World Health Organization

REGIONAL OFFICE FOR Africa

Guide for the establishment of **health observatories**

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African Health Observatory

Better information, better action on health

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Introduction

The "health observatory" concept of gathering, analysing, synthesizing and sharing of reliable and quality health information on population health and health services has become increasingly popular since the 1970s. First adopted in France (1974), then Belgium, Italy and later England (Liverpool, 1990), the application of the concept has steadily extended. There are now over 60 observatories functioning throughout the world, and many other platforms which perform an observatory function but are not formally termed "observatories". In most of these countries, observatories are subnational (e.g. at district, regional or municipal levels)[1]. There are also a further number of subject-specific observatories which are not included in this number.

Health observatories have also been set up with a decision support function at the regional level, with WHO observatories operating in the African, Americas, Eastern Mediterranean, European and Western Pacific regions. In addition, WHO has developed a Global Health Observatory to bridge these regional counterparts.

The term 'observatory' refers to the function of monitoring health events and trends using objective and verifiable methods. Their purposes vary but the major objectives are: monitoring health situations and trends, including assessing progress toward agreed-upon health-related targets; producing and sharing evidence; and, supporting the use of such evidence for policy and decision making.

Through the *Ouagadougou Declaration on Primary Health Care and Health Systems in Africa* and the *Algiers Declaration on Research for Health in Africa*, WHO Member States requested the WHO Regional Director for Africa to establish an African Health Observatory (AHO). AHO was duly established in 2011 to serve four core functions: storage and sharing of data and statistics that can be viewed and downloaded; monitoring of health situations and trends, including progress on internationally agreed targets such as the health MDGs/SDG; production and sharing of evidence and knowledge by analysis and synthesis of information; and support for networking and communities of practice for improved use of such evidence and knowledge for policy and decision-making. It also supports countries in establishing their own national health observatories to strengthen their national health information systems (see Box 1).

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1 This Guide focuses on national health observatories, but it could equally be used to establish subnational observatories. Countries could also opt to use other names; for example, national knowledge gateway or portal, national health information gateway or portal.

Box 1. The African Health Observatory

The African Health Observatory is a portal created to improve the availability and use of information and evidence on health status and trends for policy dialogue, and to monitor and evaluate the implementation of national strategies and plans. It consists of a number of platforms.

The Observatory data and statistics platform offers the best available health-related data and statistics on the Region. It includes the Atlas of African Health Statistics, updated yearly, and comprehensive statistical health profiles for the Region as a whole and for each of the 47 countries in the Region.

Another platform offers comprehensive analytical country health profiles to inform policy and decision-making on a wide range of subjects: health status, health systems, specific programmes and diseases, health determinants and progress on the Millennium Development Goals (MDGs) and other internationally agreed goals. A key Observatory publication is the African Health Monitor quarterly.

The Observatory also offers a platform for networking and communities of practice. Members of communities learn and work together and strive to translate and use the best available evidence for policy-making and decision-making.

The Observatory provides support to countries to establish their own national health observatories with similar functions and structure. Several countries are in the process of establishing national health observatories that will also serve as multistakeholder and collaborative platforms to strengthen national health information systems.

Further information can be obtained from the Observatory website at www.aho.afro.who.int.

In November 2012, during the sixty-second session of the Regional Committee for Africa in Luanda, health ministers of the African Region agreed to establish national health observatories in their respective countries and adopted the resolution entitled "The African Health Observatory: an opportunity to strengthen information systems health through national health observatories "[2]. With the support of the AHO, several countries are developing their own national health observatories (NHOs) to strengthen their national health information systems.

2 WHO Regional Committee for Africa resolution AFR/RC62/R5, 2012

The AHO and NHOs have a major role to play in the new international agendas such as the African Union Agenda 2063 and the Sustainable Development Goals (SDGs). Knowledge produced at the national and subnational levels, interactions with non-health stakeholders through synthesizing and sharing knowledge, transparency and consensus will reduce the fragmentation and duplication of efforts, and contribute towards reduced inequality.

This guide is intended for countries wishing to develop their own NHOs. It is anticipated that, given the wide variety of political, health, economic, cultural and social resources and contexts, the development of national observatories needs to be specific to individual country contexts. That is why the proposed guidelines are general in scope, so as to be adaptable to suit each country's needs.

This document is divided into the following parts:

- Part I describes the objectives and functions of health observatories based on experience already gained in other countries and through the WHO global and regional observatories.
- Part II considers the main issues to be addressed during implementation, such as organizational management, capacity skills and relationships with producers and users.
- Part III describes the major components of a national health observatory.
- Part IV describes an implementation process in which the setting up of an NHO is geared to the planning cycle in each country.

Section 1. Objectives and functions of a national health observatory

1.1. Objectives

The main objectives of National Health Observatories (NHOs) is to improve the availability and use of information and evidence on health status and trends and its social determinants for policy dialogue, and to monitor and evaluate the implementation of national strategies and plans. To achieve this overall objective, three complementary sub-objectives can be identified:

1.1.1. To generate usable knowledge

NHOs should help to generate knowledge relevant to issues faced by stakeholders who design, decide and implement interventions or policies to improve health in the country. Knowledge gathering is based on the quantity and quality of data that is collected at service or programme-level and population-level by various public and private stakeholders. The role of NHOs will be to transform primary data into usable knowledge.

1.1.2. To facilitate the use of this knowledge

Knowledge that can be used for the development, monitoring and evaluation of policies and public health interventions requires more than simply providing good data. The link between research and policy is not obvious and the 'transfer' of evidence in public policy requires a good understanding of the political process, taking into account the context in which action takes place. NHOs can play an active role in brokering knowledge to bridge the gap between knowledge and action between researchers and policy-makers.

1.1.3. To encourage exchanges based on this knowledge

There are tremendous benefits to the improvement of the health system through exchanges between public and private service providers, the political world and the world of research. Structures such as health observatories are located at the

interface between three key interlocking segments: scientists (from universities and research centres); health professionals on the ground (including NGOs, other associations and public services); and political entities, such as elected officials (the executive, including ministers and ministerial offices), government, political parties and international bodies. Technical and financial stakeholders are found both working in the field and in political arenas. NHOs can play a role in 'cultural mediation' between these different stakeholders who may not have the same priorities, timeframes or constraints.

1.2. Main functions

We can roughly identify four main functions of an NHO related to these three sub-objectives.

The marshalling function: this refers to the gathering of relevant data sets from various sources, specific data extraction, and the overall organizational flow of data into the NHO platform.

The analysis and synthesis function: this refers to the transformation of data into usable knowledge and the integration of information to generate a comprehensive view of health and its determinants. Data are presented in an analytical way through the use of text, graphs, tables, maps and other display methods that best highlight the health situation and trends.

The sharing function: this refers to facilitating the exchange of information for decision support. The synthesised information that has been gathered through marshalling data is ready to be diffused to key stakeholders. This is the 'sharing' function and the synthesised data should provide policy-makers evidence on monitoring, evaluation, and areas for future prioritization.

