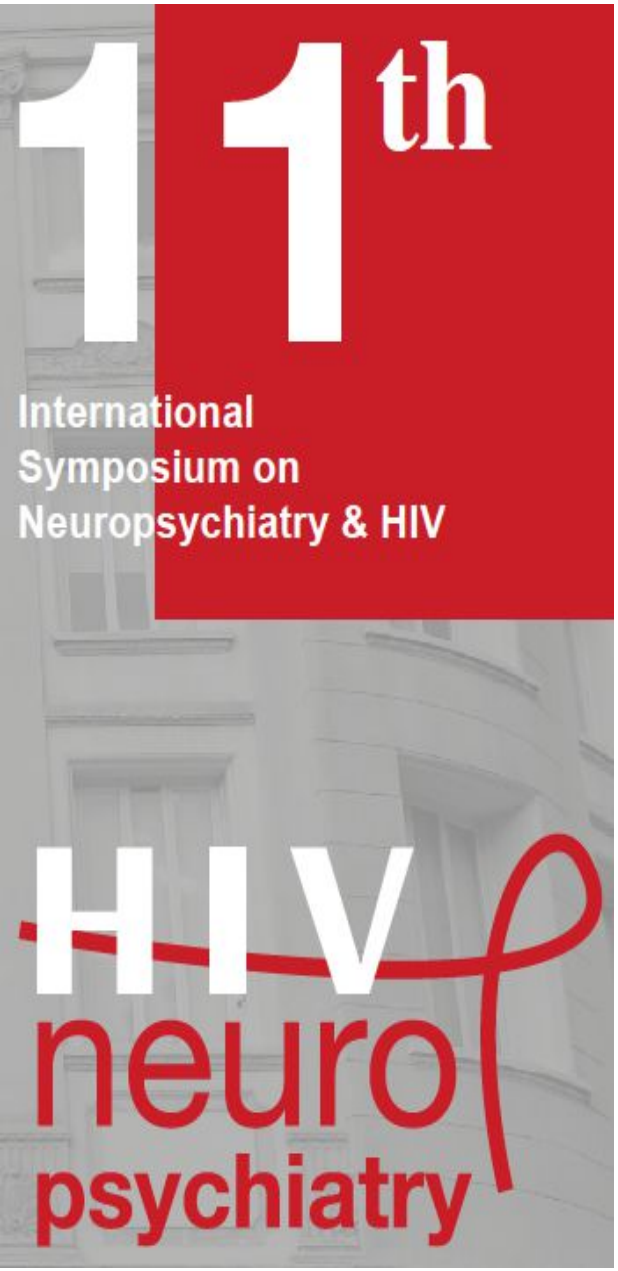


Cost-Effective Comprehensive Mental Health Care for People with HIV: A Critical Component To Ending the HIV Epidemic

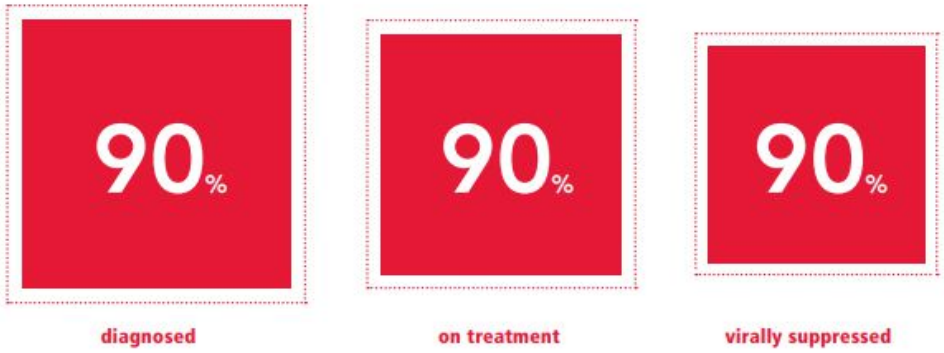
Milton L. Wainberg, MD
Professor of Clinical Psychiatry, Columbia University
Milton.Wainberg@nyspi.columbia.edu
No conflicts to report

11th International Symposium on Neuropsychiatry & HIV
BCN – May 19, 2018

COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

Why focus on mental health in the context of HIV prevention and care?

- Significant gaps along HIV care continuum
- Mental illness influences every step
- PLWHA have significantly higher rates of mental health disorders
- If we do not address mental health, unlikely to achieve “90-90-90” goals or end the HIV epidemic “EtE”
- The human right to health means that everyone has the right to the highest attainable standard of physical AND **mental health**



FAST-TRACK

ENDING THE AIDS EPIDEMIC BY 2030

Global Burden of Mental Illness

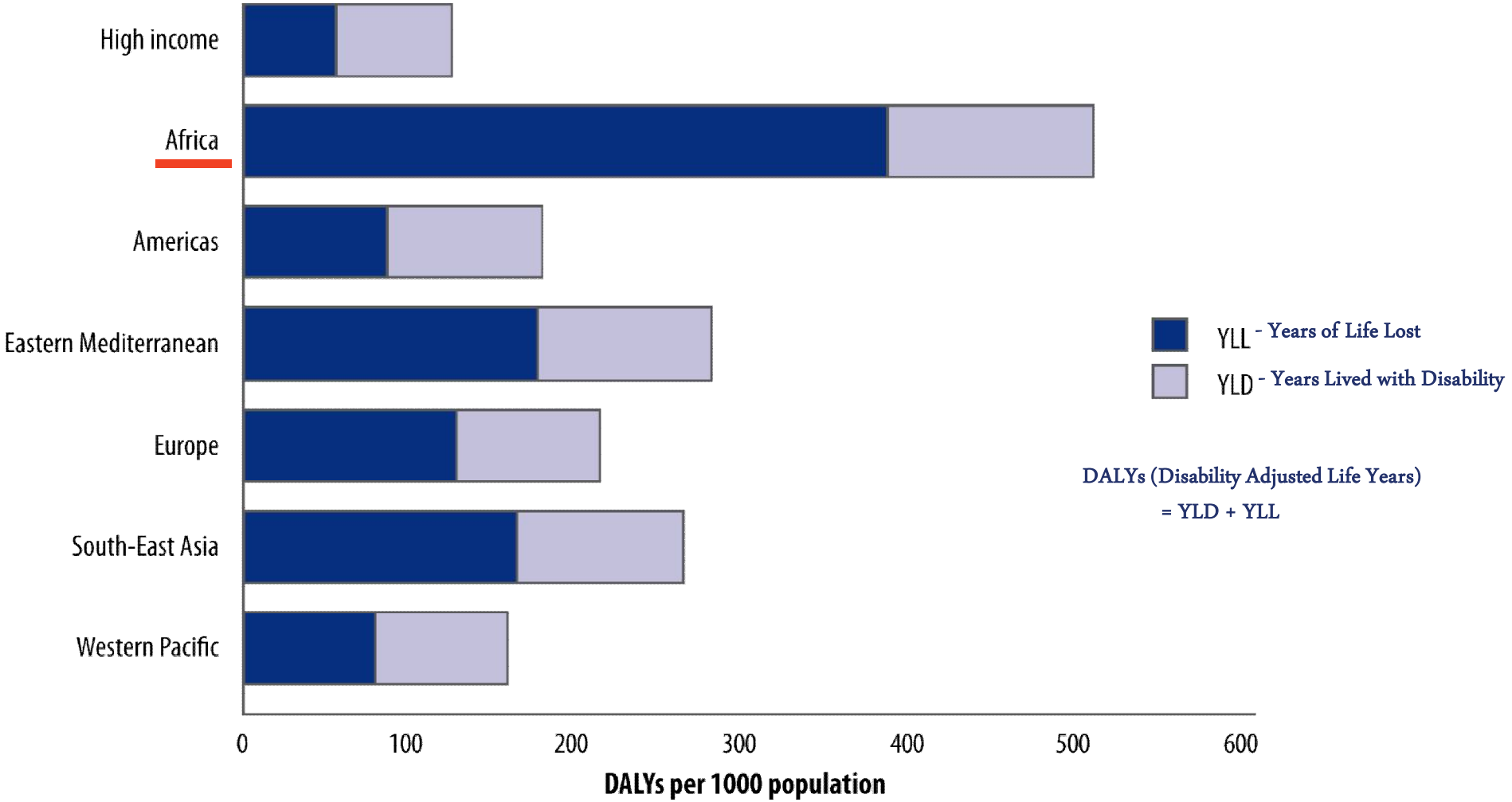
(independent of HIV)

DALY

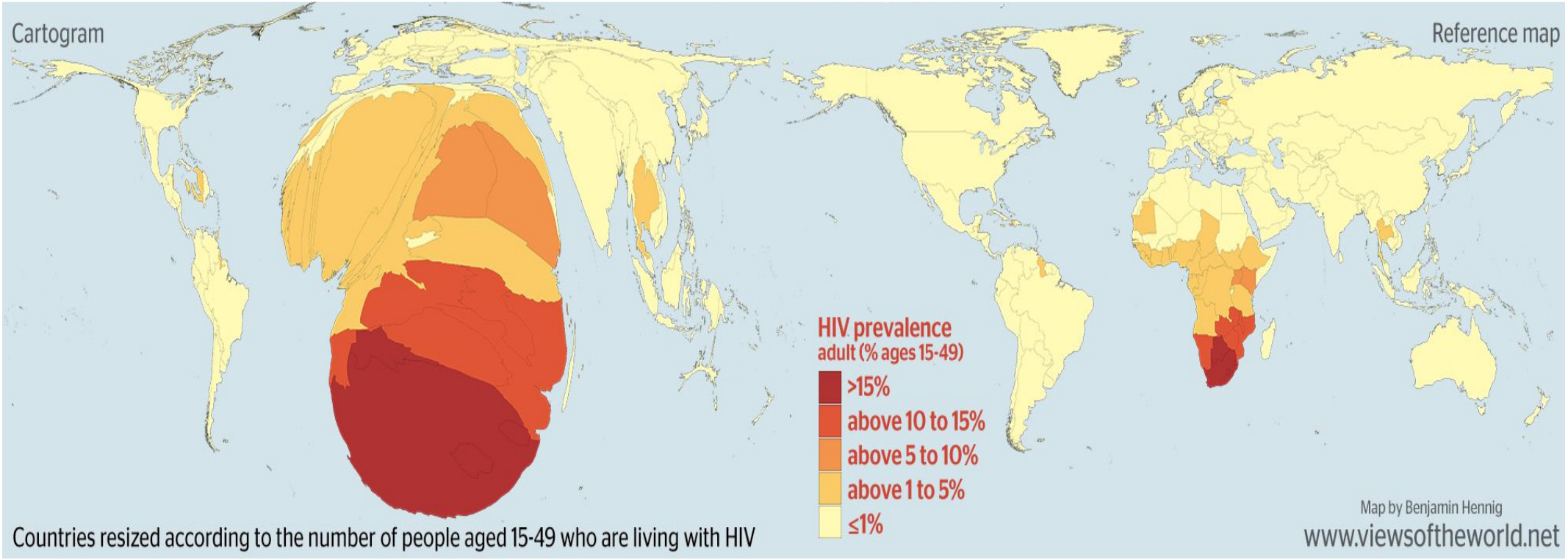
Disability Adjusted Life Years is a measure of overall disease burden, expressed as the cumulative number of years lost due to ill-health, disability or early death

