

Innovations in Point-of-Care Testing transforming health care delivery

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Invention and Innovation

Invention: an idea made manifest

Innovation: an idea applied successfully in practice

introducing a new method or process

new 'stuff' made useful

enhancing value

★ Technology, of itself, is not innovative

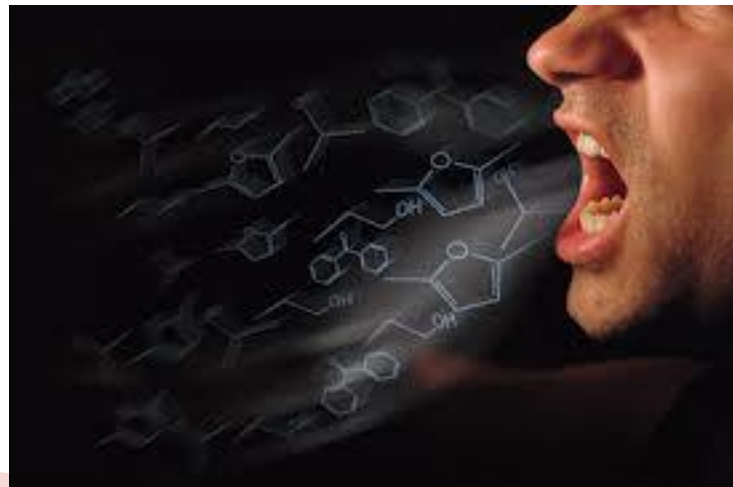
★ Innovation involves doing things differently

**Adoption is the process of translation
from invention to innovation**



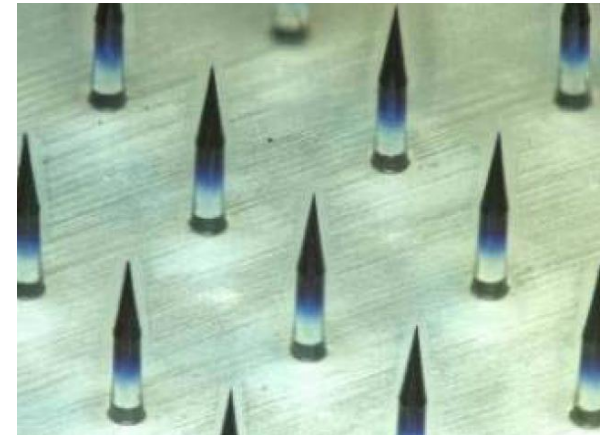
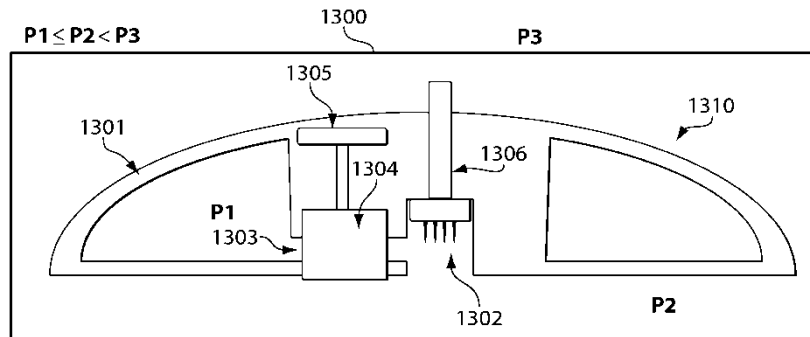
Technology is Not the Challenge

alternative approaches to phlebotomy

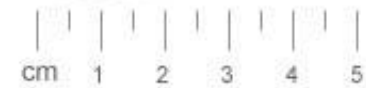


Painless Blood Sampling

touch activated phlebotomy

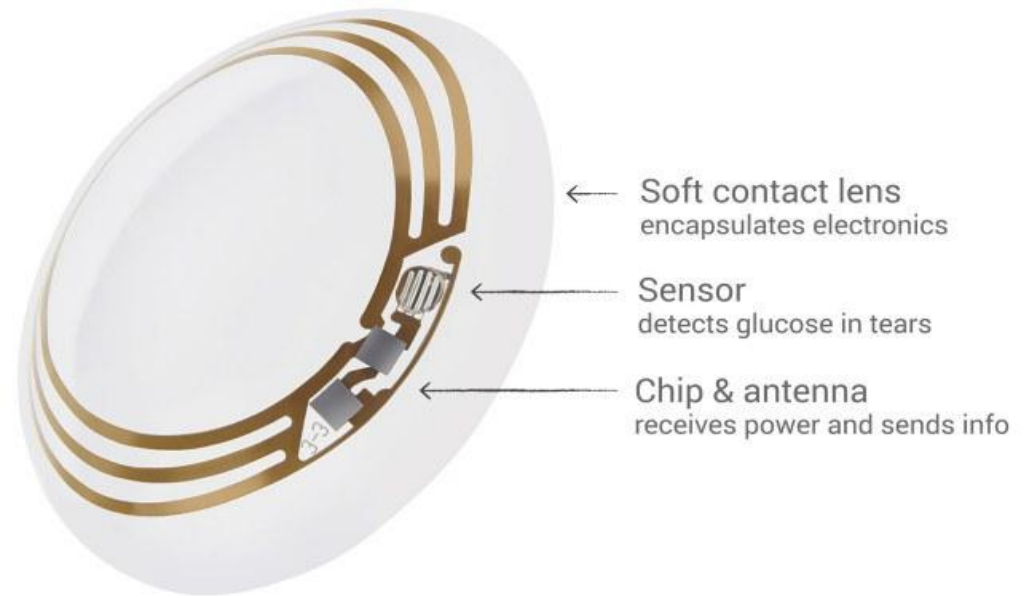
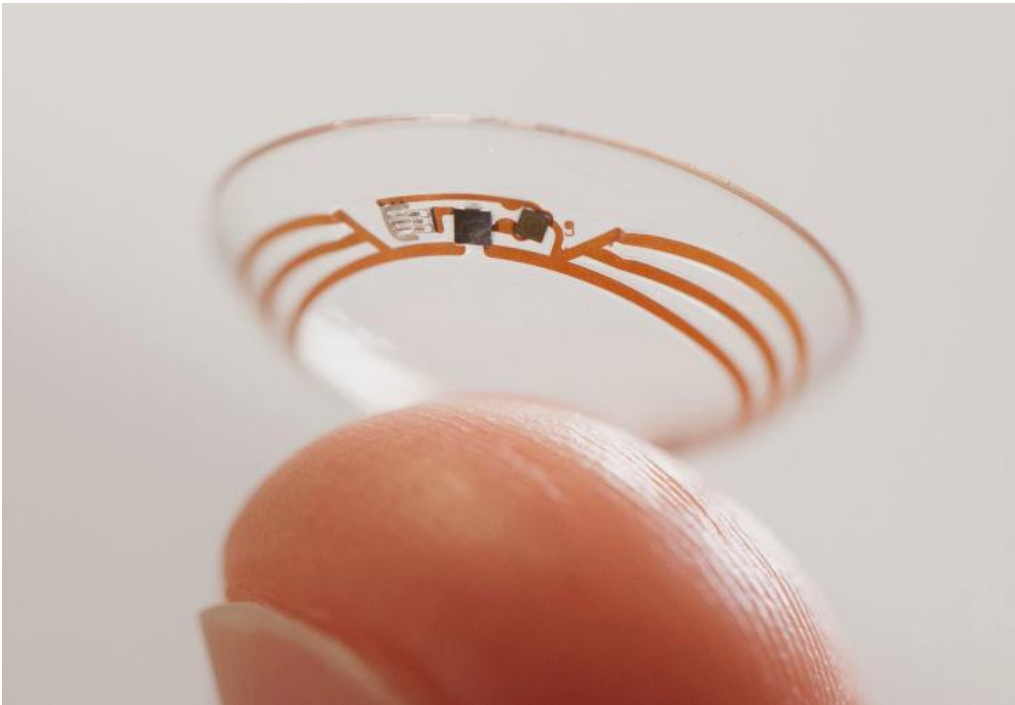


Injects solid needles into the skin at extremely high speeds - under vacuum, blood extracted into the device.

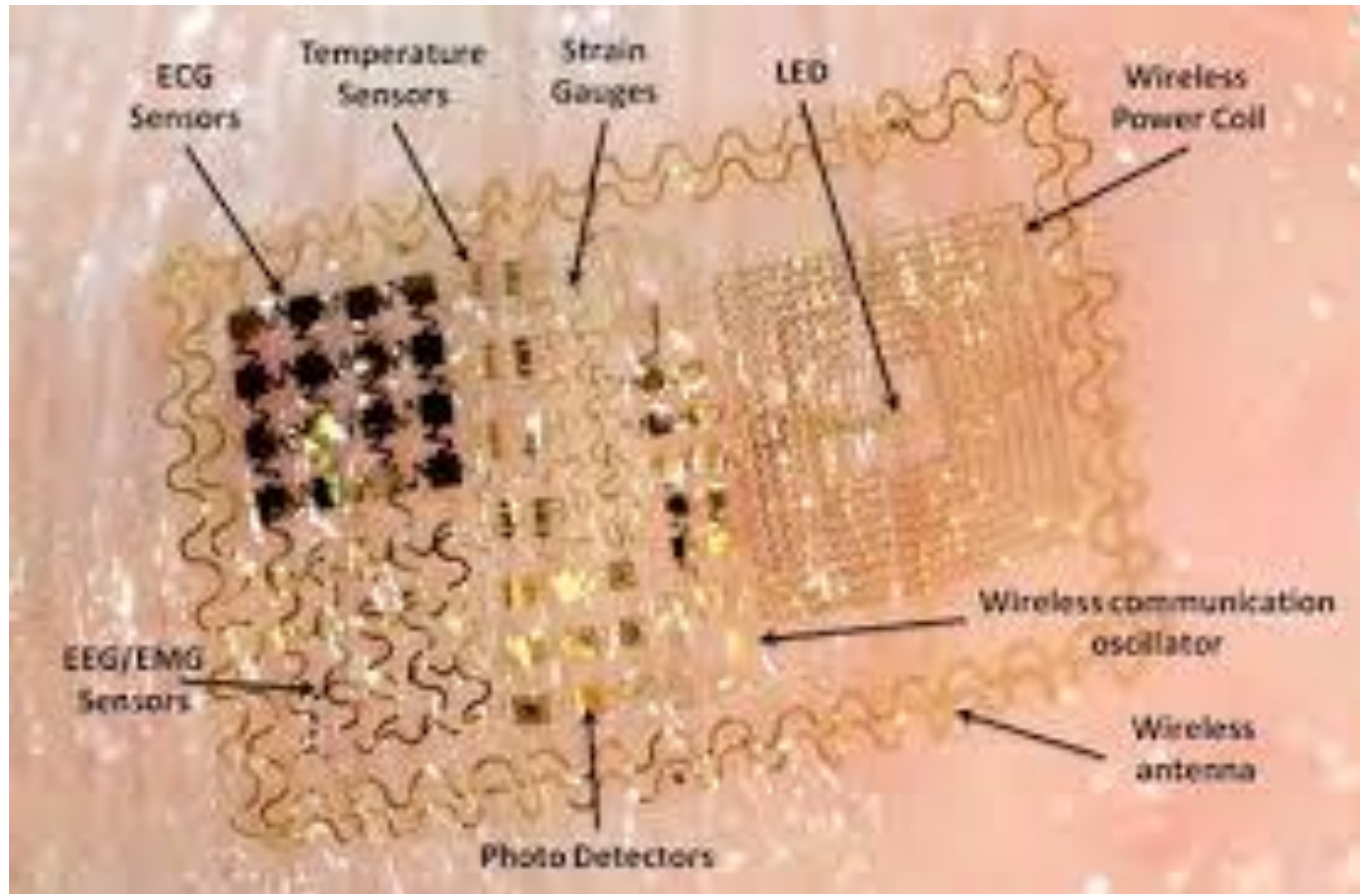


TAP20C™ is < 5cm in diameter – similar in size to a stethoscope chest piece.

