Case study

Changing clinical practice: views about the management of adult asthma

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Abstract

A case study of clinical practice in adult asthma is presented. The case is part of a larger project, funded by the North Thames NHS Executive Research and Development Programme, that sought to explore the part played by clinicians in the implementation of research and development into practice in two areas: adult asthma and glue ear in children. The first case of glue ear in children was reported in a previous issue of this journal (*Quality in Health Care* 1999;8:99–107).

Background information from secondary sources on the condition, treatment, and organisation and location of care is followed by an account of the results of semistructured interviews with 159 clinicians. The findings are reported in two sections: clinical management and the organisation of care, and clinicians' accounts of what, why, and how they introduce changes into their practice. The way clinicians talk about their learning, their expressed views on acceptable practice, and their willingness to change were shown to be informed by construction of legitimate and sufficient evidence, respected colleagues, and accumulated individual experience. There was little open acknowledgment of the influence of organisational factors in influencing practice. To investigate whether relationships between task performance and organisational arrangements found in other sectors apply to UK health, more robust measures by which performance can be evaluated are needed.

(*Quality in Health Care* 1999;8:253–261)

Keywords: case study; asthma; evidence; practice; organisation

The translation of research into clinical practice is thought to be an increasingly important component of securing improvements in patient care. In the light of such thinking, the research from which this case is drawn examines the subjective views of clinicians about their current patterns of practice in relation to adult asthma, influences on their practice, the range of practice, and the process of change in practice. We were particularly

concerned to explore how social and organisational issues impact upon the way that clinical decisions are made in the NHS. Taking these underlying research objectives as its foundation, this case study identifies the factors which clinicians in primary and secondary care cite as encouraging or discouraging the development of evidence-based practice in relation to the clinical condition of adult asthma. Another case, on glue ear, was done at the same time and in the same locations and has been previously presented in this journal. Further information on the research context is given in that case.¹

Background

THE CONDITION AND ITS TREATMENT

Asthma is a major cause of ill health in the UK. The diagnosis and treatment of asthma involves a wide range of healthcare professionals across primary and secondary care. Current estimates suggest that approximately 4% of adults are affected by asthma, and in 1992 there were over 1600 deaths attributed to the disease.² Asthma imposes significant medical, social, educational, and economic burdens on society. Prescription costs alone amount to some £350 million each year.³ Between 1982–92, prescriptions for asthma treatment increased by 75%; and both general practitioner (GP) consultation rates and the number of hospital inpatient treatments approximately doubled.² These apparent changes in disease morbidity may reflect changes in the pattern of disease, attributable to environmental or genetic factors. On the other hand, they may be the result of an increasing awareness of the condition; greater readiness to make the diagnosis of asthma, particularly in milder cases; increased use of the term “asthma” for respiratory conditions; and an increasing propensity to seek medical help on the part of patients.

In the light of the increasing morbidity and mortality statistics attributed to asthma, the British Thoracic Society (BTS) sought to improve and standardise clinical practice and issued a set of guidelines for asthma treatment.⁴ It is important to note here that the BTS guidelines, widely recognised as the authoritative guidelines on the management of asthma, are not strictly speaking, evidence based. They

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Accepted 17 September 1999

are consensus guidelines, drawn up by a panel of experts. It is beyond the scope of our study to evaluate the evidence base of the BTS guidelines. We proceeded on the basis, supported by the results of our fieldwork (1996–7), that the BTS guidelines were taken to reflect the state of current knowledge and were accepted as the authority on appropriate asthma care. In a review of the literature, however, Eastwood and Sheldon found little evidence to suggest that the BTS guidelines have improved standards of care.⁵ The issue of consensus-based versus evidence-based guidelines raises an interesting point about the provenance of advice, and the influence of the source of guidance on the uptake and acceptance of advice; themes to which we shall return later in the article.

The BTS guidelines promulgate a “step-wise” approach to the treatment of asthma—that is, one that increases the potency of treatment regimens as symptoms fail to resolve, or worsen. The guidelines are particularly intended to emphasise the important role of anti-inflammatory “preventers” of asthma attacks. The use of preventers are reported to show various advantages over asthma management which relies primarily on the use of bronchodilators, or “relievers” of attacks, once manifested.

