Health Visitors experiences of MMR vaccination for children

Dr Alex Keenan

Dissertation submitted in partial fulfilment of

the requirements for the degree of Master of Public Health,

The University of Liverpool

August 2013

Declaration

No portion of this work has been submitted in support of an application for degree or qualification of this or any other University or insitute of learning.

Signature

Abstract

Background

In 2012 there was a large measles outbreak in Liverpool. The MMR vaccine has had low uptake rates since 1998 and the historical low uptake rates may have contributed to the outbreak. Parental and GP attitudes towards MMR have been well documented. What have not been reported are the experiences of Health Visitors during childhood vaccination appointments. Health Visitors are the main point of contact with new parents and their perceptions are under explored.

Aim

The aim of the study was to investigate the experiences of Health Visitors during appointments that are arranged with parents to discuss and administer the MMR vaccination for children.

Methods

A qualitative study using semi-structured interviews was used to explore the experiences of Health Visitors during appointments and discussions with parents in relation to vaccinations in general and the MMR specifically. A total of 10 Health Visitors were interviewed. Each interview was recorded, transcribed verbatim and analysed using thematic analysis.

Findings

There are 3 main findings reported. Firstly, the experiences and training of Health Visitors appears to have influenced their opinions of vaccinations. Secondly, the Health Visitors appear to categorise families on their caseloads according to

subgroups. The perceived groups have a variety of needs that appear not to be met by the national one-size-fits-all approach to childhood vaccinations. The final finding is that there is a perception that there have been changes of risk perception since the recent measles outbreak and more families are choosing to have their children vaccinated.

Conclusions

If the perceptions of the Health Visitors are correct, the second finding leads us to conclude that the present national one-size fits all approach to childhood vaccinations is not appropriate for a rich and varied society. Through best practice and tweaking existing practices, MMR uptake can be increased.

Key words: Qualitative, MMR, Health Visitors, Measles

Abstract word count: 297

Dissertation word count: 10999

Acknowledgements

I would like to acknowledge the contributions and support from many people who have helped with the work in this study, a list of which can be seen below.

- Past and present staff at Cheshire & Merseyside Health Protection Team.
- Dr Steve Clayton as my supervisor for guidance and support.
- The Health Visitors for agreeing to be interviewed.
- Dr Sam Ghebrehewet for discussions.
- Family and friends.
- Katy, Millie and Heidi.

Abbreviations

AMED	Allied and Complementary Medicines Database
APM	Active Patient Management
BNI	British Nursing Index
CDC	Centers for Disease Control and Prevention
CHIS	Child Health Information System
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CMHPU	Cheshire & Merseyside Health Protection Unit
COVER	Cover of Vaccination Evaluated Rapidly
DH	The Department of Health
ECDC	European Centre for Disease Prevention and Control
EMBASE	Excerpta Medica Database
HMIC	Health Management Information Consortium
HPA	Health Protection Agency
LA	Local Authority
MEDLINE	Medical Literature Analysis and Retrieval System Online
MMR	Measles, Mumps & Rubella
MR	Measles & Rubella

NHS	National Health Service
NW	North West
ONS	Office of National Statistics
PCT	Primary Care Trust
PHE	Public Health England
PsycINFO	Psychological Abstracts Information Services
UK	United Kingdom
WHO	World Health Organization

Contents

Abstract i

Acknowledgements iii

Abbreviations iv

Figures x

Tables xi

Introduction 1

Background 3

Location 3

Recent measles outbreak in Liverpool 5

National Policy on Childhood Vaccinations 6

Local Initiatives 8

Health Visitors 9

Child Health Records 10

Vaccination uptake and the Epidemiology of Measles, Mumps and Rubella 10

Literature Review Strategy 13

Literature Review 15

Knowledge and Concerns of Health Professionals 16

Role of Health Visitors in relation to MMR uptake 17

Concerns of Parents in relation to Health Visitors 18

Summary of Background 18

Aims and Objectives 20

Research Question 20

Aim 20

Objectives 20

Methodology 22

Choice of Methodology 22

Positionality & Epistemology 23

Theoretical Assumption 23

Ethical Considerations 24

Participants 25

Approaching Participants 26

Interview Process 27

Data Analysis 29

Findings 31

Finding 1: How the Health Visitors experiences and training have influenced their opinions and outlook towards vaccinations. 32

Finding 2: How the Health Visitors categorise the families on their caseloads 35

Category 1: Parents who choose for their child to have all vaccinations without exception. 36

Category 2: Parents who have matters in their lives which make childhood immunisations a low priority. 38

Category 3: Parents who query the MMR vaccination. 40

Finding 3: The Health Visitors experiences of changes to MMR uptake since the measles outbreak in Liverpool. 43

Summary of findings 45

Discussion 47

Findings in relation to wider context of research and policy 48
Strengths and limitations of the study 50
Research project design and execution 50
Findings and analysis 51
Positionality 52
Ethical issues 53
Reflection on original aims 53
Value of the Research 54
Further studies identified as a result of this work 54
Recommendations 56
Summary and Conclusion 58
References 60
Appendix I - Search terms used for literature review and detail of Literature Review Strategy 69
Appendix II – Dissertation Proposal 73
Appendix III - MPH Core Team Sign Off 76
Appendix IV – Participant Information 77
Appendix V – Participant Consent Form 79
Appendix VI – Ethical Approval 81
Appendix VII – Project Approval from Liverpool Community Health Research & Development team 83
Appendix VIII – Initial Themes Identified from Interviews 84
Appendix IX – Quotes to support overarching findings 85

Appendix X – Example of Analysed Text.. 88

Figures

Figure 1 : Map of Liverpool Local Authority including Deprivation; reproduced from (17) 4

Figure 2 : Confirmed Cases of Measles, Mumps and Rubella England & Wales 1996 - 2012 11

Figure 3: Percentage of MMR1 and MMR2 uptake rates at 5th Birthday England & Liverpool 1999 - 2012.. 11

Figure 5 : Algorithm used for literature review strategy and numbers of articles at each stage 14

Tables

Table 1 : Routine Immunisations in the UK (reproduced from (17) 7

Table 2 : Quarterly Vaccination Uptake Rates for Liverpool (24) 5

Table 3 : Databases searched and number of articles identified through searches 13

Table 4 : Inclusion and Exclusion Criteria for Participants to be Interviewed 25

Table 5 : Format of Interview including further questions 28

Introduction

In 2012 there was a large measles outbreak in Liverpool (1). The confirmed cases were mainly in those aged under 12 months i.e. too young to be vaccinated, and young adults over the age of 15. The vast majority of cases were not fully vaccinated with either no mumps and rubella vaccination (MMR) or 1 dose of MMR only.

Prevention of measles is achievable through vaccination. The MMR was introduced in the UK in 1988 (2). This was an extension of the measles and rubella vaccine (MR) programme of childhood immunisations. The World Health Organisation (WHO) has a plan to eradicate measles in the European Region by 2015 (3), this would require 95% uptake levels of MMR in order to achieve herd protection.

In 1998 a paper was published regarding MMR and a link to autism (4). The methods used were immediately criticised (5) (6) and the evidence reviewed regarding links to autism and bowel disease by the Medical Research Council who concluded that there was no evidence to link MMR to either autism or bowel disease (7) (8) (9). As a result the original paper was later discredited and retracted (10). However, the findings of this paper immediately affected vaccination uptake across the UK (11).

The opinions of parents and General Practitioners (GPs) with regard to MMR uptake have been reported (12) (13). What have not been considered are the perceptions and experiences of Health Visitors. Health Visitors are the main health professional group that administer freely available childhood vaccinations up to the age of 5 in Liverpool. Health Visitors are an under researched group and their perceptions of

why vaccinations are offered but not taken by parents may provide an additional insight to the factors affecting vaccine uptake.

The service provision of MMR appears not to be a problem as has been evidenced by the more recent measles outbreak in Swansea where over 75000 unscheduled MMR vaccinations were administered (14). The problem appears to be with uptake of the vaccination at the appropriate point in the immunisation schedule.

At present the national approach for vaccination is to invite the parents / guardians of the infants to make an appointment for vaccination, however, within Liverpool there are local initiatives to increase vaccine uptake as there has been a historical low uptake which may suggest that the national one-size-fits-all phone and book approach does not appear to be appropriate for the local population.

The work is of public health relevance as it will add to knowledge by canvassing experiences and perceptions of Health Visitors within Liverpool in order to attempt to explore their experiences in relation to providing the MMR vaccine for children with the aim of using the findings to inform discussions around increasing MMR uptake.

Background

Location

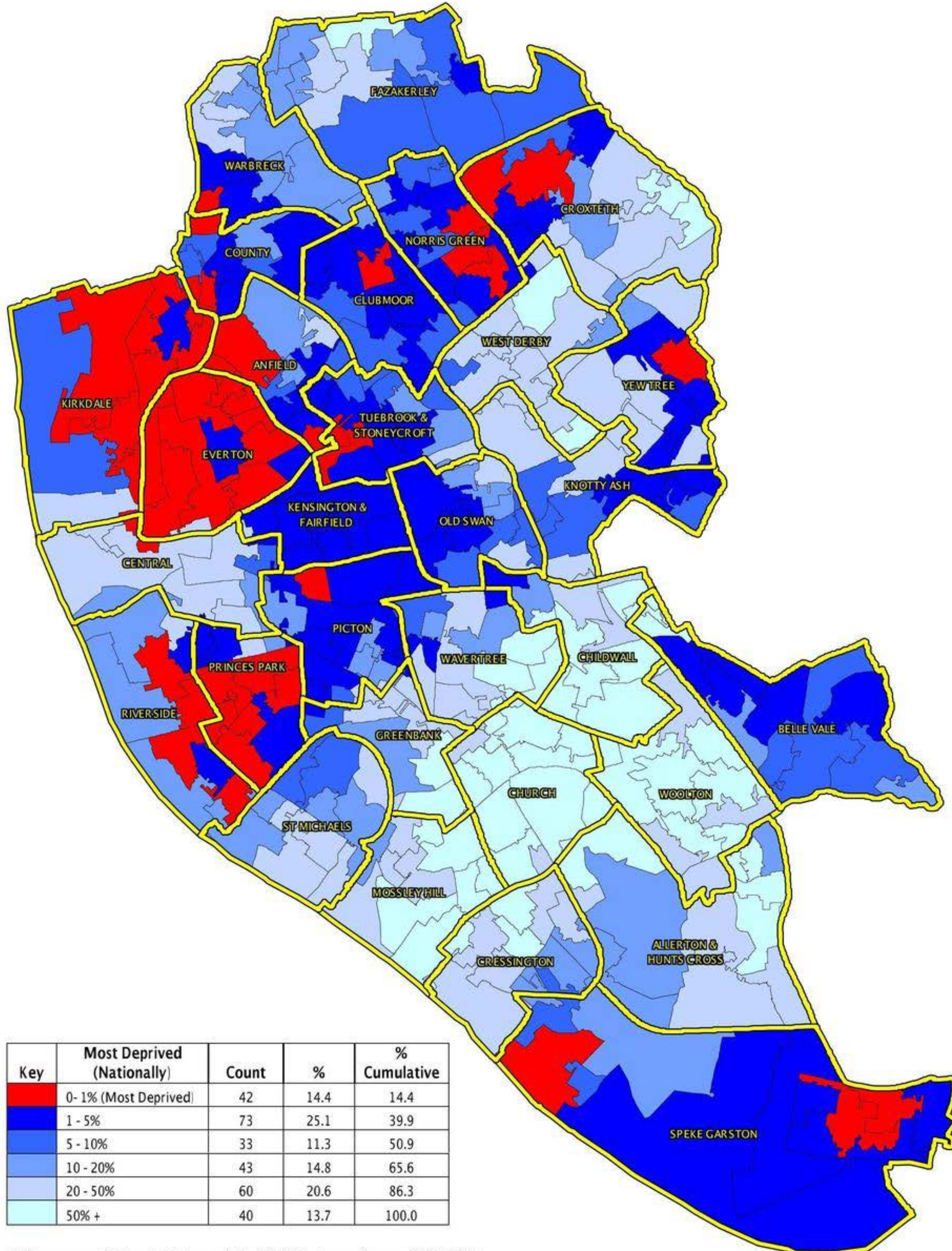
The project is set within Liverpool as a result of the large measles outbreak in Liverpool in 2012 (1).

Liverpool is a large metropolitan area within the North West (NW) of England. It had a population of 466,415 as of 27th March 2011 when the census was undertaken (15). A map of the Liverpool area can be seen in Figure 1.

Whilst Liverpool has a variation in levels of deprivation, this variation is limited. Overall it is the most deprived Local Authority in England with the lowest female life expectancy and 3rd lowest male life expectancy (16). There is also a higher level of child poverty (17). The areas of deprivation within Liverpool can be seen visually in Figure 1.

It is recognised that deprivation has a large impact on health, however it must be noted that although there is substantial deprivation within Liverpool, childhood immunisation uptake levels are substantially higher than national figures (17). Work has been reported that considered uptake rates of MMR in relation to deprivation but no link was determined, although in the same paper there was a negative correlation between MMR uptake and barriers to housing and services (18).. This was a quantitative piece of work and not repeated with data for Liverpool as part of the present study.

Figure 1 : Map of Liverpool Local Authority including Deprivation; reproduced from (17) where count refers to number of LSOAs



Key	Most Deprived (Nationally)	Count	%	% Cumulative
	0- 1% (Most Deprived)	42	14.4	14.4
	1 - 5%	73	25.1	39.9
	5 - 10%	33	11.3	50.9
	10 - 20%	43	14.8	65.6
	20 - 50%	60	20.6	86.3
	50% +	40	13.7	100.0

Recent measles outbreak in Liverpool

One factor that may have contributed to the recent measles outbreak could have been the historical suboptimal uptake of MMR. Recent childhood vaccine uptake data shows 92% uptake for the full course of MMR within Liverpool at 5th birthday (Table 1). Although this is higher than for England as a whole (88%), it is below the 95% WHO target to achieve herd protection and only refers to recent rates (3). The historical lower uptake rates have left a large number of children and young adults not fully immunised and in the recent outbreak, those affected were older children / young adults and those too young to be vaccinated.

