

# Return on investment

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Return on Investment in Global Mental Health innovation:  
a primer

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### **Acknowledgement and disclaimer**

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## Overview

This guidance document or ‘primer’ provides an introduction to the principles and practice of return on investment (ROI) analysis, with particular reference to its application to global mental health. The concept behind any ROI analysis is deceptively simple: are the benefits associated with an investment of resources greater than the costs incurred, and if so, by how much? In practice, a number of essential data inputs and analytical decisions are needed to arrive at such an answer, including what costs and benefits to include, what time frame to use and, most importantly, what is the specific policy question to be addressed. This primer considers each of these practical considerations in turn, illustrating them with examples from the field of global mental health innovation.

## 1. Introduction: what is return on investment; why do we need it?

Investment, rates of return and cost-benefit ratios might be common enough terms in the world of business and finance, but do not make up part of the everyday language of the mental health community. Why should it? Well, as interest in this area of health and development grows, however, along with increased flows of budgetary support or financial assistance, it is important that global mental health innovators become more comfortable or ‘savvy’ with such concepts so that they can demonstrate to governments, donors and other potential funders the value represented by the innovations that they are developing or bringing to scale.

At its core, return on investment (ROI) analysis provides a convenient and comparable measure of the efficiency of one or more investment choices, expressed in terms of the expected flow of benefits resulting from an investment of resources. In that sense, it is similar in intent to other measures of efficiency that have been extensively used in the health sector, notably cost-effectiveness analysis (CEA). But whereas CEA typically measures only health-related benefits and expresses these in a natural unit such as lives saved or symptoms reduced, ROI extend beyond health benefits alone and expresses all of the benefits in monetary terms. Expressing both the costs and the full range of benefits of an innovation or intervention in the same units (money) has the distinct advantage of making investment decisions very straightforward, namely that if the benefits are larger than the costs then it is a sound investment. The extent to which benefits exceed the costs is also readily computed and communicated, either as a ratio or as a percentage. A simple way of interpreting an ROI ratio is to think “for every 1 dollar invested, there are X dollars’ worth of benefits”. This enables investors to easily compare different investment choices, not only within the health sector but also beyond it).

This kind of comparative analysis of value or efficiency matters because decision-makers of all kinds, but particularly those in the public sector, face constraints on spending. Even the richest countries with the most extensive welfare state, who spend a third of more of the country’s income or wealth on operating activities of government, need to be able to justify where the money goes. There are of course many criteria that will influence an allocative decision – including equity, sustainability and so on – and some criteria might carry more weight than others, but value for money is certainly a key consideration for most decision-makers. Therefore, the more that innovators can present this kind of economic evidence, alongside other evidence of effectiveness or impact, the more likely that an appropriate decision can be made. Whether that decision is positive or negative will itself depend on the strength of evidence, the magnitude of the return, and the availability of funds in the face of competing demands. As will be shown below, there are innovations from the mental health area that are likely to fare better than some others in strict economic terms, so the decision to carry out ROI analysis may be influenced by the likelihood that it will lead to a clearly positive return.

Globally speaking, current investments in mental health are extremely meagre. Data from a new WHO mental health survey, for example, indicates that most low- and middle-income countries spend appreciably less than US\$2 per head of population on the treatment and prevention of mental disorders (WHO, 2015). This is not remotely proportionate to the public health and economic burden these disorders cause, and effectively places a very low value on the psychological or emotional well-being of populations (WHO, 2013). As a result of the low level of current investment in public mental health, there is a vast gap between the need for treatment and its availability. This large treatment gap does not just affect the health and well-being of persons with mental disorders and their families; it also has inevitable consequences for employers and governments, as a result of diminished productivity at work, reduced rates of labour participation, foregone tax receipts and increased welfare payments. Estimation of the benefits and costs of scaled-up treatment for mental disorders can provide relevant information in support of greater investment in the future.

## 2. Return on investment in Global Mental Health

### 2A. *Analytical framework*

The economic and social benefits of better mental health include both its intrinsic value (improved wellbeing) and also its instrumental value, in terms of being able to form and maintain relationships, to study, work or pursue leisure interests, and to make decisions in everyday life.

