Why do parents decide against immunization? The effect of health beliefs and health professionals

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Abstract

Objectives  To explore the knowledge, attitudes and concerns with respect to immunization and vaccine-preventable infections in parents whose children have not completed the recommended course of immunization.

Setting  Parents of children resident in the London Borough of Hackney.

Methods  Children born between 1 January 1999 and 15 February 1999 were identified from the child health database, and cases were defined as those who had defaulted for one or more primary immunization by 18 months of age. After validation of immunization status from health records, questionnaires were sent to parents. Ten respondents from this sample were interviewed.

Results  Questionnaires were sent to 129 parents of children identified as not completing the recommended immunization course. Nine questionnaires were returned ‘address unknown’, and 76 parents returned the completed questionnaire. The response rate from known residents was 76/110 (69%). Eight parents stated that their child had been immunized, leaving 68 questionnaires available for further analysis. Measles, mumps, rubella (MMR) and meningococcal C were most frequently omitted, usually because of concerns about vaccine safety. Twenty-three out of 68 respondents perceived that having their child immunized with a particular vaccine was more risky than non-immunization, particularly for MMR and meningococcal C vaccines. Those who agreed to be interviewed were notably concerned about the MMR vaccine, but not immunization in general. They perceived the information provided by health professionals to be poor.

Conclusions  The decision-making process around childhood immunization is complex. Parents require information that is up to date, tailored to their individual needs and provided by health professionals who are well informed.

Keywords

immunization, coverage, parents, health beliefs

Background

Immunization is an effective public health measure and, between 1969 and 1999, the coverage of primary immunization in the UK by 2 years of age increased from 80% to around 95%. (Public Health Laboratory Service, COVER programme. http://www.phls.co.uk/publications/cdr). However, more recently, a fall in the uptake of the mumps, measles and rubella (MMR) vaccine, in particular, has led to concerns about the resurgence of disease. Low uptake has been linked to poor

Although immunization rates are often lower among disadvantaged populations (Marsh & Channing 1987; Jarman et al. 1988), this relationship is complex, and not all studies report a correlation between poor social circumstance and uptake (Begg & White 1998; Ramsay et al. 2002). Several factors related to socioeconomic status are also associated with uptake, including family size (Li & Taylor 1993), cultural and religious beliefs (Baker et al. 1984; Bhopal & Samin 1988) and lone parenthood (Sharland et al. 1997).

The development of the Health Belief Model in the 1950s enabled a greater understanding of the influences on health behaviour, including acceptance of immunization (Rosenstock et al. 1958). In 1989, the Peckham report (Peckham et al. 1989) suggested that parental attitude was the most powerful predictor of uptake. The behavioural factors that influence immunization uptake can be divided into two main categories: personal readiness, which includes the perceived seriousness of a disease and the likelihood of catching it; and the perceived safety and efficacy of the vaccine. Factors in the second category include social pressure and the convenience of immunization. Parents who consider vaccines to be safe and effective and the diseases to be more serious are more likely to have their children immunized. (Peckham et al. 1989; Sutton & Gill 1993).

Immunization rates for England are published every quarter, and uptake in the London Borough of Hackney is persistently in the lowest decile (Public Health Laboratory Service, COVER programme. http://www.phls.co.uk/publications/cdr). The local population is disadvantaged as well as culturally and ethnically diverse, and previous research in the area has focused on uptake in specific religious and cultural groups (Feder et al. 1993; Cunninghamhame et al. 1994; Hodes 1997). It suggests that access and low socioeconomic status play a more significant role than personal belief. However, health professionals working locally have suggested that these factors are becoming less important and that the effect of parental belief on uptake is increasing. This view is supported by surveys undertaken by Immunization Information England, which have found that the decline in acceptability of the MMR vaccine appears to be greater among more socioeconomically advantaged parents (Ramsay et al. 2002).

This study uses questionnaires and interviews to explore the knowledge, attitudes and concerns with respect to immunization and vaccine-preventable infections in a group of parents resident in Hackney whose children have not completed the recommended course of immunization.

