Healthcare Sustainability Metrics: What's needed, what's feasible?

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26 July 2022

Acknowledgement of Country

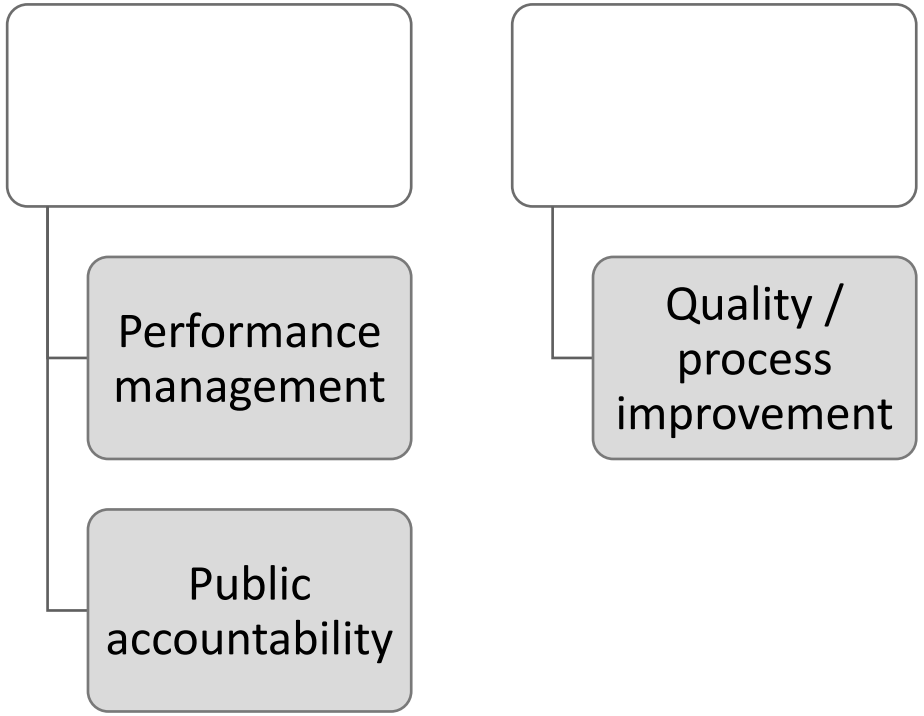
I respectfully acknowledge the peoples of the Lutruwita nations and the Wurundjeri people of the Kulin nation as the traditional owners of the lands on which this work has been undertaken. I acknowledge their Elders and ancestors and their legacy to us.

Why Health Sustainability Measurement?

“You can’t manage what you can’t measure”

