**20th Century Health Care**
- Clinician-centred
- Patient as passive complier
- Focus on cure and effectiveness
- Increase quality
- More is better
- Good care for known patients
- Hospital as focus
- Public sector bureaucracy
- Driven by finance
- High carbon usage
- Challenges met by growth

**21st Century Health Care**
- Patient-centred
- Citizen as co-producer of wellbeing
- Focus on prevention, care & harm
- Reduce waste and increase value
- More is not always better
- Equitable care for populations
- Focus on systems
- Pluralistic networks
- Driven by knowledge
- Low carbon usage
- Challenges met by transformation
We have had two healthcare revolutions, with amazing impact

The First

The Second

- MRI and CT scanning
- Statins
- Antibiotics
- Coronary artery bypass graft surgery
- Hip and knee replacement
- Chemotherapy
- Radiotherapy
- Randomised controlled trials
- Systematic reviews
Progress in the last 40 years has been amazing but all health services, everywhere, still face 5 major problems one of which is unwarranted variation which reveals the other four problems – the value problems

- **HARM**, from **over-diagnosis & over-treatment** even when quality is high
- **INEQUITY**, from **underuse** by groups in high need
- **WASTE OF RESOURCES** through low value activity
- **FAILURE TO PREVENT DISEASE & DISABLEMENT**

And new, additional, challenges are developing

- **RISING EXPECTATIONS**
- **INCREASING NEED**
- **FINANCIAL CONSTRAINTS**
- **CLIMATE CHANGE**

Variation in utilization of health care services that cannot be explained by variation in patient illness or patient preferences.

Jack Wennberg
From 1948 the dominant paradigm was that healthcare was...
From 1948 the dominant paradigm was that healthcare was...FREE
In the 70’s and 80’s the dominant paradigm was effectiveness and evidence based
In the 90’s the dominant paradigm was cost effectiveness
From 2000 the paradigm was quality and safety
for the next 20 years the paradigm will be ..
VALUE
The Aim is **triple value & greater equity**

- Allocative, determined by how the assets are distributed to different sub groups in the population
  - Between programme
  - Between system
  - Within system
- Technical, determined by how well resources are used for all the people in need in the population
- Personalised value, determined by how well the decisions relate to the values of each individual
Within Programme, Between System Marginal analysis is a clinician responsibility.

- Cancers
- Respiratory
- Gastro-intestinal

Asthma
COPD (Chronic Obstructive Pulmonary Disease)
Apnoea
2. Carry out Within System Marginal Analysis
1. Reduce lower or negative value activities

After a certain level of investment, health gain may start to decline.
Deliver Care through High Quality, Safe Systems

Develop clinical focus on Populations

Personise Care & Decision – making to prevent over diagnosis

Create a culture of Stewardship, Financial & Carbon

LOWER VALUE (BUREAUCRACY BASED CARE)

DIGITAL KNOWLEDGE

HIGHER VALUE (PERSONALISED & POPULATION BASED CARE)
The Care Archipelago

- General Practice
- Mental Health
- Community Health Services
- Specialist Services
- Social Services
The Commissioning Archipelago

- GP/Pharmacists/optometrists
- 152 Local Authorities
- Public Health England
- 211 CCG’s
- Specialist commissioning
The Professional Archipelago

- GPs & Practice Nurses
- Social workers
- Mental Health Professionals
- Public Health Directors
- Housing Staff
- A&E staff
“complexity is the dynamic state between chaos and order”

Kieran Sweeney (2006)
Complexity in Primary care
radcliffe
Chaos........Complexity........Order

Person aged 87, 5 diagnoses
8 prescriptions, cared for by
Daughter with alcoholic husband

Man aged 57 with
Psychosis, drug dependence, and severe
epilepsy

woman aged 73,
webuser, with T2 Diabetes, STEMI,
high blood pressure, homeopathy

woman aged 67 painful hip &
mild depression

Man aged 67 with
Dukes A colorectal ca.

