



Technical Consultation on the Development of National Health Laboratory Policies

Meeting Report

Lyon, France, 26-28 April 2016



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Organization**

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1. Executive summary

A Technical Consultation on the Development of National Health Laboratory Policies was held at the World Health Organization (WHO) office in Lyon, France, on 26–28 April 2016.

Laboratory systems are at the core of disease surveillance, yet laboratory capacity has often been neglected within public health systems. Many resource-limited countries have weak laboratory systems, and the oversight of laboratories is often fragmented. Additionally, focus on disease-specific programmes, all of which use laboratories, has deflected attention from treating laboratories as an element of the overall health system.

The objectives of the consultation were: to share information and lessons learned; to identify strengths, weaknesses, opportunities and threats regarding the development of national laboratory policies and strategic plans; and to propose high-level recommendations to support resource-limited countries in the development of national laboratory policies and strategic plans. Consultation participants were laboratory specialists from WHO offices,¹ partner agencies² and WHO Member States.³

In plenary discussion it was discussed that that national health laboratory policies and plans should include all laboratories that in some way contribute to human health – including laboratories dealing with animal health. It is also important to align disease-specific efforts with national laboratory policies and implementation plans, taking advantage of existing structures to strengthen the national laboratory system’s capacity to produce information relevant to public health. Developing a national health laboratory policy is a valuable option for countries, where existing legislations and/or regulations does not ensure efficient and effective national laboratory system capacities.

Following plenary presentations and discussion, consultation participants were divided into three working groups to discuss a set of questions on the challenges faced by countries in developing national laboratory policies and strategic plans, and the tools and resources needed. Each working group proposed a set of recommendations, and these were refined in plenary to 6 recommendations to WHO and 6 recommendations to Member States, as follows:

¹ WHO headquarters (Geneva and Lyon), WHO regional offices for the Americas, Eastern Mediterranean, Europe and South-East Asia.

² Food and Agriculture Organization of the United Nations, World Organisation of Animal Health, United States Centers for Disease Control and Prevention.

³ Cambodia, Caribbean Community Member States, the Islamic Republic of Iran, Mexico, Moldova, Mongolia, Morocco, Myanmar.

Recommendations to WHO

1. Develop a global strategy to advocate for national laboratory policies.
2. Advocate with countries to designate a national laboratory focal point and national laboratory working group.
3. Update, develop and disseminate tools and guidance.
4. Create an easily accessible repository of information.
5. Support countries to mobilize resources and foster collaboration with partners.
6. Ensure mutual coordination and cooperation with FAO and OIE through the Tripartite secretariat.

Recommendations to Member States

1. Ensure the development of a national health laboratory policy with the format and scope suitable to the country context through an inclusive, intersectoral, transparent and participative process with proper coordination of all relevant stakeholders.
2. Develop a roster of national experts on all the essential elements of a national laboratory policy.
3. Nominate officially a national focal point for laboratories and communicate to WHO.
4. Examine the existing legislative framework and, if needed, establish/strengthen legislation to support enforcement of policy.
5. Allocate sufficient funding, as appropriate, for evidence-based laboratory policy development and implementation.
6. Ensure continuous monitoring and evaluation of policy development and implementation.

2. Introduction

A Technical Consultation on the Development of National Health Laboratory Policies was held at the World Health Organization (WHO) in Lyon, France, on 26–28 April 2016. The agenda of the consultation is contained in Annex 1, while the full list of participants can be found in Annex 2.

Opening

Dr Florence Fuchs

The Coordinator of the Support to IHR Capacity Assessment, Development and Maintenance Unit of WHO's Department for Global Capacities, Alert and Response welcomed participants to the consultation, pointing out that it coincided with a critical period of WHO reform. A new programme for health emergency is being developed and would incorporate the WHO Lyon office. During the Ebola crisis in West Africa, there was a shortage of diagnostic capacity in the affected countries, so that detection of infectious public health threats was weak and early warning of danger was not possible. Since future outbreaks of infectious disease in humans are expected to originate largely from zoonotic sources, stronger links between WHO, the World Organisation for Animal Health (OIE) and the Food and Agriculture Organization (FAO) will be essential in future. Representatives of both OIE and FAO were present at the consultation.

Laboratory capacity has often been neglected within public health systems. However, the consultation was expected to give guidance on how best to provide input to countries so that they can develop laboratory capacity. In many countries laboratory budgets are not sustainable as they are often not funded from within the public health system, so advice in this area was requested.

3. Background

Dr Sébastien Cognat

WHO Lyon office is part of WHO's programme on Outbreaks and Health Emergencies (OHE) which combines the area of health emergencies with response to natural disasters and crises. A major part of the programme's work is to ensure readiness for, detection of and rapid response to outbreaks of infectious diseases that may cause an international public health impact. The International Health Regulations (IHR) list a set of core capacity requirements for surveillance and response that all countries are required to achieve, and these requirements imply the provision of laboratory services. Indeed, the annual IHR monitoring questionnaire specifically asks countries whether they have "a policy to ensure the quality of laboratory diagnostic capacities".

Laboratory systems are at the core of surveillance. The Ebola virus disease outbreak in West Africa highlighted the crucial role of effective high-quality laboratories in the front line of the response. The first patient of an outbreak typically goes to a health centre, and if there is a laboratory there it should be able at least to confirm or rule out priority diseases.

However, there are weak laboratory systems in resource-limited countries, and the oversight of laboratories is often fragmented within the health system. Some disease-specific programmes have been effective in developing their laboratory component but this is not always matched by an effective overall national laboratory system. Countries may have a variety of procurement systems, varying standards and quality systems, multiple laboratory networks and differing laboratory supervision mechanisms.

In the long term, it is important to align disease-specific efforts within coherent and robust national laboratory policies and implementation plans, taking advantage of existing national structures, in order to strengthen the national laboratory system's capacity to produce information of public health relevance. Examples were given of a number of country efforts to draw up national laboratory policies but it was noted that in some cases there were discrepancies between policies and implementation. Three WHO publications on national laboratory policies and plans were introduced (from the African, South-East Asia and Western Pacific Regional Offices)^{4,5,6} and it was noted that the WHO European Regional Office had produced two journal articles on national laboratory policies.