Table 1 also shows the increase in uptake rates that started in 2012 when the outbreak began and received both local and national media attention (20).

Table 1 : Quarterly Vaccination Uptake Rates of MMR1 and MMR2 at 5th Birthday, Liverpool, April 2011 – March 2013 (11)

	MMR1	MMR2
April – June 2011	95.3	86.9
July – September 2011	96.0	86.2
October – December 2011	95.4	85.6
January – March 2012	95.5	88.0
April – June 2012	97.7	91.5
July – September 2012	96.7	90.3
October – December 2012	97.2	92.0
January – March 2013	97.6	92.1

National Policy on Childhood Vaccinations

Recent successive UK governments have taken a supportive approach to public health, by providing people with information in order for them to be able to make their own informed choice. This is evident with the Choosing Health: Making healthy choices easier White Paper in 2004 (21), with government hoping that people would choose a healthy lifestyle of their own volition.

Within the UK, vaccinations are offered for children at various stages during their development. Unlike the first vaccination, or variolation for smallpox (22), vaccinations are not compulsory. All childhood vaccinations are available free of charge and provide protection from a variety of illnesses. Some are administered as a single vaccination e.g. Meningitis C, whereas others are combined e.g. the 5-in-1 Diphtheria, Tetanus, Pertussis, Polio and Haemophilus influenza type B, or the MMR. The immunisation schedule can be seen in Table 2.

Although parents / guardians are encouraged to have their children receive all childhood immunisations, the approach is to provide them with information in order for them to make an informed choice. This is a nationally-led top-down approach to childhood vaccinations.

For the earlier immunisations up to 4 months the parents are still in regular contact with the Health Visitors and the opportunity for discussions presents itself at regular intervals, after 4 months the frequency diminishes and by 12 months the contact with the Health Visitors in general will be far less frequent.

The procedure for receiving the vaccinations is that the parent or guardian of each infant receives a letter asking the parents / guardians to call their clinic and book an appointment for their infant to be offered the appropriate vaccination. Within Liverpool this is mainly administered by the Health Visitors. This puts the responsibility for vaccination uptake on the parents / guardians. It is only at this appointment where the consent for vaccination is given by the parents / guardians.

Table 2 : Routine Immunisations in the UK (reproduced from (23))

Disease (Vaccine)	Age	Notes
Diphtheria, tetanus, pertussis, polio and Haemophilus Influenza type b (DTaP/IPV/Hib)	1st dose: 2 months 2nd dose: 3 months 3rd dose: 4 months	Primary Course
Pneumococcal disease (PCV)	1st dose: 2 months 2nd dose: 4 months	Primary Course
Meningococcal group C (Men C)	1st dose: 3 months 2nd dose: 4 months	Primary Course
Haemophilus Influenza type b and Meningococcal group C (Hib / Men C)	Between 12 and 13 months	Booster
Measles / mumps / rubella (MMR)	Between 12 and 13 months	1st dose
Pneumococcal disease (PCV)	Between 12 and 13 months	Booster
Diphtheria, tetanus, pertussis and polio (dTap / IPV or DTaP / IPV)	3 years 4 months to 5 years	Booster: 3 years after completion of primary course
Measles / mumps / rubella (MMR)	3 years 4 months to 5 years	Second dose
Human papillomavirus (HPV)	Girls aged 12 – 13 years	Course of 3 doses
Diphtheria, tetanus and polio (Td / IPV)	13 to 18 years	Booster

Local Initiatives

Whilst the procedure for vaccinations is led nationally, there is room for local initiatives in order to attempt to improve vaccination uptake as there is recognition that this present system is not achieving higher uptake levels. Two such initiatives are presented.

Within one area in North Liverpool there is an open community clinic where parents are encouraged to attend at more convenient times. This clinic is particularly busy during school holidays when parents are also taking holidays and an opportunity for vaccination presents itself.

In 2009 in Liverpool an Active Patient Management (APM) plan was initiated. This programme specifically looked for registered children that had 3 "did not attend" comments on their child record i.e. had agreed to immunisations but did not present at clinic, and were approaching their 2nd or 5th birthday. Within this team there were 2 immunisers who had the sole job of going to the homes of these children and offering immunisations at home. Through circumstance rather than design, i.e. the sole remaining immuniser cannot continue, as of August 2013 the list of these cases is about to be shared directly with Health Visitors in order for them to improve child health within this group. The researcher only became aware of the detail of this programme after discussions with a senior Immunisations staff member in August 2013.

Health Visitors

Health visitors are the front line of childhood vaccinations in Liverpool and are often the first health professional that new parents see in their home after the birth of their child. At present, they are all either previously registered nurses or midwives who have chosen this career pathway and have undertaken additional training in order to become Health Visitors (24).

During the first visit the Health Visitor will explain their role and the support they offer to parents. As part of this discussion they will inform the parents of the childhood immunisation programme. During the first 4 months, the Health Visitors have regular contact with the parents. After this the frequency of the contact diminishes but the opportunity for the parents to contact the Health Visitors is still made available to the parents.

The role of Health Visitors is wide but can be considered as providing a general child and family health service from pregnancy through to 5 years of age of the child. The Health Visitors have individual caseloads and are a wide source of information for childhood immunisations, welfare and developmental checks amongst others. This is achieved by following the national Healthy Child Programme (25).

Whilst home visits by the Health Visitors are common for the first few months of the infants' life, the procedure for receiving the vaccinations has been stated and it is expected that all childhood vaccinations are to be given within clinics, although there are exceptions as described in the previous section.

Child Health Records

Child health information within the UK is collected by a number of different people / organisations, these include but are not limited to GPs, Practice Nurses, Health Visitors, Walk-in centre staff and hospital staff. The information is shared with the GP practice where the child is registered, however, GP practices do not all use the same systems to store / retrieve the information and so at a local level e.g. Local Authority (LA) there are various Child Health Information Systems (CHIS) in place to record the vaccination status of each child.

The primary immunisations in Liverpool are administered by the Health Visitors and it is expected that the Health Visitors return the correct information which is used for surveillance and monitoring purposes.

Vaccination uptake and the Epidemiology of Measles, Mumps and Rubella

The number of confirmed measles, mumps and rubella cases in England & Wales from 1996 – 2012 can be seen in Figure 2 (26). The data is presented using a logarithmic y-axis for ease of comparison, yet it is evident that the number of confirmed cases of both measles and mumps has been increasing since 1998 with occasional outbreaks. Interestingly, the number of confirmed cases of rubella has been decreasing. This can be explained through a combination of factors already presented in the literature (27) (28). The data for Liverpool are not available over the same time period for comparison.

Figure 2 : Confirmed Cases of Measles, Mumps and Rubella England & Wales 1996 - 2012

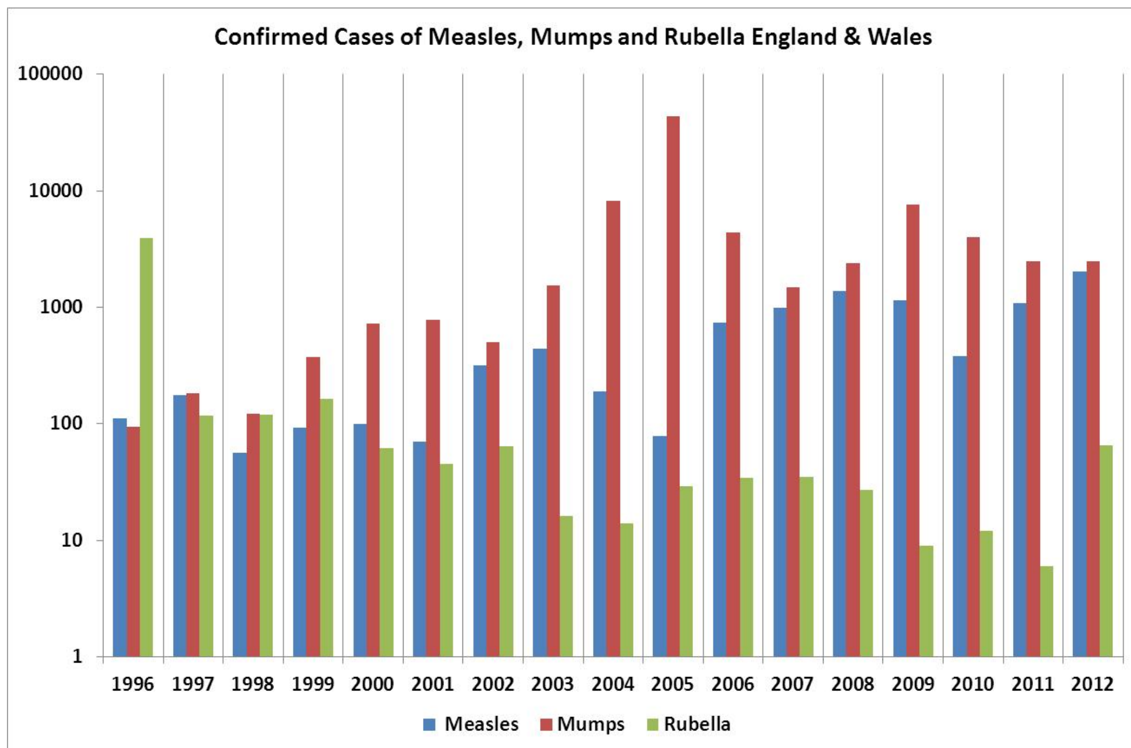
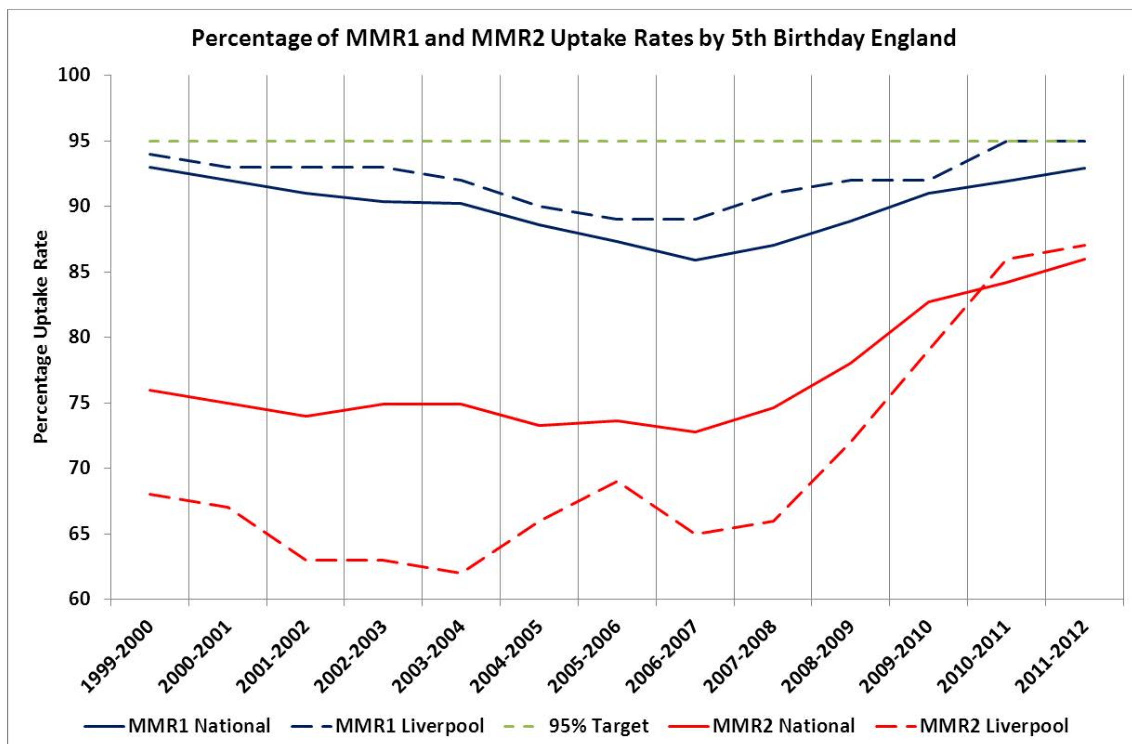


Figure 3: Percentage of MMR1 and MMR2 uptake rates at 5th Birthday England & Liverpool 1999 - 2012



It must be noted that although herd protection can be reached, there is still the possibility of an outbreak, however it will be smaller than it would have been had mass vaccination campaigns not been undertaken.

Since the introduction of the MMR in 1988, records have been kept of uptake rates for MMR1 at 24 months and since 1999 for both MMR1 and MMR2 at 5th Birthday by Coverage of Vaccine Evaluated Rapidly data (COVER) (29). In Figure 3 It can be seen that there was a drop in MMR1 uptake levels from 1999 and it was several years before the rates started to increase. However, the national uptake rates have not reached the 95% target required for measles herd protection. For MMR1 and MMR2 at 5th Birthday it can be seen that there have been recent increases, however, the national uptake rates are still below the 95% target.

Figure 3 also shows that MMR1 and MMR2 uptake rates for Liverpool are currently higher than the national levels, with MMR1 in particular having been above national levels for several years. However, MMR2 has been low for a long period of time, it is this historically low uptake that may have contributed to the recent measles outbreak in Liverpool

With the information presented around national policy, local initiatives and uptake rates a review of the literature with particular reference to Health Visitors was deemed appropriate in order to uncover additional knowledge that had considered the perceptions and experiences of Health Visitors.

