



**JOINT  
LEARNING  
NETWORK**  
For Universal Health Coverage

Revisiting Health Financing  
Technical Initiative  
Efficiency Collaborative

# HEALTH PRIORITY SETTING: A PRACTITIONER'S HANDBOOK







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### Suggested citation

Chi, Y-L., Jeffery, M., eds. *Health Priority Setting: A Practitioner's Handbook*. Joint Learning Network for Universal Health Coverage, 2019

# Acknowledgments

The Practitioner's Handbook has been co-produced with the following country members of the JLN Efficiency Collaborative and facilitated by the Joint Learning Network's Efficiency Collaborative technical team.

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Tsolmongerel from Mongolia; Okechukwu Okwudili,  
Oritseweyimi Ogbe, Shamsudeen Saad and Uchenna Eugenes  
Ewelike from Nigeria; Arturo Alcantara and Israel Pargas  
from the Philippines; and Nguyen Lan Huong from Vietnam

The Revisiting Health Financing Technical Initiative team  
would like to thank the Country Core Groups across JLN  
countries, as well as the JLN Steering Group for its continued  
support to Leveraging existing resources for health, i.e.  
'Efficiency' as a very high technical priority for the JLN.

Valuable contributions and technical guidance at all stages  
of this collaborative, from conceptualization to final product  
reviews, were provided by the Health Financing Global  
Solutions Area under the leadership of Christoph Kurowski  
and other members of the World Bank HNP Leadership  
team. The technical facilitation team wishes to express a  
special thanks to David Wilson for graciously chairing an  
extensive peer review process and for the contributions of  
Sam Hollingworth from Imperial College, Hideki Hagashi  
and Sarah Alkenbrack of the World Bank, the peer reviewers  
who generously spent time and effort in thoroughly and  
thoughtfully reviewing, commenting on and fine tuning its  
purpose, scope, content and presentation. Thomas Wilkinson  
and Xiaohui Hou also provided valuable perspective and  
added significant tools to the Handbook.

The Handbook could not have been co-produced without  
the financial cooperation of the Government of Japan, The  
Rockefeller Foundation, the Bill and Melinda Gates Foundation  
and Australian Aid, whose assistance is warmly acknowledged.  
The International Decision Support Initiative (iDSI),  
represented through the Center for Global Development  
(CGD), were technical partners to the World Bank for  
facilitation of the Efficiency Collaborative, and brought,  
with its wealth of membership, domain expertise, valuable  
perspective, resources, direction and guidance to this work.  
Management Sciences for Health (MSH), the JLN Network  
Manager deserves big thanks for providing continued support  
for this work and a very valuable external perspective.

Special thanks also to the World Bank JLN focal points from  
Bangladesh, Ethiopia, Ghana, India, Indonesia, Kenya, Malaysia,  
Mongolia, Nigeria, Philippines and Vietnam in facilitating and  
encouraging this work.

The HePRA Tool and Database technical team developed  
from a partnership between the World Bank and the iDSI. The  
technical facilitation team was guided by Amanda Glassman  
and Kalipso Chalkidou from CGD and Somil Nagpal from The  
World Bank, and comprised of Y-Ling Chi, Carleigh Krubiner  
from CGD; and Mairi Jeffery, Danielle Bloom, Naina Ahluwalia,  
Lauren Hashiguchi and Lydia Ndebele from the World Bank.  
Editing, data visualization, layout and production support that  
has rendered lengthy text into an enjoyable readable format  
was provided by QUO Global. Administrative support from  
Annie Milanzi is sincerely acknowledged.



# CONTENTS

<b>Acknowledgments</b>	<b>v</b>
<b>Introduction</b>	<b>1</b>
Background	1
What is evidence-based priority setting?	1
Why do we need evidence and data in priority setting?	2
Purpose and rationale of this Handbook	2
Summary content of this Handbook	3
Endnotes	3
<b>Chapter 1 Setting the scene</b>	<b>5</b>
Overview	5
How do governments set health budgets?	5
When should priority setting take place?	7
A combined approach to examining resource allocation decisions according to priorities	7
How are health priorities set?	9
What decisions can evidence-based priority setting inform?	10
Who should be involved in priority setting?	11
Where does the evidence fit in?	12
Chapter 1 summary	12
Endnotes	13
<b>Chapter 2 Types of data and evidence</b>	<b>15</b>
Overview	15
Types of data and evidence that can be used	15
Country-level sources of data and evidence	15
Global data and evidence	24
Chapter 2 summary	24
Endnotes	25
<b>Chapter 3 Sourcing, analyzing and presenting data and evidence</b>	<b>27</b>
Overview	27
Data mapping and data gap assessment	27
How do you do data mapping?	27
Analyzing data and evidence	34
Using the data in global tools	36
Packaging and communicating results	37
Chapter 3 summary	39
Endnotes	39
<b>Chapter 4 Data and evidence in action</b>	<b>41</b>
Overview	41
Institutionalizing the use of evidence and data in priority setting	41
Political economy of using evidence and data in priority setting	45
Identifying stakeholders, interests and power dynamics	45
Gaining political support for the use of data and evidence in priority setting	48
Chapter 4 summary	49
Endnotes	49

# Appendixes

Appendix 1	Strengths and weaknesses of the data sources	51
Appendix 2	Critical appraisal of the suitability of data and evidence	53
Appendix 3	Decision tree: scenario from data mapping	54
Appendix 4	The Health Interventions Prioritization Tool	55

## List of boxes, figures and tables

### Boxes

Box 1	Country example: Identifying health spending in Mongolia	7
Box 2	Country example: National Expanded Program on Immunization in Vietnam	11
Box 3	Country example: The relationship between the Ministry of Health and the National Health Insurance Agency in Ghana	12
Box 4	Country example: Kenya Integrated Household Budget Survey 2015-2016	17
Box 5	Country example: Use of Global Burden of Disease data in the Philippines	17
Box 6	Types of economic evaluation for priority setting	20
Box 7	Tufts Database	21
Box 8	Country example: National Data Warehouse in India	22
Box 9	Country example: MyHealthData Warehouse and National Health Morbidity Survey in Malaysia	23
Box 10	Country example: Data mapping in India	27
Box 11	Support for researchers on economic evaluation: The Guide to Economic Analysis and Research	29
Box 12	Country example: Antiretroviral adherence in HIV-positive women in the United States	33
Box 13	Country example: National Council for Social Security (Dewan Jaminan Sosial Nasional) in Indonesia	33
Box 14	Country example: Kenya National Immunization Technical Advisory Group	43
Box 15	Country example: Political economy of priority setting in Bangladesh	46
Box 16	Country example: Political economy of priority setting in Bangladesh	47

### Figures

Figure 1	The policy cycle	5
Figure 2	The budget cycle	6
Figure 3	Aligned policy and budget cycle	8
Figure 4	Commonly observed problems in data and evidence use	28
Figure 5	Example of making a simple prediction: Catastrophic medical expenditure (CME)	34
Figure 6	Example of using a pre-established target: Health care indicators	34
Figure 7	Example of time trend analysis: Public health expenditure for drugs (percent)	35
Figure 8	Example of country comparisons: Dialysis cost per year (in USD)	35
Figure 9	Example of comparing different courses of action: Total budget for immunization program (in USD)	35



## Abbreviations and acronyms

BIA	budget-impact analysis
CEA	cost effectiveness analysis
COHRED	Council on Health Research for Development
DALY	disability-adjusted life year
DCP3	Disease Control Priorities
DPT3	diphtheria, tetanus and pertussis, three doses
GBD	Global Burden of Disease
HePRA	Health Priority Setting and Resource Allocation [Tool and Database]
HIV	human immunodeficiency virus
HTA	Health Technology Assessment
iDSI	International Decision Support Initiative
IHME	Institute for Health Metrics and Evaluation
JLN	Joint Learning Network
LMICs	low- and middle-income countries
MOF	Ministry of Finance
MOH	Ministry of Health
MTEF	Medium-Term Expenditure Framework
NGO	nongovernmental organization
QALY	quality-adjusted life year
TB	tuberculosis
UHC	universal health coverage
WHO	World Health Organization

**“In Bangladesh,**  
there is a lack of access to health data from the private sector. There is no strong private sector regulatory policy and not many rules or regulations compelling the private sector to provide this data”

**“In Ethiopia,**  
there is a lack of technical capacity for analysing data and evidence so that it can inform decision-making at lower levels the health system administration. There is a poor culture of using data for decision making.”

**What are some of the data challenges you have experienced?**

**“In Indonesia,**  
there are problems surrounding the fragmentation of data collection efforts and concerns with regards to the timeliness and quality of data, especially data among the health facilities, Ministry of Health, payers/BPJS and researchers/ academicians”

**“In Philippines,**  
for data with no official publication method or protocol, data is not readily available, so requesting data usually takes a long time and both the organisation requesting the data and the source office providing the data find it a burden.”

# Introduction

## Handbook summary

This Handbook aims to support low and middle-income countries in achieving their identified health sector priorities within a particular resource setting, by providing practical guidance on moving toward greater use of data and evidence for informing health sector resource allocations.

## Background

Every country, regardless of income level, must make decisions about where and on what to spend their health budgets. These decisions are typically even harder in low- and middle-income countries (LMICs) where budgets are constrained even further.

As a result of budget constraints, each investment needs to be carefully considered. Efficient spending is important to make the most of limited resources and to understand the opportunity costs of investment decisions. Opportunity costs arise because spending money on one intervention inevitably means that this money is no longer available to fund another intervention, which could have potentially produced more health benefits.<sup>1</sup> These opportunity costs are even more significant in settings where money is scarce, because bad decisions can cause countries to have fewer resources to fund life-saving and cost-effective interventions. The efficient use of resources, guided by good priority setting, can also be a way to get more money to be put into the health sector.

## What is evidence-based priority setting?

Priority setting can be defined as the allocation of finite health resources, between competing commitments, against an infinite demand for health care.<sup>2,3</sup> Li et al. (2016) state that evidence-based (or 'rational') priority setting is when "the decision makers and the process are made explicit and transparent, and priority setting is done in a deliberative manner involving relevant stakeholders, in consideration of best available evidence about clinical and cost-effectiveness and social values."<sup>4</sup>

All countries have some form of priority setting for resource allocation; however, most countries have implicit approaches to priority setting. This means that it is unclear how or by whom health care spending decisions are being made, which "often results in low coverage of highly cost-effective interventions, overuse of cost-ineffective or inappropriate ones, inequitable coverage and access, and ultimately poor population health outcomes."<sup>5</sup>

Resource allocation in LMICs is frequently based on historical spending decisions (mainly to fund existing resources and systems such as the health workforce or number of hospital beds). For example, in Malaysia the ministry of health funds its public health care facilities based on historical spending.<sup>6</sup>

This means that resource allocation often does not follow a systematic and criteria-based process for identifying interventions that would allow for the most efficient use of their limited resources in a transparent manner. Resource allocation according to historical budgets reinforces health inequities and is not conducive to producing services in an efficient manner.<sup>7</sup> In addition, such practices tend to not be responsive to the changing dynamics of disease burden, population needs or medical innovation.<sup>8</sup>

Evidence-based priority setting should therefore be:

1. **On the basis of pre-determined criteria:** Making allocations in line with clearly articulated prioritization criteria that are context-specific;
2. **Informed by evidence:** A strong link with data and evidence that systematically informs more efficient choices (e.g., evidence on cost-effectiveness);
3. **Consultative and transparent:** Involving relevant stakeholders at all stages, while clear justifications can be made for all spending decisions.

The importance of evidence-based priority setting is well established in many publications.<sup>9,10,11,12</sup> Governments have a duty to set health priorities that make the health system more efficient and best serve its population needs. If a health system is efficient, it can meet more health needs per dollar spent and ‘do more good’; in other words, save more lives.<sup>13</sup> Therefore, using evidence to promote efficient spending in health priority setting should be regarded as an ethical imperative for government.<sup>14,15</sup>

## Why do we need evidence and data in priority setting?

Data and evidence help to ensure that we are making informed decisions in setting priorities; i.e. that we have identified the greatest disease burdens in the population, that we have correctly identified the most cost-effective and safe interventions to fund, that appropriate funding is available to cover their delivery and that we ensure decisions are fair and transparent.<sup>16</sup> However, there is currently a gap between the data and evidence available, and the evidence base used to make health-spending decisions.

This is one reason why in many LMICs, access to the most cost-effective health interventions is inadequate while at the same time, public resources are used to fund interventions that are considered cost-ineffective or even harmful by some of the world’s higher-income countries.<sup>17</sup>

There are many other reasons why evidence and data are not systematically included in the priority setting process. A study of decision makers’ in Canada has shown that lack of time and skills to find and identify relevant data and evidence, as well as interpret the results, are the biggest constraints.<sup>18</sup> Other studies have found problems such as the lack of ‘culture’ or incentives in the workplace to use data, distrust in the data quality and local applicability, inadequate evidence (disconnected from the decision makers’ questions) and an over-reliance on ‘soft evidence’ such as expert opinion.<sup>19,20,21,22</sup> There are also political reasons why data and evidence may not be being systematically used within the priority setting process, such as a lack of support from politicians or interested in maximizing political support or their own personal gain, or commercial organizations striving to maximize profits.<sup>23</sup> This is discussed further in Chapter 4.

## Purpose and rationale of this Handbook

This Handbook aims to offer practical guidance on moving toward a greater use of data and evidence in systematic priority setting by presenting the relevant types of data and evidence that may be used, discussing how to analyze or interpret the data, and addressing some of the common obstacles to using data and evidence referenced above. This Handbook has been written specifically for LMICs, and jointly produced with facilitators from the World Bank, the International Decision Support Initiative (iDSI) and country-level practitioners from 11 LMICs of the Joint Learning Network (JLN) Efficiency Collaborative.<sup>24</sup> This handbook intends to influence the higher-level priority setting decisions made by governments or their decentralized authorities (e.g., provincial or county health directorates), rather than the micro-level priority setting decisions that happen in clinics or hospitals. It intends to inform how decisions are made in the health sector; it will not discuss inter-sectoral allocations across different Ministries (e.g., health, education, agriculture etc.).

The motivation for the co-production of the Handbook by LMIC practitioners is as follows:

1. Limited evidence-based priority setting in LMICs. The importance of evidence-based priority setting is well-established in other publications.<sup>25,26,27,28</sup>
2. While there are a lot of resources about the importance of priority setting, there are not many practical resources, particularly with a focus on establishing the use of data and evidence in priority setting.
3. There are known challenges for the use of economic evaluation methods in the LMIC context, which includes poor quality data, inadequate standards of reporting, limited data access and lack of national capacity.
4. Significant institutional challenges and barriers to use of economic evaluation tools for priority setting.
5. Spending decisions in many LMICs is still highly influenced by advocacy groups, industrial pressure, and implicit or historic decision-making processes.<sup>29,30,31</sup>

## Summary content of this Handbook

This Handbook is comprised of four chapters:

1. **Chapter 1: Setting the scene** explores what types of decisions evidence-based priority setting can inform, who should be involved, the criteria on which health priorities are set and the role of the police and budget cycles.
2. **Chapter 2: Types of data and evidence** gives an overview of the types of data and evidence commonly used in priority setting and discusses some of the strengths and challenges associated with each type.
3. **Chapter 3: Sourcing, analyzing and presenting data and evidence** will provide guidance on data mapping and practical steps that you can use in identifying local and international sources of data. It looks at common data problems and types of analysis, and ways to package and present your data and evidence.
4. **Chapter 4: Data and evidence in action** presents a guide to the role of institutions in evidence-informed priority setting and the political economy of evidence-informed priority setting. It explores how funding decisions are made, the people and skills needed for priority setting, the institutionalization of priority setting and how to establish political support for evidence-informed processes.

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# Chapter I: Setting the scene

## Overview

In the introduction, we covered the need for priority setting, including having limited resources for funding interventions, the negative consequences of not setting priorities such as unnecessary lives lost, inefficient resource use and no transparent process to account for how decisions are made.<sup>1</sup>

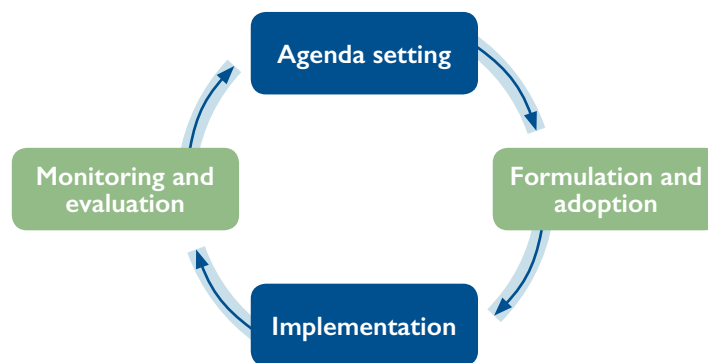
Before we explore the specifics of using data and evidence in priority setting for resource allocation decisions, it is important to review some of the related aspects including what types of decisions evidence-based priority setting can inform, who should be involved, how health priorities are set and how funding decisions are made.

