



## Changing attitudes to childhood immunisation in English parents



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### ABSTRACT

**Objectives:** We undertook a national survey of parental attitudes to childhood vaccinations and compared results with those in earlier comparable surveys covering a 10 year period.

**Methods:** We randomly selected 275 nationally representative sampling locations in England. Interviewers identified eligible primary care givers (referred to as parents) of children aged from 2 months to <5 years and conducted home-based interviews between January and April 2015. We aimed to recruit 1000 parents of children aged 0–2 years and 1000 of children aged 3–4 years. The questionnaire covered all aspects of the immunisation process, vaccines administered in pregnancy and from infancy to pre-school with a maximum of 86 mixed questions.

**Results:** Interviews were completed with 1792 parents of whom 1130 had children aged 0–2 years and 999 had children aged 3–4 years; 337 had children of both ages. The findings showed that confidence in and acceptance of the vaccination programme was high. Only 2% of parents reported refusing vaccination whilst 90% reported vaccinating their children automatically when due. Almost all parents (97%) had access to the internet and 34% consulted web-based resources for information on vaccination. Parents who used chat rooms or discussion forums for this purpose were significantly more likely to say they had seen something that would make them doubt having their child(ren) immunised (31% compared to 8% amongst all parents). Health professionals and the NHS were seen as the most trusted source of advice on immunisation (90% agreed/strongly agreed with each). Very few parents did not trust these sources (4% and 3% disagreed, respectively).

**Conclusions:** Health professionals remain extremely important in communicating information about vaccination and are highly trusted by parents; a trust that has increased in recent years. Despite most parents seeking information on the Internet, trust in and advice from health care professionals appeared to be key factors influencing parental decisions.

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### 1. Introduction

The routine childhood immunisation programme in England aims to give every child the opportunity to be protected against vaccine preventable diseases. Immunisation is voluntary and free of charge for all children for every vaccine included in the routine programme. The programme has high uptake rates, with only a very small minority of parents refusing vaccination for their child. As a result, targeted diseases have been markedly reduced with many, including diphtheria, tetanus, rubella, Hib and meningococcal group C disease, now rare and polio eliminated. Maintaining high coverage rates can be challenging in the absence of disease

[1] but uptake in England currently exceeds 95% for most vaccines given in infancy and 90% for pre-school boosters offered at around the age of three years four months [2].

National vaccination programmes in England are supported by a long-running series of cross-sectional surveys exploring parental attitudes to childhood immunisation [3]. Even with high uptake parental requirements may change, particularly with revised programmes or new vaccines. To ensure parents' needs continue to be met it is important to understand their opinion on vaccines and vaccine preventable diseases, their vaccination experiences and what affects their vaccination decisions.

This paper presents the views of parents with children under five years of age in the 2015 survey. Differences over the previous 10 surveys running from November 2001 to March 2010 will also be examined with a particular focus on any changes since the previous survey in 2010.

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## 2. Methods

### 2.1. 2015 Survey

For a nationally representative sample, 275 sampling locations in England were randomly selected. The sampling points were based on two combined 2001 Census Output Areas each containing about 125 households [4]. Sampling was stratified by region and Index of Multiple Deprivation quintile. Census output areas were selected with probability proportional to population size. Interviewers were given quotas for each sampling point by age of child and parental working status.

Interviewers identified eligible primary care givers<sup>1</sup> (referred to as parent throughout) of children aged from 2 months to <5 years who were willing to participate in a study about the health of young children using door-to-door market research methods. The target was to conduct 1000 interviews among parents of 0–2 year olds and 1000 interviews among parents of 3–4 year olds.

Interviewers conducted face-to-face interviews between 19/01/15 and 1/4/15 using Computer Assisted Personal Interviewing. The questionnaire covered all aspects of the immunisation process, vaccines administered in pregnancy and from infancy to pre-school with a maximum of 86 mixed open and closed-ended questions. Some required 'spontaneous' or 'prompted' answers: the respondent was first asked to give an answer based on spontaneous recall; they then selected from listed possible responses. Responses to open-ended questions were recorded verbatim and 'coded' into categories of like responses.

To ensure data were representative of parents of children aged 0–4 in England they were weighted by respondent/child age and by region. Targets for age of parent by age of child were taken from the December 2014 Labour Force Survey [5], and region (of households with dependent children aged 0–4) from the 2011 Census [6]. Parents were categorised as ABC1 or C2DE social grade according to the occupation of the chief income earner [7].

