The Strategy Unit.

Intelligence-driven healthcare: What should the future look like?

Design Summit

Tuesday 15th May 2018

NHS
Midlands and Lancashire
Commissioning Support Unit

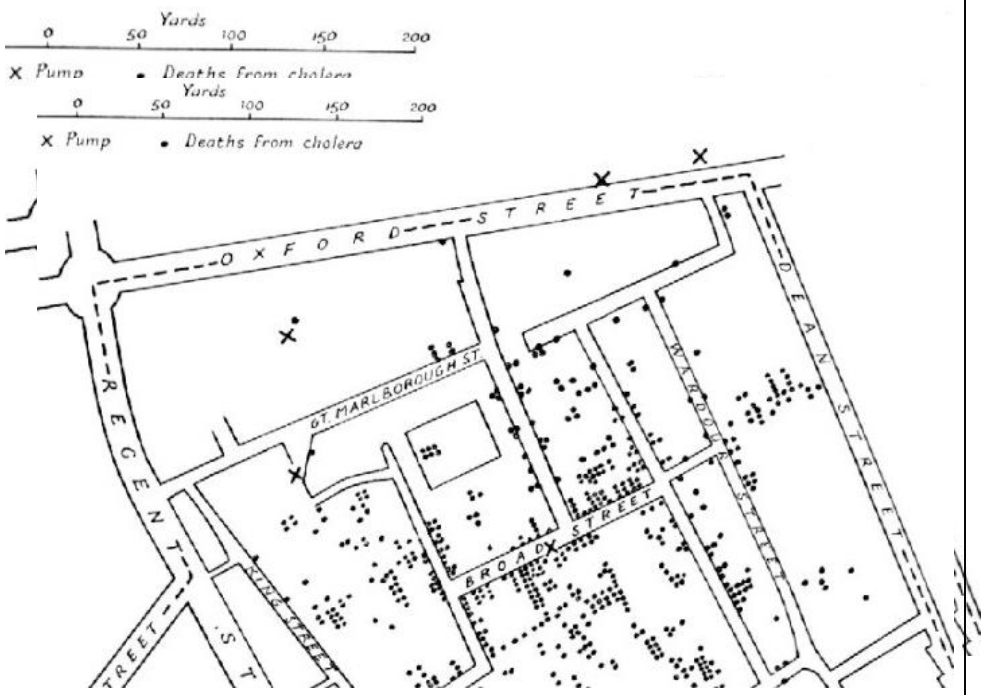
Increasing the value of healthcare to populations and individuals

Professor Sir Muir Gray


Birmingham Canal Navigations
Chasewater
Norton Canes
ANGLESEY BRANCH
Ogley Jn
Brownhills
CANNOCK EXTENSION
Great Wyrley
W & E
Catshill Jn
Pelsall Jn
Little Bloxwich
DAW END BRANCH
W & E
WYRLEY & ESSINGTON
Sneyd Jn
W & E
Aldridge
Daw End
Longwood Jn
Birchills Jn
Walsall Locks
WALSALL TOWN ARM
Rushall Locks
RUSHALL
Horseley Fields Jn
Darlaston
WALSALL
Bilston
Wednesbury
WALSALL
TAME VALLEY
Rushall Jn
SCALE 2 MILES to 1 INCH
Miles 0 3
Kms 0 5
Deepfields Jn
WEDNESBURY OAK LOOP
BIRMINGHAM CANAL
Coseley
Bradley Workshops
Coseley Tnl 380yds
OCKER HILL TUNNEL BRANCH
Factory Locks
Factory Jn
Tipton Jn
Ryder's Green Locks
WEDNESBURY OLD
BIGACRE BRANCH
Ryder's Green Jn
WEST BROMWICH
Perry Barr Locks
Perry Barr
Gravelly Hill
Salford Jn
Dudley Tnl 3154yds (no engines)
Dudley Port Jn
Albion Jn
Pudding Green Jn
Bradley Locks
Bromford Jn
Soon Lane Locks
Spon Lane Jn
Dudley Netherton Tnl 3027yds
Park Head Locks
Park Head Jn
Blower's Green Lock
Boshboil Arm
Oldbury
Oldbury Jn
Oldbury Locks
MAIN LINE
Smethwick Locks
Smethwick Jn
Aston Locks
Aston Jn
Farmer's Br Locks
SOHO LOOP
Engine Branch
Smethwick
Windmill End Jn
Jumble-hole Branch
DUDLEY CANAL No. 2
DUDLEY No. 1 CANAL
FENS BRANCH
Stourbridge Sixteen
Titford Pools
ICKNIELD PORT LOOP
Rotton Park Reservoir
OZZELLS ST LOOP
Digbeth Basin
Ashted Tnl
Ashted Locks
Garrison Locks
BIRMINGHAM & WARWICK JUNCTION
BIRMINGHAM & FAZELEY
Brierley Hill
Delph Locks
DUDLEY No. 2 CANAL
Gosty Hill Tnl 557yds
Farmer's Bridge Jn
Gas St Basin
Camp Hill Locks
GRAND UNION
STOURBRIDGE ARM
Stourbridge
Edgbaston Tnl 105 yds

We have had 2 healthcare revolutions, with amazing impact

The First was the public health revolution



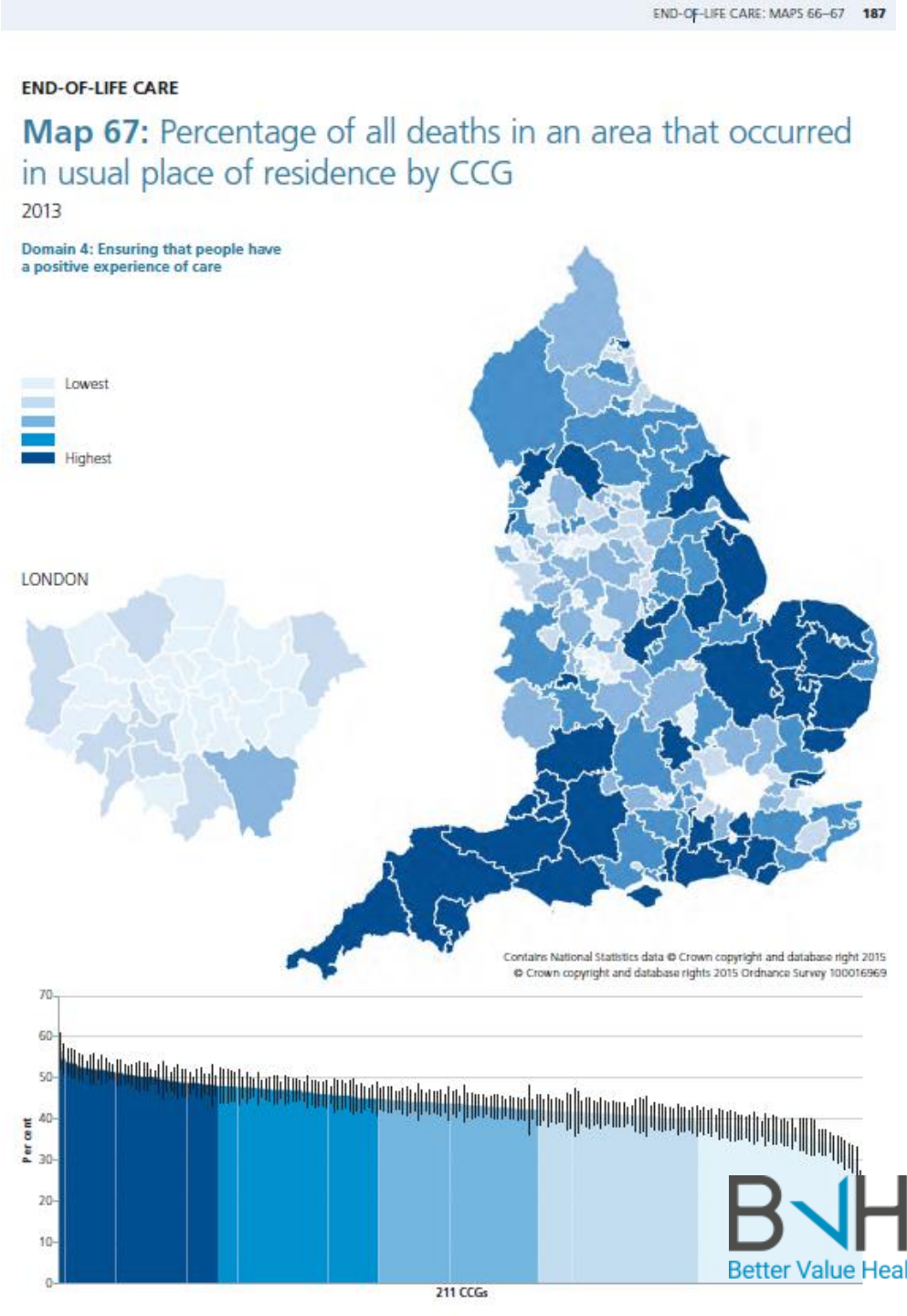
The Second has been the technological revolution supported by 50 years of increased investment & 20 years of evidence based medicine, quality and safety improvement eg

- Antibiotics
- MRI & CT
- Coronary artery bypass graft surgery
- Hip & knee replacement
- Chemotherapy
- Radiotherapy
- Randomised controlled trials
- Systematic reviews

After 50 years' progress all societies still face three major problems. The first is unwarranted variation in healthcare, i.e. *"Variation in the utilization of health care services that cannot be explained by variation in patient illness or patient preferences."*

John Wennberg

Variation reveals the other two problems …



BVHC
Better Value Healthcare

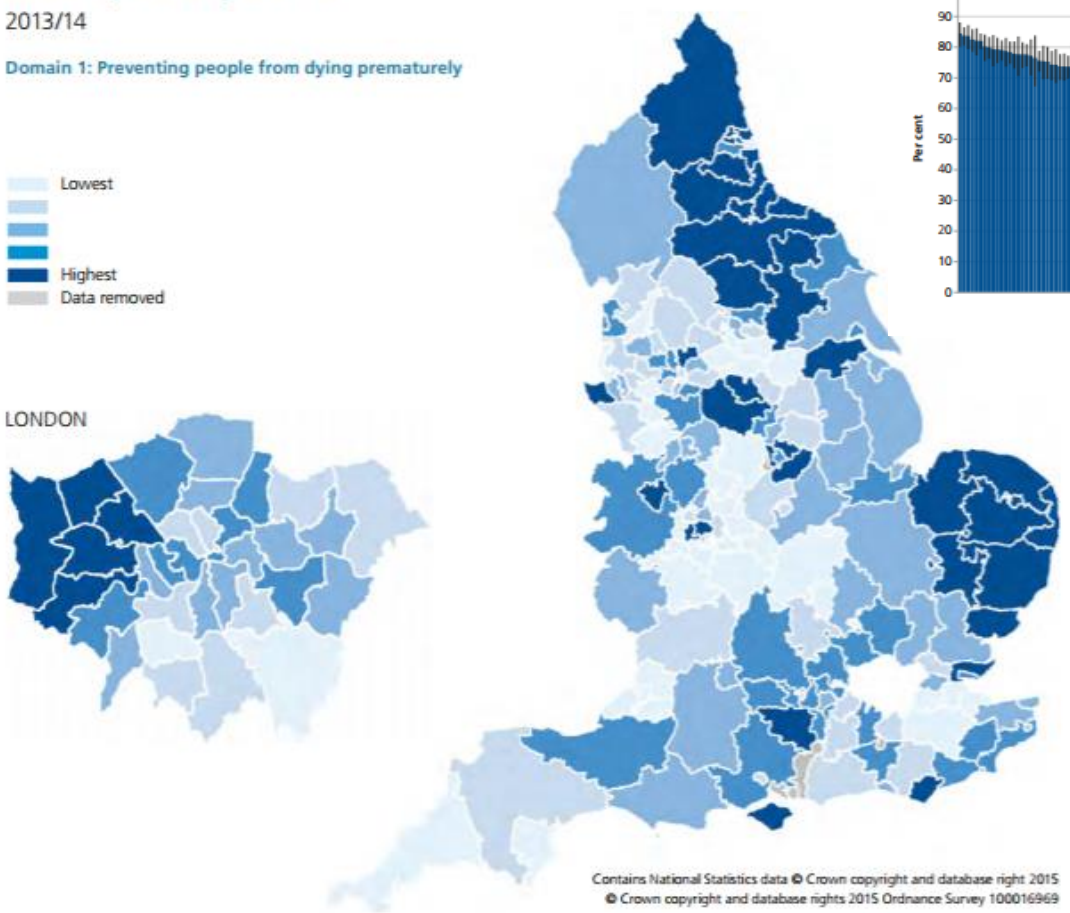
This type of indicator illustrates variations in quality where we know what the 'right' rate should be

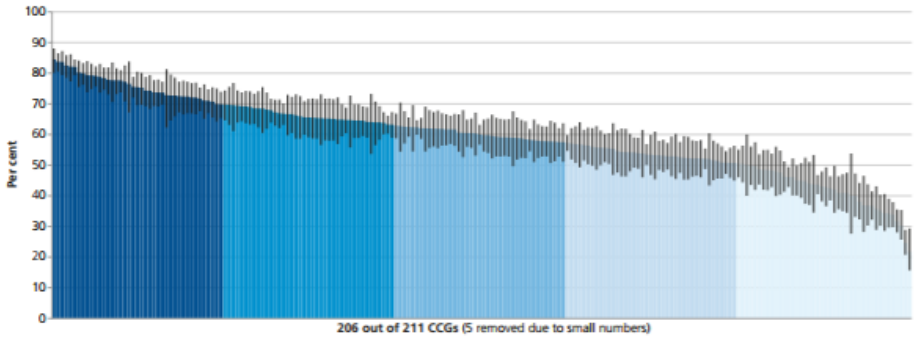
CARDIOVASCULAR FAMILY OF DISEASES: STROKE

Map 40: Percentage of people with acute stroke who were directly admitted to a stroke unit within four hours of arrival at hospital by CCG

