

McKinsey
Health Institute

Health intervention impact analysis guide

Scale what works

The benefits of proven health interventions

July 2024

Confidential and proprietary. Any use of this material without specific permission of McKinsey & Company is strictly prohibited.

Health intervention impact analysis guide

The [Scale What Works](#) interactive platform highlights the potential to enhance and extend lives by scaling proven health interventions. It enables users to delve into the disease burden expressed in Disability-Adjusted Life Years (DALYs) across 22 condition groups for 95+ countries, assess the impact of scaling proven interventions categorized by intervention type, and evaluate the potential influence of these interventions on the gross domestic product.

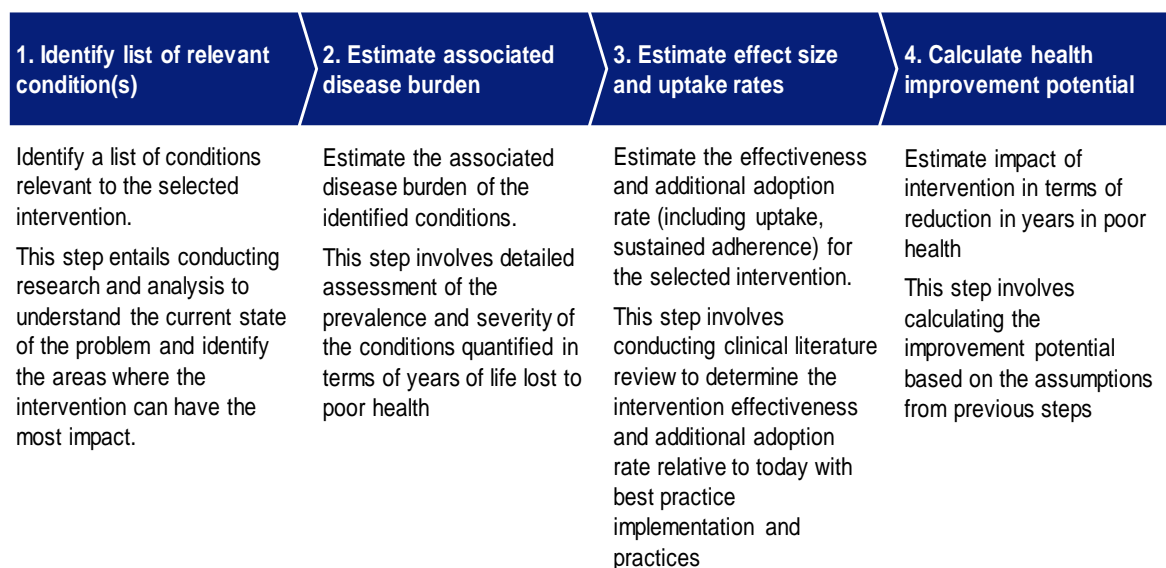
This comprehensive tool serves as a critical resource for stakeholders aiming to optimize health outcomes through strategic intervention scaling. It offers country-specific insights into disease burden and the effectiveness of health interventions, enabling stakeholders to devise strategic plans, prioritize interventions, or comprehend the current health landscape in their region.

For those interested in conducting a deeper analysis on a specific health intervention, this document outlines detailed steps using a structured methodology to estimate the impact of a health intervention on disease burden.

Exhibit 1 shows the key steps involved in the analysis, which include identifying relevant conditions and their associated disease burdens, conducting research to ascertain the effectiveness of interventions in reducing mortality and morbidity, estimating the potential increase in adoption (including uptake and sustained adherence) achievable under today's best practice implementations and available resources—taking into account infrastructural and other limitations—and ultimately calculating the magnitude of the disease burden that the intervention could potentially mitigate.

Exhibit 1

Key steps to estimate health improvement potential



Detailed methodology

Example problem statement: *A policy maker from Poland would like to estimate the disease burden reduction potential of the Diabetes Prevention Program across the country.*

Step 1: Identify list of relevant condition(s)

This initial step entails conducting thorough research and analysis to understand the current landscape of the problem and pinpointing areas where the intervention could deliver significant impact. The identification of relevant conditions should be guided by a comprehensive literature review or consultations with subject matter experts.

For the example above, Diabetes mellitus type 2 would be the relevant condition.

Step 2: Estimate associated disease burden

This step requires a detailed examination of the prevalence and severity of the identified conditions, quantified in terms of years of life lost due to poor health or premature deaths.

The associated disease burden can be accurately gauged using data from the Institute of Health Metrics and Evaluation's [Global Burden of Disease dataset](#). This extensive dataset provides country-specific disease burden data for 369 diseases, segmented by age and gender, and expressed in terms of YLDs (Years Lived with Disability), YLLs (Years of Life Lost), and DALYs (Disability-Adjusted Life Years).¹ Such data enables targeted analysis for a specific cohort, filtered by age or gender.

