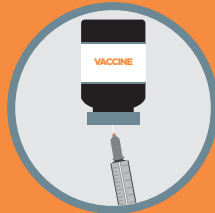


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Myths and Misconceptions Vaccines Recommended for Health Professionals

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GET INFORMED! GET VACCINATED! GET PROTECTED!



Vaccine preventable diseases have been eliminated already from Europe, so we do not need to worry about being up to date with our vaccines.

It is true that some diseases are nowadays very rare or even eliminated from the European Union countries, e.g. poliomyelitis or diphtheria, due to national immunization programmes¹⁻⁸.

However, most of these vaccine preventable diseases (VPDs) still exist or are even widespread in other parts of the world. As our world is currently more connected than ever in human history due to population movements (travelling and migration flows), “disease somewhere is disease everywhere”. Vaccine preventable diseases have many times been imported in a country through returning travelers.

At the same time pockets of unvaccinated populations are common in many EU countries and many outbreaks of VPDs such as measles, mumps, rubella and pertussis are reported in communities with anti-vaccination beliefs or in hard-to-reach populations (e.g. migrants and Roma) and spreading to many countries due to decreasing vaccination coverage⁹⁻¹⁰.

Whenever the vaccination coverage levels dropped, outbreaks have occurred. This is the reason that measles outbreaks have been continuously occurring through EU countries in the last years: UK, France, Bulgaria, Italy, Netherlands, and Germany. A significant rubella outbreak with thousands of cases has been reported in Poland in 2012-14¹¹.

Due to the long lasting civil war in Syria and the subsequent drop of the vaccination coverage, an outbreak of poliomyelitis rose in the country towards the end of 2013, which threatens the polio-free status of European countries through the movement of refugee populations¹².