Assessment of these benefits – and relating them back to investment costs to establish the rate of return – can be achieved by estimating current and future levels of mental ill-health as well as effective intervention coverage in a population, and then determining the economic impacts of improved mental health outcomes, particularly rates of labour participation and productivity. Using established methods, it is also possible to monetize the intrinsic value of improved mental health, although these benefits fall outside the realm of the real (measured) economy.

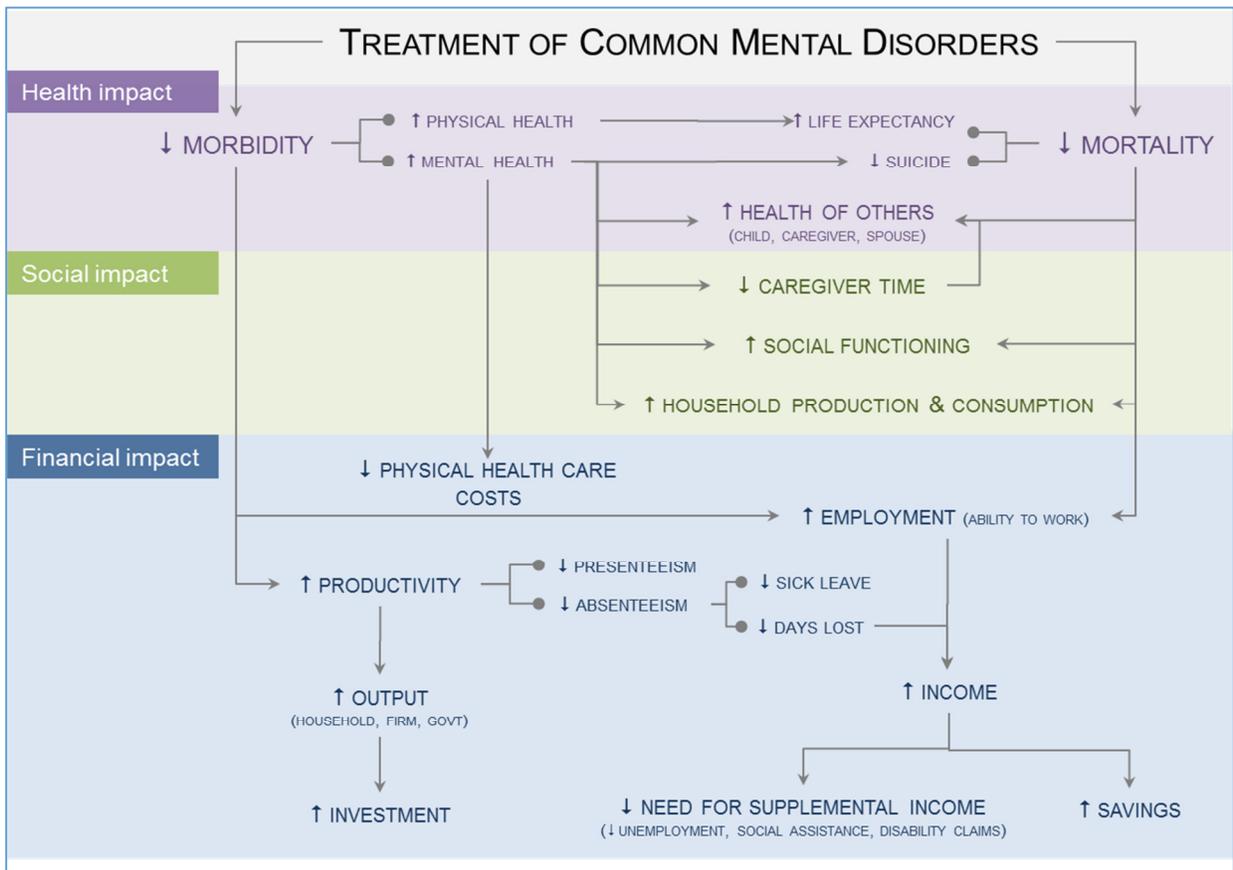
A taxonomy of different types or categories of cost or benefit is shown below in [Table 1](#). The cost of the innovation is the sum of all resources used up in developing and providing it to the target population in need. It is important to note that these consumed resources are now not available for other purposes; this is the notion of opportunity cost that is central to economic analysis. The investment could lead to a number of possible benefits. First and foremost, it would hopefully lead to an improvement in the health and / or functional status of the target population (health impact); secondly, it might also lead to improvements in social functioning or participation (social impact); finally, the innovation may lead to beneficiaries of the interventions being able to go back to work, work more productively or improve their financial situation (financial impact).

