

**PARENTS AND HEALTH VISITORS ATTITUDES AND
KNOWLEDGE REGARDING IMMUNISATION
AGAINST HAEMOPHILUS INFLUENZAE TYPE b
INFECTION**

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of Master of Science in Mother and Child Health
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CRESCER :

e' ser a cada dia um pouco mais nós mesmos.

e' conseguir a calma na hora do caos.

e' termos sempre uma arma para lutar e uma razão para ir em frente.

e' reconhecer nossos erros e valorizar nossas virtudes.

e' sermos responsáveis por nossos atos e por suas consequências.

e' não amarmos para que possamos amar aos outros como a nós mesmos.

e' assumirmos que nunca seremos grandes, mas que o importante é estarmos sempre em crescimento.

e' não devanear sobre o passado, mas trabalhar em cima dele para o futuro.

Elenice Rampazzo

GROWTH :

is each day knowing a little more of ourselves.

is reaching serenity in time of chaos.

is always having a weapon to fight and a reason to go on.

is acknowledging our mistakes and enhancing our virtues.

is being responsible for our acts and their consequences.

is loving ourselves to be able to love others as ourselves.

is assuming that we will never be great but the important thing is to be always improving ourselves.

is not wondering about the past but working for the future.

Elenice Rampazzo

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ABSTRACT

Objective: To explore the attitudes and knowledge of parents and health visitors about preventable infectious diseases, particularly immunisation against *Haemophilus influenzae type b* (Hib).

Design: Cross sectional study using an 18 point questionnaire for the parents and a 14 point questionnaire for the health visitors.

Setting: Clinics of the Barnet Health Authority.

Subjects: A hundred and five parents attending Child Health Clinics in Barnet and fifty five health visitors working for the Barnet Health Authority.

Main outcome measures: Parents and health visitors awareness of preventable infectious diseases and their knowledge and attitudes towards immunisation particularly with regard to Hib infections.

Results: Parents knowledge on primary immunisation was good relating to polio, diphtheria, tetanus, whooping cough and rubella. Confusion was evident in relation to chickenpox, tuberculosis and meningitis. Parents' information about immunisation was received mostly (91=87%) from health visitors.

Health visitors appeared to be particularly influential in the parents decision of whether or not their children were immunised. The media was also shown to be a very important source of information especially regarding meningitis.

Most (98=93%) of the parents demonstrated their awareness of meningitis being a serious disease.

Twenty one (38%) of the health visitors were uncertain of the causes of meningitis and only six (12%) health visitors referred Hib as a cause of meningitis in under five year-old children.

More than half (38=69%) the health visitors in this study said that they did not know about the existance of a vaccine against Hib infection.

The health visitors main concern was lack of information on meningitis and its prevention.

Conclusion: There is confusion among parents and health visitors about infectious diseases and their prevention, particularly concerning meningitis.

There is a need for more information both for parents and health visitors on meningitis and Hib. This study findings suggest that campaigns to parents and health visitors together with more health education is needed in advance of the launch of Hib vaccine.

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1 - INTRODUCTION

"The protection of children from disease which may result in death or handicap must be one of the first duties of society."

(Peckham's Report - Preface)

1.1 - Background

1.1.1 Epidemiology of *Haemophilus influenzae* type b infection

Haemophilus influenzae is one of the major causes of bacteraemic infection, predominantly affecting infants and children. This bacterium is a normal commensal of the upper respiratory tract, and bacteraemia arises when pathogenic strains, usually encapsulated serotype b organisms, reach the bloodstream by invading the respiratory epithelium^(1,2). If Hib enters the bloodstream, it can multiply and spread to the meninges, pleura, epiglottis or joints.

The age distribution of all cases of bacterial meningitis reported to the Communicable Disease Surveillance Centre (CDSC) in 1983 shows that most cases occurred in the 1-11 month and 1-4 year age groups⁽³⁾.

In most United States populations, the peak incidence of Hib meningitis ranges from 6 to 15 months of age. The attack rate for all systemic infections is about 100 per 100,000 children under 5 years^(2,4,5).

A prospective survey conducted in the Oxford region, showed that of the *Haemophilus influenzae type b* (Hib) infections, 97.5% occurred in children under five years and 69% in children under two years of age. The cumulative risk of systemic Hib disease for children by their fifth birthday was 1:600 and for Hib meningitis the cumulative risk was 1:850 children by their fifth birthday. From the total live birth rate, about 1300 cases of systemic Hib disease, over 900 cases of Hib meningitis and 65 deaths would be predicted annually in children in the United Kingdom⁽⁶⁾.

Population-based studies indicate that the annual incidence of Hib meningitis among children aged 0-4 years varies from 20 to 400 per 100,000 in North America and 20 to 60 per 100,000 in Europe. There are few data from developing countries, but those available indicate that the incidence is comparable or even greater. Fatality rates from meningitis vary from less than 5% (USA) to 30% (Papua New Guinea). Of those who survive Hib meningitis, 20% are left with neurological sequelae.

Haemophilus influenzae type b (Hib)

The essential characteristic of Hib strains is the possession of a polysaccharide capsule (PRP) that is a major virulence factor and a target for serum antibodies that mediate protection against disease⁽⁷⁾.

Although Hib is responsible for most invasive disease (especially meningitis), other capsular serotypes (a,c,d,e and f) and non-capsulate strains of *Haemophilus* should not be underestimated. As an illustration, in Australian aboriginal children, 15% of serious infections are caused by strains other than serotype b. Studies from developing countries demonstrate that other serotypes are an important cause of acute lower respiratory tract infection in young children⁽⁷⁾.

1.1.2 Clinical aspects of Hib infection

The diseases caused by Hib include infection of the central nervous system (meningitis), the respiratory tract (epiglottitis, pneumonia and empyema), the synovial joints (septic arthritis), and soft tissues (cellulitis).

Invasive *H. influenzae* infections occur worldwide but attack rates, which vary substantially, depend on the interplay of many different environmental and genetic factors⁽¹⁾.

1.1.2.1 Hib infections and the problem of meningitis

Meningitis can be caused by several pathogens being bacterial and virus the most common agents.

Although meningitis is notifiable in England and Wales, only meningococcal (and possibly tuberculous) meningitis are adequately notified⁽³⁾.

Laboratory reports (England, Wales and Ireland) for the five-year period 1980-84 show that the three main causes of bacterial meningitis, *Haemophilus influenzae*, *Neisseria meningitidis* and *Streptococcus pneumoniae* together accounted for 73.6% of all cases reported. In the USA, almost half (43.3%) of the cases reported (period 1978-81) were caused by *Haemophilus influenzae*⁽³⁾.

Reported cases of Meningococcal, Pneumococcal and *Haemophilus influenzae* meningitis in England and Wales have been increasing over the last five years.

Meningococcal disease was the commonest cause of death from infectious disease accounting for 42% of deaths, due to infection outside the neonatal period.

The existing meningococcal vaccines need to be improved.

The purified group-A polysaccharide (meningococcal group A vaccine) is immunogenic and protective in infants, children

and adults, but the effectiveness of the vaccine is limited. Meningococcal group-C vaccine is ineffective in infants, although highly effective in preventing disease in children and adults. A vaccine against group-B meningococcal disease is still not available.

Similarly, there are no effective vaccines against pneumococcal meningitis though improved conjugate vaccines may be available in the future.

Meningitis due to *Haemophilus influenzae* is more frequent in children aged less than two years due to the inability of infants to produce serum antibodies to PRP after exposure to Hib.

Conjugate Hib vaccines seem to be protective and are already being used as a routine immunisation to children in Finland, Canada and the USA⁽⁸⁻¹¹⁾.

1.1.3 Hib vaccines

Many bacterial polysaccharides, including PRP, are poor immunogens, and do not boost on repeated antigenic challenge, since they do not generate "memory" B cells and are described as thymus-independent antigens (Ti). The reasons for the different behaviour of Ti antigens are poorly understood.

Hib vaccines were first developed and evaluated in the 1970s

and these evaluations proved that the vaccine was effective for older children.

It was necessary to develop a vaccine that could enhance antibody production in infants. Conjugate vaccines have been shown to be effective in young children. At least four different types of conjugate vaccines have been developed and several studies refers to their efficacy^(2,7,12-20).

A study being conducted in Oxford⁽⁶⁾ aims to determine the feasibility of introducing the polyribosyl ribitol phosphate conjugated to tetanus toxoid (PRP-T) Hib conjugate vaccine as a routine immunisation concurrent with routine DPT and polio vaccines at two, three and four months. It is determining the safety and acceptability of the PRP-T Hib vaccine and its efficacy by analyzing the effect on the incidence of Hib disease in Oxford region.

