VACCINE DENIERS AND THEIR INFLUENCE ON LOW VACCINE UPTAKE
# LIST OF CONTENTS

1. Introduction.................................................................................................................................................2
2. The European Region: the highest level of negative perceptions of the importance, safety and effectiveness of vaccines.............................................................................................................2-3
3. Underlying motives...................................................................................................................................4
4. Combating vaccine hesitancy...............................................................................................................5
5. Online anti-vaccination sentiment.....................................................................................................6
6. Anti-vaccination organisations............................................................................................................7-8
7. The importance of proactive public health messages........................................................................9
8. Different strategies to counter low vaccine uptake.....................................................................10-11
9. Myths and facts..........................................................................................................................................12-13
1. INTRODUCTION

The introduction of vaccines is seen as one of the greatest global health accomplishments of our time. Vaccinations have led to the global eradication of smallpox, the near eradication of polio, and a drastic decrease in morbidity and mortality associated with other infectious diseases. Nevertheless, vaccine hesitancy is undermining individual and community protection from vaccine-preventable diseases.

Online campaigns in many countries have led parents to question the safety of vaccines, resulting in a drastic decline in the uptake of life-saving vaccines. Health experts warn of the risks of being influenced by social media and by right-wing populists equally sceptical of medical authorities. Based on recent scientific research, news articles and government and intergovernmental papers, this report will explore vaccine deniers, also called ‘anti-vaxxers’, influence on vaccine uptake. The main focus of the report will be on Europe, which is home to seven of the ten countries reporting the most negative opinions on vaccine safety. European case studies will also be complemented by examples from different regions of the world, demonstrating the variety of approaches used to influence vaccine uptake.

In a guidance document on how to respond to vocal vaccine deniers in practice, the World Health Organization Regional Office for Europe (WHO/Europe) has offered useful definitions for individuals usually referred to as vaccine refusers, vaccine sceptics or vaccine deniers. Vaccine deniers are often referred to as ‘anti-vaxxers’.

- **Vaccine refusers** are usually those who refuse all vaccination without doubting the wisdom of this decision. Yet they can still consider other opinions or arguments.

- **Vaccine sceptics** take a scientific approach to the evaluation of claims, and are willing to follow the facts wherever they lead.

- **Vaccine deniers** are members of a subgroup at the extreme end of the hesitancy continuum. They have very negative attitudes towards vaccination, and no matter what scientific evidence says, they are not open to change their minds.

- **An anti-vaccine movement** implies the image of a powerful and coordinated group. However, this can be misleading. In most European countries, vaccine refusers represent only a small proportion of individuals with a variety of reasons for not accepting vaccines.
A team led by anthropologist Heidi Larson of the London School of Hygiene & Tropical Medicine conducted a survey on confidence in immunisation, interviewing more than 65,000 people. The study provides valuable insights into public opinion on vaccines which can be useful for policymakers and stakeholders to identify countries of particular concern of vaccine hesitancy.\(^4\)

The study found an overall positive sentiment across all 67 countries conducted, but wide variations between countries and across regions. The European Region reports the highest level of negative perceptions of the importance, safety and effectiveness of vaccines, and is home to seven of the ten countries reporting the most negative opinions on vaccine safety. France is the most sceptical (with 45.2% of respondents providing a negative response), followed by Bosnia and Herzegovina (38.3%).

Interestingly, the study found that countries with high levels of schooling and good access to health services are associated with lower rates of positive sentiment. Access to vaccines has been viewed as the primary barrier to vaccination in many countries, but the findings from this study show an emerging shift, with vaccine side effects and safety being the reservations most commonly cited by the public.

With the exceptions of France and Italy, Western and Northern European countries expressed less concern about vaccine safety than Eastern and Southern European countries. The study also found that a larger proportion of respondents reported positive perceptions of the importance of vaccines than their safety. This suggests that perceptions of the importance of vaccines may mitigate losses in vaccination uptake. It also suggests that people are willing to take a risk to obtain effective protection against disease.

