Harmonized Health Facility Assessment (HHFA)

Quick guide
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Quick guide
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**Note:** The HHFA tools are periodically updated. The screenshots appearing in this document may therefore not reflect the most recent versions.
Acknowledgements

The Harmonized Health Facility Assessment (HHFA) modules and resource package are a key deliverable of the Health Data Collaborative Facility Surveys Working Group. The modules provide a harmonized approach to health facility assessments/surveys, building on existing internationally tested tools, such as the World Health Organization (WHO) Service Availability and Readiness Assessment (SARA), the United States Agency for International Development Service Provision Assessment (SPA) and the World Bank Service Delivery Indicators (SDI), as well as consolidating best practices and lessons learned through implementation in many countries.

Overall guidance for the development of the initial version HHFA modules was provided by the Health Data Collaborative Facility Surveys Working Group. Kathryn O’Neill, Amani Siyam and Kavitha Viswanathan coordinated the development of the initial version. Wendy Venter coordinated the revisions of the modules, and the development of the HHFA resource package with technical support from the Johns Hopkins Bloomberg School of Public Health. Substantial technical contributions to the resource package were made by Eman Aly, Yolanda Barbera, Sandro Colombo, Benson Droti, Nancy Fronczak, Sherrell Goggin, Fern Greenwell, Geoff Greenwell, Jaya Gupta, Shannon King, Hillary Kipruto, Benito Koubemba, Davy Audrey Liboko Gnekabassa, Geoffrey Lutwama, Boniface Muganda, Timothy Roberton, Ashley Sheffel, and Moussa Traore. Technical inputs concerning guidelines, service standards, measurement methods and indicators were provided by multiple WHO technical programmes and regional offices as well as other agencies within the health sector.

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**Abbreviations**

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<th>Abbreviation</th>
<th>Description</th>
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<td>CSPro</td>
<td>Census and Survey Processing System</td>
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<tr>
<td>DCMI</td>
<td>Dublin Core Metadata Initiative</td>
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<tr>
<td>DDI</td>
<td>Data Documentation Initiative</td>
</tr>
<tr>
<td>deff</td>
<td>design effect</td>
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<tr>
<td>FBO</td>
<td>faith-based organization</td>
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<tr>
<td>HHFA</td>
<td>Harmonized Health Facility Assessment</td>
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<tr>
<td>HIV</td>
<td>human immunodeficiency virus</td>
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<tr>
<td>IHSN</td>
<td>International Household Survey Network</td>
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<tr>
<td>MFL</td>
<td>master facility list</td>
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<tr>
<td>NGO</td>
<td>nongovernmental organization</td>
</tr>
<tr>
<td>PHC</td>
<td>primary health care</td>
</tr>
<tr>
<td>PSU</td>
<td>primary sampling unit</td>
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<tr>
<td>RHIS</td>
<td>routine health information system</td>
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<td>SARA</td>
<td>Service Availability and Readiness Assessment</td>
</tr>
<tr>
<td>SDG</td>
<td>Sustainable Development Goals</td>
</tr>
<tr>
<td>SDI</td>
<td>Service Delivery Indicators</td>
</tr>
<tr>
<td>SPA</td>
<td>Service Provision Assessment</td>
</tr>
<tr>
<td>TOT</td>
<td>training of trainers</td>
</tr>
<tr>
<td>UHC</td>
<td>universal health coverage</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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How to use the **HHFA Quick guide**

**What is the purpose of this guide?**

This short guide aims to provide a quick overview of the Harmonized Health Facility Assessment (HHFA). It summarizes the key technical, planning and implementation issues and helps readers to understand the main advantages, limitations and requirements of the HHFA. The **HHFA Quick guide** follows the structure of a companion reference document, the **HHFA Comprehensive guide**, to which it refers for details on technical issues and recommendations on how to conduct the assessment.

**Who is this guide for?**

The **HHFA Quick guide** targets senior officials of the ministry of health and its partners, who are considering implementation of an HHFA in their country. The guide will also be useful as an introductory document for staff of the ministry of health, implementing partners and academic institutions who are involved in planning and implementing the HHFA and using its results.

Readers will view this guide from different perspectives, depending on their roles and responsibilities. Policy-makers and high-level managers will focus on the first three chapters, which provide a “big picture” view of the HHFA and can help them in deciding if and when to conduct an HHFA. Planners, statisticians, health systems experts, data analysts and programme managers, with roles in planning and preparing the survey, and/or analysing and interpreting its results, will benefit from studying the entire short guide and referring, for specific aspects, to the corresponding chapters of the **HHFA Comprehensive guide**. Data collector trainers should also review the entire **HHFA Quick guide** along with the HHFA data collection training materials. Data managers, who have specific, technical roles in an HHFA, should review the guide briefly but should focus on the **HHFA Data manager guide**, and the chapters of the **HHFA Comprehensive guide** that address the CSPro tool and the data analysis platform.

**How is this guide structured?**

Chapter 1 presents a summary of the HHFA: its uses, thematic scope and content, implementation approaches, and available tools and resources. Chapter 2 provides the HHFA’s background: its rationale, focus, context, development and a suggested implementation timeline. Chapter 3 examines the HHFA objectives and uses, and then describes its components: modules, questionnaires, indicators, and data collection and analysis tools. Chapter 4 examines methodological aspects of the survey and its required adaptation to the country context and information needs. Chapter 5 provides a summary of the planning and implementation steps.

Chapter 6 delves into the strategic and operational planning and preparation of the assessment – this is a critical phase of the HHFA, requiring strong engagement by the ministry of health and partners. Chapter 7 focuses on data collection, which involves the deployment of multiple teams to multiple locations and requires careful planning and monitoring. Chapter 8 describes data processing and analysis: the HHFA dataset must be checked and cleaned before exporting for analysis, which results in the production of the analysis outputs: tables, graphs and a report outline format. Chapter 9 describes how to carry out a descriptive analysis of the analysis outputs. Chapter 10 provides guidance on how to interpret the survey results, identify key findings, and communicate main conclusions and recommendations to diverse audiences. Chapter 11 highlights the importance of documenting and archiving the survey, for further analyses, research and reference for future HHFA implementations.

The final chapter lists the annexes available in the **HHFA Comprehensive guide**, including details on index calculation and sampling methodology, examples of HHFA job descriptions, guidance on a training workshop for data collectors, procedures for data collection and a glossary of key terms.
1. HHFA summary

1.1 What is the Harmonized Health Facility Assessment?

The HHFA is a comprehensive, standardized health facility survey that provides reliable, objective information on the availability of health facility services and the capacities of facilities to provide the services at required standards of quality.

Availability and quality of health services are integral to achieving universal health coverage (UHC) and the health-related Sustainable Development Goals (SDGs). HHFA data can support health sector reviews and evidence-based decision-making for strengthening country health services. Developed through multistakeholder collaboration, the HHFA builds on previous and existing global facility survey instruments, is based on global service standards, and uses standardized indicators, questionnaires, data collection methodologies and data analysis tools.

HHFA content

The HHFA covers all key facility services and facility-level management systems. The HHFA content is organized into four modules: service availability; service readiness; quality of care; and management and finance.