BURDEN OF DISEASE

YLL, YLD and DALYs by region



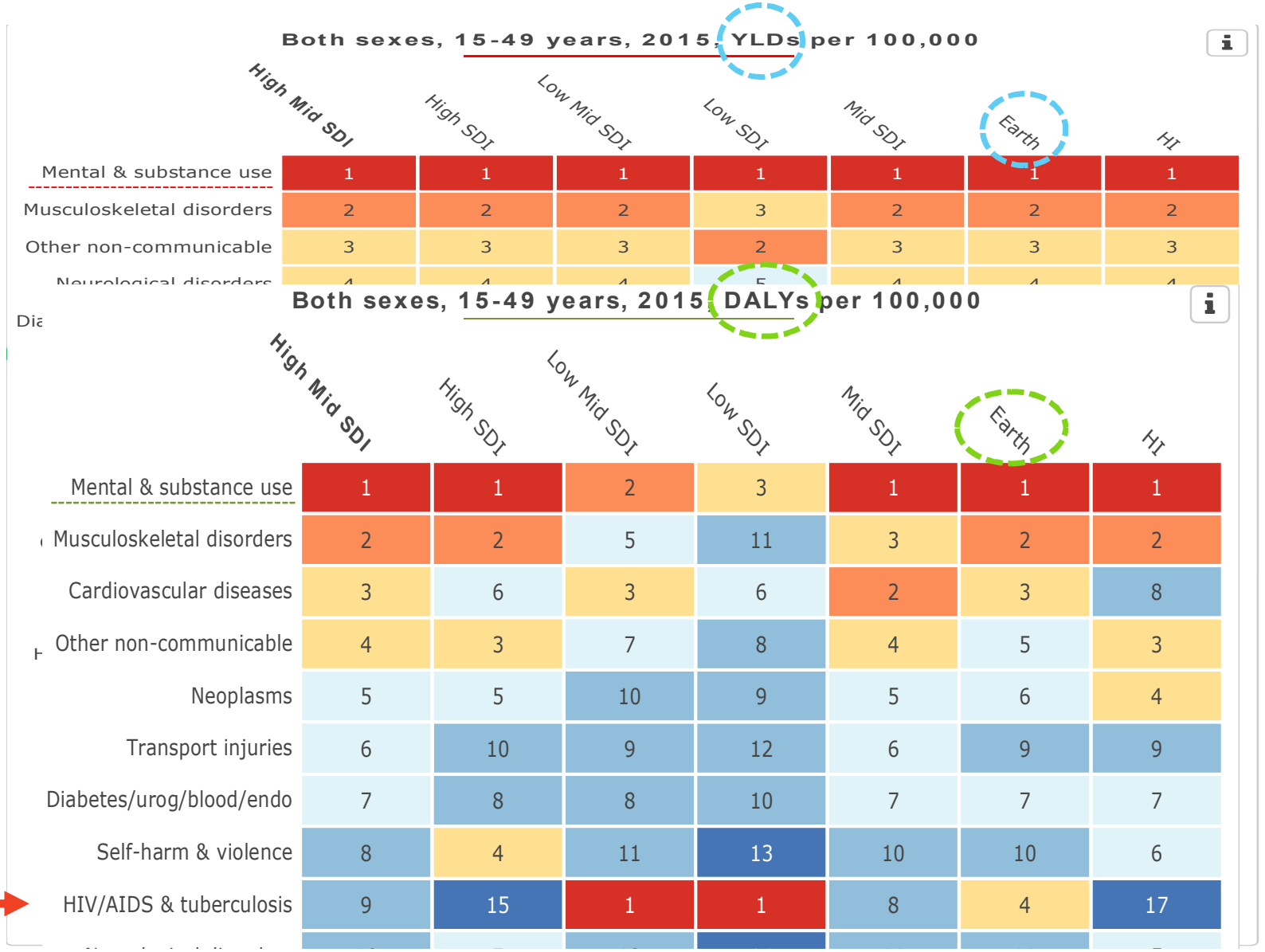
HIV PREVALENCE 2016



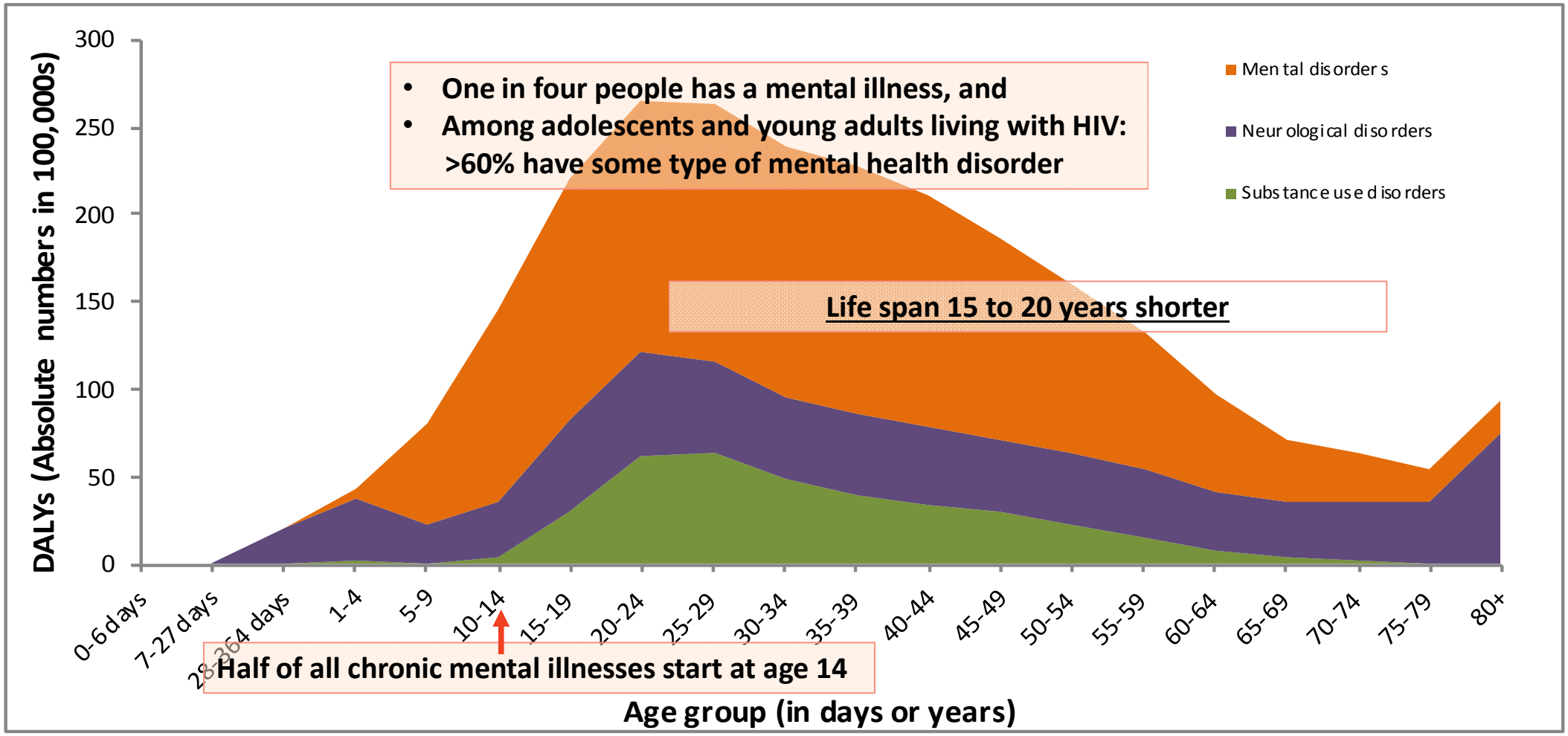
Burden By Region

2016

Source: Institute for Health Metrics and Evaluation (IHME)