### Religious incompatibility

The study found little reported religious incompatibility in the European Region; however, in Afghanistan, Nigeria and Pakistan, religious fundamentalism has been cited as a major factor in refusals to accept polio vaccination. One of the biggest obstacles to effective polio vaccination in Pakistan is religious conflict in the tribal areas. Transmission of wild poliovirus has been detected from polio-endemic districts in Afghanistan, which has resulted in new cases of polio in previously polio-free districts. The Taliban has denounced vaccination, claiming that Americans use vaccines to sterilise Muslim populations. Extremists have also spread fear of vaccination, saying it opposes the will of Allah. Vaccination officials have been assassinated by the Taliban, and over recent years, several kidnappings and beatings of vaccinators have been reported. Islamic extremists have also hampered vaccination campaigns in Nigeria and Afghanistan, resulting in eight previously polio-free countries in Africa being infected.\(^5\)

Poverty and exclusion, inadequate supply and limited access to vaccine services, both globally and locally, are major obstacles to vaccine uptake. It is estimated that 19.9 million infants are not fully vaccinated with DPT3. Almost 40% of them live in fragile or humanitarian settings, and around 5.6 million of them live in just three countries — Afghanistan, Nigeria and Pakistan.\(^6\) A sharp increase in the number of cases of vaccine-preventable disease
such as polio, diphtheria and measles has occurred in several countries with majority Muslim populations. One of the contributing factors is the increase in parents’ refusal or hesitancy to accept childhood vaccination.

The number of parents who refused to vaccinate their children in Malaysia almost tripled from 470 cases in 2013 to 1,054 cases in May 2015. News claiming that the vaccine is a plot to weaken Muslims went viral on social media in the country, leading to greater mistrust of vaccines among parents. Vaccines were said to contain DNA from pigs, making them forbidden by Islamic law, which prohibits the use of medicines from haram sources. In Indonesia, an Islamic body issued a fatwa — a religious decree — declaring the rubella-measles vaccine to be religiously forbidden. However, the fatwa understands the dangers of not vaccinating children, and the product will be allowed until preferable alternatives are made available. Nevertheless, declarations from the Indonesian Ulama Council (MUI) are highly influential, and a number of towns have already suspended the vaccine.7

In some countries, authorities have resorted to imposing strict punishments on parents who refuse to vaccinate their children. Parents have been jailed for not vaccinating their children with polio vaccines in Pakistan, on charges of endangering public security.8 In Malaysia, the government sees it as a form of child neglect, punishable under the Child Act 2001. Those found guilty can face a fine of up to 20,000 Malaysian Ringgit (EUR4,000) or up to 10 years in prison. Mandatory vaccination and punishment have been questioned and are not seen as an effective way to encourage parents to vaccinate their children.

According to a study by Ali Ahmed and colleagues9, the role of the media and anti-vaccination information was found to have a greater effect than pro-vaccination information. The study further argues that it is important to constantly educate the general public to promote awareness and to prevent inaccurate information from being spread.

Religious opposition

A study aiming to uncover the determinants of vaccine hesitancy among religious populations in the cities of Parakou and Cotonou in Benin found that the belief in the miraculous power of prayer motivates some parents not to vaccinate their children.10 Pastors tell them that vaccinations make healthy children sick, and see vaccination as ‘a tool of the Devil’ that will impede children’s protection by God. Vaccination is seen as the ‘white witch doctor’s work’, a person with supernatural powers who has made a pact with the Devil. According to them, only prayer can protect and heal them in times of illness. God is the protector of humankind, and only he has the power to prevent diseases, not vaccines. The authors argue that more detailed information and negotiation between the health authorities and the pastors of these churches is essential.
3. UNDERLYING MOTIVES

Health professionals and researchers interested in science communication have worked to find ways to overcome fears and myths surrounding vaccination. The key problem identified is that vaccine deniers lack information or fail to understand information about the benefits of vaccines. However, this does not seem to be the case.

Research has found that people with anti-vaccination attitudes are no less educated than others, and they also spend a significant amount of time on the Internet seeking information about vaccination. The information they are seeking, however, is not necessarily scientific, but rather information that supports their preferred conclusion about vaccination.

A recent study has examined the psychological factors that might motivate people to reject scientific consensus around vaccination, arguing that the reason why people are sceptical of vaccines can be explained through the lens of motivated reasoning. Through intuitions, emotions and ‘gut feelings’, people develop responses that are difficult for them to articulate, and they become motivated to search for evidence supporting their attitudes. Websites such as efvv.eu, childrenhealthdefense.org and healthimpactnews.com enable vaccine deniers to find like-minded people and information that support their views. Although scientific evidence exists, vaccine deniers are unlikely to change their attitudes because it does not support their preferred conclusion. Scientific facts can even be seen as corrupt, incorrect or irrelevant, the study finds.