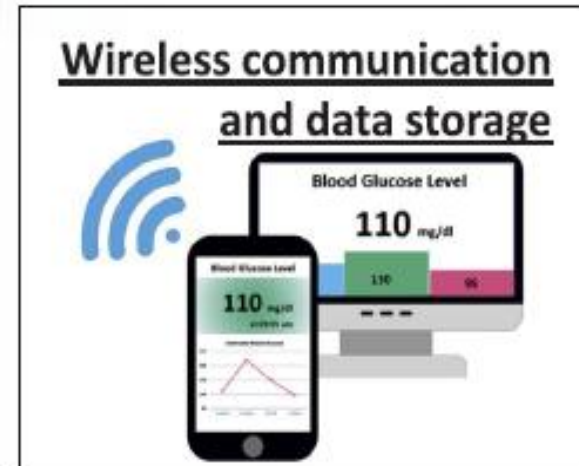
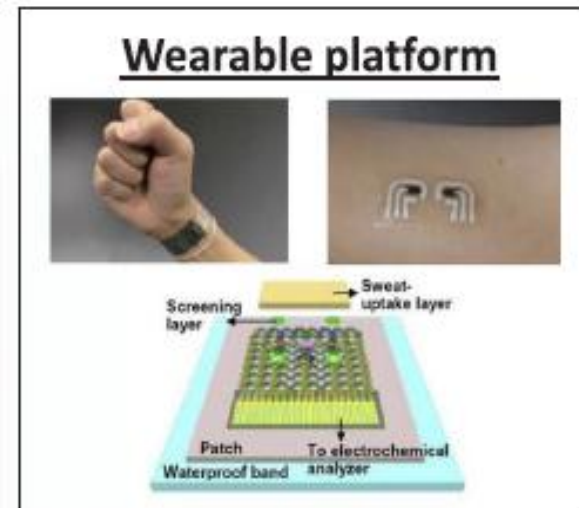
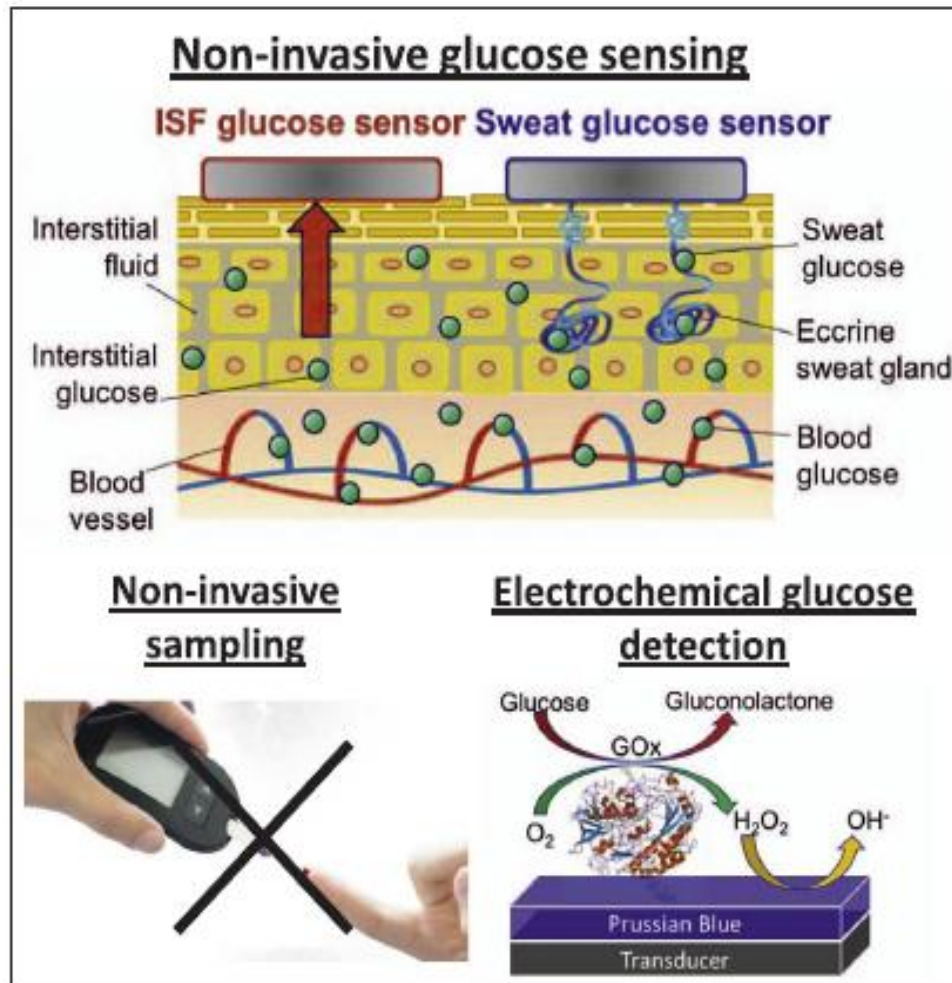
Tear Fluid Glucose Measurement contact lens sensor



Tattoos and Testing



Wearable Epidermal Glucose Sensors



Smartphones Transforming Healthcare



Innovation and Change

doing things differently

INNOVATION

impact on stakeholders



Non-disruptive innovation

- Evolutionary
- Incremental
- Linear
- Sustaining

Disruptive innovation

- Radical
- Revolutionary
- Exponential
- Transformational

Disruptive Innovation in Action

who are the disrupted?



Disruptive Innovation

continuous glucose monitoring



Innovation in Healthcare

INVENTION

The originating idea for a new service or product, or a new way of providing a service

ADOPTION

Putting the new idea, product or service into practice, including prototyping, piloting, testing and evaluating its safety and effectiveness



DIFFUSION

The systematic uptake of the idea, service or product into widespread use across the whole service.