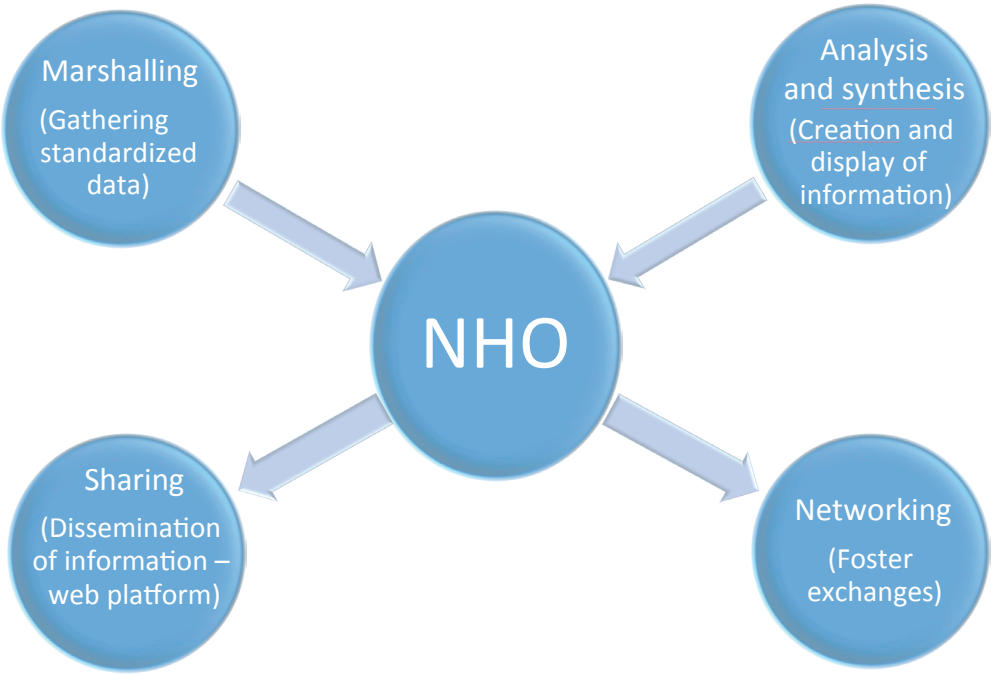
The networking function: this refers to the ability to form partnerships and coordinate between the multiple stakeholders involved in the health system. Through sharing and networking stakeholders and policymakers can maximise the efficiency of their efforts by the application or translation of knowledge and targeting funding more precisely on areas of the health system or situations where they are most needed.

1.2.1. The marshalling function

The function of gathering information includes the following aspects:

- Gathering information from different sources, both institutional and population-based, as well as knowledge from research. Yhese data may relate to health status, health systems and/or determinants of health.
- Organizing the flow of data and information with the support of information technology and clear lines of communication, in accordance with legal and ethical constraints.
- Identifying weaknesses in information, and careful selection of relevant and reliable information.
- Encouraging the collection of information through research or special services.
- Harmonizing and standardizing data to allow grouping them in a database, or a single directory.

Figure 1. The four main functions of a national health observatory

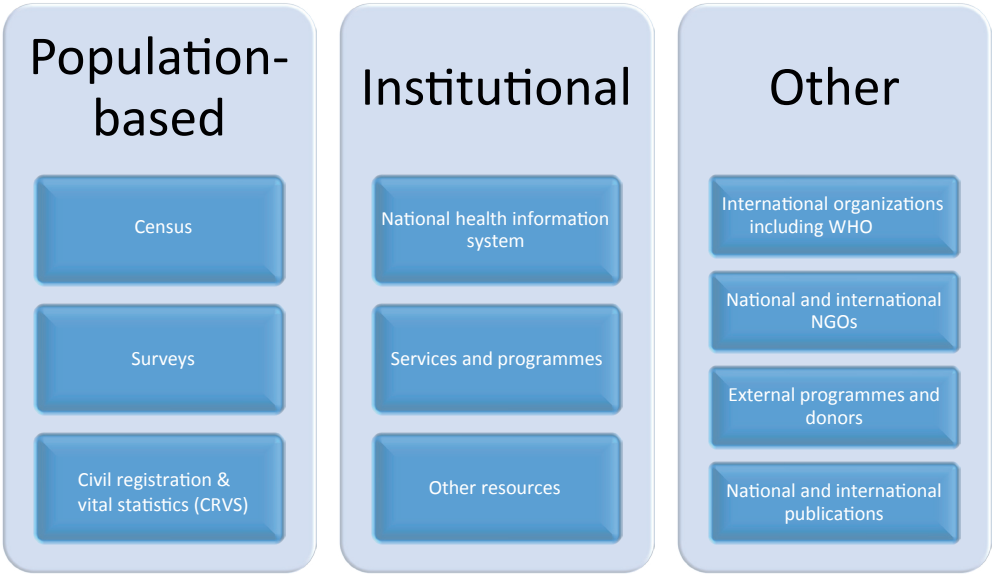


1.2.2. The analysis and synthesis function

The analysis and processing of information is an essential function of NHOs. This should enable:

- Transforming data collected into information and knowledge used to inform decisions. This involves not only quantitative and qualitative analyses, but also cross- and comparative analysis of different types of information to present as clear a message as possible in the interpretation and contextualization of health situations to relevant stakeholders – especially policy-makers.
- The synthesis of knowledge from all national and international sources to provide evidence relevant to national health planning is a key function of NHOs.
- Integrating different sources of knowledge into a comprehensive vision of health that covers the state of health, the influence of the determinants of health and the role of the health system. This is to develop a holistic view of the state of health of the population, to generate knowledge for understanding trends and to draw attention to emerging issues and provide an overview of current responses in terms of services, programmes and policies.

Figure 2. The analysis and synthesis function of the NHO

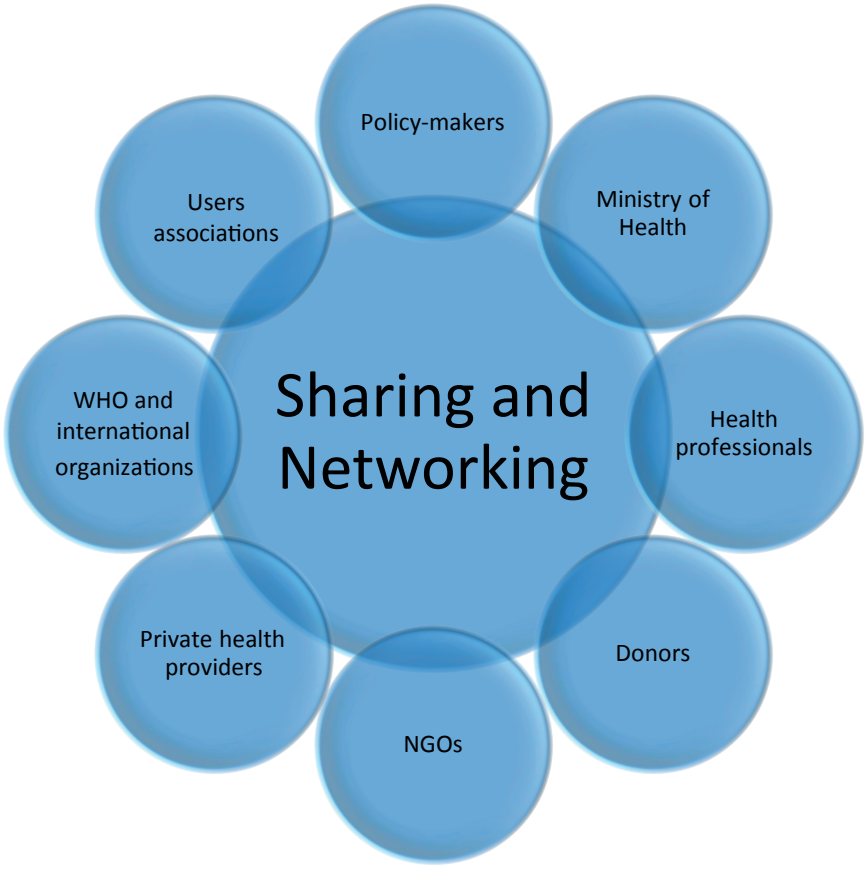


1.2.3. The sharing function

This includes the dissemination of information through a web platform, electronic or print media to:

- Provide information gathered as a one-stop-shop: the NHO serves as a centralized repository of information where current and detailed information can be easily synthesised to offer a clear picture of health situations. This would include information at lower levels of administrative health governance, such as at provincial or town/city or regional level, to afford a customised analysis.
- Disseminate and communicate knowledge from analyses by the NHO in such productions as thematic publications, dashboards, health profiles, policy briefs and summaries.

