

Sustainable Healthcare

November 17

Dr Emma Vaux

RCP Senior Censor & Vice
President, education + training

November 2017



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Sustainable Healthcare

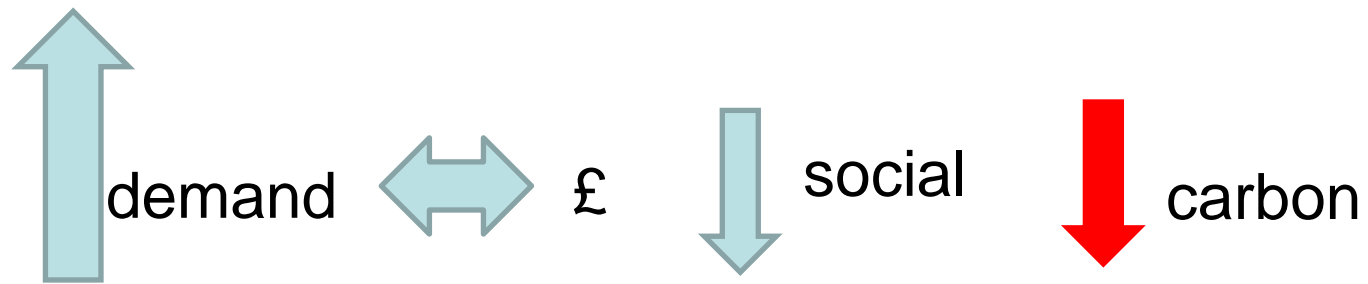
1. Protecting the health service for (current and) future generations
 - Will the NHS still be with us in 2025 / 2035?
2. Protecting health for (current and) future generations
 - Does healthcare activity build health – or undermine it?



Health service sustainability

1. Protecting the health service for (current and) future generations

– Will the NHS still be here in 2025 / 2035?



financial, social & environmental resource constraints



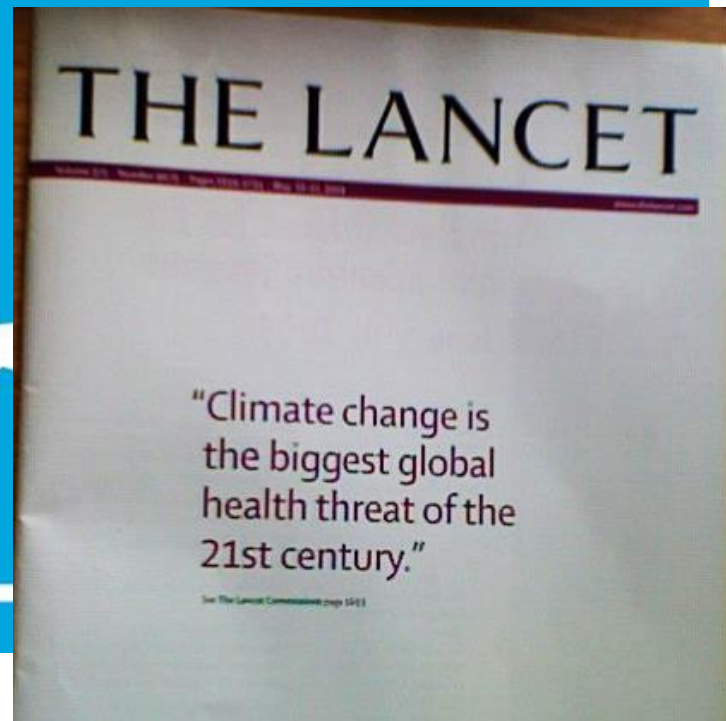
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Carbon dioxide emissions attributable to the NHS in England are greater than the annual emissions from all aircraft departing from Heathrow Airport.



