



Parents' reported reasons for avoiding MMR vaccination

A telephone survey

Eva Dannetun, Anders Tegnell, Göran Hermansson & Johan Giesecke

To cite this article: Eva Dannetun, Anders Tegnell, Göran Hermansson & Johan Giesecke (2005) Parents' reported reasons for avoiding MMR vaccination, Scandinavian Journal of Primary Health Care, 23:3, 149-153, DOI: [10.1080/02813430510031306](https://doi.org/10.1080/02813430510031306)

To link to this article: <https://doi.org/10.1080/02813430510031306>



Published online: 12 Jul 2009.



Submit your article to this journal [↗](#)



Article views: 17270



View related articles [↗](#)



Citing articles: 5 View citing articles [↗](#)

ORIGINAL ARTICLE

Parents' reported reasons for avoiding MMR vaccination

A telephone survey

EVA DANNETUN^{1,4}, ANDERS TEGNELL², GÖRAN HERMANSSON³ & JOHAN GIESECKE⁴

¹Department of Communicable Disease Control, Landstinget i Östergötland, Linköping, ²Communicable Disease Unit, National Board of Health and Welfare, Stockholm, ³Central Unit of Child Health Care, Landstinget i Östergötland, Linköping, ⁴Department of Epidemiology, Swedish Institute for Infectious Disease Control, Solna, Sweden

Abstract

Objective. During the second half of the 1990s and the first years of the 2000s a declining coverage for MMR vaccination in two-year-olds was observed in Sweden. The aim was to assess reasons for postponement or non-vaccination. **Design.** A telephone survey using a structured questionnaire on parents' attitudes regarding their choice to postpone or abstain from vaccinating their child. **Setting.** The County of Östergötland in Sweden. **Subjects.** A total of 203 parents of children who had no registered date for MMR vaccination at a Child Health Centre. **Main outcome measures.** Parental reasons for non-vaccination. **Results.** In all, 26 of the 203 children had received MMR vaccination but this had not been registered. Of those not vaccinated, 40% of the parents had decided to abstain and 60% to postpone vaccination. Fear of side effects was the most common reason for non-vaccination in both groups. The main source of information was the media followed by the Child Health Centre. Parents with a single child more often postponed vaccination and those who abstained were more likely to have had a discussion with a doctor or nurse about MMR vaccine. **Conclusion.** Postponers and abstainers may have different reasons for their decision. The role of well-trained healthcare staff in giving advice and an opportunity to discuss MMR vaccination with concerned parents is very important.

Key Words: *Attitudes, MMR, vaccination, parents*

In the mid 1990s the debate on the alleged risks of childhood vaccines became intense. This debate was largely stimulated by publications from a single research group suggesting a possible link between measles, measles vaccine, and inflammatory bowel disease [1], and between measles, mumps, and rubella vaccine (MMR) and autism [2]. To date, all expert reviews of the literature as well as population studies have refuted any such association [3–6].

In Sweden, a general childhood immunization programme is recommended by the National Board of Health and Welfare (Ordinance SOSFS 1996:1). Participation in the programme is voluntary, and the vaccines are offered free of charge. The two-dose programme with MMR vaccine is offered to all children at 18 months in the Child Health Centres (CHC), and at 12 years in the School Health Centres.

Diminishing trust in vaccination programmes has led to falling coverage in many countries.

- Parents' decision to postpone vaccination was slightly more common than to abstain totally.
- Fear of side effects and beliefs concerning maturity and natural immunity were the most common reasons for not vaccinating the child at the recommended age of 18 months.

A vast majority, around 98%, of all Swedish children are registered at a CHC. MMR coverage in Sweden reached 90% two years after its introduction in 1982 and a maximum of 96.8% in 1996.

The national coverage level then showed a slow annual decline until 2001 when it decreased sharply to 88.4%. The statistics for 2002 showed an increase to just over 90%. Regional differences are seen and several municipalities now have cohorts with coverage well below 90% (www.smittskyddsinstitutet.se [in Swedish]).

In a previous study of timeliness of MMR vaccination we found that delayed vaccination accounted for a substantial portion of the drop in MMR coverage in recent years [7]. In this study of 3871 children aged between 24 and 64 months, 285 (7.3%) had no recorded date for receiving MMR vaccine. The aim of the present study was to analyse reasons for postponement or non-vaccination by interviewing the parents of these 285 children.

