Answers to frequent concerns and questions arising from Vaxxed

The Immunisation Advisory Centre

Vaxxed is a film directed by Andrew Wakefield, the former British gastroenterologist who published fraudulent research that claimed the MMR vaccine caused autism. The film is based on claims that unfavourable safety data on the MMR vaccine was covered up by the United States Centers for Disease Control and Prevention.

The content of the film has been widely discredited by the global medical and scientific communities. However, screenings of Vaxxed around New Zealand have stimulated a range of questions from parents who have become concerned about the safety of vaccines as a result of this film and the social media surrounding it. We have collected some of the key questions and provided answers to assist parents with their concerns.

How can parents give informed consent before their child is vaccinated?

Informed consent is a fundamental concept in the provision of health care services, including vaccination. Healthcare providers have a duty to provide meaningful information to enable parents to understand the benefits and risks of vaccination in order to make an informed choice and give informed consent.

Healthcare providers must provide access to up-to-date and scientifically valid information to help parents make a choice that results in the best health outcomes for their children and their community.

Further reading

» **Making an informed decision**
http://www.immune.org.nz/immunisation/making-informed-decision

Have the rates of autism increased?

To answer this question it is important to understand how autism has been identified and diagnosed over the years. The rates of autism diagnosis have increased in countries all over the world. Most of the observed rise is due to greater awareness and changes to the diagnostic criteria, i.e. the features that need to be present in order to be diagnosed with autism.

In 1943 children who were socially isolated and withdrawn were labelled as having infantile autism. Prior to 1980 many people with autism were institutionalised and not generally seen in the community.

In 1980 infantile autism, disintegrative psychosis and pervasive developmental disorders were included as a conditions in the Diagnostic and Statistical Manual of Mental Disorders (DSM), a manual describing the standard criteria required for diagnosing mental disorders, for the first time.

In 1987 the diagnosis was changed to autistic disorder and the criteria expanded to include children with less severe symptoms and symptoms becoming apparent after 30 months of age. At the same time, the criteria changed and instead of children requiring six out of six criteria to meet the diagnosis, they needed eight out of 16 criteria. This made a diagnosis of an autistic disorder more inclusive and, of course, more common.

In 1991 in the U.S., where much of the data presented in the film comes from, the Education Department made a ruling that a child with a diagnosis of autism qualified for special services. This change very likely encouraged families to seek a diagnosis.

In 1994 the DSM added another diagnosis, Asperger's disorder, which is considered to be at the milder end of the autistic spectrum.

In 2006 the American Academy of Pediatrics recommended that all children be screened for autism at routine health checks at 18 and 24 months of age.

In the current (2013) DSM, autistic disorder, Asperger's disorder, childhood disintegrative disorder and pervasive developmental disorder (not otherwise classified) were combined into a single diagnosis, autism spectrum disorder.

Overall the rates of children being diagnosed with an intellectual disorder have declined, but the rates of autism spectrum disorder diagnosis have increased. This is likely due to a shift in diagnosis.

This history is very important to consider when thinking about what could have contributed to the rise in autism diagnosis numbers.

Many studies show that autism occurs equally among vaccinated and unvaccinated people, which strongly indicates that vaccines do not cause autism.

Research into possible reasons for autism has been ongoing. Genetic and environmental factors have been identified, including having older parents, particularly an older father, and premature birth. Over the past 20 years, an increase in older parents and the proportion of premature infants surviving may also have contributed to the rise in diagnosis of autism spectrum disorder.

Further reading:

» **History of autism**
http://projectautism.org/history-of-autism
» **Autism rates are up, but is it really on the rise?**
http://www.sciencemag.org/news/2015/07/autism-rates-are-it-really-rise
» **The "Why vaccines don't cause autism" papers**
http://blogs.plos.org/speakingofmedicine/2017/01/20/the-why-vaccines-dont-cause-autism-papers
» **A population-based study of measles, mumps, and rubella vaccination and autism**
http://www.nejm.org/doi/full/10.1056/NEJMoa021134

How effective are vaccines?