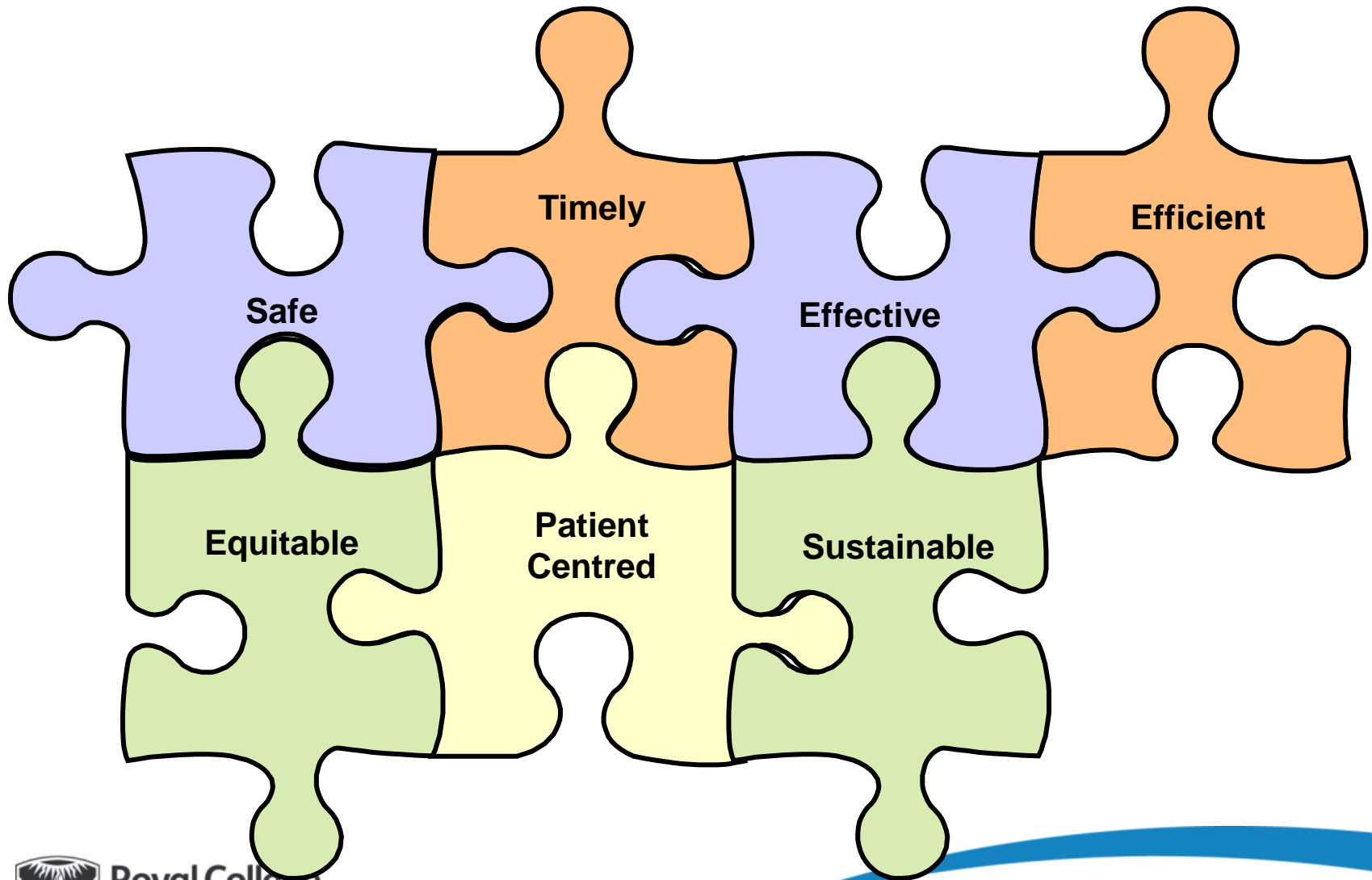
Heathrow



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Sustainability and quality



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**BUT QUALITY IS NOT ENOUGH –
WE NEED TO IMPROVE VALUE**



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$$\text{Patient Value} = \frac{\text{Health Outcomes}}{\text{Cost}}$$

Michael E. Porter, *What is value in healthcare?* English Journal of Medicine, 363:26, December 2010



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Technical Value

Are the right patients being
seen or is there either

1. harm from
over diagnosis
or
2. inequity
from
underuse

Efficiency

Outcomes/
Resources

Productivity

Outputs/
Resources



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Muir Gray, 2017

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Sustainable value in healthcare:

$$\text{Value} = \frac{\begin{array}{c} \text{Informed} \\ \text{by patient} \\ \text{values} \end{array} \text{outcomes for patients and populations}}{\text{environmental} + \text{social} + \text{financial costs} \text{ (the "triple bottom line")}}$$



CENTRE for
SUSTAINABLE
HEALTHCARE
inspire • empower • transform

Centre for Sustainable Healthcare &
Academy of Medical Royal Colleges, 2016  standards

Building sustainability into quality improvement

'SUSQI' FRAMEWORK

- Set Goal
- Study system
- Design improvement effort
- Measure impact



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Mortimer F, Isherwood J, Wilkinson A, Vaux E (2017) *In press*

Aim of Sustainable QI:

“to deliver care in a way that maximises positive health outcomes and avoids both financial waste and harmful environmental impacts, while adding social value at every opportunity.”



