PREPAREDNESS FOR PUBLIC HEALTH EMERGENCIES
CHALLENGES AND OPPORTUNITIES IN URBAN AREAS

HIGH-LEVEL CONFERENCE REPORT
Lyon, France, 3-4 December 2018

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DR TEDROS ADHANOM GHEBREYESUS
WHO Director-General

“1 billion more people better protected from health emergencies”


Organisation
mondiale de la Santé

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CONFERENCE STATEMENT

- Acknowledging that urbanization leads to new challenges for global health as it changes the epidemiology of infectious diseases, including zoonoses, offering new challenges for transmission and amplification in a complex, dense and highly mobile environment requiring new approaches and tools for effective outbreak alert and response;
- Acknowledging the important role of urban leaders who are in many country settings on the front line of multisectoral coordination in emergency preparedness and response;
- Acknowledging the International Health Regulations (IHR(2005)) as the global framework to prevent, detect and respond to the international spread of diseases;
- Acknowledging that international and multi-sectoral collaboration is essential to the IHR(2005) implementation; notably Art.14. and 44;
- Considering that the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO) and the World Organisation for Animal Health (OIE) have decided to enlarge the scope of their collaboration to more broadly embrace the "One Health" approach, by recognizing that human health, animal health and the environment are interconnected, and have agreed to jointly work on issues such as preparedness and response to emerging, re-emerging and neglected infectious diseases, including zoonosis, antimicrobial resistance, and food safety;

WE, MINISTERS, INTERNATIONAL ORGANIZATION LEADERS, MAYORS, URBAN LEADERS, PUBLIC HEALTH OFFICIALS, CIVIL AND PRIVATE SECTOR LEADERS, GATHERED IN LYON ON 4 DECEMBER 2018:

1. Express our determination to realize a vision wherein collaboration beyond the health sector at local, national, regional and international levels contribute to better preparedness for health emergencies, and to mitigating emerging public health risks in the context of growing urbanization.
2. Note that the global public health preparedness for IHR(2005), established under the WHO, is an essential part of our collective emergency preparedness, including in setting out a global approach to urban public health preparedness.
3. Understand that actors in international air, maritime and ground travel, world tourism, global public health and veterinary public health, have a shared responsibility to jointly mitigate the international spread of diseases and reduce the disruption of international travel and tourism.
4. Consider that multisectoral collaboration generate synergies and allows joining of forces to accelerate IHR(2005) implementation in countries.
5. Recall, in particular, the impact of infectious disease hazards on air transport, world tourism, and public health and wellbeing, as illustrated by the SARS epidemic in 2003, the H1N1 influenza pandemic in 2009, the emergence of the MERS-coronavirus in 2012, the West Africa Ebola

crisis in 2014-2015, and more recently the emergence and international spread of a new neuro-pathogenic strain of Zika virus.

6. By putting global urban health preparedness on the agenda of the Lyon conference, we affirm our role in strengthening political support for existing initiatives and working to address the interface of global health, international travel and tourism.
7. Recognize that "strengthening multi-sectoral colla-boration in an interconnected world" is a common goal founded on three key pillars:
   - Enhancing preparedness
   - Improving Sustainability, and
   - Assuming Responsibility
8. Commit ourselves to multi-sectoral collaboration involving all relevant stakeholders to prepare for and address health emergencies in a more predictable and coordinated way to minimize the negative impact of international health emergencies to public health, international air transport, and global tourism.
9. Recognize the determinant role of the World Health Organization (WHO) and, in particular the role of WHO Lyon Office in emergency preparedness and capacity building.
10. Call for WHO and partners to designate 2019 as a "Year of Action on preparedness for health emergencies", together committing ourselves and our organizations to collectively supporting the below activities, and calling others to similarly act to mitigate risks of the international spread of disease and of major disruption of international travel and tourism.

WE PLEDGE TO:

- Improve information sharing, and event-based communications between organizations and across sectors including between the public and private sectors, as required by IHR(2005).
- Amplify collaboration, community of practice and networking approaches between international public health, animal health, environment, transport and tourism sectors, including Food and Agriculture Organization (FAO), World Organisation for Animal Health (OIE) and World Health Organization (WHO) connecting specialized networks and communities for stronger integrated approaches to health emergency preparedness in urban areas.

  We also appeal to International Civil Aviation Organization (ICAO), World Tourism Organization (UNWTO), and World Health Organization (WHO) to explore joint initiatives for collaboration at the interface between public health, international air transport and world tourism.

OPENING

The meeting was opened by Dr Florence Fuchs, Head, WHO Lyon Office. Participants were then addressed by Mr Gérard Collomb, Mayor of the City of Lyon, who recalled the strong tradition of science and medicine in the city. Mr David Kimelfeld, President of Lyon Metropolis, described the city's collaboration with other cities, including Bamako and Ouagadougou.

Dr Peter Salama, Deputy Director-General, WHO Emergency Preparedness and Response, recalled that 2018 is the 100th anniversary of the pandemic of Spanish influenza, which killed more people than died in the First World War. The epidemic of severe acute respiratory syndrome (SARS) in 2003 resulted in an economic cost of up to US$ 50 billion and Ebola virus disease (EVD) in costs of up to US$ 1 000 000. Loss of biodiversity and climate change are altering the patterns of disease transmission, and epidemics are becoming the new norm, requiring new systems of global surveillance and global commitment to risk communication. Lyon is at the forefront of the response, with its private–public research blueprint.

His Excellency François Rivasseau, Ambassador, Permanent Mission of France to the United Nations Office and other International Organizations said that new ways have to be found to protect cities, by mobilizing all sectors. He commended the WHO Lyon Office on its work on infectious diseases, including training in compliance with the IHR (2005).

THE INTERNATIONAL HEALTH REGULATIONS (2005): AN OVERARCHING FRAMEWORK FOR INTERNATIONAL PUBLIC HEALTH SECURITY

Dr Jaouad Mahjour, Director, WHO, Country Health Emergency Preparedness and IHR, said that health emergencies stretch health systems and affect other sectors, with a strong economic impact. The IHR represent a legally binding global agreement, adopted by all Member States, to build capacity to prevent, protect and control disease. A whole-of-government approach is required, especially for pandemic preparedness in crowded urban settings.

