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Connective Cities Dialogue Event

Public health protection in biological emergencies at the local level 25 – 27 November 2015 in Frankfurt am Main, Germany

Partners of Connective Cities







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Executive summary

What measures are needed in order to protect citizens against infectious diseases and epidemics on a sustainable basis? How is this organised in German municipalities, and what approach is taken in other cities of the world? And how can local healthcare systems be strengthened? These were the key questions addressed at the dialogue event 'Public health protection in biological emergencies at the local level'.

In cooperation with the Public Health Department of Frankfurt am Main, the Connective Cities international community of practice for sustainable urban development had invited German and international actors from Brazil, Jordan and Liberia to share their experiences and present their good practices. The participants included medical professionals, staff of municipal administrations, regional governments and ministries, and experts from the fields of infection control and crisis management. Participants agreed that four areas are fundamentally important for effectively fighting highly contagious infectious diseases and for strengthening healthcare systems at the local level. These are:

- generic operational planning by the relevant public authorities and institutions;
- standard operating procedures for crisis management in hospitals;
- the development and provision of standardised protective personal equipment (PPE), and
- regular training for personnel involved in crisis management.



Background & objectives

The dialogue event held in Frankfurt from 25 to 27 November 2015 provided experts with an opportunity to exchange experiences and lessons learned on public health protection. The event was hosted by the Public Health Department of the city of Frankfurt am Main. In cooperation with the the Public Health Department of Frankfurt, Connective Cities international community of practice for sustainable urban development had invited practitioners and actors from relevant health and crisis management institutions to attend, along with representatives of public institutions (at the local, regional and national levels) in Brazil, Jordan and Liberia.

As well as supporting the sharing of good practices, the event also set out to identify implementation-oriented and collective project ideas to prevent and fight biological emergencies at the local level. Improved cooperation and continuous knowledge sharing should in the future help contain the spread of infectious diseases at the local, regional and international levels. The specific objectives of the event were:

- Boost exchange between cities in Germany and those in other industrialised nations, emerging economies and developing countries.
- Identify good practice examples from Germany and other countries, in order to foster mutual learning.
- Establish a sustainable, mutual learning process between the participants, including the creation of platforms for communication and education.
- Develop project ideas for further cooperation and joint projects at the local level.



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Introduction to the topic

'Protecting public health is the main task of the public health service. The service must ensure that citizens are adequately protected against biological hazards.'

Prof. Dr. Dr. René Gottschalk, Public Health Department of Frankfurt am Main

Worldwide, urbanisation is posing a major challenge for the organisation of local public health services and the development of municipal infrastructure which this entails. Protecting public health in general, and combating infectious diseases and epidemics in particular, are therefore among the most urgent tasks faced by cities. Controlling pathogens in urban agglomerations is becoming increasingly complex. This is where local actors have a key role to play. As well as public healthcare systems, many other areas of public life are also affected. These include urban planning, and energy and water supply. Yet in numerous cities in a large number of countries, infrastructure in many areas is not yet sufficiently well developed.

Protecting public health is a core concern of the German development cooperation, which focuses on strengthening local healthcare systems and making them sustainable. The dialogue event set out to create a platform for sharing information and practical lessons learned, thus enabling participants to plan and launch timely and appropriate prevention and control measures at the local level.

The city of Frankfurt am Main is home to one of Germany's seven competence centres for highly contagious, life-threatening diseases, and therefore plays a key role in dealing with biological emergencies. In his opening speech, Prof. Dr. Dr. René Gottschalk, Director of Frankfurt's Public Health Department and host of the dialogue event, outlined the particular challenges faced by the competence centre in this city.



Dr. Dr. René Gottschalk during his keynote presentation on Frankfurt © Gudrun Teich



Leadership in pandemic situations

Frankfurt is home to Germany's largest airport, which is a hub of international air traffic. The city, where the European Central Bank (ECB) is based, is also of global importance as a financial centre, and as a centre of the chemical industry. Frankfurt has the third largest railway station in Germany and numerous consulates. Overall, it faces a relatively high risk that highly contagious infectious diseases might be introduced.

Under the leadership of the Public Health Department, the competence centre supports the management of highly contagious, life-threatening diseases. This is based on close cooperation with relevant actors such as the university teaching hospital with its treatment centres and its special isolation ward, the airport operator Fraport AG, the city's fire department (which is responsible for transporting patients), and the Permanent Working Group of Competence and Treatment Centres for Highly Contagious, Life-Threatening Diseases (STAKOB). Frankfurt thus possesses a large network to fight epidemics. The competence centre also operates beyond the city's boundaries – it supports, among others, the health authorities in Rhineland-Palatinate with regard to highly contagious, life-threatening diseases.

