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**Framework for
the Creation
and Development
of National
Public Health Institutes**

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Part 1 Background and Vision

1.1 BACKGROUND ON THE FRAMEWORK

National Public Health Institutes (NPHIs) serve as focal points for the efforts of countries to protect and improve health. Working with other government agencies and sub-national levels of government, they provide science-based leadership and public health services, and they help catalyze the responses of countries to important public health challenges. This document provides a Framework that countries can use to create and develop NPHIs, and, by so doing, to improve health.

This Framework is a product of the International Association of National Public Health Institutes (IANPHI) in partnership with the World Health Organization (WHO). Established in 2006 by 39 founding members, IANPHI's mission is to improve the health of populations by helping to create and strengthen NPHIs and fostering an international community for NPHI leadership development, peer assistance, and public health advocacy.

To support its mission, IANPHI has four goals, which are reflected in this Framework:

- Develop an internationally accepted NPHI Framework and a Toolkit for use in assessing and guiding the development of NPHIs
- Work collaboratively with low-resource countries to strengthen existing NPHIs and to create new ones
- Increase public health advocacy and knowledge
- Create a new international community of public health leadership among countries of the world

The Framework builds on efforts by many other organizations. IANPHI received initial support from the Rockefeller Foundation. Its primary source of ongoing support is the Bill and Melinda Gates Foundation.

1.2 BACKGROUND ON NPHIs

1.2 What is an NPHI?

An NPHI is a science-based organization or network of organizations that provides national leadership and expertise to efforts to achieve substantive, long-term improvements in the public's health. NPHIs are multi-faceted organizations that include people with a wide range of skills and experience who perform critical public health functions, such as surveillance and research. Because they are science-based, NPHIs are a trusted source of counsel for policy- and decision-makers. In most cases, NPHIs are part of the government (usually under the Ministry of Health) or closely attached to it. They are usually linked to other government agencies that also have public health responsibilities and to sub-national levels of government.

Historical Context for NPHIs

Many of today's comprehensive NPHIs have their roots in prevention and control of infectious diseases. For example, Brazil's Fiocruz started as the Federal Seropathy Institute, created in 1900 to produce serums and vaccines against the plague. Finland's KTL was established as the Temporary Serum Laboratory in 1911 to respond to cholera and plague, improve diagnostics for organisms believed to cause typhus and "paratyphus," enhance serologic testing, and produce antisera against rabies and diphtheria. The U.S. Centers for Disease Control and Prevention was created from an organization called Malaria Control in War Areas (MCWA); in 1946, the MCWA became the Communicable Disease Center, in recognition of the expansion of MCWA's work into other vector-borne and infectious diseases.

These NPHIs subsequently grew through a variety of processes, including the addition of existing organizations from other parts of government, extension of existing programs into new scientific and programmatic areas, and creation of new programs through legislative or administrative decisions.

The world's NPHIs vary greatly (see *Section 2.1*). They typically have been created to respond to specific problems, often related to infectious diseases, and then have had programs added in response to new threats, interests of leadership, political considerations, efficiencies achieved by combining organizations, and other factors. Only rarely has a comprehensive conceptual framework been used to guide the formation or growth of an NPHI. Therefore, IANPHI has developed this Framework to provide a common conceptual basis and language for discussing NPHIs and to assist countries that are creating NPHIs or moving towards more comprehensive public health systems.

Further definition of an NPHI, including the Core Attributes and Functions, is provided in *Part 2. Definition of an NPHI*.

How does an NPHI relate to other components of national public health infrastructure?

To maximize its impact on public health, an NPHI must cooperate with other entities—other national organizations, sub-national levels of government (such as states, provinces, or local governments), multinational regional organizations, and global efforts. The model below illustrates that an NPHI is embedded in the context of agencies and organizations at several levels that have a role in improving and protecting health.

Context in which NPHIs Operate



National and sub-national infrastructure

The NPHI of any country is part of a larger infrastructure that includes organizations at the national and sub-national levels.

At the national level, other government agencies may have responsibility for aspects of the country's health. For example, in some countries, national laboratory functions are conducted by a separate National Public Health Laboratory. Dispersion of public health functions among agencies requires extra efforts to ensure that these agencies work together, including formal and informal mechanisms to create a national network of agencies with public health responsibilities.

Sub-national (such as state, provincial, and local) governmental and non-governmental organizations are also part of a nation's public health infrastructure. Besides implementing policies and programs of the NPHI, sub-national levels of government often develop and implement their own public health policies and programs, as well as provide such critical services as diagnostic laboratory testing, investigation of local disease outbreaks, inspections of restaurants, and immunizations. For many health conditions, the governmental public health infrastructure at the sub-national level is a critical link in the virtual chain that extends from multinational health organizations to the NPHI and ultimately to communities and individuals.

A “Unified Health System” in Brazil

In Brazil, federal, state (provincial), and local (municipal or county) health systems work together through the “Sistema Único de Saúde” or “Unified Health System.” Each managerial level operates public health institutions within their geographic scope. In some cases, these institutions carry out functions similar to those of an NPHI. Local laboratories and disease surveillance systems report their results to the next level in the hierarchy for consolidation. When necessary, local and state levels send biological or other health-related samples for laboratory analysis.

Fiocruz, the major NPHI of Brazil, is an important component of the country's Unified Health System, working with many organizations in an Epidemiologic Surveillance Laboratory Network to identify and address public health problems. Recent examples of the role of Fiocruz include the diagnosis of a measles outbreak in the northeastern part of the country and rotavirus epidemics in the extreme northern region, and characterization of the geographic patterns of dengue virus subtypes in recent national epidemics. Testing of suspicious samples and readiness to respond if needed are critical to evaluate and prepare for potential anthrax threats.

Multinational and global public health infrastructure

Multinational collaborations (such as the European Centre for Disease Prevention and Control) and global institutions can improve NPHI effectiveness and efficiency. They develop and disseminate programs, protocols, and tools that can be used by many countries; provide opportunities for joint research; and enhance the ability to identify and respond to threats that cross national borders. The World Health Organization and its Regional Offices provide leadership in setting norms and standards; producing guidelines; developing initiatives; disseminating information; and providing forums for discussion, collaboration, and joint learning.

Coordinated Multinational Efforts to Prevent and Control Disease

The European Centre for Disease Prevention and Control (ECDC) is a European Union agency created to help strengthen Europe's defenses against infectious diseases. Because European countries share many factors that influence disease risks and prevention policies, it makes sense for countries to evaluate risks and develop policies in a coordinated way. Among the activities of ECDC are conducting surveillance, providing scientific advice, identifying emerging health threats, training, increasing communication among countries, and providing technical assistance. Through its consultation services, ECDC has provided guidance to member states on issues ranging from prevention of norovirus outbreaks on cruise ships to immunization against pneumococcal and influenza disease.