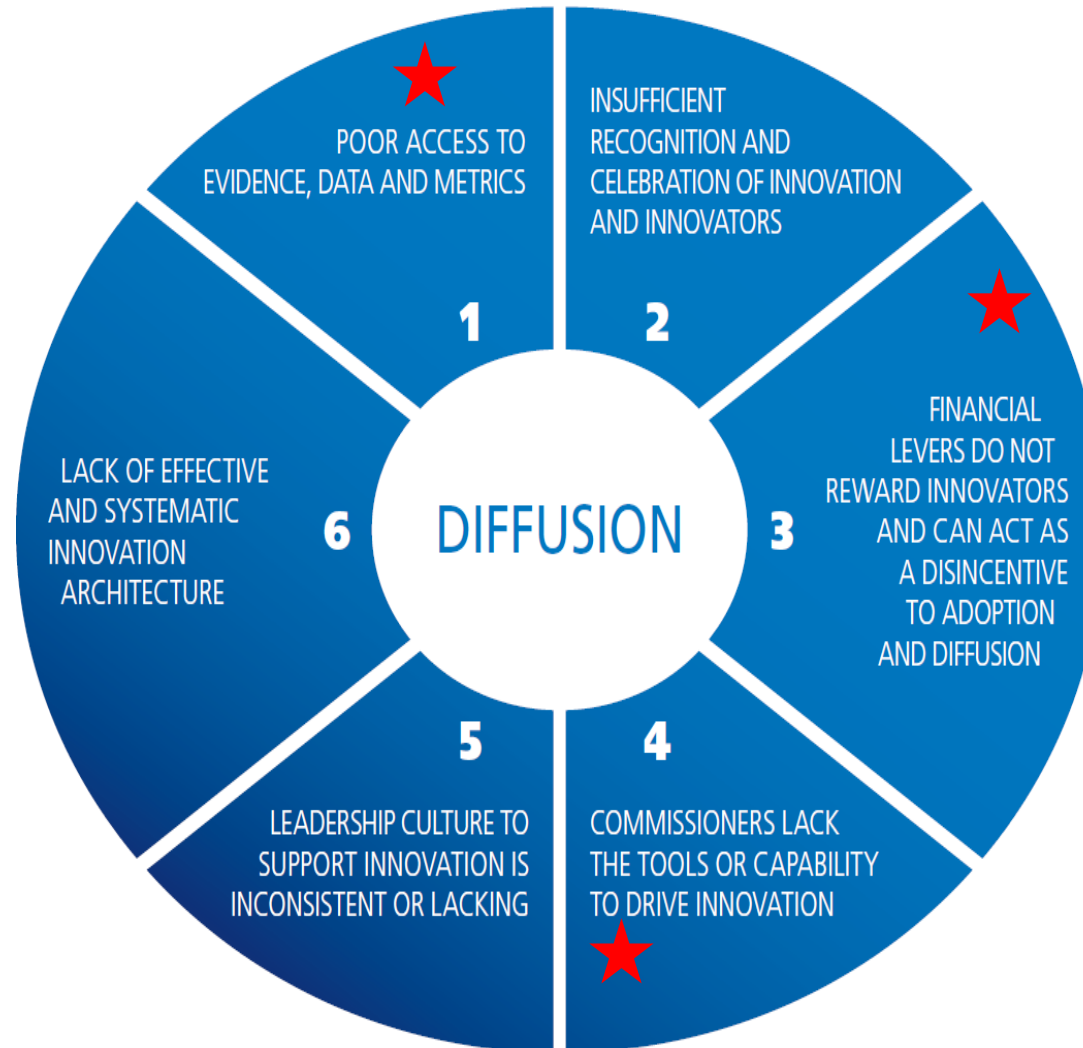


Barriers to Adoption - New Technology

organisational and behavioural issues

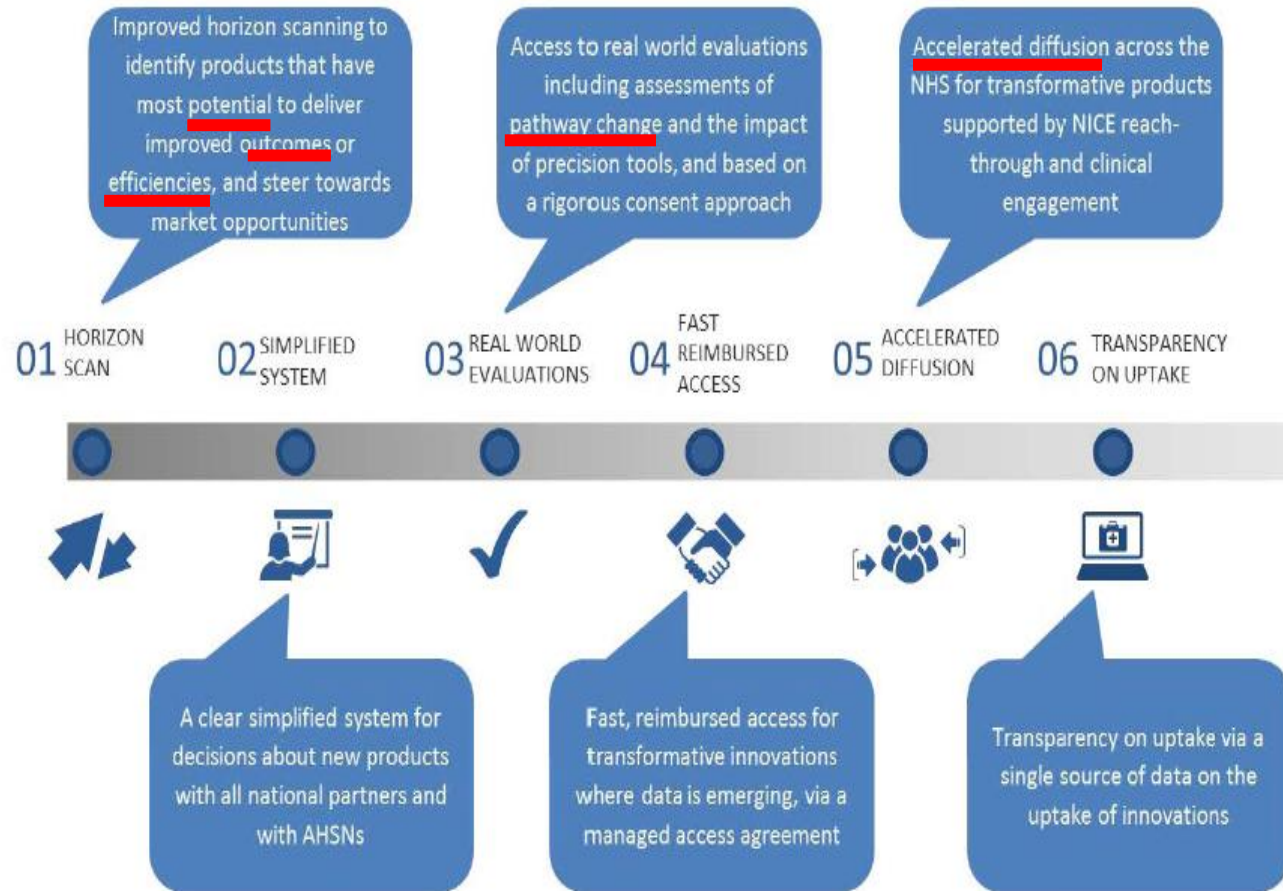
- Decision making processes
- Innovation Culture
- Communication
- Prioritisation
- Pathway definition (and deviations)
- Evidence
- Reimbursement/commissioning
- Decommissioning
- Implementation planning

Issues with Innovation in Healthcare



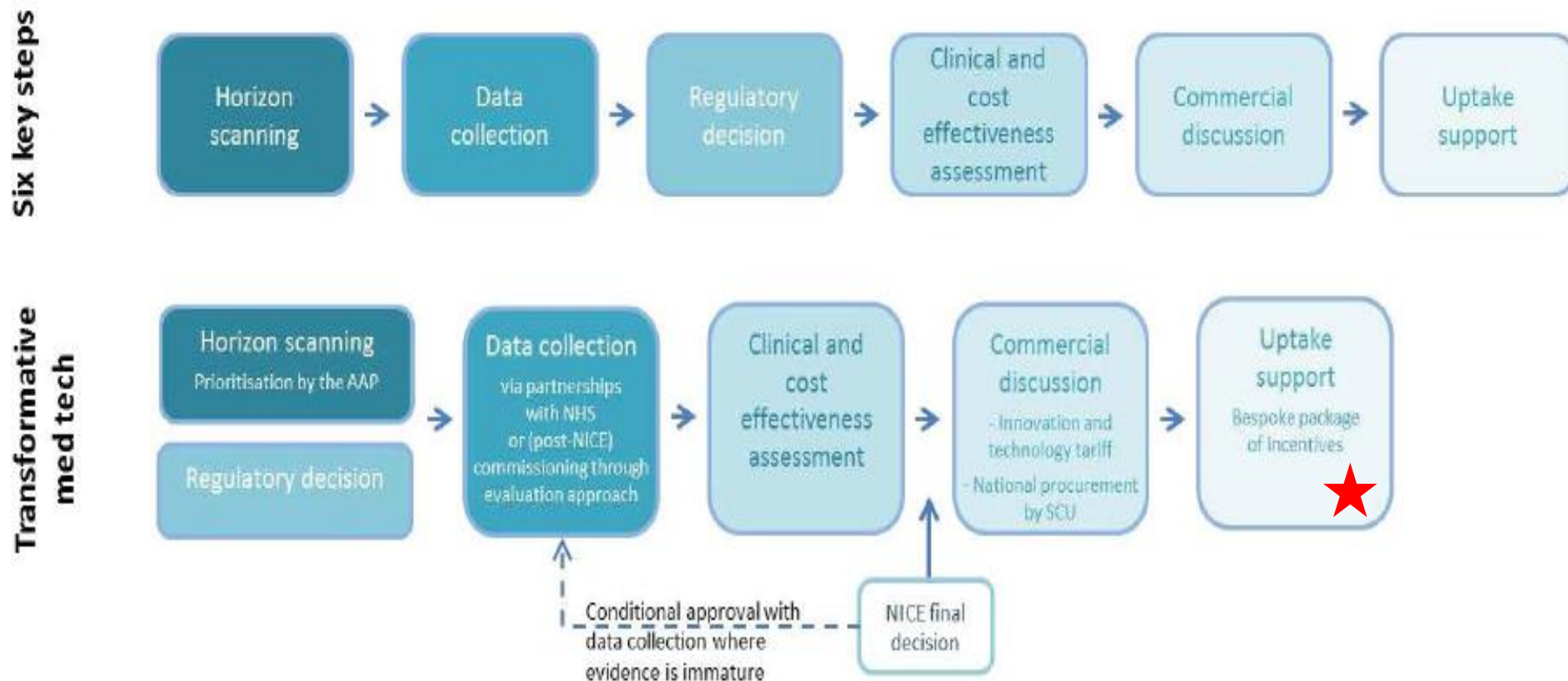
Accelerated Access Review

the innovator's perspective



Accelerated Access Review

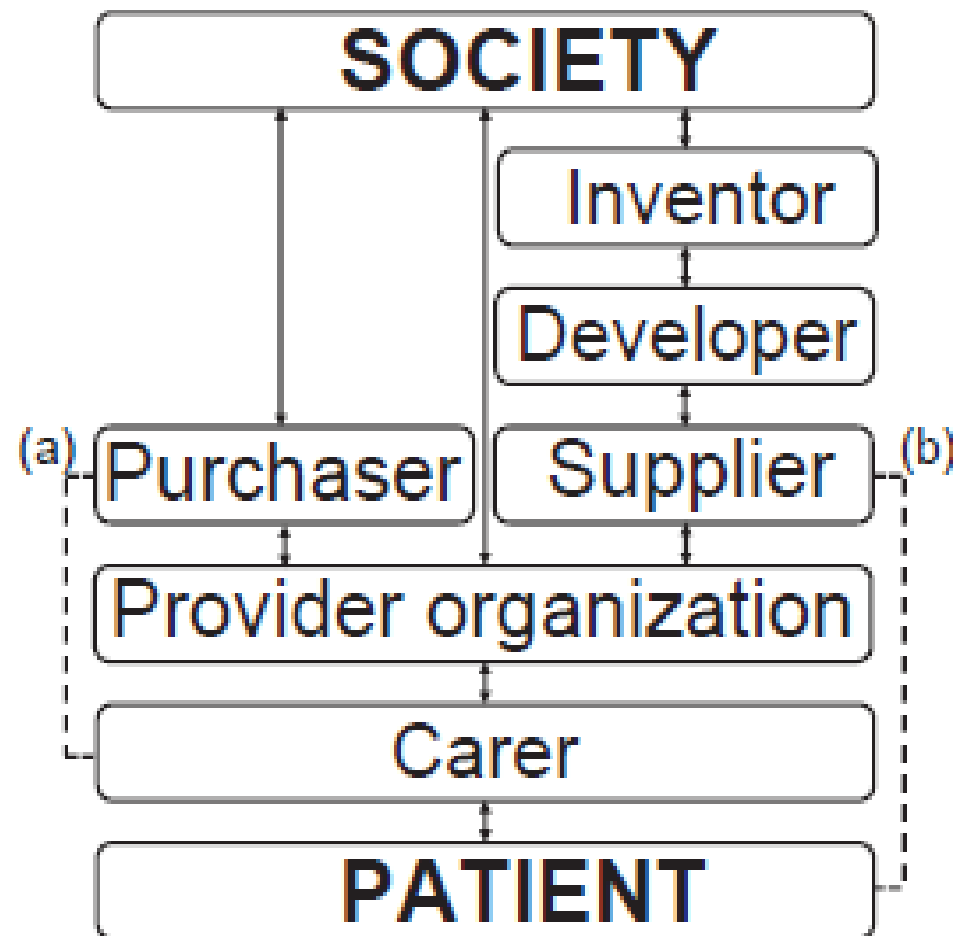
pathway for strategically important medical technologies



Six Forces that Drive Innovation in Healthcare.... or kill it?

