# Evidence Search Service Results of your search request

## Vaccine Uptake / Hesitancy Among Women of Reproductive Age

**ID of request:** 29093  
**Date of request:** 27th April, 2021  
**Date of completion:** 4th May, 2021

If you would like to request any articles or any further help, please contact:  Kevin Burgoyne at [kevin.burgoyne@nhs.net](mailto:kevin.burgoyne@nhs.net)

Please acknowledge this work in any resulting paper or presentation as: Evidence search: Vaccine Uptake / Hesitancy Among Women of Reproductive Age. Kevin Burgoyne. ( 4th May, 2021). BRIGHTON, UK: Brighton and Sussex Library and Knowledge Service.

**Sources searched**  
EMBASE (42)  
Google (1)  
MEDLINE (0)  
NICE Evidence Search (1)

**Date range used** (5 years, 10 years): 2015-   
**Limits used** (gender, article/study type, etc.): Focus on UK and similar healthcare systems   
**Search terms and notes** (full search strategy for database searches below):

Scoping search of NICE Evidence and Google using keywords

Embase search strategy as follows:

Database: Embase <1974 to 2021 Week 16>

Search Strategy:

--------------------------------------------------------------------------------

1     \*vaccine hesitancy/ (525)

2     (Vaccin\* adj3 (uptake or hesitan\*)).mp. (6310)

3     1 or 2 (6310)

4     female/ and groups by sex/ (234)

5     (female\* or women).mp. (10251181)

6     4 or 5 (10251181)

7     (adult/ or "young adult"/ or "pregnant woman"/) and groups by age/ (47969)

8     (pregnan\* or ((childbearing or reproductive) adj2 age)).mp. (1002173)

9     7 or 8 (1047780)

10     3 and 6 and 9 (511)

11     influenza vaccination/ (18190)

12     pertussis vaccine/ (7667)

13     SARS-CoV-2 vaccine/ (2158)

14     ((vaccin\* or immuni\*) adj3 (covid\* or "sars-cov\*" or pertussis or influenza or flu)).mp. (69151)

15     11 or 12 or 13 or 14 (69151)

16     10 and 15 (359)

17     limit 16 to yr="2015 -Current" (271)

18     from 17 keep (69)

For more information about the resources please go to: <https://www.bsuh.nhs.uk/library/>.

## Summary of Results

A large number of results have been returned mostly focussing on pregnant women and pre-covid vaccination. However, some relate to covid vaccine and also more generally. A separate search would be needed to address the slightly different focus of gender differences in vaccination and is reported separately.

The results here are a mixture of reviews and original research, with non-UK countries being included where deemed relevant based on similar healthcare systems and economic level.

## Contents

[A. Institutional Publications](#Content4)

Local Government Association (LGA)

[Increasing uptake for vaccinations: Maximising the role of councils](#Research916484)

Royal Society for Public Health (RSPH)

[Moving the Needle: Promoting vaccination uptake across the life course](#Research916483)

[B. Original Research](#Content5)

1. [An exploration of midwives' role in the promotion and provision of antenatal influenza immunisation: A mixed methods inquiry](#Research917343)
2. [Association between influenza vaccine administration and primary care consultations for respiratory infections: Sentinel network study of five seasons (2014/2015-2018/2019) in the UK](#Research917341)
3. [Evaluation of a midwife-led, hospital based vaccination service for pregnant women](#Research917338)
4. [Influenza and Influenza Vaccine: A Review](#Research917340)
5. [Losing ground at the wrong time: Trends in self-reported influenza vaccination uptake in Switzerland, Swiss Health Survey 2007-2017](#Research917339)
6. [Predictors of COVID-19 vaccine hesitancy in the UK household longitudinal study](#Research917332)
7. [Sociodemographic and health-related determinants of seasonal influenza vaccination in pregnancy: A systematic review and meta-analysis of the evidence since 2000](#Research917335)
8. [Vaccination status of mothers and children from the 'mamma & bambino' cohort](#Research917334)
9. [Vaccine willingness and impact of the covid-19 pandemic on women's perinatal experiences and practices-a multinational, cross-sectional study covering the first wave of the pandemic](#Research917333)
10. [What do pregnant women think about influenza disease and vaccination practices in selected countries](#Research917342)
11. [A qualitative study of views and experiences of women and health care professionals about free maternal vaccinations administered at community pharmacies](#Research917357)
12. [Antenatal vaccine uptake: A cross-sectional study investigating factors influencing women's choices in pregnancy](#Research917351)
13. [Barriers and facilitators regarding influenza and pertussis maternal vaccination uptake: A multi-center survey of pregnant women in Italy](#Research917349)
14. [Countering vaccine hesitancy among pregnant women in england: The case of Boostrix-IPV](#Research917355)
15. [Decision-making on maternal pertussis vaccination among women in a vaccine-hesitant religious group: Stages and needs](#Research917344)
16. [Delivering prenatal pertussis vaccine through maternity services in England: What is the impact on vaccine coverage?](#Research917353)
17. [Designing a multi-component intervention (P3-MumBubVax) to promote vaccination in antenatal care in Australia](#Research917367)
18. [Embedding the delivery of antenatal vaccination within routine antenatal care: a key opportunity to improve uptake](#Research917370)
19. [Factors influencing the uptake of influenza vaccine vary among different groups in the hard-to-reach population](#Research917359)
20. [Factors that influence vaccination decisionmaking among pregnant women: A systematic review and meta-analysis](#Research917350)
21. [Identifying people at risk for influenza with low vaccine uptake based on deprivation status: a systematic review](#Research917366)
22. [Midwives' role in the provision of maternal and childhood immunisation information](#Research917369)
23. [Motivational Interviewing for Maternal Immunisation (MI4MI) study: A protocol for an implementation study of a clinician vaccine communication intervention for prenatal care settings](#Research917347)
24. [Psychosocial determinants of pertussis and influenza vaccine uptake in pregnant women: A prospective study](#Research917356)
25. [Social-psychological determinants of maternal pertussis vaccination acceptance during pregnancy among women in the Netherlands](#Research917352)
26. [The faces of influenza vaccine recommendation: A Literature review of the determinants and barriers to health providers' recommendation of influenza vaccine in pregnancy](#Research917354)
27. [Vaccinating pregnant women against influenza needs to be a priority for all countries: An expert commentary](#Research917358)
28. [Will they, or Won't they? Examining patients' vaccine intention for flu and COVID-19 using the Health Belief Model](#Research917345)
29. ['I don't think anybody explained to me how it works': Qualitative study exploring vaccination and primary health service access and uptake amongst Polish and Romanian communities in England](#Research917374)
30. [A systematic review of interventions to improve uptake of pertussis vaccination in pregnancy](#Research917376)
31. [Antenatal vaccine uptake-A cross-sectional study investigating factors infuencing women's choices in pregnancy](#Research917380)
32. [Can common characteristics be identified as predictors for seasonal influenza vaccine uptake in pregnancy? A retrospective cohort study from a South London Hospital](#Research917365)
33. [Determinants of influenza and pertussis vaccination uptake in pregnancy a multicenter questionnaire study of pregnant women and healthcare professionals](#Research917371)
34. [Determinants of influenza vaccination uptake in pregnancy: A large single-Centre cohort study](#Research917372)
35. [Determinants of satisfaction with information and additional information-seeking behaviour for the pertussis vaccination given during pregnancy](#Research917379)
36. [Do previously held vaccine attitudes dictate the extent and influence of vaccine information-seeking behavior during pregnancy?](#Research917373)
37. [Knowledge, attitudes and beliefs towards compulsory vaccination: a systematic review](#Research917375)
38. [Near-Real Time Monitoring of Vaccine Uptake of Pregnant Women in a Primary Care Sentinel Network: Ontological Case Definition Across Heterogeneous Data Sources](#Research917362)
39. [Strategies to improve maternal vaccination acceptance](#Research917364)
40. [Improving vaccine coverage in adolescence and beyond](#Research917381)
41. [Influenza vaccination in pregnancy: Vaccine uptake, maternal and healthcare providers' knowledge and attitudes. A quantitative study](#Research917336)
42. [To vaccinate or not to vaccinate? Women's perception of vaccination in pregnancy: A qualitative study](#Research917337)