One major challenge for public health protection is that for several infectious diseases that might trigger epidemics, little information is available, or in some cases none at all. A major problem is posed by airborne diseases such as the MERS-CoV virus. This contrasts for instance with the Ebola virus, which is spread through physical contact. Only identified for the first time in 2012, the MERS-CoV virus is characterised by a high mortality rate. It is to be assumed that the number of cases will increase.

Public health protection in biological emergencies encompasses four key areas:

1. Generic operational planning

Biological emergencies can arise from various scenarios. The main ones include:

- Suspected bioterrorist attack
- Outbreak of miscellaneous infectious diseases (e.g. norovirus, salmonella)
- Pandemic events
- Highly contagious life-threatening diseases

Responses to these incidents should be delivered within the framework of defined processes and structures. These are laid down in operational plans for the public health agencies at the local level. Given the diversity of scenarios, a generic approach to operational planning should be followed. This means that all operational plans for the various scenarios should be prepared according to a standard structure containing standardised elements.

2. Biological emergencies in hospitals

In a hospital, a biological emergency arises when several patients showing symptoms of an infectious disease are admitted, when a large number of in-patients show signs of any of various infectious diseases, or for instance when an influenza pandemic causes a mass admission of patients.

When biological emergencies occur, special principles apply:

- Protect staff
- Protect the hospital
- Isolate the patients being admitted

Hospitals must therefore be prepared for a variety of scenarios.

3. Protective clothing for biological emergencies – current development needs

Following the attacks with anthrax spores in the USA, many local authorities put together so-called 'anti-infection kits'. Over the last few years, experience has shown that these anti-infection kits do not meet all the requirements. There is no strategy for the first responders (police, emergency services, public health officer), who possess little experience to date with personal protective equipment (PPE). Despite this lack of experience, they would still have to deal with contaminated areas/ individuals in unfolding biological emergencies, and therefore would need to use PPE for their own protection in order to perform emergency measures before the specialists arrive.

4. Public health agencies' training needs for biological emergencies

The local public health agencies and other actors involved will only be properly prepared for biological emergencies if they receive sufficient professional training. In everyday situations the actors involved fall back on the tried and tested processes and routines with which they are familiar. In major biological emergencies, however, other demands arise that cannot be dealt with using these established routines. Managing responses to extraordinary events needs to be learned.

Methodology

The workshop was attended by a total of 26 participants. 12 participants represented cities and 14 state (national, federal) institutions. The workshop was structured across three days. The participating cities were invited to present their experiences within the following working groups:

- Generic operational planning for biological emergencies
- Biological emergencies in hospitals
- Protective clothing for biological emergencies current development needs
- Public health agencies' training needs for biological emergencies

The event also included a keynote held by Prof. Dr. Dr. René Gottschalk (Director, Frankfurt Public Health Department) and a presentation by Dr. Jerry Brown (Liberia) on the fight against Ebola at the ELWA Hospital in Paynesville, Liberia. The lessons learned in Liberia were supplemented through a report by Dr. Maja George of the Institute for Infectious Disease Prevention Landau, Federal State Agency for Consumer & Health Protection Rhineland-Palatinate, Germany, who was assigned by the WHO to Sierra Leone during the Ebola crisis. This was followed by a round of discussion on the current refugee crisis and its implications for local healthcare agencies in Germany.

A peer-to-peer advisory session was held on the second day of the event in order to enable knowledge sharing between the participants.

To enable the participants to see some activities involving the core theme of the event under practical conditions, the host city – Frankfurt am Main – organised one site visit to the headquarters of the Public Health Department and two field trips to the isolation ward of the Red Cross Clinic and the isolation ward of the infectious disease unit at the university teaching hospital in Frankfurt.

A peer-to-peer advisory session forms the core of each Connective Cities dialogue event. In addition to the challenges resulting from the presentation of good practices, concrete problems are gathered in the plenum or proposed by individual participants in advance. Thus it is real-life challenges from the immediate environment of the practitioner with a focus on solutions that are addressed in the peer-to-peer advisory session. The aim is to jointly develop practice-oriented solutions for a concrete issue. For this purpose, guided by their



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respective interests, the participants then form groups of various sizes and the municipal practitioners assign themselves the respective roles of the case presenter, moderator and consultant. Within the group, implicit knowledge is turned into explicit knowledge through openness and practical relevance that is mobilised and shared through peer-to-peer advice. People from similar fields of activity give each other qualified advice on key sustainable urban development issues as peers and based on their own experiences, and together they develop innovative solutions for concrete challenges facing them in local practice.