Challenges in creating and sustaining NPHIs

Need for long-term commitment

It often takes decades from the time an NPHI is first created until it can perform many or most of the Core NPHI Functions¹ (see *Section 2.2*) and address a range of health problems. This is particularly true when NPHIs are created in countries with limited national public health infrastructure and limited resources. However, even fully developed NPHIs are constantly changing as a result of new situations, new initiatives, political concerns, or emergencies. For example, the SARS outbreaks in 2002–3 were a major impetus for reorganization of Canada's national public health infrastructure. Creating an NPHI and continuing to reshape it to meet new challenges requires a long-term commitment to the health of a country's population. It also requires flexibility and adaptability to address issues and priorities as they arise.

Limited resources

Providing high-quality public health services requires financial, human, and technologic resources. However, many NPHIs struggle to find resources to conduct surveillance, do research, and perform other core public health functions. Public health often receives inadequate funding even to implement interventions, such as specific childhood immunizations, that are considered highly cost-effective and cost relatively little per person helped.² Public health research is critical to characterizing and solving public health problems, but it is frequently under-funded, in part because the results often take time to decrease national disease burdens.

Even in the health sector, funding for prevention often lags behind funding to provide care for those who are ill or require clinical treatment. History is replete with examples of effective public health programs that received reduced funding after decreases in disease burden. Sometimes these cuts resulted in resurgences of disease and the need for a costly re-infusion of resources. Tuberculosis in the United States and certain vector-borne diseases worldwide are examples of this pattern. Also, because many public health interventions, such as efforts to prevent chronic diseases, take years to show benefit, positive reinforcement for decision-makers who invest in public health may be slow in coming. IANPHI can help by providing training and tools to help public health officials make the case in their countries and with donors for investment in public health.

Fragmentation

In many countries, public health activities of national importance are conducted by a variety of groups, sometimes with little coordination. Discussions about building a national public health presence and designating an organization to play a leadership role sometimes raise concerns about autonomy and territory. Thus, creating a comprehensive NPHI requires working through issues (such as data sharing and resources) with the organizations that will be substantively affected.

- Endnotes**
- 1 The Core NPHI Functions are: Evaluation and analysis of health status; Public health surveillance, problem investigation, and control of risks and threats to public health; Prevention programs and health promotion; Social participation in health; Planning and management; Regulation and enforcement; Evaluation and promotion of coverage and access to health services; Human resource development and training; Quality assurance in personal and population-based health services; Public health research; and Reduction of the impact of emergencies and disasters on health.
 - 2 World Health Organization. Immunization against diseases of public health importance. Available at: <http://www.who.int/mediacentre/factsheets/fs288/en/index.html>.

Part 2. Definition of an NPHI

2.1 NPHI continuum

DIVERSITY OF NPHIs The extent of organized public health at the national level, and of NPHIs in particular, varies among countries. At one end of the spectrum are limited systems, where the national public health system infrastructure receives relatively few resources and there is no organized, government-led focus for public health. At the other end are comprehensive systems that have clear national health goals and research agendas, strong linkages to other national and sub-national agencies with public health responsibilities, and critical roles in integrating knowledge, contributing to the setting of health-related priorities, and providing evidence-based counsel to the Ministry of Health and other groups.

To build a comprehensive NPHI—with adequate resources, a broad range of capacities and functions, strong linkages to sub-national levels and other national and international organizations, and an ability to address the nation's major public health issues—is a long-term process, usually requiring decades and a sustained commitment and investment of resources.

Development Continuum for KTL, Finland: From a Microbiological Laboratory to a Comprehensive NPHI							
This timeline illustrates the growth and development of KTL, Finland over the past century.							
YEAR	1911	1924	1947	1970	1982	1990s	2007
NAME OF INSTITUTE	Temporary State Serum Laboratory	State Serum Laboratory	State Serum Institute	Public Health Laboratory	National Public Health Institute		
NUMBER OF EMPLOYEES	4		20	250	420		900
FUNCTIONS ADDED	Infectious Diseases			Chronic Disease Epidemiology and Prevention Environmental Health Functional Capacity Mental Health Alcohol and Drug Abuse Molecular Medicine Accidents			

IANPHI's major focus is on helping countries with limited public health infrastructure move along the continuum towards being a comprehensive NPHI, and on providing tools and a context to support all NPHIs. For countries that do not have an NPHI or have a fledgling NPHI, this may mean helping them make organizational changes or add capacities. For example, IANPHI might help a country with a developing public health infrastructure to link laboratory and epidemiologic activities, or might help a fledgling NPHI with capacity in only a few infectious diseases to expand to additional diseases and begin to tackle non-communicable conditions.

Diversity among well-developed NPHIs

Even well-developed NPHIs differ in structure, resources, functions, and relationships with sub-national levels. Factors that affect the organization and functions of an NPHI include the needs of the population, historical and cultural considerations, political climate, and other public health resources in the country.

In many countries with a lead NPHI, important NPHI functions are nonetheless handled by other organizations. For example, national public health laboratory services are a critical part of the public health infrastructure. These services include reference laboratory functions, such as providing assistance to laboratories at sub-national levels and in clinical settings, providing high-throughput testing of samples during emergencies, conducting training, and developing and disseminating new methodologies. Sometimes the national laboratory will be part of the NPHI, with the laboratorians in the same organization as other professionals, like epidemiologists, who work on similar diseases and health problems. In other countries, the national laboratory is a separate organization. If the national laboratory is separate from the NPHI, close collaboration, data-sharing protocols, and regular communication are essential.

Why develop a definition of an NPHI?

We hope that by defining critical characteristics of an NPHI, we can bring specificity to IANPHI's vision, align IANPHI's efforts to assist low-resource countries to build NPHIs (see *Section 3.3*), and provide benchmarks and tools that will help any country assess and improve the functioning of its NPHI.

A definition of an NPHI will also help IANPHI measure its progress, not just in terms of process measures (like numbers of site visits conducted) but also in terms of tangible impacts on the NPHIs of countries receiving assistance. Because the definition will be easily accessible on the IANPHI website, it can provide a framework and clarification of important considerations for any country that is developing public health infrastructure, regardless of IANPHI involvement, and for other organizations seeking to assist countries in enhancing the public's health.

2.2 DEFINITION OF AN NPHI The definition of an NPHI provided in this Framework has two components: 1) Core NPHI Attributes, such as the need for a national scope of influence and adequate financial and human resources, and 2) Core NPHI Functions, such as surveillance and research. As resources allow, countries may wish to add additional functions and capacities. Some examples of work being done in NPHIs that goes beyond the Core Functions are provided in *Section 2.4*.

