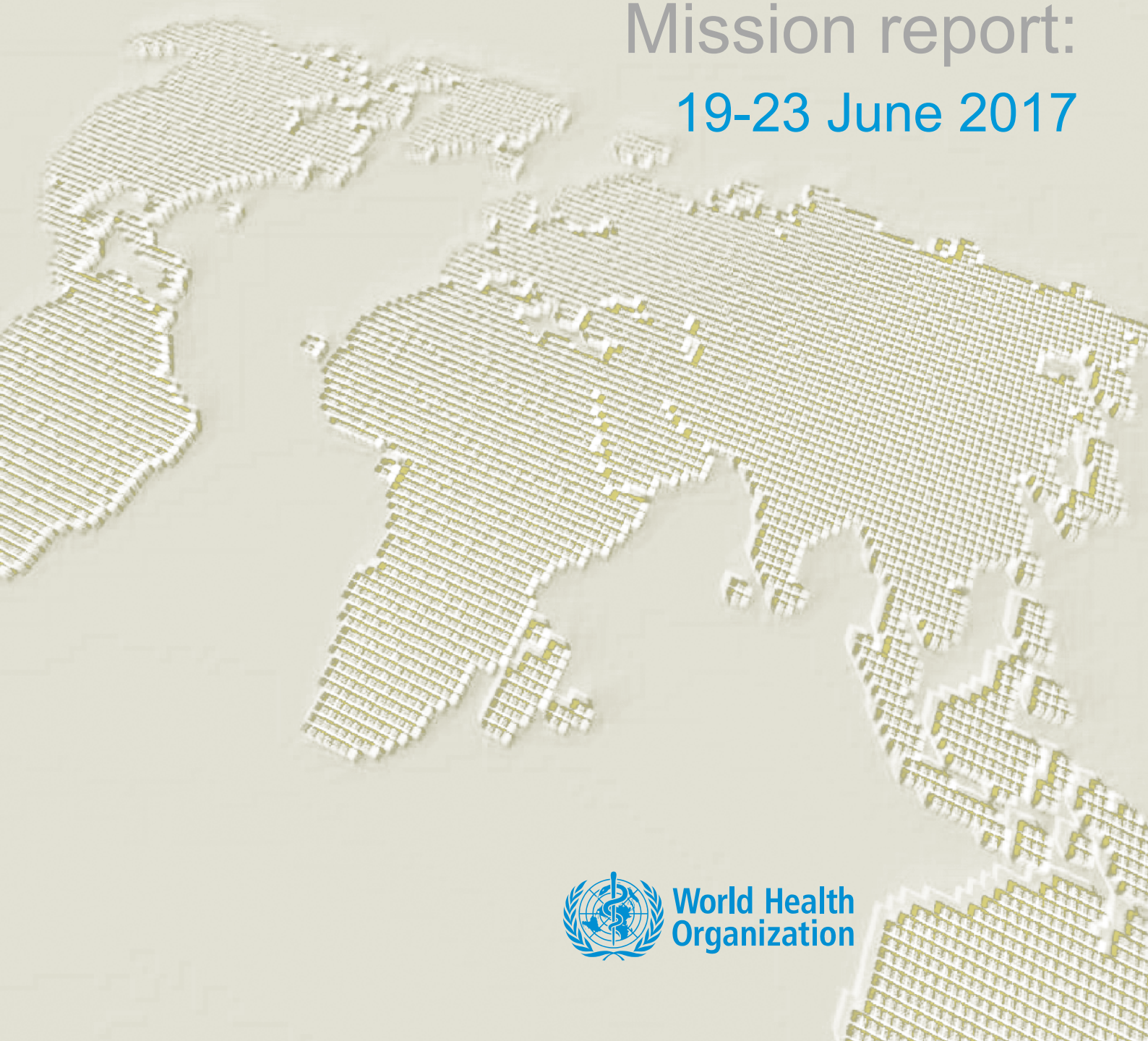
JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES

of the

KINGDOM OF BELGIUM

Mission report:

19-23 June 2017



World Health Organization

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WHO/WHE/CPI/REP/2017.37

Suggested citation. Joint external evaluation of IHR core capacities of the Kingdom of Belgium: Geneva: World Health Organization; 2017 (WHO/WHE/CPI/REP/2017.37). Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps.who.int/iris.

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Layout by Genève Design

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ACKNOWLEDGEMENTS

The Joint External Evaluation (JEE) Secretariat of the World Health Organization (WHO) would like to acknowledge the following entities that demonstrated their commitment to the principles of the International Health Regulations (2005) (IHR) and ensured a successful outcome to this JEE mission.

- The government and national experts of the Kingdom of Belgium, for their enthusiastic support and hard work preparing for and during the JEE mission.
- The governments of Germany, Israel, Japan, Sweden and Switzerland, for providing technical experts for the peer review process.
- The Food and Agriculture Organization (FAO), the World Organisation for Animal Heath (OIE), and the European Centre for Disease Prevention and Control (ECDC), for their contributions of experts.
- The following WHO entities: WHO Country Office of Jordan; WHO Regional Office for Europe; and the Country Health Emergencies Preparedness and IHR Department of WHO headquarters.
- The Global Health Security Agenda Initiative, for their collaboration and support.

Abbreviations

AFMPS	Federal Agency for Drugs and Health Products
AMC	antimicrobial consumption
AMCRA	antimicrobial consumption and resistance in animals
AMR	antimicrobial resistance
BAPCOC	Belgian Antibiotic Policy Coordination Committee
B-FAST	Belgian First Aid and Support Team
BSL	bio safety level
CBRN	chemical/biological/radiological/nuclear
CODA-CERVA	Veterinary and Agrochemical Research Centre
EAPCCT	ECDC European Association of Poison Centres and Clinical Toxicologists
ECDC	European Centre for Disease Control
EOC	emergency operations centre
EPIS	ECDC Epidemic Intelligence Information System
EPIET	European Programme for Intervention Epidemiology Training
EQA	External Quality Assessment
EU	European Union
EWRS	European Union early warning and response system
FANC	Federal Agency for Nuclear Control
FAO	Food and Agriculture Organization of the United Nations
FASFC	Federal Agency for the Safety of the Food Chain
FETP	Field Epidemiology Training Centre
FPS	Federal Public Service
FPS-HSFCE	Federal Public Service for Public Health, the Safety of the Food Chain and the Environment
HCAI	healthcare-associated infections
IHR	International Health Regulations (2005)
INAMI	National Institute for Medical Insurance
IPC	infection prevention and control
ISO	International Standards Organisation
ISP	Scientific Institute of Public Health
JEE	Joint External Evaluation
MANCP	Multi-Annual National Control Plan
MCV	measles containing vaccine
MDRO	multidrug resistant organisms
MIP	Medical Intervention Plan
MRR	measles, mumps, rubella
MRSA	Methiciliin resistant Staphylococcus aureus

NCC	National Crisis Centre
NFP	National IHR Focal Point
NICC	National institute for Criminalism and Criminology
NITAG	National Immunization Technical Advisory Group
NRC	national reference centre
OIE	World Organisation for Animal Heath
PHEIC	public health emergency of international concern
PLASUR	Platform for Surveillance of Zoonotic Events
POCT	point-of-care testing
QML	Quality of Medical Laboratories,
RAG	Risk Assessment Group
RIVM	Netherlands Biosecurity bureau
RMG	Risk Management Group
SBB	Scientific Research Institute of Public Health's Biosafety and Biotechnology Unit
SHS	School health services
SOP	standard operating procedures
WHO	World Health Organization
WIV-ISP	Institute of Public Health

Executive summary

Findings from the joint external evaluation

During the JEE mission, Belgium's capacities in 19 technical areas were evaluated through a peer-to-peer, collaborative process that brought together Belgian and JEE subject matter experts. The JEE team concluded that Belgium has very good, efficient capacities to detect, assess, notify and respond to major public health events, and to participate actively in efforts to strengthen IHR capacities.

The JEE team also noted that Belgium has a complex administrative structure, with IHR-relevant responsibilities assigned both to the federal level and to the federated entities. The team is confident that, in light of this complexity, the country's capability to deal with IHR-relevant events is very high. The JEE scores, which have been determined together with the Belgian national authorities, reflect Belgium's organisation and substantial capacity.

The national General Prepardness Plan currently under development will be crucial for linking several components addressed in this JEE, strengthening multi-sectoral collaboration, and increasing cooperation between health and security authorities to respond to health emergencies. The plan has to be supported by adequate resources to make it operational.

Belgium received high marks for both legislation and coordination of IHR activities. Despite its complex administrative system, the country has a solid legislative structure in place, and demonstrated that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to manage, support and coordinate the implementation of IHR core capacity. However, as not all stakeholders seem to be fully aware of the IHR (2005), advocacy for the regulations could be strengthened.

Throughout the JEE it became clear that cross-sectoral collaboration still has potential for improvement in some areas. As in many other countries, the implementation of the IHR (2005) in Belgium is still very much focussed on human health and biological threats. As a consequence, the animal health/veterinary and environmental sectors were apparently only partly involved in the JEE preparation, self-evaluation and the JEE mission. A stronger linkage with competent authorities in the animal health and environmental sectors might be further achieved under the "One Health" approach, through a multi-sectoral action plan developed by relevant human health and animal health institutions. There are still areas in which stewardship and coordination can be improved between the animal, environmental and health sectors.

The JEE indicators for the biosafety and biosecurity components are combined: a comprehensive national biosafety system is in place in Belgium, while some work remains to be done on the biosecurity system—including the establishment of a legal framework. This is a common finding among most countries that have performed a JEE.

For immunization the JEE team recommended strengthening immunization coverage and monitoring in some areas, as well as addressing vaccine hesitancy.

In the areas of laboratories, real-time surveillance and reporting Belgium has strong capacity, although some enhancement is still needed in some technical areas. Certain components of a syndromic surveillance system are in place, but expansion through inclusion of data from hospital emergency wards could allow detection of syndromes indicative of public health emergencies.

In the area of workforce development there are general concerns, as the public health professions receive insufficient attention throughout medical education, and a clear strategy to sustain surge capacity for the public health workforce is lacking. A health care workforce strategy exists, but does not include public health professions (e.g. epidemiologists, veterinarians and laboratory technicians).

Belgium has clearly demonstrated its capacity to support other countries by deploying personnel and medical resources internationally.

Risk communication capacity is well-developed in terms of structure, coordination and public communication. Areas for improvement include community engagement and establishment of a routine system to detect and address rumours.

Capacity at border crossings that have been designated as points of entry under the IHR is generally very good.

While the technical areas related to chemical events received full marks, for radiation emergencies an overview of resources in designated hospitals is needed to achieve higher capacity.

The JEE team would like to thank our Belgian colleagues, who prepared a detailed, well-evidenced self-evaluation, and who actively participated in the external evaluation process. In particular, our thanks go to Dr Daniel Reynders, IHR Focal Point and Head of Service of the General Services International Relations and Public Health Emergencies, and his team, for their outstanding preparation and full cooperation.

The JEE team found Belgium's experts to be highly professional, demsontrating impressive dedication to providing the best services to improve the health of the people living in Belgium.

Kingdom of Belgium scores

Technical areas	Indicators	Score
National legislation, policy and financing	P.1.1 Legislation, laws, regulations, administrative requirements, policies, or other government instruments in place are sufficient for implementation of IHR (2005)	4
	P.1.2 The State can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with IHR (2005)	4
IHR coordination, communication and advocacy	P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR	4
Antimicrobial resistance	P.3.1 Antimicrobial resistance detection	4
	P.3.2 Surveillance of infections caused by antimicrobial-resistant pathogens	4
	P.3.3 Health care-associated infection (HCAI) prevention and control programmes	5
	P.3.4 Antimicrobial stewardship activities	4
Zoonotic diseases	P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens	5
	P.4.2 Veterinary or animal health workforce	4
	P.4.3 Mechanisms for responding to infectious and potential zoonotic diseases are established and functional	4
Food safety	P.5.1 Mechanisms for multisectoral collaboration are established to ensure rapid response to food safety emergencies and outbreaks of foodborne diseases	5
Biosafety and biosecurity	P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities	3
	P.6.2 Biosafety and biosecurity training and practices	4
Immunization	P.7.1 Vaccine coverage (measles) as part of national programme	4
	P.7.2 National vaccine access and delivery	5
National laboratory system	D.1.1 Laboratory testing for detection of priority diseases	5
	D.1.2 Specimen referral and transport system	4
	D.1.3 Effective modern point-of-care and laboratory-based diagnostics	4
	D.1.4 Laboratory quality system	4
Real-time surveillance	D.2.1 Indicator- and event-based surveillance systems	4
	D.2.2 Interoperable, interconnected, electronic real-time reporting system	4
	D.2.3 Integration and analysis of surveillance data	5
	D.2.4 Syndromic surveillance systems	3
Reporting	D.3.1 System for efficient reporting to FAO, OIE and WHO	5
	D.3.2 Reporting network and protocols in country	5
Workforce development	D.4.1 Human resources available to implement IHR core capacity requirements	4
	D.4.2 FETP[1] or other applied epidemiology training programme in place	4
	D.4.3 Workforce strategy	2

1 FETP: Field epidemiology training programme

Technical areas	Indicators	Score
Preparedness	R.1.1 National multi-hazard public health emergency preparedness and response plan is developed and implemented	3
	R.1.2 Priority public health risks and resources are mapped and utilized	4
Emergency response operations	R.2.1 Capacity to activate emergency operations	4
	R.2.2 EOC operating procedures and plans	4
	R.2.3 Emergency operations programme	5
	R.2.4 Case management procedures implemented for IHR relevant hazards.	5
Linking public health and security authorities	R.3.1 Public health and security authorities (e.g. law enforcement, border control, customs) are linked during a suspect or confirmed biological event	4
Medical countermeasures and personnel deployment	R.4.1 System in place for sending and receiving medical countermeasures during a public health emergency	5
	R.4.2 System in place for sending and receiving health personnel during a public health emergency	5
Risk communication	R.5.1 Risk communication systems (plans, mechanisms, etc.)	4
	R.5.2 Internal and partner communication and coordination	5
	R.5.3 Public communication	4
	R.5.4 Communication engagement with affected communities	3
	R.5.5 Dynamic listening and rumour management	3
Points of entry	PoE.1 Routine capacities established at points of entry	5
	PoE.2 Effective public health response at points of entry	5
Chemical events	CE.1 Mechanisms established and functioning for detecting and responding to chemical events or emergencies	5
	CE.2 Enabling environment in place for management of chemical events	5
Radiation emergencies	RE.1 Mechanisms established and functioning for detecting and responding to radiological and nuclear emergencies	3
	RE.2 Enabling environment in place for management of radiation emergencies	4

Scores: 1=No capacity; 2=Limited capacity; 3=Developed capacity; 4=Demonstrated capacity; 5=Sustainable capacity.

PREVENT

National legislation, policy and financing

Introduction

The International Health Regulations (IHR) (2005) provide obligations and rights for States Parties. In some States Parties, implementation of the IHR (2005) may require new or modified legislation. Even if new or revised legislation may not be specifically required, states may still choose to revise some regulations or other instruments in order to facilitate IHR implementation and maintenance more effectively. Implementing legislation could serve to institutionalize and strengthen the role of IHR (2005) and operations within the State Party. It could also facilitate coordination among the different entities involved in their implementation. See detailed guidance on implementing IHR (2005) in national legislation at:

http://www.who.int/ihr/legal_issues/legislation/en/index.html.

In addition, it is important to have policies that identify national structures and responsibilities, and allocate adequate financial resources.

Target

States Parties to have an adequate legal framework to support and enable the implementation of all of their obligations and rights to comply with and implement the IHR (2005). In some States Parties, implementation of the IHR (2005) may require new or modified legislation. Even where new or revised legislation may not be specifically required under the State Party's legal system, states may still choose to revise legislation, regulations or other instruments in order to facilitate their implementation and maintenance in a more effective manner.

States Parties to ensure the provision of adequate funding for IHR implementation, through the national budget or another mechanism.

Belgium level of capabilities

Belgium has put in place legislation, regulations, policies and administrative arrangements to facilitate the implementation of the IHR (2005). In 2006, Belgium became one of the first countries to implement a National IHR Focal Point (NFP).

The country has a well-developed health system with a strong emphasis on public health. By publishing the IHR (2005) in the Belgian Official Journal, it has given them the status of law. The European Decision 1082/2013 on serious cross-border threats to health has been written into law in a similar way.

There are three protocols of understanding between the federal and federated entities of Belgium that regulate the operation of the NFP and define the way Belgium organizes itself to execute the core capacities of the IHR (2005) (i.e. to prevent, detect, communicate and respond to public health events). More laws and regulations do not appear necessary or desirable, as the system works well. There is much interaction and exchange at the interpersonal level, and further laws and regulations are regarded as unnecessary as they would be likely to complicate the already complicated Belgian federated health system.

Financial and human resources are limited, and in most units may limit the sustainability of operations. In case of an emergency, the resources to ensure surge capacities are not always there. Although federal funds can be made available in crisis situations, the necessary competence and specialization of available personnel may not always meet the needs of the crisis in question. In several areas it appears necessary to reinforce the specialized workforce to guarantee operational availability during crisis situations.

The capacity to ensure coordination of the legal and regulatory framework between sectors could not be demonstrated for all areas. In fact, some activities at the national airport (e.g. recruitment) are currently complicated by issues to do with the distribution of legal competence (federal or federated).

Recommendations for priority actions

- Ensure sustainable funding at all levels for the implementation of IHR capacities—not only through provision of a regular budget, but also by assessing the feasibility of other funding sources

Indicators and scores

P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of International Health Regulations (IHR) (2005) - Score 4

Strengths/best practices

- Belgium has an operational framework that covers all hierarchical structures, and a legal framework that covers public authorities as well as private bodies.
- There is good cooperation between federal and federated authorities, scientific institutes and other national partners.
- Multiple dedicated plans are in place (e.g for Ebola, avian flu, heatwaves, etc.).
- Different stakeholders exchange information and meet regularly, and regular rapid risk assessments are issued by the multi-stakeholder Risk Assessment Group (RAG).
- Belgium has recent experience managing major public health crises (e.g. H1N1, avian flu, Ebola, MERS-CoV, Zika, etc.).
- There are regular exchanges of information with international partners
- Belgium enjoys horizontal and vertical integration of the IHR NFP.

Areas that need strengthening and challenges

- During crises, existing procedures are not always fully respected by the parties involved in the response.
- No legal framework is in place for access to personal data for contact tracing.
- Despite the existence of numerous specific plans dedicated to particular hazards, a national Generic Preparedness Plan for all hazards is still in development.

P.1.2 The state can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with the IHR (2005) - Score 4

Strengths/best practices

- The publication of the IHR (2005) in Belgium's official journal renders them into law.
- Belgium enjoys complete integration of WHO and EU obligations into law.
- Different protocol agreements are in place and revised on a regular basis (2006, 2008, 2014: see Joint External Evaluation Tool).
- Belgium was one of the first nations to establish an IHR NFP, in 2006.

Areas that need strengthening and challenges

- Administrative arrangements are required with non-health institutions.
- Negotiations with the private sector should be improved.

IHR coordination, communication and advocacy

Introduction

The effective implementation of the IHR requires multisectoral/multidisciplinary approaches through national partnerships for efficient and alert response systems. Coordination of nationwide resources, including the designation of a national IHR focal point (which is a national centre for IHR communications), is a key requisite for IHR implementation.

Target

The national IHR focal point to be accessible at all times to communicate with the WHO regional IHR contact points and with all relevant sectors and stakeholders in the country. States Parties to provide WHO with contact details of their national IHR focal points, update them continuously, and confirm them annually.

Belgium level of capabilities

With the institutionalization of the IHR NFP, the RAG and a parallel multi-stakeholder government Risk Management Group (RMG), Belgium has put in place a solid structure to ensure IHR coordination (throughout reception of signals, risk assessment, notification of relevant stakeholders, and initiation of adequate responses).

