On 21 January 2021, the CPME Executive Committee adopted the 'CPME Policy on Vaccination' (CPME 2020/055 FINAL).

CPME Policy on Vaccination

The Standing Committee of European Doctors (CPME) represents national medical associations across Europe. We are committed to contributing the medical profession's point of view to EU and European policy-making through pro-active cooperation on a wide range of health and healthcare related issues.[1]

CPME affirms that vaccination is a safe and efficient way of protecting individuals and populations from vaccine-preventable communicable diseases.

Prevention of communicable diseases through vaccination is safe and effective**.**

Vaccination is overwhelmingly beneficial to individuals and populations and is essential to avoid vaccine preventable diseases and outbreaks.

Population health could be better protected if vaccination coverage was improved.

Vaccine hesitancy is the growing reluctance of individuals to get vaccinated or to vaccinate their children and threatens to reverse the progress made in vaccine preventable disease.

[1] CPME is registered in the Transparency Register with the ID number 9276943405-41.

Rue Guimard 15 (4th Floor) - 1040 Brussels - Belgium
Tel.: +32 (0)2 732 72 02 - Fax: +32 (0)2 732 73 44 - E-mail: secretariat@cpme.eu - Web: www.cpme.eu
Company registration number: 0462509658 - Transparency register number: 9276943405-41

KEY MESSAGES AND RECOMMENDATIONS

Healthcare Professionals

- The role of medical doctors is central in encouraging individuals to be vaccinated by delivering evidence-based factual information about vaccination and the benefits of immunisation, as well as in increasing vaccine confidence among medical doctors and other healthcare professionals themselves.
- Education on immunisation and vaccine-preventable diseases and their complications should be consolidated in the medical curricula and continuous professional development programmes.
- Doctors and other healthcare professionals should ensure they themselves are vaccinated according to national schedules and recommendations.

Communication and Outreach

- Widespread and targeted advocacy and communication campaigns are essential to raise awareness and tackle vaccine hesitancy.
- Policies counteracting fake news and misleading information about vaccines on social media, while magnifying accurate information and sources, should be implemented.

Access and Affordability

- Availability and affordability of vaccines must be secured.
- Easy, equal and equitable access to vaccination services must be guaranteed by health authorities, with special attention being paid to ensuring improved uptake in lower income countries and vulnerable and socially excluded groups.

Governance and Cooperation

- Surveillance systems must be strengthened to track and monitor disease outbreaks, and a common European electronic vaccination card developed. The role of ECDC as the competent agency receiving EU public health data should be enhanced by increasing its competences, budget and staff.
- To maintain confidence in vaccines, processes for approval and authorisation of new vaccines must not be compromised.
- European vaccine research, development and production must be supported and strengthened, aiming at self-sufficiency.

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Current challenges

Outbreaks of communicable disease can develop and spread rapidly within and between countries. They can damage an individual's health and well-being and cause death and disability.

Vaccination can protect individuals and populations against communicable diseases and is regarded as one of the most powerful and cost-effective public health interventions.[2] Globally, it averts 2-3 million deaths each year from diseases like influenza, measles, pertussis, diphtheria and tetanus, with another 1.5 million avoidable deaths if vaccination coverage rates would be higher.[3] Vaccination has already led to the eradication of smallpox and currently, it is leading the way to the eradication of poliomyelitis.[4] [5] It has also led to the elimination of measles and influenza type B in some regions of the world.[6] The benefits of vaccination can also be noticed in the case of other vaccine-preventable diseases like plague, yellow fever, cholera or hepatitis.

The elimination of a communicable disease can be achieved only when high vaccination coverage rates are maintained, which in turn lead to herd immunity (also known as community immunity and population immunity) and consequently, to a reduced spreading of the pathogen in cause.[7] Herd immunity represents the key for the control of epidemics of communicable diseases but also for the indirect protection of those individuals who are not able to be vaccinated due to different underlying medical conditions (e.g. immunocompromised individuals) as immune individuals determine a lower risk of infection among susceptible individuals.[8] Thus, herd immunity implies a lasting responsibility to individuals and represents an act of solidarity.