Materials prepared by the Hib Vaccine Study Committee (Department of Paediatrics, John Radcliffe Hospital, University of London and Oxfordshire Health Authority 1991) and designed by the Department of Medical Illustration, were given to parents and health professionals with information about Hib vaccine.

Following the success of the two immunogenicity studies in Oxford⁽²¹⁾, this study will assess the acceptability and efficacy of a Hib vaccine programme in British children.

The study being conducted in Gloucester⁽²²⁾ by the Communicable Disease Surveillance Centre (CDSC) and the Joint Committee on Vaccination and Immunisation (JCVI), where one of the main objectives is to determine the most effective vaccine on stimulating the antibody response, and set this as the one to be introduced in UK, will evaluate the following vaccines:

- 1 - Polyribosylribitolphosphate-diphtheria toxoid conjugate (PRP-D, Connaught Laboratories)
- 2 - Polyribosylribitolphosphate-tetanus toxoid conjugate (PRP-T, Institute Merieux)
- 3 - Polyribosylribitolphosphate-group B meningococcal outer membrane protein conjugate (PRP-OMP, Merck Sharp & Dome)
- 4 - Oligosaccharide-nontoxic mutant diphtheria toxin conjugate (HbO-C, Praxis Biologics)

The trial will be completed by the end of 1991 and the results available early in 1992.

The benefits of preventing death and disability from *H. influenzae b* infections have persuaded the government to include immunisation against Hib in the childhood schedule⁽²³⁾.

1.1.4 General view on immunisation

Vaccination against preventable diseases should be considered a basic right for all children and should be seen as a priority by parents and health professionals alike.

Immunisation has reduced the prevalence of various diseases throughout the world (eg. smallpox, polio, diphtheria, etc). There has been a worldwide decline in mortality and morbidity in childhood, since the introduction of immunisation programmes and campaigns^(24,25).

The European Region of the World Health Organization (WHO) has set a target of 90% immunisation coverage by 1990 for all two year-old children⁽²⁶⁾.

Although immunisation rates in England are increasing, it remains below the WHO target, particularly considering the rates for measles and pertussis^(27,28).

The immunisation schedule in this country is as follows⁽²⁹⁾:

At 2 months

Diphtheria Whooping cough Tetanus	DPT one injection
---	-------------------

Polio	By mouth
-------	----------

At 3 months

Diphtheria Whooping cough Tetanus	DPT one injection
---	-------------------

Polio	By mouth
-------	----------

At 4 months

Diphtheria Whooping cough Tetanus	DPT one injection
---	-------------------

Polio	By mouth
-------	----------

At 12-18 months (usually before 15 months)

Measles Mumps Rubella	MMR one injection
-----------------------------	-------------------

3-5 years (around school entry)

Diphtheria Tetanus	Booster injection
-----------------------	-------------------

Polio	Booster by mouth
-------	------------------

Girls 10-14 Years

Rubella (if not previously immunised)	One injection
--	---------------

Girls/boys 13 Years

Tuberculosis	One injection
--------------	---------------

School leavers

Tetanus	One injection
---------	---------------

15-19 Years

Polio	Booster by mouth
-------	------------------

In October 1992, immunisation against *Haemophilus influenzae* type *b* will be introduced as part of the childhood schedule, subject to the outcome of clinical studies and licence applications⁽²³⁾.

The vaccine will be given by injection (probably in different sites) at the same time as the DPT immunisation, ie. two, three, and four months old.

1.1.5 Attitudes and knowledge of parents and health professionals towards immunisation

Health professionals' attitudes to the prevention of disease have been shown to influence vaccine uptake. In 1974, negative attitudes to pertussis immunisation were considered to be an important reason for poor vaccine uptake (43%) in one district⁽³⁰⁾.

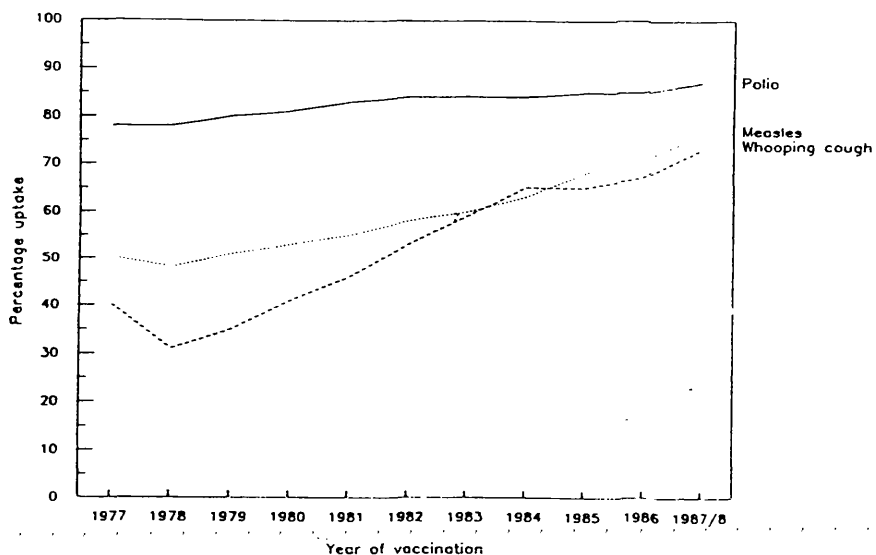
A large study by Peckham⁽³¹⁾ during 1987-1988, (prior to the introduction of the combined MMR vaccine and before the publication of the latest memorandum on Immunisation against Infectious Disease - Joint Committee on Vaccination and Immunisation), investigated the factors influencing the uptake of immunisation at a national level. Parental attitudes are determined by a range of interconnected influences and they are amenable to modification. In general, health professionals had a positive attitude to immunisation and said

they encouraged it. The main obstacle to a child being immunised was the GPs' misconceptions concerning contraindications to immunisation⁽³²⁾.

The Peckham study found that there was no relationship between professionals' attitudes and vaccine uptake. It confirmed that poor information about contraindications to immunisation contribute to low vaccine uptake. For example, almost 50% of the general practitioners wrongly considered measles vaccine to be contraindicated for a child who develops a rash after eating eggs, and the parents reported that their children had not been immunised because of the doctors' advice against the immunisation.

Thus many children are being deprived of immunisation because health professionals inappropriately consider certain conditions or circumstances to be contraindications.

FIGURE 1: PERCENTAGE OF CHILDREN IMMUNISED BY THE END OF THEIR SECOND YEAR. ENGLAND 1977-87/88



Measles, for example, is a common and highly communicable disease of childhood and a significant cause of morbidity in British children. Previously, there were between 60,000 and 100,000 measles notifications each year⁽³²⁾. These notifications have changed dramatically since the introduction of MMR vaccine. For every 1,000 notifications there are likely to be 0.2 deaths; an estimated 10 hospital admissions, 10 neurological complications and 40 respiratory complications. About 20 children die each year from measles or its later complication, sub-acute sclerosing pan-encephalitis. Over half these deaths are in previously healthy children over the recommended age for measles vaccine⁽³¹⁾.

Measles vaccine was first introduced in the UK in 1968 providing 95% protection against the disease, with mild side-effects⁽³¹⁾.

According to Blair⁽³³⁾, most parents were unaware of the symptoms and possible complications of measles and did not believe immunisation to be effective in preventing measles. Many parents and some health professionals still regard measles as a relative trivial disease and a normal experience in early childhood.

In 1983, measles vaccination campaign was initiated by the North Bedfordshire District Health Authority after a survey identified poor administration and lack of commitment among health authority staff as main causes of low measles vaccine uptake in the area⁽³⁴⁾. After the campaign, the results showed increased vaccination and reduction in notifications of the disease.

Carter and Jones⁽³⁵⁾, by identifying the barriers to the uptake of measles vaccine and implementing a co-ordinated and comprehensive health education programme, demonstrated that the level of measles immunisation could be raised from 56% to 80% over one year.

Before immunisation campaigns are truly effective, it is necessary to identify the barriers which prevent the vaccination of children. These obstacles include confusion,

lack of knowledge and hostile attitudes, and affect both professional health service staff and parents. In combination or alone, they can seriously impair the effectiveness of any campaign.

