



CONSULTATIVE SIGNAL ASSESSMENT
PRIMARY RISK ASSESSMENT
EVIDENCE BASED RISK ASSESSMENT
PUBLIC HEALTH EVENT ASSESSMENT

PUBLIC HEALTH RISKS AFTER SEVERE FLOODING IN BELGIUM

Date of the signal	Date of the PRA	Signal provider	Experts consultation	Method
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Signal

Unprecedented amounts of rainfall on 14th and 15th of July have caused large areas in east and southern Belgium to flood. The province of Liège in particular has been severely affected. Moreover, new rain falls on the 24th of July caused floods in Namur and Dinant. In addition to the tragic loss of lives by direct impact of the flooding (currently 37 deaths counted, 18 people still missing) there are various additional health risks identified in the affected areas:

- increased risk of **food- and waterborne diseases** (especially Norovirus, *E. Coli*, *Salmonella* spp., *Cryptosporidium* spp.) due to
 - o damages to infrastructure and interruption of clean water supply (including private water wells) and sewage systems
 - o disruption of electrical, refrigeration and cooking systems during warm summer months
 - o flooding of kitchen gardens and fields with soiled water
- increased risk of **Legionella** due to
 - o increased exposure to aerosols during cleaning up
 - o damages to water supply infrastructure
- Increased risk of **Leptospirosis** due to
 - o increased exposure to rodents
 - o possibility of skin abrasions to come into contact with contaminated water
- Increased risk of **soft skin lesions and accidents**:
 - o due to debris, unstable constructions and accidents
 - o important to verify **tetanus immunization status**
 - o increased risk of intoxications (exposure to hydrocarburants, old chemicals from basement or kitchen, products used for cleaning...)
- Increased risk of **SARS-CoV-2 transmission** due to
 - o missed appointments for vaccination, damage to vaccination infrastructure and unavailability of local volunteers
 - o logistical and mental barriers to access testing and perform contact tracing
 - o increased number of close contacts (volunteers, crowding in shelters, displaced populations...)
- Impact on **mental health** due to:
 - o loss of loved ones, financial hardship, uninhabitable houses, emotional blow and logistical issues in context of an already vulnerable population after 1,5y of COVID-19 crisis
 - o potentially reduced offer (due to damages to infrastructure etc.) in a context of increased demand
- Deterioration of **chronic diseases**:
 - o logistical barriers: difficulty to access prescriptions / chronic medication / glucometers and similar devices, difficulties with communication with or transport to healthcare provider
 - o local first line healthcare providers impacted themselves by floods. Due to the magnitude of the affected area, needs cannot be easily covered by adjacent pharmacies, GPs, nurses...
 - o reduced motivation to maintain healthy lifestyle, special diets...

Description	
Cause known?	<ul style="list-style-type: none"> - The flooding was caused by an unusually high amount of rainfall (up to 100-150 L/m² and more) in a very short time frame. This type of phenomenon is well known in meteorology, and it is due to an isolated pocket of cold air - meteorologists call it a "cold drop" - which has a natural tendency to become blocked over a large area. This blocking favours very large accumulations of rainfall over a small area. Around the cold depression, the warm air (with a high water vapour content) condenses and causes significant waterfalls. - The underlying reason is thought to be global warming and climate change which lead to more extreme weather conditions in Belgium and globally.
Unexpected/unusual	<ul style="list-style-type: none"> - Floods occur regularly in certain areas of Belgium but the scale and severity of this flood is highly unusual. - In this case, due to its high intensity, the rain could not infiltrate, directly feeding the watercourses by runoff. To make it worse, this rain followed a particularly rainy day on 13 July, with soils already moistened by the rain of the last few days.
Severity	<ul style="list-style-type: none"> - Because of the scale and intensity of the event, the impact is very high. - This is further aggravated by the context of the COVID-19 pandemic, which not only adds an extra health risk for the affected population, but has also already exhausted financial and emotional reserves and resilience of many affected persons and public services prior to the flooding. Lastly, many of the affected areas already had relatively low socio-economic status in comparison with the average of Belgium.
Dissemination (Low/Medium/High)	<ul style="list-style-type: none"> - Medium
Risk of (inter)national spread	<ul style="list-style-type: none"> - Yes. Areas in the Netherlands, Germany and Luxemburg have also been strongly affected by flooding. Increases in SARS-CoV-2 transmission can rapidly spread to the entire Belgian population and abroad, especially in this summertime holiday period.
Preparedness and response	
Preparedness	<ul style="list-style-type: none"> - The national crisis centre coordinates the response during this type of disasters. - The Superior Health Council prepared an advice on health risks after flooding that was last updated in 2000. - SOPs on evacuation, management of displaced persons and identification of missing persons (disaster victim identification) are available at the federal level. - Routine vaccination coverage for tetanus is high (>90%) in childhood, there are no recent numbers for vaccination coverage in adults but it is thought to decrease with age (coverage 62% in 2008, based on the Health Information Survey). - SARS-CoV-2 transmission was at a relatively low level in Belgium during the last weeks (cumulative 14-day incidence 154/100,000) and the vaccination campaign had already significantly progressed. However, only 41% of the population of city of Liège is currently fully vaccinated, leaving a high number of susceptible individuals.