The study uses the ‘attitude roots’ model to seek people’s underlying motivations, looking at conspiratorial beliefs, disgust sensitivity, reactance and individualistic/hierarchical worldviews. The study analysis found that anti-vaccination attitudes were featured in significant bivariate relationships with all four predictors. Participants who displayed more conspiratorial beliefs had more anti-vaccination attitudes, which seemed to be particularly strong in Western nations. The study also found that people who felt attacks on their freedom held more anti-vaccination attitudes. Participants who endorsed an individualistic/hierarchical worldview also had stronger anti-vaccination attitudes.

Without drawing any conclusions, it might seem that vaccinations in themselves are not the main issue, but the manifestation of underlying perspectives. Providing scientific evidence to vaccine deniers and convincing them that vaccinations are safe might not be the most productive way of encouraging them to change their minds. This highlights the need for greater understanding of the underlying motives of vaccine deniers. While vaccine deniers are most likely not open to changing their minds, vaccine sceptics are willing to follow facts and consider other opinions. It is, therefore, important to provide up-to-date information and spread knowledge of the benefits of vaccines to as many people as possible. This will diminish the effect that anti-vaccination campaigns have on vaccine-hesitant population groups.
4. COMBATING VACCINE HESITANCY

Vaccine hesitancy is a complex issue and a difficult task to address. Public rumours about adverse events, low confidence in safety findings by health authorities, cultural and religious beliefs, social aspects, and misinformed information collected from the Internet are some of the reasons why people have chosen not to be vaccinated.12

A proportion of opposition against HPV vaccines also has to do with moral concerns. The fact that HPV is a sexually transmitted infection makes parents hesitant to vaccinate their children because they feel it is inappropriate for children. This is particularly the case in the USA, where some Christian pro-family groups see it as more appropriate to educate their children on abstinence before marriage and fidelity in marriage, rather than vaccinating them.13

**Populists influence**

Populist right-wing politicians from the USA to Italy, Poland and France have also contributed to vaccine scepticism. These politicians and other anti-establishment parties have positioned themselves against globalisation and profiteering multinational corporations. They support ‘fake news’ stories on social media which make people believe they are victims of drug companies that want to disseminate viruses into the population to sell vaccines. They also support calls to overturn mandatory vaccination where they could win votes.14

In Poland, a number of populist politicians support the anti-vaxxers who want to end mandatory vaccination. Although small in numbers, they have proven to be very vocal. The most prominent have been members of Kukiz’15, an ‘anti-systemic’ political party similar to Italy’s Five Star Movement. They have backed the leader of the anti-vax group called Stop NOP, Justyna Socha, who claims that doctors are taking money from pharmaceutical companies to hide the effects of vaccines. In the USA, anti-vaxxers saw a victory in the election of Donald Trump, who has openly expressed scepticism over vaccines on social media and elsewhere. He also has close contact with Andrew Wakefield, the man who has claimed that the measles-mumps-rubella (MMR) vaccine is linked to autism. Trump was also said to have been considering setting up a committee to investigate vaccines under the famous anti-vaxxer Robert F. Kennedy Jnr.18

A recent survey by YouGov reveals that people with strongly held populist views are on average almost twice as likely to believe that supposed harmful effects of vaccines are being deliberately hidden from the public. The study covered more than 25,000 people in parts of Europe, the Americas, Africa and Asia. In total, the surveyed countries represent 4.7 billion people, or more than 60% of the world’s population.19 The study further finds that 44% of those who voted for Marine Le Pen in 2017 expressed concerns about vaccines, compared to 25% of those who did not vote for her, and 12% of those who voted for Emmanuel Macron. Similar tendencies were found in Italy and Spain. Countries where populists performed well in the 2014 European Parliament elections, such as France, Greece and Italy, show high levels of vaccine hesitancy. Countries with low levels of support for populist parties, on the other hand, are less sceptical towards vaccines.20
5. ONLINE ANTI-VACCINATION SENTIMENT

Media controversies, political propaganda and the spread of fake news have led to a fall in public confidence in vaccines.\(^{21}\) Social media is frequently abused to spread harmful health content, which can lead to low uptake of vaccines and increase the risk of global pandemics. Vaccine deniers — or so-called ‘anti-vaxxers’ — are often thought to be the reason for low vaccination rates.

