THE ORGANIZATION AND DELIVERY OF
VACCINATION SERVICES IN THE EUROPEAN UNION

CROATIA

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Croatia

Aleksandar Džakula

Governance

In Croatia childhood vaccination is mandatory. For years vaccination coverage for all the vaccines in the immunization programme was very high, over 95%, but in the last few years there has been a decrease of coverage in the whole country, and in some counties coverage is very low. This situation is of major concern, particularly in regard to measles outbreaks in Europe. The Ministry of Health, together with the public health institutes, is continuously working to increase vaccination coverage.

Information about the type of mandatory vaccinations for different age groups is set out in the immunization programme (Figure 1).

The vaccination of pre-school and school-aged children, travellers, sailors, health workers and others is regulated under the Law on the Protection of the Population against Communicable Diseases and the Ordinance on the Method of Implementation of Immunization, Seroprophylaxis and Chemoprophylaxis against Infectious Diseases. In an emergency, the Law states that the Ministry of Health, upon a proposal from the Croatian Institute of Public Health, declares an infectious disease epidemic, or a danger of an infectious disease epidemic, and determines an infected or endangered area.

There are three categories of vaccine: mandatory (for example, vaccination against measles), recommended (for example, influenza vaccination for older people) and additional (for example, vaccination against hepatitis A for travellers).

Figure 1 Immunization programme for 2018

AGE / VACCINE	MONTHS					YEARS		GRADES OF PRIMARY SCHOOL			YEARS		
	0	2	3	4	6	1	5	I	VI	VIII	19	24	60
BCG (Tuberculosis)	BCG												
HIB (H. influenzae b)			Hib	Hib	Hib	Hib							
DI-TE-PER[3]			DTPa	DTPa	DTPa	DTPa	DTPa[2]						
POLIO (poliomyelitis)			IPV	IPV	IPV	IPV		IPV		IPV	*		
DI-TE										DT	*	*	
MO-PA-RU[4]						MPR		MPR					
HEPATITIS B[1]			HBV	HBV	HBV			*	HBV (x3)				
ANA-TE (tetanus)													TE

1 Infants born from HBsAg-positive mothers are vaccinated right after birth, using immunoglobulin according to the post-exposure scheme
2 only for children who have missed re-vaccination according to previous programmes
3 diphtheria, tetanus, pertussis
4 measles, mumps, rubella

* Check the number of vaccinations and provide missed vaccinations, if necessary

The **national level** mandatory vaccination programme is the most important and most successful preventive health programme in the country. The local County Public Health Institutes are responsible for its implementation and monitoring. The Croatian state plays a significant role in the protection of its citizens, and the Croatian Institute of Public Health, using the population register, is responsible for monitoring and controlling the vaccination rate among children and adults. Vaccination coverage shows the percentage of the population or of a specific age or risk group who have received a particular vaccination (www.hzjz.hr).

Each year the Ministry of Health announces the immunization programme, based on the recommendations of the Croatian Institute of Public Health. The main body responsible for implementation of the mandatory vaccination programme and its monitoring, as defined by laws and regulations at the national level, is the Croatian Institute of Public Health. The Institute receives mandatory vaccination reports from family doctors, primary care paediatricians and the school medical service that are collected by the County Public Health Institutes (Croatian Institute of Public Health, 2018). The annual review report is regularly published in the Croatian Health Statistical Yearbook of the Croatian Institute of Public Health.

The Agency for Medicinal Products and Medical Devices (HALMED) is a stakeholder which actively

contributes to the protection and promotion of public health through the regulation of medicines and vaccines by monitoring their quality, effectiveness and safety on the Croatian market. In coordination with the Croatian Institute of Public Health, HALMED also monitors the side-effects of medicines/vaccines and the side-effects reported in clinical trials. After the United Kingdom and the Netherlands, Croatia was the third country in the European Union to start using a mobile application for reporting suspected adverse drug reactions (HALMED, 2016). Once approved by HALMED, the Croatian Institute of Public Health assesses the quantity of vaccines required and distributes them to the County Public Health Institutes, which then distribute them further to the primary care doctors (family doctors, primary care paediatricians and school and adolescent medicine doctors).

Vaccination coverage

The 2017 report on the vaccination programme suggests that vaccination coverage has declined since 2012, with large variations in vaccination coverage across counties. Table 1 shows the vaccine coverage for measles, mumps and rubella (MMR) according to primary vaccination and revaccination by county.