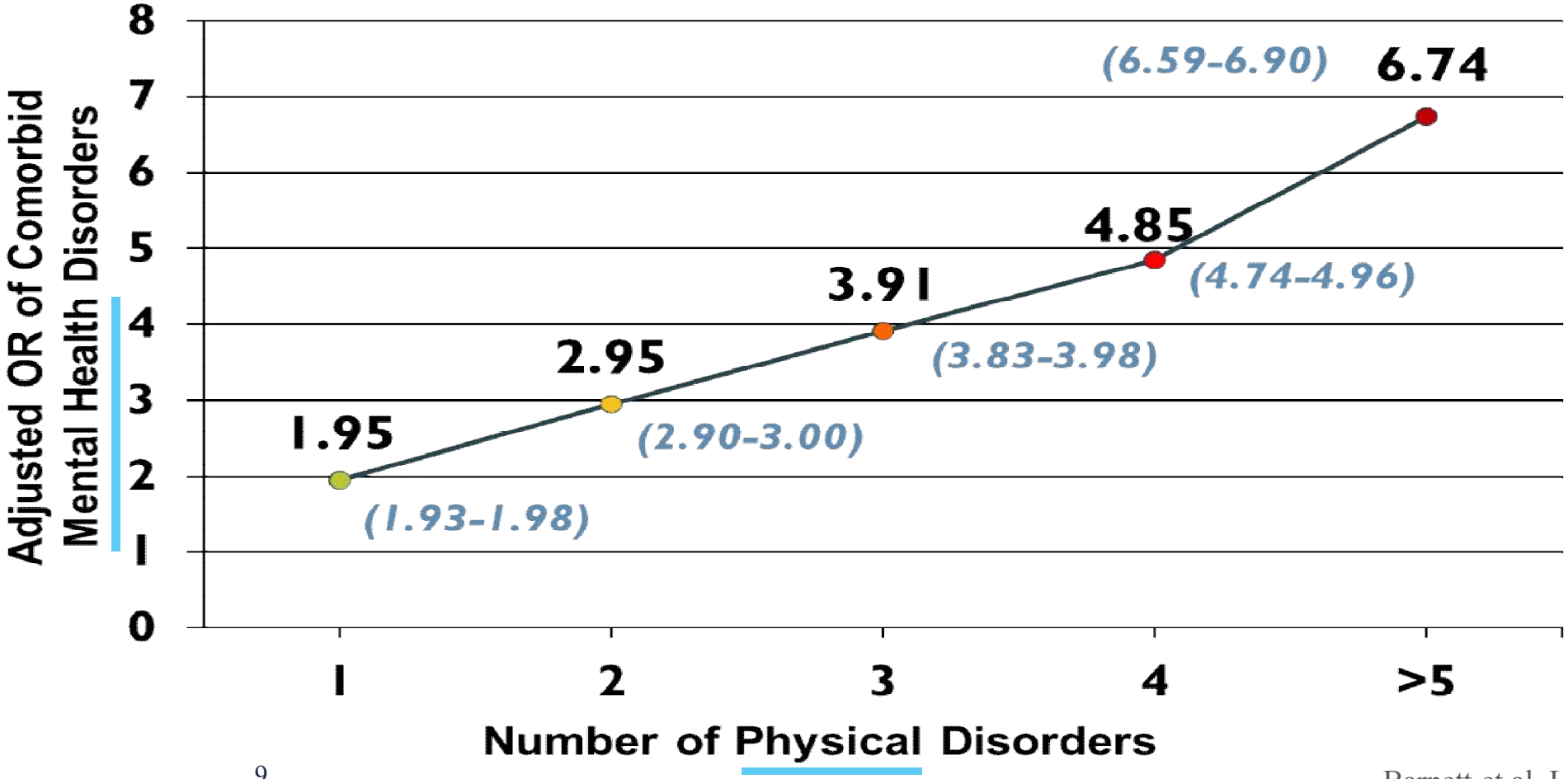


Global burden of mental, neurological, and substance use disorders, by age



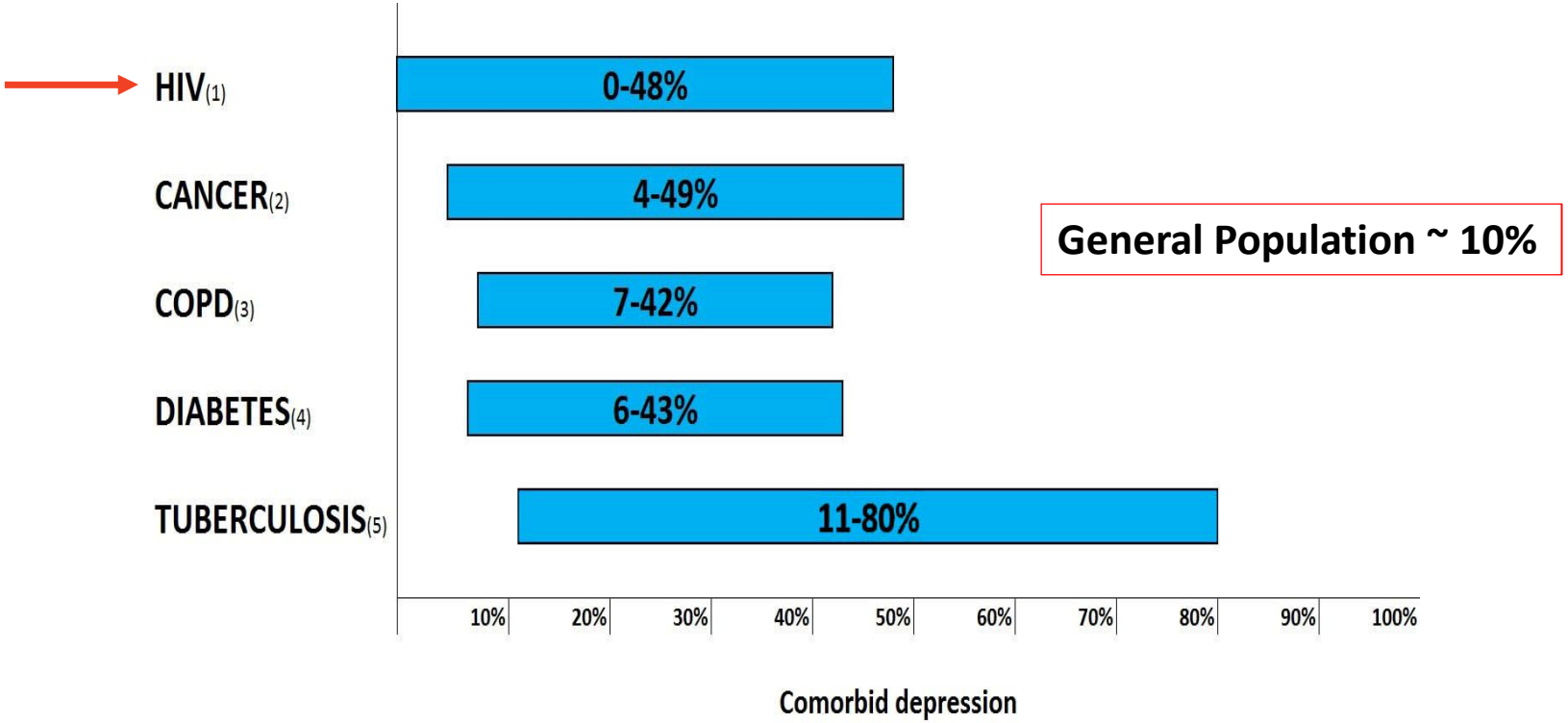
Source: Whiteford et al, Lancet, 2016

As Physical Health Worsens the Odds of Having a Mental Disorder Increase



Barnett et al, Lancet 2012

Prevalence of major depression in people with physical illnesses



General Population ~ 10%

(1) Rabkin (2008) *Curr HIV/AIDS Rep* 5(4):163-71.
(2) Walker et al (2013) *Ann Oncol* 24(4):895-900
(3) COPD – Chronic Obstructive Pulmonary Disease; van Ede et al (1999) *Thorax* 54(8):688-92
(4) Roy & Lloyd (2012) *J Affect Disord.* 142 Suppl:S8-21
(5) Sweetland et al (2014) *World Psychiatry* 13(3):325-326

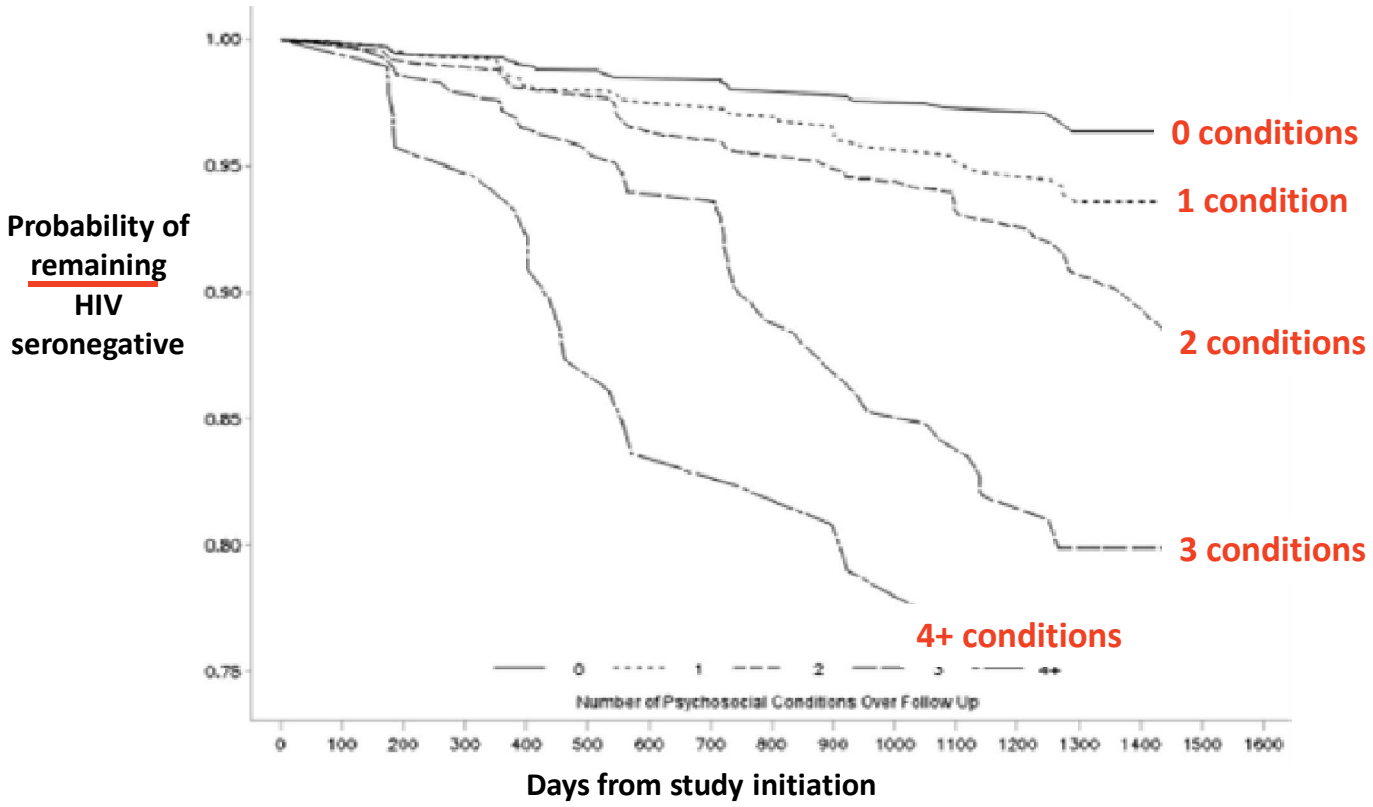
Mental Health and HIV Prevention

Mental illness is a risk factor for HIV acquisition

- Mental illness contributes 4 to 10X increased risk for acquiring HIV
  - HIV prevalence in US people with severe mental illness: 2% - 6% vs ~0.5% in the general population
  - Mood disorders + alcohol/substance use + other conditions contribute even higher risk

Source: CDC, 2016; Hughes et al , Lancet Psychiatry, 2016; Hobkirk et al, Current HIV/AIDS Report 2015

Multiple co-occurring psychiatric conditions magnify HIV risk



- 4295 MSM from 6 US cities
- Co-occurring conditions
  - Depressive symptoms
  - Heavy alcohol use
  - Stimulant use
  - Poly drug use
  - Childhood sexual abuse

Probability of staying HIV negative goes down as number of psychiatric conditions increases

Source: Mimiaga et al. JAIDS, 2015

Depression influence on risk behaviors and PrEP adherence

Men who have sex with men (MSM) and transgender women (TGW) at risk for HIV infection in iPrEx and iPrEx OLE

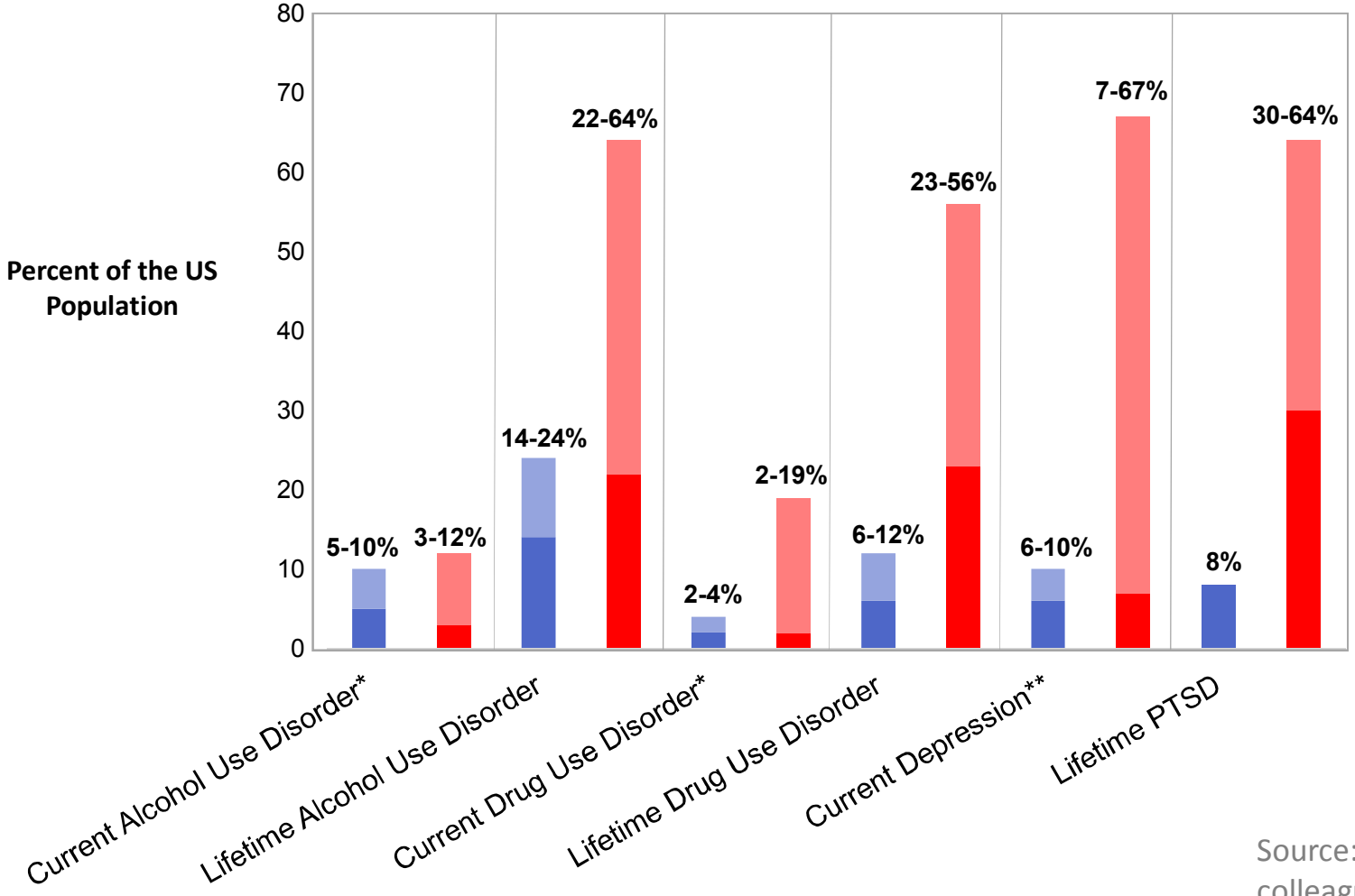
Conclusions:

- Higher depression scores were associated with:
  - lower drug-detection
  - condomless receptive anal intercourse
- Thus, depression screening/treatment may key to maximizing PrEP efficacy

Source: Mehrotra et al, AIDS and Behavior, 2016; Defechereux et al. AIDS and Behavior 2016

People Living with HIV/AIDS

Rates of selected psychiatric disorders: United States general population vs PLWHA



In South Africa, 26 to 38% of PLWHA have a mental disorder vs. 13% in the general population

Jonsson et al., *S Afr J HIV Med 2013; 14(4):155-165*

Even higher rates for adolescents and young adults

Source: Extensive literature review by colleagues in the Northeast/Caribbean AETC

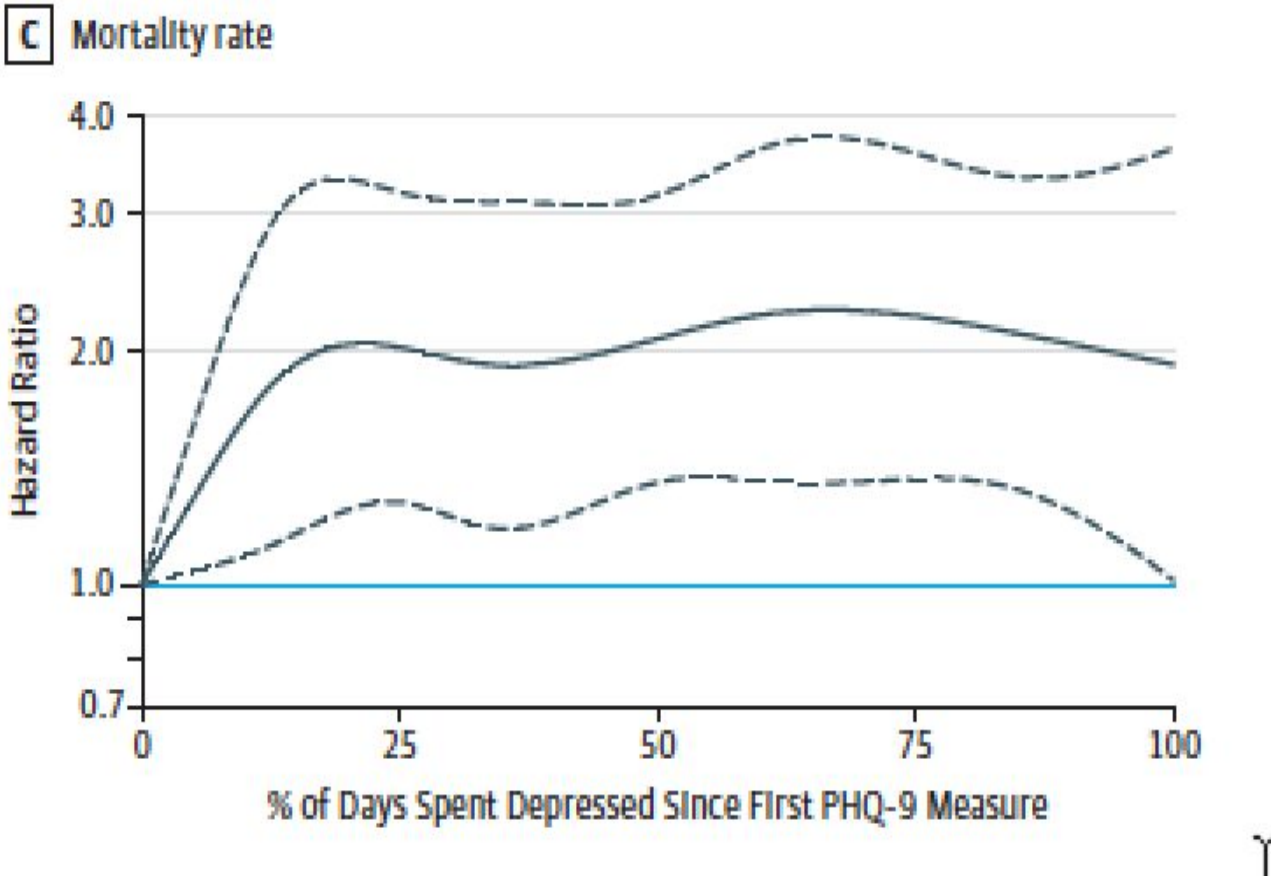
Depression and mortality among PLWHA

- 1487 women followed for 24 months in Tanzania:
  - **mortality was 6.6%** among women with depressive symptoms **vs 3.7%** without
- 765 HIV+ women at 4 US sites followed for up to 7 years,
  - women with chronic depressive symptoms were **twice as likely to die** as women with limited or no depressive symptoms, even after adjusting for predictors of mortality (CD4 count, ART duration, age)
- In the US WIHS prospective cohort (study N=858),
  - chronic depressive symptoms was associated **>3 times the hazard of mortality** (women on ART) and >7 times the hazard of mortality (women not on ART) compared to women on ART with no depression

Sudfield et al., 2017, AIDS; Ickovics JR et al, 2001, JAMA; Todd et al., 2016, American Journal of Epidemiology;

Longer depression yields worse HIV care outcomes

- **Dose-response relationship between depression length and HIV outcomes**
- 5927 US individuals living with HIV
- Each 25% ↑ in percentage of days with depression
  - **8% ↑ risk of missing appointment**
  - **5% ↑ risk of detectable VL**
  - **19% ↑ risk of mortality**



Source: Pence et al, JAMA Psychiatry, Feb 21 2018

Depression and ART adherence

J Acquir Immune Defic Syndr • Volume 58, Number 2, October 1, 2011

CRITICAL REVIEW: CLINICAL SCIENCE

Depression and HIV/AIDS Treatment Nonadherence: A Review and Meta-analysis

Jeffrey S. Gonzalez, PhD,†‡ Abigail W. Batchelder, MPH, MA,* Christina Psaros, PhD,‡§ and Steven A. Safren, PhD‡§*

- 95 independent samples
- Depression significantly associated with non-adherence ($p < .001$; $r = 0.19$; CI: 0.14 - 0.25)

Curr HIV/AIDS Rep (2014) 11:291–307
DOI 10.1007/s11904-014-0220-1

CO-INFECTIONS AND COMORBIDITY (CM WYATT AND K SIGEL, SECTION EDITORS)

Depression and Adherence to Antiretroviral Therapy in Low-, Middle- and High-Income Countries: A Systematic Review and Meta-Analysis

Olalekan A. Uthman · Jessica F. Magidson · Steven A. Safren · Jean B. Nachega

- 111 independent samples
- Likelihood of achieving good (80%) adherence 42% lower among those with depressive symptoms than those without
- Consistent across country's income group, study design, and adherence rates

RESEARCH ARTICLE

Patient-Reported Barriers to Adherence to Antiretroviral Therapy: A Systematic Review and Meta-Analysis

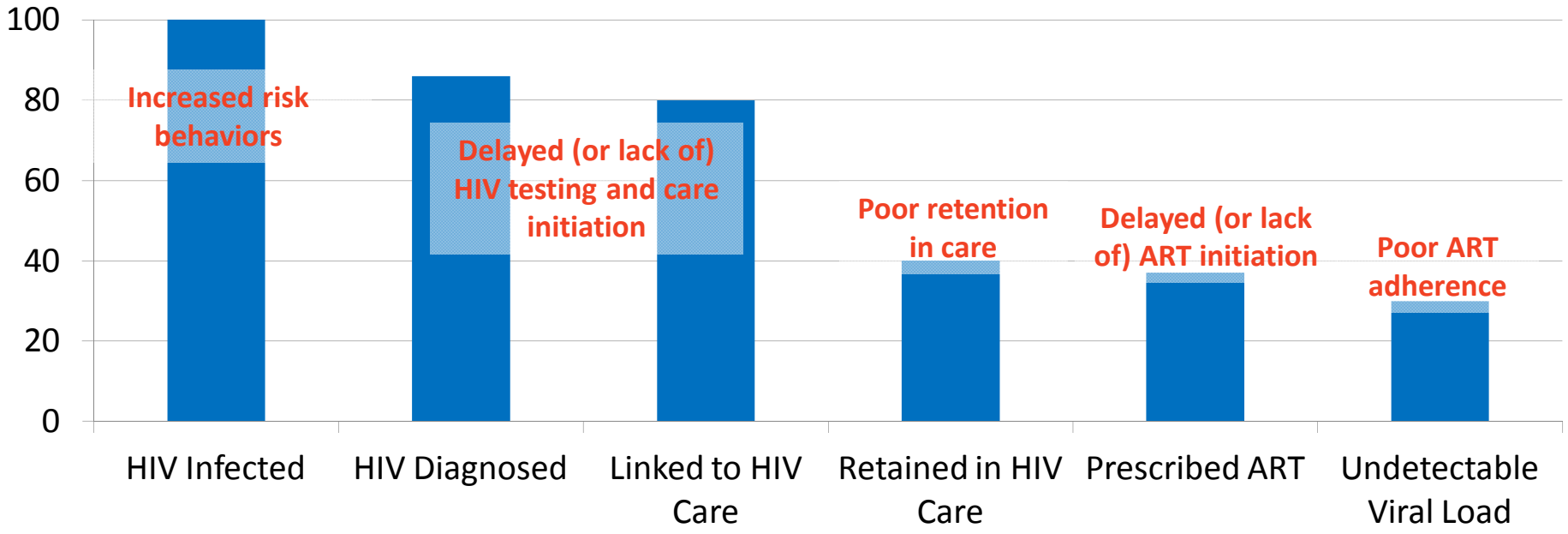
Zara Shubber[1], Edward J. Mills[2], Jean B. Nachega[3,4,5], Rachel Vreeman[6,7], Marcelo Freitas[8], Peter Bock[9], Sabin Nsanzimana[10,11], Martina Penazzato[12], Tsitsi Appolo[13], Meg Doherty[12], Nathan Ford[12,14]*

- 125 Studies
- 19,016 patients
- 38 countries

Depression – a barrier for 15% adults, 25% adolescents

The behavioral pathway is clear

Mental health impairment contributes to:



- All lead to non-optimal HIV treatment and thus, poorer health outcomes (for self and for others)
- Whatever the pathway, it is clear that we need to address mental health problems if we want to improve health outcomes along the HIV prevention and HIV care continua