Although it is hard to find a powerful vaccine denier group or movement, they have a significant impact on the society. The anti-vaccination networks on the Internet seem to be large and global in scope, but the sub-networks appear to be small, which suggests that social media plays an important role in spreading anti-vaccination propaganda and perpetuating the movement on a global scale.\(^{22}\)

A working paper from UNICEF tracked and analysed online anti-vaccination sentiment in social media networks by examining conversations across social media in English, Russian, Romanian and Polish.\(^{23}\) Messages with anti-vaccination sentiment from 22,349 participants were recorded from May to July 2012. The majority of participants spoke English, followed by Polish, Russian and Romanian. The study found that blogs are the most frequently used channel for posting anti-vaccination content on social media, followed by Facebook. Conspiracy theory and religious/ethical beliefs, side effects, and chemicals and toxins in vaccines were the main topics.

Harmful ‘bots’ and ‘trolls’

Much of the harmful health content online is being publicised by so-called ‘bots’ — accounts that automate content production — and ‘trolls’ — individuals who misrepresent their identities with the intention of promoting discord. According to a recent study, social media bots and Russian trolls spreading false information during the 2016 US presidential election were not only targeting politics.\(^{24}\) #VaccinateUS is a Twitter hashtag that was designed to promote discord using vaccination as a political wedge issue. The study found that #VaccinateUS was uniquely identified with Russian troll accounts, linked to the Internet Research Agency, a company backed by the Russian government specialised in online influence operations. Foreign powers are thus using health communication as a ‘weapon’, spreading misinformation and disinformation on public health issues. The study also found that Russian trolls and Twitter bots posting content about vaccination have significantly higher posting rates than the average user. Instead of picking a side, both pro- and anti-vaccine advocates were insulted. The study concludes that bots spread malware and unsolicited anti-vaccine messages, while Russian trolls promote discord.

In Ireland, the rate of HPV vaccination was high at 87% in 2014/2015. School-based programmes had proven efficient, and thousands of girls had completed a two-dose vaccination course. However, an online campaign to undermine the vaccine began to gain momentum. Stories that linked the timing of the vaccination campaigns and the subsequent development of illness surfaced on social media. Even though the WHO and the European Medicines Agency confirmed that the vaccine is safe and effective, the campaign against the vaccine went viral through social media and local radios and on a commercial television station. At the turn of 2017, uptake had dropped to 50%, down from 87% in 2014/2015.\(^{25}\)

In Japan, coverage rates for the HPV vaccine fell from 70% in 2013 to less than 1% in 2017. Stories about HPV vaccines causing brain damage spread through the media, along with unconfirmed video reports of girls in wheelchairs after being immunised. The government decided to suspend proactive recommendations for the HPV vaccine, despite no evidence to support the claims made by anti-vaccine groups and parents.\(^{26}\)
6. ANTI-VACCINATION ORGANISATIONS

Anti-vax websites and organisations have been present for many years, but further attention should be given to the emergence of anti-vax organisations that call themselves ‘pro-choice’. These types of organisations claim to defend ‘individual freedom’ and ‘human rights’ to promote their cause. They appear more professional than the traditional anti-vax websites.

The European Forum for Vaccine Vigilance (EFVV)

EFVV is an umbrella organisation for ‘pro-choice’ organisations and groups from 25 European countries. Its website states, “We call on all Europeans to stand together in a demand for a united vaccination policy based on freedom of choice and informed consent”. It sees mandatory vaccination as “a serious risk and violation of human rights and dignity”, showing its concern for the “many” people injured by vaccines in Europe and beyond.

The EFVV website appears well organised and modern. Although referring to professionals in biology strongly opposing vaccination, and non-governmental organisations (NGOs) working to prevent “vaccine injuries and deaths”, it is done in a way that feels credible. A map of Europe displays each country’s vaccine policy and links to other “free choice organisations”. The countries in green represent “freedom of choice”, while countries with mandatory vaccination are shown in red. The language is professional, and the repetition of human rights and individual dignity gives the impression that the organisation cares about the greater good.

The EFVV describes itself as a coalition of groups and individuals from European countries “who wish to inform the general public, politicians and the press about vaccines and the vaccination procedure in terms of its health benefits and risks”. It even states that it recognises that “vaccination was introduced with good intentions for the health of the world population”. However, the underlying truth reveals itself after in-depth analysis of this so-called ‘pro-choice’ alliance.

