

RAG

Risk Assessment Group

# PRIMARY RISK ASSESSMENT

Polio incident GSK

Date of the signal	Date of the RA	Signal provider	Experts consultation	Method
18/09/2017	19/09/2017	GSK	<p><b>Permanent experts:</b> Dr Patrick Demol (HGR), Dr Valeska Laisnez (AZG), Dr Romain Mahieu (COCOM-GGC), Dr Sophie Quoilin (WIV-ISP), Dr Daniel Reynders (FOD), Dr Carole Schirvel (AViQ), Mme Mireille Tomas (DG).</p> <p><b>Specific experts :</b> Dr Steven Callens (UGent), Jeroen De Vlam (GSK), Dr Elise Mendes da Costa (WIV), Dr Martine Sabbe (WIV), Do Thi Chuong Dai (SBB), Dr Pierre Van Damme (UA), Dr Marc Van Ranst (NRC polio, KUL).</p>	Email consultation
<b>Date of update</b>	<b>Closing date</b>			

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**PRIMARY RISK ASSESSMENT  
 OF POTENTIAL PUBLIC  
 HEALTH EVENT**

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<b>Signal</b>	<p>On the 18<sup>th</sup> September 2017 (at 18h15), the service EHS of the pharmaceutical company GSK (Jeroen De Vlam) contacted by telephone the service Epidemiology of Infectious Diseases (WIV-ISP) concerning preventive measures to be applied to an employee accidentally exposed during work to wild poliovirus on the Wavre site.</p> <p>Incident: on the 18<sup>th</sup> September 2017 during the afternoon, an 32 years-old employee of a new production unit at GSK was working on a recipient under atmospheric pressure when a pipe accidentally tore off. During this incident, the employee was exposed to between 100 and 200 ml of liquid containing 9.1 to 9.6 log/ml living wild poliovirus (WPV type 3), through contact with the skin of the forearm. The risk of inhalation is estimated to be very small as the liquid was not pressurized. The employee was wearing gloves, undergarment and an overall as required, but the leak pierced the clothes. He did not wear a protective mask, only a beard cover. He is immunized against polio (last dose of IPV in 2013, primary vaccination most likely OPV). The immunity was checked by serology in 07/2017 and protective for type 1 and 3 (type 2 was not tested). He is thus not considered at risk of developing the disease and at low risk of infection (if OPV primed).</p> <p>The employee is father of a 2-years old child, who has been correctly vaccinated with IPV. His partner however is pregnant (currently 7 months - delivery expected in November). She is vaccinated with 3 doses (most certainly) OPV in 1985. No other employee was exposed to wild poliovirus. Three persons (not wearing masks) were involved in the care of the employee after the incident, but without physical contact.</p> <p><b>Update 29/09/17</b></p> <p>After discussion with the patient (and in agreement with the hospital), he preferred to remain at St Pierre Hospital in Ottignies, until the 5<sup>th</sup> of October at least (incubation period of 2 weeks + 3 extra days for stool sampling, if all results remain negative). Stool samples have been taken on 19/09 (Day 1), 22/09, 25/09, 26/09, 28/09 and 29/09. The first two results were negative, testing of the other samples is ongoing. So far three nasopharyngeal swabs were taken (19/09, 21/09 and 26/09). The first two swabs had a negative result, testing of the third one is ongoing. The patient is in good general health.</p> <p>There is no information available on the three contact persons.</p> <p>No new actions recommended at this stage.</p> <p><b>Update 06/10/17</b></p> <p>All PCR results for Enterovirus are negative for the follow-up period of 17 days (14 + 3 days, dd 05/10/2017).</p> <p>Results from cultures are still pending (3 weeks delay), but based on the PCR results, the patient is discharged from the hospital.</p>
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Description		Score	Description / arguments
1	Cause known?	Yes	Poliovirus is well known. Healthy carriers can shed the virus in the stools and in the saliva, even after complete vaccination.
2	Unexpected/unusual	No/yes	Accidental exposure to wild poliovirus in a laboratory is not unexpected, but is unusual.
3	Severity	Low	The exposed employee is immunized against polio (cf. immunity checked by serology) and is thus not considered at risk of developing the disease. IPV vaccines protect against disease but not against infection, whereas in individuals primed with OPV, protection against infection is to be considered.
4	Dissemination (Low/Medium/High)	Very low	Risk of virus shedding by the exposed employee exists, but he is under strict isolation to avoid contamination of the environment with wild poliovirus. Infection following exposure is more likely in IPV than in OPV vaccinated persons and shedding by infected IPV vaccinated persons is on average of higher load and longer duration (average 20 vs 9 days) than for OPV vaccinated persons.
5	Risk of (inter)national spread	Very Low	Very low in Belgian population thanks to high vaccine coverage (98,2% polio 3, 93% polio 4, national average in 2016).
<b>Preparedness and response</b>			
6	Preparedness		An emergency scenario of polio spillage is present at GSK but does not contain guidelines for management and care of an exposed staff member. A National Plan of Action to Sustain Polio-Free status exists in Belgium (most recent update June 2016). However, the plan does not contain a section on risk and response to accidental exposure to wild poliovirus.
7	Specific control measures (surveillance, control, communication)		The emergency scenario of polio spillage was applied and measures for decontamination of the employee and the room were carried out immediately: - removal by the employee of his clothing; new clothing was handed to him without physical contact. After passage through the airlock and removal of the clothing for treatment, the forearm was observed to be dry. The employee was subsequently soaped and rinsed in the area in a sink connected to the decontamination station. He then went to the changing room where he took another shower;

