

## PRIMARY RISK ASSESSMENT

Zika virus disease epidemic: potential association with microcephaly and other neuropathological syndrome

Date of the signal	Date of the PRA	Signal provider	Experts consultation	Method
Consultative Signal Assessment on 03/12/2015	21/01/2016	EWRS	<b>Permanent experts:</b> Dr S. Quoilin, Dr D. Reynders, Dr. V. Laisnez, Dr C. Schirvel, M. J-M Trémérie, Dr P. Demol, Dr L. Nick, Dr. C. Theugels, Mme M. Thomas, Pascal Guilmin.  <b>Specific experts :</b> Groups experts travel clinics: Dr Ula Maniewski- Marjan Van Esbroeck, NRC Arbovirus, ITG. Isra Deblauwe, entomologist, ITG. Ludo Muylle/Giovanni Vandewalle, FAGG.	Email consultation
Date of update	Closing date			
20/03/2016				
01/06/2016 15/09/2016 10/11/2016				

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## RAPID RISK ASSESSMENT OF POTENTIAL PUBLIC HEALTH EVENT

<b>Signal</b>	<p>Since 2014, indigenous circulation of Zika virus (ZIKV) has been detected in the Americas. In February of that year, the public health authorities of Chile confirmed the first case of autochthonous transmission of ZIKV infection on Easter Island (Chile) and reported cases until June 2014. In May 2015, the first autochthonous cases of Zika virus in Brazil were confirmed. Since then, ZIKV infections have spread all over the Americas.</p> <p>As of 19 May 2016, autochthonous cases of Zika virus infection have been reported from 51 countries or territories worldwide in the past nine months.</p> <p>In October 2015, the Brazil IHR National Focal Point (NFP) notified the detection of an unusual increase in microcephaly cases in public and private healthcare facilities in the Northeast Brazil.</p> <p>On 1 February 2016, following the first meeting of the Emergency Committee convened by the Director-General under the IHR 2005 regarding clusters of microcephaly cases and other neurologic disorders in some areas affected by Zika virus, WHO declared a Public Health Emergency of International Concern (PHEIC).</p> <p>Currently there are evidences of an association between Zika virus infection during pregnancy and congenital CNS malformations and association between Zika virus infection and Guillain-Barré syndrome. However some uncertainties remain :</p> <ul style="list-style-type: none"><li>- There is consensus that Zika virus infection during the first and second trimester of pregnancy is associated with increased risk for central nervous system (CNS) malformations and microcephaly. The risk of central nervous system malformations when the infection occurs during the third trimester of pregnancy is uncertain. Nevertheless, Zika virus infection should be considered as a risk throughout the entire duration of pregnancy.</li><li>- Zika virus can be sexually transmitted. Viable Zika virus has been detected in semen up to 69 days after onset of Zika virus infection symptoms. The longest period between sexual contact with a symptomatic man and onset of symptoms in the secondary case was estimated at between 32 and 41 days. Longest detection of viral RNA in female genital secretions is at day 13 and 14 after onset. .</li></ul> <p>Therefore, because of the link between Zika infection and microcephaly, it is relevant as precaution to inform travellers about reducing the risk of sexual transmission.</p> <p>On 2 September the Emergency Committee agreed that due to continuing geographic expansion and considerable gaps in understanding of the virus and its consequences, Zika virus infection and its associated congenital and other neurological disorders continues to be a Public Health Emergency of International Concern (PHEIC).</p> <p>The continuous evolution of scientific knowledge invite to regular updates of the RA.