## How do governments set health budgets?

### The policy cycle

Priority setting should be happening on a continuous basis, in one way or another, throughout the policy and planning cycle.<sup>2</sup> The policy cycle consists of four phases: agenda setting, formulation and adoption, implementation, and monitoring and evaluation (see Figure 1).

Figure 1: The policy cycle



### Agenda setting

Agenda setting is the 'issue-sorting' phase in the policy cycle. During this phase, some topics rise to the attention of policy and decision makers while other issues are neglected.<sup>3</sup> At this stage, advocates for various health conditions, patient groups and interventions will compete to advance their own interests.

### Formulation and adoption

The formulation and adoption stage is where decision-making bodies consider how to address the problems raised in agenda setting, and design and enact the policy. Debate will take place among policy makers to define the issues, the groups affected, the assignment of responsibility, the goals of the policy, and expected tools of implementation.

### Implementation

The implementation phase refers to the process of putting the policy into effect. It is carried out by those who are responsible and based on the planned timing and financing of the activities.

## Monitoring and evaluation

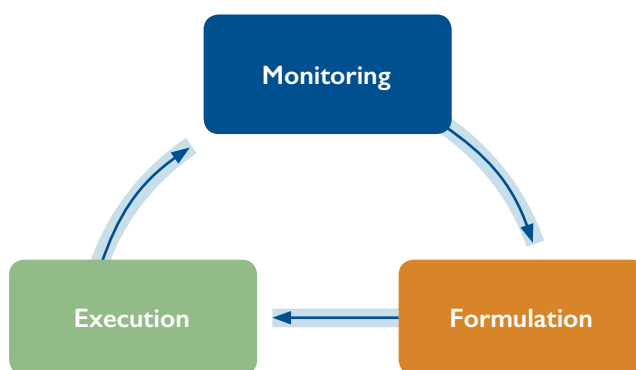
The monitoring and evaluation stage follows the implementation of a policy. It looks at the impact of the decisions that were taken and should be carried out in a rigorous and transparent way. Strong evaluation systems should be separated from the influence of external actors so that the results will reliably evaluate the impact of a policy.

## The budget cycle

The budget is the government's planned expenditure in different areas, and it is usually set on an annual basis by the ministry of finance and other financial decision makers, with inputs from line ministries on priorities.<sup>4</sup> The health budget is set as a part of this process, and it plays a key role in declaring the country's main financial objectives and its alignment with and commitment to implementing health policies and strategies.<sup>5</sup> For example, in the Ethiopian budget administration process, the ministry of health can make changes in funding allocations.<sup>6</sup>

A standard budget cycle includes three distinct stages: budget formulation, budget execution and budget monitoring (see Figure 2).

Figure 2: The budget cycle



### Budget formulation

Budget formulation involves gaining an understanding of sector priorities, making macroeconomic forecasts to determine what level of total government expenditure is realistic, and how much of this expenditure will be allocated to each sector.<sup>7</sup>

### Budget execution

Budget execution involves releasing funds to ministries or departments/agencies according to the approved budget and sector priorities to pay for goods and services. This includes payments to health care providers (both public and private) for covered services.<sup>8</sup>

### Budget monitoring

Budget monitoring involves ensuring that spending agencies comply with laws and regulations, implement good financial management systems and achieve budgetary objectives, including spending against priorities.<sup>9</sup>

### Deciding the National Health Budget

Policy priorities should be reflected as a part of the national budget. The process of estimating the costs in relation to a national health policy, strategy or plan (NHPSP) is a crucial first step which allows policy makers to decide the extent to which objectives and strategic focuses are feasible and affordable.<sup>10</sup> Costing results can be used to inform the annual budgeting process, to help steer resource allocation towards priorities, and for advocacy to mobilize additional resources if necessary.<sup>11</sup>

A well-costed and prioritized national health strategy can then be used to inform cross-sector planning and priorities over time and align to broader processes such as a Medium-Term Expenditure Framework (MTEF). The MTEF prospectively covers a three-year budget, setting out a comprehensive, government-wide spending plan that sets sector budget ceilings reflecting policy priorities and links policy priorities to revenue forecasts, sectoral allocations and health policy priorities.<sup>12</sup> However, in practice, health budgets are not always set with specific health priorities in mind and may not align to the priorities outlined in a MTEF.



Even in countries that do have a MTEF, there may be poor alignment between government policies, priorities and the budget.<sup>13</sup> For example, in Indonesia, the MTEF does exist, but is not well developed and is not used as a reference for annual budgeting.<sup>14</sup> If this is the case, resource allocation and spending on the ground will also not be aligned with government policies and national priorities. Unfortunately, in many LMICs, there is no sufficient data to assess whether policies, priorities, budget and spending are aligned.

## When should priority setting take place?

Priority setting can be done:<sup>15</sup>

- At varying intervals (e.g., annually, mid-term);
- For any given timeframe (e.g., short term, medium term, long term);
- At any level of the system (e.g., national, regional, district);
- On varying themes or health system components (e.g., hospital reform, post-Ebola health system recovery);
- With any group of actors (e.g., authorities, service providers, private sector, communities).

### Box 1

#### Country example: Identifying health spending in Mongolia [Not yet verified]

Mongolia has faced a challenge in recent years with identifying health spending. Costing data are not collected yearly, with the last costing data collection in 2015, which was not comprehensive. Resource allocation decisions are based on previous years' total health expenditure, which makes budgeting for new activities extremely difficult. Moreover, there is no effective funding tracking mechanism, so it is not clear how much has been spent in each program. As a result, there is no clear linkage between policy and priority setting, and funding decisions.

However, there have been attempts to address this problem by using the National Health Accounts (NHA) to tackle the issue. The NHA tracks how much of the resources is spent on specific health services, taking a health systems perspective (combining several payers and private spending). The results from the 2015 NHA were compiled by the National Centre for Health Development and there are plans to use those findings to develop the next NHPSP at the Ministry of Health.

There is also a new project called the Health Sector Master Plan (also called the Mid-Term Plan to Implement State Policy on Health), which was approved two years ago and will have a final product by the end of 2019. It has a health financing section and aims to address questions about how funding is spent across different programs and interventions.

## A combined approach to examining resource allocation decisions according to priorities

Understanding how the policy cycle and the overall budget cycle align is critical to ensuring that established priorities are actually funded so that they can be successfully implemented, and that the process is monitored and evaluated to inform future learning or budget decisions.

### Consequence of misalignment of policy and budget cycles

Health budget allocations often do not reflect health priorities and there is a misalignment between policy and budget cycles. This misalignment makes it hard to link health objectives with annual expenditure plans (for an example see Box 1).

Common problems in the budgeting process include ministries of health finding it difficult to influence budget ceilings determined by central budget authorities, sector budgets being submitted too late to be considered when the overall budget requirements are determined, or too little time being given to prepare comprehensive health budgets.<sup>16</sup>

Additionally, a poor culture of evidence use or the use of historical budgeting patterns may limit alignment to sector priorities. The structure of the budget itself may also limit the ability of health authorities to spend according to priorities, for example, where there is a line item instead of performance budgeting (a type of budgeting that links allocated funds to measurable results<sup>17</sup>), or other hurdles that impede flexibility in the use of funds. There may not be adequate engagement from the ministry of finance in the process of setting national health objectives, leading to a disconnect between the budgeting process and a deeper understanding of where ministry of health requests might be coming from.<sup>18</sup>

Getting a better understanding of how the policy and planning cycle can fit with the budgeting cycle (including aligning timing) is useful for country-level practitioners because it can lead to better predictability for funding flows and better budget execution.

An aligned policy and budget cycle includes:

**Prioritization (agenda setting):** Identification and prioritization of policy issues against a given forecast and budget ceiling.

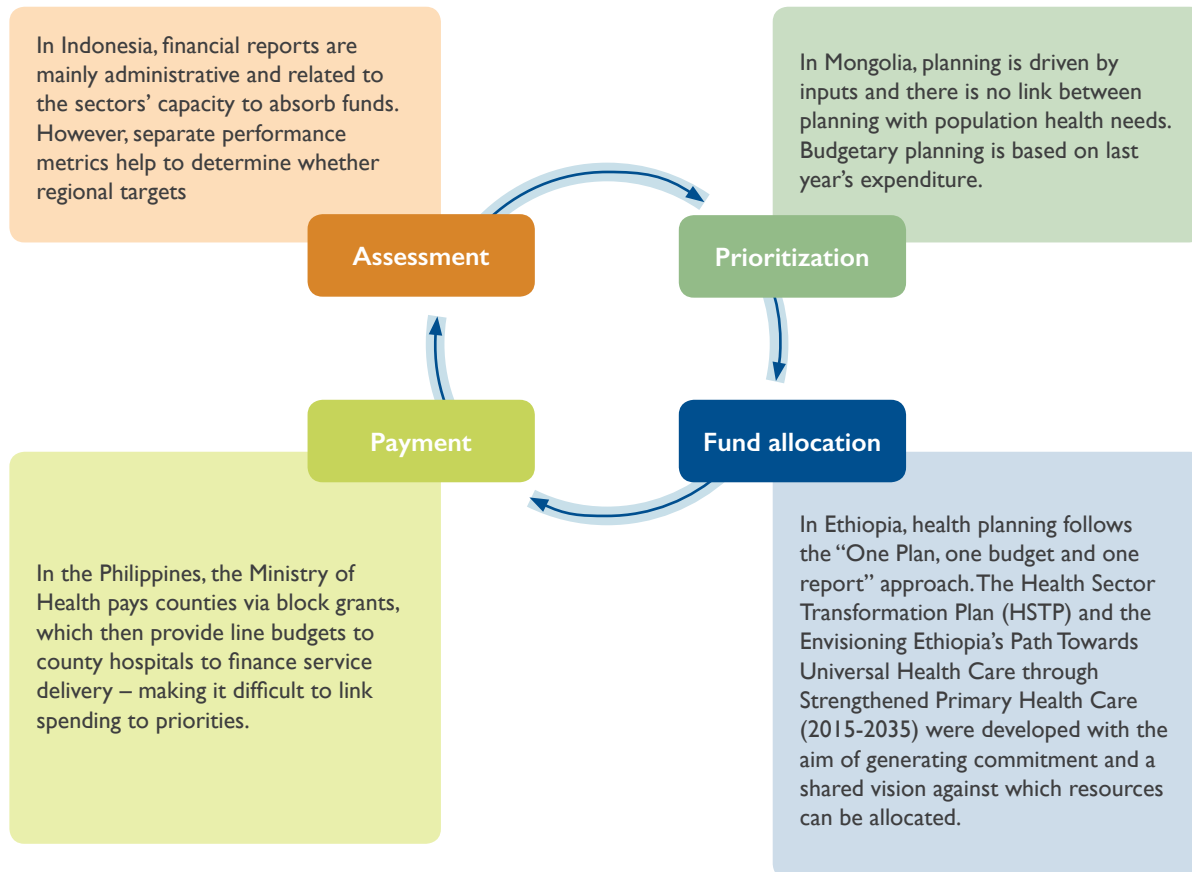
**Fund allocation (formulation/adoption):** Adoption of policies and allocation of resources against those policy priorities or to fund established health sector targets.

**Payment (implementation/execution):** Financing and spending against planned activities through various budget centers and/or responsible parties. Includes flexibility to re-allocate funds according to emerging priorities.

**Assessment (monitoring/evaluation):** Examination of whether spending has met policy and fiscal objectives, which can feed back into future planning and prioritization processes.

Figure 3 presents a diagram of an aligned policy and budget cycle along with country-specific examples for each step.

**Figure 3: Aligned policy and budget cycle**



Source: Health Priority Setting and Resource Allocation (HePRA) Tool and Database

## How are health priorities set?

### Criteria used to set priorities

The allocation of government resources for health care requires a consideration of competing trade-offs. Decision makers have to consider factors such as the disease burden, cost-effectiveness, financial protection and health equity<sup>19,20</sup> among many other considerations. It is important to note that those considerations are not always aligned, and it may not be possible to achieve all goals at once. For example, trying to improve health equity may require investments in interventions that do not address the highest disease burden or are not the most cost-effective.<sup>21,22</sup>

Multiple criteria can, however, be considered together in decision-making. Various approaches exist to evaluate how well an intervention addresses the objectives of the health system and social values. One category of analytic approaches, called Multi-Criteria Decision Analysis (MCDA), offers a structured way to assess a broader range of cultural values and societal priorities, sometimes with quantitative scores and weights for each criterion and, at other times, through qualitative information and deliberation.<sup>23</sup> This category of analytic approaches can be combined with traditional cost-effectiveness analysis.<sup>24</sup>

There have also been methods developed recently that embed equity considerations directly into cost-effectiveness analysis (CEA).<sup>25</sup> For example, the Extended Cost-Effectiveness Analysis (ECEA) was developed as a way of evaluating non-health benefits when deciding resource allocation and evaluates health policies in four ways: the health gains; the prevention of illness-related impoverishment; the total costs of the policy to the decision makers; and the distributional (e.g., across socioeconomic groups) consequences.<sup>26</sup>

Another method, Distributional Cost-Effectiveness Analysis (DCEA), enables policy makers to understand how the benefits of covering a health intervention may be experienced differently by different social groups, breaking down the assessment of value-for-money by categories such as income quintile or gender. While these methods are relatively new and quite data-intensive, they may be helpful as tools to quantitatively assess particular impacts and trade-offs for various equity considerations when there is sufficient disaggregated data to use them.

Most importantly, priority setting should be seen as a process that recognizes different kinds of objectives and moral commitments for the health system, with evidence and deliberation structured to explicitly account for multiple criteria and trade-offs; allowing decision makers to reach a judgment on the best course of action.

Commonly used criteria for priority setting at the national level include:

**Disease burden** – A larger avertable disease burden will necessitate more resources spent in a specific area.

**Cost-effectiveness** – Cost-effectiveness is a commonly used factor in priority setting. It has been used by policy makers as a priority-setting tool to ensure the largest possible health benefits created with the available budget. However, generic gross domestic product (GDP)-based cost-effectiveness ratios do not provide information on affordability, budget impact nor the feasibility of implementation.<sup>27</sup>

**External parties' contribution to healthcare** – Governments have a responsibility in addressing the disease burden that is ignored or only partially covered by the private sector and donors.<sup>28</sup> For example, non-communicable diseases (NCDs) are often not funded by external parties and are covered by domestic funds.

**Intertemporal trade-offs** – Funding decisions need to have a balance between future or long-term health gains, and present health gains.<sup>29</sup>

**Health equity** – Allocation decisions should try to promote health equity to address the needs of those who are unfairly disadvantaged and to protect more vulnerable or marginalized groups in society.<sup>30</sup> Very often, the most cost-effective interventions also promote equity. However, in some cases, a commitment to health equity will favor investments that are less cost-effective than alternative options. When these trade-offs exist, it is important to consider the evidence on improvements in equity that can be realized, versus how much of the additional health gains per dollar would need to be foregone and for whom.<sup>31</sup>

**Financial protection** – Governments may use financial protection as a criterion in priority setting to protect their populations and reduce poverty associated with illness or catastrophic health expenditures.<sup>32</sup>

**Rule of rescue** – The 'rule of rescue' is used to consider whether or not an intervention that saves an individual's life should always be funded over an intervention that improves the life of other people, whose lives are not in immediate danger.<sup>33</sup>

**Acceptability to stakeholders** – A stakeholder is a group, institution, or person that affects/can be affected by a decision.<sup>34</sup> Different stakeholders may find some decisions unacceptable. For example, health professionals may view a decision as a threat to the independence of the medical profession.<sup>35</sup>

## What decisions can evidence-based priority setting inform?

The aim of the priority-setting process is to aid a better and more efficient use of resources to achieve health sector goals, for example to move towards universal health coverage (UHC).<sup>36</sup> Priority setting is needed in order to provide a comprehensive range of health services, which are operationally feasible, aligned to social goals, and accessible to all people.<sup>37</sup> As such, the priorities established during these processes become the key linkage between policy and budgeting.

