PRIMARY RISK ASSESSMENT

Increased measles circulation in Belgium in 2019

Date of the signal	Date of the RA	Signal provider	Experts consultation	Method
02/04/2019	28/05/2019	NRC Measles-AViQ	**Permanent experts:** Patrick Demol (HGR-CSS), Pascal Guilmin (FAGG-AFMPS), Valérie Keutgen (DG), Valeska Laisnez (AZG), Romain Mahieu (CCC-GGC), Paul Pardon (SPF-FOD), Sophie Quoilin (Sciensano), Carole Schirvel (AViQ) **Specific experts:** Veronik Hutse (NRC), Heidi Theeten (CMRE), Steven Van Gucht (NRC), Chloé Wyndham Thomas (Sciensano)	Email consultation
Date of update	**Closing date**			

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Signal	On the 2nd of April, the National Reference Centre (NRC) for measles and rubella (Sciensano) reports that during the first three months of 2019, the laboratory performed about the same number of diagnostic tests for measles (serology, PCR and genotyping) as for the entire year 2018, and the annual budget is already spent. Therefore the NRC requests the allocation of a crisis budget (42,000 Euro), covering activities for the rest of the year. The request for a higher budget is based on the following: - increased measles transmission in Belgium in the beginning of 2019, that is expected to continue; - inclusion of avidity testing to differentiate between primary measles infection or post-vaccination measles (request of AZG); - systematic testing of suspected measles cases for rubella too, as requested by WHO to improve the surveillance of rubella in Belgium. On the 27th of May, AViQ reported that the number of measles cases in Wallonia is increasing significantly, due to different clusters.

Description		**Score**	**Description / arguments**
1	Cause known?	Yes	Measles is an acute illness caused by morbillivirus, transmitted via airborne respiratory droplets, or by direct contact with nasal and throat secretions of infected individuals.
2	Unexpected/unusual	No	The WHO European Region set a goal for the elimination of measles (and rubella) from the Region, initially by 2010, then by 2015 and now by 2020. But this goal seems difficult to achieve. Measles cases continue to occur, mainly in unvaccinated populations (both adults and children), and outbreaks are regularly reported, including in European countries that had previously eliminated or interrupted endemic transmission. An increase in measles transmission has been reported end of 2018 - beginning of 2019 in several European countries, including Italy, Poland, France and Austria (map in annex).
3	Severity	Yes	Complications can include pneumonia, encephalitis, otitis media, diarrhoea, laryngotracheo-bronchitis and secondary bacterial infections. Subacute sclerosing panencephalitis (SSPE), a severe but rare and slowly progressing degenerative disease of the central nervous system may develop six to eight years after primary infection. Infants, immunocompromised individuals and adults are at higher risk of complications, severe disease and death following measles infection.
4	Dissemination (Low/Medium/High)	Medium	Measles is highly infectious: it is estimated that 90% of non-immune people exposed to an infectious individual will contract the disease. Vaccine uptake of at least 95% with two doses of measles containing vaccine is considered necessary to ensure the level of immunity in the population required to