Figure 3. The networking function of the NHO



1.2.4. The networking function

The interaction with partners and networking of actors

- The NHO is capable of providing a platform for new networks of all kinds. Support for such networks may include social networking, online conferencing, a blog, etc.
- The NHO also plays an active role in mobilizing partners to stimulate collaborations between stakeholders including the sharing of information and best practices. The NHO can become a place for collaboration between different stakeholders: researchers, practitioners and policy-makers.
- Health information systems require cooperation between health stakeholders and NHOs provide a platform for stakeholders who in turn support the strengthening of the national health information system.
- The NHO can offer opportunities for the networking of professionals to organize training sessions to improve capacity.
- The NHO can network stakeholders, such as government agencies and donors, to develop proposals for projects based on NHO data.

This increases the transparency of data on health and health funding which boosts confidence and trust in the national agenda and international community.

Section 2. Key points for the establishment of an observatory

2.1. Levels of institutionalization

The question of the institutional organization of the NHO should be established early on. The degree of centralization and the host institution should be taken into account.

2.1.1. Degree of centralization / decentralization

NHOs should effectively coordinate the flow of health information and ensure harmonization at national level. We can distinguish the NHO located at national level supporting and being supported by the national health information system (NHIS) in a symbiotic relationship.

Lower administrative levels, such as those at district, provincial or municipal level should be included in the NHO. This can be done by including separate profiles on the NHO website or through publications related to these subnational areas. The level of analysis available on the NHO website will vary based on a country's political and health situation. It will need careful consideration as to how to include lower levels of analysis of the health situation in a country in the most effective way and not necessarily follow political boundaries but boundaries that best encompass the health situation in an area. In future, GIS mapping may allow even more precise analysis of health situations such as outbreaks.

2.1.2. The host institution

The NHO may be developed as a new institution, outside of any existing institution or within an existing institution. If it is set up as an external institution, there may be more independence but there may also be a risk of conflict with existing institutions.

The other alternative is to consider the integration of NHOs into existing institutions. Whatever alternative is chosen, it must come from a decision by the Minister of Health. The secretariat office of the NHO is best placed within

the Ministry of Health, at a high level, for example in the Minister's office or Department of Planning. This would be conducive to supporting national planning, and managing a network of stakeholder institutions involved in the governance process.

If the decision of the MoH is to place the NHO secretariat elsewhere, the following criteria should be taken into account when choosing an alternative host:

- A strong orientation toward public service
- Some autonomy for engaging human resources solely on the basis of their scientific and technical skills
- Legitimacy of the institution vis-à-vis scientific partners, practitioners and policy-makers.

Joint arrangements such as between the public administration and a scientific institute could also be entertained.

The position of the Observatory in the host institution should be clearly defined and should be free from any relationship or hierarchical power struggle with producers and users of data within the NHIS. To ensure an NHO functions appropriately, it should be transparent with no interference of data collection, synthesis, and sharing of information. The legal and regulatory encironment in which the NHO operates should also be defined in accordance with national regulations.

2.2. Relationships with key partners

To perform its functions, the NHO should develop relationships with multiple partners: data producers, potential users of the data, other observatories and others who generate knowledge in the field of public health.

2.2.1. Links between national observatories and the African Health Observatory

The African Health Observatory (AHO) is a key partner of NHOs. Collaborations between the NHO and the AHO should acknowledge their separate Regional versus national focus, as well as their interconnectedness with NHOs being part of the AHO.

Both types of structures do not have the same objectives and the same points of attention. This is why the NHO cannot simply be a national version of a regional

model, even though they may share many structures and similarities.

AHO offers a platform to make available standardized and harmonized information on the entire African Region or subregion and allowing comparisons between countries. It monitors progress made towards international goals and enables countries to learn from experiences elsewhere. It highlights the major regional challenges and emerging issues across the region. To play its part, the AHO needs national data in a standard format and must rely on the NHO to provide these data. The production quality of the AHO depends on the quality of data provided by the countries. That is why the integration of national data by the AHO must be conditional on the quality of these data.

NHOs focus principally on their country and its constituent components (districts, regions, municipalities, etc.). The aim is to inform the country's policies and support progress towards specific national objectives. NHOs need to identify specific challenges and emerging issues in the country. The harmonization and standardization of data should be geared to monitor developments and inequalities within the country. International data are needed to enable national actors to assess their health system in relation to other countries in the region, and provide a guide to the setting of realistic goals. Standard tools (taxonomy, indicators,), internationally validated, can guide the organization of information and research at the national level.

The NHO must therefore be able to establish a balanced relationship, respectful of the specificities of each. It should:

- Use standard tools geared to the relevant situation or context: Standard tools such as the detailed taxonomy available from AHO, with internationally validated indicators, can guide the organization of information and research at the national level. In addition to standardized indicators, NHOs must decide upon more specific indicators to evaluate specific health situations or the performance of the health system taking into account the country context. AHO provides a platform that can be used by the NHO to share their experiences and practices in the development of specific indicators.
- A relevant level and further analysis: Since the focus of AHO and NHOs are different, the level of disaggregation of information will be different. A national average can be useful for AHO, but NHOs will require a more detailed breakdown of the data by geographical area, relevant sections of the population, etc.
- A balance of different basic functions: The data and statistics platform of the AHO mainly functions to gather, present, and disseminate data. The harmonization and standardization of data is the most important aspect

of its analysis and the quality of its virtual platform is essential to ensure high availability of information to regional and global players. NHOs' role in decision support, on the other hand, may be more active since they are directly related to health programmes, although they must also prioritize the integration, analysis, and interaction functions.

- Different partners and networks: the AHO is the preferred partner of major international institutions and donors because it can provide comprehensive and standardized information. Good communication between the NHO and the AHO will reduce the work of providing standardized national data by each country to these partners. NHOs should develop a national network for international institutions to participate in specifically developed programs in the country.

2.2.2. Relationship between the NHO and the national health information system

Information from the National Health Information System (NHIS) is one of the fundamental sources for the Observatory. It is therefore essential that the NHIS is supported by the Observatory and conversely that the NHIS supports the development of the NHO. However, the Observatory should be independent of the management of NHIS, to ensure a separation of data provider and user. The two structures, which can coexist within the same department, should have clearly identified specific tasks and how they will work should be discussed and clarified in order to avoid conflicts.

In the preliminary phase, it is necessary to have a description of the organization of NHIS and its various components. This description should be completed during the Initiation Phase by further evaluation. This assessment should be done collaboratively between the NHO and the Ministry of Health administrative body that is responsible for the NHIS. It will seek to identify promising aspects of the system, the strengths on which the NHO can rely on and any weaknesses, to help to construct a model of collaboration between the NHIS and the NHO.

The results of this evaluation can frame the relationship between the NHIS and the NHO. These relationships involve the four main functions of the NHO:

The marshalling function: The NHO should have access to databases allowing more disaggregation for specific analysis. The format and transmission rate should be agreed between the parties, but must focus on feasibility and consider the time required for the NHIS to gather and validate data and the processing capabilities of the Observatory. In countries, where there is no national data warehouse, the

NHO could support the establishment of such a data warehouse.

The analysis and synthesis function: The Observatory will use the data warehouse and other information to produce analytical thematic or subnational profiles and integrate them into a broader vision of health data production, management and use. The synthesis of information will produce more complex knowledge and answer questions from policy makers at the national or subnational level, donors, NGOs and other stakeholders.

The sharing function: The NHO website will be independent from the NHIS, but information products may be worked on and published jointly. It may propose two complementary methods of data dissemination to the NHIS. The first is to provide the NHO data and statistics platform for dissemination to specific publications of NHIS or presentation of data tables from the NHIS in collaboration with managers of the NHIS. The second is to disseminate, through information products of NHO, the knowledge generated by the broader analysis of data from the NHIS.