Rubella vaccine was introduced in the United Kingdom in 1970 for vaccination of pre-pubertal girls and non-immune women⁽³⁶⁾. Since September 1988, MMR vaccine has replaced measles vaccine for all eligible children. The introduction of the MMR immunisation was initiated by a campaign that showed slogans like:

"Give your child something you never had. The
MMR vaccination."

"MMR three-way protection for your child."

"Remember Measles, Mumps and Rubella are serious
diseases. So, protect your child before it is too
late."

Spontaneous awareness of the MMR vaccine has increased since its launch^(37,38).

Importance of health education

Two years after introducing MMR, a survey of all doctors and health visitors involved in immunisation was undertaken in Fife⁽³⁹⁾. The results showed that high vaccine uptake can be guaranteed if an adequate education programme is undertaken with health professionals.

Honning surveyed parents of grade 4 children at four government schools to assess their knowledge of and attitudes to immunisation⁽⁴⁰⁾. The results suggest that positive attitudes towards immunisation exist but that information about both disease and immunisation need to be more forcefully disseminated throughout the community. Parents need to know about recommended immunisation schedules and they also need to know times and places of immunisation clinics.

Several studies point to the importance of increasing doctors' and health visitors' knowledge of valid contraindications to immunisation and to the role of health visitors in promoting uptake^(24,41-47).

Influence of the media

In 1985, a comparison of the coverage of immunisation by Britain's quality and popular press⁽⁴⁸⁾, showed that although the level of information and general coverage were poor, the

popular press tended to display more responsible attitudes towards vaccination. Hence, there is no evidence that press coverage of immunisation affects different socio-economic groups differentially.

1.1.6 Why we need information about attitudes to Hib vaccine

Many studies show confusion among health professionals who give conflicting advice to parents and negatively influence the uptake of vaccines.

As *Haemophilus influenzae type b* (Hib) vaccine will be included in the childhood immunisation schedule in the near future, it was felt that exploring the views of parents and health professionals, particularly health visitors, about immunisation against Hib might identify possible obstacles to the successful introduction of this vaccine.

There have as yet been no reported studies of parents understanding of meningitis or Hib.

1.2 Hypothesis

There is confusion among parents and health professionals concerning meningitis, its causes and the availability of vaccines to prevent it.

1.3 - Aims and Objectives of Study

Aim: To explore the views of parents and health visitors about immunisation against *Haemophilus influenzae type b* and to identify possible obstacles to the successful introduction of Hib vaccine.

Objectives

1) To study Parents'

- attitudes to vaccination
- understanding of meningitis
- knowledge of preventable causes of meningitis

2) To study Health Visitors'

- attitudes to vaccination
- understanding of meningitis
- knowledge of preventable causes of meningitis

2 - SUBJECTS AND METHODS

2.1 - Subjects

2.2 - Materials

2.3 - Procedure

2.4 - Analysis

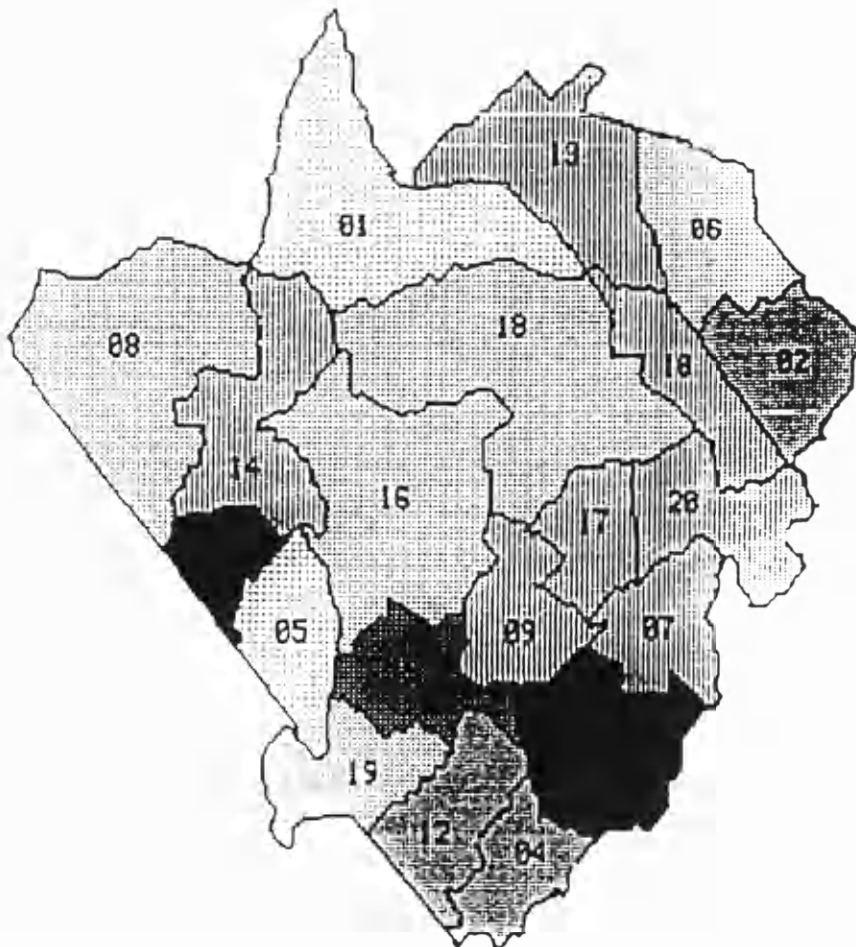
2.1 - Subjects

The subjects of this survey (parents and health visitors) were chosen from the Barnet Health Authority clinics in Barnet area.

Barnet is a health district in the North West Thames Region and covers 34.5 square miles in outer London. It is largely urban and the population of approximately 301000 (*) is socially very mixed. About 15% of the resident population are from ethnic minorities^(49,50).

(*)(this figure is an estimate since the last Census was taken in 1981)

FIGURE 2: MAP OF BARNET



2.1.1 Parents

The parents of children attending 14 of the Child Health Clinics in Barnet (total of 1 Health Authority Clinics) were asked to participate in the survey. A brief explanation about the study was given to them. Out of 110 people, only three mothers refused to complete the questionnaire due to "lack of time". A further two were excluded from the survey due to language problems. The majority of the parents seemed pleased to participate.

A total of 105 questionnaires given to the parents were analyzed. All the respondents except one were female, age range 18-42 years of age (mean age 30).

Forty eight (46%) were doing paid work outside the home and 57 (54%) were housewives.

TABLE A: Mothers' occupation

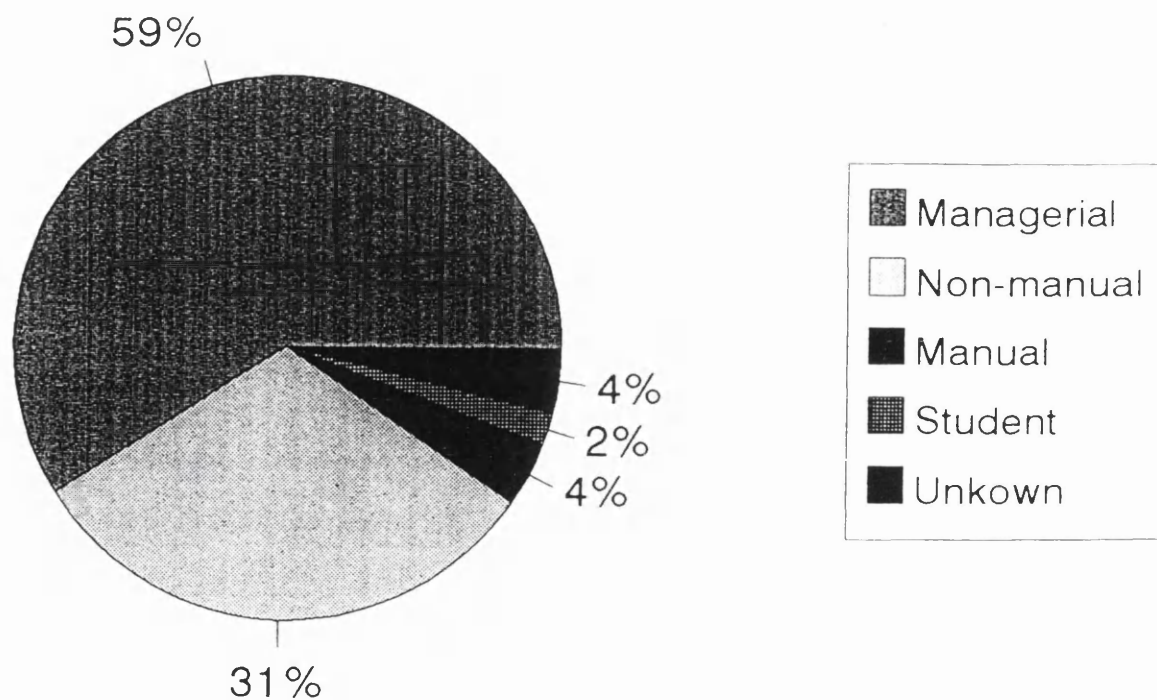
Occupation	n	%
housewife	57	54
paid work	48	46
Total	105	100

The data show that the majority were from social classes 1-3.