Source: Bemelmans M et al, J Int AIDS Soc, 2016; Gonzalez JS et al, JAIDS 2011; Uthman et al, Curr HIV/AIDS Rep, 2014; Mayston et al, AIDS, 2012; Krumme et al, J Epidemiol Community Health, 2014; Musisi et al, Int J STD AIDS, 2014; Antelman et al, JAIDS, 2007; Remien et al, AIDS and Behavior, 2007

Screening and Treatment

Mental Health Screening Tools

General Health Questionnaire (GHQ-5/12)

Patient health questionnaire (PHQ-9)

Center for Epidemiological Studies depression scale (CES-D)

Generalized anxiety disorder scale (GADS)

Edinburgh postnatal depression scale (EPDS)

Hospital anxiety and depression scale (HADS)

Children's depression inventory (CDI)

Hamilton rating scale for depression (HAM-D)

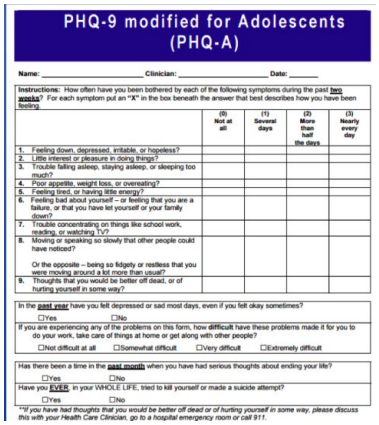
Harvard trauma questionnaire (HTQ)

Substance Abuse and Mental Illness Symptoms Screener (SAMISS)

Beck depression inventory (BDI)

Kessler psychological distress scale (K10)

Self-report questionnaire (SQR-20)


PHQ-9 modified for Adolescents (PHQ-A)

Name: _____ Clinician: _____ Date: _____

Instructions: How often have you been bothered by each of the following symptoms during the past two weeks? For each symptom put an "X" in the box beneath the answer that best describes how you have been feeling.

	(0) Not at all	(1) Several days	(2) More than half the days	(3) Nearly every day
1. Feeling down, depressed, irritable, or hopeless?				
2. Little interest or pleasure in doing things?				
3. Trouble falling asleep, staying asleep, or sleeping too much?				
4. Poor appetite, weight loss, or overeating?				
5. Feeling tired, or having little energy?				
6. Feeling bad about yourself – or feeling that you are a failure, or that you have let yourself or your family down?				
7. Trouble concentrating on things like school work, reading, or watching TV?				
8. Moving or speaking so slowly that other people could have noticed? Or the opposite – being so fidgety or restless that you were moving around a lot more than usual?				
9. Thoughts that you would be better off dead, or of hurting yourself in some way?				

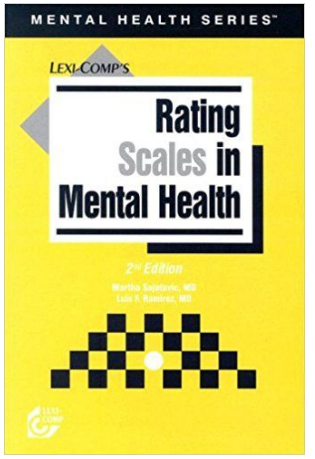
In the past year have you felt depressed or sad most days, even if you felt okay sometimes?
☐Yes ☐No

If you are experiencing any of the problems on this form, how difficult have these problems made it for you to do your work, take care of things at home or get along with other people?
☐Not difficult at all ☐Somewhat difficult ☐Very difficult ☐Extremely difficult

Has there been a time in the past month when you have had serious thoughts about ending your life?
☐Yes ☐No

Have you EVER, in your WHOLE LIFE, tried to kill yourself or made a suicide attempt?
☐Yes ☐No

*If you have had thoughts that you would be better off dead or of hurting yourself in some way, please discuss this with your Health Care Clinician, go to a hospital emergency room or call 911.



Source: Ali, PLoS One, 2016, "Validated screening tools for common mental health disorders in low and middle income countries: a systematic review

Mental health treatments

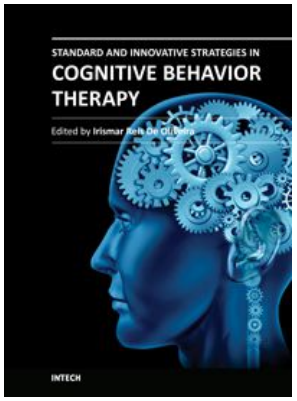
Psychopharmacological (Psychotropic medications)

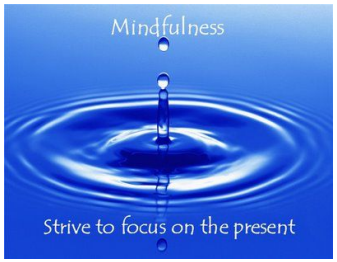
Psychotherapies

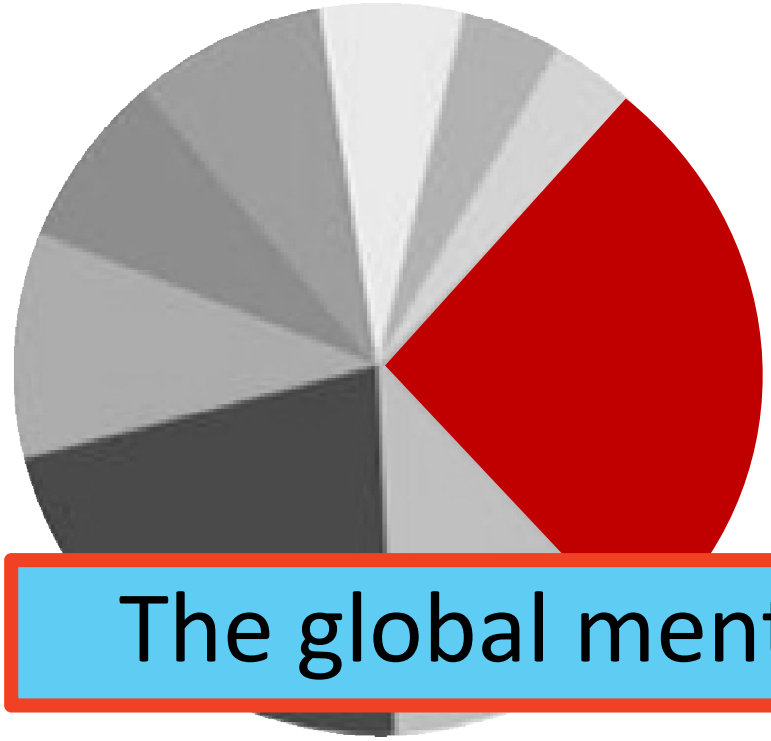
- Psychodynamic
- Cognitive-behavioral therapy (CBT)
- Motivational enhancing therapy (MI)
- Interpersonal therapy (IPT)
- Stress-reduction / Mindfulness interventions
- Harm-reduction and Abstinence treatments

Manualized and tailored across languages and cultures – thus, capable of being scaled up

Technology as part of scale-up







The global mental health treatment gap

75% of those with mental disorders in Low- and Middle-Income Countries do not receive care

In some settings the available care

minimum acceptable standards

STIGMA

1:2 Million

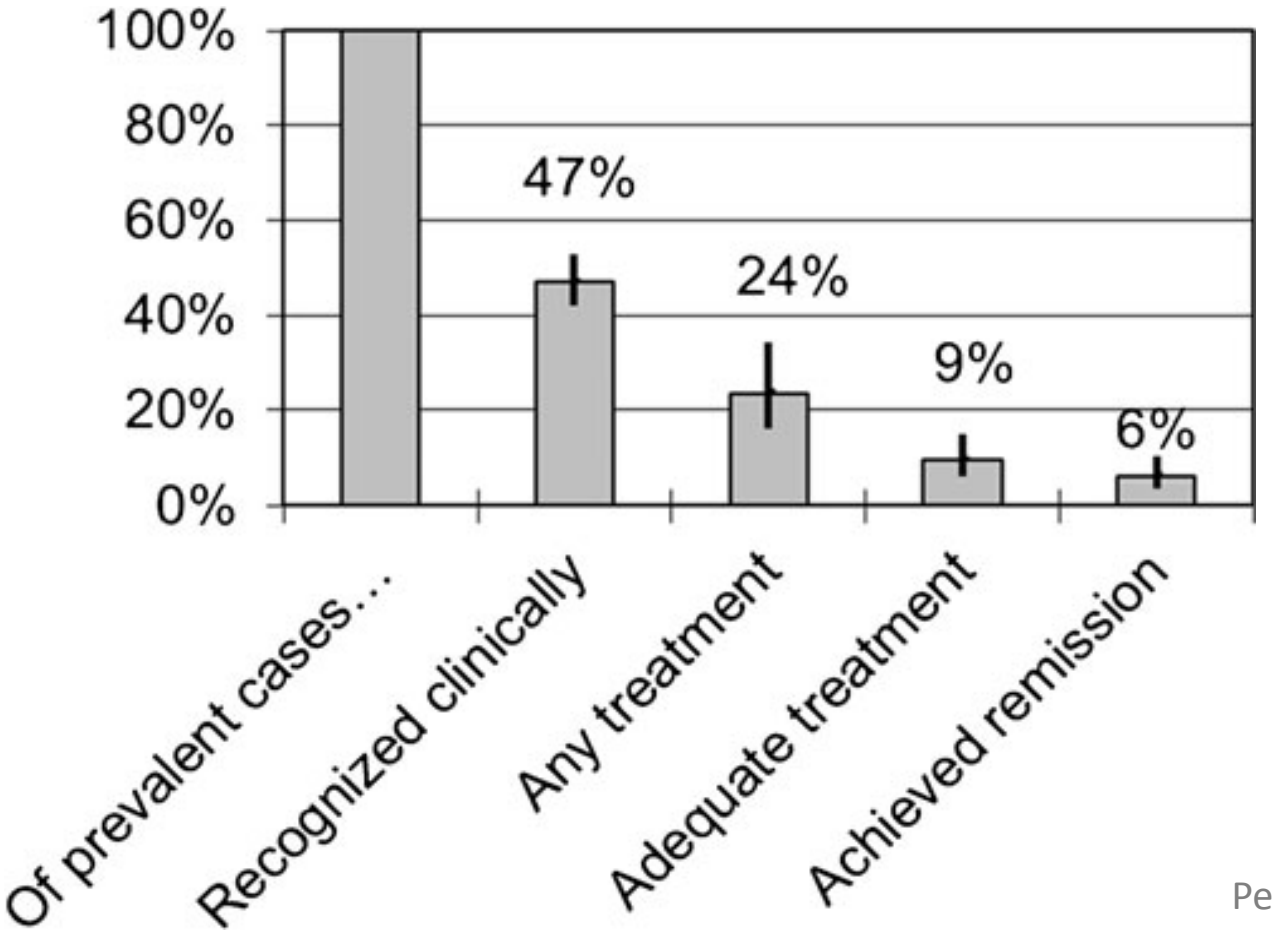
IDEAL: 45:100,000

Switzerland 39; USA 13;
Mozambique 0.052

Prince, *Lancet, 2007;* Demyttenaere K et al, 2004; Wainberg ML et al, 2017

*

The depression treatment cascade in the U.S.