The project extends an invitation to “join the international family” and contribute to events for the “international revolution for choice in the world”. It further asks questions such as “Will you let parents be punished for caring for children?” and “How many tragedies do people need to understand that human freedom and dignity, and not compulsion that violates them, are the foundation of the good of us all?” It also tells people that they cannot feel secure “in the face of official procedures on inhumane ideology and false statistics”.

The language drastically changes from what is described as “informing the general public about the health benefits and risks of vaccination” to promoting fear and anxiety around vaccination, making people believe they are victims of severe injustice. Under the country information on Poland, there is a description of an event at a junior high school, with “…dozens of girls fainting, losing consciousness and getting seizures after returning to school. They had just been fetched to a medical centre and given the HPV vaccine”. No source is cited for this accident, but the account also states that “the teacher was prevented to take action for the event telling her
that doing this she would be dismissed from work". The EFVV also claims that vaccines in use have brain damage side effects. It is thus questioning scientific facts and recommendations from the WHO and the European Centre for Disease Prevention and Control (ECDC), creating its own theories. However, what is missing on this page are statistics and wide-ranging quantitative research that support its claims about "vaccine-injured" people.

**EFVV members**

Many EFVV members have studied homeopathy and want to promote their alternative treatment, which can be a real danger to public health. Other members are strong activists in associations working with "vaccine victims". One of the honourable members is Ana Medina from the Association of HPV Vaccines Victims (AAVP) in Spain. The association was formed in 2009 and has repeatedly called for vaccine injury recognition, mandatory informed consent, and the withdrawal of the vaccine by the Spanish health authorities from the national schedule. The Ministry of Health received a petition signed by 9,500 citizens in 2009, after two girls apparently became ill after receiving one dose of HPV, despite the absence of any correlation between the vaccine and adverse effects. Another honourable member is Andreas Bachmair, a German homeopath who runs a website for "vaccine injured people". Barbara Loe Fisher, co-founder and president of the non-profit National Vaccine Information Centre in the USA is also listed as an honourable member.

**Examples**

An anti-vax organisation in Poland, listed on the EFVV website, is referring to a newly published book called How to End the Autism Epidemic, written by J.B. Handley, an American who, together with his wife, established the anti-vaccine group Generation Rescue. The book is currently Amazon’s best-selling book under the category ‘Autism and Asperger’s Syndrome’. Handley writes about the “clear legal basis for the statement that vaccines cause autism”, including comments from “prominent autism scientists”. The book has received recommendations from several anti-vaccine figures, such as long-time anti-vaxxer Robert F. Kennedy Jr., chairman of the World Mercury Project. The book is said to be “the book every parent must read”.

Initiative Citoyenne is an association for vaccine freedom in Belgium. Its website mentions HPV vaccine victims from Japan, who after receiving the HPV vaccine were "...unable to attend classes normally and dropped out of graduate school or were unable to get a job". It further states that "without medical institutions capable of giving them effective treatment, these people cannot envision a bright future". In March 2018, an international symposium was held in Tokyo, gathering “victims groups” from five countries: the United Kingdom, Spain, Ireland, Colombia and Japan. The article reporting the meeting mentions different studies that have found results of adverse effects, changes in cerebrospinal fluid, cerebral blood flow and peripheral nerves after HPV vaccination. It also says that a study indicated that people develop chronic diseases shortly after receiving the HPV vaccine. No references are provided to the studies cited, and there is no evidence of how the studies were conducted, what type of methods were used etc. There is only a link to other anti-vaccine websites, where the exact same thing is written.

The anti-vax websites in the USA often take a more ‘extreme’ approach, claiming that children and teenagers have died because of different vaccines — in this case the HPV vaccine. Stories and pictures of children who are said to have died after receiving the HPV vaccine place an emotional weight on the readers. These stories are frequently shared among anti-vaccine organisations. Stories about two teenage boys — one who is said to have died of Acute Disseminated Encephalomyelitis (ADEM) three weeks after receiving the HPV vaccination, and another who is said to have been paralysed after receiving the HPV vaccine and later died — have created great uncertainty around the vaccine among parents. When searching for more information about these two cases, the most frequently visited sites are anti-vaccine websites, which link the HPV vaccine to deaths without stopping to think twice. However, there is little evidence that supports the claims that the illnesses of these two boys were caused by the HPV vaccine.
Anna Odone and Carlo Signorelli (2017) carried out a study on ‘When Vaccine Hesitancy makes Headlines’, in which they highlight the importance of communication strategies used by health authorities not only in specific immunisation programmes and reactive advocacy but also in proactive public health messages disseminated through the media.