**Methods**

The study was conducted in The London Borough of Hackney. Children who had defaulted for one or more primary immunization and were born between 1 January 1999 and 15 February 1999 were identified from the population database (Regional Interactive Child Health System) in which immunization data are routinely entered. Cases were defined as those who had not completed the recommended course of immunization, which in Hackney includes universal BCG, by 18 months of age. For children in the sample, information from the database was validated against health visitors' and parental records by telephone or through direct contact. Children reported to be immunized were excluded from further analysis.

Ethics approval for the study was obtained from the East London and City Health Authority.

An anonymized questionnaire and explanatory letter were sent to the parents of children identified. Use of an identification number allowed non-respondents to be identified, and a second letter and questionnaire were sent to non-respondents 3 weeks after the first mailing.

The questionnaire consisted of a combination of closed and open-ended questions. It was piloted among seven parents before the main data collection. Questions covered sources and usefulness of information on immunization, the reasons for vaccines omitted, the perceived risks of immuniza-
tion, knowledge of individual diseases and use of alternative medicine. Parental perception of the severity of childhood diseases was explored using ranked responses: mild, serious, very serious. The second section of the questionnaire focused on the collection of socioeconomic and demographic data.

At the end of the questionnaire, parents were asked to complete contact details if they would be willing to be interviewed in order to discuss issues raised in the questionnaire in greater depth.

**Results**

One hundred and forty-nine children were identified from the population database as having defaulted for one or more immunization by 18 months of age. Of these, 20 had been fully immunized according to health visitor records. A further 19 questionnaires were returned by the Post Office 'not known at this address'. The questionnaire was returned by 76 parents, eight stating that their child had now completed immunization. A total of 68 questionnaires were analysed. The response rate for known residents was 76/110 (69%) (see Fig. 1).

Almost all respondents (60/68, 88%) were mothers. Family size ranged from one to 10 children with 48% of respondents having three or more children. Twenty-one respondents considered themselves to be a lone parent. Nearly half were white (31/68, 45%), compared with 60% in the population as a whole (http://www.statistics.gov.uk/census2001), and 16 were of black African or black Caribbean origin. Compulsory education was completed by 31/68 (48%).

**Which immunizations were not given and why?** (see Fig. 2)

MMR and meningitis C were most frequently omitted: in 39/68 (57%) and 33/68 (49%) children, respectively, followed by pertussis in 12/68 (18%) children. These were also the vaccines most commonly omitted by non-responders. The principle concern expressed by parents related to vaccine safety, although 19 mentioned time constraint and 13 a lack of information.

BCG immunization had not been given to 10 children. This included two children whose families had followed advice from their doctor and four who had concerns regarding vaccine safety. Only four children had received no immunizations at all: one because of a reported lack of information and three because of concerns about harmful effects. There was little difference between ethnic groups in the responses given: 24/37 (65%) white respondents stated concerns about vaccine safety and side-effects as the principal reasons for non-immunization, whereas 22/31 (71%), in the non-

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**Figure 1.** Response from defaulters as identified by the population database.
white group stated lack of information or no apparent reason for not immunizing.

Information (see Fig. 3)

Health professionals were the most commonly used source of information, but most parents (45/68) used three or more sources of information.

Some parents commented that they used all the listed sources plus others, which mainly included anti-immunization literature.

Advice from health professionals was reported to be the most helpful source of information by 31/68 (48%) of respondents, 37/68 rating it as 'satisfactory'. However, 19 parents were dissatisfied with the information provided by health professionals.

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They felt that it was influenced by government policy and therefore biased, and that information about vaccine safety was withheld. Responses included:

‘All information sources put a lot of pressure on parents because it is cheaper to immunize than to treat.’

‘Most health authorities do not give enough evidence of thorough research or proof on long-term effect of immunizations.’

‘I have a lack of faith in the government line on the subject of immunization, there is a lot more involved than the safety of individual children.’