In this step, participants identified particular issues arising in the course of their practical work, and shared them with the group in order to obtain feedback in the form of ideas, recommendations and possible solutions to their challenges. To organise this two groups were created, which once again included a mix of representatives from cities and states.

Local experiences

'Connective Cities provides an incomparably good opportunity to network and learn from the experiences of other countries. Even in Germany it is remarkable how differently the individual federal states deal with emergencies.'

Prof. Dr. Dr. René Gottschalk, Public Health Department of Frankfurt am Main, Germany

Plenary

Paynesville/Monrovia, Liberia: The fight against Ebola

Presentation by: Dr. Jerry Brown, ELWA II Mission Hospital, Paynesville



Dr. Jerry Brown presenting his good practice from Liberia © Gudrun Teich

'Whether it is Liberia or a country that is as well-developed as Germany – many countries face the same challenges when fighting infectious diseases. I have learnt a great deal, and will be taking a large number of lessons with me that I will be sharing with my colleagues in Liberia.'

The Ebola outbreak in 2014 posed numerous problems for the management of the ELWA II Hospital in Paynesville, in the metropolitan area of the Liberian capital of Monrovia. Dealing with the infectious disease at all proved a challenge, because there was a lack of information and experience. Deficits also became evident with regard to equipment and infrastructure – no appropriate protective equipment was available, for instance, and there was a lack of laboratories to diagnose the disease. The situation at the Mission Hospital was thus typical of the healthcare system in Liberia as a whole, which is underdeveloped, particularly at the local level.

On their own initiative the hospital management developed a strategy to respond to the growing number of cases of Ebola. First of all the hospital was closed down for a week, in order to make the corresponding plans. During this period one focus of Dr. Brown's work was to establish a network with municipal decision-makers as a basis for good cooperation. He was able to persuade them to set up an isolation ward for Ebola patients in the hospital chapel - this was the first Ebola Treatment Unit (ETU) in the metropolitan area of the Liberian capital, which has a population of 1.4 million. A number of processes in the hospital were reorganised - including limiting access to a single entrance, so that patients could be better monitored at this point of entry. Within the hospital too, a great deal of work was also needed to persuade people - such as the nursing staff - that the strategy was a good one. In the meantime Dr. Brown was treating the Ebola patients on the isolation ward with the support of just one nurse, as the remainder of the staff had stopped working due to fear of infection. Some of them had been forbidden to continue going to the hospital by their families. Even some taxi drivers were refusing to transport hospital staff.

A radio interview given by Dr. Brown helped improve the situation. The government and the church gave an assurance that they would support the work in the hospital. This was followed by a phase of training for doctors, nursing staff and helpers such as cooks. They received instructions on how to deal with patients, particularly with regard to hygiene and decontamination. Makeshift protective clothing was produced using surgical gowns, plastic bags and aprons, and face masks were even made from plastic boots.

Between July and December 2014, 700 people were treated on the hospital's isolation ward. In 200 cases the suspected diagnosis of Ebola was not confirmed – and infection on the isolation ward was successfully prevented. More than 220 infected patients survived. Neither in the hospital nor in the ETU was anyone infected. The key lessons learned were that those responsible must be willing to improvise, until they receive the necessary support. Top priority must be given to protective measures and hygiene standards, to prevent the spread of infection.

Report Sierra Leone: WHO mission to fight Ebola

Speaker: Dr. Maja George, Institute for Infectious Disease Prevention Landau, Federal State Agency for Consumer & Health Protection Rhineland-Palatinate, Germany

'One of the most important parts of my work was to establish trust with the local inhabitants – so that we could raise their awareness, and make clear to them that we needed their support in order to successfully beat the disease.'

In 2015 Maja George spent six weeks as a member of a World Health Organization (WHO) team, which included eight other international and national staff, assigned to help fight the spread of the Ebola virus in Kambia, a rural region in the north-west of Sierra Leone. Having completed a PhD in biology, Maja George is working at the Institute for Infectious Disease Prevention Landau, Federal State Agency for Consumer & Health Protection Rhineland-Palatinate, Germany. As part of her postgraduate training in applied epidemiology at the Robert Koch Institute, she volunteered for the assignment. The task: to track down people infected with the disease and the persons they have been in contact with, in order to initiate necessary treatment and isolation measures for those infected and to place their contacts under quarantine. The results of her investigation and other relevant information were subsequently stored in a database.

