

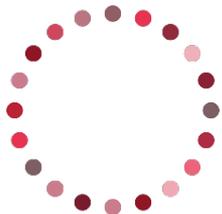


# Economic evaluation and health systems strengthening

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# Recap from first lecture

- PART ONE
  - The role of economic evaluation in Universal Health Coverage (UHC)
- PART TWO
  - Definition of economic evaluation (EE)
  - Core components of economic evaluation
  - Interpretation of economic evaluation results

# Lecture outline

- Framing the economic evaluation of health systems strengthening (HSS) interventions
  - What are the questions commonly considered by EE?
  - What are HSS interventions?
  - Why is EE of HSS important?
  - What questions does EE of HSS address?
  - How does EE of HSS differ from EE of technologies (e.g. medicines, vaccines and diagnostics)?
  - How best might we conduct EE of HSS?

# EE of ‘technologies’

- Traditionally, EE focuses on alternative *technologies*\* (medicines, vaccines, diagnostics) within *disease (or condition)-specific* evaluations
- EE considers two (or more) alternatives for achieving a particular outcome (one alternative is status quo, which might be ‘do nothing’)

Disease/condition	Status quo	Alternative
HIV/AIDS	D4T in first-line treatment	TDF in first-line treatment
Human papillomavirus	Do nothing	HPV vaccine
HIV associated cryptococcal meningitis	Do nothing	Cryptococcal antigen screening

\* Note the meaning of ‘technologies’ here – it includes medicines, vaccines and diagnostics

# EE of 'models of care'

- EE also commonly used to evaluate models of care and psychological treatments, again within *disease (or condition)-specific* evaluations:

Disease/condition	Status quo	Alternative
Substance misuse	Do nothing	Brief intervention based on motivational interviewing
Pregnancy	Facility based antenatal services	Home based antenatal services
HIV/AIDS	Individualized nurse-run service provision	Group CHW-run service provision

# EE of HSS

- Where does health system-strengthening (HSS) fit into this?
- How might we evaluate the cost-effectiveness of HSS?

# HSS interventions?

- Difficult to define!
- Common elements:
  - Horizontal or system wide
  - Associated with investing in the health system ‘platform’
  - Impact across multiple disease-specific areas
- Examples:
  - Electronic information systems for primary care
  - Quality of care initiatives for inpatient care
  - Strengthened supply chain for vaccines
- More feasible to assess costs, difficult to assess health gains across multiple disease-specific areas

# Why is EE of HSS important?

- ‘Cost-effectiveness analysis of health interventions, which are more often than not disease specific, tends to neglect the role of the health system in delivering these interventions. There are no explicit analyses of cost-effectiveness of improving the physical or human infrastructure of the health system, which provide for direct comparisons between investing in the delivery system and purchasing more specific interventions delivered by the health system’ (Murray et al. 1994, p. 664)

# Why is EE of HSS important?

- Would investments towards HSS generate more value than investments in specific medicines, diagnostics or vaccines within disease-specific areas?



# Why is EE of HSS important?



Health facility compound, rural  
Mozambique



Solar panel for vaccines fridge with  
maternity ward in background



Health worker accommodation



Delivery suite

# Why is EE of HSS important?

- Would bolstering health worker morale through improving accommodation generate more value than specific medicines and diagnostics?



Health worker accommodation

# Why is EE of HSS important?

- Would an improved source of electricity generate more value than specific medicines and diagnostics?



Solar panel for vaccines fridge with maternity ward in background

# Why is EE of HSS important?

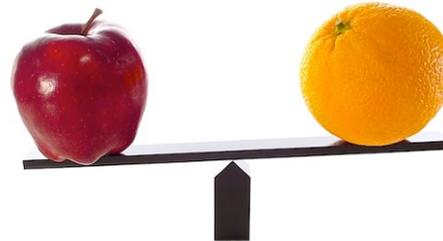
- Would an improved delivery suite generate more value than specific medicines and diagnostics?



Delivery suite

# EE of technologies or models of care versus HSS

- Generally, how might we extend economic evaluation to enable a comparison of:
  - Disease-specific technologies (medicines, diagnostics, vaccines) *versus*
  - HSS (infrastructure, quality of care, info systems)?
  - Apples versus oranges!