			interrupt disease circulation and achieve elimination. Vaccine coverage in Belgium is high for the first dose in all regions (Brussels: 94.1%, Wallonia: 95.6%, Flanders: 96.6%), but should be increased for the second dose in Brussels and Wallonia (75.5% versus 92.5% in Flanders). Susceptible populations include children < 12 months, non-vaccinated adults (born between 1970 and 1985), Roma and people of foreign origin. In February 2019, an increase in measles cases has been reported in Belgium, mainly in Brussels, but also in Flanders and Wallonia (preliminary data see annex). Up to the 22nd of May, 477 suspected cases have been reported/tested, of which 45% were discarded (preliminary data). The total number of possible/probable/confirmed cases is 260, of which 75% are confirmed by laboratory testing and 95 cases were genotyped. In 2018, 117 possible/probable/confirmed cases were reported. The infections are mainly acquired locally, 10% of the cases for which the information is available, are imported (compared to 17% in 2018). At least 31 clusters have been identified, including between 2 and 8 cases. Most of the clusters are very small (2-3 cases only). However, larger clusters occurred in Wallonia in May 2019 (and are ongoing), in a school in Morlanway (n=21) and in a prison in Lantin (currently 6 confirmed and 10 suspected under investigation, among prisoners and visitors).
5	Risk of (inter)national spread	Low	Spread from a measles case in Belgium to another country is possible, but many other countries still have measles circulation so the impact would be very limited.
Preparedness and response			
6	Preparedness	High	Belgium has put in place the necessary structures, programmes and control measures in order to reach the WHO goal of elimination. The NRC has a yearly budget for diagnostics tests. This budget was estimated based on a different epidemiological situation of measles in Belgium, with less cases (less than 100 cases per year in 2013-2014). Meanwhile, the situation in Europe changed, with a higher risk of imported cases, followed by possible local transmission to susceptible persons and possible outbreaks.
7	Specific control measures (surveillance, control, communication)		Case identification is done by mandatory notification. Control measures are applied by each region according to their respective guidelines: search of source of infection (index case), contact identification and contact tracing, risk identification, preventive vaccination, eviction, preventive treatment (Immunoglobulines). Communication about vaccination and vaccination programmes are also performed by the Communities. The role of the NRC is to confirm the diagnosis (serology and/or PCR) and genotype circulating strains.

			Criteria for diagnostic testing have been defined in the Actionplan 2016-2020 of the CRME (Committee for rubella and measles elimination): - the diagnosis of measles should be confirmed by a test in a clinical laboratory (preferably NRC) for all isolated cases and for any new transmission chain in a cluster; - for the period 2016-2020, the genotype should be known for all isolated cases of measles and for at least one case of each transmission chain of a cluster. For important outbreaks, it is easy to apply these criteria. However, for small clusters, the link between cases is not always immediately obvious, and meanwhile genotyping is often already performed.
Public health impact			
A	Public health impact in Belgium (Low/Medium/high)	Medium	No confirmation of measles cases and genotyping of the strain in clusters possible if the NRC has no budget left, as is requested by WHO.
B	Recommendations (surveillance, control, communication)		Outbreak control by AViQ. Epidemiological data in real time are available through Epistat: https://www.wiv-isp.be/epidemio/epistat/measles.aspx, Automatic 2019 Report. Continue communication on the importance of the second dose of MMR vaccine (Wallonia and Brussels mainly), especially for those born between 1970 and 1985. NRC: - Criteria and procedures for genotyping request have been discussed at a meeting of the CRME end of April 2019. Since genotyping is for epidemiology purposes, it can only be requested by the communities (not by physicians). And because the results are not urgent, the NRC can wait to perform genotyping, which will allow the regions to have more time to investigate possible links between cases and reduce the number of tests. Therefore, the NRC will send a monthly list of samples received to the communities, who will indicate for which cases genotyping is requested. The communities/NRC will see if and how the number of PCR could also be limited (e.g. less necessary if typical clinical symptoms), but this will be more difficult, since IgM and PCR testing are complementary. - Avidity testing will only be possible on specific request from regions, for certain circumstances (e.g. vaccination status unclear), in order to distinguish primary infection without vaccination (low avidity) and with previous vaccination (high avidity). - Systematic testing for rubella can continue on all suspected measles cases that are PCR negative, since this is a request from WHO to enhance rubella surveillance, and a duplex PCR measles/rubella is used, so the extra cost for rubella testing is limited.
C	Actions		- Notification of the cluster in the prison to EWRS since visitors

			of prisoners, coming from neighbouring countries, might have been exposed. - Further management of the clusters and communication by the regional authorities. - Even if actions are taken to reduce the number of genotypings, the NRC will need an additional budget to be able to fulfil their role and meet the expectations of WHO in the context of the measles elimination goal.

