Aim

- *Present key questions to allow you to **interrogate the evidence** on HIV testing costs*
- *Support you to **commission studies** and define what cost evidence you need to inform your decisions:*
  - *Priority setting (economic evaluation) -Fern*
  - *Affordability: budget impact analysis - Gesine*

Learning Outcomes

- By the end of this session you should be able to:
  - Understand why HIV testing "costs" can vary so much
    - Recognise differences in costs:
      - Real resource use *versus* cost methods
    - Interpret varying definitions of costs and analysis methods and their uses
  - Understand the differences between costing for economic analysis and costing for budgeting
  - Define what type of analyses you need to address your key policy questions and commission suitable studies

Costing HIV testing services: Costing for economic analysis

Fern Terris-Prestholt, PhD
Department of Global Health & Development
London School of Hygiene & Tropical Medicine

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

Unitaid psi World Health Organization LSTM UCL

UNITAID PSI
HIV SELF-TESTING AFRICA

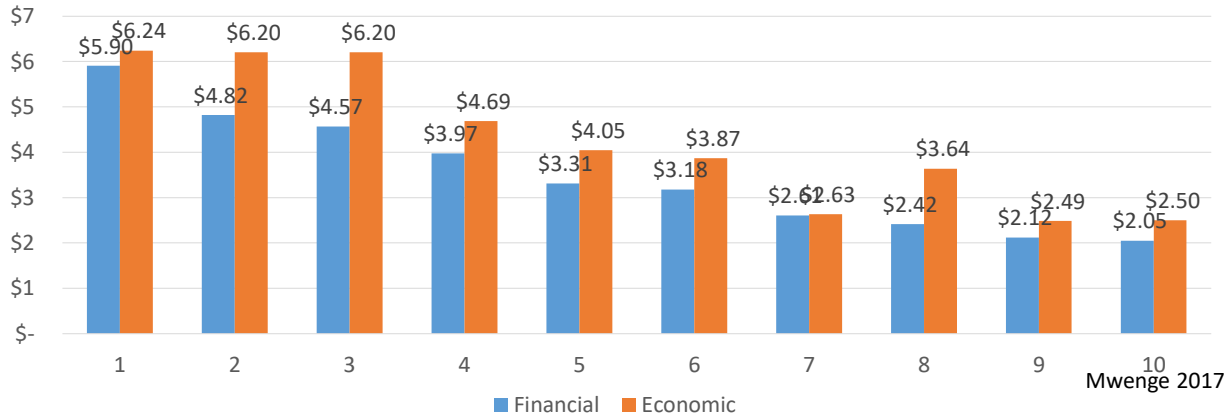
Same project - different costs, why? Interrogation of unit costs

1. Financial versus Economic costs:
   - Donated goods and services
2. Full versus Incremental costs
   - Assumption on what is in place and what extra is needed
3. Project Phases captured
   - Early costs: Start up, training, capital costs of equipment.
4. Perspective: whose costs included?
   - NGO only, government, users, all
5. Inflation

But resource use also genuinely differ

1. Financial and Economic costs: Zambia HTS costs in 10 facilities

Facility based HTS: unit cost per person tested across 10 facilities



Mwenge 2017

1. Financial and Economic costs: Zambia HTS costs in 10 facilities

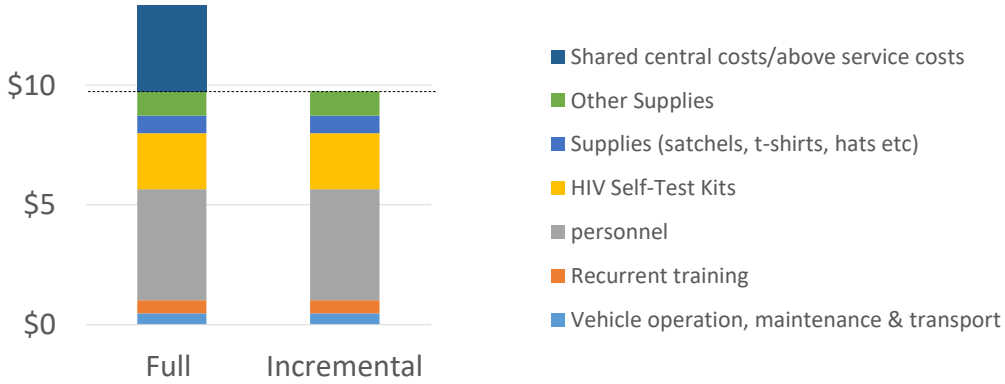
Financial costs: Actual *expenditure* on goods and services.