Figure 1

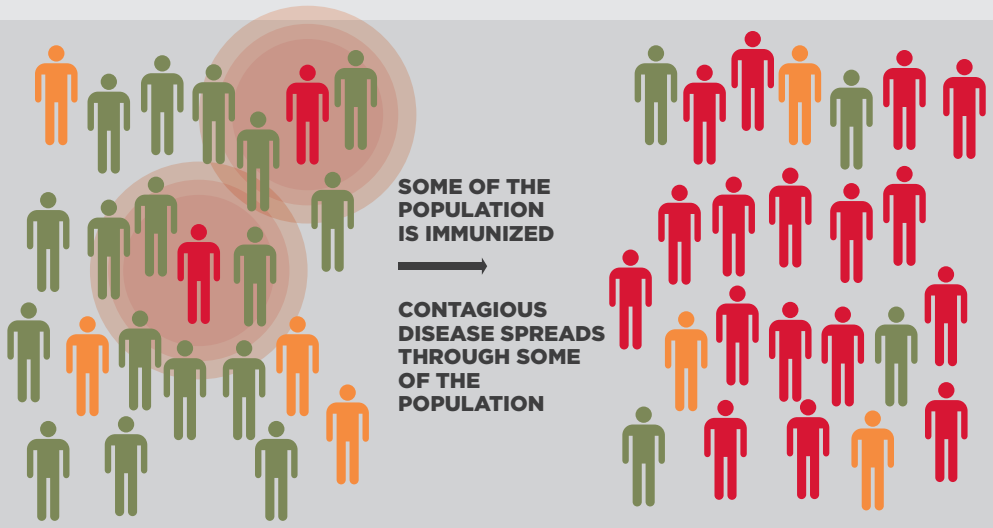


 NOT
IMMUNIZED
BUT STILL
HEALTHY

 IMMUNIZED
AND HEALTHY

 NOT IMMUNIZED
SICK, AND CONTAGIOUS

Figure 2

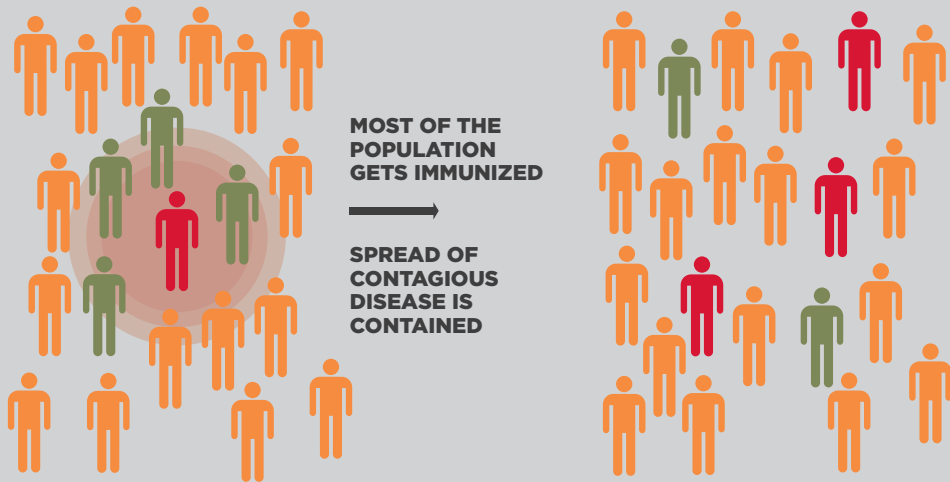


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Figure 3



 **NOT IMMUNIZED BUT STILL HEALTHY**

 **IMMUNIZED AND HEALTHY**

 **NOT IMMUNIZED SICK, AND CONTAGIOUS**

Receiving multiple vaccinations at the same time overloads the immune system and increases the risks for side effects

Studies have repeatedly demonstrated that the recommended vaccines are no more likely to cause adverse effects when given in combination than when they are administered separately. At the same time, when administering polyvalent or combination vaccines, studies have shown that there is no difference in the production of adequate and specific antibodies against all components, as compared with separate administration. In addition, less injections and visits are needed for achieving full protection.

New techniques in the production of vaccines have allowed the reduction of the number of antigens included in the vaccines used today. During the 1960s a baby received >3,000 antigens in the vaccines that were used at the time. In comparison the currently recommended vaccines for an infant contain only 50-70 different antigens^{4-8, 13}.

I am healthy and have no underlying disease or condition. Therefore I am not concerned about being sick with a childhood disease.

It is important to remember that getting vaccinated does not only protect oneself but also contributes to building “herd immunity” (diagramme 1-3) which protects even persons who cannot be vaccinated or who do not respond to vaccines (see Figures 1-3)¹³. These persons remain susceptible to disease, and their only hope of protection is that people around them have been successfully vaccinated.

Deciding to receive a vaccine is actually a decision with important ramifications for the society as a whole¹⁴.

It is also important to remember that the so called childhood vaccine preventable diseases such as measles, rubella, mumps and varicella (chickenpox), are more severe for adults who are more at risk for complications, while most of them (with the exception of varicella) have no specific treatment available.

Natural immunity is better than vaccine-acquired immunity

In some cases it is true that immunity after natural infection lasts longer. However, the risks from suffering one of the vaccine preventable diseases are far more than the risks of immunization with any of the existing licensed vaccines.

This is especially true as the susceptible population has shifted to a large extent to adults and the percent of immune compromised persons in our population is higher as compared to some years ago. It is common with many vaccine preventable diseases that adults are at higher risk for complications compared to children who used to be the most affected population in the past. Finally, we need to remember that as a consequence of vaccine development for the management of these diseases, no other treatment advances have been made for decades, so clinicians can only offer supportive care to patients instead of specific treatment options. (See also individual fact sheets for the risks of each disease vs. the respective vaccine risks)^{4-8,13}.

Vaccines cause many harmful side effects, even death and may have possible long-term effects

The vast majority of vaccine side effects are minor, usually local reactions such as soreness or pain at the injection site and mild fever. More serious side effects are rare, in the order of 1 in thousands or million doses administered.

Any serious event or condition that happens within six months of the immunization should be reported to the relevant authority. However, in many instances and especially in the case of deaths or other serious possible side effects the cause-effect relationship with the vaccine cannot be clearly established, as many of these incidents may happen by coincidence.

A number of systems for the monitoring of the post-licensure profile of each vaccine are operating in Europe and the USA and each case of severe side effects is investigated thoroughly^[4-8, 12, 14-15].

Myths about Hepatitis B

The hepatitis B vaccine causes Multiple Sclerosis (MS) or exacerbates the progression of the disease.

Several studies investigated the possible relationship between hepatitis B vaccine and demyelinating disease, in particular multiple sclerosis (MS). The results of published scientific studies do not support the suggestion that hepatitis B vaccine causes or worsens significantly demyelinating diseases^{4-8, 13, 17}.

The hepatitis B vaccine is associated with arthritis and alopecia.

Recent data from more studies do not verify this correlation between the hepatitis vaccine and arthritis or loss of hair^{4-8, 13}.