ORGANISATION AND LOCATION OF CARE

In recent years, government policy has encouraged a general shift towards primary care in the purchase and provision of care.⁶ Within the primary care setting, policy has sought to encourage change in the organisation and management of chronic diseases such as asthma and diabetes. For example, fixed payments were introduced to encourage the adoption of chronic disease management programmes.⁷ These policy directions have impacted asthma care in three main ways. Firstly, the bulk of routine care for chronic asthma has shifted from secondary care and is now delivered in primary care; secondly, there has been a significant increase in the number of practice nurses in general practices⁸; and thirdly, within the primary care setting, there has been significant change in the delivery of asthma care, with a greater reliance on specialist nurse run clinics.⁹

Various studies have explored discrete influences on the provision of asthma care. For example, there have been studies investigating the relation between the age of a clinician and her prescribing pattern¹⁰; between a clinician’s stated interest in asthma and prescribing costs¹¹; and between the provision of financial incentives and prescribing patterns.¹² Some evidence exists to suggest that improved outcomes are linked with the introduction of primary care asthma clinics,¹³ particularly when run by nurses with advanced asthma qualifications.¹⁴ There are also claims that practices approved for special health promotion or asthma surveillance activities, and those with a general practitioner trainer, had on average better prescribing patterns (using the prescribing ratio of preventers:relievers as an

indicator of quality), and significantly higher asthma drug costs.¹⁵ However, other researchers have found that Family Health Services Authority (FHSA, as it was then; now part of District Health Authorities) approval for a chronic disease management asthma clinic, although associated with favourable patterns of structure and process of care, did not result in improved clinical outcomes.¹⁶

Firm conclusions about the role of organisational factors on patient outcomes cannot be drawn from existing publications, largely because of a paucity of research in this area. A complex web of factors influences the provision of clinical care. From our current knowledge base, we are unable to demarcate between, or understand, the role of various organisational issues such as location, structure, personnel, skill mix, etc. Concerns about improving clinical care have, to date, been dominated by clinical trials, designed to evaluate a particular intervention in terms of the treatment given. Organisational components are often overlooked or treated in a non-systematic way. For example, there have been no randomised controlled trials evaluating asthma clinics in general practice,¹⁶ nor are we able to draw firm conclusions from studies into other aspects of asthma care such as the impact of outpatient clinics,¹³ which have been subjected to randomised controlled trials, because of small sample size. In a comprehensive review of these issues, Eastwood and Sheldon assert⁵:

“There is little good published research evaluating different ways of organising the delivery of asthma care.”

Furthermore, they note that:

“Asthma clinics may facilitate communication between professionals and patients, and those run by asthma nurses may provide more time for patients to increase their knowledge and confidence. However, there is little evidence to suggest that such clinics can lead to a long term sustained improvement in patient morbidity.”

Despite the lack of a systematic research base, there are pointers to organisational impacts on patient care in asthma. For example, in secondary care there is some evidence to suggest that care led by a specialist is better than care led by a generalist.⁵ Overall, however, there is a lack of good quality research evaluating the role of organisational factors in the provision of clinical care.

Methodology and research design

The case was exploratory in nature and, at a minimum, aimed to achieve qualitative descriptions of clinical organisation and management in primary and secondary care in relation to asthma care, and an analysis of clinicians’ subjective accounts of the nature and reasons for their own and others’ practice. Where possible, these subjective accounts were placed alongside any available formal evidence about prevailing practice, for example from audit or prescribing patterns. One requisite feature of the research design was to enable a search for discernible differences between regions, sites, primary and secondary care, and individuals, in clinical views and activities.

Table 1 Desired data

(A) Social and Organisational context	(B) Individual differences between clinicians	(C) Self reported approaches to clinical practice	(D) Clinical behaviour in diagnosis and treatment	(E) Patient mortality and morbidity
For example, characteristics of: ●Region ●Hospital ●General practice ●Specialty ●Clinical team	For example: ●Specialisation ●Hierarchical level ●Age	For example, attitudes about: ●Influences on practice ●How practice has changed over time ●Variations in colleagues' practice ●Controversies ●Keeping in touch	For example: ●Prescribing patterns ●Referral patterns ●Patient education processes	For example: ●Deaths ●Quality of life measures ●Working/school days lost ●Admission rates

Table 2 Respondents sorted by sector, function, and level

	Respiratory specialist	generalist	Intensive therapy unit and accident & emergency	Total
Secondary care				
Consultant	15	6	9	30
Senior registrar	6	3	1	10
Registrar	6	4	5	15
Senior house officer	11	6	7	24
House officer	6	3		9
Nurse	11	2		13
Primary care				
General practitioner				38
Practice nurse				20
Total				159

Table 3 Respondents sorted by site, sector, and function

	Respiratory specialist	Generalist	Intensive therapy unit and accident and emergency	Primary care	Total
Chestnut	11	16	6	12	45
Holly	12	4	4	18	38
Juniper	21	2	7	16	46
Wisteria	11	2	5	12	30
Total	55	24	22	58	159

In an ideal world we would have been able to collect data in the five blocks that table 1 shows. When the research was proposed we knew that we were unlikely to secure data on patient outcomes (block E). In the event, however, it proved impossible to secure systematic comparative data on clinical behaviour (block D).