Professor Didier Houssin, Chairman, Assistance Publique–Hôpitaux de Paris, and former Chair of the WHO Review Committee on the role of the IHR in the outbreak of EVD and the response, recalled the history of epidemics in cities. EVD is showing a new relation between a rural virus and the urban environment, spreading from small epidemics in distant areas to cities. The advantages of large urban centres are the visibility of an epidemic, implication of the government, mobilization of international stakeholders and accessibility. IHR core capacities must be strengthened in vulnerable countries.

In the ensuing discussion, Dr Mohammed Youbi, Directorate of Epidemiology and Diseases Control, Ministry of Health, Morocco, recalled that the large international airport at Casablanca was the hub for transport of teams and material during the EVD epidemic, and a system had to be found for detecting and following-up suspected cases. In reply to another speaker, who commented that airports are usually run by private companies, Professor Houssin said that governments must be prepared but should reflect before taking extreme measures such as quarantine or curfews.

The meeting agreed that Dr Christopher Bayer, Project Lead, International Health Security, Ministry of Health, Germany, would chair the first day of the meeting and Professor Benoît Vallet, Councillor, General and Accounting Office, France, the second day.

SESSION 1
LESSONS LEARNT FROM URBAN OUTBREAKS

Dr Bayer recalled the history of epidemics in urban areas, which gave rise to the epidemiology of infectious diseases and urban design for city planning and preparedness.

Round-table 1
Gaps in preparedness from a local perspective

The round-table was moderated by Dr Rebecca Katz, Director, Centre for Global Health Science and Security, Georgetown University, Washington DC, USA, who commented that the scale of outbreaks is increasing.

Mr Homère Ouédraogo, Director-General of Social Services, Office of the Mayor of Ouagadougou, Burkina Faso, described the internal organization of services for epidemic containment for the population of 2.5 million, including communal hygiene and health. A committee in the Mayor's office coordinates councils in each quarter of the city to implement the national multi-risk plan for civil protection, including communication to the population and organization of emergency response centres. A national committee coordinates all emergency management activities for the country, and city competences are integrated into the national plan.

Mr Harimakan Keita, Deputy Mayor of Bamako, Mali, a city of 1 million people, said that an epidemic can be declared only by the national Government; however, the Mayor launches the response, including material and logistics. After definition and notification of suspected cases, data are analysed to detect trends; all cases are confirmed in laboratories. The response includes colour-coding of the severity of an epidemic, mobilization of resources, monitoring of the performance of the surveillance system and the involvement of society at all levels. Committees of community members have been formed in each of the six quarters of the city.

Dr Oxiris Barbot, Acting Commissioner, Department of Health and Mental Hygiene, New York City, USA, with a population of 8.6 million, said that preparedness infrastructure is activated mainly for communicable diseases but also for natural disasters, terrorism, civil disturbance and collapse. The programme is funded largely by the Government. Permanent staff in the health department ensure preparedness, and additional staff can be brought in for major or prolonged response, complex threats, disease surveillance, mass prophylactic vaccination and management and distribution of medical material. Activities are prioritized according to threat and impact. Capability is tested in advance by planning, training and practice in functional to full-scale drills. Other sectors are included, such as nongovernmental organizations (NGOs) and private health care.

In the discussion, she said that scenarios are conducted with state and not Federal partners. Mr Keita said that transfer of responsibility for emergency preparedness to communes and cities must be accompanied by resources. Mr Ouédraogo agreed. He said that, in Ouagadougou, the Mayor is the main coordinator. Although representatives of ministries for the national plan attend meetings, the State does not include cities in their health plans. Communication is essential during an emergency, not only through the mass media but by going to see people, to counter rumours; 5500 staff have been trained to visit people in their houses and courtyards. Municipal councillors are in contact with religious authorities and other community leaders. In response to Dr Katz, who asked how a competent workforce could be maintained without resources, he said that people now found it more interesting to work for the city than for the central government because of the quality and dynamism of the programme. Furthermore, external partners have been identified for training, including the City of Lyon. A national council comprising all sectors helps communication through all layers of the Government, and an association of all mayors in Burkina Faso communicates with central level. The association also allows mayors without the necessary capacity to call on other cities.

> *"People now found it more interesting to work for the city than for the central government"*

Dr Barbot stressed that training in emergency preparedness should be introduced into every health department, as various skills are needed. Staff should represent the racial and linguistic mix of the city. All private and public hospitals are prepared to receive a patient with suspected EVD, and one public hospital is designated as a treatment centre.

A participant from the Islamic Republic of Iran welcomed the presence of mayors at the meeting. He said that they should be responsible for health and well-being, as they can manage the social determinants of health more readily than central governments, perhaps through the WHO Healthy Cities programme.

In response to other comments, Dr Katz said that municipal leaders may need to be educated about the IHR and the role of focal points. Dr Barbot said that opportunities were being created in the USA for sharing of best practices, resources and infrastructure among cities of different sizes and also with cities in other countries. Mr Ouédraogo said that governments should cooperate more with mayors,

and mayors should be sensitized about planning and preparation and share their experiences. Others commented that legislation should define responsibilities, such as whether the state or cities are responsible for health, for emergencies and for communication. Dr Katz commented that King's College London is conducting a project to map governance in different countries, to define the authorities responsible for emergency response.

Round-table 2
Gaps in preparedness from a national perspective

The round-table was moderated by Professor Jérôme Salomon, Director-General for Health, France.

Ms Isabelle Melscoet, French representative of the WHO Healthy Cities Network, described the resurgence of tuberculosis in France over the past two decades, particularly among the poor, and its co-endemicity with HIV infection. The epidemic requires international coordination, an alert network and crisis management in ministries. The risk can be managed, especially by collaboration with mayors. Communication is essential to prevent disinformation.

Dr Bryan Inho Kim, Public Health Officer, Division of Risk Assessment and International Cooperation, Centres for Disease Control and Prevention, Republic of Korea, described differences in the management of the outbreaks of Middle East respiratory syndrome (MERS) coronavirus in 2015 and in 2018. In 2015, one case imported from Saudi Arabia gave rise to 186 cases, 38 deaths and follow-up of >16 000 contacts. After the visit of a WHO joint investigation team, public health infrastructure was strengthened, with continuous emergency response capability, more funds and clearly defined roles of local and central governments, and, in 2018, only one case of MERS occurred.