**Table 1** Costs and benefits of mental health intervention

COSTS	BENEFITS
Development and provision of innovation or intervention	<ul style="list-style-type: none"> <li>↑ Health (mental, physical)</li> <li>↑ Functioning</li> <li>↑ Participation (work/school)</li> <li>↑ Productivity (home/work)</li> </ul>
(↓ opportunity to invest elsewhere)	<ul style="list-style-type: none"> <li>↓ Informal caregiving</li> <li>↓ Health / welfare services</li> <li>↑ Savings / investment</li> </ul>

MHIN’s proposed approach to estimating the impacts of or returns on investing in mental health can be illustrated with reference to the treatment of common mental disorders, which is summarized by the conceptual framework shown in [Figure 1](#). This identifies the different pathways via which the health, economic and social ramifications of common mental disorders – and their treatment – might be felt.

**Figure 1** Analytical framework



The direct impact of treatment is on the affected person’s health through a decrease in morbidity and mortality (purple shading). Treatment can also benefit others, for example the cognitive development of children of mothers treated successfully for perinatal depression (see [Box 1](#)). This health impact of treatment can in turn result in enhanced household welfare and social functioning (in green), and a greater ability to be productive at work (in blue), which in turn has a potential influence on future levels of household or aggregate investment and savings.

## **2B. Principles into practice**

A return on investment analysis comprises two components: the cost of program implementation and the monetary value of subsequent benefits. These cost and economic benefits are used to calculate the ROI through the following formula:

$$\text{Return on Investment} = \frac{(\text{Improved Productivity} + \text{Wellbeing} + \text{Income Generation}) - \text{Intervention Costs}}{\text{Intervention Costs}}$$

The ROI analysis is performed for total cost and benefits across the scale-up time period as compared to a counterfactual of no intervention scale-up. So in the context of mental health innovations, the ROI would illustrate the projected value of scaling up pre-existing interventions in relation to the cost of doing so. The ROI quantifies the net benefits gained from every dollar invested at an aggregate level and can be most simply conveyed in terms of a ratio (i.e. every additional dollar spent yields x dollars in benefits).

### *Intervention Costs*

Total costs in a given year for a particular innovation were arrived at by multiplying resource utilization needs by their respective unit costs to arrive at cost per case, which is then multiplied by the total number of cases expected to receive a particular intervention.

The collection of service utilization data at the level of the individual patient enables the generation of detailed information on the consumption of a wide range of resources. An initial stage in the recording of resource utilization data is the identification of relevant components of potential service receipt by users, such as contacts with primary care physicians and other health workers, community-based private or voluntary sector providers and hospital inpatient and outpatient care (both psychiatric and general). Services to include will differ with respect to a number of evaluative concerns, including the scope, objectives and setting of the study, as well as the particular service needs of the client group(s). For example, users with more severe or enduring mental disorder, such as persons with a diagnosis of schizophrenia, often need a wider range of service supports than people with common mental disorders such as depression and anxiety (e.g. day care services and residential care). For economic analyses carried out alongside clinical evaluations, a convenient means of data collection is often via an

interviewer-administered service receipt schedule, which can record service use over defined retrospective periods at the various assessment points of the study. It is also important to ensure that data is also collected on the socio-demographic and socio-economic characteristics of the individuals, including lost opportunities to work (this latter category may be an important economic outcome).

