

## Conference papers

# Health informatics and modernisation: bridging the gap

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### ABSTRACT

This pilot initiative uses an approach that focuses on improving the whole business of primary care, its processes and its people. The Health Informatics Programme for Coronary Heart Disease (HIP for CHD) addresses the two faces of clinical governance but has a prime focus on the development of learning organisations. The project has developed a methodology and an associated set of tools that it has tested and evaluated in a small number of pilot sites. The work of HIP for CHD is focused on

coronary heart disease but the methodology is equally applicable to other clinical areas. In particular, HIP for CHD provides an approach that allows the diverse strands of all of the National Service Frameworks to be handled in a joined-up way in primary care.

**Keywords:** clinical governance, health informatics, learning organisations, National Service Frameworks

## Introduction

The UK Government is committed to a sustained increase in National Health Service (NHS) spending in modernising all aspects of care and treatment, but is determined that this expenditure will result in the NHS embracing new ways of working encompassing the two faces of clinical governance:

- *performance improvement* – requiring all those working in the clinical process to use information and information systems to critically examine and improve the way they work
- *performance management* – creating an environment where healthcare workers acknowledge and support the right of patients and taxpayers to have access to meaningful performance data, both to justify continuing investment and to inform individual patient choice.

Currently too many front-line staff experience clinical governance as an additional burden, which they see

adding little or nothing to the quality of care, merely involving the collection of data that they know to be meaningless, simply to allow ticking of boxes and ‘feeding the beast’.

*The NHS Plan* sets out an ambitious agenda for the NHS and it is recognised that the delivery of this agenda requires a major investment in NHS information technology (IT).<sup>1</sup> However, delivering new systems will not in itself result in the order of magnitude change required in the quality of service provided by the NHS. If the investment is to result in the desired improvements it is essential that:

- systems focus on supporting front-line staff in the delivery of care to individual patients
- clinicians and other front-line staff are persuaded of the benefits of engaging with new systems and new ways of working.

If these new approaches are to be successful, front-line staff need to be persuaded that they represent a better and easier way of working, bringing not just better patient care but also offering greater personal satisfaction.

This paper addresses these issues. It describes a quality model driven by health informatics to support the learning organisation forming a bridge between health informatics and the modernisation agenda.

## Background

Primary care has faced an accelerating rate of change through fund-holding, primary care groups (PCGs), primary care trusts (PCTs) and the new General Medical Services (GMS) contract that places it at the heart of the NHS and puts considerable pressure on an already overstretched service.

If primary care is to rise to the challenge, the primary care team needs to be supported by tools and methodologies that enable it to reflect on, and improve, the quality of the service it provides within the context of an already demanding schedule.

The advent of the National Service Framework (NSF) for Coronary Heart Disease in 1999 made practices stop and think – ‘How can we do this as well as everything else?’<sup>2</sup>

The Health Informatics Programme for CHD (HIP for CHD) was a response to this question, developing a practical approach supported by appropriate tools to support the new way of working demanded by the NSF.

HIP for CHD was funded by the Department of Health and ran for three years (2000–2003).

## The development of the HIP methodology

The development of the practical tools and methods to support clinicians and their administrative teams was based on a conceptual model already proven in diabetes and the generic quality improvement methodology developed by Deming and others.<sup>3</sup> Its application in CHD allowed the model to be continuously improved and gave new insights into the underpinning theories.

### The story so far

General practice has been highly computerised at the point of care for many years. By the early 1990s, 70% of practices were computerised and development effort was focused on the development of tools to make the computer better support the clinician at the point of care.