The networking function: A forum bringing together NHIS actors can be created. Networking provides a means, for example, to collaborative efforts to work together. Using such networks, and in collaboration with the NHIS office, the NHO can develop metadata, define indicators with precision (numerator and denominator), and provide a section of focal person responsible for explaining methodology. A virtual community, for example, of field workers who collect information, partners, and decision-makers among others can work together to elaborate explanations on different data, their limitations and their precise meaning. The networking platform of NHOs should enable the regular updating of documentation allowing changes that have occurred over time to be interpreted correctly.

With these four functions, the NHO may support the strengthening of the NHIS. Two consequences, which are not mutually exclusive, could be envisaged:

The first is the maximum use of what the NHIS provides. The NHOs will contribute towards increased availability and optimum use of knowledge and link knowledge with knowledge users. The NHIS will benefit from this interest and application of data. It is assumed that if one uses up what is usable, this will stimulate a virtuous circle: the interest for information from the NHIS increases, together with a better understanding of what the NHIS can do to raise awareness among stakeholders. As it becomes a compendium of quality, and increases its visibility, the positive aspects of the NHIS can change the perception of the system by users or potential producers of data. Expectations will gradually increase and leverage the work of production and use.

The second is the active involvement of the NHO in improving the NHIS. The

skills and expertise of the NHO are used to support the NHIS – for example by improving the relevance of data through the use of a standardized taxonomies and improving the validity of data by harmonizing definitions and through publications. Knowledge gaps may be discovered, leading to efforts to fill them in.

There is considerable momentum to improve measurement and accountability in health, with a number of on-going data initiatives. The NHO could work with global collaborative initiatives to improve technical collaboration and reduce the fragmentation of efforts.

The NHO may also cater to the needs of potential users, among other vertical programmes, international donors, or decision-makers. It can then better identify information that could potentially come from the NHIS and from other sources.

2.2.3. Relationship between the NHO and other producers of health data

Many actors outside the NHIS produce health data. These data may relate to health, the health system and/or certain determinants of health. The producers of such data are extremely varied and include: international donors, non-integrated vertical programmes within the NHIS, NGOs and local and international organizations, scientific institutions, and other communities. Relations between the NHO and these data producers can also be seen in the context of the four functions of the NHO:

The marshalling function: The Observatory should gradually have an inventory of the various data producers outside of the Ministry of Health. A first exploratory inventory should be able to assess the main possible sources of data and the characteristics of these data (population-based or institutional, potentially informative on health status, determinants of health status, health system, etc.). Further analysis should aim to understand how these data are collected, how they are processed, at what level of disaggregation they could be used. Indicators should be clearly defined, with an identification of the source of the numerator and denominator.

The NHO team would gradually discover the various producers through concrete activities: developing a profile of the districts or regions of the country, a report on a specific issue, etc. Data transfer by producers related to specific programs may be supported by agreements between the NHO and sponsors / donors of these programs. NHOs can also provide methodological support and guidance in this area. Data on the NHO website should be updated regularly, so as to allow health changes over time to be correctly interpreted. Sources should be carefully noted.

The NHO must be able to judge the quality of information and refuse publication on its website data which do not meet its quality criteria.

The analysis and synthesis function: The Observatory will use this information to integrate them into a broader vision of health in the same way as for NHIS data. The data from different producers are integrated into the NHO's own data production and analysis and put into perspective. The comparison of data from different producers on the same areas of health can help to validate the sources and provide more accurate data. This work should also assess what is the most efficient data gathering method for a particular data need. This will guide the reduction of redundancy in data collection by field workers.

The sharing function: NHOs benefit from relevant data in a specific field while other producers of health data and agencies have data to inform, guide and self-evaluate their interventions. In this section the field workers who collect information, partners, and decision-makers can find explanations on different data, their limitations and their precise meaning. The NHO may also provide a platform for dissemination of data producers do not have a proper means of communication.

The networking function: Here also a virtual network will be useful. In collaboration with the producers of data, metadata are developed, with possible links to the websites of producers, when such websites exist. Indicators are clearly defined, with an identification of the source of the numerator and denominator. In this section, the field workers who collect information, partners, decision makers can find explanations regarding different data sets, their limitations and their precise meaning. Documentation is updated so as to interpret changes that have occurred over time.

The interactive function of an NHO should be made best use of by sharing more qualitative knowledge as well as experiences related to "experiential knowledge", best practices, and other areas that could lead to improved production and use of health data and health interventions. Data producers should be acknowledged and possibly have a link on the NHO website.

2.2.4. The NHO and producers of data outside the health sector

Data on the wider context of the population are essential to develop an understanding of the problems of health and its determinants and ways to solve them. Such data take into account: the demographic context (e.g. vital statistics, migration, age structure of the population); the socio-economic environment (e.g. living conditions, occupational and labour market, income distribution, social protection, food security); and the environmental context (e.g. access to water

sources and extent of pollution of indoor and outdoor air, environmental risks associated with domestic and economic activities, land).

Information sources such as censuses, vital statistics, general or specific surveys, and administrative data from various sectors must be used by the NHO. The relationships of the NHO with these producers can also be seen through the four NHO functions:

- Negotiate with producers the process of data transfer and transfer data in accordance with ethical and legal rules;
- Present the data in an analytical way on the NHO portal;
- Use this information to inform relevant health needs;
- Provide a space for interactions to develop, for example, evaluations of the impact on health of certain measures or policies outside the health sector (i.e. an health impact assessment).

2.2.5. The NHO and other knowledge producers

NHOs can strengthen the integration of operational research in the information system to support decision-making and promote research that meets the needs of more users, policy makers and communities across the country, as promoted by the Ouagadougou and Algiers Declarations.

Being in an intermediate position of "mediator" between scientists, policy makers and stakeholders, NHOs can stimulate interactions and foster collaborations with the world of research. Gradually, they can assume the role of a showcase of current research in the country and the results of such research.

They must be able to integrate the results of research to knowledge from other administrative data or routine or qualitative information from the experience of other actors. Through a critical analysis of the relevance and quality of the research, the NHO must integrate the results of research in its various information products (overview of needs, informed presentation of alternatives to solve a problem, written answer to a specific question, etc.).

They can cut across some barriers that limit access to the results of scientific research by:

- Performing systematic literature reviews on issues of direct relevance to policy makers;
- Systematically seeking reports of operational research in the country or other countries in similar circumstances;

- Maintaining close contact between research institutions and the NHO. The authorities may also encourage research, coordinated by the NHO, in areas of greatest need.

They can help identify priority research needs for the country through the comparison of existing knowledge with knowledge needs faced by policy makers, stakeholders and other users. Deficits may relate to the knowledge of the problems, as well as on the options for intervention.

The NHO may also play an active role in stimulating scientific research on priority issues for the country. It can support the current NHIS in its specific fields of research. Several avenues can be explored through having, under the supervision of the research authorities, a fund which finances operational research directed towards priority needs of decision makers and stakeholders in the country, and which publishes policy briefs. Equally, a sponsor financed by a donor may conduct the research. This would require a dialogue between researchers and the NHO to ensure priority needs are targeted by researchers and maximum use of results is made by policy-makers and stakeholders.

For better efficiency, the exchange of complementary scientific expertise should be developed, linking research institutions and the Observatory. NHOs, restricted in their internal scientific resources, should foster collaboration with researchers and teams specialized in specific areas. NHOs and existing research institutions should avoid competition with one another and rather coordinate activities to enhance the capabilities of each other. This joint can be operationalized through the establishment of formal relations between research institutions and the NHO. This would allow funding specific research, the representation of research institutions in the national coordinating group, and conventions that include all relevant stakeholders.