Specific control measures

(surveillance, control, communication)

- An inventory of needs is currently ongoing. A high number of volunteers have offered help and have been deployed in the affected area. Central registration is being performed through a dedicated website of the Red Cross ([link](#)). Both the Red Cross and Doctors without borders are involved.
- Sewage and water supply systems are being repaired as quickly as possible. Information regarding water supply is being communicated to the population through the local authorities.
- Cleaning of debris is ongoing. Extra garbage collection is being organized.
- Information regarding rescheduling of vaccinations is available through a dedicated website ([link](#)).
- The Flemish authorities summarized information regarding health risks after floods on a website ([link](#)).

Public health impact

Public health impact in Belgium

(Low/Medium/high)

Recommendations

(surveillance, control, communication)

High

- In addition to the actions already taken, it is important to continue to provide information and clear communication through many different channels (tv, radio, local authorities, social media) and in different forms (including visual aids).
- Messages should be empathic, clear, consistent and easy to understand. Particular importance should be paid to people with low health literacy.
- Although local authorities will play a key role, a central coordination of the response is important.
- Messages to the **general public** (adapted from ECDC – Superior Health Council)
 - o Meticulous and regular **hand hygiene** with soap and clean water or use alcohol-based hand rub solutions particularly after using the toilet and before eating, drinking or smoking;
 - o **Protect yourself when cleaning** (gummi boots, gloves) when cleaning
 - o **Clean surfaces** with a chlorine solution (15mL bleach /L water), wash clothes preferably at 60°C and clean dishes with hot water (min 70°C) and detergent.
 - o **Keep as much as possible a safe distance** from people not belonging to your own close circle. If this is not possible, wear a face mask, especially indoors.
 - o **Ventilate indoor spaces** as it is important to make wet surfaces dry as quickly as possible and good ventilation limits the risk of transmission of SARS-CoV-2 and other airborne diseases.
 - o Drink only **clean, safe water** and eat only food that has not been in contact with floodwater or surfaces that have been in touch with floodwater; Listen to and follow advice from authorities if and when the tap water is safe to drink
 - o Do not use floodwater or water that has been in touch with floodwater
 - for personal hygiene (e.g. washing or brushing teeth);
 - to wash dishes, vegetables or fruits, cook food or prepare baby food;
 - o **Throw away any food** and water that may have come into contact with floodwater or might have gone bad:

- do not eat fruits and plants from gardens that have been flooded;
 - do not eat refrigerated or melted food that has been exposed to warm temperatures for more than two hours, e.g. due to electricity disruption;
 - Do not swim in near-by lakes and rivers and use flood-affected areas for playing or picnics.
 - **Reschedule any missed COVID-19 vaccination appointments** or other missed medical appointments as soon as possible.
 - **Seek medical care**
 - in case of injuries (especially when unsure about tetanus vaccination status)
 - possible symptoms of COVID-19 (stress importance of early detection and testing)
 - gastrointestinal symptoms (diarrhea, vomiting) that last for more than 2 days, are combined with fever or with bloody stools.
- Raise awareness with **healthcare providers** (GPs, pharmacies, nurses and hospitals) regarding abovementioned increased risks:
 - encourage testing for SARS-CoV-2 in case of doubt
 - raise awareness to the possibility of food- and waterborne diseases so they can be treated adequately. Remind healthcare providers which diseases are notifiable.
 - raise awareness regarding lesser-known diseases like Leptospirosis and Legionella
 - encourage to verify vaccination status (tetanus, COVID-19)
 - encourage to reach out to vulnerable patients with chronic conditions
- **Authorities** should continue coordination efforts and should
 - monitor access to first-line healthcare on local level (e.g. make indoor spaces and material available in case of damage to GP practices, pharmacies, stocks...)
 - ensure that there is a tracing system in place to quickly identify potentially Covid-19 infected persons amongst all those concerned/aid workers/volunteers
 - consider to decrease barriers to COVID-19 vaccination and testing by sending mobile units to the affected areas
 - ensure access to clean water as soon as possible, bearing in mind water management plans to minimize the risk of Legionella and the risk of individual water wells not connected to the central system
 - monitor and have plans ready for adequate pest control (e.g. rats) and safe disposal of waste (already problems flagged in several municipalities in Hainaut)
 - provide sufficient funding and low-barrier access to mental health services and monitor mental health needs and impacts.
- The task description and role division should be clear between the different competent authorities and institutions (e.g. FAVV, federal crisis centre, RMG...)

Actions

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