![Fig.1. HHFA modules](image)

A module represents a set of questions (in questionnaire format) for a main topic area. Countries may choose to implement any single module or a combination of modules. Core questions represent the recommended minimum information, while optional additional questions provide further details. All questions must be linked to defined indicators. Various questionnaire options are available (refer to Fig. 2). The questionnaires can also be adapted to country needs. The HHFA questionnaires are programmed into the HHFA Census and Survey Processing System (CSPro) electronic data collection tool. HHFA data are analysed to produce indicators within five service dimensions: general service availability; general service readiness; service-specific availability and readiness; management and finance support systems; and quality of care.
HHFA implementation

The HHFA can be conducted on a representative sample of facilities or as a census of all facilities in the country. An updated master facility list (MFL) including all public and private facilities serves as the foundation of the survey sampling frame.

Trained data collectors visit the facilities to collect data on electronic devices (tablets or mobile phones) using the HHFA CSPro tool. Once data collection is completed, the data are transferred to the HHFA data analysis platform. The analysis platform enables automated production of the HHFA indicators in tables, graphs and maps in a standard report outline format. Countries can use this outline as the basis for a comprehensive survey report, with interpretation of the findings within the country context and recommendations for action.

Countries should establish a plan of regular HHFAs (e.g. 1 to 5 years) as part of the national health sector monitoring and evaluation framework. Selected modules could be implemented as sample surveys in alternating years for monitoring purposes. The HHFAs should be synchronized with the country’s schedule of routine analytical reviews and planning processes, so that the results can feed into these processes.

Fig. 2. HHFA modules and questionnaires

<table>
<thead>
<tr>
<th>Service availability</th>
<th>Service readiness</th>
<th>Quality of care</th>
<th>Management and finance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility infrastructure</td>
<td>Guidelines</td>
<td>Adherence to standards in patient care processes</td>
<td>Management systems</td>
</tr>
<tr>
<td>Staff</td>
<td>Trained staff</td>
<td></td>
<td>Finance systems</td>
</tr>
<tr>
<td>Beds</td>
<td>Equipment</td>
<td></td>
<td>Health information systems</td>
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<tr>
<td>Specific services</td>
<td>Diagnostics</td>
<td></td>
<td>Quality assurance systems</td>
</tr>
<tr>
<td>Building structure</td>
<td>Medicines and commodities</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Stand-alone questionnaires</th>
<th>Stand-alone questionnaires</th>
<th>Stand-alone questionnaires</th>
<th>Stand-alone questionnaires</th>
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<tr>
<td>Availability: Core</td>
<td>Readiness: Core</td>
<td>Quality of care: Additional/Supplementary Record review</td>
<td>Management and finance: Core</td>
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<tr>
<td>Availability: Core+Additional</td>
<td></td>
<td></td>
<td>Management and finance: Core+Additional</td>
</tr>
<tr>
<td>Availability: Additional/Supplementary Building structure</td>
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</table>

Combined questionnaire

1.2 The HHFA resource package

The HHFA resource package is a comprehensive set of downloadable tools and guidance to support countries in planning and implementing an HHFA (refer to Fig. 3).

The resource package is available at: https://www.who.int/data/data-collection-tools/harmonized-health-facility-assessment/introduction

Additional resources, including training materials, may also be accessed upon request to hhfa@who.int.

HHFA OpenWHO e-learning courses are available at: https://openwho.org/channels/hhfa
- **HHFA Quick guide**: This provides a rapid overview of key HHFA concepts and summarizes the steps of the survey planning and implementation.

- **HHFA Comprehensive guide**: This guide provides an expanded description of the HHFA background, concepts and tools, as well as detailed step-by-step guidance for survey planning, preparation, implementation, data analysis, interpretation and dissemination of results.

- **Indicator inventory**: An online platform displays all the HHFA indicators, including the survey questions and code needed to calculate each indicator. The inventory can also be downloaded as an Excel document.

- **Questionnaires**: Questionnaires are available in “combined” and “stand-alone” formats. The “combined” questionnaire includes core questions from multiple HHFA modules, integrated to facilitate data collection. “Stand-alone” questionnaires are also available for each module. The stand-alone questionnaires are further categorized as Core, Core+Additional and Supplementary, based on the types of questions they contain and the data collection methodology used.

- **CSPro electronic data collection tool**: This tool is a CSPro application containing all the HHFA questions. The tool is flexible, enabling countries to select the questionnaires and questions they want to implement and to adapt the questionnaires to the country context.

- **HHFA Data manager guide**: The guide defines the data manager’s responsibilities in an HHFA and provides detailed explanations on how to adapt and use the CSPro tool.

- **Data analysis platform**: After export from the CSPro tool, HHFA data are uploaded to the HHFA data analysis platform (or other analysis software). The platform automatically calculates the standard HHFA indicators and produces tables, graphs and maps in a standard format. The data analysis platform can also be adapted to country needs.

- **Training resources**: Various training resources are available to support countries in preparing for and implementing an HHFA, including a set of OpenWHO e-learning courses. Training topics include: an introduction to the HHFA; questionnaires, indicators and country adaptation; data collector training; and HHFA data review, interpretation and communication.

- **Global archive**: WHO has developed a central data catalogue where countries may choose to securely store their HHFA data and reports; the archive content can also be made publicly available based on country authorization.

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**Fig. 3. HHFA resource package – tools for every HHFA step**

1. **Decide information needs**
2. **Adapt questionnaire and CSPro tool**
3. **Train data collectors**
4. **Collect data**
5. **Analyse data**
6. **Interpret, communicate and use data**
7. **Curate data**

**Plan, prepare and manage**

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<th>PowerPoint training packages</th>
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<tr>
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<td>OpenWHO e-learning packages</td>
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<td>HHFA Data Manager guide</td>
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</table>
2. HHFA background

2.1 Why assess health facility services?

All countries are working toward achieving UHC. The goal of UHC is based on country capacity to provide quality health services to all people needing care, while protecting the vulnerable from financial hardship. The COVID-19 pandemic, recent Ebola epidemics, and the global increase in natural disasters and conflicts have exposed the vulnerability of health systems to external shocks. They have highlighted the importance of building health systems that have the resilience to respond to and recover from health crises. Strengthening the availability and quality of health facility services, and improving their resilience, are key steps in the path toward achieving national health goals, UHC and the health-related SDGs.

Sound information on the supply and quality of health services is necessary for health systems policy-making, planning and management. Health facility data are needed for a comprehensive understanding of the functioning of health service delivery systems and for monitoring changes in these systems over time. However, despite decades of investments in health information systems, few countries have accurate, up-to-date information on the availability of health services in both public and private facilities, or their capacity, or “readiness”, to provide quality services. The WHO 2020 SCORE Assessment\(^1\) revealed that almost 50% of countries assessed had limited capacity for systematic assessment of quality of care, with most of these being low- and middle-income countries.

2.2 Concepts for assessing health facility services

Ensuring access to quality health services is a key function of a health system. Service access includes multiple components: service availability, referring to the physical presence or reach of health facilities; affordability, referring to the ability of a client to pay for services; and acceptability, referring to sociocultural aspects. The latter two aspects are not measured by the HHFA.

Availability of services is not enough: facilities must have the capacities to provide the services at required standards of quality. Service readiness refers to the availability and functionality of key resources (infrastructure, trained staff, guidelines, equipment, diagnostic tests, medicines and commodities) needed for providing the services. Furthermore, appropriate facility-level management systems must be in place to plan, organize, support and monitor the delivery of the services.