The objectives of the technical consultation were then outlined, namely:

- to share information, experiences and lessons learned by WHO, partners and Member States about the development of national laboratory policies and strategic plans.
- to identify global strengths, weaknesses, opportunities and threats regarding the development of national laboratory policies and strategic plans.
- to propose high-level recommendations on the way forward to support resource-limited countries in the development of national laboratory policies and strategic plans, notably global documentation, guidelines and methodologies, as well as regional and country-level strategies for implementation, monitoring and evaluation.

Dr Leonard Peruski was selected as Chair for the first day of the consultation, and Ms Lisa Edghill was chosen as Chair for the second and third day.

⁴ Guidance for development of national laboratory strategic plans. Brazzaville: World Health Organization Regional Office for Africa (http://www.aphl.org/GlobalHealth/Documents/GH_2010Aug13_GuidanceNLStrategicPlans.pdf, accessed 10 May 2016).

⁵ Guidance for establishing a national health laboratory system. Brazzaville: World Health Organization Regional Office for Africa; 2014 (<http://apps.who.int/iris/bitstream/10665/148351/1/GuidLabSyst.pdf>, accessed 10 May 2016).

⁶ Development of national health laboratory policy and plan. New Delhi: World Health Organization Regional Office for South-East Asia; 2011 (http://apps.searo.who.int/PDS_DOCS/B4725.pdf, accessed 10 May 2016).

4. National health laboratory policies worldwide

Dr Magdi Samaan

A snapshot analysis had been conducted of published national health laboratory policies, noting what is included in them and what is missing. The IHR monitoring tool showed that not all countries have developed national laboratory policies. The snapshot analysis was based on general Internet searches, on manual searches of Ministry of Health websites and on information from laboratory focal points in WHO regional offices. Broad inclusion terms were used, though the focus was on health laboratories rather than laboratories in general. The searches were conducted in Chinese, English and French.

WHO headquarters issued publications on laboratory systems development and strengthening in the 1950s, 1960s, 1970s and 1990s but none of these publications addressed policy. Since 2011, however, policy-related laboratory guidance has been published by WHO's regional offices in Africa, South-East Asia and the Western Pacific.

In 2014 in their responses to the IHR monitoring questionnaire 140 Member States self-reported having a national laboratory policy to ensure the quality of laboratory capacities; of those, the search strategy managed to download 18 published national laboratory policies on the web plus 2 still at draft stage. In addition to these 20 national policies, the search yielded a further 27 documents of relevance, namely 12 strategic plans, 4 sets of biosafety standards, 2 laboratory quality policies, 2 national laboratory standards, 6 national health policies, and 1 laboratory Infrastructure policy. Of the downloaded documents, some countries had national laboratory policies with strategic plans while others had strategic plans with no policy. The number of national health laboratory policies – which might be a document, a law or an Act of government – began to increase in 2009. Half of the policies and plans were published by ministries of health and 18% by national governments, but others were published by national or regional regulatory bodies, provincial or state governments, and even by private consulting companies.

The content of the documents was analysed initially through a manual search to identify the main elements of the documents and then by using NVivo software to search the data. The manual and NVivo searches were then compared, showing that some elements were common to most policies but other elements were found in only one or two cases. A “tree map” of the various policy elements showed that quality management, information management, human resources, and safety and waste management were especially common issues but, overall, policy content varied both by country and by region.

On the basis of this analysis, policy processes and other policy elements were listed and it was possible to build up a draft skeleton of a generic national health laboratory policy. WHO has published regional guidance documents on developing national health laboratory policies which have regional perspectives. However, topics covered in some countries may not be comprehensive and there appears to be a need for revision. Participants in the technical consultation were therefore asked what was needed to help countries develop robust and effective policies.

Discussion

In discussion, consultation participants expressed appreciation for the study and urged that it be continued in all the official WHO languages in order to gather data on a wider field of national laboratory policies. It was noted that the survey in its present form would not be published. Recommendations were made to build a repository of national health laboratory policies and plans with more languages included, and to develop a model national health laboratory policy. Nevertheless, it was agreed that developing a national laboratory policy is a valuable option for countries where existing legislations and/or regulations does not ensure efficient and effective national laboratory system capacities.

5. Reports from the WHO Regions

Region of the Americas

Dr Jean-Marc Gabastou

The Pan American Health Organization (PAHO/WHO) provided an overview of national health laboratory policies in the WHO Region of the Americas. PAHO's aim is to assist countries to implement and sustain quality management systems and good laboratory practices in order to strengthen both patient care and surveillance. PAHO sees this aim as requiring a range of approaches, including regulation and legislation, strategic plans, achievement of the core functions of public health laboratories, fulfilling the IHR requirements, ensuring quality management and biorisk management, training and technology transfer, networking, preparedness, and collaboration through the Global Outbreak Alert and Response Network (GOARN).

The Americas Region has a substantial network of health laboratories, including some that have particular expertise in handling certain diseases – such as Arbovirosis (Dengue virus, Zika virus, Chikungunya virus, Yellow Fever), HIV/AIDS and hepatitis, tuberculosis, influenza, acute diarrhoeal diseases, bacterial meningitis and pneumonia, antimicrobial resistance surveillance and others. Regional plans for public health laboratories feed into subregional initiatives (for the Caribbean, Central America, and South America), and these in turn influence national policies. In order to foster quality management, a generic model of national and regional regulations for medical laboratories has been developed and a course on quality management and good laboratory practices is already in its third edition. In addition, a stepwise process to improve laboratory quality management is underway, based on minimum and mandatory requirements towards accreditation, and a variety of workshops and training courses on biosafety and biosecurity have been held in the region. BSL-3 facilities have been improved in a number of countries in the Americas and a WHO sampling kit has been made available for investigation of haemorrhagic fever, severe acute respiratory diseases, cholera and meningitis. Further, a series of PAHO handbooks on laboratories address issues such as quality management, equipment maintenance, code of ethics, biosafety, biosecurity, and laboratories and blood banks in disaster situations.

There are a number of potential threats to further success – including limited political support, a lack of clarity on priorities, reduced compliance with existing regulations, lack of coordination between laboratories and public health networks, differing educational curricula, poor sustainability, poor supply systems, customs import delays and lack of waste management procedures. However, steps are being taken to address a number of these concerns. A new Biosafety and Biosecurity Strategic Framework 2016–2020 is underway, biosafety standards are being updated, procedures for the validation of BSL-3 processes are being developed, and the assessment and validation of new cost-effective technologies is being encouraged. It is also planned to develop prequalification mechanisms for essential kits and reagents, to promote economies of scale for purchase of equipment and supplies, to improve waste management, and to set up a global agreement for shipping infectious substances in emergency situations.