Dr Wenjie Wang, Department of International Cooperation, National Health Commission, China, said that the lessons learnt from epidemics of SARS, H1N1 influenza and cholera had improved health emergency response. People at every level must be informed, and local governments must be involved. In China, responses are based on national, provincial and city preparedness plans, with players in different sectors, all of whom are accountable for their role in an emergency.

Dr Anung Sugihantono, Director-General, Disease Control and Prevention and IHR focal point, Indonesia, reminded participants that her country is highly disaster-prone, with tsunamis, volcanic eruptions, floods and landslides and also for infectious diseases. Increasing urbanization and population density are exacerbating the problems. The national policies for managing and mitigating disaster include health crisis units in the Ministry of Health and throughout the country, and public health emergency centres at subnational level. Government funds are provided for emergency response, with strong emphasis on the "one health" approach.

Dr Vyacheslav Smolensky, Deputy Head, Federal Service for Surveillance of Consumer Rights, Protection and Human Wellbeing, Russian Federation, said that health responses were integrated in his country more than 100 years ago. Now, 85 regional offices have centres for health protection and scientific research laboratories for diagnostic testing. Regional committees are chaired by the governor, who identifies the necessary resources. Standard procedures are defined for emergencies, and personnel are trained and re-trained to maintain their skills. Regional and trans-border capacity is being built, and the country is working with WHO to standardize common laboratory equipment and approaches.

Mrs Olubunmi Ojo, Nigeria Centre for Disease Control and IHR focal point, Nigeria, said that the risk of Lassa fever has become unpredictable. An effective, functional technical working group consisting of experts and partners, especially for laboratory response and communication, issues standard operating procedures, guidelines and communication tools. The rapid response system sends teams within 24 hours, consisting of experts in the transport of samples to laboratories for testing. Enduring problems include lack of funds and an inadequate regional response. Regional training and capacity-building are required to overcome the huge disparity in the distribution of health care workers.

Dr Harinirina Raseheno, Epidemiology and Public Health Surveillance, Ministry of Public Health, and IHR focal point, Madagascar, described the epidemic of pulmonary plague in 2017. Multisectoral coordination had been essential, with the involvement of the Government at the highest level, to coordinate crisis centres, health care facilities and traditional medicine. WHO sent an incident manager within 24 hours of declaration of the epidemic. A subsequent review of the crisis led to revision of the national plan, with coordination centres involving ministers from all sectors, NGOs and laboratories; communication plans; hygiene committees in cities; and psychological support for families. Areas in which improvements are needed include multisectoral collaboration, logistics and anthropological studies to ensure that responses are acceptable.

> *"Enduring problems include lack of funds and an inadequate regional response"*

Dr Mine Yenice, Head, Early Warning Response Unit, General Directorate of Public Health, and IHR focal point, Turkey, gave an example of the all-hazards approach used in her country. After a lorry dumped unknown waste, the Ministry of the Environment was alerted via its hotline, and local municipalities and police set up a security zone; the disaster and emergency management team took samples, identified the chemical and took the waste for safe disposal within a few hours. Multisectoral cooperation and risk communication thus avoided any human case of poisoning.

Dr Mohammad Assai Ardakani, Public Health Expert, Ministry of Health and Medical Education, Islamic Republic of Iran, said that the lessons learnt in his country after outbreaks of Crimea–Congo haemorrhagic fever and rabies in neighbouring Afghanistan and Pakistan in 2017 were the importance of engagement of communities, NGOs, local youth, women

and academia; private sector partnerships; a syndromic surveillance system; inclusion in routine health in systems; harmonization and institutionalization of a multisectoral response, including United Nations agencies; and integration of emergency response into primary health care. Municipalities are now more actively engaged, and emergency health is included in medical education, with accreditation. He proposed that WHO issue a standard package for health emergency management. Decision-making should be decentralized to provincial and district levels, with district emergency management centres.

In response to a question from the moderator about maintaining a workforce during "peacetime", Dr W. Wang said the preparedness plan should specify the response for each level of event. In China, there are over 50 professional emergency teams for specific events, such as infection, poisoning and radiation, which can be deployed within 1 or 2 hours. Dr Kim said that the public health preparedness centre conducts practical simulation exercises and provides technical support for staff. The travel histories of cases and contacts can be traced through credit cards or CCTV, and such methods have received strong legal and political support. Dr Wang added that DNA analysis can identify similarities among viruses found in different regions. Dr Smolensky noted that there are external threats even in peacetime, and the system must remain ready, with daily briefing of policy-makers. Dr Yenice said that, in Turkey, continuous training is provided, with the support of the Government, NGOs and universities.

SESSION 2
COORDINATION AMONG SECTORS AND LEVELS

Dr Yonette F. Thomas, Executive Director, International Society for Urban Health, USA, spoke about the new challenges of growing urbanization for public health. She said that, although cities comprise only 2% of the landmass, they represent most of the global economy, greenhouse gas emissions, energy consumption and waste. Cities should be at the forefront of addressing global issues of health and development and should catalyse evidence on determinants and policies. A new partnerships' paradigm is needed, with youth, municipal and community leaders and the private sector, to address the broad determinants of health and the built, social and physical environments, through community cohesion, urban planning, transport, economic development and education. Cities are the drivers of achievement of the Sustainable Development Goals.

Round-table 3
Local coordination at the health–transport–tourism interface

The round-table was moderated by Professor Gabriel M. Leung, Dean of Medicine, University of Hong Kong, who described the global network of mayors. Cities have unique challenges in transport and tourism to prepare for and respond to health crises. He asked the members of the round-table how decision-making, coordination and communication among sectors could be facilitated and how better to align strategies and incentives for tourism, transport and health.

— Dr Dirk Glaesser, Director, Sustainable Development of Tourism, World Tourism Organisation, said the impact of an event on tourism must be estimated beforehand, on the basis of metrics such as number of unsold bed nights. The success of tourism should be based on the carrying capacity of a city and its socio-cultural activities. Cities should improve their governance to balance local satisfaction with development opportunities.