			<ul style="list-style-type: none"> <li>- the contaminated clothes were put into a bag and were autoclaved;</li> <li>- the room involved was decontaminated according to the treatment protocol;</li> <li>- the three contact persons will be followed-up by the medical service of GSK (no specific measures taken).</li> </ul> <p>Further actions:</p> <ul style="list-style-type: none"> <li>- hospitalization of the employee on the evening of the 18<sup>th</sup> September at the hospital Saint-Pierre of Ottignies;</li> <li>- strict isolation, including respiratory isolation and contained stool management (collection of stool in a recipient for single use followed by incineration). Only personnel who are correctly immunized are taking care of the employee, using the usual equipment for prevention of ID transmission (mask, gown, gloves).</li> </ul> <p>Start of stool sampling and first nasopharyngeal swab on 19<sup>th</sup> Sept 2017.</p> <p>No environmental surveillance is currently carried out in Belgium.</p>
<b>Public health impact</b>			
A	Public health impact in Belgium (Low/Medium/high)	Very low	Risk in Belgium considered very low because of high vaccination coverage & immediate isolation measures.
B	Recommendations (surveillance, control, communication)		<p>Further monitoring and isolation of the employee, at home (Haaren), if contained stool management and sampling is possible. His wife and child will stay with family elsewhere.</p> <p>Isolation until three consecutive stool samples (taken with an interval of 24h) are negative (PCR or virus isolation) after the initial mean incubation period of two weeks. In the unlikely event a PCR result is positive, it is recommended to organize follow up for a longer period (one week after the last positive sample).</p> <p>Daily stool sampling, send to the NRC for poliovirus, under BSL-2 containment. Switch to BSL-3 containment if positive sample. Setting up logistics for stool containment and sampling will be organised by the health inspectorate of Brussels (stringent hand hygiene, pierced chair and use of Carebags; disposal of the Carebags in dedicated (medical) yellow container until incineration; treatment of urine with Anios Oxy'Floor; transport of stool samples in triple package).</p> <p>Second and third nasopharyngeal swab at day 4 and day 8.</p>

			The contingency plan available at GSK should be completed with guidelines for management and care of exposed staff members.
	Actions		<p>Follow-up by the health inspectorate of Brussels.</p> <p>Polio Committee, in collaboration with GSK: prepare a procedure for response to accidental exposure to wild poliovirus.</p> <p>Polio Committee: in light of the two last polio events, discuss (again) the need of environmental surveillance.</p> <p>RAG: reassess the risk after results stool samples.</p> <p>Information of WHO by National Focal Point. Official notification to WHO and the EU commission and member states via EWRS only if positive result.</p>

## REFERENCES

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