</p> <p><b>Link to ECDC epidemiological and scientific findings update:</b></p> <p><a href="http://ecdc.europa.eu/en/activities/sciadvices/_layouts/forms/Review_DispatchForm.aspx?List=a3216f4c-f040-4f51-9f77-a96046dbfd72&amp;ID=804">http://ecdc.europa.eu/en/activities/sciadvices/_layouts/forms/Review_DispatchForm.aspx?List=a3216f4c-f040-4f51-9f77-a96046dbfd72&amp;ID=804</a> <a href="http://ecdc.europa.eu/en/healthtopics/zika_virus_infection/zika-outbreak/Pages/epidemiological-situation.aspx">http://ecdc.europa.eu/en/healthtopics/zika_virus_infection/zika-outbreak/Pages/epidemiological-situation.aspx</a></p> <p><b>Link to RA from ECDC:</b></p> <p>October : <a href="http://ecdc.europa.eu/en/publications/Publications/rapid-risk-assessment-zika-october-2016.pdf">http://ecdc.europa.eu/en/publications/Publications/rapid-risk-assessment-zika-october-2016.pdf</a></p> <p>July: <a href="http://ecdc.europa.eu/en/publications/Publications/RRA-Zika-virus%20epidemic-seventh-update-final.pdf">http://ecdc.europa.eu/en/publications/Publications/RRA-Zika-virus%20epidemic-seventh-update-final.pdf</a></p> <p>March: <a href="http://ecdc.europa.eu/en/publications/Publications/zika-virus-rapid-risk-assessment-9-march-2016.pdf">http://ecdc.europa.eu/en/publications/Publications/zika-virus-rapid-risk-assessment-9-march-2016.pdf</a></p> <p>February: <a href="http://ecdc.europa.eu/en/publications/Publications/zika-virus-rapid-risk-assessment-8-february-2016.pdf">http://ecdc.europa.eu/en/publications/Publications/zika-virus-rapid-risk-assessment-8-february-2016.pdf</a></p> <p>January: <a href="http://ecdc.europa.eu/en/publications/Publications/rapid-risk-assessment-zika-virus-first-update-jan-2016.pdf">http://ecdc.europa.eu/en/publications/Publications/rapid-risk-assessment-zika-virus-first-update-jan-2016.pdf</a></p>
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Description		Score	Description / arguments
1	Cause known?	Yes	<p>Zika virus (ZIKV) is a flavivirus related to the dengue, yellow fever and West Nile viruses, transmitted by the <i>Aedes</i> mosquitoes that bite mostly during the daytime and causes a mild illness, known as Zika fever.</p> <p>Since May 2015, the Zika virus, first detected in the Zika forest in Uganda in 1947, is responsible of a still ongoing epidemic in Central and South America and the Caribe while it has been endemic in Sub Saharan Africa and Asia. Autochthonous transmission is currently observed in Florida. Identification of cases in Singapour, SE Asia is probably due to a better surveillance. In EU, no cases transmitted locally. In Belgium, between March en August 2016, the national reference centre diagnosed 70 cases among travellers with 28 in August.</p>
2	Unexpected/unusual	Unexpected	<p>Occurrence of an outbreak of an emerging mosquito borne disease after introduction of the virus in a susceptible population and in presence of the vector is not unexpected. However, its link with microcephaly and other cerebral congenital malformations was not described previously in endemic settings.</p>
3	Severity	High for foetus	<p>The disease is asymptomatic in 75% of the cases. If symptoms, these are mild and most people fully recover without severe complications.</p> <p>However, there is now a confirmed evidence of an association between intra-uterine Zika virus infection and congenital central nervous system malformations in foetus as well as with the guillain-Barré syndrome</p>
4	Dissemination (Low/Medium/High)	Low	<p>Very low as the vector of ZIKV is not established in Belgium but expected in neighbouring countries where the vector is present (mosquitoes <i>Aedes</i>, ex.: <i>Madeira, Italy, South of France, ...</i>).</p>
5	Risk of (inter)national spread	Not excluded	<p>Not excluded to have a spread in EU as vectors already present in several EU countries. No such notification yet.</p>
<b>Preparedness and response</b>			
6	Preparedness	High	<p>Diagnostic capacity exists in Belgium at the National Reference Center (<a href="#">ITM</a>).</p> <p>PCR is of rather limited value due to the short time frame during which the virus can be detected (acute phase). In serum the virus is detectable for about 3 days, in urine for about 15 days, probably longer. After the acute phase, diagnosis relies on serology.</p>
7	Specific control measures (surveillance, control, communication)		<p>There is neither treatment nor vaccine. Prevention is based on personal protection measures against mosquitoes.</p> <p>Information is available on websites of health authorities, travel clinics as well as WIV-ISP <a href="#">Web</a>. The information has also been included in the <a href="#">Flash</a>. Information regarding with the link between ZIKV epidemic and microcephaly advising about personal protection when travelling and about risk for pregnant woman or wishing to get pregnant is systematically being up dated. Same information is also available on Diplobel.</p>