Economic costs: Includes the *value of all resources* used in the intervention

- *Think donated and subsidized goods and or volunteer time*

Mwenge 2017

2. Full versus Incremental Costs: Campaign style HIV Self test distribution

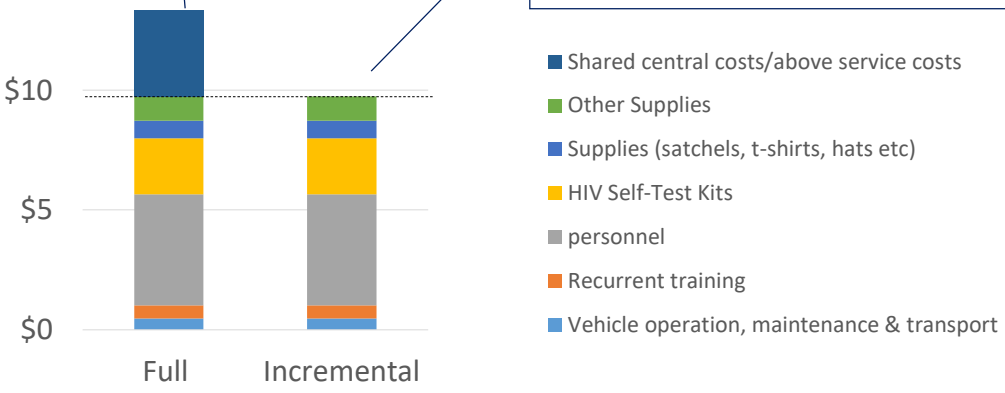


2. Full versus Incremental Costs: Campaign style HIV Self test distribution

Full Costs: Includes ***all*** resources used in testing, including basic infrastructure, overhead, etc..

Incremental costs: costs of ***adding*** or implementing an additional project or services to existing programmes.

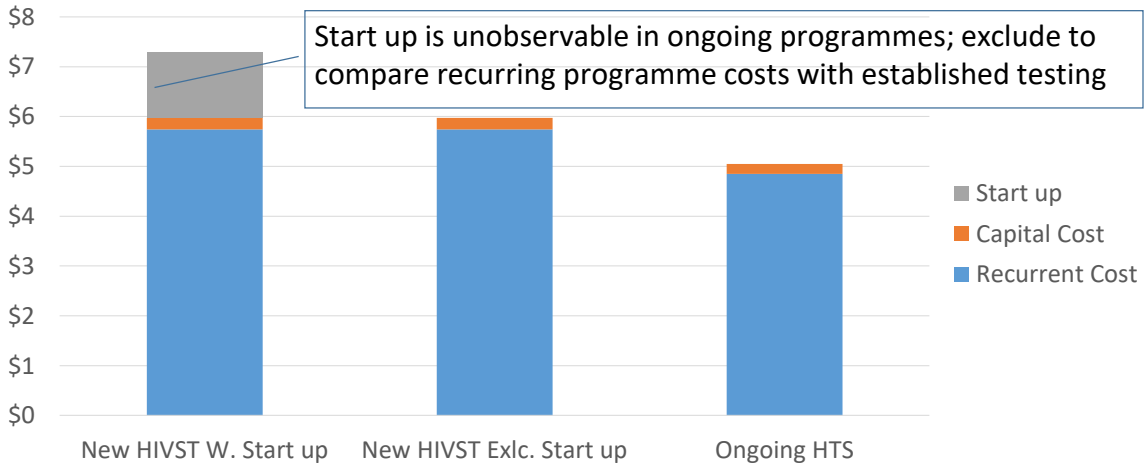
* Does not include cost of existing services



