



AMERICAN UNIVERSITY OF ARMENIA  
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CENTER FOR HEALTH SERVICES RESEARCH AND DEVELOPMENT

## **ANALYSIS OF PUBLIC HEALTH SERVICES IN ARMENIA**

Prepared for

**Ministry of Health**

with support from

**World Health Organization Country Office in Armenia**

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Yerevan, 2009

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## **ACKNOWLEDGEMENTS**

We want to express our gratitude for the extensive and comprehensive reports, studies, strategic and action plans, documents, proposals, policy papers, resolutions, regulations, and legal papers used for the situational analysis that were published by the Government of Armenia, various agencies, educational institutions, and international organizations.

The greatest appreciation is reserved for the participants of this study who provided valuable information during the in-depth interviews and focus group discussions, including those from the general population, representatives of seven Ministries and their agencies, various other government agencies and departments, numerous educational and service institutions, international organizations and non-governmental organizations.

Our appreciation goes to the World Health Organization for its direction, expertise and ongoing support to bring this study to fruition.

We also thank all those who reviewed this report and provided feedback. Special thanks are reserved for the group of experts from the Ministry of Health for discussions and collaborative work around this report.

## **EXECUTIVE SUMMARY**

This report maps out and analyzes the current public health services through the review of existing official documents in Armenia, assesses the functionality of public health services through qualitative stakeholder analysis, conducts a review of international public health standards and models, and based on these findings recommends a public health model for Armenia. Overall, 179 participants from seven Ministries, various government agencies and departments, educational and service institutions, international organizations and non-governmental organizations (NGO) participated in the stakeholder analysis.

The strengths in the current public health services are notably provided in the summary findings of this report. Much progress has been made over the last decades in various aspects of public health.

The report findings identify those areas where further progress can be made. The fragmentary, sporadic and redundant nature of some public health services as well as the lack-of-capacity in human resources to meet the current and future demands of public health were identified as the overriding obstacles to optimize public health services in Armenia. This is reflected in part by the fragmentation and overlapping responsibilities in public health by many ministries, institutions and organizations, with no overriding oversight body.

In Armenia, more than half a dozen government ministries and many state agencies have substantial role in public health; the Ministry of Health covers only some public health services. In addition, some public health activities are provided by international organizations and national NGOs. Currently there is no overriding authoritative central state authority that is responsible for integration, coordination, collaboration, oversight, advocacy and quality control of all public health authorities in Armenia.

Public health is an essential aspect of national security. The overriding recommendation, coming directly from the situational analysis, the stakeholder analysis and the review of the international experience in public health is that there is a need to establish an intersectoral experts' committee with a strong coordinating, advocacy and consulting role in public health. It will coordinate the

public health related practices, programs and services of different organizations (independent of their organizational and legal status) It will support and facilitate collaboration between numerous ministries, government agencies, research institutions, international organizations and non-governmental organizations.

The next step following this report should be developing a public health strategy and specific action plan to reach improvements in the PH system following the basic principles of operation 1) evidence based changes in the system and 2) supportive supervision - teaching, training, advising and consulting should be superior to inspection.

## **INTRODUCTION**

### **Study History**

In line with the Bilateral Collaborative Agreement 2008/2009 between the Armenian Government and the World Health Organization (WHO) Regional Office for Europe, the WHO is assisting the Government of Armenia to map out, analyze and assess the public health system, leading to strategic decisions to improve health system performance in public health through streamlining, modernizing and upgrading the individual and population-based public health services. For that purpose, the WHO Country Office in Armenia contracted the Center for Health Services Research and Development of the American University of Armenia (CHSR/AUA) to conduct an assessment of public health services in Armenia.

### **Public Health History in Armenia**

Though public health is a modern concept and the term “public health” legally is not defined yet in Armenia, some rudimentary aspects of public health were first introduced into Armenia at least nearly 1,800 years ago<sup>1</sup>. The first leper colony on record in Armenia was established in 260-270 AD. The first hospitals with infectious disease departments in Armenia (“basilica”) were found in Poqr Hayq in the 4<sup>th</sup> century AD. In the 12<sup>th</sup> century AD Mkhitar Heraci wrote the manuscript “Jermac Mkhitarutyun” which included a discourse on the pathology of infectious diseases. A multi-talented Armenian religious leader-patriarch and poet Tootoonji wrote on health hazards of “tootoon” (tobacco) in a poetry piece in the 17<sup>th</sup> century.

In 1922 the first sanitary hygienic and anti-epidemic institutions were established in Armenia. In 1923 the Tropical institute was established which aimed to fight against malaria, protozoa infections, helminthiasis and other infectious diseases. In 1971 the institute was renamed to Research Institute of Epidemiology, Virology and Medical Parasitology. The first sanitary hygienic laboratory was open in 1927 in Yerevan. Yerevan State Medical University established the department of sanitary hygiene in 1932, followed by the departments of epidemiology and parasitology in 1935<sup>1</sup>.

The health care system in Armenia during the Soviet period was highly centralized. During this period, the entire population was provided free access to at least basic health care. Public health

focused on infectious disease control, vaccination, quarantine, sanitary-hygienic, preventive and antiepidemic activities. It also included food safety, occupational health, child and adolescent health<sup>2</sup>.

After Armenia became independent in 1991, the Armenian health care system was dramatically impacted. The economic collapse following the devastating 1988 earthquake and the breakdown of the Soviet Union led to a dysfunctional health care system, which significantly affected public health services. There were significant problems with access to needed care. During this time period, population health indicators significantly declined. Despite severe economic crisis in 1992 the RA Law on Ensuring Population Sanitary-Epidemiological Safety was developed and approved. The Armenian health system transitioned into a period of national reforms in late 1990s that continue today<sup>3</sup>.

### **Objectives of the Study**

The objectives of this assessment are: 1) to map out the history, the evolution and the current designated functions and infrastructures of public health services in Armenia, 2) to review and summarize international public health standards, systems and lessons learned that may be applicable for Armenia, 3) to comprehensively assess the structures and functionalities of public health services in Armenia, and 4) to recommend changes to improve public health services and to introduce potential public health models that may be adaptable for Armenia.

### **Definition of Public Health and Public Health Operations**

Public health (PH) is a discipline concerned about preventing disease and protecting and promoting health through the organized efforts of society<sup>4</sup>. Public health services are delivered to the whole population and to specific population groups both collectively and individually. Among others, PH services include communicable and non-communicable disease surveillance, environmental and occupational health, food safety, emergency preparedness, vaccination and screening programs, health promotion and public education, research, public health administration, injury control, mental health, and development, implementation and evaluation of effective programs and policies. PH focuses on health protection and disease prevention while medical care deals with restoration of health through curative services.

The practice of public health deals with three basic elements: people, information, and financial resources. The parameters that determine the process and the style of practice in public health are the following:<sup>5</sup>

- Public health is *interdisciplinary*. Although some disciplines may be more important for a certain problem context, most public health problems need the inputs of a number of disciplines for a resolution.
- Public health is a *force of change* and public health professional is an *agent of change*.
- *Rewards are long term*. Often the outcomes of public health programs cannot be assessed for several decades. The outcomes for the preventive effort at the population level are to be identified in the long term.
- Public health has primarily a *social concern*. The agenda of public health professional incorporates a number of issues that are rooted primarily in the social and political context.
- Interventions have a *scientific base*. Research information from the field as well as laboratory has formed the basis for public health policy making and intervention.
- Practice is largely limited to the *institutional framework*. Practice in public health is based on team work within the organizational structure which provides the legal framework for the practice, the necessary resources and continuity to the programs.
- *Personal characteristics* of the professional. Being part of a team and accepting to be unknown professional involved in building the future structure of societal health is what is required from the vast majority of public health professionals.

The findings of document review and qualitative research are presented in this report by WHO Europe's core public health operations. The operations and their definitions are the following:<sup>6</sup>

### ***1. Surveillance and assessment of the population's health and wellbeing***

This includes the setup and operation of surveillance systems focused on diseases of public health importance and the ongoing collection of data to be used for assessing measures of morbidity and population health indexes. It includes community health diagnosis, analysis of

trends, gaps and inequalities in the health status of specific populations, identification of needs, and planning of data orientated interventions.

## ***2. Identifying health problems and health hazards in the community***

This includes monitoring, identification and prediction of biological, chemical and physical health risks in the workplace and the environment, application of risk assessment tools for environmental health risks and issuing public warnings about these risks, and the planning and activation of interventions aimed at minimizing environmental related health risks.

## ***3. Preparedness and planning for public health emergencies***

This includes preparedness for management of emergency events, including the construction of suitable action plans, developing systems for data collection and for control and prevention of morbidity during unusual events, and applying an integrative approach in order to cooperate effectively with various authorities involved in the management of unusual events.

## ***4. Health protection operations (environmental, occupational, food safety and others)***

This includes the technical capacity for risk assessments and actions needed for environmental, occupational and food safety. Enforcement and control activities are applied by public health authorities that supervise actions with health implications. This operation includes the institutional capacity to develop the regulatory and enforcement frameworks that protect public health and monitor compliance within these frameworks, and the capacity to generate new laws and regulations aimed at improving public health as well as promoting healthy environments.

## ***5. Disease prevention***

Disease prevention is aimed at both communicable and non-communicable diseases. Disease prevention services include primary prevention through vaccination of children, adults and the elderly, and vaccination or post-exposure prophylaxis for persons exposed to a communicable disease. Disease prevention also includes the provision of information on behavioral and medical health risks to the population as well as consultation and measures to decrease risks at the personal and community level, systems and procedures for involving primary health care and specialized care in programs on disease prevention, the capacity for the production, maintenance

and purchasing childhood and adult vaccines, and production and purchasing nutritional and food supplementation.

Secondary prevention includes evidence-based screening programs for early detection of diseases, maternal and child health programs including screening and prevention of congenital malformations, the production and purchasing of chemo-prophylactic agents, the production and purchasing of screening tests for the early detection of diseases, and building capacity in relation to actual or potential needs.

### ***6. Health promotion***

Health Promotion is the process of enabling people to increase control over their health and its determinants, and thereby improve it. It contributes to the control of communicable and non-communicable diseases and other threats to health. Health promotion includes the following activities: 1) the promotion of changes in lifestyle, practices and environmental conditions to facilitate the development of a culture of health among individuals and the community, 2) the educational and social communications aimed at promoting healthy conditions, lifestyles, behaviors and environments, 3) the reorientation of health services to develop models of care that encourage health promotion, 4) the strengthening inter-sectorial partnerships for more effective health promotion activities, 5) the assessment of the impact of public policies on health, and 6) risk communication. The means of achieving this include conducting health promotion activities for the community-at-large or for populations at increased risk of negative health outcomes.

### ***7. Evaluation of quality and effectiveness of personal and community health services***

This includes developing standards for ensuring the quality of personal and community health services for disease prevention and health promotion, and evaluation of these services based on these standards. Evaluation should identify weaknesses in governance and operation, resources provision and the delivery of services. Findings of the evaluations provide feedback for policy and management, organization and provision of resources to improve service delivery.

***8. Assuring a competent public health and personal health care workforce***

Investment in and development of a public health workforce is an essential prerequisite for delivery and implementation of public health services and activities. Human resources constitute the most important resource in delivering PHS. This includes the education, training, development and evaluation of the public health workforce, to identify the needs of public health services to address public health problems and to evaluate public health activities. Licensing procedures for public health professionals assures a qualified workforce.

***9. Leadership, governance and the initiation, development and planning of public health policy***

Policy development enables informed decisions to be made concerning issues related to public health. It is a strategic planning process involving all internal and external stakeholders, defining the vision, the mission, the measurable health goals and the public health activities internationally, nationally, regionally and locally.

***10. Health related research***

Research informs policy development and service delivery. This includes research for enlarging the knowledge base that supports evidence-based policy making at all levels, the development of new research methods, innovative technologies and solutions in public health, and the establishment of collaborative research centers and academic institutions to conduct timely studies that support decision-making.

## **SITUATIONAL ANALYSIS**

### **Health Care System of Armenia**

#### ***Organizational structure***

The health care system in Armenia has three organizational levels: national, regional and community levels (see Appendix 1 for details on the Health Care System in Armenia)<sup>7</sup>. The regulation and planning of the Armenian health care system is mainly executed on the national level. The country lacks a unified systematic quality assurance mechanism. Institutions providing health care services belong to either public or private sectors<sup>7</sup>.

#### ***Financing***

Financial resources for the health care system in Armenia are coming from the state budget, direct out-of-pocket payments, and international resources such as humanitarian donations and project-specific funding<sup>7</sup>. The current state funding is estimated to be one fifth of total health expenditures.

#### ***Human resources***

The Yerevan State Medical University and four other private schools provide undergraduate/graduate medical training in Armenia. The National Institute of Health and YSMU provide postgraduate education of medical specialists and family physicians<sup>7</sup>.

#### ***Health care reforms***

Health care reform activities [since 1997] in Armenia included: 1) decentralization, including devolution and privatization, 2) implementation of new health care financing approaches, and 3) optimization of the effectiveness of the health care system. The decentralization process has been moving the responsibilities of health services provision from the central national government to the regional governments, shifting financial responsibilities from the governmental to facility level, as well as privatization of health care facilities including dental and pharmaceutical. Health financing reforms included development of the Basic Benefit Package, introduction of National Health Accounts, and some changes in facility and provider payment mechanisms<sup>7</sup>. The primary health care and maternal and child services also went through reforms<sup>79</sup>.

## **Public Health Services in Armenia**

### ***Surveillance and assessment of the population's health and well being***

According to its statute, the State Hygiene and Antiepidemic Inspectorate (SHAI) of the Ministry of Health is performing surveillance and data collected during this surveillance is analyzed and sent to marz structures<sup>45</sup>. The data about infectious diseases is presented to Newly Independent States and Iran. The summary data based on the administrative reporting is presented to the National Statistical Service (NSS) which officially publishes the data<sup>45</sup>. The NSS official publications that contain health statistical information include the *Statistical Yearbooks of Armenia* (published annually), the *Social Snapshot* and the *Poverty in Armenia* (published annually), “*Health and Health Care of Armenia*” *Annual Statistical Report*, and the *Demographic Health Survey* (conducted in 2000 and 2005) and “*The Social-Economic Situation of RR*” *Annual Report*<sup>12</sup>.

SHAI also presents summary data to the National Health Information-Analytic Center of the National Institute of Health (NHIAC of NIH) which was established in 1996 by government decision and re-established according to the Government Decision No 1747à and the order of the Minister of Health No 1095a in 2005<sup>8,9</sup>. NHIAC official website lists the following activities: collection and analysis of the State Medical Statistics and medical-sanitary information from health care facilities, collection and analysis of health indicators, assessment and forecasting of the population health status, monitoring of services and recourses and publishing. The Center consists of eight departments. The information-statistical network of health system consists of all health care facilities. Head unit is located in the National Institute of Health and is connected with Regional Health Information Statistical Centers in 10 marzes<sup>8,10</sup>.

### ***Identifying health problems and health hazards in the community***

In 2001, the Ministry of Health, with the support of WHO European office, developed the National Surveillance Standards for Infectious Diseases which was implemented by SHAI. To anchor this system, different international organizations provided equipment<sup>7</sup>. SHAI marz structures work with local government to conducts health activities and programs<sup>45</sup>.

The *National TB Program in Armenia* provides a national infrastructure for TB control through decentralization of TB services and integration of these services with primary health care by establishing TB cabinets in polyclinics. Most recent successes in TB control occurred when the government's national TB expertise was enhanced by the international TB control experiences through collaboration with international organizations<sup>13</sup>. However, there are number of shortcomings in the TB control system that need to be addressed in the near future<sup>13</sup>.

The *National Center for AIDS Prevention* of the Ministry of Health was established in November of 1989<sup>14</sup>. The Law about Prevention of Disease caused by Human Immunodeficiency Virus (HIV) of February 3, 1997 defines procedures for the prevention, diagnosis and control of HIV/AIDS<sup>15</sup>. Additional legislative updates took place in 2002 and 2007. The main activities of the National Centre for AIDS Prevention include information/education activities, training personnel, research activities, providing counseling, laboratory diagnostics and medical care (AIDS center). All physicians are mandated to notify the authorities about new case of HIV/AIDS<sup>7</sup>.

Armenia was the first of the former soviet countries to join the World Health Organization Framework Convention on *Tobacco Control*. The accession to the Convention was followed by the adoption of the national law on tobacco control, the approval of the state tobacco control program, as well as allocation from the state budget to support the implementation of the tobacco control program<sup>16</sup>. These are significant steps forward; however, there is a significant room for improvement of the effectiveness of the tobacco control efforts in Armenia<sup>16</sup>.

The Ministry of Nature Protection was established by Decision No 1237-N of the Government of Armenia on the 26 of August 2002<sup>17</sup>. The core public health functions of the Ministry of Nature Protection include environmental safety, environmental monitoring, and control and assessment of the impact of environmental hazards<sup>18</sup>. The Ministry of Nature Protection meets these needs through the Ministry's Central Unit's oversight of its different agencies and inspectorate, while collaborating with non-governmental and State non-commercial organizations. The Ministry's primary PH related responsibilities include quality control of air, soil and surface water; state environmental monitoring; state expertise of the impact on the environment; setting maximum permissible levels for water pollutants and setting qualitative and quantitative standards for the

maximum permissible levels for waste water according to the national water program; state registration and setting normative for air pollutants, expertise of hazardous industrial institutions for safety of and other<sup>19</sup>.

The Ministry of Agriculture is the primary state body responsible for food control in Armenia since 2006; however, some food control functions remain the responsibility of the Ministry of Health, including sanitary physical conditions in the chain of food production, storage, transportation and marketing, as well as developing regulations and implementing actions to prevent food-borne and nutrition-related diseases<sup>20</sup>.

The scope of public health functions of the Ministry of Agriculture includes agricultural processing and food safety, and veterinary control; the Ministry performs these functions through its Agro-processing and Food Safety Department, Licensing Department and the State Food Safety and Veterinary Inspection<sup>21</sup>.

The Agro-processing and Food Safety Department supports the agro-processing industry through participating in policy development and supporting the procurement of agro-cultural raw materials for processing<sup>22</sup>.

The primary functions of the Licensing Department include the licensing of livestock breeding, the production of veterinary medications, and the licensing of the chemical and biological applications for plant protection<sup>23</sup>.

On the 28<sup>th</sup> of December 2006, the Decree of the RA Government No 1898 established the State Food Safety and Veterinary Inspection Service of the Ministry of Agriculture. The State Food Safety and Veterinary Inspection is composed of the following administrative units and marz authorities: the department of animal disease inspection and analysis, the department of food safety, the department of inspection of food raw material, veterinary pharmaceutical products and animal feed, the department of legal services, the management department of border veterinary inspection posts, the eight border veterinary inspection posts of the food safety and

veterinary state inspection, and the 11 marz inspection departments of food safety and veterinary state inspection service<sup>21</sup>.

The primary responsibility of the inspection service is to prevent the spread of contagious animal diseases common to animals and humans. It regulates the import, export, transit, production, storage, processing, transportation, and marketing of pet, domestic, exotic and wild animals, food and raw products of animal origin, animal food, food additives, and veterinary pharmaceutical products<sup>21</sup>.

### ***Preparedness and planning for public health emergencies***

On July 8 of 2005 a law established the *Armenian Rescue Service* of the Ministry of Emergency Situations as the coordinating authority for emergencies and civil defense<sup>24</sup>. The primary public health tasks of the Armenian Rescue Service include the rescuing and maintenance of the lives and health of the population in emergencies (including war), the organization and implementation of rescue services, the destruction or strengthening of dangerous buildings and firefighting, the prevention of emergency situations, the establishment, accumulation and utilization of financial, food and medical resources, and organizing informational-educational campaigns for population protection in emergencies<sup>25</sup>.

According to its statute, the SHAI is responsible for prevention and control of epidemics, emergencies due to chemical and radiological factors and it participates in management of these situations in the scope of its responsibilities<sup>45</sup>. The Strategic Paper on the Implementation of the International Health Regulations presents capacity assessment and development of activities for the emergency situations due to biological, chemical and radiological agents, particularly development of response programs in case of chemical and biological emergencies, development of a program for human resource capacity building during emergencies, prevention and response to emergencies on the borders, and capacity building in responding to biological and chemical emergencies<sup>80</sup>.

*The Centre for Prevention of Special Dangerous Infectious Diseases (CPSDID)* of the Ministry of Health (formerly called the *Anti plague Station*) gets involved in preparedness and response to

emergency situations due to especially dangerous pathogens. It is a state non-commercial organization which has a central office in Yerevan and three regional branches in Gyumri, Kapan and Martuni. The CPSDID is responsible for prevention and control of outbreaks of especially dangerous infectious diseases such as plague, cholera, and tularemia. The Centre runs regional laboratories, mobile seasonal epidemiological units, and autonomous zoonotic disease groups.

The Centre conducts the following activities:

- epizootiological studies within the territory of Armenia
- epidemiological surveillance of the population, based on a recommendation from the SHAI, in enzootic regions for human index cases
- prevention activities in the enzootic areas for plague

In 2001, the prion diseases detection laboratory was established in the Centre<sup>26</sup>.

In January 19 of 2006, Decision N 480-N approved the implementation of the National Program to Fight Highly Pathogenic Avian Influenza Outbreak<sup>27</sup>. The program was complemented with a new attachment about the “Guideline for information exchange between the RA Ministry of Health, RA Ministry of Agriculture, and RA Ministry of Nature Protection about diseases common for animals and humans” which emphasizes the importance of integrated data management and surveillance<sup>79</sup>. In 2007, the Republic of Armenia was awarded a World Bank grant for the Avian Influenza Preparedness Project to integrate human and animal interventions through improving veterinary and human health services<sup>28</sup>. Other support for the government’s efforts against Avian influenza is being provided by USAID, bilateral donors, multilateral agencies, and UN organizations such as FAO and WHO<sup>28</sup>. Efforts include national preparedness and strategy development to build capacity for policymakers across multiple sectors: to strengthen communications and coordinate roles, responsibilities and actions for avian influenza outbreaks within and between the countries, to conduct tabletop simulations, to strengthen human health surveillance, to develop infection control protocols, to train journalists for more accurate report on avian influenza, to ensure diagnostic and outbreak response capacity in the country, and to train public health officials, veterinarians, epidemiologists and laboratory diagnosticians on surveillance methodology, virus detection, diagnostic technologies, and sample-shipping procedures<sup>29</sup>.

***Health protection operations (environmental, occupational, food safety and others)***

Health protection in the Republic of Armenia is coded in different laws, decrees and decisions. Three major legislative documents related to population health are the Law on Population Health Care and Services Provision of 04 March 1996, the RA Law on Ensuring Population Sanitary-Epidemiological Safety of 16 November 1992, and the not yet ratified draft Law on Public Health Safety.

The Law of the Republic of Armenia on Population Health Care and Services Provision regulates and maintains health safety through the organization of health care services and financial structures<sup>30</sup>.

The Law of the Republic of Armenia on Ensuring Population Sanitary-Epidemiological Safety regulates the legislative, economic and organizational structures for population safety, as well as planning governmental guarantees toward elimination of the harmful and hazardous impact of the environment on the human health and ensures safe surrounding for individuals and their generations<sup>31</sup>.

The draft Law of the Republic of Armenia on Public Health Safety “regulates social relations with respect to public health protection and defines the principles of government policy on public health safety, human rights in the field of public health safety, as well as the organizational, economic, legal and financial foundations of public health safety. The law stipulates the guarantees envisaged by the state to preclude the negative health impact of harmful and hazardous environmental factors and ensure favorable conditions for the vitality of individuals and their progeny”<sup>32</sup>. However, this draft law is not yet ratified by the government and should be improved according to the WHO recommendations on 28 July 2008<sup>33</sup>.

*GOST* (Gosstandard) is a set of technical standards established by the Euro-Asian Council for Standardization, Metrology and Certification (EASC). These were originally developed by the Soviet Union to establish national standards. Armenia has adopted GOST standards in addition to its own nationally-developed standards<sup>34</sup>. The first Standards Bureau in Armenia was established in 1931 as a branch of the former Gosstandard system. It conducts activities in

standardization, calibration of measuring devices and applied metrology. The Armstandard institute was established in 1998; in 2004, this institute was reorganized as the National Institute of Standards. The National Institute of Standards (SARM) is a closed joint-stock company operating under the Ministry of Trade and Economic Development. Activities for standardization and assessment are conducted according to the laws "On Standardization" adopted by the Parliament in 1999 and amended in 2004, and "On Conformity Assessment" adopted by the Parliament in 2004. According to the law "On Standardization" most of the national standards are voluntary, some have mandatory requirements. The National Institute of Standards is a member body of ISO since 1996<sup>35</sup>.

