Science vs “scaremongering” over measles-mumps-rubella vaccine

The British government has been forced to mount a US$ 4.4 million information campaign to reassure doctors and parents about the safety of the measles-mumps-rubella (MMR) vaccine. Fears about the combination vaccine arose most recently after a London hospital physician claimed in January that it had not been adequately tested before being put into wide use in the United Kingdom. In 1998, the same physician claimed that the vaccine may be linked to autism and bowel disease. Both claims received massive nationwide media coverage and have been vigorously refuted by government health officials as “scaremongering”.

The information campaign will include distribution of leaflets and posters to the public and information packs to health professionals, as well as advertising on national television. The campaign has been mounted against a background of falling uptake of the vaccine amongst two-year-olds in the UK — from around 92% in early 1995 to around 88% today. In some, mainly inner-city, areas coverage has dropped to around 75%, sparking fears of localized measles outbreaks. WHO recommends vaccine coverage rates of around 95% to prevent outbreaks.

David Salisbury, head of the UK government’s immunization programme, told the Bulletin that the 88% coverage level has remained steady for the past 18 months. Among children starting school at five years of age coverage hovers around the 93% mark. However, he admits this is still not high enough. “So far we have not had any significant emergence of measles but there is a danger that parents will worry because of all the adverse media coverage and we will get a self-fulfilling prophecy of falling immunization rates.”

The controversy over the MMR vaccine was first triggered by a study on 12 children reported in the 28 February 1998 issue of the Lancet by Andrew Wakefield and his colleagues at the Royal Free Hospital in London. All 12 children had intestinal abnormalities and nine were judged to have autism. The study merely concluded that “gastrointestinal disease and developmental regression was associated in time with possible environmental triggers”. The authors admitted that the study “did not prove an association between MMR vaccine and the syndrome described”. However, Dr Wakefield suggested at a press conference that there might be a link. The study was widely criticized at the time because of the lack of evidence of a causal association between MMR and autism or bowel disorders.

The following year, the 12 June issue of the Lancet carried a report of a large epidemiological study reported by a different team, headed by Brent Taylor from the same hospital, that found no causal association between the MMR vaccine and autism: MMR coverage was the same in children with autism as in the general population and there was no clustering of cases of autism arising shortly after MMR vaccination.

On 6 April 2000, media interest was aroused once again when Dr Wakefield and John O’Leary, director of pathology at Coombe Women’s Hospital, Dublin, Ireland, presented unpublished data to the US Senate’s Congressional Oversight Committee in Washington. Dr Wakefield told the committee he had now studied more than 150 children with “autistic enterocolitis” and that gut biopsy material from 24 of 25 children with autism, vs 1 of 13 controls, was positive for measles virus. These data have been presented at scientific meetings but have never been published in full in a peer-reviewed journal.

Dr Wakefield and others have called for the combination vaccine to be replaced by separate vaccines against measles, mumps and rubella, on the assumption that this might be a safer vaccination policy. However, Mary Ramsay from the UK’s Public Health Laboratory Service, says that switching to single vaccines “would completely undermine the solid evidence base that MMR is very safe. It could lead to serious erosion of the current coverage of the MMR vaccine and render outbreaks of disease more, rather than less, likely.”

Japan is the only country that uses single (monovalent) measles and rubella vaccines and the country suffers from endemic and epidemic measles. Between 1992 and 1997 there were 79 measles deaths in Japan.

The most compelling evidence for continued use of the combined vaccine comes from a large prospective Finnish study reported by Annamari Patja of the Helsinki University Hospital for Children and Adolescents in the 19 December 2000 issue of the Pediatric Infectious Disease Journal. The study followed 1.8 million children for 14 years and detected no cases of inflammatory bowel disease or autism reported as short-term consequences of the vaccination. In a previous study, the same authors had followed up all children reported to have gastrointestinal symptoms after MMR vaccination. None had developed autism or inflammatory bowel disease. The authors concluded that serious adverse events with MMR are rare and greatly outweighed by the risks of disease.

Dr Wakefield’s latest claim, advanced in the 21 January 2001 issue of Adverse Drug Reactions and Toxicological Reviews, is that the MMR vaccine was prematurely licensed for use. Two independent expert groups that advise the UK government, the Joint Committee on Vaccination and Immunisation and the Committee on Safety of Medicines (CSM), reviewed the Wakefield paper. The CSM also conducted a detailed review of MMR safety. Both committees strongly endorsed the use of MMR, rejected calls for single vaccines and severely criticized Dr Wakefield’s claims. At the end of January, the British Medicines Control Agency and the Department of Health published a detailed rejection of these claims (www.doh.gov.uk), which they say rests on “highly selective” and “flawed” data. “It is easy for scaremongering to sap public confidence by biased presentations,” they wrote. Before the MMR vaccine was introduced in the UK in 1998, they note, the vaccine had been “extensively tried and tested in Scandinavia and the USA.” Moreover, several hundred million doses have been administered worldwide and “extensive data demonstrate [the vaccine’s] safety”.