The NHO must also promote the use of existing data in scientific research. The use of routine data (including data from the NHIS) for scientific research is an effective way to improve the quality of the data. To allow this, the NHO may play a facilitating role in the transfer of data with particular attention to ethical aspects and the protection of privacy.

2.3. Required skills

In order for NHOs to function well, their staff should have a range of tools and expertise. All these tools and this expertise may not be available internally. Typically, the activities of the NHO will be conducted in collaboration with various partners. The composition of the core team will be based on the complementarity of skills

and disciplines and take account of existing internal and external resources and potential partnerships.

The areas of competence of NHO staff include:

- An understanding of the role of health information in all its aspects – from databases to health literature and beyond.
- The gathering and preparation of data requires database management, the identification of sources and the control of data quality.
- The analysis of data requires a combination of general analytical skills, and skills in quantitative and qualitative analysis to generate knowledge from multiple data types and sources, and the capability to critically analyse data.
- The presentation of data through visualizations such as dashboards, scorecards and maps could prove useful.
- The interpretation of data requires making results intelligible through presenting and explaining it using clearly understood means. This needs a good knowledge of the context in which the information was collected and how the results will be used for monitoring, evaluation or programme/policy design.
- The ability to summarise the interpretation requires the ability to coherently synthesise knowledge so that it can be shared and used effectively.
- Good communication skills and being able to present complex information in a simple and understandable way to non-specialists is another skill staff need. They need to be able to manage relationships with producers and users, with partners and through listening and encouraging the networking of stakeholders.

These areas of expertise are not specific to a discipline. These are transferable skills. They can be developed by various disciplinary profiles. The team should be multidisciplinary. Consider a core team that consists of:

- A qualified public health officer, responsible for directing the NHO. This person should have a broad vision to encompass all aspects of the role of information in health, as well as sufficient experience in research areas. The general profile of the head of the NHO should be: having recognized public health training, research experience (ideally advanced degree or equivalent experience), experience in team management with good leadership, interpersonal skills, and writing skills. They should have a vision for the development and success of the NHO.

- A database manager with in depth IT skills, such as programming and website maintenance, who can coordinate IT specialists in developing the website platform.
- An analyst with the skills necessary to analyse and generate evidence/ knowledge. These skills are not specifically related to a discipline, but can be found in disciplines such as epidemiology and social sciences. Being able to handle qualitative and quantitative data would be essential.

Other disciplines should be able to complete the team internally or through collaborations with partner institutions or services. Among the potentially useful disciplines include epidemiology, social sciences (demography, sociology, social geography,) and policy, health economics, and website management.

Besides these disciplinary skills, specialized support functions are needed such as IT, administrative support, communication, document management, and the management of ethical and legal aspects.

There is no ideal 'mix'. The multidisciplinary composition depends on the objectives and tasks assigned to the NHO, the existing resources, possible research partnerships, etc.

The composition of the team should be built up gradually according to the development phases of the NHO and strive for efficiency. The acquisition of the required skills of the NHO team to operate a successful NHO will likewise improve with time. Support should be provided for the development of these skills in the first years.

Section 3. NHO platforms including data warehouse

It is recommended that the NHO should consist of five major components: 1) the web portal itself, 2) a data and statistics platform, 3) a collection of analytical profiles, 4) access to thematic publications, and 5) networking. These correspond to the major functions of NHOs: marshalling data; synthesis of information; evidence sharing and networking.

3.1. The NHO web portal

Web portals are systems that allow organizations to provide a unified interface for multiple online applications and databases which otherwise would have been separate entities. They offer services such as news, information (text, images, audio and video), blogs, data access, communication, personal areas and social networking tools.

The NHO aims to be the main portal for reliable, complete and timely data and evidence about health in the country. This will be useful for policy makers, researchers and others interested in health, health emergencies, risk factors and intervention coverage, international health priorities, as well as in health systems and inputs in the country.

It is important to distinguish the Ministry of Health website from a web portal of the NHO as they are quite different in nature: a website has as its main function the passive role of attracting spectators, bringing viewers in to see (in the case of the MoH website) what the Organization is doing. Users are expected to explore the site and read, copy or print out texts and other resources, learn about the MoH and its officers, get contact information, and the like. This is important for public information, advocacy and offering the public face of the Ministry.

A web portal on the other hand is an active work tool aimed at enabling specific work by specific audiences. For example, in the case of the NHO, it provides data that can be searched according to the exact research interests of the user. Users will be able to store their searches for future use as data changes. They will be provided with personal virtual spaces where they can have a current awareness service linked to their interests (for example the latest items published around the world in their specified areas of interest – in MEDLINE, for example). They

will be provided with the tools to form virtual communities of interest – online conferencing, list servers, etc. All of these facilities are designed to provide an active working environment for the researcher, policy maker, donor, programme implementer and interested member of the general public – and of course the key audience of MoH staff and health workers throughout the country.

In fact, the two can operate together – some countries opt to have their NHO web portal as a menu option on the MoH website. Such an approach can be beneficial to both – it will increase traffic to the MoH website, it can serve to integrate the NHO in the MoH and raise awareness at policy-making levels. There should be no difficulty in assuring compliance with any design standards adopted by the MoH website. In this alternative, it could be expected that the NHO would receive technical support from the MoH website managers.

The demand for better monitoring and evaluation of health outcomes, systems and inputs come from many directions. Countries need better evidence for public health planning, for monitoring and evaluating scaling up efforts and for informing their own decision-making processes. There is also a need for better data to assess health inequities and to account for new resources for health systems strengthening.

To respond to this challenge the NHO portal has five major outputs or content areas, each of which represents different challenges to the NHO from the perspective of a web portal:

- The data and statistics platform (including the data warehouse): As an application within the portal, it needs to provide access to selected, quality checked and integrated data, and allow users as much flexibility in finding what they are looking for in the most useable and attractive format. This means using a range of software tools to design the optimum researcher environment. Researchers want to select specific sub-national areas and indicators, view output in graphic, tabular or map format, as appropriate for the condition and indicators selected. They want time series and other comparisons over time. They also want to be able to save their searches, communicate with others engaged in similar research, and keep up with their fields through a current awareness service based on their active research interests.
- National and subnational health profiles: As described earlier, the NHO offers comprehensive and analytical health profiles to inform policy and decision making on wide range of areas including: i) health status and trends – life expectancies, mortality and disabilities; ii) health systems – governance, partnerships, finance, human resources, products and

infrastructure, community participation, information and evidence; iii) specific programmes and services (e.g. family and reproductive health, vaccination) and communicable and non-communicable disease and disorders; iv) social and environmental determinants, and risk factors for health; and v) sections that describe progress on internationally agreed goals and targets: the health-related MDGs, and other internationally agreed upon goals. Nothing should be published on the portal until it has been cleared by the appropriate designated authority.

- Publications and other information products: As a repository of data and analytical profiles, the NHO should be a source of numerous derivative publications – basic indicators, National Health Reports, thematic and other situation analyses, etc. Technically, this implies developing an appropriate content management system and database of information products. Both domestic and internationally produced publications relevant to the country and its sub-regions should be included to best bridge the knowledge gap.
- Networks and social networking tools: In order to encourage networks and Communities of Practice, the portal would need to provide the required online conferencing facilities, social networking (e.g. Facebook, Twitter) and other tools.

3.2. The data and statistics platform

The increasing demand for health information and evidence requires a more coherent approach to collecting, compiling, analysing, and communicating data, and it is to this end that the online databases should mainly be devoted. Eventually, there should be a natural flow of data from appropriate sources in the country to the NHO.

