

From volume to value? can a value-based approach help deliver the ambitious aims of the NHS cardiovascular disease outcomes strategy?

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ABSTRACT

This year has seen the publication of two papers which will radically shape the future organisation of healthcare in general, and cardiovascular disease in particular: Cardiovascular Outcomes Strategy (Department of Health) and The Strategy That Will Fix Healthcare (Harvard Business Review). Both publications set out a health delivery mechanism based around improvement of outcomes for groups of patients with similar needs. Instead of organising care around disease categories, it is proposed that the cardiovascular diseases are treated as a single family of diseases. We are reaching the limits of what an activity-based system organised around existing provider structures can sustainably deliver. Unless we find delivery systems which reduce costs while at the same time improving outcomes that are meaningful to patients, then we will be faced with a future of healthcare rationing. The increasing burden of chronic disease and ongoing quality concerns in delivery systems has created a 'burning platform', which must be addressed if we are to maintain a system which offers high-quality care free at the point of delivery. This paper explores what an outcomes and value-based system could look like when applied to cardiovascular disease. It explores what it means for providers and patients if we start to think about outcomes by patients with similar needs, rather than by intervention, or by clinical speciality. As a specific example, the paper explores the features of an Integrated Circulation Service, what the challenges and implications might be, and whether there is any evidence that this would deliver improved outcomes, at a lower cost to the system.

INTRODUCTION

In March 2013, the National Health Service (NHS) published its Cardiovascular Disease Outcomes Strategy, with the principal recommendation to manage cardiovascular diseases (CVD) as a single family of diseases (see box 1). These conditions are linked by common risk factors, and share a common pathological process—atherosclerosis.

Many fail to appreciate the profound significance of this recommendation, and the implications it has for patients, and the way we currently organise services.

Peter Hollins, Chief Executive of the British Heart Foundation said of the launch: 'We are particularly pleased to see the emphasis on an integrated approach to patients with multiple conditions.'

Since many people who have one CVD condition frequently have another, it makes sense to manage

them together, but why hasn't this happened before?

We have known for a number of years that these diseases are best dealt with in an integrated manner, but our CVD care systems have evolved into discrete professional specialties. As a result, the system is organised around providers rather than patients resulting in poor patient experience, excess cost, poor care coordination, and needless preventable disease (See boxes 2 and 3).

Atherosclerosis is the cause of the majority of CVDs, and is itself caused by genetic and lifestyle factors. Atherosclerosis affects all blood vessels simultaneously, though individual organs (eg, heart, kidneys and brain) may be affected in different ways. While specific treatment of the damage caused by atherosclerosis on individual organs is appropriately specialised, the prevention of further progression of atherosclerosis (the secondary prevention of cardiovascular disease) is the same irrespective of the organ involved. However, different clinical groups manage prevention differently, which is ineffective and inefficient. Furthermore, attempts to promote self-management are undermined as patients are given conflicting advice by different clinicians.

This needs to change. In this paper, we suggest a new approach for thinking about CVD prevention and describe how an integrated circulation service could be conceived and optimised according to value-based principles.

To achieve the ambitious goals of the outcomes strategy, patients need to be treated as individuals, rather than a series of diseases. Does this present the biggest challenge in implementing this ambitious strategy?

A VOLUME-BASED APPROACH TO CARDIOVASCULAR DISEASE PREVENTION

In England, commissioners have organised care purchasing into categories, such as planned care, unscheduled care, urgent care, prevention and end-of-life care. Providers have traditionally organised care around organisational hierarchies, like departments of cardiothoracic surgery and cardiology, with each system either describing doctors, or groups of interventions.