Man aged 23, Potts#
Football

woman aged 45
invited for cervical
screening
Systems, not bureaucracies

Population healthcare focus 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 and equity for those populations and the individuals within them.
System architecture

SELF CARE

INFORMAL CARE

GENERALIST

SPECIALIST

SUPER SPECIALIST
System design

<table>
<thead>
<tr>
<th>NEWBORN PROGRAMME OBJECTIVES:</th>
<th>CRITERIA</th>
<th>STANDARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programme Outcome</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Best possible survival for infants detected with a sickle cell disorder by the screening programme</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>Programme Outcome</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Accurate detection of all infants born with major clinically significant haemoglobin disorders* | Sensitivity of the screening process (offer, test and repeat test) | 99% detection for Hb-SS  
98% detection for Hb-SC  
95% detection for other variants | 99.5% for Hb-SS  
99% for Hb-SC  
97% for other variants |

This is an example of a national service set up as a system
Deliver Care through High Quality, Safe Systems

Develop clinical focus on Populations

LOWER VALUE (BUREAUCRACY BASED CARE)

DIGITAL KNOWLEDGE

HIGHER VALUE (PERSONALISED & POPULATION BASED CARE)

Personalise Care & Decision – making to prevent over diagnosis

Create a culture of Stewardship, Financial & Carbon
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
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.
Falls and Fragile Fracture Prevention - the Triple F Programme

People in old age often fall and often have fragile bones. The overlap between the two, leads to over 250,000 fragility fractures per year in the UK including 68,000 hip fractures. Falls and fragility fractures are a major cause of

- Emergency department attendance
- Hospital admission and duration of stay
- Mortality
- Increased disability assessing the admission to residential care.

What is needed is a population based programme on falls and fragile fracture prevention. A number of departments are already working on this but it needs a coordinated population based approach linking all the major professional organisations and charities, for example the National Osteoporosis Society. Already work has started in Wiltshire and Hertfordshire led by the Public Health Department with a production of the first draft of a system of care. What is needed is a two year programme to ensure that the whole population of England is covered by population based services. This will follow the strategic path set out below.
<table>
<thead>
<tr>
<th><strong>Population Name</strong></th>
<th>NC London and North Hertfordshire</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population Size</strong></td>
<td>1.6 million</td>
</tr>
<tr>
<td><strong>Report for 12 months ending</strong></td>
<td>Juoy 2013</td>
</tr>
<tr>
<td><strong>Number of practices in the population</strong></td>
<td>213</td>
</tr>
<tr>
<td><strong>Participating practices - number (%)</strong></td>
<td>Hub and Spoke 33 (15%)</td>
</tr>
<tr>
<td><strong>Total number of patients from participating practices</strong></td>
<td>~ 2100</td>
</tr>
<tr>
<td><strong>Patients diagnosed with AF in participating practices - number % of total patients</strong></td>
<td>Approx 75 - 85%</td>
</tr>
<tr>
<td><strong>% of patients risk assessed using CHADS2</strong></td>
<td>Approx 75 - 80%</td>
</tr>
<tr>
<td><strong>Number and % of patients with:</strong></td>
<td><strong>CHADS2 score of 0:</strong> Available 2014 CHADS2 score of 1: Available 2014 CHADS2 score of &gt;1: Available 2014</td>
</tr>
<tr>
<td><strong>% of patients with C2 score of &gt;2 on an Oral Anticoagulant (OAC)</strong></td>
<td>?</td>
</tr>
<tr>
<td><strong>% of patients with C2 scores of &gt;2 on Aspirin</strong></td>
<td>?</td>
</tr>
<tr>
<td><strong>NEQAS data</strong></td>
<td>Participation in NEQAS (yes or no): YES % of results within consensus: 95% Mean % deviation:</td>
</tr>
<tr>
<td><strong>Mean clinic TTR (Time-in-Therapeutic-Range)</strong></td>
<td>64</td>
</tr>
</tbody>
</table>
Public Health professionals are highly trained and well educated. Much of their impact comes through the way in which they understand and use knowledge from research, from data, and from experience.

Knowledge from experience is of vital importance and is of equal validity to statistics and research evidence. For this reason a profession expects its professionals to submit case reports of work they have done so that knowledge which has been developed during a project can be distilled and made available to other Public Health professionals. Public Health Experience is the name given to the Case Book of Public Health England and the Local Authority Departments. It consists of tools and useful lessons that Public Health professionals use to promote health and prevent disease.