Eastern Mediterranean Region

Dr Karen Nahapetyan

The WHO Eastern Mediterranean Region includes 22 Member States, with some of the world's richest countries and some of the poorest ones. A number of countries are facing humanitarian emergencies and there are security issues in some parts of the region. Many of the countries have not fully met their IHR core capacity obligations, many have weak regulatory environments, and there are many shortages and problems of access. In such a situation the challenge is not so much establishing a policy but implementing it.

A promising way forward could be to ensure enforcement of laboratory standards through accreditation and licensing mechanisms. A national framework for laboratory services was described as a practical management tool in that it can communicate government commitment and can be the basis for planning, resource allocation, and monitoring and evaluation. The regional office assists countries to develop national health laboratory policies and strategic plans, as well as national laboratory quality standards and national legislation for accreditation and licensing of health laboratories. Iran is the only country in the region that has a completed policy that has been tested and is being implemented (it was noted that this was achieved without external assistance). Some other countries have national health laboratory policies but for various reasons have not implemented them.

The Regional Office is helping to operationalize national frameworks by capacity-building and training, documentation, support for accreditation, and building the Eastern Mediterranean emerging dangerous pathogens laboratory network (EM-EDPLN). Quality management training includes primarily basic training for all laboratory staff but it is intended to move to higher levels of training if the situation allows. Plans to support the assessment of implementation include preparedness and capacity reviews, as well as programmes for supportive supervision, internal audit, quality indicator measurement, management reviews and competency assessment. There is a need for a WHO global strategy for health laboratory services strengthening, which would help countries develop their national frameworks, and for global technical guidance.

A WHO workshop on strengthening laboratory quality systems and promoting national laboratory planning in the Eastern Mediterranean Region was held in October 2010. A regional strategic framework has been developed and will be submitted to the next meeting of the Eastern Mediterranean Regional Committee in October 2016.

The strategic framework has six strategic goals, as follows:

1. Strengthen leadership and governance of the national laboratory systems
2. Strengthen the organization and management of the national laboratory systems towards quality
3. Establish sustainable, sufficient and competent human resources for laboratory service delivery
4. Ensure safe and secure laboratory environment
5. Promote effective laboratory referral networking (in-country and among countries) and enhance coordination
6. Promote rational and evidence-based use of laboratory services.

Each goal has a set of specific strategic objectives with indicators, though a question was raised regarding how to measure quality. Commitment is needed from countries to set up systems of measurement. The establishment in each country of a national laboratory working group is also part of the regional strategy. In October 2016 an intercountry meeting of directors of public health laboratories will take place to agree the way forward and this will be followed by regional training for members of the national working groups.

Challenges include the shortage of resources, including a shortage of regional experts. Hiring international consultants is complicated because many of the countries in the region are considered unsafe by the countries from which most consultants come. The regional priority is to develop pools of national or regional experts. Consultants are needed to advise on the development of national policies, plans and legislation and to act as certified assessors of quality. A further challenge will be to involve private-sector laboratories in national laboratory networks.

European Region

Dr Caroline Brown and Dr Pamela Hepple

The Better Labs for Better Health (BLBH) initiative of the WHO Regional Office for Europe focuses on national laboratory policies and strategic plans and also aims to improve national training programmes, implement quality management systems and upgrade critical infrastructure.

The WHO European Office has no overarching laboratories programme; rather there is a coordination group that works with networks of laboratories for a variety of diseases. Most funding in the region has traditionally been allocated to specific disease areas with no initiative to improve health laboratories in general. Consequently laboratory services tend to be fragmented, duplicated and lacking in standards and oversight, leading in some cases to poor quality and safety. In the countries of the former USSR, in particular, there is little coordination of health laboratories. However, quality-assured laboratories create trust in the health system and also contribute to IHR preparedness.

The overall goal of BLBH is to “improve health by providing timely and accurate laboratory results from accredited laboratories that are trusted by the user”. The first stage of BLBH is to develop national laboratory working groups, currently active in five countries. These groups are intersectoral, involving IHR, animal health and agriculture as well as disease-specific programmes and partners. WHO’s European Regional Office has developed a methodology for laboratory policy development.⁷ Priorities include the need for a legal–regulatory framework, a quality management system, interaction with customers and other stakeholders, essentials such as premises, infrastructure and equipment, and procurement and supply systems.

So far laboratory policies have been developed and endorsed in Moldova and Tajikistan, policies and strategies have been developed in Kyrgyzstan, and policy development is currently underway in Turkmenistan and Uzbekistan. Lessons learned so far include the need for training to accompany policy development, the need to take the national regulatory system into account, involvement of high-ranking Ministry of Health staff in as much of the process as possible, links with existing laboratory networks, advocacy by working group members for policy implementation, collaboration across institutions and sectors, and strategies for tapping into the resources of disease-specific networks.

For implementation, indicators are required and the publication of an annual report has been found useful, along with the development of an advocacy strategy. A pool of experts is also needed to provide advice on a legal framework, public health laboratory networks, and the integration of laboratory policies and strategies into the health system. Among the indicators being used are the numbers of policies and strategic plans approved, the number of inventories of key documents, laws and regulations, the number of operational plans developed from strategic plans, the number of operational plans being implemented, the number of laboratories being mentored, and the number of laboratories trained with WHO’s Laboratory Quality Stepwise Implementation (LQSI) tool.

South-East Asia Region

Dr Aparna Singh Shah

Health laboratory services are an important component of a strong health system. Health laboratories need to be strengthened in order to provide adequate responses to emerging and other communicable diseases and also to contain the spread of infections.

It was noted that regional public health security can be achieved only if collective actions are in place throughout the region. While national laboratories are clearly key to detection and diagnosis at national level, they also have an important role in sharing information and material with referral laboratories and WHO collaborating centres to further characterize the pathogen and prevent disease spread. Laboratory capacity is a core element of both the IHR and the Global Health Security Agenda.

⁷ Brown CS, Zwetyenga J, Berdieva M, Volkova T, Cojocar R, Costic N et al. New policy-formulation methodology paves the way for sustainable laboratory systems in Europe. *Public Health Panorama*. 2015;1(1):41–7 (http://www.euro.who.int/_data/assets/pdf_file/0008/287135/Panorama-Issue-2-full.pdf?ua=1, accessed 12 May 2016).