For the example above, based on IHME GBD 2019 data the disease burden for diabetes mellitus type 2 in Poland can be estimated as 302K YLDs and 175K YLLs.

Step 3: Estimate efficacy and uptake rate

Effectiveness of intervention(s) can be estimated through clinical literature review for the selected intervention in each disease area to identify the effect size in relation to mortality and morbidity reduction, using best available evidence and closest proxies where more precise estimates are not available, for example, where the severity of symptoms were used as a proxy for morbidity.

Additional adoption rate for interventions includes uptake, sustained adherence possible relative to today with best practice implementation and resources (i.e., considering infrastructural and other constraints). This can be estimated through literature research and expert review.

A literature review is important because it presents the "state of the science" or accumulated knowledge on an intervention. It summarizes, analyzes, and compares the available research, reporting study strengths and weaknesses, results, gaps in the research, conclusions, and

¹ Disability-adjusted life years are defined as sum of years lost due to premature death (YLLs) and years lived with disability (YLDs). DALYs are also defined as years of healthy life lost.

authors' interpretations which helps define assumptions and considerations for the impact estimation calculation.

For the example above, based on literature review² the effectiveness for diabetes prevention program was estimated as 55% and additional uptake or adoption rate as 60%

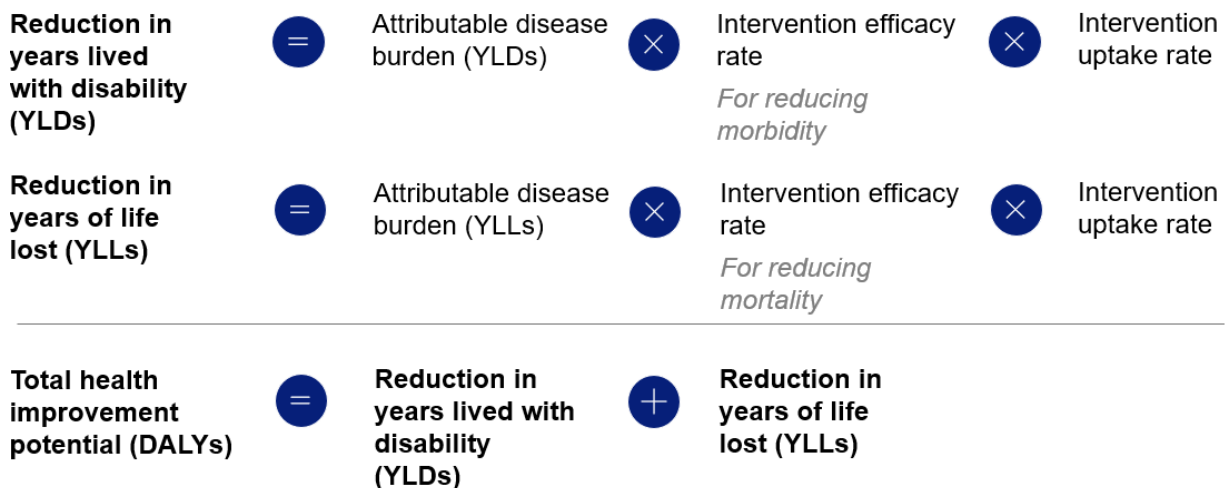
Step 4: Estimate health improvement potential

This step entails determining the improvement potential based on the assumptions and calculations made in the preceding steps. To compute the potential reduction in disease burden, the intervention effect size ratio and additional adoption/uptake ratios are applied to the associated disease burden.

Exhibit 2 illustrates the process to estimate the health improvement potential, quantified in terms of Years Lived with Disability (YLD) and Years of Life Lost (YLL).

Exhibit 2

Methodology to calculate DALYs averted through scaling an intervention



Please be aware that the specific intervention chosen may impact the metrics differently; it is possible for the intervention to reduce only Years Lived with Disability (YLDs) or only Years of Life Lost (YLLs), depending on its nature and focus.

*For the example above the total estimated DALYs averted due to diabetes prevention program are 464K*55%*60% = 153K*

² Source: Roberts S et al, 2017, Preventing type 2 diabetes: systematic review of studies of cost-effectiveness of lifestyle programmes and metformin, with and without screening, for prediabetes, BMJ Open;7:e017184

Disclaimer:

Please note that this methodology does not account for the impact of multiple interventions on a disease. Additionally, it is important to acknowledge that this is an evidence-based analysis, and it is recommended to regularly update the analysis to ensure that the assumptions remain valid and relevant.