The State Hygiene and Anti-epidemic Inspectorate of the MOH, according to the 23 May 2006 government Decision Number 458-N "The rules of registration and screenings of professional diseases (poisonings), accidents and the approval of the list of professional diseases (poisonings)" was designated with responsibilities for occupational disease and work safety, with specifically-defined regulations and sanctions for violations to encourage safe work environments<sup>14</sup>.

Some legal acts were approved in the country regarding the implementation of International Health Regulations which identify the timeframe for implementing the International Health Regulations, establish the coordinating body which is the MOH, set the implementation strategy and action plan, the national expertise group to support other countries<sup>81</sup>: The Implementation Strategy of the International Health Regulations includes the evaluation and situational analysis of the capacities to control infectious diseases, the capacities and situational analysis to control chemical and radiological hazards, major laboratory capacities, the main capacities and situational analysis to control biological, chemical and radiological hazards in airports and land border points, the capacities to respond to emergency situations due to chemical and radiological hazards<sup>80</sup>.

### ***Disease prevention and health promotion***

Preventive services in public health are conducted mainly through health promotion and immunization programs by the State Hygiene and Anti-epidemic Inspectorate of the MOH

(according to its statute and the RA Law on Ensuring Population Sanitary-Epidemiological Safety of 16 November 1992) and within primary health care services<sup>7</sup>. Disease prevention and health promotion activities are also conducted by the Primary Health Care Development Program (AHCDP), with other supportive efforts in this area being provided by donors, multilateral agencies, and NGOs. The Primary Health Care Development Program is shifting the health care system from the former ambulatory-polyclinic system to family medicine practice, to improve accessibility, quality and sustainability of health care services, especially for vulnerable populations<sup>36</sup>. The health care providers (family doctors and family nurses) are receiving education, resident training and additional training by the Basic Medical College (BMC), YSMU, and the NIH, in health promotion and disease prevention skills<sup>37</sup>.

The Ministry of Health is responsible for immunization programs which are conducted by nurses following the immunization national calendar<sup>7</sup>. The RA Government Decision N 2119-N of November 9 of 2005 defines the RA immunization program, the list of activities for immunization, the composition of the coordinating national committee and the immunization calendar<sup>81</sup>: The Ministry of Health also has the “Consulting Committee about Immunization” and the “National Certification Committee to Maintain “Poliomyelitis Free” status”<sup>79</sup>. By the Decision of the Ministry of Health No 1275-A of September 8, 2008, the *Guideline for Implementing National Days of Vaccination against Poliomyelitis* established the time periods September 22-26 and October 27-31 as national vaccination days<sup>38</sup>.

The police of the Republic of Armenia shares responsibilities for protecting the public health. According to the 16 April 2001 law “About Police”, the protection of life and health of the individual is the first objective of the Police functions and injury prevention and health promotion is included in the Police annually-planned activities. Such activities are conducted through mass media campaigns and collaborative projects with the MOH in kindergartens, schools and summer camps<sup>39</sup>. Activities are being conducted to adopt the “RA National Strategy for Traffic Safety” which will improve intersectorial collaboration and implementation of complex activities.

Based on the Decision Number 637-A/Q of July 31 of 2008, the Ministry of Education and Science approved the *Healthy Lifestyle* educational program for integration into the school curricula of the 8<sup>th</sup> and 9<sup>th</sup> grades<sup>40</sup>, offered for 14 hours each school year. Healthy Lifestyle course covers measures for health protection, disease prevention (such as HIV/AIDS, sexually transmitted diseases), consequences of behaviors such as smoking, alcohol and drugs, and environment<sup>41</sup>.

### ***Evaluation of quality and effectiveness of personal and community health services***

According to the Law on Population Health Care and Services Provision of 04 March 1996 concerning the Rights and Responsibilities of Health Care and Services Providers and the Law on Licensing<sup>40</sup>, as well as Government Decisions No 867 of 29 June 2002, No1936-N of 5 December 2002 and No 1662-N of 17 October 2002<sup>14</sup>, health care services in Armenia can only be provided by licensed specialists with the relevant education and qualifications who has passed the mandatory physicians' training required every five years; NIH and/or YSMU provide these trainings<sup>30</sup>.

Quality standards and a three-level quality control system are defined for Primary Health Care in Armenia<sup>81</sup>.

The Primary Health Care Reform (PHCR) project administered by the Emerging Markets Group, the Project NOVA, and the Armenia Health System Modernization Project (AHSMP), work under the supervision of the Ministry of Health to ensure projects' sustainability and have their monitoring and evaluation components. For evaluating health sector performance, core monitoring instruments have been developed within each project that include household surveys, primary health care provider and patient satisfaction surveys, marz health facilities data, family physicians and nurses knowledge assessments, and others<sup>36</sup>. The PHCR and NOVA projects were designed to enhance the quality and effectiveness of personal and community health services by improving the performance of healthcare workers, providing basic clinical materials and supplies, renovating healthcare facilities, and mobilizing and educating rural communities.

### ***Assuring a competent public health and personal health care workforce***

The only state accredited higher education institution that provides medical undergraduate/graduate, postgraduate and continuing medical education is the Yerevan State Medical University<sup>40,43</sup>. The accredited non-state universities that provide medical education in Armenia include the Yerevan Traditional Medicine University (accredited specialties – general medicine and dentistry), the Yerevan Haybusak University (accredited specialties – dentistry, general medicine and pharmaceuticals), the Yerevan Medical University after St.Teresa (accredited specialties – management in social science and dentistry), and the Amirdovlat Amasiatsi Medical Institute (accredited specialty - dentistry) (MOH, list). All these medical educational institutions are under the jurisdiction of the Ministry of Education and Science. All institutions that have the faculty of general medicine provide the courses of Social Medicine, Epidemiology and Hygiene in their curriculums<sup>40</sup>.

Educational institutions that provide training for mid level health specializations such as nursing and midwives include the Yerevan State Basic Medical College, the Yerevan Erebuni Medical College and nine State Medical Colleges in the marzes. These institutions are under jurisdiction of the Ministry of Health. In addition, eight accredited non-state institutions and four more non-accredited non-state institutions provide training in mid level medical specializations (nursing, pharmaceuticals, obstetrics and dental techniques)<sup>40</sup>.

The Department of Public Health of the National Institute of Health provides post-diploma education in epidemiology and hygiene<sup>8,40</sup>. The College of Health Sciences of the American University of Armenia has the Masters of Public Health program (affiliated with Johns Hopkins Bloomberg School of Public Health). The Master of Public Health (MPH) Program provides experienced health professionals a thorough grounding in population-based approaches to health sector problem identification, investigation, analysis, and managed response. The overall objective of the MPH Program is to prepare health professionals to draw on the knowledge and skills from a variety of disciplines to define, critically assess, and resolve problems affecting the public's health. Thus, the intensive, modular curriculum emphasizes basic public health sciences and essential managerial and analytic skills including project planning and evaluation,

epidemiologic investigation, understanding complex determinants of health, effective communication to professional and lay audiences, and leadership<sup>44</sup>.

***Leadership, governance and the initiation, development and planning of public health policy***

The Ministry of Health (MOH) of the Republic of Armenia is a national agency of state governance that develops and implements health care policy. The MOH develops and implements policies and programs to optimize health service provision, health care protection and health care improvement for all the groups of population<sup>14</sup>. The functions of MOH in public health include: 1) development and implementation of quality measures and indicators, 2) quality assurance and licensing, 3) health reforms including development and implementation of policies to introduce advanced science, new technologies and equipment, 4) dissemination of information, education and communications with and for the general population, 5) development and implementation of programs for mother and child health care, 6) health care interventions for the general population during emergencies, 7) development and implementation of programs for specialized and continuing education of medical personnel, 8) surveillance, and 9) sanitary and anti-epidemic control through the State Hygiene and Anti-epidemic Inspectorate<sup>14</sup>.

Since 2002, the *State Hygiene and Anti-epidemic Inspectorate* (SHAI) of the Ministry of Health has been responsible for sanitary and epidemiological services which are currently regulated by the 1992 law<sup>7</sup>. The SHAI Central Office includes the Department of Communicable and Non-communicable Diseases Epidemiology, the Department of Hygiene of Children and Adolescents, the Department of Environment and Communal (public) Hygiene, the Department of Nutrition and Food Safety, the Department of Work Hygiene and Radiation Safety, the Department for Management of Documentation Flow and Legal Provision, and the Department of Information and Statistics<sup>45</sup>. The Regional Centers include 10 SHAI Marz Centers, seven Regional Centers in Yerevan, seven Sanitary Quarantine Sites, a Center for the Air and Railroad Transportation, and a Center for the Armenian Nuclear Power Station<sup>45</sup>. Ten marz and six Yerevan city State Non-commercial Organization Expertise Centers are also under SHAI jurisdiction<sup>82</sup>.

According to the Government Decision No 1316-N, the SHAI is responsible for the following functions<sup>45</sup>:

- establishing and maintaining hygiene and anti-epidemic inspection in Armenia,
- sampling air, water, soil, food and other products for hygiene and laboratory testing
- conducting hygiene expert examinations and providing results to organizations, institutions and individuals
- conducting public education, information and communication campaigns for the general population and for specific groups
- providing recommendations and developing regulations to guarantee the sanitary-epidemiological safety of the population
- protecting the population from environmental hazards
- imposing sanctions according to the RA Code of Administrative Violations.

The functions of Expertise Centers include: assure sanitary-epidemic safety, expertise investigations, assessments, laboratory investigations, instrumental measurements, measurements and preventive activities on bacteriological, parasite, radiation and chemical contamination<sup>82</sup>.

The Ministry of Agriculture (MOA) of the Republic of Armenia is a national agency of state governance that implements government policies in agriculture and forestry. The public health functions of the Ministry of Agriculture include agricultural processing and food safety, and animal disease prevention, treatment and control<sup>21</sup>.

*State Inspectorate of Food Safety and Veterinary Services* of the Ministry of Agriculture implements and maintains prevention activities for the spread of contagious animal diseases common to animals and humans, regulates import, export and transit of animals, insects, food and raw products of animal origin, animal feed, feed additives and veterinary pharmaceutical products, and conducts sanitary inspection of food, animal feed, animal feed additives and veterinary medicinal products from production to marketing. Inspection powers are provided in accordance with the laws covering food safety and veterinary medicine<sup>21,46,47</sup>. USAID, the World Bank, the FAO, and the TACIS Programme of the European Commission support the activities of the State Inspectorate of Food Safety and Veterinary Services<sup>21</sup>.

The Ministry of Nature Protection (MONP) is a national agency of state governance which elaborates and implements government policies in environmental protection and sustainable use

of natural resources. The Ministry's Environmental Protection department conducts relevant public health activities through its monitoring of environmental and natural resources pollution and providing statistical reports on air, water and soil contamination<sup>18,19</sup>. The State Environmental Inspectorate has control functions and responsibilities in nature protection, in use and reproduction of natural resources<sup>19</sup>.

The Ministry of Labor and Social Affairs (MOLSA) is a national agency of state governance that develops and implements government policies on labor and social affairs<sup>48</sup>. The public health functions of the Ministry of Labor and Social Affairs are as follows:

- developing recommendations with follow-up implementation and monitoring for optimizing compensation for occupational diseases
- organizing medical examinations for citizens
- developing and implementing medical, vocational and psychological rehabilitation programs for disabled people
- providing equipment (such as prosthetics) to meet the needs of disabled persons
- providing medical care in specialized institutions and at homes for isolated elderly and disabled persons
- developing recommendations for legislation covering the social security of disabled persons and the elderly, with follow-up implementation and monitoring
- organizing care and education of orphaned children in specialized institutions.

The Ministry of Emergency Situations is an executive authority vested with developing, implementing and coordinating government policy in civil defense and the protection of the population in emergencies<sup>25,49</sup>. Their PH functions include preventing death, injury, disease and reducing severity of injury and disease during emergencies. The Ministry's Armenian Rescue Service and National Seismic Protection Service Agency is central to public health services during emergencies. The law on the Armenian Rescue Service regulates activities during emergencies and for civil defense<sup>24</sup>.

The Ministry of Education and Science (MOES) is a national agency of state governance that develops and implements government policies for education and science<sup>40</sup>. All undergraduate

and graduate universities, including those that provide medical education, are under the jurisdiction of the Ministry of Education and Science (see section *Assuring a competent public health and personal health care workforce* for more details). By the President Decree NH 174-N of October 1 of 2007, the State Science Committee of the MOES of RA was established to develop and implement government policy in science<sup>50</sup>.

The Ministry of Justice (MOJ) is a national agency of state governance that develops and implements government policies on justice. The public health related functions within this Ministry include assuring the health and safety of detainees, convicts and the staff of the prisons. The Criminal Executive Administration subdivision of the Ministry is responsible for the above mentioned functions<sup>51</sup>.

The Ministry of Transport and Communication (MOTC) is a national agency that develops and implements government policy in transport, communication and information. The public health related functions of this Ministry include the coordination of networks of communication and information during emergency situations and the surveillance of railroad and car accidents<sup>52</sup>.

The State Committee of Water Resources is a separate state agency under the Ministry of Territorial Administration that develops and implements RA Government policies about management and use of the state owned national water systems<sup>83</sup>.

The Committee Regulating Public Services grants permissions for the following services: drinking water supply, water collection and waste water treatment, and irrigation water supply<sup>84</sup>.

Some Adjunct Bodies of the Government of Armenia also has public health functions. The RA State Nuclear Safety Regulatory Committee by the Government implements State regulation in the use of atomic energy to assure the safety of the population and nuclear personnel, environmental protection and to promote Republic of Armenia's security interests<sup>83</sup>.

### ***Health related research***

Public Health research in the country is conducted in five educational and research institutions, which include:

The Yerevan State Medical University's (YSMU) Central Scientific Research Laboratory of the Specialized Scientific Department (CSRL) was established in 1964. In 1992, the CSRL was re-arranged as the Scientific-Research Center (SRC) that currently functions as an independent subdivision. According to the official website of the YSMU, the main task of the Scientific-Research Center is to perform independent and comprehensive studies jointly with the Chairs of the University (according to the scope of research assigned to Chairs and approved), including provision of scientific, advisory and practical assistance to Chair members carrying out fragments of their research on PhD and Doctoral dissertations on the base of the Scientific-Research Center<sup>43</sup>.

The National Institute of Health (NIH), established in 1963 is an autonomous organization supported and financed by the Ministry of Health with the mission “to improve the health of the population by providing a high level of postgraduate professional and academic training, and health research.” The institute provides one-year training program to encourage young medical professionals to follow a career in academic research<sup>8</sup>.

The Yerevan State University's (YSU) Department of Biology, established in 1933, currently has eight chairs and scientific-research groups that conduct research in five scientific-research laboratories including General Biology, Biochemistry of Nitrogen Compounds, Biology and Biotechnology of Fungi, Biophysics of Subcellular Structures and a joint laboratory with the YSU Department of Physics on Structural Biophysics: the General Biology, Biology and Biotechnology of Fungi labs also work on food safety<sup>53</sup>.

The Armenian State Agrarian University (ASAU) Department of Veterinary Medicine and Animal Husbandry conducts research within the context of their educational programs and their practical work and includes areas such as 1) veterinary sanitation expertise of meat and meat products and slaughter of animals with parasitical diseases, 2) the impact of environmental

factors on the natural resistance of farm animals, and 3) the improvement of general sanitary conditions for cattle-breeding and processing enterprises<sup>54</sup>.

The American University of Armenia (AUA) College of Health Sciences conducts PH research. The College of Health Sciences was established in 1995 and houses the Master of Public Health (MPH) Program and the Center for Health Services Research and Development (CHSR). It is a US accredited institution affiliated with the Johns Hopkins Bloomberg School of Public Health and the curriculum follows an American model adapted for the regional context. The CHSR ([www.auachsr.com](http://www.auachsr.com)) is a well-established, regionally recognized center of excellence for health services research and development activities. CHSR has expertise in quantitative and qualitative research, health system assessments, program monitoring and evaluation, and planning, implementation and management of applied projects<sup>55</sup>.

## **METHODS**

### **Document Review**

The main objective of the *document review* was to map out and analyze the current public health services on paper. The situational analysis was conducted through a review of existing official documents, studies, assessments, publications and websites, with a synthesis of relevant information associated with public health services in Armenia<sup>\*</sup>. This analysis included a summary review of the health care system and the public health services based on the WHO European core operations.

### **Qualitative Analysis**

The main objective of the *qualitative stakeholder analysis* was to evaluate 1) different stakeholders' capacity in Public Health and 2) potential capacity for the future restructuring and modernization of PH services in Armenia. Legal review was not among the objectives of this study.

### **Study Design**

The CHSR/AUA developed and implemented rigorous qualitative study (*focus groups and systematic semi-structured in-depth interviews*) to assess the structure and functioning of public health services in Armenia on paper and in real life, to understand the roles, responsibilities and rights of major stakeholders (see Appendix 2 for details on the qualitative research methods)<sup>56-59</sup>. Because of the broad nature of Public Health (PH) and the numerous stakeholder groups (ministries, institutions, agencies and organizations responsible for different aspects of PH in Armenia), this research was conducted to achieve comprehensive coverage for a complete profile of these services.

Comprehensive and rigorous assessment methodologies were applied to diverse sectors, different levels and divergent operations in PH administration and services. The assessment covered the *WHO Europe's core public health operations*, along with a few additional areas.

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<sup>\*</sup> It is worth mentioning that the Government of Armenia approved the Strategy for Implementing International Health Regulations after this assessment was completed (October 28, 2009) that is why this report does not comprehensively cover that Strategy.

## **Study Participants**

### ***Selection of participants***

The CHSR/AUA identified key-informants to provide important information for the assessment, based on their experience and expertise in Public Health. Participants at all levels of PH operations as well as the general population were included in the study to provide a comprehensive and broad profile of PH services in Armenia. For this comprehensive coverage, representatives of seven Ministries and their agencies, various other government agencies and departments, numerous educational and service institutions, international organizations and NGOs participated in the study (detailed in following sections).

In addition to the multiple levels and types of services covered by the study, consumers and beneficiaries of PH services were also selected. Finally, those professionals who have received graduate training in PH were also included in the study. In total 179 people participated in the study.

### ***Semi-structured in-depth interviews***

Forty-seven participants were recruited for in-depth interviews; these interviews were conducted from January-May 2009. The in-depth interview key-informants included professionals from the Parliament, the Central Offices of the Ministries of Health, Nature Protection, Agriculture, Labour and Social Affairs, Emergency Situations, Education and Science, and Justice; the State Hygiene and Anti-epidemic Inspectorate (Central and District Centers in Yerevan and marzes), the State Food Safety and Veterinary Inspection, the Environmental Monitoring Center, the Yerevan State Medical University, the National Institute of Health, the Armenian State Agrarian University, the Basic Nursing College, the Department of Health and Social Security of Yerevan and marzes, the National Statistical Service, the Center of Especially Dangerous Diseases, the Police, laboratories, and mental health services. In addition, representatives of institutions that are inspected by the Ministry of Health (MOH) and/or the Ministry of Agriculture (MOA) such as pharmacies, a dental office, a consumable products company, a school and a kindergarten were also included. Out of the fifty in-depth interview invitations, there were three refusals to participate.

### ***Focus groups***

The CHSR/AUA research team recruited participants for 18 focus group discussions (FGD) with professionals from different PH fields and the general population from January-June 2009. The total number of focus group participants was 132, with an average number of seven participants per focus group discussion.

The FGD participants included specialists from the State Hygiene and Anti-epidemic Inspectorate of MOH (Central and District Centers in Yerevan and marzes), the State Food Safety and Veterinary Inspection of MOA (District Center in Yerevan), the Departments of Health and Social Security of six marzes, primary health care physicians (family physicians and pediatricians), professionals from international organizations (WHO, PHCR Project, Jinishian Memorial Foundation, Children of Armenia Fund, UNAIDS, UNFPA, Project NOVA, UMCOR and International Committee of the Red Cross (ICRC)), specialists from local NGOs, professionals with graduate degrees in public health, laboratory specialists from Yerevan and marzes, professors from the Yerevan State Medical University (Departments of Public Health, Epidemiology, Hygiene, and Social Medicine) and the general population from Yerevan, Yeghegnadzor (town), and Mastara and Chkalovka villages.

## **Research Instruments**

### ***In-depth interviews***

The semi-structured in-depth interview guides were developed based on standardized qualitative research methods and the WHO Self-assessment Tool for Evaluation of Public Health Services in Europe. The guides were designed to optimize and maximize the value of the data collected to meet the objectives of this study; to achieve this goal some of the questions in each in-depth interview guide were adapted to the specific participant's roles/responsibilities and experience in PH<sup>59</sup>. Moreover, each in-depth interview guide was progressively adapted, based on the cumulative information gathered in previous focus groups and in-depth interviews.

### ***Focus groups***

The CHSR/AUA research team developed focus group discussion guides based on standardized qualitative research methods and the WHO Self-assessment Tool for Evaluation of Public Health

Services in Europe. These guides were also designed to optimize and maximize the value of the data collected to meet the objectives of this study; to achieve this goal each guide was adapted to the specific make up of each focus group<sup>60</sup>. FGD guides were also progressively adapted, based on the cumulative information gathered in previous focus groups and in-depth interviews. A demographic form was also developed for completion by participants.

All guides were first developed in English and then translated by the research team into Armenian. Examples of focus group discussion guides and in-depth interview guides are provided in Appendix 3.

### **Data Collection and Analysis**

The field work took place from January to June 2009. Overall, the CHSR/AUA research team recruited 179 participants: 47 in-depth interviews and 18 FGDs with 132 participants. The mean duration for in-depth interviews was 42 minutes and for FGDs 87 minutes. The professional CHSR/AUA qualitative research team conducted all in-depth interviews and focus group discussions. Each focus group had a professionally trained moderator and a note-taker. For each in-depth interview there was both an interviewer and a note-taker or an interviewer only. These roles were rotated among the CHSR/AUA research team members. All focus groups and in-depth interviews were conducted in Armenian and transcribed in English.

After data collection, CHSR/AUA team analyzed the in-depth interview and focus group transcripts according to a pre-developed coding system<sup>61</sup>. The coding system included domains provided by WHO Europe's core public health operations and additional domains adapted to the Armenian situation. These domains are 0) perception of public health services, 1) surveillance and assessment of the population's health and well being, 2) identifying health problems and health hazards in the community, 3) health protection, 4) preparedness and planning of public health emergencies, 5) disease prevention and health promotion, 6) evaluation of quality and effectiveness of personal and community health services, 7) assuring a competent public health and personal health care workforce, 8) leadership, governance and the initiation, development and planning of public health policy, 9) health related research, 10) other issues, and 11) the structure and provision of PH services and participant recommendations for future improvement.

## **Categorization of Study Participants**

The analysis section of this study was based on the results from professional judgments and perspectives from the general population derived from in-depth interviews and focus group discussions. The direct quotes (translated as needed) provided in the boxes in this section are abstracted from both in-depth interviews and focus group discussions. Study participants were categorized into 10 groups: 1) population, 2) consumer, 3) local NGO, 4) international organization, 5) PHC, 6) laboratory, 7) mental health, 8) specialized education, 9) government-policy, and 10) government-implementation.

The categories were defined as follows. *Population* included people from the general population from both urban and rural areas. People were excluded from these focus groups if they were physicians, nurses and those persons who had public health education and professional experience. *Consumer* was a person who worked at a facility inspected by government inspection services: these facilities included a dental office, a kindergarten, a school, pharmacies and a consumable product company. *Local NGO* included participants working in the local NGOs that had projects providing public health services. *International organization* included people working in international organizations that had projects providing public health services: these included UN organizations, extra-national agencies and international NGOs. *PHC* was defined as primary health care physicians from polyclinics. *Laboratory* represented laboratory workers from both Yerevan and the marzes. *Mental health* represented mental health administrative and clinical services. *Specialized education* included educators and administrators for specialized education in medicine, nursing and veterinary medicine as related to public health. *Government-policy* was defined as persons who work closely with policy development and at high level management: this included the central offices of seven Ministries and Parliament. *Government-implementation* represented those persons involved with the direct management and implementation of public health policies and services: this included monitoring, inspection, surveillance, and enforcement agencies and institutions of the government in both rural and urban areas.

The individual informant identifier (e.g., Population 1.A.1.) provided in the box is for the purpose of identifying a participant who provided more than one quote within a single box. A single informant who provided quotes in more than one box would have different identifiers for each box. After each identifier, participation in focus group or in-depth interview is indicated.

### **Ethical Considerations**

The Institutional Review Board of the American University of Armenia approved the study for compliance with locally and internationally accepted ethical standards.

All participants were informed about their rights (their participation was voluntary, they could stop at any time and refuse to answer any question they chose, and their anonymity and confidentiality were fully respected). After being informed of their rights, all those who chose to participate provided verbal informed consent. Audio-recording was possible only with permission of all participants; even if one participant did not want to be audio-recorded only written notes were taken. Transcripts and the report do not contain names, positions and employers of the respondents or any other details that could make the participants identifiable<sup>57</sup>.