These are volume-based approaches, with care organised around provider structures and a focus on activity and scale. Although there is much talk of 'patient-centred care', this has not yet translated into real consideration of what people really want from their services. Professionals often consider themselves guardians of what is best for patients,



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Box 1 List of cardiovascular diseases (CVD) conditions or those which CVD is a major factor in their progression (or vice-versa)¹:

- ▶ Coronary heart disease
- ▶ Stroke
- ▶ Hypertension
- ▶ Hypercholesterolemia
- ▶ Diabetes
- ▶ Chronic kidney disease
- ▶ Peripheral arterial disease
- ▶ Vascular dementia

relying particularly on ‘hard’ outcome measures, such as morbidity and mortality. This neglects the role that patient experience and patient engagement plays in improving ‘hard’ outcomes, for example, by using patient-defined and patient-reported outcome measures (PROMs).

Volume-based approaches to organising care have occurred around specific diseases and diagnoses such as ischaemic heart disease, peripheral vascular disease, diabetes, reno-vascular disease and cerebrovascular disease. This approach has worked reasonably well for some diseases, but has performed much less well in other areas, especially where:

- ▶ There is a significant element of diagnostic complexity. When problems need diagnosis, patients often present with symptoms which do not necessarily fit the organisational structures that are found in most acute settings. These are usually based on specific diseases, specialties or organs, rather than common sets of patient needs, collections of symptoms (ie, fits, falls, faints and funny turns)² or health circumstances.
- ▶ There is a common underlying pathological process differently affecting target organs, leading to different diseases according to which target organ is affected (ie, atheroma).

Box 2 The case of Julia: over 80 appointments in 1 year

Julia had a catalogue of pre-existing conditions including heart disease hypertension, heart failure and AF, before having a stroke in 2010. While in hospital, she was also identified as having CKD. Her experience of care was far from integrated, and within the space of 1 year, she had to attend over 80 appointments with various consultants, clinics, specialist nurses and other healthcare workers. Despite numerous appointments with healthcare professionals, Julia felt progressively unwell and her overall health was deteriorating.

Due to a lack of coordination, or single clear responsibility for her overall care, it was not picked up until Julia eventually visited her GP that she now also had late stage lung cancer. If Julia had received integrated care with her at the centre, rather than care in disease silos, it is much more likely that her diagnosis would have been made earlier and might not have been fatal. Her experience of care would also have been much better.

Source: cardiovascular diseases (CVD) Outcomes Strategy¹

Box 3 Soma’s story: missed opportunities for prevention

A 65-year-old patient was called in for abdominal aortic aneurysm screening. Sonographers are trained only to assess the diameter of the abdominal aorta, but of course they frequently detect atheroma. Anecdotal reports are that 1 in 5 scans show some atheroma—thereby qualifying the patient for secondary prevention. Because sonographers are not trained to interpret anything apart from dimensions of the aorta, they do not report the presence of atheroma.

Even if the sonographers did report atheroma to the GP, there are several further steps required. Presence of atheroma would need to be added to the medical record, and the patient would need to be called for secondary prevention assessment by their GP. Currently, no universal protocol exists for this process to occur, unless the patient has symptoms of end organ disease, or diabetes. The same could be said for other screening tests, even ultrasound scanning of the gallbladder, which often picks up atheroma, but frequently nothing is done about it.

- ▶ Patients’ human, health and social circumstances may define their needs and expectations of the health system more a disease itself. For example in the case of patients who are frail and/or elderly, the fact that they are frail or elderly may best define their needs, rather than the specific diseases they happen to have.

It is clear that managing the prevention of cardiovascular disease as a single family of diseases, with personal and social factors largely determining the success of prevention, requires a new approach.

A BETTER WAY? A VALUE-BASED APPROACH TO SECONDARY PREVENTION

We propose a model for shared preventive services for CVD which we call a ‘circulation service’. We propose this service should be organised according to value-based principles where the focus is on improving value for segments/groups of patients with similar needs, and the *co-creation* of outcomes that are meaningful to patients. So, what is a value-based approach, how is it different, and why does that matter?