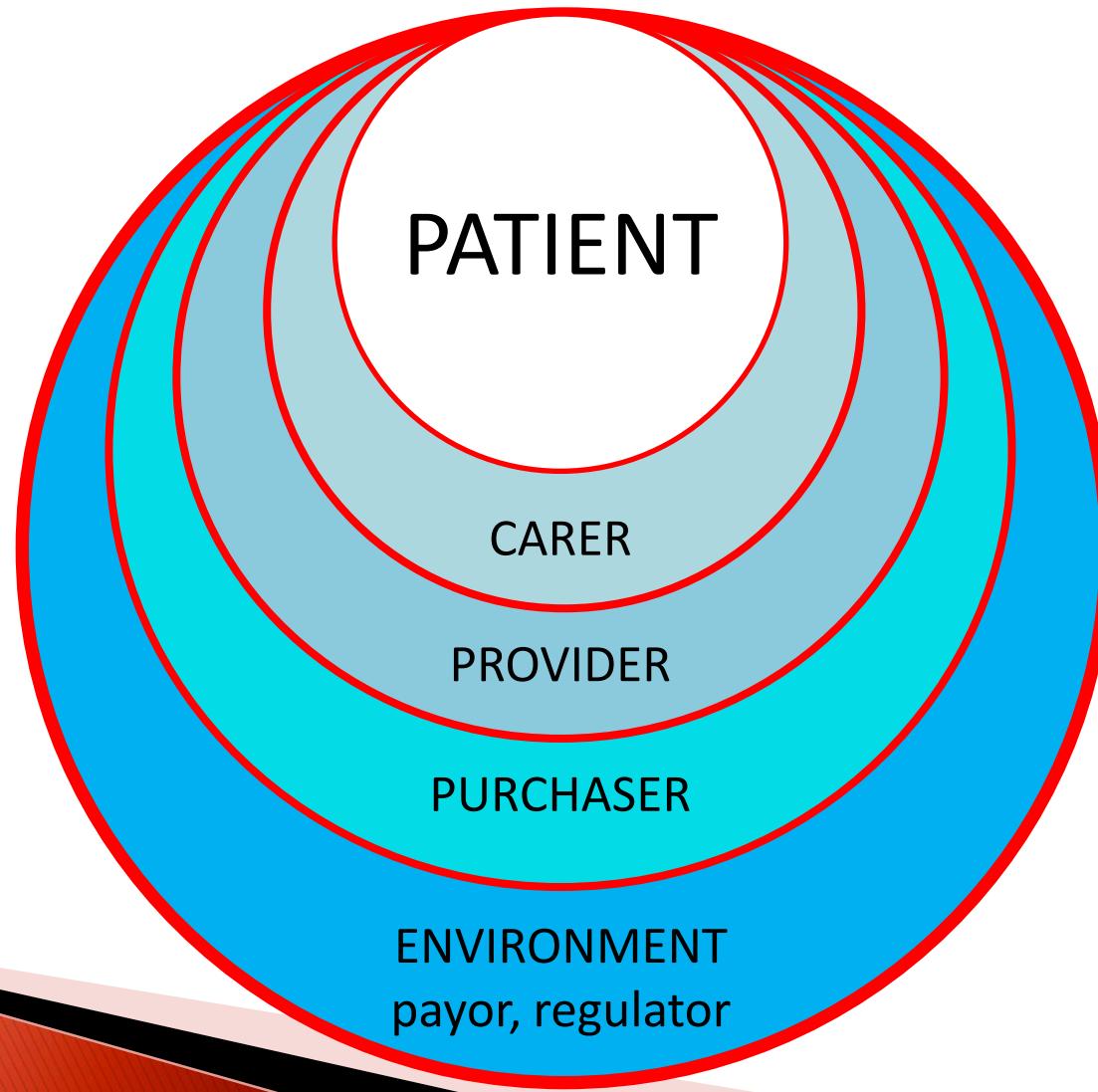
- **Players** – *and silo's*
- **Funding** – *activity vs outcomes and value*
- **Policy** – *integrated care*
- **Technology** – *may not be the main issue*
- **Customers** – *with different perspectives*
- **Accountability** – *changing practice*

Innovation in Healthcare: the Players

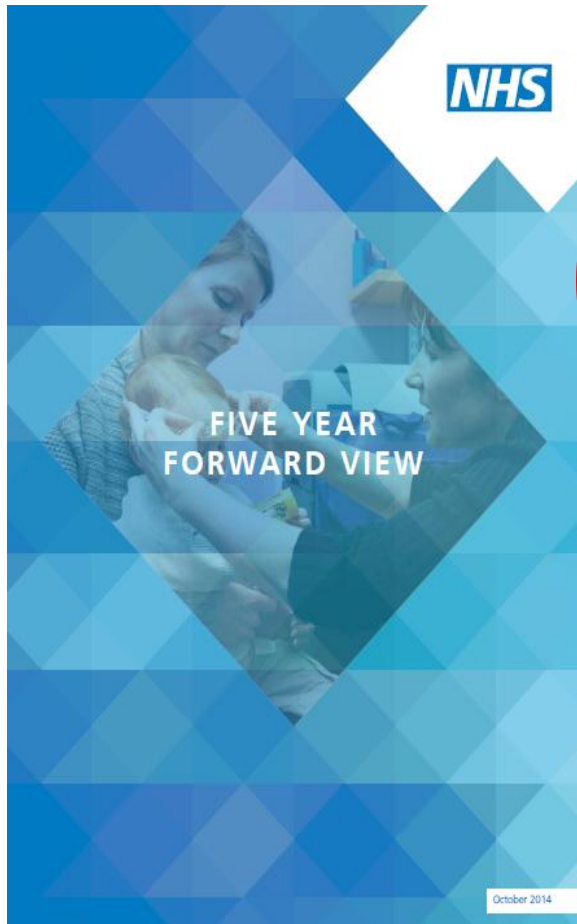


Stakeholders in Delivering Healthcare

who is the customer?

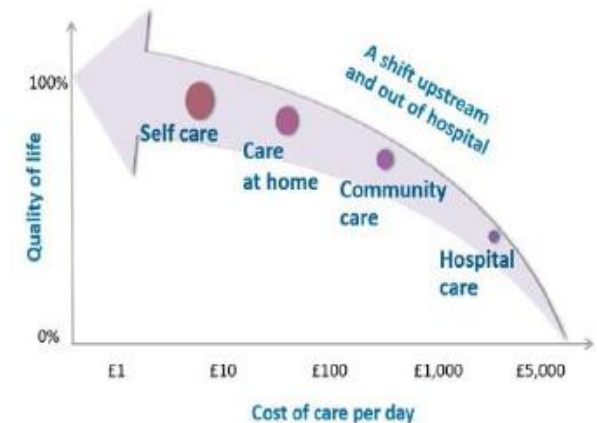
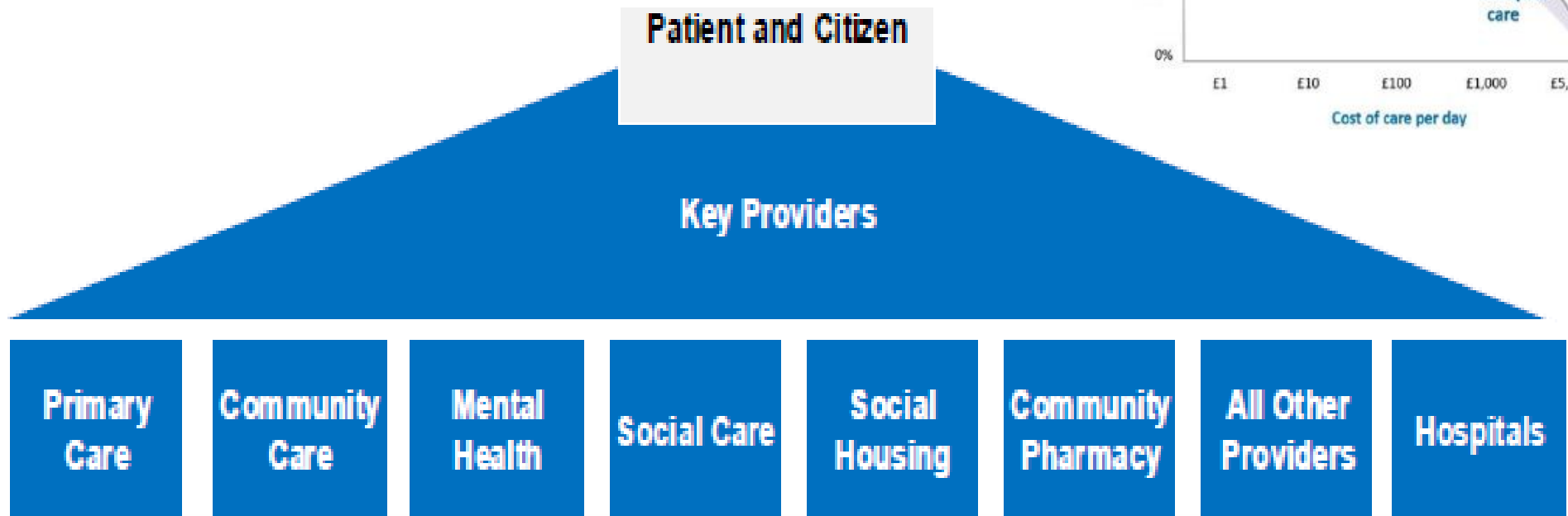