Communication between different stakeholders appears to be in place, especially since a great deal of working procedure relies on personal interactions and exchanges. The evaluation team agrees that the relevant stakeholders are regularly informed about events, updates and trainings. However, it was not clear whether this information always reaches the local levels (i.e. regions and communities).

The application of the One Health approach throughout the Belgian health system needs strengthening. Different sectors and levels have noted that competent authorities relevant to One Health do not necessarily know one other well, or may not be fully aware of the IHR (2005). Therefore, advocacy for the IHR (2005) and their importance for protecting public health using a One Health approach might need reinforcement. This will help improve engagement of, collaboration with, and information flow between stakeholders at the federal, federated entity, regional and local levels.

Recommendations for priority actions

- Scale up resources to advocate, including at the political level, for the importance of IHR implementation for health security across all sectors.
- Foster collaboration between the executive level (NFP, RAG, RMG) and people working on the ground (health care, other front-line workers, etc.), and acknowledge their role in implementing the IHR (2005) and promoting public health in emergencies.
- Train new staff; organize and conduct regular tabletop and simulation exercises to strengthen IHR core capacities; and ensure smooth transitions when people leave relevant positions.

Indicators and scores

P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR - Score 4

Strengths/best practices

- Sufficient legislation, laws, regulations, administrative requirements, policies and or/other government instruments are in place for the implementation of the IHR (2005).
- Public health emergency plans are available, take into account the role of the NFP, and give the RAG and RMG central roles in managing the health sector during outbreaks or other major crises with impacts on public health.
- Standard operating procedures (SOPs) and other tools are available for the execution of duties linked to IHR implementation.
- Thanks to the RAG and RMG, Belgium enjoys good coordination of IHR implementation between the public health systems of federal, federated, regional and community-level public health systems.
- The IHR NFP team participates in international events relevant to IHR implementation. This allows them to strengthen their knowledge and establish contacts with colleagues in other countries.
- Police authorities work closely with the IHR NFP and associated working groups to strengthen core capacities for the implementation of the IHR (2005).
- The IHR team has the required level of security clearance for managing classified information.

Areas that need strengthening, and challenges

- There is limited availability of routine and surge staff.
- There is a limited number of tabletop and simulation exercises for coordinating public health emergencies.
- Annual updates of IHR implementation to stakeholders across relevant sectors are incomplete.
- Awareness-raising on IHR (2005) and the NFPs is required among public health workers on the ground. Efforts to meet this need can be boosted by leveraging the importance of health security.
- More tools should be developed (training courses, exercises, etc.) for new staff in the IHR NFP team.
- There is limited availability of physicians to assure 24/7 on-call service (the Belgium IHR NFP currently only has a staff of three).

Antimicrobial resistance

Introduction

Bacteria and other microbes evolve in response to their environment and inevitably develop mechanisms to resist being killed by antimicrobial agents. For many decades, this problem was manageable, as the growth of resistance was slow and the pharmaceutical industry continued to create new antibiotics.

Over the past decade, however, this problem has become a crisis. Antimicrobial resistance is evolving at an alarming rate and is outpacing the development of new countermeasures capable of thwarting infections in humans. This situation threatens patient care, economic growth, public health, agriculture, economic security and national security.

Target

Support work coordinated by the FAO, OIE and WHO to develop an integrated global package of activities to combat antimicrobial resistance, spanning human, animal, agricultural, food and environmental aspects (i.e. a One Health approach). This would include: (i) having a national comprehensive plan for each country to combat antimicrobial resistance; (ii) strengthening surveillance and laboratory capacity at national and international levels following agreed international standards developed in the framework of the Global Action Plan; and (iii) improved conservation of existing treatments and collaboration to support the sustainable development of new antibiotics, alternative treatments, preventive measures and rapid, point-of-care diagnostics with systems to preserve new antibiotics.

Belgium level of capabilities

In 1999, Belgium established the Belgian Antibiotic Policy Coordination Committee (BAPCOC) as a comprehensive strategic approach to antimicrobial resistance (AMR). BAPCOC is made-up of multidisciplinary working groups gathering national experts from the ambulatory (including long-term care facilities), hospital, and veterinary sectors. Decisions taken and strategies chosen are implemented at regional/community and local levels. The reporting of outbreaks involving multidrug resistant organisms (MDRO) to regional health authorities is mandatory. The federal and federated entities have agreed upon a national plan on multidrug resistant organisms, which involves an Outbreak Support Team that is permanently available to assist healthcare institutions facing an outbreak.

Some laboratories are designated and financed to be National Reference Centres for 41 pathogens or groups of pathogens, including all WHO priority pathogens. A sentinel laboratory network is coordinated by the Institute of Public Health and about 60% of all human laboratory tests are surveyed. There is a national, well-established allocation of responsibilities regarding the detection and reporting of antimicrobial resistant pathogens and the surveillance of infections caused by these pathogens. National Reference Centres carry out diagnostic, confirmation of antimicrobial susceptibility and genotypic and phenotypic characterization tests. Additional laboratories have developed expertise concerning 17 more (groups of) pathogens. External quality assurance is organised at the national level.

BAPCOC includes a working group dedicated to the prevention and control of infections and to the monitoring of healthcare-associated infections (HCAI). This working group is currently beingextended to include psychiatric hospitals and residential health settings. In this domain, the federal, regional and local levels are closely aligned. Hospitals and long-term care facilities have healthcare-associated infection programmes, participate in national hand hygiene campaigns, and must take part in the national HCAI surveillance system implemented by the Institute of Public Health. Hospitals and long-term care facilities

can request the intervention of the Outbreak Support Team in case of outbreaks involving multidrug resistant organisms. Each acute care hospital has an operational hygiene team and an infection prevention and control (IPC) committee for the routine monitoring of local infection prevention and control and HCAI policies. Among the recommendations and advice published by the Superior Health Council, some specifically concern IPC measures that must be implemented in acute and chronic healthcare settings. All tertiary hospitals have a protocol for the isolation of patients, and some have an isolation unit. In 2013, hospital hygiene quality indicators were initiated with public reporting.

In the human sector, BAPCOC provides guidelines on antimicrobial consumption for the ambulatory and hospital sectors. Since mid-2007, all acute hospitals and chronic care settings with at least 150 beds are financed for the running of multidisciplinary antimicrobial stewardship teams. On an annual basis, BAPCOC monitors the activities of these teams and the overall hospital antimicrobial consumption. Point prevalence surveys and audits of antimicrobial use are regularly implemented in hospitals, and recent patient-based reimbursement data are available for both the ambulatory and hospital sectors.

In the veterinary sector, the Centre of Expertise on Antimicrobial Consumption and Resistance in Animals (AMCRA) was founded in 2012. In 2014, AMCRA and its partners developed an action plan (Vision 2020) with reduction targets based on the data of sales of antimicrobials in the veterinary sector, which have been collected since 2007. Since 2014, antimicrobial consumption on select pig farms has been monitored.

In order to promote responsible use of antimicrobials, AMCRA published and reviews recommendations on the use of antimicrobials as a first, second or third choice for the main bacterial indications and for different animal species (poultry, bovines, pigs, horses, cats and dogs). A broad awareness campaign addressed to farmers, veterinarians and pet owners was launched in 2016.

Since 2011, the veterinary sector has conducted annual testing of antimicrobial resistance from random samples taken at farms and slaughterhouses, and from food. This monitoring involves antimicrobial susceptibility testing of *Escherichia coli, Salmonella spp.* and *Campylobacter spp.,* according the epidemiological criteria, and is performed by the Veterinary and Agrochemical Research Centre and the Institute of Public Health. Clinical resistance to antimicrobials is monitored by the two regional laboratories starting from samples collected from diseased animals. In this case, relevant pathogens in animals are tested for their clinical susceptibility to antimicrobials.

To support the AMCRA Vision 2020 plan, national authorities intervened recently with new legislation concerning the use of critically important antimicrobials in food-producing animals (July 2016) and the registration of antimicrobial use in pigs, poultry, and veal calves in a national data collection system (February 2017). Farmers and veterinarians will be benchmarked, and consequently feedback will be provided on the prescribed and the delivered antimicrobials to stimulate reduced antimicrobial use on the farm.

However, challenges remain, and antimicrobial consumption and antimicrobial resistance remains quite high in Belgium. Collaboration among different health authorities and institutions involved in the response to antimicrobial resistance is in place, however, it should be further developed. Although authorities have started to develop a One Health approach, involvement from all sectors is required in order to strengthen and support activities to reduce resistance to antimicrobials and effectively manage their use. Interventions being implemented include involving prescribers to reduce antimicrobial consumption; proposing alternatives to antimicrobials in the veterinary sector; and undertaking more specific situational analyses. Improvements in epidemiological reporting of antimicrobial resistance are required outside health care settings.

Recommendations for priority actions

- Strengthen the One Health network currently being built—including through a joint (i.e. human and veterinary health) assessment of antimicrobial consumption and resistance, and through participation in the European Joint Action on Antimicrobial Resistance and Healthcare Associated Infections.
- In the human sector:
  - Implement actions to decrease antimicrobial consumption of quinolones (ambulatory care)
  - Improve management of respiratory tract infections (ambulatory care)
  - Improve prevention and management of urinary tract infections (ambulatory, hospital, and residential care).
- In the veterinary sector:
  - Decrease antimicrobial consumption, including by registering antimicrobial consumption for dairy cattle.
  - Establish benchmarking of veterinarians and farmers on antimicrobial consumption.

Indicators and scores

Note: Throughout this technical area, scores were affected by the lack of a well-developed and well-implemented One Health approach to allow comparisons and joint policy development between the human and animal sectors.

P.3.1 Antimicrobial resistance detection - Score 4

Strengths/best practices

- The Belgian Antibiotic Policy Coordination Committee (BAPCOC) action plan is in place to coordinate policies and interventions.
- Hospitals, research and private laboratories can all test for antimicrobial resistance.
- National reference centres are in place for 41 groups of pathogens.
- The Institute of Public Health coordinates national networks of laboratories.
- All sectors are involved, including ambulatory care, hospitals, and the veterinary and food safety sectors.

Areas that need strengthening, and challenges

- Epidemiological reporting of antimicrobial resistance outside of healthcare settings should be improved.
- Effort hould be made to expand antimicrobial resistance detection of non-bacterial, non-viral infections (yeasts and fungi).
- Better integration of human and animal detection reporting is required.
- The One Health approach should be strengthened by extending antimicrobial detection and reporting to include the environmental sector.
- Proper healthcare management should be ensured for carriers of multidrug resistant organisms.

P.3.2 Surveillance of infections caused by resistant pathogens - Score 4

Note: In the area of animal health, random sampling is used to monitor resistance, rather than sentinel farm sites. This is a specific requirement mentioned in capacities 3 to 5 of the relevant indicator.

Strengths/best practices

- Local hospitals monitor human infections caused by antimicrobial resistant pathogens, and acute care hospitals must participate in the surveillance system on resistant pathogens and healthcare-acquired infections coordinated by the Institute of Public Health (WIV-ISP).
- Through cooperation between health facilities and laboratories, a local alert system is in place for human health.
- Monitoring is in place for antimicrobial resistant E. coli in food-producing animals and food, and commensal E. coli, ESBL-producing E.coli, zoonotic Salmonella, Campylobacter, and MRSA.
- National surveillance of animal pathogens and antimicrobial resistance is in place.

Areas that need strengthening, and challenges

- It is necessary to improve understanding of the epidemiology of antimicrobial-resistant infections in the ambulatory sector, in veterinary medicine, and in the environment.
- An overall risk analysis is required in the human and animal sectors (with the latter including both animal feed and food).
- Regarding data collection, the transition from manual to automated systems should be supported and sped up, including through integrating reporting into the Epistat web tool.

P.3.3 Healthcare associated infection prevention and control programmes - Score 5

Note: All acute care hospitals have mandatory programmes in place for healthcare-associated infections (HCAI). The implementation of such programmes is monitored at regional and federal levels. Since 2002, a federal law determines the minimum set of resources and activities that hospitals must carry out. However, not all programmes are being conducted at all hospitals, and not all programmes have been conducted for a full five years. These are specific requirements mentioned in capacities 3 to 5 of the relevant indicator.

Strengths/best practices

- The Belgian Antibiotic Policy Coordination Committee (BAPCOC) coordinates a national HCAI prevention and control policy, and national surveillances of healthcare associated infections are coordinated by the Institute of Public Health.
- All acute care hospitals have mandatory hospital hygiene committees and operational teams. Hospitals are involved in several regional and federal initiatives, and regular hand hygiene awareness campaigns are conducted, with compliance assessments.
- National quality indicators are in place for hospital hygiene.
- Federal and federated entities have agreed upon a multi-drug resistant organism (MDRO) national plan and an outbreak support team is available for all types of healthcare facilities.
- HCAI prevention and control measures are also active in psychiatric and residential care facilities.

Areas that need strengthening, and challenges

- National hospital hygiene quality indicators should be strengthened; hospital hygiene outcomes should be integrated into hospital performance evaluations; external audits should be set up; and there is a need to evaluate the local economic impact of HCAI prevention and control programmes.
- HCAI prevention and control programmes should be further extended in residential and psychiatric care facilities.
- Hand hygiene should be promoted outside the healthcare sector.
- The MDRO national plan should be updated.

P.3.4 Antimicrobial stewardship activities - Score 4

Strengths/best practices

- BAPCOC coordinates targets for national antibiotic policy and antimicrobial consumption in the ambulatory, hospital and veterinary sectors, and provides guidelines for ambulatory and hospital care.

Human sector:

- Antimicrobial stewardship teams are present in all acute hospitals and national monitoring is in place.
- Surveillance of antimicrobial consumption in hospitals provides monitoring data useful at local and at national levels.
- National point prevalence surveys on antimicrobial consumption, on healthcare-associated infections and audits on surgical antibiotic prophylaxis are regularly carried out.

Animal sector:

- Guidelines are in place for prudent use of antibiotics by veterinarians (AMCRA) and data on the sales of veterinary antibiotics are available.
- New legislation regulates the use of critical important antibiotics in food-producing animals (since July 2016).
- Compulsory registration of antibiotics at farmlevel used in pigs, poultry, and calves (since 2017).
- Active measures include registration of antimicrobial consumption, feedback to farmers, and awareness campaigns on prudent use of antimicrobials.
- Since 2014, data on antimicrobial consumption is available for select pig farms.

Areas that need strengthening, and challenges

- Qualitative antimicrobial consumption surveillance should be implemented per groups of diagnoses.
- Hospitals should be further supported in antimicrobial consumption data analysis and implementation of stewardship actions.
- Antimicrobial consumption surveillance should be extended in residential and psychiatric care.
- Qualitative antimicrobial consumption should be integrated into hospital performance evaluations.
- Belgium should participate in European surveillance of hospital-based antimicrobial consumption.
- Antimicrobial stewardship practices in the ambulatory sector should be improved, including through provision of feedback to general practitioners based on individual prescription profiles.
- Belgium should work towards benchmarking antimicrobial consumption for farmers and veterinarians.
- At the time of evaluation, there was no antimicrobial consumption registration for dairy cattle or pets (only data from healthcare distribution).

Zoonotic diseases

Introduction

Zoonotic diseases are communicable diseases that can spread between animals and humans. These diseases are caused by viruses, bacteria, parasites and fungi carried by animals, insects or inanimate vectors that aid in their transmission. Approximately 75% of recently emerging infectious diseases affecting humans were of animal origin; and approximately 60% of all human pathogens are zoonotic.

Target

Adopt measured behaviours, policies and/or practices that minimize the transmission of zoonotic diseases from animals into human populations.

Belgium level of capabilities

The zoonotic diseases of greatest national public health concern currently present in Belgium are Campylobacter, Salmonella and Listeria. Belgium has official bovine tuberculosis, brucellosis European free status. There are sporadic cases of tuberculosis, brucellosis, Q-fever and highly pathogenic avian influenza but these currently do not have a public health impact. Lyme disease (Borrelia burgdorferi) in humans is present (2000 seropositive results in 2016).The prevalence of Lyme disease in animals is not known. The country is free of rabies (domestic and wildlife) and measures are taken to avoid introduction by imported cases. Due to climate change, there is an increasing risk of vector borne zoonoses (notably mosquito-borne diseases such as Rift Valley Fever). In recent years, Belgium has experienced few significant zoonotic outbreaks: in September 2016, a Salmonella enteritidis outbreak linked to eggs imported from a Polish egg-packing centre caused 35 human cases.

Surveillance, prevention and control of zoonotic diseases in Belgium all involve various competent authorities, operating at federal and regional levels, in both the human and animal sectors. The Federal Public Service for Public Health, the Safety of the Food Chain and the Environment (FPS-HSFCE), the Federal Agency for the Safety of the Food Chain (FASFC), and the regions are the notable authorities that intervene when zoonotic agents are detected in humans, domestic animals and wildlife respectively. The exact delineation of responsibilities and tasks, especially in times of crisis, remains unclear for several stakeholders, and a need for better formalisation was expressed to the JEE team. In the absence of a formal national One Health Policy, all actors operate under well-developed and updated sectorial legal frameworks that are aligned with EU legislation (notably EU Directive 2003/99/EC and EC Decision 1082/2013/EU).

There is no overarching national body such as a National Zoonoses Committee that gathers all relevant authorities and stakeholders to address zoonoses in a coordinated matter, in peacetime or in crises (nor is there an overarching One Health framework). Such a structure can, however, be established on an ad hoc basis, when the need arises—as was the case in the late 2000s, when Influenza (H1N1) virus was a global issue. At that time Belgium set up an Interministerial Influenza Coordination Committee comprising representatives from the FSP-HSFCE, the Scientific Institute of Public Health (ISP), the FASFC, the Federal Agency for Drugs and Health Products (AFMPS) and departments from the regions and communities. Lessons were learnt from this experience and will feed into the national Generic Preparedness Plan currently under development. The Crisis Centre of the Federal Public Service (FPS) Internal Affairs will also be mobilized in case of serious zoonotic outbreaks, following the indications of the Risk Assessment and Risk Management Groups led by FPS-HSFCE that are in charge of addressing unusual and unexpected 'signals' of possible international impact.

Various platforms, conventions, networks and working groups (e.g. the Foodborne Outbreaks Platform, Wildlife Health surveillance networks, the Wildlife Working Group, etc.) also exist, and regularly convene various actors involved in the surveillance, prevention and management of zoonotic events. Wildlife management, including disease prevention and control, is a competence of the regions. Nevertheless, it is important that a common line is followed from the national to local level, and that preventive or corrective measures are taken consistently across Belgium, even where there is no legal obligation to do so.

A new platform, PLASUR (Platform for Surveillance of Zoonotic Events), is under development to facilitate the exchange of data across sectors.

Surveillance capacity for zoonotic diseases is excellent, in both the human and the animal sectors, thanks to national territory-wide networks of doctors and veterinarians and strong laboratory capacity (a network of national reference laboratories established for 41 pathogens or pathogen groups, and a wide network of 'vigies,' or sentinel, laboratories, at national and regional levels). Although the exchange of reports/data between human and animal laboratories is effective during crises, it is suboptimal in 'peacetime.' Reporting is mandatory for a list of notifiable animal diseases (including zoonoses) at national and regional level, and is facilitated by Royal Decree 03/02/2014.

The sharing of relevant zoonotic information across sectors is not clearly formalized in One Health procedures and modus operandi, and requires case-by-case consideration. Moreover, the interoperability of sectoral surveillance databases remains to be delivered, as part of future improvements envisaged in preparedness.

Animal population censuses and localisation are easily accessible thanks to three national identification and registration databases for large and small ruminants, pigs, poultry, horses, and dogs. These tools are instrumental in case protection. Surveillance zones need to be established as part of mitigation measures for animal health events, including zoonotic events.