A value-based approach is fundamentally rooted in thinking about the problems people are looking to solve when they require care. It is about creating a shared common purpose: the improvement of preagreed outcomes across the whole care pathway for groups of patients with similar needs, at the same or lower cost.³ This might sound obvious, but there are significant implications. *A focus on value involves promoting only those activities that create value for patients, as defined by patients across the whole care pathway* rather than just within each provider type. It treats those activities that do not contribute to the creation of value for the patient/carer as waste. Implementation of a value-based approach has five principal governing activities: patient segmentation, definition of outcomes, creation of integrated practice units, measuring outcomes, aligning incentives, most effectively dealt with in that sequence.

This moves us on from the ‘volume-based’ approach described earlier, where care is predominantly organised around diseases or the departments treating those diseases. Instead, patients are

defined as people first, with needs and preferences for care. Of course, many clinicians do this already for individual patients, but they largely do so *in spite of* the system rather than *because of* it. Incorporating value-based principles into the design of care systems helps clinicians to deliver personalised care, and ensures that services are delivered more efficiently and effectively.⁴

Although detailed cost calculation is beyond the remit of this paper, outcomes can only be interpreted by understanding the true costs to deliver those outcomes across the full care cycle. Cost reduction without considering outcomes is dangerous and self-defeating.³ Outcome improvement without understanding the true costs of care is unsustainable and does not help effective allocation of limited resources. Value-based approaches consider cost measurement in a similar way to outcomes measurement, that is, around individual patients for all their care, rather than the cost of each organisation delivering care. For people with chronic conditions, such as cardiovascular disease, this is most sensibly achieved by using a unit of time such as the cost of all care provided within a year.

The temptation is to reduce the value equation (outcomes/cost) to a single number. It is important to consider the two together. However, from a value perspective, it is vital to retain visibility over outcomes and costs as discrete entities, to allow patients and those organising care access to information on each side of the value equation.

A value orientation creates a shared common purpose across provider, patient and commissioner. With a shared common purpose and integrated delivery mechanism, the Circulation Service is an example of an Integrated Practice Unit. This builds on the recent work of Porter and Lee, defining value-based healthcare principles.⁵

Key steps in value-based service design

Value-based service design involves answering three fundamental questions:

- ▶ who is the service for (the segment)
- ▶ how is it organised (the service) and
- ▶ what are the results we are looking at to cocreate (the outcomes).

Who—the segment

1. *Segmentation into groups of patients with common set of needs, rather than by disease, professional hierarchy, or organisational status quo*

A ‘segment’ is a group of individuals with similar needs. Segmentation is the first step in the process because outcomes measured for very diverse or disparate populations are hard to

interpret, with key information diluted among patients who do not have similar health circumstances or needs. Defining, measuring and interpreting outcomes becomes significantly easier and more valuable when populations are segmented by common sets of needs (See table 1).

In practice, a reasonable starting point is to think of a disease-based group, and then ask the question; ‘Are there any groups of patients for whom the standard pathway for this disease just doesn’t work?’

If the answer to this is ‘yes’, then the next question is ‘why?’, and is it possible to describe what characteristics these people have, using some of the dimensions listed above. So, for a circulation service (disease/pathway-based) example, the vast majority of patients may be very well served by the ‘standard’ diabetes service, but for those at the extremes of age, it may well not work so well. Frail and/or older patients may not be able to attend clinic as easily or as regularly, leading to poorer disease management, more risk of complications, A&E attendances and emergency admissions. The fact that people are frail and/or elderly may have much more bearing on their health, their principal care needs, and their own view of what success/effective care looks like, than the fact that one of the diseases they happen to be suffering from is diabetes.

2. *Codefine outcomes that matter to each segment of patients, with patients, across the complete care pathway*

Working with groups of patients with similar needs, outcomes to be measured can be codefined to take account of which outcomes matter most to patients with similar health and social circumstances across the complete care pathway. This approach involves coproducing outcomes across a broad range of dimensions, before designing care processes.^{3 6} Outcomes are not only those which clinicians feel are important, nor which are solely in the control of one provider in the complete care pathway (ie, spanning primary care, secondary care, community services, mental health, social care).