TABLE B: Social class grouping on the basis of husband's occupation

Groupings	n	%
Managerial: 1-professional 2-managerial/intermediate	62	59
Non-manual: 3-non-manual 3-skilled non-manual	33	31
Manual: 4-skilled manual 5-unskilled manual	4	4
Student: 6-student	2	2
Unknown	4	4
Total	105	100

FIGURE 3: SOCIAL CLASS GROUPINGS



The partners' occupation was classified into social class categories in order to investigate the effects of social class on health beliefs. In this study no differences amongst our sample were found.

2.1.2 Health Visitors

The Barnet Health Authority is divided into three community unit localities: North, South and West. Each locality has its own health visitor manager who was contacted before initiating the survey for permission to approach the health visitors of her locality.

Although there are 76 health visitors working for the Barnet Health Authority, four were excluded since they were respondents to the pilot study. Five health visitors were excluded from this survey because they do not work with children but with the elderly. Thus 67 questionnaires were distributed of which 55 were completed. The response rate was therefore 82%. Some health visitors were on maternity leave or away at the time of the survey, others simply did not want to participate.

The health visitors (55 = 100%) were all female, mean age 40.8, age range from 28 - 49 years old, and the majority (33-60%) had worked as a health visitor for more than five years.

2.2 - Materials

The tools in this survey were an 18-point questionnaire for the parents of children attending some child health clinics and a 14-point questionnaire for the health visitors working in Barnet. The two questionnaires explored the same areas.

2.2.1 Parents questionnaire (Appendix 1)

The questionnaire was divided into four sections. The first section concentrated on preventable infectious diseases. The second, on the awareness of meningitis. The third, related to Hib vaccine. The fourth part was general information.

2.2.2 Health visitors questionnaire (Appendix 2)

Health visitors were also asked about their knowledge and attitudes. The questionnaire used more professional terminology. The initial part related to measles and MMR vaccine and allowed comparisons with the results of the Peckham study⁽³¹⁾.

The later questions moved the focus to meningitis and *Haemophilus influenzae*.

2.3 - Procedure

2.3.1 Parents

The parents attending the Child Health Clinics were asked if they were willing to complete a questionnaire after a brief explanation. The questionnaire was given to those who agreed to participate in the survey and collected just after its completion. Some of the respondents requested and received help filling in the questionnaire. I took care not to impose personal views and to keep the parents' words and expressions.

2.3.2 Health visitors

Following permission from the community nurse manager, locality managers and the senior community paediatrician, the questionnaires with a covering letter were distributed to the health visitors either in Unit Meetings or by internal postage through the health visitors' manager in each locality.

After the questionnaires were completed, they were collected either at the end of the Unit Meeting or, from some clinics, handed in by the manager. This proved to be satisfactory and resulted in a good response rate.

2.3.3 Pilot Study (Appendix 3)

Before initiating the actual study, a pilot study was done. Four health visitors working at Barnet Health Authority and ten parents attending the Child Health Clinics were surveyed. It was extremely worthwhile. Although it did not lead to major changes in the questionnaires, it helped in the sense of making contact with some of the key health professionals and of becoming familiar with the area where the survey was to be conducted.

2.4 Analysis

Data collected by the questionnaires was analyzed using EPI-INFO (computer package) at the Institute of Child Health. Statistical tests were carried out.

3.1 Parents

Parents awareness of immunisation

The first question showed that most parents knew which diseases can be prevented by the primary immunisation schedule.

Table 1: Parents answers as to whether the following diseases could be prevented by immunisation

Diseases	yes		no		don't know	
	n	%	n	%	n	%
Polio	102	97	0		3	3
Diphtheria	99	94	0		6	6
Tetanus	99	94	0		6	6
Whooping cough	99	94	1	1	5	5
Rubella	98	93	0		7	7
Measles	86	82	7	7	12	11
Mumps	78	74	13	12	14	13
Chickenpox	22	21	57	54	26	25
Meningitis	31	30	37	35	37	35
Tuberculosis	73	70	7	7	25	24
Others	17	16	88	84		

Eighty eight respondents (84%) did not know of any vaccines other than those ticked on the first question. Eleven (11%) mentioned cholera, typhoid, yellow fever or influenza. Five (5%) mentioned smallpox and only one (1%) mentioned meningitis.

Table 2: Knowledge of other vaccines

Answers	n	%
no comments	88	84
Flu	2	2
Hepatitis	2	2
Cholera/Typhoid Yellow fever+Flu	7	7
Smallpox	5	5
Meningitis	1	1
Total	105	100

Perceptions of Measles

Considering measles, twenty four (23%) of the parents thought that it would be very serious for a child to have it, fifty seven (54%) considered it serious and twenty four (23%) said it would not be serious. Nearly half the parents were aware of complications of measles such as secondary infections. Nine (9%) of the parents believe that measles is a common and not serious disease. Table 3 shows the detailed results:

Table 3: Reasons given by parents on their opinion of the severity of measles

Why?	n	%
no comments	28	27
affects the eyes	16	15
affects hearing	5	5
complications/ 2nd infections	29	28
common disease/ not serious	9	9
miscellaneous group (*)	14	14
do not know	4	4
Total	105	100

- (*) - danger to pregnant women
 - sterility in boys
 - any illness is serious, if the child is too young
 - otherwise the child wouldn't be immunised
 - distressed and uncomfortable for the child
 - it is not usual

Fifty seven (54%) of the parents think that MMR is a safe vaccine and that it prevents measles. Thirty seven (35%) believe that the MMR vaccine carries some degree of risk. They commented that nothing is 100% safe, or were unsure of reactions, allergies or other side effects of the vaccine.

Ninety two (88%) of the respondents think that MMR injection usually or sometimes stops a child catching measles. Six (6%) think it never stops it, and six (6%) believe it always stops a child catching this disease.

Table 4: Uptake of vaccines

Vaccine	n	%
Polio	93	89
Diphtheria	87	83
Whooping cough	83	79
Measles	39	37
MMR	49	47
BCG	10	10

When asked why they didn't have their children immunised against BCG the results came as follows:

Forty nine (59%) said their child was not old enough for BCG, four (5%) said that they had not been asked for it or even that they did not know there was a vaccine available against tuberculosis. Thirty (36%) did not answer this question.