The study analysed the media coverage in the Italian national press of three deaths alleged to be associated with the influenza vaccine. The Italian Medicines Agency temporarily suspended the use of two batches in 2014, following the reported deaths of three elderly people within 48 hours of receiving the vaccine. After an investigation, the European Medicines Agency (EMA) concluded that there was no evidence of a causal relationship between the deaths and the vaccine, and the ban on the batches was removed. However, before the release of the safety test results, the study found an average of four articles per day published in the most commonly read Italian newspapers, with titles using such terms as ‘killer vaccine’. The publication of the safety test results from national and international regulatory authorities received a low level of media coverage. The authors argue that media coverage was poorly managed, and stress the importance of handling of such cases better in the future, as they can have detrimental effects on immunisation.

The vaccine-preventable Diseases and Immunization programme of the WHO Regional Office for Europe have developed a guidance document that provides basic, broad principles for a spokesperson of any health authority on how to behave when confronted by and how to respond to vocal vaccine deniers:

**Rule 1:** The general public is your target audience, not the vocal vaccine denier.

**Rule 2:** Aim to unmask the techniques that the vocal vaccine denier is using AND correct the content.

**Rule 3:** Make the public audience more resilient against anti-vaccine statements and stories; support the vaccine hesitants in their vaccine acceptance decision.
According to the latest Communicable Diseases Threats Report (CDTR), Romania (4,317), France (2,588), Greece (2,238) and Italy (1,716) reported the highest number of cases in 2018. It has also been reported to be the cause of 49 deaths in the region in the past two years.

At least 95% of the population needs to be vaccinated with two doses of a measles-containing vaccine to stop measles transmission and protect those most vulnerable to severe complications and death. According to the latest update from the WHO, 10 countries in the European Region have reached the 95% target (Albania, Armenia, Azerbaijan, Croatia, the Czech Republic, Portugal, Russia, Slovakia and Spain), showing that further sustained action is needed. Of all the measles cases reported during a one-year period from December 2016 to November 2017 with known vaccination status, 87% were not vaccinated.

Reaching and maintaining high rates of vaccination coverage in childhood is not always a simple task for public health institutions, and the spread of vaccine deniers and hesitancy is not making the task any easier. Different strategies have been adopted in different countries to face the issue of low vaccine uptake. Enforced mandatory vaccination is one of these strategies, but the efficacy of such an approach has been questioned. France has mandatory vaccination but is also the most sceptical country towards vaccination, suggesting that mandates make opposition to vaccination even stronger.

**Mandatory vaccination right answer?**

The EU-funded ASSET project performed an analysis on the impact of mandates in European countries, where it compared coverage rates of immunisation against polio-, measles- and pertussis-containing vaccines. The comparison found no clear link between vaccine uptake and mandatory vaccination. While mandatory vaccination might fix a short-term problem, ASSET experts do not see it as a long-term solution. Greater focus should be placed on improved health systems and stronger communication strategies.

The challenge with mandatory vaccination is that some people feel they are being forced to vaccinate against their will, which might spark an anti-vaccine backlash equal to the positive signal it can have — greater public health for all. Vaccination is not only an individual choice, but a responsibility that is greater than oneself, since diseases can infect others, and can be especially life-endangering for those with weaker immune systems. However, it might seem that vaccination has become the victim of its own success; since vaccination has defeated many infectious diseases, many parents of small children have never seen these killer diseases and, therefore, do not fear them.

A single strategy is not enough to solve the challenge of vaccine hesitancy, as each context is different. A multi-component and dialogue-based intervention is suggested as the most effective plan and should be directed at un- or under-vaccinated populations or specific target groups such as local communities or health care workers.
**People-centred and comprehensive approach**

At the request of its European Technical Advisory Group of Experts on Immunisation (ETAGE), the WHO/Europe Vaccine-preventable Diseases and Immunization Programme developed the Guide to Tailoring Immunization Programmes (TIP), which will help countries address hesitancy more effectively. TIP provides tools to:

(i) **identify vaccine-hesitant population subgroups**;

(ii) **diagnose their demand- and supply-side immunization barriers and enablers**; and

(iii) **design evidence-informed responses to hesitancy appropriate to the subgroup setting, context and vaccine**.