Data were managed using SPSS (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp). Differences were tested for statistical significance in Merlin (version 9.6.51) using a two-tailed *T*-test on column proportions. Where a difference was significant at the 95% level, this is indicated.

### 2.2. Changes in survey methodology over time

Prior to March 2003, interviews were carried out with mothers only. Since then primary care givers, whether men or women have been interviewed. Before 2010, surveys included parents of children aged 0–2 years only. From 2010, parents of children aged 3–4 years were also included, covering the childhood immunisation programme to pre-school. It was at this time that the sample size was increased from 1000 interviews to a total of 2000; with 1000 among parents of 0–2 year olds and 1000 among parents of 3–4 year olds. The surveys were undertaken at least annually until 2010 and recommenced in 2015.

Previously, some questions were divided by parents of children aged 0–2 years old and of children aged 3–4 years old. In 2015, to better reflect the timing of pre-school boosters (offered 3 years after completing the primary infant course, scheduled at 8, 12 and 16 weeks of age) questions were divided according to the age of the child into those for parents of children aged 0–3 years 3 months old (denoted as '0y-3y3m') and parents of children aged 3 years 4 months to 4 years 11 months old (denoted as '3y4m-4y').

<sup>1</sup> A 'primary care giver' was defined as the person responsible for most decisions about the child's health care.

Over time data were based on parents of 0–2 s to ensure comparability.

## 3. Results

Interviews were completed with 1792 parents of whom 1130 had children aged 0–2 years and 999 had children aged 3–4 years; 337 had children of both ages. Although the methods do not allow ascertainment of the number of eligible households that refused to participate, weighting by respondent age, child age and region was designed to ensure the representativeness of parents of children under five years of age in England (Table 1).

### 3.1. Immunisation and disease awareness

Fifty-one percent (N = 909/1792) of parents recalled seeing, hearing or reading information relating to childhood immunisations in the last year, declining from a 91% peak in 2001 (Fig. 1). Of these, 909 parents 12% (N = 109) spontaneously recalled information that might make them doubt getting their child immunised or persuaded them not to immunise. This was part of an overall decrease in exposure and/or recollection of such information (Fig. 1).

Twenty percent (N = 182/909) said the information they recalled concerned the importance of getting children immunised. Doctors/nurses (17%), leaflets (10%), TV in a pharmacy or GP surgery (9%), Internet (6%) were the most common information sources. Mention of most sources fell significantly compared to 2010, other than doctors/nurses. This was consistent with the reduction in national immunisation publicity campaigns using paid for TV and press. Seeking information via the Internet increased from 4% to 6%.

When prompted, 12% of all parents (N = 149/1792) recalled seeing, hearing or reading something that made them doubt getting their child(ren) vaccinated. This most often related to non-specific side effects (23%, N = 34/149), danger of autism/ Crohn's or ADHD (attention deficit hyperactivity disorder) (16%, N = 24/149) or MMR (measles, mumps and rubella) vaccine (7%, N = 10/149). Thirty-four percent of these parents said that adverse information related specifically to MMR vaccine (N = 51/149) and 26% to flu vaccine (N = 39/149). These parents were most likely to have seen this information on the Internet (32%, N = 48/149) or through speaking to friends, family or other parents (26%, N = 39/149).

The diseases perceived to be most serious, rated as 'very serious' by the most parents, were Meningitis (82%), Septicaemia (78%), Pneumonia (71%) and Polio (68%). An ear infection was seen as the least serious, rated as 'very serious' by 14% of all parents, followed by chickenpox (17%), diarrhoea and vomiting (18%), flu (22%) and rotavirus (25%).

### 3.2. Decision-making process

In 2015, 90% of parents (N = 1613/1792) reported automatically having all their child(ren)'s immunisations done when they were due, a significant increase from 72% of parents (N = 1246/1730) in 2010 (Fig. 2). Mothers were significantly more likely to have refused or delayed an immunisation than fathers (11% compared to 7%). Parents living in the South were also significantly more likely to have refused or delayed (15%) compared to those in the North or the Midlands (both 7%).

Seven percent (N = 125/1792) of parents postponed immunisations offered to their child(ren), significantly fewer than in 2010 (19%); of these, 5% immunised later and 2% intended to immunise later (Fig. 2). Forty-two percent of those delaying said that this was

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