— Mr Chaitan Jain, Assistant Director, Government and Industry Affairs, International Air Transport Association (IATA), commented that most airports are at full capacity. Therefore, infection control

is becoming more difficult, especially in the absence of information; however, IHR capacity in mega-cities is poor. Professor Leung replied that IHR readiness must be scaled up and suggested that implementation research be conducted on the effect of adding more checks for travellers. Mr Jain agreed that airport personnel are already required to conduct many checks, and a cost–benefit assessment should be conducted before extra demands are made.

Dr Johanna Jordaan, Chief, Aviation Medicine, International Civil Aviation Organization (ICAO), said that capacity must keep pace with increasing use of aviation, and non-health workers should be trained in identifying health risks. Airports are mini-cities, and private investors should give them the equipment and medicines to fill their new role.

Dr Pornpitak Panlar, Director, Division of Diseases and Public Health Threat Control in Emergencies, Ministry of Public Health, Thailand, mentioned medical tourism as a possible threat to public health, and Professor Leung agreed that a healthy equilibrium must be maintained between transport and local and global health. All possible consequences should be considered.

Dr Ninglan Wang, WHO Lyon Office, said that points of entry, such as ports, bear the brunt of outbreaks. International travellers, including for business, must be given appropriate health information. The challenge is maintaining continuity during a crisis, with good communication and a certain level of reassurance.

In the ensuing discussion, Dr Glaesser stressed the importance of risk perception; State actions must be based on evidence so that the rationale can be assessed. Rapid reporting can increase the possibility of action and limit unnecessary damage. Professor Vallet said that, when he was Director-General of Health in France, he had decided not to close airlines during the EVD outbreak but, instead, to give crew members information on risk so that they could decide voluntarily whether to travel. Health professionals should give information to aviation staff in peacetime. Mr Jain agreed that there should be better links between health and aviation staff, with regular meetings, in order to build trust. Dr Jordaan mentioned the need for a proper preparedness plan on public health, aviation, customs, immigration and emergency medical transport, which should be tested regularly, such as in meetings of the "Collaborative Arrangement for the Prevention and Management of Public Health events in Civil Aviation" (CAPSCA). Reliable health data should be available quickly for risk assessment by non-health personnel trained to recognize certain conditions. Professor Leung suggested that artificial intelligence could be used as a practical, low-cost solution.

In response to a comment that there is no way to prevent people with a cough from travelling, as airlines are running at 99% capacity and concentrating on getting all people to their destinations, Dr Glaesser said that non-punitive language should be used and regular contact maintained with identified cases. Dr N. Wang added that health advice should be given before, during and after travel. Dr Panlar said IHR activities such as exercises and drills can bring colleagues together. Dr Wang added that the IHR propose a risk-based approach on a collective platform. Dr Jordaan said that resources are needed to make data useful for taking informed decisions and assessing risk.

Dr Bayer, concluding the round-table, said that the EVD outbreak had changed attitudes, and we are now entering a phase of sustained preparedness, with a high return. Urban centres are both the backbone and Achilles heel of infections. Communities and especially women should have ownership of preparedness, and intersectoral collaboration should be strengthened. Travel, tourism and health are closely connected, although the ethical issues of travelling are under discussion.

SESSION 3 STRENGTHENING MULTI-SECTORAL PREPAREDNESS

Dr Vallet emphasized the importance of cross-sectoral political support for addressing the interface between travel and health.

Ms Sandrine Lafont, National Centre for Space Studies, France, described applications and downstream services from global and local satellites for public health. Satellites provide earth observations, including weather forecasts, entomological risk mapping and emergency management by mapping, e.g. cyclones, earthquakes, refugee camps and floods. Although information from the field is more accurate, maps complement adaptation of rescue services and are also useful for training. Satellites can also broadcast huge volumes of information to health care centres when local access is poor or expensive and can collect information and send it to a global centre, even when there is no mobile phone coverage. Maritime tele-medicine is based mainly on satellites, at equivalent cost.

Round-table 4
How global initiatives can impact urban area preparedness for health emergencies

The round-table was moderated by Mrs Karin Knufmann-Happe, former Director-General, Health Protection, Disease Control and Biomedicine, Ministry of Health, Germany.

Dr Beyza Unal, Senior Research Fellow, International Security Department, Royal Institute of International Affairs, Chatham House, United Kingdom, propounded a whole-of-society approach, with an established structure of policies and programmes. Mayors could be involved in local governance and enforcement of legislation. Funding is required, especially for the long term, and the private sector should be convinced of the return on their investment.

Dr Puan Maharani, Coordinating Minister, Ministry of Human Development and Culture, Indonesia, mentioned the opportunities offered by the United Nations Sendai framework for disaster risk reduction for use by cities and communities, in compliance with the national development plan. Mayors are usually politicians and can therefore translate sectoral issues for parliamentarians.

Mr Steve Craemer, Director, Air Navigation, ICAO, noted that, of the 11 million people who fly on commercial airlines every day, a significant percentage have health problems, from mental to infectious diseases. Mayors should have access to reports from their international airports on passengers who have visited places in which they were at risk of infectious diseases. Funding must be sustained between events for safety management and risk mitigation for aviation workers. Safety has increased dramatically during the past 20 years, with greater traceability of passengers and a vector control register on the ICAO website. The CAPSCA method should be adapted, with feedback so that others can learn.

Dr Monique Eloit, Director-General, World Organization for Animal Health (OIE) encouraged countries to improve national capacity through workshops, which could include municipalities. She reminded the meeting that millions of animals travel every day.

Dr Ahmed El-Idrissi, Senior Animal Health Officer, Food and Agriculture Organization of the United Nations (FAO), said that cities are accelerators towards achieving sustainable, healthy, resilient cities. Mayors should remember that more than 800 million people live in areas close to cities where there are animals and farms. Insight, knowledge and technical capacity are required to ensure synergy between food, agriculture and animal health to meet complex future health challenges, and a multisectoral "one health" approach is essential in joint initiatives for global health security. Although the approach is moving ahead, data are still segregated, and there is lack of government funding. Indicators are needed to see the benefits of the approach, and the public should be made aware.

