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Discussion paper

Combined horizontal and vertical integration of care: a goal of practice-based commissioning

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ABSTRACT

Practice-based commissioning (PBC) in the UK is intended to improve both the vertical and horizontal integration of health care, in order to avoid escalating costs and enhance population health. Vertical integration involves patient pathways to treat named medical conditions that transcend organisational boundaries and connect community-based generalists with largely hospital-sited specialists, whereas horizontal integration involves peer-based and cross-sectoral collaboration to improve overall health.

Effective mechanisms are now needed to permit ongoing dialogue between the vertical and horizontal dimensions to ensure that medical and non-medical care are both used to their best advantage.

This paper proposes three different models for combining vertical and horizontal integration – each is a hybrid of internationally recognised ideal types of primary care organisation. Leaders of PBC should consider a range of models and apply them in ways that are relevant to the local context.

General practitioners, policy makers and others whose job it is to facilitate horizontal and vertical integration must learn to lead such combined approaches to integration if the UK is to avoid the mistakes of the USA in over-medicalising health issues.

Keywords: integrated healthcare systems, practice-based commissioning, organisation, organisational objectives, primary health care

How this fits in with quality in primary care

What do we know?
We know how to measure and incentivise care for specific diseases (vertical integration). We know the importance of fostering primary care and public health (horizontal integration).

What does this paper add?
This paper adds new information on how vertical and horizontal integration of care can be combined to optimise the health care and health of people and populations.

Introduction

Practice-based commissioning (PBC) in the UK National Health Service (NHS) is an attempt to plan the best possible health care for entire populations (see Box 1).[1] PBC will provide a local planning facility, led by general practitioners (GPs), to complement the systems-wide perspective of primary care trusts (PCTs). Together they will administer NHS funds for the population served.[2]

In order to plan best care, PBC must enable comprehensive integration of healthcare effort. Vertical integration involves patient pathways to treat named medical conditions, connecting generalists and specialists, whereas horizontal integration involves broad-based collaboration to improve overall health.[3] Comprehensive integration includes a good balance of both.

Box 2 summarises the features of these two different types of integration. Broadly speaking, in terms of its data sources and status, vertical integration is the domain of medicine – diseases are researched as discrete entities; linear care pathways consider one disease at a time; discrete treatment packages are costed and evaluated for their anticipated effects; quality assurance emphasises achievement of quantifiable outcome targets. Broadly speaking, horizontal integration is the domain of social sciences – multidisciplinary teams and interagency collaboratives learn, inquire and innovate together; cross-organisational planning leads to a synchrony of effort that creates environments for health; quality assurance emphasises mechanisms whereby broad groups of stakeholders can examine whole systems of care for their diffuse and unexpected long-term effects and then act for co-ordinated quality improvements.

Specialist treatment for cancer requires vertical integration to ensure that best treatments are given, whereas end-of-life care requires horizontal integration to ensure co-ordinated support from all involved. Treatment of severe mental illness requires vertical integration for generalist and specialist medical practitioners to work together in the best way, whereas horizontal integration is needed to create environments that will develop confident creative citizens. Commissioning must prioritise both dimensions.

GPs are naturally placed to work in the horizontal plane since they have a traditional orientation towards families and communities as well as individuals. However, targets such as those contained in the NHS Quality Outcomes Framework since 2003, ceaseless structural changes, and the increasingly part-time nature of general practice are making it difficult to sustain this orientation. Furthermore, GPs have been trained in medical science and are concerned with the micro-economics of small enterprises – both of these appeal for their explanatory frameworks to simple and direct assumptions about how a 'cause' has an effect (known as the science of *positivism*).[4] GPs consequently have little exposure to social science evidence that broader change is not straightforward:[5] future developments cannot be predicted in the simple way that their training will lead them to assume. Instead multiple factors constantly interact and adapt to each other to shape a general trend, as assumed by the science known as *constructivism*.[4] Hidden interconnected factors dominate people's behaviour, more powerful than the simple explanations people use, as assumed by the science known as *critical theory*.[4] Without a good grounding in these profound and non-linear sciences, PBC is more likely to produce integrated *medical systems*, rather than integrated *health systems*.

Combined vertical and horizontal integration: a holy grail

The need to integrate health systems (called 'comprehensive primary health care') was agreed at the World Health Organization (WHO) Alma Ata conference of 1978. To achieve this level of integration, healthcare policy must be underpinned by the three principles of participation, equity and intersectoral collaboration.[6] However, political and practical obstacles meant that this did not happen.[7]

In this year of the 30th anniversary of Alma Ata, comprehensive primary health care is again being seriously considered, with a major new WHO declaration scheduled. Consequently healthcare reforms in

Box 1 Vision, aims and organising framework for practice-based commissioning

The vision, aims and organising framework for practice-based commissioning are described in: *Health Reform in England: update and commissioning framework*, Department of Health, July 2006:[1]

Vision (p.5)
... we have a clear vision: to develop a patient-led NHS that uses resources as effectively and fairly as possible, to promote health, reduce health inequalities and deliver the best and safest possible care.