Several themes recur in the Core Attributes and Functions. One is the importance of communications. Communications capabilities are essential for educating the public and policy-makers, ensuring that data about the country's health are accessible, and responding to problems and crises. Another theme is the importance of multi-national, regional, and global linkages and networks, particularly given the propensity for public health problems to cross borders and the efficiencies that result when countries share information and solutions.

Core Attributes of an NPHI

An NPHI is defined by its infrastructure, what it does, and how it does it.

An NPHI has:

- National scope of influence
- National recognition
- Limitations on political influence
- Scientific basis for programs and policies
- Focus on the major public health problems affecting the country
- Adequate human and financial resources
- Adequate infrastructure support
- Linkages and networks
- Accountability

National scope of influence

An NPHI must have a national scope—developing policies and interventions that affect the country widely and address the health problems of importance to the country. Although some activities and programs might focus on one part of the population or a local issue, a comprehensive NPHI must have significant impact on the health of the country as a whole.

Having a national scope means being able to deliver programs throughout the country, either through direct intervention by the NPHI or through the NPHI's relationship with sub-national levels of the public health infrastructure. Relationships with sub-national levels are critical to monitor the health of the population, respond to health threats (especially those that involve multiple parts of the country), and support the use of best practices in developing, implementing, and evaluating programs.

National recognition

The NPHI should be a public institution, operating as part of the government or with the explicit concurrence of the government. Identification of an organization as the NPHI by the national government adds legitimacy, supports the NPHI's use of policies and legislation to help protect public health, and ensures the availability of emergency powers, if needed.

The Minister of Health and other government officials and policymakers should view the NPHI as a critical resource for policy-making and establishing public health priorities and programs. The NPHI should be known by the populace and valued for its contributions to their health and well-being. The NPHI should make special efforts to educate and communicate with professionals working in health and health-related disciplines, as their efforts can markedly expand the NPHI's reach.

Limitations on political influence

Because NPHIs are part of or closely aligned with government, they are not insulated from political influence. Nevertheless, an NPHI's priorities should be driven largely by science and data, including information about the public health needs of the country. Its scientific work—data collection, analysis, and reporting—should be conducted free from political influence. When political concerns significantly influence the formulation of policies and programs, this influence should be explicit. NPHI leaders should be selected on the basis of professional, scientific, and managerial expertise and experience.

Scientific basis for programs and policies

NPHIs should use the best possible data and knowledge to characterize the health of the population, set priorities, and develop and evaluate policies and programs. This includes using data to guide strategic planning, as well as developing or disseminating evidence-based guidelines for public health practice. The NPHI should be a main source of technical and scientific information for the Ministry of Health, legislators, and other parts of government. The NPHI should advocate for scientific and other evidence to inform decision-making at all levels of government.

Using Assessment Data to Optimize Programs

Since the 1940s, the Mexican Government has administered a program that distributes milk at subsidized prices to low-income households. The original goal was to increase the supply of milk at a time when accessibility was limited in urban areas.

In 1999, the Instituto Nacional de Salud Pública (INSP) conducted a National Nutrition Survey, which identified iron deficiency anemia and zinc deficiency as important public health problems, particularly in children and women. These results were shared with the Ministry of Social Development (SEDESOL), which is in charge of the national milk distribution program. INSP recommended redefining the program's goal to include "improving the nutritional status of children in low-income households" and fortifying milk with iron, vitamin C, zinc, and other micronutrients. SEDESOL adopted the recommendation and asked a group of scientists from INSP and other institutions to develop the fortification formula and conduct studies to test its efficacy. Distribution of fortified milk began in 2002 to about 4.2 million children aged 1–11 years. Using a randomized design, INSP conducted an effectiveness trial that demonstrated positive effects of the program on anemia rates and iron deficiency in young children. The program continues to distribute fortified milk and to contribute to prevention and control of anemia and iron deficiency in children.

Many countries have also found it useful to consult outside experts for advice about policy issues. One approach is to convene formal advisory bodies, which synthesize the scientific literature about an issue and make recommendations based on a mixture of scientific and non-scientific issues.

Focus on the major public health issues affecting the country

In most countries, a comprehensive approach to public health means not only investing in prevention and control of infectious diseases but also addressing non-infectious causes of poor health. This is important because even in low- and middle-resource countries, non-communicable diseases are replacing traditional “scourges”—such as infectious diseases and malnutrition in children—as leading causes of death.¹

As NPHIs move along the NPHI continuum, they should be envisioning a future in which they address infectious and non-communicable diseases and conditions, as well as injury and violence prevention and environmental and occupational health.

Focusing on the major public health issues means that an NPHI is a dynamic organization—one that changes to meet short- and long-term challenges. The NPHI must also have built-in flexibility. For example, an NPHI might have to divert resources from a variety of endeavors to support the response to a major outbreak or disaster.

Using a Committee of External Experts to Provide Advice

In the United States, the Advisory Committee on Immunization Practices (ACIP) consists of 15 non-government experts in fields associated with immunization. They provide advice and guidance to the Secretary of the Department of Health and Human Services and to CDC on the most effective means to prevent vaccine-preventable diseases.

The ACIP develops written recommendations for the routine administration of vaccines to children and adults in the United States, along with schedules regarding the appropriate periodicity, dosage, and contraindications applicable to the vaccines. In its deliberations, the Committee considers such issues as vaccine effectiveness, risk of side effects, cost, and barriers to distribution and use. In most cases, CDC chooses to accept the recommendations of the Committee.

ACIP recommendations and other information about the Committee are provided at <http://www.cdc.gov/nip/ACIP/default.htm>.

**Preventing Tobacco Exposure:
The Czech Republic National Institute of Public Health (SZU)**

As in much of the world, use of tobacco products is a major contributor to illness and death in the Czech Republic. An estimated 13% of women and 27% of men in the Czech Republic are smokers. Data from the Czech Republic Global Youth Tobacco Survey, conducted by SZU, indicate that 35% of students in grades 7–9 are current tobacco users. Rates of environmental tobacco smoke exposure are also very high.

SZU uses evidence-based approaches developed by the European Union and WHO, in combination with its own data and experience, to design and implement prevention strategies. A key approach to decreasing tobacco consumption is implementation of screening and brief interventions into routine practices of healthcare professionals. Media campaigns and other actions, like the “Quit & Win” contest, complement these efforts by engaging the public to reduce tobacco use and exposure.

Adequate human and financial resources

An NPHI represents a long-term, sustained commitment to the country’s population. It must have a dedicated and separate budget, which is largely predictable from year to year and includes adequate funding to carry out the Core NPHI Functions.

The workforce of an NPHI should include individuals with a variety of expertise and skills—managerial as well as technical and scientific. Jobs should have written work-plans; systems should be in place to evaluate worker performance on a regular basis; and workers should receive needed training and continuing education. Protocols and standards should be in place to ensure worker safety. NPHI leaders should have scientific and managerial skills and experience.

