

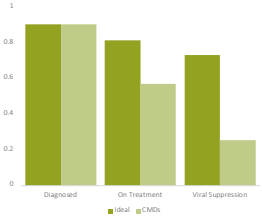
## Economic Evaluation of Integrated Primary Mental Health Care in South Africa

Christopher Kemp MPH PhD  
HEIST Workshop  
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## HIV and Mental Health in South Africa

19% HIV prevalence<sup>1</sup>  
14-30% of PLHIV suffer from common mental disorders (CMDs)<sup>2</sup>  
Only 25% receive formal mental health treatment<sup>3</sup>  
Co-morbid CMDs threaten effectiveness of HIV treatment  
Treatment of depression among ART patients improves odds of adherence by 53%  
National Mental Health Policy and Action Plan 2013-2020  
*Emphasizes integration of mental health into Primary Health Care  
Task-sharing approach*




Category	Ideal	CMDs
Diagnosed	0.9	0.9
On Treatment	0.8	0.55
Viral Suppression	0.7	0.25

<sup>1</sup>UNAIDS 2014; <sup>2</sup>Myer et al 2008, Pappin et al 2012, Bhana et al 2015; <sup>3</sup>Seedat et al 2009; <sup>4</sup>Sin et al 2014




## Our Goals

- Develop a package of care for depression and other CMDs for integration into HIV and chronic care services
- Test the effectiveness of the package
- Provide evidence to motivate and support scale-up by DOH and/or PEPFAR partners



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## Collaborative Care Package

Adaptation, feasibility, and acceptability studies  
Extensive formative and piloting work



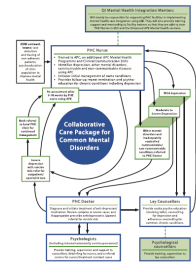
## Complex Intervention

**Primary care nurses** (case managers identify CMDs using PC101/APC; provide supportive counselling, repeat medication, refer, review response to treatments)

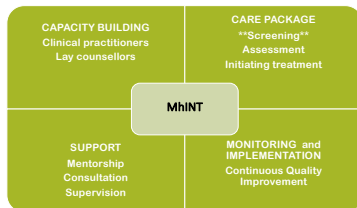
**Behavioral health counsellors** provide psycho-education, depression counselling, adherence counselling

**Doctors** diagnose and review complex/severe cases, prescribe psychotropic medication

**Psychologists/B.Psych registered counsellors** provide training, supervision to counsellors; and a referral service



## Key Components



## Our Goals

Develop a package of care for depression and other CMDs for integration into HIV and chronic care services

Test the effectiveness of the package

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### Dr. Kenneth Kaunda District



### Study Objectives

**Primary:**  
*Estimate the effect of the collaborative care model on patient health outcomes*

**Secondary:**  
*Estimate the cost-effectiveness of the collaborative care model*



### Pragmatic Randomized Trials

	PRIME	COBALT
Setting	20 clinics (10 int and 10 control)	40 clinics (20 int and 20 control)
Patient participants	Adults attending for hypertension treatment	Adults attending for ART
Primary outcome	Depressive symptoms (PHQ-9) at 6 months	Depressive symptoms (PHQ-9) at 6 months Viral load at 12 months
Key secondary outcomes	Blood pressure Depression remission	Blood pressure Depression remission
Timeframes (data collection)	April 2014 to October 2015	April 2014 to December 2017
Funding	DFID	NIMH



### COBALT Economic Methods (i)

Patient surveys at baseline and endline (12 months) capture:

- Depressive symptoms*
- Functional health status*
- Medications*
- Health services utilization*

Time/motion study captures:

*Time spent by nurses and counsellors delivering care associated with intervention*

8132 clinic\_visit\_9  
 Aside from today, have you visited this clinic in the last 3 months for your own health care?  
(Please tick a single correct response (if any).)