The data and statistics platform includes:

- Data sets for viewing and downloading allowing further analysis
- Ready-made statistical tables and fact sheets on the country and districts
- Metadata, guides and reference publications and links
- Analytical or highlighted results on the health situations and trends
- The interactive integrated online database system: this sub-portal enables the user to consult the entire database in an interactive manner

An integrated database is a selection of key data items and indicators taken from all the databases available in the country. In the first instance, data is being selected

by the respective database administrators and converted into a common format. These databases may be of varying sizes, held in different software formats, and their quality could also vary considerably, not just between databases but also for different periods and coverage within each database. Various programmes in the ministries of health and statistical agencies may have put in place various systems for collection of data from different areas of the country, including provision of feedback, analysis and dissemination. These challenges of integration will need to be addressed.

Apart from the task of collecting all relevant data together in a common format, the national health observatory should also provide a minimum set of standard metadata for each database (definition of indicator/measurement – what it is; source of data – where it came from, and how it was collected; quality assessment of data – are there gaps or weaknesses and why?).

The data managers in each participating programme are responsible for collecting, maintaining and updating all data. Each database manager is thus a direct partner with the NHO and is responsible for input to the Observatory of new and updated data. The NHO database manager must also be aware of all work underway or planned to update the collection of data. There should be a natural flow of data from appropriate sources in the country to the Observatory. Ideally, The NHO data warehouse should link seamlessly to the African Regional Health Observatory through its data manager. This will enable the NHO access and use of state-of-the-art software for data analysis and visualization available on the AHO.

Maintaining a successful online database requires a high level of innovative skills in evidence sharing and presentation of facts to avoid duplication and make the databases the first choice for users. Users are more likely to use databases that are up-to date and have detailed and transparent metadata. Regarding updates, to ensure better media coverage, it is best to coincide the timing of release with the date of major meetings or with other relevant dates of significance, such as World AIDS day for the AIDS database, etc. Keeping the databases relevant will also require the timely review of indicators and removing those that are less relevant and introducing new ones that address emerging issues of interest to the wider public. There are several ways to approach this; one is through holding an annual formal inter-thematic consultative meeting on core health indicators among relevant individuals from agencies contributing to the database.

Finally, there should also be a mechanism to gather user feedback and assess the continued relevance of the database for the intended users. One way of soliciting this information is by conducting an online user survey, through a pop-up window or data call.

3.3. National and subnational analytical health profiles

National health plans generally include a preliminary section reviewing progress according to the preceding national plan. Programme by programme, performance is analysed critically. Each of these analyses is a mini profiles. What the NHO can provide in its analytical health profiles is precisely this key element of the national planning process. This is one key reason to prepare them.

The presentation of data alone is not sufficient to paint a complete picture of the health situation in the country; meaning is only acquired when data are analysed, information synthesized, and interpreted within the overall context of the health system and delivery of health interventions. A vital aspect of analysis is synthesising data from multiple sources, examining inconsistencies and contradictions, and summarizing current status and trends to generate consistent and comparable assessments. Despite its importance, such analytical work has been lacking in many countries largely because of limited capacity. Developing this capacity will require careful planning and investment and may need to involve a broad collaboration with technical experts and academic institutions in the Region and beyond.

In terms of content, both the country as well as subnational profiles should cover all major areas of likely interest to in-country policy makers and external stakeholders. These include information on health situation and trends, progress toward priority programmes and internationally agreed targets, health system resources as well as key demographic profiles on the country. Annex 1 gives an outline of the profile. These summary profiles function as a standalone product and are also linked to the more detailed programme/disease-specific profiles maintained by technical units. Thus, users seeking greater detail on a specific item in a summary profile can follow links to the technical department's detailed profiles on the NHO website in a seamless and transparent manner.

While there are no hard and fast rules regarding the steps required to prepare integrated country or subnational health profiles such as those proposed above, using a limited but well-defined set of criteria has the advantage of avoiding redundancy and ensuring that the document prepared is consistent, and adds value to its target audiences. These steps are summarized below.

1. An internal review of MoH programme websites and databases should be undertaken to identify national and vertical programmes that have their own country profiles and to determine the contents of these profiles. Special attention should be given to the coverage (i.e. number of districts) and quality of the materials contained in the profiles—including appropriate

referencing and use of data—as well as the suitability of the technology in use for cross-referencing and regular editing and updating of contents. A similar thorough review of all external websites and other electronic and printed materials should also be undertaken to identify contents and features which can easily be transferred to the planned profile.

2. A working structure for the detailed national and subnational profiles needs to be developed. This can always be modified later if necessary, but an initial detailed structure is required. The structure that is used by the AHO (termed a "taxonomy") could be used directly or after adaptation (see Annex 1). In addition to the list of topics of interest, a template showing potential data sources and ways of presenting the profile should be prepared. The template currently used by AHO could easily be adapted for the purpose (available upon request).
3. Reviewers should be identified and extensive peer reviews should be carried out. This will be an ongoing process. It is important to ensure that the data contained in the profiles matches the data in the integrated database. There should be no inconsistencies. All the primary data as well as reference materials used in the profiles will be linked in the profiles and thus be available to all users.
4. Profiles should be updated regularly – on an as-needed basis, or at least annually, according to an agreed timetable. As it is assumed that these profiles will serve as an integral tool in framing successive national health plans, the schedule of updating should be linked to the national planning process. Consensus is needed on updating procedures—including rules and timing of updates, as well as on the role of different players in the input and updating of materials on the profiles). In emergencies, routine activities are often halted. Specific components of the profiles could be updated more frequently and alternative products on specific themes related to the emergency produced. Every three to five years, the NHO team should conduct an explicit data audit to review the content, processes and integrity of the system. Feedback from the public should be reviewed on a regular basis.

3.4. Observatory publications and other information products

In addition to country and subnational analytical profiles, the NHO should also produce a range of information products, mainly consisting of publications that respond to emerging health issues or build upon existing work that require new syntheses and analyses. Various kinds of publications could be envisaged. An important suggestion to consider is the publication of a biennial report on the health situation of the country, districts or other subnational entities as the case may be. This publication should provide an exhaustive report on the health situation of the country. Data for the statistical tables and figures in the report should be derived from the NHO.

Another publication could be an annual statistical atlas of the health situation in the country. This would consist of tables and maps of the most recent statistics based on health indicators from national and all subnational entities such as districts. It is important to use a standard structure that follows that of the analytical profiles (see Annex 1). The format of WHO-AFRO's annual Regional publication – *Atlas of African Health Statistics*, which is available online[3] – could be used to produce the national statistical atlas.

If resources allow, NHOs could consider producing a journal appearing two or more times per year, similar to the *African Health Monitor*, produced quarterly by AHO, which is also available online.[4] This could serve as a medium for the publication of articles that monitor the health situation and trends, and track the progress toward the health SDGs or other internationally agreed-upon goals. It could also be used to disseminate information on public health interventions carried out in the country and as a medium for sharing best practices. It could publish solicited and unsolicited manuscripts submitted by health professionals. Articles submitted should undergo a peer-review to help improve their quality. Detailed guidelines for authors as well as the modes of operation of the editorial board should also be prepared (these can follow the format of the Monitor, and could be provided on request to the AHO staff).

NHOs should also welcome knowledge products that would be of benefit to their country health systems published in the African region and globally. These can be included in the NHO publications portal along with domestic publications to maximise the availability of knowledge on interventions available, best practices, and other useful information.

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3 http://www.aho.afro.who.int/en/atlas/atlas-african-health-statistics-2014-health-situation-analysis-african-region

4 http://www.aho.afro.who.int/en/ahm

Section 4. Planning implementation

The NHO can be a very effective tool to enhance the use of evidence in the design, monitoring and evaluation of policies and interventions aimed at improving the health of the population. It is a complex tool, which aims to provide multiple and complementary functions that contribute to this overarching objective. All these functions cannot be performed at once. That is why the implementation of an NHO should be carefully planned and targeted to achieve full functionality over several years. Start slowly, build expertise on specific and directly relevant achievements ("quick wins") while keeping in sight the vision of where we want to reach in due course.