Aims (pp.21–2)
To provide the opportunity for more effective commissioning that will over time lead to:

- improvement in health and well being
- reduction in health inequalities and social exclusion
- better access to a comprehensive range of services
- improved quality, effectiveness and efficiency of services
- increased choice for patients and better experience of care
- improved integration of health and social care.

Organising framework (pp.6–7)
This will be delivered by ensuring:

- more choice and a stronger voice for patients and service users who will be able, in consultation with their clinicians, to choose the highest quality of care appropriate for their needs
- practices and PCTs as commissioners using their knowledge of local communities and extensive public and patient involvement to get the best value within available resources. Commissioners working to improve the health of their population, reduce health inequalities, guarantee choice and secure the best possible services. An NHS that works in partnership with local authorities and other local services to deliver improvements and to promote equality, inclusion and respect
- more freedom for providers to innovate and improve services in response to the needs and decisions of patients, GPs and commissioners. Further expansion of NHS Foundation Trusts; a continuing role for PCT direct provision; more opportunities for voluntary sector, social enterprise and private sector providers ...
- clinicians and other staff leading change ...
- effective management of the system, backed by regulation that assures national core standards and focuses interventions on services most in need
- a financial framework, including tariffs, that incentivises improvements in patient care, supports the development of care integrated around patient need (especially long-term care needs) and promotes financial responsibility and best value within allocated resources
- extensive, comparable information on the quality and safety of care. This will give patients and commissioners a real understanding of the choices available to them, practices the capability to track and plan care across the whole patient pathway, and providers a proper understanding of their activity and quality of care.

Box 2 Features of vertical, horizontal and comprehensive integration

The terms 'vertical' and 'horizontal' relate to the idea that diseases are treated at different (vertical) levels of specialisation, whereas environments that more broadly support health require co-ordinated effort and collaborative planning at the (horizontal) level of whole people and communities. *Whole system*, or *comprehensive,* integration requires that vertical and horizontal integration develop in tune with each other.

The distinction between these dimensions is important because different techniques are needed to achieve them, and they draw on different theories of change and leadership. Vertical integration draws particularly on natural science, with an emphasis on laboratory (especially positivist) research and linear care pathways. Horizontal integration draws particularly on social science (especially critical theory) with an emphasis on the hidden and interconnected phenomena within specific contexts. Whole-system integration draws particularly on theories about organisational learning (especially constructivist science) that emphasise the ongoing adaptation that happens between interacting factors through mutual learning.

Leaders of healthcare systems need to become skilled at the practical application of all three sciences. Medicine relies almost exclusively on the first science; consequently doctors often lack in-depth understanding of the other two.

Europe now commonly emphasise community participation, interprofessional learning and collaboration across the public and independent sectors.[8] The national clinical director (England) believes that PBC could be a good vehicle to achieve comprehensive primary health care.[9] This paper describes models that could help PBC to achieve this.

Meads' research into ideal types of primary care organisation

Many models of primary care organisation have arisen out of the inspiration of Alma Ata. In the UK, community oriented primary care,[10] and 'Healthy Cities' are two well-known examples.[11] But there has been little research into *ideal types* of primary care organisation that might help to realise an Alma Ata vision. The concept of 'ideal type' is associated with the sociologist Max Weber. It is useful because it stresses those elements that are common to a particular type, providing a 'unified analytical construct'.[12] To an extent, the various effects of a particular type can be predicted, including their effects on integration. In reality, every organisation is a hybrid of different types, but within these hybrids, ideal types can be discerned. Commissioners can choose to strengthen one or another type to change the overall effect of their existing strategy for integration.

To help make sense of primary care organisation in the 21st century, Meads visited and studied primary care developments in 31 countries that were undergoing major healthcare reforms.[13] This led him to examine in detail 24 case studies that illustrated the broader principles of different types. This extensive study presents the most authoritative contemporary examination of different types of organisation of primary care. We summarise Meads' case studies in Box 3. Meads identified six ideal types of primary care organisation. Below, we synthesise and analyse these ideal types to propose three different models of comprehensive integration. These are not mutually exclusive, and PCTs and PBC may use components of different models in ways that are locally relevant. In order to avoid bias, two authors (PT and KS) analysed Meads' work in advance of inviting him to join us as a co-author. Meads agreed with our analysis of his work, enhancing the validity of our interpretations.