3. Inclusion of Project Phases: new versus ongoing programmes - Malawi

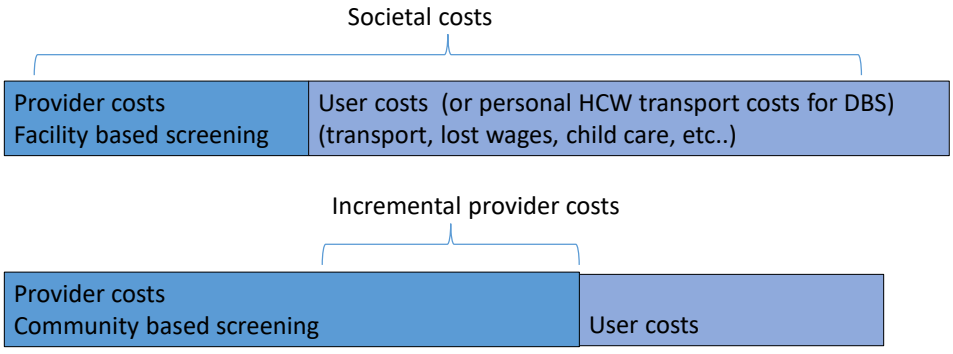
Caution in comparing New and Ongoing HIV testing programmes

Start up is unobservable in ongoing programmes; exclude to compare recurring programme costs with established testing



Mwenge 2017

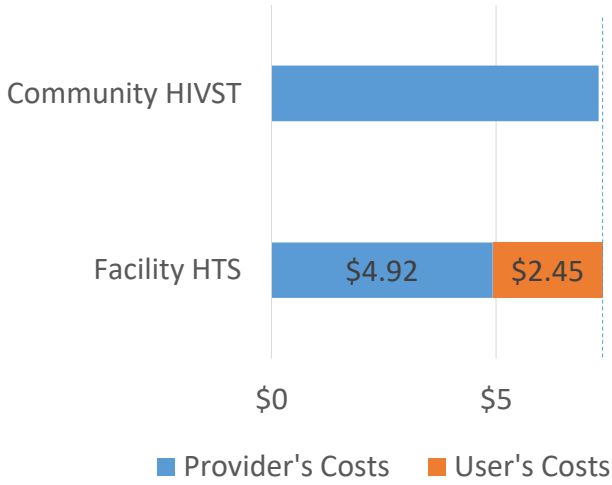
The importance of societal costs



Provider costs may increase with community based HIV testing, but how much of this is offset by a reduction in user costs?

4. Perspective: Whose costs? Malawi HTS versus HIV ST

4. Perspective



Costs from a providers' perspective only capture health providers' costs.

Societal perspectives captures full costs (resource use) to society, including user costs.

Providers' perspective is useful for budgeting, but need to understand user costs as barrier to access and opportunity cost.

- May have multiple providers: Government; NGO, etc..

5. Inflation

Author	Publish year	Country	Model of distribution	2002$		In 2017$
Chee(2006)	2006	Zambia	Community Based (VCT)	$358.16		
Chee(2006)	2007	Zambia	Community Based (ANC)			$ 573.91

N. Ahmed 2018

The real and the nominal? Making inflationary adjustments to cost and other economic data FREE

Lilani Kumaranayake

Health Policy and Planning, Volume 15, Issue 2, 1 June 2000, Pages 230–234,
https://doi.org/10.1093/heapol/15.2.230
Published: 01 June 2000

5. Inflation

Author	Publish year	Country	Model of distribution	2002$		In 2017$
Chee(2006)	2006	Zambia	Community Based (VCT)	$358.16		$663.89
Chee(2006)	2007	Zambia	Community Based (ANC)	$ 309.62		$ 573.91

N. Ahmed 2018

The real and the nominal? Making inflationary adjustments to cost and other economic data FREE

