Modeling

- Can be summarized in a table

Table 7. Select model parameters		
Model Parameter	**Value [Range]**	**Ref**
Transmission Probability*		
Baseline Probability	0.0006	[46, 47]
Acute	26 x Baseline [0.0082, 0.015]	[48]
VL≤1,000 copies/mL	1 x Baseline [0.01, 11]	[49]
VL 1,000-10,000 copies/mL	1.1 x Baseline [0.1, 3.8]	[49]
VL 10,000-50,000 copies/mL	3.1 x Baseline [1.3, 4.5]	[48]
VL>50,000 copies/mL	8.7 x Baseline [3.6-11.0]	[49]
Intervention Effectiveness for Reducing HIV Transmission		
Treatment	96%	[50]
Baseline ART Coverage		
Before 2000	0%	[51]
2015	Study data	
*Probability of HIV transmission per coital act assumes that HIV transmission is a Bernoulli process.		

Modeling outcomes

- Describe scenarios

Table 8. Model Scenarios	Description
Baseline model	Standard of care coverage of HTC and linkage to care
Hotspot Linkages model by study arm	HTC and optimized ART linkage and support (CHW home-visits and SMS, and ART Clubs), following current CD4 guidelines for ART initiation
Hotspot Linkages model with ART initiation criteria expanded by risk	HTC and optimized ART linkage and support, following expanding ART guidelines that include risk behavior, mobility and viral load, in addition to CD4 criteria.
Hotspot Linkages model and Test and Treat	HTC and optimized ART linkage and support, following test and treat guidelines where all persons identified as HIV+ are offered ART regardless of CD4 count.

Costing

- Incremental costs (to standard practice)
- Costing method
  - Micro-costing – activity-based costing
- What will be costed
  - Costs incurred and averted
    - Costs incurred: start-up activities, recruitment, service delivery, lab monitoring, ART support, and ART
    - Costs averted: incident HIV cases, social and health benefits

Costing

- Sources of data
  - Study budget
  - Time and motion studies
    - Separate research from program time
  - Interviews
    - Estimate the reach of a program

Cost-effectiveness

- Perspective
  - Programmatic for MoH
  - Can include societal as a secondary outcome
- Analytic horizon
- Discount rate
- Health outcomes
  - Incremental cost effectiveness ratio (ICER) per incident HIV case, HIV-associated death, and DALY averted will be estimated for each intervention arm compared to the standard of care

Cost-effectiveness

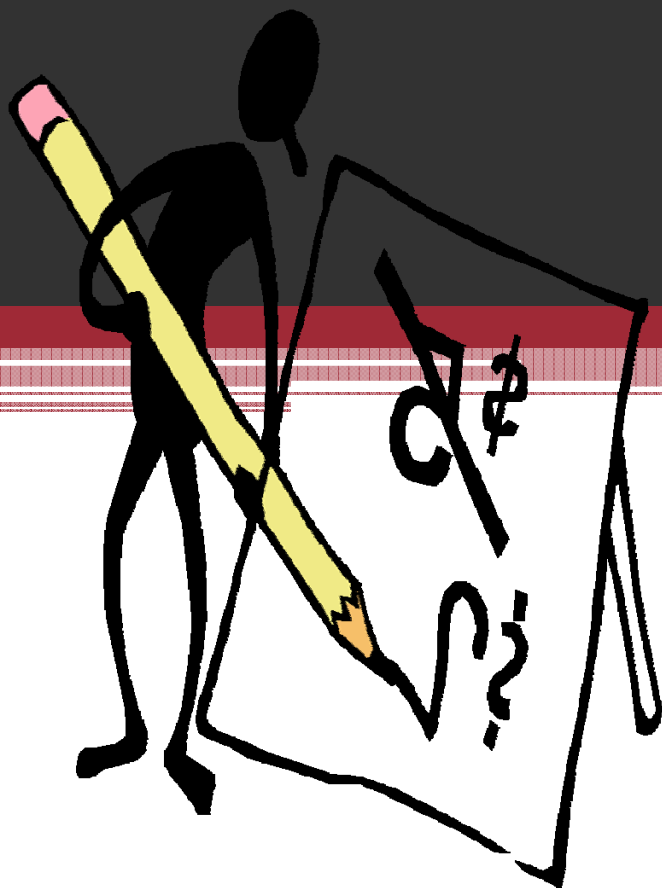
- Guidelines for how ICERs will be interpreted
  - Following WHO guidelines, interventions will be considered cost-effective if the ICER is <3 times local gross domestic product (GDP) and very cost-effective if the ICER is <1 times local GDP per DALY averted.
- Other analyses that would be helpful, e.g. budget impact analysis

Use tables to summarize important characteristics of the analysis

Perspective	**Programmatic perspective** (e.g, NASCOP perspective) to determine the incremental costs and net benefits to anticipate whether these mHealth interventions are feasible for supporting TasP in key populations.
Cost estimates	Intervention costs will include costs associated with the mHealth interventions, including the increased costs and benefits of additional individuals started and retained on ART in the context of providing TasP to key populations.
Data collection	Cost data will be collected from the RCT budget, health facilities, published government information on labor costs, and health economics literature. These data will be used to complete intervention cost worksheets.
Primary health outcomes	Incident HIV cases, HIV-related deaths averted, and DALYs averted will be estimated from mathematical models. Published disability weights will be used for each disease state to estimate the DALYs(*10*). Higher disability weights are associated with advanced HIV infection, resulting in DALYs averted with treatment initiation and continuation (versus deferring or discontinuing treatment).
Discount rate	A discounting rate of 3% will be used, and varied from 0% to 5% in sensitivity analyses (*11*).
Analytic time frame	Using mathematical models to estimate medium and long term health outcomes, the ICER per incident HIV case, HIV-related death, and DALY averted will also be reported over a 1, 5, 10 and 15 year time frame.

The Budget

Be realistic about what you want to achieve



Thank You!

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