Adequate infrastructure support

An NPHI must provide a comfortable environment in which people can work productively, including having reliable electricity and water. Because an NPHI is a scientific organization, workers need access to the scientific literature, both via a library and through the Internet. Computers, including commonly used software (word processors, spreadsheets, statistical analysis packages, presentation software, etc.) should be easily available to staff. Necessary communications capabilities include reliable phone and email service.

An NPHI needs access to laboratories capable of using good laboratory practices and doing high-quality work, whether as part of the NPHI or in closely collaborating organizations. All laboratories should use appropriate quality assurance procedures and should include security safeguards (for example, to prevent theft or inadvertent release of organisms).

Linkages and networks

An NPHI must coordinate its activities with other national organizations, including other government organizations and some that are not governmental. To best accomplish the Core Functions, the NPHI might create a network of closely linked agencies.

Also critical are relationships with organizations at the sub-national level. Relationships with universities and other academic institutions provide opportunities for building the public health workforce and conducting research. They also provide opportunities for NPHI staff to maintain their academic credentials and for academic staff to gain practical public health experience.

Multi-national, regional, and global networks are important for increasing efficiency and effectiveness, as countries increasingly share health problems and can benefit by sharing solutions. NPHIs can participate in networks that encourage linkages among countries that are geographically or linguistically similar, struggling with similar technical issues, or developing research or programs to address specific problems. IANPHI is an example of a network that provides a variety of opportunities for countries to work together to improve the health of their populations.

Accountability

Particularly because most NPHI funding is from public sources, an NPHI should hold itself accountable to the public and should try to help the public understand the basis for its policies and actions. The public should have access to the NPHI's strategic plan and information about the expenditure of funds and the impact of the NPHI's work.

Core Functions of an NPHI

Although many groups have described the core functions of the national public health infrastructure, this is the first attempt to define the subset of core functions that countries should consider having done by an NPHI. We base our definition of Core NPHI Functions on the Essential Public Health Functions (EPHF) Framework.²

Even though the EPHF Framework describes the entire national public health infrastructure, it provides a context for describing what NPHIs do. Most NPHIs will not be addressing all of the Core NPHI Functions comprehensively. However, an NPHI ideally will be doing many of them and will have linkages to organizations in the country that address the other functions that are critical to the public's health.

The Core NPHI Functions below are based on the version of the EPHF that was developed by the Pan American Health Organization (PAHO):³

1. Evaluation and analysis of health status
2. Public health surveillance, problem investigation, and control of risks and threats to public health
3. Prevention programs and health promotion
4. Social participation in health
5. Planning and management
6. Regulation and enforcement
7. Evaluation and promotion of coverage and access to health services
8. Human resource development and training
9. Quality assurance in personal and population-based health services
10. Public health research
11. Reduction of the impact of emergencies and disasters on health

Among the Core Functions, three stand out as those for which the NPHI will often be in the lead for the country and will be the major national repository of infrastructure and expertise. Aspects of these were described previously.⁴ The functions are:

Core Function 1: Evaluation and analysis of health status

Core Function 2: Public health surveillance, problem investigation, and control of risks and threats to public health

Core Function 10: Public health research

In countries that are creating or enhancing an NPHI, it might be useful for the Ministry of Health or other leadership to first evaluate whether these three Core Functions are being addressed by the government. If the Core NPHI Functions are spread among several agencies, the country may want to evaluate the usefulness of consolidating some of the functions into the NPHI.

A natural consequence of evaluating and analyzing health status and conducting surveillance related to important health problems in the country is that most countries will recognize that non-communicable diseases and conditions are important public health problems. Thus, in conducting the Core NPHI Functions, it is important for NPHIs to focus public health activities not only on infectious diseases but also on non-communicable diseases, unless these are being addressed by another organization (see *Core Attribute* entitled “Focus on the major public health issues affecting the country” on page 12).

Core NPHI Function 1: Evaluation and analysis of health status

One of the most critical NPHI functions is evaluation and integration of information to assess the health status of the population, set priorities, and suggest interventions. Assessment of health status requires the availability of high-quality data and the ability to evaluate and analyze that data. An NPHI should collect or have access to data on vital statistics, such as births and deaths; potential threats to health, such as unsafe drinking water; risk factors for disease and injury; and access to and use of personal health services. Ideally, the NPHI will be able to link data sets to conduct more a complete assessment of the country’s health status and to understand the relationships between health status and a range of factors that affect health.

A Comprehensive Health Information System

Denmark has established many registries for health-related data, like cancer and hospitalizations, and factors that can influence health, like income and employment. Every citizen of Denmark has a unique personal identity number (CPR-number) that is recorded any time they receive a government service and for many private-sector services as well. Planning authorities and research institutes are permitted to link registries in order to conduct studies and evaluations.

Linked data have been used as a basis for hospital and public health planning and for distributing human and other resources. They are also used to answer questions about such diverse issues as the impact of removing thimerosal from vaccines on population autism rates, risk factors for suicide, and the impact of environmental exposures on health. Analysis linking hospital data on myocardial infarction to the mortality and national prescription registers has demonstrated the excess risk of mortality related to use of COX-2 inhibitors and high dosages of other non-steroidal anti-inflammatory drugs.

Although the primary benefits of Denmark's comprehensive health information system are within the country, this excellent source of information has provided the world's public health community with valuable public health insights.

Another Gates-funded initiative, the Health Metrics Network (HMN),⁵ has as its goal to strengthen and align health information systems throughout the world. HMN will increase the availability and use of timely and accurate health information, which can be used by NPHIs to design and evaluate programs that best meet their countries' needs.

Health Metrics Network

The Health Metrics Network (HMN) is a global partnership working to improve health and lives by strengthening and aligning health information systems around the world. It is founded on the premise that better health information leads to better public health decision-making that will improve health for millions worldwide.

HMN has a single overarching strategic goal—to increase the availability and use of timely and accurate health information by catalyzing the joint funding and development of core country health information systems. Although it is a relatively new initiative, its website already includes a Framework, an assessment tool, and information about activities in many countries. Because information and interpretation of information is so core to the work of NPHIs, the work of IANPHI and that of HMN should be synergistic.

In addition to using the data for their own purposes, NPHIs should encourage sharing and dissemination of data. This will help other organizations that are trying to improve the public's health and provide people with information to improve their personal health practices.

Making Data Easily Accessible

Many NPHIs have established web-based query systems that allow government decision-makers, researchers, and the public to develop customized reports about disease rates and risk factors. These systems are easy to use and include data that is as up-to-date as possible. The Netherlands cost-of-illness site, which is managed by the National Institute of Public Health and the Environment (RIVM), and WISQARS, which is managed by the U.S. CDC, are examples of ways in which NPHIs make data easily accessible.