## A. Institutional Publications

#### Local Government Association (LGA)

**Increasing uptake for vaccinations: Maximising the role of councils** (2020)

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=874927955938667fe083a51b13d6561c)

(From Foreward) "Local government has an important role to play here. Councils are not directly responsible for commissioning or delivering vaccine programmes but they are in a unique position to understand the health needs of their local population, and support vaccination services to reach them.This may be through helping immunisation teams work with frontline services such as health visitors or children’s centres, or supporting pop-up vaccination clinics in under-vaccinated areas.Through our social media and wider health promotion work we can make residents aware of the importance of vaccination and counter any misinformation that is out there.This report contains examples of all these and more. In Slough the council has partnered with the fire service and immunisation team to run mobile clinics, while in Tower Hamlets an online video has been produced to reach out to the local Somali community.If we can drive up vaccination rates we can save lives. "

#### Royal Society for Public Health (RSPH)

**Moving the Needle: Promoting vaccination uptake across the life course** (2019)

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=1a0908fac213fb5ec4d80991a9b54527)

"Key Points: Vaccination as a public health intervention has had a positive impact on health and wellbeing that is almost unprecedented, drastically reducing the global burden of infectious disease. •Vaccinating across the life course – not just in childhood – is becoming increasingly important as the population of the UK ages rapidly, and different issues are likely to affect uptake at each life course stage. •Understanding the public’s attitudes to vaccination is a valuable tool for increasing and maintaining uptake of vaccines, which remains high in the UK for most vaccines."

## B. Original Research

1. **An exploration of midwives' role in the promotion and provision of antenatal influenza immunisation: A mixed methods inquiry**  
   Smith Susan Elizabeth Women and Birth 2021;34(1):e7-e13.

Problem: No South Australian study has previously investigated the role of midwives in the promotion and provision of antenatal influenza immunisation. Background(s): Influenza acquired in pregnancy can have serious sequalae for both mother and foetus. Recent studies have demonstrated that influenza vaccine in pregnancy is both safe and effective. Despite this, evidence suggests that vaccine uptake in pregnancy is suboptimal in both Australia and worldwide. Aim(s): The aim of this study was to investigate the role of midwives in the promotion and provision of antenatal influenza vaccine and, to provide a statistical and thematic description of the barriers and enablers midwives encounter. Method(s): This mixed method study incorporated a cross sectional on-line survey and in-depth interviews conducted with midwives, employed in urban and regional South Australia. Finding(s): Quantitative data were available for 137 midwives and 10 midwives participated in the interviews. Recruitment for the interview phase was through the last question on the survey. Whilst all midwives indicated that education and vaccine promotion were part of their role, immunisation knowledge varied between Registered Nurse/Midwives (RM/RN) 80% and Registered Midwives (RM) 48.90% (p = 0.001). Quantitative data showed that only 43% of midwives felt sufficiently educated to provide the vaccine. Midwives who had received formal immunisation training were more likely to recommend the vaccine 93.7% (p = 0.001). Qualitative data confirmed these results and identified the lack of immunisation education as a barrier to practise. Conclusion(s): Midwives identified an immunisation knowledge deficit. Midwives who had received immunisation education were more likely to actively promote and provide the vaccine to pregnant women. These findings indicate the need for more immunisation education of midwives in both tertiary and practice settings.Copyright © 2020 Australian College of Midwives

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=e1e0d0e0d2f1d544972657849f02e59b)

1. **Association between influenza vaccine administration and primary care consultations for respiratory infections: Sentinel network study of five seasons (2014/2015-2018/2019) in the UK**  
   Van Dam Pieter Jan International Journal of Environmental Research and Public Health 2021;18(2):1-13.

Influenza, a vaccine preventable disease, is a serious global public health concern which results in a considerable burden on the healthcare system. However, vaccine hesitancy is increasingly becoming a global problem. One prevalent misconception is that influenza vaccinations can cause the flu. We carried out this study to determine whether people undertaking influenza vaccination presented less with acute respiratory tract infection (ARTI) and influenza-like-illness (ILI) following vaccination. We utilised the Oxford Royal College of General Practitioners Research and Surveillance Centre sentinel database to examine English patients who received vaccination between 2014/2015 and 2018/2019. Of the 3,841,700 influenza vaccinations identified, vaccination details and primary care respiratory consultation counts were extracted to calculate the relative incidence (RI) per exposure risk period using the self-controlled case series methodology. Results showed a significant increase in the RI of respiratory consultation rates within fourteen days of vaccination across all five years. Less than 6.2% of vaccinations led to consultations for ARTI or ILI in primary care (crude consultation rate 6196 per 100,000). These findings, particularly if confirmed in further research, may reduce the risk of cross-infection between waiting patients and increase uptake of influenza vaccine.Copyright © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=727b8be96b84cbc267671e5671c9c40d)

1. **Evaluation of a midwife-led, hospital based vaccination service for pregnant women**  
   Meinel Alison Human Vaccines and Immunotherapeutics 2021;17(1):237-246.

Background: Vaccines against whooping cough (pertussis) and seasonal-influenza are recommended for pregnant women in England. Uptake however varies regionally and by ethnicity. Pregnant women are traditionally vaccinated in primary care, though some hospitals now offer vaccines through antenatal clinics. This mixed-methods evaluation describes the demographic characteristics of women seen in a hospital midwife-led antenatal vaccine clinic and explores vaccine decision making. Method(s): Descriptive statistics of women seen in a London hospital's midwife-led vaccine clinic were generated from electronic routine maternity records, including data on ethnicity, parity, age and deprivation indices. Reasons for vaccine decline given by women to midwives were categorized by themes. Qualitative interviews of women seen in the clinic were also undertaken. Result(s): Between 1st April 2017 and 31st March 2018 the vaccine clinic saw 1501 pregnant women. Of these, 83% received pertussis vaccine and (during flu season) 51% received influenza vaccine, from the clinic. Fewer Black Afro-Caribbean women seen by the clinic were vaccinated, compared to other ethnicities with only 68% receiving pertussis and 34% flu vaccines respectively (p < .05). Among all women delivering at the hospital over the year, 42%, (1334/3147) were vaccinated by the clinic. Qualitative interviews found that reassurance from healthcare professionals, particularly midwives, was the most important factor influencing maternal vaccine decisions. Conclusion(s): Midwife-led hospital clinics can offer an effective alternative to primary care provision for vaccines in pregnancy. Consistent with previous work, vaccine uptake varied by ethnicity. Midwives play a key role in the provision of vaccine services and influence women's vaccine decisions.Copyright © 2020 London School of Hygiene and Tropical Medicine. Published with license by Taylor & Francis Group, LLC.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=e5aefc88b6436772f87124ee4feafcd5)

1. **Influenza and Influenza Vaccine: A Review**  
   Nypaver Cynthia Journal of Midwifery and Women's Health 2021;66(1):45-53.