One of the greatest challenges faced by the surveillance team was winning the trust of the local population and especially the village chiefs, which they needed to do in order to motivate people to cooperate. To prevent further transmissions, contact persons of ebola patients and their families had to be placed in quarantine in their homes. In some cases, family members denied symptoms of the disease out of fear of the disease and the treatment centres.

Other major problems encountered by the team were:

- Poor hygienic conditions (few latrines)
- · Secret burials of Ebola victims
- Late reporting of infections (usually after death had occurred)
- Lack of understanding among the population concerning routes of transmission and compliance with quarantine measures
- · Poorly accessible regions and lack of directions
- Local helpers paid very little (and paid late) or paid nothing at all

Key results and lessons learned: Fighting and controlling highly contagious pathogens - especially in underdeveloped countries where healthcare and education systems are relatively rudimentary, as in Sierra Leone - is crucially dependent on raising the awareness of the local population and dealing sensitively with them. It is most important to involve relevant actors in the local communities such as village chiefs and traditional healers - also in order to obtain needed information on the regional culture and typical rites. To sustainably prevent outbreaks of disease such as the Ebola epidemic on the scale seen in West Africa, it is important to support countries in developing local public health services. This will involve training medical personnel and assistants in identifying pathogens, adhering to standard guidelines for managing infected individuals and their contacts and to equip and staff hospitals adequately.



Working Group I

Moderator: Felix Richter

Berlin, Germany: Generic operational planning

Speaker: Detlef Cwojdzinski, Berlin Senate Department for Health and Social Affairs / Health Division

'Standardised structures help enable the agencies involved to deal with different crisis situations – in Germany this applies both to municipalities and cities, and the federal states. Generic operational planning forms the basis for successful crisis management when biological emergencies arise.'

The challenge: In the context of biological emergencies, crisis scenarios require a high degree of coordination and decision-making, as well as cooperation between numerous different actors such as the public health department, emergency services and hospitals. In many municipalities and federal states in Germany, there are no standardised structures or generic operational plans at present. Moreover, the operational plans that are in place are often out of date. This means that local actors for public health protection pursue different approaches. It is therefore important to define standard processes and structures, and network all the relevant actors, particularly at the institutional interfaces for operational planning.

For biological emergencies the Berlin Senate Department for Health and Social Affairs has developed a new plan of operations plus a system based on five different scenarios with a generic structure.

The aim is to achieve standards at the national, regional and local levels – also with a view to international application. The key element of this operational planning is its generic structure, which is based on standardised concepts and definitions. The plans are prepared on a modular basis, so that the department can respond to a variety of emergencies. The structure can also be applied

Another requirement is unrestricted access to relevant information (it goes without saying that personal and sensitive information must be treated confidentially). This allows a web-based portal solution. To ensure that the data are up-to-date, it is absolutely essential that they are continuously updated by trained personnel.

Conclusion: Empirical findings to date demonstrate the success of this strategy. Standards thus make planning more reliable. They form the basis for meaningful contingency plans, which ensures that resources are managed optimally. The generic structure increases transparency for all concerned – at both the local and higher levels. This leads to a general growth in professionalism when dealing with acute emergencies, and the capability to respond to new emergencies.

Frankfurt am Main, Germany: Operational planning in hospitals in Frankfurt

Speaker: Hans-Georg Jung, Medical Emergency Preparedness and Response Unit, Public Health Department of Frankfurt am Main

'Public health departments need to change and broaden their field of activity: they must stop being office-based service providers and become operational service providers.'

In Germany, the number of possible biological emergencies is growing. Increasingly, infectious diseases are occurring that were hitherto unknown in this country. This has caused a lasting shift in the political agenda of the last few years. Up until the World Cup in 2006, which required increased security precautions for instance in

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Description	Individual case	Local epidemic	Supra-regional epidemic	Pandemic	Hazardous substances
Examples	 VHF Pneumonic plague 	 Salmonella Foodstuffs Water Measles 	• EHEC	SARSInfluenzaSmallpox	Anthrax

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relation to possible attacks, the problem went virtually unnoticed. Since then, we have witnessed a rethinking of national and regional policy, as manifested for instance by larger financial budgets for this area.