Some of the major challenges the region's laboratories face include: few countries have laboratory policies; there are limited numbers of trained staff; limited access to new technologies; a need for laboratory standard operating procedures/protocols, regular maintenance of equipment, and regular monitoring and evaluation; uncertain supply of reagents; a need for more accessibility to laboratory services; and absence of dedicated funds to support laboratories. Laboratory standards vary from country to country and also within countries. The South-East Asia and Western Pacific Regional Offices have collaborated in the development of a regional strategy on health laboratory services. The elements of the strategy are:

1. Establish a national framework for laboratory services
2. Finance laboratory services in sustainable manner
3. Build capacity for laboratory services
4. Assure quality of laboratory services
5. Promote rational use of laboratory services
6. Maintain safe laboratory services
7. Support research and ethics in laboratory services.

In order to accomplish the goals of the regional strategy, the WHO Regional Office for South-East Asia has organized a variety of training sessions – on detection and characterization of pathogens (serology, molecular technologies, isolation, sequencing), biosafety, and packaging and shipping of infectious material in accordance with International Air Transport Association regulations and United Nations norms. The next step is to carry out monitoring and evaluation, but first countries need to know what the minimum laboratory requirements are. Establishing a national laboratory policy provides the framework for the coordinated development and delivery of high-quality and accessible national laboratory services.

There is a need for a generic global laboratory policy that can be used as a model across all regions and can be adapted to the needs of Member States. While some Member States in South-East Asia already have draft national laboratory policies, others do not. It was felt that WHO should advocate more on the need for national laboratory policies as this will ensure that laboratories will receive priority and in the long term will ensure accessibility, affordability, quality and equitable laboratory services..

Discussion

Discussion on the regional presentations focused first on priorities. The importance of monitoring and evaluation was stressed.

It was recommended that countries should be encouraged to set up national working groups that could develop into national laboratory councils. In the European Region the working groups work on policy topics and then develop strategic objectives which in turn form the starting point for a national strategic plan.

6. National experiences

Mexico

Dr Alberto Díaz-Quiñonez

Operating criteria were issued in 2013 for the Mexican public health laboratory network. This fits with the national development plan, and especially the part of the plan on a universal health system and access to care for everyone. Operating criteria also fit with the health sector programme and the specific action programme (National epidemiological surveillance system 2013–2018). The goal of the national reference laboratory is to "generate quality information for decision-making". To do this, its mission states, it should "offer products and diagnostic services, human resource development, assessment of technical competence and technological research and development, to ensure the definition of disease by way of proven quality diagnostics". The laboratory quality management system has progressed from certification in 2012 to extension of certification in 2013, recertification and also accreditation in 2014, and receipt of the national quality prize for health in 2015.

The biorisk management system includes biosafety, biosecurity, environmental management, occupational health and safety and civil protection. A range of biorisk management strategies are in place, including biohazard procedures, staff training in biosafety and hazardous waste management, advice and support in emergency care, inventory control of biological agents and chemicals, biorisk management guidelines, and evaluation of the Mexican Public Health Laboratory Network. Efforts are currently underway to establish the biorisk management guidelines in every public health laboratory in Mexico.

The national reference laboratory (InDRE) is the governing body of the laboratory network which also includes 31 state public health laboratories. The network has a regular bulletin called Walking towards excellence. InDRE has had a national influenza centre since 1954, and has been part of the Global Health Security Initiative since 2001. InDRE has been a supranational reference laboratory for tuberculosis since 2005, a member of CDC's PulseNet since 2006, and co-president of the Global Health Security Action Group – Laboratory Network (G7 + Mexico) since 2012.

The Caribbean (Caribbean Community Member States)

Ms Lisa Edghill

The presentation was made on behalf of two Caribbean organizations – the Caribbean Med Labs Foundation (CMLF), an NGO founded in 2008, and the Caribbean Public Health Agency (CARPHA). CMLF aims to promote and support the achievement of quality laboratory services while CARPHA was set up in 2013 to bring together five previously separate Caribbean health institutions and to give strategic direction to the public health priorities of the Caribbean Community (CARICOM).

In January 2016 CMLF and CARPHA signed a memorandum of understanding for collaboration which included laboratory strengthening in the Caribbean region. Several quality initiatives had taken place earlier, funded by the European Union, CDC and the Global Fund. Nevertheless, in 2012 the Caribbean was facing severe economic challenges at a time when prevalent health risks were growing and a number of gaps were identified in laboratory services. The countries of the Caribbean have a tradition of working together and agreeing to health objectives as a region. In 2013, Caribbean chief medical officers proposed the development of a model policy framework to define the conditions for stronger laboratory performance in the area. The fact that this was a regional policy framework ensured widespread commitment to the goal of national standards for laboratory operations, establishment of monitoring and accountability structures, and adequate funding and staffing of public laboratory services.

Regional experts were brought together by CMLF to develop the policy framework. Policy components were a situation analysis, the mission and vision, and a national policy that should include a laboratory governance and network structure, quality management, laboratory support, and information and data management. It was stated as a policy that the Caribbean should have a national laboratory network that operates in a well-defined structure according to the principles of good governance and sustainable financing. In addition, there should be a national laboratory quality management framework supported by legislation and regulations, and a national laboratory standard that, at a minimum, should align with Tier 1 of the regional LQMS-SIP (derived from ISO 15189) for medical laboratories and with the accepted regional standard (ISO 17025) for nonmedical laboratories.

A stepwise improvement process was agreed, starting with licensing and progressing to accreditation. Licensing requirements were felt to have been set rather high since, at the time, none of the public health laboratories met the standards for accreditation. There was even a policy statement on the need for information and data management. The Caribbean regional policy framework was endorsed by the chief medical officers in April 2014 and by ministers of health in September 2014. CMLF then facilitated multisectoral consultations on the framework and has updated model legislation to support policy implementation. As of April 2016, 17 Caribbean countries had drafted national laboratory policies based on the regional framework. In 2015 the ministers of health noted that the 5% of health budgets was allocated to laboratories, yet information from laboratories influenced 70% of health policy decisions.