Several European countries are currently facing outbreaks of vaccine-preventable diseases due to insufficient vaccination coverage rates. The reasons behind low vaccination coverage vary from difficulties to access vaccine providers and price barriers to the rise of disinformation and vaccine hesitancy. Vaccine hesitancy is defined as a delay in the acceptance or refusal of vaccines despite the availability of vaccine services. A lack of vaccine confidence is considered to be a key determinant of vaccine hesitancy.[9] [10] Vaccine confidence can be described as confidence in the effectiveness and safety of vaccines, in the competence of the healthcare system (health services and professionals) that administers them, and in the processes that lead to vaccination policies and immunisation schedules.[11]

[2] European Commission (2019). Global Vaccination Summit - In vaccines we trust: stepping up action to increase vaccine confidence.
[3] WHO (2019). Facts in pictures.
[4] WHO (1980). Thirty-third World Health Assembly – Global Smallpox eradication.
[5] WHO (2019). Seventy-Second World Health Assembly – Polio, eradication.
[6] WHO (2008). Vaccination greatly reduces disease, disability, death and inequity worldwide.
[7] Betsch, C., Böhm, R., Korn, L., & Holtmann, C. (2017). On the benefits of explaining herd immunity in vaccine advocacy. *Nature Human Behaviour, 1*(3), 0056. doi:10.1038/s41562-017-0056.
[8] Fine, P., Eames, K., & Heymann, D. L. (2011). "Herd Immunity": A Rough Guide. *Clinical Infectious Diseases, 52*(7), 911-916. doi:10.1093/cid/cir007
[9] WHO (2014). SAGE Working Group - Report on Vaccine Hesitancy.
[10] Betsch, C., Böhm, R., & Chapman, G. B. (2015). Using Behavioral Insights to Increase Vaccination Policy Effectiveness. *Policy Insights from the Behavioral and Brain Sciences, 2*(1), 61-73. doi:10.1177/2372732215600716.
[11] MacDonald, N. E. (2015). Vaccine hesitancy: Definition, scope and determinants. *Vaccine, 33*(34), 4161-4164. doi:https://doi.org/10.1016/j.vaccine.2015.04.036.

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In Europe, it is estimated that around half of the population received vaccines during the last five years believing that vaccines are effective in preventing infectious diseases. However, almost the other half is certain that vaccines often produce serious side effects.[12] This highlights a low level of vaccine confidence which is most frequently caused by a lack of knowledge of the actual side effects of vaccines.[13] The determinants of vaccine confidence include educational level, age, sex and religious belief. The role of medical doctors and other healthcare professionals is crucial in overcoming the resulting vaccine hesitancy. Their attitude towards vaccination is important as they often represent a source of information for patients, contributing to a change of perceptions surrounding vaccination.[14] In countries where general practitioners hold a higher vaccine confidence, the public also has more positive vaccination beliefs.[15] In this context, the education of healthcare professionals is imperative. Vaccine confidence is essential in maintaining high vaccination rates.

Vaccine hesitancy has triggered outbreaks of different communicable diseases, measles being one of the recent examples in Europe. In 2019, more than 100,000 cases were reported in the WHO European Region with more than 13,000 cases in the EU/EEA region.[16] [17] Although the measles vaccine is available in the European countries both by itself and in combinations such as the MMR vaccine (with the rubella and mumps vaccines) the vaccination rates have decreased to less than the 95% threshold set by the WHO as being required for reaching herd immunity, mainly due to increased hesitancy.[18]

Another example of a communicable disease outbreak triggered by vaccine hesitancy would be influenza, either type A or B.[19] Its transmission in Europe shows a seasonal pattern, with a peak activity during the winter months. Annually, influenza infects 10-30% Europeans and causes hundreds of thousands of hospitalisations across the continent.[20] Moreover, in the WHO European Region, each year, up to 72,000 people die of diseases linked to influenza.[21] However, the vaccination rates remain low even though influenza vaccines are widely available. For example, none of the EU member states is reaching the proposed 75% target, especially for priority groups such as older adults.[22]