Box 3 Summary of Meads' six ideal types of primary care organisation[13]

Starting in 2002, Geoff Meads and his research team at Warwick University visited 31 countries over the course of the next four years. He was looking to make sense of primary care in the 21st century and focused on novel organisational forms. He wrote 24 case studies that illustrated six *ideal types* of primary care organisation. Here we provide a brief summary of these to support our use of his work when proposing models of combined vertical and horizontal integration of healthcare effort.

1 *The outreach franchise*: examples are Manila (Philippines), Medan (Indonesia), Tokushima (Japan) and Shanghai (China). In this model a central hospital or administrative agency commissions charities, companies, churches, councils and communities to deliver primary care. There is rarely coherence between the pattern of service delivery in one area and another. Aside from the requirements of any specific contract, both vertical and horizontal integration are *ad hoc* and largely dependent on visionary leaders and chance.
2 *The reformed polyclinic*: examples are Singapore, Copacabana (Brazil), Sydney (Australia) and Santiago (Chile). The model originated in Russia as part of centralised planning for health care. It now attracts international interest as a way for specialist and generalist doctors to connect at local level without the need for co-ordinated service planning. Doctors convene, usually in the same building, and are paid for what they do, either directly by patients or through government subsidy. Vertical integration dominates with an emphasis on medical treatment of individual problems. But the overall value of a polyclinic must be interpreted in the light of other local services and the vision of the doctors. For example, in Sydney there is a strong parallel public health role in health promotion, whereas in Copacabana the polyclinic functions almost as a community development agency.
3 *The extended general practice*: examples are Kangasala (Finland), Viseu (Portugal), Anogia (Greece) and Wimborne (England). The examples cited are larger than the average UK general practices, with up to 20 GPs serving up to 32 000 people. The smallest (9000 patients) was only this size because of the low population within its large rural area. It finds its roots in post (2nd world)-war general practice that became separated from hospital development and identified with community services. It strongly emphasises multidisciplinary working. It facilitates horizontal integration through its extended multidisciplinary team, since inter-organisational partnerships are usually too weak to support broader collaborations. It facilitates vertical integration by gate-keeping specialist care for those registered with the practice. GPs have pivotal leadership roles, often shared with other team members. A health authority manages the

contract for services through certain markers of achievement, and negotiates practice involvement in local developments.

4 *The district health system*: examples are Pallisa (Uganda), Mathbestad (South Africa), Medelin (Columbia) and Prague (Czech Republic). This model has been promoted by the WHO as a way to provide whole population care. Its philosophy is 'health for all' but its organisation is bureaucratic, often stifling innovation. A health authority employs all healthcare workers and public health officers. It is customarily part of a wider multidepartmental executive with responsibility for the full spectrum of public facilities across populations from 10 000 to 100 000 plus. Nurses commonly run clinics with doctors operating as supervisors or strategic consultants. Both vertical and horizontal integration are planned through committees that devise care pathways and cross-organisational innovation. Line management is the norm, but often at a local level charismatic nurses act as community leaders in their 'spare time' – this entrepreneurial interface with voluntary work and community development is largely invisible in published papers.
5 *The managed care enterprise*: examples are Puebla (Mexico), Auckland (New Zealand), Calgary (Canada) and Ayulthaya (Thailand). This form of organisation was developed in North America to bring everything to do with disease management under the control of one health insurance company. Family physicians are contracted by insurance companies to deliver agreed packages of care. The model is being adopted throughout the developing world as a condition of international loans. It has also found favour in many developed countries, including England, as a way to contain the cost of specialist services. Its philosophy is rooted in market theory, focusing on ways to control waiting times, prescriptions, diagnoses and packages of care. Those who purchase services are often separated from those who provide them, to make one accountable to the other. League tables of performance are analysed in public. Deviation from the norm results in financial sanctions. Vertical integration of medical care is its great strength, being able to track and cost all links in the chain of a care pathway. Horizontal integration is present or absent depending on traditional contexts, but difficulties in measuring this can result in it being misrepresented. The term 'horizontal integration' is used to mean local management of medical conditions. The model has been used in a co-operative way, but management is firmly focused on the bottom-line of cost.
6 *The community development agency*: examples are Chiclayo (Peru), Libertador (Venezuela), San Hose (Costa Rica) and La Paz (Bolivia). This model carries with it a concern for social justice and sees 'health as a citizen, rather than professional issue'. Basic principles include capacity building, shared responsibility and local ownership. It aims for simultaneous vertical and horizontal integration. Centres serve populations of 10 000–20 000. Local multidisciplinary committees develop economic policies that include control of pharmaceutical supply and local pricing, also using mapping techniques and community diagnosis to evaluate social capital. A network of co-operatives and neighbourhood committees support sophisticated horizontal integration of healthcare effort. Women and elders particularly became leaders within these groups. The approach is overtly connected with the notion of a *learning organisation*, and practitioners are often required to take part in learning events such as telemedicine link-ups with a university hospital. Local autonomy is tempered by a national weighted allocation formula to achieve national equity and targets for capital investment. Integrated information systems facilitate the amalgamation of data. Public health and personal care practitioners work side by side. Management concentrates especially on communication systems.