In 1992, the Derbyshire Integrated Care Diabetes Project set out to demonstrate how these new tools

could help achieve health gain for people with diabetes in 33 practices using the AAH Meditel clinical computer system, and one district general hospital in the county of Derbyshire. In order for this to be accomplished, a system was developed using locally developed, computerised diabetes guidelines that built upon normal clinical activity and captured health outcome-related data across the interface of primary and secondary care. Two key lessons were learned: the need for healthcare professionals to move from delivering care on a ‘needs must’ basis to a planned strategic approach, and secondly, that structured data entry together with definition of terms facilitates the monitoring of the healthcare process.<sup>4</sup>

Between 1993 and 1996 these lessons informed the thinking of DiabCare UK, part of a European Union Health Telematics Programme, DiabCare Quality Network in Europe. The focus of this project was to establish monitoring and control systems using state-of-the-art IT for quality assurance in diabetes care, the vital ingredients being data collection, comparison and feedback in an environment that encouraged continuous development.<sup>5</sup>

Working with system suppliers and NHS informaticians, practical tools and quality methods for use during and after care delivery were developed. These approaches allowed teams to reflect in action and reflect on action with appropriate tools provided within all the leading general practice clinical systems. However, the use of these tools was not widespread, even in those practices that considered themselves to be highly computer-literate, and few practices were able to demonstrate sustainable objective evidence of care delivery. Poor communication between members of the team still existed, primarily as the result of an overstretched service.

## Building a learning organisation

The active force in any organisation is its people. The people have their own minds and their own will. Organisations learn only through individuals who learn. Individuals’ behaviour aggregates to organisational behaviour, but it does not follow that individual learning aggregates to organisational learning – but without it no organisational learning occurs.

There are three key elements for organisational learning to occur. Firstly, the organisation’s guiding principles: what is its culture and its purpose? Does everyone know the direction of travel and their part in it? Does open decision making exist or are decisions only made by management? Are the people in touch with the consequences of their work?

Secondly, an infrastructure for people to learn within the context of their work: this includes time, information, management support, contact with peers and other members of the organisation. The third element concerns technological tools that are fit for purpose and methods to do the job. Organisational learning occurs when there is balance between these elements.

## Applying levers

Having an understanding of the principles of organisational learning underpinned the approach taken in HIP for CHD, which sought to help participants to identify levers that help people do their job better, seeing where changes using technology and influencing culture and communications could lead to significant, lasting improvements.

The purpose of the NSFs is to reduce unacceptable variations in services; to improve the quality of care provided and support the aims set out in *The New NHS, Modernising Social Services* and *Saving Lives: our healthier nation*.<sup>6-8</sup> The CHD NSF made people in the NHS focus their attention on doing something that mattered to them and to the patients. They were ready to take action.

## The HIP model

The HIP conceptual model (see Figure 1) is designed to connect individuals with the consequences of their work and to support intelligent decision making, enabling the desire for improvement to come from within rather than being imposed on organisations.

The methods used to stimulate a learning environment are numbered in the model for ease of reference:

- 1 The spotlight is focused on the delivery of care in each consultation and is not merely incremental in nature. The data required are no more than for any health record of reasonable quality and come as a by-product of normal clinical activity.

The data entry tools were developed in partnership with the general practice clinical system suppliers in the form of bespoke templates, guidelines and protocols and were designed to assist the availability, accessibility and appropriate use of that knowledge at the point of care using the clinical knowledge embedded in the data entry tools taken from the CHD NSF.