Islamic Republic of Iran

Dr Siamak Mirab Samiee

Iran has 5700 laboratories, of which 2600 are private and 580 are at public hospitals. Some 1800 are public health laboratories. A number of regulations (including the country's Constitution) apply to laboratories. Quality assurance is taken seriously and there is a national system of accreditation. As a first step to developing a national health laboratory policy, a working group was convened and listed 14 elements that influence the quality of laboratory services. Questionnaires were then devised to gather further information on each of these elements and a list of stakeholders was compiled. Subsequently 14 technical committees were established to address each element. Finally, the national health laboratory policy was drafted in a consensus process.

In the Iranian policy, any laboratory that performs a service related to health is defined as a health laboratory. There were some challenges in putting implementation into practice as there was a lot of variation between different laboratories and between laboratories in different regions.

However, experience showed that having an agreed national policy made it easier to develop a strategic action plan. Different roles and responsibilities in the plan have already been agreed, and monitoring is being carried out through regular reporting and reviews. This is the first functioning – and tested – national health laboratory policy and strategic plan in the WHO Eastern Mediterranean Region.

Challenges include the fast turnover of top management, financial problems, fragmentation of the network and the impact of international sanctions. When the Ebola outbreak occurred, no one helped Iran to prepare for possible import of the disease, but universities and other national laboratories developed capacity to WHO standards.

Morocco

Dr Mohamed Rhajaoui

The health system in Morocco consists of the public sector (at central, provincial and local levels), the private sector (both for-profit and nonprofit) and the military. Each of these sectors (including the military) have laboratories to serve their needs. For instance, Morocco has 350 medical laboratories in the private sector. In addition to the public sector's 144 hospitals, there are private hospitals and both military and police hospitals. In the public sector there are some 150 hospital laboratories as well as non-hospital-based laboratories which sometimes chiefly serve specific disease programmes.

The national laboratory network comprises laboratories at central, regional and local levels. The functions of the laboratories in this network include diagnosis and screening, surveillance monitoring and prevention of communicable diseases and the emergence of pathogens, outbreak investigation, generating information based on scientific evidence, training, public health research, quality assurance and biosafety. There are also 13 sub-networks of laboratories (most of them disease-based).

The strengths of the laboratory system in Morocco include the range of analyses, new technologies, quick reactivity to outbreaks, research activity and ISO certification of the national laboratory. However, weaknesses include the fact that there are too many stakeholders (with poor coordination between them) and there is no overall laboratory policy. Additionally, since the laboratory network is not official, there is little communication between laboratories, poor human resources management, a shortage of staff and a lack of training. For biosafety standards the laboratories use the relevant WHO manual as there is no Moroccan one. However, Morocco's Ministry of Health is currently reforming health services. The organigram of the ministry has been changed and a working group is drafting a national laboratory policy.

Mongolia

Dr Oyungerel Nanzad

Mongolia has a new Development Policy and Planning Act, approved in 2016, and a set of national sustainable development goals (SDGs) for the period up to 2030 (which is a long-term plan supporting the global SDGs). This long-term SDG plan includes the improvement of

national reference laboratory capacity and improvement of early detection and warning. The one-year Socioeconomic Development Plan for 2017 includes a reference to the construction of a BSL-3 laboratory (which has been delayed for a number of years).

Mongolia's national master plan for health 2005–2015 is no longer valid, but there is a national health policy, the development of which is ongoing and which includes national programmes on specific issues such as laboratories. The Ministry of Health and Sports already has a strategic plan on laboratory services, together with an implementation plan. Mongolia currently has more than 30 national strategic plans and programmes on health that have to be aligned and integrated. Challenges include integrating all the policies and plans, the lack of political support on sustainable policy implementation, and frequent changes in government structures. Financial resources on health are also limited as a result of the economic crisis.

Discussion

Participants stressed the relevance of the SDG agenda as a driving force for laboratory development. The issue of integrating multiple policies led to a question as to whether countries should develop stand-alone health laboratory policies, or whether they should consider the health laboratory element of a science policy, or development policy or security policy. There was support for the idea of integrating laboratories into a bigger strategy. However, it was noted that this was not so easy at national level where different ministries have limited collaboration with each other. It was also suggested that formal platforms could be developed for intersectoral sharing of information such as medical records.

Cambodia

Dr Sau Sokunna

In 2009 Cambodia introduced a national policy for medical laboratory services and in 2010 the national strategic plan was approved. National laboratory quality standards were approved in 2011 and the national medical microbiology laboratory network was established in 2012. The following year saw the development of the national quality manual, and the quality assurance programme expanded to microbiology, haematology and biochemistry. However, out of the 91 public health laboratories in Cambodia, only three are able to do bacterial culture, identification and antibiotic susceptibility testing.

The national strategic plan has 12 elements. An assessment of the national laboratory system in 2013 looked at each of these and indicated where changes could be made. For instance, the assessment revealed that laboratory governance needs to be strengthened to support sustainable development of the laboratory system. As a result, resources are being increased, further staff training is being carried out and both the Cambodian Laboratory (CamLab) network and its communication capacity are being strengthened. The 2013 assessment also noted that staff availability in 22 laboratories averaged 64% but training and supervision had a low score of 45%. Consequently, it was recommended that educational institutions should follow a standard national curriculum and fulfil minimum requirements, that the national laboratory training curriculum should be reviewed every 5 years to meet evolving needs, that laboratory staff qualifications should be monitored at all health facility levels, and that in-service training for medical laboratory staff should be strengthened.

Cambodia's laboratory policy is increasingly aligned with the priorities of the Asia Pacific Strategy for Emerging Diseases (APSED). The health laboratory network made a number of achievements in terms of Cambodia's national plan (e.g. laboratory capacity meets national diagnostic and confirmatory requirements for priority diseases, and availability of core IHR laboratory capacity). However, some challenges remain (such as the lack of laboratory biosafety regulations, the limited knowledge of clinicians in the rational use of laboratory diagnostics, and the fragmentation of the laboratory system among vertical programmes). Priorities for 2016 include the development of laboratory biosafety regulations, establishment of a national laboratory-based surveillance system to improve disease surveillance, development of national standards and standard operating procedures for the packaging and transport of clinical specimens, and regular collection of antibiotic resistance data.

Myanmar

Dr Htay Htay Tin

The National Health Laboratory within Myanmar's Ministry of Health is responsible for routine laboratory investigation, the special laboratory task force and public health work, training, research and quality assurance. The laboratory is the national reference centre which also carries out monitoring and quality assessment of laboratories at peripheral, intermediate and central levels throughout the country. Myanmar has developed a national health laboratory policy and strategic plan which have been endorsed by the Ministry of Health and are due to be published in the near future. Development of the plan was initiated by the government, the national health laboratory and other stakeholders. The vision, mission, goals and objectives of the national policy were outlined.

