THE ORGANIZATION AND DELIVERY OF
VACCINATION SERVICES IN THE EUROPEAN UNION

BELGIUM

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Belgium

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Governance

Vaccine governance and agencies involved

Belgium's vaccination programmes are organized at the subnational level. Indeed, disease prevention in health care, and hence immunization policy, is a duty and responsibility of the Communities and the Regions. These authorities are responsible for vaccine strategy including vaccine schedule, public tenders for choice of vaccine, vaccine promotion (including awareness campaigns), cost evaluations, vaccine coverage assessment, etc. As a result, the vaccination programmes differ slightly between Belgium's Communities (see Figures 1 and 2).

For the Flemish-speaking community (in Flanders and Brussels) the Agency for Care and Health (*Agentschap Zorg en Gezondheid*[1]) is responsible for vaccine policy and a subnational vaccination plan is available online.[2] The plan covers various topics including communication to the population, training of health care workers, vaccine

1 https://www.zorg-en-gezondheid.be/

2 https://www.zorg-en-gezondheid.be/vlaams-actieplan-vaccinaties-2012-2020

schedules for children and adults, registry for vaccine administration, etc. In the French-speaking community (in Wallonia and Brussels) the responsibilities regarding vaccine policy are shared between several agencies (ONE[3]; COCOF[4]; AviQ[5]) based on location and/or population age-group. The German-speaking community (*Deutschsprachige Gemeinschaft*) is responsible for its own vaccine programme, but uses the French-speaking community platform (e.g. for public tenders).

In addition, Belgium's federal authorities remain the competent authority for specific components of vaccine governance. Polio vaccination, for example, falls within the federal jurisdiction, as the mandatory vaccination of infants against polio (see next section) is based upon federal legislation.[6] Being responsible for foreign affairs and national health, the federal authorities are also the competent authority for Belgium's international commitments such as the 'Measles & Rubella WHO elimination global strategic plan', in cooperation with the subnational level.

Recommendations, mandatory vaccination, incentives, sanctions

In Belgium only vaccination against polio is mandatory by law. Vaccination against poliomyelitis was first recommended in Belgium in 1958 and became implemented as mandatory in 1967 under the Royal decree of 26 October 1966. In case of non-immunization against polio, the parents or guardian of the child concerned can be prosecuted by the Federal health inspector.

In the French community vaccination against poliomyelitis, diphtheria, whooping cough, *Haemophilus influenzae* type b, measles, rubella and mumps are mandatory in order for children to attend a public childcare centre, whilst vaccination against pneumococcal disease, meningococcal disease type C and hepatitis B are strongly recommended.[7] By contrast, in the Flemish community there is no legal obligation for vaccination in order for children to attend a childcare centre, although vaccination following the Flemish Community Vaccine Calendar is strongly advised based on the individual responsibility for community health.

At the national level the Superior Health Council (SHC) permanent vaccine working-group (Belgium's National Immunization Technical Advisory Group, NITAG)[8] of the Federal Public Service (FPS) of Health, Food Chain Safety and Environment[9] provides independent scientific advice on vaccinations and formulates recommendations. These recommendations serve as a basis for the vaccination programmes set up by the three Belgian regions.

In addition to the basic vaccination schedule for children, which includes vaccination against measles, Superior Health Council recommendations are available for pregnant woman (e.g. pertussis), adolescents and adults (e.g. booster vaccines), older people (e.g. yearly flu vaccinations) and other specific risk groups (e.g. immunocompromised), as found on their website.[10] These recommendations and further documentation on vaccination are also available on the community websites[11] and several others like SSMG/Domus Medica.

The vaccine schedule for measles vaccination and the target populations for influenza vaccination are the same across the country. Considering influenza, the groups at risk for whom vaccination is strongly recommended are pregnant women, people aged 65 years and more, health care workers, and those with an underlying risk or morbidity aged 6 months and older. There is an additional recommendation for those aged 50–65 years because of a higher risk of hospitalization after contracting influenza.[12]

Targeted measures

For children of refugees and asylum-seekers under the age of 5 months, vaccination must be carried out according to the basic vaccination calendar recommended in Belgium. From the age of 5 months, vaccination follows the principles of catch-up vaccinations for which specific recommendations are available.[13] Asylum-seekers are offered a first vaccina-

3 http://www.one.be/
4 http://be.brussels/a-propos-de-la-region/les-institutions-communautaires-a-bruxelles/cocof
5 https://www.aviq.be/
6 Royal decree of 26 October 1966: http://www.ejustice.just.fgov.be/doc/rech_f.htm
7 Article 31 of the French Government's Decree of 27 February 2003: http://www.ejustice.just.fgov.be/doc/rech_f.htm
8 https://www.health.belgium.be/en/superior-health-council
9 https://www.health.belgium.be/en/health
10 https://www.health.belgium.be/fr/vaccination
11 http://www.vaccination-info.be/; https://www.zorg-en-gezondheid.be/infectieziekten-en-vaccinatie; http://www.ostbelgienlive.be/desktopdefault.aspx/tabid-420
12 https://www.health.belgium.be/nl/advies-9488-vaccinatie-griep#article
13 https://www.health.belgium.be/fr/avis-9111-vaccination-de-rattrapage-fiche

tion when applying for asylum, and further vaccinations are given at reception facilities (coordinated by Fedasil) or at well-baby clinics (for children under 6 years of age). Vaccinations offered include polio (depending of country of origin), tetanus, diphtheria, whooping cough, measles, mumps, rubella and influenza (depending on season and a person's risk factors). In the Flemish Community a mobile vaccination team started a few years ago with catch-up immunization plans in schools without school health services, and in populations with lower vaccination coverage (e.g. Roma communities).