Literature Review Strategy

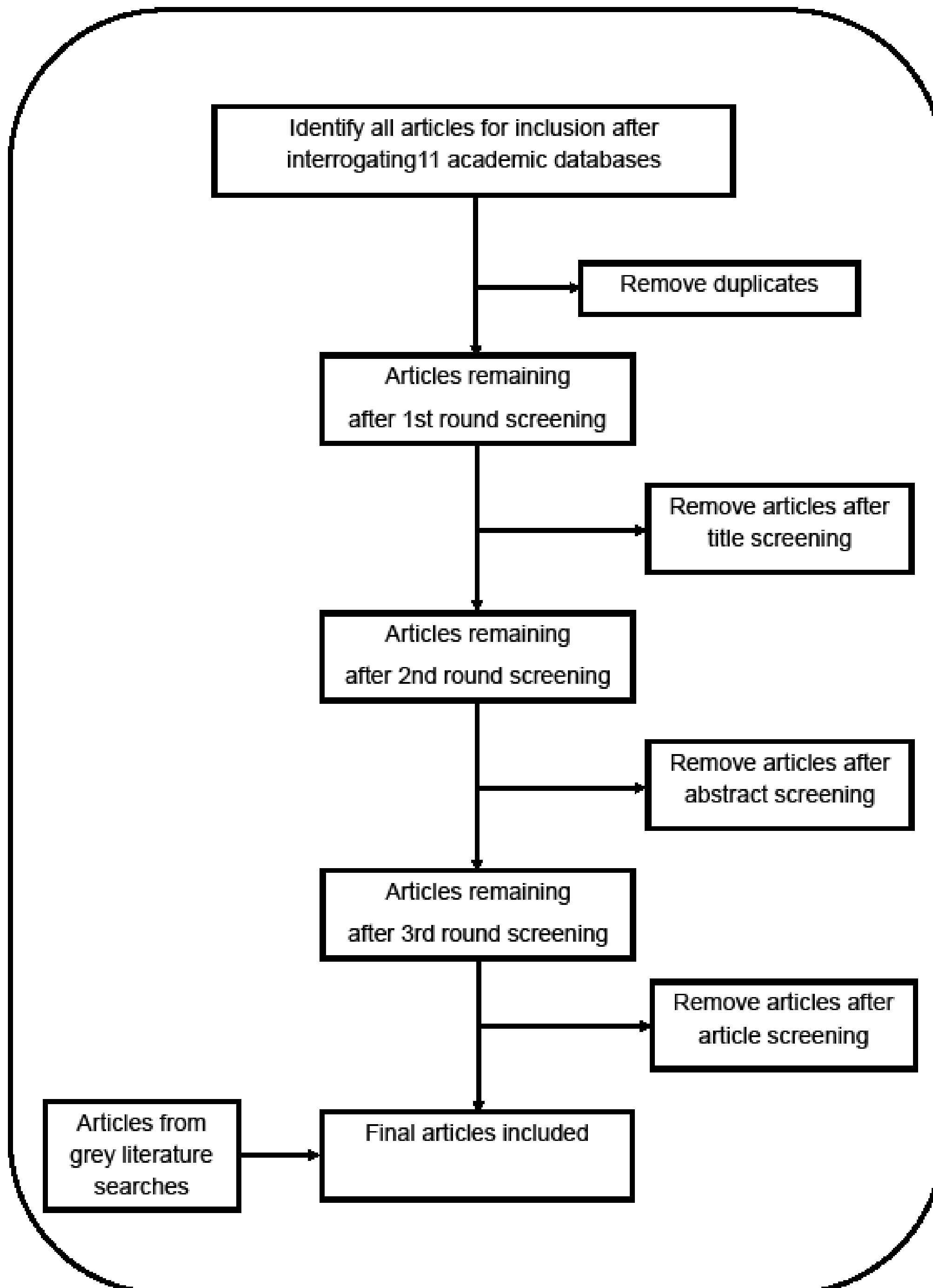
A literature review was undertaken by developing appropriate search strings using Boolean logic and searching several databases. The specific search terms used and criteria for inclusion can be seen in Appendix I. The number of articles identified in each database can be seen in Table 3. A grey literature search was also undertaken to identify articles or reports not published in peer reviewed journals using similar search terms. The Department of Health (30) and the European Centre for Disease Prevention and Control (31) were searched. Several websites were deliberately not included due to the large number of returns in the queries and the limited timescale of the project. These included the World Health Organization (32) and Centers for Disease Control and Prevention (33). Additionally, the topic was discussed with senior colleagues in order to ascertain whether they could suggest relevant reports.

An algorithm of the process can be seen in Figure 4.

Table 3 : Databases searched and number of articles identified through searches

Database Searched	Number of Articles Identified
AMED (34)	0
EMBASE (35)	255
HMIC (36)	71
MEDLINE (37)	174
PsycINFO (38)	23
BNI (39)	33
CINAHL (39)	78
Health Business Elite (40)	48
The Cochrane Library (41)	15
Google Scholar (42)	55
Web of Knowledge (43)	83
Total	835

Figure 4 : Algorithm used for literature review strategy and numbers of articles at each stage



Literature Review

The searches located very few studies directly relevant to the study, which mirrored an earlier study exploring the experiences of Health Visitors (44).

The available literature specifically relating to Health Visitors experiences appeared to focus on knowledge when considering MMR vaccinations and whether the Health Visitors were aware of the appropriate contraindications when administering MMR (45). Whilst important, this is a point that can be clarified with the use of e.g. the Green Book (46) or by a phone call to a senior immuniser and so it was felt by the researcher that this was not relevant to this study.

Although they may have been explored, it would appear that Health Visitors perceptions have not been published as much as opinions and perceptions of parents or GPs. The reasons for this are unclear, which was unexpected as Health Visitors are the health professionals most likely to administer the MMR within the UK.

As a result of the apparent lack of published work directly relating to this research, the searches did locate studies concerned with knowledge and concern of health professionals, the role of Health Visitors in relation to MMR uptake and the concerns of parents in relation to Health Visitors. Therefore, it was decided to present these findings.

Whilst it is reported that there has been a mixture of quantitative and qualitative research methods used within the papers, the qualitative research was of more relevance to this work.

Knowledge and Concerns of Health Professionals

It has been recognised that not all health professionals are comfortable with the knowledge that they have around the MMR and as a result, like many parents, have concerns. These findings been previously been reported via a study using a questionnaire in 2004 (47), however this was when the MMR controversy was still under discussion and likely to have been part of routine discussions at the time. More recent work has been done to investigate this further with specific research around interpretation of research evidence by Health Visitors. Hilton et. al. (48) in 2009 again used a questionnaire and found that Health Visitors either did not have the time to locate new information sources around childhood immunisations, or were not comfortable interpreting this information for discussions with parents. Both of these studies used questionnaires and so the findings gained from the responses are unlikely to have been explored to uncover the detail behind the reasons for the responses. It could be considered that the reasons behind the findings are not so much to allay the concerns of the health professionals but more to encourage health professionals to be more active in promoting MMR to parents (13) in order to achieve targets. It is recognised and accepted that health professionals are trusted by parents and it is this trust that is considered crucial to achieving the 95% uptake level required to eradicate measles in Europe (49). Moreton (50) in 2002 goes further, stating

> "For health professionals not to support the vaccine is an untenable position both professionally and ethically".

Petrovic *et. al.* in 2001 continues with this theme of a lack of confidence especially when interpreting information for MMR2 at 3 years and 4 months (51).

Role of Health Visitors in relation to MMR uptake

Building on from the knowledge and concerns that health professionals have, the idea of supporting health professionals to be better prepared to engage in discussions with parents is continued. However, the approach takes a slight turn and it is the *role* of the health professional that is also being considered. Both practice nurses (52) and Health Visitors (53) were thought not to be communicating effectively to parents to encourage vaccination for children. Redsell *et.al.* in particular in 2010 (53) noted that the Health Visitors perceived a difference in approach between themselves and GPs / practice nurses.

> “Health visitors perceived that GPs and practice nurses took a paternalistic approach to the provision of immunisation information, while they used a parental decision-making model”

This was a large piece of work undertaken whereby semi-structured interviews took place with 22 Health Visitors working in 1 county. This may not necessarily easily translate to Liverpool as it is noted that the GPs and practice nurses in the county were the main administers of childhood vaccinations and the group that were interviewed were self-selecting.

This difference between the 2 professional groups is also noted elsewhere;

> “health visitors experience 'discernable tension' between their duty to 'actively encourage' MMR uptake and to support informed choice” (54).

Concerns of Parents in relation to Health Visitors

Some work has been undertaken to consider what health professionals perceive are the reasons why parents choose not to have MMR. This includes a historical understanding of why parents chose not to have MMR in 2002 (55). The tension referred to earlier between either encouraging MMR or offering information to make an informed choice continues when parents discuss their concerns with health professionals and GPs independently, and there is a lack of consistent message. This has been reported as a source of tension for GPs (54) and Health Visitors.

Summary of Background

Health Visitors are the public face of vaccination programmes, with parents placing the care of their child in the trust of these healthcare professionals. Work has been undertaken to assess perceptions and attitudes of mothers who choose not to have their child vaccinated (12), yet to date limited qualitative work has been undertaken with Health Visitors to investigate their experiences and perceptions during childhood vaccinations and in particular the MMR. This is a knowledge gap.

Taking this into account, the proposal to consider the views of Health Visitors in relation to their experiences during vaccination appointments with parents was deemed a research project that warranted investigation.

Aims and Objectives

Research Question

What are the experiences of Health Visitors with parents during vaccination uptake appointments, in particular when entering into discussions around MMR?

Aim

To investigate the experiences of Health Visitors during the appointments that are arranged to discuss and administer the MMR vaccination for children.

Objectives

The objectives of the study are:

1. Review relevant literature regarding attitudes and perceptions to MMR provision and uptake from Health Visitors.
2. Identify and recruit a sample of Health Visitors from within the Liverpool area.
3. Design a semi-structured set of qualitative questions for interview building on previously published work.
4. Conduct interviews with the recruited Health Visitors.
5. Transcribe, code and analyse the interviews using a thematic analysis.

6. Propose recommendations from the analysis and present the findings, which it is envisaged will be used to inform future local public health policy and aid consideration of changes to current practices.

Methodology

Choice of Methodology

Qualitative work offers the opportunity to "access areas not amenable to quantitative research" (56). For this work it was considered that the most effective method of capturing the information would be through qualitative methods that could provide a more in-depth understanding of experiences and behaviours.

Three methods of qualitative data capture were considered.

- Observation
- Focus groups
- Interviews

For a full in-depth piece of work all 3 methods used together would have provided a rich dataset, however the practicalities of the dissertation including the limited timescales precluded this possibility. Observational methods were rejected as this would have resulted in a time consuming application process to obtain ethical approval combined with approaching and agreeing with both parents and Health Visitors during a visit. Focus groups were also considered and rejected due to time constraints of the dissertation. The Health Visitors are very busy and the practicalities of agreeing with a minimum of 3 groups of 4 Health Visitors to meet at a particular time would have been problematic. A semi-structured interview was considered the most appropriate method to achieve the desired outcome.

Positionality & Epistemology

Research has been a common theme throughout the professional life of the researcher having changed career from one in Nuclear Physics to Public Health. This professional interest and the knowledge that comes with it has influenced the personal life of the researcher thereby affecting both the positionality and the epistemology of the researcher. The researcher acknowledges their positionality as a health professional who places belief in the MMR vaccination and as a positivist (57) with 20 years involvement in quantitative research. The researcher was aware of this when composing the questions for interview, during the interview and during coding for data analysis. In order to avoid introducing researcher bias and introduce a rigorous approach to the study, a reflexive approach (58) was taken throughout the study whereby the researcher critically reflected on the findings and interpretation in order to avoid, or at the very least limit, clarify and address any bias introduced from the researcher.

Theoretical Assumption

The dissertation was undertaken from an interpretative approach (57), considering the Health Visitors views of parents in light of the experiences they have had.

> *"The aim of interpretative research is an understanding of the world from the point of view of the participants in it, rather than deriving an explanation of the world."* (57)

This was deemed the most appropriate considering that the project was interpreting the Health Visitors perceptions of parents.

Ethical Considerations

The proposal (Appendix II) was submitted to and accepted by the MPH core team (Appendix III). Following this, the proposal was the submitted to the University of Liverpool's Committee on Research Ethics for further approval (Appendix VI).

No information relating to individual patients or Health Visitors was requested or required for the interviews, addressing some ethical considerations. Within the Participant Information Sheet (Appendix IV) it was made clear that should any problems arise then there was the option to approach the researcher or the supervisor should this be more appropriate.

The names of the Health Visitors were not used during interview to retain anonymity and during transcription and analysis no reference to any individuals was included.

The majority of issues were considered as part of the ethical approval application, and this approach worked well for the bureaucratic process, however there was the consideration that the Health Visitors knew that the researcher was a health professional working for Public Health England and they may have considered the study as being intrusive and / or confrontational. This will be discussed below.

Participants

As discussed earlier, time and resource limitations meant that between 8 and 12 Health Visitors would be interviewed in order to discuss their experiences during routine childhood vaccination meetings with parents.

As the main part of the measles outbreak within Merseyside in 2012 occurred within Liverpool, it was decided to approach only those working as Health Visitors within Liverpool during 2012. It was acknowledged that the results would be specific to this group that had recently experienced a large measles outbreak but it was decided that this would be a unique opportunity to gain information that was still fresh for the Health Visitors. The criteria used for inclusion and exclusion can be seen in Table 4.

Table 4 : Inclusion and Exclusion Criteria for Participants to be Interviewed

Inclusion Criteria	Exclusion Criteria
Working as Health Visitors	Other health professionals that were not Health Visitors
Worked within the Liverpool area during 2012	Working in Liverpool now but not worked in Liverpool during 2012
Willing to be interviewed	
Willing to sign a consent form having agreed to be interviewed	

Approaching Participants

Health Visitor teams working within the Liverpool area were approached through their managers, from publically available phone numbers for Sure Start Centres or GP surgeries. It immediately became apparent that an application for approval to interview Health Visitors needed to be made through Liverpool Community Health Research and Development team as a project proposal (59). This was applied for and received (Appendix VII). Following this an invitation was received to meet the Health Visitor team leaders. At this meeting, the researcher presented some findings, both quantitative and qualitative, from the recent measles outbreak to the group and requested to interview either the team leaders themselves or their staff. Also at this meeting, the ethical issues discussed earlier were addressed when the project was presented. When the researcher presented that there is little in the literature relating to opinions of Health Visitors, one of the Health Visitors responded with “that’s because we’re not allowed an opinion”. The researcher reassured those present that this was an opportunity for their opinion to be heard and that anonymity would be provided.

The researcher asked if there were further concerns and offered to answer any other concerns outside of the meeting and prior to any interviews should those present have concerns but not wish to raise them at that point.

Those who volunteered did so by emailing the researcher. In the reply, a Participant Information Sheet was shared with those volunteering prior to the interviews so that, should they wish, the Health Visitors could be fully aware of the work.