There also is an increasing trend in other vaccine-preventable diseases such as pertussis (whooping cough), with 15,000–45,000 cases reported annually in the EU/EEA countries.[23] Moreover, there are around 33,000 cases and 15,000 deaths each year of cervical cancer which is primarily caused by

[12] European Commission (2019). Special Eurobarometer 488 – Report on Europeans' attitudes towards vaccination.
[13] The Wellcome Trust (2018). Wellcome Global Monitor - Attitudes to vaccines.
[14] European Commission (2019). Special Eurobarometer 488 – Report on Europeans' attitudes towards vaccination.
[15] The Vaccine Confidence Project (2018). State of Vaccine Confidence in the EU.
[16] WHO, Regional Office for Europe (2020). EpiBrief - A report on the epidemiology of selected vaccine-preventable diseases in the European Region.
[17] ECDC (2020). Surveillance report - Monthly measles and rubella monitoring report.
[18]The European Observatory on Health Systems and Policies (2018). The organization and delivery of vaccination services in the European Union.
[19] Krammer, F., Smith, G. J. D., Fouchier, R. A. M., Peiris, M., Kedzierska, K., Doherty, P. C., García-Sastre, A. (2018). Influenza. *Nat Rev Dis Primers, 4*(1), 3. doi:10.1038/s41572-018-0002-y.
[20] ECDC (2020). Disease facts about seasonal influenza.
[21] WHO, Regional Office for Europe (2020). Influenza – estimating burden of disease.
[22] ECDC (2018). Surveillance Report - Seasonal influenza, 2017–2018.
[23] ECDC (2019). Surveillance report - Pertussis.

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human papillomavirus (HPV), now preventable by vaccination.[24] In addition, some EU countries are struggling with rubella cases and the eastern part of the WHO European region with tuberculosis cases.[25] [26]

Globally, countries establish the design of their own immunisation programmes. However, the WHO has issued evidence-based recommendations regarding routine immunisation, including recommendations for the vaccination of healthcare professionals, and the development and implementation of vaccination schedules.[27]

Vaccination policies

In the EU, member states have the primary competence for vaccination policies. However, the EU can assist in coordinating their policies and programmes. One of the areas for action is strengthening the rapid response capacity for cross-border threats like communicable diseases and improving disease prevention and response by promoting vaccination.[28] Improving prevention implies improving surveillance as the activity of surveillance is indispensable to monitoring vaccine coverage and the impact of vaccination programmes while at the same time offering valuable information for possible future steps in establishing herd immunity.[29] The European Centre for Disease Prevention and Control (ECDC) is active in these areas aiming to strengthen Europe's defence against infectious diseases.

European citizens have access to vaccination through their national vaccination programmes, but the landscape varies by country in terms of the range of vaccines that are offered and funded, who and where the vaccines are administered, and the number and the schedule of the doses. Moreover, the vaccination schemes can be either mandatory or recommended.

While in most of the EU/EEA countries vaccination is recommended, in 12 of them at least one vaccine is mandatory.[30] Although mandatory vaccination is more prevalent in the eastern part of Europe, in an attempt to increase vaccination coverage rates, also Italy, France and Germany have recently introduced mandatory vaccination[31] Italy has adopted a mandatory vaccination policy with 10 vaccines representing a condition for school enrollment and with parents receiving fines for noncompliance[32] In France, where vaccine safety is questioned the most, 11 vaccines have become mandatory and a certificate for children is needed. However, parents' refusal to vaccinate their children is not