			<p>ECDC recommends to <b>couples who want to conceive</b>, to consider the following options to minimise the risk of Zika congenital syndrome if one or both partners have been exposed (i.e. returning from an affected area or having had unprotected sexual contact with a potentially infectious partner):</p> <ul style="list-style-type: none"> <li>- <b>Delay pregnancy for at least eight weeks</b> after symptom onset or last possible Zika virus exposure <b>for women</b>, symptomatic or not</li> <li>- <b>Delay conception for a duration of at least six months</b> after symptoms onset or last possible Zika virus exposure <b>for men</b>, symptomatic or not</li> </ul> <p>All persons who are concerned about sexual transmission of Zika virus infection to their partner may consider the taking measures to prevent sexual transmission for at least eight weeks if the returning partner is a woman and six months if a man.</p> <p>In addition, all persons who have been in affected areas and travel to areas where the vector is present and active should take personal protective measures to prevent mosquito bites as described above, for three weeks after having left an affected area to prevent onward vector-borne transmission..</p> <p>Transmission through blood transfusion has never been demonstrated but is possible (Musso et al). This risk is covered by the generic recommendation excluding from blood donation for 4 weeks (28 days) any person having travelled outside Europe or Mediterranean countries. The FDA has recently (26/08/2016) published a news release, advising the testing for Zika virus in all donated blood and blood components in the US, as a further safety measure against the emerging Zika virus outbreak. However, this measure is not relevant in Belgium as the risk of having an infection is very low and it is covered by the 28 days of exclusion of any person having travelled outside Europe or Mediterranean countries. Fagg/Afmpps does not expect to modify the measures for the moment.</p>
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Public health impact				Follow up 01/09/2016
A	Public health impact in Belgium (Low/Medium/high)	Low	<p>There could be an incident of microcephaly in a newborn of a Belgian pregnant woman having travelled in affected area.</p> <p>No local transmission by vector is expected up to now.</p> <p>Autochthonous cases in Belgium are possible by sexual transmission.</p> <p>Transmission by blood transfusion is possible.</p>	Specific measures regarding these risks have been taken. No additional specific measures required for the moment.
B	Recommendations (surveillance, control, communication)	Surveillance	<p>NRC is sending weekly data to WIV-ISP for epidemiological follow up and potential RA update.</p> <p>Notification to health authorities in case of a confirmed case among patient who has not travelled in known endemic/epidemic area.</p>	<p>Data available for health authorities in <a href="#">Epistat</a> allowing real time follow up.</p> <p>Medical doctor informed by a letter (still available on <a href="#">WIV-ISP web</a>).</p> <p>Information available on various website (ToVo, AViQ, diplobel, ITG, WIV, ...).</p>
		Control	<p>Belgium needs a surveillance plan for mosquitoes in order to be able to evaluate risk and take control measures.</p> <p>In order to restrain the number of tests, indications have to be limited.</p>	<p>Final step.</p> <p>Update of the information sheet according to ECDC recommendations from pregnant woman.</p> <p>To be added in the form for lab testing: back from Mediterranean countries.</p> <p>To stress the need to limit test indication. However this event is considered like a Public Health Emergency of International Concern, therefor if the number of tests should exceed the current financial capacity of the NRC, this one could introduce a request to access to the</p>

			FAGG/AFPMS has recommended test on sperm.	'Emerging budget'. Test on sperm should be limited and thereby performed only among man having done a symptomatic infection confirmed by a serology and without possibility to wait for 6 months for procreation.
		Communication	Increase awareness by sending a short letter with mention of the most useful links to GPs, obstetricians and health professionals who provide prenatal care.	A letter has already been sent by health authorities in March 2016. Information on webs adapted following new scientific evidence and opinion from the HCH. No additional changes for the moment. Summary of epidemiological situation and decision of the RMG updated on web WIV-ISP.
			A scientific advice based on available information about the potential association between ZIKV and microcephaly and Guillain-Barré syndrome could be performed by experts under HCH.	Opinion is published: <a href="http://www.health.belgium.be/nl/advies-9340-zika">http://www.health.belgium.be/nl/advies-9340-zika</a>
C	Actions		Health authorities will inform health professionals with new recommendations. Health authorities will care for standardized information to be put on the webs. FAGG/AFPMS is following the potential risk for Europa updating recommendation for blood and semen donors if necessary. WIV-ISP and NRC continue updating data collection though existing systems will indicate the need to add the country of travel even if in Europe on the lab form NRC. WIV-ISP will update the RA if necessary.	

## MAIN REFERENCES

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