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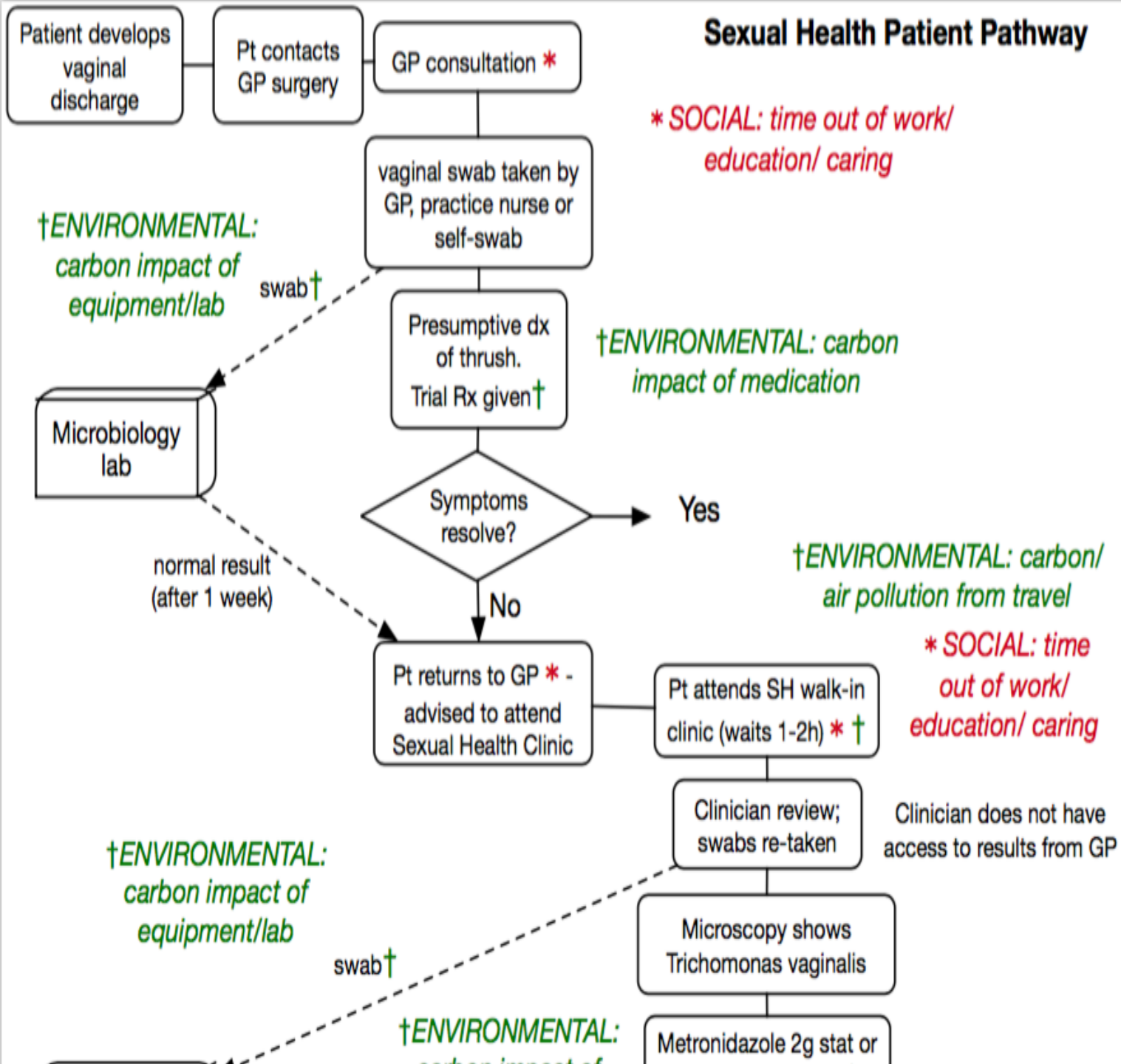
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QI element	Sustainability content	Intended benefits
1. Setting goals	Sustainability as a domain of quality	New motivation & energy to contribute to QI
2. Studying the system	Understanding environmental & social resource use/ impacts; carbon hotspots in the NHS	Highlights wastes and opportunities
3. Designing the improvement effort	4 principles of sustainable clinical practice	Directs towards highest value improvements
4. Measuring impact/ return on investment	triple bottom line/ sustainable value equation	Drives sustainable change; broader audience, not exclusively financial

Mortimer, F. The Sustainable Physician. Clinical Medicine (2010), Vol 10, No 2: 110-11

Mortimer F, Isherwood J, Wilkinson A, Vaux E (2017) *In press*

Sexual Health Patient Pathway



Social value / impacts – on whom?

- Patient
- Staff
- Carers
- Dependants
- Local community
- Distant communities (e.g. supply chain workers)



Social impacts on distant communities



“Labourers in surgical instrument manufacture are often paid less than US\$1 per day, have poor job security, have woefully inadequate protection of health and safety, and many employees are children, some as young as seven years old.”