Before the policy and plan there was already a structured laboratory network, but there were weaknesses in certain areas such as guidelines and standards, and dedicated financial resources for laboratories. There is still limited political support, a lack of compliance with regulations in some laboratories, and too little emphasis on public health issues in laboratory training courses. However, there are promising opportunities for good collaboration between laboratories within the health sector and between health laboratories and the laboratories in other sectors. One of the next priorities will be to establish a national health laboratory coordination committee.

Moldova

Dr Silviu Ciobanu

Experience of developing a national health laboratory policy and strategic plan in Moldova was described from the perspective of WHO's country office in Chisinau. Currently, a number of Moldovan laws, ordinances and government decisions relate to public health reforms (surveillance, public health service delivery etc.). In particular, the latest national public health strategy, which extends from 2014 to 2020, refers to the "need to reform and streamline public health laboratories, ensure better access for the population and business operators to public health services through optimization and public health service regionalization".

During phase 1, it was decided to begin public health reform in Moldova with the laboratory sector. Previously there were 12 national-level laboratories and 36 regional laboratories at district level. The number of regional laboratories has now been reduced to 10 but their capacities have been upgraded and strengthened and they are more equitably spread throughout the country.

As part of the Better Labs for Better Health initiative, a national laboratory working group was established in September 2012, following a WHO scoping mission in April. This had representation from the ministries of health, agriculture, economy and environment, as well as the Food Safety Agency, accreditation bodies, private laboratories and medical schools. However, due to lower-than-expected attendance at meetings by the non-health sectors, after one year the working group was limited to the health sector (public health and clinical). A series of WHO missions took place and training/policy development workshops were held. The working group produced 10 policy statements on laboratory services, and the national health laboratory policy was derived from these. The policy covers legislation, organization and management of services, accessibility, partnerships, communication, human resources, finance, infrastructure, procurement and logistics, and quality management. Work has been started to develop a strategic action plan to act upon the policy paper. The rest of the public health reform remains to be completed. Challenges include political instability, high staff turnover, poor intersectoral collaboration (and even competition), and the fact that the breakaway region of Transnistria is totally excluded.

Discussion

There was some discussion of which laboratories should be included under a national health laboratory policy. Participants favoured an inclusive approach that would take account of all laboratories that do work related to health. It was felt that information from surveillance should serve both human health laboratories and those dealing with animal health. On the governance of the laboratory services, it was proposed to recommend that there should be a national laboratory authority in each country. It was also recommended that national policies should include all elements that are identified as challenges.

7. Health laboratory policies in the context of health systems strengthening

Dr Neelam Dhingra

National health laboratory policies and plans should include all laboratories that in some way contribute to human health. However, whichever laboratories are included, ways need to be found to incorporate them into the health system to ensure an efficient and responsive network of quality health laboratories.

Review of the IHR following the Ebola virus outbreak in West Africa has placed the strengthening of laboratory services at the highest level of health security concerns. The third of the United Nations' Sustainable Development Goals (SDGs) focuses on ensuring healthy lives and promoting well-being for all at all ages, and in each of the targets of that SDG laboratories have a role to play. Laboratories are essential for the achievement of universal health coverage.

In the past the focus on disease-specific programmes, all of which use laboratories, has deflected attention from treating laboratories as an element of the overall health system. However, after the experience of Ebola the world needs a health systems approach to health security – and that includes laboratories. Health systems require a patient-centric or person-centric approach, and since persons and patients make up the community there has to be engagement with the community too.

The framework for people-centred health care delivery comprises a range of person-centric approaches – such as giving people access to their health records, respecting patient confidentiality and maintaining an ethical approach – and laboratory services must be integrated into this people-centred system.

Just as health laboratory services belong in the health system, so national health laboratory policy should be a part of national health policy. The strategic plan for health laboratories should therefore derive from the overall health policy. While all national laboratory policies will be expected to include certain key health-systems and legislative elements, the policy ultimately depends on the local context and the geographical situation. Some countries, for instance, may already have laws on issues such as safety and confidentiality and a laboratory policy should take account of these.

Partners in developing national laboratory policy

World Organisation for Animal Health

Ms Jennifer Lasley

The World Organisation for Animal Health (known by its original acronym of OIE) was created in 1924 and today has 180 member countries. As the intergovernmental standard-setting organization for animal health, veterinary public health and animal welfare, OIE's concerns include national veterinary laboratory policy and strategic planning. The four pillars of the OIE are standards for international trade, transparency of the animal disease situation, expertise (i.e. collection and dissemination of veterinary scientific information), and solidarity between countries. OIE's Terrestrial Animal Health Code contains current standards for disease control and safe international trade. The Code goes into some detail on laboratory facilities and reagents, particularly in terms of the legislation required. It also includes standards related to antimicrobial resistance.

OIE also publishes the Manual of diagnostic tests and vaccines for terrestrial animals which highlights the importance of national laboratory policy and includes the minimum requirements for veterinary laboratories and their management. In 2015, OIE had a global network of 252 reference laboratories for 118 diseases in 39 countries and 49 collaborating centres covering 46 topics in 26 countries. In order to improve animal health management worldwide it is necessary to improve national veterinary policies. OIE's Performance of Veterinary Services (PVS) Pathway is a global programme for the sustainable improvement of a country's veterinary services' compliance with OIE standards on the quality of these services.. The PVS Pathway evaluates countries against 47 critical competencies, of which three relate to laboratories.

Countries request assessment of their veterinary services and, to improve laboratory competency, OIE offers a Laboratory Twinning Programme and a Legislation Support Programme since in many countries the veterinary legislation is outdated and inadequate.

There is also a PVS Laboratory Mission to determine the resources needed by the national veterinary laboratory network, to evaluate the pertinence of its structure and its viability in the national context, and to present to the veterinary services the elements that are needed for strategic decision-making. Traditional laboratory assessment tools are useful chiefly to establish baseline performance in the context of a project, and are usually related to specific diseases, but the OIE approach aims to help laboratories to better understand the true cost in the context of the many external influences on their day-to-day work.

The OIE has carried out PVS Pathway laboratory missions in 10 countries to date. These missions aim to describe the current situation of supply of and demand for laboratory analysis, define strategic options and identify cost over the next five years, helping laboratories to take a more active role in determining strategic directions. The OIE has also established a global training programme for national focal points for veterinary laboratories, with regional seminars implemented all over the world. It was suggested that these OIE national focal points could be useful contributors to efforts to establish national health laboratory policies.