The current controversy appears to be confined to the UK. Ana-Maria Henao-Restrepo, medical officer with the Expanded Programme of Immunization at the World Health Organization, says: “WHO is not aware that fears over safety have affected the uptake of the vaccine anywhere other than the UK.”

Jacqui Wise, London
In Brief

Outbreak readiness a priority after India earthquake

Respiratory infections are the main health dangers confronting survivors of the earthquake that on 26 January hit Gujarat state in north-western India, according to WHO’s South-East Asia regional office. Among the estimated 700,000 buildings damaged or destroyed are a number of hospitals. “Destruction of buildings is forcing people to sleep in the open, despite low night-time temperatures,” says Eigil Sorensen, an on-the-spot WHO adviser, “and is making respiratory infections one of the most acute dangers (in the area)” About 1 million people in Gujarat state are believed to be without shelter. A 12-member WHO team in Ahmedabad and Bhuj, cities close to the quake’s epicentre, is coordinating the work of local health officials and agencies working in the area. It is also helping them take stock of the situation, restore severely disrupted health services in the area and set up an outbreak early warning and prevention system. As the Bulletin went to press on 14 February, the latest on-the-spot reports gave the human toll as 16,480 confirmed deaths and 144,927 injuries.

New hormone, a link between obesity and diabetes?

US researchers report in the 18 January issue of Nature their discovery of a hormone that is secreted in large amounts by fat cells in obese mice and that produces signs of adult-onset, or type 2, diabetes when given to healthy mice. In type 2 diabetes, blood sugar levels are abnormally high despite high levels of insulin. The problem is that the patient’s tissues are resistant to the insulin. Hence, the name “resistin”, with which the researchers have dubbed the new-found hormone. They also found that antibodies to the hormone improve the action of insulin in obese mice. These findings, if confirmed in humans, may explain the strong but hitherto unexplained link between obesity and type 2 diabetes.

Study quantifies children’s risk from passive smoking

A study of 5400 US children aged 4 to 16 years, reported in the January issue of the Archives of Pediatrics & Adolescent Medicine, found that exposure of children to tobacco smoke in the home and public places nearly doubled their risk of respiratory problems, such as impaired lung function and wheezing. Children in the 4- to 6-year-old age-group, in addition, were at an over fivefold risk of asthma from exposure to tobacco smoke compared with unexposed children. Unlike previous research that has relied on parents’ recall to identify children’s exposure to tobacco smoke, this study, conducted by the National Center for Environmental Health in Atlanta, Georgia, used children’s blood levels of cotinine, a metabolite of nicotine, as a marker of exposure.

Genetically modified tobacco loses nicotine but not taste

Vector Group Ltd announced on 15 January that it had produced a cigarette from genetically modified tobacco that contains “virtually no nicotine” and no cancer-causing nitrosamines. Unlike previous attempts to make nicotine-free cigarettes, which failed to win consumer approval, Vector’s product, the company claims, retains its original taste and could be used to wean people off smoking. Whether or not it will pass muster with WHO will depend on whether the organization’s scientific advisory committee on tobacco product regulation believes the new product will really help people quit smoking. The cigarettes are expected to be on sale early next year.

An artificial protein blocks HIV

A synthetic protein made by a US team from the Whitehead Institute for Biomedical Research in Cambridge, Massachusetts, appears in cell culture experiments to prevent HIV from attaching to its target T cells, the team reported in the 12 January issue of Science. The protein, which the researchers call 5-Helix, jams the “grappling hook” that HIV uses to attach to T cells. It seems to work on a wide range of HIV strains. The researchers, who hope soon to start monkey tests on their protein, see it as a possible first step in designing drugs for HIV/AIDS patients in whom current medications are not effective or tolerated.

More Gates’ money for health

Microsoft chairman Bill Gates announced on 27 January at the World Economic Forum in Davos, Switzerland, that the Bill & Melinda Gates Foundation would give US$ 100 million over the next five years to the New York-based International AIDS Vaccine Initiative. IAVI, which over the past three years has already received US$ 26.5 million from the Foundation, plans to use the new funds to launch clinical trials of three promising AIDS vaccines currently in the R&D pipeline. In a separate development, the Foundation announced on 6 February a US$ 1 million grant over the next two years to the Geneva-based Global Forum for Health Research to boost its efforts to get public-private partnerships to make drugs and vaccines available to poor countries.