Five Year Forward View new care models

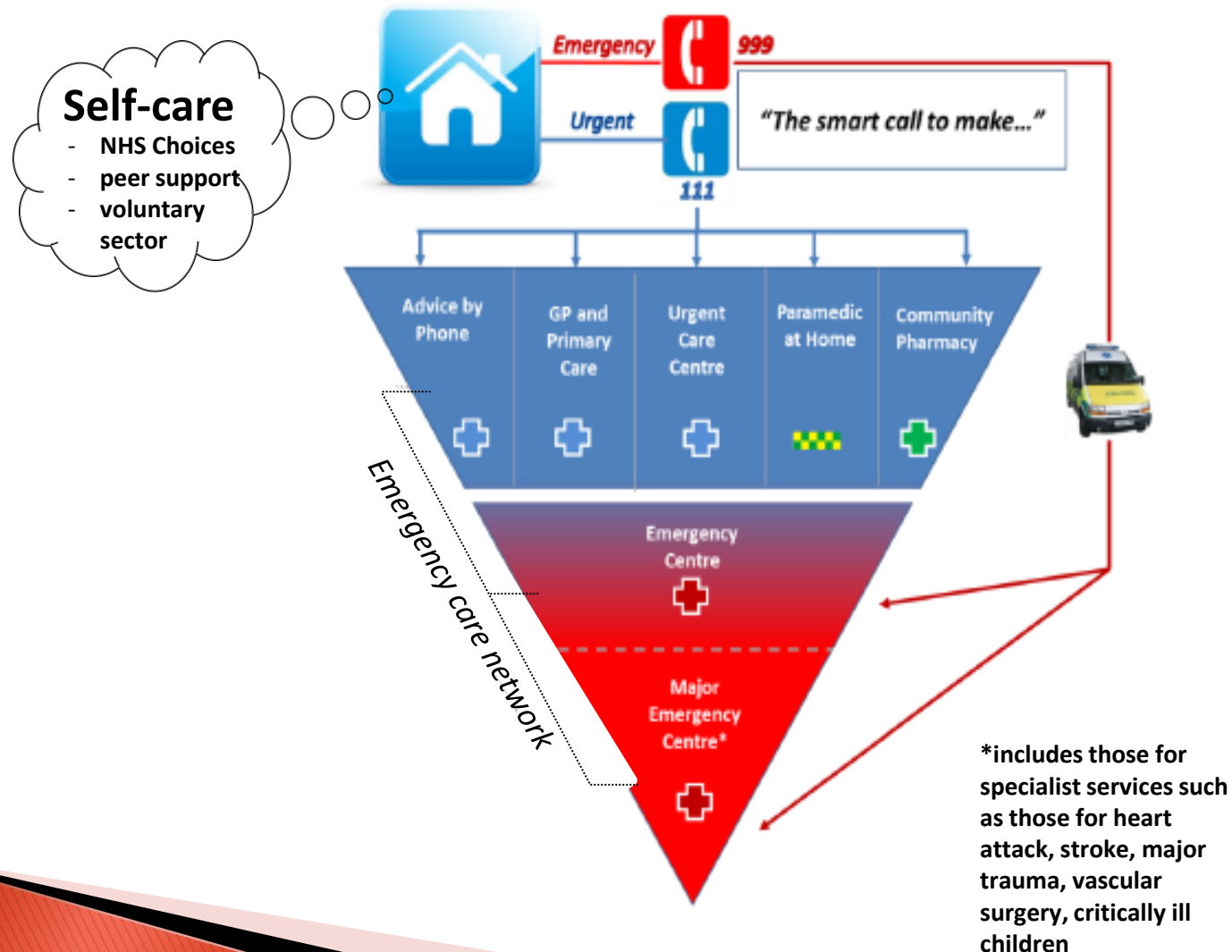


- Multidisciplinary community providers
- Primary and acute care systems
- Urgent and emergency care networks
- Viable smaller hospitals
- ~~Specialised care~~
- Modern maternity services
- Enhanced health in care homes

Providers in New Models of Care the potential POCT client base?



Transforming Urgent and Emergency Services an example of more integrated services

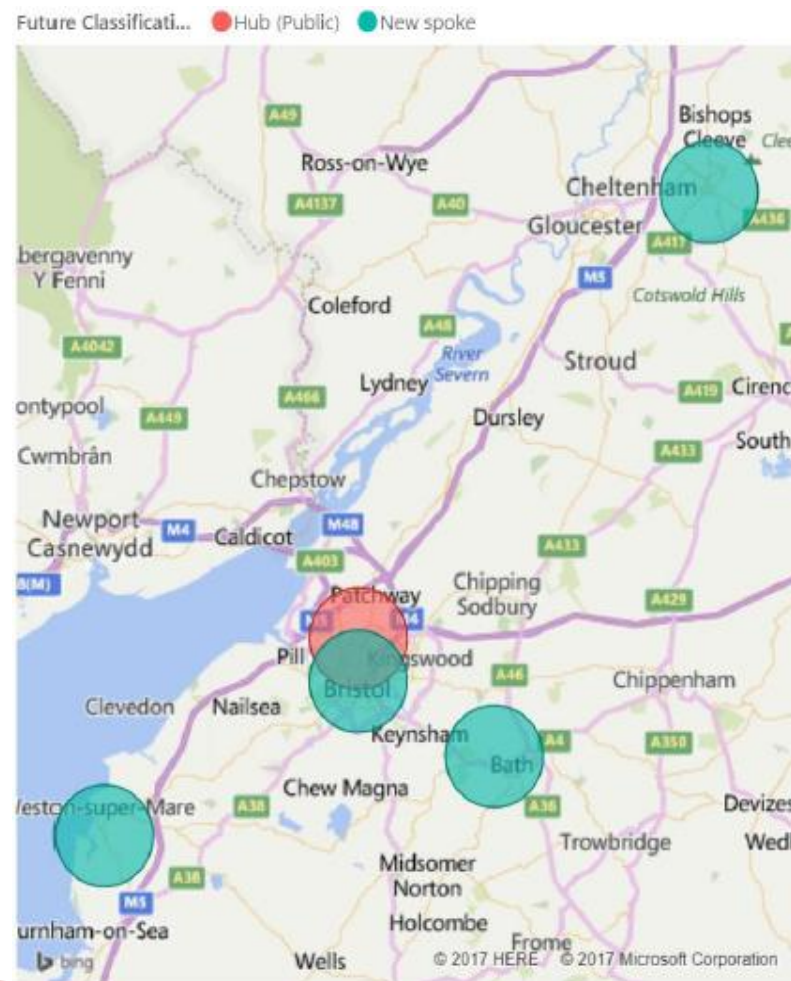


Proposed Pathology Consolidation Networks

a valid approach to improving productivity?

“Pathology providers are considered productive if the cost of pathology to the trust is less than 1.6% of operating expenditure”

*Carter Review on Operational Productivity
and Performance in English NHS Acute
Hospitals* *February 2016*

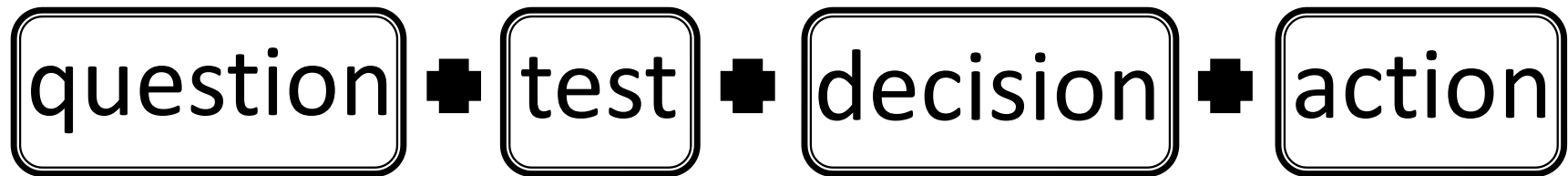


Ward
Clinic
Medical
Nursing
Diagnostics
Drugs & bloods
Emergency Dept
Intensive Care
Operating Room
Specialist eqpt
Administration
Overheads

?

Innovation in Point-of-Care Testing better outcomes and value-for-money?

PATIENT



POCT - IMPROVING EFFICIENCY and EFFECTIVENESS

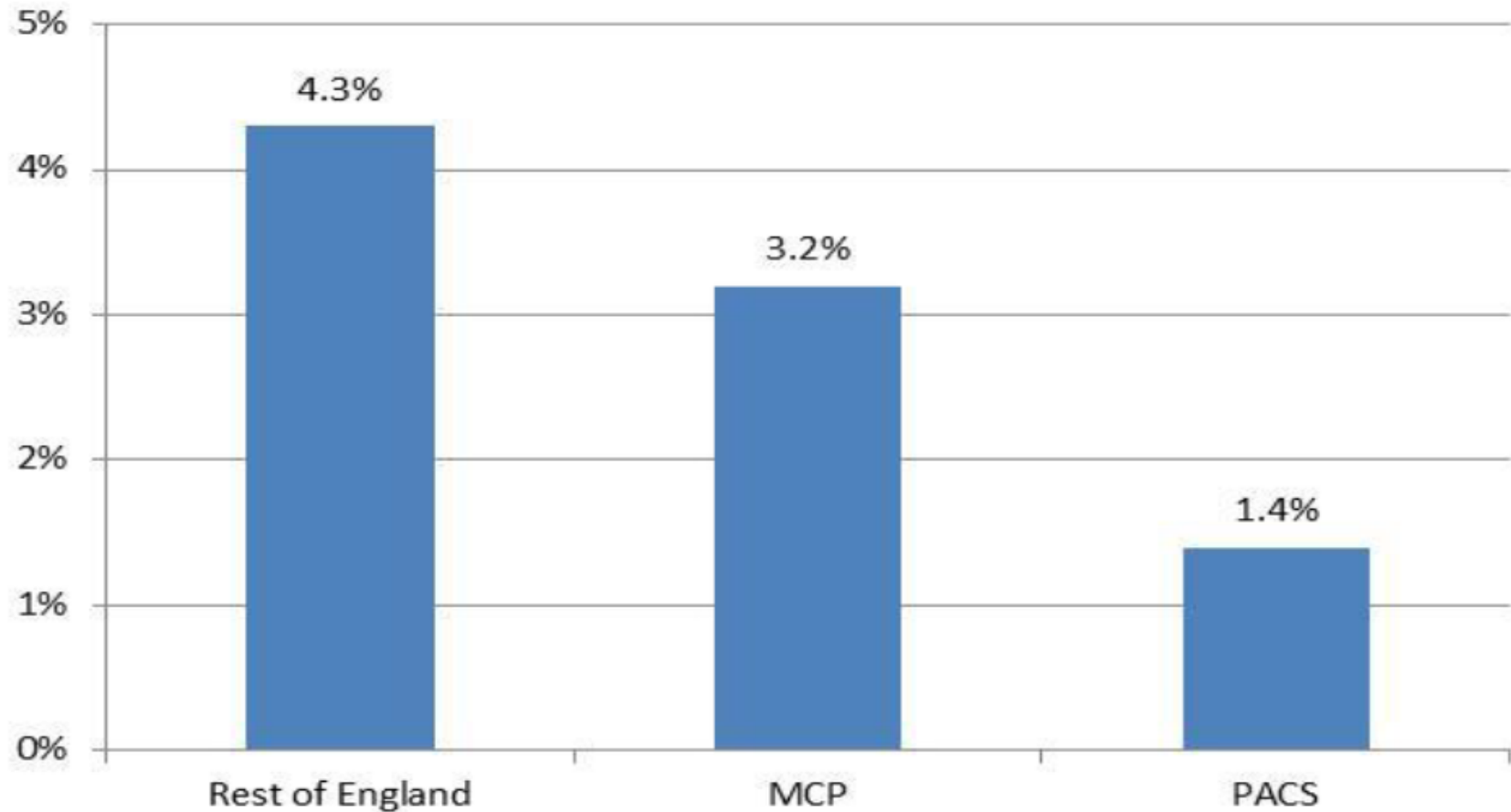
OUTCOME

Key Enablers for New Models of Care



Implementing New Models of Care

impact on per capita emergency admissions



The Importance of Value in Healthcare

how do we define value?



Value-Based Healthcare

how do we define value?

“The patient’s perception of how a service provided matches what he[she] desires in terms of quality, price, time spent, and other factors.”

Black and Miller 2008

“Health outcomes achieved per dollar spent.”

Porter 2010



A Dictionary Definition of Value

The regard that something is held to deserve:

- importance or worth
- material or monetary worth
- the worth of something compared to its price

value = benefit/cost

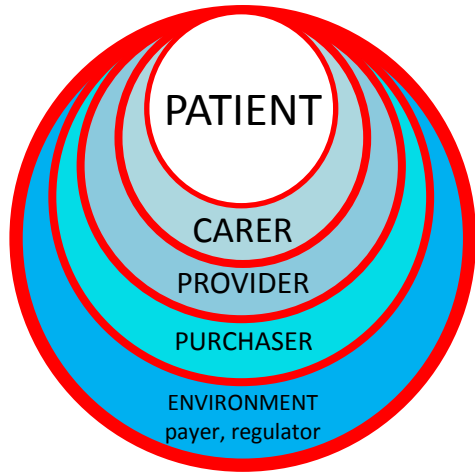
to whom?

what, where
and
how much?

what, where
and
how much?