# EE of technologies or models of care versus HSS

## EE of technologies or models of care

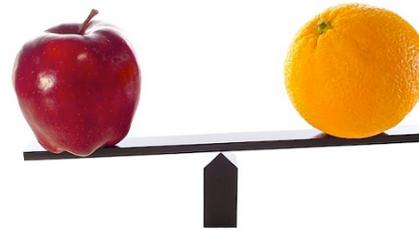
Disease/condition	Status quo	Alternative
HIV/AIDS	D4T in first-line treatment	TDF in first-line treatment
Substance misuse	Do nothing	Brief intervention based on motivational interviewing

## EE of HSS interventions

Setting/patient group	Status quo	Alternative
Tertiary hospital (impacts on all patients)	Do nothing	Quality of care initiative
Primary care facility (impacts on all patients)	Paper based information system	Electronic information system

# EE of technologies or models of care versus HSS

- Technology or model of care interventions:
  - Take a vertical, disease- or condition-specific perspective
- HSS interventions:
  - Have a horizontal or system-wide impact
- How do we compare apples and oranges?



# EE of HSS

- Recent systematic review of EE & HSS from LMIC<sup>1</sup>
- Majority of EE of HSS studies take a disease-specific approach

<sup>1</sup> Cleary, Susan. 2020. "Economic Evaluation and Health Systems Strengthening: A Review of the Literature." *Health Policy and Planning*, 1–11. <https://doi.org/10.1093/heapol/czaa116>.

- Examples include
  - CEA/CUA of quality improvement for integrated management of childhood illnesses in Kenyan hospitals<sup>2</sup>
    - Unidimensional outcomes: % improvement in process measures of quality of care per admitted child
    - Multidimensional outcomes: DALYs averted from mortality reductions per admitted child

<sup>2</sup> Barasa, Edwine W., Philip Ayieko, Susan Cleary, and Mike English. 2012. "A Multifaceted Intervention to Improve the Quality of Care of Children in District Hospitals in Kenya: A Cost-Effectiveness Analysis." *PLoS Medicine* 9 (6): 13. <https://doi.org/10.1371/journal.pmed.1001238>.

- Examples include
  - CEA of mentorship and enhanced supervision to improve quality of integrated management of childhood illnesses in Rwandan rural health districts<sup>3</sup>
    - Unidimensional outcomes: additional child correctly diagnosed; additional child correctly treated

<sup>3</sup> Manzi, Anatole, Jean Claude Mugunga, Hari S. Iyer, Hema Magge, Fulgence Nkikabahizi, and Lisa R. Hirschhorn. 2018. "Economic Evaluation of a Mentorship and Enhanced Supervision Program to Improve Quality of Integrated Management of Childhood Illness Care in Rural Rwanda." *PLoS ONE* 13 (3): 1–12. <https://doi.org/10.1371/journal.pone.0194187> .

- Examples include
  - Cost analysis of integrating nutrition commodities into the medical commodity supply chain in Kenya<sup>4</sup>
    - No attempt to estimate health gains from improved supply chain

<sup>4</sup> Eby, Eryn, Tewoldeberhan Daniel, Olivia Agutu, Pedro Gonzalez Cortijo, and Grainne Moloney. 2019. "Integration of the UNICEF Nutrition Supply Chain: A Cost Analysis in Kenya." *Health Policy and Planning* 34 (3): 188–96. <https://doi.org/10.1093/heapol/czz007>.

# Summary

- CEA/CUA of HSS:
  - Strengths of disease-specific approach
    - Provides initial understanding of economics of HSS
    - Enables comparison to technology or model of care interventions
    - Turns apples and oranges into fruit salad
  - Weaknesses of disease-specific approach
    - Misses system-wide impacts of many HSS interventions
  - Examples:
    - Enhanced supervision or electronic information systems in primary care will improve outcomes across many disease-specific areas
    - Infection control in inpatient settings will improve outcomes across all inpatients
    - Leadership development for district managers will improve morale for health workers and outcomes across many disease-specific areas
    - etc

# Summary

- Cost analysis of HSS
  - Strengths
    - Costing of HSS [relatively] straightforward
    - No health outcomes are measured
  - Weaknesses
    - As with all cost analysis, cannot assess value for money
  - Examples:
    - Cost analysis of nutrition commodity supply chain; impacts on multiple disease-specific outcomes; no attempt to attribute outcomes
    - Cost analysis of leadership development for district health management team; impacts on patient care across the district health system platform; no attempt to attribute outcomes
- Analyses of costs of scaling up and budget impact important complements to disease-specific lens

# Summary

- Recommendations
  - CEA: take disease-specific approach and measure unidimensional outcomes
  - CUA: take disease-specific approach and model multidimensional outcomes
  - Cost analysis: take disease-specific or system-wide approach
- If disease-specific approach is taken:
  - Assess system-wide costs of scaling up and budget impact to complement disease-specific lens



# Thank you

[http://www.publichealth.uct.ac.za/phfm\\_health-economics-unit-heu](http://www.publichealth.uct.ac.za/phfm_health-economics-unit-heu)

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