> *"More than 800 million people live in areas close to cities where there are animals and farms"*

Dr Stella Chungong, WHO Country Health Emergency Preparedness and IHR and Core Capacity Assessment, Monitoring and Evaluation, described Member States' and WHO's obligations under the IHR. Global initiatives are based on national action plans, which provide opportunities to influence emergency management, advocacy and information-sharing. Leaders in both national and urban areas should mobilize resources for multisectoral reach and collaboration, with IHR focal points. Communities play a key role in strengthening urban preparedness and must be empowered to design policies that affect them and protect vulnerable populations from health emergencies.

Dr Unal emphasized the importance of working with local leaders to overcome pessimism and build resilience and empowerment. The global initiative to bring mayors together would set minimum requirements for urban preparedness. In many African cities, religious leaders, the elderly and youth are strong influencers; and women should be

involved in preparedness and response to infectious disease and in protecting children and the elderly.

Dr Eloit said that zoonotics are easier to manage in a rural than in an urban area, because rural populations are better informed and prepared for risk and response, and communities and partnerships are better developed. In urban areas, there is lack of awareness by both the population and authorities, and no collective organization and anthropomorphic relations between animals and humans.

Dr Christopher Perdue, US national focal point, welcomed the network of national IHR focal points and said that it should be extended across the Region of the Americas, with better coordination among urban counterparts. Mr Graham Alabaster, from UN Habitat and speaking for Roll Back Malaria, questioned the definition of the term "urban", as some large urban areas include small rural areas.

In closing, Pr Vallet said that mayors are the first politicians to be involved in any event and must therefore have transparent, rapid, relevant information.

Round-table 5
High-level session: Political commitment to foster multi-sectoral preparedness in urban areas

The round-table was moderated by Dr Vanessa Candeias, Head, Global Health and Healthcare System Initiative, World Economic Forum (WEF), who said that health security and preparedness are priorities for the WEF in view of the economic cost of outbreaks. Preparedness requires multisectoral collaboration and public–private cooperation.

Mr Vytenis Andriukaitis, Commissioner for Health and Food Safety, European Commission, mentioned the need for good instruments for cooperation and readiness to respond. IHR is crucial for health security in European Member States, and further cooperation will be initiated with WHO. Cooperation among the health, transport, food and veterinary sectors will strengthen action against emerging pathogens. The "healthy gateway" projects secures points of entry in 26 European Union countries to reduce cross-border threats.

Professor Agnès Buzyn, Minister of Health and Solidarities, France, said that crisis management must be intersectoral, with ministrial coordination among ministries. The Ministry holds weekly intersectoral meetings on health security, and 10 ministries are involved when a crisis arrives.

Dr Nila Farid Moeloek, Minister of Health, Indonesia, said that the One Health approach was adopted in 2014, and the Constitution requires preparedness for public health emergencies. The Joint Expert Evaluation in 2017 was supported by all ministries, and the recommendations were followed up. The national action plan on global health security has been strengthened by legislation

to promote preparedness in communities, training for government officials and awareness-raising, culminating in the Bali declaration on the global health security agenda.

Professor Harilalaina Willy Franck Randriamarotia, Director of Cabinet, Ministry of Health, Madagascar, listed the priorities for a multisectoral urban response: high-level engagement; a platform for collaboration among sectors; an emergency plan, specifying the responsibility of each sector; financing; and training for regional networks.

Dr Sergey Kraevoy, Deputy Minister of Health, Ministry of Health, Russian Federation, said that the multi-sectoral approach to emergency preparedness involves more than 20 ministries and authorities coordinated by a committee, with a standard algorithm for notification. He cited the 2018 football World Cup as an example of the effectiveness of the system, when 32 teams trained in 17 regions, matches were held in 11 cities, and more than 3.5 million fans arrived from 150 countries.

> *"Infectious disease outbreaks often start in communities"*

Dr Ahmed M. Hakawi, Director of Communicable Disease Control, Ministry of Health, Saudi Arabia, said that preparedness involves a continuous cycle, from risk assessment, to finding cases, and training and ensuring a resilient health care system. He described the season of the *hajj*, when 3 million people from 100 countries arrive in an area 4 km^2. The whole of Government and the whole of society are involved in a coordinated operation to ensure that pilgrims experience a fruitful journey, and that the countries from which they come are protected. The operation requires high-level commitment, capacity-building and simulation. A new, multisectoral council for national risks has been established.

Dr Julie Hall, Chief of Staff and Special Envoy for Health, International Federation of Red Cross and Red Crescent Societies, said that infectious disease outbreaks often start in communities, and it is therefore important to understand them, especially those that are large, unplanned, with no geographical design, and with populations who may not share the same values. Once they have been mapped, leaders can be identified, as authority may not be in the formal sector. In the response to Zika virus, there was huge community involvement to protect the most vulnerable, and the experience gave insight into how to mobilize different communities and to sustain activities over a long period. An important sector is water, sanitation and hygiene (WASH), which can involve both informal and private sectors.

Dr Tedros Adhanom Ghebreyesus, WHO Director-General, reiterated that a multisectoral approach is important for achieving the SDGs, involving all governments and all society. The SDGs will be met only if they are considered "everyone's business". In Madagascar, the Prime Minister had coordinated all sectors, resulting in rapid management of the plague epidemic. The country used the approach of attacking first, by finding gaps and striking. Emergency preparedness is necessary at country, regional and global levels, with greater global cooperation. A global preparedness monitoring board will complement national work, and the private sector will be brought in, with the support of the WEF.

Mr Andriukaitis recalled that the G20 had made commitments in 2018 for new joint action in early 2019 to increase laboratory capacity, the resilience of health systems, cooperation at five regional levels, improved early warning and response, awareness and incident management. One Health is also necessary for combating the global threat of antimicrobial resistance.

Dr Moeloek welcomed the conference statement and expressed her country's support for WHO in building capacity for urban preparedness. Professor Randriamarotia also welcomed the statement and said that his country would ensure a specific budget line for emergency preparedness and regional epidemiological surveillance. Dr Kraevoy said he also supported the continuing work of WHO to further legislative and normative bases in countries. More effective monitoring and information exchange and maintenance of preparedness by both governments and the private sector are required to prevent and control emergencies. Dr Hakawi said that his country and its neighbours are working with WHO on early response, and WHO will provide an indicator of the success of preparedness for the *hajj* in 2019. Dr Hall said that 191 national Red Cross and Red Crescent societies help governments through 17 million volunteers to strengthen health literacy in communities, conduct community-based surveillance to identify outbreaks and ensure WASH in communities and facilities. Dr Tedros emphasized the importance of One Health in controlling the EVD epidemic and asked participants to stand in recognition of those working in the field.