Official surveillance is in place in animals for brucellosis, tuberculosis, Q-fever, rabies, West Nile fever, salmonella, avian influenza and trichinella, led by FASFC. FASFC has a generic contingency plan complemented by specific operational contingency manuals (e.g. for West Nile disease, or avian influenza) and contingency procedures (e.g. on traceability, or crisis communication). Where relevant (e.g. large scale bacterial food-borne toxic infections, etc.), new operational contingency manuals will be drawn up.

There are frequent simulation exercises to test these plans; lessons from outbreaks such as the 2016 salmonellosis outbreak are also used to refine existing plans and procedures.

FASFC implements all relevant procedures for animal identification and movement control, as well as national programmes enabling them to identify and trace all products of animal origin, in accordance with relevant international standards. This is of utmost importance for real-time tracing of suspicious foods backwards or forwards along the supply chain, and for mitigating potential impacts as early as possible.

The public health sector can easily access a national animal health workforce in the case of a zoonotic event. This is documented through external coordination between FPS-HSFCE and FASFC, and there is no clear need to 'embed veterinarians within the public health sector' as proposed in the JEE tool. The animal health workforce is well trained in zoonotic events at central, regional and local levels, and benefits from continuing education programmes (10 days per year) offered by both the FASFC and the EU (Better Training for Safer Food programme).

For optimal collaboration, it is however important that all parties have a good understanding of the One Health concept and its consequences in terms of prevention and control of zoonotic diseases.

Recommendations for priority actions

- Clearly establish/delineate the respective responsibilities and tasks of the various competent authorities involved in the prevention and control of zoonotic diseases, at all levels.
- Develop a National Plan for Zoonotic Outbreaks under the One Health umbrella, in alignment with the national Generic Preparedness Plan; and organize subsequent simulation exercises.
- Reinforce linkages between the human and animal surveillance systems by ensuring systematic exchange of high quality data in peacetime and during crises.
- Ensure the optimal involvement of the federated entities in the surveillance, prevention and control of zoonotic diseases in wildlife, by developing appropriate legislation, ensuring its enforcement, and coordinating with federal authorities and other stakeholders where relevant.
- Provide relevant courses in zoonotic disease as part of the continuing education programmes of all relevant competent authorities.

Indicators and scores

P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens - Score 5

Strengths/best practices

- Legislation is in place on notifiable animal and human diseases.
- Belgium enjoys a good, transparent overview of the zoonotic situation and related priorities (control plans and reports are available).
- There is excellent documentation of trends and sources in Belgium and at EU level.
- There is an excellent traceability system covering the whole food chain.
- An epidemiological surveillance network (farmer/vets/local authorities) covers the entire territory.
- Epidemiological tools are available to identify risks and sources in case of zoonotic disease/foodborne infection events.
- There is a culture of continuous improvement in the spirit of One Health (with collaboration and synergy between the national reference laboratories, CODA-CERVA and WIV-ISP; the PLASUR Platform currently under development; and the integration of lessons from past crises).
- Information is regularly exchanged with neighbouring and other countries.

Areas that need strengthening, and challenges

- Collaboration with regional bodies in animal and human health, especially regarding wildlife disease surveillance and control (legislation and agreements are needed).
- Communication platforms between all partners (notably with hunting associations), to ensure maximum sharing of information.
- Quality of epidemiological data.
- Awareness of rare and emerging diseases (often zoonotic and/or vector borne).
- Speed of data collection at all different levels, and avoidance of overlaps.
- Surveillance of introduction of dangerous vectors (e.g. tiger mosquitoes).
- Absence of official, formalised linkages between human and animal health laboratories.
- Human health information sharing (privacy legislation).

P.4.2 Veterinary or animal health workforce - Score 4

Strengths/best practices

- Animal health and veterinary public health networks are composed of competent and experienced staff at all levels.
- The FASFC is present nationwide, including at local level (through Local Control Units).
- The FASFC is assisted by animal health associations (DGZ/ARSIA), national reference laboratories, and other laboratories.
- A comprehensive continuous education programme is available for FASFC staff.
- There is a continuous exchange of information among experts, to keep knowledge up to date.

Areas that need strengthening, and challenges

- Sensibilisation of citizens regarding zoonotic events.
- Sensibilisation of the national public health system to ensure the risk of (non-foodborne) zoonoses is recognised.
- Maintaining experience among staff in the absence of crises.
- Ensuring sufficient staffing levels in times of state budgetary constraints.

P.4.3 Mechanisms for responding to zoonoses and potential zoonoses are established and functional - Score 4

Strengths/best practices

- A fourth Multi-Annual National Control Plan (MANCP) is in place for 2015-2017.
- Official risk-based control programmes in animals are in place for the zoonotic diseases of greatest national public health concern.
- A generic contingency plan is in place, complemented by specific operational contingency manuals in the animal health sector.
- There is close intersectorial collaboration in the case of a zoonotic event.
- The 2016 Salmonellosis event was managed rapidly and successfully, and lessons were learnt.

Areas that need strengthening, and challenges

- Understanding of different levels of responsibilities in complex institutional organisations during zoonotic outbreaks (i.e. who does what).
- Updating and consolidating collaboration agreements between federal and local authorities and stakeholders.
- National coordination in the context of transferring competencies from the federal to the regional level (wildlife).
- Communication to the public in zoonotic outbreak crises.

Food safety

Introduction

Food- and water-borne diarrhoeal diseases are leading causes of illness and death, particularly in less developed countries. The rapid globalization of food production and trade has increased the potential likelihood of international incidents involving contaminated food. The identification of an outbreak's source and its subsequent containment are critical for control. Risk management capacity must be developed with regard to control throughout the food chain continuum. If epidemiological analysis identifies food as the source of an event, suitable risk management options that ensure the prevention of human cases (or further cases), based on risk assessments, must be put in place.

Target

States Parties to have surveillance and response capacity for risks or events related to food- and water-borne diseases, with effective communication and collaboration among the sectors responsible for food safety and safe water and sanitation.

Belgium level of capabilities

Nationally, foodborne diseases—specifically salmonella and campylobacter—are considered the zoonoses of greatest public health concern. One of the most recent foodborne outbreaks was of Salmonella enteritidis in eggs.

The FASFC is responsible for investigations in the food chain in case of foodborne outbreaks. In case of large outbreaks a flexible two-level structure exists, with (1) headquarters having a strategic committee and central crisis unit and (2) local control units. This short chain of command allows a period of less than 24 hours between discussion and implementation of decisions. Smaller outbreaks are managed by the local control units in collaboration with the central control unit. Partners include the National Reference Laboratory for foodborne outbreaks, public health surveillance (patient investigations), and the Institute for Public Health (epidemiology).

Well-educated and well-trained staff are in place, and ongoing training occurs (e.g. Better Training for Safer Food). Health inspectors employed by the federated entities are responsible for outbreak investigations; however, help can be requested from epidemiologists from the Scientific Institute of Public Health. It was noted that for larger incidents, human health surveillance might prove challenging with current staffing levels.

Informal mechanisms (i.e. email, telephone) are in place for rapid communication and information exchange among stakeholders and relevant sectors during suspected outbreaks of foodborne disease.

Capability to perform strain characterization is in place, allowing investigation of linkages between human and food isolates in order to provide quicker responses to case clusters and help prevent outbreak spread. However, this testing is limited by financial availability.

Recommendations for priority actions

- Establish National Plan for Foodborne Outbreaks, in alignment with the national Generic Preparedness Plan.
- Identify mechanisms to mobilize staff for human health surveillance for foodborne outbreaks (in case of large incidents).

- Promote the need for strain characterization to link human and food isolates for the prevention of foodborne outbreaks, and to ensure quicker responses in cases of clusters.

Indicators and scores

P.5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination - Score 5

Strengths/best practices

- Food safety and incident management are one organization, covering the gamut from farm to fork, with intense contact between partners and food business operator organisations.
- Staff are highly educated and well trained.
- Large laboratory capacity is available, in one laboratory for the country.
- Data and relevant information is kept in databases by the different partners such as Foodnet, a database for foodborne outbreaks.
- Signals are captured via data collection by different partners involved.

Areas that need strengthening, and challenges

- Lack of sufficient staff at the central level who are familiar with large crises.
- Traceability of food in case of a large incident with a contaminated substance in a large variety of food products.
- Lack of sufficient staff to handle patient inquires.
- Communication between partners and to third parties.
- The need to interlink procedures between actors in investigations of foodborne outbreaks.
- The need to improve signal capture systems.

Biosafety and biosecurity

Introduction

It is vital to work with pathogens in the laboratory to ensure that the global community possesses a robust set of tools – such as drugs, diagnostics, and vaccines – to counter the ever-evolving threat of infectious diseases.

Research with infectious agents is critical for the development and availability of public health and medical tools that are needed to detect, diagnose, recognize and respond to outbreaks of infectious diseases of both natural and deliberate origin. At the same time, the expansion of infrastructure and resources dedicated to work with infectious agents has raised concerns about the need to ensure proper biosafety and biosecurity to protect researchers and the community. Biosecurity is important in order to secure infectious agents against those who would deliberately misuse them to harm people, animals, plants or the environment.

Target

A whole-of-government national biosafety and biosecurity system is in place, to ensure that: especially dangerous pathogens are identified, held, secured and monitored in a minimal number of facilities according to best practices; biological risk management training and educational outreach are conducted to promote a shared culture of responsibility, reduce dual use risks, mitigate biological proliferation and deliberate use threats, and ensure safe transfer of biological agents; and country-specific biosafety and biosecurity legislation, laboratory licensing and pathogen control measures are in place as appropriate.

Belgium level of capabilities

The biosafety system in Belgium has been in existence since 1993, and started with a biorisk assessment for genetically modified organisms. Biosafety is supported by a strong legal framework, which covers biosafety in all laboratories, production facilities, animal facilities, greenhouses and growth chambers, and hospital rooms. Its goal is to minimize the risk of contaminating laboratories and prevent escapes of genetically modified organisms and/or pathogens.

Contained use provisions require institutions to submit dossiers on their biosafety processes to the competent authority in order to be authorised, as a pre-requisite for access to funding for research and development. Records must be kept for up to 10 years. Biosafety officers are present in every laboratory, and risks are categorized based on the tests, research or procedures being conducted.

As part of the authorization of laboratories, an emergency plan for all BSL 2 and BSL 3 laboratories must be submitted, and every year the biosafety officer is required to send a report, including any alterations in procedures and any accidents or incidents, to the competent authorities. This also ensures the country maintains a database on all major pathogens, where they are held, and the procedures they undergo.

Few protocols, legislation or decrees govern biosecurity. Pharmaceutical companies can request guidance, but there are no competent authorities in the government that oversee this area. European protocols are followed for export of materials.

Training courses are available for biosecurity, and there is some discussion of combining biosafety and biosecurity training into a common curriculum on biorisk management. Developing protocols to cover biosecurity would require engagement of the security sector, research and development companies and agencies, and other sectors, with implications for intellectual property and law enforcement. While this

would be possible, it would require significant investment of staff time and goodwill across multiple agencies, with high level endorsement.

Recommendations for priority actions

- Perform a gap analysis and benchmarking before the possible setup of a legal framework for biosecurity.
- Set up a Task Force to reinforce coordination between relevant federal departments to address the development of protocols for biosecurity.
- Promote the implementation of biosecurity measures in high containment level facilities under a biorisk management approach.
- Raise awareness of biorisk management through information sessions, courses, and seminars for professional staff.
- Advocate for the establishment of a scientific/technical support unit for Belgium (e.g. a focal point or "biosecurity bureau").

Indicators and scores

P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities - Score 3

Note: Belgium's capacity exceeds a P.6.1 score of 3 in the area of biosafety in the following ways:

- There is active monitoring and maintenance of an updated record and inventory of pathogens within facilities that store or process dangerous pathogens and toxins.
- Comprehensive national biosafety and biosecurity legislation has been implemented and enacted.
- Laboratory licensing has been implemented.
- Pathogen control measures are in place, including standards for physical containment and operational handling and containment failure reporting systems.
- Dangerous pathogens and toxins have been consolidated into a minimum number of facilities.
- Diagnostics are in place that preclude culturing dangerous pathogens.
- Oversight monitoring and enforcement activities have been implemented.

Strengths/best practices

- Belgium enjoys coordinated and harmonized implementation of EU Directives at the regional, federal & international levels
  - All authorized contained use activities are registered (database 1993 - 2017)
  - Inspection regimes and auto-control are in place for all laboratories
- The Scientific Research Institute of Public Health's Biosafety and Biotechnology Unit (SBB) is the point of contact for biosafety, and has had permanent staff since 1993.
- The Belgian Biosafety Server website[2] is well developed and well used. It contains online forms, guidelines, documents, etc.
- Technical expertise is available and peer review papers, recommendations, reference documents, etc. are produced.
- An online survey on laboratory-acquired infections is conducted every five years.

2 http://www.biosafety.be/CU/EN/CUMenu.html

- There is a national online notification system for occupational bio-incidents.
- European protocols are followed for export of materials.
- Biosecurity awareness-raising takes place through courses, conferences, meetings and the use of a biosecurity tool developed by the Netherlands (Biosecurity bureau – RIVM).
- Self-assessment for biosecurity is recommended using the above-mentioned tool.
- The public health sector collaborated with the Ministry of Foreign Affairs on work around the Biological Weapons Convention.

Areas that need strengthening, and challenges

- Implementation and oversight for biosecurity is limited and not legally binding.
- Multiple sectors must be engaged to develop protocols to cover biosecurity, identify systems to adopt, and establish competent authorities in order to strengthen biosecurity.
- The role of biosafety officers in terms of biosecurity, and whether they could be re-purposed to take on biosecurity functions.

P.6.2 Biosafety and biosecurity training and practices - Score 4

Strengths/best practices

- A training programme is in place—with a common curriculum and a train-the trainers programme—at all facilities housing or working with dangerous pathogens and toxins, including universities and high schools.
- Alongside European Biosafety Association initiatives, there is a strong network of Belgian biosafety professionals and universities that collaborates with the Scientific Institute of Public Health.
- Courses are provided in English, French and Dutch (summer courses, conferences, etc.).
- Biosafety training programmes are continuously improved to include biosecurity.

Areas that need strengthening, and challenges

- Opportunities should be provided for periodical refresher training on biosafety and biosecurity.
- Biosafety and biosecurity training should be combined into a common curriculum on biorisk management.
- Sustainability of both biosecurity and biosafety training programmes should be ensured.

Immunization

Introduction

Immunizations are estimated to prevent more than two million deaths a year globally. Immunization is one of the most successful global health interventions, and one of the most cost-effective ways of saving lives and preventing disease.

Target

A functioning national vaccine delivery system – with nationwide reach, effective distribution, easy access for marginalized populations, adequate cold chain and ongoing quality control – that is able to respond to new disease threats.

Belgium level of capabilities

In Belgium, the national vaccine action plan is aligned with the WHO Global Vaccine Action Plan. Vaccination programmes are managed at regional level, because prevention programmes are the responsibility of subnational authorities. Programmes exist for Flanders (the Flemish Community), and the French speaking part of Brussels (Féderation Wallonie-Bruxelles). The German community in Belgium uses the French-speaking community platform for their programme.

Vaccination programmes are based on the advice of the Superior Health Council (National Immunization Technical Advisory Group, or NITAG). Depending on the region, a variety of vaccinators and organizations are responsible for the administration and implementation of the vaccination programme. These are: "well baby clinics" (Kind en Gezin, ONE) and School health services (SHS), which offer preventive controls and follow-up of children as well as vaccinations free of charge; and general practitioners and paediatricians, who provide vaccines free of charge, though a fee has to be paid for the consultation. For adults, the vaccination programme is administered by general practitioners; gynaecologists; and doctors and nurses in hospitals, institutions, elderly homes and occupational medicine.

The following vaccinations are recommended in Belgium:

- Hexavalent vaccine (IPV-DTaP-Hib-HBV) – four vaccinations, at eight, 12 and 16 weeks, and 15 months;
- Pneumococcal vaccine – three vaccinations, at eight and 16 weeks and 12 months;
- MMR vaccine – two vaccinations, at 12 months and 10 years;
- Meningococcal C vaccine – at 15 months;
- IPV-DTaP - at six years;
- Tdap – at 14 years (and in all pregnant women);
- HPV – two vaccinations, at 12 (Flanders) to 13 (French community) years;
- In addition, Tdap booster vaccination in adults; cocoon vaccination; pertussis maternal immunisation and seasonal influenza vaccination for residents in elderly homes and institutions for chronic psychiatric patients, and for people with specific restrictions/limitations are recommended, but free of charge only in Flanders and for some cases in the French community.

Vaccination rates are estimated by population-based studies according to WHO guidelines (Flanders: two-stage cluster sampling). Only documented vaccinations are taken into account (through vaccination cards,

or the online vaccination database). In addition, there is monthly follow-up of the amount of vaccines ordered. Depending on the region, orders are usually contracted every two to four years. The last surveys took place in 2016 (Flanders), 2015 (Wallonia) and 2012 (Bruxelles region), at different age groups. A vaccination register exists in all regions, but is not yet widely used, particularly in the French community, and therefore cannot be used to assess vaccination coverage.

In general vaccination rates are high for most recommended vaccinations, with pronounced regional differences. Only polio vaccination in infants is nationally mandatory, based on old federal legislation. In addition, in the French community, some vaccinations are compulsory for children attending daycare centres (diphtheria, pertussis, Hib, measles, mumps and rubella). In contrast to other vaccinations, Rotavirus vaccination is recommended, but is not an integral part of the programme. While the vaccine has to be prescribed and bought in pharmacies, it is only partially reimbursed by federal health insurance. Despite the 11€ cost of the vaccination, coverage has reached 90%.

Information on vaccination does not reach all target populations. Known reasons for non-vaccination are migrating subpopulations; vaccine hesitancy (mainly fear of side effects of new vaccines); parents being unaware of incomplete vaccination; and supply disruption (e.g. for acellular pertussis). Recently a catch-up MMR vaccination campaign in adults was performed, and timely vaccination of asylum seekers has been established.

Until 2014 the vaccines included in the vaccination programmes were co-financed by the federal government. In the 6th state reform, financing of vaccination programmes was transferred to the budgets of the subnational entities. Within the vaccination programmes, vaccines are procured through public tenders, ordered online and delivered to vaccinators free of charge in temperature-monitored cool transport vans to ensure the cold chain. Regional authorities provide training on how to assure the cold chain at all times. Vaccine providers report the safety/buffer stock on a monthly basis.

In addition, Flanders has a special programme to vaccinate groups not covered by SHS and groups for which access to the common structures is more difficult (e.g. travelling Roma). A Vaccination Board consisting of representatives of all vaccinators is responsible for implementing the programme in Flanders, and vaccines can be ordered by all vaccinators. The ordering system is linked to a vaccination registry (Vaccinnet and e-VAX).

Under a common agreement between the federal state and the federated entities, Yellow fever vaccination is linked to designated centres (travel clinics), which also offer travel advice and healthcare (e.g. prophylaxis and other vaccines).

Recommendations for priority actions

- By 2020 vaccination coverage should reach at least 95%, not only for the 1st, but also for the 2nd dose of Measles Containing Vaccination (MCV).
- The current age of 10 years for the administration of the 2nd dose of MCV should be critically reviewed.
- High coverage of pertussis vaccination during pregnancy should be ensured to avoid pertussis in very young infants (as they can be only vaccinated at 8, 12 and 16 weeks of age).
- A timely, standardized monitoring system of vaccine coverage should be established at all levels. An electronic vaccination register should be considered for assessing vaccine coverage.
- Assess risk perception and improve public access to accurate information, to counteract hesitancy to vaccinate, correct misinformation, and anticipate rumours. This will enable relevant groups (parents, health care workers, teachers, specific migrant groups, and other stakeholders) to take informed decisions.