[24] European Vaccination Information Portal (2020). Disease factsheets – Human PapillomaVirus (HPV).
[25] ECDC (2020). Disease factsheet about rubella.
[26] WHO, Regional Office for Europe (2019). Factsheet - Tuberculosis in the WHO European Region.
[27] WHO (2019). WHO recommendations for routine immunisation.
[28] Clemens, T., Sørensen, K., Rosenkötter, N., Michelsen, K., & Brand, H. (2017). The Directorate-General for Health and Consumers 1999–2014: An assessment of its functional capacities. *Health Policy, 121*(6), 594-603. doi:10.1016/j.healthpol.2017.03.018.
[29] Khan, M. U., & Ahmad, A. (2017). Availability and affordability of life-saving vaccines. *The Lancet Infectious Diseases, 17*(2), 136-137. doi:10.1016/S1473-3099(17)30014-2.
[30] European Vaccination Information Portal (EVIP) (2020). Mandatory or recommended vaccination.
[31] Paul, K. T., & Loer, K. (2019). Contemporary vaccination policy in the European Union: tensions and dilemmas. *Journal of Public Health Policy, 40*(2), 166-179. doi:10.1057/s41271-019-00163-8.
[32] Ministero della Salute (2017). The National Vaccination Plan.

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punishable[33] Germany has also introduced mandatory measles vaccination and is demanding for a vaccination certificate before children attend daycare, kindergarten or school with parents that refuse to vaccinate to receive a financial penalty[34] In Cyprus and Greece, vaccination is voluntary but upon enrolment of children in kindergartens or school, certificates are required.[35] In the countries where vaccination is recommended, it is based on mechanisms that promote a pro-vaccination behaviour (e.g. vaccination campaigns) or incentives that invite to vaccinate (e.g. public founding of vaccination).

National governments may confront themselves with issues of availability and affordability of vaccines regardless of the type of vaccination policy being mandatory or recommended. In order to close the immunisation gap and increase vaccination coverage rates, a display of available and affordable vaccines is necessary.[36] The national vaccination programmes reflect the relationship that a state has with its society and while some countries have a more technocratic approach, others respond to populist influences with mandatory vaccination and corresponding enforcement instruments.[37]

Moreover, equal access to healthcare still represents a challenge, especially for vulnerable groups such as Roma populations, migrants and refugees. These groups have difficulties accessing healthcare services like vaccination due to a lack of citizenship and registration with a healthcare facility, lower levels of education as well as poor living conditions.[38] [39]

The objective to increase the vaccination coverage rates is high on the EU agenda. The Council of the EU adopted a Recommendation to strengthen the EU cooperation on vaccine-preventable diseases in 2018.[40] Based on this recommendation, the European Commission has convened a Coalition for Vaccination[41] to bring together European associations of healthcare professionals to support delivering information to the public, combating vaccination myths, and exchanging best practices. The ECDC, together with the European Commission and the European Medicines Agency (EMA) has launched a European Vaccination Information Portal[42] to provide objective and up-to-date evidence on vaccines. Moreover, a European Joint Action for Vaccination (EU-JAV)[43] is working to deliver and share tools for stronger national responses to vaccination challenges to improve population health.

These actions represent efforts that are needed in the fight against vaccine hesitancy and are gathered in the roadmap designed by the European Commission for the implementation of actions on

[33] Légifrance (2018). Decree n ° 2018-42 of 25 January 2018 on compulsory vaccination.
[34] Torjesen, I. (2019). German parliament votes to make measles vaccination mandatory. *BMJ, 367*, l6558. doi:10.1136/bmj.l6558.
[35] WHO (2018). The organization and delivery of vaccination services in the European Union.
[36] Lopalco, P. L. (2016). The role of surveillance in assuring mutual protection for vaccine-preventable diseases. *Clinical Microbiology and Infection, 22*, S85-S88. doi:10.1016/j.cmi.2016.03.019.
[37] MacDonald, N. E., Harmon, S., Dube, E., Steenbeek, A., Crowcroft, N., Opel, D. J., Butler, R. (2018). Mandatory infant & childhood immunization: Rationales, issues and knowledge gaps. *Vaccine, 36*(39), 5811-5818. doi:10.1016/j.vaccine.2018.08.042.
[38] Carrillo-Santisteve, P., & Lopalco, P. L. (2012). Measles still spreads in Europe: who is responsible for the failure to vaccinate? *Clinical Microbiology and Infection, 18*, 50-56. doi:10.1111/j.1469-0691.2012.03982.x.
[39] Eiset, A. H., & Wejse, C. (2017). Review of infectious diseases in refugees and asylum seekers—current status and going forward. *Public Health Reviews, 38*(1), 22. doi:10.1186/s40985-017-0065-4
[40] Council recommendation (2018). COUNCIL RECOMMENDATION of 7 December 2018 on strengthened cooperation against vaccine-preventable diseases (2018/C 466/01).
[41] Standing Committee of European Doctors (CPME) (2020). Coalition for Vaccination Campaign.
[42] European Vaccination Information Portal
[43] European Joint Action on Vaccination (2018). Description of the project.