Vaccination coverage

Two main population registries on vaccine status exist: Vaccinnet[14] (Flemish Community based) and E-Vax[15] (French Community and German Community based). These are automatic ordering systems used by doctors that also collect information on vaccine administration. In Flanders, for example, all vaccinations with free-of-charge vaccines should be registered in the database. Although the aim is the exhaustive recording of vaccinations, these population registries are currently incomplete, particularly for adults and for the French-speaking community, for which recordings are essentially completed by school health services. Hence, for estimating vaccination coverage, regular vaccination coverage studies are set up, using the cluster sampling method. These studies are conducted for the three regions by the Communities almost every three to four years, from which national weighted averages are estimated. According to the most recent surveys, vaccination coverage for the first dose of MMR (measles, mumps, rubella) is 95.6% in Wallonia, 94.1% in Brussels and 96.2% in Flanders (Vermeulen et al., 2017; Robert E, Swennen B & Provac-ULB - École de Santé Publique, 2015). Coverage of the MMR second dose is 93.4% in Flanders and 78.0% for Wallonia and Brussels. Vaccination coverage for two documented doses of MMR is 87.4% in Flanders and 75.0% in Wallonia and Brussels (Vermeulen et al., 2017; Grammens et al., 2016). For influenza, vaccination coverage is based on surveys in specific risk groups (40–50% in health care workers (Vermeulen et al., 2017) and pregnant women (Maertens et al., 2016), or in the over 15 years old category by the Health Interview Survey (e.g. 60–70% in people aged 65 years and over (Gezondheidsenquete, 2013).

14 www.vaccinnet.be

15 https://www.e-vax.be

The organization and provision of vaccination services

Childhood vaccination against measles

Provision of infant immunization services (including first dose of MMR at 12 months) is mainly undertaken by Well-Baby Clinics (Coordinators: *Kind en Gezin* for the Flemish-speaking community, ONE for the French-speaking community, *Kaleido-Ostbelgien* for the German-speaking community). There is a large number of such consultation rooms all over Belgium which facilitates access. General practitioners, paediatricians and hospital-based physicians cover the remaining part of infant immunization.

Vaccines for school children (including the second dose of MMR at 11–12 years) are offered through school health services, general practitioners and paediatricians.

Adult vaccination against influenza

For adult immunizations, the general practitioner is usually the key vaccinator. This is particularly the case for adult influenza vaccination. In homes for older people, often the responsible medical doctor will take care of the influenza vaccination programme. Chronic disease patients (lung, renal or cardiac insufficiency, haematological patients, people living with HIV, etc.) may also be vaccinated by their treating specialist. Occupational medicine services are vaccinators for exposed professionals, including influenza vaccination of health care workers. In addition, since April 2016 nurses have been allowed to administer physician-prescribed vaccines without the presence of a doctor.

Financing

Childhood vaccination against measles

All vaccines, including MMR, that are included in the basic vaccination schedule for children, with the exception of rotavirus vaccine[16], are provided free of charge, being fully covered by the respective Communities. Manufacturers have to follow a public tender procedure set up by the respective Communities on average every three to four years.

16 Partial reimbursement by the national health insurance

For vaccinations of infants against measles, the services provided by Well-Baby Clinics and school health services are also free of charge. Vaccinations provided to infants or children by general practitioners and paediatricians operate through a fee-for-service system (vaccines are free of charge, but a consultation fee has to be paid).

Adult vaccination against influenza

For healthy adults over 65 years of age, pregnant women and at-risk population groups, influenza vaccines are partially reimbursed by the National Health Insurance (INAMI/RIZIV), as are the medical consultations. In Flanders all residents at elderly nursing homes and institutions for disabled people and chronic psychiatric patients are offered influenza vaccination free of charge.

Certain vaccines indicated for professional risks and offered by occupational medicine services are reimbursed by the Federal Agency for Occupational Risks (Fedris). These include hepatitis A, hepatitis B, and yellow fever vaccines, but not influenza vaccines.

The vaccines used for the vaccination of asylum seekers in Belgium (including measles and influenza vaccines as aforementioned) at entry are provided by the Flemish Community, and reimbursed by the federal authorities.[17] Once asylum-seekers are appointed to an asylum centre, vaccination is supported by the regional vaccination services, as for the general population.

