We have seen amazing progress in the last forty years but all health services face five major problems:

- SAFETY
- QUALITY
- FAILURE TO MAXIMISE VALUE
- INEQUALITIES
- FAILURE TO PREVENT
More of the same is not the answer, not even better quality, safer, greener cheaper of the same we need a new paradigm
<table>
<thead>
<tr>
<th>Old Paradigm</th>
<th>New Paradigm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on Effectiveness, quality and safety</td>
<td>Focus on equity &amp; value (outcomes/costs, both financial and carbon)</td>
</tr>
<tr>
<td></td>
<td>Allocate value,</td>
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<tr>
<td></td>
<td>Technical value,</td>
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<tr>
<td></td>
<td>Personalised value,</td>
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<tr>
<td>Strengthening of competitive institutions</td>
<td>Development of collaborative systems and networks with patients &amp; carers as equal partners</td>
</tr>
<tr>
<td>Good service with known patients</td>
<td>Personalised service for all the people affected in the population</td>
</tr>
<tr>
<td>Service improvement by reorganisation</td>
<td>Service transformation by culture change</td>
</tr>
<tr>
<td>Clinicians are the users of their institution’s resources</td>
<td>Clinicians feel they are the stewards of the population’s resources</td>
</tr>
</tbody>
</table>
What do we want to achieve? A service that

• Has allocated resources optimally & equitably
• Uses resources optimally
• Ensures each individual receives care that addresses their particular problem
• Is open and transparent
• Is sustainable
Contract & implement the high value service eg for Asthma or elderly people with frailty
Design the PopulationBased System

Prioritise within the system

Contract & implement the high value service

Better Value Healthcare
Prioritise programme to tackle

Design the PopulationBased System

Prioritise within the system

Contract & implement the high value service
Culture change by Publishing Variation

Prioritise programme to tackle

Design the Population Based System

Prioritise within the system

Contract & implement the high value service

Better Value Healthcare
Variations as an indicator of low value
Solution; go for value
VALUE IS DETERMINED BY THE RELATIONSHIP BETWEEN OUTCOME AND EXPENDITURE

High Value

Low Value

High Value

Low Value

Added value from doing things right (quality improvement)
VALUE IS DETERMINED BY THE RELATIONSHIP BETWEEN OUTCOME AND EXPENDITURE

- High Value
- Low Value

Added value from doing things right (quality improvement)

Added value from doing the right things) making the right decisions
Triple Value Programme

Individual & Personalised

Allocative, resources *distributed* to optimise value

Technical, resources *used* to best effect

*Better Value Healthcare*
Between Programme Marginal Analysis and reallocation is a commissioner responsibility with public involvement.
Many people have more than one problem; GP’s are skilled in managing complexity.
Within System
Marginal Analysis is a
clinician responsibility
with patient involvement.

- Cancers
- Respiratory
- Gastro-intestinal

- COPD (Chronic Obstructive Pulmonary Disease)
- Apnoea

- Asthma

- Triple Drug Therapy
- Smoking cessation
- Rehabilitation

- O2

Better Value Healthcare
Value = Outcomes / Costs

Outcome = Good − Bad

Outcome = Effectiveness (EBM +Quality) − Harm (Safety)

Costs = Money + time + Carbon
Variations as an indicator of harm
Evidence, Derived from the study of groups of patients

The values *this* patient places on benefits & harms of the options

The clinical condition of *this* patient; other diagnoses and risk factors, including their genomic profile

Choice → Decision

Personalised Healthcare
The law of diminishing returns

Benefits

Investment of resources

Better Value Healthcare
Harmful effects increase in direct proportion to the resources invested.
After a certain level of investment the health gain may start to decline; the point of optimality.
As the rate of intervention in the population increases, the balance of benefit and harm also changes for the individual patient.

![Graph showing the relationship between investment of resources and benefit vs. probability and magnitude of harm.](Better Value Healthcare)
Solution; go for systems with preference-sensitive decision making.
The Healthcare Archipelago

- General Practice
- Mental Health
- Community Services
- Hospital Services
Newborn Screening for Sickle Cell Disorders Programme Standards

<table>
<thead>
<tr>
<th>NEWBORN PROGRAMME OBJECTIVES:</th>
<th>CRITERIA</th>
<th>STANDARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum (Core)</td>
<td>Achievable (Developmental)</td>
</tr>
<tr>
<td>Programme Outcome</td>
<td>Mortality rates expressed in person years</td>
<td>Mortality rate from sickle cell disease and its complications in children under five of less than four per 1000 person years of life (two deaths per 100 affected children)</td>
</tr>
<tr>
<td>Best possible survival for infants detected with a sickle cell disorder by the screening programme</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Programme Outcome</td>
<td>Accuracy of all tests</td>
<td>99% detection for Hb-SS 98% detection for Hb-SC 95% detection for other variants</td>
</tr>
<tr>
<td>Accurate detection of all infants born with major clinically significant haemoglobin disorders*</td>
<td>Sensitivity of the screening process (offer, test and repeat test)</td>
<td></td>
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</tbody>
</table>

This is an example of a national service set up as a system.
Variations as indicator of failure to prevent
Right Care NHS Atlas of Variation in Healthcare