Material and methods

This study was conducted in the County of Östergötland (population 410 000), where approximately 4000 children are born each year. The group studied was the three cohorts of children born in 1998, 1999, and 2000 who were registered at a CHC on 31 December 2002, and the data were collected in January/February 2003. The numbers of children living in the county at the time of investigation were 4080, 4037, and 4123, respectively, for the three cohorts. The percentage of these children registered at any of the CHCs in Östergötland was 98.4, 98.8, and 99.3, respectively. Since our main interest was to study postponed or missed vaccinations, we decided to include only CHCs with a reported coverage of 90% or lower in the year before our study, which applied to 17 of the 40 CHCs in the county.

Twelve, 70.6%, of the 17 CHCs with a reported coverage in 2001 of $\leq 90\%$ were contacted and they all agreed to participate. In January 2003 the nurses at these CHCs registered, for each child born 1998, 1999, and 2000, date of birth, personal identifying number and if and when MMR vaccination had been given. Data for a total of 3871 children were reported, of whom 285 had no date for MMR vaccination recorded at the CHC.

Of the 285 children, 82 were excluded for the following reasons:

- 6 because they were undergoing treatment for a severe disease;
- 4 because they were new immigrants whose records were incomplete;
- 32 because their parent(s) could never be reached despite numerous attempts;
- 40 because we were unable to locate any parent due to lack of contact details.

A total of 203 interviews were conducted using a structured questionnaire, developed for this study, to explore parental knowledge, attitudes, and reason for avoiding MMR vaccination of their child. Data were collected on age, sex, MMR vaccination status, and if the child had in fact been vaccinated when and where this had been administered. There were then 8 closed questions with Yes/No/Don't know answers and 12 questions with multiple closed alternatives and an open alternative "Other". When asked questions with multiple alternatives the respondent was asked to rank them in order of importance. The questionnaire was pre-tested on a sample of eight parents to ensure the clarity of the questions.

The interviews were performed by four nurses with long experience of conducting telephone interviews with structured questionnaires. These nurses were all working in infection disease surveillance and had no present or former professional connection with the Child Health Centres of the study.

Calculations were done using JMP, SAS Institute, Cary, NC, USA version 4.0.2 and EpiInfo 6.0.2. Differences between groups were tested by chi-squared and Fisher's exact test. Significance was determined from 95% confidence intervals.

Results

Interviews with parents of three children were excluded from the analysis: one because the parent interviewed lacked all knowledge of what vaccines the child had received, one because the only reason for non-vaccination was that it had been forgotten, and one because the parent could not give adequate information due to language problems. Only one parent declined participation. Interviews were completed with 199 (100 girls and 99 boys) out of the original 285 subjects (69.8%). The mean age of the children was 43 months (range 27–64 months). At the time of the interview, 26 out of the 199 parents (13.1%) reported that their child had received MMR vaccination. For all 26, this had been done prior to the collection of surveillance data, but it had not been registered in the CHC file.

A total of 173 interviews were analysed. Table I lists reasons given for the parents' decision and Table II gives the sources of information on vaccination. Questions were asked on whether the parents had received any information on MMR from the CHC. In all, 133 of 173 (77%) stated that they had received information, which was ranked as "informative but one-sided" by 76 (57%), as "poor" by 32 (24%), and as "based on facts" by 25 (19%). Questions as to whether they had discussed their decision with the CHC staff showed that 95 of 173 (55%) of the parents had had such a discussion.

Table I. Reasons given by parents for not vaccinating their child with MMR vaccine.

	Total (n = 173)		Postpone (n = 103)		Abstain (n = 70)		Difference	
	(n)	%	(n)	%	(n)	%	%	95%; CI
Fear of side effects	(94)	54	(49)	48	(45)	64	-16	-30.8; -1.2
Small risk of disease	(14)	8	(8)	8	(6)	9	-1	-9.5; 7.5
Better with natural immunity	(54)	31	(19)	18	(35)	50	-32	-45.8; -18.1
Let the child mature more	(57)	33	(57)	55	-	-		
Adjuvant	(11)	6	-	-	(11)	16		

First column = total number, the two following show those who had postponed vaccination and those who had decided to abstain (more than one reason could be reported).