Interview Process

The interviews took place at a location that was chosen by the volunteers for them to be more comfortable and at ease. On each occasion this was their offices.

Prior to the interview, the Health Visitors were given the Participant Information Sheet again in order for them to reacquaint themselves with the project, and were asked to sign a Consent Form (Appendix V) to give permission for the researcher to use information gained from the interviews for this dissertation and any subsequent publications should one be considered. The Health Visitors were informed in writing and verbally that they were free to stop the interview at any point if they did not wish to continue and that they were free to refuse to answer any question they chose.

A pilot interview was undertaken in order to ascertain the openness and order of the questions and any information gained from the pilot that may influence (a) addition or removal of questions, or (b) re-phrasing of questions. This was useful in highlighting other short questions that added to the knowledge gained from the interviews.

During the interviews, the researcher kept the theme of the questions but changed the order depending on the development of the interview. This allowed the interview to be kept open with limits on the natural flow of the interview removed, but the option to steer the interview to the areas that needed to be discussed was retained. The general format of the interviews can be seen in Table 5.

.

Table 5 : Format of Interview including further questions

Topic	Main areas for discussion	Further questions
Introduction	Welcome	
	Thanks for being interviewed	
	Reminder of reason and purpose for study	
	Reminder of option to decline to answer any and all questions	
Background	Time as a Health Visitor	
	Background prior to becoming a Health Visitor	Why become a Health Visitor
	What geographical areas are presently and previously covered	
	Job satisfaction	
The role of the Health Visitor	The role of a Health Visitor in relation to parents	
	Discussion with parents around childhood vaccinations	• Any particular vaccinations that parents want to discuss • Any particular groups of parents wanting to discuss a particular vaccination
MMR	Discussion with parents around MMR	• Any particular groups of people wanting to discuss a particular vaccination • Any geographical areas where discuss further more likely
	Encouragement of parents to have MMR	• Specific occasions when encouraged • Personal feelings of Health Visitors after encouraging parents
	Personal beliefs of MMR	
Reflections	Observed barriers to MMR uptake as a result of their experience	Avoiding Andrew Wakefield
	Ideas to increase MMR uptake as a result of their experience	
Recent measles outbreak	Have there been any observed or experienced changes as a result of the measles outbreak in 2012	
End	Thanks for time and participation	

The interviews were digitally recorded on a smartphone and the files transferred securely to a password protected laptop with the files also password protected. No notes were taken during the interviews.

Data Analysis

As the principle of the analysis was to explore the data, thematic analysis (57) was used to identify common themes and concepts derived from the transcripts of the interviews.

As each interview was completed, verbatim transcription was performed at the earliest available opportunity to avoid interpretation. The data was managed and manipulated using Microsoft Word and Excel. This process has been used previously (60) and whilst not a specialist package like e.g. NVivo (61), it is appropriate for this type of work.

When the second interview was transcribed, from a comparison with the first interview, several common themes and sub-themes started to emerge and initial analysis could be undertaken. This comparison was repeated after each interview in order to reassess and refine previously identified themes.

As this type of analysis is subjective, the researcher was aware of their positionality and reflected on each interview and analysis at each stage in order to consider and further reanalyse if appropriate.

There were more themes identified than are discussed here including perceived barriers to access and perceived barriers as a result of language. The limitations of

the dissertation itself restricted further discussion, however the complete table of findings is available in Appendix VIII – Initial Themes Identified from Interviews.

Findings

A total of 10 Health Visitors were interviewed, all female. The experience they had as Health Visitors ranged from 9 months to 27 years with a mean of 13.6 years and a median of 13.0 years indicating that there was a good range of experience of Health Visitors being interviewed. The experience is not given for individual Health Visitors to retain anonymity. Within the interviews themselves it was clear that the Health Visitors also had experience in a range of socio-demographic groups of families having worked in several locations, mostly within the Liverpool area although some had experience outside the area.

The backgrounds of each of the Health Visitors interviewed were either midwives or qualified nurses, which was a historical pre-requisite for applying for a Health Visitor post. This has recently changed with a wider variety of backgrounds being allowed to apply for Health Visitor posts, although the background must still be medically based.

Without exception, every Health Visitor interviewed said that they enjoyed their job.

There was a very clear perception at the start that Health Visitors are of the opinion that parents have no concerns over other childhood vaccinations. Each of the Health Visitors provided information highlighting this point. The only vaccination that is perceived to result in further discussions is the MMR.

In order to retain anonymity, the Health Visitors are referred to alphabetically as Amelia, Betty, Catherine, Denise, Eileen, Freya, Georgia, Heidi, Isabel and Joni.

Several themes emerged through the interviews. The Health Visitors perceptions of parental concerns over other childhood vaccinations will not be presented. The remaining themes will be presented as 3 overarching findings.

1. How the Health Visitors experiences and training have influenced their opinions and outlook towards vaccinations.
2. How the Health Visitors categorise the families on their caseloads.
3. The Health Visitors experiences of changes to MMR uptake since the measles outbreak in Liverpool in 2012.

These will be discussed in detail.

Further quotes supporting each of the overarching themes are available in Appendix IX – Quotes to support overarching findings.

.

Finding 1: How the Health Visitors experiences and training have influenced their opinions and outlook towards vaccinations.

Until recently the only people who could apply for positions as Health Visitors had to have had previous experience as either a midwife or a qualified nurse. During the course of the interviews it became clear that through this earlier professional experience, each of the Health Visitors had first-hand experience treating children who have suffered from a variety of vaccine preventable illnesses including measles, mumps and / or rubella.

> *"I looked after someone with tetanus once and it was really distressing so it's like one of those things where with immunisations they just roll off the tongue*

the words don't they, but if you actually see somebody with it you know, and you can prevent it" [Joni]

"I have seen in my nursing career kiddies with side effects of measles, encephalitis, blindness, deafness" [Betty]

It is reasonable to consider that this first-hand experience of treating children with vaccine preventable illness has influenced their opinions of all vaccines. Each of the Health Visitors interviewed considered that vaccines were beneficial.

"My personal belief is that this child is being protected against the side effects and I know the side effects, so I don't have any negative beliefs or views around any type of vaccination" [Heidi]

These opinions appear not only to be based in experience but also in knowledge. The enjoyment that the Health Visitors take in their work leads to them taking an interest that is beyond the scope of their job description. This includes reading around historical and new evidence available for them to come to their own conclusions. With this further knowledge comes more information for them to discuss issues with concerned parents.

"You know you've got your evidence………. When I was speaking to a parent I would have to be factual, I wouldn't say if I was you I would have it, my facts would be this is the evidence that supports it, the evidence that supports that bit of research was rubbish and these are the facts, these are what measles mumps and rubella can do to children, and also as well an argument is the children who can't have it who are immunosuppressed, when that outbreak's

out in Wales now there are little ones who can't go out in case, their immunity's so low so they've got to stay because of others who aren't uptaking for this injection and I think is wrong isn't it" [Freya 01]

This experience of vaccine preventable illness combined with their knowledge and role appears to have entrenched their opinions around vaccinations. This deep belief can leave less room for open discussion around MMR.

Whilst Health Visitors are dealing with parents, there also appears to be some tension on occasions when the parents choose not to have MMR for their children.

"it just makes me annoyed because you're not choosing for your own child, you're choosing for everyone else as well aren't you?" [Amelia]

"they're saying well I won't get it cos of this I won't get it cos of that and that little pocket is putting these little ones who've got cancer, leukaemia at such a big risk you know it's really wrong isn't it" [Freya]

This difference of opinion between the Health Visitors and the parents in both quotes above and [Freya 01] may be considered as parents questioning either the authority or the knowledge of the Health Visitor. It is possible that the proposed tension has arisen as a result of the deep belief in vaccinations held by the Health Visitors restricting open discussions.

The findings discussed in relation to the past experiences of Health Visitors, i.e. belief in vaccinations, pride and joy in role and tension were evident in discussions with each of the Health Visitors and points to a defined identity inherent in each of

those interviewed. This positive consideration that the Health Visitors have of themselves and their roles is proposed to be as a result of their experiences, which in turn has shaped their positionality and epistemology. These experiences have given them a positivist standpoint.

Although the application criteria for Health Visitor posts have widened, there is still a requirement for a medical background and so the researcher postulates that the likelihood of strong beliefs in vaccinations as a result of experience is likely to continue.

Finding 2: How the Health Visitors categorise the families on their caseloads

During the interviews, it became apparent that the Health Visitors categorised the families on their caseloads. The same categories were repeated in each interview regardless of area worked in. The experience of the Health Visitors appears to have led them to perceive certain subgroups as being more or less likely to comply with vaccination uptake and this appears to be the basis for the categories.

The Health Visitors had comments both positive and negative regarding these subgroups.

> *"I love working with these with people … the deprived people here … I love it more than the posh people"* [Heidi 01]

The 3 categories that the Health Visitors perceive, appear to be:

1. parents who choose for their child to have all vaccinations without exception;
2. parents who have matters in their lives which make childhood immunisations a low priority;
3. parents who query the MMR vaccination.

These will be discussed in more detail.

Category 1: Parents who choose for their child to have all vaccinations without exception.

As a result of the Health Visitors working with a large number and variety of families, they also have perceptions around which families are happy to accept all vaccinations including the MMR without question.

> *"Lower society groups, they just come in, some can't even read what it's about, they don't know, they just come in and have the injections, it's funny they'll say that's a professional telling me that I need that so I'll come along and do it"* [Freya 02]

Within this group there is little to suggest a tension that was discussed in finding 1 above. It is possible that this is a result of Health Visitors being more at ease with this group as evidenced in quote [Heidi 01]. This particular group of parents are also more accepting of the influence of Health Visitors as evidenced by quote [Freya 02].

Family influence is perceived to be evident within this group.

"Grandparents, especially the younger girls we visit here, they're so influential on health on all aspects of health you know, they put their oar in" [Betty 01]

"they may be influenced by the grandparents of the children but I think that maybe the parents have kind of looked into it themselves and have realised" [Joni 01]

The influence of the media is also perceived.

" … there's been a measles outbreak and the one in Wales, sometimes it's funny you know like it was all on the news and you talk about it and a lot of people that we visit don't really watch the news and don't know …" [Joni]

The national phone and book system is not perceived to be used in the structured manner intended within this category. This is possibly a result of barriers to access that whilst not solely limited to, are more associated with this subgroup.

"the primary [vaccinations] *we don't have such a problem with because they're at 2, 3 and 4 months generally people are, even if they're working, are still off work so going to the clinic is part of that whole new baby experience, by the time we reach MMR you know working mums have generally gone back to work, in fact often it coincides exactly with the time they're going back to work because it's 54 weeks so you get a years* [maternity] *leave, it's exactly the time anxieties are through the roof again cos you're leaving the baby and*

going back to work and so maybe that appointment is really a difficult one but that's the timing as we've got it" [Isabel]

Whilst there are late clinics or Saturday clinics in a lot of surgeries it still appears difficult for the parents to get to these clinics, possibly as a result of a more varied working lifestyle. There are examples of good practice around increasing vaccination uptake.

> *"for the pre-school booster because they're off school yeah and I always tend to say them, you know if you opportunistically come across them, if they've got younger siblings so you know they say well I don't want to keep them off nursery so I say come in the half term and it gets mad, cos they're screaming cos it's all 1 big room, but the clinics are really busy"* [Joni]

Category 2: Parents who have matters in their lives which make childhood immunisations a low priority.

Part of the role of Health Visitors is to look out for all aspects of health and wellbeing of the children and this includes social exclusion, and there are, unfortunately, families that struggle to have immunisations for their children through valid reasons.

> *"some mums just don't have immunisations done because it's not important in their life they've got other issues like no money, housing, you know lots of things going on in their lives, domestic violence, immunisation just isn't important at that time"* [Georgia]

It is important that these groups are not ignored leaving them even more vulnerable. Through these issues they already have barriers to access to health resulting in health inequalities.

There is a perception that the national phone and book system is not being used by this group and is an inappropriate mechanism to support child health in an already vulnerable group. For those with less clear lifestyles and other priorities, keeping in contact with these families appears to be a factor.

> *"… deprivation is very low anyway, they don't have no money, where are they? They won't come to clinic, they're not at home, they won't use their phone"* [Heidi]

This suggests that the current approach to childhood vaccination services are not appropriate for these parents, and an alternative approach to childhood immunisations needs to be proposed.

The local initiative presented earlier relating to Active Patient Management (APM) could be more appropriate for this group. What is interesting to note is that no Health Visitors mentioned this programme during the interviews and as stated earlier, the researcher only became aware of the detail of it after discussions with a senior Immunisations staff member in August 2013. However, the proposal of home visits as standard for this group was already in place within the dissertation as a result of the findings adding weight to this recommendation. So, if contact can be achieved, home visits for vaccinations in this vulnerable group may be a solution.

Category 3: Parents who query the MMR vaccination.

The wide and varied experience of the Health Visitors has led to a perception that there is one particular section of society that queries the MMR.

> *"Middle class parents, it wasn't normally the other families that we go to, they tend to be accepting, they come in and hold the baby and let you give them what you want, you'll tell them obviously because it's informed consent it's just yeah yeah yeah whatever you need to do but it'll be the more educated parents definitely that will have read in the news or the internet and want more information"* [Denise 01]

The reasons for parents choosing not to have MMR have been well established (62), although the further knowledge gained by the Health Visitors as a result of their enjoyment and interest in their role appears to give them more of an insight into this particular issue.

> *"I think sadly for the MMR we see autism raising its' head round about 18 months and we used to give the MMR at 18 months, now we've reduced it down to just over a year but it's still the nearest one to when kiddies develop autistic spectrum so I suppose that goes hand in hand with the MMR but that's the big one for parents I think especially if there's autism in the family or siblings, cousins, relatives."* [Betty]

There are also perceptions by the Health Visitors that some of these parents are unclear themselves about their viewpoint.