For each item of resource utilization, a unit cost estimate is required, such as a cost per inpatient day, or cost per contact with a primary care worker. It will be necessary to compute these estimates using a range of data sources, including national/local government statistics, health authority figures and specific facility or organization revenue accounts. The broad perspective to be employed in the costing of services is an economic one, such that in principle service costs are derived by reference to their marginal long-term opportunity costs. In practice, derivation of costs in this way is difficult. It is therefore common to use short-term average costs as a proxy for long-run marginal costs. The main categories of cost that need to be quantified for each service are:

- Salaries / wages of staff employed in the direct care and management of patients. Salary costs can be obtained from local or national pay scales. The ideal salary value to use is a weighted average of all grades on a pay scale. Supplementary (fringe) benefits, bonuses and allowances should be included. Also include employer contributions to local/national taxes, pension or health insurance schemes etc., which can be given as a percentage add-on to the salary/wage.
- Facility operating costs where the service is provided (cleaning, catering, consumables, water, electricity etc.). This covers the costs associated with running the establishment where the professional is employed, for example a rural health centre. This can be worked out by dividing pro rata the total running costs of the establishment (excluding capital costs or rent) by the total number of 'full-time equivalent' staff. For government facilities, these costs can usually be obtained from the finance or planning departments of local or federal government.
- Overhead and capital costs relating to the service. Costs associated with service management and administration, such as finance and personnel functions, are often difficult to identify with accuracy, and it may only be possible to establish a percentage add-on to known revenue (operating) costs. Similarly for the capital costs of the facility where the service is provided (land, buildings etc.), the (opportunity) cost of capital should be calculated as the annuity which will deplete the lump sum value over the lifetime of the capital, but it may be possible (and simpler) to obtain a best estimate of the proportionate on-cost that can be added to personnel and operating costs.

Where possible, country-specific unit costs for each aspect of intervention should be calculated locally. In the absence of locally available data, country-specific unit costs of inpatient and outpatient care from the WHO-CHOICE database can be used<sup>1</sup>. Information on treatment costs can also be obtained from previous cost-effectiveness studies, resource need profiles garnered from existing treatment guidelines and costing tools, and validated, multilateral agency sources<sup>2-7</sup>.

There are a number of potential strategies for addressing a lack of country-specific cost data for mental health interventions. In the complete absence of any country-level data, global or regional values can be used<sup>4-7</sup>. If country-specific data from a country with a similar geographic/economic/demographic profile as the country of interest is available in the literature, this can be used as a proxy<sup>2</sup>. When country-specific estimates are available but not for the country of interest, another option would be to apply an adjustment factor based on available information on (health expenditure, costs, etc.)<sup>1,3</sup>. For example, WHO-CHOICE inpatient bed day costs at a secondary facility<sup>1</sup> (which are available for most countries) could be used to adjust values for the country of interest, as illustrated below.

$$\text{CostcountryX} = \text{CostStudycountry} * (\text{WHO-CHOICEcountryX}/\text{WHO-CHOICEStudycountry})$$

### *Intervention effects*

Mental health screening and assessment tools were used to screen participants for inclusion and measure functioning and remission levels at baseline and follow-up for each study. In some instances, standardized tools were used (PHQ-9 and GAD-7), while in others assessment tools specific to the project context (such as the Shona Symptom Questionnaire used by the Friendship Bench project, or the Zanmi Lasante Depression Symptom Inventory) were also developed and used to complement standardized tools. Scores from the WHO-DAS 2 instrument pertaining to days out of role, days of work missed, work-time reduction in the last month can and have been used in order to measure the intervention effect on productivity/functioning.

The health impact of an innovation or intervention strategy can be readily calculated in terms of the standardized mean difference or effect size for primary measures of outcome; to calculate the standardized mean difference between two groups, subtract the mean of one group from the other (M1 – M2) and divide the result by the standard deviation (SD) of the population from which the groups were sampled. Observed positive changes in the rate of functioning or remission can also be expressed simply as a proportionate improvement. Effect size estimates and their derivation can be modified as necessary to take into account partial response, the lag time between onset of the disorder and treatment, and expected levels of non-adherence in treated populations.