### **Strengths and Weaknesses of the Method**

**Strengths.** This study applied standardized comprehensive and rigorous research methodologies to meet the study objectives (see Appendix 2 for details on the qualitative research methods).

Though the research was diversified in both methods and sources, there were broad convergences in agreement among findings. The diversity in methods included the systematic application of two different approaches, focus groups and semi-structured in-depth interviews, using different trained professional interviewers and facilitators who rotated responsibilities to conduct these activities<sup>57</sup>.

Moreover, the study instruments were specifically developed based on the participant roles and responsibilities and further progressively improved based on the cumulative information gathered from previous focus groups and in-depth interviews.

Study participants were also very diverse in their roles and positions in PH services. The coverage of the study included both Yerevan and the marzes. A broad range of public health

services was covered. These participants included decision makers from the government (various ministries and the Parliament), administrative professionals, specialists from SHAI, professionals from different educational institutions, primary health care providers, specialists from international organizations and NGOs, laboratory specialists, the general population and beneficiaries spanning the range of health service levels, sectors and stakeholders.

The following reported findings primarily included those results where there were convergences of consistent and common agreement across participants and methods: this approach provided valid and useful information to understand capacities and to plan for further cooperative efforts in PH services in Armenia<sup>61</sup>. In a few exceptions, where certain discourses in focus groups and in-depth interviews did not always converge in agreement but illuminated other findings, then these discourses were also included in the findings.

**Weaknesses.** A limitation in the study design was that in a very few cases only one or two participants were interviewed from some specialized areas. Participants from some institutions providing public health services were not included in the study. Public health services provided in the military sector were also not covered.

## **RESULTS AND DISCUSSION**

The qualitative stakeholder analysis' detailed and comprehensive results are presented in Appendix 4 based on the WHO Europe's core public health operations.

### **Summary Findings**

The qualitative stakeholder analysis and the document review identified the strengths of public health services in Armenia. These strengths include:

- Better communicable disease control and surveillance than non-communicable disease
- Adoption of the concept paper on non-communicable diseases and planning of relevant surveillance system implementation
- Implementation and application of new laboratory methods for disease detection and surveillance (network of PHC laboratories)
- Immunization program for children
- Implementation of “Healthy Lifestyle” course in schools
- Emergency situation response mechanisms in place
- Air monitoring using updated equipment
- Routine inspections leading to some improvements
- Routine occupational checkups for some professional groups
- Active functioning of tobacco stakeholder coalition for advocacy and program implementation
- Some capacity building for public health professionals
- Active collaboration between the government of Armenia and international organizations in public health
- Collaborative MDR-TB control between the government and MSF
- Government-civil society collaboration in tobacco control
- Actions for implementing International Health Regulations and strengthening the system to meet those regulations.

The same analyses helped to identify the main weaknesses of public health services in Armenia. The fragmentary, sporadic and redundant nature of some public health services as well as the

lack-of-capacity in human resources to meet the current and future demands of public health were identified as the overriding obstacles in providing optimal public health services in Armenia.

This assessment identified the foundation of evidence-based public health, the broad scope of the numerous surveillance systems (including environmental, diseases and injuries, health services and many more) and survey information flows as often not integrated into a single centralized system and the data collected were not always in the most useful form. Nor were all surveillance systems equally developed, such as non-communicable disease surveillance lagging far behind communicable diseases in its development. Collected data from these systems were often not shared between stakeholders for maximum information value and improved decision-making. The analyses of these data were reportedly usually limited to required descriptive reporting which did not produce optimal informational value for policy-makers and managers—analytical tools from modern epidemiology and statistics were lacking.

Participants reported that the fragmentation between research and different data systems often led to the lack of linkages for determinants and risk factors with health outcomes, such as environmental contamination and related diseases in an exposed population. Food and water safety and the weaknesses in quality assurance systems were a broad concern in Armenia. Despite some achievements in modernization of laboratory services, laboratories associated with public health services reportedly often struggled with inadequacy of physical condition, outdated equipment and supplies, lack of universal and consistent guidelines and standards, the need for capacity building and insufficient collaboration between laboratories.

It was recognized universally that current public health laws were fragmented, outdated and inadequate. There has been work on draft legislation that is not yet ratified.

Public health threats are greater for the most vulnerable groups such as persons with disabilities, the elderly, children and those with HIV/AIDS and TB. Participants indicated the need for special attention within the public health system for these vulnerable and often stigmatized groups.

Though advances in emergency preparedness have been made since the earthquake of 1988, there was recognition for further improvements in particular areas: the general population was not universally informed as how to respond to emergencies and there was general agreement that further work in the marzes in this area was necessary.

Although progress has been reportedly made in preventive services, these services were limited in practice and incentives for these services were lacking. It was recognized that the general population underutilized such services and decision-makers understood curative services better than preventive. Vaccine programs for children were reported to be fairly successful but needed further to increase coverage. Antenatal care struggled with low rates of early enrollment.

Health promotion programs were reportedly most commonly conducted by international agencies but were often sporadic and short-term. Participants indicated that the state had limited financial and human resources to support more consistent long-term health promotion programs; one approach to this problem was giving the responsibility of health promotion to family doctors, but lack of time and incentives limited these activities.

Throughout many public health activities and functions quality assurance and quality control programs (including monitoring and evaluation) were limited.

Participants indicated that there was no national public health human resource plan and it was unknown whether the numbers and type of training in public health was meeting the needs in this area. Often the most modern updated education and training in public health was lacking and the best qualified public health specialists were not attracted to and not retained by the state public health sector due to low salaries and limited incentives. Low salaries reinforced the reported system of informal payments in areas such as inspection services, despite the fact that the Government of Armenia took some steps in this direction (regulating inspection check-ups, improving accountability, reducing the number of check-ups). Participants reported that the problems in public health required greater numbers of qualified professionals than were available.

State funding for public health research was reportedly lacking. Reportedly decision-making was often not evidence-based and the capacity of some decision-makers to use this information was limited; often the information was not of proper form or value to be fully used for decision-making.

There was no national public health strategy that included all public health services in the broad range of ministries, agencies and other organizations that were involved in some aspects of public health. Civil society was reportedly not fully developed and its involvement in public health was not fully integrated into national efforts. International organizations provided substantial technical and financial support for public health programs; however the priorities of these programs reportedly did not always correspond to the priority of the government and to the greatest needs in the population. The programs initiated by international organizations were often not sustainable because these programs ended with the termination of funding.

Though the collaboration between the government and international organizations in public health programs was reportedly strong, the collaboration between the ministries and agencies within the government as well as with civil sector was reportedly weaker.

## **PUBLIC HEALTH MODELS AND RECOMMENDATIONS FOR IMPROVEMENT**

Recommendations for strengthening the public health services in Armenia and features adaptable from international public health models were directly and rationally derived from a synthesis of the situational analysis of public health in Armenia (including the extensive document review based on a broad spectrum of official sources and the qualitative stakeholder analysis of public health services) to assess the structure and functioning of public health services on paper and in real life and the international successes in public health systems from various countries (see Appendixes 5 and 6 for details on international experience).

Universally, public health is not the responsibility of just one government agency or institute or even one ministry; public health is the responsibility of all levels of government in many ministries and agencies. Four levels in public health models of authority include international, national, regional, and local levels. International collaboration in public health is important since diseases and health determinants do not recognize national boundaries. National health policies are developed at the national level, and provisions made for resource allocation. Public health authority at the regional level more effectively responds to problems and issues common throughout that specific region. The local level is closest to the population and thus has advantages in implementing public health policies<sup>62</sup>.

Different countries have had various approaches in public health organization; some industrialized high income countries have more advancement in public health, in disease prevention and health promotion than low and middle income countries. There are two types of public health system models, centralized and decentralized. In the centralized model the national level has the final authoritative role over the public health structure; with the collaboration of stakeholders the national level develops and enacts legislation over the delivery of public health services on the regional and local levels. The centralized system has supportive agencies that are engaged in research, public health expertise, surveillance, and health promotion. In countries with a decentralized public health system, the regional and local levels have more autonomy and the national level has more of a support role. Countries like the United Kingdom, Australia and Estonia have higher national central control of public health, while in countries such as Canada,

Sweden and Denmark the regional and local authorities have more autonomy and greater authority on public health issues<sup>62</sup> (see Appendixes 5 and 6).

An umbrella authoritative state body for all health and personal social services, including the broad range of public health services in the centralized system of the *United Kingdom* falls under the Department of Health. In addition, responsibilities for public health services are coordinated closely with the Secretaries of State for Scotland, Wales and Northern Ireland. *Australia's* centralized authoritative body for public health services takes the form of the National Public Health Partnership which includes representatives from the government and from each of the state and territories, the director of the Australian Institute of Health and Welfare and the chair of the Health Advisory Committee of the National Health and Medical Research Council. This governing body integrates national and regional state and non-governmental organizations into this centralized authoritative body for public health. *Estonia*, another centralized system, has integrated most public health authority into a single ministry, the Ministry of Social Affairs, which encompasses the equivalent of three ministries for most countries into one; the Ministry of Social Affairs carries the responsibility for health, social and employment services. Additional responsibilities for public health fall within the jurisdiction of five or six other governmental bodies.

Countries with a decentralized public health system such as *Canada, Sweden* and *Denmark* still maintain a central national authoritative body responsible for some public health services but also support and collaborate with autonomous regional public health authorities. All of these models provide mechanisms for close collaboration and integration of civil society and other non-governmental organizations in provision of public health services.

Both successful centralized and decentralized public health systems provide an umbrella public health body at a national level that has the authority to coordinate activities and promote collaboration in public health services among all involved ministries and all other stakeholders at national and local levels. With Armenia's smaller geographic and population size and still-developing stature of the civil sector at the local level, a stronger central coordinating and oversight authority for public health services best suits Armenia. Because public health services

are population-based and cover a broad spectrum of services provided by various authorities inside and outside of the Ministry of Health, a centralized public health model in this context would provide the best coordination and equity for these services. The design of such system would meet the challenges to best serve the public health as identified in the current assessment – these challenges include the fragmentary, sporadic and redundant nature of public health services and the lack-of-capacity in human resources for current and future needs.

All of the examples for centralized public health/health systems had different solutions to integrate and coordinate all of the public health services provided in the many different parts of government and programs sponsored by non-governmental organizations. In the case of Armenia, more than half a dozen government ministries and many state agencies have some substantial role in public health; the Ministry of Health covers only some public health services. In addition, some public health activities are provided by international organizations and national non-governmental organizations. Currently there is no overriding authoritative central state authority that is responsible for integration, coordination, collaboration, oversight, advocacy and quality control of all public health authorities in Armenia. These are basic responsibilities that are found universally throughout successful centralized state authorities for public health.

The governmental bodies with centralized public health/health systems that were provided as examples from the international community were generally responsible for the development of overriding public health service and human resource national strategies, oversight and quality assurance of programs and services, integration and strengthening of health related information systems and intersectoral collaboration.

To address the concerns in public health services and programs in Armenia as identified in the assessment, a single comprehensive long-term national public health strategy that covers all public health services across ministries, agencies and organizations is necessary. This strategy should address the following recommendations which are based on the research findings. These recommendations are categorized according to WHO European public health operations.

Developing national public health strategies, setting priorities and identifying achievable goals and objectives strengthens and optimizes the effectiveness of implementing public health policies. Well-defined achievable targets should be directly linked to the public health interventions and to the relevant health factors in the population that the intervention attempts to improve. Appropriate monitoring and evaluation integral to the interventions permits corrections and improvements to optimize the impact on health and well-being<sup>62,63</sup>.

Intersectoral collaboration between many ministries, international agencies and other stakeholders provides a coordinated effort to protect and maintain the public health, since public health crosses boundaries into environmental, agricultural, educational, economic, law enforcement and many other sectors. Public health linkages exist between all of these sectors, thus effective cooperation and communications between these different sectors and different levels can achieve substantial gains in public health that the Ministry of Health could not achieve alone<sup>62</sup>.

The comprehensive long-term national public health strategy (that covers all public health services across ministries, agencies and organizations) should address the following recommendations which are based on the research findings.

The overriding recommendation is to establish an intersectoral experts' committee with a strong advocacy and leadership role in public health to provide oversight and coordinate for the broad range of public health programs and interventions that crosses over numerous ministries, government agencies and non-governmental organizations. The establishment of this committee provides quality assurance and avoids duplication of public health efforts among external and internal stakeholders and increases efficiency and effectiveness in the use of limited resources for public health.

The basic principles of operation should be 1) evidence based changes in the system and 2) supportive supervision - teaching, training, advising and consulting should be superior to inspection.

The specific recommendations are categorized according to the WHO European public health operations. Some of the recommendations below are also emphasized in the Strategy for Implementation of International Health Regulations and other legal documents. Therefore, the presented recommendations are valid and urgent.

### ***Surveillance and assessment of the population's health and wellbeing***

- Establish an integrated surveillance system with optimally useful disaggregated categories for optimizing data application and decision-making.
- Improve collaboration, communications and data-sharing between different surveillance systems, such as systems for environmental contamination and for health outcomes.
- Improve the surveillance and control of non-infectious diseases and injuries, which is lagging behind infectious diseases, to reduce morbidity and mortality due to these conditions.

### ***Identifying health problems and health hazards in the community***

- Conduct analytical (not only descriptive) assessments that would include assessments of outbreaks, epidemics and disasters, as well as risk assessments, evaluation of associations that could provide information on special concerns geographically and identify vulnerable populations, associations for contaminants with diseases and death in the community. This type of analysis is substantially more useful for decision-making.
- Reduce stigma and fear of certain diseases (particularly, TB and HIV/AIDS) among the general population and health care workers to minimize late utilization of health services, negative social consequences, and spread of disease.
- Increase the number of monitoring instruments for the assessment of particulate matter.
- Mandate the installation of air filters for the factories producing hazardous pollutants.
- Improve the quality of drinking water especially in rural areas by restoring substandard water pipes and proper separation of leaking sewage pipes and water pipes.
- Improve medical, industrial and municipal solid waste management by 1) placing open landfills farther from residential sites and designing modern landfills to contain leaching and to cover them; 2) introducing and developing the culture of recycling in the country.

- Conduct comprehensive quantitative research to assess the work and capacities of the Ministry of Health and the Ministry of Agriculture in food safety to come up with recommendations for distribution of responsibilities on food safety and inspection services.
- Improve the regulation of animal slaughter by building slaughter houses where greater quality control can be applied.
- Provide more comprehensive quality control over food production, transportation, storage and trade in both markets and open air markets.
- Raise the awareness of people about the importance of expiration date of products through mass media.
- Establish mechanisms to improve the implementation of occupational medical check-ups and to assure the transparency of the process.
- Continue improving occupational health standards and improve their implementation for Armenia to protect the health of workers.
- Provide especially state rural laboratories with modern equipment and supplies.
- Develop modern guidelines and standards for laboratory testing for those tests that have not been updated.
- Improve the awareness of laboratories regarding existing inspection guidelines  
Streamline the reporting system in laboratory services.
- Provide financial resources to improve hygienic and physical conditions of state laboratories when substandard.
- Build the capacity of laboratory specialists for interpretation of results.
- Establish reference laboratories when lacking to assure continuous quality control of laboratory services.
- Establish mechanisms for exchange of information and ideas between laboratories such as meeting, workshops and website information centers and communications.

***Preparedness and planning for public health emergencies***

- Improve the preparedness and information dissemination regarding responses during emergencies for the general population (especially in the marzes) through community training and simulations.

### ***Health protection operations***

- Integrate and modernize public health law with the development of such law including all stakeholders.
- Implement and enforce public health law equitably for the entire society, especially inspection services.
- Increase funding for public health programs for persons with disabilities, the elderly and orphans.
- Develop and implement public health programs for the elimination of stigma towards persons with disabilities, people with mental health problems, and with infectious diseases such as TB and HIV/AIDS.
- Strengthen the functioning of Directly Observed Therapy Short-course for TB control in the general population, and closer collaboration and integration between regular TB and drug-resistant TB services.
- Make psychological and mental therapeutic services available for the general population and especially for high risk groups such as prisoners and people with HIV/AIDS, TB and disabilities.

### ***Disease prevention***

- Develop and implement incentive mechanisms for primary health care providers to practice preventive medicine.
- Disseminate information to decision-makers concerning the importance and cost effectiveness of disease prevention.
- Provide financial resources and medical equipment for cost-effective screening programs to detect treatable diseases in early stages in both civil and penitentiary sectors.
- Improve the coverage of childhood immunization programs through more concerted efforts to inform families and reach isolated areas.
- Increase awareness of pregnant women about the importance of early antenatal care by strengthening and expanding motherhood schools.
- Increase awareness of the general population about health hazards of smoking and second hand smoking and strengthen smoking cessation efforts.

### ***Health promotion***

- Enhance state-sponsored health promotion by establishing long-term (not sporadic) coordinated integrated activities and programs and by more clearly defining specific roles and responsibilities of health care physicians, emphasizing various health topics for specific target groups.
- Enhance the involvement and oversight of the Ministry of Health of the dissemination of health information through the mass media by various organizations.

### ***Evaluation of quality and effectiveness of personal and community health services***

- Implement ongoing health care quality assurance programs, utilizing outcome indicators that measure the impact of health care services on the health of community.

### ***Assuring a competent public health and personal health care workforce***

- Develop and implement the national strategy for public health human resources.
- Develop and improve public health courses and programs in the higher educational state institutions to address modern public health issues and provide updated training in modern public health methodology, especially adapted to the needs of the country.
- Improve training of public health professionals in the state institutions through quality control methods and oversight.
- Establish graduate registries and alumni centers in the universities that provide education in public health to track public health human resources and to inform changes in curriculum to meet the changing demands of the job market in public health.
- Improve the working conditions and increase the salaries for public health specialists in the civil service to attract and retain the best qualified specialists in the government sector.
- Reorganize working schedules to include effective and efficient time-management for primary health care providers and laboratory workers to provide increased services for public health.
- Provide affordable capacity building in the most updated methods for public health specialists.

- Strengthen training for food laboratory specialists to assure that they can adequately meet their job requirements with the modern demands.

***Leadership, governance and the initiation, development and planning of public health policy***

- Develop a single comprehensive long-term national public health strategy that covers all public health services (including across ministries, agencies and organizations) and integrates and coordinates all public health programs.
- Enhance and strengthen advocacy for establishing a governmental collaborative body with a strong coordinating, advocacy and leadership role in public health.
- Enhance and strengthen advocacy for strengthening PH services and for the control of leading health risks.
- Establish a better-defined national coordinating mechanism for the state tobacco control efforts.
- Create a central database maintaining information from previous public health projects (including those sponsored through international funding), making it available to all public health stakeholders.
- Increase data value for decision-making through utilization of analytical epidemiology and statistics rather than only descriptive methods. This can be achieved through capacity building of existing analytical and statistical staff.
- Increase the capacity of decision-makers to use information based on data for decision making in public health policy, regulation and management.
- Mandate monitoring and evaluation of public health programs to assure and improve on the success and efficiency of the programs.
- Set systematic mechanisms in place for the negotiation priorities for public health programs and projects between the international organizations and the government, for the purpose of more-closely adapting these programs and projects to the needs of the people of Armenia.
- Set mechanisms to assure the sustainability of valuable internationally supported public health programs through the planned hand-over of these programs to government control.

- Review the requirement for the State Hygiene and Anti-epidemic Inspectorate to inform those to be inspected three days prior to inspection to determine whether this requirement leads to sporadic hygienic practices rather than sustained protection of the public.
- Establish mechanisms to reduce informal payments and informal payment plans for inspection services through the gradual increase in salary and implementing incentive mechanisms and change in the culture of informal payments.
- Provide a collaborative discourse between inspection services and those inspected to change the emphasis from that of punishment and control to that of a supportive partnership; international experience in this transformation can provide a guide for these changes.
- Improve the collaboration and cooperation for overlapping public health responsibilities and programs between ministries and agencies within the government to better protect the health of the population given limited resources.
- Enhance civil society and strengthen state-civil society cooperation in public health, through adequately integrating and building capacity local NGOs in public health programs and policies.

### ***Health related research***

- Allocate more public finances for public health research.
- Conduct evidence-based research on the association between environmental contamination and health risks to better inform public health interventions and policy development.
- Build the capacity of public health researchers in state universities and institutions in the most updated methods to conduct modern and rigorous public health research.

### **In Conclusion**

Protecting the public's health is an issue of national security and much broader than the responsibilities of the Ministry of Health. Therefore, it is crucial to establish an intersectorial experts' committee for PH [including representatives from the government and private sectors] to provide oversight for the broad range of public health programs and interventions that crosses over numerous ministries, government agencies and non-governmental organizations.

The next step should be developing a specific action plan, picking each recommendation as a separate project and developing measurable objectives and specific budgets for them. These strategic steps should lead to specific changes/improvements in the PH system following the basic principles of operation 1) evidence based changes and 2) supportive supervision.

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## **APPENDIX 1 – HEALTHCARE SYSTEM IN ARMENIA**

### ***Organizational structure***

The health care system in Armenia has three organizational levels, the national level, the regional level and the community level<sup>7</sup>. The national level includes Parliament and the Ministry of Health, the Ministry of Finance, the Ministry of Education and Science, the Ministry of Labor and Social Affairs and others which are responsible for developing national policies. The 11 regional governments (10 marzes and Yerevan) have planning and regulatory responsibilities for regional/municipal hospitals, and regional/municipal primary health care facilities (polyclinics, health centers and others). The communities are responsible for health centers, rural ambulatories and health posts.

Institutions providing health care services belong to either public or private sectors. The public sector includes governmental and nongovernmental facilities such as hospitals and hospital networks with or without polyclinics, outpatient urban clinics (stand-alone polyclinics), regional or rural health care facilities (both inpatient and outpatient), State hygiene and anti-epidemic facilities, human resource development facilities (universities, schools, and technical and pharmaceutical entities). The private sector includes hospitals, outpatient clinics or centers, dental clinics, pharmacies, alternative and non-traditional therapy centers, and human resource development facilities<sup>7</sup>.

### ***Financing***

Financial resources for the health care system in Armenia are coming from the state budget, direct out-of-pocket payments, and international resources such as humanitarian donations and project-specific funding. The current state funding is estimated to be one fifth of total health expenditures. Direct out-of-pocket payments include formal co-payments, formal payments and informal payments.

In 1998, the State Health Agency (SHA) was established as an independent semi-governmental third party purchaser that pools and allocates health care resources. Since 2002, SHA is under the jurisdiction of the Ministry of Health. In 1998, the Government of Armenia introduced the

Basic Benefit Package specifying the list of free-of-charge services for the general population and for specific groups<sup>7</sup>.

### ***Regulation, Planning, Management and Quality Assurance***

The regulation and planning of the Armenian health care system is mainly executed on the national level. The Ministry of Health performs regulatory functions for pharmaceuticals, some medical education and training, the Basic Benefit Package, the remuneration of health care providers, and the licensing and high-technology equipment. The regional government has minimal involvement in regulation and planning. The management of health care facilities is hierarchical, where the director or head of the facility has the final authority. The country lacks a unified systematic quality assurance mechanism<sup>7</sup>.

### ***Physical and Human Resources***

Like other countries in the region, Armenia inherited an expansive health care system from the Soviet Union with its main focus on specialized care. Though the number of hospitals and beds was reduced after health care reforms, the health care system is still considered oversized.

According to the Ministry of Health classification, the health care personnel is divided into university-qualified health care personnel (physicians, dentists, pharmacists, biologists, chemists, clinical psychologists and others), intermediate graduate health care personnel (nurses, midwives, physiotherapists, occupational therapists, specialist technicians and others) and auxiliary personnel (technical and special services, maintenance staff and others). The number of physicians and nurses per 1000 population was 3.3 and 4.0 respectively in 2004. Around 44% of physicians are working in hospitals, and the primary health care (PHC) and health care facilities in rural areas are lacking in human resources<sup>7</sup>.

The Yerevan State Medical University (YSMU) and four other private schools provide undergraduate/graduate medical training in Armenia. The National Institute of Health and YSMU provide postgraduate education of medical specialists and family physicians<sup>7</sup>.

### ***Provision of Services***

PHC facilities include urban polyclinics, health centers, rural ambulatories and health posts or FAPs. In 2002, the number of PHC facilities included 400 ambulatories and polyclinics and over 600 FAPs. According to Armenian governmental norms, each PHC specialist should serve 1,200-2,000 adult population and each pediatrician should serve 700-800 children.

Secondary/inpatient health care facilities include freestanding municipal and regional multi-use hospitals, integrated multi-use hospitals with ambulatories, health centers with beds for inpatient care, and maternity homes with and without consultation units and dispensaries. Facilities that have one specialization provide tertiary care and they are concentrated in Yerevan<sup>7</sup>.