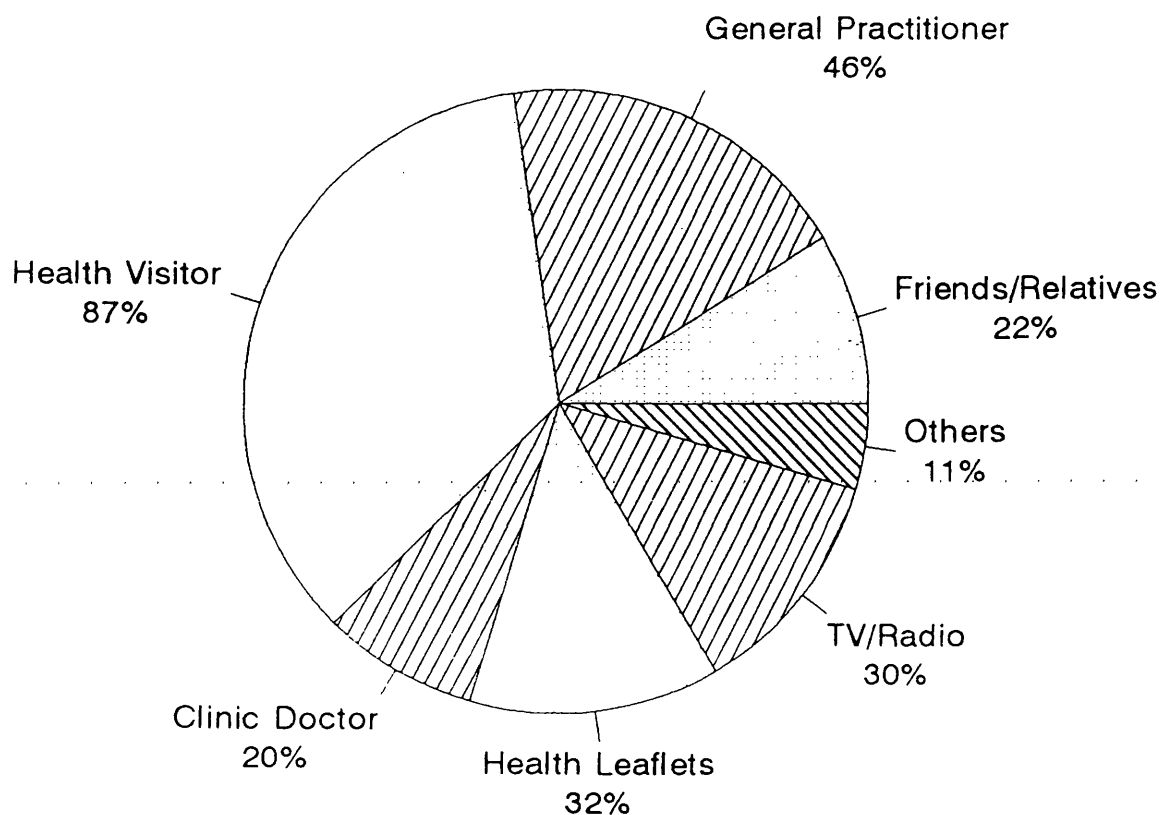
Sources of information

Coming to the source of information relating to immunisation in general, twenty three (22%) said they received information about immunisation from friends or relatives, forty eight (46%) got information from the GP, ninety one (87%) got information from the health visitors and twenty one (20%) got information from the clinic doctor. Other sources of information included hospitals, professional training, schools or books for eleven (11%) of the respondents.

Table 5: Source of information relating to immunisation in general

Information	Yes		No	
	n	%	n	%
friends/relatives	23	22	82	78
general practitioner	48	46	57	54
health visitor	91	87	14	13
clinic doctor	21	20	80	80
health education leaflets/posters	34	32	71	68
TV/radio/newspapers	31	30	74	71
others	11	11	90	90

FIGURE 4: SOURCE OF INFORMATION RELATING TO IMMUNISATION



Only twenty seven (26%) of the parents were particularly influenced on the decision whether or not to have their children immunised. Of these, twelve (44%) answered that their health visitor helped them to decide whether or not to have their children immunised. Eight (30%) were influenced by the opinion of their spouses or relatives. Seven (26%) said that they were helped either by clinic doctor, GP, practice nurse and doctor or health visitor.

Perceptions of meningitis

Considering meningitis, one hundred and two (97%) of the parents answered that they had heard of meningitis, and the majority (98=93%) think that it is a very serious disease.

Seventy seven (73%) were aware of the danger of brain damage, and the possibility of it being a fatal disease. Seven (7%) commented on general effects, including hearing loss and "extra illness", sixteen (15%) did not answer and only five (5%) of the parents did not justify their answers to this question.

Thirty three (31%) answered that they knew how children catch meningitis. Twenty three (70%) of these respondents stated that meningitis is caught from a "virus through the air".

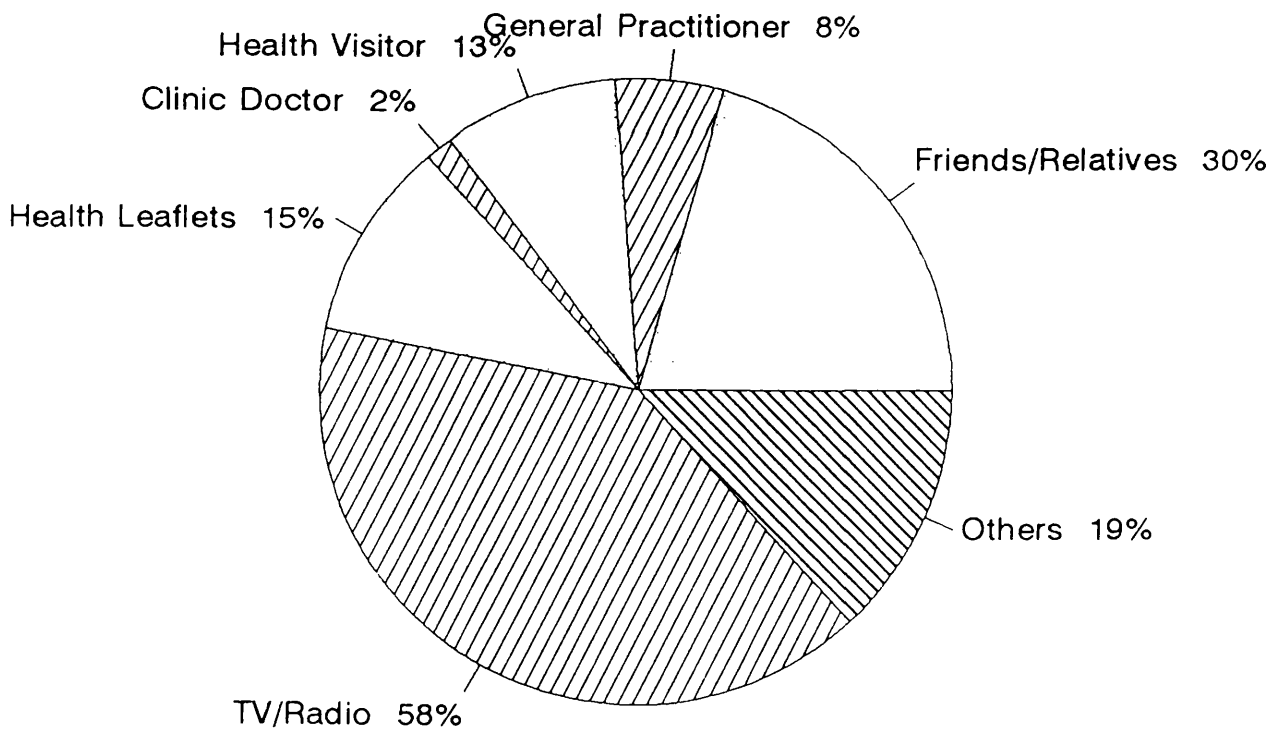
Source of information on meningitis

When asked where they got information about meningitis from, thirty one (30%) parents answered from friends or relatives. Health visitors represented thirteen percent (=14) of the respondents' source of information on meningitis, the GP eight percent (=8) and the clinic doctor two percent. The media was mentioned by sixty one (58%) of the parents.

Table 6: Parents' source of information about meningitis

Information	Yes		No	
	n	%	n	%
friends/relatives	31	30	74	71
GP	8	8	97	92
health visitor	14	13	91	87
clinic doctor	2	2	103	98
health education leaflets/posters	16	15	89	84
TV/radio/news-papers	61	58	44	42
other	20	19	85	81

FIGURE 5: SOURCE OF INFORMATION RELATING TO MENINGITIS



Twenty eight (27%) parents said they knew someone who had meningitis. Of those who said they knew someone, ten (36%) said they were relatives, thirteen (46%) said they knew of a friend's child having meningitis and five (18%) knew of other people indirectly.

Immunisation against meningitis

Considering immunisation against meningitis, thirty two (31%) answered that they knew there were immunisations against meningitis. From those who answered positively, eighteen (56%) referred to the media as their source of information. Health visitors and GPs were named as the source of information by five (16%) of these respondents.

Knowing that not all meningitis could be prevented by immunisation, seventy three (70%) parents answered that they would have their children immunised against meningitis. Thirty one (30%) answered they were not sure. They wanted to know more about the vaccine, for example, how safe it would be and the possible side-effects.

Illustration of some of the parents' answers

- I don't know how safe it is.
- I would like more information.
- I need to know more about it.
- Need to read and ask the health visitor about it.
- It requires research into reactions.
- I would like to know about safety and side-effects.

The majority of the respondents (85 = 81%) would accept vaccination against meningitis for their children if it meant they had to have another injection at the same time as the usual ones. Only two of the parents said they would prefer it given separately. The ones that were unsure (18 = 17%) said they needed more information on the vaccine concerning its safety. Only thirteen (12%) parents had heard of Hib vaccine.