Sustained efforts were made to collect any available process or outcome measures relating to asthma care (for example, prescribing data, referral rates, emergency admissions, systematic clinical audit, unit costs). Regrettably, nothing systematic was available for any of our sites. In the course of the interviews, mention was made of audit or of various sources of data, but that which was available was neither comprehensive nor systematically compiled over any meaningful timescale. The lack of rigorous, timely, and relevant performance data represents a significant finding in itself. Without agreed and measurable outcomes, it is impossible to draw conclusions about the role and influence of organisational arrangements on patient care.

This case is therefore restricted to an analysis of subjective data, collected from clinicians who described the nature of, and reasons for, their own and others' practices relating to the treatment and diagnosis of asthma. The investigation focused on an exploration of variations in, and relations between, social and organisational context, individual differences, and self reported approaches to clinical practice and decision making.

We sought to investigate the impact of organisation on clinical care, comparing perceptions and attitudes and patterns of reported clinical practice across different sites and ways of organising services; different levels of hierarchy; different age brackets; and between primary and secondary care, etc.

The project focused on the perceptions and attitudes of clinicians associated with the diagnosis of adult asthma in two hospital locations and a sample of their surrounding GPs in each of two NHS Regions, North Thames and Anglia Oxford. The four hospitals were given code names: Chestnut and Juniper were teaching hospitals, Wisteria a satellite teaching hospital, and Holly a district general hospital.

A total of 159 semistructured interviews were conducted. Tables 2 and 3 show the distribution of interviewees for function, level, and site. All interviews were taped, fully transcribed, and analysed using the NUD.IST (Non-numerical Unstructured Data: Indexing, Searching and Theorising) qualitative software package. During each interview, respondents were asked to complete a ticklist, which indicated their assessment (high, medium, or low importance) of various influences on their practice. The ticklist data were analysed using SPSS. The non-response rate to requests for interviews was particularly low in the hospital sites where we secured a participation rate of over 90%, whereas in general practice the participation rate was 60%.

Results

Our findings are presented in two sections. The first describes the variation found in the different study sites for clinical management and the organisation of care. The second focuses on reported accounts of how clinical practice evolves.

CLINICAL MANAGEMENT AND THE ORGANISATION OF CARE

Striking differences between the four sites were found in the levels of resourcing; the division of labour; the role of medical specialists and their relation to generalists; the extent to which nurses are given special responsibilities; and the formal and informal means through which the formation of teams and groups are facilitated or inhibited.

The chest unit in Juniper (teaching) was well equipped, with a dedicated respiratory ward, a bronchoscopy suite, sleep laboratories, lung function laboratory, outpatient department, day unit, a well stocked specialist library, and a dedicated radiograph. In contrast, Chestnut (teaching) had little in the way of a tangible,

discrete chest unit apart from three offices for specialist staff. There was no specialist library nor dedicated radiograph.

Teams of doctors (or firms as they are colloquially called in the UK) are grouped into specialities. Secondary asthma services are within the remit of the generic grouping of general medicine, which is split into particular subspecialties such as rheumatology, gastroenterology, care of the elderly, respiratory, etc. The number of specialist chest consultants ranged from two part time consultants (Holly) to four and a half full time consultants (Juniper). These differences did not coincide with the teaching status of the hospital nor its size nor regional location. The extent to which a team's caseload matched its particular subspecialty varied enormously. Junior doctors rotated around different teams and participated in an "on take" rota for assessing, admitting, and caring for patients who presented as emergencies in accident and emergency. Considerable variation existed in the extent to which asthma patients admitted on take were subsequently transferred to the respiratory team. For example, in Juniper (teaching) respiratory medicine was seen to be the province of specialists, and handover of asthma patients to that subspecialty was automatic, whereas in Chestnut (teaching) and Holly (district general hospital), non-respiratory general medical subspecialties retained a strong role in following up patients with asthma whom they encountered when on take in accident and emergency. In Wisteria (satellite), generalists played minor backup parts, but they clearly saw asthma as the province of the respiratory subspecialty. The differences may reflect various factors such as historical development and inherited organisational context. However, interviewees tended either to accept differences as part of the taken for granted "way things are done here" or to explain them in terms of mechanistic factors such as work load distribution and hospital size:

"We have a whole argument .. about specialism versus generalism, and the audit evidence would support the concept that you do better under the specialist, and we are committed to specialist care .. but we have some reservations about how fairly that would work. In this hospital [respiratory cases represent] nearly 38% of [all medical] cases." (Respiratory consultant, Wisteria)