### ***Health Care Reforms***

Health care reform activities [since 1997] in Armenia included: 1) decentralization, including devolution and privatization, 2) implementation of new health care financing approaches, and 3) optimization of the effectiveness of the health care system. The decentralization process has been moving the responsibilities of health services provision from the central national government to the regional governments, shifting financial responsibilities from the governmental to facility level, as well as privatization of health care facilities including dental and pharmaceutical. Health financing reforms included development of the Basic Benefit Package, introduction of National Health Accounts, and some changes in facility and provider payment mechanisms<sup>7</sup>.

## APPENDIX 2 – QUALITATIVE RESEARCH METHOD

Qualitative method is an important mode of inquiry in social sciences<sup>58</sup>. Qualitative research/method is any kind of research that gets findings without any means of statistical procedures or quantification<sup>57</sup>.

There are valid reasons requiring qualitative research<sup>57</sup>. The investigation of phenomenon that is yet unknown or little known requires qualitative research. Qualitative research is a justified method for investigating the nature of experiences, behaviors or phenomena and to explain them in such details that are difficult to do by the means of quantitative methods<sup>57</sup>. The cases when the qualitative research methods should be applied are as follows:

- Research that cannot be performed experimentally
- Research that investigates deeply complexities and process
- Research for which variables are not known yet
- Research that explores where and why policy and practice fail to work
- Research on unknown societies or new systems
- Research on informal and unstructured linkages and processes in the organization
- Research on real, as opposed to stated, organizational goals<sup>58</sup>.

The components of qualitative research include data which can be collected through different methods (in-depth interviews, focus group discussion, observation, etc.). The second component is interpretation or analysis of data collected – conceptualization of data through coding. Written or verbal report is the final outcome of the research and its format depends on the audience<sup>57</sup>.

The advantage of qualitative method/qualitative research is that it provides opportunity to study the issue more in depth and in details<sup>59</sup>. Validity of qualitative method is how accurately the research represents the participants' realities of the social phenomenon and how credible are the finding to them<sup>56</sup>. The combination of different methodologies in the study of the same issue is called triangulation<sup>59</sup>. There are four main types of triangulations: data triangulation, investigator triangulation, theory triangulation and methodological triangulation. The *data triangulation* is the use of different sources of data. The *investigator triangulation* is the use of different researchers in conducting the study. The *theory triangulation* is the use of different perspective to interpret the same data. The *methodological triangulation* is the use of different

methods to study the same issue. In qualitative research it is possible to achieve triangulation by using different sources, investigators and mixing different methods and perspectives<sup>59</sup>.

## APPENDIX 3 – QUALITATIVE STUDY INSTRUMENTS

### Examples of Instruments:

#### Focus Group Discussion Guide

##### General Population

Place \_\_\_\_\_

Date \_\_\_\_\_

Time \_\_\_\_\_

Moderator \_\_\_\_\_

Recorder \_\_\_\_\_

#### Introduction

##### Welcome

Welcome the participants and thank them for agreeing to participate.

##### Introduction of moderator and recorder

Introduce yourselves.

##### Confidentiality

This discussion will be confidential. We will not tell anyone that you participated in this focus group discussion. Your name and position will not appear in reports and presentations. All your comments will be used for research purpose only. We will take notes throughout the session. Upon your permission we will audio record the discussion to make sure that no idea remains out of our attention. Can we proceed with recording?

##### Review of the program and participation

The Center of Health Services Research and Development of the American University of Armenia in collaboration with the MOH and with support from the WHO is conducting an

assessment of Public Health Services in Armenia in order to help the Government of Armenia to strengthen and modernize Public Health services.

Since the definition and scope of Public Health as a discipline can vary between different countries and institutions, we would like to introduce the definition and scope of Public Health used within this project.

*Public Health (PH) is a discipline about preventing disease, protecting and promoting health through the organized efforts of the society. Public Health services can be delivered to the whole population and population groups both collectively and individually. The main PH services include communicable and non-communicable disease surveillance; environmental and occupational health; food safety; emergency preparedness; vaccination and screening programs; injuries; mental health; health promotion and public education; research; development, implementation and evaluation of effective programs and policies and others. We would also like to emphasize that PH focuses on health protection and disease prevention while medical care deals with restoration of health through curative and rehabilitative services.*

This discussion focuses on PH services to explore the main achievements and shortcomings of the PH system in Armenia. There is no “right” or “wrong” answer. Your sincere participation with interesting and practical suggestions will help us to understand the current PH system in the country and come up with recommendations for improvement.

### Icebreaker

1. In your opinion what is Public Health and what services it includes?

### Introduction of topic

2. Where do you usually get the health related information from? On what topics?
3. Was information provided orally and /or written? Are you satisfied with quality and quantity of information received?
4. How often do you attend health care facility for primary and/or secondary prevention and/or screening? How much are you satisfied with these services? What could be done better?

5. Did you ever participate in any type of PH surveys? How often, where and by whom it was conducted? Was it for specific (vulnerable) groups or for the general population? What was the topic of survey?
6. How often, if ever, health promotion activities are organized in your communities? Where, by whom (government, local authorities, NGOs, international organizations, educational institutions)? Are you usually involved in their planning and implementation?
7. At what age the education on Public Health topics should start (before schools, at schools - elementary, secondary, high, etc.)? What topics should the program include, who should teach it? What would you say about the recently approved school program called “Healthy Lifestyle”?
8. How much are you satisfied with the quality of food sold in markets? During shopping, do you usually check the expiration date, quality and/or certification of the products? How often do you buy out-dated or not certified products? Give examples. What would be your suggestions to improve food regulation?
9. How much are you satisfied with the quality of drinking water? How common are water born infection disease outbreaks in your communities? How would you assess the amount of water used in the household, is it enough to ensure safe food preparation, hygiene norms, etc.?
10. What kind of occupational health programs do you have in your working places?
11. What kind of trainings have you ever received for emergency situations response? Where, by whom (government, local authorities, NGOs, international organizations, educational institutions), and how often such trainings are organized, what topics do they cover?
12. What else would you suggest for improving PH services in Armenia?

*Thank you for participating in our study – your answers are very interesting and helpful!*

## **In-Depth Interview Guide**

**Yerevan State Medical University (YSMU)**

**Department of Post-Diploma Continues Education**

**Place** \_\_\_\_\_

**Date** \_\_\_\_\_

**Time** \_\_\_\_\_

**Interviewer** \_\_\_\_\_

### **Introduction**

#### Welcome

Welcome the participant of in-depth interview and thank him/her agreeing to participate.

#### Introduction of interviewers

Introduce yourself.

#### Confidentiality

This interview will be confidential. We will not tell anyone that you participated in this in-depth interview. Your name and position will not appear in reports and presentations. All your comments will be used for research purpose only. We will take notes throughout the session. Upon your permission we will audio record the discussion to make sure that no idea remains out of our attention. Can we proceed with recording?

#### Review of the program

The Center of Health Services Research and Development of the American University of Armenia in collaboration with the MOH and with support from the WHO is conducting an assessment of Public Health Services in Armenia in order to help the Government of Armenia to strengthen and modernize Public Health services.

Since the definition and scope of Public Health as a discipline can vary between different countries and institutions, we would like to introduce the definition and scope of Public Health used within this project.

*Public Health (PH) is a discipline about preventing disease, protecting and promoting health through the organized efforts of the society. Public Health services can be delivered to the whole population and population groups both collectively and individually. The main PH services include communicable and non-communicable disease surveillance; environmental and occupational health; food safety; emergency preparedness; vaccination and screening programs; injuries; mental health; health promotion and public education; research; development, implementation and evaluation of effective programs and policies and others. We would also like to emphasize that PH focuses on health protection and disease prevention while medical care deals with restoration of health through curative and rehabilitative services.*

This interview focuses on PH services to explore the main achievements and shortcomings of the PH system in Armenia. There is no “right” or “wrong” answer. Your sincere participation with interesting and practical suggestions will help us to understand the current PH system in the country and come up with recommendations for improvement.

### Icebreaker

1. You are involved in this study as an expert and a key informant. We would like to ask several questions regarding PH services in Armenia?

### Introduction of topic

2. In your opinion, what is Public Health and what services does it include?
3. To what extent Public Health is a part of a curriculum of undergraduate programs such as a. Pharmacy, b. Medicine c. Dentistry? To what extent Public Health issues are incorporated in the curriculum of various courses such as epidemiology, social sciences, etc? How would you assess the structure and content of the Public Health curriculum in these programs? What issues of Public Health does it mainly cover? What are your potential recommendations to improve the Public Health curriculum in the mentioned programs?

4. How would you assess the preparedness of your faculty/staff related to Public Health (Hygiene, Epidemiology, Infectious diseases, Social Medicine, etc)? How often do they undergo trainings, on what topics? Do you have any internal mechanisms to assess both the quality of your teaching programs and the quality of the faculty members? What kind of mechanisms? How often do you perform quality testing?
  
5. How is the YSMU engaged in Public Health research? What research have you conducted so far related to Public Health? How the students/residents are engaged in Public Health research at YSMU? Have your findings been published in local, international scientific journals? If yes, what journals, and how often, when was the last publication? How do you promote Public Health research?
  
6. How would you overall assess the Public Health research in our country? Which other organizations are and should be responsible for that and what achievements and drawbacks do you see in this field? What are your potential recommendations to improve Public Health research in our country and how the YSMU can improve the situation?
  
7. What is the established process of evaluation and accreditation of the medical education a. undergraduate programs; b. postgraduate programs? Is there a legal framework for that? How, how often and by whom is the assessment performed? What are the potential barriers in this field, what are your recommendations?
  
8. How do you collaborate with the other medical educational institutional (local – Haybusak, Traditional medicine etc., international-?) regarding PH? What institutions do you mostly collaborate with? Do you have exchange programs for staff or students? If yes, what programs? What achievements did you have as a result of those collaborations? What problems do you often face while cooperating with others?
  
9. What is the role of the YSMU in conducting health promotion and public education activities, particularly in the following fields:  
*Probe:*
  - Healthy diet and nutrition,
  - Physical activity,
  - Obesity prevention,
  - Tobacco control,
  - Alcohol control,
  - Drug abuse prevention and control,
  - Health behavior related to prevention of infectious diseases (e.g., HIV, TB),
  - Sexual health,
  - Work-related health hazards,
  - Injury prevention,

- Occupational health,
- Environmental health,
- Mental health,
- Dental hygiene education and oral health or other.

How would you assess the effectiveness of these activities, what worked well, and what did not? Do you perform regular monitoring of these activities, and how do you use the evaluation results? What difficulties do you mostly face in conducting health promotion activities? What are your future plans to conduct health promotion activities, what topics are prioritized?

- 10.** At the end what would you like to add regarding Public Health services improvement in Armenia? Are there other things that we did not discuss but you feel it is necessary to talk about?

*Thank you for participating in our study – your answers are very interesting and helpful!*

## APPENDIX 4 – RESULTS AND DISCUSSIONS

Three-fourth of the focus group participants were women and one quarter men. The mean age of the professional focus groups was 44 (means ranging from 32-53). The mean professional years-of-experience was 16 years. The mean age of focus group participants from the general population was 41 (means ranging from 29-50).

### 0. Perception of public health

#### 0.A. Perception of public health services and network

*If we are talking about the dynamics of public health services in Armenia, then as a doctor and a public health specialist I can say that during my professional experience, which is 12 years, we have had obvious improvements. ... As my colleague mentioned, there are some improvements in primary health care services as a result of training of nurses and family doctors, as well as the staff of the Ministry of Health. In the past when we were students, the staff of the Ministry of Health looked at the problems from the doctors' perspective; now they are also more open to understand the public health perspective. Maybe these improvements are the result of many international projects that were conducted during the last 10 year; regardless, the positive changes exist.*

International organization 0.A.1.  
Focus group discussion

*Now people know that public health not only involves the Ministry of Health, but other ministries should also be included, like the Ministry of Education and Science, the Ministry of Labor and Social Affairs, etc., even the Ministry of Justice.*

International organization 0.A.2.  
Focus group discussion

*Public health is not developed yet, though it is being discussed during recent years. From the services included in public health we mainly perform vaccination and infection control activities. The promotion of healthy lifestyle is in the early stages of development. Food safety and occupational health are not properly conducted.*

Government-implementation 0.A.1.  
Focus group discussion

*The Ministry of Health specialists need to understand what public health is. The idea of public health is not well understood in the Ministry of Health. They think that functions of the Ministry of Health are limited to medical care and cure.*

International organization 0.A.3.  
Focus group discussion

*First of all we need to establish the field of public health and only then improve it and discuss the limitations.*

Government-implementation 0.A.2.

Focus group discussion

[question to environmental service specialist “what is your role in public health?”]  
*I don't understand why you ask us questions about public health. Public health is the responsibility of the doctors.*

Government-policy 0.A.1.  
In-depth interview

*The public health is a new terminology in Armenia. ... We should understand that public health is more than the functions and medical services of the Ministry of Health. It includes other authorities and even individuals.*

Government-policy 0.A.2.  
In-depth interview

*Public health is considered as SanEpi services only, and that the only public health structure that we have is State Hygiene and Anti-epidemic Inspectorate. I think this is not right. In fact there is a problem with the perception, definition and functions of public health. The public health structure cannot be limited to inspection. It should be broader. I think we have problems with the perception of public health at all levels, from higher to lower.*

Government-policy 0.A.3.  
In-depth interview

*In the past we used to have sanitary hygienic and epidemic services. Now we have public health which includes everything. Many people don't understand that public health is more than just what was perceived in the past as public health.*

Government-policy 0.A.4.  
In-depth interview

*The fragmentation of public health services refers to the absence of a public health network. I don't see any existing network of public health services in Armenia. There are different committees such as the committee of environmental protection and the committee of immunization; however each government branch is targeting only its specific problems. I don't see an element of public health in the system. ... Many authorities [ministries] perceive their role only as registering numbers and data, but they don't understand their public health functions.”*

Government-policy 0.A.5.  
In-depth interview

According to a few participants, the concept of public health was introduced in the country during the recent decade which has resulted in some improvements in public health. It was suggested that the concept of public health was introduced into the country primarily through international projects. Trainings that were conducted for primary health care providers such as physicians and nurses and the staff of the Ministry of Health were noted as the primary

achievements of public health. Some participants suggested that now more people realize that public health is the responsibility of not only the Ministry of Health, but also other ministries.

According to the majority of participants, public health was a new concept and was not well understood by the population; often it was very narrowly perceived, including by specialists and stakeholders from different levels and different ministries and institutions. This concept was also new for the health care providers and the employees of the Ministry of Health. According to some participants, people from the Ministry of Health and health care providers saw their role only as providing curative services with little involvement in preventive services. Currently public health services in Armenia were limited to only vaccinations and infectious disease control. The majority of participants mentioned that there was a general perception in the country that public health services were inspection services (SanEpi services) only. Other public health services were not yet understood by specialists and population in the Armenian context.

According to some participants, the role of the ministries (other than the Ministry of Health) in public health was limited to data collection and descriptive statistics which were not further transformed into public health policies and interventions. Some employees from those ministries did not perceive themselves as having a role in public health. They thought that the maintenance of public health was the responsibility of the Ministry of Health alone.

According to all the participants there is no umbrella public health system or network of all public health services in the country; the public health services are fragmented and sporadic and there is no systemic formal linkages between them.

## **0.B. Perception of inspection services**

### **Implementers**

*You know our work [inspection services] is not respected at all. People have a very negative attitude towards us. They think if we visit their facility we will penalize them and force them to make changes which require money and additional expenses. But in reality, we are trying to make them improve the working conditions and have a safe environment for the public.*

Government-implementation 0.B.1.  
In-depth interview

*The problem is that owners are afraid of us because of our inspection function. I think the perception towards the Inspectorate should be changed from control to partnership. ... it [partnership] is typical for European countries, and they have been successful.*

Government-implementation 0.B.2.  
In-depth interview

*As epidemiologists and doctors, we do not want to be inspectors like policemen.*

Government-implementation 0.B.3.  
In-depth interview

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### **Consumers**

*The function of ... [Inspectorate] is only punishment: they don't offer us any help. It is in their interest to find a problem and take money for it.*

Consumer 0.B.1.  
In-depth interview

*They [Inspectorate specialists] are not motivated to improve the situation. They are eager to find some incompliance to blackmail me. They consider us a source of money; they don't care about our improvement.*

Consumer 0.B.2.  
In-depth interview

*I have a suggestion – ... Inspectorate should not only inspect by checking whether you have this or that but also they must support and help the facility to improve its conditions.*

Laboratory 0.B.1.  
In-depth interview

Though the periodic check-ups that are currently conducted by the inspection services lead to some improvements in the inspected facilities, there is a negative perception towards inspection services among the general population and consumers. Consumers think that specialists from inspection services are more motivated to penalize rather than to improve the inspected facilities. It is in the interest of the inspection specialists to find incompliance and penalize consumers. Consumers and some specialists from inspection services suggested that inspection agencies should have more supportive functions.

## 1. Surveillance and assessment of population health and well-being

### 1.A. Functioning of surveillance systems and registries

*I think it [the surveillance system] could be better, but the current situation with the surveillance system is not very bad. During the last 10 years there have been improvements. Maybe the quality of the conducted surveys should be improved.*

Government-implementation 1.A.1.  
In-depth interview

*Unfortunately the morbidity data is not disaggregated by gender or by marzes, and only for some diseases it is disaggregated by age groups. We suggested having data disaggregated by marzes and by gender; there was even an inter-sectorial committee on gender issues, where the MOH specialists promised to incorporate gender and marz disaggregation. However, nothing has changed.*

Government-implementation 1.A.2.  
In-depth interview

*Regarding questionnaires or the collection of patient information, very often we collect completely useless information which is called "GIGO information" (garbage in and garbage out). Instead of that, we do not pay enough attention to the things, for example, age or gender disaggregation, which are important for analysis.*

International organization 1.A.1.  
Focus group discussion

*We do not categorize data by socio-economic factors or other characteristics. We do not even have such reporting forms.*

Primary health care 1.A.1.  
Focus group discussion

*I want to talk about PH information database. The PH data are not available. It should be centralized to make the access easier.*

International organization 1.A.2.  
Focus groups discussion

*If somebody, even a specialist who is working in public health, tries to get some information from the system, it is very difficult because there is no understanding of the bigger picture. ... Data are collected in separate parallel paths and kept according to each separate project. In the same field there is duplication and even triplication of efforts, because there is no coordination of information. Some information is totally closed and unavailable. ... In conclusion, our surveillance system is undeveloped and we cannot even call it a system.*

International organization 1.A.3.  
Focus group discussion

*I am not even sure that the Ministry of Health uses our results.*

Government-implementation 1.A.3.  
In-depth interview

*There is no collaboration between National Institute of Health and Inspectorate [State Hygiene and Anti-epidemic Inspectorate] at all.*

Government-implementation 1.A.4.  
In-depth interview

*Nobody understands the reason why data are collected. They are doing it without purpose, just to do it. Nobody thinks about data analysis. We practice descriptive epidemiology not analytical epidemiology.*

International organization 1.A.3.  
Focus group discussion

*We need to improve the surveillance system (data collection and analysis). We need to understand what problems we have and then develop programs to overcome those problems.*

Government-policy 1.A.1.  
In-depth interview

In Armenia there are functional surveillance systems. However, participants indicated that much of the data collected were not disaggregated into categories that would optimize data application. These categories include cross-combinations of gender, age, socio-economic status, and marzes. In addition, participants noted that some data collected were not useful. Data collection is often routine with a lack of understanding why it is collected.

Data flows are not integrated into a central surveillance system where access to these data can be improved for end users and analysts. Many parallel closed surveillance data systems for different disease groups and projects which duplicates efforts also complicates access and limits optimal use of data. Many participants discussed the lack of collaboration between different surveillance systems and stakeholders.

Participants further noted that data analyses was limited to descriptive assessments and never crossed over to analytical assessments that would improve the information value and application for decision makers. Analysis using analytical epidemiology would include risk assessments, evaluation of associations that could provide information on special concerns geographically and identify vulnerable populations.

### 1.A.1. Surveillance of communicable and non-communicable diseases

*Regarding surveillance, our SanEpi services do a good job with infectious diseases - but the surveillance of noninfectious diseases is very poorly conducted.*

Government-policy 1.A.1.1.  
In-depth interview

*The situation regarding noninfectious diseases is even worse; it [including surveillance] is in the embryonic stage.*

International organization 1.A.1.1.  
Focus group discussion

Though communicable disease surveillance has limitations in the value of some data, the level of disaggregation, fragmentation and issues of access, the majority of participants thought that non-communicable disease surveillance was far behind communicable disease surveillance.

### 1.A.2. Surveillance of road traffic accidents

*The road traffic accidents and their causes are registered and analyzed. If we see that a certain number of accidents occurred as a result of the speed limit being exceeded, we use different approaches to solve the problem such as placing street bumps, reducing speed limits on signs ... or increasing enforcement actions on drivers who break the law.*

Government-implementation 1.A.2.1.  
In-depth interview

*Our [police] collaboration with the Ministry of Health is limited to the Ministry of Health providing data on whether a driver was drunk or not .*

Government-implementation 1.A.2.1.  
In-depth interview

According to police officers, all cases of road traffic accidents are registered in a manner consistent with the normative acts every three months and reported to the state statistical center. Cases of road signs inconsistencies are reported to the Yerevan Municipality for the implementation of further actions. Moreover, they register other specific data for their own interest and analysis, such as the type of vehicles involved in the accidents or the causes of accident.

As in many surveillance systems there is very little collaboration between traffic accident surveillance and other health surveillance systems that would contribute to improved policy and interventions.

### 1.A.3. Surveillance of mental health diseases and conditions

Question – How would you assess the surveillance system of mental health diseases?  
*I would assess it very positively if there was such a surveillance system. Unfortunately, we don't have the resources for that.*

Mental health 1.A.3.1.  
In-depth interview

In many public health services where surveillance would benefit such services, there is no existing surveillance system.

### 1.A.4. Surveillance of environmental risk factors

*The new technologies in the air monitoring help to have more accurate and reliable results.*

Government–implementation 1.A.4.1.  
In-depth interview

*I don't understand why you ask us questions about public health. Public health is the responsibility of the doctors. They should do their job and we are doing ours. If they want to use our data they can use our reports which are opened.*

Government–policy 1.A.4.1.  
In-depth interview

*Health outcomes assessment or monitoring is not our job [people from the Ministry of Nature Protection], the Ministry of Health has to do it.*

Government–policy 1.A.4.2.  
In-depth interview

The absence of collaboration between surveillance systems such as those for the environment and health is a lost opportunity to reduce morbidity and mortality. Environmental factors can lead to serious illness and death - however without integrated collaborative surveillance systems these causes of adverse health conditions will go undetected; thus no intervention can be taken to resolve such problems.

## 2. Identifying health problems and health hazards in the community

### 2.A. Control of communicable and non-communicable diseases and conditions

*... the modern understanding of the public health system [in Armenia] has its limitations, for example, the main emphasis is placed on infectious disease control. The current activities and services of the Inspectorate are also more focused on infectious diseases; however, some activities are also directed towards tobacco control.*

Government–policy 2.A.1.  
In-depth interview

*Part of the problem is that during transition to independence there was a collapse of many functions and responsibilities [in health care]. Before, some institutions were responsible for non-communicable disease control, but everything was lost during those horrible years. Now it is the time to rebuild the system; we are trying to return, at least, to the level that we had before.*

Government–implementation 2.A.1.  
Focus group discussion

*The situation regarding noninfectious diseases is even worse; it is in the embryonic stage.*

International organization 2.A.1.  
Focus group discussion

*For communicable diseases control the Soviet system was the best, and we were a part of that system. ... Another thing is that for non-communicable diseases we are far behind others.*

Government–implementation 2.A.2.  
In-depth interview

*Our government has to deal not only with infectious disease control ... for example, road traffic injuries. Have you ever heard of anything that has been done for injuries? ... it is a big gap of the system.*

Government–implementation 2.A.3.  
In-depth interview

*Nobody thinks about data analysis. We practice descriptive epidemiology not analytical epidemiology.*

International organization 2.A.2.  
Focus group discussion

In Armenia the emphasis of disease control has always been on infectious diseases. The majority of study participants agreed that in general the control of infectious diseases in the country is stronger than that of noninfectious diseases. The control of other health conditions such as injuries has also received less attention.

Detection and investigation of risk factors and causes of outbreaks, epidemics and disasters require analytical epidemiological methods. To develop effective interventions and programs, especially with limited resources, characterizations of these major events are necessary. These analyses cannot be conducted using descriptive epidemiology. Participants indicated that there is a gap in capacity to apply analytical epidemiology among data analysts.