REFERENCES

ECDC. Monthly measles and rubella monitoring report. May 2019. https://www.ecdc.europa.eu/sites/portal/files/documents/measles-monthly-report-may-2019.pdf

ECDC. Infographic showing the age distribution of measles cases and the countries affected in March and the number of measles cases 2017-2019. http://ecdc.europa.eu/sites/portal/files/images/measles-infographic_2019-03.png

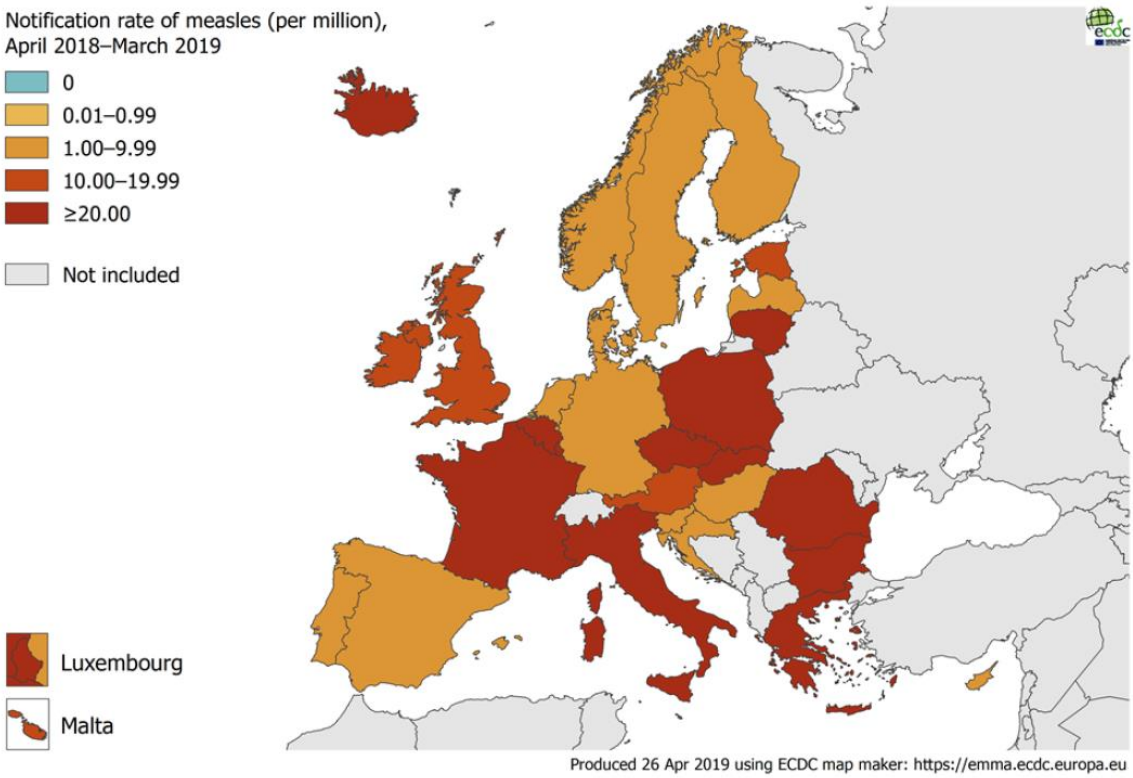
ECDC. RRA. Risk of measles transmission in the EU/EEA. 20 March 2018. http://ecdc.europa.eu/sites/portal/files/documents/Measles-rapid-risk-assessment-European-Union-countries_0.pdf