Service availability, readiness and management systems are all prerequisites for service quality. However, they do not guarantee the delivery of a high-quality care process. Quality of care is a complex concept that includes multiple dimensions. It requires a health system that is able to ensure service availability, readiness and management, and includes technical quality of care, as well as the attitudes and behaviours of service providers, and patient trust in the providers.

Optimal functioning of all these elements contributes to the achievement of key health service outcomes: high coverage of key, effective interventions, people-centred care (care which has considered the preferences and aspirations of individual service users and the cultures of their communities), financial protection of vulnerable families, and, ultimately, improved health outcomes.

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2.3 Development of the HHFA

Over the years, various health facility survey tools have been developed, including the WHO Service Availability and Readiness Assessment (SARA),\(^1\) United States Agency for International Development Service Provision Assessment (SPA),\(^2\) and the World Bank Service Delivery Indicators (SDI)\(^3\) survey. Sometimes multiple, uncoordinated facility surveys have been conducted in a single country, at high cost and often producing non-comparable results. Furthermore, facility surveys have often emphasized specific topics or programmes, rather than providing an integrated assessment across all services.

In an effort to address these issues and to ensure a facility survey tool to meet the needs of the UHC and SDG era, the HHFA was developed. The HHFA is a comprehensive assessment of health facility services, based on global service standards, and using standardized indicators, questionnaires, data collection methodologies and data analysis tools. It represents a consolidated approach, building on previous and current survey instruments and experiences, and reflecting global indicator lists. Key aims of the HHFA development process were to promote support for alignment across facility surveys, to reduce redundancy and costs of multiple surveys in the same country, and to facilitate comparability of results among surveys.

The HHFA incorporates, updates and expands upon the SARA, and also provides an updated and more extensive set of tools and resources than the SARA. The HHFA was developed by WHO with inputs from the Health Data Collaborative.\(^4\) Early versions of the HHFA tools were tested in Burkina Faso, Kenya and Malawi. Subsequent versions were tested in Liberia and Zambia.

The HHFA is based on global service standards that are continuously evolving. Furthermore, lessons learned from HHFA implementation, along with feedback from programmes and partners, will contribute to its strengthening. As such, the HHFA resource package will require regular updates.

2.4 Role of the HHFA in country health information systems

The HHFA is designed to provide periodic, aggregate information across multiple facilities on overall service status. It does not aim to provide frequent, regular information about individual health facilities for ongoing supervision or management purposes.

The HHFA collects information that is usually not systematically collected by other information systems. It intends to complement other data sources such as the routine health information system (RHIS) and supervision systems, by filling information gaps. Furthermore, as HHFA data are collected by external data collectors, the HHFA is able to provide a more objective assessment than data that are self-reported by facilities. In countries where health facility accreditation or certification systems are not yet well-established, the HHFA’s external assessment of facility adherence to standards can serve as a precursor to such systems.

Health facility surveys form an integral component of a country’s health information system and health sector monitoring and evaluation plan. The timing of HHFAs should be synchronized with national planning cycles and review processes, so that the results are available in time to feed into these processes. The time needed to complete an HHFA depends on several factors including the size of the country, the number of health facilities, the sample size, the modules selected for implementation, the available resources, and the number of data collection teams.

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2. [https://dhsprogram.com/methodology/Survey-Types/SPA.cfm](https://dhsprogram.com/methodology/Survey-Types/SPA.cfm)
3. [https://www.sdindicators.org/](https://www.sdindicators.org/)
4. [https://www.healthdatacollaborative.org/](https://www.healthdatacollaborative.org/)
The entire process generally requires 3 to 6 months from the time of country adaptation of the questionnaires to the production of the country report. Additional time may be needed if the country is conducting a facility survey for the first time or is implementing the survey as a census of all facilities.

The frequency of conducting HHFAs depends on country needs and available resources. Ideally, a country would implement only the core availability module as a census of all facilities every 5 years. The implementation of all modules in all facilities is an enormous and costly undertaking and is not recommended. Implementing the availability module as a census would ensure that the national MFL is updated and that minimum information on service availability is produced for the entire country. A representative sample survey using the other modules could then be conducted at intervals of 1 to 3 years. A further option could be to alternate a sample survey of readiness with a sample survey of management and finance, and quality of care. The modules selected should be those required to fill specific data gaps for country planning processes or to review specific service aspects that have previously shown weaknesses and for which corrective measures have been implemented. However, countries should adapt this cycle of assessments according to needs and feasibility.
# 3. HHFA overview

## 3.1 HHFA objectives

The HHFA generates a set of indicators on key service inputs and processes that measure if facilities meet required conditions to provide services at accepted standards of quality. They can be used to:

- provide information on the status of facility services as assessed against agreed-upon standards;
- measure progress in facility services over time and among administrative/geographical areas;
- generate evidence for health sector reviews to inform the development of strategies and plans;
- support planning and management of facility services;
- plan and monitor the scale-up of key interventions to address priority health challenges;
- benchmark facility performance to support the development of quality improvement plans; and
- provide evidence to motivate political and financial support for improving service quality.

## 3.2 HHFA modules

The HHFA covers all key facility services and facility-level management systems. It includes both outpatient and inpatient services and has a strong focus on primary health care (PHC). However, the HHFA is not an appropriate tool for assessing complex inpatient or tertiary level services.

The HHFA content is organized into four modules that may be viewed as “lenses” through which facility services are assessed: 1) **service availability**; 2) **service readiness**; 3) **quality of care**; and 4) **management and finance**.

A module is defined as a set of questions that provide information about a main topical area. Countries may choose to implement a single HHFA module or a combination of modules. Refer to Fig. 2 for a summary of the types of information collected within each module.

<table>
<thead>
<tr>
<th>MODULE 1: Service availability,</th>
<th>assesses if basic infrastructure and services are available.</th>
</tr>
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<tbody>
<tr>
<td>MODULE 2: Service readiness, assesses if key prerequisites and resources (infrastructure, trained staff, guidelines, equipment, diagnostic tests, medicines and commodities) for providing quality services are in place.</td>
<td></td>
</tr>
<tr>
<td>MODULE 3: Quality of care, assesses if patients have received care according to required standards, as evidenced from documentation in individual patient records. (Note that the resources and systems considered prerequisites for quality services are integrated into the readiness, and management and finance modules.)</td>
<td></td>
</tr>
<tr>
<td>MODULE 4: Management and finance, assesses if appropriate management structures and practices are in place to support continuous availability and quality of services.</td>
<td></td>
</tr>
</tbody>
</table>

Modules 1, 2 and 4 use a facility audit methodology while Module 3 uses a record review methodology (refer to Section 4.3).
3.3 HHFA questions and questionnaires

The HHFA aims to collect data that are comparable over time, within countries and across countries. To achieve this, a standardized set of HHFA questions was developed, consisting of core and additional questions. Core questions represent the recommended minimum information, while the optional additional questions provide further details. Questions not relevant to the country context can be removed.

The HHFA questions are organized into questionnaires that are provided in two formats: stand-alone and combined. Each of the four HHFA modules contains a set of stand-alone questionnaires that are designated as “Core”, “Core+Additional” and/or “Supplementary”. The Combined Core questionnaire contains all core questions from the three modules that require the facility audit methodology (availability, readiness, and management and finance). The Core Combined questionnaire can also be implemented using different combinations of Modules 1, 2 and 4. If a country requires detailed information on a specific module, the relevant stand-alone Core+Additional questionnaire may be used.