**2.B. Control of environmental health hazards**

**2.B.1. Risk assessment and health impact of environmental exposures**

<p><i>...It took a long time for the Ministry of Health to develop Maximum Permissible Concentrations (MPC) for various contaminants. We pushed them hard for MPCs... however, we still don't have them for water.</i></p>	<p>Government-policy 2.B.1.1. In-depth interview</p>
<p><i>There is a molybdenum factory in our marz. The population always complains about this factory and we try to take their message to the authorities, but we don't know what happens. There are no analyses on whether the diseases in the region are related to that factory. There is no research on that issue. Moreover, there are no standards with which we could compare.</i></p>	<p>Government-implementation 2.B.1.2. Focus group discussion</p>
<p><i>The Ministry of Health does not monitor the health of people as related to contaminants or pollutants. They do not have any evidence of diseases related to pollution.</i></p>	<p>Government-policy 2.B.1.3. In-depth interview</p>

Although there is active monitoring of many air and water contaminants using up-to-date equipment, there are limited efforts using analytical epidemiological methods to establish associations for contaminants with diseases and death in communities. Nor are risk assessments made for disease occurrence due to different concentrations of contaminants. The lack of such studies disallows evidence-based development of interventions and programs to protect the health of the public. Lack of collaboration between authorities such as the Ministry of Nature Protection which monitors contaminants and the Ministry of Health is an obstacle for optimizing the protection of the health of the population.

The establishment of Maximum Permissible Concentrations of different contaminants with potential health impacts is a first step to protect the public from dangerous exposures. Maximum

Permissible Concentrations have been established for air contaminants but have not yet reportedly been established for water contaminants.

### 2.B.2. Air and water quality control

*Public health has a major role in nature protection: in water resources, rivers and waste management.*

Government–policy 2.B.2.1.  
Focus group discussion

*Our Government bans the import of ethylated gasoline in our country because of high concentration of CO during its burning. .... As a result the concentrations of lead are significantly lower in the blood of the Armenian population. ... [Also] the production of cement [now] occurs in a close environment, which is in contrast to open-air production of concrete in the Soviet time which produced large clouds of dust in the air.*

Government – implementation 2.B.2.1.  
In-depth interview

*Currently quality monitoring is conducted very well, because we have all new updated equipment for the monitoring. The quality of our air is satisfactory, and sometimes even better than satisfactory.*

Government–policy 2.B.2.2.  
In-depth interview

*The factories are closed down and more or less the air is clean now, car emissions. ... The air quality in Masiv and Komitas is better than in Kentron. Kentron is a hot spot; all the air contaminants accumulate in Kentron. ... If you view Kentron from a high place, you'll see major smog hanging over downtown.*

Population 2.B.2.1.  
Focus group discussion

*But we haven't seen any control measures by the state to control air quality. ... There should be control... for example air filters for factories can be used.*

Population 2.B.2.2.  
Focus group discussion

*Environmental health issues are really a problem for us; we lack laws in these areas. Our NGO dealt with the issues of Teghut mining and Lake Sevan's protection, which have a non-direct impact on health.*

Government–implementation 2.B.2.2.  
Focus group discussion

*Sometimes we taste the sewage in the drinking water. ... Many times we have an interruption of water flow due to various reasons. Sometimes we have no drinking water for several days, so we use water from Lake Sevan. We are boiling it and drinking; what else can we do?*

Population 2.B.2.3.  
Focus group discussion

*... I visited a water spring in Talin which was the water supply source of the village. ... People were having picnics there and one person was soaking her/his legs in the spring. This same water is piped to the village for its water supply.*

Government–implementation 2.B.2.3.  
In-depth interview

*[Water-born] outbreaks are taking place; last summer, for example, many children were treated [for the disease from an outbreak] in the hospital from the next village.*

Population 2.B.2.4.  
Focus group discussion

*I suggested informing people about the [air] monitoring results during the weather forecast; at first we could report monthly, weekly, and then daily. For example, in Great Britain every minute people are informed about the quality of air for an area through the internet, and patients that are affected by air contamination (such as asthmatics) can organize their day and know when to walk safely.*

Government–implementation 2.B.2.1.  
In-depth interview

Air quality achievements by the government reported by the participants included imported gasoline restrictions, particulate matter control in cement production and the use of modern equipment for monitoring. However, two major problems in Yerevan air quality were identified by experts: the concentration of near ground ozone and the high particulate matter concentration. The assessment of concentrations of particulate matter was identified as a problem due to the shortage of monitoring equipment for this purpose. For Alaverdi city, excessive concentrations of SO<sub>2</sub> and NO due to air contamination by the copper-molybdenum smelter were identified as a problem by expert participants.

Though environmental specialist participants reported that air quality in Yerevan, except for dust and ozone concentrations, was within permissible limits, many representatives of the general population were unsatisfied with the air quality of Yerevan, especially in Kentron hamaynk. Almost all study participants, both experts and the general population, suggested the installation of air filters for factories, even though it was noted that it was an expensive approach.

Though quantity of drinking water in the country was considered sufficient by environmental specialists, systematic interruptions in water supply for several days were reported. Drinking water quality was a concern shared by participating government policy professionals, environmental specialists from NGOs and the general population. Factories and mining activities were identified as the primary sources of water contamination and the loss of clean water resources. Lake Sevan and Teghut were noted as examples.

Participating specialists and the general population were concerned about the poor conditions of water pipes as a cause of low quality drinking water. Two major sources of water contamination were identified. In rural areas penetration of soil, sand, and microbes into broken water pipes was the problem. In urban areas, where sewage systems exist and where water pipes and sewer pipes run parallel and next to each other, leaks in both systems lead to much more serious contamination and often lead to outbreaks.

### **2.B.3. Waste management**

*We develop a legal framework [for waste disposal] which includes laws, regulations and orders ... that indirectly maintain public health. We have data about waste production, elimination and use. All waste production companies report to the Ministry of Nature Protection.*

Government–policy 2.B.3.1.  
In-depth interview

*Medical wastes are dumped in Nubarashen [garbage dump] without any control.*

Government–policy 2.B.3.2.  
In-depth interview

*There are polyclinics that don't have special repositories to destroy outdated bio-samples (TB and others), so they are dumped in the ground which is not appropriate for waste management.*

Laboratory 2.B.3.1.  
Focus group discussion

*There are many reactive chemicals left after the earthquake humanitarian aid; we don't know how to destroy them. I don't want to pollute the environment. This problem should be solved.*

Laboratory 2.B.3.2.  
Focus group discussion

*Waste from the whole region are dumped near our village. In windy days you can see garbage and plastics all over the territory. This garbage dump smells and all of us, including the children, breathe this polluted air. Moreover, very often they set it on fire, which is much worse.*

Population 2.B.3.1.  
Focus group discussion

*Near my house there is a stream. Everybody throws waste in that stream and right now there are three dead dogs in there, near my house. I have three small children...*

Population 2.B.3.2.  
Focus group discussion

*They [municipality] take the waste to the garbage dump which is near the town. Then they burn it there. Sometimes the wind blows the garbage back to town ... at least they should cover the waste by soil.*

Population 2.B.3.3.  
Focus group discussion

*Today I saw a wonderful bird in the sky. Then I realized that it was a plastic bag. There should be a waste recycling factory. Everyday I see how they burn the waste in the dump.*

Population 2.B.3.4.  
Focus group discussion

Almost all study participants noted deficient medical, industrial and municipal waste management as contributing to serious environmental health problems. Along with the lack of waste disposal control and placement of waste dumps (open landfills) near residential areas, the burning at waste disposal sites was perceived by the general population as a major environmental health threat. These deficiencies in solid waste management were suggested to lead to pollution of surface water supplies and the general environment. A few participants suggested to apply the Japanese approach of covering the waste dumps with soil, using the covered territory as parks, organizing production of the methane under the covered dumps and serve nearby populations with this fuel supply.

## **2.C. Food safety control**

### **2.C.1. Debate on food inspection responsibilities**

*... last year we [State Food Safety and Veterinary Inspection] recalled 400 tons of food, because of microbial contaminations, molds, chemicals, etc. ... In 2007, we conducted 1,500 inspections of food, in 2008 it was 1,600, and in 2009 we are planning to have 2,000 inspections. It includes markets, restaurants, cafés, kindergartens, schools and other food related institutions.*

Government–implementation 2.C.1.1.  
In-depth interview

*I heard that the food control is now given to the Ministry of Agriculture ... I have not seen any specialist from this Ministry visiting us [for inspecting food in a kindergarten] after this decision.*

Consumer 2.C.1.1.  
In-depth interview

*If the person who controls food safety is not a physician, but a technician, engineer, then s/he cannot understand appropriately food-related risks due to microbes growing in food for given conditions.*

Government-implementation 2.C.1.2.  
Focus group discussion

*The sample collection [for food safety] is not done properly, because the people from the inspectorate who are responsible are not very willing and have poor knowledge on how samples should be chosen properly. This is a serious problem. The inspectors from the Agriculture and Veterinary services are not interested in the proper collection of samples, and they are the people who decide from where and how to do sampling...*

Laboratory 2.C.1.1.  
Focus group discussion

*It does not matter who inspects the food. The inspector does not have to be a doctor, because inspectors only take samples according to approved guidelines. This is procedural work that any technician can do. The function of an inspector is sampling, nothing more.*

Government-implementation 2.C.1.3.  
Focus group discussion

*We have no problems with the specialists [food inspectors]. We have many SanEpi doctors, who work in our institutions. But specialists from SanEpi services or medical doctors cannot know what kind of diseases exist for plants and animals, so they are not as competent for food safety analyses as veterinary doctors.*

Government-implementation 2.C.1.4.  
Focus group discussion

*Medical doctors do not have the capability to inspect meat or milk; they do not learn it in the medical school. From this perspective, it was a good decision to pass food inspection responsibilities to the Ministry of Agriculture. On the other hand, the Ministry of Agriculture also inspects all consumables including water, tea, coffee, and processed foods. Veterinarian doctors are not capable for doing inspection of such kinds of foods. I think that State Hygiene and Anti-epidemic Inspectorate should have the responsibility to inspect these types of foods.*

Specialized education 2.C.1.1.  
In-depth interview

Since 2006 the responsibilities of food safety have been transferred from the Ministry of Health to the Ministry of Agriculture, there is a debate between the two Ministries on the distribution of responsibilities of food safety services. Personnel from each side felt that they were more capable of conducting most of the food safety inspections. Further independent quantitative

analysis is necessary to assess the most efficient and most effective distribution of responsibilities to protect the public health.

## 2.C.2. Food quality

### Inspection shortfalls

*In our countries food related issues are raised only if outbreak occurs. There is no strict control over food quality.*

Specialized education 2.C.2.1.  
Focus group discussion

*Sausages are made from all kind of meat. Producers buy meat of horses, donkeys and dead animals from farmers, fully aware of what they are buying. They [villagers] cannot just throw it [meat] away. We have to deliver this meat for money....*

Population 2.C.2.1.  
Focus group discussion

*... we cannot blame a poor villager, because it is the only way for him to get money [selling poor quality meat].*

Population 2.C.2.2.  
Focus group discussion

*The official results of testing report that everything is very safe and is of high quality, which is far from being the truth. We find food falsification very often; tons of lard are added to butter to be sold; this is not the matter of inability to perform precise testing, but conflict of business interests.*

Laboratory 2.C.2.1.  
Focus group discussion

*Do not buy any product from open air markets without packaging. Especially meat, milk and other products of animal origin. I have special concerns about meat sold in open air market.*

Government–policy 2.C.2.1.  
In-depth interview

*Inspection of [internally] produced or imported foods should be conducted equally for all, without considering who or how powerful the owner is.*

Consumer 2.C.2.1.  
In-depth interview

*... we do not trust the quality of the products. Government has to control the quality of retail products.*

Population 2.C.2.3.  
Focus group discussion

## **Food expiration**

*There is a problem with the expiration date. I often face the problem of out-dated food. Sellers in markets justify that when they receive new food items they forget to take the old one away. We often buy spoiled milk. So this abnormal situation is very common.*

Population 2.C.2.4.  
Focus group discussion

*The markets can change the expiration date; they print another date on the old date.*

Population 2.C.2.5.  
Focus group discussion

*...Sometimes, the stores open the packages and sell the food in kilograms so that people cannot control dating.*

Population 2.C.2.6.  
Focus group discussion

*90% of people don't check the quality before buying food... it is not our duty; inspection service should do that.*

Population 2.C.2.2.  
Focus group discussion

Participants from the general population indicated a general lack of trust in the quality of the food products sold in the markets. Many reported falsifications (changing the labels, selling unpacked products, and adding fillers) led people to distrust food quality.

All specialists in this field indicated that animals were slaughtered in the farmers' backyards without assurance of sanitary conditions. Another problem identified by the majority of the participants from the general population from both urban and rural communities was the inadequate quality of meat sold to the sausage producers. They believed that this meat was often not checked by the veterinary specialists. Moreover, study participants felt that the food regulations were not enforced equally to all businesses, large and small.

Many of the study participants, including specialists and the general population, identified the problem of food trade in open air markets, particularly the meat trade. Many restaurants buy their products there. Participants indicated that inspection efforts in such places face a challenge because the meat is being sold by early morning prior to inspection.

According to the majority of study participants, very often (especially in the summer time) milk products sold in the market are spoiled. Participants reported that often dairy products are outdated.

Two solutions were proposed by the majority of the study participants in all groups, first, to implement strong quality control over food producers and markets, and second, to raise the awareness of people about the importance of checking expiration dates of products.

## 2.D. Occupational health

*We now have many restaurants with very good working conditions. ... It requires time and resources, and the development of a culture among employers to provide improved working conditions for their employees.*

Government–policy 2.D.1.  
In-depth interview

*Teachers and food-related workers are undergoing health examinations every year.*

Population 2.D.1.  
Focus group discussion

*I cannot control whether my employee actually has a health exam or not; it is based on mutual trust [that my employee will have it]. ... An employee can ask the specialist for a “favor” and pay the specialist not to undergo the physical check-up. How can I control this process?*

Consumer 2.D.1.  
In-depth interview

*In our field (occupational health) we find many people working in high risk situations. During Soviet times we followed strict rules and monitored the health of vulnerable working groups. Now everything is changed; when we discuss with them about improving the safety of their working conditions to protect their health, they prefer working in less safe environment for bigger money.*

Government–implementation 2.D.1.  
Focus group discussion

*During the Soviet times we had occupational health control, and employees were undergoing systematic medical check-ups. Now everything has changed and check-ups are not free anymore; someone can continue working in a profession with a disease that prohibits them from working in that field and no one cares. I propose ... implementation of obligatory [health] screenings.*

Local NGO 2.D.1.  
Focus group discussion

*I saw how the system works in European countries, and they have shown real success. ...*

*Inspection and control with its previous negative focus on punishment is now focusing on support.*

Government–implementation 2.D.1.  
Focus group discussion

According to many participants, routine occupational check-ups are performed for food-related, educational, and health care personnel. However, according to study participants, these check-ups rely on the veracity of the employee; some employees reportedly make informal payments to receive health certificate without a check-up.

Occupational health specialists reported that they are facing difficulties maintaining occupational health standards to protect the health of workers. Currently employees are often more concerned about having employment than they are about the conditions at work. It was suggested that standards should be more realistic and specific to different needs. Participants suggested expanding mandatory health screenings. Participants also indicated that inspection services would be more successful if there was a supportive partnership between inspectors and consumers of inspection services.

## **2.E. Laboratory support for investigation of health threats**

Performances of state and private laboratories, clinical and food laboratories as well as san-epidemiological and environmental laboratories are included in the analysis.

### **2.E.1. Laboratory equipment and supplies**

*We have good specialists who cannot complete required work because of inadequacy of supplies and equipment.*

Government–policy 2.E.1.1.  
In-depth interview

*The state laboratories do not even have measuring hoppers, thus doctors work with pipettes and monocular microscopes; as a result the quality of analysis is not assured.*

Laboratory 2.E.1.1.  
Focus group discussion

*We have equipment such as water bath and rhesus equipment which is from 1917: I use it very carefully. It is necessary to update the equipment. We need support.*

Laboratory 2.E.1.2.  
Focus group discussion

*...the problem is the lack of proper equipment in veterinarian laboratories. Our doctors are working with microscopes only, while in other countries new technologies are used.*

Specialized education 2.E.1.1.

In-depth interview

*The majority of the regional labs are in very poor condition; it is not comparable to [laboratories in] Yerevan... The Sully hemometer [to measure hemoglobin] is the most common instrument used... I congratulate them, because with what they have to work they do tremendous job; they conduct almost precise testing with poor equipment. And this is true not only for remote areas, but also in places like Gyumri where people cannot receive the same quality of services as in Yerevan.*

Laboratory 2.E.1.3.

Focus group discussion

*Though our equipment is designed to test for hormone levels, we are not provided with necessary reagents to perform these tests. It would be good to provide hormone testing in the marzes, because now people have to come to Yerevan for those services and have to pay for them.*

Laboratory 2.E.1.4.

Focus group discussion

*... the optimal number of air quality measuring instruments for us is at least 23-28; currently we have only 7.*

Government-implementation 2.E.1.1.

In-depth interview

Universally, the greatest challenge facing laboratories reportedly was the lack of resources, antiquated equipment, and shortage of supplies. Participants noted that private laboratories are better equipped and have superior supplies to that of public laboratories. In addition, rural laboratories are often of lower quality. Laboratory specialists indicated that equipping laboratories with updated instruments and supplies would reduce the negative impact of laboratory staff shortages and assure better quality laboratory results.

## **2.E.2. Laboratory guidelines and information systems**

*We had old guidelines from the Soviet time, which some laboratories still use and some use standards established in 1996-1998; there is no mechanism to establish universal standards.*

Laboratory 2.E.2.1.

Focus group discussion

*Some laboratories use the European Good Lab Practice guidelines but it is up to individual laboratory whether to use a guideline or not. It is not mandated by the government.*

Laboratory 2.E.2.2.  
Focus group discussion

*Until now we do not have our own food standards [for concentrations of contaminants and minerals] in Armenia. When we test the safety of vegetables, we use any Maximum Permissible Concentrations (MPC) available at the moment, because there are no [Armenian national] standards for heavy metals in vegetables .... We have to develop our own MPC standards for mineral concentrations, which currently do not exist; the government has not addressed this issue.*

Laboratory 2.E.2.3.  
Focus group discussion

*Sometimes the report writing for work takes more time than the work itself. In the polyclinic labs the results are registered in forms and journals. At the end of each month we have to integrate all the data from various sources for different purposes, for different population groups. It is an overwhelming job. Then these products go to the accounting office and then to the Municipality to compute our budget for the following month. There is a high probability of mistakes. It is very difficult to separate out particular information from the aggregate collection of materials.*

Laboratory 2.E.2.4.  
Focus group discussion

*We are doing everything by hand, and it is very difficult. ... I think it should be computerized.*

Laboratory 2.E.2.5.  
Focus group discussion

As indicated by many study participants there is a lack of guidelines and standards for laboratory testing. Clinical and food laboratory specialists stressed the importance of having universal testing methodologies and Maximum Permissible Concentration standards to more effectively protect the public health.

Specialists from Yerevan and from various marzes indicated the importance of streamlining the overburdening reporting system. They also suggested computerizing the current manual system of data collection, data management and reporting to reduce the workload and errors.

### **2.E.3. Physical conditions of state laboratories**

*...the hygienic conditions of the state labs are extremely bad...*

Laboratory 2.E.3.1.  
Focus group discussion

*We cannot assure hygienic standards because we have inadequate physical conditions and*

*insufficient financial resources.*

Laboratory 2.E.3.2.  
Focus group discussion

The major problem noted by laboratory specialists was the substandard hygienic and physical conditions found in the state laboratories. These problems were especially raised for state laboratories in the marzes. Participants indicated there was an absence of plans for improvements in the conditions of laboratories because of financial limitations.

#### **2.E.4. Quality control of laboratory services**

*State food laboratories are incapable of conducting quality testing that meet the standards of certification for exporting products. ... Having updated equipment is not enough. ... specialists have to be able to interpret lab results which is the most difficult part of our work, and unfortunately they do not know how to do it.*

Laboratory 2.E.4.1.  
Focus group discussion

*Once every few months, SanEpi inspects our laboratories for adequacy of sterilization, cleanliness and sufficiency of supplies.*

Laboratory 2.E.4.2.  
Focus group discussion

*They [SanEpi] conduct quality control very well and accurately.*

Laboratory 2.E.4.3.  
Focus group discussion

*The only issue is that when they identify any problem they... penalize the polyclinic. Since the polyclinic has inadequate resources to improve the situation, nothing is done. The next time they [SanEpi] inspect the facility and again penalize them. ... The facility prefers [again] to pay the penalty because it is less expensive than improving the conditions.*

Laboratory 2.E.4.4.  
Focus group discussion

*When they [SanEpi] first came and penalized our laboratory I asked them to provide us guidelines and standards for what is permissible to avoid further penalties. They told us to find it ourselves. I sought information through the internet and found nothing. We don't know what the SanEpid requirements are for laboratories.*

Laboratory 2.E.4.5.  
Focus group discussion

*I recommend establishing a reference lab which could control the quality. We want to have an opportunity to assess the quality of our work.*

Laboratory 2.E.4.6.

Focus group discussion

*Quality control of laboratory procedures should be performed at least once a year so that we know our laboratory meets the standards. We need an outside agency for quality assurance. ... The National TB Program provides quality checks for our TB testing every three months, providing an assessment of our work.*

Laboratory 2.E.4.7.  
Focus group discussion

Some participants believed that current laboratory testing in Armenia is not sufficient to meet quality standards. This can be due to deficiencies in tests or lack of capacity among laboratory specialists.

Some laboratory specialists reported that inspection of laboratories was performed regularly and in an appropriate manner. However, the majority of laboratory specialists perceived that the main purpose of the inspection was to penalize the laboratory and collect payments rather than support laboratories in improving conditions. Moreover, participants indicated that such inspection guidelines were not always easily available to the laboratory. The majority of the laboratory specialists indicated that there should be closer collaboration between laboratories and inspection services, based more on partnership and supportive relationships.

In addition, national reference laboratories do not exist for many areas of laboratory testing to assure continuous quality control. Participants recommended that national reference laboratories should be established where absent.

### **2.E.5. Communications and collaboration between laboratories**

*Here [focus group discussion] I see my colleges for the first time. We don't know other lab personnel, even in our own marz. We should have some meetings to discuss and share our [common] issues.*

Laboratory 2.E.5.1.  
Focus group discussion

*Recently there was a workshop ... to introduce a new reactive agent and I was the only representative from the marzes. It was a great pleasure for me to participate in such a meeting and communicate with other biochemists-laboratory workers.*

Laboratory 2.E.5.2.  
Focus group discussion

*... collaboration is very important; training sessions provide specialists a place to meet, exchange ideas and learn new information.*

Laboratory 2.E.5.3.  
Focus group discussion

*We have some collaboration with Swedish and German laboratories, but no collaboration between our own labs.*

Laboratory 2.E.5.4.  
Focus group discussion

Though participants indicated that there was active collaboration between laboratories and other primary health care services within the same medical facility, the absence of any mechanisms for exchange of information and ideas between different laboratories was an issue. This problem was identified to be more amplified in rural areas, where there were fewer workshops, training sessions and meetings. Laboratory specialists from private laboratories, who had local and international partners and were involved in different coalitions, mentioned more about collaboration and communication.

### **3. Health protection**

#### **3.A. Laws and regulations**

*...Health legislation ...this is an area which needs huge improvements.*

International organization 3.A.1.  
Focus group discussion

*We have laws and policies inherited from the Soviet system. Almost nothing has changed.*

International organization 3.A.2.  
Focus group discussion

*The problem with our legal system is that laws are written for personal benefit, not for the benefit of all.*

International organization 3.A.3.  
Focus group discussion

*I cannot say what specifically works well and what doesn't in our law, but laws that are well written are not implemented in reality.*

Government-implementation 3.A.1.  
In-depth interview

*In the past, [public health] law was approved, with regulations, sanitary norms and orders being*

*created by the government later. Currently the draft [public health] law also covers responsibilities and rights; supervisory practices will be regulated only by this law. This law has a broader field of coverage, as well as new directions. The International Health Regulations, which has been adopted by Armenia, is also integrated into this new draft law.*

Government-policy 3.A.1.  
In-depth interview

*We cannot say that our draft covers all the PH issues today; however it improves the current law very much. So it would be better if we accept it now and then gradually improve it, amending it. For example, in the current law immunization issues are not covered, while this draft covers all legal issues related to immunization. If with draft approval we improve the immunization coverage then it will be a major success for us.*

Government-implementation 3.A.2.  
In-depth interview

*The State Hygiene and Anti-Epidemic Inspectorate has designed a new public health law which should be approved by the Ministry of Health. According to experts, this law does not address the current needs of the country, so it needs to be improved. It should be more comprehensive. Before approving the comprehensive laws we need to develop a public health strategy and then adjust public health law to that strategy.*

Government-policy 3.A.2.  
In-depth interview

*We have two separate laws about public health and about the provision of medical care. I think these two laws should be combined. Only State Hygiene and Anti-epidemic Inspectorate is involved in developing public health legislation. I think more people should be involved in this process. Public health must be more than just SanEpid services.*

Government-policy 3.A.3.  
In-depth interview

*The State Hygiene and Anti-epidemic Inspectorate has made a law which they call public health law but that law is only about their inspectorate: how to inspect the shops and markets, etc. Personally I am opposed to that law because public health is more than just inspection.*

Government-implementation 3.A.3.  
In-depth interview

According to all the participants, the current public health laws need significant improvement. Participants indicated that the existing public health legal framework was fragmented and outdated. Some felt that the laws were written for the benefit of a few individuals, rather than for the society as a whole. Even if well formulated laws were in place, proper implementation and enforcement of laws was viewed as a problem in Armenia.