Anonymous

We already know a lot about using metrics in healthcare…



- Not everything that is measurable is important
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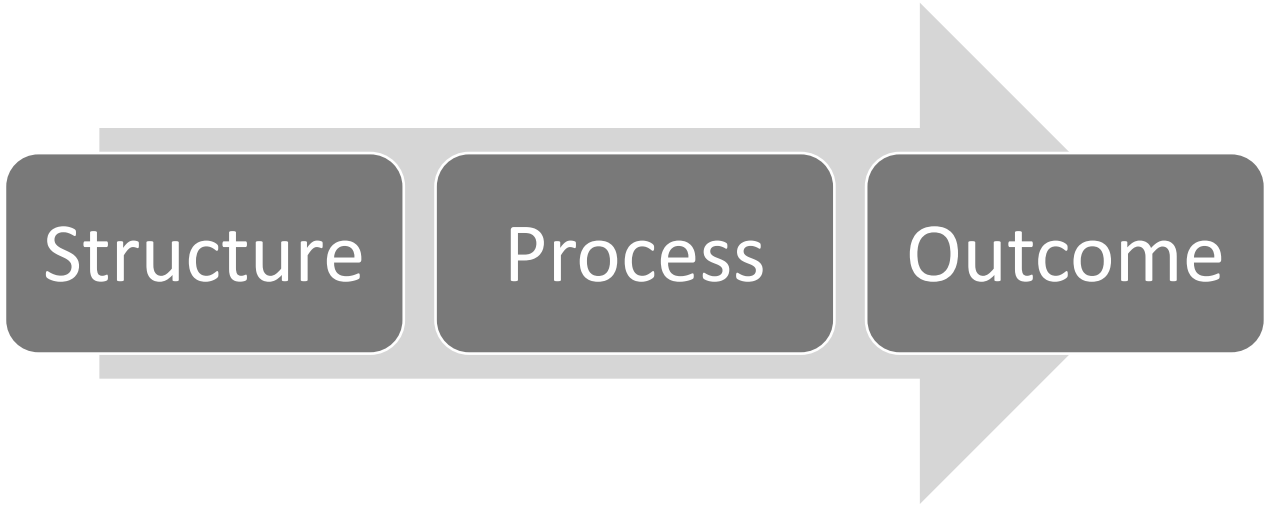
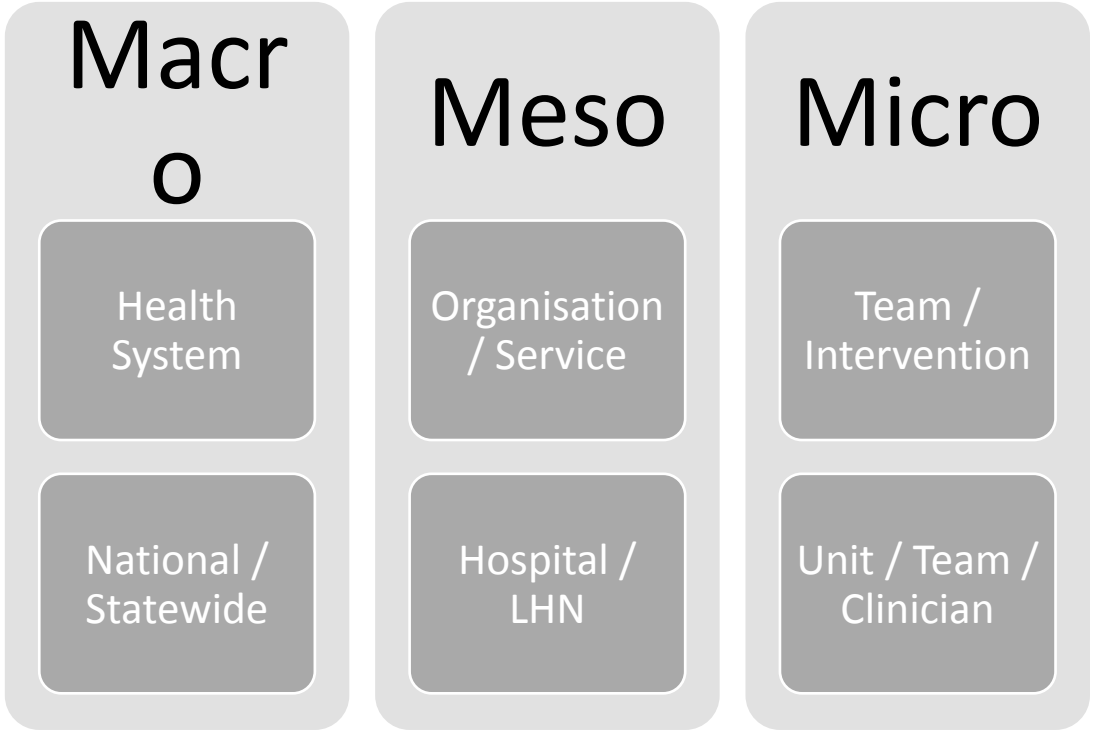
...experience that also applies to healthcare sustainability metrics