2013/14

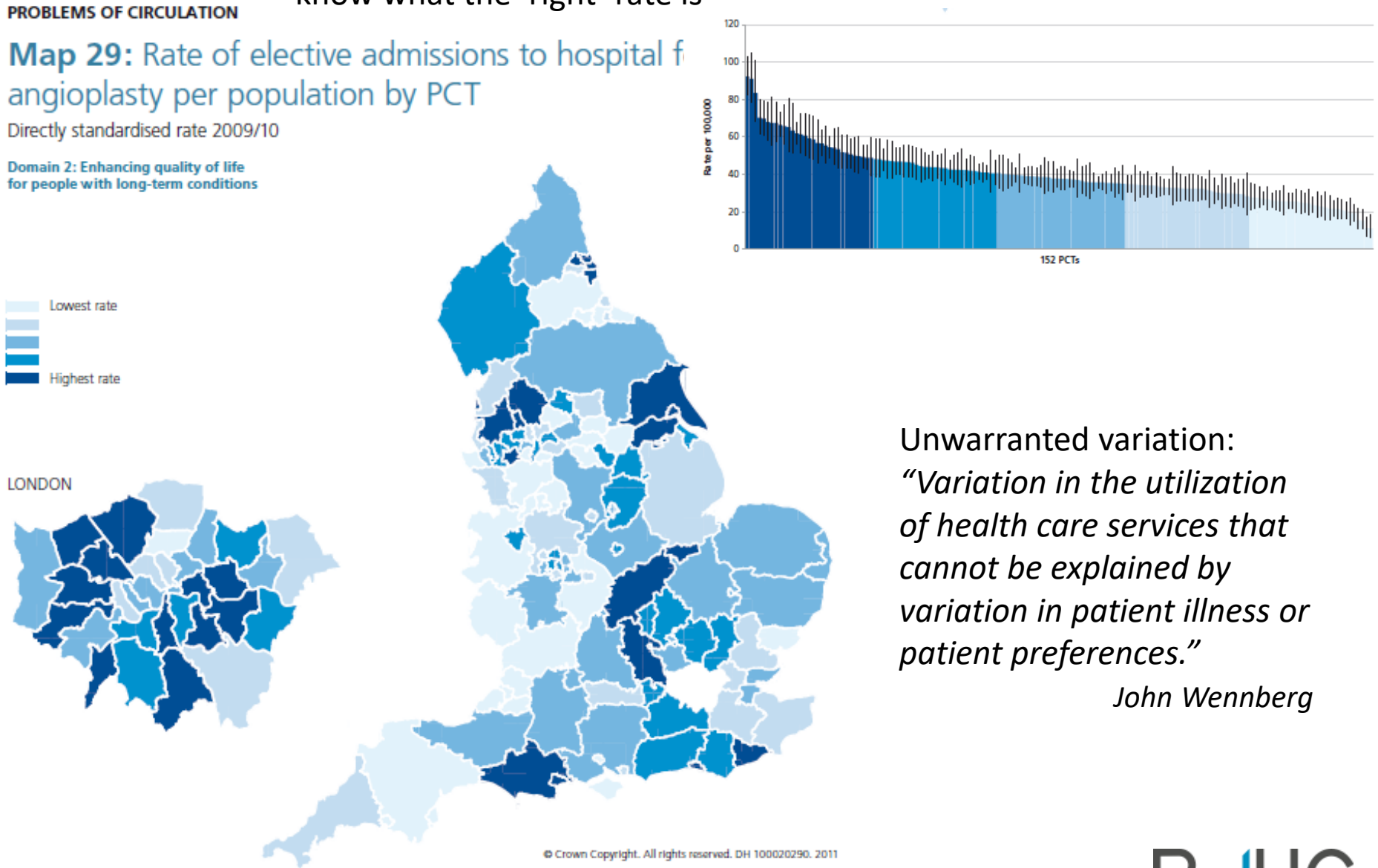
Domain 1: Preventing people from dying prematurely





BVHC
Better Value Healthcare

This type of indicator shows variation in value where we do not know what the ‘right’ rate is



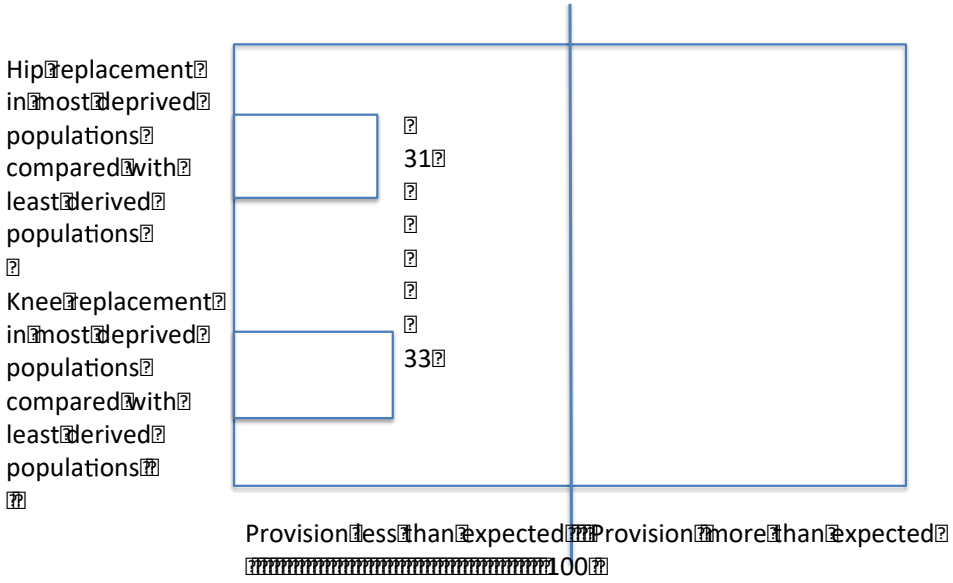
Unwarranted variation:
“Variation in the utilization of health care services that cannot be explained by variation in patient illness or patient preferences.”

John Wennberg

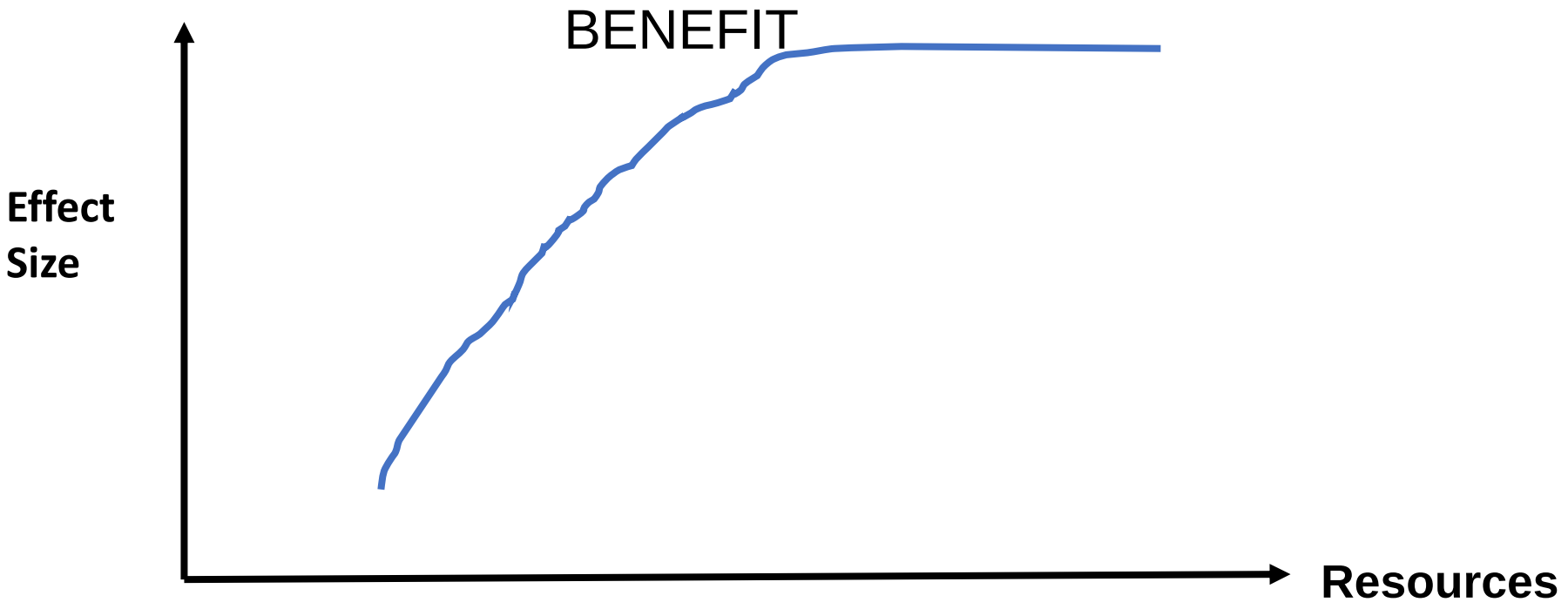
BVHC
Better Value Healthcare

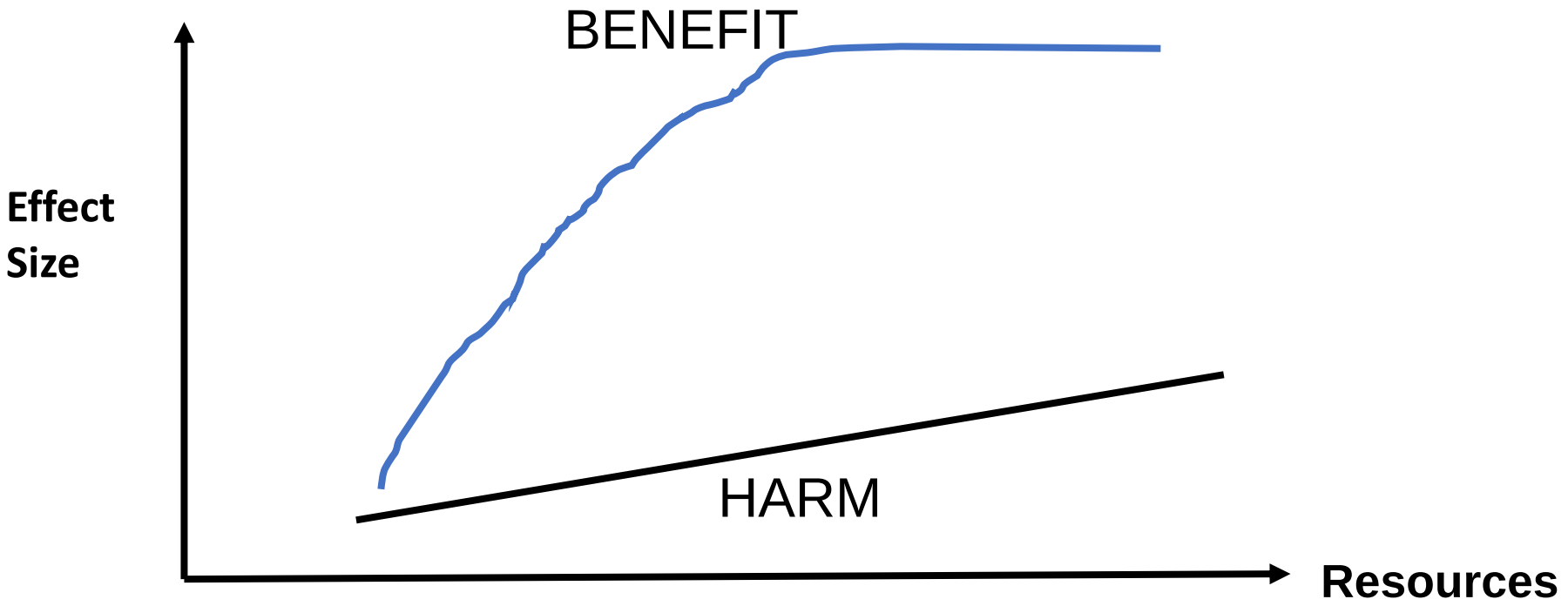
The first is Underuse of high value interventions which results in

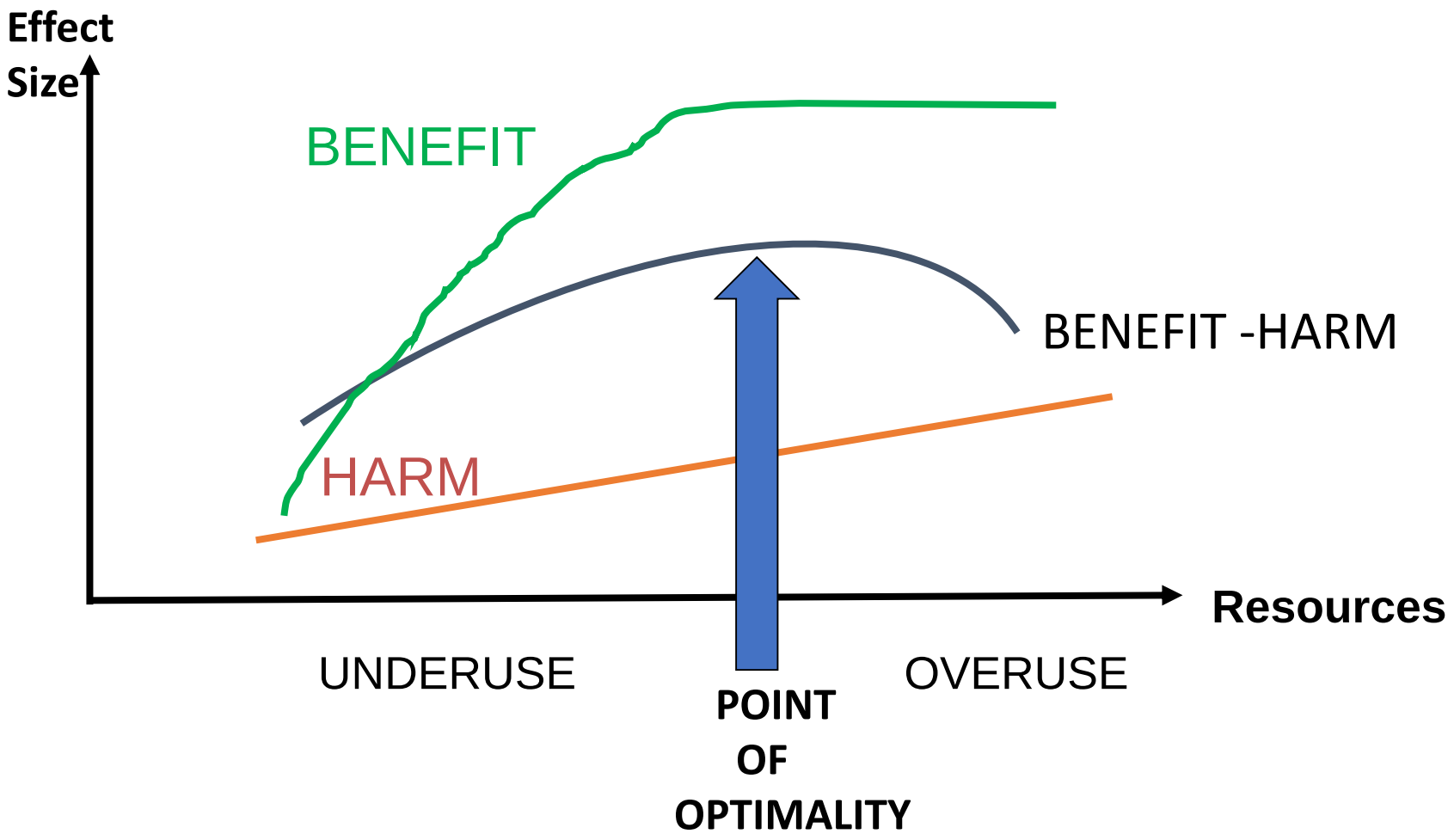
1. Preventable disability and death eg if we managed atrial fibrillation optimally there would be 5,000 fewer strokes and10% reduction in vascular dementia,(2012) and
2. inequity



The second is overuse which
1. always wastes resources and
2. can cause harm




BENEFIT
HARM
Effect Size
Resources


Effect Size
BENEFIT
BENEFIT -HARM
HARM
Resources
UNDERUSE
POINT OF OPTIMALITY
OVERUSE

NHS or nHS?