To improve the PH legal framework, a draft law was prepared in 2005 by SHAI that covered more PH functions than the current law. The draft law went through review and changes over time. Some participants felt that the draft should be passed by the National Assembly with further improvements being made through future amendments. Other participants felt that there was a need to improve the draft law before presentation to the National Assembly since it covered only the functions of the SHAI and it was not sufficiently comprehensive.

Some participants indicated that informing consumers about inspections three days prior provided consumers the opportunity to cover up violations. These participants indicated that this reduced the quality of inspection services for protecting the public health.

### **3.B. Protection of vulnerable groups**

*We do not have any health related programs for children in orphanages. ... Maybe the orphanages themselves have health programs that are implemented by different organizations [?]....*

Government-policy 3.B.1.  
In-depth interview

*We are ... having ... problems with the stigmatization of disabled persons. ... In 2007, the Minister of Urban Development approved construction standards to improve accessibility for disabled persons. Very often disabled persons are ignored and stigmatized. Very often people think that disabled persons do not need special arrangements for accessibility because they believe that disabled persons do not leave their homes. ... if the problem is discussed, people's awareness and attitude towards this problem will change.*

Government-policy 3.B.2.  
In-depth interview

*We don't have a shortage of these devices [voice producing equipment, eye prosthesis, hearing devices, etc]. The problem is lack of funds to purchase them.*

Government-policy 3.B.2.  
In-depth interview

*The main problem is the lack of financial resources. State funding only covers drugs. There is a need to find resources for elderly people who live alone.*

Government-policy 3.B.3.  
In-depth interview

*I think that therapeutic psychological services should be provided in different areas of the health system, even for surgical services.*

Mental health 3.B.1.

	In-depth interview
<i>The state covers all mental health services and we are supplied with very good medications. ... Now we have very good drugs for people with mental health problems.</i>	Mental health 3.B.1. In-depth interview
<i>There is no institute of psychology in Armenia. As Armenians we use gossip as a substitute for psychological therapy.</i>	Population 3.B.1. Focus groups discussion
<i>...stigma is a big problem. In Armenia people do not utilize mental health services because mental health problems are stigmatized. ... Before utilizing psychiatric services, Armenians utilize fortune-tellers, traditional “candle droppers” and “fear measurers” [practitioners of traditional methods]. Only when the condition becomes severe, where “the knife reaches the bone”, they then utilize mental health services.</i>	Mental health 3.B.1. In-depth interview
<i>If we utilize psychological services people can say that we are crazy.</i>	Population 3.B.2. Focus groups discussion

There is a state-sponsored rehabilitation program for persons with disabilities. The program provides devices and equipment for their disabilities free of charge. However, participants indicated that the finances were not enough to cover all the needs for persons with disabilities and the elderly; the resources were insufficient to support full integration into social life for these vulnerable populations. Some participants also indicated that there were no health programs for children in orphanages.

The psychiatric services are covered by the Basic Benefit Package. This coverage also includes expensive new psychotropic drugs that can support persons with mental health problems in integrating them back into normal social life. However, participants indicated that psychological and therapeutic services were not available for the general population or for high risk groups.

Stigmatization of persons with mental health problems, as well as persons with disabilities and some infectious diseases such as TB was identified as a major problem by majority of participants. Participants also indicated that stigmatization extends to any persons using

psychological services. Stigma contributes to late utilization of necessary health services. Participants indicated that in some cases people still prefer traditional methods for their mental health care.

#### **4. The preparedness to emergency situations**

##### **4.A. Emergency response plans and capacities**

*We have action plans for all types of emergencies. We have plans for responses to earthquakes, floods, acute toxic substance contaminations, atomic nuclear reactor disasters, etc. ... Each plan includes plan of actions for all stakeholders, including the government.*

Government-policy 4.A.1  
In-depth interview

*We have two systems for data collection. One system collects daily data. These data are analyzed and used for planning for the next year. The other system is problem-based, where we collect data for emergency preparation, then analyze the data to develop emergency preparedness plans.*

Government-policy 4.A.1  
In-depth interview

*During the earthquake in 1988, there were no plans of action, and we received substantial resources from other countries. However, the number of blankets received from these countries could exceed two or three times the number of blankets needed but the number of tents provided was not sufficient. Now we have estimates for the amount of all necessary resources for emergencies based on previous experience.*

Government-policy 4.A.1  
In-depth interview.

According to an expert in emergency response, there are currently emergency response plans for various emergencies. These plans cover contingencies, rescue actions, emergency surveillance systems, and recovery. Surveillance systems include human health, weather, information on buildings, geographic locations and other relevant emergency information. Data on toxic substances discharged by factories are also collected contingent to disasters in the factories.

According to the expert, the necessary resources for the emergency response are covered in the emergency response plans developed by the Ministry of Emergency Situations and they are reassessed annually. This preparedness protects the country from repeating the mistakes made during the 1988 earthquake.

#### 4.B. Systems for dissemination of information for emergency preparedness

*We have a system of dissemination of information during emergencies; we provide TV programs and newspaper articles to disseminate information on how to respond to emergencies for the general population. However, we would like to improve our approach for informing the public. We are taking steps to make these improvements.*

Government-policy 4.B.1.  
In-depth interview

*We conducted some small projects with the Armenian Red Cross for emergency preparedness for earthquakes, fire, etc. However it wasn't an integral part of school curricula or formal training; it had little impact on the preparedness of the school system as a whole. Students and teachers are uninformed concerning emergency procedures.*

Government-policy 4.B.2  
In-depth interview

*... some training [for emergency preparedness] is organized only in military classes in the school system; these have been organized a few times. Aside from training for emergency preparedness students also receive training on first aid.*

Population 4.B.1.  
Focus group discussion

*Neither I nor my children have ever participated in [emergency preparedness] training.*

Population 4.B.2.  
Focus group discussion

*... all people should be engaged in emergency preparedness training; however it cannot be conducted in all parts of the country immediately. ... we organize trainings for high risk populations such as those living next to the nuclear power plant or those that live near factories that produce toxic substances.*

Government-policy 4.B.1.  
Focus group discussion

*On a score of 1-10, I would assess our emergency preparedness as 2.*

PHC 4.B.1.  
Focus group discussion

*Even if we say that we [primary health care physicians] are prepared [for emergencies], those would just be empty words. ... in a real emergency everybody would look at each other and no one would know what to do.*

PHC 4.B.2.  
Focus group discussion

There is a system for disseminating information to the general public in Armenia through television and newspapers. However, improvements are being made to more effectively reach the public, especially in the marzes.

Most of the participating general population in the study noted a weakness in emergency preparedness and no opportunity to participate in emergency preparedness training. Participants indicated some training is occurring but it is limited primarily to high risk groups and schools but not fully integrated into those school curricula. Even most primary health care physicians indicated a lack of emergency preparedness among primary health care physicians.

#### **4.C. Laboratory capacities for emergency response**

*There are many laboratories in our country that can provide testing for emergency situations. ... One laboratory is responsible for testing chemical, radiological assessment in the environment ... it was established to collaborate with other labs including SanEpi labs, the Ministry of Agriculture labs, state standards lab and private labs. We have a systematic protocol to ... assess whether there is a problem and determine a proper response to that problem.*

Government-policy 4.C.1  
In-depth interview

According to an expert in emergency situations there is a plan in place for a collaborative effort among laboratories during emergency situations. One such centrally collaborative laboratory responsible for chemical and radiological assessments in the environment coordinates data collection among laboratories, assesses problems and determines proper responses.

#### **4.D. Human resources in emergency response and capacity building**

*I do not believe that we have a shortage in trained professionals [in emergency management]. We have an Emergency Management Academy ... that provides an advanced degree .... We have both young and older specialists in the field. ... Simulations and trainings on emergency situations response are performed regularly [for professionals]. ... Our new specialists [in emergency management] receive three months training when they first enroll in their position; when being promoted they again undergo professional training. ... We are always trying to improve.*

Government-policy 4.D.1.  
In-depth interview

Advanced degrees with various specializations are employed in emergency management. Degree training in emergency management is provided by an academy and new employees in this field receive three months of training and further ongoing trainings in this area. This trainings include simulations and coordination with international organizations.

#### **4.E. Collaboration in emergency management and future improvement**

*We are not only collaborating with the ministries, but there is a special civil protection department in each ministry. We collaborate with all the authorities, marzpetarans [marz authorities] and district authorities. ... We collaborate with many international organizations who deal with emergencies. We collaborate with relevant NGOs. There are no major problems in collaboration. The system is broad and includes many fields and functions. It needs time and resources to gradually improve.*

Government-policy 4.E.1.  
In-depth interview

*It is necessary to develop “emergency medicine” in our country, which is very common in other countries... “emergency medicine” specialists are already organized and equipment and resources are already prepared; they are already prepared to respond immediately.*

Government-policy 4.E.1.  
In-depth interview

The Ministry of Emergency Situation coordinates and collaborates with different state, international and local NGOs on emergency response. It was recommended by an expert of emergency management that for improving emergency response, *emergency medicine* should be established in Armenia; *emergency medicine* reduces response time and improves effectiveness of the response to emergencies by previously organizing response teams, resources and well defined roles.

### **5. Disease prevention and health promotion**

#### **5.A. Disease prevention**

##### **Provision of preventive services**

*Now many resources and efforts, including the training of family doctors and nurses, are given to improve primary health care services. Even though in the Soviet System, screenings were organized very well, polyclinic doctors did not pay as much attention to healthy lifestyle as they do now. Now doctors are more educated about working with the population. Maybe it is not enough yet, but there has been progress.*

Government-implementation 5.A.1.

Focus group discussion

*The ministry [of Health] should have two functions: medical care and public health. The medical department will never perform public health functions because they are specialized in [individual] care and are not interested in prevention.*

Government-implementation 5.B.2.  
In depth interview

*We need doctors to promote healthy lifestyle and disease prevention, not only treatment...*

International organization 5.A.1.  
Focus group discussion

*However, from my own experience, health care providers are not ready today to provide the population with such information [for preventing disease], because they do not yet understand that prevention is much more effective than treatment.*

International organization 5.A.2.  
Focus group discussion

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### **Utilization of preventive services**

*Sick people utilize doctors when “the knife reaches the bone” [when the condition is severe]. ... the culture to utilize health care for preventive check-ups is not embedded in our nation, and ... Armenians also know that they have to pay for such services.*

Population 5.A.1.  
Focus group discussion

*[For prevention] we only vaccinate our children. For adults it is almost impossible to maintain health through preventive visits to the doctors, because their fee for consultation alone is 5,000 AMD. Who could pay this amount of money for every visit?*

Population 5.A.2.  
Focus group discussion

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### **Antenatal care**

*We have problems in early enrollment of pregnant women. After the implementation of the certificate program, the total enrollment increased but early enrollment didn't change much. ... One of the problems is low public awareness ... We tried to raise public awareness by informing pregnant women about possible services. ... Another possibility [to increase early enrollment] is strengthening the motherhood schools.*

Government-policy 5.A.1.  
In-depth interview

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## **Comparative advantages of preventive services**

*It is less expensive to have good results [preventing disease], avoiding the development of diseases; if disease develops it requires spending many more resources on treatment. Many of our officials do not understand this issue very well, and it is sometimes very difficult to explain the importance of prevention to them.*

Specialized education 5.A.1.  
Focus group discussion

*I would like to paraphrase the Ministry of Health specialists, when we are talking about public health and preventive care: “Is it rational to let 280,000 patients receiving care in the secondary level/hospitals die, rather than deal with prevention and care of people who would be potential patients in the future?”*

International organization 5.A.3.  
Focus group discussion

*... our first action should be [health] education starting from a young age... health is something very valuable that is very difficult to recover in treatment; it is much easier to prevent illness and maintain health.*

Government-policy 5.A.2.  
In-depth interview

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## **Health screening**

*There are no massive screenings in our country, since we do not have finances for them.*

International organization 5.A.4.  
Focus group discussion

*If health screenings were free of charge many people would participate. [in one example] many people attended free screenings and discovered illnesses, but the screening programs are not enough; because people then have to go to Yerevan for their health care, which almost never happens because of the costs involved. People even have a hard time covering the cost of transportation.*

Population 5.A.3.  
Focus group discussion

*The problem in our health system is related to early detection and prevention. It is necessary to implement a program for detection of disorders during early childhood. This program is on paper but has not yet been approved. ... It is difficult to explain the necessity of providing money for identification of health problems to the officials.*

Government-policy 5.A.3.  
In-depth interview

*...if we screen and provide a diagnosis, but do not provide any support for follow-up treatment, it is neither effective nor moral. The State should consider further steps after screening.*

International organization 5.A.5.  
Focus group discussion

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**Vaccination**

*The vaccination program has improved but we still have a problem with coverage. Sometimes parents do not understand the importance of vaccination.*

Government-policy 5.A.4.  
In-depth interview

*We do not provide vaccinations to prisoners; at least we haven't during the last seven years. However, we provided vaccinations against diphtheria two years ago, when there was a massive vaccination program against diphtheria in the country. Against which diseases should prisoners be vaccinated? Maybe there is a need for vaccination against Hepatitis B; I cannot say for sure. However, we do not currently provide it.*

Government-policy 5.A.5.  
In-depth interview

According to participants, although some progress has been made in preventive services the health system is still focused on individual medical care. There is little understanding of the advantages of prevention and an absence of incentives to practice preventive medicine among physicians contributes to this situation.

Likewise, participants indicated that the consumers of health services did not have a developed understanding of preventive medicine and did not see the advantages in expending the resources on such services – instead resources were often spent by the general population only when disease was severe. One of the disincentives identified for utilizing preventive services was the out-of-pocket costs to consumers.

Participants agreed that effective preventive services reduced the cost and health burden, such as death and morbidity, of treatment by preventing disease or reducing the severity of disease. However, participants indicated it was much more difficult to convince decision makers to fund prevention when success in prevention meant absence of disease; whereas curative medicine treats existing disease which is easier to understand and easier to see.

Participants indicated that screening for appropriate diseases was limited due to lack of financial resources, though there was an interest in expanding screening programs for the general population and for high risk populations. However, participants noted the essential importance of availability and affordability of effective treatment for early stages of the screened diseases or conditions.

Participants indicated that although the vaccination program for children was fairly successful, coverage could be improved. One participant suggested that this lower coverage was due to parents' lack of awareness, trust and myths about vaccines.

Prisoners are not regularly provided vaccines, though they receive screenings for infectious disease on entry to the penitentiary system. In some penitentiaries the main problem in provision of screenings is the absence of fluorography machines. As in the general population, stigma for many diseases such as AIDS and TB are carried into the penitentiary.

According to one expert there is a problem of late enrollment in antenatal care. One of the factors contributing to late enrollment was low awareness by pregnant women about the importance of early antenatal care. One possible solution provided for this problem was to strengthen motherhood schools which would better inform pregnant women.

## **5.B. Health promotion**

### **Sponsors of health promotion activities**

*Health promotion campaigns are mainly organized by the international organizations. The State authorities feel comfortable with this and show no interest organizing national health promotion campaigns.*

International organization 5.B.1.  
Focus group discussion

*Activities [health promotion] are very fragmented and donor driven. Some responsibilities for health promotion according to the law are given to the primary health care providers, but they are very passive because they do not have incentives and there are no enforcement mechanisms.*

International organization 5.B.2.  
Focus group discussion

*International organizations are involved in health promotion activities. But their involvement is*

*sporadic and limited to certain specific projects and topics such as an immunization program or avian flu. These projects are not permanent. They are short-lived and health promotion needs continuity.*

International organization 5.B.3.  
Focus group discussion

*Health promotion [within the Ministry of Health] today is poorly organized.*

International organization 5.B.4.  
Focus group discussion

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### **Credibility of disseminated health information**

*Currently, nobody is responsible for the oversight of health promotion programs. Anyone can teach the population without proper knowledge; for example, journalists could easily disseminate wrong information through the mass media and cause panic. This situation has to be controlled.*

Government-implementation 5.B.1.  
Focus group discussion

*NGOs that are involved in health promotion ... are very often providing invalid and incorrect information. I saw some booklets regarding healthy lifestyle that were approved by the Ministry of Health and were printed for dissemination among the general population, which included obviously wrong information. It said that hepatitis was transmitted through air droplets. I was shocked that this was a governmentally approved project.*

International organization 5.B.5.  
Focus group discussion

*Collaboration activities with specialists to control and regulate the information in educational materials are needed.*

International organization 5.B.6.  
Focus group discussion

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### **Stakeholders in health information dissemination**

*We [primary health care providers in polyclinic] don't have enough time to talk to the parents; we have many responsibilities. Though, based on protocols, health counseling is the responsibility of primary health care provider; we do not have enough time to cover everything. I think that it will be better to meet with parent groups and discuss questions. Not all, but some polyclinics do it. Also some topics are sensitive, such as sexual health.*

PHC 5.B.1.  
Focus group discussion

*Family doctors should be used as resources for health promotion implementation.*

International organization 5.B.4.

Focus group discussion

*For health promotion we need to work closely with the media. The media has the responsibility to provide messages to the population through television or newspapers, and they do sometimes. We do not have the regulatory mechanisms or agencies to coordinate these activities.*

International organization 5.B.7.

Focus group discussion

*...About half of [health promotion] activities could be done by primary health care physicians. The rest of the responsibilities should be given to the mass media, because people do not visit health care providers very often, and the information should be provided constantly. It is more effective to receive the same information from different sources.*

International organization 5.B.3.

Focus group discussion

*I think the school can have more influence on the child regarding healthy lifestyle than a parent. Parents' advice on health is not so easily accepted by the child.*

Population 5.B.1.

Focus group discussion

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### **Mental health needs in penitentiary**

*Mental health is a serious concern in prison due to the stressful environment. There was a suggestion that mental health programs should be implemented in the prisons but financial resources are lacking. International donors are necessary for the implementation of such a program.*

Government-policy 5.B.1.

In-depth interview

Most of the participants noted that health promotion was most commonly conducted by the international agencies but it was sporadic and short-term. Due to limited financial and human resources as well as poorly defined roles and responsibilities, state-sponsored health promotion activities were limited. Some participants expressed a concern about the credibility of disseminated health information and the inadequacy of oversight of health information to assure quality.

Participants agreed that the role and responsibility of primary health care physicians includes health promotion; however participants also indicated that the work burden on the primary health care physician and limitations of time and resources did not permit adequate provision of health promotion services by these professionals, even though some counseling was provided and some

materials were distributed. According to some participants the lack of incentives was also a serious barrier for conducting health promotion activities by the primary health care providers.

Mass media was reported to be the primary means of dissemination of health information but the quality of messages and the validity of information requires active involvement and oversight by the Ministry of Health.

Health information is also provided through “Healthy lifestyle” classes for children at schools; majority of participants supported this initiative. However, participants indicated that the population as a whole had many questions about health that remained unanswered such as aging, sexual health, and nutrition.

One specialist indicated the importance of promotion of mental health in especially stressful conditions such as in prisons, but there are no such services currently offered in these institutions given the limited financial resources for health promotion activities. Prisons do provide health promotion activities in TB and HIV/AIDS prevention.

Police provides health promotion activities for traffic safety through the mass media and in children’s programs. However, a specialist emphasized the need for collaboration with the Ministry of Health and the Ministry of Education and Science which is currently absent.

## **6. Evaluation of quality and effectiveness of personal and community health services**

*If we look at the quality assurance mechanisms, we will see that it is mainly based on input indicators. Unfortunately the quality based on process and outcome indicators is not very well developed in our country. We should emphasize process and outcome quality assurance more. For example, if we allocate a huge amount of money to build a brand new building but we don't have any outcome, I would say this is a waste of money. If you don't see the outcome everything is nonsense. Although we have outcome related indicators and we conduct periodic evaluation based on these indicators, unfortunately this process mainly focuses on data collection. Evaluation, conclusions, and recommendations based on assessments are not developed.*

Government-policy 6.1.  
In-depth interview

*It is necessary to start implementing the basic concepts of quality...*

International organization 6.1

Focus group discussion

*There is a quality assurance mechanism in the Primary Health Care Project and it works. But as soon as the program ends the quality assurance program will stop.*

Government-policy 6.2.  
In-depth interview

One of the participants noted that quality assurance in health care in Armenia is not measured using outcomes, that health care measures should also include those measures of the *impact* that health care actually has on the health of the community. It was noted that concept of quality and how it is measured was poorly defined in health care in Armenia. Some quality assurance programs for health care that are sponsored by international agencies end when those agencies complete their projects.

## **7. Assuring a competent public health and personal health care workforce**

### **7.A. Public health in the curricula of educational institutions**

*We [educational institutions] do not have separate public health programs in our undergraduate curricula but these curricula could use some subjects related to public health. The only curricula that have public health subjects are General Medicine and Veterinary Medicine.*

Government-policy 7.A.1.  
In-depth-interview

*Public health [at the Yerevan State Medical University] is incorporated in all departments' curricula. ...our public health curricula differ from that of the Master of Public Health program at the American University of Armenia. We have a separate course of public health administration (Social Medicine). We also have courses for epidemiology of infectious diseases and for adults and children hygiene. ... all of our graduates have coursework in three different public health subjects.*

Specialized education 7.A.1.  
In-depth-interview

*The Yerevan State Medical University has some courses on hygiene, sociological hygiene, and epidemiology, but they are not public health courses.*

International organization 7.A.1  
Focus group discussion

*The Yerevan State Medical University is producing medical doctors who do not ...understand ... public health services.*

Government-policy 7.A.2.  
In-depth interview

*The Public Health department of the National Institute of Health was established in June 2007 and it includes fifteen chairs. ... I can say that public health issues are comprehensively covered in the curriculum ....*

Specialized education 7.A.2.  
In-depth-interview

*Public health graduate education is provided only by the National Institute of Health and the American University of Armenia, but these two are incomparable. The quality of the National Institute of Health curricula does not meet the international standards. They are teaching descriptive epidemiology which is mostly clinical....*

International organization 7.A.1  
Focus group discussion

*We do not have public health schools except the American University of Armenia. There is no Master of Public Health program provided by any university in Armenia except the American University of Armenia.*

Government-policy 7.A.1.  
In-depth-interview

*... [There is] nothing comparable to the American University of Armenia Master of Public Health courses either in quantity and diversity of public health subjects, or in quality.*

International organization 7.A.1  
Focus group discussion

*... The American University of Armenia courses [Master of Public Health] are very much adapted to international standards and programs and may not be as useful for our reality. Maybe it would be better to adapt it to Armenian public health needs.*

International organization 7.A.2.  
In-depth-interview

*The reason for that [laboratory specialists having difficulties in interpreting laboratory results] is the inadequacy of their education. We also do not have enough trained specialists for food quality testing.*

Laboratory 7.A.1.  
Focus group discussion

Some aspects of public health are incorporated into medical, veterinary and nursing educational programs<sup>†</sup>. The Yerevan State Medical University covers some aspects of public health in public administration (social medicine), epidemiology (descriptive infectious disease epidemiology) and general hygiene courses. During the social medicine course, students of all three

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<sup>†</sup> Clarification: representatives of the Master of Public Health Program of the American University of Armenia did not participate in this qualitative study as interviewees, since they are involved in the study as co-authors. This was done to avoid possible conflict of interest situation.

departments (general medicine, pharmacology, and dentistry) have classes about the structure and organization of the health system, a minimal course on health statistics and non-communicable diseases (descriptive) epidemiology. In the general hygiene course, the students of all departments are introduced to the principles of environmental health and hygiene for children, adolescents, and adults. According to some participants these courses currently are not addressing modern public health issues and do not provide training in modern public health methodologies. The Yerevan State Medical University is planning to establish a Master of Public Health program.

The National Institute of Health offers post-graduate residency programs in public health. There is a separate public health department within the National Institute of Health that includes fifteen chairs such as social hygiene, public health administration and management, public health economy and financing, epidemiology, general hygiene, microbiology, medicine of emergency situations, pharmacology and clinical pharmacology, and family dentistry. Although some participants indicated that the public health department provided comprehensive coverage of public health issues, others indicated that the curriculum did not meet international standards for modern public health.

The American University of Armenia offers a Master of Public Health degree. Although the Master of Public Health program is of high quality, well organized and covers modern public health methodologies, some participants felt there were a few courses in the curriculum that were not well adapted to the needs of the country.