Indicators and scores

P.7.1 Vaccine coverage (measles) as part of national programme - Score 4

Note: Information presented indicates more than 95% coverage for the first measles vaccination in Flanders and Wallonia. However, 95% measles coverage had not been reached in the Bruxelles area (latest presented data from 2012 showed 94.1%; a new survey for school children was ongoing at the time of the JEE). In addition, these data were based on coverage surveys with small sample sizes, as vaccination registries were not ready to be used. As MMR1 vaccination in Belgium is recommended at the age of 12 months and the primary schedule only finishes at 15 months, the surveys were performed at age 18-24 months (and not 12 months) as they are planned to assess vaccination coverage for all vaccinations and not only for measles. Belgium may therefore soon be able to demonstrate a capacity level of 5 according to the current indicators.

Strengths/best practices

- Vaccination coverage in infants aged 18-24 months has reached >95% for the first MCV vaccination in Flanders (2016: 96.2%) and Wallonia (2015: 95.6%), but so far not in the Bruxelles area (2012: 94.1%; new survey ongoing at time of writing, only for school age children, 18-24 months will be performed next year).
- Measles vaccination is provided for all new asylum seekers at the time of their demand for asylum (in addition to TB screening), to avoid measles outbreaks in refugee centres.
- Flanders has established a flexible mobile vaccination team to reach under-vaccinated groups and groups not linked to organized structures.
- In the French community, MMR vaccination is compulsory for children attending daycare centres.
- In 2015 and 2016, Flanders offered catch-up MMR vaccination to adults.

Areas that need strengthening, and challenges

- Vaccination registries should be promoted with vaccinators, particularly in the French speaking part of Belgium, to ensure the registration of vaccinations in a timely, systematic way, with the eventual goal of allowing monitoring of vaccination coverage and follow-up through the system.
- Vaccination coverage in the Bruxelles Region has not yet reached 95% for the first MMR vaccination. For the second MMR vaccination, as in most European countries, vaccination coverage has not yet reached 95% in Flanders (2016: 93.4%; documented vaccinations by EPI-based survey) and was still far below the target in Wallonia (2015: 75.5%) and the Bruxelles Region (2012: 75.5%). Regions should therefore be enabled to reach the WHO target of 95% vaccination coverage for two doses of MCV as soon as possible.
- So far, no adult immunization programme has been established in Wallonia and Brussels. The MMR vaccine is only for free for <20 year olds
- In the French speaking community
  - If the vaccination card is lost, vaccinations cannot be traced
  - Not all school health programmes are able to vaccinate: there is the need to adapt their mandates and secure financing for catch up vaccinations.
- Reaching undervaccinated groups remains a challenge (e.g. migrating Roma).
- Outbreak control vaccinations should be undertaken immediately if cases occur in daycare centres, schools etc.

P.7.2 National vaccine access and delivery - Score 5

Strengths/best practices

- Vaccination is provided free of charge via "well baby clinics" and school health services, for children throughout the country.
- Free choice of vaccinator for parents: GPs and paediatricians can order the same vaccines free of charge.
- Vaccine delivery timing can be chosen to avoid cold chain problems.
- The delivery of vaccines is done with monitored refrigerated vans, thus securing the cold chain.
- Systematic information on recommended vaccination moments is kept for school children.
- Vaccination data is kept in the vaccination databases (Vaccinnet in Flanders and e-Vax in Wallonia). These databases are completely compatible.
- The vaccine ordering system is linked to the vaccination databases, with the possibility to follow-up available stock at the vaccinators.
- Public procurement is in place, with mandatory "reserve/buffer" stock at the manufacturers (e.g. equivalent for 3 months).
- There is a public health goal on vaccination to secure political commitment.

Areas that need strengthening, and challenges

- Securing a stable and regular supply of vaccines is challenging, as this depends on the availability of vaccines in Europe/worldwide (e.g. relative short supply of acellular pertussis vaccines).
- The continuity of the vaccination programme must be guaranteed when a vaccine shortage occurs (e.g. there was a need to replace IPV-DTaP with IPV-dTap for six-year old children, for several months).
- Strategies are needed to address vaccine hesitancy, including among some health care professionals.
- New concepts and tools must be put in place to follow up and respond to rumours in social media and on the internet.

DETECT

National laboratory system

Introduction

Public health laboratories provide essential services including disease surveillance; disease and outbreak detection; emergency response; and environmental monitoring. State and local public health laboratories can serve as focal points for a national system, through their core functions for human, veterinary and food safety. These include disease prevention, control and surveillance; integrated data management; reference and specialized testing; provision of laboratory oversight; emergency response; public health research; training and education; and partnerships and communication.

Target

Real-time biosurveillance with a national laboratory system and effective modern point-of-care and laboratory-based diagnostics.

Belgium level of capabilities

Belgium has a good laboratory system, with about 160 hospital and private laboratories. Tests are generally covered by health insurance. Thirty-six out of 132 medical biology laboratories are accredited to ISO 15189. A National Reference Laboratory system has existed since 2011, with 41 nominated and accredited reference centres (funded by the National Institute for Medical Insurance/INAMI) and 17 reference laboratories (not funded). The system functions well, but the sending of samples to the national reference centres (NRCs) is not covered by the budget. NRCs are nominated for five years, and are evaluated regularly. The new period of nomination starts in 2019 and will be guided by a priorization exercise.

There is no BSL4 laboratory in Belgium.

Physicians generally use laboratory tests to confirm their diagnoses, but are often not sensitive in their selection of requested tests. The results of tests are fed back electronically or by mail to physicians; but laboratory and epidemiological data are neither timely nor automatically linked.

This chapter mainly addresses human health. Linkages between human and animal health laboratories are situation-based: laboratories are in contact when appropriate. Closer collaboration might be established by the merging of the Institutes for Public and Animal Health in 2018.

Regarding quality control, in 2016, more than 100 surveys (28 panels) were performed and 31,000 samples provided, with 280,000 results. A total of 253 laboratories (211 Belgian clinical laboratories, 10 manufacturers and 32 foreign laboratories) participated in quality control initiatives and received, in addition to their individual reports, more than 50 global reports.

The quality of medical laboratories is ensured by 28 collaborators with the department of public health, while accreditation is the competence of the national accreditation body.

The Virological Diseases unit (WIV-ISP) is WHO's National Reference Laboratory (e.g. for measles and rubella testing). The Biological Standardisation Unit (WIV-ISP) of the National Control Laboratory is accredited to control the quality of vaccines against diseases listed in the WHO Vaccine Action Plan. The Biological Standardization Unit is also a WHO-contracted laboratory performing tests on WHO prequalified vaccines.

The Royal Decree of 12/99 specific to clinical laboratories does not mention point-of-care testing (POCT). However it is currently being upgraded, taking into account new possibilities for POCT. According to the assurance law, the clinical laboratory of the hospital is responsible for the realization & control of the decentralized tests.

Recommendations for priority actions

- Strengthen timely linkages between clinical, epidemiological and laboratory information for public health purposes (e.g. by ensuring standardized data formats throughout the framework of e-Health).
- Develop and implement national guidelines for requesting microbiological tests for specific pathogens and syndromes (e.g. severe pneumonia, severe diarrhoea, suspected meningitis).
- Establish agreements for testing with national or international BSL 4 laboratories of neighbouring countries.
- Continue to ensure regular and timely updates of the "practical directives" issued by commissions (e.g. for clinical biology or pathological anatomy) and used for the laboratory licensing procedure, following updates to the International Organization for Standardization (ISO) norms, to reflect progress in laboratory technology (or to assist laboratories in implementing new ISO norms).
- Prepare all Belgian laboratories for possible future mandatory accreditation, by increasing quality requirements and enlarging the numbers of available External Quality Assessment (EQA) schemes to face new emerging techniques.

Indicators and scores

D.1.1 Laboratory testing for detection of priority diseases - Score 5

Strengths/best practices

- Wide access to a dense network of laboratories.
- Laboratory tests are generally reimbursed through health insurance
- A well-working national reference centre (NRC) system for public health has been established and funded in Belgium for identified pathogens
- The selection of NRCs is open and competitive. Priorities of the NRCs are defined, and precise terms of reference exist for each. The NRCs are supervised by a special commission.

Areas that need strengthening, and challenges

- Requesting of tests by physicians is not very sensitive, and still can be improved.
- Modification of the nomenclature for reimbursed laboratory tests is very complicated and takes time.
- Arrangements with international or foreign national laboratories regarding diagnostics for BSL 4 pathogens (e.g. Ebola virus) are missing.
- Real time data collection from labs with linkages to clinical information is difficult, and imposes a significant workload on health professionals.
- Identification of threats based on lab results (molecular techniques/Whole-Genome-Sequencing) still needs to be improved.

D.1.2 Specimen referral and transport system - Score 4

Strengths/best practices

- Specimen transport conditions are checked during licensing/accreditation audits.
- The required sample transport conditions are fully described for all the reference laboratories.
- >95% of laboratories are using thermally insulated transport systems ('frigo boxes') to transfer samples from collection centres to the laboratory. Follow up on temperature and travel time occurs for the majority of transfers.

Areas that need strengthening, and challenges

- The UN 3383 Biological Substance, Category B guidance document and regulatory requirements are available, but not always fully implemented by laboratories.
- Packaging is complicated, because it consists of three components.

D.1.3 Effective modern point-of-care and laboratory-based diagnostics - Score 4

Strengths/best practices

- One department of the Public Health Institute (Quality of Medical Laboratories, QML) is responsible for licensing, supervision and organization of the national External Quality Assessment (EQA) programmes.
- The goal of the programme is to improve the performance of Belgian laboratories by organizing surveys, analyzing results, detecting deficiencies, evaluating methods, and disseminating results and comments on problems encountered during the surveys. The programme is accredited according to ISO standard 17043.

Areas that need strengthening, and challenges

- Royal Decree (12/1999) is currently under revision, with the aim of enlarging the possibilities of point-of-care diagnostics by allowing their use outside hospitals.
- Point-of-care diagnostics have to be supervised by a licensed laboratory for quality surveillance. The time this takes could potentially slow down their availability outside clinics.
- The QML department should increase the number of EQA schemes for POCT, in order to assess new parameters.

D.1.4 Laboratory quality system - Score 4

Strengths/best practices

- All Belgian medical laboratories must have a licence.
- All laboratory activities have a centralized Belgian EQA programme.
- The same department at the Institute of Public Health is responsible for licensing and EQAs.
- This department is accredited (ISO 17043) for the main EQAs.

Areas that need strengthening, and challenges

- The number of molecular parameters covered by EQAs should be enlarged to cope with the extension of the available kits.
- Limits to the financial and human resources of the Institute of Public Health.

Real-time surveillance

Introduction

The purpose of real-time surveillance is to advance the safety, security and resilience of the nation by leading an integrated biosurveillance effort that facilitates early warning and situational awareness of biological events.

Target

Strengthened foundational indicators, and event-based surveillance systems that are able to detect events of significance for public health, animal health and health security; improved communication and collaboration across sectors and between subnational, national and international levels of authority regarding surveillance of events of public health significance; and improved country and regional capacity to analyse and link data from and between strengthened, real-time surveillance systems, incorporating interoperable, interconnected electronic reporting systems. Epidemiologic, clinical, laboratory, environmental testing, product safety and quality, and bioinformatics data; and advancement in fulfilling the core capacity requirements for surveillance in accordance with IHR and OIE standards.

Belgium level of capabilities

In Belgium, surveillance of infectious diseases in humans is a competency of the federated entities. Surveillance systems are coordinated by the Scientific Institute of Public Health (WIV-ISP), with a mandate from the federated entities. Surveillance of food and livestock is a competency of the federal state, through the agency for food safety. Analysis of data in this field is performed by the Veterinary and Agrochemical Research Centre (CODA-CERVA).

Surveillance of infectious diseases in wild animals and vectors is a competency of the federated entities, though there are exceptions (e.g. if a case has a link to imported items).

Belgium has long experience of surveillance of human infectious diseases. Event-based surveillance is implemented at regional and national levels, with the use of an online platform for sharing and assessing information. Signals detected by the system are then discussed within the Risk Assessment Group, and different types of risk assessments may be performed depending on the type of threat detected.

Indicator-based surveillance is performed through a mandatory notification system and through a number of sentinel surveillance systems. The notification system involves reporting from clinicians and laboratories to the regional level, and the federal level has access to data on request. Sentinel surveillance systems are managed at federal level and cover 60-80% of microbiology laboratories, depending on the pathogen. Clinical and laboratory data are only integrated for a few pathogens (e.g. measles). Professional societies perform additional, more specific surveillance (e.g. surveillance of the HIV cohort, HCAI surveillance).

Syndromic surveillance is implemented for severe acute respiratory infections, acute flaccid paralysis and mortality.

Reporters receive feedback through monthly flash reports, as well as through publication of data in an impressive restricted access web tool called Epistat (a public version of Epistat is also available, showing limited data). Information is also shared across sectors (e.g. between human and veterinarian public health sectors) at different levels—for example in following up zoonoses, or when there are outbreaks or significant threats.

Development of surveillance presents a number of challenges. As the country moves towards e-Health solutions, the aim is to perform surveillance by leveraging these developments. There is, however, no legal framework so far that takes these developments into account.

Recommendations for priority actions

- Facilitate data sharing between various health databases at all levels, to strengthen capacities for early threat detection, assessment and quantification of impact.
- Further expand syndromic surveillance, particularly through use of data from hospital emergency wards.
- Agree on a legal framework to strengthen current surveillance systems, maximizing the use of e-Health systems and addressing data protection issues.

Indicators and scores

D.2.1 Indicator- and event-based surveillance systems - Score 4

Strengths/best practices

- There is a well functioning mandatory notification system for infectious disease, which leads to public health actions.
- There are multiple, high-quality surveillance systems in place that are complementary, cover most infectious diseases, and allow for the effective monitoring of trends.
- There is an effective feedback system in place that provides information for health authorities and health professionals.
- The risk assessment group assesses signals provided by surveillance systems, and allows for the implementation of responses at the national level.
- Belgium benefits from event-based surveillance at international level, such as through the ECDC Epidemic Intelligence Information System (EPIS), the daily ECDC round table report, and information sharing through the IHR (2005) system.

Areas that need strengthening, and challenges

- Belgium has well-developed surveillance systems for infectious diseases, but there are still gaps for chemicals and environmental threats
- Some aspects of existing surveillance systems could be improved, including timeliness and availability of clinical data and the availability of denominator data
- Event-based surveillance creates too many potential threats for assessment
- There is no legal framework for surveillance that takes public health needs into account.

D.2.2 Interoperable, interconnected, electronic real-time reporting system - Score 4

Strengths/best practices

- Belgium has implemented electronic notification systems (Matra/Matra-Bru), and there are plans to integrate these further into eHealth systems.
- There are strong online feedback systems in place, such as Epistat, which allow the public and health professionals to access and analyse reported data. Feedback reports are also available on the website of the Scientific Institute of Public Health.
- Reported data is routinely analysed, and any signals are assessesed by the risk assessment group.

Areas that need strengthening, and challenges

- Surveillance systems must ensure stronger interoperability between entities, and in particular better links with veterinary surveillance (being implemented through PLASUR).
- The increased importance of eHealth and the future implementation of surveillance through eHealth systems lead to data protection issues that must be addressed. These developments also create a need for additional expert profiles for public health staff, considering the increased use of large datasets.
- There is a lack of specific training in preventive medicine.

D.2.3 Analysis of surveillance data - Score 5

Strengths/best practices

- There are a number of high quality surveillance systems with quality management systems (ISO 9001) in place. Systems include the use of ECDC case definitions, allowing comparison of data at European level, and have long-term data (since 1981) that allows analysis of trends.
- Surveillance data is fed to Epistat, which provides tools for analysis of data, both for healthcare workers and for the public.
- The development of eHealth systems is leading to improvements in data gathering, integration and standardization.

Areas that need strengthening, and challenges

- The implementation of surveillance linked to eHealth services will lead to greater completeness, but will impact comparability of data over time.
- There are delays in receiving and validating data in existing surveillance systems. In addition, the lack of availability of clinical data limits analysis.
- The complex federal system imposes the need for consultation with many partners.

D.2.4 Syndromic surveillance systems - Score 3

Strengths/best practices

- Syndromic surveillance is performed using mortality data, and for severe acute respiratory infections there is continuous analysis of the data.

Areas that need strengthening, and challenges

- Syndromic surveillance activities are fragmented, and there is a need for agreement with multiple health authorities for their implementation. There is an additional challenge in ensuring that syndromic data are available in real time.
- Data from emergency wards can be made available, and needs to be investigated as a source of syndromic data.

Reporting

Introduction

Health threats at the human–animal–ecosystem interface have increased over the past decades, as pathogens evolve and adapt to new hosts and environments, imposing a burden on human and animal health systems. Collaborative multidisciplinary reporting on the health of humans, animals and ecosystems reduces the risk of disease.

Target

Timely and accurate disease reporting according to WHO requirements, and consistent coordination with FAO and OIE.

Belgium level of capabilities

Through a collaborative multidisciplinary effort, Belgium has put special emphasis on reporting as a key element in the fight against human and foodborne diseases and zoonosis. Particular attention has been given to reporting in the implementation of the IHR (2005). Designated National Focal Points (NFP) for both the IHR (2005) and OIE are operational and supported by well-trained staff and relevant stakeholders.

The FPS-HSFCE acts as the counterpart for WHO and the National Focal Point for the IHR (2005). Belgium has a duty officer available at all times to respond to national and international issues and carry out risk assessments. Due to expertise gathered in the past through exercises and experience of real events, as well as the use of necessary tools (guidelines, plans, protocols, SOPs etc.), Belgium is able to identify and report events and threats to human and animal health in a timely manner.

On the basis of Belgium's legal framework, a large network of sub-national, national and international stakeholders is available. In addition to the focal points for the IHR (2005) and OIE, the federated entities are responsible for identifying and reporting events within their territory. Along with scientific institutions, laboratories, medical facilities and health care workers, the following national groups are dedicated to the timely reporting of public health threats and events: the RAG (assessment and proposal of relevant actions); the Belgium Superior Health Council (scientific advice); and the RMG (reporting and management). The National Crisis Centre also includes additional stakeholders, including but not limited to homeland security, agriculture, industry, customs, point of entry authorities, local, regional and federal administrations, etc.

Belgium notifies events that may constitute a public health emergency of international concern (PHEIC) to WHO, using the decision making tool provided in Annex 2 of the IHR (2005). It also reports to the EU Early Warning and Response system (EWRS) and the WHO NFP network. All stakeholders in Belgium participate regularly in national and international exercises (e.g. nuclear exercises in 2016 and 2013, an Ebola exercise in 2015, and the Quicksilver Plus exercises in 2014 and 2015).

The OIE delegate and his/her focal points, as well as the IHR NFP and the staff of the Institute of Public Health, manage notifications and pre-alerts on a daily basis; and procedures for the notification of notifiable diseases are also in place at the level of the federated entities (communities and regions).

In general, there is excellent coordination between sectors at national level. Belgium has demonstrated on multiple occasions the ability to identify a possible PHEIC and report it within 24 hours using international notification systems. But despite the well-developed reporting system, there remain some constraints. The different administrative structures for reporting are not always well known at all levels, which may

cause delays in notification. In addition cooperation with stakeholders should be further strengthened, and reporting templates should be harmonized. Fast publication of relevant findings should be enabled through timely reporting and data analysis.

Recommendations for priority actions

- Enhance awareness of the requirements of the IHR (2005) and the OIE at all levels and among all actors (hospitals, physicians, veterinarians, industry, airlines etc.), through multisectoral discussions.
- Harmonize the reporting templates used by different sectors at all levels (human and animal health, food safety), and strengthen cooperation with stakeholders.
- Promote timely data analysis and publication of relevant findings (e.g. in scientific articles), to improve awareness further and strengthen timely reporting.