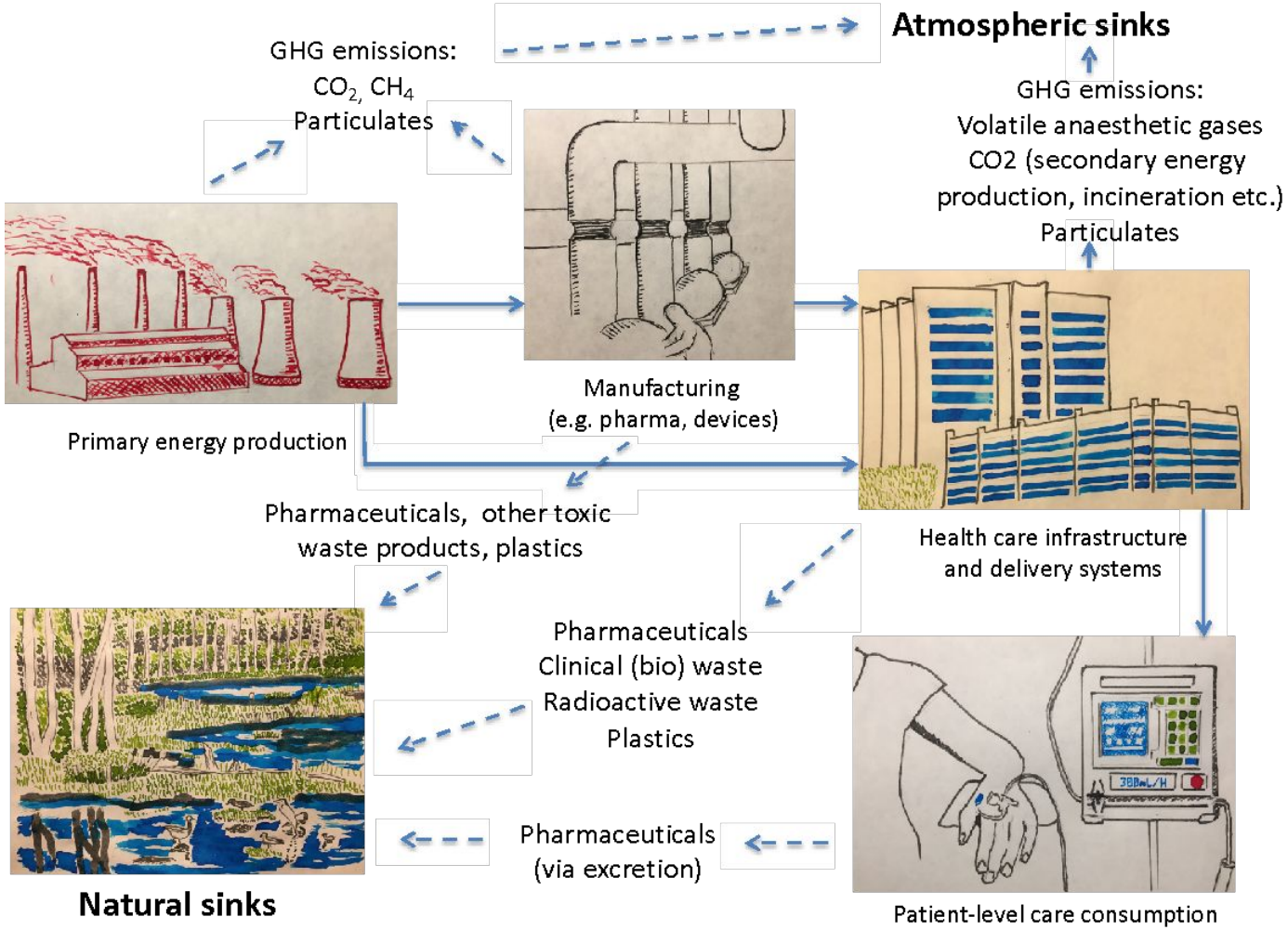
- Ease of measurement and monitoring
  versus
- Significance / Impact
- Amenability to change / control
- Consistency / comparability

...experience that also applies to healthcare sustainability metrics



- Comparisons / Benchmarking
- Change over time
- Targets / incentives / behaviour change
- Public reporting vs. internal reporting

Scope of Healthcare Environmental Impacts?



Source: Hensher et al, 2020

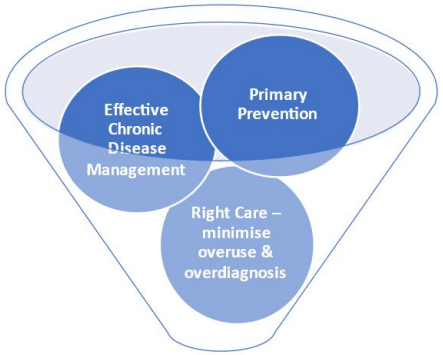
Which Environmental Impacts to Measure?