Three models of comprehensive primary health care

At three different stages of NHS evolution, Meads' six ideal types naturally group into three pairs, each of which provides a model of combined horizontal and vertical integration. We examine these three models, highlighting options for PBC.

Model 1: Outreach franchise and polyclinic – integrating through medical practice

Outreach franchise was the status of general practice immediately after the invention of the NHS in 1948. GPs were independent contractors paid a fee for every patient on their list – but what they did was largely left up to them. The *polyclinic* bears comparison with the community hospital that was also a feature of the NHS

at that time – here specialists rubbed shoulders with GPs, and their patients lay side by side in adjacent beds. Together these provided a model of vertical integration – from general medical practice to specialist medical practice.

Our NHS Our Future signals a re-visitation of the *polyclinic* idea to enhance vertical integration, as a form of intermediate care where specialists and generalists can meet.[14] Professor Lord Darzi, its author, stresses that he uses the term 'polyclinic' to mean more than vertical, medical integration. He said in an interview with one of this paper's authors (PT):[15]

> 'I strongly believe we must get together people from these different health care settings, which are historically built around primary, secondary, and tertiary ... and colleagues doesn't mean just medical colleagues, it means nursing colleagues ...
>
> ... Let me put on record. Polyclinics are not buildings. Polyclinics are my way of describing integrated service provision ...
>
> I think we all need to need to reach that maturity (of leading "bottom up" developments). Not just the Department of Health. Actually all the national organisations need to think about bottom-up.'

The polyclinic model could be adapted to act as a focus for horizontal integration. A polyclinic, whether a large building or an integrated federation of primary care organisations, could house teams of community workers who plan a breadth of community activities, including multicultural events, projects that develop social capital, self-help activities and international exchange. Cross-over planning between the vertical and horizontal functions could lead to one-stop shops that help local people to navigate whole systems of care. Networks for research and clinical excellence could be connected at a 'polyclinic', providing a way for universities to channel their local involvement. Recruitment into clinical trials could be led by this unit that would negotiate a fee for this service to fund locally led innovations and audit, in a similar fashion to the approach adopted by Finland's primary care centres.[16]

Medical influence will be strong in this first model, and this will inevitably emphasise a medical view of health and disease. That may not be enough to realise the broader aspirations of Alma Ata – that health is everyone's concern.

Model 2: Extended general practices and district health systems – integrating through multidisciplinary teams

Extended general practice and *district health systems* resemble UK arrangements after the 1990 healthcare reforms when the focus of service delivery changed from the individual GP to the multidisciplinary general practice organisation. Nurses and allied health professionals became employed by NHS 'community trusts' that also managed hospitals. They attached their staff to general practices to form extended teams, and developed shared vision and mission through residential team-building workshops.[17] An inter-organisational *local organising team* facilitated these workshops and solved political problems.[18] This led to enhanced ability to integrate in the horizontal dimension, providing an infrastructure of facilitation and communication to support interdisciplinary innovation.

Multiple variations to the basic model were made in those years, to enable creative interaction between activities in the vertical and horizontal planes.[19] In Liverpool, local multidisciplinary facilitation teams helped primary care teams to use action learning and participatory action research to improve quality within geographic areas;[20] working with the Healthy City 2000 project they brokered cross-city collaborations for multiple projects that involved general practice teams, specialists, city council, voluntary groups, schools, youth and community groups, trade unions and the media.[21] In Sheffield, facilitators used data from GP computers to support local reflection and action for change. In South London a network of multidisciplinary general practices provided local leadership for research, audit, quality improvements and student placements. The Kings Fund (London) led whole-system interventions throughout the UK that enabled synchronised cross-organisational policy between health and social care and the voluntary sector.[22]

PBC could revitalise these models and from them develop a powerhouse of multidisciplinary learning, innovation and community development at local level. This could provide a focus for 'bottom-up' leadership of inquiry and action, to complement the more 'top-down' approach that will naturally flow from Model 1.