More lives could be saved by reallocating funding towards the most cost-effective and equity-enhancing health interventions, but this requires processes and institutions to make the link between evidence and health spending decisions and evaluate the opportunity costs of funding interventions.<sup>38</sup>

### Topics that can be informed through evidence-based priority setting

Here are some examples of decisions that can be supported by a rigorous priority-setting process:

**Creating a health benefits package** – Creating a health benefits package (HBP) for UHC can be informed by priority setting to determine the most appropriate or cost-effective medical technologies and interventions that would make up the benefits package. Health benefits packages are a list of services which each individual will receive from the health system such as screening, diagnostic tests, medicines to treat diseases, or surgical operations.<sup>39</sup>

**Creating an essential medicines list** – An essential medicines list includes the minimum medicine needs for a basic health care system, listing the most efficacious, safe and cost-effective medicines for priority conditions, which are selected on the basis of current and estimated future public health needs.<sup>40</sup> In Romania, a review of the Essential Medicine List showed that 30 of the top 50 medicines in the drug formulary were unlikely to be cost-effective in the country context.<sup>41</sup>

**Drug procurement decisions** – Drug procurement is an essential part of the health care system and is a major driver of overall health system costs. One review found that \$50 billion was spent on medicines annually in a subset of LMICs (for which data was available).<sup>42</sup> Yet, it often remains a neglected aspect of the healthcare system.<sup>43</sup> Priority setting can support decision makers in the procurement of medicines that are cost-effective and life saving, and can ensure that they are procured and made available to patients at an affordable price.<sup>44</sup>

**Allocating resources to specific interventions in disease programs** – Priority setting can also help decision makers identify disease areas where increased funding can have significant impacts on health or better help address other objectives of the healthcare system (e.g., equity, gender equality).

**Developing an immunization program** – Priority setting can help make difficult decisions about what vaccines to cover and how much to invest in each vaccination package. A priority-setting process is important to make sure that vaccines are appraised not only on cost-effectiveness, but also on other features such as cost, the needs of special populations, or delivery capabilities of the healthcare system.<sup>45</sup> An example of the decision-making process for the immunization program in Vietnam is discussed in Box 2.

**Making decisions about how to spend a capital budget** – A significant share of a government's annual budget goes to funding capital, which may cover expenditures such as hospitals, health centers or medical equipment in existing structures (e.g., medical machinery, ambulances and information and communication strategy). Evidence-informed priority setting can ensure that those investments are best spent to support the delivery of impactful services rather than equipment that may be inadequate given local constraints and health needs.

## Box 2

### Country example: National Expanded Program on Immunization in Vietnam

In Vietnam, the National Expanded Program on Immunization (NEPI) is managed by the National Institute for Hygiene and Epidemiology<sup>46</sup> and sits directly under the Ministry of Health and the General Department of Preventive Medicine. There are also review teams that monitor a consistent immunization service delivery strategy across certain provinces and identify service delivery challenges in the current and upcoming planning cycles.<sup>47</sup>

The regional Expanded Programme on Immunization (EPI) evaluates cost-effectiveness and the potential public health impact of existing opportunities in terms of new and underused vaccines introduced at the regional level.<sup>48</sup> Immunization programs typically need to select vaccines from a broader portfolio of available items that may not be cost-effective, may not align with the country's disease burden or may not be affordable given the program budget. For example, the program is considering vaccines such as pneumococcal (PCV) and human papillomavirus (HPV) for introduction in the future.<sup>49</sup>

National surveillance data suggests that up to 5.7 million disease cases and 26,000 deaths may have been prevented by the Expanded Programme on Immunization.<sup>50</sup>

PATH, NEPI. (2012).<sup>51</sup>

Not all decision-making will be helped by evidence-informed priority setting. For example, it will not help with calculating premium levels for insurance contributions, making a decision about how to best raise additional resources for health from different taxation options or planning for further training targeting the health workforce.

## Who should be involved in priority setting?

Priority setting takes place across all levels of the healthcare system and organizational hierarchy; and should include.<sup>52,53</sup>

- Policy makers and health planners;
- The ministry of health and other ministries such as the ministry of finance, ministry of budget and planning, treasury etc.;
- Administrative and health authorities at decentralized levels;
- Health professionals (public and non-public sectors) and professional associations;

### Box 3

#### Country example: The relationship between the Ministry of Health and the National Health Insurance Agency in Ghana

In Ghana, the central government initially set priorities through the National Development Planning Commission, which establishes the national agenda for broad areas for the whole country, incorporating political manifestos and emerging issues. Then service sectors, such as the social sector (which includes health), set their own sector priorities. Some priorities are specific to a sector, while other issues cut across different ministries. In terms of the budget and planning processes, there are national planning and budget guidelines.

The Ministry of Health (MOH) will then take the priorities that are related to health and other cross-cutting issues and develop a medium-term development plan that the agencies under the MOH respond to. When the medium-term plan is decided, it feeds into the ministerial plans for a number of years.

The National Health Insurance Authority (NHIA), which administers the National Health Insurance Scheme, streamlines their own goals and strategic plan in line with priorities of the National Development Planning Commission and the MOH to help achieve the objectives of the medium-term development plan. The NHIA receives funding directly from the Ministry of Finance (MOF).

There is much collaboration among the different agencies. The development of the strategies needs to come from the medium-term plan of the MOH, which is involved in developing the budget of the NHIA and deciding how to implement priorities. The MOH and the NHIA publish reviews together, share human resources, and the MOH trains and allocates staff to various agencies.

## Where does data and evidence fit in?

Data and evidence can support all aspects of the budgeting and policy cycle and are critical to inform the different goals identified and discussed earlier in this chapter. For example, epidemiological data can tell us about the disease burden and help identify health conditions that account for the largest share of the country's burden of disease. Economic evaluations can show whether an intervention is cost-effective and safe, whether it is acceptable in the community, or for health practitioners to use.

This Handbook will help you to identify the relevant data and evidence to your priority setting needs. In this context, relevant means that the data and evidence inform your specific decision-making process. As the amount of health data and evidence is increasing, technical staff and decision makers need to be able to discern which pieces of information address their questions best and how they can leverage this information to inform their decision-making.

There is very little research about how data and evidence can fit in the priority-setting process, and more specifically, how technical staff and decision makers apply evidence and data. Research conducted in Canada found that a lack of time or skills to search for evidence, identify relevant evidence and interpret the results were the main reasons why decision makers did not engage with evidence and data.<sup>54</sup> The remainder of this guide will seek to demonstrate how to systematically engage with evidence during priority-setting exercises.

## Chapter 1 summary

Chapter 1 has covered:

- How governments set spending budgets, including the budget cycle and deciding the national health budget;
- When priority setting should take place within the context of the policy cycle;
- How priorities are set, including some of the most commonly used criteria for priority setting;
- What type of topics and decisions evidence-based priority setting can inform;
- Who should be involved in priority setting;
- The importance of data and evidence in the priority-setting process.



## Endnotes

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# Chapter 2: Types of data and evidence

## Overview

Previous research has shown that policy makers underestimate the availability of data and evidence in their countries.<sup>1,2,3</sup> This chapter will give you an overview of the types of data and evidence commonly used in priority setting, it will discuss some of the strengths and challenges associated with each type.

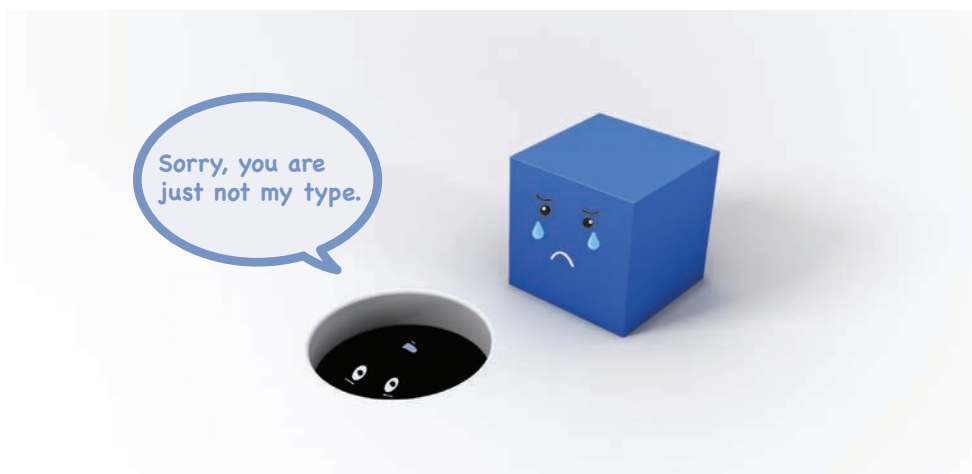
## Types of data and evidence that can be used

The type of data needed depends on the high-level goals of your health system, process and criteria for systematic priority setting in your country. As discussed, in some countries, decision makers may pay particular attention to:<sup>4</sup>

- Disease burden in the population;
- Effectiveness, safety and cost-effectiveness of the considered intervention(s);
- External parties' contribution to healthcare;
- Health equity and social acceptability of the intervention(s).

The criteria used to set priorities is discussed further in Chapter 1.

It is important to map out the criteria and/or goal(s) that you want to achieve through priority setting from the outset, as they will help you understand what data and evidence are needed, and whether the data and evidence available in your country are sufficient to inform your decisions. You should not aim to collect all the data and evidence presented in this chapter; you will need to find the right data and evidence for your own needs.



## Country-level sources of data and evidence

As a first step, you should identify data sources and evidence for priority setting in your country. The main benefit to identifying country-level sources of data (as opposed to global generalizable evidence such as WHO norms) is that it will be the most useful and accurate information to inform your priority-setting process. Countries have vast differences in terms of economic, political and health systems, disease burdens, population characteristics, and geographic features, which will all influence the countries' own set of priorities and how impactful some interventions and programs will be.

Depending on your country context, the priority-setting process and your decision problem, different sources of data and evidence can be used to inform your decision. For example, the data and evidence requirements are very different when trying to identify national health priorities to developing a health benefits package in support of UHC.

Different types of data can help answer different questions. For example, epidemiological data and routinely collected service data can tell us about disease burdens, service coverage data can tell us how many people are using a certain service or seeking a particular type of care, while health financing data can tell us how much is spent on a given intervention.

## Epidemiology

Epidemiological data and evidence are useful for understanding the disease burden (mortality and morbidity) and the profile in your country, and can be used to plan and evaluate approaches to prevent disease and as a guide to the management of patients who already have a disease.<sup>5</sup> It can also allow researchers to contextualize an economic model within a given setting.<sup>6</sup> Epidemiological data can help to answer questions such as “How many people suffer from a particular condition?”, “Where is the greatest burden of disease?” or even “Should I be investigating interventions in a specific disease area for potential investment?”.

Epidemiological data includes information on demographics (e.g., gender or age) or vital statistics (births and deaths). It can also include information on risk factors and behavior relevant to a specific disease. Common measures found in such data include:

- Prevalence – The number of people in a population with a specific disease or condition at a given time.<sup>7</sup>
- Incidence – The rate of occurrence of new cases of a disease or condition in an at-risk population during a given period of time (usually a year).<sup>8</sup> Looking at incidence will help you identify emerging health problems within your population.
- Time at risk in person-years/person-months – A measure of the time spent by each individual in the population at risk of developing illness during the study period. The ‘units of time’ measured in the study are equivalent, regardless of whether they reflect the time contribution of the same person or not (e.g., 10 people followed for 1 year, or 20 people followed for 6 months).<sup>9</sup>
- Disability-adjusted life years (DALYs) – Primarily a measure of disease burden. One DALY represents one year of healthy life lost due to disease, either through death or disability. DALYs are calculated using the sum of years of life lost (YLLs) and years of life lived with disabilities (YLDs).<sup>10,11</sup>
- Quality-adjusted life years (QALYs) – A measure of impact for an intervention that combines information on the morbidity and mortality following a treatment. QALYs incorporate information on utilities derived from different states of health, or health-related quality of life weights.<sup>12</sup>

Epidemiological data can be available at the national level, but is most useful when disaggregated by population groups, socio-economic status or geographies. Epidemiological data can also be modeled from nationally representative surveys, entomological surveys (e.g., in the case of malaria) or routine health information systems (e.g., civil registration systems or birth registries).

Nationally representative sources of epidemiological data include data from National Statistical Bureaus/Offices (e.g., for birth and death data). For example, the National Nutrition and Health Survey is regularly carried out by Nigeria’s National Bureau of Statistics,<sup>13</sup> while Kenya’s National Bureau of Statistics carries out the Integrated Household Budget Survey.<sup>14</sup>

#### Box 4

##### Country example: Kenya Integrated Household Budget Survey 2015-2016

The Kenya Integrated Household Budget Survey 2015-2016 was run by the Kenya National Bureau of Statistics and affiliated with the Ministry of Devolution & National Planning, with funding from the Government of Kenya and the World Bank.

The survey collected information on the household members including demographics (sex, age, etc.), education (school attendance, highest grade completed, etc.), health (morbidity and mortality, fertility, etc.), employment and child nutrition (under-five malnutrition, delivery care, breastfeeding, etc.).

General health characteristics discussed in the report of the survey include morbidity (desegregated by sex), health-seeking behavior, utilization of health care services and facilities, disability and engagement in economic activities and health insurance coverage.

The survey also collected information on child health such as place of delivery, assistance during delivery, immunization and incidence of diarrhea.

Kenya Integrated Household Budget Survey 2015-2016<sup>15</sup>

International data sources of national estimates include World Health Organization (WHO), the World Bank and other United Nations agencies (e.g., UNAIDS, UNICEF, etc.). In addition, the Institute for Health Metrics and Evaluation (IHME) Global Burden of Disease (GBD) Study and database is a valuable resource for estimating global disease incidence and prevalence by age, sex, cause of disease, year and geographical location using a number of analytical procedures.<sup>16</sup> Data can be compared across disease groups, time and countries. GBD data are derived from household surveys archived in the Global Health Data Exchange, with sources suggested to the GBD team by in-country experts.<sup>17</sup> Multi-national survey data catalogues, and MOH and central statistical office websites were also used to identify relevant data sources.<sup>18</sup>

Some of the values are extrapolated from estimates due to a lack of real data. The GBD 2015 data availability by country ranged from 6.1 and 91.3 percent in the USA.<sup>19</sup> It is important to recognize the limitations of using estimates in countries where data is scarce and often incomplete.<sup>20</sup> Data can be found online at: <http://www.healthdata.org/gbd>.

#### Box 5

##### Country example: Use of Global Burden of Disease data in the Philippines

The Global Burden of Disease (GBD) and Disease Control Priorities (DCP3) are the leading international sources for country estimates of burden of disease and evidence on the cost-effectiveness of interventions. Wong et al. (2018) present a method for applying existing global data sources to generate a local priority list of diseases and interventions that may be used as an input for the creation of a health benefits package to achieve universal health coverage (UHC).

The analysis of the GBD in the Philippines found that a demographic transition was underway in the country as most of the future increase in disability-adjusted life years DALYs come from non-communicable diseases (NCDs) such as ischemic heart disease and lower respiratory infections. They found that focusing on 48 diseases would address more than 80 percent of the total future DALYs. However, focusing on those 48 selected diseases would have meant excluding another 68 diseases from coverage. The authors found that excluding those disease areas may have an adverse consequence on equity: some diseases featured low in the overall disease burden ranking but were found to be mainly found in vulnerable populations and among populations that are worst off. The authors recommend looking at equity and financial risk protection as additional sources of evidence and data to re-prioritize the list of services to best meet the goals of UHC in the country.

Wong, J.Q. et al. (2018)<sup>21</sup>

## Service coverage data

Service coverage data is useful for determining service usage and gaps in utilization, and documents how many people are using a certain service or seeking care, what services they access, where they access it, and at which frequency. This data can also help in determining the cost and use of certain interventions in order to estimate the budget impacts of introducing a new intervention into the health system.<sup>22</sup>

The following indicators may be useful to you:

- Vaccination rates
- Coverage rates for insurance
- Hospitalization rates
- Other proxy indicators for measuring service coverage can be used, such as antiretroviral therapy coverage (ART), tuberculosis treatment coverage, family planning and skilled attendance at birth.<sup>23</sup>

Service coverage indicators that focus on the provision of essential healthcare services are most relevant to LMICs.<sup>24</sup>

Service coverage data can help to identify equity issues. Inequities in health service provision may be a consequence of gender, socio-economic status, ethnicity, religion, age or geographic location.<sup>25</sup> Therefore, it is important to collect, alongside information on utilization, data about the patient characteristics (when possible) or location of services.

Coverage data can help to answer questions such as “Do I need to improve financial protection for specific communities?” or can help you more effectively target investments in health to those at most risk of ill health.