Myths about the MMR Vaccine

MMR causes autism disorders

This myth refers to children, but due to the increased publicity and the questions and misconceptions arising from this, it is included

Some parents of children with autism believe that there is a link between measles, mumps, rubella (MMR) vaccine and autism. This is partly attributed to the publication in 1998 of a small case series by a team of British gastroenterologists describing 12 children with gastrointestinal and behavior problems. In this paper the patients' symptoms were correlated with receiving MMR or becoming sick with measles. This paper and the subsequent media and internet attention has led many parents to question the need of MMR and/or immunizations in general. Of note is the fact that the particular researcher was discredited as he presented false data and eventually was retracted by the journal, and the author lost his medical license.

There is no evidence that any vaccine can cause autism or any kind of behavioral disorder. Typically, symptoms of autism are first noted by parents as their child begins to have difficulty with delays in speaking after age one, which coincides with the age when 1st dose of the MMR vaccine is recommended. Since this is also an age when autism commonly becomes apparent, it is not surprising that autism follows MMR immunization in some cases. By far the most logical explanation is coincidence, not cause and effect. Large epidemiological studies in various countries have not indicated a link between increased risk of autism spectrum disorders and MMR vaccination. Additionally, in Japan following the above mentioned controversial publication, they elected to administer each component vaccine (measles, mumps and rubella) separately; however no decrease in the diagnosis of autism was seen. Multiple factors influence the development of autism spectrum disorders, the incidence of which is rising. These include increasing maternal and paternal age and increased awareness for these disorders of parents, pediatricians and teachers, which allows earlier diagnosis¹⁸⁻²².

Myths about the Flu vaccine

Flu vaccine did not prevent me from getting sick last year.

Flu vaccination cannot make you sick with influenza. Several other viruses such as rhinoviruses, respiratory syncytial virus (RSV), coronaviruses, adenoviruses, circulate more or less at the same time as influenza and cause the common cold, with symptoms very similar to influenza, i.e. congestion, fever (usually lower than flu), headache.

The most commonly used seasonal influenza vaccine is an inactivated split virus trivalent vaccine, i.e. contains only parts from 3 different flu viruses each year (2 influenza A and 1 influenza B virus) grown in eggs. New seasonal influenza vaccines are also quadrivalent, i.e. they contain 2 influenza A and 2 influenza B vaccines.

Each year WHO laboratories around the world collect data and expert epidemiologists make an educated guess as to the subtypes that need to be included in the seasonal flu vaccine. Its effectiveness depends mostly on the correspondence of the vaccine viruses with the subtypes of influenza viruses that actually circulate in the particular season.

Flu vaccine effectiveness in healthy adults is on average 40-70% in “good” years, when the vaccine fit is good. Vaccine effectiveness is lower in people >65 years of age, but immunized elderly are protected against severe outcomes, complications and death²³⁻²⁵.

Flu vaccine can cause paralysis (Guillain - Barré syndrome)

Several studies have investigated this association between the seasonal influenza vaccine and Guillain-Barré syndrome, which is a rare complication of various infections, including influenza (e.g. gastroenteritis with Campylobacter, infection with cytomegalovirus (CMV) or Epstein Barr virus (infectious mononucleosis)). The incidence of this syndrome increases with age.

Several studies have shown that Guillain-Barré syndrome occurs in a frequency $< 1/1,000,000$ doses of seasonal influenza vaccine, rate which is comparable to the incidence of the syndrome in the general population²⁴⁻²⁶.

Flu is not a very serious disease, even if I get sick I will get better soon.

Although the majority of people infected with influenza become sick for 5-7 days and then recover completely, influenza is a serious disease. It causes sickness in about 5-15% of the population every season, of which about up to 1-3% die every year in Europe mainly persons with underlying diseases.

Risk groups for influenza complications have been recognized for a long time now and include mainly asthma and other respiratory diseases, diabetes and other endocrine diseases, cardiovascular diseases, renal diseases, liver diseases, metabolic diseases (diabetes, Addison's disease etc), neurological and neuromuscular diseases affecting respiratory functions and suppressed immune function (congenital or acquired). However, it has been shown from recent studies that influenza can kill perfectly healthy children, pregnant women or adults (young and middle aged) even without any risk factor or underlying condition.

Influenza complications affect mainly the upper airways (sinusitis, otitis media), the lower respiratory system (bronchitis, respiratory insufficiency, Acute Respiratory Distress Syndrome (ARDS)), the cardiovascular system (heart attacks, strokes, myocarditis) or the Central Nervous System (encephalitis)²³⁻²⁸.

WHERE CAN I FIND MORE INFORMATION?

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