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strengthened cooperation against vaccine-preventable diseases.[44] This roadmap also highlights a potential development of a common vaccination passport for EU citizens.

Way forward

Communicable diseases represent a threat to individuals' health. Nowadays, more than ever, international travel and migration as well as socioeconomic, environmental and behavioural factors increase the spread of communicable diseases. Vaccination represents the most powerful weapon that can be used in the fight against communicable diseases.

Healthcare professionals can boost individuals' confidence in vaccination and increase their knowledge concerning the safety and effectiveness of vaccines. Healthcare professionals' attitude towards vaccination is often transmitted to their patients. Worryingly, some healthcare professionals do not have confidence in vaccination.[45] [46] Concerns related to vaccines are country- and context-specific. Thus, further education on immunisation is necessary and it should be consolidated in national medical curricula and continuous professional development. Moreover, the already confident healthcare professionals may need to acquire further skills to properly respond to vaccine hesitancy and learn how to communicate with hesitant individuals.

Vaccination coverage rates can also be improved through advocacy and communication campaigns. Social media channels are heavily used for mis- and disinformation, but the very same channels should be used for promoting vaccination and breaking the myths. Such actions would ensure effective community involvement as well as public awareness. Communication campaigns should also target specific groups like the vulnerable and socially excluded. In addition, the barriers of these groups' access to vaccination should be removed.

Furthermore, the surveillance systems should be improved to provide the needed evidence for informed immunisation policies, strategies and responses. Cross-border cooperation is vital to monitor and track disease outbreaks. Europe is characterised by unrestricted and intense free movement of people, and importation of communicable diseases cases is a side effect. Importation can either contribute to existing outbreaks or start a new one where immunity gaps persist. In connection to this, developing a common vaccination card for EU citizens should be considered. Moreover, the ECDC should be strengthened with more human and financial resources to be able to have a more active role to identify and assess the risks of communicable diseases and communicate about these risks. In addition, ECDC's geographical scope could be expanded to cover also other than EU and EEA countries. This would allow better collaboration with the WHO European Region and avoid duplication in efforts.

Finally, the links between supply and demand for vaccines should be improved and the exchange of vaccine supplies from one EU member state to another in case of an outbreak considered. Moreover,

[44] European Commission (2019). Roadmap on vaccination.
[45] ECDC (2015). Vaccine hesitancy among healthcare workers and their patients in Europe.
[46] European Commission (2020). State of Vaccine Confidence in the EU+UK 2020.

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possibilities for expanding the European manufacturing capacity should be taken into account.[47] A step in the right direction was taken when the European Commission unveiled a vaccines strategy[48] to accelerate the development, manufacturing and deployment of vaccines against COVID-19.

Building on its previous policies on vaccination and health security, CPME reiterates that protecting people and preventing communicable diseases through vaccination is effective and safe, although there may be a risk of side effects with vaccines, as with any medical products. However, side effects from vaccines are usually quite minor. CPME encourages all European doctors to support vaccination uptake among their patients through their direct contacts with them, through their activity in public health, and through their national medical associations.

[47] Diversification of supply sources and greater independence from production sites outside Europe is just as important for vaccines as for medicines. To learn more about the supply problems related to the latter, see CPME Policy on Medicine Shortages.
[48] European Commission (2020). EU Strategy for COVID-19 vaccines.

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