BMA Medical Fair & Ethical Trade Group



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Studying the system

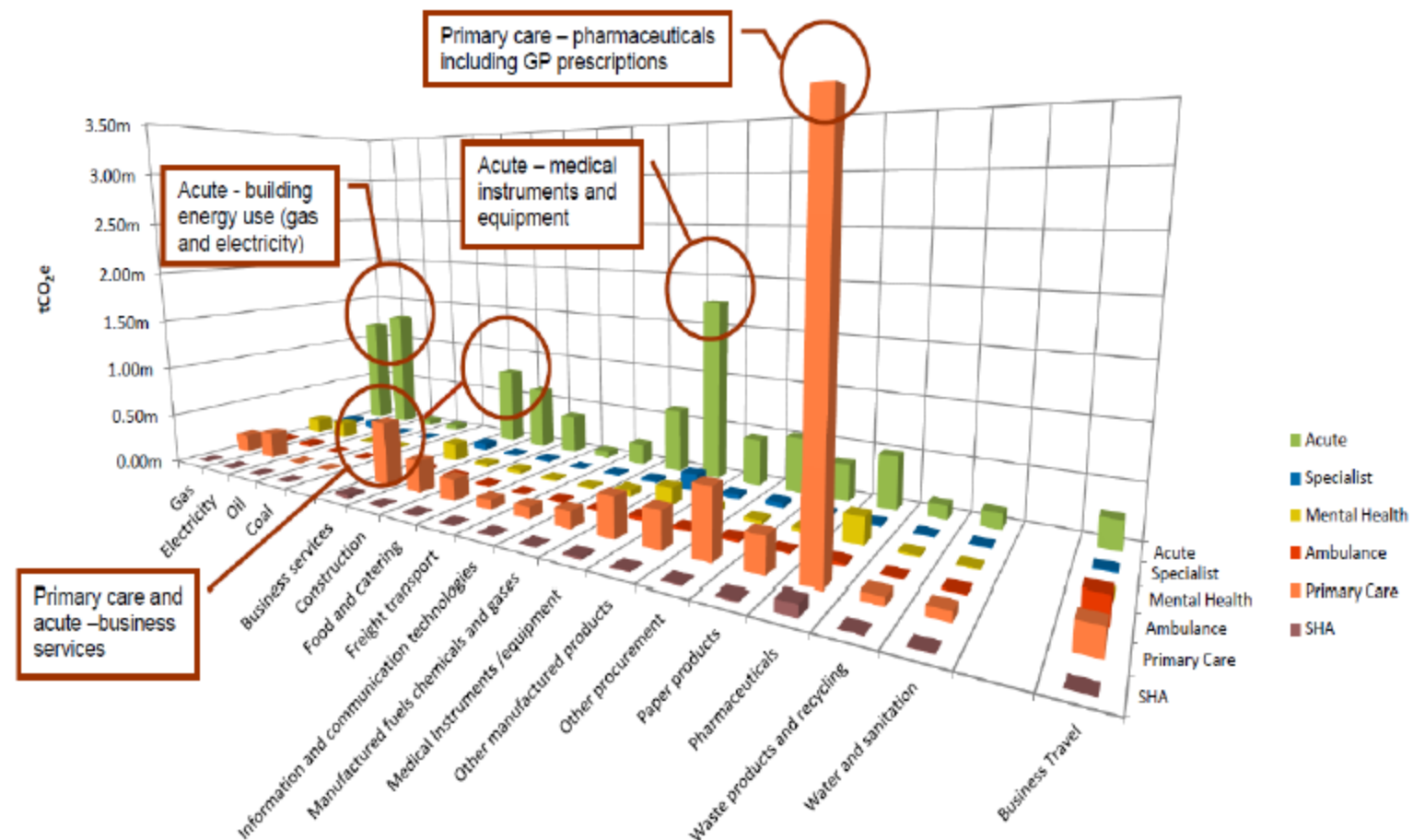
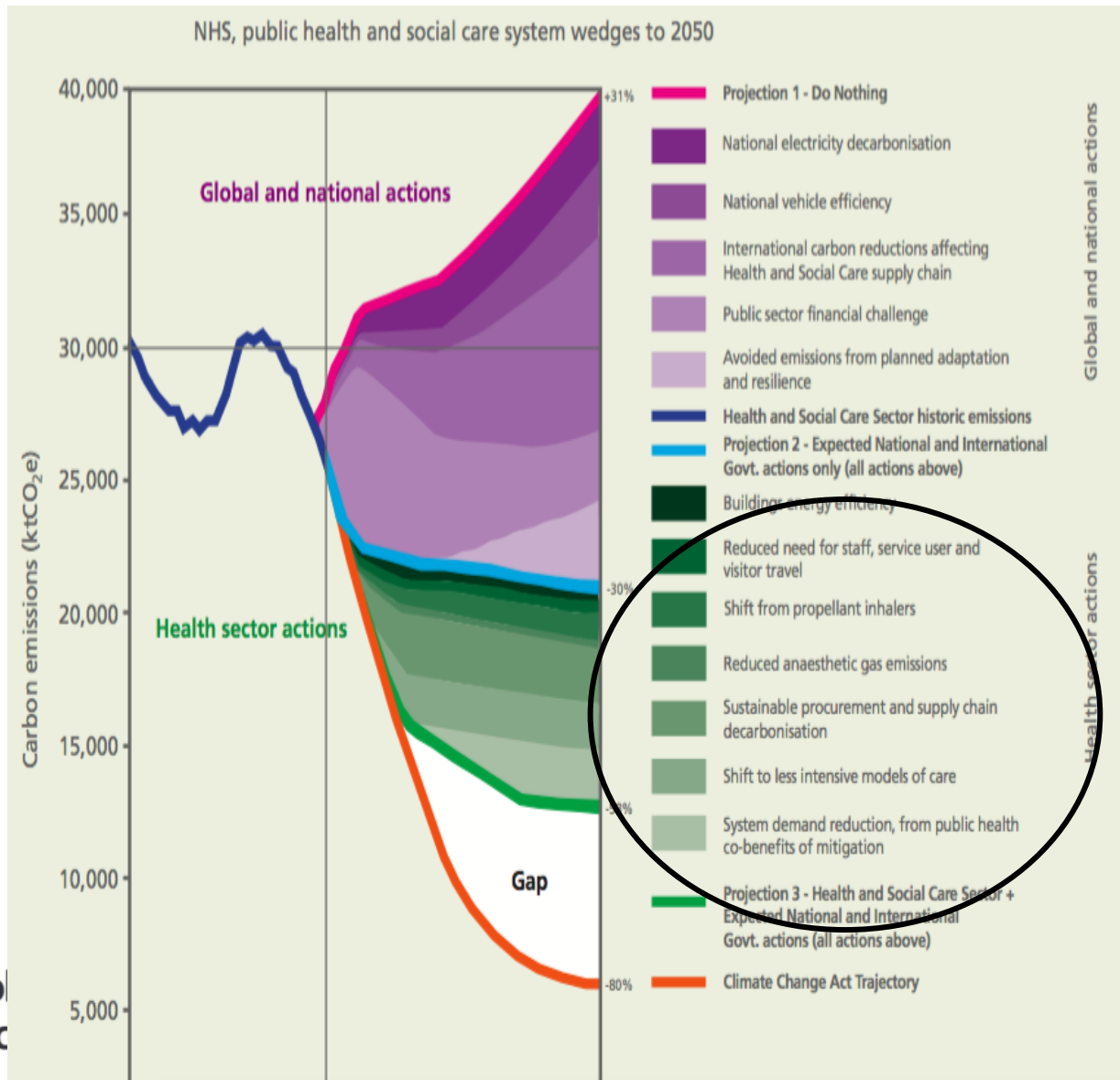