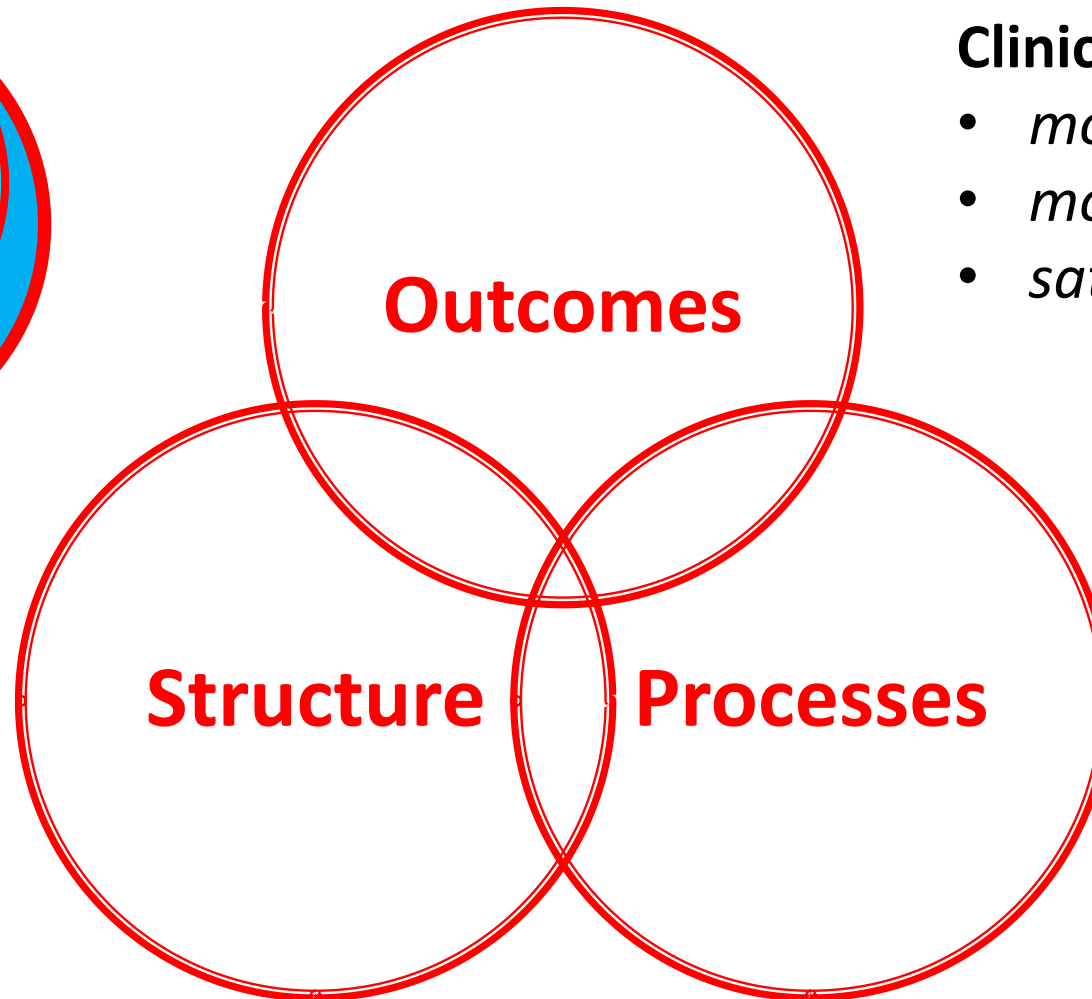
Translating the Value Proposition into Action

outcome metrics



Economic

- *staff*
- *estate*
- *consumables*



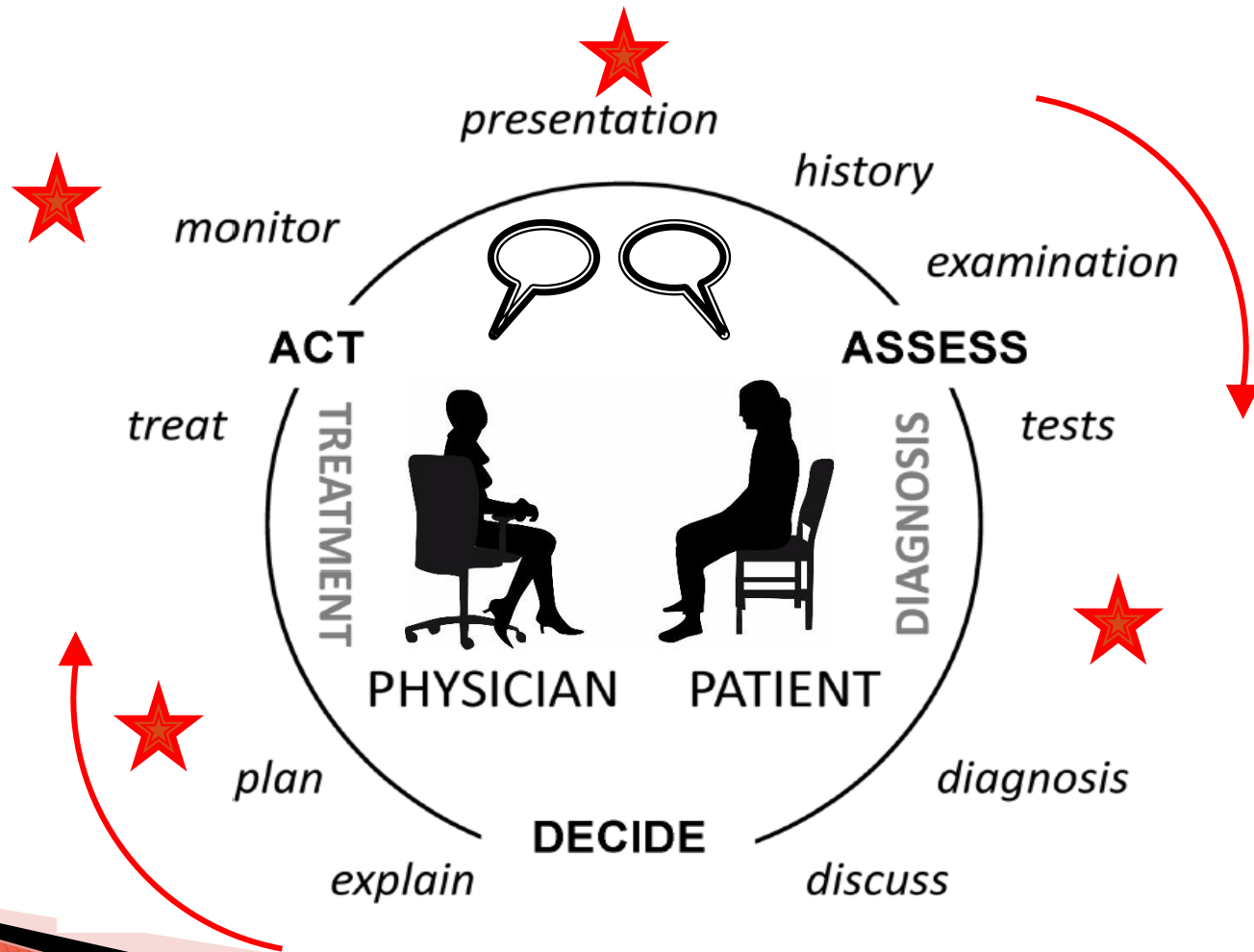
Clinical

- *morbidity*
- *mortality*
- *satisfaction*

Operational

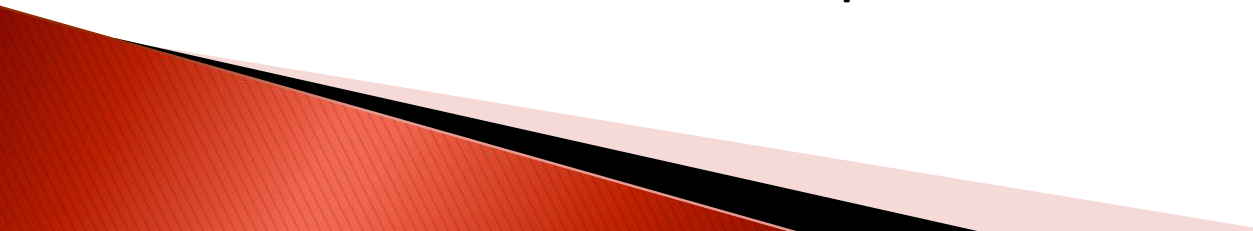
- *time*
- *location*
- *integration*

What is the Value Proposition for POCT? supporting the patient-carer relationship