"In any district general hospital serving 250 000 population with 3–4 physicians, you can't have all specialists. Then are you going to make it pot luck? Are you going to have a specialist in asthma but if he's on duty on Thursday and you come in with your asthma attack on Friday, well that's bad luck, you've got the AIDS specialist or the gastroenterologist. I think you have got to have some generalists. I don't think the UK is ever going to be able to afford to have a specialist based service across the board." (Intensive therapy unit consultant, Chestnut)

Given the lack of rigorous data available on comparative performance, it is impossible for outsiders, such as ourselves, to determine whether organisational differences affect patient care and clinical outcomes. At the same

time, opinions and beliefs held by clinicians about the role of organisational factors (such as specialisation and structure) in improving patient care, although often strongly held, were necessarily based on anecdotal and experiential data. That decisions about organisational issues were often made on an ad hoc basis was shown from a comparison across the case study sites of the emphasis placed upon the role of the specialist asthma nurse in secondary care. In two sites, Juniper (teaching) and Wisteria (satellite), asthma nurses were seen to be integral to the provision of care. In Holly (district general hospital) they were seen as desirable yet not critical, whereas in Chestnut (teaching), the specialist asthma nurse was a recent introduction that the lead consultant hoped would secure change throughout the clinical service "by stealth"—that is, without colleagues being aware that change was being attempted.

We found that any changes made in organisational arrangements tended to be evaluated in a non-systematic way, giving rise to debate and considerable local variation in organisational context. For example, the role of nurses in primary care was often cited as a significant change in the treatment of asthma:

"... And I think probably the biggest change that's happened in practices is actually because practice nurses are being trained in asthma. I think in most practices, the bulk of the asthma is done by the nurses." (GP nurse, Holly)

"I think asthma nurses have become increasingly important in the past five years. I think they have been recognised as being important in the past two years and it is something that people are talking about quite a lot." (Respiratory senior registrar, Wisteria)

And yet, without reliable comparative data, it is uncertain whether, and how, this change has impacted patient care:

"We have given, or partially given, asthma care to nurses in this country without any evidence at all that it is beneficial." (Respiratory consultant, Wisteria)

It is equally legitimate for clinicians to hold the view that particular organisational arrangements (in this case the use of nurse run asthma clinics), are beneficial, detrimental, or neutral because there is no agreed or standardised way of measuring the impact of such arrangements. The diversity of opinion about the benefits of nurse run asthma clinics was manifested in significant differences in their distribution across our case study sites. In the Wisteria catchment area only 20% of participating practices had asthma clinics, compared with 30% of participating practices in Chestnut, 80% in Juniper, and 100% in Holly.

If the assumption is made that the organisation of patient care is unimportant for outcomes, organisational arrangements can be altered to suit personal preferences and convenience, for example:

"There was a point when our previous nurse went on the course at Stratford and she had a file to recall people. Our present nurse doesn't have that much interest although she is willing to do the education. So that's gone by the by." (GP Chestnut)

In primary care, we compared practices with different numbers of partners. In the Chestnut and Wisteria areas, nearly 30% of all GPs were in single handed practices, whereas in the Holly and Juniper areas, the proportions were 10% and 0%. Social structures impact upon the performance of individual clinicians. We were able to identify a distinctive subgroup of single handed practitioners who displayed a tendency to be defensive about their practice and a lack of reflexivity and self critical analysis. This often resulted in an apparent unwillingness, or inability, to change their practice or to be proactive in keeping up to date. Because of their circumstances, there were fewer opportunities for supportive medical discussion among peers:

"I think it is just that some GPs are set in their ways and not interested in changing...[for example, Dr X].. I offered to see her to explain how the department works and create a better relationship. She refused to see me. She said she hadn't the time to come and so I said I would come to her and she said she hadn't got time for that." (Accident and emergency consultant, Wisteria)

For some GPs, the isolation of single handed practice lowers the threshold for referral to hospital. One respondent described the effects of changing work practice from a multihanded to a single handed practice:

"We used to discuss difficult patients we have seen, or if I had seen someone I couldn't manage. [Now] if I can't manage I have to send them to hospital." (GP, Wisteria)

However, being part of a multihanded practice doesn't necessarily improve communication:

"It's very difficult to discuss practice with another practitioner. It gets harder as you get further into practice. It sounds like you are having a go at somebody." (GP, Wisteria)

Within the hospitals, we found considerable differences in the structure and support for clinical teams. Neither Holly (district general hospital) nor Chestnut (teaching) had any arrangements for regular team meetings. Holly's respiratory team relied on informal interactions for information exchange, and consultants were perceived to be approachable and accessible to junior staff. There were two consultant wardrounds each week, and consultant led "post take" (review of emergency on take admissions). In Chestnut, the chest team was merely a loose association of individuals with a common interest. There was little leadership and little interest in developing and sustaining a coherent group. There was one consultant wardround each week and registrar led post take. In Juniper (teaching) there were weekly team meetings for medical staff only. The team included several highly respected chest physicians with strong reputations and research interests. There were daily wardrounds with the registrars, some of whom also led handling of cases after emergency admission. Junior doctors felt isolated. Having to manage clinical problems alone, they perceived the senior staff to be too important or too occupied with research to teach or mentor them. In Wisteria (satellite), there were weekly multidisciplinary