How—the service

3. *Organisation into Integrated Practice Units*

There are two principal activities involved in the establishment of Integrated Practice Units (IPUs):

- ▶ defining all the providers who would be involved in achieving the outcomes across the full care pathway, that is, ‘*who needs to be around the table?*’
- ▶ providers organising themselves into IPUs to achieve the specified outcomes, that is, ‘*how are we going to do this together?*’

Table 1 The traditional approach and a value-based approach to segmentation

Traditional approach	Value-based approach
Organising services around groups of people according to what diseases people have/don't have, sometimes adjusting for:	Think much more broadly about the person's needs. Organising services around groups of people according to what diseases people have/don't have and adjusting for common sets of needs:
Provider type (eg, primary care)	Whether there is a common pathological process
Professional department (eg, dept of cardiology)	What gender a person is
What gender a person is	Where someone lives
Where someone lives	How old people are
How old people are	What other diseases people have as well
	How frail someone is
	What ethnic background someone has
	What language someone speaks
	Whether someone has a home or not
	Whether someone has a job or not
	Even for some groups of people, especially in deeply religious communities, the place of worship they attend

IPUs may be geographically dispersed (ie, within a network of providers), or more commonly colocated within dedicated facilities,⁷ but in either case, the purpose of the service is entirely centred around the needs of distinct patient segments for full cycles of care as outlined above.

Value-based care is about getting the right people in right place at the right time for that segment of patients. Think of a formula-1 pit crew, who in a very short period of time and in one physical location work in a highly coordinated manner to achieve a single outcome, rather than the car having to drive from fuelling to tyres and then repairs. Everyone is working around the car, rather than the car working around everybody. In practice, it may not be possible for all providers of care in an IPU to be in the same location simultaneously, but the principles are clear.

What—the outcomes

4. *Measurement of outcomes*

This step involves defining systems to collect the agreed outcomes information for each patient segment, so that timely and actionable information on those outcomes is made available to patients and providers. In reality, the process of defining and refining outcomes and their associated data points is an ongoing process to optimise service performance and keep activities of patients and clinicians aligned.

It is important to recognise that the first version is often a ‘beta version’, and the real work comes from iterative improvement, recognising that preferences change and technology improves over time.

5. *Aligning incentives*

Any value-based system requires contractual and financial structures to support and sustain delivery of the steps above. A common pitfall is to view a contract or a payment system as the first step to delivering better outcomes across the pathway, before going through the steps above. Precise contracting models and payment mechanisms best suited to value-based healthcare are beyond the scope of this paper.^{8–9} Whichever contractual form is chosen to deliver improved outcomes at lower cost, any contract should support rather than drive the purpose of a service. No single contract form is a ‘magic bullet’, suitable for all outcomes-based contracts.

IMPLEMENTING VALUE-BASED DESIGN OF AN INTEGRATED PRACTICE UNIT FOR CARDIOVASCULAR PREVENTION—‘CIRCULATION SERVICE’

The new NHS improvement body, NHS Improving Quality, is charged with supporting development and evaluation of service models to manage CVD as a single family of diseases. Whichever service models are developed, more of a genuinely value-based mindset is needed.

Taking the principles outlined above and applying them to the challenge set by the CVD Outcomes Strategy, we outline a ‘circulation service’ IPU, constructed along value-based principles to reduce cardiovascular events through dealing with CVD as a single family of diseases (see box 4).

Who—the segment

All patients with cardiovascular disease would be referred into the circulation service for their preventive needs, irrespective of the kind of cardiovascular disease.