From the outset and throughout its development the NHO should meet the following objectives:

- Be credible: the quality and thoroughness of the information produced must be beyond reproach. Credibility can only be achieved if production remains at the highest level achievable by the team. Credibility also is engendered through the ability to balance the various functions of the NHO and develop them harmoniously. For example, we must ensure that the function of gathering does not exceed the capacity of processing information. Ambitions must grow gradually with increasing internal expertise and through the development of a network of scientific and technical external partners, including the AHO.
- Responding to user expectations: to avoid being drowned by a wide range of potential users' expectations and remain responsive, the NHO must clearly identify its target audience and priority users and their field of expertise. Priority thematic areas must be clearly outlined in the strategical and operational plans and ensured to be accessible to users.
- Build trustworthy partners: there needs to be respect for partners with an acknowledgement of the level of partnership and the complementary nature of that exchange. Issues related to government information are important: sharing and data transfer cannot take place in a climate of mistrust and suspicion. A good appraisal of the situation (who does what and where) and issues related to information in the context of the country is required. Trust is built and also maintained by compliance with a strict code of ethics and transparency in the management and methodologies used. The implementation of a process of accountability and agreed work-lines is important.

- *Ensure a more efficient working order:* maintain a balance between the resources invested and the expected results. Investments must be progressive and must be used to their full potential, both in terms of human resources and technical resources to reach the at first limited but important initial goals.
- Continuous funding is needed in the eartly and mid- phases of the project. Agreements could be made with partners on some early products to attract sustainable funding. The NHO can operate a consortium or informal group with research institutes, the MoH and developing partners, who can agree on priorities and deliverables.

For the implementation of the NHO, a four-phase process is proposed:

1. ***Preliminary Phase:*** To ensure the foundations are present, requiring political commitment, leadership and evaluation of the initial situation.
2. ***Initiation Phase:*** To ensure the foundations of the NHO are in place.
3. ***Building Phase:*** To consolidate the organization, financing and functions of the NHO.
4. ***Operational Phase:*** Phase of full operation of the NHO.

4.1. Preliminary phase

This phase is focused on achieving three objectives:

1. ***Ensuring political and financial commitment to the development of the NHO:*** This requires a commitment from the Minister of Health and, if possible, the Head of State or Government. It is essential that high-level authority feel invested in the project. This commitment must be realized through financial support for the Preliminary and Initiation Phases.
2. ***Assembling a project team:*** This would include the essential NHO team elements: an NHO team director, a database manager/data collector, analyst, and a web portal designer. At the early stages, an inventory of people who are very familiar with the country and its political and health system, key actors and technical and financial partners, including from sub-regions, would be desirable to create and build the NHO.
3. ***Evaluation of the starting situation:*** This situation analysis should gather all the facts needed to clarify the composition of the national multisectoral and multidisciplinary group that will be responsible for the coordination of stakeholders and inform policy-makers of the state of progress. In

particular the evaluation should:

a) Identify existing structures and institutions that play a key role in creating healthcare knowledge at national and subnational level.

b) Identify those who already carry out tasks or functions expected in a National Health Observatory.

c) Identify departments or offices that could house the NHO within the Ministry of Health.

d) If a decision is make to place the NHO outside of the Ministry of Health, identify external institutions that could potentially host the NHO.

e) Describe the NHIS and its components.

f) Conduct an exploratory survey of the main producers of data at the national and subnational level.

This evaluation should lead to the development of an action plan and proposals for the strategic choices of the Preliminary Phase.

4.2. Initiation phase

The Initiation Phase is a critical phase as it will lay the foundations for the NHO. During this phase, the institutional and organizational structure of the NHO will be decided and its main functions will be initiated. It must take place without publicity but with an intense work output. It starts before the official launch of the Observatory.

During this phase, the following objectives should be achieved:

1. *The institution of a national multisectoral and multidisciplinary group*, which includes all stakeholders (representatives of producers and users of health information at different levels and in different sectors), in order to coordinate efforts and establish the NHO as part of a national network. Its composition shall be decided by the authorities on the basis of evidence gathered during the Preliminary Phase.
2. *Definition of the institutional framework* (organization and host) by the authorities, in consultation with the national group, and based on the evidence gathered during the Preliminary Phase.
3. *Formal commitment of a minimal team.* This does not have to include all those of the supporting team in the Preliminary Phase. It should include at least the senior database manager and an analyst qualified professional with the skills for quantitative analysis of the data, and synthesis of

contextual information and their transformation into usable knowledge. Recruitment should be transparent and based on skills assessment by independent experts. The minimal team must rely on others (internally or via a partnership with external resources) to provide the initial activities until the Initiation Phase.

4. *Overall evaluation of the situation regarding knowledge in the national health system*, focusing on the Ministry of Health, on one hand, and the health sector at large, on the other. This will serve to establish the overall picture of the knowledge needs and knowledge resources available in the country, which will provide the basis for all of the NHO.'s activities

5. *Assessment of the NHIS*, in collaboration with the NHIS. This evaluation aims to: a) identify promising aspects of the system and the strengths on which the NHO can rely; b) to identify weak points in the system; c) to build a model of collaboration between relevant and reliable NHIS and NHO. Most countries may have had such assessment done before and thus updating this could be considered.

6. *Initial developments. B*ased on items 4 and 5 above, the collection of knowledge should begin – health literature and data gathering. After the first round of data gathering and synthesis there needs to be a first meeting to evaluate if production quality is at a level that can be published. It should be feasible in a few months and therefore should not depend on the collection of new data, but the analysis and integration of existing data that is sufficiently valid. It can already be assisted through mobilizing scientific collaboration with a partner. This first activity will introduce the main features of the NHO: data gathering (here easily mobilized existing data), analysis/integration to generate usable knowledge, dissemination and networking.

7. Developing a web platform for the dissemination of the first productions. The development of technological tools will be gradual and these must be chosen taking into account the specific environment of the country and the ability to interoperate with existing websites and the African Health Observatory. The WHO Regional Office for Africa stands ready to support NHOs in their web platform development.

8. Once a basic platform has been developed and the first productions trialled, there needs to be an evaluation of the Initiation Phase to prepare for the next steps under the Building Phase.

The official and public inauguration of the NHO should be carried out and publicized upon the achievement of Objective 7 above.

4.3. Building phase

This reinforcing stage should allow the NHO to become functional, that is to say, to ensure at least its 4 main functions: gathering information from several producers, analysis and integration of this information for the production of usable knowledge, the dissemination of knowledge in ways which they are used by key partners (decision makers and actors), and the development of a network of partners supporting its future development. This phase must be based on the evaluation results and achievements of the Initiation Phase.

During this phase, the following objectives should be achieved:

1. Ensuring financial support for at least the next five years with the support of national health authorities and possibly international partners.
2. The consolidation of organizational and legal frameworks. This refers to statutory text that establishes and defines the NHO, inspection bodies and feedback mechanisms (management committee and separate scientific committee), transfer modalities, and the processing, sharing, storage and archiving of sensitive information in accordance with laws of the country.
3. Strategic planning for the next 5 to 10 years. The strategic plan should define the goals of the NHO, priorities and strategies. These priorities are defined in relation to the priority needs of countries on strengthening the health information system. Field of expertise and target audience must be clearly identified at this stage. This plan must be approved by the national group bringing together the main stakeholders.
4. Identify short-term objectives to be carried out during the Building Phase and plan activities taking into account its current internal and external resources. The ideal is to have an annual or biannual operational plan.
5. Development of job profiles for scientists and support personnel employees.
6. Develop concrete activities leading to specific productions that will require the mobilization of data from different producers (at least including from the NHIS) and one or more partnerships with external collaborators to generate useful knowledge that will be broadcast to users. During this phase, the NHO should be able to create two or three different products, which may be rather basic given the level of expertise to date and networking still limited.
7. Develop a partnership with at least one scientific institution to strengthen its scientific expertise. Through activities already carried out, the national group and/or the establishment of a scientific committee, the NHO should have at least one scientific partner at the end of this phase.