In the Netherlands, cost-of-illness data are easily accessible at <http://www.costofillness.nl>. Users can make tables and create figures that describe costs of health care in the Netherlands, by disease category, age or gender, and provider type.

In the United States, an interactive site called “WISQARS”—Web-based Injury Statistics Query and Reporting System—allows users to develop tables that describe numbers and rates of unintentional and violent injuries. By querying the system, users can generate tables by age, gender, type of injury, and geographic region. WISQARS can be found at <http://www.cdc.gov/ncipc/wisqars/default.htm>.

Core NPHI Function 2: Public health surveillance, problem investigation, and control of risks and threats to public health

Public health surveillance is the ongoing systematic collection, analysis, interpretation of health data, and dissemination of the results, with the goal of using the data to guide public health action.⁶ Surveillance is critical for identifying disease outbreaks; changes in rates of death, illness, and injury from different causes; and population rates of risk and protective factors for death, illness, and injury.

High-quality laboratory services are essential for many surveillance activities, especially infectious disease surveillance. Laboratory testing of environmental samples, food, or pharmaceuticals may also provide the basis for surveillance data. Many NPHIs work with laboratories throughout the country to improve laboratory services and also serve as reference laboratories.

NPHIs Work Together to Improve Laboratory Testing

In Europe, many NPHIs provide reference laboratory services. They have a full complement of tests and techniques to diagnose and characterize pathogens. They also help other laboratories by providing confirmatory testing and offering training.

Community Reference Laboratory-*Salmonella* (CRL-*Salmonella*) is comprised of National Reference Laboratories of European Union Member States. It is housed at RIVM, the NPHI of the Netherlands. In addition to providing a forum for members to evaluate their activities and develop collaborations, CRL-*Salmonella* assesses how well various methods work to isolate and characterize *Salmonella*.

For example, an inter-laboratory comparison study conducted by CRL-*Salmonella* showed that the internationally accepted method for detection of *Salmonella* in food and animal feeding stuffs did not work as well on animal fecal material because of more competing organisms in feces. CRL conducted studies showing the benefits of an alternative method. Based on this work, the new method is being used by the European Commission to document the occurrence of *Salmonella* in the food chain, and it will be published in 2007 as the international standard method for testing of animal feces.

For many fledgling NPHIs, establishing or enhancing disease surveillance is a high priority. If surveillance and response is not part of an NPHI's mandate, efforts should be made to ensure that effective surveillance is part of the national public health infrastructure and that the NPHI has access to surveillance data.

Inherent in the idea of surveillance is that changes in rates of disease and risk result in prompt actions. These actions might include follow-up laboratory testing and epidemiologic investigation, followed by control measures. In the United States, national surveillance, laboratory services, and epidemiologic capacity are housed in a single agency—CDC. In other countries, these functions occur in different organizations, so coordination and collaboration are essential.

Because so many public health threats are not limited to individual countries, NPHIs should strongly consider participating in multinational regional and global surveillance efforts. For example, the European Centre for Disease Prevention and Control works in partnership with public health institutions across Europe to strengthen and develop early warning systems. The WHO Global Influenza Surveillance Network is an example of a global surveillance network.

WHO-NPHI Partnership: Enhancing the WHO Global Influenza Surveillance Network

WHO is working with Myanmar to increase the capacity of its National Health Laboratory (NHL) to become part of WHO's network of National Influenza Centers. In 2006–2007, the WHO Country Office for Myanmar used its multi-country fund to support scientists from Thailand's National Institute of Health to work with scientists from NHL and the Department of Medical Research in Yangon and Mandalay to strengthen their capacity for detection of seasonal and avian influenza viruses. The activities include consultations on facility upgrading, human resource development, and provision of materials and supplies. The inclusion of NHL in WHO's influenza network will benefit both the Network and Myanmar.

Core NPHI Function 3: Prevention programs and health promotion

An NPHI should engage in systematic efforts to create the conditions that support healthful behaviors. These efforts might include informing and educating people about how to improve their health, as well as use of legislation and regulation, environmental changes, and other approaches. As much as possible, prevention programs and health promotion should be evidence-based. NPHIs can consider a range of possible partners for prevention programs and health promotion efforts, including government and non-government organizations, healthcare workers, and community leaders.

A Multi-faceted Program to Control Malaria

In Mexico, malaria remains a public health problem in large areas of the Pacific Coast. The Instituto Nacional de Salud Pública, in partnership with other organizations, conducted a series of investigations to understand the ecosystems that supported breeding of mosquitoes that transmit malaria, the epidemiology of malaria cases, and the role of social, economic, and behavioral risk factors. The multi-disciplinary approach used geographic information system-based mapping to characterize areas in the state of Oaxaca and case-control designs and rapid diagnostic tests to gather information about people living in the area.

A participatory research approach was used to ensure that the perspectives of the affected communities were considered. Whereas in the past, malaria control interventions had been mainly administered by Malaria Control Program (MCP) personnel, based on community input, MCP developed new strategies that emphasize community involvement in diagnosis, treatment, surveillance, and prevention. As a result of using these strategies, even without the use of household spraying with DDT, today fewer than 2,000 cases of malaria occur annually in Mexico.

Prevention programs and health promotion efforts should be culturally and linguistically appropriate. Because minority populations often have relatively poor health status, special efforts should be taken to reach these groups in ways that they find acceptable.

Reaching Out to Young and Immigrant Women for Cervical Cancer Screening

RIVM, the Netherlands NPHI, organizes a cervical cancer screening program for women aged 30–60 years, with Pap smears offered every 5 years. Screening rates have been particularly low among younger women, and especially among younger immigrant women of Moroccan and Turkish origin. For example, rates are 10 per cent below average for 30-year-old women and 15 per cent below average for immigrant women.

Regional screening organizations have initiated several projects to increase participation by groups with traditionally low participation rates. For example, women scheduled to receive an invitation for a Pap smear at age 30 now receive a pre-announcement. Regional offices are working to increase participation of immigrant women through informational meetings, targeted posters, and outreach by general practitioners. Successful regional projects are implemented nationally.

To guide further efforts to increase screening rates, RIVM is evaluating levels of awareness about the screening program, especially among populations with historically low participation; the need for leaflets and other materials in different languages; and the adequacy and effectiveness of the information provided.

Core NPHI Function 4: Social participation in health

An NPHI should strengthen the power of civil society to play an active role in public health. This includes providing information and tools that help people achieve healthy lifestyles, both through their behaviors as individuals and through their ability to influence decisions about the environment and conditions that affect health in their communities. NPHIs can consider making information easily accessible to individuals and also providing technical assistance and information to organizations that are active in communities. Encouraging social participation in health also includes involving the community in the development and design of programs to promote health and prevent disease.