"… some of them are adamant no but they don't know why" [Catherine]

"you've got families occasionally who are quite I would say reluctant, you know worrying about primary immunisations and in the next conversation or sometimes within the same conversation they're talking to you about where they're going to be able to go and get yellow fever or such and such cos they're going on some exotic holiday somewhere and you kind of go hang on a minute, why do you not think that all of this is going to protect your child but you're only going for travel vaccines, people obviously see them in a completely different way" [Isabel]

In conjunction with the tension proposed in finding 1, this may be the Health Visitors viewing the parents' response as a challenge to their authority and an unwillingness to accept an alternative opinion. However there is some evidence in the literature to question whether parents are making informed decisions. Decisions concerning childhood immunisations in general are based on risk-benefit, and the information from health professionals is not always seen by parents as being impartial (63).

Tensions have been reported previously with parents reporting that they feel a pressure from health professionals in general to accept MMR for their child (12). A further consideration takes into account what some consider as the medicalisation of Health Visiting (64) and that the role of Health Visitor has only recently been recognised as a professional body (65) thereby leaving the Health Visitors feeling vulnerable yet expected to act with authority. With these in mind, a tension between parents and Health Visitors is perhaps understandable yet it was not mentioned during the interviews. Furthermore, there is often reference to informed consent, and

it appears that this is more difficult to gain in this group due to discussions around fears of MMR.

In the quotes [Denise 01] and [Amelia 01] (presented below) there is clear reference to parents using and being influenced by various media. This influence appears to be greater in this particular subgroup who take advantage of all available information sources. It is possible that this group has access to more information, and the Health Visitors perceive that they lack the in-depth knowledge to understand and interpret it, and this is where discussion allows for further understanding.

Whilst this subgroup appear to be more influenced by the media than the more deprived in category 1, they are perceived to be less influenced by family and friends as there appeared to be no mention of family influences within category 3, which were more prevalent in category 1 as evidenced by [Betty 01] and [Joni 01].

Within this subgroup there is perceived evidence that although some of the parents refuse MMR, there are parents who are open to discussions resulting in the influence of the Health Visitors.

> *"They've done their own research, either the partner doesn't want them to have it and they do also, there's conflicting advice there between both parents so I would ask if they wanted me to come out to the home or did they want to see me in the clinic together so I could go through both questions from the mum and the dad with them, or if they want me to print off some information and give it to mum to take home to see with dad, usually they'd ask me to print off some information and then they'd phone me and say right can you come out now and go through it , I'd go through it and reassure them and try and find out what their fears are"* [Eileen]

This would indicate that although there is a proposed tension, through discussion between the parents and the Health Visitors, there can be consensus of opinion.

This group are perceived to use the present phone and book system for childhood immunisations well, and this is recognised by the Health Visitors.

> *" … mainly professionals and you tell them you need to be there by 1.30 they are there by 1.30, you know like 1.28, you are the one who is late"* [Heidi]

> *"in affluent areas you were saying before people are organised, they'll ring up and book an appointment and they'll attend that appointment"* [Joni]

This perceived good use of the system points to a more structured approach to child healthcare within this particular category. However, there are parents within this subgroup that continue to refuse vaccination for their child. In finding 1 it was suggested that the Health Visitors have a belief in vaccinations and are less open to discussions around vaccinations, it is possible that some parents have equally strong beliefs in the opposite direction. Through training in communication as proposed by Redsell (53), a more open discussion may be achieved to support parental decision making and vaccination rates may be increased.

Finding 3: The Health Visitors experiences of changes to MMR uptake since the measles outbreak in Liverpool.

What appears not to have been discussed in the literature is the influence that the outbreak itself has on parents. There was reference to the recent measles outbreak

in Liverpool throughout the interviews. This was across the 3 subgroups mentioned and referred to influences by both media and family.

> *"The media can do such damage but it can also pull it back the other way can't it and so when that outbreak did happen the clinics down here were absolutely chock a block, everybody was coming for MMR so that in itself helps, helps bring up the numbers so, I think campaigns are really good, media campaigns reach out, somebody sees something on the telly or a billboard and it makes them think doesn't it maybe I should go and get that,"* [Freya]

> *" …they are coming and they are ringing, I want my child immunised and I think oh, I'll go through your notes, I thought that you gave consent that you didn't want your child immunised yeah and I always tell them that, have you had time to think about it? And they say yes they've thought about it"* [Heidi]

There is a perception that this has had a particular effect on those who had previously chosen not to have their child vaccinated. This is evidenced by the quote from [Heidi] above and [Amelia 01] below.

> *"all people who had read up on it, decided you know, in the limited little bit of research they'd had that they probably weren't going to get it but then when there was a scare they all turned up and had it anyway but yeah a lot of that, they're the type of people I'd say that would usually refuse"* [Amelia 01]

It is postulated that there has been a change in risk perception. This has been considered previously to address parents changing decisions regarding vaccines (66) but less work has been done after an outbreak. Here it is perceived by the Health Visitors that the change in risk perception is more prevalent in what they consider to be the 3rd category, i.e. the more affluent who had previously chosen not to have their child vaccinated.

As the influences range across all groups mentioned, it is not unreasonable to postulate that the underlying and largest influence was the outbreak itself.

> *"sadly when we have people suffering* [during outbreaks] *from those illnesses suddenly people are clamouring to get appointments, I mean we've seen that twice within the last 2 years, it does go off very very quickly though, we've got a week or 2 where you're inundated with phone calls as people turn up at baby clinics who haven't got appointments wanting an immunisation"* [Isabel]

It is not unreasonable to propose that there will have been an increase in workload as a result of the outbreak, yet there was no mention of this additional burden. It is suggested that this is supported and in turn supports the belief in vaccinations held by the Health Visitors as discussed in finding 1.

Summary of findings

The opinions of the Health Visitors with regards to vaccinations appear to be as a direct result of their experiences.

There is a clear relationship between the Health Visitors and the parents, with identity and authority appearing on both sides. The Health Visitors appear to categorise families based on societal subgroups. At a local level, the national approach to childhood vaccinations doesn't appear to be working to full potential and improvements are suggested for each of the subgroups suggested by the Health Visitors.

The recent measles outbreak resulted in an increase in uptake and a postulated change in risk perception. The proposed change in risk perception is perceived by the Health Visitors to be within the more affluent subgroup.

Discussion

During the interviews it became very clear that Health Visitors perceive that parents rarely have concerns over the primary immunisations that are part of the childhood immunisation programme within the UK. This is reflected in the vaccination uptake rates (11). From the experiences of the Health Visitors, it is perceived that the only vaccination that results in discussion between parents and any health professional is the MMR.

Overall, the Health Visitors appear to be happy to encourage but still maintain that they are offering enough information for the parents to make their own informed choice, maintaining the position discussed in the Literature Review section.

Three overarching findings have been presented. From the findings concerning the categories of families that the Health Visitors perceive, the national one-size-fits-all approach to childhood vaccinations is not appropriate for the wide and rich society which is present within Liverpool. The local initiative discussed earlier concerning the open community clinic is perceived to work well for the subgroup who choose to have all vaccinations. This approach could be rolled out to other more deprived communities in order to increase uptake. During the interviews, it was stated that there were a limited number of parents from more affluent areas who were aware of this clinic and using it for the same reason, i.e. access. For these more affluent parents, travel to the clinic was not an issue and therefore locating the clinics in the more deprived areas would appear to be beneficial. Through use of the data held within the CHIS, and the use of mapping software, it would be possible to consider

areas where these clinics could be located in order for them to have the largest impact. This could be reviewed at a defined timescale.

It is hoped that the findings can add to the knowledge base and be used to provide a platform for discussions around altering the present approach to childhood vaccinations in order to improve uptake rates.

As has already been reported, parents have trust in health professionals and this finding is continued in this work.

Findings in relation to wider context of research and policy

When the findings are considered in relation to published work, as already stated there was little relevant previously published work. What is left is to consider the proposed suggestions for ways to improve vaccine uptake.

Since the study was undertaken, a very recent report has stated that of children unimmunised at 2 years, by age 5, those living in rented accommodation were more likely to have caught up with the missed vaccination (67). This would appear to agree with the perceptions of the Health Visitors in that the more deprived are willing to accept vaccinations but struggle to get to clinics due to a variety of barriers. It is possible that what has happened is more a case of late vaccinations rather than missed vaccinations in this subgroup, however as standard childhood vaccination records are only reported up to 5 years of age and not beyond there is a possibility that the uptake rates are higher for each age band than perceived by e.g. age 10. With the use of an open clinic located in areas of higher deprivation, the proposed

targeted approach is more likely to overcome some barriers to access and may increase vaccination uptake rates closer to the appropriate point in the immunisation schedule.

Considering those with more chaotic lifestyles, from discussion with senior Immunisers, within Liverpool “looked after” children and those with greater needs are vaccinated as priority, however it is those that are with needs but not looked after that appear to be more difficult to reach. Work undertaken in Canada and published in 2011 showed that telephone calls to parents of unimmunised children revealed that most of these parents were unaware that their children were behind on immunisations (68). The paper reported that a telephone call combined with a home visit increased immunisation uptake rates. This information, combined with the APM programme, should increase uptake.

Work by Pearce *et. al.* stated that families from advantaged backgrounds are more likely to consciously decide against immunisation (67). This would appear to support the Health Visitors perception that affluent families appear to be more likely to query the MMR. The work was undertaken looking at the UK Millennium Cohort Study. In conjunction with this, other recent work in 2012 suggests that clear communication from the health professionals is important across Europe and not just the UK (49) supporting the proposal by Redsell (53). These works combined would add weight to the proposal that training in communication of the Health Visitors may increase vaccine uptake in this subgroup.

Strengths and limitations of the study

Regardless of the quality of a study there are always strengths and weaknesses which can be discussed using any number of critical appraisal tools e.g. CASP (67).

Research project design and execution

It is unlikely that the findings would have been uncovered using quantitative methods, thereby justifying the qualitative choice of methodology. Whilst interviews were appropriate given the short timescale of the project, and in hindsight it is felt that the group discussions may not have unearthed more information, it is felt that observing an appointment between Health Visitors and parents for MMR would remove a layer of interpretation and add to the knowledge. It is acknowledged that the researcher would have to be aware not to place their own interpretation on observations.

The interviewer had limited experience of conducting qualitative interviews and qualitative analysis and the whole process was a challenge, not solely in terms of undertaking the practical steps but also being self-aware i.e. being careful not to introduce personal opinions or beliefs into the interviews.

One example of the limitations of the researcher was the use of the term MMR on the participant information sheet. The interviewer felt that although there was the potential for bias to have been introduced with the title of the participant information sheet, this bias had no effect.

Findings and analysis

The limited experience with qualitative methods continued into findings and analysis where the interviewer was careful not to concentrate on areas that supported his own views to the detriment of the project itself. The researcher aimed to not interpret data that supported his beliefs and ignored other potential findings. This was particularly difficult with the researcher having to reassess each transcription during analysis and each draft of the dissertation.

Although the researcher took a reflective view at each stage and after each interview, from a final read of the transcripts and themes it became clear that the researcher allowed the Health Visitors to give general answers rather than recalling specific occasions, particularly around experiences of individual caseloads. This is an area where the interviewer feels that a more experienced qualitative interviewer would have realised and intervened as soon as this was noticed, however this was not the case in this work.

The results achieved from the present work are specific for this small sample of Health Visitors. This was a self-selecting group and only those who may have disagreed either didn't have an opportunity to be interviewed or chose not to. It was evident from the interviews that there are Health Visitors who have different opinions from those who were interviewed.

There is the possibility that recall bias has been introduced by the Health Visitors, and more importantly recalling experiences that support their views in a positive light and those that don't support in a negative light or not recalling those at all. Whilst this could not be accounted for, an awareness of this possibility must be mentioned.

The Health Visitors have worked in several areas and therefore have experience of families across all scales of deprivation and affluence and areas of Liverpool. The Health Visitors also have a large amount of experience in terms of time in post and have been directly involved with a large number of families each thus adding to the strengths of the findings.

Although what is reported is the Health Visitors interpretation of opinions of parents, the depth of experience of the Health Visitors is different to other published work relating directly to parental views in that the present work is not limited to those parents willing to be interviewed or participate in a study thereby excluding a self-selecting group, and giving a wider background with an alternative but richer dataset than has previously been reported.

Unfortunately, there was no previously directly related published work and so validation of the findings proved difficult from a publication referencing perspective. However, through the use of thematic analysis in identifying themes, the themes that were common, were common through most interviews supporting the strength of the findings.

Positionality

The research proposal came from the direct involvement of the researcher with the recent measles outbreak within Liverpool. The researcher had influence on the project itself. The positionality of the researcher would ordinarily lead to a quantitative research project but it was felt that a qualitative project would be of more

benefit to the researcher whilst also testing themselves and offering an opportunity to use and present what had been learned from the MPH course.

In the meeting with the Health Visitors team leaders and prior to each of the interviews, the researcher informed those being interviewed who the researcher was and why they were undertaking the project. This approach made it clear that those being interviewed were not being tested and that the researcher was not asking them to justify themselves or their roles.

Ethical issues

Overarching ethical issues were identified and included within the application for ethical approval. This provided clear accountability and the participant information sheet outlined the processes for contacting senior staff should those being interviewed consider that ethical issues were not being addressed. Furthermore, the recordings were only available to the researcher and the transcripts were anonymised.

More practical ethical issues were addressed on a more ad hoc basis e.g. when the researcher met the Health Visitor team leaders.

Reflection on original aims

The original aim was to investigate the experiences of Health Visitors during the appointments that are arranged to discuss and administer the MMR vaccination for

children. It is felt by the researcher that this was achieved, but with limited success. The lack of experience of the researcher impacted on the execution of the interviews and therefore the findings, however, the findings presented were deemed reasonable, especially regarding the families with perceived chaotic lifestyles where, through an opportunistic discussion with a senior Immunisations lead in August 2013, the proposal of dedicated home visits made by the Health Visitors is one that is being rolled out across Liverpool at the time of writing.

Value of the Research

There is little published work directly relating to this present work, and so it is considered that the findings and recommendations add to the published literature and can be used in discussions to improve MMR uptake. Whilst some of the findings have been discussed anecdotally, little has been done to uncover the opinions of the Health Visitors and their perceptions, the work presented as a whole adds weight, justification and value to this anecdotal evidence.