TABLE 7: Knowledge of Hib vaccine

Answer	n	%
not heard of Hib vaccine	92	88
heard of Hib vaccine	13	12
Total	105	100

The following table illustrates the parents awareness of Hib within social classes:

TABLE C: Parents' awareness of Hib within social classes

Social classes	Number of parents that:	
	had heard of Hib	had not heard of Hib
Social classes 1 & 2	9	53
Other social classes	4	35

Chi square = 0.1
p value = 0.7511

Health visitors, alone or in combination with either the GP or the clinic doctor were mentioned by seventy (67%) parents as being the people they would ask for information on Hib vaccine.

Eighteen (17%) mentioned the GP alone and twelve (11%) mentioned the clinic doctor alone.

Parents comments:

- Everyone should have their children immunised.
- I am very unsure regarding immunisation/ignorant...
- I know that immunisation is needed but I don't know why.
- If there is a vaccine against meningitis, I would like to know more about it.
- I would certainly like my child immunised against meningitis.

3.2 Health visitors

The majority of the health visitors (34 = 62%) agreed that an unimmunised child is very likely to catch measles.

Considering the likelihood of measles causing serious complications in children, nine (16%) said that it was not likely; the others thought that complications were likely or very likely to occur.

Table 8: Likelihood of measles causing serious complications

Answer	n	%
not likely	9	16
likely	27	49
very likely	19	35
Total	55	100

Most health visitors (51 = 93%) surveyed advise MMR immunisation, fourteen (6%) of them thought it carries some risk, 40 (73%) thought it was safe.

The health visitors (14 = 26%) who considered MMR a risky vaccine mentioned that it could cause side effects: fever, encephalitis, convulsions, mild ear infection or mild attack after vaccine. They also commented that all vaccines carry a degree of risk.

Fifty four (98%) health visitors said that MMR gives either full or partial protection against measles.

When asked about the vaccines routinely given to children in UK, more than 90% of the health visitors answered polio, diphtheria, tetanus, whooping cough, rubella, mumps and measles.

Table 9: Vaccines routinely given in the UK according to the health visitors in this study

Vaccines	n	%
Polio, chickenpox, diphtheria, tetanus, rubella	54	98
Whooping cough, measles	53	96.4
Mumps	50	90.9
Tuberculosis	48	87.3
Meningitis	11	20
Others	3	

Fifty two (95%) did not know of any other vaccine routinely given in UK and three (5%) answered that hepatitis b, tuberculosis and meningitis vaccines are routinely given in certain areas.

Considering meningitis, thirty four (62%) said they knew the names of the organisms that can cause meningitis, three (5%) did not know and eighteen (33%) were unsure of the names of the agents.

Table 10: List of organisms that can cause meningitis according to the 52 (95%) health visitors of this survey

Names	n	%
Bacteria or virus	22	42
Meningococcus	40	77
Streptococcus	16	31
Staphylococcus	11	21
BK	10	19
Haemophilus	6	12
Others	12	23

When asked about the most common organisms that cause meningitis in under two year-old children, thirteen (24%) said they knew, twenty six (47%) said they were not sure and sixteen (29%) said "no" to this question. Organisms listed are shown in table 11.

Table 11: Common organisms that cause meningitis in children under two years of age

Organism	n	%
Viral (not specified)	11	28
Bacterial (not specified)	2	5
Meningococcus	22	56
Streptococcus	5	13
Haemophilus	4	10
Others	3	8

Among the illnesses that can be caused by Hib, the health visitors referred to pneumonia, flu, meningitis and upper respiratory tract infections (URTI) in more than 50% of their answers. Fifty four (98%) health visitors answered that they did not know about other diseases caused by Hib.

Table 12: Illnesses caused by Hib according to the health visitors (total=55)

Illnesses	n	%
Epiglottitis	20	36
Pneumonia	38	69
Cellulitis	4	7
Flu	40	73
Meningitis	31	56
URTI	30	55
Septicaemia	17	31
Others	1	2

Considering the likelihood of Hib infection in children under 5 years old, thirty six (71%) said it was likely, six (12%) said it was very likely, and nine (18%) said it was not likely, out of fifty one health visitors.

When asked about the most common way of catching Hib infections in under five year-old children, five (9%) did not

answer, eighteen (33%) said they do not know, but thirty (55%) respondents said it could be through a virus in the air, droplets, coughs or contact with others.

Thirty eight (69%) health visitors said that they do not know if there are vaccines which prevent Hib infection, and four (7%) said there is no vaccine.

Table 13: Advice of immunisation

Answer	n	%
Yes, definitely	16	32
Yes, if parents request	19	38
Not always	5	10
No	6	12
Do not know	4	8
Total	50	100

The health visitors differed in their reasons given for their answer to this question. The results can be seen in the table below:

Table 14: Reasons for advising or not the Hib vaccine

Answer	n	%
Not answered	24	44
Do not know enough	15	27
Any protection is advisable	9	16
Depends on safety	4	7
Parents' consent is important	1	2
Recommended to high risk groups/emphasise better nutrition	2	4
Total	55	100

Health visitors' comments:

- I would like more information and updating on infections in childhood.
- I would like to know more about Hib infections.
- I would like more information about Hib vaccine.
- I am not familiar with some of the topics of this research.
- Staff involved in immunisation should have regular updates to dispel myths and ensure that the information given is consistent, thus improving the service provided.

Awareness of immunisation

The parents' knowledge of the diseases that can be prevented by immunisation showed to be very good relating to polio, diphtheria, tetanus, whooping cough and rubella. Considering measles and mumps, the percentage of the parents that knew that they can be prevented was slightly higher than participants in a previous study carried out by the HEA on evaluation of the MMR campaign in 1990. This showed that 75% of parents were aware of rubella, 72% of measles and 56% of mumps⁽³⁷⁾.

There was a tendency in this study for parents within the social classes 1 and 2 to know more about the severity of meningitis and also about its prevention, than parents in other social classes. However, this was a small sample and statistical significance was not apparent (APPENDIX 4). This is consistent with the findings of the study by the HEA⁽³⁷⁾ that found that older mothers and those from higher social classes were more likely to have knowledge of infectious diseases and immunisation.

Parental confusion on the preventable infectious diseases was evident in relation to chickenpox, tuberculosis and in particular meningitis. Seventy percent of the parents did not know there was a vaccine against meningitis.

This data showed lack of knowledge and a need for more information about preventable infectious diseases.

Apart from polio and diphtheria, it seems that some misconceptions regarding contraindications to immunisations still persist and these could have impaired the uptake of whooping cough and measles.

The low uptake of BCG was explained by the ages of the children, since the majority of them (95 children) had not reached the vaccination age.

The majority of parents in this study had at least one child between 0-2 years old. I assume that the MMR uptake was also low because the children referred, had not yet reached the age for immunisation. The percentage of children immunised against MMR found in this study was similar comparing with the HEA MMR evaluation campaign study⁽³⁷⁾.

Parents of children who had received MMR vaccine were more likely to perceive it as safe than parents of children who had not but the differences were not statistically significant.

Most of the parents think that MMR is an effective vaccine. The risks or side effects described were mild, 35% of the parents still believe that MMR carries some degree of risk

showing that information is needed regarding safety of MMR. It will be equally important to emphasise the effectiveness and safety of the Hib vaccine.

Importance of health professionals' knowledge

It was found that many parents get information concerning immunisation from the health professionals. Health visitors appear to be particularly influential in helping parents decide whether or not to have their children immunised.

This finding concurs with the HEA study⁽³⁷⁾ that showed GPs as being the preferred source of information (they were seen as "the voice of authority"), followed by health visitors. In reality, mothers were more likely to have consulted a health visitor (75%) than their GP (57%) about vaccinations.

Parents' decision making role

As in the HEA study, most parents decide for themselves if their child is to be vaccinated but expressed concern at the amount of information and support they received from health professionals.

More effective communication, at an appropriate time in the children's lives, is needed between health professionals and parents.

Parents tend to accept immunisation against a disease that appears to be highly infectious, serious or that could lead to complications⁽³¹⁾. Meningitis was agreed to be a serious disease from the parents point of view, and the majority (70%) of them would like to have their children immunised against the preventable causes of this disease. The parents' positive attitudes regarding meningitis immunisation is reassuring.

Media as source of information

This study confirmed the media as a very important source of information. This places a responsibility upon those working in the media to transmit accurate and not sensational information.

The responsibility for running the immunisation programme lies with district health authorities but The Health Education Authority will be mainly responsible for the mass media advertising campaign.

It will be necessary to emphasise that the Hib vaccine will not prevent all meningitis and that it will also prevent other dangerous diseases. This point must be very clear in order to avoid misunderstanding among both parents and health professionals.