Indicators and scores

D.3.1 System for efficient reporting to WHO, FAO and, OIE - Score 5

Strengths/best practices

- An IHR NFP and a designated OIE delegate have been identified, and are supported by well-trained staff.
- The system has been extended to include partners and relevant stakeholders.
- The RAG and RMG provide multisectoral systems for assessing and reporting public health threats and events.
- Reporting to other countries is done via international systems:
- EWRS (for EU countries, with copy to WHO)
- WHO NFP network (beyond the EU)
- OIE for relevant zoonotic disease
- FAO for foodborne diseases
- Other systems exist for specific diseases.
- The NFP IHR and OIE delegate are available 24/7. These two focal points work with relevant stakeholders dedicated to the control of human and animal health (e.g. partners from sectors including science, agriculture, industry, customs, points of entry, the local, regional and federal administrations, etc.).
- Medical staff are on call 24/7 (e.g. medical doctors, veterinarians, epidemiologists, toxicologists, food safety specialists, etc.).
- Access to learning packages, tools and best practices is provided by WHO, OIE and FAO.
- Human, animal health and food safety systems work together via several platforms/working groups.
- Based on exercises and real events, Belgium has a demonstrated ability to identify a potential PHEIC and file a report to WHO (and to OIE for relevant zoonotic disease) within 24 hours.

Areas that need strengthening, and challenges

- The different administrative structures for reporting are not always well known by actors at all levels (medical doctors, food companies, etc.), which can cause delays in notification (prior to assessment and reporting).
- It is difficult to hire well-trained medical staff to support the NFP and OIE delegate, because of competition with the private sector.

- Awareness of the IHR NFP and OIE delegate systems should be enhanced among all actors and stakeholders (physicians, veterinarians, etc.).

D.3.2 Reporting network and protocols in country - Score 5

Strengths/best practices

- Belgium has a strong national and international legislation for reporting.
- National plans are available depending on the type of risk.
- SOPs are available for reporting procedures.
- A flowchart for reporting is available (covering mechanisms for information exchange, definition of liaison persons, assignment of liaisons according to their expertise and the type of event, etc.).
- Communications materials (cellphones, laptops, etc.) are available.
- Reporting procedures are well implemented for human and animal health and food safety, from local level (medical facilities) to intermediate level (regional and community health authorities) to national (federal authorities, RAG, RMG) and international level.
- Reporting systems are in place, tested by exercises and real events; these allow continuous adaptation of strategy.

Areas that need strengthening, and challenges

- Harmonize the reporting templates used by different sectors at all levels (human and animal health, food safety) and strengthen cooperation with stakeholders.
- Promote timely data analysis and publication of relevant findings (e.g. in scientific articles), to improve awareness and strengthen timely reporting.

Workforce development

Introduction

Workforce development is important in order to develop a sustainable public health system over time. A highly qualified public health workforce should be developed and maintained with appropriate technical training, scientific skills and subject matter expertise.

Target

State Parties to have skilled and competent health personnel for sustainable and functional public health surveillance and response at all levels of the health system, and the effective implementation of the IHR (2005). Workforce should include physicians, veterinarians, biostatisticians, laboratory scientists and farming/ livestock professionals, with an optimal target of one trained field epidemiologist (or equivalent) per 200 000 population. This workforce should cooperate systematically to meet relevant IHR and Performance of Veterinary Services core competencies.

Belgium level of capabilities

Belgium has a health workforce strategy that outlines the country's needs in terms of students entering courses at universities, but which does not cover specilization in public health after a medical degree. While most universities in Belgium offer internationally-renowned courses in public health or occupational medicine, there is limited engagement in public health as a profession. This results in shortages of staff at the federal and federated entity levels, although there are disparities in the distribution of staff across the federated entities.

There is high turnover of staff in public health units, and several vacancies at any one time. This is particularly evident at the federal level and in Wallonia, where even with international recruitment there is a shortage of staff. This situation is compounded by public service positions being primarily of a contract nature; the need for existing staff to be frequently on call; and the lack of recognition among the medical fraternity of public health as a specialization. Career opportunities are limited, and higher status is attributed to other specializations.

The issue of limited staffing also affects the Belgian First Aid and Support Team (B-FAST). This multi-sectoral team is mobilized for international deployments to public health emergencies, and is seen as an excellent mechanism for professional development; but there are difficulties in attracting professionals to positions that mean they are on call 24/7 for international deployment.

Multiple epidemiology training options are available for professionals. Universities offer short-term courses, as well as two-year Masters degrees in public health and occupational health. Belgian nationals also have access to the European Programme for Intervention Epidemiology Training (EPIET).

Veterinary professionals are included in the epidemiology training; while few take up the opportunity, veterinary epidemiologists do nevertheless work at university level. Some animal public health professionals are available to support outbreak response, and academic staff can be called upon to assist in public health emergencies.

In general, staff can be mobilized for public health emergencies, but this mobilization negatively impacts regular public health programmes, such as contact tracing for sexually transmitted diseases and direct observed treatment programmes for tuberculosis.

Recommendations for priority actions

- Promote the recognition of public health as a specialization in the medical profession, with market rates for remuneration and minimum standards of post-graduate education.
- Identify the needs and gaps for key public health positions—including physicians, nurses, food safety officers, Saniport staff and veterinarians—and advocate for their inclusion in the workforce strategy, to facilitate recruitment.
- Review and establish mechanisms for mobilizing surge staff to all key public health emergency functions, including ensuring staff identified for surge capacity are adequately trained in the roles for which they have been identified.

Indicators and scores

D.4.1 Human resources are available to implement IHR core capacity requirements - Score 4

Strengths/best practices

- All multidisciplinary IHR capacities are in place at national, intermediate and local level.
- Because the human capacities are in place, circulation of necessary information is done on a regular basis between different disciplines (physicians, epidemiologists, hospital infrastructures and laboratories); between different levels (national, intermediate and local); and between federal and federated entities.
- Highly committed staff are managing increasing workloads, exacerbated by widespread vacancies.

Areas that need strengthening, and challenges

- Investigate mechanisms for attracting and retaining staff, including recognition of public health as a discipline and providing opportunities for professional development.
- Because of high turn-over, procedures are not always known or followed. Therefore, standard operating procedures (SOPs) for all aspects of public health response should be clearly articulated and regularly disseminated.

D.4.2 Field epidemiology training programme or other applied epidemiology training programme in place - Score 4

Strengths/best practices

- Field epidemiology is part of the medical curriculum, and short and long-term courses are available at post-graduate level.
- There are staff trained in field epidemiology at national and federal entity levels.
- Belgium enjoys access to international field epidemiology training through the EPIET programme.

Areas that need strengthening, and challenges

- Develop mechanisms for the enhanced recruitment of public health professionals with field epidemiology training.

D.4.3 Workforce strategy - Score 2

Strengths/best practices

- The country has a workforce strategy.
- Field epidemiology training is available.
- Opportunities are available for continuous practical training in the field.

Areas that need strengthening, and challenges

- The workforce strategy does not cover public health professions (e.g., epidemiologists, veterinarians). Assessment of the public health workforce needs and gaps should be performed, to inform advocacy for addressing them in the next workforce strategy.
- Develop information and advocacy messages that show public health to be a rewarding profession, in order to encourage young graduates (doctors, nurses and veterinarians) into the discipline.
- Advocate for the recognition of public health as a specialization.

RESPOND

Preparedness

Introduction

The effective implementation of the IHR (2005) requires multisectoral/multidisciplinary approaches through national partnerships for effective alert and response systems. It requires coordination of nationwide resources, including the sustainable functioning of a national IHR focal point that is accessible at all times to communicate with WHO IHR regional contact points and all relevant sectors and stakeholders in the country. (The IHR focal point is a national centre for IHR (2005) communications, and a key requisite for implementing the IHR (2005)). States Parties should provide WHO with contact details for their national IHR focal points, update them continuously, and confirm them annually.

Target

Preparedness includes the development and maintenance of national, intermediate and local or primary response level public health emergency response plans for relevant biological, chemical, radiological and nuclear hazards. These will cover mapping of potential hazards, identification and maintenance of available resources—including national stockpiles—and the capacity to support operations at intermediate and local or primary response levels during a public health emergency.

Belgium level of capabilities

Belgium has reached a good level of preparedness and has implemented appropriate plans, systems and procedures to maintain a proper level of readiness nationwide. Responsibilities and competencies in the area of public health are spread between the federal level and the federated entities (communities and regions).

There are national preparedness plans for Ebola, nuclear incidents and heatwaves, and a plan for chemical/biological/radiological/nuclear (CBRN) events in finalisation at the time of the JEE. Operational plans are in place at the level of the federated entities (hospital and outbreak plans, specific disease plans, etc.).

Disaster plans are in place at provincial and municipality levels, with different plans for different specific hazards. These plans contain public health measures to implement actions to ensure that the required IHR core capacities are present and functioning throughout Belgium.

The existing plans take into account points of entry for ports and airports, but not all international airports are currently covered. Some exercises are done to test existing plans, but more regular testing is required.

At the national level, the Ministry of Health and its different services and agencies (nuclear agency, medicines agency and food safety agency) have been leading the preparation of existing preparedness plans as appropriate. For example, in the nuclear plan led by the Ministry of Interior (which is in charge of the National Crisis Centre (NCC) at federal level), the Ministry of Health is accountable for the plan's public health component. At federated entity level, different agencies and other ministries—education, transport, defence etc.—may be involved in crisis management.

A national Generic Preparedness Plan is in development, and three out of thirteen modules will be finalized in 2017. At the time of the JEE, the plan was expected to be completed in 2-3 years. The new plan incorporates an all-hazards approach and the One Health concept.

National surge capacity is available and able to respond to public health emergencies of national and international concern, although this capacity is not adequate for protracted emergencies.

Every hospital has an emergency plan, including for the mobilization and relocation of resources.

The surveillance system at local, intermediate and national levels, along with the monitoring of medical care at different levels, allows regular situational analysis of health trends and the mapping of potential public health risks. This helps to identify resource gaps and develop plans with the necessary resources.

Resource mapping is conducted regularly by the members of the Risk Assessment Group, the Risk Management Group, and the national crisis cell.

Strategic stocks and stockpiles are in place for medicine, food and non-food items, to ensure provisions for responses to selected IHR-related hazards. But the finalisation of these stockpiles and final approval from the Ministry of Health is dependent on scientific advice from the Superior Health Council that was pending at the time of the JEE.

Recommendations for priority actions

- Finalize the national Generic Preparedness Plan and ensure it is supported by sufficient resources to make it operational.
- Strengthen coordination mechanisms between all relevant stakeholders, clarifying roles and responsibilities and standard operating procedures (SOPs), and sharing protocols and scenarios for various types of public health emergencies.
- Conduct comprehensive national risk mapping for major public health hazards, including geographical risk areas and the resources available/needed to identify potential high priority public health events.
- Identify a centre for the management of patients with highly infectious diseases.
- Develop and approve a strategic stockpiles plan, and SOPs at all levels for responding to priority biological, chemical and radiological events.
- Develop a surge capacity plan for responding to protracted public health emergencies, including regular training and simulation exercises.

Indicators and scores

R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented - Score 3

Strengths/best practices

- Different plans have been developed and tested, based on potential public health risks, at national, federated entity, local and intermediate levels, to allow effective planning and preparation for, and responses to, emergencies.
- Good technical cooperation exists between federal and federated authorities, scientific institutes and other national partners represented in the RAG and the RMG, and is being used to develop the national Generic Preparedness Plan.
- Good collaboration exists between the local (municipality), intermediate (provincial) and national levels (National crisis Centre) of preparedness.
- Belgium has experience in the management of recent public health crises (Ebola, MERS CoV, Zika, etc.).
- Surge capacity is in place at federal and federated entity level.
- National stockpiles are in place for medicine, food and non-food items.

Areas that need strengthening, and challenges

- Despite the existence of numerous specific plans focused on specific hazards, a Generic Preparedness Plan (for all hazards) is not yet available.
- A surge capacity plan is required, to respond to protacted public health emergencies of national and international concern.

R.1.2 Priority public health risks and resources are mapped and utilized - Score 4

Strengths/best practices

- Good surveillance systems and monitoring of medical care are in place at local, intermediate and national levels, to allow to mapping of potential public health risks.

Areas that need strengthening, and challenges

- A strategic plan is needed, to include procedures for management and distribution of stockpiles, and expansion to additional IHR-related hazards.
- National risk assessment and resources mapping are required to identify potential priority public health events.

Emergency response operations

Introduction

A public health emergency operations centre (PHEOC) is a central location for coordinating operational information and resources for strategic management of public health emergencies and emergency exercises. Emergency operations centres provide communication and information tools and services, and a management system during responses to emergencies, or during emergency exercises. They also provide other essential functions to support decision-making and implementation, coordination and collaboration.

Target

Country has capacity for: a public health emergency operations centre functioning according to minimum common standards and maintaining trained, functioning, multisectoral rapid response teams; real-time biosurveillance laboratory networks; information systems; and trained PHEOC staff capable of activating a coordinated emergency response within 120 minutes of the identification of a public health emergency.

Belgium level of capabilities

Belgium is a country facing complex challenges in responding to emergency situations. Since the country is divided into provinces, in which medical responses take place at different levels and are not unified, maintaining a unified and rapid emergency response is a constant challenge.

Belgium relies on trained medical teams that are sent in ambulances to events. After stabilizing patients on the ground, the patients are tranferred to a hospital. The various centres that despatch teams and vehicles are distributed all over the country and follow agreed procedures, but they differ in their methods of responding to incidents, and in their command structures.

The ability to respond to emergency situations at national level is good and covers—for example—event management and routine exercises.

The recent series of terrorist attacks in Belgium has raised the country's level of awareness and ability to mount a quick, high quality response, and to intensify, as much as possible, cooperation between first responders and with mayors and provinces. Joint exercises and training are conducted frequently to teach the reaction and command centres how to operate and control events effectively. A range of exercises has been prepared and run, and procedures and instructions have been documented to deal with a variety of disaster situations at different levels. Responses are carried out at levels from the government situation room to the provincial or emergency situation rooms.

Belgium is well prepared for public health emergency situations; but must further deepen its readiness and practicefor a multi-casualty event taking place simultaneously in several places (including, for example, chemical elements or "dirty bombs").

Inventory of medical equipment for disasters exists. However, but based on a risk assessment, the quantity of medical equipment available for disaster scenarios (with an emphasis on unique drugs such as atropine or iodine) needs to be evaluated and reconsidered from time to time in accordance with the relevant scenarios.

Recommendations for priority actions

- Expand the emergency operations centre (EOC) public health team to ensure surge capacity at all levels (e.g. for responses to large-scale mass casualty incidents).
- Improve use of databases for evidence-based decision-making.
- Improve knowledge management for transferring expertise and managing turnover of key functions/ staff working in health emergencies.
- Standardize reporting for data analysis, planning and data-gathering.
- Harmonize emergency training and simulation exercises at all levels.

Indicators and scores

R.2.1 Capacity to activate emergency operations - Score 4

Strengths/best practices

- Existing EOCs are in place, and provide safe environments for emergency response.
- Supporting infrastructure and equipment are also in place, including internet, mail, logistics, secured meeting spaces and videoconferencing facilities, data collection, live logbooks, secretarial support,etc.
- Expandable EOC staffing is possible depending on the nature of the emergency: multisectoral staff capacity can be adapted according to need, bringing in different areas of expertise, through the federal EOC.
- Scientific data is available to the federal EOC through links with the RAG and RMG.
- Municipal and provincial crisis managers are in place.
- Public communications capacity is embedded in the EOC team.
- A vigilance hotline, a crisis hotline and regional hotlines are operational.
- Many events in the last 4-5 years, both inside and outside Belgium, have allowed the country to practice coordinating and monitoring responses. These have included terror attacks, accidents and the Ebola outbreak.

Areas that need strengthening, and challenges

- Collaboration and information-sharing with regional EOCs is still in the nascent phase.
- Health staff in provincial EOC/dispatch centres should be strengthened.
- Not all municipal and provincial crisis managers have sufficient understanding of public health issues.
- Timing in public health EOCs is very different to timing in mass casualty incident EOCs.
- Maintenance of knowledge and transfer of capacity between staff, from generation to generation, should be improved.

R.2.2 Emergency operations centre operating procedures and plans - Score 4

Strengths/best practices

- Basic plans such have been developed and updated, including medical intervention plans, sanitary intervention plans and a psychosocial intervention plan.
- A preventive mass gatherings risk assessment has been conducted.
- A Belgian handbook has been written for medical dispatching.

- Plans and procedures are evaluated after each deployment, or when needed.
- Two-tiered command—administrative and operational—is in place.
- There is an adaptive framework for EOC leadership.
- The medical intervention plan (MIP) was upgraded to 'Maxi-MIP' after the terrorist attacks in Paris, resolving issues of despatching and communicating across boundaries of different authorities.
- The psychosocial intervention plan was upgraded after the Brussels attacks.
- A multi-disciplinary approach is used in training, e.g. in operational command posts.

Areas that need strengthening, and challenges

- Standardized data-gathering, reporting and analysis.
- Balancing flexibility and standard operational procedures.
- Addressing new types of crisis.

R.2.3 Emergency operations programme - Score 5

Strengths/best practices

- Belgium has experience with large numbers of declared plans/phases and trainings and exercises.
- Seven pre alerts have been exercized in one year.
- Federal and regional EOCs have participated together in Brussels-based tabletop exercises.
- Many events and exercises in the last 4-5 years, both inside and outside Belgium, have allowed the country to practice coordinating and monitoring responses.

Areas that need strengthening, and challenges

- Harmonization of training and exercises on all levels, and efficient use of training capacity.
- Keeping plans and SOPs up to date, and keeping personnel up to date in a 'doing more with less' environment.

R.2.4 Case management procedures are implemented for IHR relevant hazards - Score 5

Strengths/best practices

- Mandatory declaration of certain diseases.
- SOPs are available for certain diseases.
- Transport capacity is in place for highly infectious diseases (e.g. SARS, Ebola).
- Hospitalization capacity is in place for highly infectious diseases.

Areas that need strengthening, and challenges

- Balancing treatment liberty and mandatory treatment.

Linking public health and security authorities

Introduction

Public health emergencies pose special challenges for law enforcement, whether the threat is manmade (e.g. anthrax terrorist attacks) or naturally occurring (e.g. flu pandemics). In a public health emergency, law enforcement must coordinate its response quickly with public health and medical officials.

Target

In the case of a biological event of suspected or confirmed deliberate origin, a country should be able to conduct a rapid, multisectoral response, with the capacity to link public health and law enforcement, and to provide and/or request effective and timely international assistance (for example, to investigate instances of alleged use).

Belgium level of capabilities

Multisectoral collaboration in public health emergency response in Belgium is coordinated by the National Crisis Centre (NCC), which was established under Royal Decree. The NCC includes representation from all levels, from sub-national to national, and from all relevant sectors, including security, transport and health. The NCC established the contingency plan for events and crisis situations requiring coordination or management at national level (17/10/2003), and has shaped the legal framework for managing crises at the national level—the so-called 'federal phase' of emergency planning. This piece of legislation enables activation of immediate coordination at the national level. Although the NCC includes all relevant sectors and levels, the scattering of tasks and competencies between different authorities at the sub-national level as a result of several state reforms is a challenge to efficient, multidisciplinary communication and coordination.

Belgium has multi-disciplinary emergency intervention plans; generic plans (general provincial emergency intervention plans), specific plans (Seveso[3], nuclear plan, etc.) and monodisciplinary intervention plans (medical intervention plan, psychosocial intervention plan, etc.). The NCC also has emergency staff covering five disciplines: the fire service; medical, psycho-social & sanitary aid; police; logistics support (to the civil protection service, defence, etc.); and risk communication/provision of information to the population.

Exercises have been conducted to enhance cooperation between the NCC and public health services from sub-national to national level, using different types of scenarios. There is, however, a lack of awareness among first responders concerning management of CBRN events. To address bioterrorism responses (e.g. responding to suspect packages), a good detection procedure is in place, and the concept of chain of custody is established.