Involving Citizens and Other Groups in Health Policy

Brazil's health system includes a high-level National Health Council comprised of health professionals, healthcare provider organizations, consumers, and government executives. The council provides guidelines and policies for government action. Similarly, there are State Health Councils in each of 27 federated units and >5,000 Municipal Health Councils. Councils at all levels provide advice and guidance to the government. They also ensure social accountability of the health system, in part because they monitor expenditures and activities. The National School of Public Health, which is part of Fiocruz, Brazil's NPHI, delivers "distance courses" designed to train and enhance the participation of health council members in all parts of the country.

Core NPHI Function 5: Planning and management

In addition to qualified scientific and program staff, an NPHI needs trained managers who can oversee development and implementation of a strategic plan, policies, and programs and ensure that systems are in place to help the NPHI be as efficient and successful as possible.

Every NPHI should have a clear vision and mission statement that are understood and shared by staff. The NPHI should conduct periodic strategic planning, using data and information to identify priorities and set measurable goals and targets. Targets should relate not only to what will be done (such as numbers of courses developed, people trained, or specimens analyzed), but also to the likely impact of actions taken (such as increases in motorcycle helmet use and reductions in new cases of HIV infection).

An NPHI should have staff who are trained in the systems needed for efficient functioning of an organization. This includes people who can ensure smooth operation of areas as diverse as personnel and information technology, as well as high-level managers who can help ensure that the highest priority needs are addressed.

Strategic Planning

In Brazil, the federal government releases a consolidated, government-wide plan every 4 years. Brazil's NPHI, Fiocruz, participates in seven national programs in the current plan: health policies management; science, technology and innovation in health; epidemiologic and environmental surveillance; specialized health care; sanitary surveillance of products, services and health environments; pharmaceutical assistance and production of strategic inputs; and permanent education and qualification of Unified Health System professionals.

Fiocruz has a detailed plan that derives from the federal plan. It includes ~200 objectives and >3,000 projects. Each project, objective, action, and program is evaluated using a set of specific efficacy, efficiency, and effectiveness indicators, which, in turn, feed back into annual revisions of the federal government plan and the Fiocruz annual Plan. Fiocruz's plan is financed through a combination of government funds and extra-budgetary projects; the total 2006 budget was >US\$500 million.

Core NPHI Function 6: Regulation and enforcement

Three potential areas of NPHI regulatory responsibility are: food and drug safety, quality and safety in healthcare settings, and reduction of community and worker risks from the environment and workplace. During major emergencies, NPHIs might have additional authorities (for example, to isolate or quarantine individuals). In countries for which agencies other than the NPHI are responsible for public health regulation and enforcement, the NPHI should be involved in providing the scientific basis for regulatory decision-making. In addition, NPHIs may have important roles in providing information to legislative and regulatory agencies on a range of topics that affect public health.

Core NPHI Function 7: Evaluation and promotion of coverage and access to health services

Although financing and provision of health care is not a Core NPHI Function, NPHIs might monitor access to health care, as well as identify barriers to care for vulnerable groups and strategies and plans for overcoming these barriers. Achieving this Core Function requires a multisectoral, multiethnic, and multicultural approach, as well as close collaboration with governmental and nongovernmental agencies.

Core NPHI Function 8: Human resource development and training

A strong public health system requires workers with training in a wide range of fields, including epidemiology, laboratory sciences, health policy, health communications, information technology, and management. An NPHI has a responsibility to help develop a public health workforce that is adequate for national needs, both for the NPHI itself and to support the broader public health infrastructure. This responsibility might include monitoring the workforce in terms of existing capacity and unmet needs, providing training and continuing education for NPHI employees or other public health professionals (for example, in laboratory techniques or epidemiology), identifying and supporting opportunities to increase the linguistic and cultural diversity of the public health workforce, advocating for strong public health departments in universities, forming partnerships with universities and other places where public health training is conducted, and defining licensure requirements for public health professionals.

Retention of skilled public health workers is also important. Public health work may pay less than work in the private sector, and skilled workers in low-resource countries may seek opportunities in higher resource countries. NPHIs can play a role in helping to provide fulfilling opportunities for public health practitioners and other incentives for remaining in the public health workforce. The mix of activities related to workforce development and retention will depend on the resources of the NPHI, the roles of other organizations, and the needs of the country.

For a fledgling NPHI, the priority will usually be on training that is practical and provides specific skills, rather than degree programs. However, in addition to providing skills-based training, some comprehensive NPHIs have degree programs that make important contributions to their country's public health infrastructure (see *Section 2.4*).

Enhancing the Skills of the Public Health Workforce

From September 2005 through November 2006, Mexico's National Institute of Public Health conducted a training program for the public health workforce about protecting the public against sanitation risks. This program consisted of four certificate courses (diplomas), which were delivered on-line, allowing workers to receive training while staying on the job. The courses were developed using models of adult learning and constructivist theory, and involved study cases, simulations, collaborative work, and other approaches that ensured students were engaged in the coursework. Because the developers of the program represented both technical and academic areas, the program addressed both practical and theoretical issues.

A total of 154 workers participated in the program. These workers are now using their new knowledge and skills to improve health in states throughout Mexico and at the national level.

Core NPHI Function 9: Quality assurance in personal and population-based health services

NPHIs can work closely with the healthcare system in many ways to achieve continuous quality improvement for personal and population-based health services. Activities might include conducting surveillance for healthcare-related infections, helping to set standards that permit evaluation of quality, collecting data or making recommendations about patient safety, and conducting evaluations or reviewing data to assess quality. Some NPHIs have focused on issues of specific concern to both the public health community and providers of personal healthcare services, such as antimicrobial resistance.

Quality Assurance for National Breast Cancer Screening Program

For more than 20 years, the Netherlands has had a national breast cancer screening program. Every year, the program invites >1 million at-risk women to participate, and generally >80% of these women receive screening.

RIVM, the NPHI of the Netherlands, organizes this program and provides quality assurance. A subcontractor to RIVM collects performance indicators, such as the rate of identification of breast cancers, predictive value positive of screening, mortality among screened women, and program costs. These data are published in an annual report. A second contractor, the National Expert and Training Centre for Breast Cancer Screening, is responsible for training and additional quality assurance. Activities include reviewing Stage II screen-detected and interval carcinomas with local radiologists and technicians and auditing the quality of mammograms. This organization also hosts the European Organisation of Reference Centres (EUREF), which is responsible for the European Guidelines on Breast Cancer Screening.

The screening program is calculated to reduce mortality by 27 per cent among the entire population of women invited to be screened—a figure exactly that predicted many years ago by a computer model.