Influenza is a highly contagious, deadly virus, killing nearly half a million people yearly worldwide. The classic symptoms of influenza are fever, fatigue, cough, and body aches. In the outpatient setting, diagnosis can be made by clinical presentation with optional confirmatory diagnostic testing. Antiviral medications should be initiated as soon as possible, preferably within 24 hours of initiation of symptoms. The primary preventive measure against influenza is vaccination, which is recommended for all people 6 months of age or older, including pregnant and postpartum women, unless the individual has a contraindication. Vaccination should occur at the beginning of flu season, which typically begins in October. It takes approximately 14 days after vaccination for a healthy adult to reach peak antibody protection. There are challenges associated with vaccine composition and vaccine uptake. It takes approximately 6 to 8 months to identify and predict which influenza strains to include in the upcoming season's vaccine. During this time, the influenza virus may undergo antigenic drift, that is, mutating to avoid a host immune response. Antigenic drift makes the vaccine less effective in some seasons. The influenza virus occasionally undergoes antigenic shift, in which it changes to a novel virus, creating potential for a pandemic. There are also barriers to vaccine uptake, including lack of or limited access to care and misconceptions about receiving the vaccine. Interventions that improve access to and uptake of the influenza vaccine must be initiated, targeting multiple levels, including health care policy, patients, health care systems, and the health care team. This article reviews information about influenza identification, management, and prevention.Copyright © 2021 by the American College of Nurse-Midwives

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=a48d7ee8cdb216e6920f34eb8fbc9d15)

1. **Losing ground at the wrong time: Trends in self-reported influenza vaccination uptake in Switzerland, Swiss Health Survey 2007-2017**  
   Zurcher Kathrin BMJ Open 2021;11(2):e041354.

Objectives We studied time trends in seasonal influenza vaccination and associations with socioeconomic and health-related determinants in Switzerland, overall and in people aged >=65 years. Design Three cross-sectional surveys. Participants Individuals who participated in the Swiss Health Surveys 2007, 2012 and 2017. We calculated the proportion reporting influenza vaccination in the last 12 months, and performed multivariable logistic regression analyses. Results We included 51 582 individuals in this analysis. The median age was 49 years (IQR 25-64), and 27 518 were women (53.3%). The proportion of reporting a history of influenza vaccination overall was 31.9% (95% CI 31.4 to 32.4); and dropped from 34.5% in 2007 to 28.8% in 2017. The uptake of vaccination within the past 12 months was 16% in 2007 and similar in 2012 and 2017 (around 14%). In people with chronic disease, uptake dropped from 43.8% in 2007 to 37.1% in 2012 and to 31.6% in 2017 (p<0.001). In people aged >=65 years, uptake dropped from 47.8% in 2007 to 38.5% in 2012 to 36.2% in 2017 (p<0.001). In logistic regression, self-reported vaccination coverage decreased in the 65-75 years old (adjusted OR (aOR) 0.56, 95% CI 0.48 to 0.66 between 2007 and 2012; aOR 0.89, 95% CI 0.77 to 1.03 between 2012 and 2017). Uptake was positively associated with the >=65 age group, living in French-speaking and urban areas, history of smoking, bad self-reported health status, private/semiprivate health insurance, having a medical profession and having any underlying chronic disease. Conclusion Influenza vaccination coverage was low in older and chronically ill persons. Significant efforts are required in preparing for the influenza season 2020/2021 to reduce the double burden of COVID-19 and seasonal influenza. These efforts should include campaigns but also novel approaches using social media.Copyright © The Author(s), 2021.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=a2a05e395c65df12b8f1f5d73c3c9d73)

1. **Predictors of COVID-19 vaccine hesitancy in the UK household longitudinal study**  
   Robertson Elaine Brain, Behavior, and Immunity 2021;94:41-50.

Vaccine hesitancy could undermine efforts to control COVID-19. We investigated the prevalence of COVID-19 vaccine hesitancy in the UK and identified vaccine hesitant subgroups. The 'Understanding Society' COVID-19 survey asked participants (n = 12,035) their likelihood of vaccine uptake and reason for hesitancy. Cross-sectional analysis assessed vaccine hesitancy prevalence and logistic regression calculated odds ratios. Overall vaccine hesitancy was low (18% unlikely/very unlikely). Vaccine hesitancy was higher in women (21.0% vs 14.7%), younger age groups (26.5% in 16-24 year olds vs 4.5% in 75 + ) and those with lower education levels (18.6% no qualifications vs 13.2% degree qualified). Vaccine hesitancy was high in Black (71.8%) and Pakistani/Bangladeshi (42.3%) ethnic groups. Odds ratios for vaccine hesitancy were 13.42 (95% CI:6.86, 26.24) in Black and 2.54 (95% CI:1.19, 5.44) in Pakistani/Bangladeshi groups (compared to White British/Irish) and 3.54 (95% CI:2.06, 6.09) for people with no qualifications versus degree. Urgent action to address hesitancy is needed for some but not all ethnic minority groups.Copyright © 2021 The Author(s)

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=531d0496844bc02468a3290e93e4c814)

1. **Sociodemographic and health-related determinants of seasonal influenza vaccination in pregnancy: A systematic review and meta-analysis of the evidence since 2000**  
   Reddy Viraj K. Acta Obstetricia et Gynecologica Scandinavica 2021;:No page numbers.

Introduction: Vaccination is considered to be the most practical and effective preventative measure against influenza. It is highly recommended for population subgroups most at risk of developing complications, including pregnant women. However, seasonal influenza vaccine uptake remains suboptimal among pregnant women, even in jurisdictions with universal vaccination. We summarized the evidence on the determinants of seasonal influenza vaccine uptake during pregnancy to better understand factors that influence vaccine uptake among pregnant women. Material(s) and Method(s): We systematically searched MEDLINE, Embase and CINAHL from January 2000 to February 2020 for publications in English reporting on sociodemographic and/or health-related determinants of seasonal influenza vaccine uptake during pregnancy. Two reviewers independently included studies. One reviewer extracted data and assessed study quality, and another reviewer checked extracted data and study quality assessments for errors. Disagreements were resolved through consensus, or a third reviewer. We meta-analyzed using the inverse variance, random-effects method, and reported the odds ratios (OR) and 95% confidence intervals (CI). Result(s): From 1663 retrieved citations, we included 36 studies. The following factors were associated with increased seasonal influenza vaccine uptake: Older age (20 studies: OR 1.13, 95% CI 1.07-1.20), being nulliparous (13 studies: OR 1.26, 95% CI 1.15-1.38), married (8 studies: OR 1.11, 95% CI 1.07-1.15), employed (4 studies: OR 1.13, 95% CI 1.02-1.24), a non-smoker (8 studies: OR 1.25, 95% CI 1.04-1.51) and having prenatal care (3 studies: OR 3.36, 95% CI 2.25-5.02), a chronic condition (6 studies: OR 1.30, 95% CI 1.17-1.44), been previously vaccinated (9 studies: OR 4.88, 95% CI 3.14-7.57) and living in a rural area (9 studies: OR 1.09, 95% CI 1.05-1.14). Compared with being black, being white was also associated with increased seasonal influenza vaccine uptake (11 studies: OR 1.30, 95% CI 1.20-1.41). Conclusion(s): The evidence suggests that several sociodemographic and health-related factors may determine seasonal influenza vaccination in pregnancy, and that parity, history of influenza vaccination, prenatal care and comorbidity status may be influential.Copyright © 2021 Nordic Federation of Societies of Obstetrics and Gynecology (NFOG). Published by John Wiley & Sons Ltd

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=1214fc55d3f45c8a0f3da548990d702d)

1. **Vaccination status of mothers and children from the 'mamma & bambino' cohort**  
   Barchitta Martina Vaccines 2021;9(2):1-11.