### *Population-level health benefits*

In order to estimate or project the population-level health impact of intervention scale-up beyond the study setting, it is necessary to extrapolate study results and use a population model. Key input parameters for such an analysis are i) total target population; ii) prevalence of mental disorder; iii) effect of intervention (on prevalence or average level of disability associated with the mental disorder); iv) current and target level of intervention coverage. The mental health module of the inter-UN agency OneHealth tool (OHT; <http://www.who.int/choice/onehealthtool>) is one such modelling tool that has

been developed for this purpose (and is free to download and use). Firstly, it can be used to generate the estimated number of persons with mental health disorders residing in a specified target population (such as a province or the whole country). By default, population and disease prevalence estimates are based on UN population projections<sup>8</sup> and the latest Global Burden of Disease study estimates, respectively, but can be replaced with country-specific estimates if available. OHT links the epidemiology of mental disorder (prevalence, incidence, remission, excess mortality and disability weight) to country-specific life tables, so that cases averted and healthy life years gained over time at the population level can be estimated. Healthy life years reflect time spent by the population in a particular state of health with a known degree of disability. Information on intervention coverage rates need to be provided by or in consultation with local investigators.

### *Economic Benefits*

The economic and social benefits of better mental health include both its intrinsic value (improved wellbeing) and also its instrumental value. For ROI analysis of mental health innovations, the direct economic benefits attributable to both improved work productivity within the economy and the intrinsic value of improved mental health on an individual's quality of life should be included. A further direct potential benefit of successfully treating mental disorders is a decrease in overall health care costs (as a result of reduced need for expensive inpatient care, for example).

Assessment of the value of these benefits can be accomplished by first estimating the population in need in each country, then determining the health effects of scaled-up coverage of effective intervention, and finally calculating the economic impacts of improved mental health outcomes in terms of enhanced labor participation and productivity.

Impaired productivity needs to be assessed both with respect to whole days off work (absenteeism) and also partial days of impaired activity while an individual is at work (presenteeism). Lost work days – data that can be obtained through administration of the relevant supplementary questions of the WHO DAS 2 or other assessment tools – can be linked to the prevailing rates of labour participation in the working age population (15-65 years) and gross domestic product (GDP) per worker in each study country in order to estimate the aggregate effect on the local economy<sup>3,9</sup>. In addition to productivity benefits of increased work, any income generated during and after treatment if un- or underemployed for studies including an income generation component (e.g., Friendship Bench) should include these benefits.

Improvements in labour force outcomes represent the instrumental value of improved mental health following effective treatment of common mental disorders. Independent of this instrumental value, being alive and healthy is also considered valuable in itself. The overall value of a life year can be broken down into its economic (instrumental) and health (intrinsic) elements. Following the Lancet Commission on Investing in health, which put the value of a health life year at 1.5 times GDP per capita, the approach used here is to attribute two-thirds of that derived value to the instrumental component (which are

measured directly via the labour force outcomes described above), leaving the remaining one-third for the intrinsic benefits of health (equivalent to 0.5 times per capita income)<sup>10,11</sup>.

### *Net Present Value*

The key outputs of each project-specific ROI model are year-on-year estimates of the total costs of treatment scale-up and system strengthening (the investment), increased healthy life years gained as a result of treatment (health return), the value associated with better health (the value of health returns), and enhanced levels of productivity (economic return). It is conventional to discount the stream of costs incurred and benefits obtained over the scale-up period (at a rate of 3%), to give a Net Present Value (NPV).

## **2C. Analytical requirements**

Two key considerations required before undertaking a return on investment analysis for a specific innovation or intervention are the availability of necessary inputs and the feasibility of modeling the conditions being studied.

### *Applicability of ROI to different mental, neurological and substance disorders*

Prior to developing a return on investment framework, it is important to determine the feasibility of measuring health impacts for the population of interest and translating into economic impact. Certain conditions may prove more difficult to model or establish economic return due to the nature of certain mental health disorders. For example, while it is well-established that depression and other common mental disorders lead to significant productivity losses in the adult, working age population (that are amenable to being restored through effective intervention), it is much harder to show the economic returns to investment flowing from an intervention to support children with developmental disorder, or older adults with dementia. This is not to say that there are not important economic benefits to be gained from such intervention (for example in the form of reduced need for informal caregiving and therefore more time available for household or paid production activities), but they may be more difficult to establish and may not amount to the same level of restored productivity compared to common mental disorders in the working age population. A further example concerns maternal depression, where the evaluation of potential economic gains is complicated by the fact that mothers of new babies will typically be away from their usual paid work for a period of time in any case (whether they are depressed or not); this makes the elucidation of incremental economic gains harder to estimate accurately.