No (0)

Yes (1)



## COBALT Economic Methods (ii)

- 1) Cost intervention and health services  
*Top-down, ingredients-based costing*  
*Using costing template*  
*Combine with time/motion data*  
*Payer perspective*  
*12 month time-horizon*
- 2) Allocate costs to patients in sample  
*Intervention costs allocated based on ratio of in-sample patients to total patients in chronic care*  
*Medication/health services utilization costs allocated on individual basis*
- 3) Calculate individual-level incremental cost-effectiveness ratios (ICERs)  
*Bootstrap for uncertainty*  
*Collaborative care vs. usual care*



## Trial-Based Economic Analysis

**Strengths:**  
*Strong internal validity*

**Weaknesses:**  
*Limitations to external validity*  
*Focus on patients with comorbid HIV/CMD*  
*Ignores effects on other patients, other outcomes*  
*Cost/QALY may not be useful to DOH*



## Our Goals

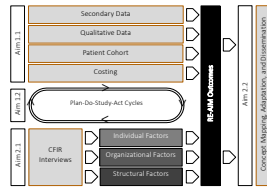
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## Dr. Kenneth Kaunda, Ehlanzeni, and Amajuba



## Southern African Mental Health Integration Research Consortium (S-MhINT)



MhINT

## Implementation Research Objectives

Assess the costs, processes, and outcomes of implementation and scale-up:

- Across two different districts*
- Different resource constraints*
- Different types of counsellors*

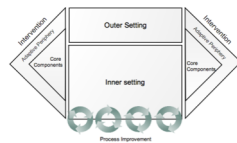
Examine the factors that influence the process of implementation, and are associated with success or failure:

- Patient-level*
- Provider-level*
- Facility-level*
- District-level*

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## Theoretical Framework

Consolidated Framework for Implementation Research (CFIR)  
Helps to identify factors that predict implementation success



Damschroder et al 2009

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## RE-AIM Model

Dimension	Definition (Proportions)	Level
<b>R</b> each	Target population participating	Individual
<b>E</b> ffectiveness	Positive minus negative outcomes	Individual
<b>A</b> doption	Settings planning to implement	Organization
<b>I</b> mplementation	In place as intended in "real world"	Organization
<b>M</b> aintenance	Program sustained over time	Individual & Organization

$$\text{Impact} = R \times E \times A \times I \times M$$

Glasgow et al. Am J Pub Hlth 1999; 99:1322-7.

MhINT

## S-MhINT Costing Sub-Study

### Objectives:

- Estimate costs to deliver integrated care under various implementation scenarios
- Perform budget impact analysis from DOH perspective
- Estimate ICERs



## S-MhINT Costing Methods (i)

### Cohort patient surveys at baseline and endline (12 months) capture:

- Depressive symptoms*
- Functional health status*
- Medications*
- Health services utilization*

### Time/motion study captures:

- Time spent by nurses and counsellors delivering care associated with intervention*



## S-MhINT Costing Methods (ii)

### 1) Cost intervention and health services in each district

- Activity-based micro-costing*
- Start-up costs and costs to sustain implementation in each district*
- Using costing template*
- Combine with time/motion data*
- Payer perspective*
- 1, 5, and 10-year time horizons*

### 2) Estimate overall ICER

- Combine average cost per patient with effectiveness estimates from cohort study*

### 3) Conduct budget impact analysis

- Estimates of direct program cost to scale intervention at district or provincial level*



## “Real-World” Economic Analysis

### Strengths:

- Strong external validity*
- Estimates directly relevant to DOH*

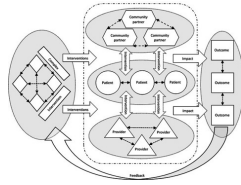
### Weaknesses:

- Limitations to internal validity*
- Reliance on trial-based or observational effectiveness estimates*
- Uncontrolled setting*
- Non-standardized intervention*
- Potential confounding*



### Economic Evaluation of Complex Interventions

- Comparator is a weaker version of integrated care
- Can we capture all the costs and impact of integrated care?
- Is a 1-year time horizon sufficient to observe impact?
- Are our outcomes sufficient?



Shiell et al 2008; Tsiachristas et al 2016.



Thank you!

Questions?

**TEAM MEMBERS**

- University of KwaZulu-Natal*  
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