If you want to see examples please click on the Case Studies tab above.

Sir Muir Gray, Consultant in Public Health.
Personalised decision making & outcome

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

Evidence, Derived from the study of groups of patients

The clinical condition of this patient; other diagnoses, risk factors and their genetic profile and in particular their problem, what bothers them psychologically and socially

Patient Report of the impact of the decision on problem that was bothering them most
As the rate of intervention in the population increases, the balance of benefit and harm also changes for the individual patient.
Ban old language

Introduce new language

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
Digital knowledge is driving the third healthcare revolution

The First
Public Health

The Second
High Tech

• Antibiotics
• MRI
• CT
• Transplantation
• Stents
• Hip and knee replacement
• Chemotherapy
• Radiotherapy
• RCTs
• Systematic reviews

the Third
Networking

Citizens

Knowledge

Smart Phone
Go to the ant, O sluggard
study her ways and learn wisdom, for though she has no chief, no officer or ruler,
she secures her food in the summer,
she gathers her provisions in the harvest  Proverbs 6:6
10 QUESTIONS ABOUT VALUE

1. How much money should be spent on healthcare?
2. How much money should be top-sliced for research, education and information technology? (and for specialised services?)
3. Has the money for healthcare been distributed to different parts of the country by a method that recognises variation in need and maximises value for the whole population?
10 QUESTIONS ABOUT VALUE

4. Has the money for care been distributed to different patients groups, e.g. people with cancer or people with mental health problems, by a process of decision-making that is not only equitable but also maximises value for the whole population?

- Have the resources within one programme budget been allocated to optimise value
Between Programme Marginal Analysis and reallocation is a commissioner responsibility with public involvement.
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 Programme, Between System Marginal analysis is a clinician responsibility
Technical Value (Efficiency) = Outcomes / Costs

Outcome = Benefit (EBM + Quality) – Harm (Safety)

Costs (Money + time + Carbon)
10 QUESTIONS ABOUT VALUE

• 8. Are the resources that have been allocated being used on the right interventions?
4 Increase High Value Innovation by Disinvestment from Lower Value Interventions and ensure that any innovation without strong evidence of high value is introduced using the IDEAL method to ensure evaluation.
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.
9. Are the right patients being offered the high value interventions?
3. See the right patients

- All people with the condition
- People receiving the specialist service
- People who would benefit most from the specialist service
<table>
<thead>
<tr>
<th>Condition</th>
<th>Provision less than expected</th>
<th>Provision more than expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip replacement in most deprived populations compared with least derived populations</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>Knee replacement in most deprived populations compared with least derived populations</td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>
10 QUESTIONS ABOUT VALUE

• 10 (should really be No 1) Are we sure that every individual patient is getting what is right for him or her?
The Healthcare Archipelago

- General Practice
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- Public Health Services
- Hospital Services
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<th>Responsibility</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity</td>
<td>Doing things cheaply</td>
</tr>
<tr>
<td>Efficiency</td>
<td>Doing the right things right</td>
</tr>
<tr>
<td>Better value</td>
<td>Doing the right things</td>
</tr>
<tr>
<td>Sustainability</td>
<td>Doing things greenly</td>
</tr>
<tr>
<td>Equity</td>
<td>Doing things fairly</td>
</tr>
<tr>
<td>Population</td>
<td>Doing things to help all patients in the population, not just the referred patients.</td>
</tr>
</tbody>
</table>
HIGH VALUE (PERSONALISED & POPULATION BASED CARE)

- High Quality, Population Based Systems
- Personalised Care & Decision-making
- Digital Knowledge
- Culture of Stewardship, Financial & Carbon
- Clinician focus on population served

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**STEWARDSHIP** to hold something in trust for another
“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.”
“Waste (muda) is anything that does not add value to the outcome” Taiichi Ohno
Deliver Care through High Quality, Population Based Systems

Develop clinician’s focus on population served

Low Value (Bureaucracy Based Care)

Digitally Delivered Evidence & Integration

High Value (Personalised & Population Based Care)

Personalise Care & Decision-making

Create a culture of Stewardship, Financial & Carbon