The CHC was significantly more often referred to as a source of information (73%) than as a discussion partner (55%).

Parents were asked if they had decided to postpone MMR vaccination, to abstain, or if not decided on either (see Table I). Fear of side effects and a belief that natural immunity is better were more common in the abstention group. The abstention group also relied more on information from an anthroposophic organization and less on the CHC (see Table II). In the postponement group, 49 of 103 (49%) of the parents said they had had an opportunity to discuss MMR at CHC, versus 46 of 70 (66%) in the abstention group (95% CI -31.7% to -2.2%).

One question was whether the parents thought they would reconsider their decision if a measles epidemic were to occur. In the postponement group 13 of 103 (12.6%) answered that they would not, whereas 34 of 70 (48.5%) of the parents in the abstention group would (95% CI -48% to -22%).

A total of 118 (68.2%) of the children had siblings. In families whose first child was the child in this study postponement was significantly more common than abstention (95% CI 1.4% to 29%). Of the 118 siblings, 69 had received MMR vaccine and 26 had had a side effect from the vaccine.

Discussion

The main reasons reported for not having vaccinated the child were: fear of side effects, wanting the child to mature, and a belief that natural immunity is better than vaccine-induced. Some 60% of the parents had decided to postpone and 40% to totally abstain from MMR vaccination for their child. In a previous study where actual dates for MMR vaccination of almost 4000 children were investigated [7] the same proportion of postponers and abstainers was seen. There was a significant difference in the number of parents who had merely received information from the CHC staff and those who had had a proper discussion with the staff, and it was mainly parents in the abstention group who had had such a discussion. One explanation could be that doctors and nurses were satisfied when parents stated that they just wanted to postpone: the child would eventually be vaccinated anyway. It could also be that parents who decided to postpone also postponed their visit to the CHC until their child had reached the "right" age.

From the total number of 285 parents whom we decided to contact 82 (29%) could not be interviewed. The majority of these, 72/82 (88%), were lost since we were unable to either locate or reach

Table II. Sources of information on MMR vaccination¹.

	Total (n = 173)		Postpone (n = 103)		Abstain (n = 70)		Difference	
	(n)	%	(n)	%	(n)	%	%	95%; CI
Friends/relatives	(45)	26	(23)	22	(22)	31	-9	-22.5; 4.5
Media	(141)	82	(87)	84	(56)	80	4	-7.7; 15.7
Internet	(36)	21	(18)	17	(18)	25	-8	-14.4; 4.4
CHC	(50)	29	(36)	35	(14)	20	15	1.9; 28.1
Anthroposophist	(26)	15	(4)	3	(22)	31	-28	-39.3; -16.7

¹More than one source could be reported by an interviewee.

them. It is difficult to know whether the reason for non-vaccination in this group was really an active choice, or if these parents represent a socially disadvantaged population with overall weak contacts with the social and healthcare systems. As shown by Wall and Teeland [8], non-responders may differ substantially from responders. As for the decision to abstain or postpone, the time lag between the decision not to vaccinate and this study may influence type of response, but we did not collect data on this time lag.

When healthcare staff ask consumers questions about healthcare there is a risk for interviewer bias. By using interviewers who were not working in the Child Health Care sector and who had wide experience in conducting telephone interviews, as well as by using a structured questionnaire developed for this occasion with mainly closed questions, we believe we have minimized this risk. Furthermore our findings are similar to those arrived at when using other questionnaires and methods such as focus groups or semi-structured interviews [9–11].

Fear of side effects from the vaccine was greater and the belief that natural immunity is better for the child were more prominent in the abstention group. Parents who postpone on the other hand wanted their child to mature more and suggested an age for MMR vaccination at around four years. Common remarks given to clarify their choice was “there must be some truth in the allegations” and “better safe than sorry”. There are thus several findings from our study which suggest that postponers and abstainers should be seen as two different groups, and different approaches may be needed in any strategy to convince them to change their minds.

Parents with a single child to a larger extent elected to postpone than abstain from MMR vaccination. This could well be due to uncertainty as a new parent. A chance to discuss and perhaps receive more information on this issue could have been beneficial for these parents in their decision-making, according to several studies [9,10,12].