Sources of this type of coverage data include household surveys and peer-reviewed literature and Demographic and Health Surveys (DHS). The DHS Program has collected, analyzed and disseminated representative data on population and health through more than

400 surveys in over 90 countries. They are nationally representative household surveys that provide data for a wide range of monitoring and impact evaluation indicators, and are typically carried out every five years with a sample size of 5,000-30,000 households.<sup>26</sup> For example, India recently has had five DHS surveys – in 1992, 1998, 2005, 2015 and 2018, while Kenya has had six surveys – in 1989, 1993, 1998, 2003, 2008 and 2014.<sup>27</sup> You can see how many DHS surveys your country has had here: <https://dhsprogram.com/Where-We-Work>.

Other international sources of data include the UNICEF databases, WHO Global Health Observatory on Health, the IHME Global Burden of Disease Study and disease-specific sources like UNAIDS database. The World Development Indicators Database from the World Bank contains a list of coverage data compiled from officially recognized international sources such as immunization rates for diphtheria, tetanus and pertussis three doses (DPT3); hepatitis B three doses; and measles. It presents the most up-to-date and accurate global development data available, and includes national, regional and global estimates.<sup>28</sup> It can be found online at: <https://databank.worldbank.org/source/world-development-indicators>

## Health financing data

Health financing data can help in determining what resources are available to you, how much different actors pay for services, how much is spent on a given intervention, how much is spent on primary health care versus secondary or tertiary health care, and what kind of services, commodities and medicines are purchased by who. It helps you understand how resources flow in your system and get a sense of whether resources are spent efficiently for different actors.

The following indicators may be useful to you:

- Estimates of catastrophic health spending and medical impoverishment rate<sup>29</sup>
- Out-of-pocket payments
- Domestic spending on tuberculosis program
- The third dose of the DPT3 vaccine can serve as a proxy to estimate the cost per fully immunized child<sup>30,31</sup>

Increasingly, data on unit costs and service delivery costs are collected. Unit costs “represent the total cost of producing a service divided by a given level of unit of intervention, output or service” and they can be measured across a whole program or a specific location.<sup>32</sup> As intervention or service levels increase or decrease, average costs will change.<sup>33</sup> Unit costs can include all the costs involved in producing a health intervention compared to doing nothing, or the additional costs that would be required to add or expand a service.<sup>34</sup>

Health financing data can be used to answer questions such as “What is the proportion of individuals that fall into poverty as a result of healthcare bills? How can I reduce this?” Health financing data can also be used to ensure that out-of-pocket payments are decreasing, and the incidence of catastrophic and impoverishing health expenditures are reduced.<sup>35</sup>

Sources of health financing data include:

- Nationally representative financial surveys:
  - Living Standards Measurement Study (LSMS)– A household survey program within the Survey Unit of the World Bank’s Development Data Group. Since the 1980s, it has worked with national statistical offices around the world, assisting in the design and implementation of household surveys in the measurement and monitoring of poverty.<sup>36</sup> It collects data on income, work and employment, and household consumption behavior including spending on health care.<sup>37</sup> LSMS collects information on health spending in all selected countries, but the way the information is collected varies; for example, some LSMS collect health spending data at the individual level while others only collect this information at the household level.<sup>38</sup>
  - Household Budget Surveys and Household Income and Expenditure Surveys ,
  - Demographic and Health Surveys – Nationally representative household surveys, typically carried out every 5 years.<sup>41,42</sup>
- **National Budget** – Data may be available from the treasury or MOF on historical health budgets. This will help indicate how resources were planned for use.
- **Expenditure data** – There might be differences between what was budgeted and actual recorded expenditure, especially in LMICs where the absorption is an issue. It is, therefore, important to use expenditure data because in some countries not all budget lines are implemented according to what was planned. The National Health Accounts is a good source of expenditure data as it is intended to track the flow of money in the health sector.<sup>43</sup> National Health Accounts can be used to track how much money is being spent in the health system, where it is spent, what it is being spent on and for whom, and can be used to monitor changes over time.<sup>44</sup> It can also be used to compare health system expenditures with other countries.
- **Resource mapping exercises** – they are conducted and reviewed in countries where external financing is significant. Resource mapping often adopts a sector-wide approach and combines information on financing sources and amounts for a defined set of services (e.g., for maternal and child health). It can also document what activities are funded, and how funds are allocated across different geographies or population groups of interest.
- **The Global Health Cost Consortium** – developed a unit cost repository that allows users to find unit costs in their country for particular sets of services.
- Peer-reviewed literature.

The WHO Global Health Expenditure Data is a recognized source of internationally comparable data on health spending. The database is maintained collaboratively with member states and updated on a yearly basis. The database contains information from between 2000 and 2016 on almost all countries in the world. The estimates are presented at the national level, but can also be disaggregated by source of funding, type of funding (current versus capital), type of healthcare providers or level of care.

The data query function is simple and data reports can be freely downloaded on <https://apps.who.int/nha/database/Select/Indicators/en>

## Evidence on interventions and economic evaluation

Economic evaluations assess the clinical value and costs of an intervention, i.e., how much it costs (in the present and in the future) for how much health benefit is produced by an intervention. There are several types of economic evaluation (see Box 6) that can help you address different questions such as:

- How does this new intervention compare to existing interventions that are already funded in my healthcare system?
- Should I invest in intervention A?
- If I implement intervention A, how much would it cost to implement for the entire population versus for targeted groups?

### Box 6 Types of economic evaluation for priority setting

**Cost-effectiveness analysis (CEA)** is a comparison of costs in monetary units with outcomes in quantitative non-monetary units such as quality-adjusted life years (QALYs) and disability-adjusted life years (DALYs) or in natural units (such as cholesterol level, mortality or case detection). The main outcome of interest in a CEA is the Incremental Cost-Effectiveness Ratio (ICER), which summarizes the difference in costs and health benefits produced by two interventions (usually an intervention and the standard of care/baseline). CEA is sometimes termed cost-utility analysis (CUA) if QALYs or DALYs are used as health outcome measures. You should give thought to whether your preferred health outcome measure should be in natural units (e.g., life years gained, number of deaths prevented) or in a summary measure of health (QALYs gained, DALYs averted). An advantage of using natural units is that it is more readily understandable by clinicians and the public and easier to validate.

**Budget-impact analysis (BIA)** can be conducted in addition to a CEA to determine the impact of implementing or adopting a particular technology or technology-related policy on a designated budget, e.g., for a drug formulary or health plan. CEA and BIA can be presented as a Health Technology Assessment (HTA).

**Cost-of-illness analysis** is a determination of the economic impact of an illness or condition (typically on a given population, region, or country), e.g., of smoking, arthritis, or diabetes, including associated treatment costs

**Cost-consequence analysis** is a form of CEA that presents costs and outcomes in discrete categories, without aggregating or weighting them.

**Cost-benefit analysis (CBA)** compares costs and benefits, both of which are quantified in common monetary units.

Source: Goodman et al. (2014)<sup>45</sup> and the iDSI HTA Toolkit<sup>46</sup>

Sources of cost-effectiveness data include peer-reviewed literature and unit cost repository data. Some sources of peer-reviewed literature that can be queried in search engines such as [PubMed](#), [Google Scholar](#), or [Scopus](#). In addition, in the absence of existing studies, you might consider generating an economic evaluation de novo if you have available resources (see next section).

## Box 7 Tufts Database

The Cost-Effectiveness Analysis (CEA) Registry is a comprehensive database of over 7,000 cost-utility analyses. Articles are on a wide variety of diseases and treatments published from 1976 to 2017. Users can search the database by typing keywords on a specific intervention, or by entering a country name.<sup>47</sup>

The registry includes:

**Article Information** such as the type of intervention evaluated, the country of the analysis, the funding source, and information regarding methodology (including whether the paper correctly calculated incremental cost-utility ratios).

**Ratio Information** including a description of the health intervention under evaluation, the intervention it is being compared with and the population eligible for the intervention.

**Utility weight information** - the utility health state, the utility weight value, and any secondary literature sources used.

The Tufts Database can be found online at:

<https://cevr.tuftsmedicalcenter.org/databases/cea-registry>

## Routine data

Routine data corresponds to data generated as part of the operation of the health care system for purposes other than research (typically administrative reasons or to support care).<sup>48</sup> The advantage of routine data, depending on the quality, is that it can be accessed at low cost. It can be population-wide or only for a sample of the population, and may be available nationally, regionally, or locally<sup>49</sup>.

Sources of routinely collected data that can be used for priority setting include:

- Infectious disease surveillance data;
- Electronic medical records;
- Hospital episode data/information systems (HIS);
- Claims data from health insurance funds;
- Supply chain data on medicines and commodities.

In countries with UHC, claims data may be more useful than survey data, which sometimes underestimates prevalence or incidence due to non-responder bias.<sup>50</sup> Since routine data is generated on a continuous basis, it can be a rich source of information. It can enable the creation of time series or patient histories or can be used to assess differences across different geographical areas.

It can help answer a wide range of questions that would traditionally be answered through surveys or purposely collected data (as discussed above), such as “What are the most common conditions leading to hospitalization?” or “What are the top items prescribed in primary care and how does it vary between regions?”. In Rwanda, indicators to monitor the quality of services are built into routine data collection efforts through the Mentoring and Enhanced Supervision at Health Centers (MESH) program.<sup>51</sup>



## Box 8

### Country example: National Data Warehouse in India

India's National Data Warehouse (NDW) was launched in September 2018. It encompasses data from three sources: the Beneficiary Identification System (BIS), Transaction Management System (TMS) and Hospital Empanelment Application (HEM).

- 1. Beneficiary Identification System.** BIS is used by hospitals and Common Service Centres (CSCs) to verify beneficiaries. It captures the personal information that is submitted during the identification process, such as the basic demographics of the patient including age, gender and marital status. It also generates a unique National Health Authority (NHA) identification number to track patient utilization and claims data.
- 2. Transaction Management System.** TMS is used by hospitals to manage patient cases. It captures claims data from all transactions happening at the hospital level, including pre-authorization requests, treatment plans, claims submissions and payments. It can help to map out when a beneficiary arrives at the hospital, what treatment they receive and when (including time stamps at different stages). It will also record when the hospital gets reimbursed for the claim.
- 3. Hospital Empanelment Application.** HEM is used by states and hospitals to manage the empanelment process. It captures data on hospitals such as the infrastructure, medical staff, specialties, etc. It also generates hospital identification numbers to track service utilization and claims.

These three sources of data are used to create analytics and dashboards, and feed into Fraud Management Systems. Data collected will be used in the future to bridge the health infrastructure supply (provider) and demand (disease burden) gap, and to design primary care and prevention interventions.

The **Data Insights Team** at the National Health Authority (NHA) monitors data quality from the three data systems, conducts review meetings with state coordinators to assess performance and identifies key areas for priority setting on issues within empanelment, beneficiary identification, scheme utilization and timely payments to healthcare providers, among other roles.



## Box 9

### Country example: MyHealthData Warehouse and National Health Morbidity Survey in Malaysia

#### MyHealthData Warehouse

Prior to the introduction of Malaysia's MyHealthData Warehouse (MyHDW), the information systems at various levels within the Ministry of Health, government and private health care facilities faced several challenges. One of these was the fact that data were divided among different organizations.

There was a clear need for one system to enable evidence-based decision-making and planning at both the ministry and facility levels. This led to the start of the MyHDW project in 2010, which was an attempt to consolidate and centralize facility-based survey data.

MyHDW collects data from all healthcare facilities – government, private, university and army hospitals, across all the services offered by these facilities. The health data collected are non-identifiable, such as demographic data, clinical data, and procedural data through its two source systems, Sistem Maklumat Rawatan Pelanggan (SMRP) and Patient Registry Information System (PRIS).

#### The future of MyHDW

It is anticipated that as the MyHDW develops, it will collect data from sources such as healthcare facilities and divisions and programs within the MOH.

In terms of technology expansion, there is potential for the application of artificial intelligence via MyHarmony in the analysis of other forms of data such as image and sound files. To cater to the needs of researchers, a virtual environment has been proposed to enable experimentation with data sets in a safe and secure environment.

#### National Health Morbidity Survey

The National Health Morbidity Survey (NHMS), which began in 1986, was originally scheduled to be every 10 years. Recently the survey has been undertaken annually, with each year having a different scope. For example:

- 2011 – Global Adult Tobacco Survey
- 2012 – School-based Student Health Survey & School-based Nutrition Survey
- 2014 – Adult Nutrition Survey
- 2015 – NCDs and Healthcare Demand
- 2016 – Maternal and Child Health
- 2017 – Adolescent Health & Nutrition Survey
- 2018 – Elderly Health
- 2019 – NCDs and Healthcare Demand

The scope of the survey is decided by the National Survey Committee. The committee presents the topics to cabinet members, and these are prioritized by the current disease burden and health challenges in the country.

The results from the NHMS provides evidence-based information to the MOH on health status and risk factors of diseases to review the priorities and activities of the health program, to plan for future allocation of resources and to evaluate the impact of strategies.

## Strengths and weaknesses of country-level data sources

You will use a combination of different data and evidence sources to inform priority setting in your country. With the data and evidence that you have identified and have available to you, consider the strengths and weaknesses of each data source to help with your decision problem. A summary table of the strengths and weaknesses of the different country-level data sources discussed above can be found in Annex 1.

## Global data and evidence

Global sources of knowledge of intervention effectiveness and cost-effectiveness include the Disease Control Priorities and WHO Guidelines. 'Global data and evidence' outlines best practices in different areas of health but does not account for countries' individual financial and health system circumstances.

### Disease Control Priorities

The Disease Control Priorities (DCP3)<sup>52</sup> provides a comprehensive review of cost-effective interventions in a number of different settings. It gives an overview of the most up-to-date knowledge in every disease area, gives practical advice and guidance towards 'best buys' and includes a narrowed-down essential care package. For use in individual country settings, you can apply methods and results to different country contexts to support priority setting.

A third edition of DCP3 was published in December 2017. It comes in nine volumes; the first eight cover packages of related interventions while the ninth provides an overview of main findings and conclusions about health priorities.

It can be found online at: <http://www.dcp-3.org>

### Guidelines from the World Health Organization

One of the core functions of the World Health Organization (WHO) is to develop international guidelines based on evidence and best practice around the world. Guidelines are developed by the Guidelines Review Committee, a group that was set up in 2007 at the request of the Director General. The Guidelines Review Committee meets on a monthly basis and ensures that the guidelines are of high quality, based on rigorous evidence, and that their development is transparent.

Guidelines can be queried by topic at: <https://www.who.int/publications/guidelines/en/>

## Chapter 2 summary

Chapter 2 has covered:

- The types of data and evidence that can be used in priority setting;
- Country-level sources of data and evidence including epidemiological data, service coverage data, health financing data, evidence on interventions and economic evaluation and routine data;
- Global sources of data and evidence, including DCP3 and WHO guidelines.

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# Chapter 3: Sourcing, analyzing and presenting data and evidence

## Overview

This chapter will provide guidance on carrying out a data mapping exercise and practical steps that you can use in identifying local and international sources of data. It looks at common data problems and types of analysis, and ways to package and present your data and evidence.

## Data mapping and data gap assessment

You can use a data gap assessment to highlight gaps in your country-level data and evidence, and to identify future data collection needs in order to inform primary data collection, or work out where international sources of data and evidence can help you.

## How do you do data mapping?

1. First you will need to identify the key areas of information required for the type of analysis you are doing.<sup>1</sup> For example, do you need cost data for a cost-effectiveness analysis, epidemiological data for understanding disease burden, or routine data? This will depend on your decision problem (as discussed in Chapter 2).
2. List all data sources in each of the areas that are already known to you and your team.
3. Review past literature (reports, research papers, communications) relating to the field or question of interest to identify existing sources of data or relevant references in the country
4. Approach key informants working within the broader field for additional inputs on possible data sources, and to ensure that the information you have identified is sufficiently comprehensive.<sup>2</sup>
5. Assess each of your identified data sources for their ability to fulfill your needs
6. Carry out a data quality assessment. USAID has a Data Quality Assessment Checklist<sup>3</sup> to help you do this, which can be found online at: <https://usaidearninglab.org/library/data-quality-assessment-checklist-dqa>

### Box 10

#### Country example: Data mapping in India

Downey et al. (2017) reviewed the availability of data in India to support priority setting in the Health Technology Assessment (HTA). They identified:

- Household surveys (Demographic Health Surveys, District Household Surveys)
- Reviewed data from vertical programs (e.g., national program for the control of blindness)
- Numerous large local data sources containing epidemiological information, but with a marked absence of other locally collected data, particularly with little data relating to costs, service use, and quality of life.