Table 4 Summary of most common responses (n=246) about changes in practice. Interview question: *in what way has your practice with respect to asthma changed in the course of your career?* (Total responses = 263)

	Number	% of total
Willingness to give steroids	55	20.9
Drug selection (general)	33	12.5
Emphasis on patient education	29	11.0
Use of long acting β -agonists	26	9.9
Use of theophylline	26	9.9
Organisation of care	22	8.3
No significant changes	21	8.0
My attitude to asthma	11	4.2
Device selection/prescribing	9	3.4
Shift of workload to primary care	9	3.4
Use of antibiotics	5	1.9

team meetings. The team was strongly led by a charismatic, acknowledged authority on asthma. There were dedicated teaching sessions for junior staff, twice weekly consultant wardrounds, and consultant led handling of cases after emergency admission.

In general, organisational issues were not seen by practising clinicians as important factors in influencing the outcomes of patient care. It is unclear whether this attitude is a result of, or the reason for, the lack of rigorous research and reliable data about organisational influences on clinical outcomes. That is to say, are there few studies on the effects of organisation because the taken for granted assumptions of health services researchers is that such studies would be fruitless? Or do clinicians assume that organisational issues are unimportant because if they were important, there would be strong evidence to that effect? Or are the methodological difficulties of constructing reliable studies of organisational factors, when systematic outcome data are lacking, sufficient to deter most people from considering the issues?

CHANGES IN CLINICAL PRACTICE

This section draws on a series of answers to questions asked of respondents that sought to uncover insights into changes in clinical practice. The findings are reviewed here in terms of three key questions: *what? Why? How?* Firstly, *what* do clinicians consider has changed in their management of asthma over the course of their career. Secondly, *why* did they change—what triggered a shift from an old to a new way of doing things? Thirdly, *how* was that change accomplished, what was the process through which change was implemented and sustained?

What has changed?

The clinicians who participated in our study identified a wide range of changes in their practice of treatment of adult asthma. Table 4 shows a summary of the most common responses to our question: *in what way has your practice with respect to asthma changed in the course of your career?* The most frequently cited specific change concerned the use of steroids (preventers) in asthma care (20.9% of responses). Changes in drug selection generally, including steroids, accounted for 55.1% of responses. Some 11% of responses mentioned

changes in emphasis on patient education, whereas 8% of the 263 responses (20% of respondents) stated that their practice had not changed significantly.

Estimates of the overall magnitude of change in asthma management varied widely, sometimes reflecting the length of time respondents had been practising:

"I have seen such changes in the management of asthma since I graduated 18 years ago. When I graduated, you practically had to be blue and at death's door before they'd give you any steroids and we were all terribly frightened your bones would fall to bits and you would turn into a diabetic overnight." (Generalist consultant, Chestnut)

"I think there haven't been any great advances in the management of acute asthma in thirty years." (Generalist registrar, Chestnut)

By and large, the changes indicated a move to conform to the advice contained in the BTS guidelines. Whereas the guidelines were set out in a step wise progression, however, many respondents appeared to adopt various parts of the guidelines/evidence in a "pick and mix" way. We cannot conclude that the guidelines per se have catalysed or secured change; rather we found changes have been adopted piecemeal with clinicians adopting those changes that fit with their existing models of practice and taken for granted assumptions:

"The guidelines are issued by the BTS. We don't follow them to the T but they are sort of guidelines—sort of tell us, okay you are doing the right thing; you are doing the wrong thing." (Registrar, Chestnut)

"As far as the guidelines are concerned, we use the BTS guidelines but I don't always agree with them. I do agree with them in principle but there are a few things that I'm not quite sure about. For instance, there is still very much this impression of a stepwise increase in steroids whereas what many people do is actually steroid rescue with a large dose early on and actually decrease." (Generalist consultant, Chestnut)

Why has change occurred?