Awareness of meningitis

Few parents knew how meningitis is contracted.

Health professionals attitudes to immunisation

The health visitors had a positive approach towards vaccination in general and that is compatible with the Peckhams' Report⁽³¹⁾.

From the results of this study, we found that there is still some confusion among the health visitors concerning the childhood immunisation schedule and their knowledge of the preventable infectious diseases. In particular, 20% thought vaccine against meningitis is already given routinely.

The confusion about tuberculosis is understandable. In some districts, BCG is administered neonatally to groups at high risk.

Importance of updating guidelines

Although in general, health visitors had a positive attitude towards immunisation, a need for regularly updated guidelines for health visitors was apparent from this study. The Peckham report pointed out the necessity of updating guidelines for health professionals⁽³¹⁾.

Information about *Haemophilus influenzae*

Meningococcus was the main agent referred to by health visitors as a cause of meningitis in children. The awareness of *Haemophilus influenzae* as a cause of meningitis in children was low (see tables 10 and 11). There was also found to be a lack of knowledge about how children catch Hib infections. A need for more information on meningitis, its causes and prevention, was evident from this study.

Some health visitors appear to consider Hib the cause of influenza. Most of them pointed mainly to respiratory tract infections as being caused by Hib.

Only 32% (16/50) of the health visitors would definitely advise Hib vaccine if it was available. This data demonstrates that a lot of work needs to be done in order to change their views regarding Hib immunisation since they are key persons in advising parents. Changing their views, will be important to guarantee a good uptake of Hib vaccine.

The health visitors main concern was lack of information on meningitis and the measures to prevent this disease. The majority showed a great interest in knowing more about the issues raised in this study.

Prevention of Hib infections

The fact that the Hib vaccine is going to be given as another injection at the same time as DPT did not seem to interfere on the parents' positive attitude towards this vaccine. It was found that the health visitors' main concern was lack of information on meningitis and the measures to prevent this disease.

Other studies

Until now the attitudes and knowledge of both health professionals and parents on *Haemophilus influenzae* vaccine has not been studied. A bigger study conducted by the Health Education Authority before the actual introduction of the vaccine is expected to be initiated in the near future.

5-CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

In this district, the parents knowledge of which infectious diseases can be prevented is relatively good concerning the vaccines against polio, diphtheria, tetanus and whooping cough. There is still much confusion about other vaccines.

Parents usually get their information about immunisation from health professionals. Health visitors were shown to be a particularly important source of information. They have a high level of credibility among the parents and are important influences over the decision whether or not to accept immunisation.

Parents tend to accept immunisation against a disease that appears to be highly infective, serious or that could lead to complications.

The majority of parents are aware of the problems of meningitis, and believe it to be a very serious disease.

For the parents, the main source of information about meningitis was the media and not the health professionals.

Parents will accept a vaccine against meningitis providing they are well informed on the vaccine's safety and effectiveness.

More than half the parents mentioned health visitors as the people from whom they will seek information on Hib vaccine.

Health visitors in general were shown to have a positive attitude towards immunisation.

Among health visitors, there are still misunderstandings about the usual immunisation schedule.

The awareness of *Haemophilus influenzae* as a cause of meningitis is low among health visitors.

Health visitors' main concern was lack of information on meningitis and the measures to prevent this disease.

RECOMMENDATIONS

Health education for parents is needed.

It is important to provide information for parents on meningitis and *Haemophilus influenzae type b*.

Health education material should concentrate on the severity of the Hib infection, the safety of Hib vaccine and the fact that Hib vaccine will not prevent all types of meningitis but only the meningitis caused by Hib.

Clear, simple, accurate guidelines to health professionals are needed to ensure their knowledge about immunisation and then myths about contraindications will be dispelled. These guidelines need to be regularly updated.

There is also a need for information for health visitors on meningitis and Hib.

APPENDIX 1

Parents questionnaire

For future use, the questionnaire could be improved:

(i) The introduction could have been more informative.

(ii) In question 8 people were asked if they had heard of meningitis after it had been mentioned in question 1. This did not appear to be a problem at the analysis.

(iii) Question 4 should have included a "don't know" answer to be ticked and question 5 should have specified that the answer related to the youngest child.

The general information was well received by parents. The majority seemed to be happy to participate in this survey.

CONFIDENTIAL

This is a study of parents views about infectious diseases and immunisation in childhood.
Please tick the box next to the answer that applies to you and write in details when asked.
All your answers will be treated in confidence.

1. Which of the following diseases can be prevented by immunisation? You can tick more than one box.

	yes	no	don't know
Poliomyelitis (Polio)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diphtheria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tetanus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
German measles or Rubella	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Measles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chicken pox	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meningitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whooping cough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mumps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tuberculosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you know of any others? yes no

If yes, please specify: _____

2. How serious do you think it would be for your child to have measles?

very serious serious not serious

Why? _____

3. Do you think that M.M.R. (Mumps, Measles, Rubella) immunisation,
 is safe because _____
 carries a slight risk because _____
 carries a high risk because _____
 don't know

4. Do you think that M.M.R. injection stops a child catching measles?

always usually sometimes never

5. Has your child ever had any of these immunisations?

	yes	no	not sure
Polio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diphtheria and Tetanus (DT)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whooping cough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Measles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M.M.R.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B.C.G.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Others: (please specify) _____

If no, why not? _____

6. Where did you get information about immunisation from?

friends/relatives

G.P.

health visitors

clinic doctor

health education leaflets/posters

TV/radio/newspapers/magazines

Others: (please specify) _____

7. Did anyone in particular help you decide whether or not to have your child immunised?

yes no

If yes, please specify _____

8. Have you heard of meningitis?

yes no

9. How serious do you think it would be for your child to have meningitis?

very serious serious not serious

Why? _____

10. Do you know how children catch meningitis?

yes no don't know

If yes, please specify:

11. Where did you get information about meningitis from?
You can tick more than one box.

friends/relatives

G.P.

health visitor

clinic doctor

health education leaflets

TV/radio/newspapers/magazines

other (please specify): _____

12. Do you know anyone who has had meningitis?

yes no

If yes, specify who: _____

13. Do you know whether there are immunisations against meningitis?

yes no

If yes, what was your source of information?

14. Not all meningitis can be prevented by immunisation.

Would you have your child immunised against the preventable causes of meningitis?

yes no not sure

If no, or not sure, why? _____

15. Would you have your child protected against meningitis if it meant they had to have another injection at the same time as the usual vaccines?

yes no not sure

If no, or not sure, why? _____

16. Have you heard about Hib (Hemophilus influenzae) vaccine?

yes no

17. Who would you ask for information about this vaccine?

18. Are there any other comments you would like to make?

Social information:

Age

sex M F

Occupation _____

Partners occupation _____

(tick if there is no partner)

Please list your childrens' names and ages:

NAME OF CHILD	AGE
_____	_____
_____	_____
_____	_____

Do any of your children have regular treatment or any health problems?

NAME OF CHILD	AGE
_____	_____
_____	_____
_____	_____

THANK YOU VERY MUCH FOR HELPING IN THIS SURVEY.

APPENDIX 2

Health visitors questionnaire

Health visitors were asked for their knowledge and attitudes in a slightly different way but the information obtained was similar.

The first five questions were related to measles and MMR vaccine. Although the first question ("what is the likelihood of an unimmunised child catching measles?") might seem intimidating (a test of knowledge), the difficulty the health visitors had in answering it was in giving grades to a very subjective point.

The sixth question ("Which illnesses can be prevented by vaccines routinely given in the UK?") was intended to explore the health visitors' knowledge on routinely given immunisation for children in the UK.

The following questions moved the focus to meningitis and then to *Haemophilus influenzae*, trying to obtain information on their knowledge and understanding of the disease at the time of the study.

The last part of the questionnaire elicited general information about the respondents and was also meant to check what the health visitors advice to parents was and whether they would do the same for their own children. Some of the

health visitors did not give all the information requested in this part of the questionnaire. Some felt it was "intrusive", "too personal" or "irrelevant for this survey".

This is a study of health professionals views about infectious disease and immunisation in childhood.
 Please tick the box next to the answer that applies to you and write in details where asked.
 All information will be treated in confidence.