As many as 2 in 3 youth with depression are not identified by their primary care clinicians and fail to receive any kind of care*

Pence et al, Psychiatry 2012; *Zuckerbrot et al, 2018

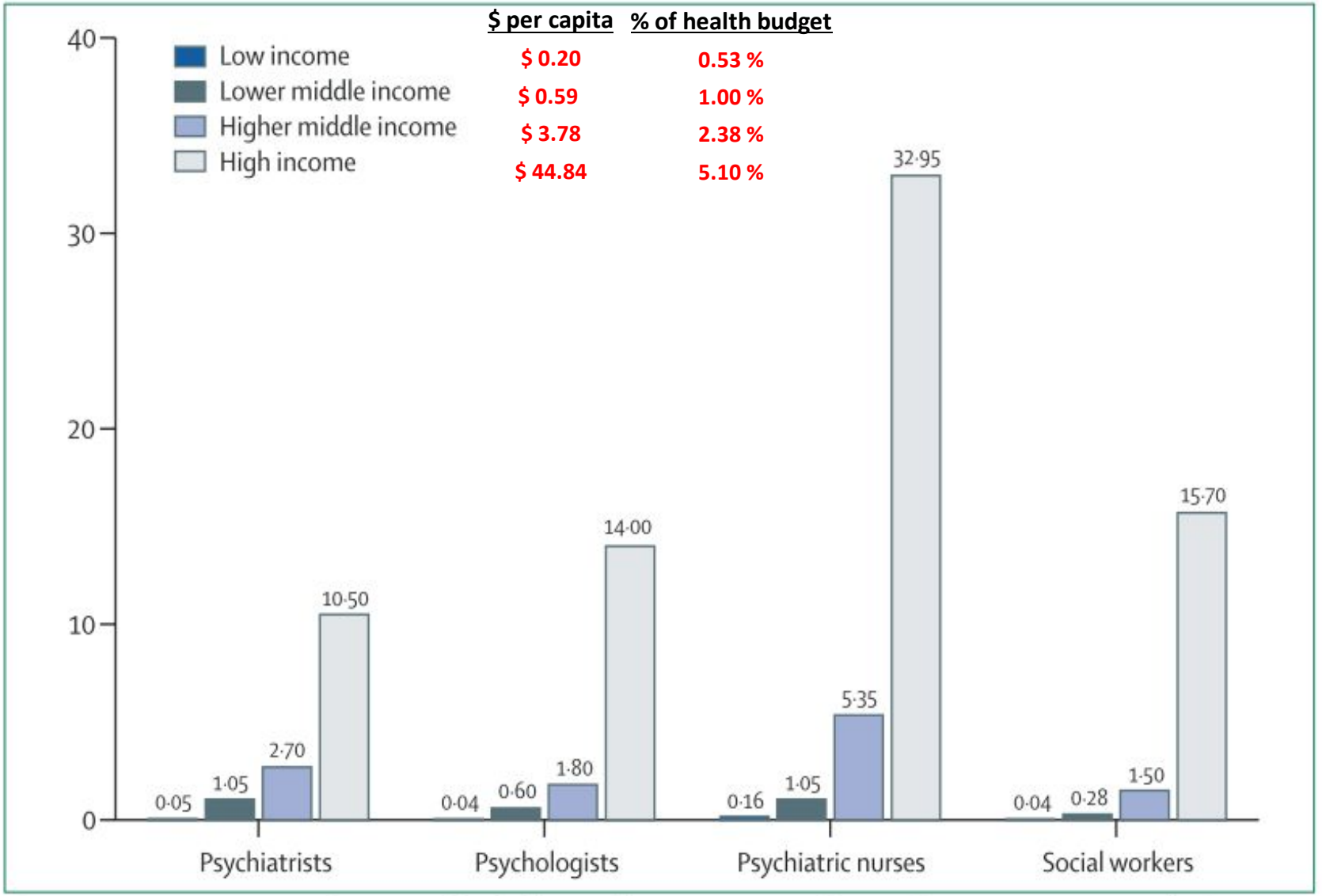
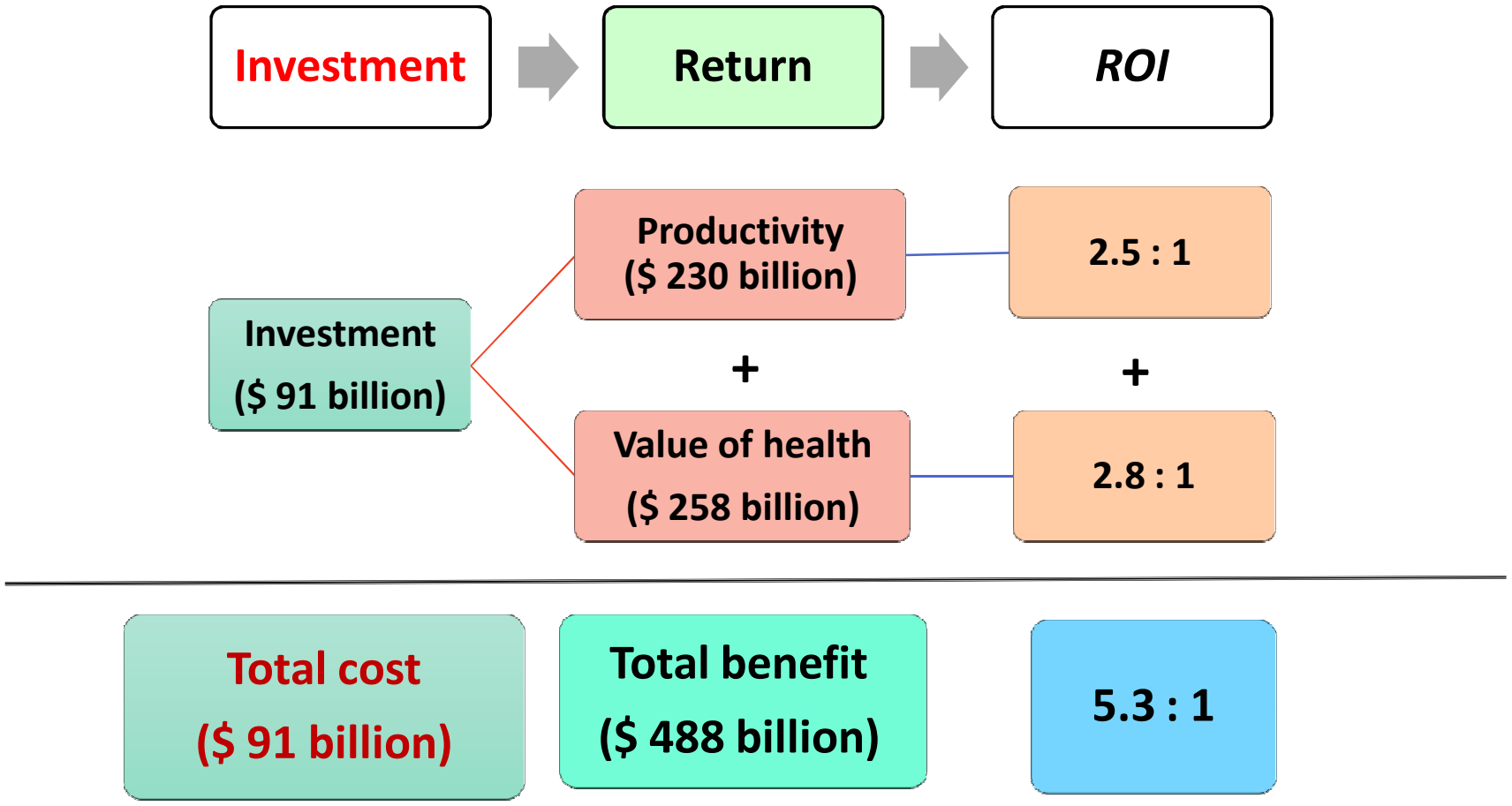


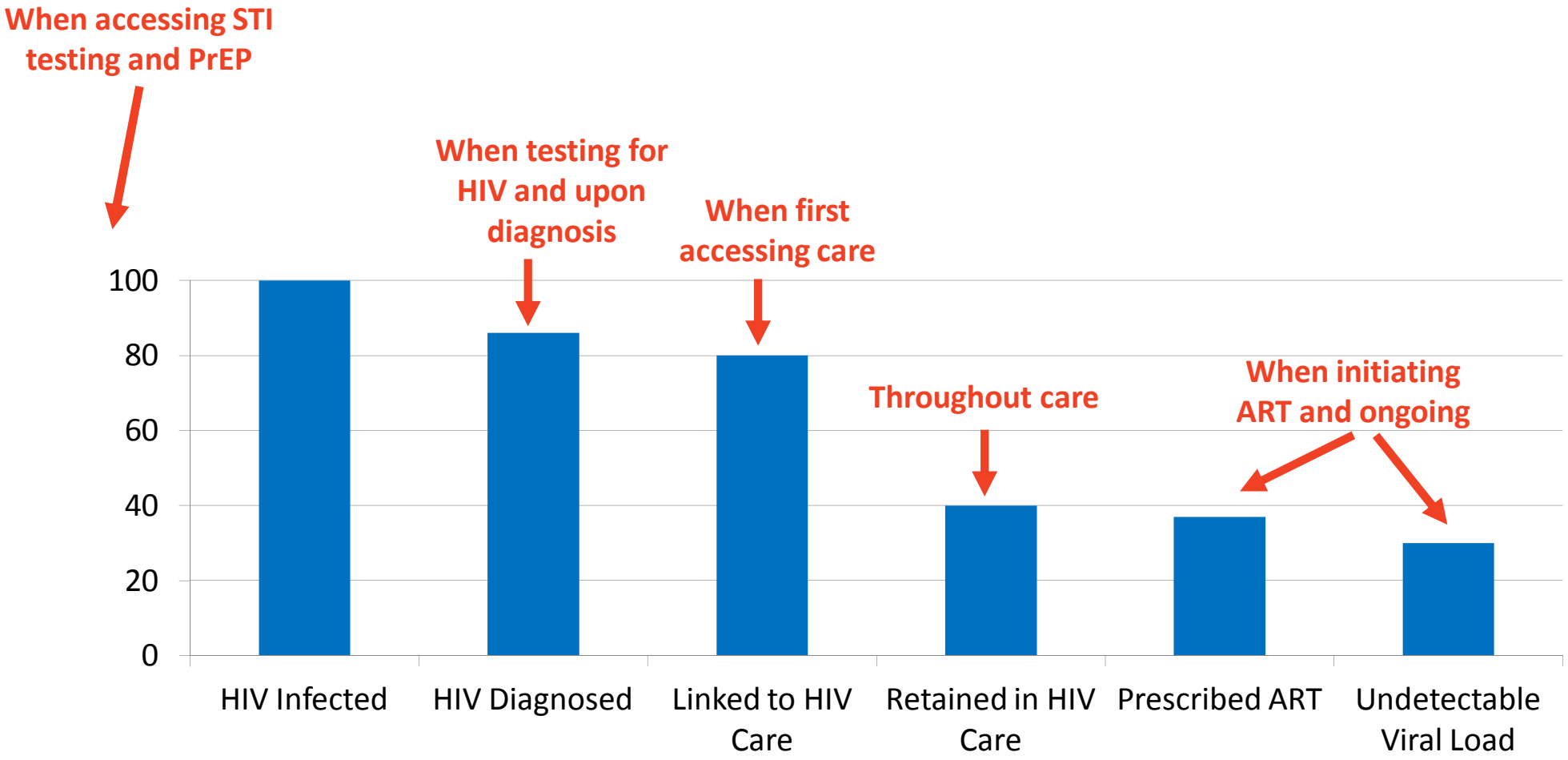
Figure 2: Human resources for mental health in each income group of countries per 100 000 population

Return on Investment (ROI): Depression treatment



Chisholm et al Lancet Psychiatry 2016

Opportunities for intervention: Mental health screening and intervening



Research to Practice Gap: Adoption issues

We are very good at producing gems:
Evidence-Based Interventions (EBI)
through efficacy and effectiveness trials

Research to Practice Gap: Adoption & Reach

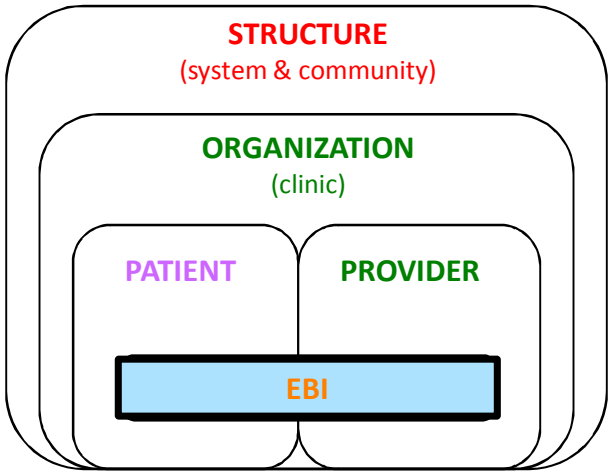
Some providers quickly adopt EBI, others take time (lagers), some never do.
Some adopt many, some 1 or 2.
And then, is fidelity to the EBI appropriate?