Source: Downey et al. (2017)<sup>4</sup>

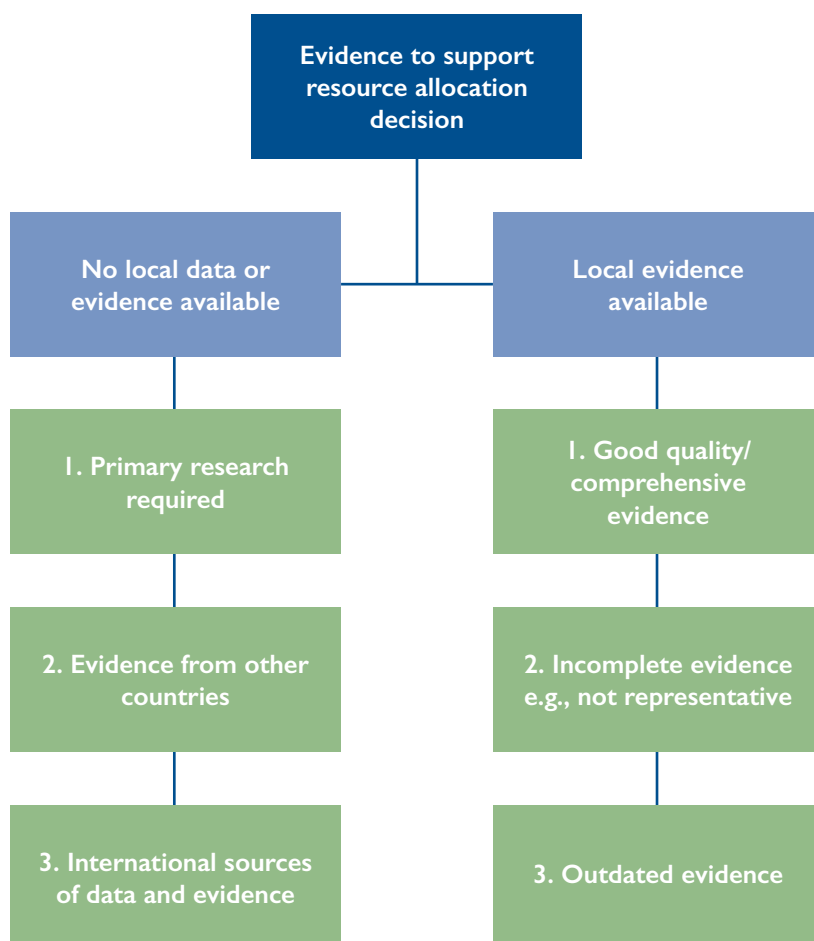
Once you have carried out the data mapping, you may find that the information is complete (the best news!), or that it is insufficient. If it is insufficient, you may not be fully comfortable with applying the results directly to your priority-setting decisions.

Countries have different starting points when it comes to availability of data and evidence, so we have summarized commonly encountered problems in LMICs and the corresponding suggestions (Figure 4). This section provides practical advice to move forward despite your data challenges.

## Mapping out different scenarios from the data mapping and data gap assessment

You can use a data gap assessment to highlight gaps in your country-level data and evidence, and to identify future data collection needs in order to inform primary data collection, or work out where international sources of data and evidence can help you

**Figure 4: Commonly observed problems in data and evidence use**  
(see Annex 3 for more information)



## The bad news: no local data and evidence available

### 1. Primary research is required

If you have identified no relevant data – including data from other countries that could be adapted to your country situation – then you will begin from a ‘no data’ baseline.

If you have the time and resources to do so, generating evidence through primary data collection might be a good option. Primary research involves the collection of original data (i.e. that has not been collected before) through surveys, experiments, interviews, or observation. Depending on the type of evidence needed, data collection efforts can be significant and might require substantive planning over a long period of time.

The resources and timescales over which the evidence is generated in primary research might not be compatible with the pressing nature of some policy decisions, making it often impractical and unaffordable in both time and cost. Primary research is also resource intensive, which is why it can be more useful to identify research from other contexts and adapt it to your country’s situation.

#### Box 11

#### Support for researchers on economic evaluation: The Guide to Economic Analysis and Research

The [Guide to Economic Analysis and Research \(GEAR\)](#) online tool is a useful resource for priority setting. It provides information on methods of data collection and analysis for economic evaluations. It was developed by the Health Intervention and Technology Assessment Program (HITAP) and is based on a literature review of economic evaluation methodological issues and survey responses of national and international experts, academics, public health officials, and other relevant stakeholders.

It provides definitions and ways of solving methodological difficulties in the conduct and use of economic evaluations.

It can help with questions such as:

- What type of modeling should I use?
- What health outcome data should I use?
- How do I overcome data limitations?
- How should I present my research results?

Source: The Guide to Economic Analysis and Research (GEAR)<sup>5,6</sup>

### 2. Evidence and data from other countries

If you do not have local data and evidence, you may be able to use data from other countries – ideally from a neighboring country with a similar income level and comparable health system challenges. You will need to ask yourself whether the setting and environment from which the data were generated is sufficiently similar to yours. A review conducted in Vietnam, India and Bangladesh found that some policy makers felt it was inappropriate to use data and evidence from other countries without adaptation because of differences in costs and clinical practice.<sup>7</sup> However, they agreed that economic evaluation studies can be used in different settings if locally relevant information is used in models, and most respondents were familiar with using evidence from other countries.<sup>8</sup>

There is no empirical means to establish whether the results from another country are entirely generalizable or applicable to your own country. Creating a discussion with experts or relevant stakeholders (e.g., patient groups or health workers) may help in understanding whether this is a suitable option.

However, some experts have pointed out that cost data (e.g., unit costs for delivering a service) vary significantly between countries and are often not transferrable. Only in very rare occasions should epidemiological data be used from another country. Some data pertaining to the effectiveness of an intervention (e.g., clinical effectiveness of a drug, effectiveness of a new testing kit or an intervention) are often used from other contexts (typically because those are generated from a trial setting).



Before using or adapting data or evidence from other countries, you should reflect on the points outlined below to critically appraise the suitability.<sup>9</sup> More information, including on the Population, Intervention, Comparator, Outcomes (PICO) format, can be found in Annex 2.

- Is the evidence or data relevant to your decision problem?
- How generalizable is this type of evidence?
- What is the quality of the study?
- Does the setting where the evidence is produced present significant differences (compared to your setting) in the following factors:
  - Demographic (characteristics of the population)
  - Epidemiological context
  - Local health system constraints
  - Baseline characteristics
  - Societal preferences (e.g., cultural values)
- If differences exist: how likely is it that those differences would impact on the results of the study or survey?

Make sure to document the answers to the points discussed above before using evidence from other countries, as they may also be used to discuss the suitability of the data or evidence with the relevant stakeholders. In some cases, you may be able to adapt evidence or data estimates to your own country context. For example, you can adapt evidence by:

- Adjusting cost structures to match your own context.
- Adjusting known model parameters to reflect your own constraints (e.g., in a disease model).

However, adapting studies can be resource intensive and may not always be possible (if all the methods, parameters and data are not adequately presented in the original study or shared by authors). It is worth noting that there is very little guidance on adaptation and its suitability. If you are interested in this avenue, you should consider:

- Making contact with the authors of the study.
- Reaching out to local universities or research institutes in your own country to discuss the practice of study adaptation.
- Assess how much data and resources can be used for the adaptation.

### 3. Global evidence

As discussed earlier, sources of global evidence include international data sources data from the WHO, the World Bank or other United Nations agencies (e.g., UNAIDS, UNICEF, etc.) and the IHME Global Burden of Disease study.

International literature and recommendations can also be extremely useful as a guide or basis for a decision. For instance, WHO guidelines and Disease Control Priorities are the most up-to-date and comprehensive sources of evidence on the value-for-money of interventions and investments in the health sector.

However, such guidelines are developed at the global level and typically cannot take into account country characteristics, including their economic constraints or local preferences, values and norms. For example, most of the global guidance developed by WHO does not include economic considerations. It is also important to consider country contexts other than budget constraints when thinking about global guidance. One of the common examples is the use of GeneXpert, a device developed to diagnose TB, which requires a stable power supply and constant air conditioning. Studies have reported that interruption of electricity may cause erroneous test results.<sup>10</sup> This suggests that the device may be unsuitable for use in a number of settings in LMICs, where power outages may be frequent.



## Local evidence is available

### I. Starting questions

#### Data access

You will need to consider whether local data are available to you. Consider the following questions:

- Who collected the data and evidence? For example, universities.
- Who owns the data and controls its access?
- Are the data easily accessible to decision makers?
- How well do different data sources link together?
- Are there any ethical issues or special procedures that need to be followed to access the data? For example, privacy issues surrounding HIV data.

Is your data and evidence of good quality?

It is important to ensure that the data and evidence you are using to inform your priority-setting exercise is 'good quality'. 'Good quality' evidence will be:

1. **Relevant** to the decision problem. This means the evidence will cover the indicators you need to inform your decision making. As discussed above, this may include many different sources of evidence and types of data such as routine, epidemiological, or financial.
2. **Comprehensive**. The data and evidence will provide all the information that is necessary for you to assess the decision problem.
3. **Representative** and **generalizable** to the population of interest. It is not practical to study an entire population, so studies will use a sample (or subset) of a population using different sampling methods such as random, systematic or stratified sampling.<sup>11</sup> 'Good quality' evidence closely reflects the actual population and does not contain sampling biases.

#### Tools to assess the data quality

There are tools that can help you assess the quality of your data, for example, [Grading of Recommendations, Assessment, Development and Evaluations \(GRADE\)](#)<sup>12</sup> or the [Critical Appraisal Skills Program \(CASP\)](#). GRADE was developed as a way of rating the quality of evidence, and includes four levels of evidence quality: high, moderate, low, and very low.<sup>13</sup>

CASP developed an approach to assess the risk of bias and study quality for a range of types of evidence, such as systematic review and individual studies such as randomized controlled trials (RCTs) and cohort studies.<sup>14</sup>

On costing and economic evaluation, two Reference Cases have been developed. A Reference Case defines a set of principles to ensure that research used in priority setting has been based on best practices and that findings are interpreted correctly. It provides a baseline for standardizing as much of the planning, conduct and reporting of research as possible, and allows the reader to understand the choices made by researchers when conducting an economic evaluation, and the potential impact of these decisions.

#### International Decision Support Initiative Reference Case for Economic Evaluation

The International Decision Support Initiative (iDSI) [Reference Case](#) has a three-part structure that covers principles, methodological specifications, and reporting standards.<sup>15</sup> The principles can be applied across any intervention type, context or type of decision makers, and the methodological specifications guide researchers on how to conduct the research to a consistent standard. The reporting standards encourage full transparency and clarity in reporting results and in the approach to the analysis. In this way, using the iDSI Reference Case enables an economic evaluation to be contextualized according to a country's specific values and characteristics while maintaining constancy and quality in the approach to the analysis.<sup>16</sup>

#### Global Health Costing Consortium Reference Case<sup>17</sup>

The Global Health Costing Consortium (GHCC), an initiative with a focus on TB and HIV, was launched in 2016 and funded by the Gates Foundation. GHCC aims to improve resources for decision makers in estimating the costs of TB and HIV programs. It includes a Reference Case and is a useful tool for assessing quality of the evidence reporting.

The GHCC Reference Case provides an overview, or reference document, of costing methods that can be applied in different documents and tools to support costing.<sup>18</sup> It is intended for use by policy makers, program managers, health service managers and analysts, government ministries, international donors/multilateral organizations, private foundations, research institutions, and nongovernmental organizations (NGOs).<sup>19</sup> It can be found online at: <https://ghcosting.org>.

### Harvard Reference Case Guidelines for Benefit-Cost Analysis in Global Health and Development

The [Harvard Benefit-Cost Analysis Reference Case](#) Guidelines were initiated by the Bill & Melinda Gates Foundation in 2016. The guidelines aim to clarify important concepts in benefit-cost analysis and provide default values for key parameters, such as options for monetization of mortality, and morbidity effects of interventions.

#### Modeled vs. survey data

You will need to consider the differences between modeled data and observed survey data. Modeled data have not been collected in the 'real world', this data have been generated using complex methods, such as disease transmission models or regression analysis, based on parameters that are generated from assumptions (made by researchers) or data collected in the 'real world'.

For example, the Global Burden of Disease study uses estimates. Estimation techniques can be very useful for measuring burden of disease because the primary data is not 'perfect' and does not always give us a complete or comparable picture of health.<sup>20</sup> Raw data could be skewed by response bias (where individuals inaccurately or falsely report their behavior) or sampling bias, or problems in data collection, such as in remote or dangerous areas. Estimates can help decision makers develop a better understanding of health trends in their country, their region and the world.<sup>21</sup>

However, estimates should be treated with some caution. Many countries have poor quality data on the causes of death on which estimates are based.<sup>22</sup>

#### Outdated data and evidence

Outdated data and evidence may no longer reflect the real-life situation in your population (for example, a study done over ten years ago may not represent the actual disease burden or current medicine prices, etc.). The use of outdated data is a very common in LMICs where data and evidence are produced based on identified needs and funding availability, which means that they may not be systematically updated or revised. For example, if a study on testing of TB was produced 15 years ago, would you still consider it relevant to your context today? What if this evidence is ten years old? Or five years old?

There is some debate over at what point a study becomes 'outdated' and there is no clear cut-off point. A useful starting point is to engage local and relevant stakeholders on the data and evidence and ask them whether they think that the study results are still valid. This can also be used to assess the concerns that may arise from using older data, and strategies to assess whether it is suitable to use or if it is better to develop strategies to bring the data and evidence 'up to date'.

In determining whether your data is outdated, consider the following:

- Does the evidence still address current questions in your health system?
- Are the original characteristics of the study or data still relevant to the context of your country today?
  - What are the changes since the study/data was produced?
    - You may query other data or studies produced on topics related (i.e., within the same disease area or similar types of interventions)
  - Are those changes likely to impact the results of the study? If so, think about the direction of those impacts and their magnitude.

## Box 12

### Country example: Antiretroviral adherence in HIV-positive women in the United States

A study was done using the case study of antiretroviral adherence in HIV-positive women in the United States, to see whether timeliness is an issue in appraising and ensuring the clinical relevance of systematic reviews. The researchers found that some treatment aspects which were studied (such as type and size of pills, number of pills per dose, number of doses per day and dietary restrictions) were no longer as relevant. This meant findings were time-sensitive or outdated. Advances in antiretroviral therapy transformed HIV from a fatal to a chronic disease, and treatment guidelines had drastically changed.

The study argues that time considerations play a role in:

- The formulation of research problems and questions,
- The setting of parameters for search and retrieval of studies,
- The determination of inclusion and exclusion criteria,
- The appraisal of the clinical relevance of findings,
- The selection of the findings that will be synthesized, and
- The interpretation of the results of that synthesis.

arroso, J. et al. (2006)<sup>23</sup>

## Box 13

### Country example: National Council for Social Security (Dewan Jaminan Sosial Nasional) in Indonesia

In Indonesia, the National Council for Social Security (Dewan Jaminan Sosial Nasional) was established on September 24th 2008, and the country's National Social Health Insurance Scheme was launched on January 1st 2014. Dewan Jaminan Sosial Nasional (DJSN) formulates the General Policy and Synchronization of the implementation of the National Social Security System (Jaminan Kesehatan Nasional).

The DJSN conducts studies and research relating to the implementation of Jaminan Kesehatan Nasional (JKN). It also proposes funding policies for JKN; the budgeting for premium of poor/nearly poor people; and monitoring and evaluation of the implementation of JKN. However, DJSN has limited capacity (including the human resources, mechanisms and systems) to properly monitor of the scheme.

Recently the DJSN received assistance to collect data and information to undertake an annual review of the implementation of the National Social Health Insurance Scheme. The Council is planning to publish an annual statistical yearbook of National Social Health Insurance and is receiving technical assistance to strengthen their function.

The Ministry of Health recently published, at the end of 2018, a strategy to have a One Health Data strategy. This strategy aims to integrate the fragmentation of data collection and ensure the quality of data. At the moment it is being followed by a series of actions for implementation, but it is too early to evaluate the results.

A recent development has been the issue of a Presidential Decree to require the Ministry of Planning and the Ministry of Finance to establish a taskforce to oversee the planning process, meaning that they are looking at the data, looking at proposed planning from ministries, and will try to assess whether the proposed plans are relevant and consistent with national development plans. The taskforce will look at the priorities for each ministry to check that they are consistent with the overall priorities of the line ministry.