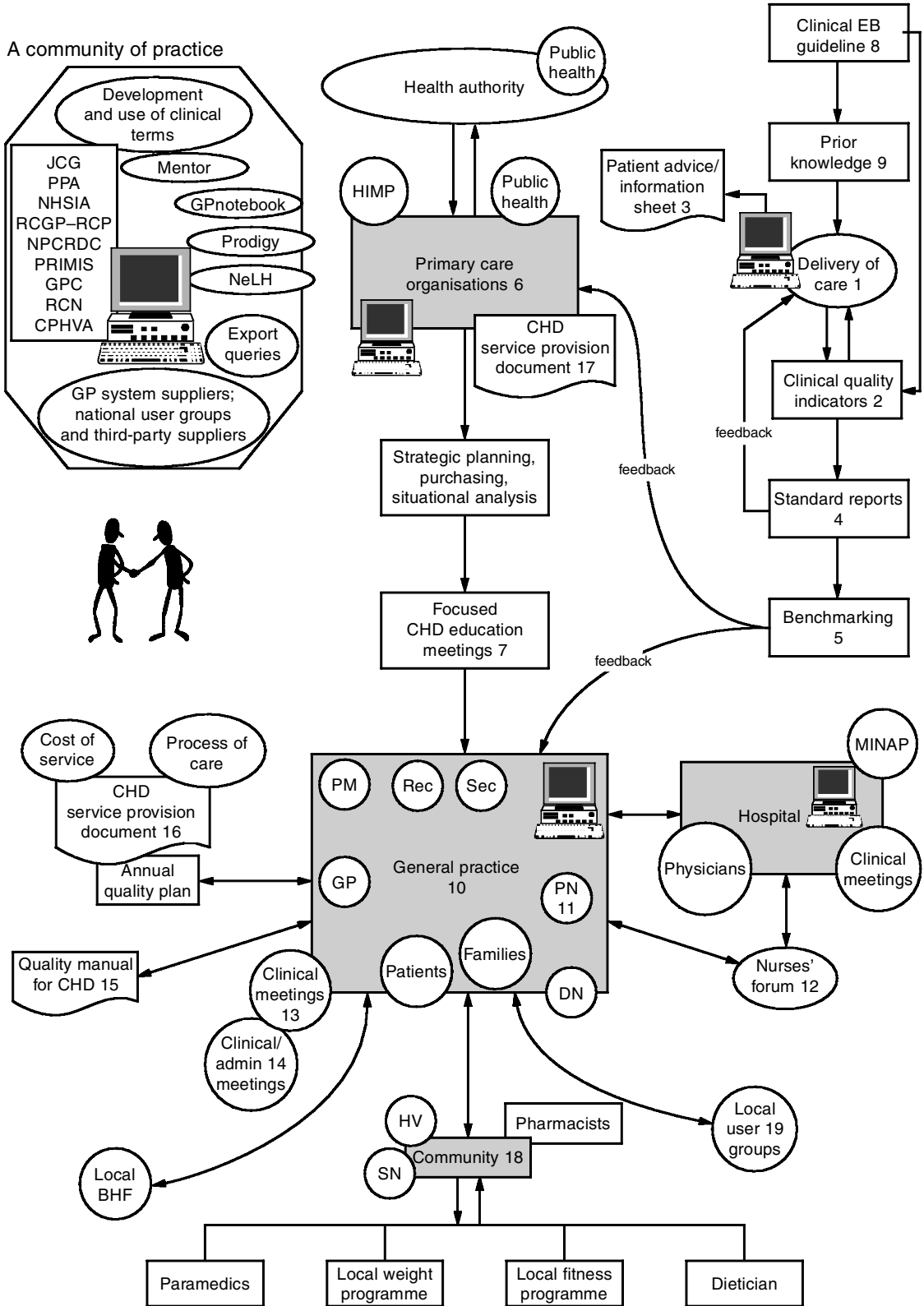
- 2 The performance of the 'process' of clinical care can be measured by the collection of data, providing different types of clinical quality indicators within the healthcare process. Examples include:
  - monitoring indicators, e.g. blood pressure taken, smoking status recorded
  - intervention indicators, e.g. anti-hypertensive treatment started
  - intermediate outcome indicators, e.g. level of blood pressure, cholesterol
  - absolute or true outcome indicators, e.g. myocardial infarction, stroke.

These indicators formed the outputs of standard reports (see item 4 below).

- 3 Benefit accrues from inclusion of patients as partners in the process of care with the software developed by suppliers allowing individual patient advice/information leaflets to be printed that reflect the process and outcome of the consultation.
- 4 Working with the suppliers resulted in a suite of standard reports (clinical audits) and, in one system, individual patient audits written for the CHD NSF. This functionality enabled the creation and maintenance of 'virtual' disease registers and the ability to drill down to an individual patient level. Practices were encouraged to use the system's prompts, reminders and post-it notes to enable missing data items to be collected when the patient next attended.