According to the evidence demonstrating vaccines' safety and effectiveness in anticipation of and during pregnancy, several countries have established immunization programs during the periconceptional period. Here, we evaluated vaccination status among 220 mother-child pairs, using data from the 'Mamma & Bambino' cohort. The self-reported data were evaluated at delivery, and with planned follow-ups at 1-2 years after delivery. In general, we noted that the vaccination status among the women was heterogeneous, ranging from 8.3% (vaccine against Human Papillomavirus, HPV) to 65.6% (vaccine against Diphtheria Tetanus and Pertussis, DTaP). Excluding the women who contracted the diseases in the past, the main ground for refusal was the lack of information. We also demonstrated that increasing age was associated with higher odds of not being vaccinated against Measles-Mumps-Rubella (MMR; OR = 1.12; 95% CI = 1.04-1.21; p = 0.004), HPV (OR = 1.20; 95% CI = 1.08-1.33; p = 0.001) and DTaP (OR =1.09; 95% CI = 1.01-1.18; p = 0.040). As expected, we showed that the proportion of newborns vaccinated with the Hexavalent and Pneumococcal vaccines was high (99.5% and 98.6%, respectively), while the vaccination coverage against MMRV did not reach the auspicated threshold (84.1%). Overall, these results underlined the need for the improvement of women's knowledge about the recommendations for vaccination, especially during pregnancy.Copyright © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=4a6bdc21b86d1da5c34da4456ef2607e)

1. **Vaccine willingness and impact of the covid-19 pandemic on women's perinatal experiences and practices-a multinational, cross-sectional study covering the first wave of the pandemic**  
   Foulon Veerle International Journal of Environmental Research and Public Health 2021;18(7):3367.

The COVID-19 pandemic may be of particular concern for pregnant and breastfeeding women. We aimed to explore their beliefs about the coronavirus and COVID-19 vaccine willingness and to assess the impact of the pandemic on perinatal experiences and practices. A multinational, cross-sectional, web-based study was performed in six European countries between April and July 2020. The anonymous survey was promoted via social media. In total, 16,063 women participated (including 6661 pregnant and 9402 breastfeeding women). Most responses were collected from Belgium (44%), Norway (18%) and the Netherlands (16%), followed by Switzerland (11%), Ireland (10%) and the UK (3%). Despite differences between countries, COVID-19 vaccine hesitancy was identified among 40-50% of the respondents at the end of the first wave of the pandemic and was higher among pregnant women. Education level and employment status were associated with vaccine hesitancy. The first wave had an adverse impact on pregnancy experiences and disrupted access to health services and breastfeeding support for many women. In the future, access to health care and support should be maintained at all times. Evidence-based and tailored information on COVID-19 vaccines should also be provided to pregnant and breastfeeding women to avoid unfounded concerns about the vaccines and to support shared decision making in this population.Copyright © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=a547d67adf3d2fa017080ccf357433b6)

1. **What do pregnant women think about influenza disease and vaccination practices in selected countries**  
   Arriola Carmen S. Human Vaccines and Immunotherapeutics 2021;:No page numbers.

Introduction: We evaluated knowledge, attitudes, and practices (KAP) related to influenza and influenza vaccination among pregnant women in three selected countries. Method(s): During 2017, pregnant women seeking antenatal care at hospitals at participating sites were enrolled. We described characteristics and responses to KAP questions. We also evaluated predictors associated with influenza vaccination during pregnancy at sites with substantial influenza vaccine uptake by multivariable logistic regression. Result(s): Overall, 4,648 pregnant women completed the survey. There were substantial differences among the three survey populations; only 8% of the women in Nagpur had heard of influenza, compared to 90% in Lima and 96% in Bangkok (p-value<0.01). Despite significant differences in sociodemographic characteristics in the three populations, most participants across sites who were aware of influenza prior to study enrollment believe they and their infants are at risk of influenza and related complications and believe influenza vaccination is safe and effective. Half of women in Lima had verified receipt of influenza vaccine compared to <5% in Bangkok and Nagpur (p < .05). For further analysis conducted among women in Lima only, household income above the poverty line (aOR: 1.38; 95%CI: 1.01, 1.88), having 8+ antenatal visits, compared to 0-4 (aOR: 2.41; 95%CI: 1.39, 2.87, respectively), having 0 children, compared to 2+ (aOR: 1.96; 95%CIs: 1.23, 3.12), and vaccination recommended by a health-care provider (aOR: 8.25; 95%CI: 6.11, 11.14) were strongly associated with receipt of influenza vaccine during pregnancy. Conclusion(s): Our findings identify opportunities for targeted interventions to improve influenza vaccine uptake among pregnant women in these settings.Copyright © 2021 The Author(s). Published with license by Taylor & Francis Group, LLC.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=881cd41b64e53764f6cfb5b44c67eda6)

1. **A qualitative study of views and experiences of women and health care professionals about free maternal vaccinations administered at community pharmacies**  
   Gauld Natalie Vaccines 2020;8(2):152.

Background: A policy to extend funding of maternal pregnancy influenza and pertussis vaccinations to community pharmacies could address low pregnancy vaccine uptake. The policy has been implemented in one region in New Zealand. This study explored the views and experiences of women eligible for the vaccines and health care professionals regarding funded maternal vaccinations in pharmacy. Method(s): Women in late pregnancy or with an infant, and midwives, pharmacists, and general practice staff were selected purposively and interviewed regarding maternal vaccinations and the new policy, including their awareness and views of the funded vaccinations in pharmacies, and how this policy worked in practice. Enablers and barriers to vaccination by pharmacists were explored. Interviews were transcribed and analysed using a framework approach. Result(s): Fifty-three interviews were conducted. Most women and health care professionals viewed funded maternal vaccinations in pharmacies positively with respect to increasing awareness and providing delivery options. Many women received messages from pharmacies. Most pharmacies used posters, leaflets and/or verbal explanation to pregnant women to raise awareness of the vaccinations. Not all pharmacies provided these vaccinations, and frontline staff could help to raise awareness. Conclusion(s): Funded maternal vaccinations in pharmacies are generally well accepted and provide an opportunity to increase uptake and prevent disease.Copyright © 2020 by the authors. Licensee MDPI, Basel, Switzerland.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=041332529c0e9ba8438125742bbff457)

1. **Antenatal vaccine uptake: A cross-sectional study investigating factors influencing women's choices in pregnancy**  
   Moir Drew Australian and New Zealand Journal of Obstetrics and Gynaecology 2020;60(5):729-737.

Background: Seasonal influenza and pertussis cause significant morbidity and mortality among expectant mothers and infants. Vaccination during the antenatal period is an important public health intervention, minimising rates of maternal, neonatal and infant infection. Aim(s): The primary aim of this project was to establish the rates of antenatal vaccine uptake. Secondly, the study aimed to determine socio-demographic factors significant to vaccine uptake. Thirdly, the project aimed to produce a thematic analysis of the factors affecting vaccination uptake during pregnancy. Material(s) and Method(s): A cross-sectional observational study was conducted among women attending a large maternity hospital, in the western suburbs of Melbourne, for perinatal care. Data were collected via self-completed questionnaires after delivery. Data from the questionnaires were entered into an electronic database, and STATA was used to undertake correlation analysis. Result(s): Over a 12-month period 1678 women completed questionnaires and 1305 were eligible for further analysis. The uptake of influenza vaccine was 48.3%, pertussis vaccine uptake was higher, at 82.9%. Uptake of influenza and pertussis vaccines strongly correlated with recommendations from healthcare providers (odds ratios 29.7 and 63.8 respectively). Maternal country of birth, age and parity were significant predictors of vaccine uptake. In thematic analysis, healthcare provider recommendation and the perceived risk of the disease were factors resulting in vaccination. Conclusion(s): This study determined the rate of antenatal vaccine uptake and significant socio-demographic determinants affecting uptake at a large maternity hospital in metropolitan Melbourne. Ensuring healthcare providers recommend vaccination is likely to improve coverage.Copyright © 2020 The Royal Australian and New Zealand College of Obstetricians and Gynaecologists

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=70bcb1b277ede56421b6cbd8f107a567)

1. **Barriers and facilitators regarding influenza and pertussis maternal vaccination uptake: A multi-center survey of pregnant women in Italy**  
   Vilca Luz Maria European Journal of Obstetrics and Gynecology and Reproductive Biology 2020;247:10-15.