TIP has a people-centred and comprehensive approach, focusing on a wide range of factors such as individuals’ motivation, attitudes and beliefs; social, community and cultural factors; and legislative, institutional and structural factors. TIP has been successfully applied to diagnose causes of hesitancy and has developed targeted interventions for subgroups with lower than expected vaccine uptake in Bulgaria, Sweden, the United Kingdom and Lithuania.

In Bulgaria, the TIP diagnostics revealed that for the Roma population, information campaigns about vaccine programmes were unlikely to improve vaccine uptake to vulnerable subgroups because immunisation was getting lost among other parental and health care provider priorities, expertise and experiences.

In Sweden, the TIP diagnostic tool has helped to better prioritize the immunisation programme needed for each community by providing better insight into the preferences and requirements of Somali immigrants, anthroposophical believers and unregistered migrant communities. In the United Kingdom, a TIP project was launched to address vaccine hesitancy in Orthodox Jewish communities in Greater London.
10. MYTHS AND FACTS

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<tr>
<th>Myths</th>
<th>Facts</th>
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<tbody>
<tr>
<td>Vaccine-preventable diseases are almost eradicated in my country, so there is no reason to uphold and increase investment in immunisation</td>
<td>Vaccine-preventable diseases may have become uncommon in your country but they still exist worldwide. Immunisation coverage is not 100%, so groups of under immunised or un-immunised are still not protected.</td>
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<tr>
<td>Vaccines are not safe</td>
<td>Licensing of a vaccine requires exhaustive evaluation and testing to make sure that it is both safe and effective. Every batch of vaccine is controlled separately. Following prequalification and licensing WHO continues to monitor the vaccine, and any serious side effect reported is thoroughly investigated.</td>
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<td>Vaccines cause autism</td>
<td>There is no evidence of a link between measles-mumps-rubella (MMR) vaccine (or any other vaccine) and autism or autistic disorders. A Danish study with 537 303 children in 2002 provided strong evidence against any link between MMR vaccine and autism. For all these children there was no link between the age at the time of vaccination, the time since vaccination or the date of vaccination and the development of autistic disorder.</td>
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<td>Giving a child more than one vaccine at a time could increase the risk of harmful side effects and could overload the child’s immune system</td>
<td>Scientific evidence shows that giving several vaccines at the same time has no negative effect on a child’s immune system. A child is exposed to far more antigens from a common cold or sore throat than they are from vaccines. Combined vaccines: save time and money through fewer clinic visits; reduce discomfort for the child through fewer injections; increase the probability that the child will receive the complete set of vaccinations according to the national schedule.</td>
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<tr>
<td>Vaccines contain mercury, which is dangerous</td>
<td>Thiomersal is an organic, ethyl mercury-containing compound added to some vaccines as a preservative. Only very few vaccines contain Thiomersal. Mercury is a naturally occurring element that is found in air, water and soil. If used in vaccines, the amount of Thiomersal is very, very small. There is no evidence to suggest that the amount of thiomersal used in any vaccines poses a health risk.</td>
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<tr>
<td>Diseases will not spread if we just ensure proper hygiene and sanitation</td>
<td>Many infections can spread regardless of how clean we are. If people are not vaccinated, diseases that have become uncommon, such as polio and measles, will quickly reappear.</td>
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<td>The combined vaccine against diphtheria, tetanus and pertussis (DTP) and the vaccine against poliomyelitis cause sudden infant death syndrome</td>
<td>There is no causal link between the administering of the vaccines and sudden infant death. However, these vaccines are administered at a time when babies can suffer sudden infant death syndrome (SIDS). In other words, reported SIDS deaths are co-incidental to vaccination and would have occurred even if no vaccinations had been given.</td>
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<td>Myths</td>
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<td>Vaccine-preventable childhood illnesses are just an unfortunate fact</td>
<td>Vaccine-preventable diseases are preventable, not a fact of life.</td>
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<td>of life</td>
<td>Vaccine-preventable diseases are serious and can lead to severe</td>
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<td>complications in both children and adults, including pneumonia,</td>
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<td>encephalitis, blindness, diarrhoea, ear infections, congenital rubella</td>
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<td>syndrome and even death. This suffering can be prevented with</td>
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<td>vaccines. Failure to vaccinate against these diseases leaves children</td>
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<td>unnecessarily vulnerable.</td>
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<td>It is better to be immunized through disease than through vaccines</td>
<td>The immune response to vaccines is similar to the one produced by</td>
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<td>natural infection. The price paid for immunity through natural</td>
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<td>infection can be as high as mental retardation from</td>
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<td>Haemophilus influenzae type b (Hib), birth defects from congenital</td>
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<td>rubella infection, liver cancer from hepatitis B virus or death from</td>
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<td>measles.</td>
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<tr>
<td>Many people who were not immunised in the past led long and health</td>
<td>Before the measles vaccine was introduced, more than 90% of people</td>
</tr>
<tr>
<td>lives. Thus, there is no real need for vaccination</td>
<td>were infected by the time they reached the age of 10 years. As many</td>
</tr>
<tr>
<td></td>
<td>as 1 in 1000 cases of measles is fatal. Many of those who survived</td>
</tr>
<tr>
<td></td>
<td>the disease suffered serious and sometimes lifelong consequences.</td>
</tr>
<tr>
<td></td>
<td>Even though vaccine-preventable diseases can be mild in some cases,</td>
</tr>
<tr>
<td></td>
<td>it is better to be protected, as you can never know how seriously a</td>
</tr>
<tr>
<td></td>
<td>disease will affect you.</td>
</tr>
<tr>
<td>Vaccinated children experience more allergic, autoimmune and</td>
<td>Vaccines teach our immune system to react to certain antigens. They</td>
</tr>
<tr>
<td>respiratory diseases compared to unvaccinated children</td>
<td>do not change the way it works. There is no evidence of a link</td>
</tr>
<tr>
<td></td>
<td>between vaccination and the development of allergic, autoimmune and</td>
</tr>
<tr>
<td></td>
<td>respiratory diseases later in life.</td>
</tr>
<tr>
<td>Vaccination is partly responsible for the global increase in cancer</td>
<td>Vaccines do not cause cancer. The vaccine against the human papilloma-</td>
</tr>
<tr>
<td>cases</td>
<td>virus (HPV) is used to prevent several cancer types, including</td>
</tr>
<tr>
<td></td>
<td>cervical, anal, penile and oropharyngeal cancer. The global increase</td>
</tr>
<tr>
<td></td>
<td>in cancer cases over the past 50 years has been caused by many</td>
</tr>
<tr>
<td></td>
<td>factors, including changed lifestyles, longer life expectancy and</td>
</tr>
<tr>
<td></td>
<td>better diagnostic techniques.</td>
</tr>
<tr>
<td>Vaccines can contain microchips enabling governments or others to</td>
<td>This is technically impossible and does not take place. Vaccines</td>
</tr>
<tr>
<td>track the whereabouts of an immunized person</td>
<td>are produced in a very restricted setting. Many vials contain vaccines</td>
</tr>
<tr>
<td></td>
<td>for more persons (e.g. 10 doses in one vial), making it impossible to</td>
</tr>
<tr>
<td></td>
<td>track each person.</td>
</tr>
</tbody>
</table>