People would be referred into the service from a variety of sources including

- ▶ any hospital admission related to an atheromatous condition (whether associated with an ‘event’ or not)

Box 4 The cardiovascular diseases (CVD) Outcomes Strategy itself mentions a ‘CVD service’

One suggestion during consultation was the development of a CVD service that would provide treatment and management for all patients with CVD, with the exception of acute interventions that would continue to be provided in secondary or tertiary care. Such a service would coordinate care for all new CVD patients as well as those discharged from secondary care. Their needs would be assessed by a named healthcare professional who would be responsible for coordinating their treatment and developing a care plan. The coordinator would be able to access specialist and generic advice about their patients’ needs and access services across the CVD pathway to meet those needs. They would also be responsible for the long-term management and care of their patients ensuring their patients received regular follow-up and reviews as appropriate.’
Source: CVD Outcomes Strategy¹

- ▶ chance findings of atheroma (eg, during an abdominal ultrasound)
- ▶ patients at high risk of atheroma (eg, as a result of an NHS health check).

In this case, the ‘segment’ is all those people with a common underlying pathological process that requires prevention (atherosclerosis), adjusted for social and human factors such as frailty, employment, age and ethnicity, that define their needs and preferences. Having defined the segment, one way currently being used to coproduce outcomes metrics is through running outcomes workshops for patients, clinicians and commissioners, alongside innovative use of social media to agree a broad framework of outcomes and a common purpose for the service.

How—the service

It is important to recognise that this is a process and not a precise prescription for change. The exact specification for a circulation service depends on the results of the previous work on segmentation and codefining outcomes with service users.

The consultation exercise for the CVD Outcomes Strategy highlighted that patients want a ‘single point of access’. A circulation service would feature a ‘single point of access’ (see figures 1 and 2)—typically community-based, where a patient who is eligible for secondary prevention has their medical and lifestyle risk factors addressed. Based upon this, a bespoke prevention plan would be created with consideration for exercise-based therapy and psychosocial support, as well as medical risk factor management.

What—the outcomes

Having identified the outcomes framework before setting up the service, providers work with commissioners and patients to identify the data sources to measure whether the service is delivering against those outcomes. In many cases, some of the data points would be pre-existing, such as mortality/premature mortality rates for this segment of the population. In other cases, particularly for patient-reported outcomes (PROM) and patient-reported experience measures (PREM),¹⁰ new measurement processes may need to be put in place, but this should not hold back implementation of any circulation service.