Objective: In 2017, the Italian Ministry of Health issued the new 2017-19 National Plan of Vaccine Prevention and pregnant women were targeted to be vaccinated against influenza and pertussis. Our study aim was to assess the barriers and facilitators regarding maternal immunization acceptance among pregnant women after the launch of this program. Study design: We conducted a multi-center survey in three Italian cities between March and June 2018. Collected data were analyzed anonymously, and included information about current recommendations of maternal immunization, antenatal care characteristics and reasons for accepting or rejecting vaccination. Result(s): A total of 743 pregnant women completed the survey. Half of the study population were aged 25-35 years and 88 % were Italian. Only 18 % pregnant women received advice to be vaccinated. In this group, the vaccine was recommended in most cases by an obstetrician-gynecologist (68 %) and during a routine antenatal visit (74 %). Self-reported influenza and pertussis vaccination coverage was 6.5 % (95 % confidence interval, 4.9 %-8.5 %) and 4.8 % (95 % confidence interval, 3.5 %-6.6 %), respectively. The main vaccination barriers identified were lack of vaccine recommendation by any health-care provider (81 %) and safety concerns (18 %). Respondents mentioned the willingness to protect their offspring (82 %) and themselves (66 %) and having received immunization advice by a maternal care provider (62 %), as the main vaccination facilitators. Conclusion(s): Lack of immunization advice by health-care providers and safety concerns were the main vaccination barriers against influenza and pertussis, among surveyed pregnant women. Vaccine delivery in the antenatal care setting could lead to increase of vaccine acceptance among pregnant women.Copyright © 2020 Elsevier B.V.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=4833c3c806e34350c83506be640f583f)

1. **Countering vaccine hesitancy among pregnant women in england: The case of Boostrix-IPV**  
   Ryan Mairead International Journal of Environmental Research and Public Health 2020;17(14):1-14.

This study explored the effects of message framing on vaccine hesitancy for the antenatal whooping cough vaccine. The study also assessed whether the Theory of Planned Behaviour (TPB) constructs had any explanatory utility for vaccine intentions and behaviours in pregnant women. A between-subjects, cross-sectional design was employed. Participants (n = 282) were women who were pregnant (mean = 28 weeks, SD = 7.0), living in England and between 18 and 44 years of age. A self-report web-based survey was used to collect data. Participants were randomly assigned to read either (i) disease risk, (ii) myth busting, or (iii) control information before answering questions based on the TPB. No significant effects of message framing were found. Attitudes (Beta = 0.699; p < 0.001) and subjective norms (Beta = 0.262, p < 0.001) significantly predicted intention to vaccinate but perceived behavioural control did not. The TPB constructs accounted for 86% and 36% of the variance in vaccine intention and vaccine history respectively. Disease risk information did not influence vaccine acceptability in this sample of English pregnant women. The study offered preliminary evidence that interventions targeting constructs from the TPB may promote vaccine acceptability among pregnant women.Copyright © 2020 by the authors. Licensee MDPI, Basel, Switzerland.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=9cd4657fe5816f274ce15ed962773248)

1. **Decision-making on maternal pertussis vaccination among women in a vaccine-hesitant religious group: Stages and needs**  
   Hautvast Jeannine L.A. PLoS ONE 2020;15(11 November):e0242261.

Introduction As of December 2019, pregnant women in the Netherlands are offered pertussis vaccination to protect their newborn infant against pertussis infection. However, the manner in which pregnant women decide about this maternal pertussis vaccination is largely unknown. The aim of this study is to gain insight into the decision-making process regarding maternal pertussis vaccination, and to explore the related needs among the vaccine-hesitant subgroup of orthodox Protestant women. Methods Charmaz's grounded theory approach was used to develop a decision-making framework. To construct this framework we used an explorative multimethod approach in which in-depth interviews and online focus groups were supplemented by a literature search and research group meetings. This study was carried out in a hypothetical situation since the maternal pertussis vaccination had yet to be implemented in the Dutch immunisation programme at the time of the study. Results Twenty-five orthodox Protestant women participated in an interview, an online focus group, or in both. The findings of this study resulted in a decision-making framework that included three stages of decision-making; an Orientation stage, a value-based Deliberation stage, and Final decision stage. The Orientation stage included the needs for decision-making categorised into Information needs and Conversation needs. Women indicated that -if they were to receive sufficient time for Orientation and Deliberation- they would be able to reach the stage of Final decision. Conclusion The decision-making framework resulting from our findings can be used by health care professionals to provide women with information and consultation in the decision-making process. Future studies should investigate whether the stages of and needs for decision-making can be found across other vaccine-hesitant subgroups and vaccinations.Copyright: © 2020 de Munter et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=ea6ded6e513577215a657ae22163c5ae)

1. **Delivering prenatal pertussis vaccine through maternity services in England: What is the impact on vaccine coverage?**  
   Llamas Ana Vaccine 2020;38(33):5332-5336.

Background: Prenatal pertussis vaccination was introduced in 2012 in England and is primarily delivered through general practice. Since 2017 some maternity services are commissioned to offer it too. We aimed to describe the maternity service delivery of prenatal pertussis vaccination and its impact on vaccine uptake. Method(s): We described the proportion of maternity services in England commissioned to offer pertussis vaccination to pregnant women in 2017/18 and the proportion of women vaccinated in this setting using a self-administered survey of NHS commissioners. We categorised clinical commissioning groups (CCGs) in England into "implementing" and "non-implementing" pertussis vaccination in maternity services. We identified CCGs where vaccination data was reliably transferred from maternity services to primary care records (source of routine data on vaccine uptake) and among those compared changes in vaccine uptake in implementing vs non-implementing CCGs between March 2016 (before implementation) and March 2018 (after). Finding(s): Of 141 maternity service units in England, 61% delivered prenatal pertussis vaccine in 2017/18. Of those 57.0% of maternity services immunized less than 10% of pregnant women and only 7.1% of maternity services immunized more than 40% of pregnant women. Between March 2016 and March 2018, coverage increased by 19.6% among non-implementing CCGs compared with 17.8% among all implementing CCGs (difference -2.2, p = 0.48) and 28.2% among implementing CCGs with reliable methods of data transfer (difference 8.6, p = 0.04). This difference translated to a difference of 1.6 percentage points in absolute terms. Interpretation(s): Delivering pertussis vaccine through maternity services has a moderate but important impact on vaccine uptake. There is a need to improve data transfer on vaccines administered in maternity service units to primary care. Maternity services should offer the vaccine to improve coverage and thus optimise protection for young infants. Barriers to effective programme implementation should be investigated and addressed.Copyright © 2020 The Authors

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=9793deae7a939a3e549fb16e3a018be7)

1. **Designing a multi-component intervention (P3-MumBubVax) to promote vaccination in antenatal care in Australia**  
   Kaufman Jessica Health promotion journal of Australia : official journal of Australian Association of Health Promotion Professionals 2020;:No page numbers.