Federal states such as Hesse or Berlin have since established state-wide operational plans for hospitals, and created structures for closer networking with relevant local agencies and medical facilities. The (multi-lingual) master plan developed for this purpose is worded clearly, and includes so-called Standard Operating Procedures (SOPs) that leave no room for misunderstanding when tackling crises. It applies to different kinds of emergency, and forms the basis for coordinating operations at the local level. All the actors involved, such as hospitals, the fire brigade, the police and the emergency services, as well as waste disposal companies, the local authority and regulatory agencies, follow an interdisciplinary approach that involves regular mutual information sharing and communication - with a focus on interface management. When a crisis arises, the public health department assumes a coordinating and moderating role by mobilising an internal crisis response unit. The master plan also provides for regular training of personnel, as well as hospital drills designed to build

disaster preparedness. The development of preventive measures and early warning of hazards are ensured by an early warning system in conjunction with evaluation structures. Modern communication media are used here – including a portal providing case-specific information.

The core result is that by following a systematic approach to planning at the local level, it is possible to rapidly establish time-saving channels of information which, in conjunction with an early warning system, guarantee a response to biological emergencies that is both efficient and effective. As well as defining the needed structures, a further important aspect is continuous communication between all the actors involved.

Amman, Jordan: On the public health protection and civil defence situation

Speaker: Dr. Khaled El Jbour, Accident and Emergency Department, Zarqa New Hospital

'Due to its geographical location, Jordan faces major medical challenges. The experiences of our colleagues from other cities and countries – and particularly those from regions with similar problems – are very valuable in helping us to develop sustainable strategies for dealing with biological emergencies.'

Jordan's proximity to the crisis regions of Syria, Iraq and the West Bank places particular demands on the Jordanian government and local government decision-makers. This country, which has a population of just 6 million, is now also home to more than 1.5 million refugees – and the figure is rising. As regards health, this is increasing the threat of infectious diseases, which is in any case already high. Early warning is made more difficult by the fact that border controls are often lacking, which means that the health status of migrants is not recorded. Compared to other countries in the region Jordan's healthcare system is well-developed. However, the large flow of refugees and the high risk of terrorist attacks mean that the country has a special need for support. In particular, Jordan requires support to train personnel in providing early warning of biological emergencies, and responding to them. Local health facilities and particularly hospitals also lack technical equipment such as protective suits, laboratories, blood banks and transport vehicles.



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Strengthening civil defence in Jordan

Together with the General Directorate of Jordan Civil Defence, since 2013 the German Federal Office of Civil Protection and Disaster Assistance (BBK) has been involved in a project on protection against chemical, biological, radiological, and nuclear threats (CBRN) funded by the German Foreign Ministry.

The goal of the project is to provide technical, material and conceptual training for the General Directorate of Jordan Civil Defence and for the Jordanian Ministry of Health in dealing with chemical, biological, radiological and nuclear (CBRN) hazards, and large-scale disaster management issues.

Key content of the project:

- Training for (disseminators) of the General Directorate of Jordan Civil Defence (e.g. identification of unknown substances) and of managers in public health
- Supply of equipment (e.g. for emergency teams: PPE suits, respirators)
- Training in maintenance of the technical equipment
- Conceptual support (e.g. strategies for managing a great amount of injured people in case of mass emergencies and disasters)
- Medical drills (e.g. treatment of injured people, decontamination of persons and materials)
- Preclinical/clinical interface management
- Training courses for hospital staff.

The workshops and seminars took place at the BBK's own Academy for Crisis Management, Emergency Planning and Civil Protection (AKNZ) in Bad Neuenahr-Ahrweiler, in Berlin as well as in Jordan.



Siegfried Ippisch presenting his good practice from Bavaria © Gudrun Teich

Bavaria, Germany: Personal Protective Equipment (PPE) for biological hazards – current development needs

Speaker: Siegfried Ippisch, Airport Task Force for Infectology (TFIF) /State Office for Health and Food Safety of Bavaria (LGL)

'Events like this conference of Connective Cities on the topic of public health protection are important as it is in these occasions that you can see the big picture. You get practical experience firsthand. Such meetings are, in my opinion, essential in order to support each other and to be able to prepare adequately for possible emergency situations. Theoretical discussions only make sense, when you understand the specific situations and problems that exist locally in the countries and regions hit by such crises'.