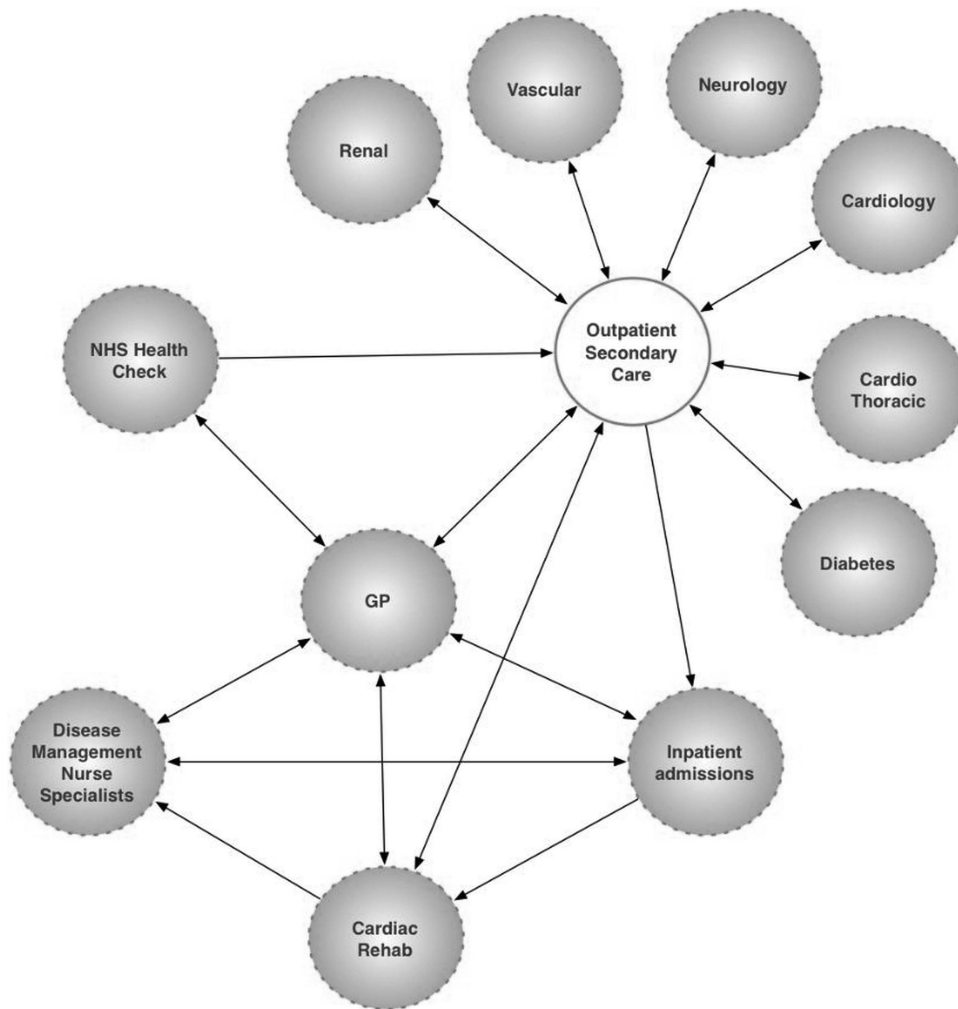


Figure 1 Cardiovascular prevention: before and after. *Before*: uncoordinated and ineffective.

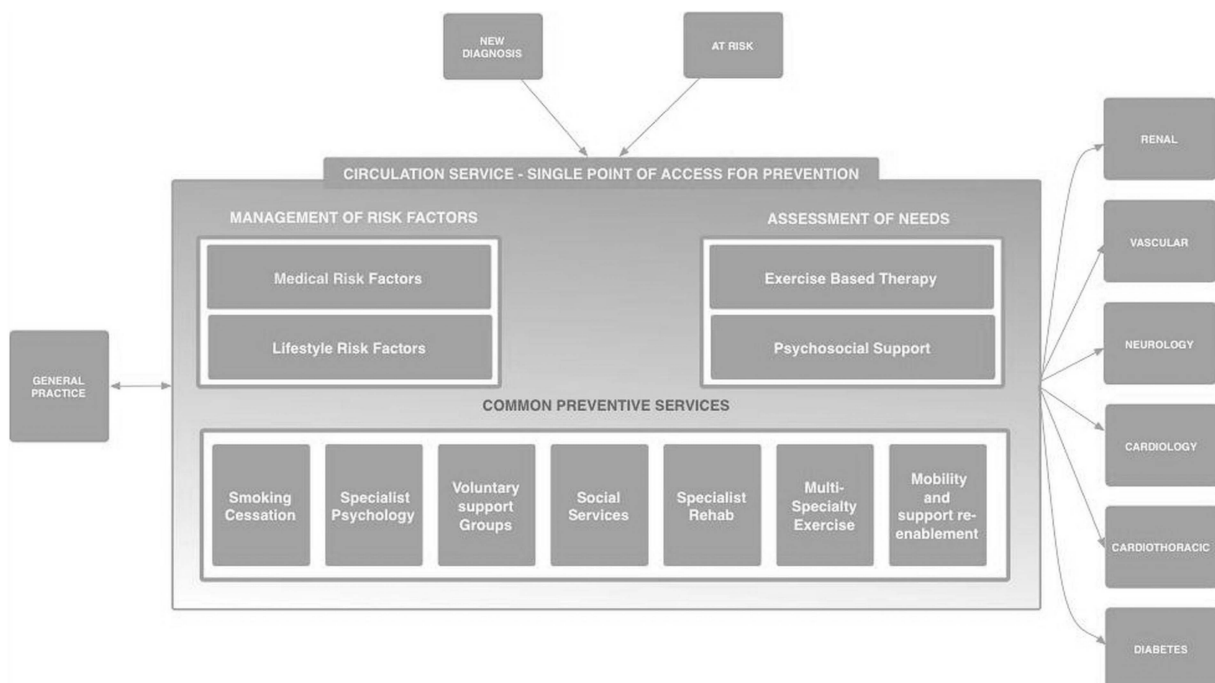


Figure 2 Cardiovascular prevention: before and after. *After*: *The Circulation Service Integrated Practice Unit*.