Vaccines on the New Zealand National Immunisation Schedule are recommended because they are extremely effective at controlling some potentially dangerous diseases.

Continued...

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How effective are vaccines? Continued

The measure of effectiveness varies depending on the vaccine and the disease, for example:

» Two doses of measles vaccine protect 98% of those who catch the virus from becoming ill and one dose protects over 90%. Protection is likely to be lifelong.
» Pertussis-containing vaccination of a pregnant woman offers over 90% protection to the newborn infant, but as this is passive transfer of antibodies for protection, it will wane by a few months of age.
» A primary course of pertussis-containing vaccine offers around 81–85% protection, but this protection does wane after 3–6 years.

Further reading:

» **An assessment of measles vaccine effectiveness, Australia, 2006–2012**
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4675157/pdf/WPSAR.2015.6.3-043.pdf
» **Cochrane in context: Vaccines for measles, mumps and rubella in children**
http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004407.pub3/full

What is the difference between vaccination and immunisation?

The term vaccine is derived from the word vaccinia (cowpox), the virus used in the first vaccine. A vaccine is used to induce immunity, to immunise.

The terms immunisation programme and a vaccination programme are more or less interchangeable, used to refer to a process designed to induce immunity against specific diseases in groups of people at risk of the disease or complications.

Who funds the Immunisation Advisory Centre?

The Immunisation Advisory Centre receives most of its service delivery funding from the New Zealand Ministry of Health. Funding information is available on our website: http://www.immune.org.nz/funding.

Academic staff are involved in research that can be funded from a variety of sources including the Health Research Council of New Zealand, the pharmaceutical industry, and Ministry of Business, Innovation and Employment.

Has there ever been a study that compares vaccinated with unvaccinated people?

Absolutely, there have been many. Almost all studies that assess vaccine safety and vaccine effectiveness use methods that compare vaccinated people with unvaccinated people. Some contemporary studies include not only hundreds of thousands of individuals but sometimes over one million. *A population-based study of measles, mumps, and rubella vaccination and autism* included over half a million children from Denmark (available from http://www.nejm.org/doi/full/10.1056/NEJMoa021134).

Can parents opt off the National Immunisation Register?

Yes.

Further reading:

» **Questions and answers – National Immunisation Register**
http://www.health.govt.nz/our-work/preventative-health-wellness/immunisation/national-immunisation-register/questions-and-answers-national-immunisation-register

How are adverse events following immunisation reported and recorded?

Adverse events following immunisation are monitored in many different ways. Anyone aware or concerned about an adverse event following immunisation is encouraged to report the event to the Centre for Adverse Reaction Monitoring (CARM).

However, systems that collect reports through volunteer submissions are not designed to evaluate overall safety of a vaccine. Collecting of reports is only one aspect of a vaccine safety system and they are designed to look for any signals that are unexpected that need to be considered further. The safety of vaccines is assessed using many approaches, such as the study referred to earlier. Vaccine safety profiles can only be determined by comparing outcomes in vaccinated with outcomes in unvaccinated individuals. Personal stories, while important for generating questions, cannot tell us how safe a vaccine is.

Two important points, firstly, a vaccine will not be licensed without extensive safety data; and secondly, once a vaccine comes into use safety is monitored throughout its use. If a question arises (such as, does the MMR vaccine increase the risk for autism?) studies can be designed especially to answer the question.

Are vaccinated children more likely to develop autism?

No. Absolutely not. There is not a single scientific study that has found an association. The study below pooled the results from multiple studies in the U.S., U.K., Europe and Japan assessed for any risk in more than one million children.

Further reading:

» **Vaccines are not associated with autism: An evidence-based meta-analysis of case-control and cohort studies**
http://www.sciencedirect.com/science/article/pii/S0264410X14006367%20

Who follows up adverse events after a vaccine?