3.4 HHFA CSPro electronic data collection tool

HHFA data collection is carried out using the HHFA Census and Survey Processing System (CSPro) electronic data collection tool. The HHFA CSPro tool is a standard CSPro application, customized for the HHFA, that can be downloaded at: https://cspro.hhfa.online/. The CSPro tool is loaded onto mobile electronic data collection devices (tablets or mobile phones) that are used by data collectors to complete the HHFA questionnaire. The HHFA Data manager guide provides detailed information on how to adapt the CSPro tool to the country context and its use for survey implementation.

3.5 HHFA indicators and indicator inventory platform

Any data collected through a health facility survey should be indicator-driven, with all questions linked to clearly defined indicators. HHFA indicators are designated as either Core or Additional and are derived from Core or Additional questions respectively. HHFA indicators are calculated automatically when data are uploaded into the HHFA data analysis platform.

The HHFA uses six types of indicators: proportion (percentage), mean, count, median, ratio and index. Indices are used to summarize and communicate information about multiple indicators. (Calculation of the indices is described in Annex 1 of the HHFA Comprehensive guide.) Most HHFA indicators are percentages.

All the HHFA indicators can be viewed in an online indicator inventory platform (https://indicator-inventory.hhfa.online/). The indicator platform provides an overview of the HHFA content and indicator organization, as well as detailed information on each indicator. Indicators are organized into five overarching service dimensions, which are further subdivided into service areas, service subareas and indicator tables. The five service dimensions of the indicator inventory are:

- Dimension 1. General service availability
- Dimension 2. General service readiness
- Dimension 3. Service-specific availability and readiness
- Dimension 4. Management and finance

Countries should firstly review the indicator inventory to identify the indicators they need, then select the relevant questionnaires and questions.

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1 CSPro is a software package for entry, editing, tabulation and dissemination of census and survey data (https://www.census.gov/data/software/cspro.html).
### 3.6 HHFA data analysis platform

The HHFA data analysis platform is an online web application that automatically calculates the HHFA indicators, and displays them in tables, graphs and maps, as well as providing an outline format of the HHFA report. The analysis platform can be used to conduct all the analyses required to produce an HHFA report. The platform can be accessed at [https://analysis-platform.hhfa.online](https://analysis-platform.hhfa.online). Details on how to access the platform are provided in the *HHFA Comprehensive guide*.

The data analysis platform is designed to make it as easy and quick as possible to analyse an HHFA dataset. Ideally, a team uploads a cleaned, final dataset, configures a minimal set of options, runs all the analyses to produce the standard (default) indicators, and generates a template report within a few hours. The analysis platform runs online and does not require software to be downloaded or installed. The user can simply navigate to the website and start to use the tool. Also, the platform does not require users to be familiar with any statistical software. However, the dataset can also be exported to formats that allow the use of statistical software (Stata, R, etc.).
4. HHFA methodology

4.1 The master facility list (MFL)

A complete list of ALL the health facilities in the country – the MFL – is required, regardless of the HHFA design methodology selected (census or sample). The MFL should include all health facilities in all sectors, including public, private-for-profit, nongovernmental organizations (NGO), faith-based organizations (FBO) and other sectors, e.g. military. The MFL assigns a unique identification (ID) code to each facility. This avoids the risk of duplicate data collection. A set of identifying information is provided for each facility, including facility type, managing authority, urban/rural location and geographic/administrative area. Geographic coordinates should also be included.¹

Before beginning an HHFA, it is crucial to assess the availability of a comprehensive, up-to-date MFL. This is an important prerequisite for conducting the survey as it will be used to construct the sampling frame or to conduct the census-based assessment. Updating or establishing an MFL may be a time-consuming process and should be started well in advance of the HHFA.

If the MFL is incomplete or out of date, efforts should be made to quickly identify all health facilities by reviewing the most recent ministry of health lists, cross-checking them with other sources, and validating them with district/regional health officers. Private facilities are often not consistently included in the ministry of health MFL, particularly in unregulated contexts. However, they can represent an important share of the facility network in some countries and efforts should be made to identify as many as possible.

4.2 HHFA design methodology

Two potential design methodologies can be used for facility selection in an HHFA: a facility census or a sample survey.

- A facility census aims to assess ALL health facilities (public, private, and other providers) in the country. A census is needed to establish the national MFL and can be used to establish baseline information on overall service availability in the country.

- In a sample survey, not all health facilities are assessed, but rather a representative sample. Sampling is done using probabilistic selection methods to ensure that the findings can be inferred to represent the target group of facilities in the country (or regions/districts) in which the survey is conducted.

The choice between a facility census and a sample survey depends on a number of factors, including the survey objectives, the size of the country, the number of health facilities, the country context, the resources available, the required timeframe of the survey and the availability of a valid MFL. If the objective is to obtain high-level estimates, a sample survey that provides estimates of acceptable precision² at the national level would be appropriate. However, if the objective is to obtain subnational-level estimates, the sampling methodology and the sample size must be adjusted to use either a stratified sampling design (with increased sample size) or, in some cases, a census of all facilities. The advice of a sampling expert or statistician should be sought at an early stage of the survey design, as the cost and validity implications of the chosen method are significant.


² Precision is a measure of the uncertainty around the estimate produced in a sample, because the inclusion of facilities in a sample is partly determined by chance. Wide confidence intervals around an estimate reflect low precision. The larger the sample size, the higher the precision of an estimate.
The large sample sizes needed for surveys to provide estimates for lower subnational levels have significant cost implications. Countries often use a sample survey to assess PHC facilities, along with a census of all hospitals. Table 2 in Section 6.5 provides an overview of HHFA sampling options and cost implications.

4.3 Data collection methodologies in facilities

HHFA data collection methods currently include facility audit for the availability, readiness, and management and finance modules, and record review for the quality of care module. A facility audit includes observation of key items, systems and service conditions, and interviews with key informants (health facility staff). The record review involves examining a sample of individual patient records to see if the provider followed the appropriate standards of care based on information documented in the patient record. The HHFA Comprehensive guide describes the methodology for sampling the patient records.

4.4 Selecting HHFA modules and questionnaires for implementation

The HHFA is designed to provide flexibility for countries to implement the survey according to their needs. Countries can select modules and questionnaires based on the survey objectives, the need to address existing data gaps, and survey implementation feasibility issues.

Countries may choose to implement a single HHFA module. In this case, the relevant Stand-alone questionnaire within the module is used. Some countries may choose to implement multiple HHFA modules. If a country chooses to implement any combination of the three facility audit modules, the Combined Core questionnaire should be used. It is not recommended to implement all three facility audit modules along with the quality of care module, as the training requirements and data collection burden will be excessive.

4.5 Adapting the questionnaire to the country context

Some degree of HHFA questionnaire adaptation will always be needed in each country. Adaptation involves making a limited number of changes to the questionnaire, based on policies, practices and terms used in the country, and on country needs. Certain adaptations are needed for each country context, e.g. for type of health facilities, health worker categories, national guidelines, treatment regimens, etc. Countries may also choose to include additional country-specific questions or to remove questions not relevant to the context.