Percentage of patients admitted to hospital following a stroke who spend 90% of their time on a stroke unit, by PCT, 2009/10
Rate of anterior cruciate ligament reconstruction expenditure per 1000 population by PCT Weighted by age, sex, and need; 2008/09

The variation among PCTs in the rate of expenditure for anterior cruciate ligament reconstruction per 1000 population is 50-fold.
Variations as indicator of inequity

If there are lower rates of intervention in one subgroup of the population which has the same, or greater, need than the population as a whole, this would suggest there are problems with the equity of provision. If patients in one subgroup of the population receive treatment at a later stage in the course of the disease than patients in another subgroup, this would also suggest problems with the equity of provision. In a study of equity of access to total joint replacement of hip and knee in England, Judge et al. (6) concluded that people in affluent areas got most provision relative to need.

Solution; clinicians responsible for whole populations as well as referred patients
The use of common surgical procedures varies widely across regions. Differences in illness burden, diagnostic practices, and patient attitudes about medical intervention explain only a small degree of regional variation in surgery rates. Evidence suggests that surgical variation results mainly from differences in physician beliefs about the indications for surgery, and the extent to which patient preferences are incorporated into treatment decisions.

Understanding of regional variation in the use of surgery

John D Birkmeyer, Bradley N Reames, Peter McCulloch, Andrew J Carr, W Bruce Campbell, John E Wennberg

Lancet 2013; 382: 1121–29
Provision rates for surgery vary widely in relation to identifiable need, suggesting that reduction of this variation might be appropriate. The definition of unwarranted variation is difficult because the boundaries of acceptable practice are wide, and information about patient preference is lacking. Very little direct research evidence exists on the modification of variations in surgery rates, so inferences must be drawn from research on the alteration of overall rates. The available evidence has large gaps, which suggests that some proposed strategies produce only marginal change. Micro-level interventions target decision making that affects individuals, whereas macro-level interventions target health-care systems with the use of financial, regulatory, or incentivisation strategies.

Strategies to reduce variation in the use of surgery

Peter McCulloch, Myura Nagendran, W Bruce Campbell, Andrew Price, Anant Jani, John D Birkmeyer, Muir Gray

Lancet 2013; 382: 1130–39
Dr Jones is a respiratory physician in the Derby Hospital Trust and last year she saw 346 people with COPD and provided evidence based, patient centred care, and to improve effectiveness, productivity and safety.
Dr Jones estimated that there are 1000 people with COPD in South Derbyshire and a population based audit showed that there were 100 people who were not referred who would benefit from the knowledge of her team.
All people with the condition

People receiving the specialist service

People who would benefit most from the specialist service

Better Value Healthcare
Dr Jones is given 1 day a week for Population Respiratory Health and the co-ordinator of the South Derbyshire COPD Network and Service has responsibility, authority and resources for:

- Working with Public Health to reduce smoking
- Network development
- Quality of patient information
- Professional development of generalists, and pharmacists
- Production of the Annual Report of the service

She is keen to improve her performance from being 27th out of the 106 COPD services, and of greater importance, 6th out of the 23 services in the prosperous counties.
Solution Population and personalised

1. rely on patients (and the smartphone and knowledge)
2. mandatory training
3. change the culture/start the revolution; destabilise through an Atlas,
   engage the young, control the communication
Mandatory training

• Understanding and Increasing Value
• Designing and building Systems of Care
• Creating the Right Healthcare Culture
• Delivering Population-based Medicine
• Designing and delivering Patient Centred and Personalised Care
“Culture... the shared tacit assumptions of a group that it has learned in coping with external threats and dealing with internal relationships.”


“Leadership ... and a company’s culture are inextricably interwined.”


www.ocht-glossary.net
A **SYSTEM** is a set of activities with a common set of objectives and outcomes; and an annual report. Systems can focus on symptoms, conditions or subgroups of the population
(delivered as a service the configuration of which may vary from one population to another)

A **NETWORK** is a set of individuals and organisations that deliver the system’s objectives
(a team is a set of individuals or departments within one organisation)

A **PATHWAY** is the route patients usually follow through the network

A **PROGRAMME** is a set of systems with a common knowledge base and a common budget

*PrimarySecondaryAcuteCommunityOutpatientHubandSpoke*
Work like an ant colony; Neither markets nor bureaucracies can solve the challenges of complexity
Population healthcare focuses primarily on populations defined by a common need which may be a symptom such as breathlessness, a condition such as arthritis or a common characteristic such as frailty in old age, not on institutions, or specialties or technologies. Its aim is to maximise value for those populations and the individuals within them.
Population Healthcare

1. Is the service for people with seizures & epilepsy in Queensland better than the service in Auckland or Wales or Massachusetts?
2. Who is responsible for the inflammatory bowel disease service for people in Wellington?
3. How many liver disease services are there in New Zealand and how many should there be?
4. Which service for frail elderly people with frailty in New South Wales provides the best value?
5. Is the service for people with back pain in Brisbane better than the service in Melbourne?
There are two types of populations’ one defined by politicians (jurisdictions)
There are two types of populations, one defined by politicians (jurisdictions) & one defined by need.