The high-level session issued a statement from the conference (see Conference Statement page 6), summarizing the commitments of participants to strengthening the preparedness of urban areas for public health emergencies.

Round-table 6
Way forward for international partners: 2019, a year for action

Dr Isaac Bogoch, Associate Director of Insights, BlueDot Inc., Associate Professor of Infectious Diseases, University of Toronto, made a presentation on public–private partnerships for global infectious disease surveillance in the context of global population mobility. He said that epidemic threats are increasing and are complex, and the public and private sectors, academia and civil society demand diverse perspectives. Blue Dot Inc. analyses "big data", advanced analytics and digital technology to assess all aspects of health emergencies. In answer to a question from Dr Vallet regarding the data used, Dr Bogoch said that all sources are used, including purchased data. Data from airlines help them to reduce their risks for business and global health.

The round-table was moderated by Dr Nancy Knight, Director, Division of Global Health, Centres for Disease Control and Prevention, USA, who asked whether public–private partnerships are essential.

Dr Frank Van Loock, Policy Officer, Directorate-General for Health, European Commission, described several years of collaboration on health security with the private sector. Points of entry are a weakness

in the European Union, partly because of lack of collaboration with industry. Disinsection is not accepted at many destination airports, and work is continuing with both private and government institutions, NGOs and civil society. He described the joint actions planned by the Commission: reinforced action and a joint fund on IHR; ensuring healthy gateways at points of entry, with private partners and between Member States; vaccination for measles; procurement of more than 100 million doses of vaccines for pandemics; finalization of contracts to reinforce IHR in Bamako, Monrovia and Ouagadougou; handling dangerous samples; and training in the Mediterranean and the Black Sea.

Dr Svetla Tsolova, Senior Expert, Monitoring and Evaluation, Country Preparedness Support, European Centre for Disease Control and Prevention (ECDC), said that cross-border collaboration is essential, with strengthening of country capacity and a legal framework to address trans-border health threats. Predictive data are acquired by daily scanning of all sources, and weekly summary reports and analyses are posted on the secure ECDC website. The European warning and response system indicates when action should be taken, and the ECDC issues monthly bulletins. The products of the ECDC's work are risk ranking, case studies, intersectoral cooperation, interoperable sector plans, community preparedness, assessment of AMR and interconnected causes of infectious diseases. More capacity-building is needed on evaluation, with training and simulations. Published guidance should be available on core capacity for preparedness, including a curriculum for on-the-job training and modules on preparedness and evaluation.

> *"Epidemics such as SARS had a huge effect, with 2.8 million jobs lost"*

Dr Giuseppe Ruocco, Secretary General, Chief Medical Officer, Ministry of Health, Italy, also emphasized the necessity of public–private collaboration, including academia. He referred to the 5-year evaluation of the Global Health Security Agenda (GHSA), after meetings in Bali and Kampala. The steering group has developed an action package and a more coherent programme based on relevant experience and local knowledge. The steering group now covers 16 topics and includes private partners and NGOs. More than 60 countries participate in joint external evaluations of preparedness. He said that, in Italy, food, animal and human health are addressed by the same ministry.

Mr Ryan Morhard, Project Lead, Global Health Security, WEF, said that public–private partnerships are essential to combat continuous global threats, including economic sensitivity. Thus, businesses cannot afford to ignore epidemic risk as they do climate change. Public–private partnerships are usually formed too late by traditional sectors and are not integrated or relevant. Private support should be leveraged for capacity-building in planning and insurance. Data are available from mobile phones and from geospatial equipment, but there are few examples of integration of such data, as the community is fragmented. Aggregation and integration are necessary for predictive analytics.

Dr Christophe Paquet, Head, Health and Social Protection, French Development Agency, said that finance institutions and development banks started addressing health security in the early 2000s, with the emergence of chikungunya in the South Pacific and Caribbean. The French overseas territories have centres of excellence such as the Instituts Pasteur and hospitals with dedicated subsidies.

Ms Tiffany Misrahi, Director of Policy, World Travel and Tourism Council, said that public–private partnerships are increasing. Tourism represents 10% of global GDP, and epidemics such as SARS had a huge effect, with 2.8 million jobs lost. Social media have a responsibility to provide reliable information. She recalled that the former Director-General of WHO had stated that 90% of economic losses due to infection results from uncoordinated action. After the terrorist attack in New York City in 2001, airports added security costing US$ 7.4 billion annually; however, it is debatable whether all measures are still applicable. Tourism takes a long time to recover, but that is not considered in discussions on protection. The sector is now prepared for crises, and a public–private task force has been established for information-sharing. There should be communication among sectors to support a private–public task force in cities, with a self-assessment tool for industry.

Dr Nadia Khelef, Senior Adviser, Global Affairs, Institut Pasteur International Network, explained that the network comprises 33 institutes in 25 countries, 60% of which are endemic for various diseases. Half the institutes are public bodies under ministries, and the others are private not-for-profit establishments. The mission of all the institutes is to ensure vaccination, innovative diagnostics, training and technology transfer. Efficient public and private collaboration is essential, and the Network collaborates with WHO, MSF, the Red Cross, the Fondation Mérieux, GAVI, the Vaccine Initiative and privately funded research institutes. She said that, after the SARS epidemic, a laboratory was set up for urgent response to biological threats for events in France and elsewhere, which is functional 24 hours a day, 7 days a week. Research is conducted to better understand diseases and pathogens, including AMR, vector control and entomology. The Network has invested in training local, national and regional laboratory personnel. Alignment with countries' needs and priorities is essential, and a project has begun to integrate social scientists into prevention and response.

Dr Van Loock emphasized the importance of identifying the right gaps and using all opportunities, including joint expert evaluations under the IHR. Recipients of fellowships must have opportunities to use their training and contribute to preparedness. A number of participants described ways in which fellows who have completed national programmes are placed in health departments for detection and data analysis and as frontline workers at district level and in international outbreak response.