Key barriers and facilitators

As mentioned above, the coverage rate for the first dose of MMR is close to or above 95% according to the most recent vaccination coverage studies. One main reason for this high coverage rate is the organization of MMR vaccination through public health services and primary health care providers, as well as paediatricians. These services are easily accessible, geographically well distributed across the country and mostly free of charge. In addition, the teams in Well-Baby Clinics and school health services are well trained and receive regular scientific and practical training.

The vaccination uptake for the second MMR dose is, however, still below 95% in the three regions, and lower than 80% in Wallonia and Brussels. The lower vaccination coverage in Wallonia and Brussels is related to various factors, such as vaccine hesitancy and commodity issues (e.g. parental authorization not available), lower catch-up modalities (e.g. no mobile team available), higher rate of vaccinations in private practices, and lower use of vaccination in public health services. Moreover, the vaccination coverage for the second MMR dose is probably underestimated in these two regions, being estimated from school-based surveys that do not take into account all the vaccinations performed by paediatricians or general practitioners. In Flanders population groups that are difficult to access, such as the Roma population and Jewish children in private Jewish schools (Asnong et al., 2011), are approached through a mobile vaccination team, so that these groups of the population are offered vaccines (e.g. measles catch-up vaccination) in a tailored way. With the increased number of measles cases in Europe, since September 2018 in Flanders the vaccines from the public tender (free or charged) may be used for catch-up vaccination in adults.

It remains very difficult to improve vaccination coverage against influenza, in particular among health care workers. Barriers include misinformation and misperceptions on influenza and influenza vaccination among this group, and a lack of awareness about the role health professionals may play in disease transmission. The weak vaccine effectiveness is probably also playing a role. General vaccine campaigns to inform and increase awareness (brochures, press-releases, etc) are organized by all three Communities. In Flanders a campaign is running to improve influenza vaccination in health care workers, especially in hospitals and nursing homes.[18]

Although population registries of administered vaccines exist, recording vaccine administration is not obligatory for all vaccines and is particularly incomplete for adults and the French-speaking community as mentioned above. These registries could, however, become an excellent tool to collect data on vaccines administered and real-time vaccination coverage. At the same time, pockets of under-vaccination can be identified by the Communities and physicians, so that more specific actions can be taken.

Finally, most physicians are exposed during their medical education to a teaching module on vaccinology, although more efforts are needed to extend this training to all universities and nursing schools.

17 https://www.zorg-en-gezondheid.be/vaccinatie-vluchtelingen-vanaf-nu-bij-aankomst-in-belgi%C3%AB

18 http://www.laatjevaccineren.be/campagnes

Figure 1 Immunization schedule in the Flemish community

Vaccinatie tegen	8 wkn	12 wkn	16 wkn	12 mnd	13-15 mnd [8]	5-7 jr [1]	10-13 jr	14-16 jr [3]
Poliomyelitis								
Difterie (kroep)								
Tetanus (klem)								
Pertussis (kinkhoest)								
Haemophilus influenzae B (hersenvliesontsteking)								
Hepatitis B (geelzucht)								
Pneumokokken		[7]						
Rotavirus [4]		[5]	[5]					
Mazelen								
Bof (dikoor)							[2]	
Rodehond (rubella)								
Meningokokken type C (hersenvliesontsteking)								
Humaan Papillomavirus[6] (baarmoederhalskanker)								

Source: https://www.kindengezin.be/img/201803VaccinatieschemaNederlands.pdf

Figure 2 Immunization schedule in the French community

Recommandé par la Fédération Wallonie-Bruxelles		Nourrissons					Enfants et adolescents				Adultes		
		8 sem. 2 mois	12 sem. 3 mois	16 sem. 4 mois	12 mois	15 mois	5-6 ans	11-12 ans	13-14 ans	15-16 ans	♀	tous les 10 ans	65 ans
Poliomyélite	Hexavalent	○	○	○		○	○						
Diphtérie	Hexavalent	○	○	○		○	○			○	○	△	
Tétanos	Hexavalent	○	○	○		○	○			○	○	△	
Coqueluche	Hexavalent	○	○	○		○	○			○	○		
Haemophilus influenzae de type b	Hexavalent	○	○	○		○							
Hépatite B	Hexavalent	○	○	○		○							
Rougeole	RRO				○			○					
Rubéole	RRO				○			○					
Oreillons	RRO				○			○					
Méningocoque C						○							
Pneumocoque		○		○	○								△
Rotavirus (Vaccin oral)		△	△	(△)									
Papillomavirus (HPV)									◇◇				
Grippe (Influenza)													△

○ Recommandé à tous et gratuit

△ Recommandé à tous, remboursé mais pas gratiut

Vaccin combiné (une seule injection)

◇◇ Recommandé aux jeunes filles et gratuit (2 doses)

♀ Femmes enceintes entre 24 et 32 semaines de grossesse

Source: http://vaccination-info.be/vaccinations-recommandees/calendrier-vaccinal

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