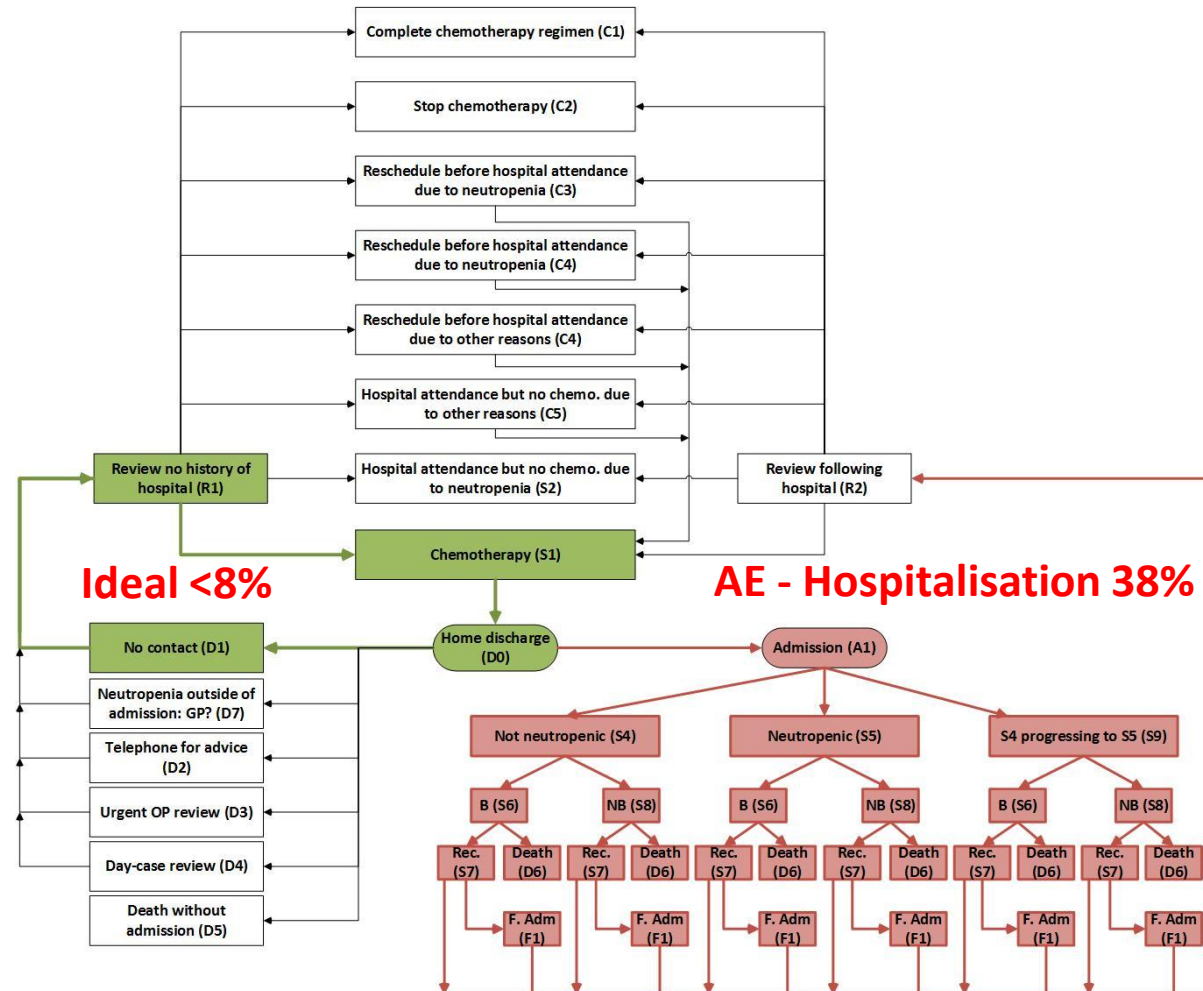


Transformative Innovation in Diagnostics

framework of the value proposition

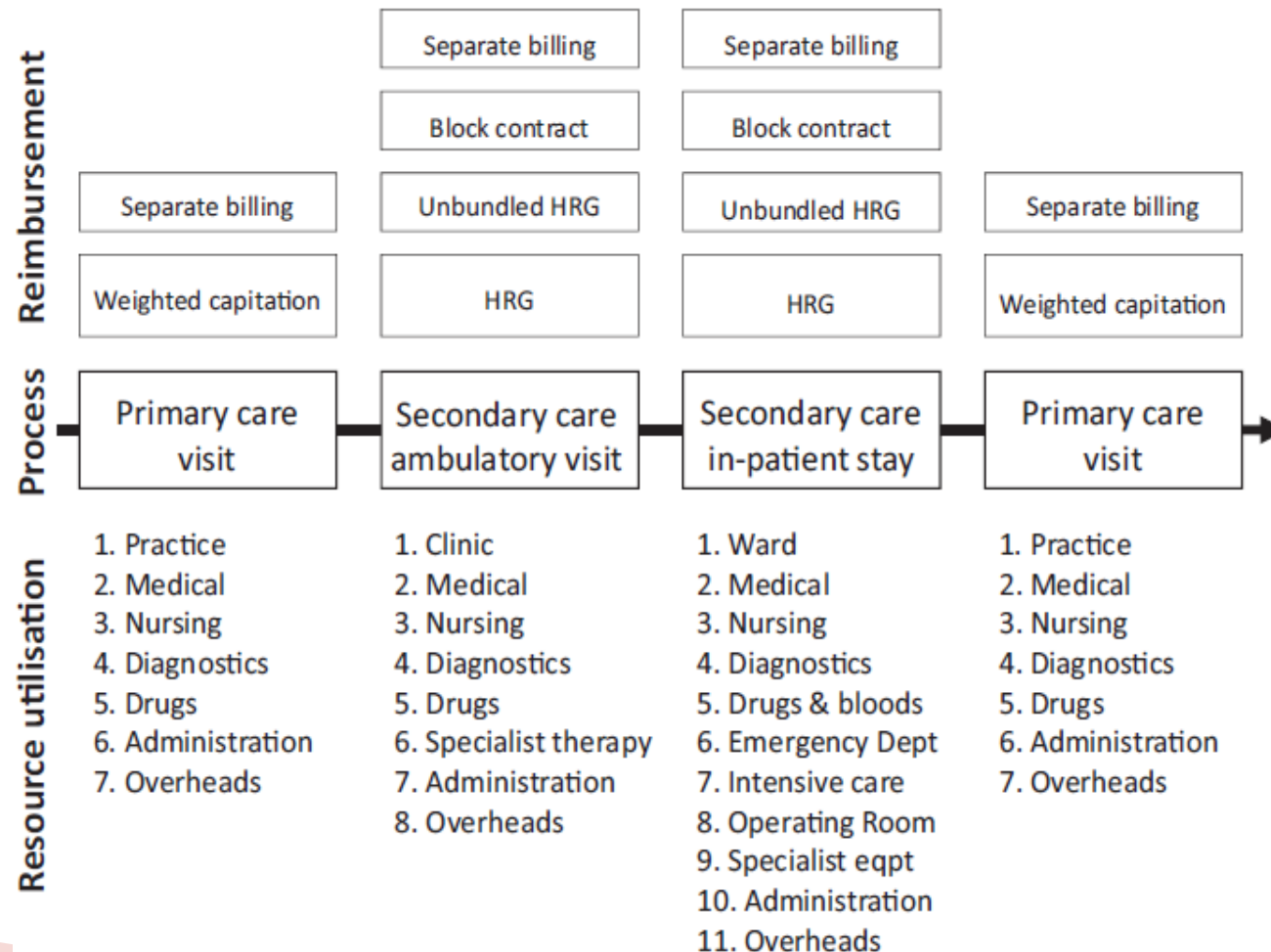
- The unmet need as the reason for the test
 - The intervention, benefits, cost and evidence
 - Pathway and stakeholders involved
 - Comparative resource utilisation +/- intervention
 - Limitations and implementation plan
 - Metrics and performance management
- 