- Is the service for people with seizures & epilepsy in West Midlandsbetter than the service in North West?
- Who is responsible for the service for people with dementia in Walsall?
- How many networks for asthma are there in the West Midlands and how many should there be?
- Which service for people at the end of life in the Black Country provides the best value?
- Is the service for people with type 2 diabetes in Birmingham better than the service in Manchester or Milano?

In the next decade need and demand will increase by at least 20 % so what can we do?

Well, we need to continue to
1. Prevent disease, disability, dementia and frailty
 to reduce need
2.Improve outcome by provide only cost-effective, evidence based interventions
3. Improve outcome by increasing quality and safety of process
4. Increase productivity by reducing cost

These measures reduce need and improve efficiency

BUT we also need to increase value

The Aim is **triple value**

- Personal value, determined by how well the outcome relates to the values of each individual and, from the population's perspective, two different types of value
- Allocative value , determined by how well the assets are distributed to different sub groups in the population
- Technical value , determined by how well resources are used for all the people in need in the population

waste is anything that does not add value and as the Academy's re[port emphasises we need to develop a 'culture of stewardship' to ensure the NHS will be with us in 2028 and 2038

ACADEMY OF MEDICAL ROYAL COLLEGES

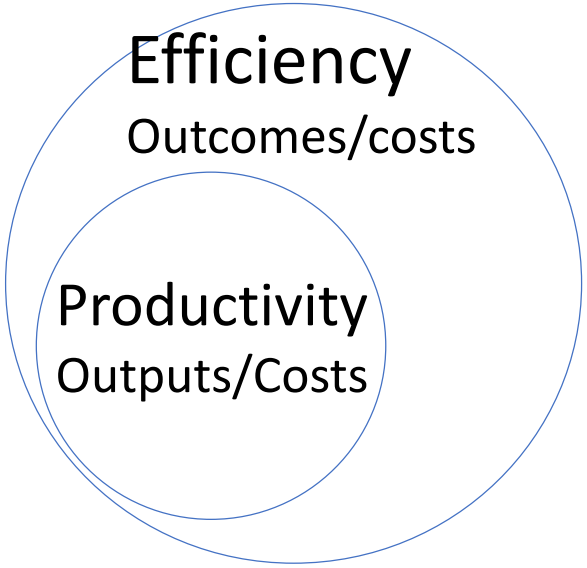
Protecting resources, promoting value: a doctor's guide to cutting waste in clinical care

November 2014

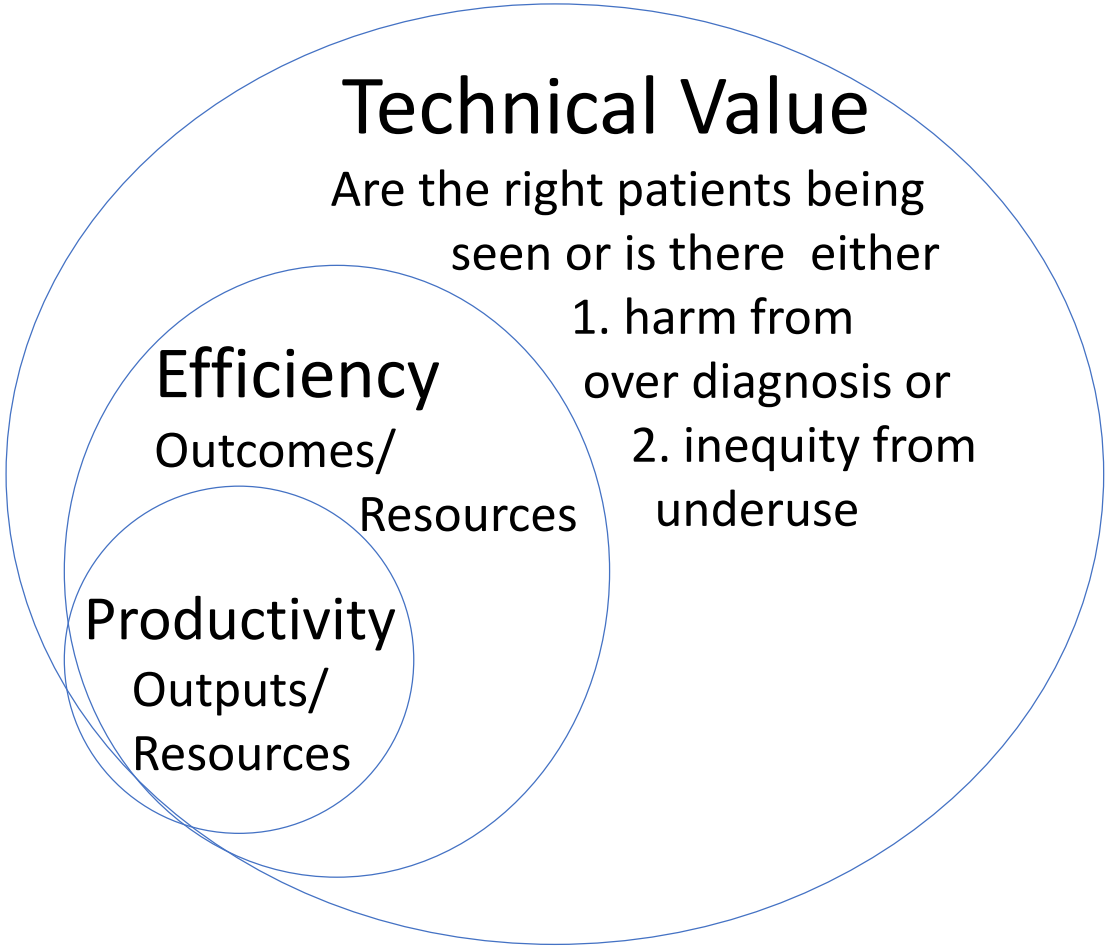
Productivity

Outputs/Costs

FOR EXAMPLE , AVERAGE DURATION OF STAY FOR KNEE REPLACEMENT



FOR EXAMPLE,
% OF PATIENTS WHO HAVE A KNEE REPLACEMENT AND REPORT THAT THE OUTCOME IS GOOD OR VERY GOOD



Quadruple Resources

- Financial
- Environmental (carbon)
- Social
- Time, not only clinician time but also time of patients and carers

THE Better Value Healthcare METHOD OF INCREASING VALUE FOR POPULATIONS AND INDIVIDUALS IS BY

- Ensuring that every individual receives high personal value by providing people with full information about the risks and benefits of the intervention being offered
- Shifting resource from budgets where there is evidence of overuse or lower value to budgets for populations in which there is evidence of underuse and inequity
- Develop population based systems that not only deliver high quality care efficiently but also
  - Address the needs of all the people in need, with the specialist service seeing those who would benefit most
  - Implement high value innovation funded by reduced spending on lower value intervention
  - Increase rates of higher value intervention funded by reduced spending on lower value intervention eg shift resources from treatment to prevention

Personal value is determined by the value the individual places not only on

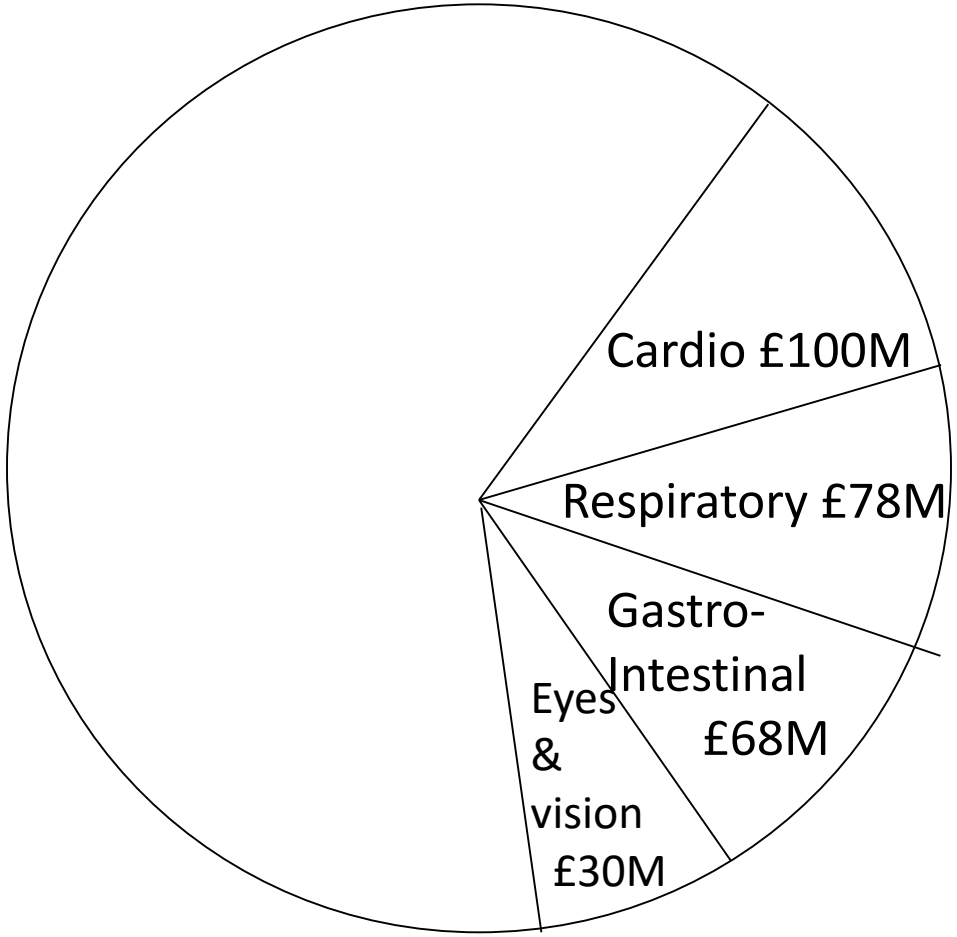
- the outcomes of their treatment, both beneficial and harmful, related to the problem that was bothering them most but also to
- the investment they have made , for example the time they have spent and their experience of care and decision making

What is really bothering me most?	
What do I hope the health service can do about it?	

What is really bothering me most?	I am worried that I might have cancer because I seem more tired.
What do I hope the health service can do about it?	Exclude the possibility that my tiredness is the result of a cancer as definitely as possible.

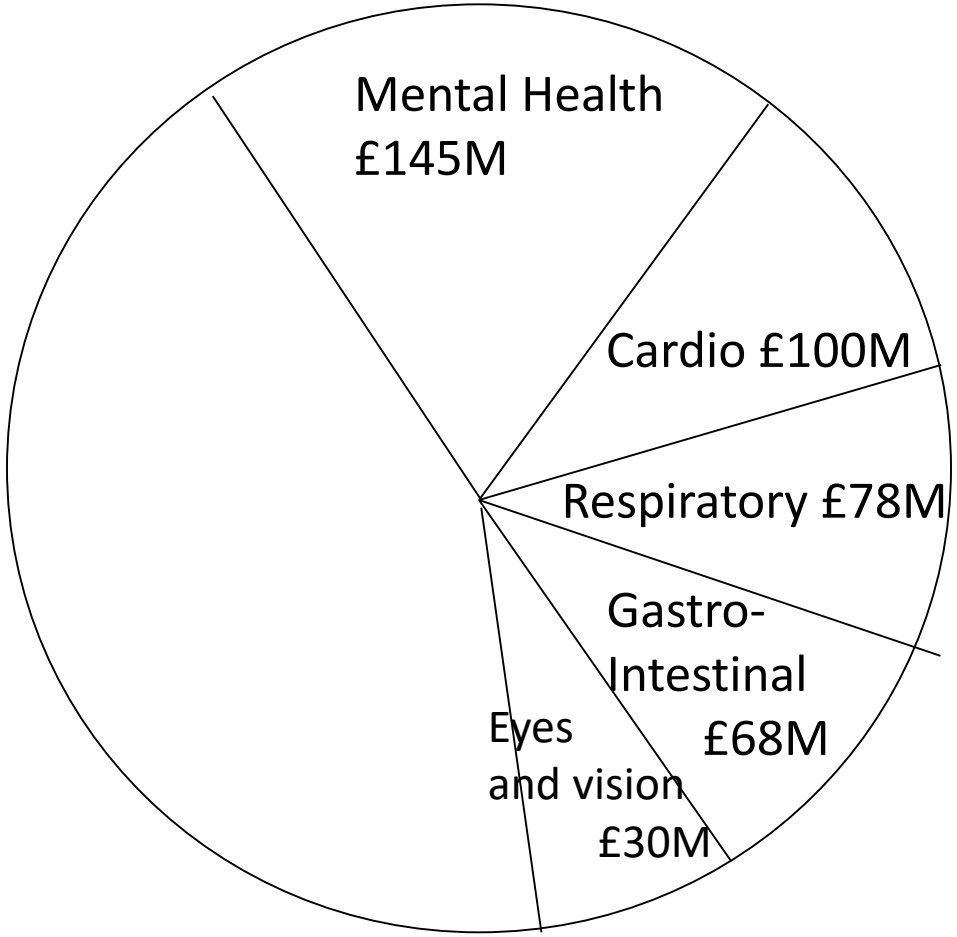
2. Shifting resource from budgets where there is evidence from unwarranted variation of overuse or lower value to budgets for populations in which there is evidence of underuse and inequity

”