Together with the responsible Public Health Department of Erding, the Task Force for Infectology of LGL serves Munich airport. Its tasks there encompass the revision of legislation governing emergencies and alert plans, as well as the management of biological emergencies. The Task Force also supports Bavaria's various public health departments in the municipalities with outbreaks of infectious diseases. An additional key area of activity is the provision of protective equipment to the personnel involved in containing such outbreaks and their training. Differences between the respective legal situations make the situation more complex. In Bavaria, health regulations as well as specific standards and regulations in the field of health and safety at work that affect protective personal equipment are in place at the federal state, national, EU-wide and international (IHR) levels. One aim of the Task Force is to establish a broad consensus on standards among professionals, so that local agencies are able to respond to emergencies appropriately and the responders themselves are not placed at risk. One important issue with regard to different regions of deployment within Europe for example, or in the tropics, is the fact that different pathogens also require different standardised protective levels.

In practice, the problem is that in the many drills and few actual deployments, it has emerged that people are very liable to make mistakes when putting on and taking off their anti-infection kits. To guarantee adequate protection, they would need both established routines and technical knowledge. As well as being safe to use, personal protective equipment (PPE) must also be mechanically robust, stocked in different sizes and capable of subsequent decontamination. Protective clothing that is adapted to the various degrees of possible emergency should be developed for each specific target country. Training in how to use the whole protective personal equipment (breathing as well as body protection) should then be provided through standardised disseminator training measures involving all the relevant actors, including waste disposal specialists. Standard operating procedures will ensure safe use.

The key lesson learned from the Task Force for Infectology (TFIF) /State Office for Health and Food Safety of Bavaria (LGL) is that a harmonisation of legal directives and standards for PPE would significantly increase the efficiency and safety of the work of local responders – both nationally and internationally.



Working Group II

Moderator: Alice Balbo

Düsseldorf, Germany: Operating procedures for ambulance services for patients with highly contagious diseases

Speaker: Dr. Klaus Göbels, Public Health Department of the City of Düsseldorf

The Public Health Department of the City of Düsseldorf is a municipal agency. It is subordinate to the district government and the government of the federal state of North Rhine-Westphalia, the latter being based in Düsseldorf, which is also the state capital. With regard to public health protection, the Public Health Department is responsible for the control of contagious diseases, crisis management, hospital hygiene and the organisation of the emergency services. In this capacity, since the Ebola crisis in 2014 it has optimised the reporting channels for biological emergencies.

If a case is suspected, the responsible municipal agency is now informed. In the case of Düsseldorf this means the responsible Public Health Department, which coordinates further procedure. The Public Health Department cooperates closely with the fire brigade in the preclinical setting, and responsible medics on the isolation ward at the university teaching hospital are also involved.

The example of Düsseldorf shows how important it is to harmonise communication and decision-making structures at the local level with new types of emergency as well as needed measures, so as to precisely match the given epidemiological situation. In an emergency, a joint approach by the Public Health Department and local emergency services based on standard procedures allows a rapid and reliable response, and also saves resources once the all-clear is given. It is also necessary to involve general practitioners, hospitals and doctors employed by the health services in regular training measures and drills. Within the existing structures, experts - in this case the Public Health Department - assume responsibility for crisis management. In consultation with the district and state authorities it is also necessary to define precisely the competencies of the respective levels in order to avoid overlaps.

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Brazil, Federal State of Paraná, Clinical Management & Public Health Protection

Speaker: Beatriz Monteiro Oliveira, Secretariat of Health of the State of Paraná, Curitiba

'We were delighted to be able to participate in this event. We learnt a great deal about fighting highly contagious diseases and many other related issues.'



Beatriz Monteiro Oliveira presenting the case of Paraná State, Brazil © Gudrun Teich

Paraná is one of 26 federal states in Brazil, and is located in the south of the country. Over 10 million people live there. The healthcare system of this fifth largest state has some important shortcomings. Many hospitals, especially public ones, are extremely poorly equipped. There are staff shortages, and the training of doctors and nursing staff is considered inadequate and poor. The municipal health services are usually overstretched, leaving the Secretariat of Health in Curitiba (the capital of the state) responsible for organising and coordinating public health protection. In the run-up to the World Cup in 2014, it developed - inter alia in cooperation with the Public Health Department of Frankfurt and the Senate Department for Health and Social Affairs of Berlin - a crisis management plan for hospitals in the event of a mass casualty incident (MCI). Participants from hospitals, emergency services and health administrations took part in the event. The workshop was concluded with a drill at the Hospital do Curitiba, which is responsible for providing emergency care for the population of 1.7 million people in the state capital. The training provided succeeded in creating a basis for dealing with MCIs.