Model 3: Managed care and community development agencies – integrating through networks

Managed care and *community development agencies* are models that change the focus of service delivery from individuals and discrete multidisciplinary primary care teams to whole systems of care. Both claim to be models of comprehensive (whole-system) integration. But they conceptualise the task differently.

The signal difference between managed care and community development agencies is revealed in this quotation from a leader of a Peruvian agency: 'We see health as a "citizen" not a "profession" issue' (p.100).[13] Managed care uses the term 'horizontal integration' to mean treatment in the community of named (medical) conditions.[23] A community development agency

locates the same term within its framework for *participatory democracy*, which embraces all things to do with being a healthy society, of which treating diseases is merely a part.

Managed care therefore virtually ignores horizontal integration as we have defined it. Instead it is a sophisticated version of vertical, targeted integration – targeted at a comprehensive range of diseases.

Managed care and community development agencies have quite different strengths and weaknesses. Managed care uses sophisticated ways to track patient movements and costs, but has limited ability to facilitate local learning and co-ordinated action for health. By contrast, community development agencies are effective at enabling local learning and co-ordinated action, but are comparatively slow at producing 'top-down' direction, as this quotation reveals:

> '... while lay representations and contributions can be significantly enhanced, so too can the power afforded minorities, vested interests, corrupt cartels and even unrepresentative community factions.'[13]

However, its ability to fashion a broad consensus and to motivate those involved to 'give back' are major strengths. Meads states:

> 'it can go a long way towards ensuring that healthcare expenditure and priorities become less of a political burden for hard-pressed governments.'[13]

Both use networks and systems to connect a diversity of stakeholders. Managed care emphasises the role of these in checking that agreements are understood and adhered to. Community development agencies emphasise their use as a mechanism for co-ordinated collaborative development.

Many advocate the managed care model for the UK.[24] Systems to support it have already been developed. The Quality and Outcomes Framework, Dr Foster, Choose and Book, Payment by Results – these are data-management systems that help to track patient movements and costs. However, there is little evidence within PBC plans of horizontal integration as it would be defined by community development agencies. If this is not added, as Mexico for example has discovered, undue medicalisation appears inevitable, with all its associated dangers, including excess professional specialisation and regulatory capture, accelerating costs, and reduced population health.[25,26]

A model that integrates vertical and horizontal activities might include features of both managed care and community development agencies. Meaningful interaction between those who see health as a citizen issue and those who see it as a professional issue is likely to resemble ongoing dialogue, more than hard-wired connection.[27] Participatory and whole-systems approaches to research will be needed.[28]

Discussion

Both Meads' original work and our further analysis of it, give commissioners a range of options to plan for comprehensive integration.

PBC aims for combined vertical and horizontal integration, but dominant ways of thinking about how to achieve these, coupled with inadequate training of NHS leaders (not only GPs), are likely to emphasise the vertical dimension. In consequence, PBC is in danger of achieving the opposite of its purpose, replicating the mistakes of North America and the WHO,[3] by paying too much attention to the medical aspects of health problems, and insufficient attention to the processes of social cohesion.

Leaders must constantly assert a need for a meaningful balance between the vertical and horizontal dimensions, in pursuit of comprehensive primary health care as envisaged at Alma Ata.[3] Further, they must pilot mechanisms that enable vertical and horizontal activities to helpfully mould each other through ongoing whole-system inquiries and action. This will allow the parts (care of specific diseases) and the whole (the health of individuals, communities and healthcare systems) to remain in tune with each other.[29] The three models described above provide options to achieve this.

An important take-home lesson from this analysis is that combined horizontal and vertical integration can happen in a natural, evolutionary way when those involved have time to think the issues through, and when appropriate theories of change are used. Health service policy must be careful to enable this, and avoid heavy-handed micromanagement that prevents people thinking and acting for themselves. They must remember that the best configuration depends on the local political, cultural and historical context, and enable creative thinking at all levels. Lord Darzi, facilitator of the present NHS reforms, has given a clear commitment to this bottom-up approach. Whether this can be practically realised will depend on the courage and actions of all involved, and not merely his personal determination.

Much is changing in a way that could make very positive improvements in participation, equity and intersectoral collaboration. Already the theory and practice of whole-system learning and change is being introduced into the commissioning process. The practical work of developing local alliances for polyclinics offers multiple opportunities for multidisciplinary leadership teams to learn how to facilitate broad participation in service developments. It would be fitting, in the year that holds the 30th anniversary of Alma Ata and the 60th anniversary of the NHS, that the UK NHS points the way towards much-needed

models of comprehensive integration for health and care.

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