Nature of evidence—Modern medical practice is notionally founded upon scientific evidence. However, when we asked respondents about influences on their practice (table 5), less than a third mentioned formal written advice or evidence (that is, national guidelines, literature, and research). Instead, experience is the most widely cited influence on clinicians' practice:

"Personal experience; that is probably the greatest influence." (Specialist consultant, Juniper)

"Almost everything is experience. I would go 90% on experience of what I have done before." (Respiratory consultant, Chestnut)

"It sounds awful but it is experience, almost a trial and error thing; we start out with a little book, but you start to get a feel of how patients respond." (Registrar, Juniper)

When reference was made to research evidence, our respondents often concluded that it was difficult to discern clear messages from "the evidence":

"There is an enormous amount of research but the messages are not clear." (GP Juniper)

Table 5 Summary of most common responses (n = 313) about influences on practice. Question: what are the influences that govern the way you manage asthma? (Total responses = 352)

	Number	% of total
My experience	59	16.8
BTS guidelines	52	14.8
Available literature/research	41	11.6
Discussion with seniors/experts	40	11.3
My medical training	35	9.9
Discussion with colleagues	27	7.7
Patients views	26	7.3
Postgraduate education	21	6.0
Representatives from drug companies	12	3.4

"The literature is flawed. It is not the fault of the investigators. It is just the scale of the studies that are needed." (Consultant, Wisteria)

"If you look at GP articles and journals that are written, there are so many things that come out that are conflicting evidence that no-one really knows. It depends on where you look and who you ask." (GP, Juniper)

"If you say to people you can only do things for which there is powerful evidence that it works, there wouldn't be very many things to do." (Specialist consultant, Chestnut)

Different respondents had different ideas of evidence. For example, some argued that legitimate evidence is derived from randomised controlled trials, meta-analysis, and systematic reviews; whereas others regarded the evidence of their own experience, or the experience of a trusted colleague, as critically important. The ambiguity and contestability which surrounds the concept of evidence has meant that for many, the concept of evidence-based medicine is incompatible with the day to day pressures of clinical practice:

"I can't get my head around the statistics—if there are 1000 people for whom the evidence has shown that a treatment's better, but you've had four personally where it's been a disaster, where do you fit that in? You can't ignore it." (Respiratory consultant, Juniper)

"I think broadly everyone practises evidence-based medicine really whether it is evidence of studies or the evidence of your previous practice." (Senior house officer, Chestnut)

"I think it [evidence-based medicine] is a complete hoax personally. For the reasons I suggested which is that trials are done on such specific, clean questions but they never quite apply to the patient in front of you." (Respiratory consultant, Juniper)

On the other hand, many respondents saw evidence-based medicine as nothing new, rather it represented a new name for the way they had always practised:

"I think it [evidence-based medicine] is a good idea; I am the same as a lot of people, a bit insulted that people don't think that that's what we're trying to do anyway." (GP, Juniper)

A SIDE EFFECT OF CONTESTED EVIDENCE: ACCEPTANCE OF VARIATION IN CLINICAL PRACTICE

The contestability of evidence, and differences in clinicians' perceptions of legitimate evidence, may contribute to an acceptance of different approaches to patient care. Thus

although we identified variations in practice, these variations were rarely spoken of as controversial or critically important. Certainly, no one expressed incredulity or was scandalised by the approaches adopted by other clinicians:

"A lot of general physicians give antibiotics and a lot of respiratory physicians don't, probably. In a funny sort of way I don't think it matters desperately." (Consultant, Chestnut)

[about a colleague who wouldn't use steroids] *"I did obviously talk to colleagues in my department about it and they just dismissed it as being a bit old fashioned."* (intensive therapy unit registrar, Wisteria)

"I would not hype up any of the grey areas in asthma into a controversy." (Consultant, Juniper)

The accounts gathered paint a picture of clinical practice which is constrained by, or seen as acceptable within, loosely defined boundaries. Clinicians don't see controversies per se, rather there are grey areas where there is no incontrovertible evidence available to resolve clinical questions. There were however occasional references to people perceived to be operating "on the margins":

"... there are certain names of GPs who have a bad name known to Casualty. Patients not adequately educated, steroids not introduced at the right time. I've seen some who would have benefited from steroids where they hadn't been used at all." (House officer, Wisteria)

Our interviews showed localised nuances in what is considered to be acceptable. Within different contexts, accepted practice is shaped, to a large extent, by membership of various groups. Different conceptions about the boundaries of acceptable practice become evident when we compare among groups, for example primary and secondary care, and when groups are joined temporarily by the uninitiated, who are often unaware of the norms and standards of the group. The difficulties of operating in an unfamiliar environment are illustrated when locum doctors are employed:

"... one of the problems with GPs is they sometimes have locum doctors covering for them at night: a locum doctor who doesn't know the patient or some sort of emergency doctor who is not familiar with the practice. You tend to see more problems with them." (Senior registrar, Wisteria)

We see boundaries around the notion of acceptable practice being created and reinforced by practitioners' social experiences. Cues come from professional associations and from informal experiences of a consultant firm, multidisciplinary team, or peer group.