The infectious disease Ebola presented a new challenge for dealing with biological emergencies. After the World Health Organization (WHO) had declared Ebola to be an international health emergency in August 2014, the federal state of Paraná, which has some 400 hospitals, began developing a defence strategy based on the findings available. Doctors were to be enabled to diagnose cases of the disease early on, and subsequently treat them safely and effectively. This required technical personnel to cooperate on a cross-institutional basis. The initial situation proved difficult - and not only due to a lack of financial resources. Brazil possesses little expertise, for example, in dealing appropriately with biological emergencies, such as those involving CBRN substances. This is compounded by the fact that there is only one high-security laboratory, located in the north of the country. Long transportation times thus often prevent the timely identification of pathogens.

To counter the spread of possible infections, the Secretariat of Health of Paraná – in close coordination and cooperation with German experts – launched a raft of measures. These included close surveillance of the global spread of the disease, the development of a set of technical-cum-scientific guidelines for medics, and training in dealing with biological emergencies. Furthermore, cooperation between the local public health departments and the fire brigade, the civil defence agency and the health authority was strengthened. Despite numerous problems such as inadequate equipment and staff shortages, several hospitals introduced an emergency plan.

Berlin, Germany / Robert Koch Institute (RKI): Ebola virus disease: measures undertaken and lessons learned in Germany

Speaker: Dr. Thomas Kratz, Robert Koch Institute

The Berlin-based Robert Koch Institute reports directly to the German Federal Ministry of Health. Its primary task is to identify, prevent and fight diseases, especially infectious diseases. To support its work, in 2003 a network of competence and treatment centres in the federal states was established for the management and treatment of patients with highly contagious and life-threatening diseases. In 2014 this led to the creation of the Permanent Working Group of Competence and Treatment Centres for Highly Contagious, Life-Threatening Diseases (STAKOB).

In 2014 the risk of Ebola fever being introduced into Germany was considered very low, and the spread of the disease in this country was therefore classified as unlikely. Nonetheless, together with STAKOB the RKI developed a series of (preventive) measures to prepare for such an emergency:

- Advisory services provided by STAKOB
- Treatment provided to the federal states affected
- Option of transporting patients in the 'Robert Koch' evacuation aircraft with special isolation facilities
- Publication of a flow diagram for German doctors to clarify any first suspicion
- Development of a framework concept for detecting, analysing and evaluating Ebola in Germany

During the Ebola crisis, four staff members of aid organisations were treated in one of the seven special isolation facilities in Germany. One patient died, two were successfully healed. The fourth patient did not develop any symptoms of the disease.

Germany is one of the countries with the best facilities in the world for providing people with medical treatment for highly contagious, life-threatening diseases. As well as the facilities for providing specialised treatment in dedicated isolation facilities, Germany also possesses a high level of epidemiological expertise. The competence centres have excellent human resources, and possess state-of-the-art medical equipment.

But what about the situation beyond the reach of the competence centres, in other cities or in rural areas? Many hospitals have neither the buildings nor the space nor the protective equipment they would need in order to respond appropriately to biological emergencies. Furthermore, medical personnel and the emergency services are usually not trained to deal with highly infectious, life-threatening diseases. However, this also applies even to most medical practitioners in cities where the competence centres are based.

Further problems faced by many municipalities without a competence centre of their own include a lack of emergency plans, regular staff training, structures for communication between the public health agencies and hospitals , and between them and the public. Cities and rural areas in locations that are remote from competence centres are therefore required to come up with their own sustainable strategies to protect the population.

Highly contagious diseases, such as the hitherto relatively unknown Crimean-Congo haemorrhagic fever (CCHF), or the MERS Coronavirus discovered just a few years ago, pose serious threats that place high demands both on doctors and on public health protection at the local level. Based on the lessons learned from the Ebola crisis, RKI therefore needs to draw up further guidelines and strategic frameworks, and introduce emergency plans across the board – including in the doctor's surgery.



Focus and outcome of the peer-to-peer sessions

'International exchange is enormously important for identifying solutions to contain biological emergencies.' Detlef Cwojdziniski, Berlin Senate Department for Health and Social Affairs / Health Division

The peer-to-peer sessions involving the Brazilian, Jordanian and Liberian participants focused on issues involving the definition of biological emergencies and how to deal with them.

Paraná (Brazil): One major problem is that many Brazilians – both in Paraná and in other federal states – are unable to afford appropriate medical treatment. In so-called municipal emergency hospitals, the Unidades de Pronto Atendimento (UPA), patients are treated round-the-clock free of charge. However, the staff are correspondingly overstretched. Further problems include a lack of medical materials and needed technical equipment. Particularly in the case of infectious or highly contagious diseases, this makes it almost impossible to reach an appropriate diagnosis. The risk of infection and spread of the pathogen is correspondingly high.