ANNUAL SPEND PER MILLION

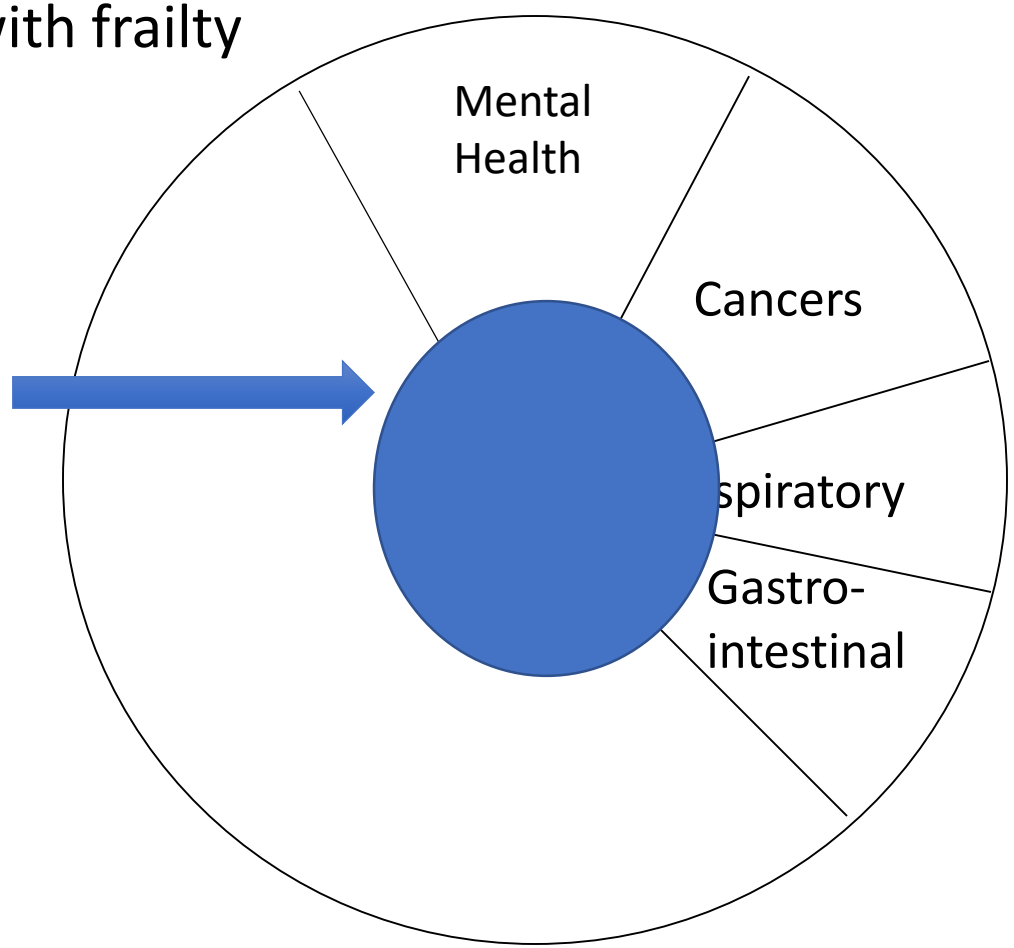
”



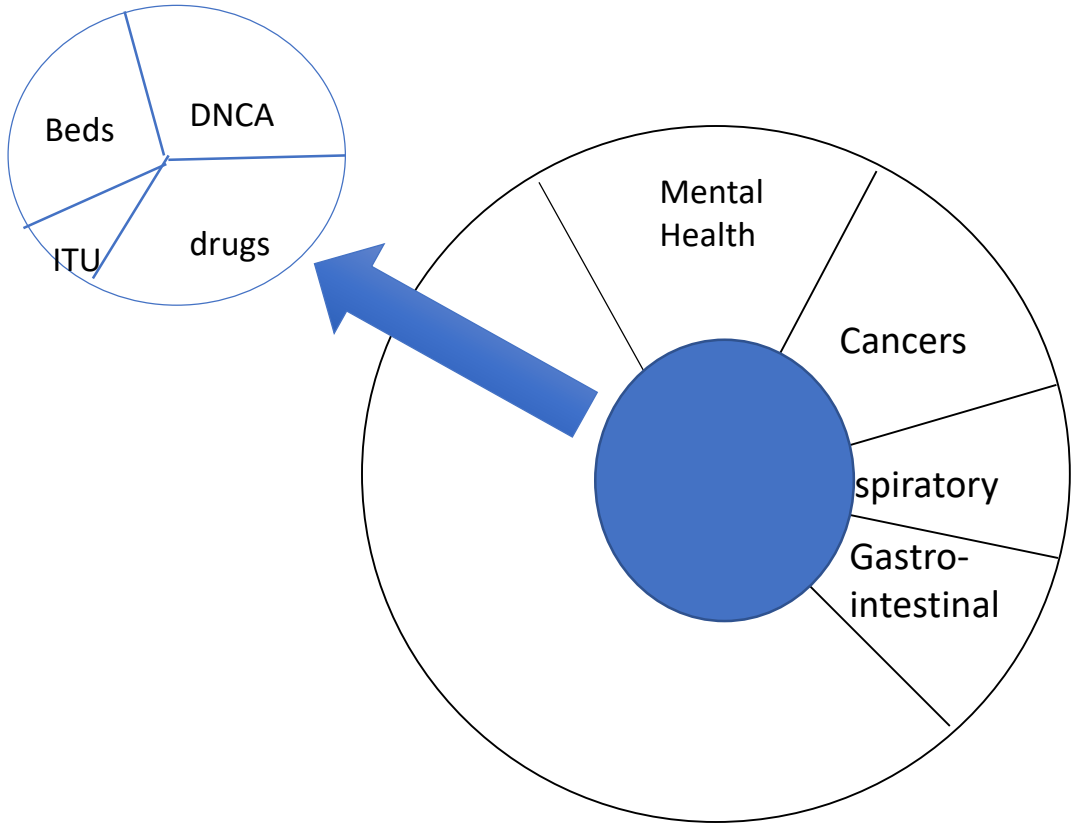
ANNUAL SPEND PER MILLION

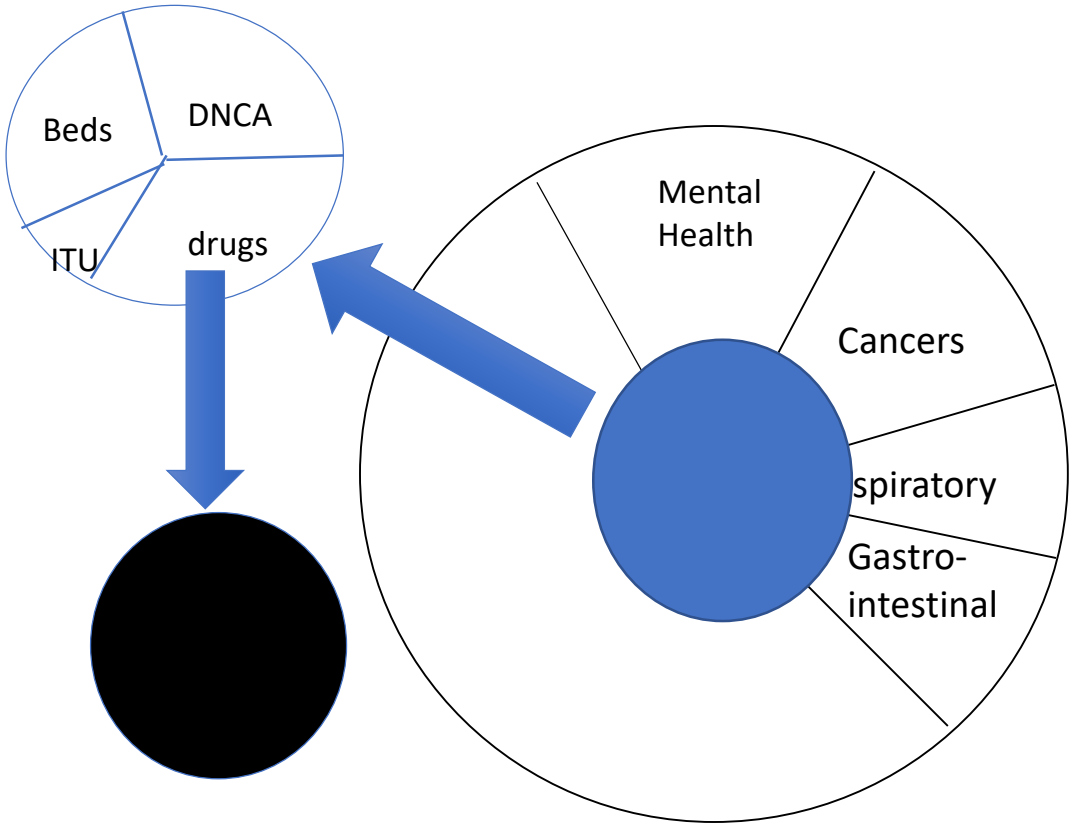
2. We are working to develop programme budgets determined by characteristic such being elderly with frailty

Many people have more than one problem ; they have complex needs. GP's are skilled in managing **complexity** but when one of the problems becomes **complicated** the Generalist needs Specialist help