Further studies identified as a result of this work

Whilst the researcher is continuing to undertake quantitative research around childhood vaccinations, one added result of this work has been that further ideas have been opened up to the researcher. These ideas have been both quantitative and qualitative. At the time of writing, a paper has been submitted to a journal for peer review. One project directly relating to the subgroup categories perceived by

the Health Visitors is considering MMR uptake by deprivation, the additional work being undertaken is now comparing January 2012 uptake data with January 2013 data in order to ascertain if there is a difference in uptake rates amongst the more affluent groups after the measles outbreak in Liverpool in 2012, as the Health Visitors perceive that the more affluent have altered their risk perception towards MMR.

A project that the researcher would like to consider when all papers surrounding the outbreak of measles within Liverpool have been published, is a realist review (or similar) of all work undertaken around the outbreak as the researcher is now interested in studying, as a result of this work, whether the outbreak itself was the major factor in the increase in vaccination uptake rates and not the awareness raising campaign.

Recommendations

This dissertation has shown, within the limits already stated, that the present national one-size-fits-all approach to childhood vaccinations and in particular the MMR is not effective for the rich and varied society within Liverpool. Key recommendations have been considered in order to increase vaccination uptake and it is hoped that these are to be discussed within both the Health Visitors Leads groups and the Screening and Immunisations Leads groups at local levels with a view to being taken forward for national consideration especially in light of the recent measles outbreaks across the country. It is considered by the researcher that although the role of Health Visitors in relation to administering MMR differs across the country, if the perceptions of the Health Visitors are correct, especially in relation to the different subgroups having different requirements, then the findings and recommendations should be considered nationally.

The key recommendations to develop the childhood immunisation service in order to improve uptake rates follow. It is recognised that there are likely to be both time and financial resource implications.

1. Drop-in clinics be used in the more deprived areas, especially during school holidays and awareness of these clinics be raised. It is envisaged and accepted that these clinics may also be used by the more affluent families for convenience. Through CHIS and mapping software, the clinics can be opened in targeted areas to attain maximum impact.
2. Dedicated home vaccinations are the standard approach, rather than an option for the harder to reach families including those with more “chaotic”

lifestyles. This is being rolled out across Liverpool at present. There are likely to be more resource implications with this particular recommendation that need to reviewed and addressed.

3. The present system be continued with specialist knowledge available for parents wishing to discuss the MMR further and communication training provided for Health Visitors.

Summary and Conclusion

The findings indicate that the present national one-size-fits-all approach to MMR is not appropriate for an area with a wide and rich variety of societal groups. This is evidenced with the responses given by the Health Visitors when discussing their perceptions and experiences. The Health Visitors perceive 3 main subgroups with differing needs, these are:

1. the more deprived who are accepting of the MMR that either cannot or do not get to clinics for a variety of reasons;
2. those with other lifestyle issues that require further support:
3. the more affluent who either want to discuss the MMR or refuse to have it.

An approach for increasing MMR uptake in each of these groups has been recommended. It is considered that these recommendations are not onerous or require a substantial change in service provision. It is hoped that training and awareness amongst Health Visitors rather than a realignment of the service may be sufficient to include these recommendations.

Whilst it is accepted that this is a small self-selecting sample size, the experiences of the Health Visitors both in terms of time in post and dealing with affluent or deprived families suggests that the conclusions and recommendations warrant further investigation.

The choice of methodology was proved to be correct in that the information provided as a result of this work would not have been uncovered through quantitative methods. The information provided will be a rich addition to quantitative work already produced and should provide a substantial base of evidence for informing future public health policy either at a local level within the Liverpool area, wider across Merseyside, or nationally.

References

1. Vivancos R, Keenan A, Farmer S, Atkinson J, Coffey E, Dardamissis E, et al. An ongoing large measles outbreak of measles in Merseyside, England, January to June 2012. Eurosurveillance. 2012; 17(29).

2. Health Protection Agency. Health Protection Agency. [Online].; 2010 [cited 2013 March 11. Available from: Health Protection Agency.

3. WHO. WHO. [Online].; 2012 [cited 2013 March 11. Available from: http://www.euro.who.int/__data/assets/pdf_file/0005/156776/e96153-Eng-final-version.pdf.

4. Wakefield A, Murch SH, Anthony A, Linnell J, Casson DM, Malik M, et al. Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. The Lancet. 1998; 351(9103): p. 637-641.

5. Chen RT, De Stefano F. Vaccine adverse events:causal or coincidental? The Lancet. 1998; 351(9103): p. 611-612.

6. Nicoll A, Elliman D, Ross E. MMR vaccination and autism 1998. The Lancet. 1998; 316(7133): p. 715-716.

7. Bower M. MMR vaccine policy is backed. BMJ. 1998; 316(7136): p. 955.

8. Metcalf J. Is measles infection associated with Crohn's disease? BMJ. 1998; 316(7126): p. 166.

9. Fombonne E. Inflammatory bowel disease and autism. The Lancet. 1998; 351(9107): p.

166.

10. Editors of The Lancet. Retraction - Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive development disorder in children. The Lancet. 2010; 375(9713): p. 445.

11. HPA. HPA - Vaccine coverage and COVER. [Online]. [cited 2013 March 28. Available from: http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/VaccineCoverageAndCOVER/.

12. Evans M, Stodddart H, Condon L, Freeman E, Grizzell M, Mullen R. Parents perspectives on the MMR immunisation: a focus study. Br J Gen Pract. 2001 November; 51(472): p. 904-910.

13. Bedford H, Moreton J, Elliman D. MMR vaccine: Are health professionals missing the point? Community Practitioner. 2002 March 1.

14. NHS Wales. Abertawe Bro Morgannwg University Health Board. [Online]. [cited 2013 August 16. Available from: http://www.wales.nhs.uk/sitesplus/863/page/66210.

15. ONS. ONS. [Online].; 2012 [cited 2013 July 30. Available from: http://www.ons.gov.uk/ons/rel/census/2011-census/index.html.

16. GOV.UK. English indices of deprivation 2010. [Online].; 2011 [cited 2013 July 30. Available from: https://www.gov.uk/government/publications/english-indices-of-deprivation-2010.

17. Public Health England. Child and Maternal Health Observatory Website. [Online].; 2013 [cited 2013 July 30. Available from: http://www.chimat.org.uk/resource/view.aspx?RID=101746®ION=101629.

18. Lamden K, Gemmell I. General practice factors and MMR vaccine uptake: structure, process and demography. Journal of Public Health. 2008 September; 30(3): p. 251 - 257.

19. Liverpool City Council. Liverpool City Council. [Online].; 2011 [cited 2013 July 30. Available from: http://liverpool.gov.uk/media/129428/Executive-Summary-2010.pdf.

20. Telegraph Media Group. The Telegraph. [Online].; 2012 [cited 2013 July 30. Available from: http://www.telegraph.co.uk/health/healthnews/9241281/Measles-Liverpool-at-centre-of-Norths-biggest-outbreak-in-decades.html.

21. Department of Health. Choosing Health: Making healthy choices easier. [Online]. [cited 2013 April 8. Available from: http://webarchive.nationalarchives.gov.uk/+/dh.gov.uk/en/publicationsandstatistics/publications/publicationspolicyandguidance/dh_4094550.

22. Stewart AJ, Devlin PM. The history of the smallpox vaccine. Journal of Infection. 2006 May; 52(5): p. 329 - 334.

23. The Health and Social Care Information Centre Salt. NHS Immunisation Statistics, England 2011-12 report. [Online].; 2012 [cited 2013 May 22. Available from: https://catalogue.ic.nhs.uk/publications/public-health/immunisation/nhs-immu-stat-eng-2011-2012/nhs-immu-stat-eng-2011-12-rep.pdf.

24. NHS. NHS Careers. [Online]. [cited 2013 July 30. Available from: http://www.nhscareers.nhs.uk/explore-by-career/nursing/careers-in-nursing/health-visiting/.

25. GOV.UK. GOV.UK. [Online].; 2009 [cited 2013 July 30. Available from: https://www.gov.uk/government/publications/healthy-child-programme-pregnancy-

and-the-first-5-years-of-life.

26. HPA. HPA - Epidemiological Data. [Online]. [cited 2013 April 8. Available from: http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Measles/EpidemiologicalData/.

27. Bupa UK. Bupa UK. [Online]. [cited 2013 April 11. Available from: http://www.bupa.co.uk/individuals/health-information/directory/m/mmr-vaccine.

28. Plotkin S, Orenstien W, Offit P. Vaccines. 5th ed.: Saunders Elsevier; 2008.

29. HPA. HPA - Annual Vaccine Coverage Statistics England and Wales. [Online]. [cited 2013 April 8. Available from: http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/VaccineCoverageAndCOVER/EpidemiologicalData/coverAnnualStatistics/.

30. Department of Health. Department of Health: Public health, adult social care, and the NHS. [Online]. [cited 2013 February 24. Available from: http://www.dh.gov.uk/en/index.htm.

31. European Centre for Disease Prevention and Control. European Centre for Disease Prevention and Control. [Online]. [cited 2013 February 24. Available from: http://www.ecdc.europa.eu/en/Pages/home.aspx.

32. WHO. WHO World Health Organization. [Online]. [cited 2013 February 24. Available from: http://www.who.int/en/.

33. Centers for Disease Control and Prevention. Centers for Disease Control and Prevention. [Online]. [cited 2013 February 24. Available from: http://www.cdc.gov/.

34. EBSCO Industries. AMED - The Allied and Complementary Medicines Database,

EBSCO Publishing. [Online]. [cited 2013 January 21. Available from: http://www.ebscohost.com/academic/amed.

35. Elsevier B.V. Embase Biomedical Answers. [Online]. [cited 2013 January 21. Available from: http://www.embase.com/.

36. OVID Technologies Inc. HMIC Database OVID. [Online]. [cited 2013 January 21. Available from: http://www.ovid.com/webapp/wcs/stores/servlet/ProductDisplay?storeId=13051&catalogId=13151&langId=-1&partNumber=Prod-99.

37. U.S. National Library of Medicine. Home Pubmed NCBI. [Online]. [cited 2013 January 21. Available from: http://www.ncbi.nlm.nih.gov/pubmed/.

38. American Psychological Association. PsycINFO. [Online]. [cited 2013 January 21. Available from: http://www.apa.org/pubs/databases/psycinfo/index.aspx.

39. Royal College of Nursing. Databases to Search RCN. [Online]. [cited 2013 January 21. Available from: http://www.rcn.org.uk/development/library/elibrary/databases_to_search.

40. EBSCO Industries. Health Business Elite - Healthcare Management. [Online]. [cited 2013 January 21. Available from: http://www.ebscohost.com/biomedical-libraries/health-business-elite.

41. John Wiley and Sons Limited. The Cochrane Library. [Online]. [cited 2013 January 21. Available from: http://www.thecochranelibrary.com/view/0/index.html.

42. Google. Google Scholar. [Online]. [cited 2013 January 21. Available from: http://scholar.google.co.uk/schhp?hl=en-GB#.

43. Web of Knowledge Service for UK Education. Web of Knowledge Service for UK Education. [Online]. [cited 2013 January 21. Available from: http://wok.mimas.ac.uk/.

44. Tesfaye HT. Health Visiting professionals' perceptions regarding barriers to health and wellbeing faced by European migrant families in Sefton. 2012. MPH Dissertation.

45. Harris T, Gibbons C, Churchill M. Primary care professionals' knowledge of contraindications. Community Practitioner. 2001; 74(2): p. 66 - 67.

46. Public Health England. Immunisation against infectious disease: the green book. [Online].; 2013 [cited 2013 July 30. Available from: https://www.gov.uk/government/organisations/public-health-england/series/immunisation-against-infectious-disease-the-green-book.

47. Maconachie M, Lewendon G. Immunising Children in Primary Care in the UK - What are the Concerns of Principal Immunisers? Health Education Journal. 2004 March; 63(1): p. 40 - 49.

48. Hilton S, Bedford H, Calnan M, Hunt K. Competency, confidence and conflicting evidence: key issues affecting health visitors' use of research evidence in practice. BMC Nursing. 2009; 8.

49. Simone B, Carillo-Santisteve P, Lopalco PL. Healthcare workers' role in keeping MMR vaccination uptake high in Europe: a review of evidence. Eurosurveillance. 2012 June; 17(26).

50. Moreton J. MMR vaccination: protecting our children. Journal of Family Healthcare. 2002; 12(2): p. 31.

51. Petrovic M, Roberts R, Ramsay M. Second dose of measles, mumps, and rubella

vaccine: Questionnaire survey of health professionals. BMJ. 2001; 32: p. 82 - 85.

52. Farzan J, Becket G. MMR: vaccine the latest evidence for nurses. Nursing in Practice. 2012 September; 68: p. 92 - 94.

53. Redsell SA, Bedford H, Siriwardena AN, Collier J, Atkinson P. Health visitors' perception of their role in the universal childhood immunisation programme and their communication strategies with parents. Primary Health Care Research & Development. 2010 January; 11(1): p. 51 - 60.

54. Pulse Today. Health visitors' concerns undermine GPs over MMR. Pulse. 2003 June 22.

55. Lunts E, Cowper D. Parents refusing MMR: do GPs and health visitors understand why? Community Practitioner. 2002; 75(3): p. 43 - 45.

56. Pope C, Mays N. Reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. BMJ. 1995 July; 311(6996): p. 42 - 45.

57. Green J, Thorogood N. Qualitiative Methods for Health Research. 2nd ed.: Sage; 2010.

58. Krefting L. Rigor in Qualitative Research: The Assessment of Trustworthiness. The American Journal of Occupational Therapy. 1991 March; 45(3): p. 214 - 222.

59. Liverpool N. NHS Liverpool. [Online]. [cited 2013 April 23. Available from: http://nww.liverpoolch.nhs.uk/service-directory/research_and_development.htm.

60. La Pelle N. Simplifying Qualitative Data Analysis Using General Purpose Software Tools. Field Methods. 2004 February; 16(1): p. 85 - 108.

61. QSR International. NVivo 10 research software for analysis and insight. [Online]. [cited 2013 July 16. Available from: http://www.qsrinternational.com/products_nvivo.aspx.

62. Pearce A, Law C, Elliman D, Cole TJ, Bedford H. Factors associated with uptake of measles, mumps, and rubella vaccine (MMR) and use of single antigen vaccines in a contemporary UK cohort: prospective cohort study. BMJ. 2008; 336: p. 754.