Some examples of GCC-funded studies that were considered for a ROI analysis but ultimately excluded due to concerns regarding ability to demonstrate economic impact are:

- *Banyan tree* – Demonstrating economic benefits for institutionalized women who weren't previously employed (no restoration or expected gain in productivity); the project is focusing on persons in marginalized groups with severe mental illness, so illustrating economic gains in the form of increased productivity will be difficult given that they were institutionalized prior to the intervention (i.e., most individuals would be unemployed before and after).
- *LTP-PLUS* – This project is focusing on conditions where impact is difficult to measure (childhood development and maternal depression), especially in the short-term.

#### *Data availability*

Following an appraisal of the suitability of ROI to the mental health condition(s) and associated outcomes being studied, it is necessary to also consider the critical information needs underpinning an ROI analysis, and whether and how these data will be collected as part of the innovation evaluation.

As described above, there are a number of data domains that need to be populated in order for the costs and benefits of the innovation to be calculated and transformed into ROI summary metrics. In short, these are as follows:

1. *Innovation costs (the investment)*: the monetized value of the resources used to develop, implement and maintain the intervention. This covers not just the costs of the innovative technology itself (e.g. the use / uptake of an adapted or newly developed psychosocial intervention) but also the broader costs of managing the roll-out of an intervention in the local population, and an assessment of the services that the targeted study population might avail themselves of.
2. *Innovation benefits (the returns)*: the monetized value of improvements in health and productivity flowing from the use of the innovation. This includes: a) improvements in health and functioning scores (which can be expressed as a monetary amount, first by converting into a summary measure of population health (healthy life years gained) and then by attaching an economic value or 'price' to each health life year gained); and b) improvements in productivity (which can be assessed with reference to local rates of labour participation and the income generated per worker).

While country-specific data is preferable, empirical evidence can be limited in LMIC and it may be necessary to use global values. In the absence of key model components, a judgment call must be made in terms of to what extent it is appropriate to incorporate these global values. For example, it may be deemed acceptable to rely on findings from an international meta-analysis concerning the expected effect size for pharmacological or psychological treatment of depression or psychosis, but it would be hard to base estimates of the local cost of an innovation in an African setting on a study undertaken in a very different context (such as a high-income, European country). Similarly, relying on the (currently weak) evidence on the effect of interventions on days out of role or work is likely to represent a major limitation; it will be far better to ensure that data on this aspect of the innovation are collected locally as part of the evaluation design.

## **2D. Worked example: the Friendship Bench**

### *Scope*

The Friendship Bench study involved a cluster randomized controlled trial of a brief psychological intervention for common mental disorders delivered by lay health workers in 24 health clinics in Harare, Zimbabwe. The return on investment analysis used the impact of this initial program implementation and estimated the additional benefits of expanding the intervention to 76 health clinics in the cities of Harare, Gweru, and Chitungwiza, covering a population of 2 million in 2016 (other key project characteristics can be found below in the Box). Important parameter values include:

- Scale-up period (2016-2020): 5 years
- Population (Harare, Gweru, Chitungwiza): 2 million
- Cases in 2016: depression: 88,000 (prevalence: 4.2%); anxiety: 77,000 (prevalence: 3.7%)
- Intervention coverage:
  - Current coverage (based on the 24 health clinics currently participating in Harare): depression – 3.1%; anxiety – 2.1%
  - Target coverage (based on 76 health centers participating in 3 cities with a recruitment rate of 4 depression and 3 anxiety cases per week): depression – 14.9%; anxiety – 10.7%

### *Investment Required*

The estimated cost of scaling up the Friendship Bench Intervention to the aforementioned population (of two million inhabitants), expressed as the Net Present Value of the total expenditure required over the scaling-up period 2016-2020 (i.e. the cumulative cost over 5 years of steady scale-up, but discounted at a rate of 3%) amounts to US\$ 1.5 million for depression and anxiety disorders. These costs relate to incremental treatment coverage in the population over and above ‘business as usual’ (i.e. current levels of) coverage. By standardizing for population size, it becomes apparent that the cost is actually quite low; for depression and anxiety treatment, the average annual cost over 5 years of scaled-up investment is US\$ 0.14 per head of population in Harare, Gweru, and Chitungwiza.