Oxford


Beds
DNCA
ITU
drugs
Mental Health
Cancers
spiratory
Gastro-intestinal


Beds
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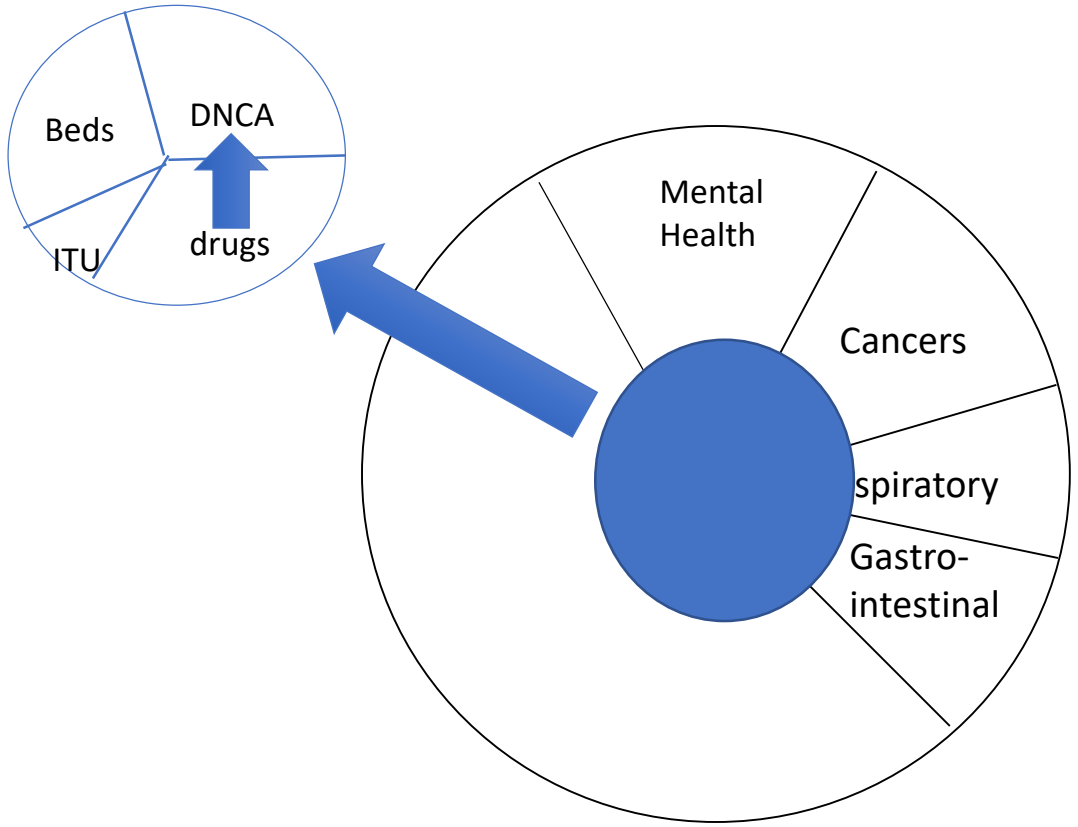
Gastro-
intestinal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DNCA
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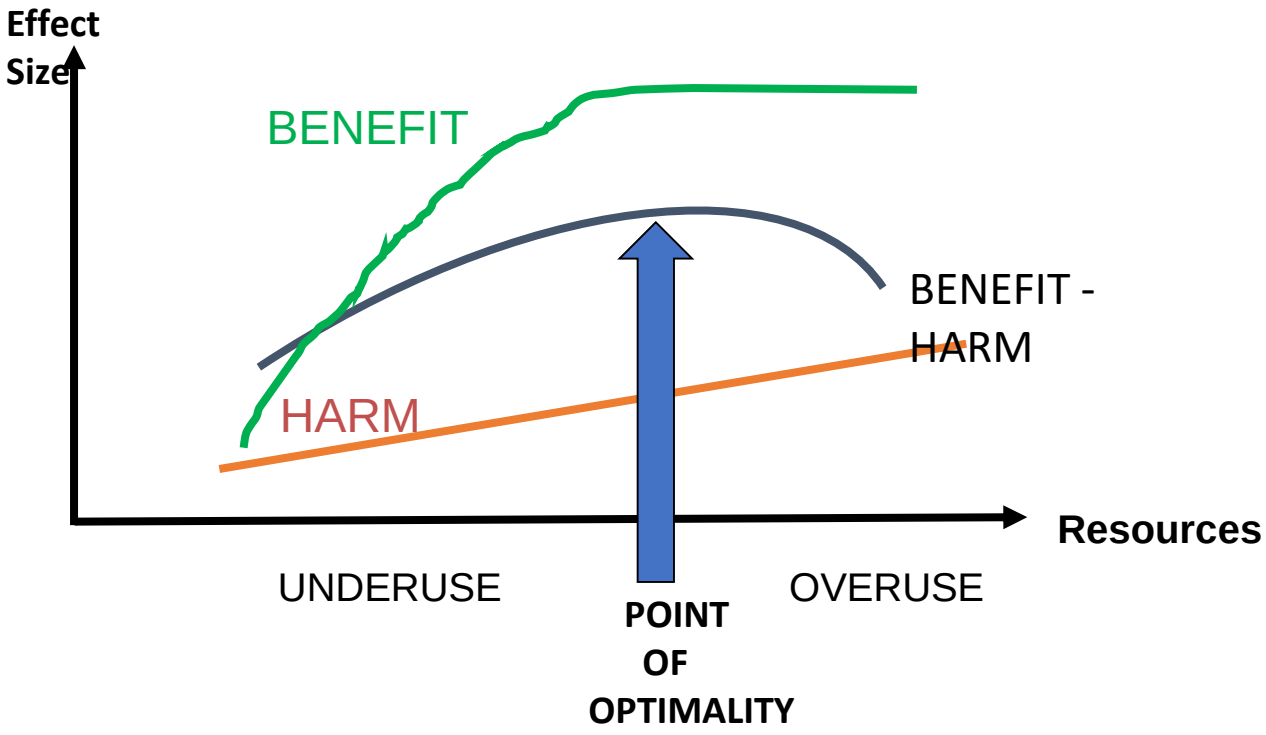
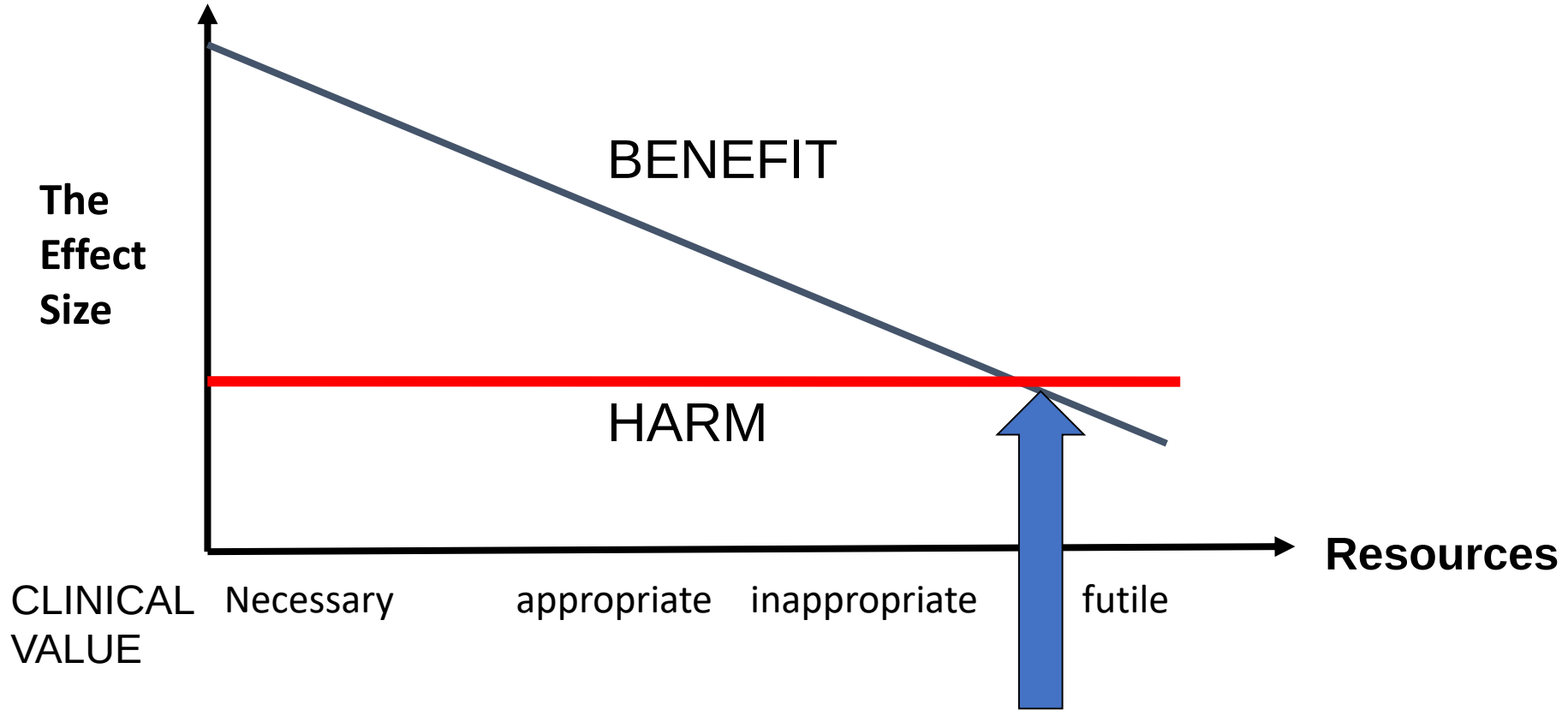
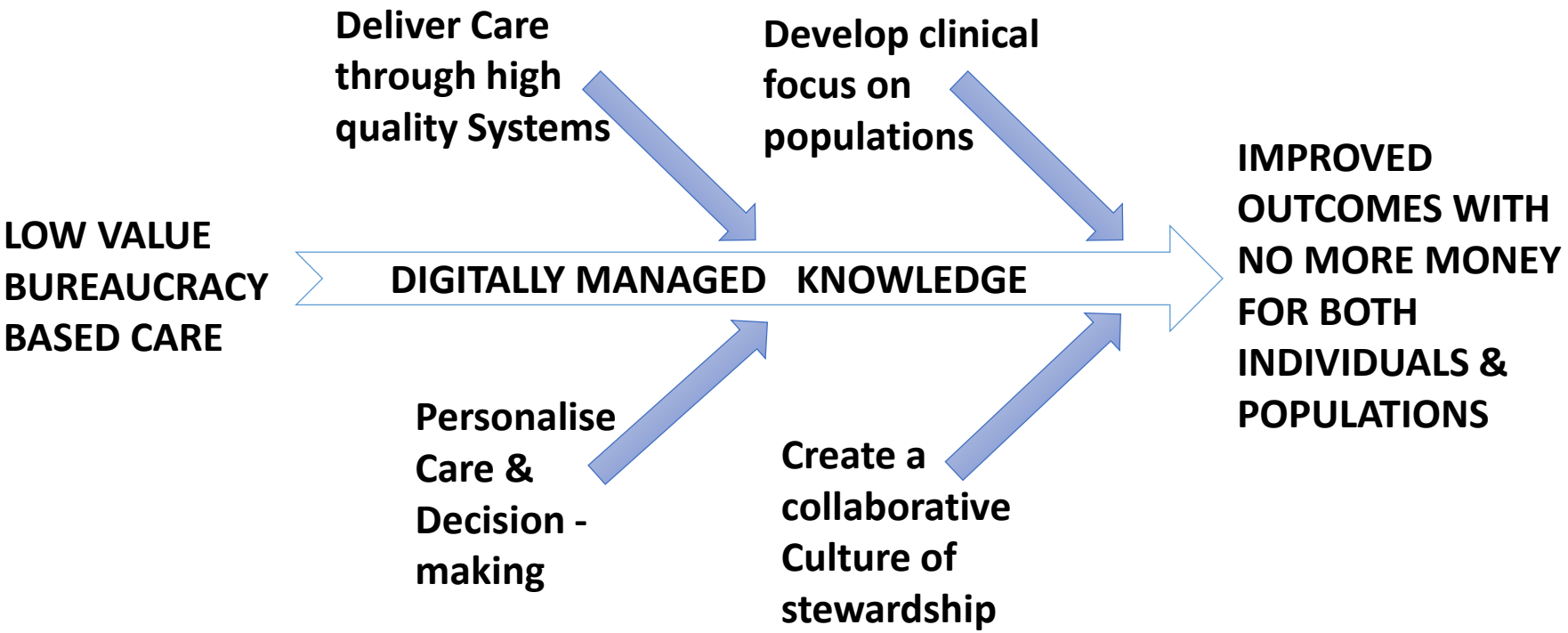
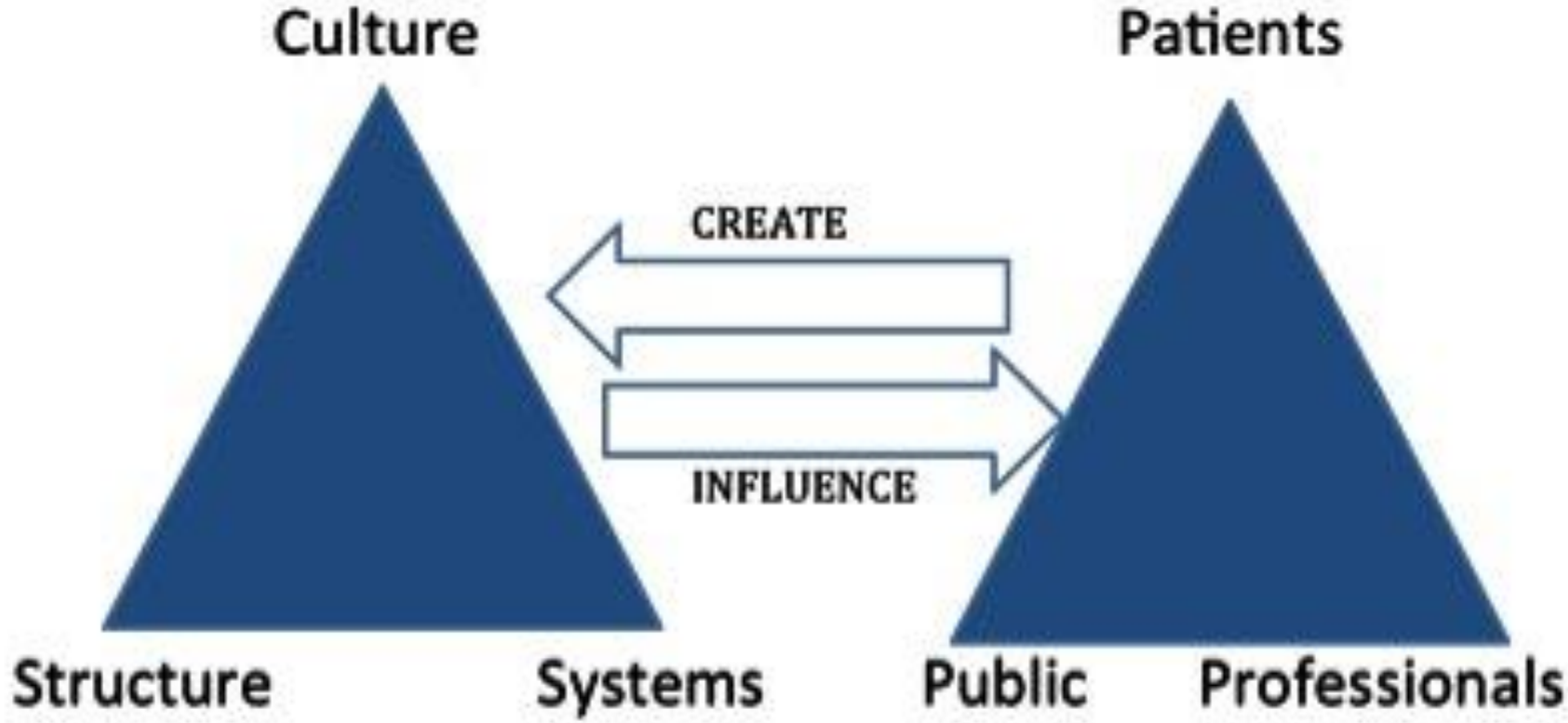
TECHNICL VALUE AFTER THE RESOURCES HAVE BEEN ALLOCATED



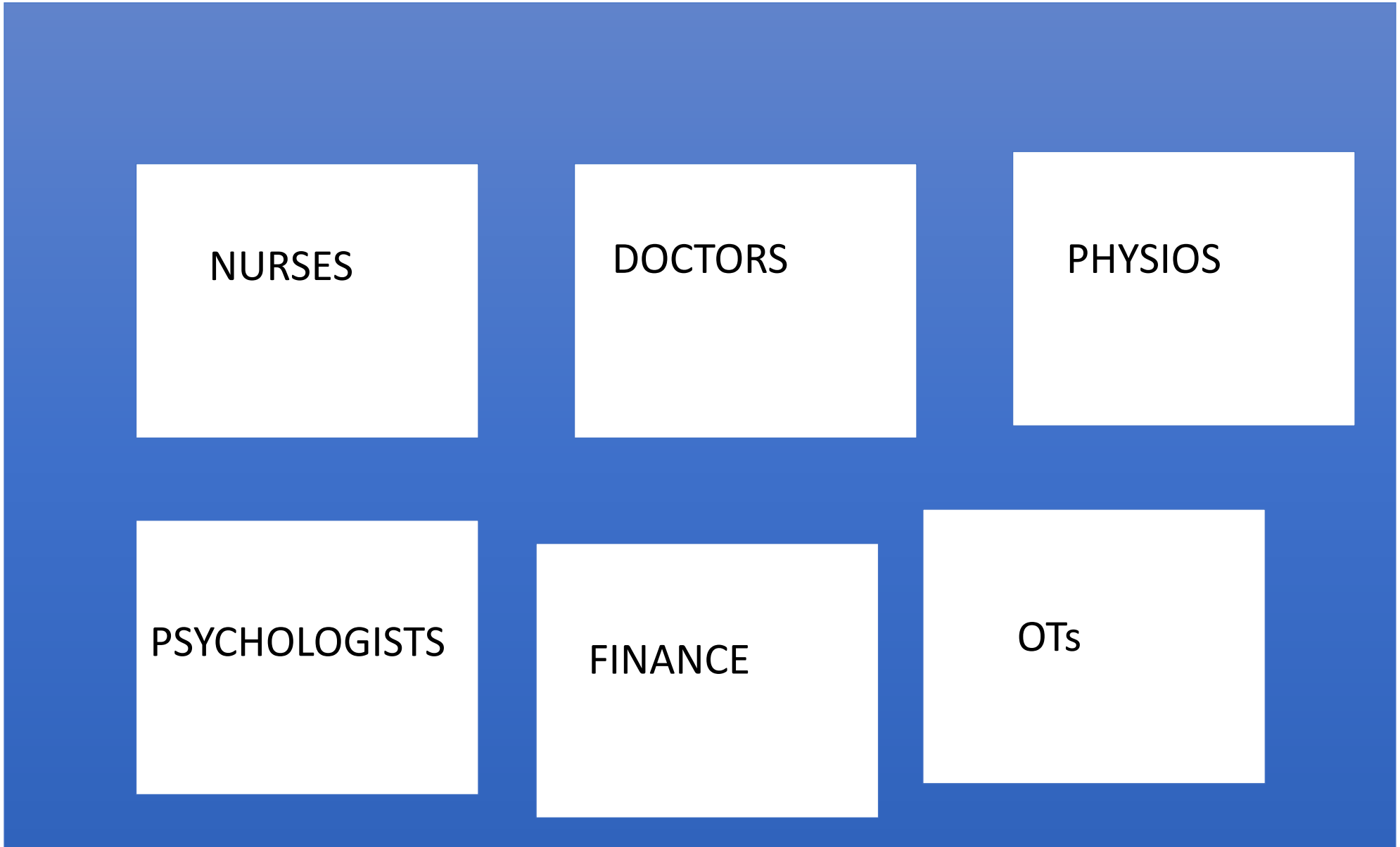

BENEFIT
The Effect Size
HARM
Resources
CLINICAL VALUE
Necessary
appropriate
inappropriate
futile
ECONOMIC VALUE
Higher
lower
low
Zero
Negative


Deliver Care through high quality Systems
Develop clinical focus on populations
LOW VALUE BUREAUCRACY BASED CARE
DIGITALLY MANAGED KNOWLEDGE
IMPROVED OUTCOMES WITH NO MORE MONEY FOR BOTH INDIVIDUALS & POPULATIONS
Personalise Care & Decision - making
Create a collaborative Culture of stewardship