Over time, the data points, data sources and IT/collection mechanisms would need to be optimised to improve the data quality and support care optimisation through monitoring outcomes. Similarly, teams providing care need to have visibility over the actual cost of delivering care across the full care cycle. There are significant opportunities to embrace technological innovation to collect and publish outcomes and financial data routinely in the line of care.

CONSIDERATIONS AND CONCLUSIONS

The 'community circulation service' is one potential model, but there are others. This model is not fixed in one method, it is an overall approach. But whatever we do to address this challenge, let's not fall into the old mistake of creating yet another 'silo' of

care. The solution here is more about changing our mindset, than about changing our structures and processes of care.

Value-based approaches borrow insight from industries outside of healthcare, like manufacturing and retail. However, this has nothing to do with making patients customers, privatisation, or patients paying out of pocket. It is about being clear about the nature, purpose and goals of healthcare, properly listening to patients as people first, and seeing the person not just the disease. We believe that by comprehensively addressing outcomes which genuinely matter to patients, there is a real chance to improve the 'hard' clinical outcomes, which clinicians have traditionally focussed on.

This fundamental change in mindset is arguably more important than structural and organisational changes required in delivering this ambitious cardiovascular disease strategy. This represents a real challenge for the health system. It is about combining the best of an integrated delivery system, with the value gained from seeing everything through the eyes of service users.

Of course there are barriers to overcome. Not least the significant leadership challenge this approach represents. There are technical barriers in information technology, where a collection of digital tools integrated according to a coherent data model are required to exploit the full potential of value-based cardiovascular preventive care. Current contracting and payment mechanisms are not designed to support and create value. There are organisational barriers created by a change-weary and sceptical profession. Despite these barriers, we firmly believe it is the required change in mindset which will prove our most significant challenge, and our greatest opportunity, in realising the aims of the CVD Outcomes Strategy.

Contributors Dr Rupert Dunbar-Rees was lead author and responsible for the value elements. Dr Trishan Panch was coauthor and for the value and graphical elements. Dr Mark Dancy was coauthor and responsible for the cardiovascular/circulation service elements.

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Key messages

What is already known on this subject?

This year has seen the publication of two papers which will radically shape the future organisation of healthcare in general, and cardiovascular disease in particular: Cardiovascular Outcomes Strategy (Department of Health) and The Strategy That Will Fix Healthcare (Harvard Business Review). Both publications set out a health delivery mechanism based around improvement of outcomes for groups of patients with similar needs. Instead of organising care around disease categories, it is proposed that the cardiovascular diseases are treated as a single family of diseases.

How might this impact on clinical practice?

We are reaching the limits of what an activity-based system organised around existing provider structures can sustainably deliver. Unless we can find delivery systems which reduce costs while at the same time improving outcomes that are meaningful to patients, then we will be faced with a future of healthcare rationing. The increasing burden of chronic disease and ongoing quality concerns in delivery systems has created a 'burning platform', which must be addressed if we are to maintain a system which offers high quality care free at the point of delivery.

What does this study add?

This paper explores what an outcomes and value-based system could look like when applied to cardiovascular disease. It looks at what it would mean for providers and patients if we started to think about outcomes by patients with similar needs, rather than by intervention, or by clinical specialty. As a specific example, the paper explores the features which an Integrated Circulation Service could have, what the challenges and implications might be, and whether there is any evidence that this would deliver improved outcomes, at a lower cost to the system.