Parental understanding of immunization

Most respondents (56/68, 82%) associated immunization with protection, disease prevention and the development of antibodies. However, 12/68 admitted that they did not understand how immunization might work, and one parent commented ‘not really sure but know that this is a good and important thing to do’.

Perceived risk of immunization (see Fig. 4)

One-third (33/68, 34%) of respondents perceived that some vaccines were more risky than the disease. Parental responses included:

‘For my children all vaccines are more risky than the disease itself because they are really not exposed.’

‘From what I understand from the media, MMR is more risky than actual diseases.’

‘MMR is too much for the immune system to cope with.’

Long-term concerns were related mainly to MMR and autism. A small number were fearful of their child getting the disease from immunization, and there were a wide range of non-specific fears, for example:

‘Vaccine can cause altering DNA.’

‘Children can lose an arm or leg.’

Concern about the immediate distress caused was less common, but one parent commented ‘Baby’s leg was swollen for days and I was very worried because no one explained to me what happened’. It was of concern that this mother refused all further immunization. Only 6% (4/68) of respondents commented that they had no concerns about immunization.

Parental knowledge about infectious diseases (see Fig. 5)

Perhaps unsurprisingly, meningitis was perceived as the most serious disease, but more than 50% of
parents rated whooping cough, diphtheria and measles as very serious or serious. Most parents rated rubella as a mild disease, although 15 specifically mentioned two or more complications that may be associated with infection in pregnancy.

Use and attitude about complementary medicine

Complementary medicine of some form was used by 29% (20/68) of parents in this study for their children, but none intended to use it instead of conventional vaccination.

Interviews with mothers

Contact details were provided by 10 mothers who were subsequently visited for interview. All mothers in this sample had major concerns relating to the MMR vaccine, although not to immunization in general, and all children in this group had received the triple vaccine. Half the families had personal contact with the parents of children who were autistic and suspected a link between MMR and autism. Parents expressed scepticism about the government's policy on separate vaccines, claiming that it was based on financial reasoning, and felt that a separate injection should be a matter of parental choice. Four mothers had arranged for separate vaccines at private clinics.

In contrast to other respondents, parents in this group rated the information offered by health professionals as poor. This was because of inadequate information about vaccine testing and, in particular, research relating to the MMR vaccine. Health professionals' neutrality was seen as unhelpful, whereas others were reported to have supported parents in their decision to give separate MMR vaccines. The participants also reported that they would have liked an opportunity to discuss their concerns with health professionals in more detail.

Discussion

This study provides valuable information about the views of parents whose children have not completed the recommended course of immunization. The principal concern was around vaccine safety and side-effects, although a smaller number mentioned time constraints and inadequate information.

Health professionals were used as the main source of information by nearly half the respondents, and most rated the information provided as 'satisfactory'. However, 30% considered it to be unsatisfactory, and those interviewed requested more detailed discussion. It was also clear that a small number of families had been advised by their general practitioner not to have their child immunized, although no genuine contraindications were identified, a finding that is supported by other surveys (Hatton 1990; Harris et al. 2001; Petrovic et al.)
It is of concern that some of those interviewed reported that they were supported by health professionals in their decision to give separate MMR vaccines. This finding warrants further investigation regarding the nature of the ‘support’ given and the information provided by health professionals about the safety of the combined MMR vaccine.

It is of concern that some parents believed that the information given to them by health professionals was biased, and that information about vaccine safety was withheld. This has been borne out by other studies (Evans et al. 2001; Sporton & Francis 2001). It has been suggested that, in addition to requiring updating on the risks and benefits of the MMR vaccine (Pareek & Pattison 2000), professionals may need help and support in developing an open approach with parents and that, by fully appreciating parents’ concerns, they will be able to work with them to restore confidence in the MMR vaccine (Evans et al. 2001).