## Analyzing data and evidence

There are some immediate practical and useful things you can do with the data you have identified and analyzed that can have immediate benefits. You may want to:

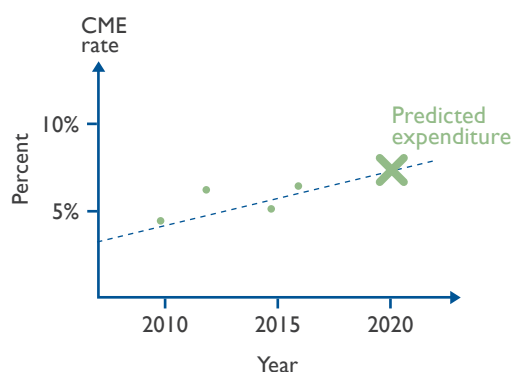
### Identify 'obvious' high-level gaps

Combining different sources of information, you may be able to conduct a 'situational analysis' or a diagnostic of priorities in your healthcare system. For example, you may observe by triangulating different data sources that a significant and increasing share of TB funding is spent on diagnosis and case detection, yet, according to epidemiological data, TB incidence in your country continues to increase. This may be an indication, among other factors, that funds are not spent appropriately or that there is a need to step up funding in this area. You may query the available data by socio-economic groups or by using different geographies to understand where investments can achieve the greatest impact. This is not an exact science but conducting such an assessment and engaging local stakeholders on priorities using data and evidence can be very informative.

### Make simple predictions

Your data and evidence can help you to 'make simple predictions' for the future, such as using growth rates to forecast linear increases (or using simple linear regression models). You could also make predictions based on different models, for example, a 'business-as-usual model' (if you are trying to show what would happen if no action is taken) can be compared to a scenario where the trends improve or deteriorate. The ability to make simple evidence-based predictions will help to plan for future budgets or make a case for increased funding for specific interventions or for disease areas.

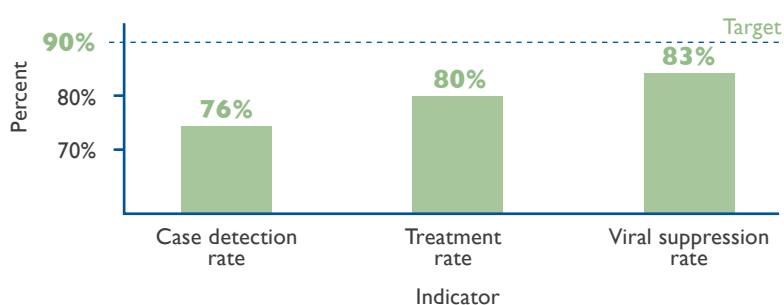
Figure 5: Example of making a simple prediction: Catastrophic medical expenditure (CME)



### Benchmark using pre-established values or target

All health systems have defined a set of objectives or targets that may be used to interpret the local data collected. For example, in the Philippines, a set of national health objectives was set for the period of 2017-2022. Improvement targets were developed for three strategic goals, one of which was that the infant mortality rate should be reduced from a baseline of 23 to 15 (per 1,000 births). Comparing to existing national or global targets (e.g., 90-90-90 for HIV) can help identify areas where continuous improvement is needed. Some aspects of evidence can also be interpreted using pre-defined decision rules. One of the most commonly referenced decision rules is the cost-effectiveness threshold. The value of an intervention (i.e., whether it is cost-effective or not) can be assessed through a pre-defined local threshold. If an intervention is below the threshold, it will be considered 'cost-effective' and a valuable investment for a given country. However, it is no longer recommended to apply global thresholds such as GDP-based thresholds, which have been flagged as problematic even by WHO where the practice was first referenced (see discussion from Marseille and colleagues<sup>24</sup>).

Figure 6: Example of using a pre-established target: Health care indicators



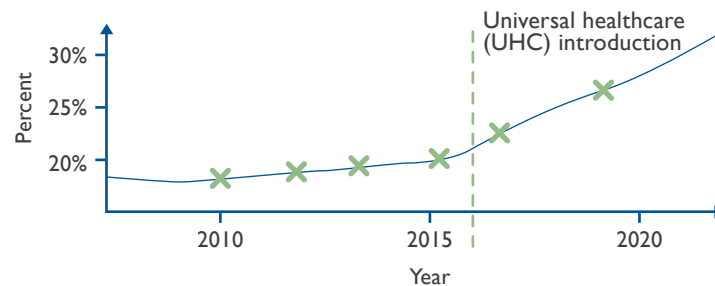
### Time trend analysis

You can use your data to perform a time trend analysis in which groups are compared with observations recorded for each group at equal time intervals (e.g., every year), in order to identify unusual patterns or make conclusions about the effect of an intervention on different populations.<sup>25</sup>

Some things you can do with time trend analysis include:<sup>26</sup>

1. Examine patterns of change in an indicator over time (e.g., whether use of a service has increased or decreased over time).
2. Compare one time period to another time period.

Figure 7: Example of time trend analysis: Public health expenditure for drugs (percent)

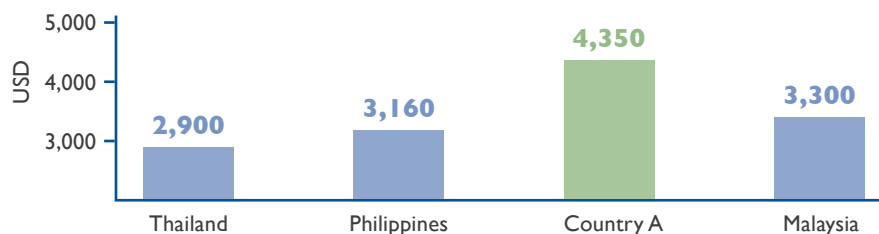


### Country comparisons

To some extent, you can compare your analysis to what is happening in countries in your region, or countries presenting similar characteristics to yours (e.g., in terms of income or epidemiological profile). Simple country comparisons can be informative to understand whether your country is within the 'norm' or whether it is an outlier.

Country comparisons can also be used to identify champions (e.g., 'positive outliers') in a particular area where you may require improvement or mentorship, and you may contact technical staff from the country to learn about their experience and consult with them on best practices. Country comparisons and 'benchmarking' can build stronger arguments for greater or more targeted investments in health.<sup>27</sup>

Figure 8: Example of country comparisons: Dialysis cost per year (in USD)

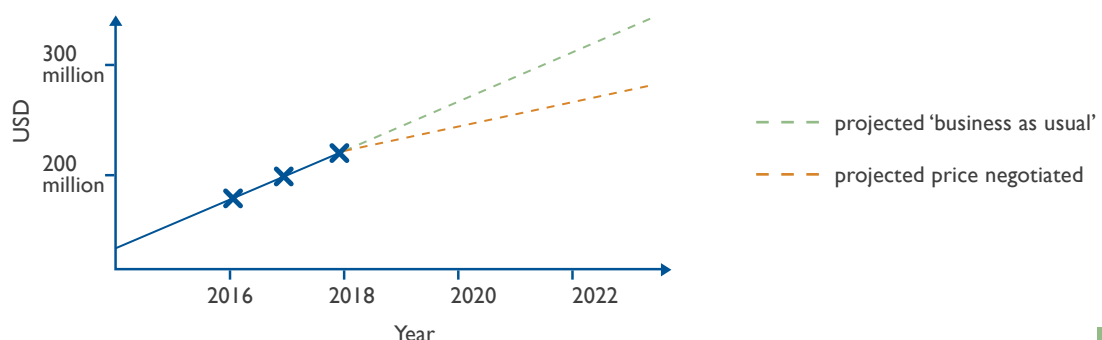


Note: All figures on this graph are provided as example and do not reflect real country cost data

### Comparing different courses of action

The data and evidence collected using the above methods may help you define the outcomes from different courses of action. For example, if you are using a health technology assessment, you may be able to understand the budget impact (or total costs) and health impacts from investing in intervention A compared to alternative courses of action (interventions B, C, etc.). In addition, using data and evidence to compare the outcomes from action and inaction (i.e., 'business as usual') can be compelling.

Figure 9: Example of comparing different courses of action: Total budget for immunization program (in USD)



## Using the data in global tools

### WHO Guidance for Priority Setting in Health Care

The Guidance for Priority Setting in Health Care (GPS-Health), initiated by WHO is targeted towards decision makers who set priorities at national and sub-national levels, those who interpret findings from cost-effectiveness analysis (CEA), and other researchers<sup>28</sup>.

GPS-Health provides equity criteria that are relevant to priority setting and which should be considered along with a CEA. It defines three groups of criteria:<sup>29</sup>

1. **The disease intervention targets** using disease-related criteria such as severity of the health condition, realization of potential ('fair chances' argument) and past health loss;
2. **The characteristics of the social group and intervention targets** using criteria related to characteristics of social groups including socioeconomic status (i.e., people with lower socioeconomic status should have an equal chance to live a full healthy life), location, gender, race, ethnicity, religion and sexual orientation);
3. **Non-health consequences** using criteria related to protection against the financial and social effects of ill health, including economic productivity and catastrophic health expenditures.

### Other tools

There are other online global tools that allow you to input local data to assist in priority setting. These tools run analyses to produce targeted information to inform decision-making.

The [WHO](#) Choosing Interventions that are Cost-Effective ([WHO-CHOICE](#)) initiative was developed in 1998 with the aim of providing policy makers with evidence to inform decisions on health initiatives and programs to improve health with the available resources.<sup>30</sup> WHO-CHOICE produces global price databases and guidance on quantity assumptions to support countries in estimating program costs.<sup>31</sup>

The [OneHealthTool](#) is designed to inform national strategic health planning in LMICs. It attempts to link strategic objectives and disease control targets and prevention programs to the required investments.<sup>32</sup> It provides a framework for viewing different scenario analyses, costing and health impact analyses, budgeting and financing for all major diseases and health system components. Nigeria used the OneHealth tool during the planning stage for their National Strategic Health Development Plan.<sup>33</sup>

[SPECTRUM](#) is a collection of easy-to-use policy models that aim to provide policy makers with an overall software analytical tool to support the decision-making process. SPECTRUM allows local country researchers and decision makers to model the impacts of investments planned in the HIV response and to model epidemic trends. For example, the Lives Saved Tool (LiST) Child Survival model helps to project the changes in child survival with changes in coverage of different child health interventions.<sup>34</sup>

[Optima](#) has developed disease-specific tools, including for HIV, TB and malaria, to help support decision makers in making better-informed public health investment choices. Countries are able to define their own policy questions, and collate and validate the data required, which means that they can tailor the tool to their research needs.<sup>35</sup> For example, Optima HIV helps identify HIV programs to be prioritized with available funding, resources needed to reach HIV coverage targets and the most cost-effective HIV interventions, and calculate future treatment, care and support costs.<sup>36</sup> Optima HIV was used in Sudan in 2014, when the Sudan National AIDS Programme reviewed its National Strategic Programme on HIV and AIDS.<sup>37</sup> It recommended that Sudan increase the focus of its HIV response to antiretroviral therapy (ART) and prevention for female sex workers and men who have sex with men.

UNICEF's Equitable Impact Sensitive Tool ([EQUIST](#)) is a web-based analytical platform designed to help decision makers develop strategies to improve health and nutrition for women and children, especially in the most deprived populations.<sup>38</sup> EQUIST identifies cost-effective interventions and the key blockages that limit their coverage in order to improve maternal, newborn and child health.<sup>39</sup>

The [Health Interventions Prioritization Tool](#) (HIPtool) is a cloud-based, open-access resource to assist with health intervention prioritization at the country level. It combines context-specific data on disease burden and

intervention effectiveness to help stakeholders identify funding priorities and targets.<sup>40</sup> More information on HIPtool can be found in Annex 4.

## Packaging and communicating results

### Developing a communication plan

Too often, evidence and data are collected but not appropriately formatted to fit the purpose of the decision-making process. Several studies report that if the research findings are not packaged in 'a way in which it can be applied to policy formulation', it is less likely to be used.<sup>41</sup> A report that is too long or appears too technical means that end-users may misunderstand it, simply not read it, or disregard its results.

If the results of the evidence and data collection are not delivered in a timely manner, it may be too late to influence policy decisions and the window of opportunity for using the valuable insights may be closed. Proposals to ministries of finance that appear as a summary of expenses are less likely to convey a strong argument for investment in health interventions than if they are presented as a detailed plan focused on results and value for money.<sup>42</sup>

Developing a clear communication plan can help you ensure that the data and evidence is communicated effectively to different audiences, and that its potential impact on policy is maximized. The Council on Health Research for Development (COHRED) recommends that a communication plan consider the information and communication needs of the stakeholders:<sup>43</sup>

- Who needs the information?
- When will they need it?
- How will it be given to them?
- What information do they need?

COHRED also recommends considering:

- The type of information to be distributed,
- The format in which the information will be given,
- The distribution channels that will be used,
- The creation of a schedule for information distribution.

### Creating clear messages

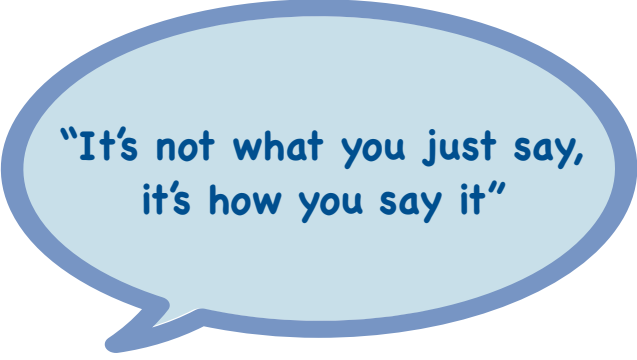
#### Understand your audience

Researchers may primarily think about communicating their results through peer-reviewed journals. However, different audiences may be more familiar with or receptive to different methods of communication. You may want to produce a long-form report, press releases, blogs, short notes (to be circulated within your team or shared with decision makers), peer-reviewed articles and social media articles.

To tailor the information to your audience, think about:

- What would this audience need in terms of background information?
  - Do they have sufficient knowledge of the topic?
  - Are there common misconceptions that need to be addressed among your audience?
- What information would be relevant to them? For example, ministries of finance might request a budget impact analysis when planning for a program. Patient groups may be more interested in how impactful (in terms of gains in health) a program may be. Other researchers will be concerned with the quality of the data and evidence, so presenting methods clearly and in great detail will be more important for this audience.
- What type of visualization aides work best for my audience?
- What type of medium does my audience consult? Policy makers may be very busy and travel on a regular basis so it may be more convenient to share printed short notes that can be carried with them during trips or copied easily to be shared in meetings. On the other hand, some technical staff may have more time or may need to respond to comments or concerns from colleagues or stakeholders. As a result, they may require more information, so a long form report might work best for them.





**“It’s not what you just say,  
it’s how you say it”**

### Avoidance of technical terminology

It is better to avoid the use of overly technical or complicated language and jargon in order to ensure the results are accessible to a range of audiences. Make sure that acronyms are explained at the beginning of the text (usually on first appearance). Consider including footnotes to clarify concepts, measures or methods that may be inaccessible to the readers.

### Selecting a handful of clear headline messages

In order to reach your audience, you need to first gain their attention and increase their interest in the topic: this is why you will need a handful of headline messages that can be remembered easily and that will grab your reader’s attention. Creating headline messages does not mean you have to simplify or compromise the complexity of the data and evidence you have collected; it means you are attempting to establish a clear narrative from what you have learned using the data and evidence.

The data and evidence collected may be very rich, but to be used for the purpose of setting priorities, you will need to set your own priorities about what to communicate and why. From your research, the data and evidence may clearly outline several big challenges that may be relevant to your decision problem or priority-setting exercise. Select only a handful (e.g., consider using a ‘top 10’ or the three most important findings) when discussing the results with colleagues or other stakeholders, or when communicating results in a written form.

When defining headline messages, you may be tempted to use superlatives or adjectives that convey positive or negative judgments. Headline messages may also contain too many statements or data points, making the statement less understandable. As a practice, stick to plain language and keep your statements short and concise.

### Be honest about limitations

Several studies have highlighted that trust is central to get data and evidence into policymaking.<sup>44,45</sup> All studies have limitations: you will need to state them clearly and explain what you have done to address these limitations and state whether or not you think the limitations are a big concern. You should also describe what conclusions your data and evidence support, what it does not support, and where it may not apply to the decision problem at hand.

### Common data visualizations

Large blocks of text may not be the best means of communicating findings from data analysis or evidence. Visual presentations have been shown to be a more persuasive method of communication in many studies: they help readers remember and interpret data and evidence. There are different ways that data can be presented, including statistical graphics (e.g., histograms, bar charts, line charts and pie charts), plots (e.g., a scatterplot or a star plot) and information graphics (data trend lines).

There are some online tools for creating data visualizations that can be found here: <http://www.publichealthintelligence.org/content/resources/data-and-visualization-sites>

When deciding on the best visualization format, you should always bear in mind that the end-users are not other researchers or technical staff.<sup>46</sup>



## Chapter 3 summary

Chapter 3 has covered:

- Data mapping and data gap assessment;
- What to do when there is no local evidence available, which includes carrying out primary research, identifying data and evidence from other countries, and global evidence;
- Assessing the quality of your data when there is local evidence available, and useful tools for assessing data quality;
- What to do with outdated data and evidence, and modeled or survey data;
- Simple analysis to do with the data;
- Using data and evidence in global tools;
- Packaging and presenting the outcomes to different audiences.