Reports containing information with both public health and security content are periodically shared via the NCC. Responsible public health officers are authorized to access classified information, so that the security sectors can share sensitive information for necessary action; however, accessing personal data for contact investigations is difficult. Further collaboration through periodic joint exercises is expected, in order to strengthen capacity to respond to suspected biological incidents of deliberate origin.

3 http://www.seveso.be/

Recommendations for priority actions

- Propose integrated training and workshops for first responders, to enhance their awareness of biological events and to improve collaboration between disciplines.
- Provide authorized public health officers with access to personal data and security information.

Indicators and scores

R.3.1 Public health and security authorities (e.g. law enforcement, border control, customs) are linked during a suspect or confirmed biological event - Score 4

Strengths/best practices

- Good multi-disciplinary and single-discipline plans and procedures are in place.
- Belgium has schools and programmes dedicated to disaster management, with public health aspects covered.
- Sufficient legislation, laws, regulations, administrative requirements, policies and/or other government instruments are in place.
- There is good cooperation between public health staff and the crisis centre, with full access to necessary information.
- Laboratories and medical facilities are available for rapid diagnosis and management of biological threats and patients.
- A good detection procedure is in place for suspect packages, with a concept of chain of custody
- Exercises are carried out periodically.
- The IHR team has a level of security clearance sufficient for managing classified information.

Areas that need strengthening, and challenges

- Due to several state reforms, tasks and competencies are scattered among different authorities.
- It is difficult to identify contacts during contact tracing procedures.

Medical countermeasures and personnel deployment

Introduction

Medical countermeasures are vital to national security. They protect nations from potentially catastrophic infectious disease threats. Investments in medical countermeasures create opportunities to improve overall public health. It is also important to have trained personnel who can be deployed in case of a public health emergency for response.

Target

A national framework for transferring (sending and receiving) medical countermeasures and public health and medical personnel between international partners during public health emergencies.

Belgium level of capabilities

Belgium's access to some medical countermeasures is based on international agreements under the European Parliament, such as the Joint procurement agreements that are in place for pandemic vaccines, botulism antitoxin and personal protective equipment. Belgium also has informal agreements with neighbouring countries for sharing medical countermeasures.

Stockpiles are in place for a variety of commodities, including drugs and equipment, although procedures for access, shipping and reception of this materiel are not clearly articulated. For veterinary supplies, there are stockpiles of some commodities, and access to veterinary medical products is possible through the market. Stockpiles are held primarily in a central store, with some commodities stockpiled in areas of greatest need.

Procedures for procuring commodities for the stockpile impose an administrative burden, requiring submission of multiple dossiers between the Federal Public Service for Health and the Ministry of Finance. This process can demand large amounts of staff time, and can take an extended period to complete.

Belgium has a long history of supporting international public health efforts through the deployment of B-FAST, the Belgian First Aid and Support Team. B-FAST has been involved in international exercises and in supporting real public health events, including the West African Ebola outbreak, to which more than 30 Belgian professionals were deployed; a yellow fever assessment in Angola; the 2011 earthquake in Turkey; the 2013 typhoon in the Philippines; and the 2014 floods in Bosnia and Herzegovina. Belgium also has a field laboratory that can be deployed internationally to support public health responses to emergencies. In addition to international deployments, staff can be deployed across Belgium through the Medical Intervention Plan, and there are agreements with neighbouring countries for deployments for cross-border emergencies.

To maintain capabilities in emergency response, there is a programme of exercises at community and provincial levels. The B-FAST team also engages in international urban search and rescue exercises on emergency aid operations in other countries.

Recommendations for priority actions

- Investigate the feasibility of employing staff specialized in procurement of medical countermeasures.
- Review procedures for procurement of medical countermeasures for emergencies, to streamline and fast-track the process.
- Develop and disseminate procedures outlining the steps, roles and responsibilities for requesting, shipping and receiving medical countermeasures across all levels of administration.
- Once the above-mentioned procedures are clearly articulated, organize an exercise programme to test the distribution and reception of medical countermeasures during a public health emergency.

Indicators and scores

R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency - Score 5

Strengths/best practices

- There is a solid legal basis for joint procurement of medical countermeasures, through the European Parliament and Council Article 5(1) on joint procurement and advance purchase.
- Agreements are in place with some manufacturers and distributors to procure some medical countermeasures during a public health emergency or during shortages (e.g. they are in place for rifampicine and ciprofloxacine).
- Systems are established to address stockpile management and deployment of medical countermeasures during a public health emergency, with agreements in place with storage sites, for storage and timely distribution of medical countermeasures all over the country.
- Belgium has tested its procedures for authorizing unapproved medical countermeasures or new treatments—for example, the new vaccine used during the recent Ebola outbreak in Democratic Republic of the Congo.

Areas that need strengthening, and challenges

- There are challenges to procurement of medical countermeasures with limited global availability, such as botulinum antitoxin, diphtheria anti toxin, and Bacillus Calmette–Guérin vaccine.
- No distribution exercises have been conducted to demonstrate sending or receiving of medical countermeasures during a public health emergency.
- Specialised staff are required to support the procurement process for medical countermeasures.

R.4.2 System is in place for sending and receiving health personnel during a public health emergency - Score 5

Strengths/best practices

- There are plans in place for deploying personnel during national and international outbreaks, and the personnel deployment process has been regularly activated for events all around the world.
- There is a system in place for receiving and sending staff during domestic and international public health emergencies.
- The personnel deployment process is regularly tested and adjusted on the basis of exercises and lessons exposed in after action reviews.

Areas that need strengthening, and challenges

- Belgium has experienced difficulties in recruiting medical staff to be on call 24/7 and available for rapid deployment.

Risk communication

Introduction

Risk communication should be a multilevel, multifaceted process that helps stakeholders define risks, identify hazards, assess vulnerabilities and promote community resilience—thereby promoting the capacity to cope with an unfolding public health emergency. An essential part of risk communication is disseminating information to the public about health risks and events, such as disease outbreaks. For communication about risk to be effective, the social, religious, cultural, political and economic effects of the event should be taken into account—including the voice of the affected population.

Communications of this kind promote appropriate prevention and control action through community-based interventions at individual, family and community levels. Disseminating information through appropriate channels is essential. Communication partners and stakeholders need to be identified, and functional coordination and communication mechanisms should be established. In addition, the timely release of information and transparency in decision-making are essential for building trust between authorities, populations and partners. Emergency communications plans should be tested and updated as needed.

Target

States Parties should have risk communication capacity that includes multilevel, multifaceted real-time exchange of information, advice and opinion between experts and officials and people who face a threat or hazard to their survival, health or economic or social wellbeing. This information should enable them to take informed decisions to mitigate the effects of the threat or hazard, and to take protective and preventive action). It should consist of a mix of communication and engagement strategies such as media and social media communication, mass awareness campaigns, health promotion, social mobilization, stakeholder engagement, and community engagement.

Belgium level of capabilities

In Belgium, Risk Communication for health emergencies has gained a prominent position within the response structure. It is part of the Risk Assessment (RAG) and Risk Management Groups (RMG), and is represented on the multisectoral communication sub-committee of the National Crisis Centre (NCC). This structure facilitates risk communication around risk assessments as they develop, contributes to risk management, and allows the Federal Public Service (FPS) to make health needs prominent within crisis response. In addition, the system enables surges of human and financial capacity for risk communication in case of an emergency.

The national Generic Preparedness Plan for emergency response—currently in development—also includes a risk communication component that is flexible enough to ensure responses to multihazard health emergencies.

The FPS coordinates communications at various levels:

- Within the FPS itself, assigning clear roles and responsibilities to team members through SOPs
- With technical experts and political leadership in the RAG and RMG
- With other government levels and stakeholders, on health-related strategies and messages
- With other relevant sectors represented within the NCC
- With international organizations including WHO, ECDC and the Euopean Commission, and with other countries.

Public communication is advanced in Belgium. The FPS benefits from high levels of public trust. This is achieved through strong media relations and social media monitoring and response. Spokespersons are identified based on their skills and the trust they receive from audiences. The communication team is experienced and trained, and communication strategies and messages are tested before and after any campaign.

Belgium's complex administrative structure of communities, provinces and local authorities enables communication to happen close to the people. Communities are becoming more engaged in providing feedback and monitoring rumours, including through interactive apps and websites.

Challenges remain and must be addressed. While risk communication is well established in the response system, this is less true for preparedness. In an emergency, surge funds and people are easily mobilized, even if this is done through informal mechanisms; but in peacetime there is a substantial shortage of resources. This shortage is an obstacle to:

- Embedding community engagement into risk communication (implementing this component requires specialized experts)
- Addressing rumours as needed
- Advocating for public health/IHR (2005) across the political interface
- Reaching out to vulnerable and isolated groups, including in their languages.

In many instances, the coordination system works effectively through informal mechanisms (i.e. private contacts); but it needs to be formalized, especially with reference to the private sector, hospitals, health care workers, and civil society; and the range of partners needs to be broadened to cover all hazards. In addition, there is poor consensus across sectors and levels on priority health risks for communication, which generates confusion in the public and does not facilitate behavioural change/impact.

Recommendations for priority actions

- Ensure inclusion of a strong risk communication component in the national Generic Preparedness Plan for health emergencies, providing guidance and tools for responding to multi-hazard public health events, including SOPs for transparent and timely communications.
- Embed community engagement, dynamic listening and rumour management in risk communication, through improved use of formative research to gather risk perception, both in peacetime and during crises.
- Pay special attention to reaching vulnerable and minority groups, through targeted channels, with tailored messages in their own languages.
- Expand partnerships between health care workers, the private sector and civil society through formalized mechanisms, including to ensure surge capacity.
- Strengthen coordination with all relevant sectors and levels to reach consensus on priority health risks for communication to the public, based on risk mapping and risk perception.

Indicators and scores

R.5.1 Risk communication systems (plans, mechanisms, etc.) - Score 4

Strengths/best practices

- While Belgium has a complex political structure, the country is relatively small, and this allows operations to happen smoothly, including thrugh informal mechanisms.
- Risk communication for health emergencies is prominent within the response structure, including in the RAG and RMG, and in the NCC communication sub-committee.

- The system enables risk communication surges of human and financial capacity in case of an emergency.
- Communication staff are trained, procedures are regularly tested, and plans are evaluated in coordination with relevant sectors and levels; lessons are fed back into strategies.
- Scale up of the NCC's communication resources following terrorist attacks (now including 35 staff).
- Evaluation of risk communication response to the H1N1 influenza pandemic and the Ebola outbreak.
- Numerous multihazard simulation exercises.

Areas that need strengthening, and challenges

- Financial and human resources are inadequate in peacetime.
- Formal agreements must be established on surge capacity for risk communication in emergencies.
- Consensus is needed across sectors and levels on the priority health risks for public communication.

R.5.2 Internal and partner communication and coordination - Score 5

Strengths/best practices

- The FPS coordinates communications at various levels:
  - Within the FPS itself, assigning clear roles and responsibilities to team members, with fast deployment and 24/7 availability
  - With technical experts and political leaders in the RAG and the RMG
  - With the private sector, media, hospitals, partners and civil society, through formal and informal mechanisms
  - With other relevant sectors represented within the NCC, through clear SOPs for action and 24/7 availability of the NCC communication team
  - With international organizations on common messages, through the WHO Communication Network; the Health Security Committee (HSC) Communicators' Network; and ECDC National Focal Points for Communication.
- The NCC has a regularly tested list of contacts (or 'redbook') containing contact details and times of deployment.
- Multisectoral websites are in place for alerts to and interaction with the public (hotlines, dark sites).
- There has been fruitful collaboration with the Institute for Tropical Medicine, Brussels Airlines and Brussels airport on the Ebola response.
- Contributions are made to national working groups, guidelines, exercises and publications, to share knowledge and experiences.
- The scope of partners and stakeholders has been expanded through nuclear risk campaigns.

Areas that need strengthening, and challenges

- Existing informal mechanisms should be formalized, and the scope of partners in the private sector, hospitals, health care settings and civil society should be broadened.
- Contact details should be transferred from private devices to public lists.
- Multisectoral resources should be coordinated to develop and test generic multihazard plans during 'peacetime.'

R.5.3 Public communication - Score 4

Strengths/best practices

- The FPS benefits from high trust from the media, the public and other stakeholders, gained through regular relations and availability to address public queries, including through trusted spokespersons and social media monitoring and response.
- Communication staff are trained and experienced, and include two spokespersons as well as 60 technical experts trained in communications/media relations.
- Development of websites to provide information and alerts to the public: www.risico-info.be, www.be-alert.be .
- Development of dark sites: www.info-zika.be, www.info-ebola.be, www.info-flu.be .
- Provision of hotlines providing direct access to expert advice.
- Regular training for communication and technical staff.
- Pre- and post- testing of risk communication campaigns, to assess impacts in targeted groups.

Areas that need strengthening, and challenges

- Outreach to vulnerable and isolated target groups should be strengthened, to build trust.
- Messages should be translated into languages beyond Belgium's official ones.

R.5.4 Communication engagement with affected communities - Score 3

Strengths/best practices

- Belgium's administratve structure, with national, community and provincial level authorities, allows understanding of, and outreach to, affected communities at local level.
- While surge human and financial resources can be made available at central level through the NCC during emergencies, the response is implemented at local level, using effective channels.
- Belgium is beginning to use new technologies to engage and mobilize communities.
- Regular risk communication campaigns are implemented at regional level (Flanders, Brussels, Wallonia) targeting specific communities, groups and themes (e.g. heatwaves, vaccination campaigns, etc.).
- Proximity and tailored communication from regional level is activated during outbreaks (to schools, villages, etc.).
- Interactive tools have been developed and disseminated, to engage with communities (TicNet App, eHealthbox, Be-alert, Periscope).

Areas that need strengthening, and challenges

- Community engagement should be enhanced through formative research (direct interviews, focus goups, KAP surveys), both in peacetime and during crises; specialized staff (including anthropologists) should be recruited to work closely with risk communication experts.
- New technologies should be developed and used to engage with affected communities, including those that are hard to reach.

R.5.5 Dynamic listening and rumour management - Score 3

Strengths/best practices

- There is high public trust in responding authorities during a health emergency.
- The NCC and the FSP have the capacity to screen media, social media, hotlines, and website visits, to monitor rumors and/or misinformation.
- Media reporting is conducted professionally and responsibly during health emergencies.
- The NCC has performed an analysis of risk perception trends on nuclear energy.
- Pre- and post- testing of risk communication campaigns is carried out by regional and national communication teams (e.g. on antibiotic awareness campaigns).

Areas that need strengthening, and challenges

- The latest evidence and knowledge on behaviour change interventions should be applied to strategies on dynamic listening and management of rumours/fake news.
- Formative research should be enhanced.

OTHER IHR-RELATED HAZARDS AND POINTS OF ENTRY

Points of entry

Introduction

All core capacities and potential hazards apply to points of entry, and thus enable the effective application of health measures to prevent the international spread of diseases. States Parties are required to maintain core capacities at designated international airports and ports (and, where justified for public health reasons, a State Party may also designate ground crossings as points of entry). These should implement specific public health measures to manage a variety of public health risks.

Target

States Parties designate and maintain core capacities at international airports and ports (and, where justified for public health reasons, designated ground crossings), which implement specific public health measures to manage a variety of public health risks.

Belgium level of capabilities

Belgium has nominated one airport (Brussels) and five ports (Antwerp, Ghent, Zeebrugge, Ostend and Nieuwport) as designated points of entry (PoE). No designated ground crossings exist due to the fact that Belgium is part of the Schengen agreement and is only surrounded by other Schengen countries. The ports receive mostly cargo and ferries, with a few cruise ships. Other big airports are Charleroi and Liege (cargo).

The designated PoEs have 24/7 public health response capacities. Surveillance and reporting of events works well, and is connected to the national surveillance system. At Brussels airport, Saniport staff are responsible for ensuring disinsection has been performed in arriving airplanes; contact tracing; transport of dead bodies; and destruction of contaminated luggage.

In 2016 Belgian ports received 25,890 ships, of which 1,803 were inspected (7% = 5.1 inspections/day). The maritime single window is established at all ports. Qualified staff are available for the inspection programme, with 24/7 medical staff on hand, including ambulances. Inspections for water/food safety and animal health are performed by the Food Safety and Animal Health agency.

In 2016 Brussels Airport handled nearly 22 million passengers, despite its closure for 12 days because of the March 2016 terror attack. 86% of the passengers were on European flights (75% to/from EU countries), and 14% on overseas flights (6% of which were to/from Africa). 20% were in transit.

Brussels airport is served by 67 airlines and receives 496,637 tons of cargo each year. 660,604 tons pass through Liège airport. Brussels airport has a health facility for passengers and airport staff running 24/7, with medical staff, including ambulances, on hand. Expertise is in place for water/food safety, animal health, luggage destruction, and customs (e.g. detection and regulation of bush meat).

Brussels Airport has experienced several events in recent years that activated its response mechanisms. After actions reviews have been performed in order to learn from these. During the Ebola outbreak in 2014-2015, Brussels Airlines maintained services to affected countries. At the airport, 327 planes carrying

64,854 passengers arrived from these countries. Entry screening was installed and procedures were implemented. On March 22 2016 a terrorist bomb attack occurred at the departure hall at Brussels airport, killing 16 people, injuring 150 (many severely), and causing significant damage to the building.

Recommendations for priority actions

- Develop a points of entry component of the national Generic Preparedness Plan, and include infectious diseases in airport contingency planning.
- If justified by initial results of the programme, sustain national surveillance and monitoring of mosquitoes beyond 2020 in order to improve vector control.
- Review the legal basis for specific public health measures during crises (e.g. isolation, quarantine, vaccination, treatment, access to aircraft and ships, destruction/disinfection of luggage or cargo, etc.), to identify where the jurisdiction for each function lies, and to help determine at which administrative level the Saniport service should reside.
- Consider implementing designated point of entry-level services at other major international airports in Belgium.
- Explore a cost recovery strategy for issuing ship certificates.

Indicators and scores

PoE.1 Routine capacities are established at points of entry - Score 5

Strengths/best practices

- Experienced public health administration staff are available 24/7.
- Medical facilities and transport are available at nominated ports and airports 24/7.
- Contaminated luggage destruction procedures are in place at airports.
- Belgium participates in international projects like AIRSAN, SHIPSAN and CAPSCA to improve networks, procedures, and guidelines.
- Very good, experienced staff are available in the maritime and aviation fields, including for surveillance and notification systems, language skills and crisis management.
- There is good collaboration with and between Brussels Airlines and airport and port authorities.
- Annual reports are published on activities, achievements and challenges.

Areas that need strengthening, and challenges

- Vector control activities are just starting, and the national mosquito surveillance and monitoring plan needs to be sustained.
- The legal basis for luggage destruction should be updated.
- There is an ongoing political discussion about the distribution of Saniport's responsibilities within Belgium's federal structure that is affecting future work.

PoE.2 Effective public health response at points of entry - Score 5

Strengths/best practices

- There is a fast and efficient alert and notification system for risk assessment in real time as part of the national and international surveillance system (international: WHO, EWRS, ECDC).
- There is good coordination with all levels of public health authorities, referral hospitals, health care workers and laboratories.
- There good collaboration with the maritime and civil aviation sectors.
- Several plans are in place (e.g. a pandemic plan, an Ebola plan, a national disaster plan including for terror attacks, a burns plan, an alerting hospital services plan, etc.).
- A new passenger locator card has been developed that simplifies information-gathering.
- Reviews of measures have been performed (e.g. for Ebola measures at points of entry and measures taken after the terror attack at Brussels airport).