Figure 3: Goods and Services Carbon Footprint - Carbon Hotspots, 2012. Reproduced with permission from the Sustainable Development Unit.^{ix}

How will 80% carbon reduction be achieved?







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Designing the improvement effort

 <p>Patient Empowerment & self-care</p> <p>Support patients to take a bigger role in managing their own health and healthcare</p>	<p>Prevention</p> <ul style="list-style-type: none">• Promoting health• Preventing disease• Reduce the need for healthcare 
 <p>Lean service delivery</p> <ul style="list-style-type: none">• Services where people need them• Streamlining care to minimise low value activity	<p>Low carbon alternatives</p> <ul style="list-style-type: none">• Preferential use of effective treatment and medical technologies with lower environmental impact• Minimising waste of medications, consumables and energy 

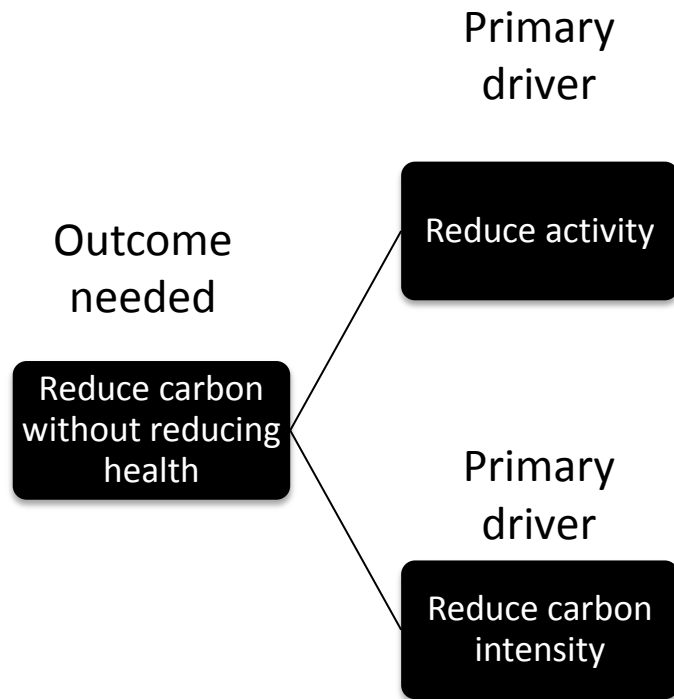
CSH Principles of Sustainable Clinical Practice



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Sustainable clinical practice: principles

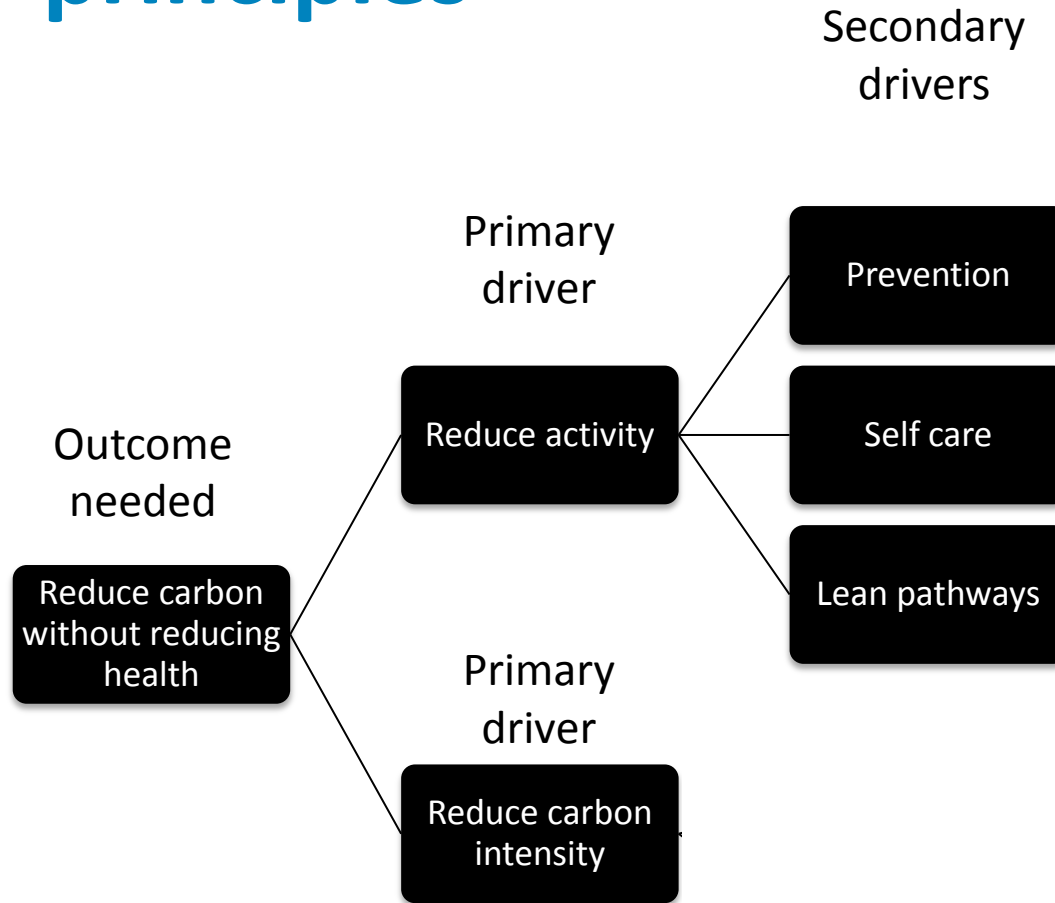


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Mortimer, F. The Sustainable Physician. *Clinical Medicine* 2010, Vol 10, No 2: 110–11