System suppliers developed HIP for CHD system-specific guides explaining the functionality of their system to support practices for the CHD NSF.

- 5 Practices and PCTs were encouraged to use the services of their local Primary Care Information Services (PRIMIS) facilitator.<sup>9</sup> The PRIMIS focus is on data quality and information management using adult learning and change management techniques, a service which neatly dovetails into the work of HIP for CHD. The HIP for CHD clinical indicators are embedded within the PRIMIS CHD query set. These are extracted annually for benchmarking, practice against practice.
- 6 Feedback of the benchmarked data was used in two ways:
  - to inform the practice so they could see where they sat in relation to other practices within their PCT, a technique familiar to general practitioners (GPs) with their prescribing data
  - to inform the PCT, which could use those data for service planning and as a tool to inform the clinical governance and education leads.
- 7 PCTs were encouraged to use the outputs of the standard reports and the benchmarking to hold integrated CHD-focused clinical meetings with secondary care colleagues.



BHF: British Heart Foundation; CHD: Coronary heart disease; CPHVA: Community Practitioners and Health Visitors Association; DN: District nurse; EB: Evidence based; GP: General practitioner; GPC: General Practitioners' Committee of the British Medical Association; HIMP: Health Improvement and Modernisation Programme; HV: Health visitor; JCG: Joint Computing Group of the British Medical Association and the RCGP; MINAP: Myocardial Infarction National Audit Project; NeLH: National electronic Library for Health; NHSIA: NHS Information Authority; NPCRDC: National Primary Care Research and Development Centre; PH: Public health; PM: Practice manager; PN: Practice nurse; PPA: Prescription Pricing Authority; PRIMIS: Primary Care Information Services; RCGP: Royal College of General Practitioners; RCN: Royal College of Nursing; RCP: Royal College of Physicians; Rec: Receptionist; Sec: Secretary; SN: School nurse

Figure 1 Information management for National Service Frameworks: conceptual model applied to CHD

- 8 The result of this learning was often the tailoring of evidence-based guidelines for local CHD delivery.
- 9 Any new knowledge acquired by the clinician feeds into their existing knowledge pool, stimulates active dialogue, raises awareness and affects the delivery of care.
- 10 The HIP goal for a practice was to have a team develop the best ideas from all of its players, clinical and administrative, and apply these consistently in future practice. To support this approach each practice was invited to form an HIP team – a GP lead, practice nurse lead and administrative lead – to encourage each group actively to participate. These people acted as ‘coaches’ for their respective peer group and aided horizontal information flows within the practice, helping practices achieve the first milestone of the CHD NSF to be achieved by October 2000: ‘Clinical teams should meet as a team at least once every quarter to plan and discuss the results of clinical audit and, generally, to discuss clinical issues’. These meetings of GPs and nurses sitting down to discuss clinical matters in relation to CHD NSF were supported by HIP tools that practices could use on a ‘pick and mix’ basis, such as: ‘How to have a successful clinical meeting’. This document included simple suggestions, e.g. the use of an agenda and action points. Teams were encouraged to use the automated suite of in-house clinical reports to drive these meetings.
- 11 Practice nurses have a key role in the implementation of the CHD NSF. To encourage their participation these nurses were supported by an HIP for CHD nurse facilitator (funded by the PCT) and a PCT-wide nurse forum. These nurse forums (12) enabled sharing of experiences and knowledge between practice nurses and their community and hospital specialist nurse colleagues. Confidence and knowledge gained through these forums enabled them to be able, active contributors at in-house clinical meetings, in their dealings with community services and in the integrated, focused CHD education meetings.
- 12 HIP for CHD encouraged CHD ‘clinical admin’ meetings – where the HIP practice team leads discussion around those administrative processes that are necessary to support clinical care. These meetings are instrumental in redesigning processes that meet the needs of a busy practice.
- 13 HIP for CHD encouraged practices to develop a quality manual. This quality manual contains the ‘know-how’ and ‘who-does-what-when’ related to the administrative procedures and linkages to internal and external bodies. The redesign of processes, call/recall procedures, repeat prescribing procedures, the outputs of the clinical and the clinical admin meetings, etc, form part of the individual practice quality manual.
- 14 As part of an annual quality plan, individual practices in the programme developed a CHD service provision document (based on a template provided by HIP) entitled ‘CHD in Action’, which outlined service availability, accessibility and a start at addressing the cost of care and other pertinent issues related to the provision of care. Linkages to external organisations such as patient support groups, fitness centres, etc, were included. The document is intended to show objective evidence of practice progress towards the milestones and standards outlined in the NSF and enables a practice to celebrate its success.
- 15 The individual practice service provision documents (SPD) were anonymously aggregated and formed the basis of a PCT CHD service provision document. In addition to demonstrating progress towards the standards laid out in the NSF, the SPD was used as an aid to encouraging quality awareness and focus throughout the PCT and individual practices. In essence, the document explained how the PCT, practice and community activity and teamwork operate together to achieve their declared goals.

