-based approach, we knew that for EBP to diffuse effectively it would need to be facilitated at operational level, and engineered a strategic level. This approach appears to have paid off. The high adoption of innovations such as a portfolio of evidence, the use of a resource pack and involvement in knowledge-orientated projects reinforce the success of the programme. Key to this was the role of a co-ordinator, a steering group, local 'champions' and link facilitators. Without this individuals in place any of the above innovations may have simply not been adopted at all.

Any study of knowledge management or in our case, EBP, needs to take into account the presence, role and activities of the various professional groups that operate within the system. We were disappointed, but not surprised that the response rate for the medical professionals (in this case Psychiatrists) was low. In this context, we were particularly influenced by Halliday's compelling case that professions create and reinforce 'knowledge mandates' (Halliday, 1985) to consolidate their positions in organisations and society. A wide range of different health care professionals, in different settings use research evidence. Hence interpretations of evidence are likely to be rather different. As a consequence, negotiation between disciplines and organisational groups will be required to find a way of operationalising whatever new idea is embodied within "the evidence" that is being introduced to practice. The lack of involvement from the medical profession can be seen as a consolidation of their own particular knowledge mandates, and is certainly worth investigating further. However we were not surprised as our experience and the anecdotal experience of staff working with their medical colleagues was similar. However, another possibility is that although we involved Psychiatric opinion leaders, Psychiatrists themselves did not consider that they had ownership of the process and hence didn't get involved because of this. Ultimately however, our efforts were limited by the failure to get the psychiatrists involved in as comprehensive way as their other professional colleagues. For a similar initiative to take place elsewhere, we recommend that the role and presence of professional groups needs to be taken into account. Indeed, a mapping of knowledge territories or mandates needs to be considered and common interests identified.

There is a tension between EBP adoption, professional know-how and the need for the organisation to balance and blend its relative orientations to efficiency and effectiveness. This dilemma between efficiency and innovation has been noted in the organisational literature for some time (Clark and Staunton, 1989). In our study this was evident in the low utilisation of codified databases and EBP repositories which are increasingly being promoted as the key to efficient as well as effective practice. While we have considered, and argue that teams' emphasis on tacit knowledge-sharing and informal networking and knowledge brokering is an organisational strength, we note also that it has the potential to be an organisational weakness. For example, we were captivated by Lipsky's concept of 'street level bureacracy' (Lipsky, 1980) where the implementers of policy (in our case health professionals), in effect, become the policy makers and who due to working conditions and constraints, and a high degree of discretionary power, appropriate and redesign the evidence to suit the context within which they work. While this may be an appropriate response to contextual needs, it also brings us full circle to one of the reasons why EBP has been promoted. With differing interpretations and applications of evidence, there is an increased likelihood of new insights and the resultant differing qualities of care. This may be ideal for innovative approaches and innovation, but may not be ideal for consistent and equitable care. Innovation in Nottingham may result in differing levels of care to Manchester or London. For us the primary motivation was to ensure that staff were equipped to be evidence-based; in reality we found that staff were appropriating and redesigning evidence in ways that may not have been efficient; but were certainly innovative. In some ways this fostered a range of expectations and resultant mixed messages that we, and team members had to deal with. We recommend that this tension will need to be resolved prior to the inception of an organisation-wide programme such as ours.

For us a key learning point was that the programme had been successful in a period of relative uncertainty. Throughout the latter part of the programme, the organisation merged with five other organisations to become the largest mental health service provider in Europe. The merger brought about enormous cultural change and structural changes that created a great deal of uncertainty. Many projects and initiatives were delayed, put on hold or cancelled. Significantly though, against the backdrop of these changes, staff continued to remain engaged in EBP. The social networking that we facilitated and the practical interventions that we introduced may have served to reduce isolation and uncertainty and strengthened the contexts within which teams and individuals worked.

CONCLUSIONS
A facilitated programme, with practical, cultural and social supports, 'socially engineered to create an organisation-wide change appears to work. However, caution is recommended when engaging with powerful professional groups: there is a huge benefit in mapping knowledge territories and establishing common interests between groups   An organisation needs to be clear why it wishes to adopt EBP, and to avoid sending mixed messages about the perceived benefits.

BIBLIOGRAPHY
Clark, PA. and Staunton, N. (1989). Innovation in Technology and Organization. London: Routledge.
Clark PA (1987) Anglo-American Innovation, De Gruyter, New York.
Department of Health (1997). NHS White Paper: 'The New NHS: Modern, Dependable'. NHSE.
Evidence-based Medicine Working Group. (1992) Evidence-based medicine: a new approach to teaching the practice of medicine. JAMA;268:2420-25.

Geddes, J. Using evidence about clinical effectiveness in everyday psychiatric practice. Psychiatric Bulletin. 1997. 21, 390-393.

Halliday, T. (1985). Knowledge mandates: Collective influence by scientific, normative and syncretic professions. British Journal of Sociology, 36 421-47.

Lipsky, M (1980). Street-Level Bureacracy: Dilemmas of the individual in public services, Russell Sage Foundation, New York.

Sackett DL, Rosenberg WMC, Gray JAM, Haynes RB, Richardson WS. 1996. Evidence based medicine: what it is and what it isn't. 31: 71-2. BMJ. London.

Swann J, Newell S, Scarborough H and Hislop D. (1999). Knowledge management and innovation: networks and networking.

Rogers D and Milburn C, Knowledge Management in the NHS. A survey of knowledge-based practice at Nottingham Healthcare NHS Trust. In Proceedings of the Knowledge Management: Concepts and Controversies Conference, The University of Warwick, 2000.

Weick KE (1995) Sensemaking in organisations. Thousand Oaks, CA: Sage.