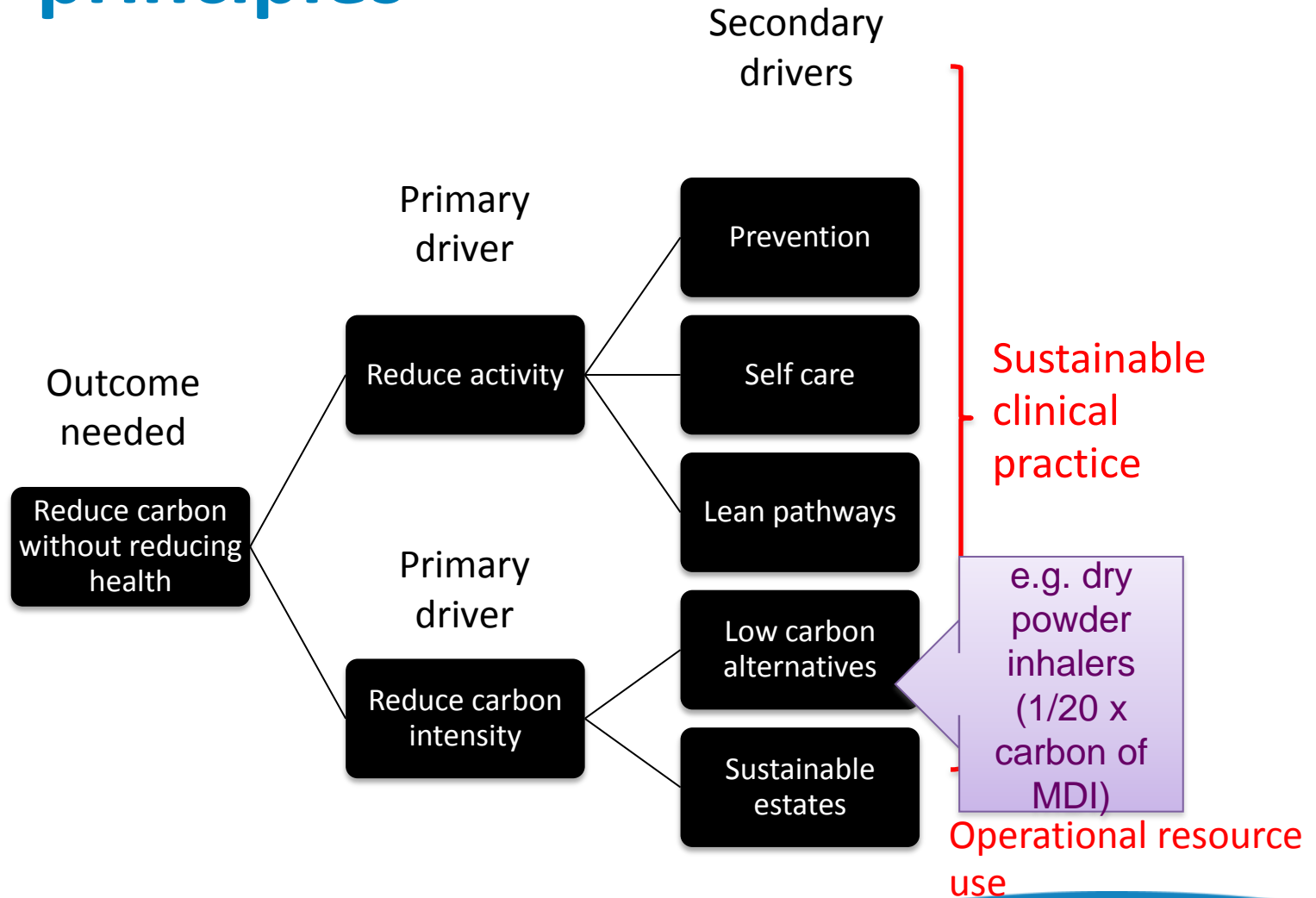
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Sustainable clinical practice: principles



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Sustainable clinical practice: principles



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Case study: Smoking cessation

Sustainability Principle	Project strengths	Opportunities to improve
1. Prevention	Prevention of smoking-related disease was the primary focus of the project	Greater focus on COPD patients could yield greater health gains
2. Empowerment	Most smokers want to quit ^{xxi} ; this project facilitates them to do this	Further emphasis on facilitating rather than advising quitting ^{xxii}
3. Lean systems	Implementation of high-value, cost-effective interventions; use of existing staff resources and opportunistic patient contact	
4. Low carbon alternatives	eCBD training avoids need for travel/face-to-face meeting	(Information needed on relative carbon impact of different options for smoking cessation support)

Wilkinson A Thorax Vol. Supplement pS79, 2015



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Measuring the impact

- Patient & population outcomes
- Financial costs
- Environmental costs
- Social impacts



Case study: measuring environmental costs

Some patients referred for hip and knee replacements were being referred back to the GP after pre-operative assessment at the local hospital.

1 in 6 patients looped through the system

Activity	Financial cost (£)	Environmental cost (CO ₂ e)
Extra GP consult	£45 ¹	18 kg ²
Extra Hospital consult	£112 ¹	23 kg ²
Total savings (for 10 loops)	£1570	410 kg

1. Unit Costs of Health and Care, PSSRU, December 2015. Available at: <http://www.pssru.ac.uk/project-pages/unit-costs/2015/index.php>

2. Carbon Hotspots update for the health and care sector in England 2015, Sustainable Development Unit, January 2016.

Measuring social impacts?