As it evolves year by year, it has the potential to recognise the obligations towards the Commission for Health Improvement (CHI) and demonstrate the structured approach outlined in the National Primary and Care Trust Development Programme (NatPaCT’s) PCT competency framework.<sup>10</sup>
- 16 Several of the clinical system suppliers have national user groups. On an annual basis, these groups invited a joint presentation of HIP by the programme lead and the supplier. This enabled feedback from the users and a refinement of the tools and methods. Local groups ran system-specific CHD-related education and training with hands-on learning.

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## Results

### Nationally and at PCT level

The original project brief required implementation in two PCTs. The partnership approach with the general practice clinical system suppliers enabled rapid roll-out and the products have now been tested in nine pilot PCTs (163 practices) and made available to virtually all practices in England using any of the participating general practice computer systems or third-party data extraction tools (see Appendix 1). Key project documents have been made available on the HIP for CHD website.<sup>11</sup> This website also hosts a discussion board and links to partner organisations.

## Key successes

HIP for CHD has demonstrated that the targets and aspirations (related to primary care) in the CHD NSF are achievable.

‘The gap that we are all aware of between the setting of standards and the monitoring of those standards no longer looks so impossibly difficult to bridge as we start to have faith in some of the tools at our disposal to achieve this. Chief amongst these is HIP with its ability to pull together and maximise the efforts of primary and secondary care. If the processes described in this report can continue to develop then we should achieve the standards set out in the NSF.’

Dr Mike Taylor, Chair of Executive Board,  
North Somerset PCT

HIP provides a practical approach to using available information systems to support quality improvement activity and provides a bridge between linking the modernisation and the IT agenda.

‘... as a “real time” example of clinical governance in action, HIP for CHD represents logical action to help with the fragmented nature of GP information collection, and to help with progress in culture change in primary care.’

Dr Jeremy Griffiths, GP, CHD Lead, Rushcliffe PCT

The value of the project has been widely recognised with formal endorsement of the project and the HIP approach from the Royal College of General Practitioners (RCGP). The Royal College of Physicians (RCP) Clinical Effectiveness and Evaluation Unit has also given recognition. This work dovetails into the Myocardial Infarction Audit Project (MINAP) and discussions are ongoing with the National Sentinel Audit of Stroke. This exciting development enables primary and secondary care to join forces to drive forward the clinical agenda. Blessing has also been given from the General Practitioner Committee of the British Medical Association (BMA):

‘... this [HIP] could be regarded as an exemplar for the work that the Clinical Standards Board will be embarking on.’

Dr Paul Cundy, Chairman, BMA GPC IT Committee

HIP for CHD has sought not only to implement policy (the CHD NSF) but also to influence it. This has been achieved with HIP being recognised in the CHD Information Strategy and the Information Strategy for Older People in England; the Information Strategy for Diabetes; the NSF for Diabetes: delivery strategy and Developing the Information Systems: NSFs – a practical aid to implementation in primary care.<sup>12</sup>

‘The involvement of the PCT in the HIP for CHD pilot has helped general practice develop their CHD registers

and implement the CHD Information Strategy in primary care.’