- Greenhouse Gas Emissions / Energy
- Air pollution (particulate matter)
- Plastic waste / pollution
- Clinical / biohazard waste
- Other non-plastic waste
- Radioactive waste
- Chemical waste
- Pharmaceutical pollution (active ingredients) – especially antibiotic / antimicrobial resistance risks
- Waste water

- Pollution and environmental harms (including resulting harms to human health)
- Depletion of scarce / limited resources

- **WHAT IS MOST IMPORTANT IN YOUR CONTEXT?**

Understand both Demand and Supply Sides



Minimise avoidable demand for healthcare

Minimise emissions in the production of healthcare

Scope 1 Emissions	Scope 2 Emissions	Scope 3 Emissions
•Minimise direct emissions of facilities, plant, vehicles etc. •Operating and embodied / life-cycle emissions •Healthcare specific emissions e.g. anaesthetic gases	•Minimise emissions through energy supply •e.g. decarbonise energy sources / supply	•Minimise emissions (operating and embodied) throughout supply / procurement chain •Minimise waste •Superior substitutes (e.g. replace pMDI & HFA227ea inhalers) •Minimise staff and patient travel

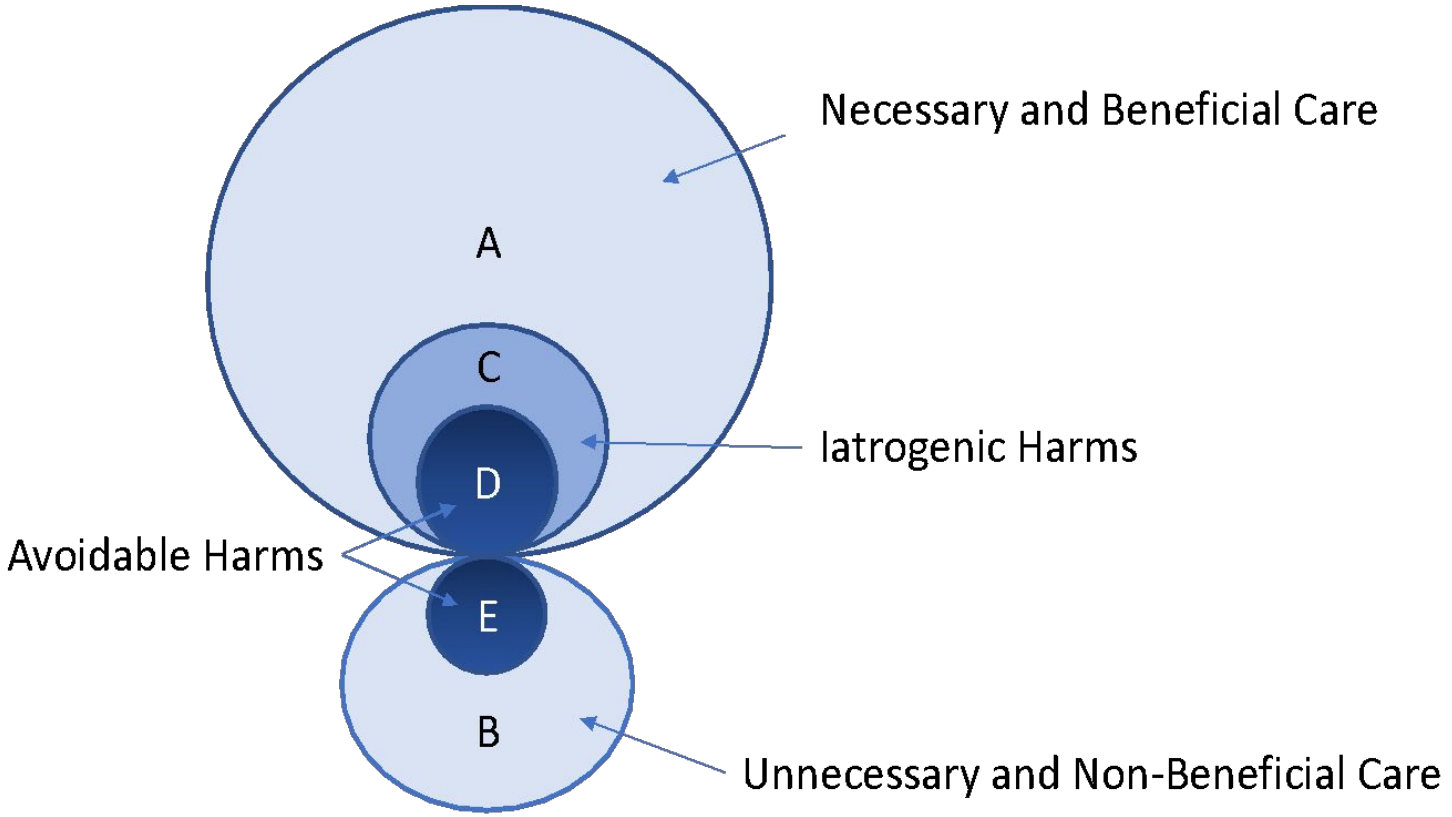
Demand Side

Supply Side

Sustainability and Quality Improvement

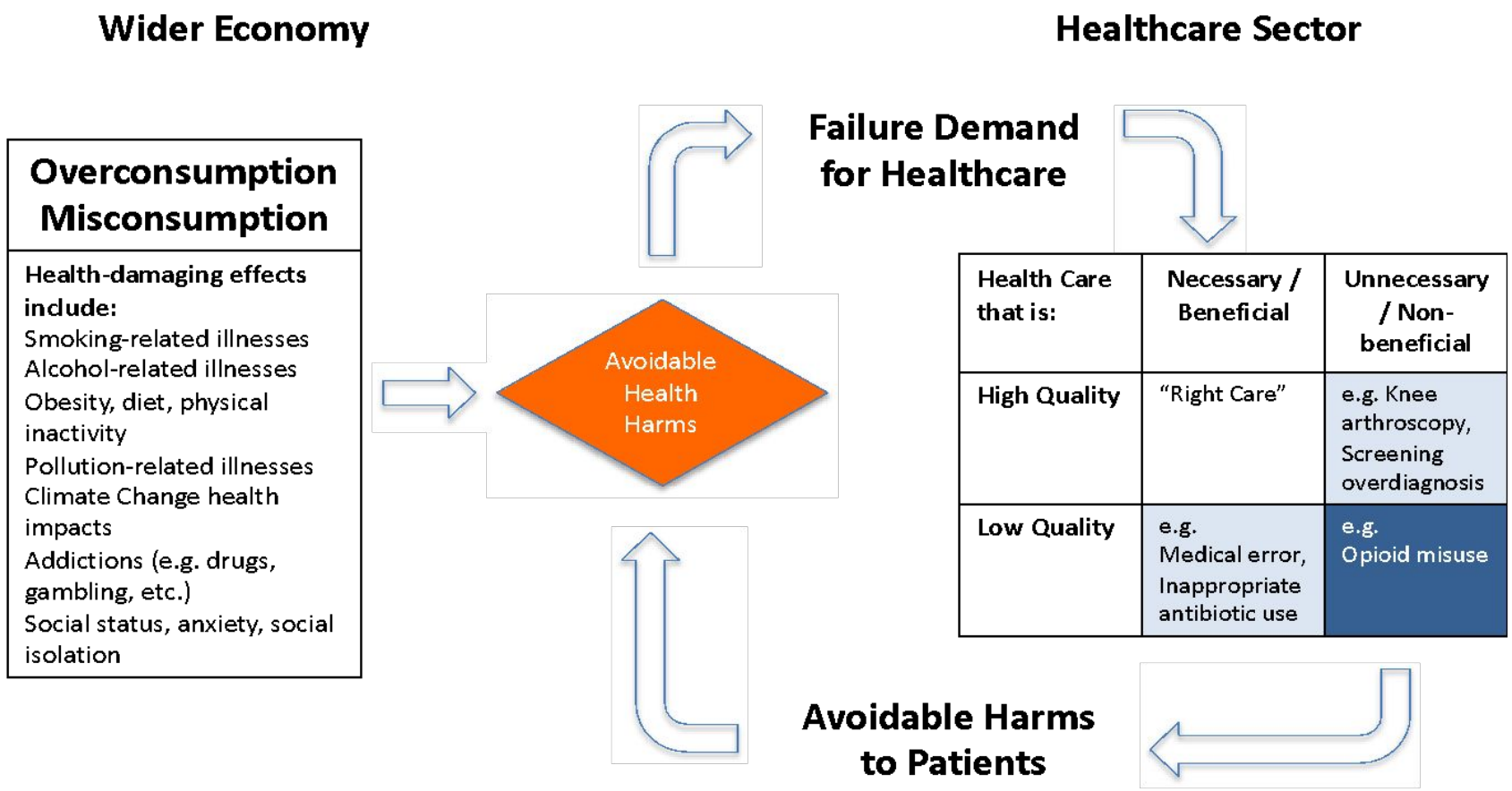
- "Environmental sustainability should be an explicit domain of quality" (Royal College of Physicians, 2011)
- Triple / Quadruple aim (IHI Triple Aim Initiative, 2020)
- Integrating environmental sustainability as a core element of quality and value in health care (Sustainability in Quality Improvement Framework, 2018)