Data Driven Healthcare understanding the unmet need



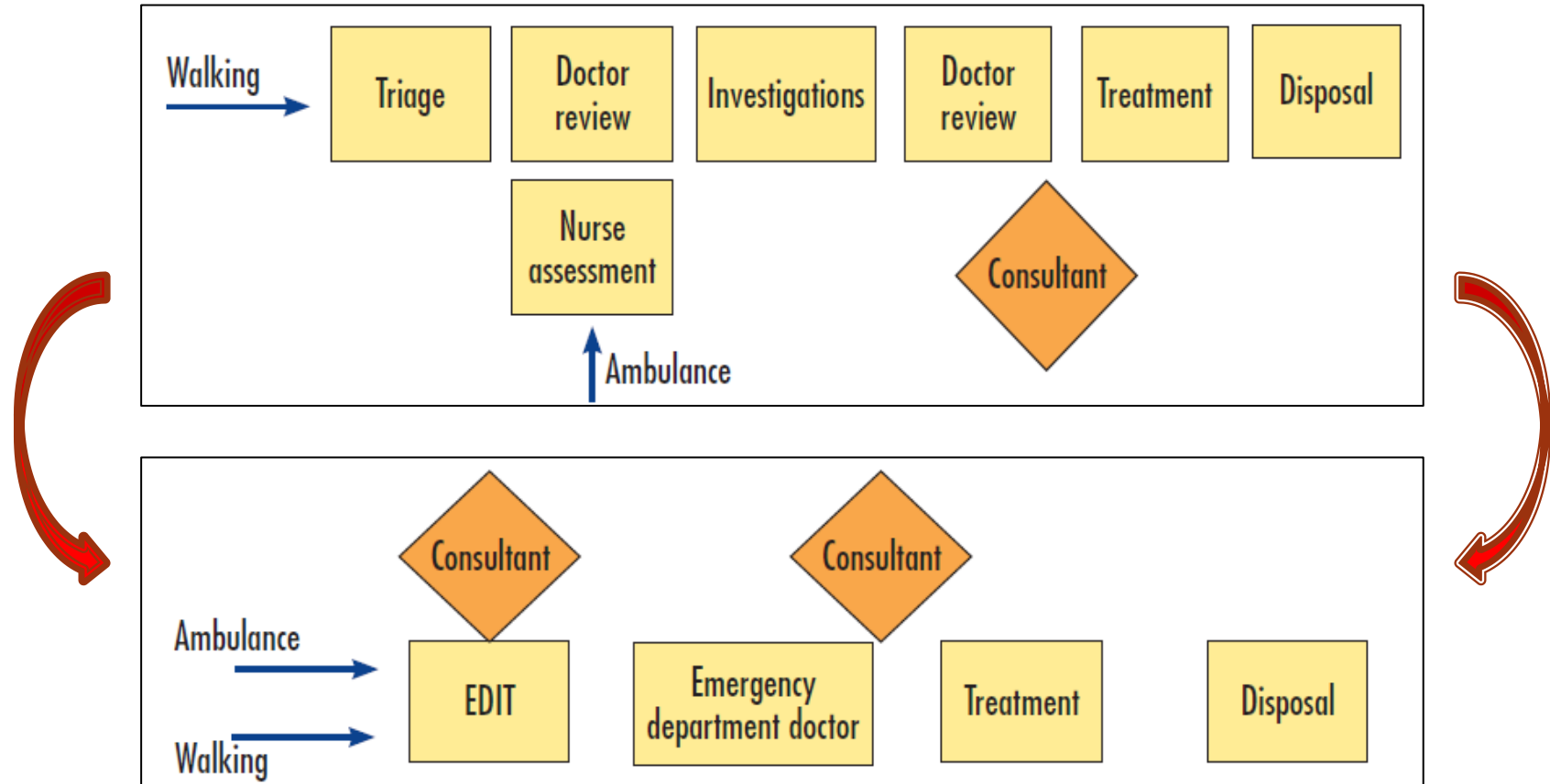
Translational Health Economics

reimbursement and resource utilisation

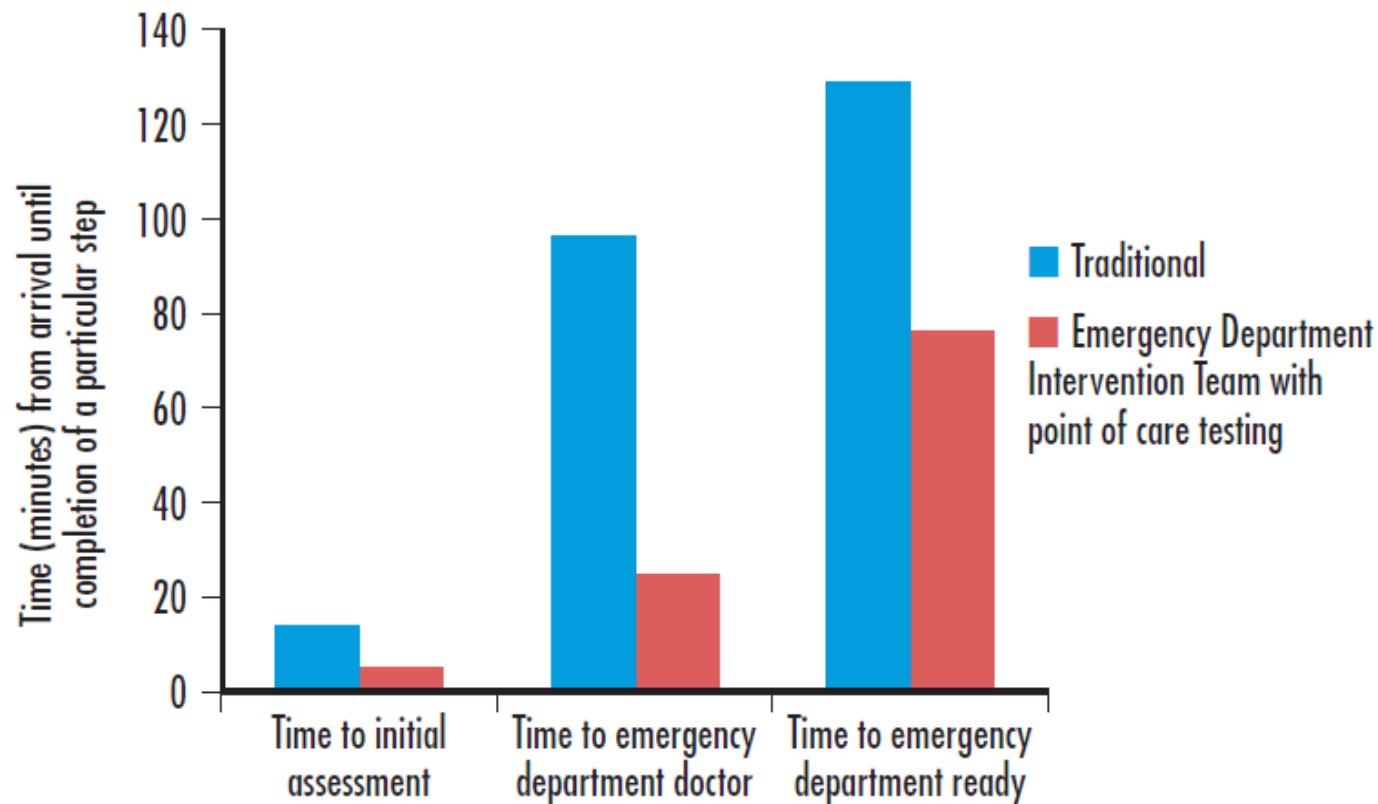


Changing the Process in the ED

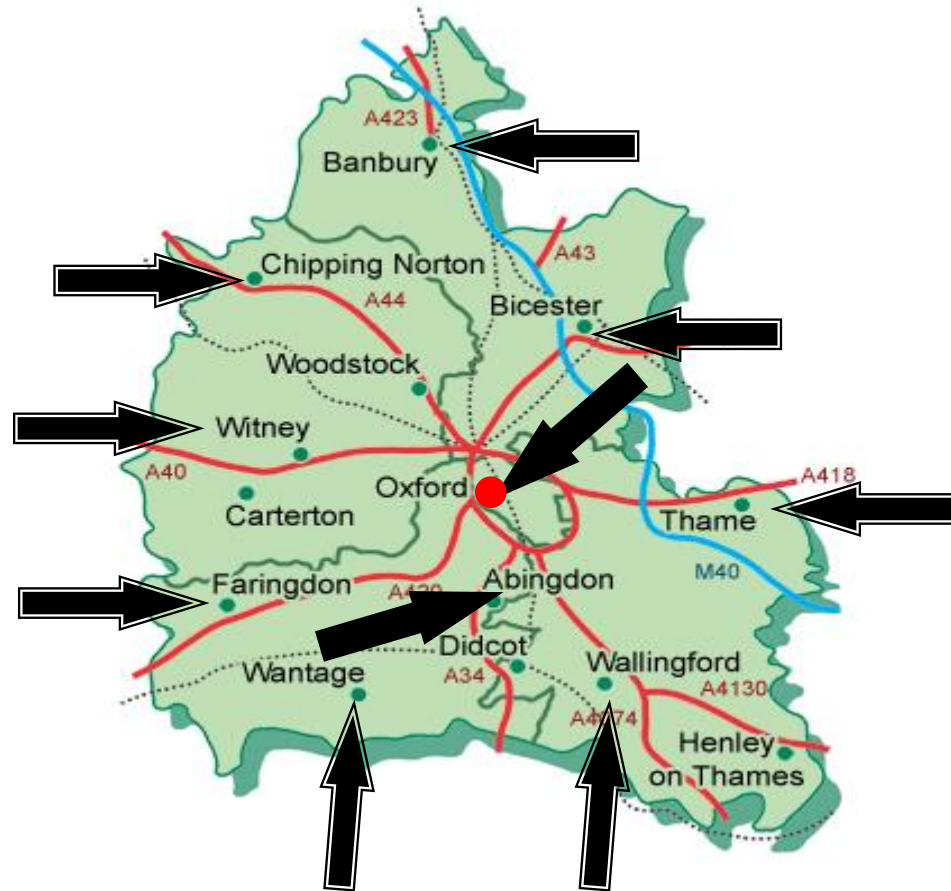
use of the Emergency Department Intervention Team



ED: Results After Changing the Process use of the Emergency Department Intervention Team



Emergency Multidisciplinary Unit community triage and care management?



Emergency Multidisciplinary Unit key performance indicators

- Reduce admissions
- Reduce length of stay
- Facilitate early supported discharge
- Maintain and support people in their own homes

Emergency Multidisciplinary Unit whole patient approach

- Medical
 - bloods, CXR, ECG, assessment
 - i-Stat® system, Chem8, G3+, PT/INR, cTnl
- Functional
 - mobility, personal care, stairs, cooking
- Cognitive
 - memory, safety, capacity
- Social
 - day centres, befriending, carers
- 5 in-patient beds, aim for 72hr LOS
- 85% of patients go home the same day

Emergency Multidisciplinary Unit

key enablers

- Point-of-care testing
- MDT working
- Transport and social care
- Problem solving approach



Emergency Multidisciplinary Unit results 2011-2012

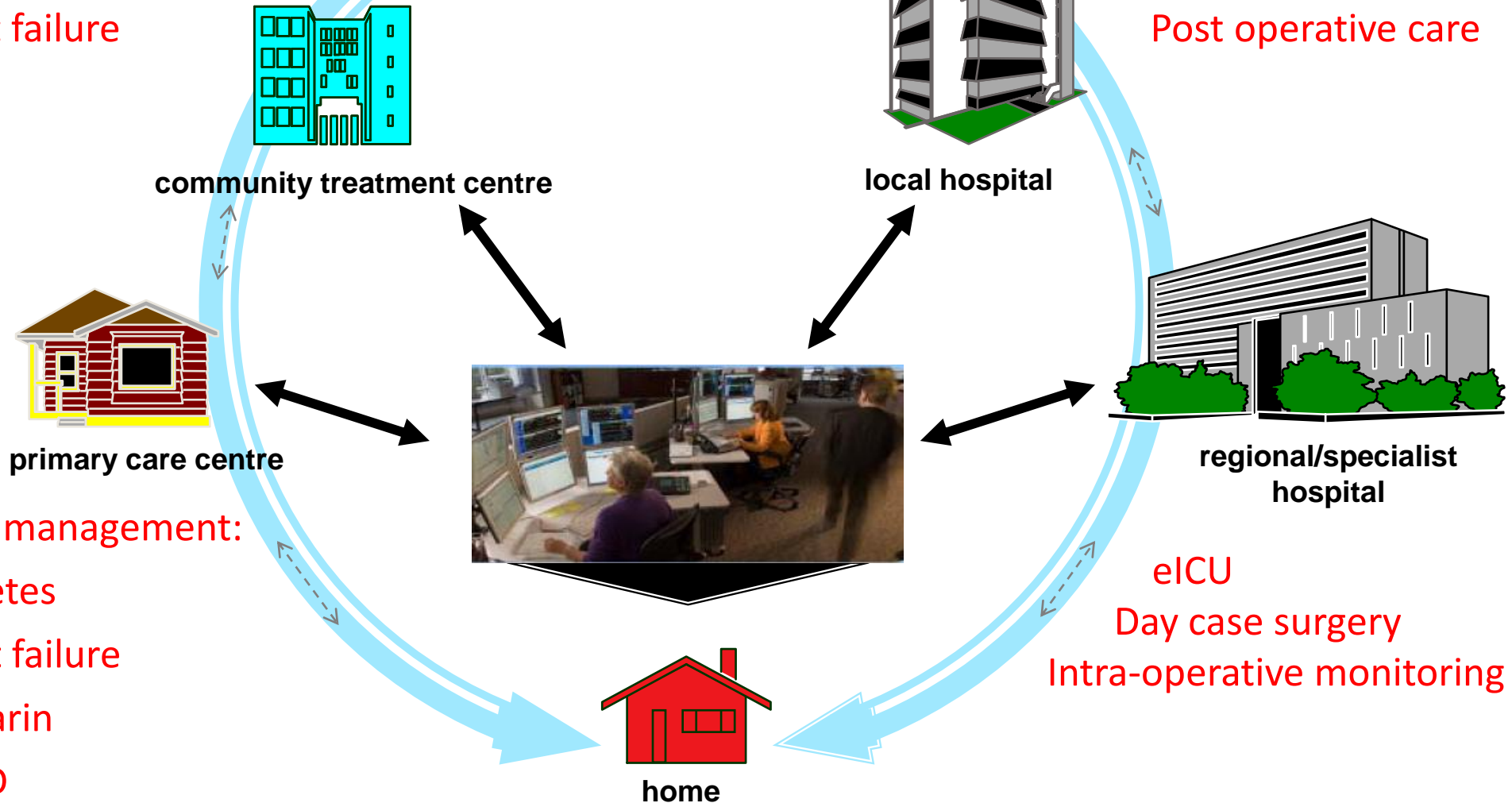
Metric	Oxfordshire	EMU
Number of non-elective admissions	+8%	-11%
Number of non-elective bed days	+6%	-33%
Number of non-elective <u>excess</u> bed days	+7%	-13%
Cost of non-elective <u>excess</u> bed days	+17%	-45%

Results against baseline of 2010-2011

Expanding Role of Point-of-Care Testing

Screening and diagnosis:

- diabetes
- heart failure
- DVT
- STIs



Disease management:

- diabetes
- heart failure
- warfarin
- COPD