One-third of respondents considered that the risk associated with one or other vaccine was greater than that of the disease, most commonly mentioning MMR. This resulted from a combination of concerns about side-effects, perception of the diseases as ‘not serious’ or the risk of contracting the disease as being low. Nearly two-thirds of parents perceived measles to be serious or very serious. This was in contrast to mumps and rubella, which were rated by most parents as mild diseases. Non-immunization was related to fear about long-term adverse effects, particularly autism and bowel disease. Meningococcal C was the next most frequently omitted vaccine. Although over 80% of parents recognized meningitis as a very serious disease, their concerns focused on whether adequate safety testing was undertaken before the introduction of a new vaccine.

Nearly a third of respondents reported using some form of complementary medicine for their child, but none considered it to be an alternative to conventional immunization. This contrasts with the findings of a study among unimmunized children in Bath between 1987 and 1993 when the commonest reason for non-immunization was the use of homeopathy. (Simpson et al. 1995) Our sample included only four children who had received no immunization at all, but parents in this group were concerned about side-effects and did not use complementary medicine.

Several studies have suggested that immunization uptake among children from ethnic minority groups is paradoxically high and difficult to explain in view of barriers that include language, cultural differences, poor knowledge of health issues and health services and frequently lower socioeconomic status (Bhopal & Samin 1988; Hodes 1997). Hackney has a close-knit orthodox Jewish community in the north of the borough that, in 2001, made up 5.3% of the population. (http://www.statistics.gov.uk/census2001). Research in 1992 did not identify any significant difference in the uptake of immunization or in attitudes towards immunization between the Jewish and other cultural groups and no association with family size (Cunningham et al. 1994). Parents requested more information about immunization and improved access to clinics. However, more recent data suggest that uptake is consistently lower in this community: uptake at 1 year for diphtheria is 46% and for MMR by 2 years is 44% (C. Millett, personal communication).

Information on religion was not requested in this study so that data from the orthodox Jewish community could not be analysed separately. However, several parents volunteered information that is specific to this community. Jewish parents who had come from the Middle East stated that meningitis A had a higher incidence among other ethnic groups in their country of origin. This led them to decide against meningococcal C vaccine as the disease was not perceived as a threat to their community. Seven children from the same community had not received polio vaccine. Their parents had stated that someone within their community had contracted polio from the vaccine. However, the Public Health Laboratory Service could not trace this ‘case’. Tuberculosis is also not perceived to be a danger to this community, and this may explain why two parents stated that their doctor had advised against immunization.

The views of parents who agreed to be interviewed differed markedly from the rest of the sample. Almost all mothers in this group were against MMR immunization and felt that having separate
MMR vaccines should be a matter of parental choice. They were not opposed to immunization in general. They rated the information provided by health professionals as being poor, and many had accessed a number of Internet sites for information. This finding has been echoed in other studies, in which a small but significant minority express lack of information to be the cause of their dissatisfaction with the immunization process (Harrington et al. 2000). This group is likely to benefit from the more detailed factsheets available from Immunization Information England, supported by well-informed professionals.

This study did not aim to investigate the accuracy of the data. However, it does provide some information about the validity of both numerator and denominator on the population database. According to the reports from parents, health visitors’ records and letters returned ‘address unknown’, the database was incorrect in nearly a third (47/149) of cases, and this proportion may be higher in non-responders. Studies conducted in areas with a less mobile population also suggest that the true coverage of immunization is higher than reported figures (Jefferies et al. 1991; Lewendon & Maconachie 2002). Although universal use of the NHS number may help, it is likely to remain a problem, particularly in highly mobile inner city areas such as Hackney, until population-based and primary care data systems are integrated.

The study provides valuable information on the perceptions of parents who failed to complete their child’s immunization course in a deprived inner city area. However, the generalizability of the findings are limited by small numbers and the fact that the study group may not be representative of the wider population. Non-response bias is unlikely to be a major limitation as the immunization status of non-responders differed little. The results highlight the complexity of the decision-making process around childhood immunization and demonstrate that health beliefs play a critical role in uptake. Interventions aimed at improving overall uptake may serve to widen the gap in uptake across social classes (Reading et al. 1994) and, in a population that is multicultural and diverse, health professionals need to be aware of the range of concerns voiced by parents and to be able to provide accurate information that is tailored to the needs of the individual family.

References


