

Demystifying the Myths Around Vaccination

A Vaccine Action Information Series

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In recent years, speculative media stories have raised parental anxiety around childhood vaccination. Many myths concerning vaccination have developed, and practitioners are now increasingly faced with parents who are concerned that vaccination is in some way more hazardous than the diseases themselves. This is not correct. To help practitioners address parental concerns, this section of *Vaccine Action* examines a regularly expressed vaccination myth.

Myth 4:

There are so many unnecessary things added to vaccines. These must be dangerous?

Not so. Additives are materials added to vaccines by the manufacturer for a specific purpose – to make them work better or to ensure safety. They might include:

- **Adjuvants:** these enhance and direct the immune response. The only adjuvants in UK vaccines are aluminium salts.
 - Aluminium is one of the most common elements on earth and is present in air, food and water, so all infants are exposed to it in the environment.
 - It is present in many foods: breast milk contains about 40µg/l¹.
- **Stabilisers:** materials that help protect the vaccine from adverse conditions such as the freeze-drying process or heat, or stop the vaccine from sticking to the sides of the vial.
 - Can be sugars (e.g. lactose), amino acids, or proteins.
 - Some parents worry about lactose-containing vaccines in lactose-intolerant children, but lactose is only a problem for these children when it is ingested². Vaccines are given intramuscularly, and this does not bring on symptoms of lactose intolerance.
- **Preservatives:** prevent growth of bacteria and fungi.

Until recently, the mercury-based preservative, thiomersal was used in DTP combination vaccines. It was there to prevent contamination when we used to use multi-dose vials which were repeatedly punctured in the drawing up of vaccine doses. The safety of thiomersal in vaccines has

been firmly established through its use for over 60 years, and by several large studies in the UK and US³. However, as part of a global goal to reduce mercury exposure in general, there has been an international effort to eliminate thiomersal from vaccines where possible. None of the vaccines in the routine childhood immunisation programme now contain thiomersal.

- **Residuals:** traces of substances used to make or inactivate vaccine components may remain in the final product.
 - **Antibiotics:** neomycin, polymyxin B and streptomycin are used to prevent bacterial contamination during manufacturing and may be found in trace amounts in some childhood vaccines¹. Allergic reactions to these are very rare, but a previous confirmed anaphylactic reaction to one of these antibiotics is one of the very few contraindications to receiving the DTap/Hib/IPV vaccine⁴.
 - **Formaldehyde** is used to inactivate viruses or toxins used in the manufacture of some vaccines. It is also naturally present in the human body – our bodies need it to make amino acids and DNA. The barely detectable quantities of formaldehyde that may remain in some vaccines are less than one-tenth of the levels that circulate naturally in the bloodstream of a 2-month old baby¹.

Materials derived from cattle, such as agar and casein, are used during the early stages of manufacture of Men C vaccines⁵, but are not present in detectable amounts in the finished product. All manufacturers source these products from countries certified BSE-free – not the UK².

In the light of recent vaccine scare stories, it is not surprising that there may be public concern about vaccine additives. However, additives are only used when they are necessary and they are not dangerous. To vaccinate against the serious diseases of childhood is much safer than not to vaccinate.

References

1. Offit PA, Jew RK. 2003 Addressing parents' concerns: do vaccines contain harmful preservatives, adjuvants, additives, or residuals? *Pediatrics*. 112 (6 Pt 1) 1394-1397
2. Diggle L, Glennie L. 2005 Recognition and prevention of meningitis and septicaemia *Community Practitioner* 78 (2) 42-45
3. NHS Immunisation Factsheet: Thiomersal and Vaccines. Oct 2003; 33782. <http://www.immunisation.nhs.uk/files/thiomersalfsht.pdf>
4. Department of Health 2006 Immunisation against infectious diseases ('Green Book') Chapter 16: *Meningitis* type B (Hib). 127-142. Available from <http://www.dh.gov.uk>
5. Department of Health. Use of meningococcal group C conjugate vaccine. Key pharmaceutical/technical issues (updated August 2000).

This myth was adapted from the 'Reassuring parents about vaccine safety' section of a resource booklet produced by the Meningitis Research Foundation: *Vital Signs, Vital Issues*. The booklet was developed in response to requests from community practitioners for help in recognising meningitis and septicaemia. Practitioners also requested help with talking to parents about vaccination. For your free copy of the resource, contact: Meningitis Research Foundation (Tel: 01454 281811 or email: info@meningitis.org) It can also be downloaded from: www.meningitis.org

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Myths about vaccination seem to appear in the media on a daily basis. It would be all too easy for this coverage to cloud our professional judgement about the safety of vaccines. We owe it to the families and children that we care for to correct these myths and misunderstandings.

Interested in writing for Vaccine Action?
We also invite our Vaccine Action Readers to write in and tell us about their favourite Vaccination Myth. We will pay £100 per Myth that we publish.