## Endnotes

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# Chapter 4: Data and evidence in action

## Overview

We have seen in Chapter 3 the practical aspects of collecting, analyzing, and packaging or presenting data and evidence for use in priority setting. However, it is also important to consider how elements of the institutional environment and political economy might constrain or support the use of data and evidence in priority setting. This would include understanding how institutional rules surrounding decision-making can best reference data and evidence, and how to mitigate competing interests.<sup>1</sup> ‘Political economy’ refers to the analysis of the interplay of interests and influence of key actors and institutions on how power and resources are distributed.<sup>2</sup>

The process of setting priorities can be very political. This is because priorities often involve shifting resources among different activities and stakeholders, meaning that some may ‘lose’ in the process. At the same time, policy makers can be motivated by self interest in maximizing political support or their own personal gain, while commercial organizations strive to maximize profits and consumers seek to maximize utility.<sup>3</sup> Consequently, there is a need to get relevant stakeholders on board and ensure political support for the use of data and evidence in priority setting. The general political climate also needs to be considered.<sup>4</sup>

This chapter will explore how to do a situational analysis to establish whether data and evidence have been used in priority setting in the past and why these attempts have been successful or unsuccessful. It also covers the processes, people and skills needed for using data and evidence in priority setting, and issues surrounding the institutionalization of evidence-informed priority setting. This chapter then looks at how to establish political support for the use of data and evidence in priority setting and how to identify stakeholders.

This chapter will focus on issues surrounding the use of evidence and data in priority setting but will not discuss the political economy of priority setting more generally. This is because there are other resources available that go into depth on this issue. For a more overall discussion about the political economy of priority setting, we recommend reading:

- Katharina Hauck and Peter C. Smith. 2015. “The Politics of Priority Setting in Health: A Political Economy Perspective.” CGD Working Paper 414. Washington, DC: Center for Global Development.<sup>5</sup>
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## Institutionalizing the use of evidence and data in priority setting

### Situational analysis

A situational analysis will document past experience of using data and evidence in priority setting. It will identify whether or not data and evidence has been used to inform priority setting in the past, who is currently working on collecting or using data and evidence, which stakeholders need to be involved, and the existing capacity for the use of data and evidence. A situational analysis is essentially making an inventory of the country’s existing efforts to integrate the use of data and evidence. It takes an in-depth look at the factors that explain previous successes and failures of implementation.<sup>7</sup>

The following questions will help you to map out the current use of data and evidence:

### **1. What data and evidence has been used to support priority setting in the past, and by whom?**

Answering this question will require looking at previous priority-setting decisions and the evidence that was used to inform these decisions. For example, evidence may have come from a particular study by a university or NGO to inform the investments for a particular intervention. It may have been small scale, such as at the local level or for the introduction of a particular technology. It may be difficult to map out unsuccessful attempts (as they are rarely discussed) but unsuccessful attempts to feed data and evidence into policy decisions may also inform you about the political economy, concerns about data and evidence, or challenges previously encountered.

To map this out, you may look into existing policy reports or documents, or survey colleagues who worked on priority setting in the past. Downey et al. reports on data mapping,<sup>8</sup> which is discussed in Chapter 3, and can similarly inform your situational analysis.

You will also need to consider whether the data were collected from primary research, or whether data were adapted from other studies or borrowed from international sources. You will need to understand why the technical staff decided to use the data in question.

### **2. Who produced the data and evidence?**

The data and evidence may have been collected by a government-run study, or an independent study conducted by an NGO, international organization or university. Consider whether the principal investigators or the leads for the data collection or evidence generation are based in local institutions, abroad or in international agencies. If data collection or evidence generation activities were local, were they supported by other groups abroad?

### **3. Who supported this effort?**

It would be interesting to map which stakeholders supported or opposed any previous effort to incorporate the use of data and evidence in priority setting. For example, there may have been some particularly vocal patient groups or individuals in the private sector who have obstructed previous attempts to use data and evidence in priority setting. Think about how and by whom these previous efforts were funded. We talk more about stakeholder mapping and engagement later in this chapter.

### **4. What challenges were encountered during previous efforts?**

Consider what other challenges were previously encountered during efforts to increase the use of data and evidence in priority setting. For example, from our conversations with members of the JLN Efficiency Collaborative, India appeared to have challenges with manual data entry and inaccuracies in claims data prior to the set-up of their Data Warehouse (see Chapter 2 for more information). Participants from Malaysia highlighted challenges surrounding increased bureaucracy and coordination between different departments or agencies that controlled access to different datasets.

### **5. Has the use of data and evidence continued?**

Finally, you could document whether the use of data and evidence has continued after its initial use. For example, if a cost-effectiveness analysis had been used to make a decision on investments for a particular intervention, was the decision subsequently revised in light of new research? If burden of disease data was used to define the national health strategy priorities, did subsequent strategies adopt a similar approach with updated data and evidence?

## **Institutions for priority setting**

Stakeholders involved in the priority-setting process are affected by the structures and institutions in which they operate. Therefore, it is important to understand what institutions may play a prominent role in priority setting, what their use of data and evidence is, and what contextual factors affect their work. Those questions can be partially addressed through a situational analysis as discussed above.

**Institutions** are the formal and informal rules and norms that organize social, political and economic relations.<sup>9</sup>

**Formal institutions** refer to the organization of government, law, and the economy. For example, formal institutions include decentralized government, elections, and constitutional rules and laws.

When it comes to priority setting, formal institutions can also include specific bodies such as:

- Departments for planning and budgeting
- Universities, HTA agencies and other research organizations
- The national health insurance organization
- Decentralized authorities
- The private sector

**Informal institutions** include political ideologies, religious bodies, social movements and cultural norms, all of which may impact on political behavior; and how political and economic competition manifest. Importantly, informal institutions include the professional and social norms around evidence use.

Together, formal and informal institutions create the social, political, and economic landscape that shapes incentives and interactions of stakeholders.

Ensuring that the use of data and evidence is embedded in the functioning and processes of institutions is important. This means defining rules, norms, actions and processes that reference requirements or suggest the use of data and evidence, where possible.<sup>10</sup> This also ensures that efforts to use data and evidence do not solely rely on enthusiastic and motivated policy makers.

There are other factors that contribute to the institutionalization of the use of data and evidence. One factor to consider is whether the resource allocation and planning cycle allow scheduled time for evidence to be considered. Another aspect is whether the policy makers can be held to account for demonstrating a research base was used to reach decisions. This can be done through establishing a legal or policy framework, which not only ensures that data and evidence is more systematically considered, but it can also encourage investments in future data collection, training, and capacity and institutional development.<sup>11</sup>

#### Box 14

##### Country example: Kenya National Immunization Technical Advisory Group

The Kenya National Immunization Technical Advisory Group (KENITAG) was established in June 2014 and officially inaugurated on 27 April 2017. It provides recommendations on national vaccine policy to the Ministry of Health (MOH).

KENITAG is composed of 12 core members, non-core members and a technical secretariat hosted by the National Vaccine and Immunization Program (NVIP) and Disease Surveillance and Response Unit (DSRU) of MOH. The core members are local professionals in various fields including epidemiology, microbiology, public health, immunology, pathology, adult medicine, pediatrics and law. They serve for a three-year term that is renewable.

The non-core members represent their organizations – both governmental and non-governmental. They provide technical expertise and share their organizations' perspective of various matters.

The secretariat members are drawn from NVIP and DSRU and they ensure coordination of KENITAG functions, facilitate working groups and prepare documents and reports. External experts are invited to the group on a needs-basis depending on the matter being addressed.

KENITAG is expected to have quarterly meetings, but MOH is not bound to the recommendations of KENITAG.

KENITAG has been instrumental in advising the government on various immunization-related matters using evidence. In 2014, following a request from MOH, KENITAG provided an evidence-based recommendation on whether the seasonal influenza vaccine should be introduced into the national immunization program; in 2016 they recommended introduction of the annual seasonal influenza vaccine among children 6 to 23 months of age. In 2015, MOH requested advice on the safety of the tetanus toxoid vaccine for women of reproductive age and the introduction of the measles and rubella vaccine in the routine immunization schedule.

There are several examples of legal requirements in LMICs surrounding the use of data and evidence, although the examples we have identified are applicable to coverage decisions and HTA. For example, in Indonesia, the Presidential Decree Number 12 (2013) regarding National Health Insurance states that the inclusion of a health technology in JKN (the scheme that implements UHC in the country) should be based on HTA results.<sup>12</sup> Similarly, in the Philippines, Section 34 of the UHC Act states that the HTA process will be institutionalized as a fair and transparent priority-setting mechanism for the development of policies and programs and that HTA will recommend the development of any benefit package.<sup>13</sup>

In the United Kingdom, coverage decisions need to be justified using an ethical framework that builds on the Accountability for Reasonableness (A4R).<sup>14</sup> It clearly states that decision makers (commissioning boards) should have a reasonable level of confidence in the evidence underpinning their decision, including cost-effectiveness and budget impact. This does not mean that commissioners can only make decisions if the evidence is available. When evidence is not available, commissioning boards need to follow a series of steps and evaluate their decision using several criteria (e.g., should consider why the evidence is not sufficient, should consider patient safety).

References to the use of data and evidence in the decision-making process can also be found in some policy documents (rather than legal texts). A typical cycle of priority setting would include the following five steps:<sup>15</sup>

1. Defining decision space/topic selection
2. Analysis
3. Appraisal
4. Decision making
5. Implementation, monitoring and evaluation

In some countries, a process and methods guide has been developed to describe how each of the steps should be organized. Explicitly referencing data and evidence in the process and methods guide could ensure that evidence and data is consistently considered and becomes an established part of the process.

## People and skills needed for evidence-based priority setting

It is useful to foster a strong 'support system' for evidence-based priority setting. This includes identifying individuals with the right research and data analysis skills, for example in epidemiology, evidence-based medicine, policy analysis, cost-effectiveness analysis and other economic evaluation methods, and quality assurance.<sup>16</sup>

You will need individual technical capacity to seek, identify, appraise and interpret evidence and individual commitment to using data and evidence. In addition, you will need to ensure that those individuals are working in an environment that promotes the use of data and evidence. Motivated individuals working in an environment disconnected from policy decisions will not achieve impact. This is why, along with the individuals producing the evidence, you need to think about training the end users of the data and evidence (i.e., policy makers) and knowledge brokers who bridge the gap between evidence and policy (such as technical staff).

The United Nations Development Programme (UNDP) Individual, Node, Network and Enabling Environment (INNE) Model is useful for thinking about capacity building.<sup>17</sup> This model emphasizes the need to build local relevant individual technical capacity for specific skills as well as the 'nodes', 'networks' and 'enabling environment' to ensure that those skills are best put to use.<sup>18</sup>

iDSI has a Capacity Assessment Questionnaire to support countries in the assessment of their existing technical capacity to undertake HTA. While the questions are specific to HTA, they may be useful in identifying technical capacity for the use of data and evidence in priority setting in general, and you can expand the scope of the data collection to fit the needs of your local context.

You can address capacity shortfalls and gaps by identifying possibilities for formal training within your country, or placements in priority-setting institutions in neighboring countries. Organization of training and awareness raising events may also help sensitize end users to the value of data and evidence use.





The public might advocate their needs through consumer representatives or patient associations, voting and protest, and participation in citizens counsels and community forums.<sup>23</sup> They can also exert influence through public participation and veto points.

## Stakeholder analysis

Stakeholder analysis (or mapping) is a key first step to engaging stakeholders in the use of data and evidence in priority setting. It identifies target groups who will be affected by adopting evidence-based processes and information about these groups.

Stakeholders can be 'internal' or 'external'.<sup>24</sup> Internal or government stakeholders participate in the coordination, funding or resourcing of the strategy (e.g., bureaucrats and politicians). External stakeholders are those who contribute their views or experiences (e.g., patients, service users, carers and local community members).<sup>25</sup> Stakeholders may be evidence producers or evidence consumers.

### Box 15

#### Useful resources for political economy analysis

##### International Decision Support Initiative Health Technology Assessment Toolkit

The International Decision Support Initiative (iDSI) published a toolkit in 2018 to be a practical guide to establishing Health Technology Assessment (HTA) processes. The iDSI HTA Toolkit is broken down into 'building blocks', enabling readers to develop their understanding of setting the scene for HTA; compiling the best HTA evidence; establishing HTA as an inclusive process; building capacity to support HTA; ensuring political commitment; and setting up a transparent and consistent process.

##### Bump and Chang. Priority-Setting as Politics: A Political Economy Framework for Analyzing Health Benefits Package Decisions

Bump and Chang offer a framework of political economy analysis in the context of analyzing health benefits package decisions. They organize the framework in alignment with the stages of the policy cycle. The framework offers many useful political economy questions to ask at each stage of the policy cycle, and it maps major political economy theory elements to the analysis of health benefit packages.

##### SWOT analysis<sup>26</sup>

Strengths, weaknesses, opportunities and threats (SWOT) analysis is a tool used to identify strategic options to improve the priority-setting process.

##### PESTLE Analysis<sup>27</sup>

PESTLE (Political, Economic, Social, Technical, Legal, Environmental) Analysis is a tool that can be used to build upon the learning from a SWOT analysis, to help understand the landscape of external factors to the evidence-informed priority-setting process. It focuses on the macro-level of institutional structures, scrutinizing factors affecting the priority-setting process within six groups: Political, Economic, Social, Technical, Legal and Environmental. This may be a useful framework to apply when thinking through the qualities of structures, institutions and individuals that may impact the priority-setting process.

##### The iDSI Stakeholder Checklist for Priority Setting

The iDSI Stakeholder Checklist is one way of identifying stakeholders and their concerns, interests and incentives, including economic, political and personal, on the use of data and evidence in priority setting. It includes a series of relevant questions to identify these individuals and their interests.

##### Power interest grid

The power interest grid is a simple framework that categorizes stakeholders within a matrix by their degree of level of authority (power) and interest in the priority-setting process. Depending on a stakeholder's position in the matrix, the tool advises broad strategies that can be used to manage and engage them. This tool is useful for developing strategies to manage stakeholders involved in a specific priority-setting process and can be used alongside or following on from a political economy analysis.



### **Influence map**

The influence map is a tool that can be used to visualize both the degree of stakeholder influence on a priority-setting process, and the relationship of stakeholders to one another within the process. This tool is useful for visualizing changes and patterns in the environment of priority setting, which can inform tactics on how to adapt the process.

### **Saliency model**

The Saliency model is a tool which helps identify the relative priority or prominence of stakeholders. It arranges stakeholders by their overlapping power (the authority or influence of a stakeholder in priority setting), legitimacy (the appropriateness of the stakeholder's involvement in priority setting) and urgency (how critical or time-sensitive the stakeholder's interests are). The tool not only helps identify the relative importance of each stakeholder in priority setting, but also helps identify their potential behaviors or interactions with one another.

## **Box 16**

### **Country example: Political economy of priority setting in Bangladesh**

When the Health Policy 2011 was prepared, the Medical Association and doctors' organizations played an important role and actively participated in the finalizing the draft.

The other big stakeholders in health priority setting in Bangladesh include the media and research institutions. In many cases, the media highlights problems throughout the country, and this is later reflected in policies on how the budget is allocated.

For example, Maternal, Newborn and Child Health received more funding after media pressure. This was partly due to some reports that were published showing that there was lack of doctors and other health staff in rural areas. Doctors, physicians and nurses were reluctant to travel to remote areas because there was no incentive or bonus associated with working in these areas. As a result, the Ministry of Health and Family Welfare (MOHFW) put a mandatory rule in place that if physicians want to do government service, they must work in remote areas for at least three years.

After undertaking this health care strategy, other reports were published that showed high rates of maternal deaths in remote areas due to a lack of established health centres. In places where there were health centres, there was a problem with doctors travelling back and forth. As a result, the government introduced a public-private partnership in which the government built new health centres in remote areas and contracted NGOs to deliver the services. Later, the MOHFW introduced Community Clinics.

The media also helps to engage the population on health topics such as out-of-pocket payments (OOPs). After developing the Health Care Financing Strategy (HCFS) in 2012, when it was realized that OOPs were an important indicator to use in developing health strategies, the media helped to educate the citizen.

The media plays an important role in motivating the political and administrative bodies to focus on health priorities. Therefore, researchers need to use data and evidence to convince the media on what health priorities should be, so the media can motivate the government in making commitments.