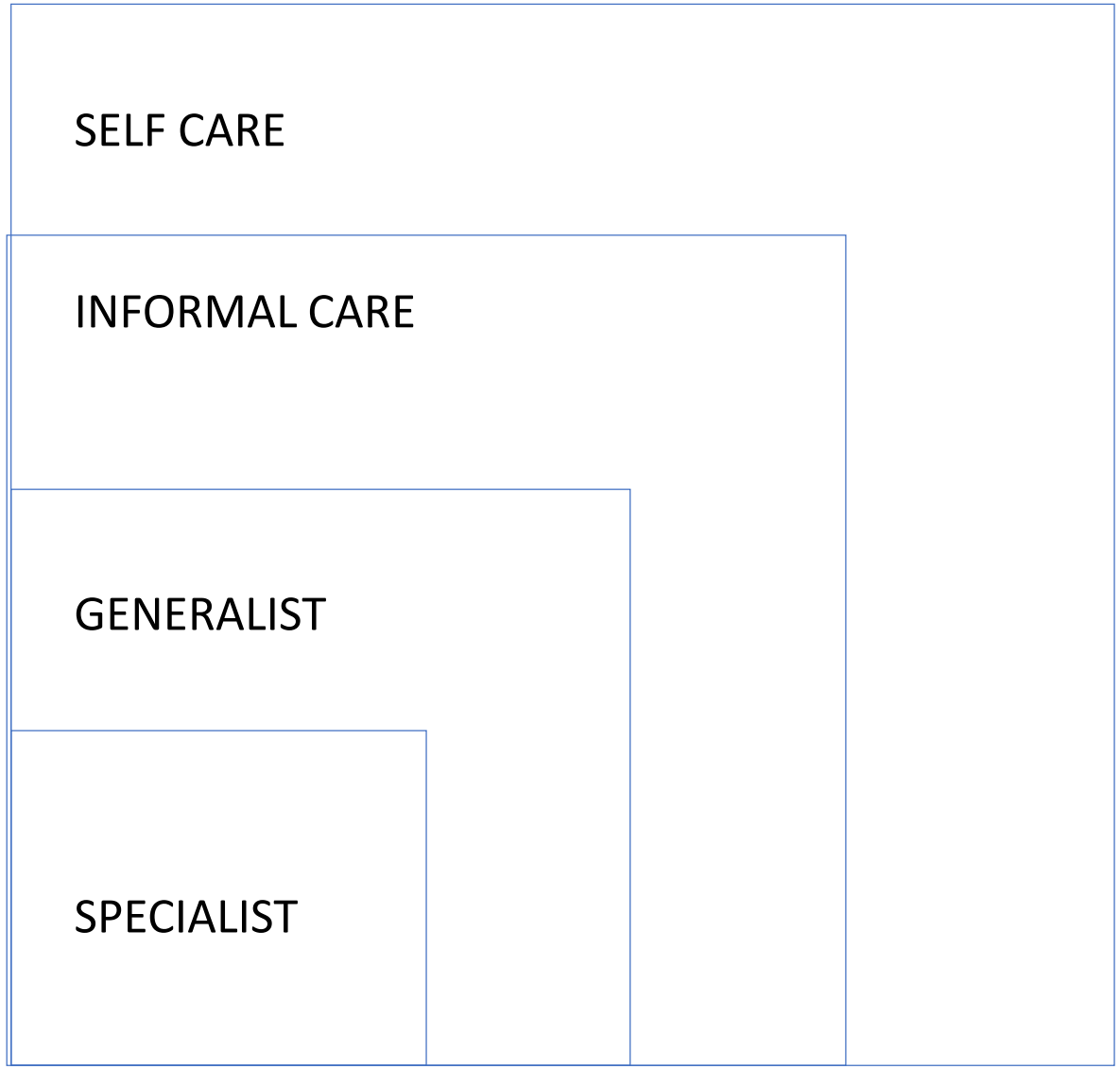

Culture
Patients
CREATE
INFLUENCE
Structure
Systems
Public
Professionals

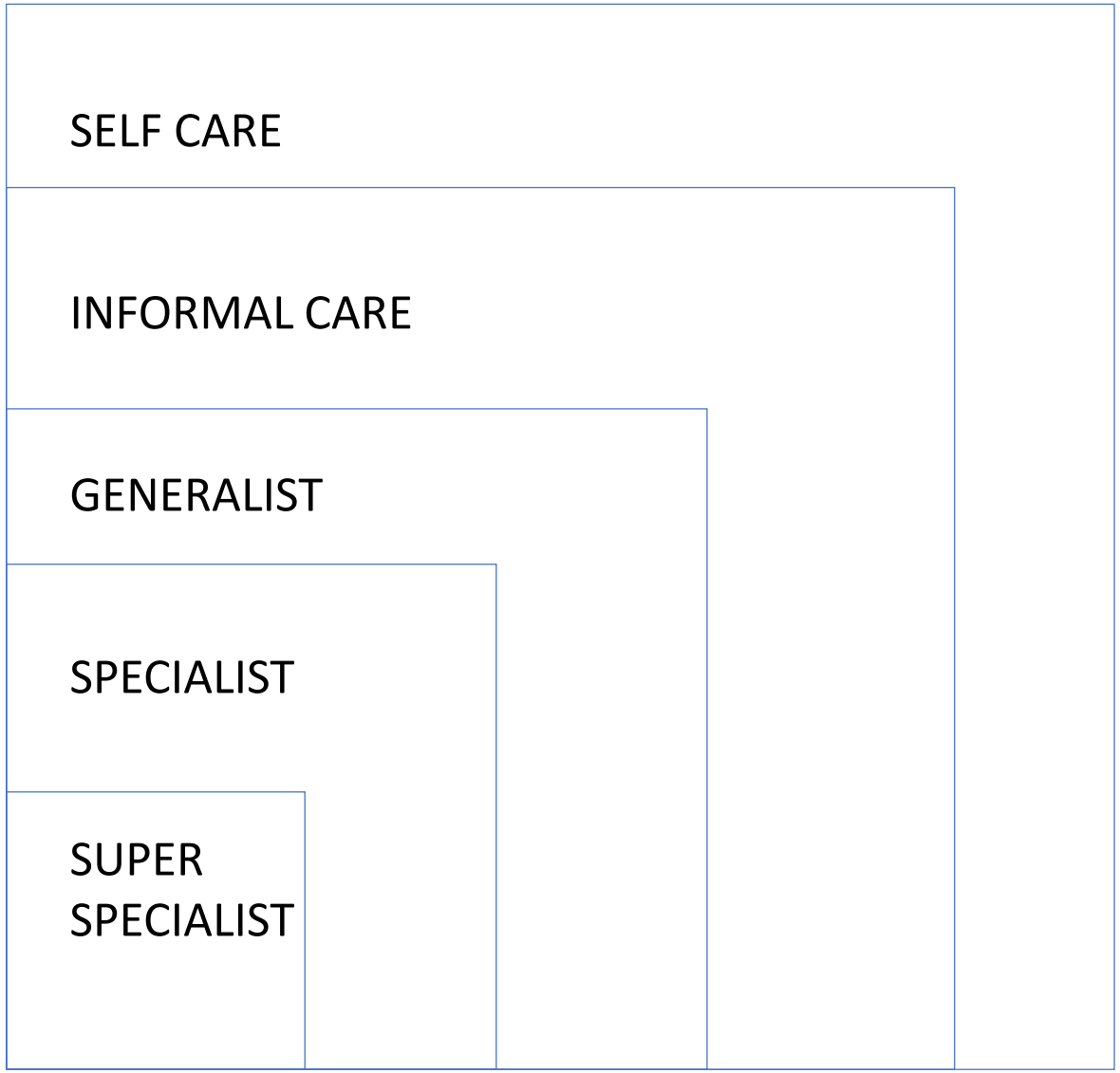
The Care Archipelago

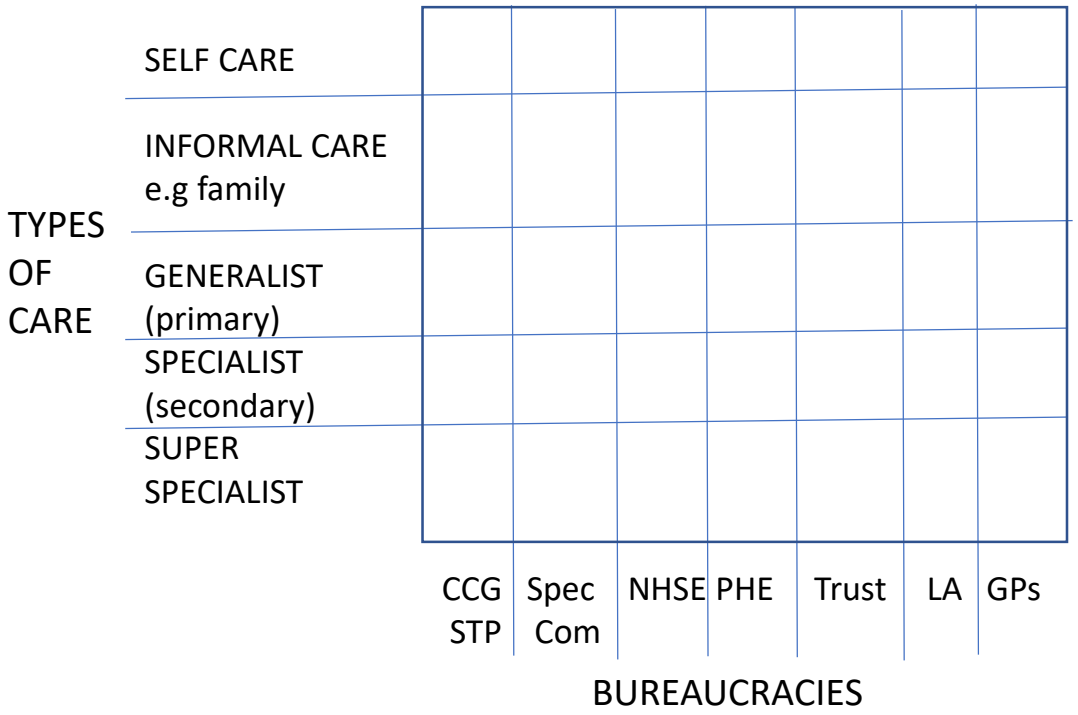
The Professional Archipelago

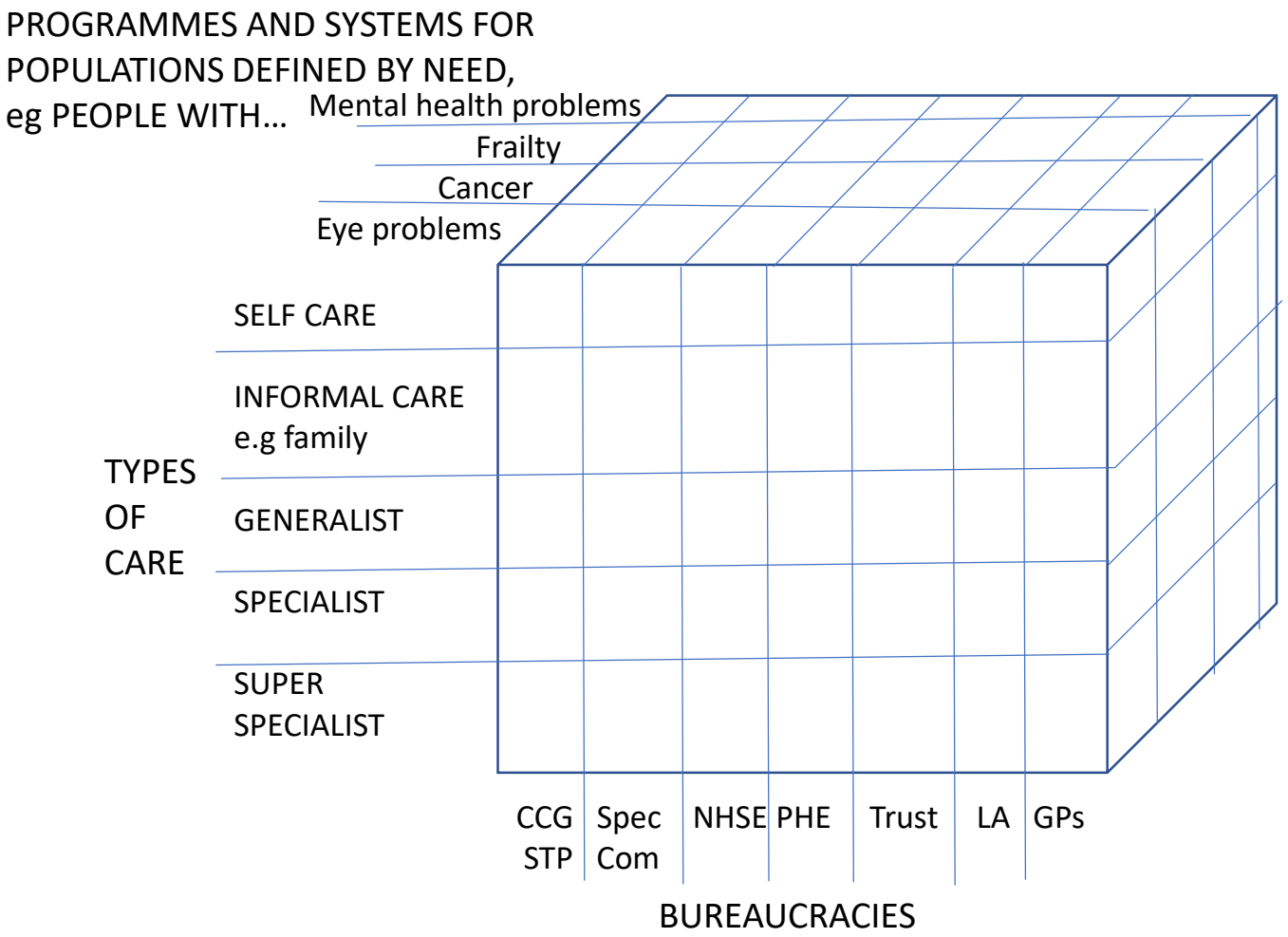


The Commissioning Archipelago


SELF CARE
INFORMAL CARE
GENERALIST
SPECIALIST


SELF CARE
INFORMAL CARE
GENERALIST
SPECIALIST
SUPER
SPECIALIST


TYPES OF CARE
SELF CARE
INFORMAL CARE e.g family
GENERALIST (primary)
SPECIALIST (secondary)
SUPER SPECIALIST
CCG STP
Spec Com
NHSE
PHE
Trust
LA
GPs
BUREAUCRACIES



How many population based networks are there for people with heart failure in London?

