There is little evidence that combined vaccination against measles, mumps, and rubella is associated with autism


QUESTION: Is the combined measles, mumps and rubella (MMR) vaccination associated with autism?

Design and setting
Retrospective population study of all children born in Denmark between January 1991 and December 1998.

Participants
537,305 children were born during the study period; 49% girls. 82% received the MMR vaccine.

Assessment of risk factors
The Danish Civil Registration System assigns a unique identification number to every live birth and new resident in Denmark. MMR vaccination status was obtained from the Danish National Board of Health. Information about potential confounders was obtained from the Danish Medical Birth Registry, the National Hospital Registry and Statistics Denmark.

Main outcome measures
Autism status was obtained from the Danish Psychiatric Central Register, containing all diagnoses from psychiatric hospitals and outpatient clinics in Denmark.

Main results
Children receiving the MMR vaccination were no more likely to develop autism than non-vaccinated children (table). There was no clustering of autism diagnoses according to time after vaccination, age of the child at vaccination or date of vaccination.

Conclusions
The authors found no evidence that the combined measles, mumps and rubella vaccination is associated with the development of autism.

**Relationship between MMR vaccination and risk of autism**

<table>
<thead>
<tr>
<th></th>
<th>MMR vaccinated children (n=440655)</th>
<th>No MMR vaccination (n=96648)</th>
<th>Adjusted relative risk from MMR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number who developed autism</td>
<td>263</td>
<td>53</td>
<td>0.92 (0.68 to 1.24)</td>
</tr>
<tr>
<td>Number who developed autism-spectrum disorder</td>
<td>345</td>
<td>77</td>
<td>0.83 (0.65 to 1.07)</td>
</tr>
</tbody>
</table>

Note: Relative risk is adjusted for age and other confounders.
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Evid Based Mental Health 2003 6: 62
doi: 10.1136/ebmh.6.2.62

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