In New Zealand reports of adverse events are followed up by the Medical Assessor at the Centre for Adverse Reactions Monitoring (CARM) and reported to Medsafe and/or the Medicines Adverse Reactions Committee (MARC). CARM also collaborates with the World Health Organization (WHO), contributing to and benefiting from international vaccine safety monitoring.

Continued...

Who follows up adverse events after a vaccine? Continued

Further reading:

- **Centre for Adverse Reaction Monitoring (CARM)**
  https://nzphvc.otago.ac.nz/carm
- **Medicines Adverse Reactions Committee (MARC)**
  http://www.medsafe.govt.nz/profs/MARC/MARC.asp
- **Medsafe**
  http://www.medsafe.govt.nz
- **WHO Programme for International Drug Monitoring**
  https://www.who-umc.org/global-pharmacovigilance/who-programme

Were polio and smallpox caused by vaccines?

No. Smallpox has been eradicated and polio is very close to eradication through vaccination. However, the live viruses in oral polio vaccine used in some developing countries have caused cases of polio. New Zealand has used an inactivated, injected polio vaccine that cannot cause the disease since 2002.

How safe is the HPV vaccine?

The HPV vaccine is one of the safest vaccines ever developed. The vaccine has been subject to many claims by people deeply opposed to vaccines, which has led the World Health Organization to review HPV vaccine safety every 12–18 months to ensure all claims are investigated. The result is a very large body of high quality data that firmly supports the safety of HPV vaccines.

Further reading:

- **Global Advisory Committee on Vaccine Safety 7–8 June 2017, Safety update of HPV vaccines**
  http://www.who.int/vaccine_safety/committee/reports/June_2017/en

Are diseases like measles and chickenpox really serious?

They can be. Complications from measles are common. They may be caused by the measles virus or a bacterial infection that follows measles because the virus lowers the body's ability to fight other infections. In high-income countries with good nutrition around one in 10 people with measles require hospitalisation and around one person in 1000 with measles will die. Rates of severe illness and death are much higher than this in very low income countries. The risk of measles complications and death are higher in children under 5 years and adults over 20 years of age.

Measles during pregnancy increases the risk of miscarriage or premature birth.

Chickenpox is usually less severe when caught in childhood than in adolescence or adulthood. Most healthy children will only need relief from itching and to continue drinking. However, some healthy children will develop complications that may be serious enough to require hospitalisation, and can occasionally lead to death. Children with weak immune systems, e.g. children being treated for cancer, can be particularly severely affected.

If a woman catches chickenpox during pregnancy, the virus can infect the growing baby and cause congenital varicella syndrome.

Further reading:

- **Varicella (chickenpox)**
  http://www.immune.org.nz/diseases/varicella-chickenpox
- **Measles**
  http://www.immune.org.nz/diseases/measles

Do only starving people in Africa die of measles?

No. Measles is particularly severe in the malnourished children with vitamin A deficiency but healthy children aged under 5 years and adults aged over 20 years are also at high risk of developing measles related complications and could die. In New Zealand in 1991, seven people with no other conditions died from measles. Recently, declining immunisation coverage in Europe has resulted in measles related deaths.

Further reading

- **35 measles deaths in Europe in 12 month period**
  https://www.historyofvaccines.org/content/blog/35-measles-deaths-Europe-2017

Will eliminating chickenpox in the community result in more shingles?

Unlikely. Multiple international studies have identified a general increase in the number of shingles cases year to year in many countries, regardless of whether the country includes immunisation against chickenpox or not. Studies that assessed the numbers of shingles cases before and after the introduction of chickenpox vaccine also found the number of cases were increasing before the vaccine was added to their immunisation programme.

It is not known why more cases of shingles are being seen year to year, but it does not appear to be related to vaccination against chickenpox.

Children who have had chickenpox vaccination have a lower risk overall of contracting shingles later in life than those who had the disease.