Questionnaire adaptation is a critical part of the HHFA and should involve the appropriate programme/service stakeholders. Adaptation, as well as the addition or removal of questions, should be done with care, as changes have cascade implications (e.g. skip patterns, calculation of indicators, etc.). Changes to the questionnaire also require adaptations to the CSPro application and may require modifications in the data analysis platform. Furthermore, it must be noted that HHFA questionnaires are extensive and that adding a significant number of questions will increase the time and costs of data collection training, data collection, and data analysis. A questionnaire of excessive length may also risk compromising the quality of the data collection.
5. HHFA planning and implementation steps

The HHFA is a complex survey requiring the collection of a large amount of data in a large number of facilities. As in all complex surveys, both methodological issues and potential operational constraints must be addressed. Such constraints can be minimized by thorough planning and preparation. Table 1 summarizes the steps for planning and implementing an HHFA. The steps may not necessarily follow the sequence presented here. The details of each step are discussed in the chapters following.

**Table 1. Summary of HHFA planning and implementation steps**

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<td>7. Prepare a survey proposal and secure funding</td>
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<td>8. Prepare a detailed implementation plan and survey schedule</td>
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<td>11. Adapt questionnaire to country context and needs</td>
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<td>12. Adapt HHFA CSPro tool and set up server and synchronization method</td>
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<td>5. Assign questionnaire sections to data collectors, visit facilities and collect data</td>
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<td>6. Transfer electronic files to team leader, combine and synchronize to server</td>
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<td>7. Area supervisors oversee data collection and conduct data validation checks</td>
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<td>8. Data manager reviews data on server throughout data collection process</td>
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<td>2. Export the final dataset from CSPro</td>
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<td>3. Configure HHFA data analysis platform and upload final dataset</td>
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<td>4. Conduct data analysis using standard HHFA indicators and any country-specific indicators</td>
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<td>2. Review the standard HHFA data analysis platform outputs</td>
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<td>3. Conduct additional analyses as needed</td>
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### Data interpretation and communication (Chapter 10)

1. Review guiding principles for data interpretation
2. Organize the interpretation process
3. Review principles for effective communication of HHFA findings
4. Prepare the final HHFA report
5. Prepare additional communication products
6. Disseminate the HHFA findings

### Data curation (Chapter 11)

1. Introduction
2. Best practices for survey documentation and archiving
3. Creating metadata for the HHFA
4. HHFA global data archive
6. Survey planning and preparation

6.1 Establish a survey coordination group of country stakeholders

A key initial step toward successful HHFA implementation involves bringing partners together and mobilizing them around the survey. A survey coordinating group, led by the ministry of health, but including key country-level stakeholders, is critical for ensuring leadership and oversight throughout the process, and use of the results. The main tasks of this group include defining the survey objectives, mobilizing adequate technical and financial resources, supporting the HHFA survey manager, assisting in interpreting the data and developing recommendations, and ensuring that the findings are disseminated and used.

6.2 Define key roles and responsibilities to oversee and facilitate the survey

The ministry of health has overall responsibility for leadership and coordination of the survey. A technical committee, consisting of a small group of experts from the ministry of health and partners, guides technical issues such as survey design, questionnaire adaptation and data analysis and reporting. An implementation agency (e.g. research unit within the ministry of health, national statistical office, school of public health, external organization etc.) or other entity with experience in conducting surveys, should be identified to take charge of the survey field implementation. An independent party, such an independent consultant or a national institute, should ensure technical assistance and quality assurance for the implementation.

6.3 Define the survey objectives

The HHFA objectives should be determined by the ministry of health’s key information needs for policy-making, planning and monitoring of the health facility service delivery system. Defining the objectives is a key strategic decision as they will guide decisions on the survey design, geographic scope and scope of content (modules and questionnaires to be implemented.) There will inevitably be trade-offs between the country’s information needs, the capacity and resources to implement the survey with the desired sample size and quality standards, and the implementation timeframe.

When defining the objectives, it is important that the high-level decision-makers requesting the survey have a solid understanding of the types of information that can and cannot be obtained through an HHFA, and how the results can be used. The HHFA is designed to provide a snapshot of the functioning of the overall health service delivery system, based on the services that facilities offer, and items and systems that exist within the facilities. Hence, the HHFA indicators reflect the “percentage of facilities offering...” (a specific service) or the “percentage of facilities with...” (a specific item, system, or set of items/systems). The HHFA indicators are not designed to represent individual facilities or to provide comparisons among individual facilities. The HHFA does not collect data on the numbers of people using the services, diagnoses, interventions received or health outcomes. Furthermore, the HHFA does not assess the quality of RHIS data.

6.4 Establish or update the national MFL

Before beginning the HHFA process, it is crucial to assess the availability of a comprehensive, updated MFL, covering ALL public and private facilities in the country, and including a unique ID code for each facility. This is an essential prerequisite for the survey. Updating or establishing the MFL may be a time-consuming process and should be started well in advance of the HHFA. Failure to ensure an MFL that is as accurate as possible may substantially impact the quality of the HHFA.
6.5 Determine the geographic scope and design methodology of the survey

The **geographic scope** refers to whether the survey will be implemented country-wide or will only cover a selected geographic/administrative area.

The **design methodology** refers to the choice of a census or a representative sample of facilities, the sample size and the sampling methodology. The design methodology chosen has significant implications on the complexity and costs of the survey. Table 2 presents a summary of various HHFA sampling options and their indicative costs. The most commonly used is Option 1, providing national-level estimates only.

Determining the sample size and then selecting the sample of facilities is a crucial and complex part of the survey design. As the sample size is a key component of the total HHFA cost, it is important to determine a sample size and a sampling methodology that minimize costs, while still ensuring the desired precision. It is, therefore, strongly recommended to involve a statistician with expertise in sampling. Annex 2 of the **HHFA Comprehensive guide** provides details on the HHFA sampling methodology.

Table 2. Sampling options for conducting an HHFA, with estimated costs

<table>
<thead>
<tr>
<th>Domains of estimation</th>
<th>Sampling method</th>
<th>Sample size (estimate)</th>
<th>Estimated cost</th>
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<tbody>
<tr>
<td><strong>Option 1:</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>National estimates</td>
<td><strong>Small country</strong></td>
<td>Stratification by facility type, location and managing authority; simple random/systematic sampling within each stratum with census or oversampling of hospitals</td>
<td>150–250 facilities</td>
</tr>
<tr>
<td>only</td>
<td><strong>Medium country</strong></td>
<td>Stratification by facility type, location, managing authority; simple random/systematic sampling within each stratum with census or oversampling of hospitals</td>
<td>250–500 facilities</td>
</tr>
</tbody>
</table>

| Option 2:            |                 |                        |                        |
| National and subnational estimates | **Small country** | Stratification by region, facility type, location and managing authority; simple random/systematic sampling within each stratum, with census or oversampling of hospitals | 5 regions: 250–500 facilities | US$ 250 000–350 000 |
|                      |                 |                        | 10 regions: 500–800 facilities | US$ 350 000–460 000 |

| Medium/large country | **Medium country** | Stratification by region, facility type, location and managing authority; simple random/systematic sampling within each stratum with census or oversampling of hospitals; Or, if facilities are scattered and budget is limited, two-stage cluster sampling: 1st stage: primary sampling units (PSUs), based on geographical/administrative regions, are selected with systematic sampling proportionate to population size; design effect (deff) decided at country level. 2nd stage: facilities selected randomly within PSU. | 4 regions: 300–500 facilities | US$ 200 000–500 000 |

| Large country        | **Large country** | 4 regions: 400–800 facilities | US$ 400 000–800 000 |