One solution that emerged from the discussion was the generic approach. Operating procedures need to be developed and implemented that optimise and manage resources, including human resources. Most importantly, medical personnel and all relevant actors at the local level (police, emergency services etc.) need to receive intensive training so that pathogens can be swiftly identified and measures launched to protect the population and treat patients.

Amman (Jordan): One challenge that medical personnel and the civil defence structures must face is how to proceed when isolating patients in public settings. Despite the threat of attacks – especially involving chemical substances – the Jordanian population has not yet been made sufficiently aware of how to act in emergency situations.

In Jordan too, the relevant personnel need to be trained to recognise the dangers. This must include the authorities involved and hospitals. Equally important is systematic interface management, as well as a policy to disseminate public information and raise public awareness.

Paynesville / **Monrovia (Liberia):** Since Liberia was declared Ebola-free in September 2015, further cases of



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infection have occurred in the capital. Right now, the key question is: What should be done in case of a renewed widespread outbreak of Ebola, or of other dangerous infectious diseases that were neglected in the wake of the crisis in 2014?

The first step should involve measures to raise the awareness not only of the population, but also medical personnel, particularly with regard to hygiene standards. As well as providing comprehensive training and establishing monitoring mechanisms, hygiene standards also need to be prescribed in law. On the whole, political decision-makers at the local and national levels need to be involved to a greater degree. Professional exchange and information sharing between the international aid organisations operating in the crisis regions is also important, in order to prevent duplication and thus improve the harmonisation of measures, until such time as standards are in place. Here it will be crucial to involve local medical personnel and all the relevant actors at the local level, as well as the population.

All in all the peer-to-peer sessions demonstrated that many cities (whether they are in Brazil, Jordan or Liberia) whose problems are typical of those faced by many other municipalities, particularly in developing countries and emerging economies, require a whole range of support measures. Most importantly, these involve human capacity and institutional interface management. The generic approach – which is based essentially on the modular principle – appears to be the most suitable one. One major problem associated with all the issues discussed is funding – especially with regard to the procurement and maintenance of PPE. For Germany, dual financing models were presented as a possible solution at the local level.

Ideas for future cooperation

Based on the insights gained and the needs of the individual municipalities and actors, the participants decided to continue networking and to cooperate in follow-on projects in the future. One idea for a proposed project involved cooperation between representatives from Jordan and Brazil. The objective of this possible cooperation would be to standardise the training of hospital and civil defence personnel at the local level. Actors from German cities and the metropolitan area of the Liberian city of Monrovia also outlined a possible project to improve public health protection, develop surveillance mechanisms and organise hygiene.



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Key conclusions

In view of the prevailing deficits in local healthcare in many countries, international information sharing between local decision-makers proves highly effective. Furthermore, the international experts are convinced that successful strategies in urban areas will also generate positive effects at the periphery and help improve provision there. For many issues such as financing, training, public awareness-raising and the development of technical standards, higher-level state institutions will also play a role. In Germany this will involve not only the district authorities, but also the federal states, the national government and the EU. These levels need to be more closely integrated into decision-making processes, at an early stage. This is important, because when emergencies do arise, a lack of clear decision-making structures will constrain communication in critical situations. It is particularly important that this communication is standardised and based on a clear division of responsibilities. As we move toward efficient and effective public health protection, the local health authorities - both in Germany and internationally - must assume the role of operational service providers. They must serve the population, local emergency facilities and their partners, and decision-makers at the national and international levels.



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Association of German Cities Gereonstraße 18 – 32, 50670 Cologne | Germany Project contact: Alice Balbo Email: Alice.Balbo@staedtetag.de

Engagement Global gGmbH / Service Agency Communities in One World Tulpenfeld 7, 53113 Bonn | Germany Project contact: Alexander Wagner Email: Alexander.Wagner@engagement-global.de

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH Friedrich-Ebert-Allee 40, 53113 Bonn | Germany Project contact: Dr. Manfred Poppe Email: Manfred.Poppe@giz.de

Editorial work Sylvia Piquardt

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Addresses of the BMZ offices

Bonn Office Dahlmannstraße 4 53113 Bonn Germany Tel. +49 (0) 228 99 535-0 Fax +49 (0) 228 99 535-3500 Berlin Office Stresemannstraße 94 10963 Berlin Germany Tel. +49 (0) 30 18 535-0 Fax +49 (0) 30 18 535-2501

poststelle@bmz.bund.de www.bmz.de