CHOOSING CRITERIA & SETTING STANDARDS

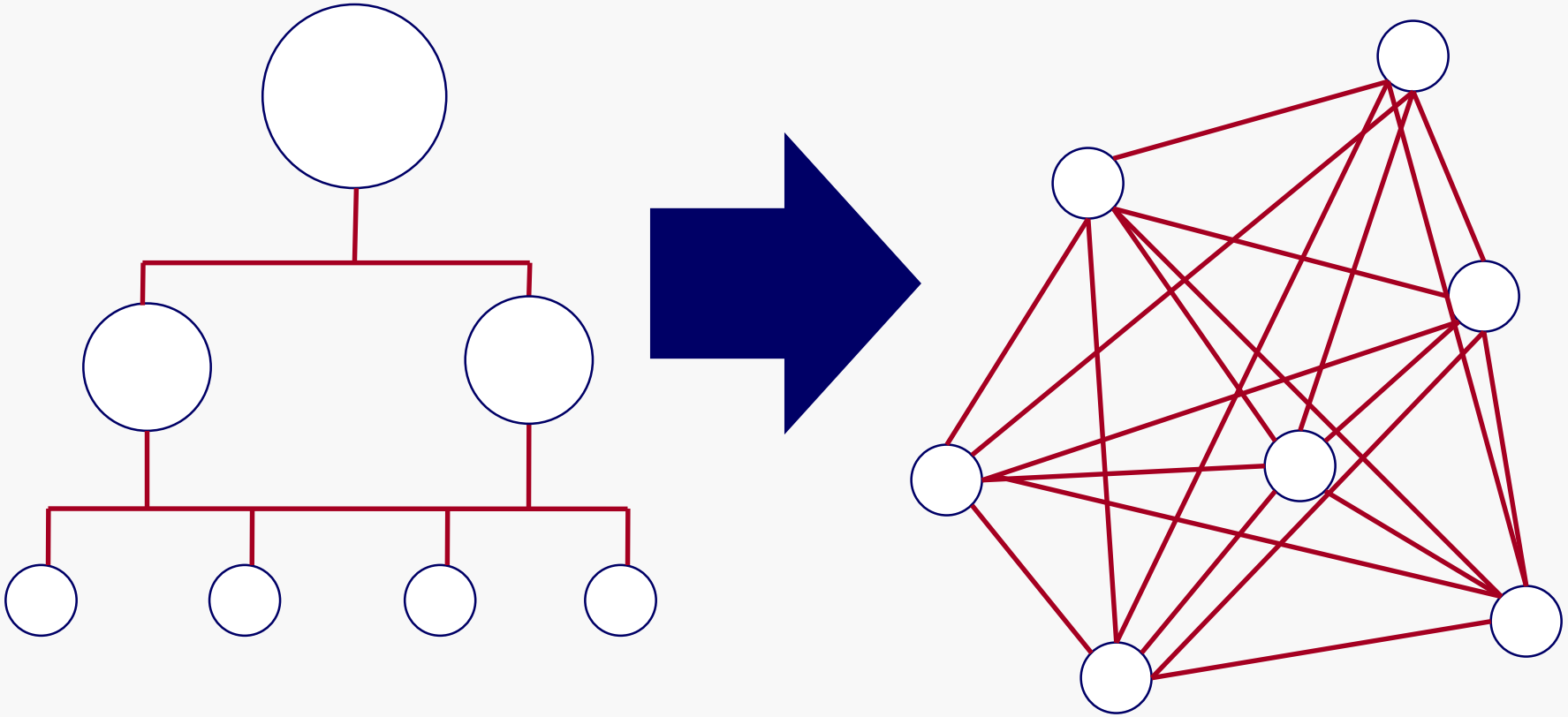
Newborn Screening for Sickle Cell Disorders Programme Standards

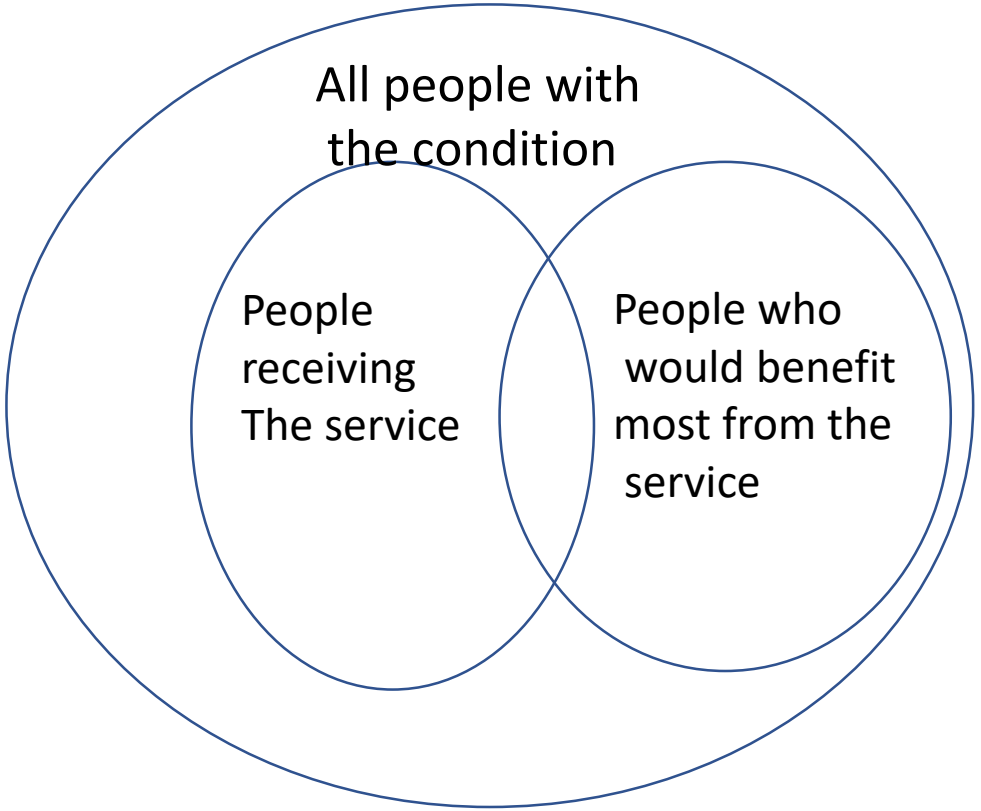
NEWBORN PROGRAMME OBJECTIVES:	CRITERIA	STANDARDS	
		Minimum (Core)	Achievable (Developmental)
Programme Outcome			
Best possible survival for infants detected with a sickle cell disorder by the screening programme	**Mortality rates expressed in person years**	**Mortality rate from sickle cell disease and it's complications in children under five of less than four per 1000 person years of life (two deaths per 100 affected children)**	**Mortality rate in children under five of less than two per 1000 person years of life (one death per 100 affected children)**
Programme Outcome			
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

Hierarchy

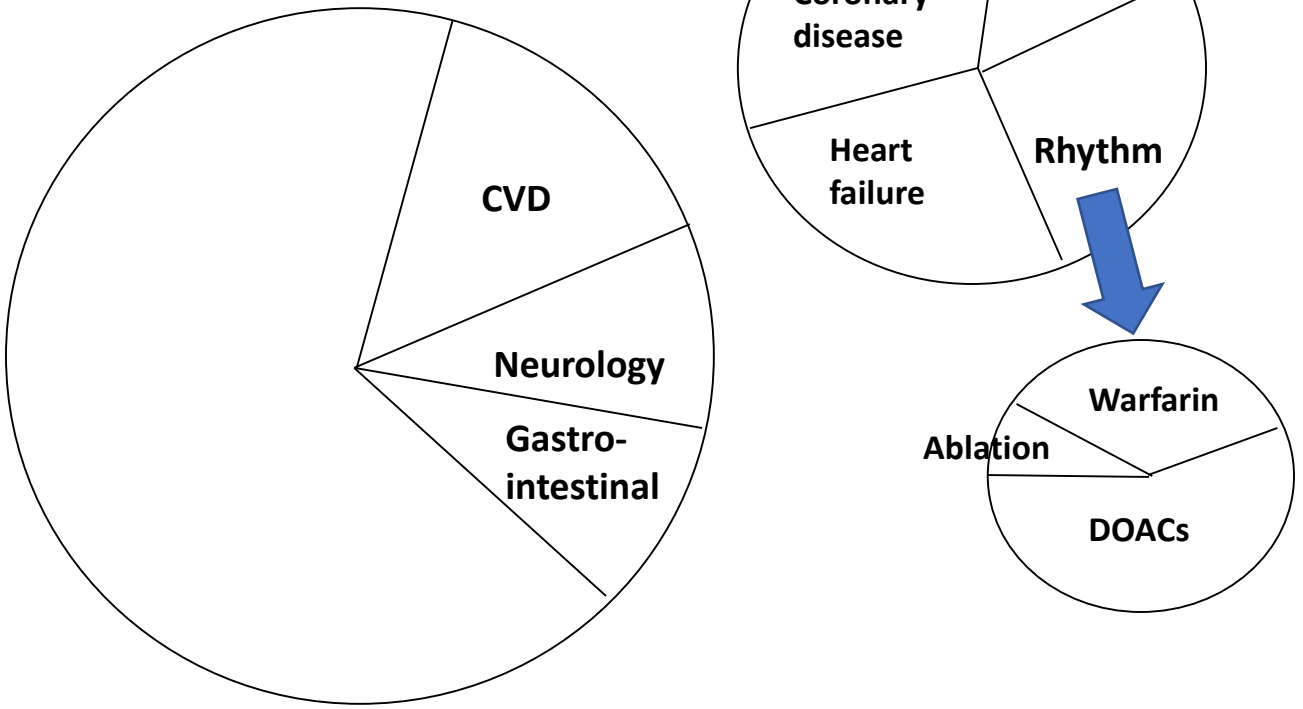
Network



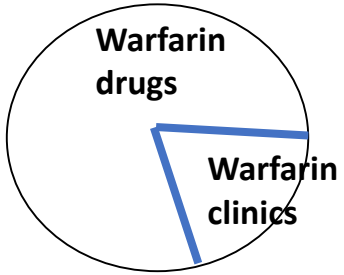

All people with
the condition
People
receiving
The service
People who
would benefit
most from the
service

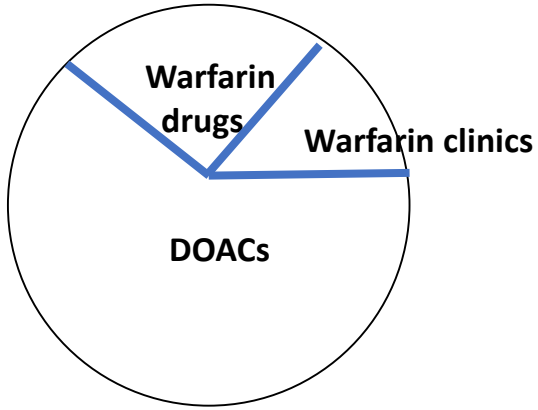

All people with
the condition who do
not need to see the
specialist service practice
healthcare supported by
generalists who are
themselves supported
by specialists
The right
People
receiving
the specialist
service

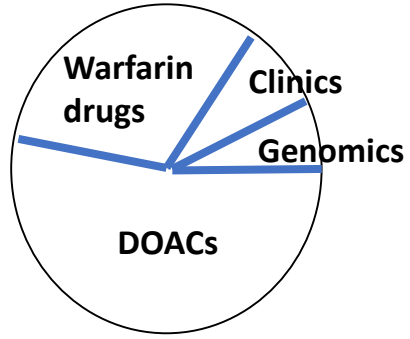
6. Once resources have been allocated to a particular group in need are we making the best use along the whole care pathway?



BNHC
Better Value Healthcare







BVHC
Better Value Healthcare

Open Access Health care delivery, economics and global health care

openheart

Direct oral anticoagulants versus warfarin: is new always better than the old?

John Burn,[1] Munir Pirmohamed[2]

To cite: Burn J, Pirmohamed M Direct oral anticoagulants versus warfarin: is new always better than the old?. *Open Hea* 2018:e000712. doi:10.1136/openhrt-2017-000712

Thus, overall NHS annual expenditure could be reduced by >£0.5B per annum in the near future without impairment of the nation's health if DOACs are restricted to those of working age and/or are shown to be sensitive to warfarin.

BVHC
Better Value Healthcare

Resources required for the innovation =

Implement high-value innovation funded by reduced spending on lower-value intervention

BVHC
Better Value Healthcare

Resources required for the innovation

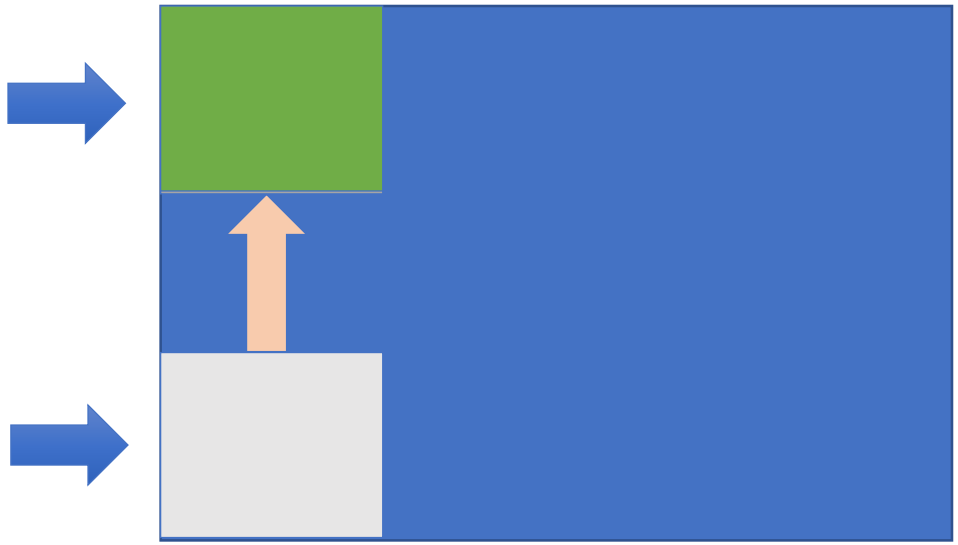
Resources invested in lower-value activity Identified

Implement high-value innovation funded by reduced spending on lower-value intervention

BVHC
Better Value Healthcare

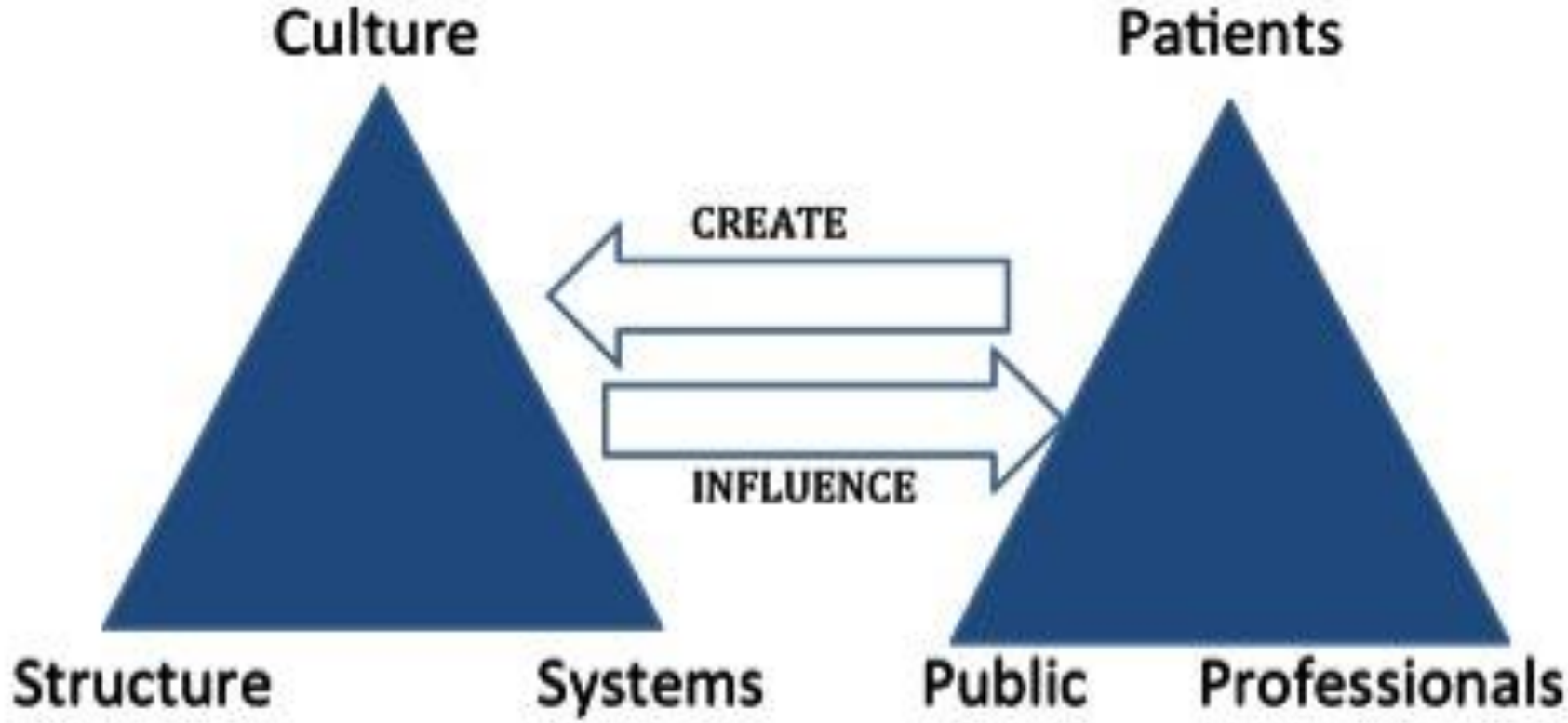
Innovation adopted

Resources freed by reducing lower-value activity



Implement high-value innovation funded by reduced spending on lower-value interventions