Of the 203 interviews performed, the mother of the child answered the questions in 198. On 30 occasions the father was first to answer the telephone, but only four of them responded to the questions – the rest referred the interviewer to the mother. On no occasion did a mother refer the interviewer to the father. In spite of Swedish gender equality, fathers in this survey seem to be unaware of their children’s vaccinations and the decision to vaccinate is possibly taken by the mother alone. Mothers being the primary source for gathering information on children’s vaccination status has been observed in most similar studies [9,13,14].

This fact should be explored and studied further since it may have important implications for information strategies regarding benefits and side effects of vaccines.

In many studies, primary health care providers are cited as the best or most reliable source of information on childhood vaccinations [12,13,15]. The impression from this study and several others also underlines the necessity for health professionals to be well informed and up to date in order to be able to relate findings from medical research to the individual parents and discuss different perspectives with them [11,12,16,17].

References

- [1] Thompson NP, Montgomery SM, Pounder RE, Wakefield AJ. Is measles vaccination a risk factor for inflammatory bowel disease? *Lancet* 1995;345:1071–4.
- [2] Wakefield AJ, Murch SH, Anthony A, Linnell F, Casson DM, Malik M, et al. Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. *Lancet* 1998;351:637–41.
- [3] Kaye JA, del Mar Melero-Montes M, Jick H. Mumps, measles, and rubella vaccine and the incidence of autism recorded by general practitioners: a time trend analysis. *BMJ* 2001;322:460–3.
- [4] Taylor B, Miller E, Lingam R, Andrews N, Simmons A, Stowe J. Measles, mumps, and rubella vaccination and bowel problems or developmental regression in children with autism: population study. *BMJ* 2002;324:393–6.
- [5] Madsen KM, Hviid A, Vestergaard M, et al. A population-based study of measles, mumps, and rubella vaccination and autism. *N Engl J Med* 2002;347:1477–82.
- [6] Horton R. The lessons of MMR (Commentary). *Lancet* 2004;363:747–50.
- [7] Dannetun E, Tegnell A, Hermansson G, Giesecke. Timeliness of MMR vaccination – influence on vaccination coverage. *Vaccine* 2004;22:4228–32.
- [8] Wall M, Teeland L. Non-participants in a preventive health examination for cardiovascular disease: characteristics, reasons for non-participation, and willingness to participate in the future. *Scand J Prim Health Care* 2004;22:248–51.
- [9] Sporton R, Francis S-A. Choosing not to immunize: are parents making informed decisions? *Fam Pract* 2001;18:181–8.
- [10] Smailbegovic MS, Laing GJ, Bedford H. Why do parents decide against immunization? The effect of health beliefs and health professionals. *Child Care Health Dev* 2003;29:303–11.
- [11] Fredrickson D, Davis T, Arnold C, Kennen E, Humiston S, Cross T, Bocchini J. Childhood immunization refusal: provider and parent perceptions. *Fam Med* 2004;36:431–9.
- [12] McMurray R, Cheater FM, Weighall A, Nelson C, Schweiger M, Mukherjee S. Managing controversy through consultation: a qualitative study of communication and trust around MMR vaccination decisions. *Br J Gen Pract* 2004;54:520–5.
- [13] Ramsey ME, Yarwood J, Lewis D, Cambell H, White JM. Parental confidence in measles, mumps and rubella vaccine: evidence from vaccine coverage and attitude surveys. *Br J Gen Pract* 2002;52:912–6.

- [14] Harrington P, Woodman C, Shannon W. Low immunisation uptake: is the process the problem? *J Epidemiol Community Health* 2000;54:394–400.
- [15] Gellin B, Maibach E, Marcuse E. Do parents understand immunizations? A national telephone survey. *Pediatrics* 2000;106:1097–102.
- [16] Alfredsson R, Svensson E, Trollfors B, Borres MP. Why do parents hesitate to vaccinate their child against measles, mumps and rubella? *Acta Paediatr* 2004;93:1232–7.
- [17] Evans M, Stoddart H, Condon L, Freeman E, Grizzell M, Mullen R. Parents' perspectives on MMR immunisation: a focus group study. *Br J Gen Pract* 2001;51:904–10.