Provision

Primary care doctors (family doctors and primary care paediatricians) and the school medical service (a service within County Public Health Institutes) carry out the mandatory vaccination programme for school-aged children. Family doctors or County Public Health Institutes

Table 1 MMR vaccination by county, Croatia, 2017

	Primary vaccination			Revaccination		
County	**Scheduled**	**Vaccinated**	**%**	**Scheduled**	**Vaccinated**	**%**
Bjelovarsko-bilogorska	1 010	974	96.44	1 076	1 038	96.47
Koprivničko-križevačka	1 011	993	98.22	1 074	1 051	97.86
Karlovačka	996	956	95.98	1 034	1 027	99.32
Ličko-senjska	308	257	83.44	391	380	97.19
Osječko-baranjska	2 520	2 191	86.94	2 364	2 221	93.95
Virovitičko-podravska	700	674	96.29	861	842	97.79
Brodsko-posavska	619	593	95.8	629	621	98.73
Požeško-slavonska	1 216	1 171	96.3	1 298	1 270	97.84
Vukovarsko-srijemska	1 442	1 366	94.73	1 513	1 463	96.7
Istarska	1 642	1 445	88	1 920	1 756	91.46
Primorsko-goranska	2 636	2 110	80.05	2 604	2 499	95.97
Sisačko-moslavačka	1 317	1 268	96.28	1 324	1 290	97.43
Zadarska	1 695	1 485	87.61	1 642	1 566	95.37
Splitsko-dalmatinska	5 237	4 110	78.48	4 739	4 414	93.14
Dubrovačko-neretvanska	1 268	708	55.84	1 283	1 060	82.62
Šibensko-kninska	882	826	93.65	1 045	980	93.78
Međimurska	1 173	1 136	96.85	1 110	1 091	98.29
Varaždinska	1 337	1 286	96.19	1 474	1 405	95.32
Krapinsko-zagorska	949	914	96.31	1 239	1 223	98.71
Grad/City of Zagreb	7 859	7 319	93.13	8 015	7 620	95.07
Zagrebačka	2 883	2 648	91.85	2 995	2 886	96.36
CROATIA	**38 700**	**34 430**	**88.97**	**39 630**	**37 703**	**95.14**

are in charge of the recommended vaccination programmes. County Public Health Institutes also provide additional vaccination, on request.

Based on the Health Care Act, the Croatian Public Health Institute also monitors the health status and implementation of health care for vulnerable populations. There are specific programmes for refugees and the Roma population.

There are no incentives for patients or vaccinators under the mandatory vaccination programme, but some "pro-vaccination" programmes are financed at county level.

Financing

All mandatory vaccines and vaccines recommended for specific vulnerable groups are covered by compulsory health insurance, provided by the Croatian Health Insurance Fund. Additional vaccines are paid for out-of-pocket.

Barriers and facilitators

In recent years Croatia has faced a strong anti-vaccination movement, leading to hesitancy towards vaccination among both parents and health professionals. A study published in 2016 explored attitudes regarding vaccination in a nationally representative sample of 1000 people. Over two thirds of participants reported vaccine acceptance (69.9%; 95% CI = 66.2–73.3), about one fifth (19.5%; 95% CI = 16.9–22.5) reported vaccine hesitancy (i.e. they would accept some but not all vaccines), while 10.6% (95% CI = 8.4–13.3) would refuse all vaccinations (Repalust et al., 2016).

So far, there is no clear national strategy for dealing with the anti-vaccination movement. Croatia is trying to raise public awareness of the importance and benefits of vaccination through various public health actions, such as holding professional meetings, creating posters and flyers, and organizing workshops and lectures. Individuals within some local communities are also seeking to introduce changes. There is particular concern in the area of Dubrovnik and its surroundings, where the County Public Health Institute conducts various interventions, such as educational brochures, infographics and short videos, trying to educate the population. The shortage of health workers in primary health care, the lack of an active pro-vaccination programme, ignorance about the benefits of vaccination and the release of false information about vaccination through the mass media are some of the factors which affect citizens' attitudes. They contribute to falling vaccination rates, with potential serious consequences for health.

In Croatia risk groups recommended to be vaccinated against influenza include people whose health status or medical condition increases the risk of influenza complications. Preference is given to people suffering from chronic conditions, people over the age of 65 and other vulnerable groups.

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