Conclusions on MMR vaccine safety by the All-Party Parliamentary Group on Primary Care and Public Health

- On Monday 24th July 2000, Dr Elizabeth Miller, Head of the Immunisation Division at the PHLS Communicable Disease Surveillance Centre, presented a review of the evidence on the safety of MMR vaccine to the All-Party Parliamentary Group on Primary Care and Public Health. The PHLS is a Non-Departmental Public Body charged with providing independent scientific evidence and advice both to clinicians and the Department of Health on matters relating to protecting the population from infection. For more information see www.phls.co.uk/whoweare/index.htm

- The conclusion of the All-Parliamentary Group meeting, and of the representatives of various professional bodies in attendance, was that MMR vaccine is safe and that concerns about alleged links with various conditions such as inflammatory bowel disease (IBD) and autism were unfounded.

- At the meeting Dr Miller presented data which demonstrated the excellent control of measles that has resulted from the introduction of MMR vaccine in 1988.

![Annual measles notifications & vaccine coverage England and Wales 1950-1999](source: Office for National Statistics and Department of Health)

- However, the All-Party Group, which was attended by the Minister for Public Health, Yvette Cooper, expressed concerns about the fall in MMR vaccine uptake in recent years that had resulted from the fears about MMR vaccine safety. Although measles was still under control in the UK, this would not be the case if vaccine coverage did not improve. In some districts where uptake has been consistently low, there is an imminent threat of local outbreaks.
• The Group expressed concern about the risk of measles outbreaks such as that which had recently occurred in Holland among a group which had refused vaccination. This outbreak had resulted in 1750 cases and 3 deaths in unvaccinated children [Sheldon T. Netherlands faces measles epidemic. British Medical Journal 2000; 320: 76]. Ireland, where vaccine coverage was now below 80%, was also experiencing a measles outbreak, its worst for 7 years, with 1220 cases so far and 2 deaths [Payne D. Ireland’s measles outbreak kills two. British Medical Journal 2000; 321: 197].

• Dr Miller reviewed the hypotheses which have been advanced over the last few years asserting links between measles vaccine, either wild or vaccine-type on its own or in combination with mumps and rubella (MMR) vaccine, and various chronic conditions. These hypotheses have two features in common: first, all have originated from a single group of workers in the UK (the Royal Free Hospital Inflammatory Bowel Disease Study Group - RFHIBDSG); second, none has been endorsed by independent recognised medical experts anywhere in the world.

<table>
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<th>Evolution of hypotheses about measles virus and various chronic conditions</th>
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<td>• Congenital or early post natal wild measles infection causes Crohn’s disease but not ulcerative colitis (UC)</td>
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<td>• Measles vaccine causes both Crohn’s and UC</td>
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<tr>
<td>• Wild measles and mumps infection in the same year causes Crohn’s and UC</td>
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<tr>
<td>• Wild mumps infection before 2 years of age causes UC</td>
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<tr>
<td>• MMR vaccine causes autism and an inflammatory bowel gut disorder which is neither Crohn’s disease nor UC</td>
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• Despite the lack of independent corroborative evidence for the various hypotheses put forward by the RFHIBDSG, the Department of Health and various independent bodies such as the Joint Committee on Vaccination and Immunisation (JCVI) which is composed of independent clinical and scientific experts, the Committee on Safety of Medicines (CSM) which is responsible for licensing vaccines in the UK, and the Medical Research Council (MRC) which funds vaccine research, have taken the concerns about MMR vaccine safety very seriously. The measures which have been taken are as follows:
Steps taken to investigate MMR/measles vaccine safety concerns

- Evidence reviewed at each meeting of JCVI
- Review in March 98 by ad hoc MRC expert panel of all published and unpublished studies by the Royal Free IBD Group
- Review of alleged vaccine-damaged cases by expert panel convened by Committee on Safety of Medicines
- Establishment of MRC Expert Subgroup on Research into IBD and autism
- Support for epidemiological and virological studies

- The conclusions of the various expert groups and of the epidemiological and virological research studies have been entirely consistent – namely that there is no evidence to implicate either measles vaccine or MMR in IBD or autism.
There is now overwhelming evidence, both from the UK and abroad, that the virological evidence linking measles virus to IBD put forward by the RFHIBDSG is flawed.

**UK - Results of virological studies of inflammatory bowel disease (IBD)**


**Japan - Results of virological studies of inflammatory bowel disease (IBD)**

- Izuka et al. Immunohistochemical analysis of the distribution of measles related antigen in the intestinal mucosa in IBD. Gut 2000; 46163-69. “We failed to detect any measles virus genome or measles virus antigen in gut tissue from patients with IBD”.
However, the most recent hypothesis relating to MMR vaccine and autism continues to receive media attention and to arouse anxiety in parents despite powerful negative evidence that the vaccine is safe [Taylor et al. Autism and measles, mumps and rubella vaccine: no epidemiological evidence for a causal association. Lancet1999; 353: 2026-29]. This large study of nearly 500 cases of autism in the North Thames region was carried out jointly by Community Paediatricians at the Royal Free Hospital, Epidemiologists at the PHLS and a Statistician at the Open University. The main findings were as follows:

<table>
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<td>Lancet 1999; 353:2026-29</td>
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- No increased risk of onset of autism shortly after MMR vaccine
- No difference in age at diagnosis between autism cases vaccinated or unvaccinated by 18 months of age
- No difference in MMR vaccine uptake between autism cases and rest of population
- Rise in diagnosed autism cases pre-dated use of MMR vaccine
- Rise continued while vaccine uptake constant

The lack of an association between MMR and autism has been confirmed by reports from other countries.
Allegations that the study was biased or flawed have been made by various individuals but are entirely without foundation. Most disturbing is the false information put out by certain factions that the Royal Statistical Society has said that the Taylor et al paper is flawed. This is entirely untrue and originates from inaccurate information provided by Dr. AJ Wakefield of the RFHIBDSG to a recent US Congressional Hearing on MMR and autism.

Autism and MMR - other negative epidemiological evidence

- **SWEDEN**

- **FINLAND**

- **ENGLAND**
  Fombonne. Inflammatory bowel disease and autism. Lancet 1998; 352: 955. “These results provide no support for the hypothesis of an association between IBD and autism”.

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• The team from the Royal Free, PHLS and the Open University also provided evidence to the recent US Congressional hearing on the subject of autism and MMR. The testimony documents can be found below.

Evidence from Dr Elizabeth Miller, PHLS, and Dr Paddy Farrington, Open University. [Click here.]

Evidence from Prof Brent Taylor, Royal Free and University College Medical School. [Click here.]

• However, there is cause for cautious optimism, as over the last year MMR vaccine uptake has stabilised and even started to increase slightly.
Although there is still some way to go before levels of MMR vaccine uptake reach the recommended 95%, this trend is clearly a step in the right direction.

A list of review articles and editorials relating to MMR/measles vaccines and inflammatory bowel disease or autism is given below.

**Reviews**


**Editorials**