Steve Knighton, Chief Executive,  
St Albans & Harpenden PCT

‘HIP for CHD is built on sound principles and supports the CHD Information Strategy.’

Dr Andrew Foulkes, Primary Care Advisor,  
Department of Health Heart Team,  
following a PCT visit 31 October 2002

## The technology: interpreting the requirements for general practice system suppliers

Suppliers, particularly those new to the sector, have difficulty in understanding how requirements flowing from national policy (NSFs, National Institute for Clinical Excellence [NICE] guidance) and professional guidance (RCGP, RCP) are best translated into practical facilities within information systems. HIP provided a bridge between policy makers and clinical experts on one side and health informaticians and system designers and implementers on the other.

Early group discussion between clinicians, policy makers and health informaticians resulted in a key document, *Developing the CHD Knowledge Base*, and associated support which helped system suppliers implement facilities in their clinical systems that practically support the implementation of the CHD NSF.<sup>11</sup> HIP provided an interpretation of policy and professional requirements in a consistent and unambiguous form suitable as a starting point for system-specific development activity.

HIP has dealt with the difficult problem of gaining endorsement from a wide range of governmental and professional bodies, each with a slightly different perspective on the requirement, to a single common set of requirements and definitions that suppliers can work with. HIP has also provided suppliers with an authoritative single source to which they can point when seeking to resist unsustainable requests for slightly different implementations from customers at a local level.

HIP has been able to build successful relationships with a wide range of suppliers by:

- providing guidance at an appropriate level
- freeing them from the need to individually establish customer requirements and gain NHS and professional endorsement, while leaving maximum flexibility to implement the requirements as they see fit to take advantage of the particular strengths of individual systems
- providing all suppliers with a level playing field.

‘The greatest impact on the delivery of the NSF will be achieved by ensuring that software developments are appropriate and harness the interest of front-line clinicians by securing better patient care with minimal administrative effort. In other words, make the software product user friendly and high in functionality and it will start to sell itself. This was clearly demonstrated at the visited [HIP for CHD] sites.’

Dr Andrew Foulkes, Primary Care Advisor,  
Department of Health Heart Team,  
following a PCT visit 31 October 2002

## Practice level results

Six of the nine PCTs had nurse facilitators who stimulated action throughout their PCTs. The following are a result of their efforts visiting practices, engaging in the running of nurse forums and PCT education meetings, and facilitating the development of the individual practice and PCT service provision documents. These results are from a total of 111 practices.

## Supporting change to take advantage of new ways of working

HIP has been able to demonstrate how clinical teams can integrate the use of information and information systems within the broader context of continuous quality improvement. The practical tools and quality methods are designed to help them make more intelligent decisions; this includes decisions that improve system-wide performance (organisational learning), leading to improved patient care and economic benefit. The HIP approach integrates technology throughout care and business processes enabling continual learning.

‘HIP for CHD attracted me because it is not merely about audit, but incorporates teamwork, patient participation and external organisation links along with professional self-education and facilitation, whilst maximising current resources.’

Dr Jeremy Griffiths, GP, CHD Lead, Rushcliffe PCT

HIP has provided a framework designed to engage both clinical and administrative staff in a process focused on improving the quality of care and service delivered to patients. This framework has been developed to provide balance between the need to provide a structure for PCTs and practices to follow while avoiding an over-prescriptive approach that might stifle local creativity and innovation.

‘HIP for CHD provides a framework that ensures that NSF standards are woven into the process of delivering quality patient care. It provides a practical solution to the multifaceted demands placed upon primary

healthcare teams by exploiting the potential of health informatics.’

Beverley Ellis, Practice Manager,  
Ashtree House Surgery, Fylde PCT

The ‘levers’ for a practice are simple in theory and challenging in practice:

1 *Use the clinical system for every encounter.* HIP encourages clinicians to recognise that if they *maximise the potential* of every consultation, the aspirations and the targets of the NSF are within their reach.