Areas that need strengthening, and challenges

- The Generic Preparedness Plan is not finalized, and infectious disease events are not sufficiently addressed in the airport contingency plan.
- The legal basis must be clarified for certain specific measures (e.g. isolation/quarantine, vaccination/treatment, access to planes/ships, luggage/cargo destruction or treatment, and disinfection measures).
- The preparedness level of the airports other than Brussels is unclear.

Chemical events

Introduction

States Parties should have surveillance and response capacity for chemical risks or events. This requires effective communication and collaboration among the sectors responsible for chemical safety, industries, transportation and safe disposal.

Target

States Parties should have surveillance and response capacity for chemical risks or events, with effective communication and collaboration among the sectors responsible for chemical safety, industries, transportation and safe disposal.

Belgium level of capabilities

Chemical safety in Belgium is based on EU legislation on prevention of chemical events and on the long-term work of Belgium's Poison Centre. The centre is equipped and prepared as required and constitutes a cornerstone of emergency preparedness. There is a policy of cooperation with other authorities, and knowledge is shared across levels and territories.

Relationships between the authorities operating in a chemical emergency and the Poison Centre are well established, and the centre is consulted on a variety of issues such as access to the event, required protections and recommended treatment for the patients. This situation also applies to rescue and emergency services.

Policies and guidelines for handling chemical events exist and are distributed from the government level.

Points that require greater emphasis are: (a) the need for an equal level of readiness for chemical events in all districts; and (b) the assistance required from other laboratories in responding to an unclear identification of a particular chemical substance.

It is also necessary to fine-tune the movement of chemicals throughout the country, including with full labelling of chemical transport vehicles on the road as required, and, where necessary, making clear to initial responders the need for pre-access counselling.

In terms of food safety aspects, the Federal Agency for the Safety of the Food Chain carries out controls on the whole food chain (from farm to fork). These controls include notably sampling and analysis of feed, food and water at the food business operators' plants or on the market. Other authorities routinely monitor drinking water for poisoning, and air quality for harmful and hazardous chemicals.

Multiple stakeholders are involved:

- Ministry of Social Affairs and Health
- National Crisis Centre (NCC): focal point for national and international alerts and coordination of disasters of national importance, including chemical events
- Department of Public Health Emergencies: focal point for any public health threat
- Public health inspection: health inspectors are in charge of regional disaster management
- Federal Agency of Safety of the Food Chain (FASFC): any event related to suspicion of food contamination (e.g. food supplements containing dinitrophenol) is referred to FASFC

- National institute for Criminalism and Criminology (NICC): analysis of suspect samples
- Directorate General (DG) for Animals and Plants: cosmetic inspection
- DG Environment: for any matter related to REACH and CLP regulations
- Scientific Institute of Public Health (ISP WIV): identification and monitoring of chemical threats and disasters including illicit drugs (Eurotox, Reitox)
- FPS Economy: for all non-food dangerous products (contact point for RAPEX)
- Federal Agency for Medicines and Health Products: notification of adverse reactions or incidents to pharmaceutical and medical devices (e.g. Lysanxia® concentration)
- Emergency departments: exchange of scientific information for patient treatment, follow up of poisoning cases
- Medical emergency intervention units: information about approaches, treatment and protection
- Essencia: contact point with the chemical industry
- European Commission: participation in ad hoc working groups (e.g. CPNP database maintenance group, IT guidance and categorisation groups for implementation of Annex VIII (regulation of CLP).

Recommendations for priority actions

Improve coordination between all stakeholders involved in chemical events, by integrating the relevant sectors into the national Generic Preparedness Plan.

- Integrate the Poison Control Centre into emergency plans and trainings.
- Ensure that funding of the Poison Control Centre is sufficient to maintain its functions (through the provision of specialized personnel, IT infrastructure, etc.).

Indicators and scores

CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies - Score 5

Strengths/best practices

- The National Poison Centre has capacity for event detection through wide access to the public and medical professionals (sentinel surveillance).
- Highly qualified and experienced staff are prepared for detection of significant chemical incidents.
- The Poison Centre provides quick, centralized availability to antidotes.
- The Poison Centre is involved in the activities of the EAPCCT (European Association of Poison Centres and Clinical Toxicologists).
- IT tools are available for monitoring chemical incidents or unusual or increasing numbers of incidents based on call records.
- Use of the Poisons Centre Training Manual produced by the WHO International Programme on Chemical Safety (IPCS) INTOX Network as guideline for training new staff members.
- Compliance with 'Good distributing practice'.
- International collaboration with other poison control centres.
- Exchange of experiences in yearly meetings

Areas that need strengthening, and challenges

- The workload of staff at the Poison Control Centre should be reduced, to ensure the sustainability of a permanent response unit.
- Highly demanding jobs make recruitment difficult, and bilingual professionals are difficult to find. Consideration should be given to better working conditions and more attractive professional packages. Well-defined roles in disaster preparedness and management are required.
- As an independent organisation, the Poison Centre has no formal links with other stakeholders.
- Answering capacity in case of disasters should be expanded.
- Cooperation between stakeholders needs to be stimulated, and its legal basis improved and clarified.
- Coordination between different intervening organisms should be improved.
- An internal plan to extend functional capacity should be developed and tested.

CE.2 Enabling environment is in place for management of chemical events - Score 5

Strengths/best practices

- There is a well organized and functional emergency system.
- The Poison Centre has access to the composition of dangerous chemicals.
- Belgium is involved in international chemical and toxicological networks (e.g. the INTOX network).
- Belgium has access to international networks of experts, and good general international cooperation and exchange of experience and resources.

Areas that need strengthening, and challenges

- As Belgium has a very complex governmental system and many different regulations, it is possible for several authorities to be involved in the same chemical incidents (e.g. water contamination). Systems for managing these situations need to be clarified.
- The Poisons Centre has no well-defined role in disaster planning, and is currently not systematically involved in training and exercising. The Centre must be officially integrated into existing disaster plans and should participate in exercises.
- More attention should be paid to the need for stakeholders to learn to work together. Working procedures must be harmonized.
- All available information should be centralized.
- Financial resources should be adapted to these requirements.

Radiation emergencies

Introduction

State Parties should have surveillance and response capacity for radionuclear hazards/events/emergencies. This requires effective communication and collaboration among the sectors responsible for radionuclear management.

Target

State Parties should have surveillance and response capacity for radionuclear hazards/events/emergencies, with effective communication and collaboration among the sectors responsible for radionuclear management.

Belgium level of capabilities

Belgium has multisectoral capacity to face the urgent phase of radiological and nuclear emergencies. This is based on continuous radiation safety assessments and regular reporting on thyroid cancer and childhood leukaemia. These background surveillance capabilities are essential in order to maintain detection skills and follow-up public health concerns in case of a nuclear emergency situation. A process has also been started to include transition and recovery phases, and corresponding radiological and non-radiological health issues, in the nuclear emergency plan.

Belgium has signed and ratified applicable international agreements in the framework of early notification and assistance conventions. The country also has bilateral conventions on crisis management with neighbouring countries that strengthen its response capabilities. In addition the Belgian national emergency plan for radionuclear events allows good coordination of urgent protective measures in a risk-driven, gradual approach.

Detection capabilities and specialized measurement teams are operational, and foodstuff control and dose monitoring are in place for first responders. Mechanisms are in place for decontamination, medical and radiological triage, monitoring, victim identification and transport. Large nuclear installations have specific arrangements with dedicated hospitals, and 30 large care centres are equipped and trained for rapid diagnosis and treatment of victims of radiation incidents.

Nevertheless, the hospital preparedness plan is not yet implemented, and there is potential for improvement to extend the medical management of radiation victims, notably by strengthening the training of medical personnel.

General preparedness measures (alarms, preventive evacuation, sheltering and potassium iodide predistribution) are in place. A stockpile of iodine tablets is organised at national level. Nuclear exercises are performed on a regular basis, mainly in the framework of European exercises. Lessons are used for continous improvement of health responses and communication among participating countries.

As many partners/stakeholders are involved at federal, provincial and local level, there is a need to establish procedures in a more structural way. In particular, better arrangements with forensic and customs services could help prepare for mass casualties and terrorist acts likely to involve radiation.

Key organizations, and their responsibilities, include:

- The Federal Agency for Nuclear Control (FANC): primary authority for radiation surveillance
- Specialized measurement teams: FANC, the Belgian Nuclear Research Centre, the Institute for

Radioelements, and civil protection teams

- Federal Agency for the Safety of the Food Chain (FASFC): control of radioactive substances in foodstuff

Recommendations for priority actions

- Develop a robust hospital preparedness plan (decontamination, diagnostics/treatment, antidotes) to enhance the overall health response to radiation victims.
- Include medical interventions in emergency exercises.
- Develop procedures addressing evacuation and radionuclear terrorist threats. Once those procedures are well defined, organise an exercise to test them for a public health emergency scenario.
- Improve awareness training in all emergency institutions and organizations providing first responses in cases of radionuclear events.

Indicators and scores

RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies - Score 3

Strengths/best practices

- A comprehensive protective action strategy (covering the public, emergency workers, food safety, etc.) and interdisciplinary coordination mechanisms are in place to respond to radionuclear emergencies.
- Functional arrangements are in place with international organisations and neighbouring countries.
- Detection and measuring systems are operational and the overall response capacity is tested with regular exercises.

Areas that need strengthening, and challenges

- Raising awareness and training first responders is a main challenge, notably for the medical personnel involved in responses to radiological emergencies. Emergency response drills rarely include medical interventions.
- A joint system is needed that brings together all response organizations in order to ensure shared understanding of the situation, consistent responses, and clear communication to the public.
- Adequate funding, resources and knowledge must be ensured to maintain laboratory capabilities and long-term co-operation and coordination between relevant stakeholders.

RE.2 Enabling environment is in place for management of radiation emergencies - Score 4

Strengths/best practices

- General emergency and intervention plans are used during exercises to test and update the strategic nuclear plan in its urgent phase (identifying, notifying and activating mechanisms).
- Cooperation with border controls and with neighbouring countries is effective.
- Medical equipment and staff are available for post-exposure monitoring and follow-up procedures.

Areas that need strengthening, and challenges

- Determining the best training strategies for medical personnel in order to strengthen the overview of available medical capabilities.
- Adressing mass casualty evacuation preparedness through exercises, particularly in densely populated areas around nuclear plants.
- Extending preparedness to cover transition and recovery phases, using a global health perspective.

Appendix 1: JEE background

Mission place and dates

Brussels, Belgium, 19-23 June, 2017.

Mission team members:

- Andreas Gilsdorf (Team Lead), Head of Surveillance Unit, Robert Koch Institute, Germany
- Maria Cristina Profili (Team Lead), WHO Country Representative in Jordan, WHO/Jordan
- Daniel Beltran Acrudo, Animal Health Officer, FAO Regional Office for Europe, Budapest
- Timo Buetler, Scientific Associate, National IHR Focal Point for Switzerland, Swiss Federal Office of Public Health, Switzerland
- Ran Edelstein, Emergency Department, Ministry of Health, Israel
- Nadege Leboucq, OIE Sub-Regional Representative in Brussels, OIE
- Leah Martin, Public Health Agency of Sweden, Sweden
- Christophe Murith, Head of the Radiological Risks Section of the Swiss Federal Office of Public Health, Switzerland
- Mark Nunn, Technical writer & editor, independent
- Adrienne Rashford, Technical officer, Core Capacity Assessment, Monitoring & Evaluation, WHO Headquarters
- Daniel Sagebiel, State Office for Health & Social Affairs (LAGeSo), Head of Division I C, Infectious Disease Epidemiology & Environmental Health, Veterinary Medicine & Consumer Protection, Genetic Engineering, Germany
- Tomoya Saito, Chief senior researcher, Department of Health Crisis Management, National Institute of Public Health, Japan
- Cristiana Salvi, Communications Officer, Health Emergencies & Communicable Diseases, WHO Regional Office for Europe
- Gianfranco Spiteri, Expert, Infectious Disease Prevention and Control Unit, ECDC

Objective

To assess (host country's) capacities and capabilities relevant to the 19 technical areas of the JEE tool for providing baseline data to support (host country's) efforts to reform and improve their public health security.

The JEE process

The JEE process is a peer-to-peer review. The entire external evaluation, including discussions around the scores, the strengths, the areas that need strengthening, best practices, challenges and the priority actions should be collaborative, with JEE team members and host country experts seeking full agreement on all aspects of the final report findings and recommendations.

Should there be significant and irreconcilable disagreement between the external team members and the host country experts, or among the external, or among the host country experts, the JEE team lead will decide the outcome; this will be noted in the final report along with the justification for each party's position.

Preparation and implementation of the mission

- Belgium's self-assessment documents were delivered to the external experts approximately three weeks prior to the JEE mission
- Prior to the mission, a teleconference was held between the JEE organizers from Belgium, the WHO JEE coordinators (Geneva) and the WHO European Regional Office (Copenhagen)
- On the Sunday before the JEE meetings, the JEE external experts met to discuss the format and objectives for the mission, and to review the agenda.

Limitations and assumptions

- The evaluation was limited to one week, which limited the amount and depth of information that could be managed.
- It is assumed that the results of this evaluation will be publically available.
- The evaluation is not just an audit. Information provided by <host country> will not be independently verified but will be discussed and the evaluation rating mutually agreed to by the host country and the evaluation team. This is a peer-to-peer review.

Key host country participants and institutions

Name	Institution
Hind Afrikh	Belgian Federal Public Service Health, Food Chain Safety and Environment
Hannelore Andries	Belgian Federal Public Service Health, Food Chain Safety and Environment
Wouter Arrazola	Belgian Lung and Tuberculosis Association
Tom Auwers	Belgian Federal Public Service Health, Food Chain Safety and Environment
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Mickaël Cargnel	Scientific Institute of Public Health
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Gino Claes	Belgian Federal Public Service Health, Food Chain Safety and Environment
Monique Coppens	Belgian Federal Public Service Health, Food Chain Safety and Environment
Fabiana Dal Pozz	Antimicrobial Consumption and Resistance in Animals
Xavier De Cuyper	Belgian Federal Agency for Medicines and Health Products
Frédéric De Fays	Belgian Federal Public Service (FPS) Internal Affairs
Dirk De Groof	Belgian Federal Public Service Health, Food Chain Safety and Environment
Lieven De Raedt	Belgian Federal Public Service Health, Food Chain Safety and Environment
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Name	Institution
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Dirk Wildemeersch	Flemish Agency for Care and Health
Petra Willems	Federal Agency for Nuclear Control
Cuyper Xavier	Belgian Federal Agency for Medicines and Health Products

Supporting documentation provided by host country

- Overview of the Belgian Healthcare System (PowerPoint presentation)
- JEE Technical Area presentations (19 PowerPoint files)
- JEE Self-Assessment documents (19 files)
- *Management of Highly Infectious Diseases at CHU Saint-Pierre Hospital* (PowerPoint presentation)

National legislation, policy and financing

- Memorandum of Understanding of 11 December 2006 between the Federal Government and the authorities referred to in Articles 128, 130 and 135 of the Constitution concerning: Focal Point for the International Health Regulations.
- Protocol of 11 March 2008 between the Federal Government and the authorities referred to in Articles 128, 130 and 135 of the Constitution concerning the international notification of Belgium under the International Health Regulations (IHR).
- Supplementary Memorandum of Understanding of 24 February 2014 to the Memorandum of Understanding of 11 March 2008 between the Federal Government and the authorities referred to in Articles 128, 130 and 135 of the Constitution concerning: Focal Point for the International Health Regulations.
- Medical Intervention Plan (MIP) and Maxi MIP
- Decision No 1082/2013/EU of the OF THE European Parliament and of the Council of 22 October 2013 on serious cross-border threats to health

IHR coordination, communication and advocacy

- EWRS cross border health threat 1082/2013/EU and memoranda of understanding with regard to the implementation of IHR and EWRS
- Protocol agreement of 11 December 2006 between the Federal Government and the authorities referred to in Articles 128, 130 and 135 of the Constitution concerning: Focal Point for the International Health Regulations
- Protocol of 11 March 2008 between the Federal Government and the authorities referred to in Articles 128, 130 and 135 of the Constitution concerning the international notification of Belgium under the International Health Regulations (IHR)
- Supplementary Protocol agreement of 24 February 2014 to the Memorandum of Understanding of 11 March 2008 between the Federal Government and the authorities referred to in Articles 128, 130 and 135 of the Constitution concerning: Focal Point for the International Health Regulations.

Antimicrobial resistance

- Examples of recommendations of the Superior Health Council:
  - https://www.health.belgium.be/fr/avis-9277-mdro
  - https://www.health.belgium.be/fr/avis-8889-infections-urinaires
  - https://www.health.belgium.be/fr/avis-9345-clostridium-difficile
- Home site of national reference centres & sentinel laboratories: https://nrchm.wiv-isp.be
- List of notifiable diseases: https://epidemio.wiv-isp.be/ID/Surveillance/Pages/MATRA.aspx
- Institute of Public Health – HCAI & Antimicrobial Resistance: http://www.nsih.be

- www.bapcoc.be and Policy Paper 2014-2019: http://consultativebodies.health.belgium.be/en/Node/4986
- Protocole d'accord concernant le Plan national Multidrug Resistant Organisms (MDRO). Moniteur belge 21.11.2013
- Project 'i-4-1-Health': http://www.grensregio.eu/projecten/i-4-1-health
- Guidelines on prudent use of antibiotics for veterinarians: http://www.e-formularium.be
- List of notifiable animal diseases and zoonoses: http://www.favv-afsca.fgov.be/notificationobligatoire/_documents/2014-02-03_AR_annexe1-fr.pdf
- Veterinary and Agrochemical Research Centre: http://www.coda-cerva.be
- Centre on Antimicrobial Consumption and Resistance in Animals (AMCRA): http://www.amcra.be

Zoonotic diseases

- Report on zoonotic agents and food-borne outbreaks. Annual reports: http://www.FASFC.be/publications-en/annualreport.asp
- http://www.faunesauvage.be/faune-sauvage/
- National law 4/2/2000 (Belgium)
- Royal Decree 03/02/2014: Designating animal diseases subject to the application of Chapter III of the Law of 24 March 1987 on the health of animals and regulating the compulsory declaration http://www.etaamb.be/fr/arrete-royal-du-03-fevrier-2014_n2014024064.html
- Royal Decree 22/05/2005: laying down measures for the monitoring and protection of some zoonoses and zoonotic agents http://www.etaamb.be/fr/arrete-royal-du-22-mai-2005_n2005022397.html
- EU Directive 2003/99/EC on the monitoring of zoonoses and zoonotic agents: http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32003L0099&from=EN
- https://www.wiv-isp.be/matra/Fiches/TIAC.pdf
- http://www.FASFC.be/publications-en/Report-zoonotic-agents-Belgium.asp
- Agentschap Zorg en Gezondheid https://www.zorg-en-gezondheid.be/overzicht-infectieziekten-en-bijhorende-richtlijnen

Food safety

- EU DG Sanco: http://ec.europa.eu/dgs/health_food-safety/index_en.htm
- Belgian Food Safety Agency (BFSA): http://www.favv-afsca.fgov.be/
- MATRA: https://www.wiv-isp.be/matra/CF/connexion.aspx
- Public Health Services:
  - http://www.ccc-ggc.irisnet.be/nl
  - https://www.zorg-en-gezondheid.be/een-meldingsplichtige-infectieziekte-aangeven
  - Operational Directorate Communicable & Infectious Diseases https://www.wiv-isp.be/odobz-domti/en/index.html
- Federal Public Service Health, Food Chain Safety and Environment: https://www.health.belgium.be/fr