Issue addressed Coverage of maternal influenza and pertussis vaccines remains suboptimal in Australia, and pockets of low childhood vaccine coverage persist nationwide. Maternal vaccine uptake is estimated to be between 35% and 60% for influenza vaccination and between 65% and 80% for pertussis vaccination. Australian midwives are highly trusted and ideally-placed to discuss vaccines with expectant parents, but there are no evidence-based interventions to optimise these discussions and promote maternal and childhood vaccine acceptance in the Australian public antenatal setting. METHOD(S): We gathered qualitative data from Australian midwives, reviewed theoretical models, and adapted existing vaccine communication tools to develop the multi-component P3-MumBubVax intervention. Through 12 interviews at two Australian hospitals, we explored midwives' vaccination attitudes and values, perceived role in vaccine advocacy and delivery, and barriers and enablers to intervention implementation. Applying the theory-based P3 intervention model, we designed intervention components targeting the Practice, Provider and Parent levels. Midwives provided feedback on prototype intervention features through two focus groups. RESULT(S): The P3-MumBubVax intervention includes practice-level prompts and identification of a vaccine champion. Provider-level components are a vaccine communication training module, learning exercise, and website with printable fact sheets. Parent-level intervention components include text message reminders to receive influenza and pertussis vaccines in pregnancy, as well as online information on vaccine safety, effectiveness and disease severity. CONCLUSION(S): The P3-MumBubVax intervention is the first Australian antenatal intervention designed to support both maternal and childhood vaccine uptake. A pilot study is underway to inform a planned cluster randomised controlled trial. So what? Barriers to vaccine acceptance and uptake are complex. The P3 model is a promising evidence-informed multi-component intervention strategy targeting all three levels influencing healthcare decision-making.Copyright This article is protected by copyright. All rights reserved.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=1089462ad1249a82ff9bb6a25de87b77)

1. **Embedding the delivery of antenatal vaccination within routine antenatal care: a key opportunity to improve uptake**  
   Wilcox Christopher R. Human Vaccines and Immunotherapeutics 2020;16(5):1221-1224.

Improving the uptake of vaccination in pregnancy has been highlighted as a priority by the World Health Organisation, yet establishing the optimal location for delivery of the antenatal vaccination program remains a topic of debate internationally. In many countries, antenatal vaccines are usually delivered within Primary Care (under the lead of general practitioners [GPs] or family physicians), yet this often presents a logistic barrier to accessing vaccination, and increasing evidence demonstrates that embedding vaccination within routine antenatal care visits may significantly improve uptake. In this commentary, we discuss recent evidence to support this approach, including anonymous feedback from patients and staff at our own institution, in which a dedicated midwife-led vaccine clinic has recently been set up. Furthermore, we highlight a number of individual and institution-level barriers which would need addressing before this approach can be routinely adopted, and suggest targets for future education and research.Copyright © 2019, © 2019 Taylor & Francis Group, LLC.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=cf58e9fe08667a3d8abfa7598e1af561)

1. **Factors influencing the uptake of influenza vaccine vary among different groups in the hard-to-reach population**  
   Kong Khai Lin Australian and New Zealand journal of public health 2020;44(2):163-168.

OBJECTIVE: This report describes a mobile outreach influenza immunisation program for vulnerable populations in a resource-rich setting. It explores vaccine recipients' demographics, comorbidities and vaccination histories, and the factors influencing their decision to receive vaccine during outreach. METHOD(S): Teams of nurse immunisers visited and provided influenza vaccines to clients from 21 sites (18 community centres for migrants, refugees and the homeless; and three outpatient clinics). Risk factors for severe influenza, vaccination histories and perceived barriers and facilitators to vaccines were collected from vaccine recipients. RESULT(S): A total of 1,032 vaccine recipients participated in the survey with responses collected from April to October 2018. Of these, 54% reported at least one risk factor for severe influenza. Sixty per cent of recipients had not received an influenza vaccine in 2017, with most of them reporting 'not worried about influenza' as a reason. Pregnant participants most frequently reported a healthcare provider's recommendation as the reason to receive the vaccine. CONCLUSION(S): An outreach program comprising of a means of taking vaccines to the population was a successful strategy to deliver influenza vaccines to high-risk populations. It needs to be considered in the full range of delivery models to improve influenza vaccine coverage, even in resource-rich settings. Implication for public health: Strategies reaching out to vulnerable populations are crucial to maximise vaccine uptake.Copyright © 2020 The Authors.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=17480f2bd26df7c7197adc17b8f2379c)

1. **Factors that influence vaccination decisionmaking among pregnant women: A systematic review and meta-analysis**  
   Kilich Eliz PLoS ONE 2020;15(7 July 2020):e0234827.

Background The most important factor influencing maternal vaccination uptake is healthcare professional (HCP) recommendation. However, where data are available, one-third of pregnant women remain unvaccinated despite receiving a recommendation. Therefore, it is essential to understand the significance of other factors and distinguish between vaccines administered routinely and during outbreaks. This is the first systematic review and meta-analysis (PROSPERO: CRD 42019118299) to examine the strength of the relationships between identified factors and maternal vaccination uptake. Methods We searched MEDLINE, Embase Classic & Embase, PsycINFO, CINAHL Plus, Web of Science, IBSS, LILACS, AfricaWideInfo, IMEMR, and Global Health databases for studies reporting factors that influence maternal vaccination. We used random-effects models to calculate pooled odds ratios (OR) of being vaccinated by vaccine type. Findings We screened 17,236 articles and identified 120 studies from 30 countries for inclusion. Of these, 49 studies were eligible for meta-analysis. The odds of receiving a pertussis or influenza vaccination were ten to twelve-times higher among pregnant women who received a recommendation from HCPs. During the 2009 influenza pandemic an HCP recommendation increased the odds of antenatal H1N1 vaccine uptake six times (OR 6.76, 95% CI 3.12-14.64, I2 = 92.00%). Believing there was potential for vaccine-induced harm had a negative influence on seasonal (OR 0.22, 95% CI 0.11-0.44 I2 = 84.00%) and pandemic influenza vaccine uptake (OR 0.16, 95% CI 0.09-0.29, I2 = 89.48%), reducing the odds of being vaccinated five-fold. Combined with our qualitative analysis the relationship between the belief in substantial disease risk and maternal seasonal and pandemic influenza vaccination uptake was limited. Conclusions The effect of an HCP recommendation during an outbreak, whilst still powerful, may be muted by other factors. This requires further research, particularly when vaccines are novel. Public health campaigns which centre on the protectiveness and safety of a maternal vaccine rather than disease threat alone may prove beneficial.Copyright © 2020 Kilich et al.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=ee2273045570f79c2102393f3b528db6)

1. **Identifying people at risk for influenza with low vaccine uptake based on deprivation status: a systematic review**  
   Cicconi Michela European journal of public health 2020;30(1):132-141.

BACKGROUND: Influenza vaccination is an important public health intervention for controlling disease burden, but coverage rates are still low also in risk groups. In order to identify non-vaccinating subgroups, deprivation and socio-economic indices, i.e. measures used to synthetically describe people's socio-economic status while taking into account several dimensions, may be used. We aimed to synthetize evidence from studies investigating association between deprivation/socio-economic indices and influenza vaccination coverage in population at risk-persons >=65 years of age, individuals with comorbidities, pregnant women and health-care workers. METHOD(S): We searched PubMed, ISI WoS, CINAHL and Scopus to identify observational studies published up to October 10th 2017 in English or Italian. Studies reporting quantitative estimates of the association between deprivation/socio-economic indices and influenza vaccination coverage in populations at risk were included. RESULT(S): A total of 1474 articles were identified and 12 were eventually included in the final review. Studies were mostly cross-sectional, performed in European countries, from 2004 to 2017. Seven studies focussed on deprivation and five on socio-economic indices. Studies on deprivation indices and vaccination coverage showed that people from the most deprived areas had lower coverage. Regarding socio-economic condition, results were contrasting, even though it may also be concluded that people from lower groups have lower vaccination coverage. CONCLUSION(S): Our work supports the possibility to identify people likely to have lower influenza vaccination coverage based on deprivation/socio-economic indices. Efforts should be performed in order to further strengthen robustness, transferability and suitability of these indices in addressing public health problems.Copyright © The Author(s) 2019. Published by Oxford University Press on behalf of the European Public Health Association.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=5b8cd9c7a0e882f0a1208bafa0f2b621)

1. **Midwives' role in the provision of maternal and childhood immunisation information**  
   Frawley Jane E. Women and Birth 2020;33(2):145-152.