63. Sporton RK, Francis SA. Choosing not to immunize: are parents making informed decisions? Family Practice. 2001; 18(2): p. 181 - 188.

64. Cowley S, Mitcheson J, Houston AM. Structuring health needs assessments: the medicalisation of health visiting. Sociology of Health & Illness. 2004 July; 26(5): p. 503 - 526.

65. The Institute of Health Visiting. [Online]. [cited 2013 July 14. Available from: http://www.ihv.org.uk/.

66. Raithatha N, Holland R, Gerrard S, Harvey I. A qualitative investigation of vaccine risk perception amongst parents who immunize their children: a matter of public health concern. Journal of Public Health. 2003; 25(2): p. 161 - 164.

67. Pearce A, Mindlin M, Cortina-Borja M, Bedford H. Characteristics of 5-year-olds who catch-up with MMR: findings from the UK Millennium Cohort Study. [Online].; 2013 [cited 2013 August 20. Available from: http://bmjopen.bmj.com/content/3/7/e003152.full.

68. Lemstra M, Rajakumar D, Thompson A, Moraros J. The effectiveness of telephone reminders and home visits to improve measles, mumps and rubella immunization coverage rates in children. Paediatrics & Child health. 2011 January; 16(1).

69. CASP UK. CASP UK | Making sense of evidence. [Online]. [cited 2013 August 8.

Available from: http://www.casp-uk.net/.

70. NHS Evidence. NHS Evidence. [Online]. [cited 2013 February 5. Available from: https://www.evidence.nhs.uk/nhs-evidence-content/journals-and-databases.

71. McMurray R, Cheater FM, Weighall A, Nelson C, Schweiger M, Mukhurjee S. Managing controversy through consultation: a qualitative study of communication and trust around MMR vaccination decisions. The British Journal of General Practice. 2004 July 1; 54(504): p. 520 - 525.

72. Lopalco PL, Sprenger M. Do European doctors support measles, mumps, rubella vaccination programmes enough. Eurosurveillance. 2011 September 29; 16(39).

73. MacDonald H, Henderson R, Oates K. Low uptake of immunisation: contributing factors. Community Practitioner. 2004 March 1; 77(3): p. 95 - 100.

74. Tickner S, Leman PJ, Woodcock A. Factors underlying suboptimal childhood immunisation. Vaccine. 2006 November 30; 24(49 - 50): p. 7030 - 7036.

Appendix I - Search terms used for literature review and detail of Literature Review Strategy

The year was chosen as 1988 saw the introduction of the MMR vaccination.

Whilst all databases were searched individually, AMED, EMBASE, HMIC, MEDLINE, PsycINFO, BNI, CINAHL, Health Business Elite and the Cochrane library were all interrogated through NHS Evidence (70).

AMED
(("MMR" AND "UK") OR ("MMR" AND "health visitor*") OR ("MMR" AND "health professional*") OR ("MMR" AND "practice nurse*") OR ("MMR" AND "GP")).ti,ab
[Limit to: Publication Year 1988-Current]

EMBASE
(("MMR" AND "UK") OR ("MMR" AND "health visitor*") OR ("MMR" AND "health professional*") OR ("MMR" AND "practice nurse*") OR ("MMR" AND "GP")).ti,ab
[Limit to: Publication Year 1988-Current]

HMIC
(("MMR" AND "UK") OR ("MMR" AND "health visitor*") OR ("MMR" AND "health professional*") OR ("MMR" AND "practice nurse*") OR ("MMR" AND "GP")).ti,ab
[Limit to: Publication Year 1988-Current]

MEDLINE
(("MMR" AND "UK") OR ("MMR" AND "health visitor*") OR ("MMR" AND "health professional*") OR ("MMR" AND "practice nurse*") OR ("MMR" AND "GP")).ti,ab
[Limit to: Publication Year 1988-Current]

PsycINFO
(("MMR" AND "UK") OR ("MMR" AND "health visitor*") OR ("MMR" AND "health professional*") OR ("MMR" AND "practice nurse*") OR ("MMR" AND "GP")).ti,ab
[Limit to: Publication Year 1988-Current]

BNI
(("MMR" AND "UK") OR ("MMR" AND "health visitor*") OR ("MMR" AND "health professional*") OR ("MMR" AND "practice nurse*") OR ("MMR" AND "GP")).ti,ab
[Limit to: Publication Year 1988-Current]

CINAHL
(("MMR" AND "UK") OR ("MMR" AND "health visitor*") OR ("MMR" AND "health professional*") OR ("MMR" AND "practice nurse*") OR ("MMR" AND "GP")).ti,ab
[Limit to: Publication Year 1988-Current]

Health Business Elite
(("MMR" AND "UK") OR ("MMR" AND "health visitor*") OR ("MMR" AND "health

professional*") OR ("MMR" AND "practice nurse*") OR ("MMR" AND "GP")).ti,ab
[Limit to: Publication Year 1988-Current]

The Cochrane Library search from 1998 to present in Title, Abstract and Keyword

"MMR" AND "UK"
"MEASLES" AND "UK"

"MMR" AND "HEALTH VISITORS"
"MEASLES" AND "HEALTH VISITORS"

"MMR" AND "HEALTH PROFESSIONALS"
"MEASLES" AND "HEALTH PROFESSIONALS"

"MMR" AND "PRACTICE NURSES"
"MEASLES" AND "PRACTICE NURSES"

"MMR" AND "GP"
"MEASLES" AND "GP"

Google Scholar searches from 1998 to present terms in title only
"mmr" "uk"
"measles" "uk"

"mmr" "health visitor"
"measles" "health visitor"

"mmr" "health professional"
"measles" "health professional"

"mmr" "practice nurse"
"measles" "practice nurse"

"mmr" "GP"
"measles" "GP"

Web of Knowledge search from 1998 to present terms in title only
mmr AND UK
measles AND UK

MMR AND Health Visitor*
Measles AND Health Visitor*

MMR AND Health Professional*
Measles AND Health Professional*

MMR AND Practice Nurse*
Measles AND Practice Nurse*

MMR AND GP
Measles AND GP

Department of Health
mmr+health+visitors

European Centre for Disease Prevention and Control
mmr+health+visitors

Title Screening

When screening titles, specific exclusion criteria were applied. The purpose of this was twofold, it was to remove articles that were not relevant, and to include articles where further consideration was required. The exclusion criteria when screening titles were:

1. the article was not related to MMR, measles, vaccination or immunisation;
2. the study was conducted solely outside the UK (some studies included other countries plus UK);
3. the article was concerned with more serious illnesses rather than general population;
4. the article was concerned with outbreak situation;
5. the article was concerned with maternal mortality.

Abstract Screening

Exclusion criteria were also applied when screening abstracts, again articles were not excluded if further detail needed to be uncovered by reading the full article. The exclusion criteria were;

1. any that should have been excluded from title screening but detail only available when reading abstract (there was at least one instance where it only became clear after reading the abstract that the research was conducted outside the UK);
2. the article was concerned *only* with parental attitudes;
3. the article was concerned *only* with differences in ethnic groups (still parental attitudes);
4. the article was concerned *only* with health inequalities;

5. the article related to quantitative studies concerned with vaccine uptake;
6. the article was a statistical study,
7. the article was concerned with policy,
8. the article was concerned with media,
9. the article was concerned with the MMR controversy associated with Andrew Wakefield.

Full Article Screening

Finally, and again, exclusion criteria were applied when screening the full articles. The exclusion criteria were;

1. any article that should have been excluded from either title or abstract screening;
2. any article concerned with vaccination uptake campaign results.

Appendix II – Dissertation Proposal

Healthcare professionals experiences of MMR vaccination for children

Introduction

Measles is highly infectious, mainly affecting children and is one of the main global causes of vaccine preventable childhood mortality (32). Prevention is achievable through vaccination. The introduction of the single measles vaccine in England in 1968 directly contributed to a substantial decrease in the number of measles cases and deaths within England, as did the subsequent introduction of the MMR in 1988 (2). The World Health Organisation (WHO) has a plan to eradicate measles in the European Region by 2015 (3), this would require 95% uptake levels of MMR in order to achieve herd immunity.

Primary Care healthcare professionals are the public face of vaccination programmes with parents placing the care of their child in the trust of these healthcare professionals. Work has been undertaken to assess perceptions and attitudes of mothers who choose not to have their child vaccinated (12), yet to date limited qualitative work has been undertaken with Primary Care professionals and in particular Health Visitors to investigate their experiences and perceptions of factors that contribute to the emergence of outbreaks of vaccine preventable diseases. This is a potential knowledge gap.

There was a recent large measles outbreak in Merseyside (1). One factor that may have contributed to this would be the suboptimal uptake of MMR. The latest available childhood vaccine uptake data, (July - September 2012 (11)) shows 90% uptake for the full course of MMR within Liverpool, although this is higher than for England as a whole (88%), it is below the 95% WHO target.

The proposed work is of public health relevance as it will add to limited knowledge by canvassing opinions and perceptions of Health Visitors within Liverpool in order to attempt to explore their experiences in relation to providing the MMR vaccine for children.

Summary of key relevant literature

Work undertaken in relation to GP practices and MMR uptake is often concerned with attempting to identify good practice (18) (71). Lopalco and Sprenger (72) highlight the importance of healthcare professionals within GP practices to vaccination programmes, explaining that the understanding of these professionals is crucial to reassuring parents of the importance of these vaccination programmes. Work has also been undertaken to assess the confidence of health visitors in explaining to parents the reasons for MMR vaccinations (73), and work has been done to understand opinions of healthcare workers with regard to vaccinations (51). There are however, still a substantial number of parents that do not have their children vaccinated for differing reasons (74), with the latest available data showing 90% uptake for both doses of MMR within Liverpool. What appears to have not been investigated fully are the opinions and perceptions of health visitors with regards to vaccination programmes.**Research question**

What are the experiences of Health Visitors with parents during vaccination uptake appointments, in particular when entering into discussions around MMR?

Study aims

To investigate the experiences of Health Visitors during the appointments that are arranged to discuss and administer the MMR vaccination for children.

Objectives

7. Review relevant literature regarding attitudes and perceptions to MMR provision and uptake from Health Visitors.
8. Identify and recruit a sample of Health Visitors from within the Liverpool area.
9. Design a semi-structured set of qualitative questions for interview building on previously published work.
10. Conduct interviews with the recruited Health Visitors.
11. Transcribe, code and analyse the interviews using a thematic analysis.
12. Propose recommendations from the analysis and present the findings, which it is envisaged will be used to inform future local public health policy and aid consideration of changes to current practices.

Method

Quantitative analysis will only provide limited access to information that has been outlined, therefore it is considered that the most effective method of capturing the information is through qualitative methods. A semi-structured interview will be used to investigate the experiences and perceptions of Health Visitors working within Merseyside.

Health Visitor teams working within the Liverpool area will be approached, through their managers, directly by phone from freely available phone numbers for Sure Start Centres or GP surgeries on the internet. A snowball method for finding further Health Visitors should there not be enough willing to be interviewed will be used. A minimum of 8 Health visitors will be interviewed and the interviews recorded for transcription and analysis. The interviews will take place at a location to be designated by the Health Visitors.

No information relating to either individual patients or Health Visitors will be requested or required for the interviews and as a result it is not envisaged that NHS ethical approval will be required. This will be confirmed in writing by the R&D lead from Cheshire & Merseyside HPU. The proposal will be submitted to the University of Liverpool's Committee on Research Ethics for approval once the proposal has been accepted by the MPH core team.

A pilot interview will be undertaken in order to ascertain the openness of the questions, the order of the questions and any information gained from the pilot that may influence (a) addition or removal of questions, or (b) re-phrasing of questions.

Thematic analysis will be used to identify themes and concepts from the interviews.

In relation to epistemology, the researcher acknowledges that their positionality as a health professional who places belief in the benefits of the MMR vaccination and as a positivist, and will be aware of this when composing open questions for interview, during the interview and during analysis in order to avoid introducing bias. Awareness of the present and previous quantitative background of the researcher will also be taken into account to avoid coding bias after data collection.

Research outcomes

Analysis of information regarding experiences and perceptions of health visitors involved in the childhood vaccination programmes.

Costs

There are no costs as the data collection will be undertaken using available equipment.

Draft timetable

Completion of Proposal	December 2012
Proposal Reviewed by Core Team	January 2013
LREC and Research Ethics Committee approval	January 2013
Complete Literature Review	February 2013
Pilot interview	mid February 2013
Finalise and start interviews	late February 2013
Complete interviews	March 2013
Complete transcripts and analysis	April 2013
Complete first draft	June 2013
Complete final draft	August 2013
Submit final draft	21st August 2013
Attend Viva Voce	10th September 2013

Appendix III - MPH Core Team Sign Off

Memorandum

To: **Alex Keenan**

From: Jennie Day

Date: 14 February 2013

RE: **SIGNING OFF OF DISSERTATION PROPOSAL**

Thank you for the submission of your dissertation proposal. Your proposal has now been considered by the MPH core team. There are few points, noted below, you may wish to discuss further with your supervisor but we are happy to sign your proposal off.

- In the introduction you state that you will investigate a knowledge gap. This is presumptuous, how do you know there is a knowledge gap?
- In the Research Outcomes section you state that perceptions towards factors that led to the largest outbreak of measles in Merseyside in 2012 will be ascertained. The aim of your study has changed and so this should be removed.
- Epistemology needs to be expanded.
- Studies carried out with NHS staff are usually reviewed by the Expedited Ethics Committee of the University of Liverpool.
- On the first day of each month, you need to send a report of your progress to your supervisor, who will then forward this with their comments to the Programme team who monitor dissertation progress.

With best wishes,

JENNIE DAY

On behalf of the core team

Confidential

Appendix IV – Participant Information

Healthcare professionals experiences of MMR vaccination for children

Researcher: Dr Alex Keenan

Alex.Keenan@phe.gov.uk

0844 225 1295 option 1 option 1

You are being invited to participate in a research study. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to ask if you would like more information or if there is anything that you do not understand. Please also feel free to discuss this with your friends, relatives and GP if you wish. I would like to stress that you do not have to accept this invitation and should only agree to take part if you want to.