Discussion

In discussion it was noted that the OIE focuses its advice to laboratories on achieving compliance with international standards. While other standards exist, the OIE does not require that laboratories obtain accreditation. Participants agreed that WHO should support health laboratories in quality improvement but it is their decision whether to apply for accreditation. It was felt that quality management is a good bridge between the animal and human laboratory sectors since good practices and approaches are similar across both sectors. OIE offered to supply the contact details of its national laboratory focal points, as relevant, to WHO headquarters and regional offices or to the public health services of the countries that request them.

Food and Agriculture Organization of the United Nations

Dr Gwenaëlle Dauphin

The consultation was provided with an overview of FAO's approach in supporting veterinary laboratory policy. FAO's experience in laboratory strengthening and networking has shown that many countries lack a clear policy framework for accessible, efficient, cost-effective and sustainable laboratory services. As a result FAO has begun laboratory policy work under the USAID-funded IDENTIFY project.

FAO considers that the veterinary laboratory policy should cover the whole veterinary domain, regardless of ownership of the laboratories. A laboratory policy sets out the vision, mission and structure of the national veterinary laboratory system and the means it uses to fulfil its mission. The policy exists in the context of overarching policies, laws and regulations and is implemented on the basis of relevant policy, legal and regulatory instruments. There may not be a specific national veterinary laboratory policy as such since it may exist in a number of different policies or may be part of a broader policy. In some countries, veterinary policy is described only in legal and regulatory texts.

FAO has conducted a review of veterinary laboratory policies in 18 countries with reasonably well documented policies. The aim of review was to identify strengths and weaknesses and to serve as the basis for the development of guidelines. The main conclusions were that the laboratory services chiefly serve national objectives (even if there is no policy to this effect), that there is awareness of the need for a veterinary laboratory policy and a willingness to strengthen collaboration with other authorities, and that policy and legal instruments are more advanced in the food safety sector (possible because of pressure from international trade). Many examples of good policies and challenges were observed in countries and could be shared with other countries. FAO's observation was that policy development is the first step and then consideration of possible legislation follows, with the core areas for veterinary laboratory legislation being governance (e.g. mandate of the competent authority, delegation, enforcement, supervision), facilities (e.g. designation and responsibilities of reference laboratories and laboratories for official sample testing, obligations, networks), and technical requirements (e.g. standards/accreditation, licensing requirements, personnel).

FAO is currently preparing guidelines to assist countries to design an appropriate laboratory policy and integrate it with overarching policies on animal health, livestock production or agriculture. The approach was piloted in Kenya in 2015. A new veterinary policy was approved there in 2016. The laboratory policy under development will be integrated or at least linked to it. An email consultation was conducted by FAO in September 2015 with some 25 experts to validate the overall approach, and a workshop is planned at the end of 2016. The guidelines look at positioning the veterinary laboratory policy in the institutional environment, then describe possible components of the policy, and outline the policy formulation and implementation process. The process includes a situation analysis and the establishment of a national task force.

An FAO comparison of public health and animal health laboratory network systems showed that there are many more public health laboratories than animal health laboratories; therefore the animal health laboratory system is smaller. However, the two sectors have many common features with regard to laboratory work, and it may be worthwhile to align and harmonize the terminology and approach of laboratory policies.

Centers for Disease Control and Prevention (USA)

Dr Leonard Peruski

The United States Centers for Disease Control and Prevention (CDC) is one public health agency in one country, even if it also works in other countries. CDC has sometimes made mistakes, but when CDC makes a mistake the agency admits it publicly, finds out how to avoid the mistake in future, and moves ahead.

One of the reasons why a national health laboratory policy had not been developed in some countries was the preponderance of vertical health programmes with funding for their own laboratory services. However, a number of factors – such as international standards, the importance of biosafety and biosecurity, and international law in the form of the IHR – are now driving the need to move ahead. A number of documents on national laboratory policy were recommended.^{8,9,10}

In January 2008, governments, agencies and partners approved the Maputo Declaration on Strengthening of Laboratory Systems which called on governments to “support laboratory systems as a priority by developing a national laboratory policy within the national health development plan”. The declaration also stated that each Ministry of Health should include a department of laboratory systems. The national laboratory policy and national laboratory strategy must be the foundation for developing national health systems.

The bulk of CDC’s work relates to the USA and only a small proportion is international. However, CDC has four goals for global health: improving the health and well-being of people around the world, improving capabilities for preparing for and responding to infectious diseases and emerging health threats, building country public health capacity, and maximizing organizational capacity. CDC activities are current in some 60 countries with much of that work done by locally-employed staff. CDC’s implementation process for strengthening laboratory work at country level begins with country engagement, continues with the formation of committees for coordination and for technical issues, and then involves a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis before the strategic plan is developed and implemented. As implementation proceeds the plan is reviewed and evaluated.

After the IHR was completed in 2005, and came into force in 2007, the first reporting date for compliance was 2012. When many countries had not fully complied by that date, a second date for compliance was set for 2014, and then another for 2016. Even then, not all countries will be compliant. The Global Health Security Agenda (GHSA) is a tool designed to accelerate progress toward a world secure from infectious disease threats, to promote global health security as an international priority, and to spur progress towards full implementation of the IHR and other relevant global health security frameworks. The GHSA has had successes in laboratory improvement in Ethiopia, Kenya and the United Republic of Tanzania.

Participants were urged to consider laboratories as important not only in the fight against infectious diseases but also in combatting noncommunicable diseases such as diabetes, cancer, cardiovascular disease, hypertension and chronic respiratory disease – all of which have implications for laboratory policy. Strategic laboratory plans are a cornerstone for strengthening

⁸ Guide for national public health laboratory networking to strengthen Integrated Disease Surveillance and Response (IDSR). Brazzaville: World Health Organization Regional Office for Africa (with CDC); 2008 (<http://www.cdc.gov/globalhealth/healthprotection/idsr/pdf/htl-afro-cdc-lab-guidelines-for-nln.pdf>, accessed 12 May 2016).

⁹ Evaluating the economic and health impacts of investing in laboratories in East Africa. Washington (DC): The World Bank; 2015.