Problem: Inactivated influenza vaccine and diphtheria-tetanus acellular pertussis vaccine are routinely recommended during pregnancy to protect women and their babies from infection. Additionally, the hepatitis B vaccine is recommended for infants within the first week of life; however, little is known about midwives' experiences of recommending and delivering these immunisations. Background(s): Midwives are a trusted source of vaccine information for parents and the confident provision of information about immunisation during antenatal clinic visits has been found to increase the uptake of antenatal and childhood vaccines. Aim(s): This study aims to explore midwives' experiences of discussing maternal and childhood immunisation with women and their partners and their confidence in answering parent's questions. Method(s): We conducted 23 semi-structured interviews with registered Australian midwives working in public and private hospital settings, and in private practice. Finding(s): Midwives find negotiating the requirement to recommend immunisation within a women-centred framework challenging at times. The vast majority of midwives described their education on immunisation as inadequate and workplace issues, such as time pressure, were identified as further barriers to effective communication about immunisation. Discussion/conclusion: The provision of immunisation training within midwifery education and continued professional development is critical. Appropriately resourcing midwives with the necessary infrastructure, education and resources to fully inform parents about immunisation may have a positive impact on vaccine uptake.Copyright © 2019 Australian College of Midwives

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=73704b895a718d66d361f4c8b9836284)

1. **Motivational Interviewing for Maternal Immunisation (MI4MI) study: A protocol for an implementation study of a clinician vaccine communication intervention for prenatal care settings**  
   Brewer Sarah E. BMJ Open 2020;10(11):040226.

Introduction Vaccination against influenza and pertussis in pregnancy offers a 'two-for-one' opportunity to protect mother and child. Pregnant patients have increased risk of severe disease from influenza and newborns have increased risk of severe disease from both influenza and pertussis. Obstetricians need communication tools to support their self-efficacy and effectiveness in communicating the importance of immunisation during pregnancy and ultimately improving maternal vaccination rates. Methods and analysis We describe the protocol for a pragmatic study testing the feasibility and potential impact of a clinician communication strategy on maternal vaccination uptake. This study will be conducted in five prenatal care settings in Colorado, USA. The Motivational Interviewing for Maternal Immunisation strategy involves training prenatal care providers to use motivational interviewing in the vaccine conversation with pregnant patients. Our primary outcomes will be the adoption and implementation of the intervention measured using the Enhanced RE-AIM/Practical Robust Implementation and Sustainability Model for dissemination and implementation. Secondary outcomes will include provider time spent, fidelity to Motivational Interviewing and self-efficacy measured through audio recorded visits and provider surveys, patients' visit experience based on audio recorded visits and follow-up interviews, and maternal vaccine uptake as measured through chart reviews. Ethics and dissemination This study is approved by the following institutional review boards: Colorado Multiple Institutional Review Board. Results will be disseminated through peer-reviewed manuscripts and conference presentations. Trial registration number NCT04302675.Copyright ©

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=7388b9375cd8443902b1c84f3877f25b)

1. **Psychosocial determinants of pertussis and influenza vaccine uptake in pregnant women: A prospective study**  
   Marshall Helen S. Vaccine 2020;38(17):3358-3368.

Objective: To identify the psychosocial factors influencing women's uptake and willingness to receive pertussis and influenza vaccine during pregnancy. Method(s): The study population comprised 1364 healthy nulliparous pregnant women who participated in a prospective cohort study at two obstetric hospitals in South Australia between 2015 and 2017. Information on women's vaccination status, sociodemographic, lifestyle and psychological state were collected at 9-16 weeks' gestation and medical case notes were checked post-delivery to verify the reported vaccination status. Poisson regression models were used to estimate the crude and adjusted prevalence ratios (aPRs) to identify psychosocial factors influencing uptake of vaccination during pregnancy. Result(s): Willingness to receive the recommended maternal vaccines was high (90%). Overall, 79% and 48% received maternal pertussis and influenza vaccines respectively. There was no evidence to support the influence of psychosocial factors on women's willingness to receive immunization during pregnancy. High levels of anxiety (aPR 0.98, 95% CI: 0.87-1.09) was not associated with uptake of maternal pertussis vaccine. However, elevated depressive symptoms (aPR 1.14, 95% CI: 1.00-1.30) and very high-perceived stress during pregnancy were significantly associated with receipt of pertussis vaccination (aPR 0.87; 95% CI 0.76-0.99). Women with mild depressive symptoms (aPR 1.21, 95% CI 1.00-1.44) and mild anxiety symptoms (aPR 1.21, 95% CI: 0.99-1.48) were more likely to receive influenza vaccine during pregnancy (aPR 1.27, 95% CI: 1.08-1.49). A history of major depressive disorder was independently associated with receipt of pertussis (aPR 1.16, 95% CI 1.06-1.26) and influenza vaccination during pregnancy (aPR 1.32; 95% CI 1.14-1.58). Conclusion(s): Regardless of psychosocial factors, most women reported a positive willingness to receive the recommended vaccinations during pregnancy. However, psychosocial factors influenced the uptake of pertussis and influenza vaccines during pregnancy. Psychosocial factors should be taken into consideration in designing interventions and implementation of maternal pertussis and influenza immunization programs.Copyright © 2020 Elsevier Ltd

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=79bd0614f18ba73b219f142adf4de88c)

1. **Social-psychological determinants of maternal pertussis vaccination acceptance during pregnancy among women in the Netherlands**  
   Ruiter Robert A.C. Vaccine 2020;38(40):6254-6266.

Background: Maternal Pertussis Vaccination (MPV) during pregnancy became part of the National Immunization Program in the Netherlands late 2019. This study aims to identify social-psychological factors associated with MPV acceptance among Dutch women to add to the current understanding of vaccine hesitancy worldwide, and to inform the development of communication and information campaigns about MPV. Method(s): We conducted a cross-sectional study using an online survey among 611 women (174 pregnant women, 205 women who had given birth in the past two years and 232 women of 20-35 years old). The primary and secondary outcomes were vaccination intention and attitude towards MPV, respectively. Pearson's correlation and regression analyses were used to examine social-psychological and socio-demographic determinants of the outcomes. Result(s): Vaccination intention was most explained by attitudes towards MPV, beliefs about safety, moral norm and the belief about the effectiveness of MPV (R2 = 0.79). Other factors associated were injunctive norm, anticipated regret of vaccinating, and decisional certainty. Attitudes towards MPV were further explained by descriptive norm, risk perceptions of side effects, and risk perceptions of the baby getting pertussis when not vaccinating, and fear of MPV and of the disease (R2 = 0.76). Finally, pregnant women had a significantly lower intention and less positive attitude towards MPV than non-pregnant women. Conclusion(s): Communication about MPV should address the most important determinants of MPV intention and attitude, i.e. beliefs about safety and effectiveness and moral norms. Furthermore, such information may benefit from taking into account affective feelings of pregnant women such as anticipated regret and fear towards MPV. Further research could explore this. The timing of communication about MPV can be important as determinants of MPV acceptance may vary depending on pregnancy status.Copyright © 2020 Elsevier Ltd

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=6b01fdba3b9a665c6c9eb2dbe2dad3da)

1. **The faces of influenza vaccine recommendation: A Literature review of the determinants and barriers to health providers' recommendation of influenza vaccine in pregnancy**  
   Morales Kathleen F. Vaccine 2020;38(31):4805-4815.