Dr Paquet stressed that health systems must be strengthened as an integral part of health security. The French Development Agency supports a large number of anarchic, small-to-medium private sector facilities in urban settings, which cannot get financing from banks, large donors or regional organizations. The French financing scheme might be a solution for large cities that have the administrative capacity to deal with large grants. Coordination among donors should be strengthened.

Dr Mohammad Assai Ardakani, Adviser, International Relation Department, Ministry of Health and Medical Education, Islamic Republic of Iran, reiterated that public health emergencies are

everybody's business. IHR full implementation can move toward self-controlled IHR building capacities of care providers at different levels of care including primary health care providers.

The chairperson summarized the session discussion and the audience agreed on five recommendations:

1. **Countries should have (i) a consensual and unified understanding of IHR and, (ii) the leadership and ownership related to IHR, based on their capacities, social and economic status and health systems infrastructure.**
2. **WHO and other stakeholders should assess actual capacities in different regions and countries, and try to utilize these capacities for supporting other Member States thus creating/fostering South-South collaboration, especially between the neighboring countries.**
3. **Countries should report and focus on implementation of IHR and global health security on an annual basis to WHO Regional Committees, Executive Boards or similar fora.**
4. **WHO should assist the Member States to expand the Healthy Cities program as a platform for sustained multisectoral collaboration for emergency preparedness and response in urban settings under the leadership of mayors and municipalities.**
5. **Lastly, WHO, as a lead agency for health, should further coordinate between other UN agencies at global, regional and country level supporting the One Health agenda and move toward sustainable development goals.**

Dr Fuchs thanked all participants for their active contributions and commitment to strengthening the preparedness of urban areas for public health emergencies through collective endorsement of the final statement from the conference (see Conference Statement page 6) and proceeded with the official closure of the meeting.

ANNEX 1
LIST OF PARTICIPANTS

Member States[1]

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Dr Wenjie Wang, Department of International Cooperation, National Health Commission, Beijing

FINLAND

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Mr Emmanuel Aubry, Prefecture, Rhône, Lyon

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Ms Aude De Amorim, Under-Secretary for Economic and Budgetary Affairs, Ministry of Europe and Foreign Affairs, Paris

Dr Eric D'Ortenzio, Scientific Coordinator, National Institute for Health and Medical Research, Paris

[1]Unable to attend: Dr Mamosai Zewar, Deputy Minister for Finance and Administration, and Dr Sayed Ataullah Saeedzai, Director General, Monitoring and Evaluation Health Information System, National IHR Focal Point, Ministry of Public Health, Kabul, Afghanistan; Dr Oscar Mavila Vilakana, Director of Hygiene at Borders and IHR, Ministry of Public Health, Kinshasa, Democratic Republic of the Congo; Dr Josaia Tiko, Divisional Medical Officer, Ministry of Civil Service, Eastern Health Services, Suva, Fiji; Dr Mohamed Alex Vandi, Director, Health Security and Emergencies, Ministry of Health and Sanitation, Freetown, Sierra Leone

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Mr Mohammed M. Bamba, Jr., Office of the Mayor

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Dr Ailan Li, Regional Emergency Director, WHO Health Emergencies Programme, WHO Regional Office for the Western Pacific, Manila, Philippines (excused)

HEADQUARTERS

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Dr Peter Salama, Deputy Director-General, Emergency Preparedness & Response

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Dr Jaouad Mahjour, Director, Country Health Emergency Preparedness and IHR

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ANNEX 2
AGENDA

Day 1. Monday, 3 December 2018

Preparedness for public health emergencies in urban areas: gaps and challenges

Chair: Dr Christophe Bayer, Project lead, International Health Security, Ministry of Health, Germany

08:00-08:45	Registration and welcome coffee
09:00-10:00	**Official opening and welcome remarks** *Master of ceremonies*: Dr Florence Fuchs, Head, WHO Lyon Office • Dr Peter Salama, WHO Deputy Director-General, Emergency Preparedness and Response • H.E. François Rivasseau, Ambassador, Permanent Mission of France to the United Nations Office and Other International Organizations in Switzerland
10:00-10:20	**The International Health Regulations (2005) (IHR): an overarching framework for international public health security** • Dr Jaouad Mahjour, WHO, Director, Country Health Emergency Preparedness and International Health Regulations • Professor Didier Houssin, Chairman AP-HP International, former Chair WHO IHR Review Committee, WHO Adviser
10:20-10:30	Nomination of Chairs for days 1 and 2, followed by administrative announcements
10:30-10:45	Coffee break

Session 1

Lessons learnt from urban outbreaks

The objective of this first session is to provide mayors, urban leaders and IHR national focal points from around the globe a unique forum to share experiences, challenges encountered, and lessons learnt in preparing for and responding to infectious disease outbreaks and public health emergencies.

10:45-12:00	**Round-table 1: Identifying gaps in preparedness from a local perspective** *Moderator:* Dr Rebecca Katz, Director Center for Global Health Science and Security, Georgetown University *Panel members:* • Ouagadougou, Burkina-Faso: Mr Homère Ouédraogo, Director General of Social Services, Office of the Mayor of Ouagadougou • Bamako, Mali: Mr Harimakan Keita, Deputy Mayor of Bamako • New York, United States: Dr Oxiris Barbot, Acting Commissioner of the New York City Department of Health and Mental Hygiene
12:00-12:30	Questions from the audience, sharing experience and lessons learnt during infectious disease outbreaks and public health emergencies
12:30-14:00	Lunch break
14:00-15:45	**Round-table 2: Identifying gaps in preparedness from a national perspective** *Moderator:* Professor Jérôme Salomon, Director General of Health, France *Panel members:* • Ms Isabelle Melscoet, French representative, WHO Healthy Cities Network • Republic of Korea: Dr Bryan Inho Kim, Public Health Officer, Division of Risk assessment and International Cooperation, Korea Centers for Disease Control and Prevention • China: Dr Wenjie Wang, Department of International Cooperation, National Health Commission of the People's Republic of China • Indonesia: Dr Anung Sugihantono, Director-General, Disease Control and Prevention, IHR focal point • Russian Federation: Dr Vyacheslav Smolensky, Deputy Head of the Russian Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing (Rospotrebnadzor) • Nigeria: Mrs Olubunmi Ojo, National IHR Focal Point, Nigeria Centre for Disease Control • Madagascar: Dr Harinirina Raseheno, Epidemiology and public health surveillance, National IHR Focal Point, Ministry of Public Health • Turkey: Dr Mine Yenice, Head, Early Warning Response Unit, General Directorate of Public Health and IHR focal point • Islamic Republic of Iran: Dr Mohammad Assai Ardakaru, Public Health expert, Ministry of Health and Medical Education
15:45-16:00	Questions from the audience
16:00-16:15	Coffee break

Session 2

Coordination between sectors and across levels

This session will address the global connectivity in urban areas as a powerful dynamic for human development but a trigger for new public health challenges. Considering the increasing global connectivity through growing travel, transport and tourism, common needs and challenges in preparing for infectious disease outbreaks and public health emergencies will be identified and discussed across sectors and levels.