Which ones are the real gems (fidelity)?

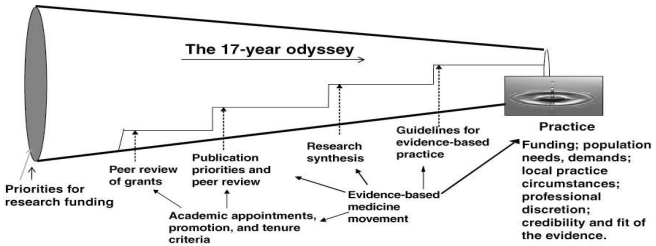
And, of course, we need to "engage" our patients and develop a long-term relationship… (access, reach, retention)

Not always very successfully…

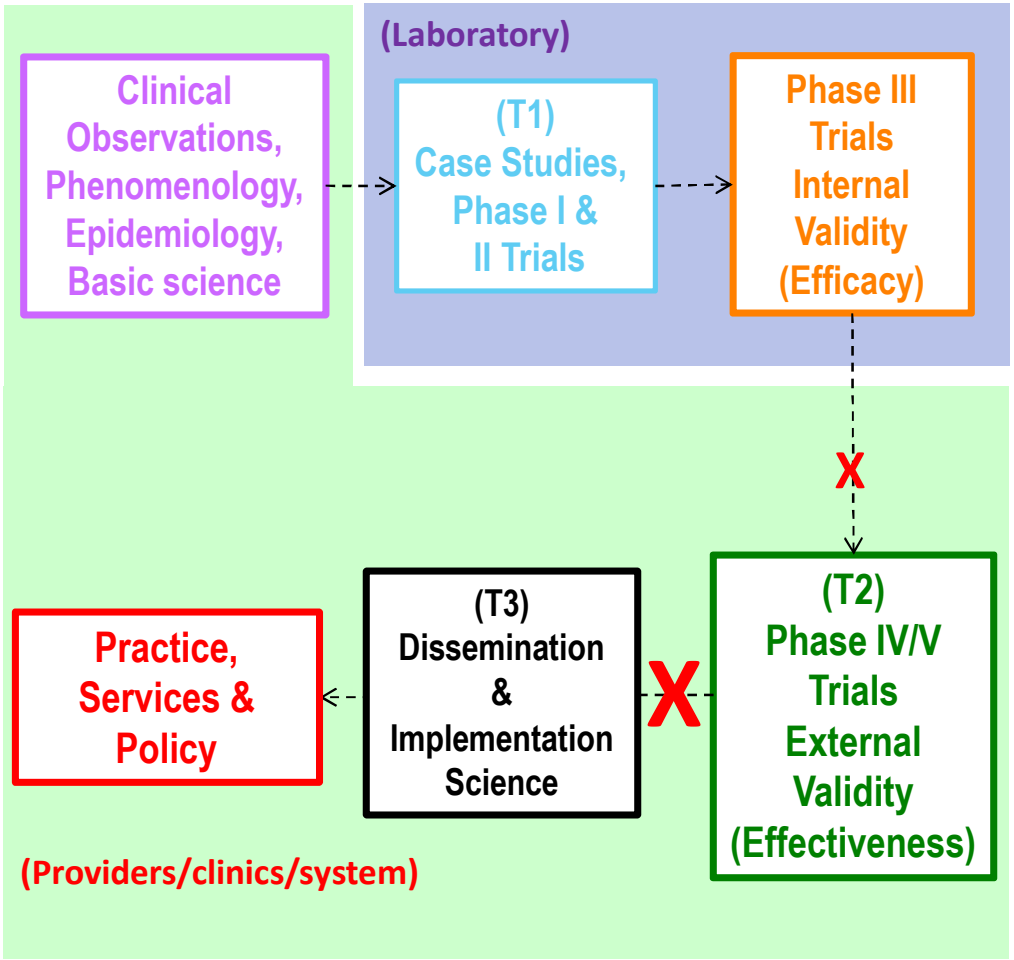
The answer: Implementation Science



Adapted from Chaudoir et al, 2013



Green LW, et al. 2009.
Annu. Rev. Public Health. 30:151–74

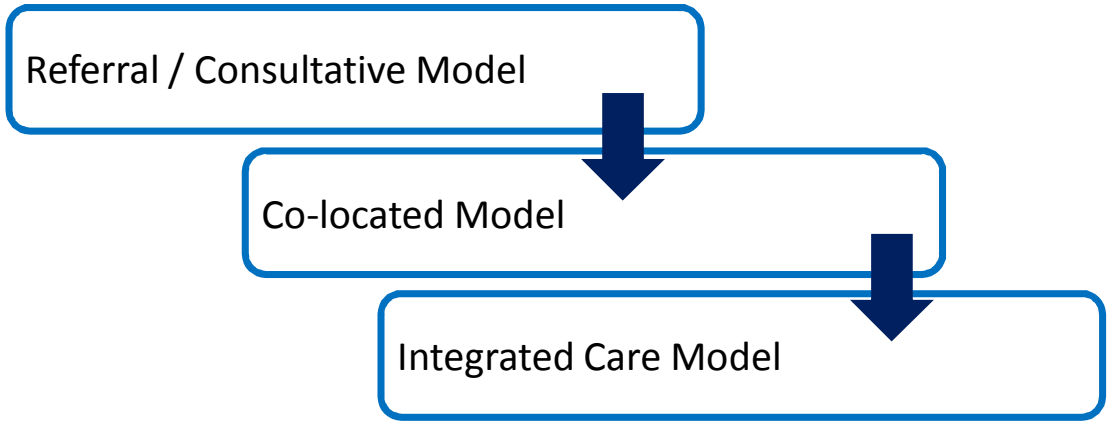


Addressing the human resources challenge

Task Shifting / Sharing

- Reassignment of specific MH assessment and treatment procedures with abbreviated training and ongoing supervision
- Lay personnel (e.g., teachers, community workers) can successfully recognize mental disorders
- Trained and supervised non-specialists can effectively deliver psychopharmacological and psychological treatments

Integrated Care



Stepped-care model

- Individual needs are matched to the appropriate level of care
- More intensive intervention is only used if required.

Source: van Ginneken N et al., Cochrane Database Syst Rev. 2013; WHO, 2007; Verdeli H et al, 2008; Rojas et al, Lancet, 2007; Bass et al, BJP, 2006; Patel et al, Lancet, 2007; Araya et al, Lancet, 2003; Patel and Thornicroft, PLoS Med, 2009; GMH-Group, Lancet, 2007; Katon, W., et al. Arch Gen Psychiatry, 1999; Zatzick, D. et al. Gen Hosp Psychiatry, 2011; Rojas et al. Lancet 2007;

What are our strategies to decrease the global mental treatment and research gap?

Mental Health Implementation Research Capacity Building

+

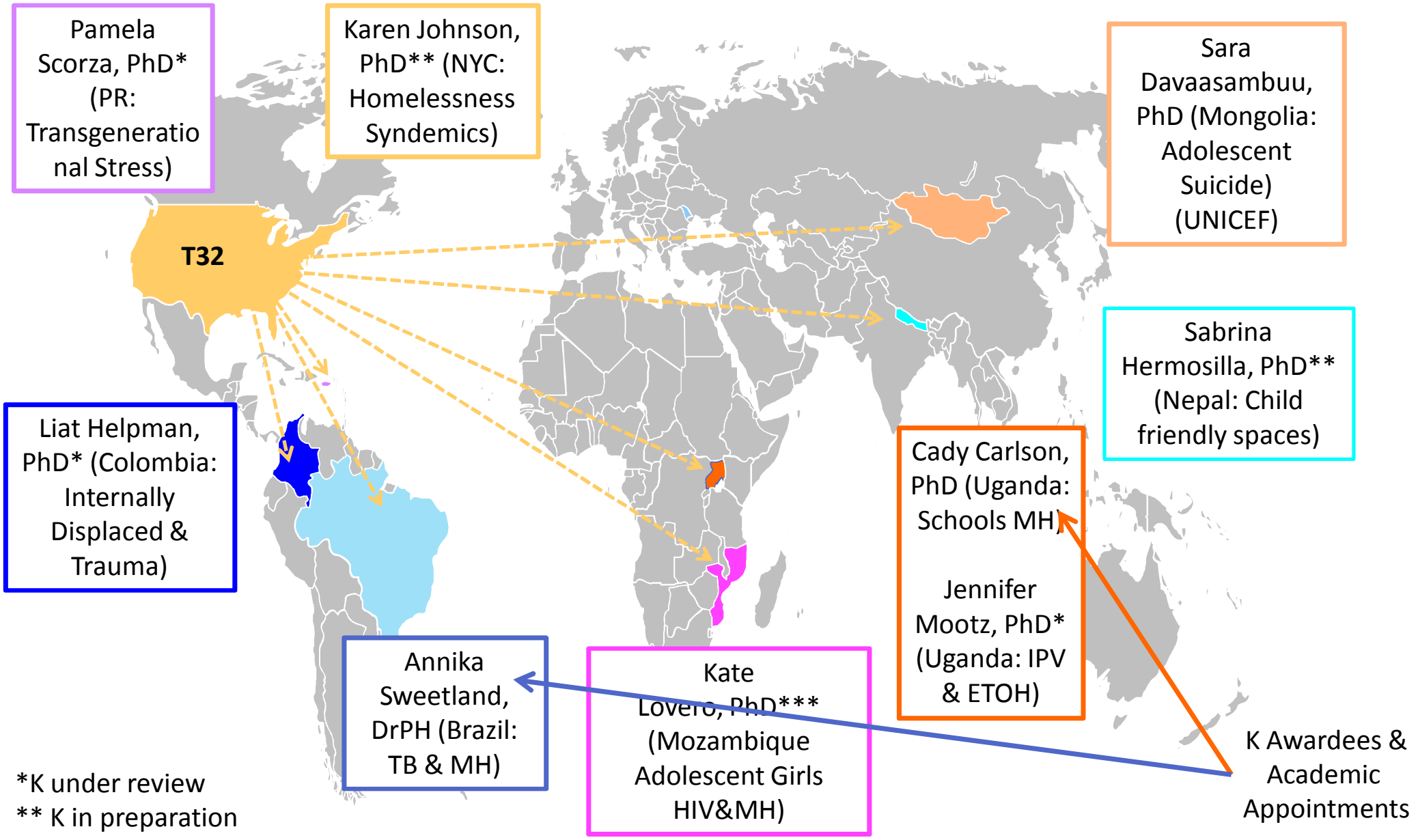
Implementation Research

Our Strategy

1) Train US new investigators to help build a mental health implementation science team NIMH – T32 MH096724 – Columbia University