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1 The HHFA uses a figure of US$ 1000 per facility on average to develop a rough estimate of the costs of conducting the survey. This figure will vary according to the country context.
### Option 3: Subnational estimates only

Regional estimates for a subset of regions, with disaggregation for each region by facility type (three levels), location (urban/rural) and managing authority (public/private); no national estimates

**Large country**
Regions selected intentionally based on specified reasons or selected through simple random sampling; for each selected region: stratification by facility type, location and managing authority; simple random/systematic sampling within each stratum with census or oversampling of hospitals

For X regions, 150 facilities per region

US $150,000 per region

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### Option 4: District sample

District estimates for sampled districts

**Small, medium and large countries**
Two-stage cluster sampling:
1st stage: PSUs (districts) selected with systematic sampling proportionate to population size; deff decided at country level;
2nd stage: facilities selected randomly within district;
Census or oversampling of hospitals within district

**Small country**
300-500 facilities
(10-30 districts)

US $250,000–500,000

**Medium country**
400-800 facilities
(20+ districts)

US $400,000–800,000

**Large country**
600-1000 facilities
(30+ districts)

US $600,000–1,000,000

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### Option 5: Facility census

All possible domains of estimation

**Small, medium and large countries**
Census of all facilities

Very expensive

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### 6.6 Select modules and questionnaires for implementation

The selection of modules, indicators and questionnaires defines the scope of the technical content of the survey. The selection should be informed by the objectives, intended geographic scope and design of the survey. These decisions will have an impact on the number of data collectors and the time needed to complete the survey, as well as the volume of information to be analysed and interpreted, and the related cost implications. Decisions on the module(s) for implementation are followed by decisions on the need for core indicators only, or also additional indicators. It is important that the HHFA content selection is driven by information needs (i.e. indicators) rather than questions.

### 6.7 Prepare a survey proposal and secure funding

The survey proposal should include a short description of the rationale, general objectives, proposed geographic scope, design methodology, scope of content, timeframe and preliminary budget. The proposal should be submitted to the relevant authorities within the ministry of health for approval and, if necessary, to external agencies to agree on partnership and to secure funding for the implementation.

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1 The number of districts in the sample depends on the number of facilities per district.
6.8 Prepare a detailed implementation plan and survey schedule

A well-developed implementation plan (or protocol) is key to the success of the HHFA. It serves as the binding reference on all aspects of how the survey will be conducted to ensure its completion with appropriate quality standards, on time and within budget. The implementation plan expands on the survey proposal. The plan defines the rationale for the survey, the objectives, and the scope and design methodology. It also provides a comprehensive description of the methodological and operational aspects, with clearly defined responsibilities and troubleshooting procedures, and a budget. The survey timeframe is defined and a survey schedule developed, detailing the time allotted for each step in the process. This serves as a timeline for all survey activities.

Completion of the survey process generally requires at least 6 months. Seasonal issues and other contextual factors that may affect data collection, such as rainy seasons, holiday periods, etc., should be considered when establishing the timeframe. It is essential to allocate adequate time for survey preparation activities, including questionnaire adaptation, CSPro adaptation, hiring of staff, preparation of tablets for data collector training and data collection training.

6.9 Recruit personnel and organize logistics

Key survey personnel include a national survey manager, statistician, area supervisors, data collectors, data managers/CSPro experts, data analysts, report writers and drivers. These personnel are supported by the survey coordination group and the survey technical committee. Refer to Annex 3 of the HHFA Comprehensive guide for job description examples for selected key staff.

6.10 Map facilities and prepare data collection logistics

It is recommended to map all facilities to be surveyed to facilitate the planning of logistics. The map should include information about the survey areas, such as roads, topography, basic geographical features, etc. Teams are assigned to facilities based on the geographic distribution of the selected facilities. A draft schedule of visits to the facilities is then planned and used for informing district managers and receiving their approval. Refer to Section 6.10 of the HHFA Comprehensive guide for further details on planning requirements, including data collection devices, communication and internet needs, transport and daily living allowances.

6.11 Adapt the questionnaire to country context and needs

The questionnaire is adapted based on practices and terms used in the country and on country needs. Key programme stakeholders must be involved in the adaptation process. Changes are finalized in the paper questionnaire. The final paper version (with clearly indicated changes) is provided to the data manager for adaptation of the CSPro tool.

6.12 Adapt HHFA CSPro tool and set up server and synchronization method

The CSPro application must be configured for the country before it can be used. All the HHFA questionnaires have been programmed into the CSPro tool. The tool allows selection of the modules, questionnaires and individual questions to be implemented. The tool must also be adapted based on country adaptation of the questionnaire. Survey preparation also involves setting up a server and a method for synchronizing the data that are collected to the server.
6.13 Train data collectors and area supervisors

Training of data collectors, team leaders and area supervisors is a critical element of survey preparation because it helps to ensure the accuracy and reliability of the data collected. It is essential to allow sufficient time for thorough training on the questionnaire, interview skills and use of the CSPro tool. Depending on the modules and questionnaires selected for implementation, 8–10 days of training (including a field practice day) are recommended. A training of trainers (TOT) workshop should be conducted prior to the data collector training workshop, to ensure that all trainers have a consistent understanding of the questionnaire. As the data collectors will be trained on the use of the CSPro tool, it is essential that the tool is configured in advance of the training and that sufficient data collection devices (tablets/mobile phones) are available to use during the workshop.

The final part of the training involves a field practice day when data collection teams visit local health facilities and collect data in the same way as during the actual survey. This exercise serves to identify any misunderstandings of instructions and weaknesses in interview skills, to highlight any final aspects of the questionnaire that may require revision, and to exclude interviewers that do not show adequate competence. The survey implementation plan should include sufficient time between the field practice day and the start of data collection, to enable the completion of any revisions and uploading of the final CSPro tool to the mobile data collection devices. Refer to Annex 4 of the HHFA Comprehensive guide for further details on data collection training.
7. Data collection

Data collection should start as soon as possible after the data collection training, to maximize retention of knowledge and skills. Data collection involves the deployment of multiple teams to multiple locations and requires careful planning, preparation and monitoring.

7.1 Prepare materials and tools for data collectors

The survey manager and area supervisors ensure that each data collector receives a mobile device with the final CSPro tool, a schedule of facilities to be visited (with map and contact details of facility in-charge) and a notebook to record any significant issues. Each data collector must use the same mobile device throughout the survey – devices must not be shared among data collectors. All team members must have an official identification document to present on entry to facilities. The ministry of health informs local authorities well in advance that the survey will take place and provides data collection teams with a letter of introduction to the facility in-charges.

7.2 Plan data collection visits in collaboration with local authorities

Each area supervisor is responsible for ensuring the planning of data collection visits in their assigned survey area. A list of the sampled health facilities in each geographic area is prepared. A data collection team is assigned to each geographical area. The number of days required to collect the data is estimated based on the number and types of facilities to be visited in each area, the distances between them, the mode of transport available and the number of data collectors in each team.

The data collector team leader receives from the area supervisor the list of facilities to be surveyed by their team. The team leader contacts the person in charge at each facility in advance to establish an appointment date and time for the data collection visit.