¹⁰ Development of national health laboratory policy and plan. New Delhi: World Health Organization Regional Office for South-East Asia; 2011 (http://apps.searo.who.int/PDS_DOCS/B4725.pdf, accessed 10 May 2016).

laboratory systems and developing policy. However, a process is needed to coordinate efforts, build synergies and develop sustainable systems and policies.

It is important to ensure there are no parallel systems and policies, and to create a way to integrate existing laboratory networks into the national one. Strategy and policy must always evolve and adapt on the basis of facts and national and regional priorities.

8. Working groups

Participants in the technical consultation were assigned to three working groups to discuss a set of five questions/action points, namely:

1. What are the challenges faced by WHO Member States (in particular, developing and low-income countries) to initiate and/or develop national laboratory policies and strategic action plans?
2. In light of the above identified challenges, what tools/guidance/resources are needed to support the development of national laboratory policies and strategic action plans (especially in developing and low-income countries)?
3. Identify WHO Member States in WHO regions which i) are currently developing or intend to develop national laboratory policies and strategic action plans, and ii) would require external support in such endeavour.
4. Identify and/or propose potential partners and resources (financial and/or technical) in WHO regions who can support Member States in developing national laboratory policies and strategic action plans.
5. Propose draft recommendations i) for WHO, ii) for Member States, iii) for partners based on the main discussion points from the first four questions above.

Each working group discussed the same set of points and recorded its draft recommendations in a PowerPoint template. Following completion of the working group discussions, the PowerPoint files of each group were handed to the meeting rapporteur who combined the three sets of draft recommendations, eliminated duplication and overlap, and grouped the recommendations by topic.

On the final day of the consultation, a spokesperson for each of the three working groups summarized the discussions of that group. Similar ideas arose from each group, though formulated differently.

In discussion of the working group presentations it was noted that many elements of laboratory policy may already be in place and that there is no need to repeat them (or, worse, conflict with them). The aim is to have a legislated policy. It was reported that the WHO African Region had requested the WHO Lyon office to support development or updating of national laboratory policies for a number of countries. The importance of intersectoral involvement in the national policy development group was emphasized, and participants were reminded that human health laboratories and animal health laboratories tend to work in similar ways. In the WHO Eastern

Mediterranean Region, the regional office told countries that national laboratory working groups should have a specific intersectoral composition (including members from human health, veterinary, environment and other areas).

9. Recommendations

The compilation of draft recommendations from the working groups was presented to all consultation participants in plenary. Participants discussed each draft recommendation in terms of its relevance to laboratory policy development. Recommendations were eliminated or combined and then reviewed until agreement was reached on a final list of 6 recommendations to WHO and 6 recommendations to Member States, as follows:

Recommendations to WHO

1. Develop a global strategy to advocate for a national laboratory policy.
2. Advocate with countries to designate a national laboratory focal point and national laboratory working group.
3. Update, develop and disseminate tools and guidance.
4. Create an easily accessible repository of information, including a roster of trained experts.
5. Support countries to mobilize resources and foster collaboration with partners.
6. Ensure mutual coordination and cooperation with FAO and OIE through the Tripartite secretariat.

Recommendations to Member States

1. Ensure the development of a national health laboratory policy with the format and scope suitable to the country context through an inclusive, intersectoral, transparent and participative process with proper coordination of all relevant stakeholders.
2. Develop a roster of national experts on all the essential elements of a national laboratory policy.
3. Nominate officially a national focal point for laboratories and communicate to WHO.
4. Examine the existing legislative framework and, if needed, establish/strengthen legislation to support enforcement of policy.

5. Allocate sufficient funding, as appropriate, for evidence-based laboratory policy development and implementation.
6. Ensure continuous monitoring and evaluation of policy development and implementation.

The Chair thanked all participants for their contributions to the technical consultation, for their helpful discussions in the working groups, and for their collaborative approach in finalizing the recommendations. The participants were also thanked on behalf of WHO for giving their time and for sharing their experience and expertise with the Organization.

Annexes

Agenda of the Technical Consultation on the Development of National Health Laboratory Policies

Day 1: 26 April 2016		
8:30 -9:00	Registration	
9:00 : 9:15	Opening remarks	WHO, HQ (GCR/CAD Coordinator)
9:15 – 9:25	Introduction of participants and housekeeping announcements	Participants and secretariat
9:25 – 9:35	Meeting objectives and selection of chairman	WHO HQ
9:35 – 09:50	NLP - A Glimpse on Global Situation	WHO HQ
09:50 – 10:40	WHO Regional perspectives (25 min each)	AMRO/PAHO, EMRO
10:40 – 11:05	Coffee break (25 min)	
11:05 – 11:55	WHO Regional perspectives, ctd (25 min each)	EURO, SEARO
11:55 – 12:20	CDC's support to national health laboratory policy development	CDC- USA
12:20 – 13:20	Break for lunch	
13:20 – 13:45	Prof. Jean Sakande, African perspective	Pr Sakande
13:45 – 14:45	National Experience on NLP (20 min each)	Member States (3) Mexico, Port of Spain, Iran
14:45 – 15:10	Coffee break (25 min)	
15:10 – 17:10	National Experience on NLP (20 min each) - continued	Member States (6) Morocco, Mongolia, Cambodia, Myanmar, Bhutan, Moldova

Day 2: 27 April 2016		
8:30 – 9:00	Summary of Day 1	
9:00 – 9:30	Health Laboratory Policies in the context of National Health Systems Strengthening	HIS, HQ
9:30 – 10:30	Veterinary Laboratory Policies and strategic planning (30 min each)	FAO, OIE
10:30 – 10:45	Introduction to working groups (to identify challenges; tools/guidance/advocacy; partners/resources (technical/financial) required; identify priority countries/region and available resources and propose recommendations to WHO, MS, and partners on way forward.	WHO HQ
10:45 – 11:15	Coffee break	
11:15 – 12:30	Working groups	3 groups
12:30 – 13:30	Break for lunch	
13:30 – 15:00	Working groups (ctd)	
15:00 – 15:30	Coffee break	
15:30-17:00	Working groups (ctd)	Each group to share draft presentation with Rapporteur before leaving

Day 3: 28 April 2016		
9:00 – 10:30	Working Groups presentations	All participants
10:30 – 11:00	Coffee break	
11:00 –12:00	Draft recommendations (Plenary session)	All participants/Rapporteur
12:00 – 12:30	Endorsing recommendations and Closing of the meeting	All participants

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