Global Mental Health Implementation Science Fellowship

(Wainberg & Oquendo; 2012-2017; Wainberg & Arbuckle; 2017-2022)



*K under review
** K in preparation

Our Strategy

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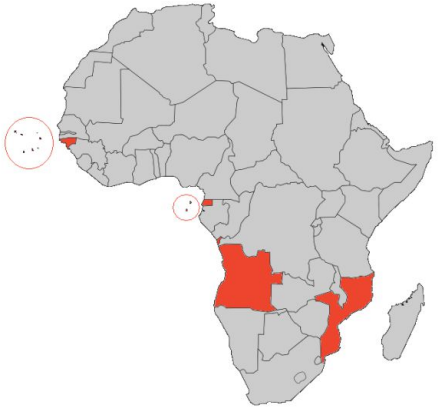
Global Mental Health Implementation Science Fellowship
(Wainberg & Oquendo; 2012-2017; Wainberg & Arbuckle; 2017-2022)

2) Develop strong global partnerships
Columbia, Vanderbilt, U. of Pennsylvania, **UNIFESP**, PALOP*, and **Mozambique Ministry of Health** - D43 TW009675
(Wainberg & Oquendo; 2014-2019)
NIMH/Fogarty Center: **PALOP Mental Health Implementation Research Training**
We are training 11 fellows
+ *an NIMH Supplement – they are getting PhDs*



Angola, Cape Verde, Guinea-Bissau, Mozambique, São Tomé and Principe, and Equatorial Guinea.

*PALOP – **Portuguese-speaking African countries –** *Países Africanos de Língua Oficial Portuguesa*

Expand/Replicate the Global Strategy

PRIDE sSA - *P*artnerships in *R*esearch to *I*mplement and *D*isseminate Sustainable and Scalable *E*vidence Based Practices in sub-Saharan Africa

U19MH113203 – 2017-2022; Wainberg & Oquendo

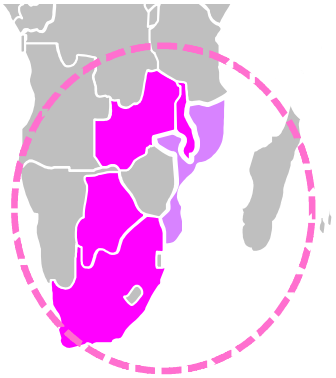
Capacity Building Component:

Botswana, Malawi, Mozambique,

South Africa & Zambia

Research Component:

Mozambique



U19

IN EACH COUNTRY: MINISTRY OF HEALTH, UNIVERSITIES, NGOS

Mozambique

29 million inhabitants - 70% Rural – 7th poorest country

13-19% HIV

13 Psychiatrists - 120 Psychologists

250 Psychiatric Technicians (Task-Shifting)

(Global Mental Health Treatment Gap)

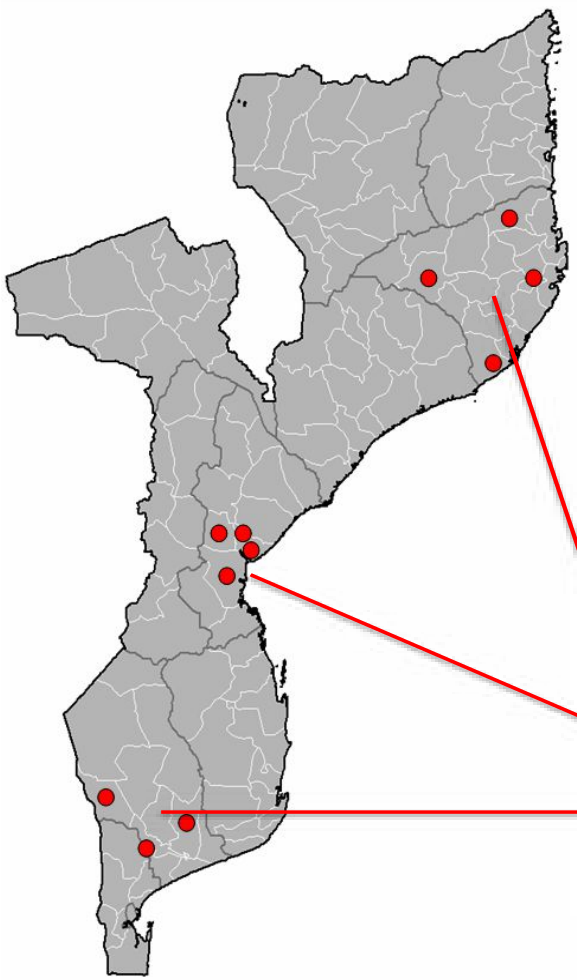
Pathway 1 – Usual Care:

Pathway 3 – Community & Clinic Level Care both by CHWs & Clinic Providers

*Global = low resources

*CHW: Community Health Workers

Cluster Randomized Trial: GOALS



a) Identify the most effective pathway for the Mozambican system of care

b) The delivery pathway showing the highest overall effectiveness will then be scaled-up in clinics from the other two non-superior arms for two additional "cross-over" years.

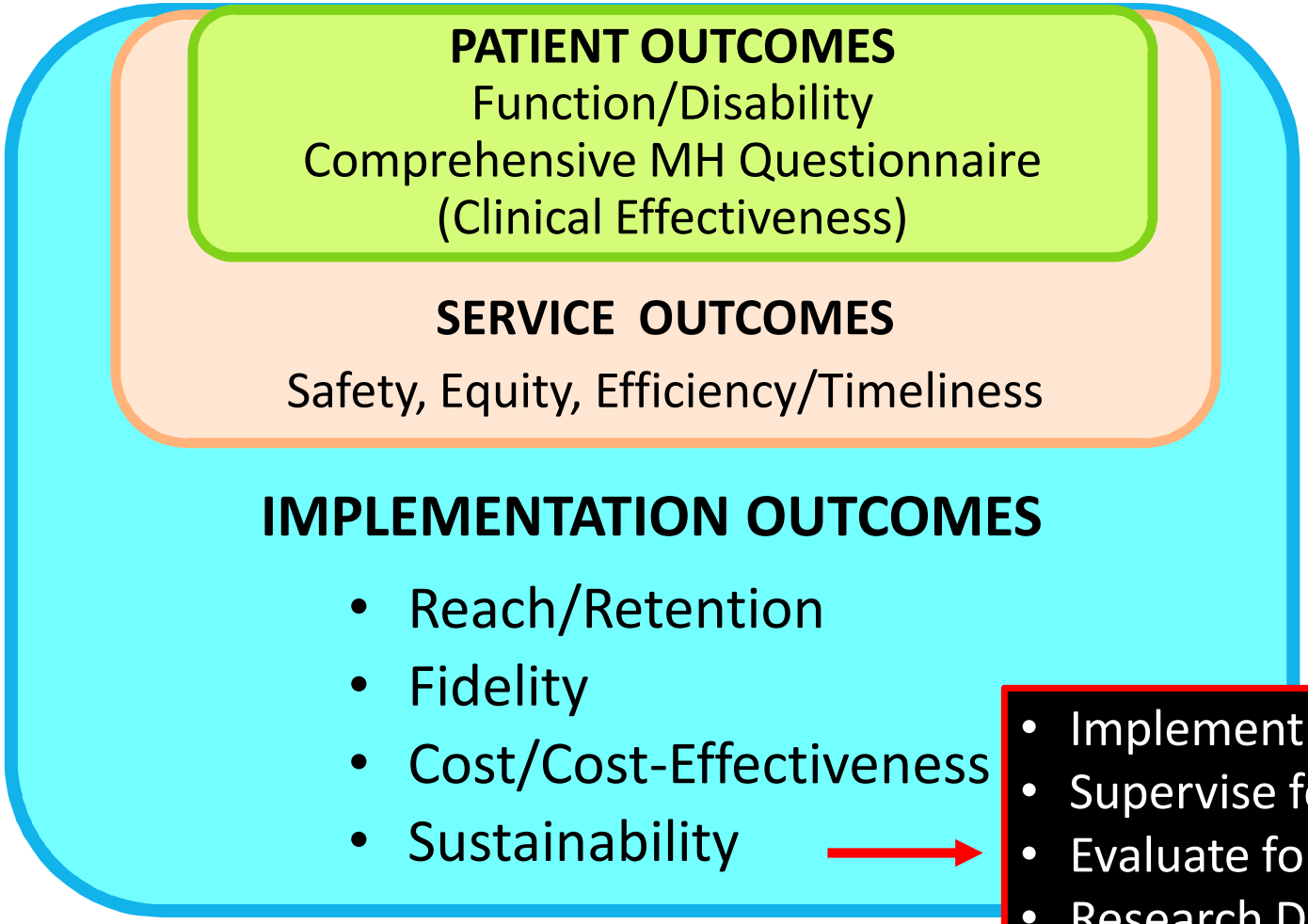
c) Throughout the study, mixed-methods process evaluation will examine implementation, sustainability, and scale-up.

d) Inform subsequent scale-up efforts in LMICs.

Table 2. Research Sites

Location/Province	Urban	Peri-Urban	Rural	Total
Nampula (North)	1	2	9	**12**
Sofala (Central)	3	3	6	**12**
Gaza (South)	2	1	9	**12**
Total	**6**	**6**	**24**	**36**

To determine, 36 clinics/3 Provinces, the most cost-effective delivery pathway in terms of



Adapted from Proctor et al, 2009

COST & COST EFFECTIVENESS

- Main analysis: micro-costing approach to identify, measure, and place a monetary valuation on all non-research resources required to implement each arm – e.g., training and supervision, delivery and maintenance.
  - Incremental cost-effectiveness ratios will be used to determine arm superiority (numerator = difference in mean costs between arms; denominator= difference in reach and reduction of symptoms).
- Broader societal perspective, assessing intervention impact on workplace, productivity, criminal activity, road traffic accidents, general health care and social services, and non-statutory care.
  - Short Form Health Survey (SF-12) to construct a quality-adjusted life year (QALYs)

U19 Scale-up Research Component

- Sustainable – leveraging existing human resources
- Decreasing the burden of mental illness without increasing burden – ¼ of the health care force to become MH providers
- Provide **comprehensive** mental health care
- Implementing evidence-based interventions
- Applying previous research findings
  - ✓ 100% Task-Shifting/Sharing
  - ✓ Integrated in community-based health care
  - ✓ Stepped Care
  - ✓ Lengthier interventions – meds and sequential short term interventions according to symptom severity

Take Home Messages: Mental Health Matters!

- Mental health problems (ranging from distress to SMI) are elevated among people at-risk for HIV and those living with HIV
- Mental health problems contribute to HIV acquisition and poor outcomes along the HIV treatment continuum
- We have the necessary assessment (screening) tools and efficacious treatments. However, we need to prioritize mental health treatment with appropriate resources to address the current gap
- In the HIV context, promising advances have been made integrating mental health care into primary care (via task-shifting, and stepped-care interventions)
- Integrating mental health assessment and treatment into HIV care should be routine and is essential to achieving our “90-90-90” and “EtE” goals
- Stronger advocacy for the human right to the highest attainable standard of MENTAL health is urgently needed
- **It is cost-effective for systems of care to scale up psychiatric evidence-based interventions**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Thank you
Gràcies