7.3 Arrange for transport and regular communication during fieldwork

The area supervisor arranges transport according to the facilities to be visited, the number of teams, and the number of people per team. The area supervisor supports the data collector teams through regular communication and should be available to help resolve issues that may arise. Team members should meet at the end of each day to discuss the data collection process, resolve any problems and ensure the transfer of completed data files to the team leader.

7.4 Confirm appointments with health facilities

The team leader contacts each health facility the day before the scheduled data collection visit to confirm the appointment.

7.5 Assign questionnaire sections to data collectors, visit facilities and collect data

Before visiting the facility, the team leader assigns the required sections of the questionnaire for that facility to the data collectors. Different sections are assigned to each data collector. This is done in the CSPro tool through an internet or Bluetooth connection. On arrival at the facility, the team leader introduces the
team to the facility in-charge and explains the purpose of the visit. After receiving signed consent, the data collectors complete the survey. Before leaving the facility, the team checks that all the required sections of the questionnaire have been completed and resolves any missing or incomplete sections.

7.6 Transfer electronic files, combine and synchronize to server

After completion of each facility visit, the completed questionnaire sections are transferred from each data collector to the team leader, who then creates a complete facility record by combining the files from all the team members. The team leader checks that the data are complete and ensures their synchronization to the server. If the data are incomplete, the team should return to the facility to complete the questionnaire.

7.7 Area supervisors oversee data collection and conduct validation checks

A CSPro function can be used by the area supervisors to track the progress and completeness of data collection. The supervisors should visit the surveyed facilities regularly, rotating among teams, to ensure that procedures are followed as required. Area supervisors also validate data collection by repeating a subsection of the questionnaire in about 10% of the surveyed facilities. The supervisor’s results are checked against those of the data collectors. If the validation reveals possible data quality problems, the area supervisor consults the survey manager for next steps. (Refer to the HHFA Data manager guide for further details.)

7.8 Data manager reviews data on server throughout data collection process

Ensuring high-quality data requires review and editing of the data both in real time during data collection, as well as after the data collection is complete. Data are reviewed by data collectors, team leaders, area supervisors and the data manager throughout the data collection process. If quality issues are discovered, they should be corrected as soon as possible on the original tablet, with ongoing synchronization of the facility data to the server.
8. Data processing and analysis

8.1 Edit, validate and clean the dataset within CSPro

The HHFA dataset must be checked and cleaned within CSPro before exporting for analysis.

Data managers use a tracking sheet to track the progress across all the teams. The CSPro tool’s data manager menu includes a reporting function to monitor the completeness of facility records. Data managers are responsible throughout the data collection process for recording information on facilities that are missing, inaccessible, closed, replaced, etc. Using the tracking sheet, they can also identify and resolve any potential duplicate records.

The CSPro tool has built-in functionality to minimize the risk of data quality problems. However, the last step in the data management process is to review key variables in the final combined dataset, identify any errors and make necessary edits. At this stage, if a sample survey was conducted, sampling weights should be calculated using a CSPro batch application. Refer to Annex 2 of the HHFA Comprehensive guide for further details on sampling weights and to the HHFA Data manager guide for details on the use of the batch application.

8.2 Export the final dataset from CSPro

CSPro has a built-in tool that allows quick and easy export of data in a variety of formats. The exported data can then be imported into the HHFA data analysis platform or other software programs as needed.

8.3 Configure HHFA data analysis platform and upload final dataset

The HHFA data analysis platform automatically calculates the HHFA indicators. If the HHFA was conducted using the standard HHFA CSPro tool, the analysis platform requires minimal country configuration. Configuration includes selecting the modules and questionnaires implemented by the country and selecting the stratifier variables to be used. Indicators can also be turned on or off as required, and additional country-specific indicators created. After configuring the analysis platform, the final HHFA dataset is uploaded and the analyses can be run.

8.4 Conduct data analysis using standard HHFA indicators and any country-specific indicators

Many different types of analyses can be obtained from surveys. The HHFA data analysis platform produces descriptive analyses based on the distribution of indicator frequencies, and on comparisons using selected stratifier variables. The platform produces a standard set of indicator tables and graphs, and a standard report outline. These are called the analysis platform outputs. The standard outputs can also be adapted and formatted within the platform according to the needs of the analysts.

It is important to start by conducting a complete analysis of all the survey data, generating the full range of standard analysis platform outputs, to obtain a preliminary overview of the major findings. This helps to ensure that important findings are not overlooked, to identify any remaining quality issues, and to highlight issues that require consultation with programme experts.

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1 Stratified random sampling allows estimates to be obtained separately for desired, mutually exclusive subgroups of facilities called strata. A specific type of subgrouping is called a stratifier variable. Stratifier variables commonly used in the HHFA are: facility type, managing authority, urban/rural location and geographic area (e.g. region/province).
9. Data review and description

9.1 Prepare the data analysis team

Before starting the process of reviewing and describing the analysis platform outputs, the data analysis team should review key aspects of the HHFA design and implementation that may have impacted the availability and quality of the data and are relevant to their analysis and interpretation. These include the survey objectives, the implemented modules and questionnaires, the sampling methodology, and any limitations and potential errors. Box 4 in the HHFA Comprehensive guide highlights the importance of considering the survey design when comparing indicator values across strata and cautions against potential comparison errors.

Before proceeding, it is also essential for the data analysis team to gain an overview of the analysis platform outputs: the indicator tables and their indices, and the way they are organized in the report outline. This can be achieved quickly by reviewing the five service dimensions and their subsections within the indicator inventory platform.

9.2 Review the standard HHFA data analysis platform outputs

Review of the analysis platform outputs involves three stages:

Stage 1: Understanding the structure of the outputs.

Stage 2: Understanding what the data reveal.

Stage 3: Describing and summarizing the findings.

Table 10 in the HHFA Comprehensive guide suggests steps to follow through the stages of reviewing an HHFA indicator table. The guide describes in detail, with examples, how and what to look at in the tables and graphs, the types of comparisons that should be made (e.g. against national averages, targets, values of the same indicators from previous, comparable facility surveys, among different regions, between strata, etc.), how to identify “weird” data (e.g. outliers) and recognize any special patterns that will require attention during data interpretation. As different health programmes are interconnected, it is also important to compare indicators among the different programmes (e.g. malaria, tuberculosis and HIV) and to check if there are any common patterns.

9.3 Conduct additional analyses as needed

Data analysis, review and interpretation represent an iterative cycle. Based on the initial set of results from the standard analyses, there may be a need for further analysis in areas of interest. For example, unexpected patterns of data and relationships between variables can emerge and may provide new insights and generate new questions that require further exploration of the data. These additional analyses can be generated within the data analysis platform, or the HHFA dataset can be exported to different formats that allow the use of statistical software.
10. Data interpretation and communication

10.1 Review guiding principles for data interpretation

The purpose of the initial review of the HHFA analysis platform outputs is to provide a description of what the data show. **Interpretation aims to understand the reasons behind the findings.** The overall process of interpretation usually involves an iterative cycle with several rounds of data exploration, interspersed with reviews by knowledgeable people of the insights gained at each stage. It may involve going back to the raw data, supplementing the data with contextual information and data from other sources, and using prior knowledge to understand the findings and to ask new questions.