The Armenian State Agrarian University provides education in veterinary medicine; aspects of it that are related to public health include food safety and food control for foods of mainly animal origin (meat and meat products, milk and milk products, fish, eggs, honey, and mushrooms) and zoonotic and anthroozoonotic infectious disease outbreak control. According to two food laboratory specialists, some laboratory specialists in their field struggle to interpret results because of inadequate training during their education.

The state nursing program curriculum is placing increasing emphasis on primary prevention and primary health care. The nursing curriculum includes a public health course *general hygiene and principles of ecology*.

### **7.B. Quality control in educational programs**

*We [the Basic Medical College] have a methodological department that provides quality control for the teaching process - they audit some lectures and organize teaching methods classes and discussions for the staff. We also have students assessing courses and lecturers with questionnaires. We perform an overall assessment once a year and make appropriate changes based on the results.*

Specialized education 7.B.1  
In-depth-interview

*We [the National Institute of Health] organize peer auditing of classes and methodological discussions. However, we cannot claim this is quality control. ... contractual renewal for lecturers is determined every three-five years based on an institutional assessment that includes auditing the lectures, speaking with the heads of the departments about the qualifications of the lecturers and other measures.*

Specialized education 7.B.2.  
In-depth-interview

*We [the Yerevan State Medical University] developed indicators to assess the quality of our lecturers. There are also student assessments of courses. These quality assessment indicators are used by the entire university. The indicators are divided into four groups: educational-methodological, scientific, clinical, and public.*

Specialized education 7.B.3  
Focus group discussion

*We [the Ministry of Education and Science] have specific requirements to maintain accreditation of the universities. They have to meet all government requirements which are very strict. Every 2-3 years educational institutions update their licenses, which are provided by the licensing department of the Ministry of Education and Science, and every 5 years they are required to pass accreditation.*

Government-policy 7.B.1  
In-depth interview

Quality control mechanisms were reportedly used for courses and lectures at the Yerevan State Medical University, the National Institute of Health, and the Basic Nursing College. There are also government accreditation requirement to assure the quality of educational institutions.

## 7.C. Job placement of public health specialists

### No job placement program

*There is a general problem in the country that graduates in every field have to find their jobs themselves; there is no state support for this process.*

Specialized Education 7.C.1.  
In-depth interview

*We [the National Institute Health] do not have a database to keep track of our graduates. We only know about those graduates who are either employed in our departments, become PhD students or we see them employed with organizations that collaborate with us. We are not engaged in their job placement; job placement is the graduates' responsibility; the department is not responsible.*

Specialized Education 7.C.2.  
In-depth interview

*We [the Yerevan State Medical University] have no system to keep track of our graduates and to learn about their successes. However, we are planning to have such a system in the near future. Our department has set goals to develop a coordinated alumni association and career center.*

Specialized Education 7.C.3.  
In-depth interview

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### Low remuneration in the state sector

*There are state [public health] positions available but those with good experience and education want to leave the country. ... we are losing the best specialists that graduated from the Yerevan State Medical University, the National Institute of Health and the American University of Armenia. ...here the salaries are very low and the interests and capabilities of our well educated specialists do not match the opportunities [in country].*

International organization 7.C.1.  
In-depth interview

*... the placement of public health specialists in our country is badly organized. Because of low salaries in the Armenian public health sector and because specialists are over-qualified for the available jobs, the public health graduates from the American University of Armenia who could be actively engaged in the Armenian public health sector, leave for various international organization here and outside of Armenia as managers and coordinators. The job requirements for the international organizations correspond to the knowledge and skill level of the American University of Armenia Master of Public Health graduates.*

Specialized Education 7.C.1.  
In-depth interview

*The American University of Armenia ... graduates a number of qualified public health specialists. The problem is how these specialists are distributed. They work outside of the Ministry of Health but not inside it. One of the reasons is that the salaries are very low in the state system. The American University of Armenia Master of Public Health graduates are very*

*competitive and they find well paid jobs in international organizations and NGOs. There is no national strategy for engaging public health specialists in the national public health system.*

Government-policy 7.C.1.

In-depth interview

*We have a serious problem with the number of the staff [in the State Hygiene and Anti-epidemic Inspectorate]. We lack certain specialists. The main problem is low salaries and the huge scope of activities. Young people are not encouraged to work here. We have cases when they come here, work for some time and then leave for other attractive and well paid jobs.*

Government-implementation 7.C.1.

In-depth interview

*We do not have enough [food inspection] specialists. The problem is money. We have a limited budget....*

Government-policy 7.C.2.

In-depth interview

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### **Public health specialists hiring in state jobs**

*We all know each other very well in our field, and when needed we hire specialists from our friends and people with whom we are familiar. ... Armenia is a country of “acquaintances”. “Acquaintance” is a god in our country. In our field when we are restricted in time and resources and we do not have time to choose unfamiliar people [for these positions].*

Local NGO 7.C.1.

Focus group discussion

*People do not develop their careers through career development but by personal contacts.*

Government-implementation 7.C.2.

In-depth interview

*.. Armenian contacts play a role in the selection of civil servants. This can be positive in that a good specialist who is established can be given the job without competition; this is positive for professional growth [for the individual].*

Government-implementation 7.C.3.

In-depth interview

*Marzpets give [health manager] positions to their friends without considering job description guidelines. ... thus, the great number of qualified health managers who graduated from the National Institute of Health remain unemployed, and those who have the positions are not qualified.*

International organization 7.C.2.

Focus group discussion

According to participants, educational institutions that prepare public health related specialists do not have a formal job placement center, though they sometimes more-informally offer references and job listings. Participants indicated that state educational institutions do not currently maintain databases tracking graduates and their employment status. When they are aware of a graduate's employment status, it is only through personal relationships and contacts. Plans were discussed by participants concerning establishing a graduate registry and an alumni center in the universities to have updated information on graduate employment.

According to participants, the best qualified public health specialists graduating from the state educational institutions and graduates from the American University of Armenia Master of Public Health program are choosing positions with international organizations in Armenia or leave the country for positions that pay better and offer more opportunities. Some leave to pursue doctoral degrees outside of Armenia. According to participants, some of the best qualified public health specialists are not attracted to civil service positions or do not remain if they do take a position in civil services with the government of Armenia because of low salaries and working conditions.

Participants noted that jobs in the government are often secured based on personal relationships rather than merit.

#### **7.D. Public health human resources**

##### **Human resource planning**

*I think that the planning of human resources is lacking. I am happy that the Minister of Health considers human resource planning as a priority and soon we will see the results.*

Government-policy 7.D.1.  
In-depth interview

*The work market needs assessment, which we never had; it is very important. We do not know how many specialists we need in specific fields or specialties.*

Government-implementation 7.D.1.  
Focus group discussion

*There is no national strategy for engaging public health specialists in the national public health system. It does not correspond to the current needs of the country.*

Government-policy 7.D.2.

In-depth interview

*They [state officials] have to assess the country's job needs. It is necessary to have exact job descriptions: who, where and what to do.*

International organization 7.D.1.  
Focus group discussion

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### **Demand for specialists**

*... There is a high demand of public health specialists in our country.*

Specialized education 7.D.1.  
In-depth interview

*Currently we do not have enough qualified public health personnel to address the [public health] problems appropriately. There are many clinicians but they do not understand public health very well.*

International organization 7.D.2.  
Focus group discussion

*Public health is poorly developed in the country and there are many rural areas without public health interventions. There are not enough public health positions for public health specialists but there is much more work that needs to be done in public health.*

International organization 7.D.3.  
Focus group discussion

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### **Recruitment and retention**

*Graduates are not interested in hygiene and public health. Graduates choose those specialties where there is money. Incomes are higher for positions in the clinics. Here we have no way to encourage students to apply to public health related departments [postgraduate study].*

Specialized education 7.D.2.  
In-depth interview

*One to two residents annually are not enough. Every year we [the Yerevan State Medical University] have 5 graduates in the hygiene and sanitation faculty. Currently if all three departments have four residents, and two of them are not working in public health, so where are we after ten years.... The National Institute of Health also graduates public health specialists but this is not enough. We need many public health specialists in the field.*

Specialized education 7.D.3.  
In-depth interview

*The Yerevan State Medical University does not have the Sanitary Faculty anymore. Who will replace us? The Ministry of Health says that education is not our business. They are planning to allow last year students of the faculty of General Medicine to decide on their specialty. But who would choose epidemiology and become a sanitary doctor? Nobody. So we would not have a*

*future workforce from the State Medical University. ... The “new doctors” graduating from the universities of uncertain quality would come to work with us.*

Government-implementation 7.D.2.  
Focus group discussion

*Maybe we have some educational institutions that prepare food specialists but in fact we do not have qualified specialists in food science. ... we are lacking qualified specialists in this field.*

International organization 7.D.4.  
Focus group discussion

*After graduating basic education in medical university, people are not encouraged to continue residency program in the pediatric programs. Only the residency in family medicine is covered by the state. There is a need to have a state policy for attracting residents to pediatric services. The mean age of neonatologists is 60 years old in 30% of the maternity hospitals.*

Government-policy 7.D.3.  
In-depth interview

*...we [the statistical department] need more qualified and updated personnel... I would like to have younger, enthusiastic specialist with a good knowledge of English. In my department the average age is more than 50, and if we retire nobody can replace us. It would be nice that after our retirement there were people who could continue our work.*

Government-implementation 7.D.3.  
In-depth interview

*We have a shortage of health care providers [in the prisons], particularly in the marzes. There is no national public health human resources planning strategy for the prisons. People do not want to come and work here, because the salary is low.*

Government-implementation 7.D.4  
In-depth interview

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### **Functionality of family doctors in public health**

*The responsibilities of family doctors include working with the community, schools, organizations, etc, but it is impossible to perform all of these functions.*

Government-implementation 7.D.5.  
Focus group discussion

*The reason [for the failure of family medicine in urban areas] is that people are more used to going to specialists rather than general practitioners or family doctors, because in the cities there are more options available for patients and health services are more developed.*

Government-policy 7.D.4.  
In-depth interview

*Primary health care providers have many responsibilities but they lack time. How they can assure quality? Providers do not have enough time. Then they behave very discourteously with the population. ... We need to implement a model for time management.*

PHC 7.D.1.  
Focus group discussion

*If we ask the primary health care providers they will say that they are overloaded. If we listen to the [health care] financing personnel, they insist that they are not overloaded. In reality, family doctors are paid per capita [by the number of enrolled population]. Whether the patient utilizes the service or not, the family doctor receives a fixed salary. There is no motivation for them to work.*

International organization 7.D.1.  
Focus group discussion

*It is important that the family doctors are motivated to apply all their knowledge to their practice. It is necessary to have an incentive mechanism to increase family doctors' interest in the prevention of diseases.*

International organization 7.D.5.  
Focus group discussion

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### **Laboratory specialists' workload**

*I don't think the staff is large enough. The population we serve is large and our staff is very small. Although our work ends by 15:00 pm and all the employees leave the hospital, laboratory workers have to stay in the laboratory up to 17:00 or 18:00. ... there were days when I left the laboratory at 19:00. ... I think we need more staff.*

Laboratory 7.D.1.  
Focus group discussion

*In order to finish all our duties we spend more time in the laboratory. Then ... the State Health Agency says that it is not possible to do this much analysis in one month, so they don't pay us. ...we worked without any payment [for this extra work].*

Laboratory 7.D.2.  
Focus group discussion

*The flow of patients has increased. Thus, workers have to spend extra hours to complete all the tests; at the end of the month, the State Health Agency says that, for example, they will not pay us 3 million AMD [for the work] since we have exceeded the planned activities. ...during the staff meetings, instead of praising the laboratory for completing the excessive work they order us to reduce our work load. But we can't refuse to serve anybody who has a referral.*

Laboratory 7.D.3.  
Focus group discussion

*We don't have any documented time schedule. For some lab tests, the time of taking a blood sample is very important. ...we need to have a time schedule, a fixed number of tests for fixed number of hours.*

Laboratory 7.D.4.  
Focus group discussion

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**Nurses' role**

*...if we look at international experience, we see that nurses have more extensive education and more responsibilities. Here our nurses only do injections and sanitary control.*

Mental health 7.D.1.  
In-depth interview

Participants indicated that currently there is no national plan or a strategy for public health workforce. There is no current monitoring and projection of current and future demands for public health specialists. Participants suggested that such national plans and strategies should include the changing character of the roles of public health specialists to meet future demands.

According to participants, there is a need for public health specialists to meet unmet public health problems. In spite of these demands there is both a shortage of qualified public health personnel and inadequate numbers of public health related positions to address all of these problems in both civilian and penitentiary sectors.

Participants indicated that because of low pay and lack of incentives and encouragement for qualified persons, few are choosing to enter or remain in the positions related to public health. This leaves a vacuum of young qualified professionals to replace retiring personnel in these fields. Reportedly, the closing of the sanitary department at the Yerevan State Medical University has negatively impacted the available pool of qualified applicants for positions in SanEpi services.

Family doctors' responsibilities include disease prevention and health promotion activities in the communities. However, according to participants, the model of family doctors has functioned better in rural areas than urban areas because urban areas offer more specialist and alternatives for health care. In addition, some participants indicated that in both urban and rural areas primary health care providers have many responsibilities and little time is left to meet all those responsibilities. The myriad of paperwork required for physicians reduces time for other activities. Physicians have very little incentive to conduct public health activities; there is a need to develop incentives for primary health care providers to promote disease prevention and health promotion.

Most of laboratory specialists indicated an increased workload for primary health care laboratory staff. As a result, laboratory specialists indicated they work overtime for which they do not receive payment and are criticized. There is no time schedule for laboratory testing.

With the increasing demand of public health, one participant recommended an increased role of nurses similar to other countries.

### **7.E. Continuous public health education**

*... we are trying to engage our staff in more trainings; however it would be very useful if a systematic mechanism of trainings and seminars were developed in our country.*

Specialized Education 7.E.1  
In-depth-interview

*We ...need training. It would be very nice if some of our specialists were financed to receive training abroad. Then they can return and share what they learned with their colleagues. State Hygiene and Anti-epidemic Inspectorate specialists are financed by the state to have two weeks of training locally; however these funds are not sufficient. The training of Marz specialists is particularly problematic, since the cost of their stay in Yerevan is not covered.*

Government-implementation 7.E.1  
In-depth interview

*There is a need for training of State Hygiene and Anti-epidemic Inspectorate specialists. We did not receive any training after graduation. The only training we received was for our epidemiologists in immunization.*

Government-implementation 7.E.2  
In-depth interview

*We have to pay for our training; ... not all the physicians can afford it. In some cases physicians are obligated to pay for the training.*

PHC 7.E.1.  
Focus group discussion

*Family doctors are very well trained due to the state training program and training from international organizations. However in practice they seldom use these skills.*

International organization 7.E.1  
Focus group discussion

*Training is expensive, especially for those in the state laboratories. ... it is difficult for us to pay for these trainings. The government provides some trainings but it is very limited and not all are included.*

Laboratory 7.E.1.  
Focus group discussion

*... we cannot afford ongoing trainings for our specialists [health care providers of the penitentiary sector]. We very much need these trainings.*

Government implementation 7.E.3.  
In-depth interview

*In my department [in the statistical field], my staff has never received [in service] trainings. I and the project coordinator participated in only one two-week training course which was more appropriate for interviewers.*

Government implementation 7.E.4.  
In-depth interview

*Different programs do not share training materials [on the same topic]. There is no system to register the training and materials used.*

International organization 7.E.2.  
Focus group discussion

Across many institutions associated with public health, participants identified the need for continuous education trainings in their fields with the most updated methods. However, the cost of such trainings is a serious barrier that severely limits the amount of trainings available for the people in the field.

Training materials' quality and relevance are often not reviewed and there is no registry for such information. In addition, participants indicated that training sometimes does not translate into practice.

## **8. Leadership, governance and the initiation, development and planning of public health policy**

### **8.A. Strategic planning**

*The public health services are sporadic. For example, we have implemented preventive programs such as an immunization program which is a component of public health but is not integrated into a public health strategy. We have separated programs implemented by state, international organizations or NGOs, but they are not components of a [coordinated] public health package.*

Government-policy 8.A.1.  
In-depth interview

*Various departments in the Ministry of Health are at least in part involved in public health services, but there is no coordination between them and there is no governmental strategy to regulate all public health activities in the country.*

International organization 8.A.1.  
Focus groups discussion

*...there are some public health services that are provided by State Hygiene and Anti-epidemic Inspectorate, primary health care physicians and family doctors. ... These services are totally disconnected, which is a major problem for quality control.*

International organization 8.A.2.  
Focus groups discussion

*... our country does not have the comprehensive public health strategy, because it is developed by individuals, whose replacement or dismissal changes the whole strategy.*

International organization 8.A.3.  
Focus groups discussion

State, international organization and civil society provide public health programs. All participants agreed that the public health programs are sporadic, fragmented and non-coordinated. There is no single comprehensive national strategy for public health that covers all public health services. Efforts to develop a public health strategy fail when key policy makers in that development are replaced or dismissed.

### **8.B. Information system for decision making**

*Another serious problem in public health is the lack of information exchange. We do not have any database to maintain information about past projects. Statistical information is not available...*

International organization 8.B.1.  
Focus groups discussion

*The solutions of public health problems are not sought [after a public health problem is identified]. For example, if we identify a [dangerous] level of air pollution due to heavy traffic and heavy construction in Yerevan, what is next? What actions will follow to reduce the air pollution?*

Government-policy 8.B.1.  
In-depth interview

*The main thing that we should do as public health experts is to teach decision-makers to use data. They don't know how to use data for decision-making.*

Government-implementation 8.B.1.  
In-depth interview

The study participants indicated that information in public health is not shared between stakeholders and no central database maintains information from previous projects. Even when

information is available decision-makers do not use it to design and implement interventions. One participant recommended that decision-makers be taught to use information for decision-making.

### 8.C. International organizations in public health

*The Ministry of Health does not have an agency to coordinate international programs. It is difficult to coordinate functions of international organizations since each organization has its own mandate.*

Government-policy 8.C.1.  
In-depth interview

*It is necessary that any health advocacy or policy programs consider the population needs. ... there are many gaps that are not addressed.*

International organization 8.C.1.  
Focus groups discussion

*... [international] projects come to our country, regardless whether the country needs them or not....*

Government-implementation 8.C.1.  
Focus groups discussion

*If, for example, the country prioritizes a problem [for Armenia] but it is not a European priority, we would not have sufficient funds nor human resources for this priority.*

International organization 8.C.2.  
Focus groups discussion

*Organizations that work in public health are doing the same work and we have lots of duplication in efforts. To overcome this problem, the Ministry of Health should develop regulations to improve cooperation between organizations and ensure transparency of activities.*

International organization 8.C.3.  
Focus groups discussion

*We do not have a universal database for all projects; thus, projects are duplicating and even tripling work in the same field.*

International organization 8.C.4.  
Focus groups discussion

*... what will happen if the international organizations leave our country?*

Local NGO 8.C.1.  
Focus groups discussion

International organizations provide resources and technical support for public health programs in Armenia. However, the priorities of those programs might not always match population needs

and national priorities. There is no systematic mechanism in place to negotiate priorities between the international organizations and the government.

Duplication of similar efforts in public health services occurs between different organizations and agencies. According to participants, the Ministry of Health should establish a strong coordinating role to avoid duplications and to increase efficiency in the use of resources for the public health.

Participants also showed concern for the sustainability of internationally supported public health programs, whether these programs or their impacts would continue when outside funding sources were terminated.

#### **8.D. Inspection services**

*We are required to inform any facility three days prior to an inspection visit. ... the facilities prepare for our visit by improving their sanitation and hygiene conditions ...*

Government-implementation 8.D.1.  
In-depth interview

*Our function now looks more like punishment than control, because we cannot enter any facility or business place to assess the sanitary conditions unexpectedly. We have to notify the subject 3 days prior to our visit; thus what we do now is ridiculous.*

Government-implementation 8.D.2.  
In-depth interview

*We have an inside agreement that we pay 40,000 AMD per year to inspection services. It is the official minimum penalty...*

Consumer 8.D.1.  
In-depth interview

*... there are pharmacies who pay 5,000 AMD every month to the State Hygiene and Anti-epidemic Inspectorate specialist to avoid penalty, ... other pharmacies choose the option of paying half of the penalty to the specialist and another half officially to the bank.*

Consumer 8.D.2.  
In-depth interview

*Before I was paying 40,000 – 50,000 AMD in penalty every year, now I pay 60,000 AMD. Since I pay that money they don't bother me often. It is also in my interest to pay that money and get rid of them; otherwise, they can always write a penalty.*

Consumer 8.D.3.  
In-depth interview

*... I know that they [inspection services] have a quota for number of penalties ...*

Consumer 8.D.1.  
In-depth interview

*... the laboratory services [for inspection services] are separated from inspection services. ... Usually they [laboratory and inspection services] visit the facilities for inspection and penalize them separately. ... this division puts more burden on people.*

Government-implementation 8.D.3.  
In-depth interview

*I think it is important to have inspection control, but it should be preventive to be useful rather than punishing collecting penalty fees.*

Government-implementation 8.D.4.  
In-depth interview

Inspecting agencies are required to inform those to be inspected three days prior to inspection. The specialists indicated that the three day notice permits those to be inspected to make temporary fixes to pass inspection. The specialists also felt that this was more punishment rather than control oriented mechanism.

According to participants, various informal payment arrangements are made between consumers and inspection services. In some cases, independent visits of laboratory and inspection services lead to double informal payments.

### **8.E. Monitoring and evaluation of public health policies and programs**

*It is very important that health projects be monitored and evaluated to have true measures of the achievements and outcomes. Also it is necessary to perform cost-effectiveness analysis of the programs to see how rationally the funds were used for the desirable outcomes.*

International organization 8.E.1.  
Focus groups discussion

*It would be very useful if some part of the state health budget could be allocated for assessment of projects that are conducted by the Ministry of Health. ... the Ministry of Health runs many projects, but the outcomes are rarely appropriately assessed.*

Local NGO 8.E.1.  
Focus group discussion

*It is very important to monitor and evaluate all programs that we have (usually programs are lacking a monitoring and evaluation component). We need to have a public health center... to collect and analyze data on a national level. Then that Center can invite health consultations*

*for decision making.*

Government-policy 8.E.1.  
In-depth interview

*Many state officials have their own NGOs and they are using state grants for their own NGOs. We all know these tricks very well.*

Local NGO 8.E.2.  
Focus group discussion

Many participants agreed on the importance of monitoring and evaluation of public health programs to assure success and improve efficiency of the programs. However, participants also indicated that there is a deficiency in appropriate monitoring and evaluation of public health programs. This sometimes leads to abuse of state grants. Participants recommended the establishment of a Center that collects and analysis data for the monitoring and evaluation of public health programs to assure that funds are being spent most effectively and efficiently with greatest impact.

## **8.F. Collaboration**

*...inter-sectorial collaboration is very weak. ... information exchange between different ministries and departments still needs to be improved. Each ministry deals only with their own problems without working collaboratively to solve these problems with other stakeholders in public health.*

International organization 8.F.1.  
Focus groups discussion

*I think that [local] NGOs have an important role to play in public health. Unfortunately, they are not sufficiently integrated in the system. Their involvement depends on the international funding. NGOs are not active since the state does not encourage them. We should allocate more state funding to involve NGOs in public health.*

Government-policy 8.F.1.  
In-depth interview

*The main donors [for local NGOs] are international organizations. Our government does not see NGOs as partners and state officials see NGOs as “Grant eating” and do not consider that they do a useful job. So the STATE-NGO “dialogue” remains only on the paper and in practice it is not developed.*

Local NGO 8.F.1.  
In-depth interview

*We do not have problems with international organizations. Their work is of high quality. We collaborate with them and do not have any problems. We collaborated with some [local] NGOs,*

*however they torture us more than help.*

Government-implementation 8.F.1.  
In-depth interview

*We collaborate very well with international organizations. ... We benefit only from collaboration with international organizations: this experience provides us with an opportunity for professional growth, since we do not have sufficient resources for outside trainings; we learn from international specialists working in our country.*

Government-implementation 8.F.2.  
In-depth interview

*It is very difficult to work with state donors; they are more like controllers, meanwhile international donors are very responsive and helpful.*

Local NGO 8.F.2.  
In-depth interview

According to some state officials, there is no problem with collaboration between ministries and agencies within the government. However, the majority of participants mentioned that this collaboration between ministries and agencies within the government is quite weak.

Both government officials and participants from local NGOs indicated that state-civil society cooperation is also poorly developed. Local NGOs are not adequately integrated into public health programs and policies. The involvement of local NGOs in public health primarily depends on funds from international sources. State funding for civil society in public health is limited.

Participants both from civil society and government find the collaboration with international organizations valuable and necessary. The international organizations provide technical and financial support for public health services in the country.