BVHC
Better Value Healthcare


Culture
Patients
CREATE
INFLUENCE
Structure
Systems
Public
Professionals

Work like an ant colony; Neither markets nor bureaucracies can solve the challenges of complexity

Ban old language

AcuteCommunityManagerOutpatientHubandSpoke

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

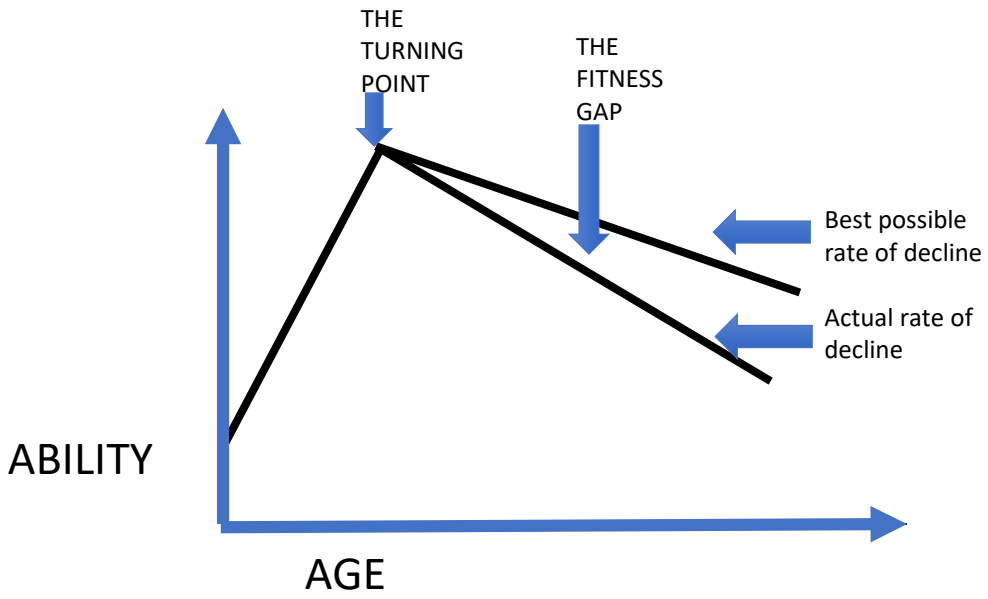
(a team is a set of individuals or departments within one organisation)

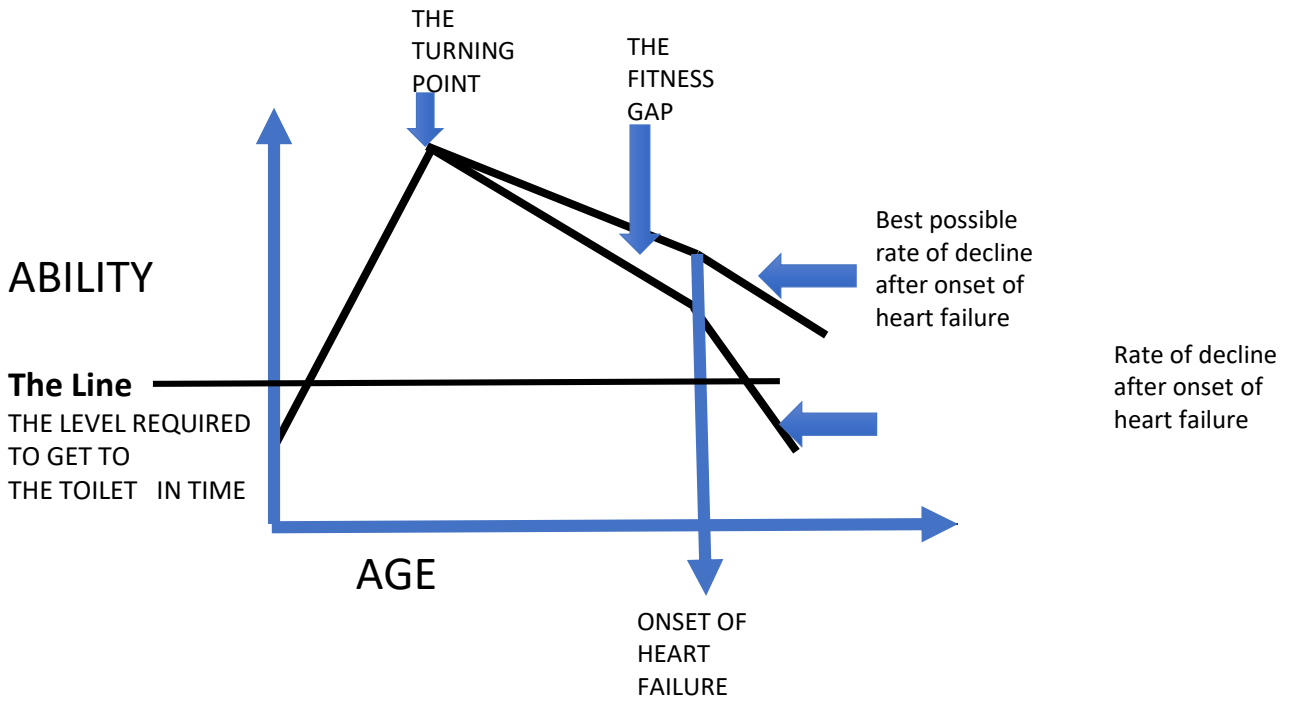
A **PATHWAY** is the route patients usually follow through the network

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

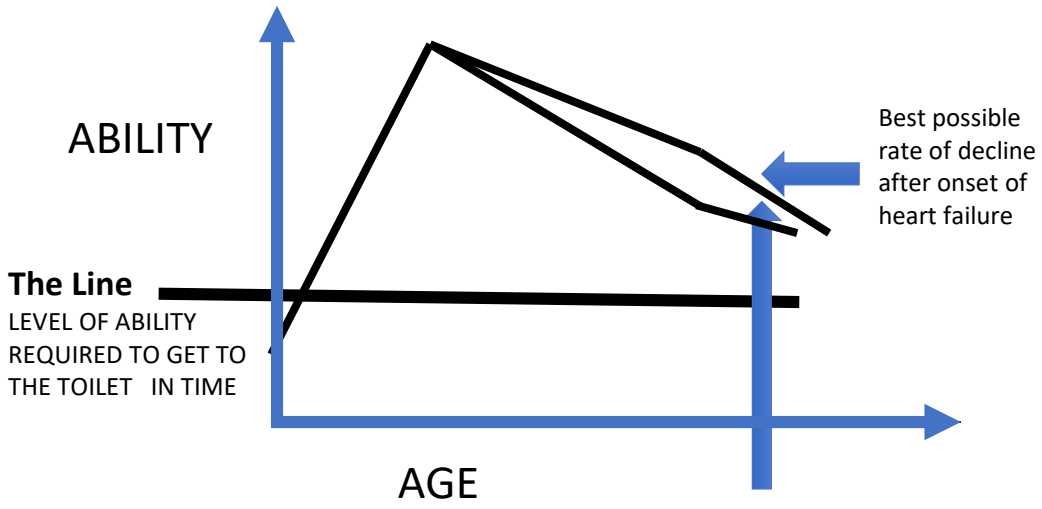
A new set of skills and tools

what is the relationship between value and efficiency?
What is the relationship between value and quality ?
what is meant by the optimal use of resources?
How would you assess the culture of an organisation?
What is a system and what is a network?
What is the relationship between a system and a service?


THE
TURNING
POINT
THE
FITNESS
GAP
Best possible
rate of decline
Actual rate of
decline
ABILITY
AGE

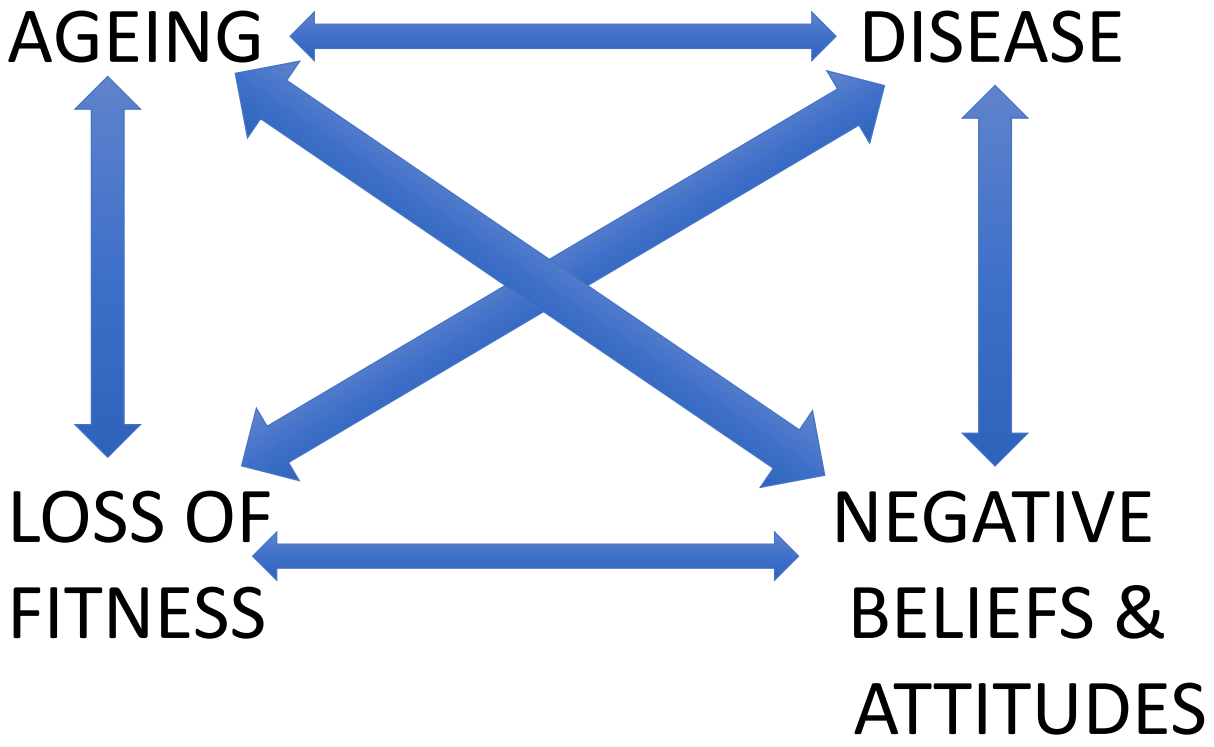


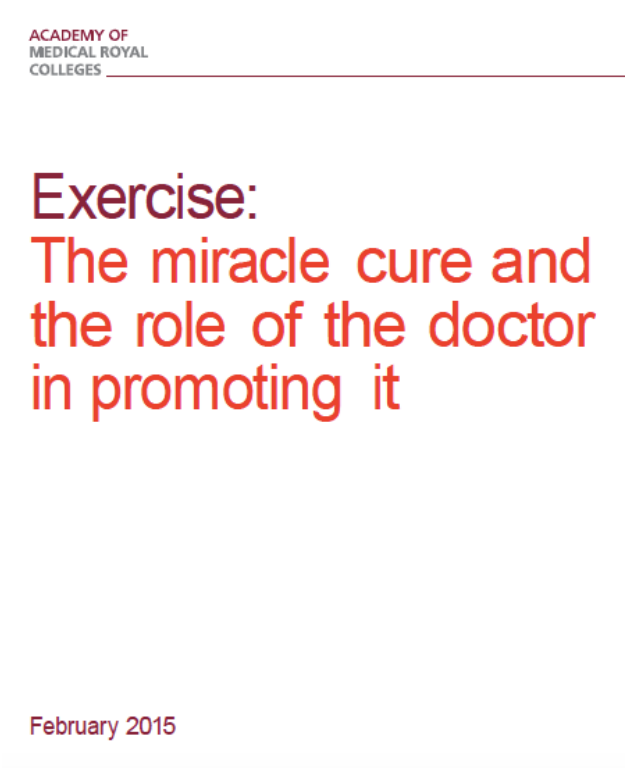
THE FITNESS GAP OFTEN GETS WIDER FASTER AFTER THE ONSET OF A LONG TERM CONDITION, AND MAY DRAG THE PERSON BELOW **THE LINE**



AT ANY AGE AND WITH ANY NUMBER OF LONG TERM CONDITIONS PEOPLE CAN IMPROVE FITNESS AND STAY ABOVE **THE LINE**

NARROWING OF THE FITNESS GAP AND PREVENTION OF LOSS OF ABILITY TO GET TO THE TOILET IN TIME AS RESULT OF TRAINING


AGEING
DISEASE
LOSS OF FITNESS
NEGATIVE BELIEFS & ATTITUDES



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National Activity Therapy Service

THE BENEFITS OF ACTIVITY THERAPY,

Activity Therapy

- AFFECTS THE DISEASE PROCESS DIRECTLY IN SOME CONDITIONS
- PREVENTS THE LOSS OF FITNESS AND ACCELERATED DECLINE THAT OFTEN FOLLOWS DIAGNOSIS
- REDUCES THE RISK OF OTHER LONG TERM CONDITIONS EG REDUCING THE RISK OF HEART DISEASE AND DEMENTIA
- MAKES PEOPLE FEEL BETTER