Iatrogenic Harms and Overconsumption in Healthcare



Source: Hensher et al, 2020

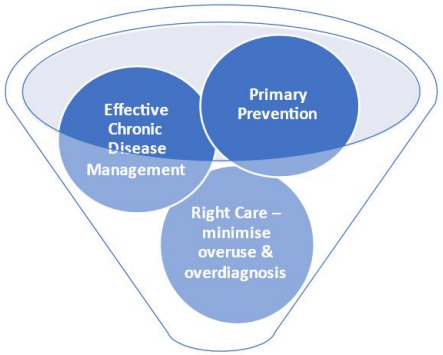
Overconsumption and Failure Demand



Conceptual framework for considering overconsumption and failure demand for health care

Source: Hensher et al, 2020

Understand both Demand and Supply Sides



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Demand Side

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Measurement and Estimation Approaches

Approach	Measurement or Estimation	System Level	Issues
Input / Output Analysis	Estimation	Macro – larger systems	Based on economic data, expertise-intensive Typically one-off studies
Life Cycle Assessment	Direct measurement	Micro – intervention / product-level	Expertise-intensive Typically one-off studies
Resource *consumption* monitoring (e.g. energy, water etc.)	Direct measurement	All levels	Easier to collect / monitor But not always *directly* capturing environmental impact
Resource *waste/ disposal* monitoring (e.g. tonnes of PPE to landfill etc.)	Direct measurement	All levels	Easier to collect / monitor Getting closer to environmental impacts
Hybrid / activity-based (e.g. no. of patient visits x estd. CO2e per visit)	Measurement and estimation	All levels	Depends on relevant original LCA studies having been undertaken

Possible Data Sources

- Facilities and Estates data
- Building Information Management Systems
- Procurement systems and data
- Waste disposal / collection
- Kitchens and catering
- Pharmacy systems
- Ward / clinic / theatre systems
- Transport data (including car parks?)
- Hospital activity data systems
- Electronic health records
- Staff and patient surveys

- **WHAT IS MOST RELEVANT IN YOUR CONTEXT?**
- **WHAT DO YOU WANT TO ACHIEVE WITH THIS MEASUREMENT?**

Key Resources

https://www.susqi.org/

https://sustainablehealthcare.org.uk/

https://www.caha.org.au/globalgreen_healthyhospitals1

Key Messages

- Align your sustainability goals and measurement with your wider goals and measurement frameworks
- Be clear on the appropriate purpose, focus, level and scope of your sustainability measurement
- Make sure your measurement is proportionate and adds value, not just burden
- Remember what we have already learned about measurement for quality improvement over the last 40+ years

"You can't manage what you can't measure"

BUT REMEMBER:

"If you can't count what is important, you make what you can count important" by "Hitting the target but missing the point"

Selected References

Donabedian A. *The definition of quality and approaches to its assessment*. Ann Arbor, Health Administration Press; 1980.

Hensher M, Canny B, Zimitat C, Campbell J, Palmer A. Health care, overconsumption and uneconomic growth: A conceptual framework. *Social Science & Medicine*. 2020;266:113420.

Hensher M, McGain F. Health Care Sustainability Metrics: Building a Safer, Low-Carbon Health System. *Health Affairs.* 2020;39(12):2080-2087.

Institute for Healthcare Improvement. IHI Triple Aim Initiative. IHI, Boston; 2020.

IPCC WGIII. *Climate Change 2022: Mitigation of Climate Change Summary for Policymakers*. Geneva: World Meteorological Organization; 4 April 2022.

Mortimer F, Isherwood J, Wilkinson A, Vaux E. Sustainability in quality improvement: redefining value. *Future Healthcare Journal*. 2018;5(2):88-93.

Royal College of Physicians. A strategy for quality, 2011 and beyond. RCP, London; 2011.

WHO. COP26 Health Programme - Country Commitments Geneva: World Health Organization; 2022.

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Thank You

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23 March 2022

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