1. What is the likelihood of an unimmunised child catching measles?

0 1 2 3 4 5
 not -----> very
 likely likely

2. What is the likelihood of measles causing serious complications in children?

0 1 2 3 4 5
 not -----> very
 likely likely

3. Do you think that M.M.R. vaccine, is safe

carries a slight risk

If considered a risk, please specify:

carries a high risk

don't know

4. In general, would you advise M.M.R. immunisation?

yes, always

yes, if parents request

no, I discourage

M.M.R. immunisation

no, if _____ (specify)

5. How effective do you think M.M.R. vaccine is in preventing a child from catching measles?

full protection

some protection

no protection

6. Which illnesses can be prevented by vaccines routinely given in the U.K.?

Polio	<input type="checkbox"/>	Chicken pox	<input type="checkbox"/>
Diphtheria	<input type="checkbox"/>	Meningitis	<input type="checkbox"/>
Tetanus	<input type="checkbox"/>	Whooping cough	<input type="checkbox"/>
Rubella	<input type="checkbox"/>	Mumps	<input type="checkbox"/>
Measles	<input type="checkbox"/>	Tuberculosis	<input type="checkbox"/>

Other (please specify): _____

7. Do you know the names of organisms that can cause meningitis?

yes no unsure

If yes or unsure, please list: _____

8. Do you know the most common organisms that causes meningitis in children under 2 years old?

yes no unsure

If yes or unsure, please list: _____

9. Do you know which illnesses can be caused by Hib (Haemophilus influenzae type b)?

	yes	no	don't know
Epiglottitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pneumonia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cellulitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meningitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
U.R.T.I	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Septicaemia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you know of any others? yes no

If yes, please specify: _____

10. What is the likelihood of Hib infection in children under 5 years old?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	1	2	3	4	5
not ----->				very	
likely				likely	

11. What are the most common ways of catching Hib infections in under 5 years old children? Please specify:

12. Are there vaccines which prevent Hib infections?

yes no don't know

13. If a vaccine against Hib infection was available, would you advise Hib immunisation?

yes, definitely

yes, if parents request it

not always

no

Why? _____

14. Are there any other comments you would like to make?

General information:

Age: Sex: M F

How long have you been working as a health visitor?

_____ (months/years)

How many children do you have?

What are the ages of your children?

Have all your children been immunised?

yes no

If yes, please specify which vaccines:

If no, why not?

THANK YOU VERY MUCH FOR TAKING TIME TO
COMPLETE THIS QUESTIONNAIRE

Pilot study questionnaires

CONFIDENTIAL

This is a study of health professionals views about infectious disease and immunisation in childhood.
Please tick the box next to the answer that applies to you and write in details where asked.
All information will be treated in confidence.

1. What is the likelihood of an unimmunised child catching measles?

0 1 2 3 4 5
not -----> very
likely likely

2. What is the likelihood of measles causing serious complications in children?

0 1 2 3 4 5
not -----> very
likely likely

3. Do you think that M.M.R. vaccine,

is safe

carries a slight risk

(specify) _____
carries a high risk

(specify) _____

don't know

4. In general, would you advise M.M.R. immunisation?

yes, always

yes, if parents request

no, I discourage measles immunisation

no, if (specify) _____

5. How effective do you think M.M.R. vaccine is in preventing a child from catching measles?

full protection

some protection

no protection

6. Which illnesses can be prevented by vaccines routinely given in the U.K.?

- | | | | |
|------------|--------------------------|--------------|--------------------------|
| Polio | <input type="checkbox"/> | Measles | <input type="checkbox"/> |
| Diphtheria | <input type="checkbox"/> | Meningitis | <input type="checkbox"/> |
| Tetanus | <input type="checkbox"/> | Chicken pox | <input type="checkbox"/> |
| Rubella | <input type="checkbox"/> | Mumps | <input type="checkbox"/> |
| Don't know | <input type="checkbox"/> | Tuberculosis | <input type="checkbox"/> |

7. Do you know the names of organisms that can cause meningitis?

yes If yes or unsure, please list:

no

unsure

8. Do you know the most common organisms that causes meningitis in children under 2 years old?

yes If yes or unsure, please list:

no

unsure

9. Do you know which illnesses can be caused by Hib (Haemophilus influenzae type b)?

- | | yes | no | don't know |
|--------------|--------------------------|--------------------------|--------------------------|
| Epiglottitis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Pneumonia | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cellulitis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Flu | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Meningitis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| U.R.T.I | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Septicaemia | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

10. What is the likelihood of Hib infections in children under 5 years old?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	1	2	3	4	5
not	----->				very
likely					likely

11. What are the most common ways of catching Hib infections in under 5 years old children?

12. Are there vaccines which prevent Hib infections?

yes no don't know

13. If a vaccine against Hib infection was available, would you advise Hib immunisation?

yes, definitely

yes, if parents request it

not always

no

Why? _____

14. Are there any other comments you would like to make?

General information:

Your name: _____

Age: Sex: M F

How long ~~are~~ you working as health visitor? _____

Do you have children?

no

yes, one child please write the age: _____

yes, two children please write the ages: _____

yes, 3 or more please write the ages: _____

Have your children been immunised?

yes specify: _____

no why not? _____

THANK YOU VERY MUCH FOR TAKING TIME TO
COMPLETE THIS QUESTIONNAIRE

CONFIDENTIAL

This is a study of parents views about infectious diseases and immunisation in childhood.

Please tick the box next to the answer that applies to you and write in details when asked.

All your answers will be treated in confidence.

1. Which of the following diseases can be prevented by immunisation? You can tick more than one box.

	yes	no	don't know
Poliomyelitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diphtheria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tetanus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
German measles or Rubella	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Measles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pneumonia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meningitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whooping cough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tuberculosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you know of any others? yes no

If yes, please specify: _____

2. How serious do you think it would be for your child to have measles?

very serious

serious

not serious

Why? _____

3. Do you think that M.M.R. (Mumps, Measles, Rubella) immunisation,
 is safe because _____
 carries a slight risk because _____
 carries a high risk because _____
 don't know

4. Do you think that M.M.R. injection stops a child catching
 measles?
 always
 usually
 sometimes
 never

5. Have your child had any of these immunisations?

	yes	no	not sure
Polio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diphtheria and Tetanus (DT)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whooping cough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Measles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M.M.R.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B.C.G.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Others: (please specify) _____

If no, why not? _____

6. Where did you get information about immunisation from?

friends/relatives

G.P.

health visitors

clinic doctor

health education leaflets/posters

TV/radio/newspapers/magazines

Others:(please specify)

7. Did anyone in particular help you decide whether or not to have your child immunised?

yes no

If yes, please specify _____

8. Have you heard of meningitis?

yes no

9. How serious do you think it would be for your child to have meningitis?

very serious

serious

not serious

Why? _____

10. How do you think children catch meningitis?

11. From whom have you heard about meningitis? You can tick more than one box.

never heard about meningitis

clinic doctor

G.P.

health visitor

friends/relatives

TV/radio/newspapers/magazines

other(please specify): _____

12. Do you know anyone who has had meningitis?

yes no

If yes, specify who: _____

13. Do you know whether there are immunisations against meningitis?

yes no

If yes, what was your source of information?

14. Not all meningitis can be prevented by immunisation.
Would you have your child immunised against the preventable causes of meningitis?

yes

no

not sure

If no, or not sure, why? _____

15. Would you have your child protected against meningitis if it meant they had to have another injection at the same time as the usual vaccines?

yes

no

not sure

If no, or not sure, why? _____

16. Have you heard about Hib (Hemophilus influenzae) vaccine?

yes no

17. Who would you ask for information about this vaccine?

18. Are there any other comments you would like to make?

Social information:

Age sex M F

Occupation _____

Partners occupation _____

(tick if there is no partner)

Please list your children's names and ages:

NAME OF CHILD	AGE
_____	_____
_____	_____
_____	_____

Do any of your children have regular treatment or any health problems?

NAME OF CHILD	AGE
_____	_____
_____	_____
_____	_____

THANK YOU VERY MUCH FOR HELPING IN THIS SURVEY.

APPENDIX 4

Awareness of social class

6.4.1 Severity of meningitis

Social classes	serious	not serious
Social class 1 and 2	60	2
Other social classes	35	4

Chi square = 1.05

p value = 0.3063

fisher exact test = 0.1227

6.4.2 Immunisation against meningitis

Social classes	Knowledge of vaccine	
	Know	Do not know
Social class 1 and 2	21	41
Other social classes	10	29

Chi square = 0.42

p value = 0.5147

APPENDIX 5

Age of children

Table of the childrens' ages

ages	N. of children
0 - 2	111
3 - 5	43
6 - 10	10
> 10	

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