Biosafety and biosecurity

- 25 AVRIL 1997 - Accord de coopération entre l'Etat fédéral et les Régions relatif à la coordination administrative et scientifique en matière de biosécurité.
- 21 FEVRIER 2005 - Arrêté royal réglementant la dissémination volontaire dans l'environnement ainsi que la mise sur le marché d'organismes génétiquement modifiés ou
- de produits en contenant. Cet Arrêté implémente la directive européenne 2001/18/CE et les décisions qui y sont associées.
- 29 avril 1999 - Arrêté royal modifiant l'Arrêté royal du 4 août 1996 concernant la protection des travailleurs contre les risques liés à l'exposition à des agents biologiques au travail. Cette réglementation correspond à l'implémentation des directives européennes 90/679/CEE, 93/88/CEE, 95/30/EC, 97/59/EC et 97/65/EC.La directive 90/679/CEE a été abrogée en septembre 2000 par la directive 2000/54/CE.
- Arrêté du Gouvernement wallon du 4 juillet 2002 déterminant les conditions sectorielles relatives aux utilisations confinées d'organismes génétiquement modifiés ou pathogènes. (MB 21.09.2002, p. 41711)
- Modifié par l'Arrêté du Gouvernement wallon du 5 juin 2008 modifiant l'arrêté du Gouvernement wallon du 4 juillet 2002 déterminant les conditions sectorielles relatives aux utilisations confinées d'organismes génétiquement modifiés ou pathogènes. (MB 26.06.2008, p. 32957)
- Arrêté du Gouvernement wallon du 5 juin 2008 modifiant l'arrêté du Gouvernement wallon du 4 juillet 2002 relatif à la procédure et à diverses mesures d'exécution du décret du 11 mars 1999 relatif au permis d'environnement (MB 30.06.2008, p. 33316)
- Décret du 11 mars 1999 relatif au permis d'environnement
- Arrêté du Gouvernement de la Région de Bruxelles-Capitale du 8 novembre 2001 relatif à l'utilisation confinée d'organismes génétiquement modifiés et/ou pathogènes et au classement des installations concernées. (MB 26.10.2002, p. 7209)
- Arrêté du Gouvernement flamand du 6 février 2004 modifiant l'arrêté du Gouvernement flamand du 6 février 1991 fixant le règlement flamand relatif à l'autorisation écologique et modifiant l'arrêté du Gouvernement flamand du 1er juin 1995 fixant les dispositions générales et sectorielles en matière d'hygiène de l'environnement. (MB 01.04.2004, p. 18362)
- Arrêté du Gouvernement flamand du 24 mars 1998 modifiant l'arrêté du Gouvernement flamand du 1er juin 1995 fixant les dispositions générales et sectorielles en matière d'hygiène de l'environnement
- Arrêté du Gouvernement flamand du 1er juin 1995 fixant les dispositions générales et sectorielles en matière d'hygiène de l'environnement (chapitre 5.51. du VLAREM II - Biotechnologie)
- Arrêté du Gouvernement flamand du 6 février 1991 (VLAREM I - Besluit van de Vlaamse Regering van 6 februari 1991 houdende vaststelling van het Vlaams reglement betreffende de milieuvergunning)
- Directive 2000/54/EC of the European Parliament and of the Council of 18 September 2000 on the protection of workers from risks related to exposure to biological agents at work (seventh individual directive within the meaning of Article 16(1) of Directive 89/391/EEC)
- COUNCIL DIRECTIVE 2000/29/EC of 8 May 2000 on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community

- DIRECTIVE 2009/41/EC of the European Parliament and of the Council of 6 May 2009 on the contained use of genetically modified micro-organisms (abroge la directive 90/219/CEE ainsi que ses modifications successives: la directive 94/51/CE, la directive 98/81/CE et la décision 2001/204/CE).
- 10 JUILLET 1978. - Loi portant approbation de la Convention sur l'interdiction de la mise au point, de la fabrication et du stockage des armes bactériologiques (biologiques) ou à toxines et sur leur destruction, faite à Londres, Moscou et Washington le 10 avril 1972.
- 20 DECEMBRE 1996. - Loi portant assentiment à la Convention sur l'interdiction de la mise au point, de la fabrication, du stockage et de l'emploi des armes chimiques et sur leur destruction, et des trois Annexes, faites à Paris le 13 janvier 1993. http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=fr&la=F&cn=1996122063&table_name=loi
- 17 JUIN 1925. - PROTOCOLE concernant la prohibition d'emploi a la guerre de gaz asphyxiants, toxiques ou similaires et de moyens bacteriologiques, signes a Geneve, le 17 juin 1925
- Law of 10 August 1960 approving the European Agreement concerning the International Transport of Dangerous Goods by Road (ADR)
- For national transport: AGW of 3 DECEMBER 2015 amending the Royal Decree of 28 June 2009 on the transport of dangerous goods by road or rail, with the exception of explosives and Radioactive substances. (Transposition of Directive 2104/103 / EU)
- International transport: Ratification of the ADN Agreement on 17 June 2014.
- National transport: AGW of 3 DECEMBER 2015 amending the Royal Decree of 31 July 2009 on the transport of dangerous goods by inland waterway and the judgment of the Walloon Government of 2 February 2012 on the inland transport of dangerous goods by navigable road
- 5 AOUT 1991. - Loi relative à l'importation, à l'exportation [au transit et à la lutte contre le trafic] d'armes, de munitions et de matériel devant servir spécialement [à un usage militaire ou de maintien de l'ordre] et de la technologie y afférente.
- 8 MARS 1993. - Arrêté royal réglementant l'importation, l'exportation et le transit d'armes, de munitions et de matériel devant servir spécialement [à un usage militaire ou de maintien de l'ordre] et de la technologie y afférente.
- 8 JUIN 2006. - Loi réglant des activités économiques et individuelles avec des armes. (aussi appelée "Loi sur les armes")
- Région Flamande - 15 JUIN 2012 – Décret concernant l'importation, l'exportation, le transit et le transfert de produits liés à la défense, d'autre matériel à usage militaire, de matériel de maintien de l'ordre, d'armes à feu civiles, de pièces et de munitions (le Décret sur le commerce des armes)
- Région Flamande - 20 JUILLET 2012 - Arrêté du Gouvernement flamand portant exécution du Décret sur le commerce des armes du 15 juin 2012.
- Région Wallonne - 21 JUIN 2012 - Décret relatif à l'importation, à l'exportation, au transit et au transfert d'armes civiles et de produits liés à la défense
- RÈGLEMENT (CE) No 428/2009 du Conseil du 5 mai 2009 instituant un régime communautaire de contrôle des exportations, des transferts, du courtage et du transit de biens à double usage.

Immunization

- Decree of 21 November 2003 regarding preventive healthcare, Article 43, § 1 to 3
- Decree of the Flemish Government 18 March 2011 concerning the implementation of Article 43 §1 of the decree regarding preventive healthcare and to modify the Decree of the Flemish Government of 3 July 2009 determining the operational goals of the school health services
- Ministerial Decree 29 January 2015 to determine the vaccination scheme for Flanders, modified by MD of 26 January 2017
- Decree to establish the agency Kind en Gezin (30 April 2004), article 7 §1, 3°: https://codex.vlaanderen.be/Portals/Codex/documenten/1013058.html#H1025683
- Public Health goal on lifetime immunization with an action plan until 2020, prepared at a public health conference on immunization (April 2012), approved by the Flemish Parliament (July 2013): https://www.zorg-en-gezondheid.be/gezondheidsdoelstelling-vaccinaties
- 6th State Reform (law of January 6th 2014, entry into force January 2015): Office of Birth and Childhood (ONE), a public institution that develops birth and childhood policies for the French speaking part of Belgium, becomes responsible of the vaccination programme for children and pregnant women
- School health promotion: two decrees (2001 and 2002) defining their missions, including vaccination
- Action Plan for the elimination of M&R (NL/FR): http://overlegorganen.gezondheid.belgie.be/sites/default/files/documents/actieplan_2016-2020_nl.pdf or http://organesdeconcertation.sante.belgique.be/sites/default/files/documents/plan_daction_2016-2020_fr.pdf

National laboratory system

- 17 national reference laboratories: https://nrchm.wiv-isp.be/default.aspx
- 7 national reference laboratories for HIV: https://epidemio.wiv-isp.be/ID/Surveillance/Pages/ARL/Home/Index.aspx
- Reimbursement conditions for examinations performed by a laboratory: http://www.riziv.fgov.be/fr/professionnels/etablissements-services/laboratoires/Pages/default.aspx#.WTpZI-uGPRY
- Reference lab for tropical diseases: http://www.itg.be/E/laboratories http://www.itg.be/files/docs/KB19981210%20erkenning%20ITG.pdf
- Access to labs: Most laboratories have a website (e.g. http://www.cebiodi.be/)
- Number of tests reimbursed under request at INAMI (e.g. 152662 IgG tests for Borrelia in 2013), statistics on health expenses: http://www.riziv.fgov.be/fr/statistiques/soinsdesante/2015/Pages/default.aspx#.WTqWCuuGPRZ
- National guidelines: http://www.riziv.fgov.be/SiteCollectionDocuments/biologie-clinique-campagne-sensibilisation-brochure.pdf
  http://www.domusmedica.be/documentatie/downloads/praktijkdocumenten/richtlijnen/737-aanvraag-van-laboratoriumtests-door-huisartsen-deel-1-volledige-tekst/file.html
- Mandatory licensing of all clinical pathology (clinical/medical biology) laboratories based on Royal Decree of 3/12/1999, with an addition in 2012 to cover POCT:
  https://www.wiv-isp.be/en/about-wiv-isp/wiv-isp-organisation/quality-medical-laboratories
  https://www.wiv-isp.be/QML/activities/external_quality/calendar/general_calendar/_fr/Calendrier_2017.htm

Real-time surveillance

- List of mandatory notifiable infections: https://www.wiv-isp.be/matra/CF/liste_matra.aspx, http://www.observatbru.be/documents/graphics/maladies-transmissibles/arrete-du-college-reuni-de-la-commission-communautaire-commune-relatif-a-la-prophylaxie-des-maladies.pdf, https://www.zorg-en-gezondheid.be/een-meldingsplichtige-infectieziekte-aangeven
- Sentinel surveillance systems in place: https://epidemio.wiv-isp.be/ID/Surveillance/Pages/default.aspx
- Epistat: https://www.wiv-isp.be/Epidemio/epistat/
- Feedback to health professionals: https://epidemio.wiv-isp.be/ID/Pages/flashs.aspx

Reporting

- The OIE Terrestrial Animal Health Code (the Terrestrial Code)
- The Aquatic Animal Health Code of the World Organization for Animal Health (OIE).
- EWRS cross border health threat 1082/2013/EU and memoranda of understanding with regard to the implementation of IHR and EWRS
- Law of 4 February 2000 on the creation of the Federal Agency for the Safety of the Food Chain
- Directive 2003/99/EC of the European Parliament and of the Council of 17 November 2003 on the monitoring of zoonoses and zoonotic agents, amending Council Decision 90/424/EEC and repealing Council Directive 92/117/EEC
- Regulation (EC) No 2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of salmonella and other specified food-borne zoonotic agents
- 7 OCTOBER 2009: Royal Decree amending the Royal Decree of 22 May 2005 concerning measures for the surveillance and protection against some zoonoses and zoonotic agents
- WHO guideline for Tuberculosis and air transport
- ECDC Risk assessment guidelines for infectious diseases transmitted on aircraft (RAGIDA)
- ECDC RAGIDA PART 2: Operational guidelines for assisting in the evaluation of risk for transmission by disease
- FAO Challenges of animal health information systems and surveillance for animal diseases and zoonoses
- WHO Foodborne disease outbreaks: Guidelines for investigation and control
- Belgium Health of Animals Act (24 MARCH 1987)
- Royal Decree of 22 May 2005 concerning measures for surveillance and protection against some zoonoses and zoonotic agents
- Protocol agreement of 11 December 2006 between the Federal Government and the authorities referred to in Articles 128, 130 and 135 of the Constitution concerning Focal Point for the International Health Regulations
- Protocol agreement of 11 March 2008 between the Federal Government and the authorities referred to in Articles 128, 130 and 135 of the Constitution concerning the international notification of Belgium under the International Health Regulations (IHR)
- Supplementary Protocol agreement of 24 February 2014 to the Protocol agreement of 11 March 2008 between the Federal Government and the authorities referred to in Articles 128, 130 and 135 of the Constitution concerning Focal Point for the International Health Regulations.

Workforce development

- EWRS cross border health threat 1082/2013/EU and memoranda of understanding with regard to the implementation of IHR and EWRS
- Protocol agreement of 11 December 2006 between the Federal Government and the authorities referred to in Articles 128, 130 and 135 of the Constitution concerning: Focal Point for the International Health Regulations.
- Protocol agreement of 11 March 2008 between the Federal Government and the authorities referred to in Articles 128, 130 and 135 of the Constitution concerning the international notification of Belgium under the International Health Regulations (IHR).
- Supplementary Protocol agreement of 24 February 2014 to the Memorandum of Understanding of 11 March 2008 between the Federal Government and the authorities referred to in Articles 128, 130 and 135 of the Constitution concerning: Focal Point for the International Health Regulations.
- https://edu.itg.be/Course/Detail
- https://uclouvain.be/en/study-programme/public-health.html
- https://www.ulb.ac.be/facs/esp/esp-en.html

Preparedness

- National Ebola plan (2013-2015)
- Pandemic flu plan (2009)
- National nuclear plan
- CBRN national plan (pending finalisation)
- Guidelines from the federated entities
- Seveso legislation
- Heatwave plan (2005)
- Advice of the superior health council concerning strategic stocks (pending finalisation)
- Medisch Interventie Plan (MIP)
- Maxi MIP plan.

Emergency response operations

- 17/02/2017 - ministeriële omzendbrief van 17 februari 2017 betreffende het medisch interventieplan
- 27/06/2016 - ministeriële omzendbrief van 27 juni 2016 betreffende het psychosociaal interventieplan
- 14/02/2009 - ministeriële omzendbrief van 14 december 2009 betreffende het medisch interventieplan
- 30/03/2009 - ministeriële omzendbrief npu-4 van 30 maart 2009 betreffende de disciplines
- 30/03/2009 - ministeriële omzendbrief npu-3 van 30 maart 2009 betreffende de goedkeuring van de provinciale nood- en interventieplannen
- 30/03/2009 - ministeriële omzendbrief npu-2 van 30 maart 2009 betreffende het algemeen nood- en interventieplan van de provinciegouverneur

- 26/10/2006 - ministeriële omzendbrief npu-1 van 26 oktober 2006 betreffende de nood- en interventieplannen
- 16/02/2006 - koninklijk besluit van 16 februari 2006 betreffende de nood- en interventieplannen
- 04/08/2005 - ministeriële omzendbrief van 4 augustus 2005 aangaande het bijzonder rampenplan voor hulpverlening betreffende het ingeperkt gebruik van genetisch gemodificeerde micro-organismen
- 09/07/2004 - programmawet van 9 juli 2004. Oprichting van "het agentschap voor de oproepen van de hulpdiensten". Uittreksel
- 17/10/2003 - koninklijk besluit van 17 oktober 2003 tot vaststelling van het nucleair en radiologisch noodplan voor het belgisch grondgebied
- 31/01/2003 - koninklijk besluit van 31 januari 2003 tot vaststelling van het noodplan voor de crisisgebeurtenissen en -situaties die een coördinatie of een beheer op nationaal niveau vereisen
- 02/04/1965 - koninklijk besluit van 2 april 1965 houdende vaststelling van de modaliteiten tot inrichting van de dringende geneeskundige hulpverlening en houdende aanwijzing van de gemeenten als centra van het eenvormig oproepstelsel
- 08/07/1964 - wet van 8 juli 1964 betreffende de dringende geneeskundige hulpverlening.

Linking public health and security authorities

- Royal Decree establishing the Governmental Centre for Coordination and Crisis (18/04/1988) https://centredecrise.be/sites/default/files/ar_cgccr_18_avril_1988_fr-nl.pdf
- Royal Decree establishing the contingency plan for events and crisis situations requiring coordination or management at national level (17/10/2003) https://centredecrise.be/sites/default/files/ar-kb_phase_federale-federale_fase_31012003.pdf
- Royal Decrees of 16 February 2006 on emergency and intervention plans https://centredecrise.be/sites/default/files/ar-kb_16_02_2006_plans_durgence-noodplannen.pdf
- Monodiciplinary and multi-disciplinary emergency plans: https://centredecrise.be/fr/content/les-differents-plans-durgence
- Medical Intervention Plan (MIP) http://nvkvv.be/file?fle=910217&ssn=c3827b5061e44e6a8dc34ad6dd6087ec0975a9b6

Medical countermeasures and personnel deployment

- Article 5 of the Decision 1082/2013/EU of the European Parliament and of the Council of 22 October 2013 on serious cross-border threats to health (https://ec.europa.eu/health/sites/health/files/preparedness_response/docs/decision_serious_crossborder_threats_22102013_en.pdf)
- JOINT PROCUREMENT AGREEMENT TO PROCURE MEDICAL COUNTERMEASURES (https://ec.europa.eu/health/sites/health/files/preparedness_response/docs/jpa_agreement_medicalcountermeasures_en.pdf)
- Royal Decree establishing a coordinating council for emergency aid abroad in case of disaster or calamity and a permanent support service B-F.A.S.T. (Belgian First Aid and Support Team) (https://centredecrise.be/sites/default/files/ar_bfast_2407200.pdf)
- Opinion no. 48 - Belgian "influenza pandemic" operating plan (https://www.health.belgium.be/sites/default/files/uploads/fields/fpshealth_theme_file/opinion_48_web.pdf)

- Medical Intervention Plan (https://www.health.belgium.be/sites/default/files/uploads/fields/fpshealth_theme_file/pim_janvier_2017.pdf)

Risk communication

- Communication SOPs within NCC
- Risk Communication section in the Ebola Response Plan, the Avian Influenza Response Plan, and the H1N1 Response Plan
- FSP guidelines for media, social media and web communication.

Points of entry

- Saniport annual report 2016 (French)
- SAM Maritime Single Window in Belgium: https://www.unece.org/fileadmin/DAM/cefact/cf_forums/Geneva_2016/TL_Panel_2_-_Belgium_-_Nico_de_Cauwer.pdf
- E-lpm: https://apps.health.belgium.be/ordsm/02/f?p=LPM:10:10630287558724
- Review of Ebola measures at PoE: Dr. D. Wagner (2007)
- http://www.belspo.be/belspo/SSD/science/Reports/FinalReport_MODIRISK%20ML.pdf
- ExoSurvey report: http://www.nehap.be/sites/default/files/public/content/report_exosurv_final_20-12-12_19094720.compressed.pdf

Chemical events

- www.poisoncentre.be
- Royal Decree 25 Nov 1983 (SB 06 Jan 1984)
- Royal Decree 9 Oct 2002 (SB 07 Nov 2002)
- Royal Decree 2 Feb 2007 (SB 13 Feb 2007)
- Royal Decree 21 Apr 2016 (SB 09 May 2016)
- EC 1272/2008 (published 31 Dec 2008)
- Dangerous mixtures: Royal Decree 11 Jan 1993 (SB 17 May 1993)
- Pesticides: Royal Decree 28 Feb 1994 (SB 11 May 1994)
- Biocides: Royal Decree 5 Sep 2001 (SB 12 Oct 2001)
- Cosmetics: CE 1223/2009 (published 22 Dec 2009) and Royal Decree 17 July 2012 (SB 03 Sep 2012)

Radiation emergencies

- Royal Decree of 31 January 2003 (IEP) defining the emergency plan for events and crisis situations requiring coordination or management at the national level
- Royal Decree of 17 October 2003, «Nuclear and Radiological Emergency Plan for the Belgian Territory»
- Royal Decree of 16 February 2006 (IEP) dealing with general emergency and intervention plans
- https://ec.europa.eu/energy/en/overview-eu-radiation-protection-legislation
- http://academy.sckcen.be/en/Customised_trainings/Calendar/Preparedness-and-response-for-nuclear-and-radiological-emergencies-20160425-20160429-3864cc01-b215-e511-80c6-ecf4bbc6e826
- www.telerad.be

WHO/WHE/CPI/REP/2017.37