ENDNOTES


12 Paolo Bonanni, Beatrice Zanella, Francesca Santomauro, Chiara Lorini, Angela Bechini, Sara Boccalini. (2018) Safety and perception: What are the greatest enemies of HPV vaccination programmes? https://doi.org/10.1016/j.vaccine.2017.05.071


EFVV website: https://www.efvv.eu/
EFVV website. Link to project: https://www.efvv.eu/international-protest-again-mandatory-vaccination/

Country information on Poland from the EFVV website: https://www.efvv.eu/poland-2/#bg

Anti-vaccine website from Poland: http://stopnop.com.pl/

How to End the Autism Epidemic Book on Amazon: https://www.amazon.com/How-Autism-Epidemic-J-B-Handley/dp/1603588248/ref=zg_bs_282950_1?_encoding=UTF8&psc=1&refRID=9RQNYX-R9VQPAZ7F3EPC1

Intitative Citoyenne webpage: http://initiativecitoyenne.be/


AAVP website: https://asociacion.aavp.es/

VaccineInjury website: https://www.vaccineinjury.info/


WHO vaccine update: Reported estimates of MCV2 coverage http://apps.who.int/immunization_monitoring/globalsummary/timeseries/tscoveragemcv2.html


46 Paolo Bonanni, Beatrice Zanella, Francesca Santomauro, Chiara Lorini, Angela Bechini, Sara Boccalini. (2018) Safety and perception: What are the greatest enemies of HPV vaccination programmes? https://doi.org/10.1016/j.vaccine.2017.05.071