## Gaining political support for the use of data and evidence in priority setting

In many LMICs, decisions in the healthcare sector are often based on historical allocation patterns of funding, expert opinion from a particular clinical specialty, or advice from politically influential people.<sup>28</sup> Therefore, changing the way priority setting is carried out could challenge or interfere with existing practices and interest groups, creating potential ‘winners’ and ‘losers’ from the change of practice. For example, ‘losers’ may include pharmaceutical companies supplying medicines that are no longer part of the essential medicines list, or patient advocacy groups for diseases that are a lower priority. If the use of data and evidence points to policies that risks alienating important groups such as doctors, then decision makers may choose to discard this evidence and data to avoid potential conflicts.

The absence of opposition or absence of political economy challenges is not realistic. Rather than avoiding any conflict or challenge, it is important to develop strategies to cope with them. For example, you could consider involving stakeholders that may oppose the use of data and evidence from the onset to understand the reasons for their opposition:

- Stakeholders may oppose the use of data and evidence because their interests are challenged or perceived to be challenged; or
- Stakeholders may have legitimate concerns about the data and evidence in question or have pre-existing negative opinions about data and evidence.

The situational analysis described in the first part of this chapter can help you identify those stakeholders and their reasons, and help you develop strategies to successfully engage them. For example, a study documented the negative perceptions associated with public health data and evidence, and found that the following reasons were often cited by stakeholders:<sup>29</sup>

- A lot of evidence is irrelevant for policy
- Quality concerns because the evidence is not produced through randomized controlled trials
- Methods and scientific uncertainty
- Not applicable to the local constraints and characteristics
- Need to account for the social determinants at the local level
- Too simplistic and does not address complexity of multi-component health systems.

In some cases, data and evidence might contradict the personal experience of some stakeholders, which could create additional resistance or opposition.<sup>30</sup>

Mapping the stakeholders’ concerns could help in developing responses or strategies to mitigate those concerns. It could be about preparing a set of points to respond to each element when meeting with stakeholders. In addition, those concerns could be accounted for when designing the evidence or collecting the data. Finally, it could be used to develop a strategy to incentivize the use of data and evidence, such as the institutional requirements discussed earlier in this chapter. On the other hand, you should also reach out to stakeholders that may actively support the use of data and evidence for priority setting.

## Creating a culture around the use of evidence and data

As highlighted in the discussion about the legal and regulatory framework, some aspects of organizational regulation are very important in creating a culture for the use of data and evidence for decision-making. However, there might be more subtle elements that may hinder the practice: the attitude of other colleagues, problems with accessing data and evidence (e.g., subscriptions to peer reviewed journals, licenses for statistical software), and distrust of those producing evidence.<sup>31</sup>

The following activities could be considered:

- Facilitating knowledge transfer, such as research presentations that could be organized to present findings to end-users (e.g., at national health insurance agencies, ministries of health, county health directorates, etc.)
- Producers of evidence and data engaging policy makers from the beginning to ensure that the evidence and data produced is suitable for decision makers

- Ensuring that the evidence and data is in an accessible format to technical staff/decision makers and delivered in a timely manner
- Creating a healthy and open discussion about evidence and data limitations with a range of stakeholders; and engaging them in the definition of solutions

## Chapter 4 summary

Chapter 4 has covered:

- The institutionalization of the use of data and evidence in priority setting;
- How to carry out a situational analysis and identify different institutions, people and skills needed for evidence-based priority setting;
- The political economy of using data and evidence in health priority setting;
- Identifying the different stakeholders, interests and power dynamics;
- Gaining political support and creating a culture of data and evidence use.

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# Appendix I: Strengths and weaknesses of the data sources

	Strengths	Weaknesses
<b>Epidemiological data</b>		
Survey data (e.g., Demographic and Health Surveys)	<ul style="list-style-type: none"> <li>• Large, representative samples</li> <li>• Some surveys are done regularly and follow the same structure (e.g., can allow for trend comparisons)</li> <li>• Can sometimes be disaggregated across different groups</li> </ul>	<ul style="list-style-type: none"> <li>• Data can be outdated if not collected regularly</li> <li>• Methods not always known</li> <li>• Can be resource intensive to access and analyze</li> </ul>
Modeled estimates	<ul style="list-style-type: none"> <li>• Models can be updated on a regular basis</li> <li>• Does not always require extensive primary data collection</li> <li>• Can be less costly compared to extensive survey</li> </ul>	<ul style="list-style-type: none"> <li>• Assumptions may be erroneous or rely on outdated sources</li> <li>• Disaggregated data may not be available</li> <li>• Methods/assumptions not always reported</li> </ul>
<b>Coverage data</b>		
Household surveys (e.g., questions from the Demographic and Health Surveys)	<ul style="list-style-type: none"> <li>• Large, representative samples</li> <li>• Some surveys are done regularly and follow the same structure (e.g., can allow for trend comparisons)</li> <li>• Can be disaggregated across different groups</li> </ul>	<ul style="list-style-type: none"> <li>• Data can be outdated, not collected regularly</li> <li>• Methods not always known</li> <li>• Can be resource intensive</li> </ul>
Vertical program data	<ul style="list-style-type: none"> <li>• Can be routinely collected as part of program monitoring</li> <li>• Often collects information across different groups</li> </ul>	<ul style="list-style-type: none"> <li>• Outdated, not collected/updated on a regular basis</li> <li>• Local institutions may not have access/own the data</li> </ul>
Peer-reviewed literature	<ul style="list-style-type: none"> <li>• Peer-reviewed studies may be more reliable</li> </ul>	<ul style="list-style-type: none"> <li>• Possible problems with modeled data/ estimations</li> <li>• Disaggregated data is often unavailable</li> <li>• Available literature may be outdated</li> <li>• Local institutions may not have access/own the data</li> </ul>
<b>Economic evaluation</b>		
Local studies	<ul style="list-style-type: none"> <li>• Most relevant form of evidence</li> <li>• Adapted to local characteristics and constraints</li> </ul>	<ul style="list-style-type: none"> <li>• Only available on a small number of interventions</li> <li>• Can be outdated</li> <li>• Trial data may be used and be less informative at scale</li> <li>• Study methods might not be very explicit</li> <li>• Can be resource intensive</li> <li>• Local institutions may not have access/own the data</li> </ul>
International sources	<ul style="list-style-type: none"> <li>• Readily accessible at no cost (global sources or peer-reviewed literature)</li> <li>• Can be available for a wide range of interventions (e.g., DCP3)</li> </ul>	<ul style="list-style-type: none"> <li>• Not adapted to local characteristics and constraints, and interpretation may be inadequate in countries</li> <li>• Can be outdated</li> </ul>

	Strengths	Weaknesses
<b>Health financing data</b>		
National Health Accounts	<ul style="list-style-type: none"> <li>• Can provide very detailed information across the entire health system</li> </ul>	<ul style="list-style-type: none"> <li>• Tracking spending is difficult/can be unreliable</li> <li>• Not very regular: conducted every 5-7 years</li> <li>• Resource intensive</li> <li>• Data can take a long time to collect and compile (e.g., very large lag time – sometimes 3-4 years – between data collection and report)</li> </ul>
Demographic and Health Surveys	<ul style="list-style-type: none"> <li>• Regular, comprehensive surveys that are nationally representative</li> </ul>	<ul style="list-style-type: none"> <li>• Only includes data at the patient level (only useful for out-of-pocket expenditure)</li> </ul>
Resource mapping	<ul style="list-style-type: none"> <li>• Sector-wide approach that can give a comprehensive picture</li> <li>• Data collection can be done through interviews or reviews of secondary data sources</li> </ul>	<ul style="list-style-type: none"> <li>• May be politically sensitive and non-response bias may hinder the interpretation of the results</li> <li>• Can be hard to update regularly</li> <li>• Can sometimes be limited to a defined set of services</li> </ul>
International sources: Global Health Expenditure Database (GHED), World Bank World Development Indicators (WDI), etc.	<ul style="list-style-type: none"> <li>• Time series are often available</li> <li>• Data collection often follows rigorous methods</li> <li>• Readily accessible (free of charge, simple to find)</li> <li>• Methods are standardized across countries, allowing for cross country comparisons</li> </ul>	<ul style="list-style-type: none"> <li>• Disaggregated data is usually not available (by socio-economic groups, geographies etc.)</li> <li>• In countries where data is missing, estimates might be used instead</li> <li>• Assumptions/methods not always fully documented at the country level</li> <li>• GHED data has a two-year time lag</li> </ul>
National budget	<ul style="list-style-type: none"> <li>• Can often be readily available at the country level at no cost</li> <li>• Can be very detailed</li> <li>• Formulated on a yearly basis allowing for time trends</li> <li>• Can be used to compare allocation decisions between different levels of care or sometimes geographies</li> </ul>	<ul style="list-style-type: none"> <li>• Budgeting is very different from spending and may not reflect allocations in practice</li> <li>• If the country is decentralized, disconnect between central allocations and those made by decentralized authorities</li> </ul>
Peer-reviewed literature	<ul style="list-style-type: none"> <li>• Peer-reviewed studies may be more reliable</li> </ul>	<ul style="list-style-type: none"> <li>• Available literature may be outdated</li> <li>• Local institutions may not have access to/ own the full data</li> </ul>
<b>Routine data</b>		
General	<ul style="list-style-type: none"> <li>• Readily available data</li> <li>• Low cost</li> <li>• Useful for examining trends</li> <li>• Large sample</li> <li>• Can be disaggregated across different groups depending on needs</li> </ul>	<ul style="list-style-type: none"> <li>• Quality may vary, techniques of data collection may vary e.g., recording data, coding</li> <li>• Limited capacity to assess quality and analyze data in a timely manner</li> </ul>

## Appendix 2: Critical appraisal of the suitability of data and evidence

- Is the evidence or data relevant to your decision problem?
  - What is the question/purpose of the data collection?
  - Is the considered study based on the main variables of Population, Intervention, Comparison, Outcomes (PICO) similar to your own PICO?<sup>2</sup>

### PICO Format

- Population: e.g., condition, disease severity/stage, comorbidities, risk factors, demographics
- Intervention: e.g., technology type, regimen/dosage/frequency, technique/method of administration
- Comparator: e.g., placebo, usual/standard care, active control
- Outcomes: e.g., morbidity, mortality, quality of life, adverse events

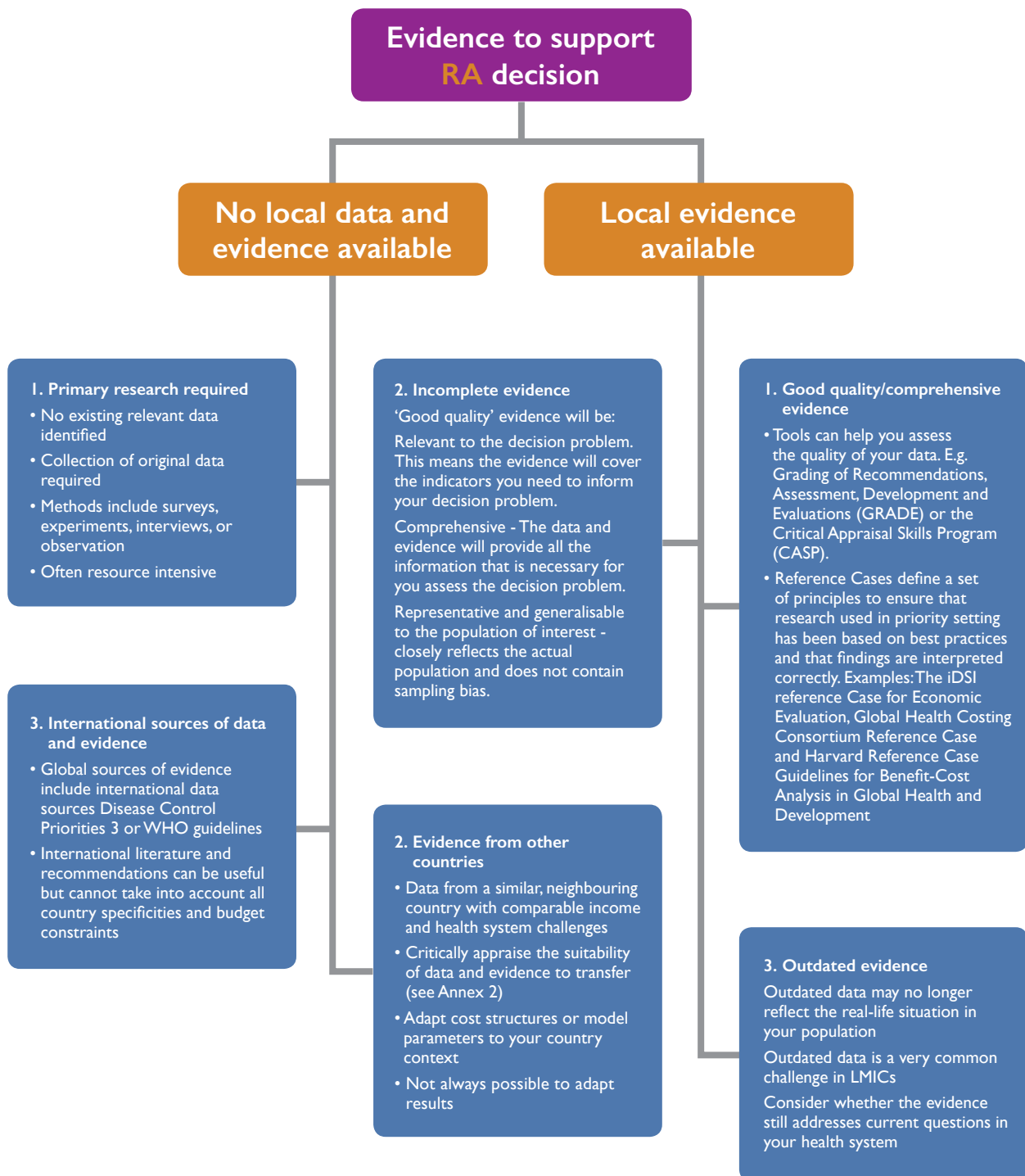
### Example of PICO in a literature search:

- Population: Women over 40 with heart failure from dilated cardiomyopathy
- Intervention: Adding anticoagulation with Warfarin to standard heart failure therapy
- Comparator: Compared with standard therapy alone
- Outcomes: Quality-adjusted life years (QALYs) gained

Source: iDSI HTA Toolkit

- How generalizable is this type of evidence?
- What is the quality of the study?
  - Do you have sufficient information about the methods?
  - Is the information about the intervention, characteristics of the population and type of measures/outcomes clearly presented?
  - Are those methods in line with those typically used in your setting?
- Does the setting where the evidence is produced present significant differences compared to your setting in the following factors:
  - Demographic (characteristics of the population)
  - Epidemiological context
  - Local health system constraints
  - Baseline characteristics
  - Societal preferences (e.g., cultural values)
- If differences exist: how likely is it that those differences would impact on the results of the study or survey?
  - In which direction would this be impacted?
  - What would be the magnitude of the effect (e.g., large, small, non-significant)?

# Appendix 3: Decision tree: scenario from data mapping





## Appendix 4: Health Interventions Prioritization Tool

The Health Interventions Prioritization Tool (HIPtool) is a cloud-based, open-access, user-friendly, high-impact resource to assist with health interventions prioritization at the country level. It combines context-specific data on disease burden and intervention effectiveness to help stakeholders identify funding priorities and targets. The tool draws on the findings from *Disease Control Priorities 3 (DCP3)*, which looks at 21 essential packages at five different levels of care (population, community, referral or central hospitals, first-level hospitals, and health center level of care). It has 218 interventions aptly named “Essential Universal Health Coverage (EUHC)”, of which a subset of 71 interventions is included in the Highest Priority Package (HPP). It uses the following criteria (i) value for money, (ii) disease burden, and (iii) feasibility of implementation (Shelton D, 2018). The tool allows countries to use locally generated data on cost, intervention effectiveness, and coverage to make resource allocation decisions.

The tool was developed and piloted in 2018–2019. Important lessons on various aspects of the process were learned during the pilot programs, including data collection, data validation, design and presentation of analytical outputs, and policy dialogue with Ministries of Health and Finance.

The analytical output from the HIPtool can be better linked with the benefit package design process. Essential benefit package design involves several important considerations, including identifying the basic categories of services in the package, specifying benefit exclusions or limitations, and determining specific coverage and financial protections in the health system. The HIPtool’s ability of instantly performing the simulations and scenario analysis can provide useful inputs to a country’s broader benefit package and health financing agenda.



The World Bank's support to the Joint Learning Network for UHC  
is made possible with financial contributions from the following partners:



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