### *Health Impact*

Across the three sites included in intervention scale-up, a modest decrease in the estimated prevalence of depression and anxiety disorders is observed as a result of treated cases recovering from illness more quickly; over the next 5 years, this gradual decline in prevalence translates into 24,000 averted cases (20,000 less depression and 4,000 less anxiety disorder cases). Weighting these averted prevalent cases by the average level of improved functioning (or reduced disability) provides a measure of healthy life

<b>Project Name:</b>	The Friendship Bench
<b>Country/region:</b>	Zimbabwe – AFRO
<b>Project summary:</b>	A two arm cluster randomized controlled trial of a brief psychological intervention for common mental disorders identified using an e-health based approach and delivered by appropriately trained lay health workers in Zimbabwe.
<b>Conditions:</b>	Depression and other related disorders (primarily anxiety).
<b>Intervention Applied:</b>	The use of an intervention delivered on a bench by elderly women who are commonly referred to as ‘grandmother health providers’ and use smart phones and tablets to communicate with their supervisors has been the essence of this innovation. Treatment consists of six structured 45-minute sessions delivered on a wooden bench within the grounds of the clinic in a discrete area.
<b>Outcome Measure:</b>	Primary outcome measure: 14-item Shona Symptom Questionnaire (SSQ) applied at 6 months after entering the trial. Secondary outcomes: SSQ at 12 months and PHQ at 6 and 12 months after recruitment as well as functioning levels and other health indicators from WHO-DAS and GAD-7 surveys at 6 and 12 months after recruitment.
<b>Study size:</b>	2,960 people screened for depression across 24 public clinics in Harare. 468/568 followed up
<b>Impact:</b>	Strong intervention effect seen on all outcome measures. RCT demonstrated clinically & statistically significant improvements in depression, anxiety, quality of life & functioning among 246 participants (40% HIV+) in intervention arm 6 months after engaging in therapy, as compared to the control group. Full RCT results still awaited, but likely to demonstrate that the innovation is affordable (low cost) and cost-effective compared to ‘usual care’.
<b>Project Sustainability:</b>	Strong MoH support (e.g. for training element) would be needed; not clear if that is present now, or if CMD represents a priority to government.
<b>Key data being collected:</b>	Baseline mean, follow-up mean, and standard deviation of scores for SSQ and PHQ tests at baseline and follow-up. Baseline mean WHO-DAS, GAD-7, EQ-5 scores. Mean test score and SE for control and intervention arms on all 4 tests and crude difference (with 95% CI). Prevalence of depression based on test scores for all 4 tests in control and intervention arms at 6 months following recruitment, relative risk, and change in relative risk following intervention (95% CI included). Attrition rate. Intervention coverage. Detailed intervention costing: Staff type, time allotted per treatment, total number of treatment sessions, training costs, salaries, program costs, etc. Prevalence for other conditions studied (anxiety)

years gained. For depression and anxiety disorders combined, the cumulative number of healthy life years gained over 5 years is 9,000 (8,000 depression; 1,000 anxiety).

### *Social and Economic Benefits*

We project that scale-up of the Friendship Bench intervention from 2016 – 2020 will avert an estimated US\$ 12.2 million in lost productivity due to anxiety and depression. The zeebag income generation component of the project accounted for 14% of this total, at US\$ 1.7 million. By condition, depression results in \$US 10.3 million and anxiety results to \$US 1.9 million in avertable productivity losses. The

monetized value of improvements in health is estimated to be US\$ 4 million. Accordingly, the total value of benefits flowing from improved health and productivity for the entire period of scale-up, discounted at 3% to give a Net Present Value, is US\$ 16.3 million (US\$ 14 million for depression and US\$ 2.3 million for anxiety).