	Patients	Carers	Community	Supply chain	Staff
Housing					
Poverty					
Health					
Education					
Employment					
Safety/security					
Wellbeing/ satisfaction					
Participation					
Social gradient					



Case study: smoking cessation QIP

1. Setting goals: QIP goal aligns with SusQI
2. Understanding resource use: not explicitly considered
3. Applying sustainability principles:
 1. Prevention ✓✓
 2. Empowerment ±
 3. Lean ✓
 4. Low carbon ✓ eCBD

Case study: smoking cessation QIP

4. Measuring impact:

£ cost to the NHS and total carbon impacts (from estimated \uparrow nicotine replacement therapy minus estimated avoided bed days, \downarrow inhaler use and \downarrow carbon impact from not using tobacco) were estimated at:

- £7000 saving / year
- 16,000kgCO₂e saving / year.
- Cost savings to the patients ++

Case study: A sustainable early memory service

1. Setting goals: ✓
2. Understanding resource use: staff/patient travel, overuse of CT scans, staff disempowerment identified as issues to address
3. Applying sustainability principles:
 1. Prevention ✗
 2. Empowerment ✓
 3. Lean ✓
 4. Low carbon ✓



Case study: A sustainable early memory service

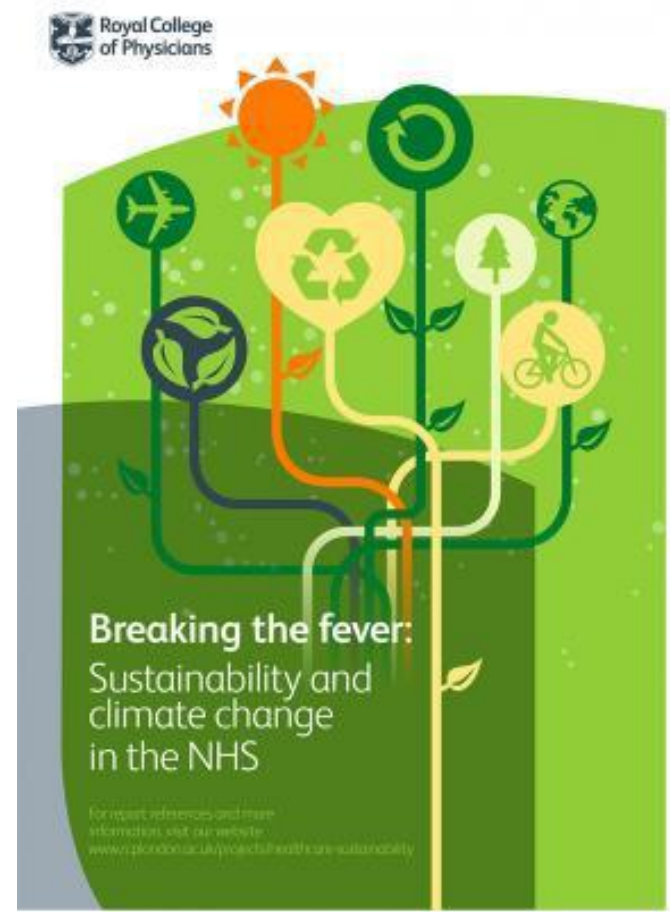
4. Measuring impact:

- Time to diagnosis reduced 63 > 20 days
- Social: positive patient experience maintained; staff empowerment – self assessment Q
- Carbon: staff travel 513.5 > 509 kg CO₂e per pt; patient travel 12.3 > 7.7 kg CO₂e per patient; ↓ CT head scans 60%



What is Royal College of Physicians doing?

- Procurement
- Models of Care
- Promote good practice
- Lead by example



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A Sustainability Lens

- Important and legitimate domain of quality in healthcare
- It calls for the redefinition of value to incorporate social and environmental costs
- Incorporation into QI efforts provides a practical and ethical way to respond
- New motivation and energy for change
- Whole systems thinking



HOW COULD YOUR QUALITY IMPROVEMENT WORK TAKE INTO ACCOUNT

- Social impact?
- Environmental impact?



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WHO IN YOUR TEAM WOULD RUN WITH A SUSTAINABLE VALUE APPROACH?



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ACKNOWLEDGEMENTS

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Emma.vaux@rcplondon.ac.uk

 @VauxEmma

sustainability@rcplondon.ac.uk

www.rcplondon.ac.uk/projects/healthcare-sustainability

In press Future Healthcare Journal



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