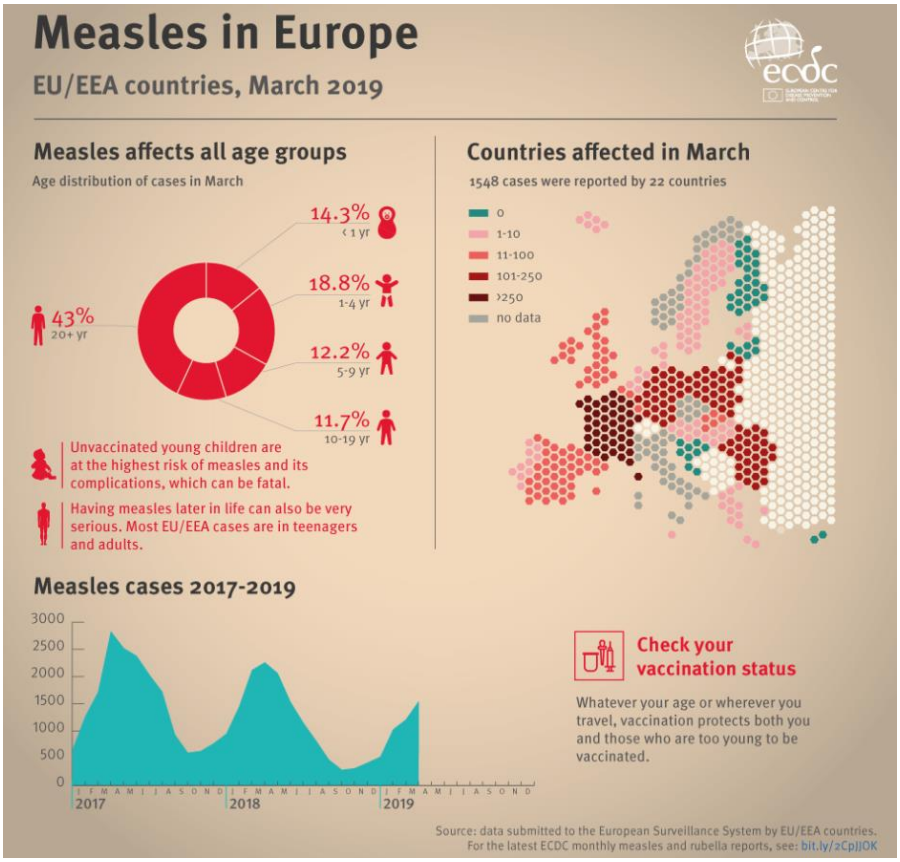
WHO Europe. Regional elimination and eradication efforts. http://www.euro.who.int/en/health-topics/disease-prevention/vaccines-and-immunization/activities/regional-elimination-and-eradication-efforts

