Immunization: Get the facts

Immunize Immunisation Canada
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Immunization fact #1

The measles-mumps-rubella (MMR) vaccine does **NOT** cause autism

Evidence-based reviews performed by the U.S. Institute of Medicine have rejected any causal associations between the measles-mumps-rubella (MMR) vaccine and autism spectrum disorders in children. In addition to these reviews, research studies have also shown no causal associations. For example, a Danish research team studied children born between 1991 and 1998 (537,303 children) and concluded that there is no difference in the rate of autism between vaccinated and unvaccinated children. Although the reason for the increase in autism is not yet conclusively known, one explanation may be the broader definition and inclusion of many more behaviours and learning disorders within autistic spectrum disorders.

REFERENCES

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U.S. Centers for Disease Control and Prevention. Autism Spectrum Disorders: Related Topics. Online at http://www.cdc.gov/ncbddd/autism/topics.html

Canadian Health Sciences Research Foundation. Mythbuster – The risks of immunizing children often outweigh the benefits. Online at http://www.chsrf.ca/migrated/pdf/mythbusters/myth24_e.pdf

Plus a database of online resources at immunize.ca

Immunization fact #2

Multiple injections do **NOT** overwhelm the immune system

Every day our bodies come into contact with millions of germs, causing our immune system to work continuously to protect us. Therefore, exposure to antigens (parts of weak or dead viruses or bacteria) in vaccines is easily handled by our immune systems. In fact, our immune system needs to be challenged continually to stay vigorous. Modern biotechnology has reduced the number of antigens in today's vaccines. For example, in 1980 the diphtheria, tetanus and acellular pertussis (DTaP) vaccine had 3017 antigens. At present, infants receiving recommended vaccines starting at two months of age come into contact with only 34 antigens — just 34 antigens among the millions handled every day by our immune systems.

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National Advisory Committee on Immunization. Canadian Immunization Guide 2006. Online at http://www.phac-aspc.gc.ca/publicat/cig-gci/index-eng.php

Canadian Paediatric Society. Your Child's Best Shot 2006. Order online at http://www.cps.ca/english/publications/Bookstore/YourChildsBestShot.htm

Public Health Agency of Canada. Frequently Asked Questions. Online at http://www.phac-aspc.gc.ca/im/vs-sv/vs-faq-eng.php#7

Public Health Agency of Canada. A Parent's Guide to Immunization: Section 3. Vaccines are Safe. Online at http://www.phac-aspc.gc.ca/im/iyc-vve/pgi-gpv/section3-eng.php

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Immunization fact #3

Vaccines do **NOT** contain cells from aborted fetuses

Human cell lines were commonly used in the early stages of production of some vaccines* to increase safety by reducing reactions to unfamiliar foreign proteins to the immune system.

However, modern biotechnology provides new approaches to cultivating viruses for vaccine production. For example, vaccine manufacturers now use chicken embryos for the production of influenza vaccines, and are now looking towards mammalian cell lines that can be grown and reproduced in laboratories for vaccine production. All cell lines are removed during the purification stage of vaccine development.

*MMR, varicella, hepatitis A, rabies, and TDaP

REFERENCES

Canadian Paediatric Society. Your Child's Best Shot 2006. Order online at http://www.cps.ca/english/publications/Bookstore/YourChildsBestShot.htm

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Immunization fact #4

Vaccines do **NOT** contain harmful traces of preservatives or residual products

Some vaccines contain…

Preservatives which help keep vaccine vials from getting contaminated with germs

Thimerosal
Thimerosal is an ethyl mercury derivative. It is a preservative used only in multi-dose vials of vaccines, and not in single-dose vials or syringes. Low doses of thimerosal have not been shown to produce any negative health effects. Nevertheless, no vaccine in Canada since March 2001 for routine use in children contains thimerosal, with the exception of the influenza vaccine. DTaP, polio and Hib vaccines have not contained this preservative since 1997-98. The MMR vaccine used in Canada has never contained thimerosal.

Residuals of the vaccine production process which are required to make the vaccine but are removed from the final product

Formaldehyde
Formaldehyde is sometimes used in the manufacturing process of vaccines to inactivate viruses and toxins. However, it is mostly removed during the purification process. Formaldehyde occurs naturally in the human body and helps with metabolism. There is approximately ten times the amount of formaldehyde in a baby's body at any time than there is in a vaccine.

REFERENCES

National Advisory Committee on Immunization. Canadian Immunization Guide 2006. Online at http://www.phac-aspc.gc.ca/publicat/cig-gci/index-eng.php

Canadian Paediatric Society. Your Child's Best Shot 2006. Order online at http://www.cps.ca/english/publications/Bookstore/YourChildsBestShot.htm

Public Health Agency of Canada. Frequently Asked Questions. Online at http://www.phac-aspc.gc.ca/im/q_a_thimerosal-eng.php

U.S. Centers for Disease Control and Prevention. Ingredients of Vaccines – Fact Sheet. Online at http://www.cdc.gov/vaccines/vac-gen/additives.htm

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Immunization fact #5

Vaccines do **NOT** contain harmful traces of additives or adjuvants

Some vaccines contain…

Additives to help vaccines stay effective while being stored

Gelatin
Some vaccines contain gelatin to protect them against freeze-drying or heat. Gelatin is also used as a stabilizer in live vaccines. However, the use of gelatin in vaccines as an additive has been reduced even though the incidence of allergic reactions is currently very low.

Adjuvants to help the body create a better immune response
An adjuvant is an agent used to stimulate the immune system and increase the response to a vaccine. There are many known adjuvants in widespread use, including aluminum salts and squalene. Without an adjuvant like aluminum, people would require more frequent doses of vaccines to be protected against viruses and bacteria.

Aluminum salts
Aluminum is naturally present in our environment, including air, food, earth and water, and presents little risk to people. The safety of aluminum salts has been established over the past 70 years with millions of people being vaccinated with aluminum-containing vaccines.

Squalene
Squalene is a naturally occurring substance often found in plants, animals and humans, as well as foods and cosmetics. It is a compound produced by the liver and circulates freely throughout the bloodstream.

Squalene has been added as an adjuvant to some seasonal influenza vaccines in Canada to increase the immune response and improve their efficacy for certain age groups.

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World Health Organization, Global Advisory Committee on Vaccine Safety 2006. Squalene-based Adjuvants in Vaccines. Online at http://www.who.int/vaccine_safety/topics/adjuvants/squalene/questions_and_answers/en/

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American Academy of Pediatrics. Questions and Answers About Vaccine Ingredients 2008. Online at http://www.aap.org/immunization/families/faq/vaccineingredients.pdf