#### *Return on investment*

By summing the discounted costs and benefits, a summary measure of the relationship between the benefits of scaled-up treatment and the associated costs of investment can be derived. Restricting assessment solely to the zeebag income-generation (no other health or economic benefits included), the rate of return is below 1 ([additional income of \$1.7 million - investment of \$1.5 million] / investment of \$1.5 million = 0.1). Including productivity gains and income generation in the calculation led to a ROI ratio of 7.0. Extending the benefit-cost analysis to also include the estimated value of health returns increases the estimated return on investment to 9.6; that is, for every US\$ 1 invested in the Friendship Bench, up to \$10 will be returned in terms of improved health, productivity and income generation.

### 3. Conclusion: economic evidence as an input to decision-making

Generation and estimation of cost-outcome data on global mental health innovations is a feasible and policy-relevant evaluative exercise that provides local decision-makers and investors with important information on the affordability and relative efficiency of an innovation. At the planning or design stage of a new innovation project or its scale-up, therefore, it is important to consider whether such an evaluative component is merited, and if so, what are the data requirements underlying such an analysis. There may be good reasons not to include one, but in most cases it is likely to produce useful data that can inform the future development or uptake of an innovation, even if it is restricted solely to a consideration of specific elements (such as the estimated cost of implementation at scale). It is nevertheless important to note that the uptake of an innovation will be determined by many other considerations other than cost or value for money, including its cultural acceptability and appropriateness, the feasibility of its implementation and the extent to which it addresses health inequalities or underserved / vulnerable populations. Such considerations should be held via an open, explicit and consultative process that seeks to secure a fair but also efficient allocation of resources.

## References and further reading

1. WHO-CHOICE Country-specific unit costs. Available at: [http://www.who.int/choice/country/country\\_specific](http://www.who.int/choice/country/country_specific)
2. Chisholm D, Burman-Roy S, Fekadu A et al. Estimating the cost of implementing district mental healthcare plans in five low- and middle-income countries: the PRIME study. *British Journal of Psychiatry* 2015: doi:10.1192/bjp.bp.114.153866.
3. World Bank (2013) The 2013 World Bank Development Indicators. [Online] Accessed 6 Jan 2016. Washington, DC: World Bank
4. WHO. mhGAP (Mental Health Gap Action Programme) Intervention Guide. 2010. World Health Organization, Geneva.
5. Chisholm D, Lund C, Saxena S. Cost of scaling up mental healthcare in low- and middle-income countries. *British Journal of Psychiatry* 2007, 191: 528–535.
6. Chisholm D, Saxena S. Cost effectiveness of strategies to combat neuropsychiatric conditions in sub-Saharan Africa and South East Asia: mathematical modelling study. *British Medical Journal* 2012, 344: e609.
7. Chisholm D, Sweeny K, Sheehan P, Rasmussen B, Smit F, Cuijpers P, Saxena S. Scaling up treatment of depression and anxiety: a global return on investment analysis. *Lancet Psychiatry* 2016, 3: 415-424.
8. United Nations Population Division 2015, World Population Prospects, the 2015 Revision, at <http://esa.un.org/unpd/wpp/>
9. ILO 2015, Databases and Subjects, at: [www.ilo.org/ilostat/faces/help\\_home/data\\_by\\_subject?\\_afLoop=4792996989775112#%40%3F\\_afLoop%3D4792996989775112%26\\_adf.ctrl-state%3Du09xjebvv\\_621](http://www.ilo.org/ilostat/faces/help_home/data_by_subject?_afLoop=4792996989775112#%40%3F_afLoop%3D4792996989775112%26_adf.ctrl-state%3Du09xjebvv_621), accessed April 2016
10. Stenberg K, Axelson H, Sheehan P et al. Advancing social and economic development by investing in women's and children's health: a new Global Investment Framework. *Lancet* 2014, 383: 1333-1354.
11. Jamison DT, Summers LH, Alleyne G et al. Global health 2035: a world converging within a generation. *Lancet* 2013, 382: 1898–1955.