4.4. Operational phase

Once the building phase is completed, the NHO should be fully functional. It should be composed of a solid and relatively stable multidisciplinary team. Its employees should receive ongoing training. The four basic functions should be operating smoothly and creating a visible improvement to the country's HMIS. To reiterate, the four functions should be operating as follows:

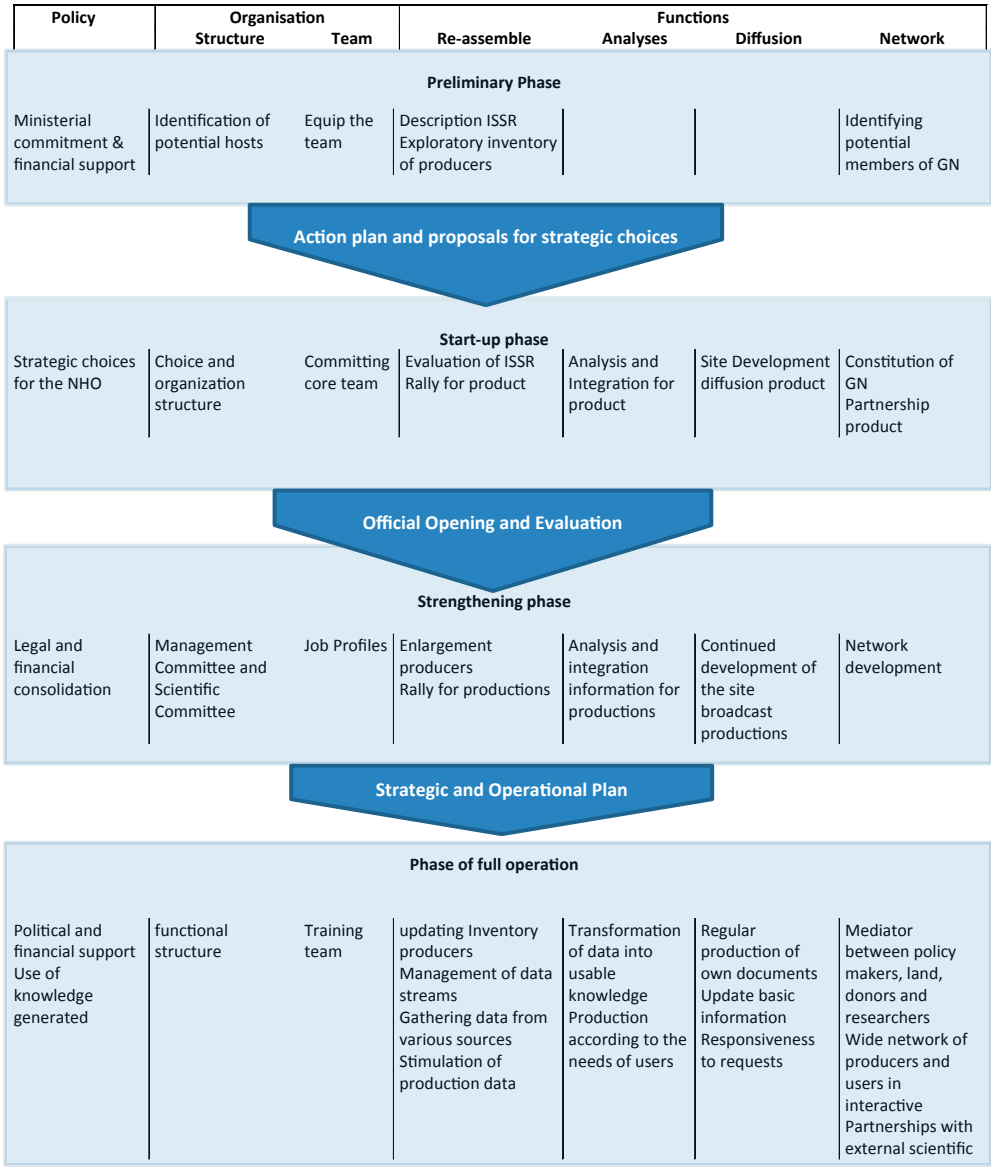
The marshalling function: The NHO collects national and sub-national information from different and complementary sources, including the NHIS data with which it has developed procedures for constructive collaboration. In collaboration with its partner producers of data, it organizes transfers with appropriate technology and in compliance with legal and ethical constraints. It has a relatively complete inventory of data producers and characteristics of them and regularly updates the inventory. It identifies areas gradually uncovered and stimulates the production of data in these areas through research or specific services. Knowledge gaps are filled as best as possible and data is updated regularly and in a timely fashion, especially with regards to outbreaks and emergencies as well as issues of policy-makers, public and media attention.

The synthesis function (integration and analysis): The NHO has analytical skills to transform the collected data into usable information. It can integrate the various information to provide an overall view of the health of the population and its main determinants. It is starting to analyse changes over time in some areas. It is able to give an overview of current health problems facing the population (in terms of services, programs and policies). According to the priorities it has set out in its strategic plan, its analysis and integration features are rather oriented towards health and its determinants, or rather to services and programmes. At the beginning of this phase, the NHO may not already meet all of these objectives. To support this feature, the NHO should have a strong and relevant scientific network.

The sharing function (presentation / dissemination): The NHO produces at least one statistical atlas and a paper per year and updates the analytical profiles (national and subnational) regularly. It is able to respond quickly to requests from decision-makers and key players. It begins to undertake a more active role on highlighting key issues, key directions, and best practices to solve current and future problems to improve health and the health system. It has a functional site, accessible, and updated regularly. Its products meet the criteria of rigour desired by international partners and information can be sent to international bodies. In particular, it works closely with the AHO, which registers data sent in a suitable format to include in its regional database.

The networking function (interaction): It has become an important player for the exchange of health information between the different partners (policy makers, researchers, field actors, donors), through its virtual platform and/or through different means of communication (exchange days, newsletters, on-site meetings, social media, publications, etc.). Several subject-specific virtual communities will exist enabling relevant stakeholders to discuss, seek solutions and innovate on issues or challenges of common interest.

Figure 4. General diagram of the implementation phases



Annex 1. Outline of a country or subnational analytical health profile

1. Introduction (country context, sub-national regions, people, etc.)
2. Health Status and Trends
    - 2.1. Life expectancy
    - 2.2. Mortality
    - 2.3. Burden of disease
3. Progress on the Sustainable Development Goals (SDGs)
    - 3.1. Health SDG
    - 3.2. Health-related SDGs
    - 3.3. Other SDGs
4. The Health System
    - 4.1. Health system outcomes
    - 4.2. Leadership and governance
    - 4.3. Community ownership and participation
    - 4.4. Partnerships for health development
    - 4.5. Health information, research, evidence and knowledge
    - 4.6. Health financing system
    - 4.7. Service delivery
    - 4.8. Health workforce
    - 4.9. Medical products, vaccines, infrastructures and equipment
    - 4.10. General country health policies
    - 4.11. Universal health coverage
5. Specific Programmes and Services
    - 5.1. HIV/AIDS
    - 5.2. Tuberculosis
    - 5.3. Malaria

5.4. Immunization and vaccine development

5.5. Child and adolescent health

5.6. Maternal and newborn health

5.7. Gender and women's health

5.8. Epidemic and pandemic-prone diseases

5.9. Neglected tropical diseases

5.10. Non-communicable diseases and conditions

6. Key Determinants

6.1. Risk factors for health

6.2. The physical environment

6.3. Food safety and nutrition

6.4. Social determinants