The volume of data produced by an HHFA is extremely rich but can also be overwhelming. It is therefore important to approach the interpretation process systematically. Following the initial three stages of data review (described in Chapter 9), the interpretation process can also be outlined in stages (sometimes overlapping), which involve:

1. Understanding the HHFA data within the overall country context.
2. Triangulating HHFA data with data from other sources and methods.
3. Finding explanations for HHFA data by formulating initial hypotheses, examining alternative explanations, and validating or discarding the initial hypotheses through consultation with experts.
4. Reaching conclusions.
5. Defining priorities and recommendations.

Interpretation does not start on a blank slate. Data are best interpreted by local analysts and programme experts who are familiar with the health system and local conditions. The interpretation of data and the formulation of hypotheses are strengthened by "triangulation": the process by which HHFA indicators are compared with data from different sources and/or methods, e.g. household surveys, RHIS, evaluation studies, etc.

A core principle of interpretation is the transparent and honest use of data. Data are filtered through the lenses of those who interpret them; and errors occur when analysts interpret the data based on their own incorrect assumptions rather than on the facts. The consequences of such errors can be serious, as they can result in incorrect decisions. As the elements of subjectivity in interpretation cannot be eliminated completely, interpretations are only suggested explanations, or hypotheses, about what the data mean. These hypotheses then need to be confirmed by contextual insights, information from other sources and expert opinions.

It is important that the interpretation of HHFA data includes both detailed programme-specific perspectives as well as a comprehensive view. The insights of programme experts are essential for a thorough understanding of programme data. However, focusing only on specific programmes, in isolation from the other health services components, can result in important patterns in the data being missed, and relationships between indicators of different services being overlooked. Furthermore, common problems that require a unified strategy may be missed. Maintaining an overview of all the components of health services is, therefore, crucial to achieving a solid understanding of what the data can reveal.
10.2 Organize the interpretation process

The interpretation of HHFA data and the communication of findings are led by the data analysis team, supported by the survey coordination group, with inputs from programme experts and other stakeholders. Broadly, the process involves a comprehensive initial review of the standard analysis platform outputs, followed by in-depth programme-specific reviews, with further rounds of exploration as needed, and an interpretation workshop that brings together multiple stakeholders for final review of the findings, conclusions, and recommendations. The outputs of the interpretation workshop will form the basis of the HHFA report.

10.3 Review principles for effective communication of HHFA findings

The ways in which the HHFA findings are presented are important for their acceptance and use by decision-makers. Communication can attract the attention of users if interesting findings are presented in an attractive and user-friendly way. Good HHFA communication aims to improve understanding among stakeholders about key service delivery issues and different policy options, and to inform decisions in a transparent, non-manipulative way.

Guiding principles for communication of HHFA findings include:

- informing rather than persuading (presenting facts and numbers separately from interpretation);
- acknowledging upfront any limitations and quality issues of the survey;
- recognizing when there is a lack of evidence and gaps in understanding;
- finding a balance between the need to be concise and the complexity of the issues discussed;
- adapting the communication to the audience, and avoiding technical jargon and unnecessary methodological details;
- making recommendations that show clear relationships with the main findings, and are clearly prioritized and sequenced within stated timeframes and with defined responsibilities.

10.4 Prepare the final HHFA report

Based on the results of the interpretation workshop, the report writer prepares the final survey report. This report is submitted to the survey coordinating group and the ministry of health for approval. Sometimes, a “validation” workshop is held to engage a wide range of stakeholders, achieve their buy-in and receive further inputs.

The report should present a comprehensive set of HHFA findings but focus on communicating the most important and relevant findings, along with recommendations for action. A suggested HHFA report structure, that can be adapted to country needs, is presented in Table 11 of the HHFA Comprehensive guide.

The data analysis platform produces a very large number of tables and graphs. While all the analysis outputs should be reviewed as discussed, it is not necessary to include the full set of outputs in the main body of the final survey report. Therefore, the data analysis team, in collaboration with the survey coordinating group, should select a subset of key tables and graphs to include in the report. The complete set of outputs should be made available as an annex.
10.5 Prepare additional communication products

The findings of the HHFA can be relevant to a variety of users: policy-makers, programme managers, national, subnational and facility managers, and partners—each with their own information needs, capacities and interests. It is important, therefore, to use the communication products that are most appropriate to the different audiences. Communication products include: the main HHFA report, a short HHFA report, regional/provincial reports, programme-specific reports, policy briefs, presentations, dashboards, press releases, social media, etc.

10.6 Disseminate the HHFA findings

Dissemination of results is key to the overall success of a survey and should start as soon as possible. The survey findings will be useful only if the data are received in a timely manner by the intended recipients. After the HHFA report is finally approved it should be circulated among key stakeholders and published on the ministry of health website.

Any of the following activities may be undertaken to disseminate the HHFA results:

- national and/or regional dissemination workshops;
- dedicated meetings with presentations to key donors and other stakeholders;
- presentations in annual health sector reviews;
- web dissemination, e.g. ministry of health website, country observatory, etc.;
- publication of reports, presentations, brochures and scientific articles; and
- press releases and use of newspapers and social media to inform about the release of the report.
11. HHFA data curation

Survey microdata¹ and documentation are irreplaceable and valuable resources that should be managed in a way that encourages their widest possible use, while at the same time protecting confidentiality. It is important, therefore, that a country’s final HHFA dataset and related documentation are catalogued and stored in a secure location, accessible by authorized users for future reference and further analysis. This is called data curation.

Today, data archives are almost always digital and are ideally web-based or made publicly available through the internet. The International Household Survey Network (IHSN)² provides detailed guidance and best practices related to data curation, including the documentation, anonymization, cataloguing and dissemination, and preservation of microdata, as well as the institutional arrangements and technical requirements for operating a data archive.

HHFA data curation includes the storage and related processes of the final HHFA report, the final HHFA dataset (microdata) and other information (metadata³) useful for understanding the survey, using the data, and/or for conducting future surveys (e.g. questionnaires, training materials, documentation of survey methodology, explanations of survey challenges and limitations, etc.). Metadata help users to find the data they are interested in, understand what the data are measuring and how the data have been created, and to assess the quality of the data.

A set of international metadata standards has been developed. These include the Data Documentation Initiative (DDI) and the Dublin Core Metadata Initiative (DCMI). Metadata can be created through various media such as simple word processing programs and software application programs. Section 11.3 of the HHFA Comprehensive guide provides further details on how to create metadata.

WHO has developed a global HHFA/SARA archive where countries may choose to store their survey reports, microdata and metadata. The archive applies the DDI/DCMI standards for describing the data produced by the surveys. The National Data Archive (NADA)⁴ software is used as the underlying platform for the data archive. Information is made available in the global archive based on authorization provided to WHO from individual countries.

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¹ Microdata refers to data on the characteristics of units of a population, such as individuals, households, facilities or establishments, collected by census, survey or experiment.
² http://ihsn.org/ (accessed 1 August 2022).
³ Metadata are data that provide information about other data.
⁴ NADA | Microdata Cataloging Tool (ihsn.org)
The *HHFA Comprehensive guide* presents the following annexes:

**Annex 1:** Calculating HHFA indices  
**Annex 2:** Sampling methodology  
**Annex 3:** HHFA job description examples  
**Annex 4:** Training of data collectors, team leaders and area supervisors  
**Annex 5:** Procedures during the health facility data collection visit  
**Annex 6:** Glossary