16:15-16:30	**Growing urbanization and new challenges for public health** *Keynote speaker*: Dr Yonette F. Thomas, Executive Director, International Society for Urban Health, New York City (NY), USA
16:30- 18:00	**Round-table 3: Local coordination at the health–transport–tourism interface** *Moderator:* Professor Gabriel M. Leung, Dean of Medicine, University of Hong Kong *Panel members:* • Dr Dirk Glaesser, Director, Sustainable Development of Tourism, World Tourism Organisation • Mr Chaitan Jain, Assistant Director, Government and Industry Affairs, International Air Transport Association • Ms Johanna Jordaan, Chief, Aviation Medicine Section, International Civil Aviation Organization • Dr Pornpitak Panlar, Director, Division of Diseases and Public Health Threat Control in Emergencies, Ministry of Public Health, Thailand • Dr Ninglan Wang, Team Leader, Transport, Tourism & Mass Gathering, WHO Lyon Office
18:00-18:15	Questions from the audience
18:15-18:25	Summary of key points to be reported back to day 2 and closure for the day
18:25-18:45	Shuttle buses leave at 18:45 for Lyon City Hall

Day 2 Tuesday, 4 December 2018

Preparedness for public health emergencies in urban areas: Opportunities and way forward

Chair: Professor Benoît Vallet, Councillor, French General and Accounting Office, former Director-General of Health, France

Session 3

Strengthening multi-sectoral preparedness

This session will address the whole of society (local, sub-national, government, civil society and business) approach needed in preparedness for infectious disease outbreaks and public health emergencies in urban areas. It will address the need for local, national and international cohesive approaches and tangible outcomes in mitigating infectious disease transmission. Political commitment will be needed to foster sustainable economies and global partnership beyond the public health sector thus contributing to the transformative Agenda 2030 for Sustainable Development.

09:00-09:30	Introduction, outcome of Day 1 and expected outcomes of Day 2 Setting the scene: From global to local: Satellites opportunities for public health
09:30-09:45	*Keynote speaker*: Ms Sandrine Lafont, Expert, Space Applications and Downstream Services, National Centre for Space Study, France
09:45-10:30	**Round-table 4: How global initiatives can impact urban areas preparedness for health emergencies** *Moderator:* Mrs Karin Knufmann-Happe, former Director-General of Health Protection, Disease Control and Biomedicine, Ministry of Health, Germany *Panel members:* • Dr Beyza Unal, Senior Research Fellow, International Security Department, Chatham House, Royal Institute of International Affairs • Dr Puan Maharani, Coordinating Minister of Human Development and Culture, Ministry of Human Development and Culture, Indonesia • Mr Steve Craemer, Director of Air Navigation, International Civil Aviation Organization • Dr Monique Eloit, Director-General, World Organization for Animal Health • Dr Ahmed El-Idrissi, Senior Animal Health Officer, Food and Agriculture Organization of the United Nations
10:30-10:45	Questions from the audience
10:45-11:00	Coffee break

11:00-12:45	**Round-table 5: High-level session – Political commitment to foster multi-sectoral preparedness in urban areas** *Moderator:* Dr Vanessa Candeias, Head, Global Health and Healthcare System Initiative, World Economic Forum *Panel members*: • European Commission: Mr Vytenis Andriukaitis, Commissioner for Health and Food Safety • France: Professor Agnès Buzyn, Minister of Solidarities and Health • Indonesia: Dr Nila Farid Moeloek, Minister of Health • Madagascar: Pr Harilalaina Willy Franck Randriamarotia, Director of Cabinet, Ministry of Health • Russian Federation: Dr Igor Korobko, Director of the Department of Science, Innovation Development and Management of Biomedical Health Risks • Saudi Arabia: Dr Ahmed M. Hakawi, Director of Communicable Diseases Control, Ministry of Health • Thailand: Dr Thawat Suntrajarn, Vice-Minister of Health • Dr Julie Hall, Chief of Staff and Special Envoy for Health, International Federation Red Cross and Red Crescent Societies • Dr Tedros Adhanom Ghebreyesus, WHO Director-General
13:00-14:00	Lunch break
14:00-14:15	Setting the scene: Public–private partnerships for global infectious disease surveillance in the context of global population mobility *Keynote speaker:* Dr Isaac Bogoch, Associate Director of Insights, BlueDot Inc., Associate Professor of Infectious Diseases, University of Toronto
14:15-16:00	**Round-table 6: Way forward for international partners: "2019: a year for action"** *Moderator*: Dr Nancy Knight, Division Director, Division of Global Health, Centres for Disease Control and Prevention *Panel members:* • Dr Frank Van Loock, Medical Epidemiologist, European Commission • Dr Svetla Tsolova, Senior Expert, Monitoring and Evaluation, Country Preparedness Support, European Centres for Disease Control and Prevention • Dr Giuseppe Ruocco, Secretary-General, Chief Medical Officer, Ministry of Health, Italy • Mr Ryan Morhard, Project Lead, Global Health Security, World Economic Forum • Dr Christophe Paquet, Head of Health and Social Protection, French Agency for Development • Ms Tiffany Misrahi, Director of Policy, World Travel & Tourism Council • Dr Nadia Khelef, Senior Adviser for Global Affairs, Institut Pasteur International Network
16:00-16:15	Questions from the audience
16:15-16:30	Chair summary and official closure
16:30	Farewell coffee

Notes

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