ANNEX: EPIDEMIOLOGICAL SITUATION IN EUROPE AND IN BELGIUM

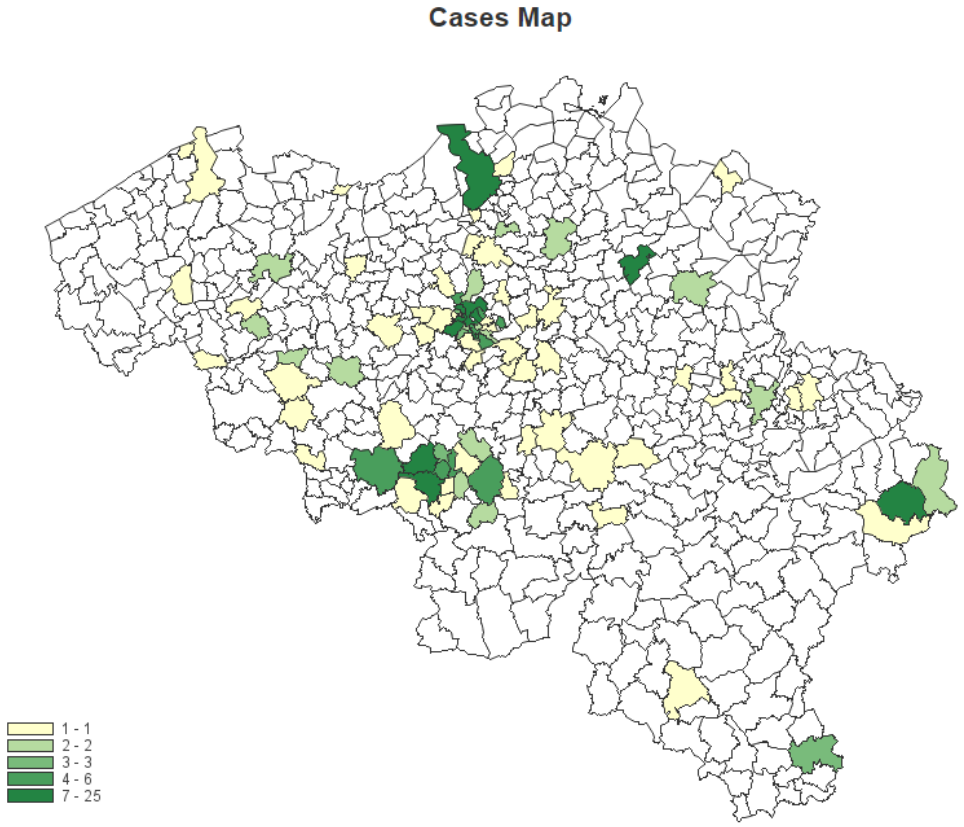
Europe

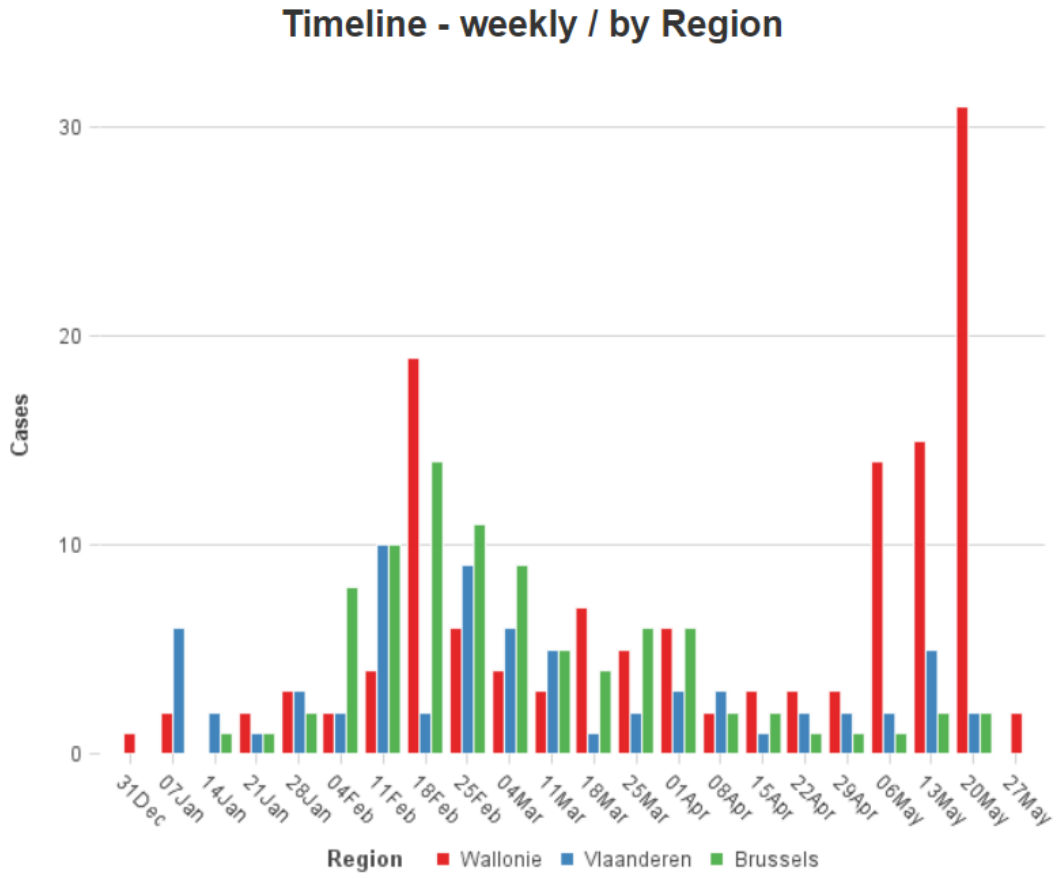
Measles notification rate per million population by country, EU/EEA, 1 April 2018 to 31 March 2019





Belgium


Cases Map
1 - 1
2 - 2
3 - 3
4 - 6
7 - 25


Timeline - weekly / by Region
Cases
30
20
10
0
31Dec
07Jan
14Jan
21Jan
28Jan
04Feb
11Feb
18Feb
25Feb
04Mar
11Mar
18Mar
25Mar
01Apr
08Apr
15Apr
22Apr
29Apr
06May
13May
20May
27May
Region
Wallonie
Vlaanderen
Brussels