## **9. Health research**

*In general, research is a big problem in Armenia; there is really a gap in this field. The main problems are the lack of financing and human resources.*

Government implementation 9.1.  
In-depth interview

*Specialists do not have basic research skills and are totally unfamiliar with epidemiological analyses. Even the quality of thesis projects and dissertations in our institutions is very low and*

*sometimes does not meet any accepted standards*

International organization 9.1.  
Focus group discussion

*[There is] a lack of appropriate specialists who are familiar with public health study methodology and tools. Many of our specialists do not know appropriate methods for research... if more specialists and doctors are introduced to research methodologies and tools they will use them more frequently in their research.*

Specialized education 9.1.  
In-depth interview

*There are many problems related to public health research. Funding for research is very restricted. ...currently the whole scientific state budget is 5 or 6 million drams.*

Specialized education 9.2.  
Focus group discussion

*We have insufficient finances for research. We work on enthusiasm. We have one or two PhD students finishing every year and sometimes they spend their own money on their research. Currently we lack appropriate lab equipment to perform rigorous scientific research.*

Specialized education 9.3.  
Focus group discussion

*The university [the Yerevan State Medical University] is engaged in public health research. We have different departments, which are engaged in public health research in their particular fields of interest – ecology, hygiene, health administration and management.*

Specialized education 9.4.  
In-depth interview

*Dissertation research [at the university] is common ... but is very weak in statistical analysis.*

International organization 9.2.  
Focus group discussion

*Not all organizations have enough finances to do serious research. Their responsibilities are limited to public health interventions. Even if there are some organizations and physicians who conduct research, their findings are not useful.*

International organization 9.3.  
Focus group discussion

*Much research is done [by medical doctors] on public health topics ... and many of them are very interesting, but the quality of instruments used and the methods of analyses are far from being perfect.*

International organization 9.4.  
Focus group discussion

*The ecological department of our [Yerevan State] university, as well as the chemistry and physics departments, is not aware of modern ecological research findings. They are only*

*publishing in local journals which do not have any international ranking and I do not think that they are serious work.*

Government implementation 9.2.  
In-depth interview

*The Ministry of Health does not evaluate the health impact of contamination or pollution. For example, they say that people in Alaverdy city develop asthma and other respiratory diseases because of air pollution. However, when I asked for evidence for this association, they could not find any.*

Government implementation 9.3.  
In-depth interview

The participants indicated that public health research is lacking though some educational institutions such as the Yerevan State Medical University, the National Institute of Health, the Armenian State Agrarian University, the Yerevan State University, the American University of Armenia, international organizations and agencies as well as physicians conduct such research. State financial resources for health research are very limited.

According to participants, among many physicians and researchers in state universities and state institutions, appropriate modern research skills and familiarity of rigorous research methods are deficient. Participants indicated that these researchers do not receive training on modern research methods including most up to date statistical and epidemiological methods. Many of these researchers do not have access to internationally published journals. In addition, few of their papers are published in these journals.

In addition, many participants indicated that there is no evidence-based research conducted on the association between environmental contamination and health risks to inform public health interventions and policy development.

## **10. Participants' recommendations for changes in infrastructure and provision of public health services**

*Understanding of public health is not clearly formed in Armenia by the government. In the Ministry of Health there is no special public health department that regulates all public health activities. Different MOH departments are partially involved in public health services, but there is no coordination between them.*

International organizations 10.1.

Focus group discussion

*Though we have friends who work in the inspectorate, it is necessary to separate surveillance from inspection. Even monitoring should not be covered by the inspectorate. The meaning of monitoring is to identify the problems of programs and come up with solutions to improve the program. The goal of inspection is to identify those who do not perform their responsibilities. The public health structure cannot be within inspection. It should be broader.*

Government-policy 10.1.  
In-depth interview

*We [the State Hygiene and Anti-epidemic Inspectorate] do not need any additional responsibilities. They are so many that we can hardly manage to fulfill the existing ones. We do not need to have additional functions.*

Government-implementation 10.1.  
In-depth interview

*All the governmental and non-governmental stakeholders should be invited to discuss public health issues. Everyone should understand that this is not a battle for new functions but to serve the public benefit. ... That is why we need to develop strategy, develop infrastructure, establish structures with clear roles and responsibilities ... Also, it is important to involve NGOs in this process.*

Government-policy 10.2.  
In-depth interview

*We need public health department which will develop public health policies and implement public health programs. To improve the public health system we should start with developing a public health department.*

International organizations 10.1.  
In-depth interview

*... it could be useful to establish a separate public health department within the Ministry, but only if it would be a part of the Ministry of Health under the supervision of the Minister, to provide monitoring and control of public projects and services.*

Government-policy 10.1.  
In-depth interview

*The public health implementing body should be within the Ministry of Health though 85% of the activities may be the responsibility of other ministries.*

Government-policy 10.2.  
In-depth interview

*There should be an institution which would regulate inter-sectorial communications [for public health]...*

International organizations 10.2.  
Focus group discussion

*The network can be improved via increasing information flow, improving cooperation and coordination between different levels of the system, it would be useful if the Ministry of Health had this coordination role and provided a means of sharing information between different stakeholders.*

International organizations 10.2.  
Focus group discussion

*The Ministry of Health has a lot to do towards establishing, strengthening, and enlarging collaborations between different public health stakeholders in the country.*

International organizations 10.3.  
Focus group discussion

*I would recommend having a Chief State Sanitary Doctor...in the country... Inspecting and implementing bodies should be separated and under the control of the Chief State Sanitary Doctor.*

Government-implementation 10.2.  
In-depth interview

Currently no coordinating governmental body is responsible for the broad range of public health programs and interventions that cross over numerous ministries, government agencies, and non-governmental organizations. This absence contributes to the lack of collaboration and cooperation in public health efforts. Participants recommended establishment of a public health department, most of whom considered the appropriate place to be within the Ministry of Health that would promote inter-sectoral collaboration and communication between all governmental and non-governmental stakeholders in public health, and monitor and regulate the various public health projects and services nationwide. Participants recommended that this department be much broader in the scope of responsibilities than existing agencies and organizations in the government. Such a department would not only integrate and optimize the effectiveness of public health services but also would provide a reporting body on the status of public health and public health services in the country.

Some participants suggested separating out public health surveillance responsibilities from the inspection services. Another participant recommended separating out public health program implementation from inspection services. In addition, two participants suggested the reestablishment of a chief state sanitary doctor that would have the authority over public health issues and could resolve differences between agencies and departments.

## **APPENDIX 5 – PUBLIC HEALTH STANDARDS**

Some countries developed their public health standards in order to assess the quality of public health services and programs and provide a basis for their improvement. Different principles and approaches are used in the development of those standards.

### **PH standards in the United States of America**

In the United States (US), for state and local public health systems and for public health governing bodies the Center for Disease Control and Prevention (CDC) implements the National Public Health Performance Standards Program (NPHPSP). The goals of this National Partnership initiative are to “Provide performance standards for public health systems and encouraging their widespread use; encourage and leverage national, state, and local partnerships to build a stronger foundation for public health preparedness; promote continuous quality improvement of public health systems; and strengthen the science base for public health practice improvement”<sup>64</sup>. The NPHPSP is designed around the ten Essential Public Health Services<sup>‡</sup> at the state and community levels. The US standards are developed for the overall PH system that includes all public, private, and voluntary structures and organizations that contribute to development of PH functions in the country and describe an optimal level of performance, which ensures possible use of the standards by system partners for continuous quality improvement. The NPHPSP includes practice-oriented and user-friendly three instruments developed by CDC and its partner organizations that include different model standards<sup>64</sup>.

1) The State Public Health System Performance Assessment Instrument (State Instrument) focuses on the “state public health system,” and includes state public health agencies and other partners that contribute to public health services at the state level. This instrument includes 40 model standards based on Planning and Implementation, State-Local Relationships, Performance Management and Quality Improvement, and Public Health Capacity and Resources.

2) The Local Public Health System Performance Assessment Instrument (Local Instrument) focuses on the “local public health system” or all entities that contribute to the delivery of public

health services within a community. This system includes all public, private, and voluntary entities, as well as individuals and informal associations. There are total of 30 model standards in this instrument.

3) The Local Public Health Governance Performance Assessment Instrument (Governance Instrument) focuses on the governing body ultimately accountable for public health at the local level. Such governing bodies may include boards of health or county commissioners. There are 10 model standards included in this instrument<sup>64</sup>.

Though PH standards described above are developed for the entire US, different states are able to develop their own standards based on the local needs. For example, the Iowa PH Standards have provided a sequential, liable approach to promoting and protecting the health of Iowans<sup>65</sup>. These standards are aimed to assess the governmental health system that includes local boards of health, local public health agencies, the Iowa Department of Public Health, and the State Board of Health. Its functions are applied to two main levels: the local boards of health and the State Board of Health to oversee the local PH agencies and assure the compliance with the state criteria of the Iowa Public Health Standards. Standards were developed in 11 component areas from which the first six are the Organizational Capacity Standards: Governance, Administration, Communication and Information Technology, Workforce, Community Assessment and Planning, and Evaluation; the other five are the Public Health Services Standards: Prevent Epidemics and the Spread of Disease, Protect Against Environmental Hazards, Prevent Injuries, Promote Healthy Behaviors, and Prepare for, Respond to, and Recover from Public Health Emergencies<sup>65</sup>.

### **Ontario Public Health Standards**

The Ontario Public Health Standards are the core for implementation of basic public health programs and services that include assessment and surveillance, health promotion and policy development, disease and injury prevention, and health protection<sup>66</sup>. Thirty six local boards of health use the Ontario Public Health Standards that are supported by specific protocols; they identify and implement programs and services to meet local needs and work towards specified

outcomes and goals within their geographic borders. About two-thirds of Ontario's boards of health are autonomous bodies that provide local public health services. Municipal councils act as the board of health for the remainder. The Ontario Public Health Standards document is organized in two main groups: The Foundational Standards and the Program Standards. The first includes Population Health Assessment, Surveillance, Research and Knowledge Exchange, and Program Evaluation with taking into consideration four main principals (Need, Impact, Capacity, and Partnership and Collaboration) and underlie and support all Program Standards. Program Standards are grouped under five program areas which address Chronic Diseases and Injuries, Family Health, Infectious Diseases, Environmental Health, and Emergency Preparedness and regulated, assessed by the board of health. Both the Foundational Standard and the Program Standards express broad societal *goals* that result from the activities undertaken by boards of health and many others, including community partners, non-governmental organizations, and governmental bodies<sup>66</sup>.

### **Public Health Standards in the United Kingdom**

The United Kingdom (UK) Public health standards - "Standards for better health" present the level of quality that health care organizations, including National Health Services (NHS) Foundation Trusts, and private and voluntary providers of NHS care, are expected to meet in terms of seven domains, which are<sup>67</sup>: safety; clinical and cost effectiveness; governance; patient focus; accessible and responsive care; care environment and amenities; and public health. In each of these domains the standards are braked into two categories: 1) core standards, which organize and reduce existing requirements for the health service and setting out the minimum level of service patients and service users have a right to expect; 2) developmental standards, which indicate the direction to move toward and provide a framework for NHS bodies to plan the delivery of services with continues improvement for the raised patient expectations<sup>67</sup>.

## APPENDIX 6 – INTERNATIONAL EXPERIENCE

The following summary of public health successes in countries with both centralized and decentralized systems of public health could provide valuable lessons for modernizing the Armenian public health system. Countries like the United Kingdom, Australia and Estonia have higher national/state central control of public health, while in countries such as Canada, Sweden and Denmark the regional and local authorities have more autonomy and greater authority on public health issues.

The **United Kingdom** has a centralized system of public health, with the public health authority and responsibilities concentrated in the national Department of Health and the National Health Services, with their implementing branches at the local level. At the *national level*, the Department of Health is under the direction of the Secretary of State for Health, who with a team of five ministers (Minister of State for Health Services, Minister of State for Public Health, Minister of State for Care Services, Parliamentary Under Secretary of State, Parliamentary Under Secretary for Health Services) is responsible for health and personal social services in England<sup>68</sup>. At the *local level*, the Department of Health has staff in each of England’s nine Government Offices for the Regions. These regional teams deliver improvements to the services through partnerships with the regional and local levels and provide health service delivery support for the Department of Health, as well as developing regional strategies on public health<sup>69</sup>.

### Public Health Financing

The National Health Service is financed primarily through general taxation<sup>68</sup>.

### National Public Health Strategies

The aim of the public health strategy *Informing healthier choices: information and intelligence for healthy populations* published in May 30, 2007 is to improve the availability, timeliness and quality of health information and intelligence across England and to increase its use to support population health improvement, commissioning of services for health and well-being, and health protection. A detailed vision for the future is set out under the “four-box strategy”, provided as follows<sup>70</sup>:

- Workforce capacity and capability
- Improved data and information provision
- Stronger organizations
- Health information and intelligence portal and underlying systems.

### Intersectoral Collaboration

There is emphasis on the coordination of health policies across ministries and departments that have a role in public health-related matters. These include *the Department of Social Security* which is responsible for social welfare payments, *the Department of the Environment, Transport and the Regions* which is responsible for personal social services administered through local government authorities, *The Ministry of Agriculture, Food and Fisheries* which responsible for food standards, and *The Department for Education and Employment* which funds the training of medical students and other health professionals<sup>69</sup>.

### Monitoring and Evaluation of Public Health Policies

In 2005 the *Standards for Better Health* were implemented in England which were aimed to assess the quality of the National Health Service performance. The standards are organized into seven domains: Safety, Clinical and Cost Effectiveness, Governance, Patient Focus, Accessible and Responsive Care, Care Environment and Amenities and Public Health<sup>67</sup>.

**Australia**, with a centralized system of public health, has a federal government that predominantly provides broad policy leadership and financing for public health services. At the *national level*, the National Public Health Partnership (NPHP) develops the national agenda for public health, improves and maintains collaboration, coordinates strategies, and strengthens the public health infrastructure. This partnership is comprised of one senior representative from the government and one representative from each of the states and territories, along with the director of the Australian Institute of Health and Welfare (AIHW) and the chair of the Health Advisory Committee of the National Health and Medical Research Council (NHMRC). The Public Health Association of Australia is an evidence-based advocacy group that provides information to governments at all levels, as well as to other interested parties. The Public Health Research Advisory Group promotes and advocates public health research in the country. The National

Health and Medical Research Council (NHMRC) plays a key role in setting standards and priorities. The Australian Health Ministers' Advisory Council helps consolidate priorities and finding consensus. At the *local level*, state and territorial governments are responsible for the administration and delivery of public health services in Australia<sup>72</sup>.

### Public Health Financing

Around 5.3% of total health expenditure is allocated for public health and prevention<sup>62</sup>.

### National Public Health Strategies

The National Public Health Partnership implements many crucial national strategies, including HIV/AIDS, the National Indigenous Australian's Sexual Health Strategy, the National Tobacco Campaign, and the National Injury Prevention Activities. The government is working towards the development of a child public health national policy focusing on health inequities and evidence-based interventions<sup>78</sup>.

The *National Health Priority Action Council* identifies advocates and facilitates actions within and across national priorities which are conducted according to the following principles<sup>62</sup>:

- promotion and protection of the health of all Australians and minimizing the incidence of preventable mortality, illness, injury and disability
- access to cost-effective medical services, medicines and acute health care for all Australians
- support of healthy ageing for older Australians and quality and cost-effective care for frail older people and support for carers
- improved quality, integration and effectiveness of care
- improved health outcomes for Australians living in regional, rural and remote locations
- reduced consequences of hearing loss for eligible clients
- improved health status for Aboriginal and Torres Strait Islander peoples
- viable private health industry to improve the choice of health services for Australians
- knowledge, information and training for developing better strategies to improve the health of Australians

### Intersectoral Collaboration

The National Public Health Partnership was established in Australia to facilitate collaboration and communication efforts within the public health system<sup>62</sup>.

### Monitoring and Evaluation of Public Health Policies

Returns on investment in public health have been assessed by the government to evaluate public health programs to inform further policy development strategies. The *Public Health Evidence Based Advisory Mechanism* applies an economic evaluation to public health decision-making to provide a framework for assessing public health interventions, but this approach has some limitations<sup>62</sup>.

**Estonia** has centralized health system which is organized into national, county and municipal governance. At the *national* level, the Social Affairs Committee within the Parliament of Estonia is responsible for developing legislative acts addressing social insurance, labor relations, and health care. The national executive bodies responsible for the development, implementation and regulation of public health policies and the supervision of health service quality and access include the Ministry of Social Affairs, the Health Care Board (HCB), the Health Protection Inspectorate (HPI), the National Institute for Health Development (NIHD), the Estonian Health Insurance Fund (EHIF), the Labor Inspectorate, the Environmental Inspectorate, and the Ministry of the Environment. At the *local level* the county offices of the national Health Protection Inspectorate and Labor Inspectorate, the health promotion specialists, and the county government public health programs are the primary bodies responsible for implementing national public health policy. The local municipalities coordinate health promotion and disease prevention interventions and control implementation of legislation at the local level as well<sup>73</sup>.

### Public Health Financing

The Estonian Health Insurance Fund is the largest purchaser/payer in the Estonian health care system, representing two-thirds of the total health care expenditures. Social payroll taxes, paid by the population into the mandatory health insurance program, are the primary source of funding for public health programs in Estonia. In addition, general tax revenues funneled

through the Ministry of Social Affairs and the municipalities also support public health programs<sup>73</sup>.

### National Public Health Strategies

The current national public health strategy of Estonia includes the following activities:

- communicable disease control
- air, water and food quality control
- occupational health and injury prevention
- health promotion
- disease prevention
- cooperation with private sector and nongovernmental organizations in public health.

However, some of the major problems in Estonia's public health system include the weakness in horizontal linkages and coordination, a deficient information exchange, and inadequate public health human resources. A new national health strategy for 2008–2020 includes four elements for action: 1) explicit political commitment, 2) leadership, 3) institutional change, and 4) intersectoral partnerships<sup>74</sup>.

### Intersectoral Collaboration

Although the roles and responsibilities of different stakeholders in the health care system of Estonia are partially defined by law, these roles and responsibilities are not complete and are targeted for clarification and development<sup>73</sup>.

### Monitoring and Evaluation of Public Health Policies

Monitoring of public health related issues in the country is the primary responsibility of the *Planning and Monitoring Department* of the Estonian Health Protection Inspectorate<sup>73</sup>.

**Canada**, with a decentralized system of public health, is a federal state that has highly decentralized and predominantly publicly-financed health system which consist of *federal* and *provincial/territorial* governments (of which there are 13), with the provincial/territorial public health services being essentially independent of the federal authority. The federal government

has a Ministry of Health and each province/territory has its own Ministry of Health which are entirely independent of the federal Ministry of Health<sup>62,71</sup>.

The Federal government (*national level*) and the federal department of health, *Health Canada*, play a critical role in health research data collection, public health and health protection. The federal government has jurisdiction for the financing and administration of a range of health benefits and services for First Nations (Aborigines) and Inuit people that are not included in the provincial and territorial insured health care programs, as well as health care services for the Canadian armed forces, the Royal Canadian Mounted Police, veterans and inmates in the federal penitentiaries. Provincial and territorial governments (*local level*) are primarily responsible for the funding, administration and delivery of public health services provided according to specific provincial/territorial legislation. Some provincial governments are also heavily involved in the assessment of health technologies as well as in the funding of health research<sup>71</sup>.

#### Public Health Financing

Sources of funding for public health services include provincial and federal general taxes (73%), and supplementary insurance, employer sponsored benefits and out-of-pocket payments (27%). Around 7% of total health expenditure is allocated to public health and prevention<sup>72</sup>.

#### National Public Health Strategies

Health Canada has an ongoing process to develop an integrated national strategy with specified goals, a means of monitoring progress towards them and mechanisms to ensure collaboration at all levels of government. The main priorities of the national public health strategies are to improve health and reduce inequities through the following<sup>72</sup>:

- addressing determinants of health
- basing decisions on evidence
- increasing investments
- applying multiple strategies to problems
- collaborating across sectors and levels
- demonstrating accountability for health outcomes.

### Intersectoral Collaboration

There is an official legal body, the *Conference of federal/provincial/territorial ministers and committees*, for collaboration, coordination and communication between these ministries<sup>71</sup>.

### Monitoring and Evaluation of Public Health Policies

Annual health reports provide information on the health of the population and factors associated with health problems based on national surveys, with the purpose to promote research to inform public health interventions. There is growing use of process and outcome evaluation in public health in Canada, though this effort is still limited<sup>71</sup>.

**Sweden**, with a decentralized system of public health, has national and local government public health systems. On the *national level*, the National Institute for Public Health (NIPH) is responsible for the support of health promotion, disease prevention, and reducing inequities, the National Public Health Committee assists in developing national strategies, the Commission on National Targets guides the formation of health targets, the National Board of Health and Social Welfare publishes national public health reports describing patterns of health and disease, living conditions and risk factors, and the distribution of health resources. The Ministry of Health and Welfare is responsible for regulation and setting policy frameworks for public health functions<sup>75</sup>.

At the *local level*, the independent regional government, which consists of county councils, is responsible for public health services provided regionally. Each county council has a department of public health that plans services based on the analyses of epidemiological data<sup>76</sup>.

### Public Health Financing

Sweden health care is delivered through both public and private services. Approximately 3% of the total government health expenditures is allocated to public health services. Sources of funding for public health services include taxes levied by county councils and national government funds allocated to county councils according to a per capita formula<sup>76</sup>.

### National Public Health Strategies

The Swedish national public health strategy was established in 2003 to ensure good health equitably for the population. This strategy focuses on prevention by targeting social health determinants. The main priorities of the public health strategy are to reduce health inequities and strengthen lifestyle factors supporting healthy choices; the specific priorities are as follows:

- participation and influence on society
- economic and social security
- favorable conditions during childhood and adolescence
- healthier working life
- healthy and safe environments and products
- health and medical care that more actively promotes good health
- effective protection of communicable diseases
- safe sexuality and good reproductive health
- increased physical activity
- good eating habits and safe food
- reduced use of tobacco, alcohol, illicit drugs, doping, and gambling.

Reports published by the National Board of Public Health and Social Welfare formed the basis for the development of central policy on public health and for local policy-making. These publications provide results and findings based on data from epidemiological, demographic and household surveys. Priorities are set based on an *ethical platform* of human dignity, need and solidarity, and cost–effectiveness<sup>75</sup>.

#### *Intersectoral Collaboration*

There was considerable intersectoral involvement in the formation of the national strategy for the Sweden public health system through collaboration and cooperation of governmental and non-governmental organizations, county councils, municipalities, trade unions, and academic institutions. This strategy plan calls for the assessment of health impacts of all national policies, such as how agricultural policies may impact the health of the population<sup>76</sup>.

### Monitoring and Evaluation of Public Health Policies

The national strategy plan also recommends that the National Institute for Public Health monitors the 11 objectives of the national strategy and report on progress towards the national health goals every four years. Monitoring is carried out through the Swedish *Survey of Living Conditions*<sup>75</sup>.

**Denmark** has a decentralized system of public health, which along with other health services, are primarily financed through income taxes collected by county councils who are responsible for health promotion initiatives. The National Board of Public Health assists with disease prevention and health promotion initiatives, the Institute for Clinical Epidemiology conducts public health research, the Council on Health Promotion Policy develops and evaluates promotion programs, and the Danish Council on Smoking and Health develops programs targeting tobacco. At the *national level*, the Ministry of Health coordinates a comprehensive program on health promotion and is responsible for surveillance and communicable disease control with the involvement of 12 other ministries. At the *local level*, municipalities carry substantial responsibilities for public health services<sup>77</sup>.

### Public Health Financing

State and local taxation (82.0%), out-of-pocket payments (16.5%), voluntary health insurance (1.5%) are the sources for funding. About 6.7% of the total health expenditures are earmarked for public health<sup>77</sup>.

### National Public Health Strategies

The main priorities of the Danish national public health strategy are to increase life expectancy and quality of life and to improve health equity through targeting lifestyle factors including tobacco, alcohol abuse, exercise, nutrition, obesity, traffic accidents, HIV/AIDS, and drug abuse. This strategy also targets age groups, including children, young people, senior citizens, and areas including primary schools, workplaces and local communities. The strategy also focuses on health services cooperation across all levels as well as research and education. The major strategies devised for program implementation are as follows<sup>62</sup>:

- health promotion policies at all levels

- new services offered to the population
- professional guidelines and action plans
- develop guidelines and evidence of good practice
- financial incentives.

For priority-setting and decision-making the Institute for Clinical Epidemiology conducts the national health interview survey program, and epidemiological and health services research.

#### *Intersectoral Collaboration*

Intersectoral collaboration plays a crucial role in decision-making in the Denmark public health system. At times, as many as 13 government ministries collaborate on comprehensive public health programs<sup>62</sup>.

#### *Monitoring and Evaluation of Public Health Policies*

The Ministry of Health is responsible for monitoring progress of national public health targets. However, systematic evaluation procedures are not fully developed and the need to improve health impact assessment of government policies outside of the health sector remains a challenge<sup>77</sup>.