"Generally the more experienced of us learnt together and therefore we've all got very much the same ideas." (Nurse, Juniper)

"Basically, we have to do what that consultant on, at that time, says because he's in charge." (Registrar, Chestnut)

"... change for me depends on how I have been taught by the consultants I have worked for; how I have seen that information work for me in medical practice and general consensus statements that have been made about management by authoritative bodies." (Respiratory consultant, Wisteria)

Hierarchy can be important, both as a current and an historical influence shaping an individual clinician's conceptualisation of acceptable practice. Thus hierarchy can be an explicit means of control whereby junior doctors feel obliged to conform to a particular consultant's patterns of decision making and working. At the same time it can be a much more subtle and implicit means of control whereby the consultant's way of working becomes accepted as a norm and becomes a taken for granted part of practice by junior doctors in the firm. In time, those juniors become consultants and perpetuate the cycle, inculcating members of their own team with the same assumptions.

Leadership, from a charismatic, widely respected individual, was an important trigger for change, or a filter through which ideas were passed before being considered for implementation by individual clinicians. This was a strong feature of Wisteria to the extent that senior colleagues looked to the local "asthma guru" to validate their own opinions about changes in practice:

"The year before last, there was an interesting presentation on asthma and the use of magnesium in the States and that certainly had me interested and I spoke to X [the leader] who said sounds like a waste of time so I dropped it." (Accident and emergency consultant Wisteria)

The respondents' individual descriptions of clinical practice made little mention of organisational issues. However, when we changed our focus from the individual to groupings of individuals, we found evidence to suggest that teams have a significant influence on securing change in clinical practice. For example, members of the Wisteria chest team, where considerable energy is expended in supporting and nurturing the team, gave similar accounts of their approach to asthma care. Given that much of clinical practice is shaped by experience, the sharing of views on episodes through discussion, comparison, analysis, and resolution of difficult issues means that individuals are exposed to more information, ideas, and interpretations. One can therefore hypothesise that well functioning teams are better able to deal with unexpected events and crises because they have developed shared understandings about important issues and team member roles and responsibilities. They also have access to a wider range of information and experience through their membership.

How change occurs

The limits which constrain clinical practice are rarely explicit. They are held tacitly by most clinicians, transferred by "osmosis", and reinforced by peer association. Once they are embedded into cognition, into "the way things are done", they are resistant to change. Evidence has to be strong, and multiple cues appear to be necessary to secure sustained change.

We asked respondents to describe, in general terms, how change occurred in their practice. Table 6 gives a summary of the most common responses.

Table 6 Summary of most common responses ($n = 199$) about change processes. Question: how have changes in practice come about? (Total responses = 217)

	Number	% of total
Through accessing research evidence	47	21.7
Through my experience	36	16.6
Through advice from more senior medical staff	34	11.1
Through discussion with colleagues	21	9.7
Through guidelines	20	9.2
Through drug company representatives	20	9.2
Through interaction with patients	11	5.1
Through postgraduate education	10	4.6

It is interesting to note that evidence followed by experience and advice from seniors were the most commonly cited mediators of change. The interplay between experience and evidence is an extremely important factor in determining whether change will occur. We have already seen that respondents did not see evidence as a clearly defined body of knowledge to which they have good access. Those who are sensitive to available evidence rarely accept it unquestioningly. Instead, it appears that clinicians have a set of internal filters constructed as a result of personal biographies of experience, education, and interpersonal interactions. It is these filters that determine whether evidence is either accepted or rejected. For example:

"[change comes about through] talking to people, listening to senior registrars, being the mother of an asthmatic child, and through some drug company literature." (Generalist consultant Chestnut)

"[I] filter information on the basis that the more you hear about it in general terms in something simple like the BMJ or the Lancet, the more likely that is going to be carried forward." (Generalist consultant, Chestnut)

Change is a gradual process, and one which is subject to fads and fashions:

"I think if you stand by watching, continually doing something different, I would hope that eventually you would notice the junior staff doing something different. [A senior colleague] refused to have peak flow monitoring on his ward. After I came I tried to have meetings, trying to show the value of it and he said it is ridiculous I have always been able to tell when they are severe. Personal experience outweighing anything else. But he has changed now so I suspect the sheer weight of what was happening elsewhere begins to filter through." (Respiratory consultant, Wisteria)

"I think there is still considerable debate as to whether theophyllines are or are not beneficial. Back when I started, there was a vogue that they probably weren't all that useful and I think that they have probably come back in to fashion now." (Generalist registrar, Chestnut)

A different form of analysis on influences on practice is forthcoming from the analysis of the data obtained from the ticklist. Having spoken spontaneously of influences on their practice, respondents were given a list of 26 items and asked to indicate (by ticking high, medium, or low) *How important do you judge each one to be in terms of influencing your present practice?* When presented with categories of formal knowledge

and guidance, respondents rated them as influential even though they did not immediately spring to mind in response to an open ended question. Guidelines and statements from royal colleges were judged as highly important by 77% of respondents, local guidelines were seen to be important by 59% of respondents. Other influences ticked as highly important were ongoing training (73.4%), colleagues (51%), early training (41.5%), patients views (44%), specialist asthma nurses (30.9%), and research evidence in journals (39.4%) and conferences (28.3%). But above all, 85% of respondents rated their own clinical experience as being of high importance in influencing their practice.