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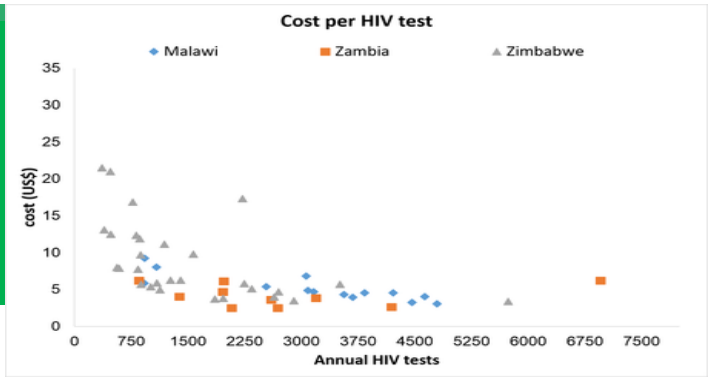
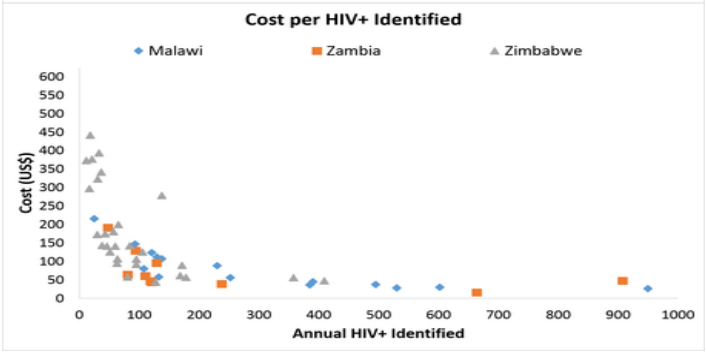
Published: 01 June 2000

On Some Real Differences in Resource Use

Economies of scale & Prevalence





Mwenge L, et al. (2017)
https://doi.org/10.1371/journal.pone.0185740
http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0185740

Conclusions: When costs are present to you, ASK:

Are they:

1. Financial or Economic costs:
   - *Which donated goods and services were included?* (if economic)
2. Full or Incremental costs
   - *What is assumed to be in place and will this continue?* (if incremental)
3. Project Phases captured ?
4. Perspective: whose costs included?
   - Costing to understand future project spending? → provider costs sufficient
   - Costing to understand low uptake? → need user costs
5. Inflation:
   - *In what year are costs presented and have their comparators been adjusted to the same year?*
6. Which factors affect **real** differences in resource use?

   Scale? distribution model? Population: current testing coverage; prevalence of ***unidentified*** HIV+s?

Costing HIV testing: Costing for budgets

Gesine Meyer-Rath
Health Economics and Epidemiology Research Office (HE²RO)
University of the Witwatersrand/
Boston University

Budget impact analysis – why?

- **Economic analysis** (cost effectiveness analysis) answers the question "Should we do it?"
  - often compared to other options
  - always includes outcomes (LY, QALYs, DALYs, etc)
- **Budget impact analysis** answers the question "Can we afford it?"
  - compared to an existing budget
  - does not include outcomes (but includes cost impact)
- Affordability should never be the first, but will often be the *second* question to ask before implementing a new intervention

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Budget impact analysis: Uses

- Allows a government that has made up its mind about its priorities to decide on the **exact strategy** for initiating or increasing coverage with a new programme and commit the necessary resources
- The answer a BIA gives might be simple, but often it is exactly the answer to the question that a government (or funder) has asked

Budget impact analysis: Principles

- Know the budget holder (government, Global Fund)
- Budget holder defines **perspective**, which **cost items** to include and **time frame** (= budget period)
- Include all **follow-on and replacement effects** from introducing new technology
  - Follow-on: Increased uptake of ART and VMMC etc
  - Replacement: Reduction in rapid testing due to increase in self testing
- **No discounting; capital costs not annualised** (current value of future streams of money)
- Limited sensitivity analysis (consider **scenario analysis**); validation with decision makers

Mauskopf JA et alT: Principles of Good Practice for Budget Impact Analysis: Report of the ISPOR Task Force on Good Research Practices - Budget Impact Analysis. Value Health 10(5):336-347 (2007)

Sullivan SD, et al: Budget impact analysis-principles of good practice: report of the ISPOR 2012 Budget Impact Analysis Good Practice II Task Force. Value Health. 2014 Jan-Feb;17(1):5-14. doi: 10.1016/j.jval.2013.08.2291. Epub 2013 Dec 13.