The purpose of this study is to investigate the experiences of Health Visitors with parents during vaccination uptake appointments, in particular when entering into discussions around MMR.

I would like to you to participate as you have been identified as a Health Visitor working in the Liverpool PCT area during 2012. It is felt that your experiences can contribute to the understanding around the MMR. Please be aware that your participation is entirely voluntary and that you are free to withdraw at any time either prior to or during the study without explanation.

If you accept, you will be interviewed by the researcher at a time and place that is most convenient to you. The interview will last approximately one hour and will be recorded for transcription purposes and a code allocated so that you cannot be identified. Direct quotes will be used in the final report, however, they will be anonymised. The interview will consist of a series of open questions, they are not designed as a test of knowledge, merely to gain an insight into your experiences with parents during vaccination uptake appointments, and in particular when discussing the MMR. The recordings will be stored for 2 years or as recommended by the journal if the study is published.

As the researcher will be travelling to you at your convenience there will not be any expenses available.

As no personal information relating to either yourself or your patients is required it is not envisaged that there are any risks involved in taking part. However, if you feel that there are then you are encouraged to inform the researcher at your earliest convenience. If this occurs during the interview you are free to decline to answer any questions with explanation.

There are not considered to be any immediate direct benefits to you, however it is hoped that the study will aid insight into discussions around the MMR.

If you are unhappy, or if there is a problem, please feel free to let us know by contacting the Principal Investigator (Dr. Steve Clayton spclay@liv.ac.uk 0151 794 5281) and we will try to help. If you remain unhappy or have a complaint which you feel you cannot come to us with then you should contact the University of Liverpool Research Governance Officer on 0151 794 8290 (ethics@liv.ac.uk). When contacting the Research Governance Officer, please provide details of the name or description of the study (so that it can be identified), the researcher(s) involved, and the details of the complaint you wish to make.

As specified earlier, the interview will be recorded digitally for transcription purposes. Once the transcription is completed, the recordings will be secured confidentially using encryption software. As names will not be used the interview and all information will be anonymised. The encrypted recordings will be deleted after a maximum of 2 years from the interview date.

As this is a University of Liverpool ethically approved study you will have insurance cover for the interview.

The results will form part of a dissertation for the researcher. The researcher will be happy to share the dissertation should you be interested. It is hoped that the results will also be used for publication in a peer reviewed journal. If this is the case none of the participants will be identifiable from the results. If you consent to participate it is envisaged that you are happy for the results to be published.

As specified earlier you can withdraw at any time either prior to or during the interview. If you withdraw during the interview then the recorded information up to that point will be used unless you state that you do not wish for these results to be used.

If you have any further questions then you are welcome to contact either the researcher (details above) or the Principal Investigator (Dr. Steve Clayton spclay@liv.ac.uk 0151 794 5281).

If you accept you are politely requested not to discuss the interview with colleagues for 1 month as you may know others taking part and we would prefer participants not to “prepare” as this may introduce a bias to the results.

Thank you for your time.

Appendix V – Participant Consent Form

Healthcare professionals experiences of MMR vaccination for children

Researcher: Dr Alex Keenan

Alex.Keenan@phe.gov.uk

0844 225 1295 option 1 option 1

- I confirm that I have provided the participant with the information sheet relevant to this study.

Interviewer Name ……………..………………………………………………………

Date ……………..………………………………………………………

Signature ……………..………………………………………………………

Please indicate your willingness to participate by putting a tick (√) in the Yes column	Yes	No
I confirm that I have read and understand the information provided for the study by the researcher named above.		
I understand that my participation is voluntary and that I am free to withdraw at any time without explanation.		
I agree to the audio of the interview being digitally recorded.		
I agree to the digital recording being securely stored for the duration of the dissertation process.		
I agree to the use of my anonymised quotes in both the dissertation of the researcher and any subsequent publications.		
I agree to all statements above and am happy to take part in the study.		

Participant Name ……………….…………………………………………………………

Date ……………….…………………………………………………………

Signature ……………….…………………………………………………………

If you wish to be kept informed of any publications that may arise from this study, please provide your contact details below.

Email ………………………………………………………………………………………

Appendix VI – Ethical Approval

From: IPHS Ethics
Sent: 27 March 2013 15:50
To: Clayton, Stephen
Subject: IPHS-1213-LB-065-Healthcare professionals experiences of MMR vaccination for children

Dear Stephen

I am pleased to inform you that IPHS Research Ethics Committee has approved your application for ethical approval. Details and conditions of the approval can be found below. .

Ref: IPHS-1213-LB-065

PI / Supervisor: Stephen Clayton

Title: Healthcare professionals experiences of MMR vaccination for children

First Reviewer: Paula Byrne

Second Reviewer: Jennie Day

Date of Approval: 27th March 2013

The application was APPROVED subject to the following conditions:

Conditions

1 All serious adverse events must be reported to the Sub-Committee within 24 hours of their occurrence, via the Research Governance Officer (ethics@liv.ac.uk).

2 This approval applies for the duration of the research. If it is proposed to extend the duration of the study as specified in the application form, IPHS REC should be notified as follows. If it is proposed to make an amendment to the research, you should notify IPHS REC by following the Notice of Amendment procedure outlined at http://www.liv.ac.uk/researchethics/amendment%20procedure%209-08.doc.

3 If the named PI / Supervisor leaves the employment of the University during the course of this approval, the approval will lapse. Therefore please contact the Institute's Research Ethics Office at iphsrec@liverpool.ac.uk in order to notify them of a change in PI / Supervisor.

Best Wishes

Liz Brignal

Secretary, IPHS Research Ethics Committee

Email: iphsrec@liv.ac.uk

Appendix VII – Project Approval from Liverpool Community Health Research & Development team

Hi Alex,

I am pleased to inform you Liverpool Community Health has approved your research study: **Healthcare professionals experiences of MMR vaccination for children**

Please can you provide me with the following:

Start Date:

Anticipated Completion Date:

I have contacted the health visitor leads on your behalf and will get back to you with their response.

Kind regards,

Ricky

Ricky Wallace | Non-Medical Prescribing Lead/Research Support | Clinical Quality Team

Liverpool Community Health | Wilkinson Place | Liverpool | L13 1FB

Phone: 0151 295 3080 | Fax: 0151 285 4643 |

ricky.wallace@liverpoolch.nhs.uk

Research and Development Intranet Link: http://nww.liverpoolch.nhs.uk/service-directory/research_and_development.htm

Appendix VIII – Initial Themes Identified from Interviews

Level 1	Level 2	Level 3	Level 4
Health Visitor opinions / experiences with families	fears	What	MMR
		why	Autism
			Crohn's
		who	White, affluent, educated
	influences	media	Positive and negative
		family	Parents / in-laws
		Health professionals	Less affluent happy to accept advice of HVs
		outbreaks	Increase in mmr uptake as a result of outbreak in 2012, clinics are packed
	barriers	Clinic access	Mums returning to work from 6 months and classes held during daytimes
		Other Priorities in life	
		MMR2 uptake lower than MMR1 as older children harder to control	
		Language (English not always spoken)	
Health Visitor opinions / experiences of themselves	enjoyment	Enjoy job	
	beliefs	Believe vaccinations good for children	
		Believe in positive benefits of MMR	
		Belief that immunisations should be compulsory	

Appendix IX – Quotes to support overarching findings

Finding 1: How the Health Visitors experiences and training have influenced their opinions and outlook.	
Health Visitor	Quote
Betty	I have seen in my nursing career kiddies with side effects of measles, encephalitis, blindness, deafness, so I tend to talk about that as well and say that you know it is a killer
Catherine	I've seen kids with measles and you wouldn't wish it on anyone, even mumps, it's not nice is it
Freya	they're saying well I won't get it cos of this I won't get it cos of that and that little pocket is putting these little ones who've got cancer, leukaemia at such a big risk you know it's really wrong isn't it
Heidi	My personal belief is that this child is being protected against the side effects and I know the side effects, so I don't have any negative beliefs or views around any type of vaccination
Joni	I looked after someone with tetanus once and it was really distressing so it's like one of those things where with immunisations they just roll off the tongue the words don't they but if you actually see somebody with it you know and you can prevent it so that's why kind of strengthens it really

Finding 2: Category 1 - The Health Visitors perceptions of parents who choose to have all vaccinations without exception.	
Health Visitor	Quote
Amelia	I'd say generally people in more deprived areas, well for a start they probably think they're great but also they'd maybe not read up on them cos they trust us a bit more
Catherine	I trained in Kensington where it's really poor and there's loads of asylum seekers, they'd have let you give 10 MMRs and we used to explain it the same but they liked immunisations then
Eileen	Unemployed didn't tend to question it as much, that's what I found on the whole, obviously you would get a few but on the whole I found that they didn't question it, they'd just say yeah that's fine just do it
Freya	Lower society groups, they just come in, some can't even read what it's about, they don't know, they just come in and have the injections, it's funny they'll say that's a professional telling me that I need that so I'll come along and do it
Joni	it's not them saying I don't want to have the MMR at the moment, you know, it's getting them to actually come up

Finding 2: Category 2 - The Health Visitors perceptions of parents who have matters in their lives which make childhood immunisations a low priority.	
Health Visitor	Quote
Georgia	some mums just don't have immunisations done because it's not important in their life they've got other issues like no money, housing, you know lots of things going on in their lives domestic violence, immunisation just isn't important at that time so getting to those people yeah the barriers to them are things going on in their lives I would say
Heidi	deprivation is very low anyway, they don't have no money, where are they? They won't come to clinic, they're not at home, they won't use their phone
Joni	if they've got a chaotic lifestyle and you know it's not top of their priority

Finding 2: Category 3 - The Health Visitors perceptions of parents who choose specifically not to have MMR.	
Health Visitor	Quote
Catherine	I moved to fulwood green and it covered the docks, the big posh apartments down riverside drive and they wanted so much information, it wasn't just the MMR, it was everything but they did want an awful lot of information about the MMR and some of it I'd have to say I'll have to look that up for you because some of the stuff was really beyond me
Denise	Middle class parents, it wasn't normally the other families that we go to, they tend to be accepting, they come in and hold the baby and let you give them what you want, you'll tell them obviously because it's informed consent it's just yeah yeah yeah whatever you need to do but it'll be the more educated parents definitely that will have read in the news or the internet and want more information
Eileen	Mostly educated people, they've looked it up themselves, mostly those in educated jobs than someone who's unemployed, that's what I've found, I don't know what it's like across the board
Freya	This lady was quite well to do really, it's more your educated people or your people who have heard about it or sort of, it is more your educated people but then they don't go and do the research, they just know that they've read it and they know there's something about it and they know they need to speak to someone about it
Georgia	sometimes people have read an awful lot on the internet and if you're talking to very professional people who think they know an awful lot

Finding 3: The Health Visitors experiences of changes to MMR uptake since the measles outbreak in Liverpool in 2012.	
Health Visitor	Quote
Amelia	all people who had read up on it, decided you know, in the limited little bit of research they'd had that they probably weren't going to get it but then when there was a scare they all turned up and had it anyway but yeah a lot of that, they're the type of people I'd say that would usually refuse
Betty	they're not as scared, they just want to come and get it done cos although some people do want to know the ins and outs of MMR and they do want the information rightly so they still come for the injection, they still want it
Catherine	within the last year with the measles coming back a lot more are willing to listen to you more than just saying no
Heidi	Yeah, they are coming and they are ringing, I want my child immunised and I think oh, I'll go through your notes, I thought that you gave consent that you didn't want your child immunised yeah and I always tell them that, have you had time to think about it? And they say yes they've thought about it
Isabel	sadly when we have people suffering from those illnesses suddenly people are clamouring to get appointments, I mean we've seen that twice within the last 2 years

Appendix X – Example of Analysed Text

	Identified Theme
… sometimes I think on our caseload it's, it's not them saying I don't want to have the MMR at the moment, you know, it's getting them to actually come up, come and get it, they keep putting it off and putting it off and so explaining to them that you know they are at risk of, some of them get a little bit behind on their [immunisations] and say they're over 1 and they still need the 3rd set, we'll give them the MMR and miss out one of the others and they can come back in a month and they can have the other one so it's encouraging them to actually come along and attend and we've got some families who I'll go out with the home [immunisations], if they've got a chaotic lifestyle and you know it's not top of their priority and they're not in when you get there but you do especially since the measles outbreak we really encourage them but we do anyway you know to come along and get it, and most people do want it it's just they don't actually get to clinic, that's why we have a clinic, a community clinic in breckfield which is we're there every Thursday it's in the community centre so you don't have to make an appointment, they know we're there on a Thursday and it is really really well attended cos some people with the way that their lives are organised are you're actually trying to ring them up and get an appointment they're never getting around to it but they know we're there and it's amazing sometimes they just turn up cos you'll know like if it's a family, you get to know all the people's families, and they'll turn up and you'll come back and go guess who turned up today? Cos you can sometimes just keep encouraging them and they don't turn up and then out of the blue they'll turn up so it would be a shame if that went actually because it's a really good service you know to the community knowing that we're there cos we've got some families who are with a surgery who do their own [immunisations], the practice nurse does them and they send for them so they can't just turn up there, they have to ring up and if it's a family with you know get behind a bit, they can get behind on their immunisations so at least if they know that we're there every thursday and sometimes they do come to our clinic, but yeah I do have the conversations with them and explain to them but it's changed so much now to you know what it was and obviously they may be influenced by the grandparents of the children but I think that maybe the parents have kind of looked into it themselves and have realised but back in the day it was like cos I argued with my friends, I've got friends who are nurses who didn't (told about personal discussion with friend) but it become but it was like in the press at the time there was like probably celebrities but they weren't called celebrities then who were saying going on about Tony Blair not saying if Leo had had it and I won't name her but people would quote her and go well she's not having it done and I'm thinking she's not a doctor, she's not a nurse, but it just shows you how much, and the press now are going on about isn't it awful but I put it down to them anyway because if they hadn't gone on about it so much it wouldn't have been …..	Families -> barriers -> access to clinics Families -> barriers -> other priorities in life Families -> barriers -> access to clinics Families -> barriers -> access to clinics Family -> influences -> family Family -> influences -> media