Core NPHI Function 10: Public health research

Conducting research is a critical function and is important for the credibility of an NPHI. In a fledgling NPHI, research might consist of simple studies to characterize the most important public health problems in the country, provide other data important for decision-making, and evaluate the effectiveness of interventions to improve public health. In more highly developed NPHIs, research might include complex laboratory studies, large epidemiologic studies, and multidisciplinary studies, and might be designed to produce results that are applicable in many countries. Regardless of the extent of its program, an NPHI should focus its research on high priorities, particularly those that are not being addressed by universities or other research institutions. In many countries, these priorities will include epidemiologic and laboratory studies of specific health problems and evaluation of the effectiveness of interventions.

Systems should be in place to ensure that research findings are translated into decisions, policies, and programs. The NPHI must have procedures to protect human subjects who participate and animals used in research.

Core NPHI Function 11: Reduction of the impact of emergencies and disasters on health

The NPHI should be an integral part of the government's planning for and response to emergencies and disasters. The NPHI should not only conduct its own planning for emergencies but also be part of government-wide planning efforts. Planning will include determining in advance what services the NPHI will provide in an emergency and developing agreements with organizations that will be involved in a response. The NPHI might need to develop fact sheets and other materials and to train public health workers. The NPHI should assess its surge capacity and have written plans for how it will function during an emergency.

**2.3
SPECIAL CONSIDERATIONS
FOR MULTI-AGENCY NPHIs**

In many countries, the core public health functions are carried out by more than one agency, requiring these agencies to work closely together. Close coordination is particularly important for functions that are linked, such as surveillance for infectious diseases and epidemiologic investigation of outbreaks. If these functions are conducted by different organizations, well-established mechanisms are needed to ensure that information, including data, are shared completely and rapidly.

A multi-agency NPHI is not just a loose confederation of organizations acting independently. An NPHI that is comprised of many subunits must be capable of functioning like a single organization, especially during emergencies. A multi-agency NPHI should have the following in place:

- Leadership that can ensure that the organizations function as one
- Clear definition of responsibilities among the organizations
- Agreements that allow rapid and efficient sharing of data
- Notification procedures for emergencies
- Ability to share resources during emergency responses
- Consistent policies related to such issues as human subjects, data integrity, and privacy
- Public and governmental recognition of the NPHI and not just of the organizational units that comprise it

**2.4
ADDITIONAL ROLES
OF NPHIs**

NPHIs around the world have assumed responsibility for a range of activities designed to improve the public's health beyond those in the Core NPHI Functions. This has sometimes occurred because the need was so great or for political reasons. Some NPHIs have developed certificate or degree programs in public health or allied fields. For example, Fiocruz in Brazil offers vocational master's degrees in such areas as maternal and child health and health surveillance. Others ensure access to care by being primary healthcare providers. Many have taken responsibility for assisting less well-developed NPHIs. The large variety of NPHI activities reflects the range of ways in which NPHIs can contribute to their country's public health and that of others.

Many fully developed NPHIs also fund organizations outside the NPHI (also known as using extramural mechanisms) to accomplish critical research and programs. A successful extramural effort requires enough sustainable resources to make it worthwhile for outside organizations to develop protocols and apply for funding. Extramural funds should be awarded through a fair and transparent process, and provisions should be made to protect human and animal subjects.

- Endnotes**
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 - 4 Koplan JP, Puska P, Jousilahti P, et al. Improving the world's health through national public health institutes. *Bull World Health Org.* 2005; 83:154–7.
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Part 3. Process of Creating or Enhancing an NPHI

The following section describes a conceptual approach to creating or enhancing an NPHI. It is based on approaches commonly used in government, nonprofit, and business sectors.

Creating or making major enhancements to an NPHI is often a complex process that requires tradeoffs and compromises and involves a mix of scientific, humanitarian, economic, political, and other interests. For example, the process used to determine an NPHI's priorities or to design a plan for achieving the vision often requires balancing the need for transparency and involvement of as many stakeholders as possible with resource constraints and the need to make decisions in a limited time.

Nevertheless, a well-designed process for deciding on the direction of change and plans for implementation has many benefits, deriving as much from the process as from the result. A good process results in a plan with a clear definition of purpose and realistic goals. The plan helps the NPHI focus on priority issues, which in turn leads to more effective use of resources. When the people who will be responsible for implementing the plan are involved in developing it, they understand better their responsibilities and how those responsibilities contribute to the overall vision. The process can also be used to get buy-in from higher levels of management and leadership and from partners outside the NPHI.

3.1 GUIDING PRINCIPLES FOR IANPHI'S ASSISTANCE IN BUILDING NPHIs

IANPHI's assistance to countries that are building NPHIs will be consistent with the principles articulated below.

Country ownership Creation or enhancement of an NPHI should always start from a perceived need in the country itself. Country leadership and ownership are paramount; the role of partners is to offer flexible support, information, and technical expertise.

Long-term vision and commitment To fully develop an NPHI requires a long-term vision and commitment from the country. IANPHI will invest funds for up to 5 years in a limited number of countries to help them move along the NPHI continuum. This investment is provided with the understanding that the country is committed to sustaining and building the NPHI over the ensuing years, if not decades, that are often required for an NPHI to meet the definition in Part 2 of this Framework.

Building on what already exists The process of creating an NPHI should take advantage of existing systems, institutions, initiatives, and knowledge whenever possible, not only at the national level but also at sub-national levels. The process should also consider differences in need and capacity in various parts of the country.

Consensus-based As much as possible, efforts should be made to build consensus around critical aspects of the NPHI, especially among groups that will need to work together to achieve the NPHI's vision.

Transparent The process for creating or enhancing an NPHI should be as transparent as possible, with a priority placed on information sharing and communication with participants and stakeholders.

Measurable Major changes to an NPHI should include provisions to measure progress and to develop new strategies or approaches if appropriate progress is not being made.

3.2 STEPS IN CREATING OR ENHANCING AN NPHI Creating or enhancing an NPHI is not a linear process. Nevertheless, each of the steps described below—clarification of the desired end, assessment, planning and setting priorities, filling gaps, and assessing progress—will usually be part of the process of creating or enhancing an NPHI.

The process below is based on generally used models for strategic and action (or implementation) planning. It includes the following steps:

- Clarifying the vision and creating a mission statement
- Conducting an assessment and setting priorities
- Developing a plan for fulfilling the priorities, filling gaps, and achieving the vision
- Implementing the plan
- Monitoring, evaluating, and reprogramming

Clarifying the vision and creating a mission statement

In many cases, a specific event or series of events triggers the decision to create or enhance an NPHI. Although responding to immediate challenges and opportunities is critical, the creation or major enhancement of an NPHI provides an opportunity to think not just about the issues of today but also about the future. Thus, an NPHI may want to start the effort by describing its vision—a broad picture of what the organization hopes to become and what impact it hopes to have around 10–20 years from the present. This process encourages broad thinking and helps the NPHI position itself for years to come.