Example: Costing for economic evaluation

	Total cost[2016 US$]	Cost per test distributed [2016 US$]
Start-up costs		
Training	8,349	$0.06
Sensitisation	64,586	$0.47
Start-up other	107,283	$0.78
Capital costs		
Building & storage	12,662	$0.09
Equipment	16,660	$0.12
Vehicles and bicycles	3,095	$0.02
Total costs (capital and start-up)	**212,635**	**$1.54**
Recurrent costs		
Personnel	217,519	$1.58
HIV self-test kits	347,038	$2.40
Supplies	33,685	$0.24
Vehicles	98,826	$0.72
Buildings	1,795	$0.01
Recurrent training	13,135	$0.10
Other recurrent	95,730	$0.69
Total costs (recurrent)	**807,729**	**$5.74**
Total HIVST costs	**1,020,364**	**$7.28**

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Example: Costing for budget impact analysis

	Annual cost	2019/20	2020/21	2021/22	2022/23
Start-up costs					
Training	10,019	30,057	-	-	30,057
Sensitisation	77,504	232,511	-	-	-
Start-up other	128,739	386,218	-	-	-
Capital costs					
Building & storage	15,194	75,970	-	-	-
Equipment	19,992	99,960	-	-	-
Vehicles and bicycles	3,714	18,568	-	-	-
Total capital/ start-up costs	**255,162**	**843,286**	**-**	**-**	**30,057**
Recurrent costs					
Personnel	261,023	261,023	261,023	261,023	261,023
HIV self-test kits	416,445	-	-	-	-
Supplies	40,423	40,423	40,423	40,423	40,423
Vehicles	118,591	118,591	118,591	118,591	118,591
Buildings	2,155	2,155	2,155	2,155	2,155
Recurrent training	15,762	15,762	15,762	15,762	15,762
Other recurrent	114,876	114,876	114,876	114,876	114,876
Total costs (recurrent)	**969,275**	**969,275**	**969,275**	**969,275**	**969,275**
Total HIVST costs	**1,224,437**	**1,812,560**	**969,275**	**969,275**	**999,332**

Assuming

- same target population

and coverage as in original cost analysis

- Budget holder (government) does not pay for test kits
- Initial training is repeated every three years
- Other capital costs have a useful life of 5 years (beyond budget cycle)

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Summary: Turning a cost estimate into a budget estimate

1. Decide on the **budget holder** → time period, cost items included
2. Start with **annual costs** from literature
3. De-annualise capital costs
4. Calculate **cost per person covered/ tested**
5. Estimate target population for ***new*** intervention, coverage and **incremental annual cost**
6. Estimate **replacement** or **increased uptake** of existing interventions
7. Estimate target population for old interventions, coverage and **incremental annual cost,** taking (6) into account
8. **Total budget needed** for new intervention is incremental cost of new intervention (5) + incremental cost of old interventions (7)
9. If you have a circumscript **existing budget** that will cover the new intervention, compare to this
10. DO NOT say "This is affordable", unless you are the budget holder!

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Resources

Costing Methods:

Vassal et al. 2018 Reference Case for Estimating the Costs of Global Health Services and Interventions https://ghcosting.org/pages/standards/reference_case

Reporting guidelines for economic evaluations, goes beyond costing, useful quality checklist: Husereau 2013 https://www.bmj.com/content/bmj/346/bmj.f1049.full.pdf

Budget Impact Analysis Methods:

Mauskopf JA et al, Principles of Good Practice for Budget Impact Analysis: Report of the ISPOR Task Force on Good Research Practices - Budget Impact Analysis. Value Health 10(5):336-347 (2007) https://www.valueinhealthjournal.com/article/S1098-3015(10)60471-8/pdf?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS1098301510604718%3Fshowall%3Dtrue

Sullivan SD, et al, Budget impact analysis-principles of good practice: report of the ISPOR 2012 Budget Impact Analysis Good Practice II Task Force. Value Health. 2014 Jan-Feb;17(1):5-14. doi: 10.1016/j.jval.2013.08.2291. Epub 2013 Dec 13. https://www.ispor.org/ValueInHealth/ShowValueInHealth.aspx?issue=84FAD6EE-C76A-4B83-92D2-8C4DC0746E55