**Key finding:** 78% of practices ‘pull’ paper records for each surgery, i.e. only 22% use the clinical system as their only source of information about the patient.

2 *Three practice HIP leads.* This was an interesting challenge for some practices used to delegating responsibility to one person, usually a keen GP. The uptake of three leads was 58%, with 42% of practices choosing to have one or no leads. The leads took responsibility for organising clinical and clinical/admin meetings and in developing their own service provision document.

3 *Clinical meetings.* Despite this being the first milestone of the NSF, many practices found this was difficult. Particularly challenging was the reluctance on behalf of some GPs to ‘allow’ practice nurses to join the meetings. In the first year only 40% of practices had any clinical meetings. At the end of year two this rose to 62%, 88% of which were protected for CHD.

**Key finding:** The most challenging area at practice and PCT level is connecting people with the consequences of their work. Many are receptive and once prompted or pointed in the right direction, pick up the ideas and run. In one PCT only 57% of practices had clinical meetings at the first facilitator visit. Following intervention, only one practice was not having meetings.

4 *Practice nurses, nurse facilitators and nurse forum meetings.* In some PCTs there appears to be a poor perception of, and commitment to, practice nurses from non-clinical personnel at PCT level (although some GPs feel this about themselves). In the early days, many believed the right ‘calibre’ of nurse did not exist in their patch.

Several nurse facilitators have a non-primary care person as a manager. This has created tension, particularly where some practices have not been supportive of practice nurses.

‘I think she has difficulty conceptualising what actually goes on in primary care.’

‘We did two CHD training events for practice nurses, we gave them lots of enthusiasm and good ideas, but I have heard how GPs and practice managers have destroyed their enthusiasm and have an inability to support them.’

Many nurses are not 'allowed' to go to nurse forum meetings and even at PCT CHD nurse lead level are not funded for going to CHD PCT meetings, unlike their GP counterparts. Once this message reached the chief executive's ear in one PCT, measures were quickly taken to resolve this issue.

## Conclusion

HIP for CHD has developed and piloted an approach to make effective use of information systems in the implementation of the CHD NSF and has achieved a remarkable degree of endorsement from NHS and professional bodies. The approach has been shown to engage clinicians and other front-line staff effectively and has placed the use of information systems in the broader context of quality improvement. It has also demonstrated that much needs to be done to develop each individual in a practice, to enable them to learn about the business as well as their own tasks. Failure to create a learning environment and address these challenging issues will stop front-line staff making the contributions of which they are capable.

HIP for CHD has also effectively engaged the participation of most of the existing suppliers of general practice systems (including all of the significant players) and has helped them provide a consistent approach both within and across their user communities. Given that the National Programme for IT and the delivery of the Integrated Care Records Service (ICRS) are likely to result in substantial and rapid change in the supplier community, HIP's proven approach to translating policy requirements for system developers and integrators will be of considerable value, particularly where new players with limited domain expertise are seeking to develop and implement new systems.

'Far from being something totally new, the HIP presents a different (and probably much more efficient) way of doing what we would like to, and need to, do. It will involve investment initially, not least in taking time to ensure the understanding of everyone at the PCT.'

Dr Ian Shand, GP, Board Member, Central Derby PCT

## ACKNOWLEDGEMENT

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- 10 National Primary Care and Trust Development Programme: [www.natpact.nhs.uk](http://www.natpact.nhs.uk)
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- 12 Information Policy Unit: [www.doh.gov.uk/ipu](http://www.doh.gov.uk/ipu)

## CONFLICTS OF INTEREST

None.

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## Appendix 1

### Participating general practice systems and third-party tools (England)

- Apollo Medical Systems
- DIN (Doctors' Independent Network)
- EMIS (reporting module in EMIS PCS)
- Healthy Software Ltd
- In Practice Systems
- Microtest Ltd
- MSD Informatics (clinical audit and clinical support)
- Protechnic Exeter Ltd
- Torex Health