In some countries, the NPHI sits in a Ministry or Department of Health that has its own vision and strategic plan. When they exist, the Ministry's vision and plan are important inputs into the NPHI's plan and provide a context for the NPHI's plan. In some areas, such as emergency planning, many parts of government may have come together to develop a vision and plan that encompass several organizations, including the NPHI; these, too, must be taken into account.

Often, NPHIs will chose to develop mission statements as well as vision statements. The mission statement describes the purpose for the organization, its reason for being. Whereas the vision statement describes what the organization wants to achieve, the mission statement describes in very broad terms what the organization does and how it does it.

Examples of NPHI Vision Statements

Fiocruz, Brazil To provide strategic support to the National Unified Health System and to contribute to the enhancement of the quality of life conditions and full exertion of citizenship of the population living in Brazil by means of the generation, absorption and dissemination of scientific and technologic knowledge in health, through the integrated enforcement of activities in the fields of research and technological development, teaching, production of strategic goods, reference laboratory services and specialized health care practices

Cambodian National Institute of Public Health To become the Cambodian leading provider of public health and laboratory services, training and research, that meet regional and international standards.

Public Health Agency of Canada Healthy Canadians and communities in a healthier world

KTL, Finland Protects and promotes the health of Finnish people

Kenya Medical Research Institute To be a leading centre of excellence in the promotion of quality health

Norwegian Institute of Public Health A healthier people

Tanzania National Institute for Medical Research To be the institution of excellence in the conduct of health research and provision of evidence based information to the Ministry of Health and other stakeholders for planning and implementation of effective health interventions for the provision of better and equitable health services to the Tanzanian populations

Conducting an assessment and setting priorities

An assessment is a strategic analysis of current and likely future conditions. It allows an NPHI to identify important and achievable priorities. Sometimes the major assessment activities occur before the vision and goals are established; in other cases, the assessment is more focused (for example, on a specific goal that the NPHI will try to achieve). Assessments can be informal or highly structured. They should include input from a range of people.

Assessments explore both internal and external issues. Internal issues usually include strengths and weaknesses related to the attributes and capacities that are highlighted by the NPHI definition in Part 2, such as available human and financial resources, infrastructure, and capacity to carry out the Core NPHI Functions. The assessment should also include an evaluation of relationships with key partners, such as linkages with sub-national levels of government and with other national organizations.

External concerns usually include changes and trends outside the NPHI that are likely to have a significant impact over the next 5-10 years (a shorter time-frame than is generally used for the vision statement), including political, economic, social, and technologic issues. Evaluation of external issues usually includes asking which changes are likely to provide opportunities (such as new technologies, cheaper drugs, or new donor initiatives) and which are potential threats (such as a change in donor priorities).

A formal assessment phase achieves several objectives. It provides a baseline measure of capacity and needs. It helps educate staff and decision-makers about the capacities an NPHI might be expected to have and provides benchmarks for setting goals. It also provides stakeholders with a common language and understanding about public health in the country.

The vision statement describes what the NPHI wants to achieve in broad terms, and the assessment describes the current state. After developing a vision and considering the results of an assessment, the NPHI is well-positioned to set priorities, taking into account internal organizational strengths and weakness, as well as external opportunities and threats.

The definition in Part 2 provides several ideas for NPHIs to consider when setting priorities. For example, NPHIs might want to review the Core Functions to make sure these are being addressed in the country and to develop plans to fulfill those that are not. NPHIs might want to develop plans to strengthen the NPHI Core Attributes, for example, by making a concerted effort to ensure that all programs and policies are as evidence-based as possible or by strengthening linkages with sub-national levels so that the NPHI can have a greater national impact.

Developing a plan for fulfilling the priorities, filling gaps, and achieving the vision

Once priorities are established, the next step is to design a plan for achieving them. The includes stating clear and measurable goals, as well as ways to measure progress toward these goals, and identifying resources from within and outside the country. It may require filling gaps in infrastructure. Often, a balance needs to be struck between short- and long-term investments.

Implementing the plan

Implementation of the plan will be most successful when the NPHI's leadership fully supports the plan and regularly communicates its importance and progress to employees. Including a broad range of stakeholders, particularly those who will implement the plan's priorities, in the initial planning process is also helpful.

Monitoring, evaluation, and reprogramming

A good planning process produces a plan that has measurable goals, milestones, and other targets that can be used to measure progress. When progress is not being made, the reasons should be evaluated and adjustments made.

**3.3 IANPHI'S PROGRAM
TO ASSIST IN CREATING
OR ENHANCING NPHIs**

IANPHI will assist NPHIs through a combination of technical assistance, training, and fostering of a collegial and interconnected community of NPHIs. The following IANPHI programs will support NPHI creation and enhancement.

Technical assistance

IANPHI will provide short-term assistance to help countries quickly resolve priority gaps in NPHI capability and capacity. Countries can apply for funds to send staff for training or leadership development, facilitate staff exchanges with other organizations, purchase equipment, or conduct small projects.

IANPHI's medium-term assistance will help NPHIs address high-priority needs for achieving their vision. In this program, IANPHI will work with existing NPHIs in low-resource countries to identify priority projects, which will be eligible for funding of up to \$50,000 per year for up to 3 years.

The most intensive of IANPHI's assistance efforts is the long-term assistance program. Countries that lack NPHIs but have some public health infrastructure will be able to request this assistance. The long-term program will involve up to 5 years of assistance from IANPHI, including multiple visits by teams that are matched to the country's needs, facilitation of stakeholder and other meetings, and support of specific projects. The primary goal of this program is to help countries create NPHIs. Because the IANPHI teams will be comprised of people from other NPHIs, it will provide learning opportunities for many individuals and foster connections among NPHIs.

NPHI Toolkit

IANPHI has developed a Toolkit that is accessible on the Internet. This Toolkit provides links to established guidelines, data, assessment tools, and other resources that will be useful to countries creating or enhancing their NPHIs. The Toolkit is available at www.sph.emory.edu/IANPHI.

Seed grant program for public health research

IANPHI's seed grant program for public health research is designed to enhance the research capacity of NPHIs in low-resource countries. Grants will be awarded based on the results of a peer-review process. At least 50% of each funded project must take place in a low-resource country, and collaborative projects among multiple NPHIs are encouraged.

Building a community of NPHIs and increasing worldwide support

One of IANPHI's primary goals is to build a community of NPHIs. This will happen through meetings, joint training, joint projects, use of peers for technical assistance, and other approaches that facilitate people from different NPHIs communicating and working together.

IANPHI will also reach out to partners from many organizations and sectors. A communications and advocacy strategy will be developed to ensure consideration of NPHIs in major global public health initiatives. In addition, IANPHI will work to ensure that public health, and the contributions of NPHIs, are included in efforts to strengthen health systems.

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