Even when presented with financial considerations, market considerations, or contract specifications as potential influences on their practice, less than 5% of our respondents identified them as being important. Respondents did not acknowledge the force of any managerial action on their practice. Instead, they spoke about their practice as being founded on their own experience of the doctor-patient relationship and the professional seniors and peers with whom they had worked, and not as something which they saw as legitimately subject to managerial influence.

These expressed views are interesting, particularly in the light of the publications cited in the first part of this paper. In various contexts there is evidence to suggest that managerial interventions do influence practice. For example GPs' prescribing practice has changed in response to constraints on what is prescribable on the NHS and overall drug budgets. Similarly GPs respond to financial incentives, for example to establish specialist clinics, or to participate in screening or immunisation programmes. None the less, doctors' spoken views of their clinical world are shaped by a strong sense of their own autonomy to develop practice in accordance with their experience, in which they include encounters with literature, research, opinion formers, and seniors, but none of these is seen as dominant over—or, in a sense separate from—their own personal experience.

Conclusions

Generalising from the findings outlined in this case, we suggest that the way clinicians talk about their learning and their views on acceptable practice, the impact of organisational issues upon practice, and the magnitude and process of change in practice, are influenced by constructions of legitimate and sufficient evidence, respected colleagues or authoritative professional bodies, social networks, and, above all, the accumulated experiences of life as a clinician. Importantly, the way in which all of these factors are viewed by clinicians and thereby shape their practice, is mediated through interactions with, and socialisation into particular, mainly professional, groupings. Clinicians do not operate, or at least do not see themselves as operating, through mechanistic responses to "guidance" (or even proclaimed evidence). Their world is created by their direct experiences of patients, peers, seniors, and

multidisciplinary team members. Models of knowledge transfer need to be built on an acknowledgment that clinicians, managers, and researchers occupy different subjective worlds constructed by different sets of preoccupations and occupations and that these differences create boundaries which can be resilient to change.¹⁷

An important finding is clinicians' professed lack of interest in, or consensus about, the impact of organisational factors on clinical outcomes. Indeed in clinicians' subjective accounts, organisational factors were rarely considered to be important in influencing the outcomes of asthma care. Management theory would lead us to believe that organisation arrangements and management behaviour would have an effect on task performance.^{18 19} Work in the United States by Shortell *et al* had begun to address this association in health care.^{20 21} However, there is as yet little strong research evidence on this association in UK health. A first step in being able to evaluate the impact of organisational and management arrangements on clinical behaviour is the development of rigorous, appropriate, and timely performance data which can be reviewed in different organisational contexts.

Policymakers seeking to secure the translation of research evidence into clinical practice have tended to concentrate on *what* needs to change, and on generating and disseminating evidence. Our work suggests that it may be useful to broaden concerns to include *how* change is secured, and the motivators for change at an individual level. We suggest that social and organisational context will be found to have an important, and hitherto largely neglected, role here. This conclusion, however, is based more on the translation of evidence from non-clinical settings than it is on direct evidence.

In the face of the difficulties of securing strong data on which to evaluate the impact of organisational and managerial influences on clinical behaviour why should we have been concerned to deal with subjective accounts from clinicians? Have we been "hoodwinked" by sins of omission or even commission? We cannot tell for sure. None the less it is our view that we would have been unlikely to find such a shared emphasis on experience and peers if this did not represent a strong belief. As such, whether these beliefs are an "accurate", objective reflection of reality or not, they will be important in their consequences. Understanding the subjective world of clinicians is vital to an understanding of translation of research into practice, and thereby the quest for improving patient care. Change is a complex and multifaceted process, it is fundamentally

shaped by perceptions about the nature of the evidence on which change may be based; the legitimacy of the sources of that information; and the social and organisational context in which change is to be implemented. It may be that securing a greater understanding of the subjective world of clinicians, and subsequent capitalisation upon our understanding of its power to shape practice, may offer a rich but as yet largely untapped vein of approaches to ensure that practice is more evidence based and to secure significant improvements in patient care.

Thanks to Susan Law for her help with the research design and fieldwork.

This case study is based on the study entitled *The Relationship between Research and Development and Clinical Practice in Primary and Secondary Care: Cases of Adult Asthma and Glue Ear in Children* funded by North Thames NHSE O&M Group 1994–7. The asthma case was published in QHC8.2 June 1999.

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