Introduction: WHO recommends influenza vaccination for pregnant women and health providers (HPs), yet global uptake for both is persistently low. Research suggests that HPs greatly influence uptake of influenza vaccine in pregnant women. Our review studies HPs' recommendation of influenza vaccine to pregnant women, determinants and barriers to recommendation, and the role that HPs may play in global influenza vaccine coverage. Method(s): We undertook a comprehensive global review of literature relating to HPs' recommendation of seasonal influenza vaccines to pregnant women and the determinants and barriers to recommendation and how this may vary by country and context. We evaluated data from each study including frequency of HP recommendation, vaccine coverage, determinants and barriers to recommendation, and the odds of recommending. We tracked the frequency of determinants and barriers to recommendation in heat maps and organized data by world regions and income classifications. Result(s): From 32 studies in 15 countries, we identified 68 determinants or barriers to HPs' recommendation. Recommendation rates were highest (77%) in the Americas and lowest in South East Asia (18%). A HP's own influenza vaccine status was a main determinant of recommendation in multiple country contexts and from different provider types. Financial barriers to recommendation were present in higher-income countries and policy-related barriers were highlighted in lower-income countries. HP perceptions of safety, efficacy, and the utility of vaccine were the most frequently cited barriers, relevant in almost every context. Conclusion(s): HP recommendation is important to influenza vaccine implementation in pregnant women. A HP's own status is an important recommendation determinant in multiple contexts. Vaccine program implementation plans should consider the impact of HPs' knowledge, awareness and vaccine confidence on their own uptake and recommendation practices, as well as on the uptake among pregnant women. Addressing safety and efficacy concerns is relevant in all contexts for HPs and pregnant women.Copyright © 2020

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=8cbdfa04b1987ad239f697fd99fa8c5a)

1. **Vaccinating pregnant women against influenza needs to be a priority for all countries: An expert commentary**  
   Buchy Philippe International Journal of Infectious Diseases 2020;92:1-12.

Background: In 2012, the World Health Organization recommended influenza vaccination for all pregnant women worldwide and the prioritisation of pregnant women in national influenza vaccination programmes. Nevertheless, vaccination rates in pregnant women often remain much lower than national targets. Objective(s): To assess the benefits and risks associated with influenza infection and vaccination during pregnancy, and to consider obstacles that work against influenza vaccine uptake during pregnancy. Result(s): There is strong evidence that maternal and foetal outcomes can be compromised if women develop influenza infections during pregnancy. Influenza vaccines have been administered to millions of pregnant women and have demonstrated benefits in terms of disease prevention in mothers and their infants. There is a consensus amongst several recommending authorities that influenza vaccines may be safely administered during all stages of pregnancy. Healthcare professionals are recognised as the most important influencers of vaccine uptake, being well placed to recommend vaccination and directly address safety concerns. Conclusion(s): Despite data supporting the value of influenza vaccination during pregnancy, vaccine uptake remains low globally. Low uptake appears to be largely due to ineffective communication with pregnant women about the risks and benefits of influenza vaccination. A graphical abstract is available online.Copyright © 2020 GlaxoSmithKline Biologicals S.A.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=d1fd270ff7cdb2c512c32a032ba35118)

1. **Will they, or Won't they? Examining patients' vaccine intention for flu and COVID-19 using the Health Belief Model**  
   Mercadante Amanda R. Research in social & administrative pharmacy : RSAP 2020;:No page numbers.

BACKGROUND: The twindemic of influenza and COVID-19 places pharmacists in a position of high-impact to inform and manage vaccination uptake. Given prior vaccine hesitancy in the US and the current high impact of COVID-19 on the population, it is imperative to understand and address factors that drive perceptions and intention to get vaccinated. OBJECTIVE(S): The objectives of the study were to 1) determine impact of the COVID-19 pandemic on influenza vaccine uptake, on patient perceptions of vaccinations, vaccine intention, and health behaviors and 2) determine vaccine intention through the Health Belief Model. METHOD(S): An IRB-approved prospective Qualtrics-based survey was administered online to eligible respondents: non-pregnant panel respondents 18 years or older within the United States who could independently complete the entire questionnaire in English. Data analyses included descriptive statistics, psychometric analyses of the 5C and CoBQ tools, one-way ANOVA to compare demographic groups and vaccine intention items with survey scores, and mapping and path analysis of the HBM with one added domain (Decision Making Determinant, DMD). RESULT(S): 525 respondents completed the survey from October 23-29, 2020. Respondents aged 18-49, making less than $20,000 or an undisclosed income, and not having anyone close to them directly affected by COVID-19 showed a significant, negative impact of COVID-19 on health behavior and a significantly lower vaccine acceptance. The 5C and CoBQ showed moderately strong reliability. Mapping for the HBM revealed significant correlations between all modifying factors with Individual Perceptions except for Race/Ethnicity. Of the Individual Perceptions, Perceived Benefits (-.114) and Perceived Barriers (.307) significantly predicted DMD and directly impacted Vaccine Intention. DMD was not a significant mediator of Vaccination Intention. CONCLUSION(S): Vaccination messaging should focus on a simple yet balanced view of benefits and risks, targeting those under age 50 and living in low-income households, to motivate uptake of influenza and COVID-19 vaccines.Copyright © 2020 Elsevier Inc. All rights reserved.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=5a122e7dc13b4536333010949b3e8a25)

1. **'I don't think anybody explained to me how it works': Qualitative study exploring vaccination and primary health service access and uptake amongst Polish and Romanian communities in England**  
   Bell Sadie BMJ Open 2019;9(7):e028228.

Objectives: This study explored vaccination attitudes and behaviours among Polish and Romanian communities, and related access to primary healthcare services. Design(s): A qualitative study using in-depth semistructured interviews with Polish and Romanian community members (CMs) and healthcare workers (HCWs) involved in vaccination in areas with large Polish and Romanian communities. CMs discussed their vaccination attitudes and their experiences of accessing vaccinations in England. HCWs shared their experiences in vaccinating Polish and Romanian communities. Setting(s): Recruitment focused on three geographical areas in England with large Polish and Romanian populations (in London, Lincolnshire and Berkshire). Participant(s): 20 Polish and 10 Romanian CMs, and 20 HCWs. Most CMs were mothers or pregnant women and were recruited from London or Lincolnshire. HCWs included practice nurses, health visitors and school nurses recruited from the targeted geographical areas. Result(s): Although most CMs reported vaccinating according to the UK schedule, obstacles to vaccination were highlighted. CMs experienced difficulties navigating and trusting the English primary healthcare system, and challenges in accessing credible vaccination information in Polish and Romanian. CM vaccination expectations, largely built on knowledge and experiences from Poland and Romania, were often unmet. This was driven by differences in vaccination scheduling and service provision in England, such as nurses delivering vaccines instead of doctors. CMs reported lower acceptance of the influenza vaccine, largely due to perceptions around the importance and efficacy of this vaccine. HCWs reported challenges translating and understanding vaccination histories, overcoming verbal communication barriers and ensuring vaccination schedule completeness among families travelling between England and Poland or Romania. Conclusion(s): This study identified vaccination uptake and delivery issues and recommendations for improvement. HCWs should discuss health service expectations, highlight differences in vaccination scheduling and delivery between countries, and promote greater understanding of the English primary healthcare system in order to encourage vaccination in these communities.Copyright © 2019 Author(s).

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=3b99f0176f153f3833d44c40aaebb257)

1. **A systematic review of interventions to improve uptake of pertussis vaccination in pregnancy**  
   Roberts Claire T. PLoS ONE 2019;14(3):e0214538.

Background Maternal pertussis vaccination has been introduced in several countries to prevent pertussis morbidity and mortality in infants too young to be vaccinated. Our review aimed to systematically collect and summarize the available evidence on the effectiveness of interventions used to improve pertussis vaccination uptake in pregnant women. Methods We conducted a systematic search of MEDLINE/PubMed, PMC and CINAHL. Before and after studies and those with a concurrent control group were considered for inclusion. Standardized effect sizes were described as the ratio of the odds to be vaccinated in the intervention group compared with the standard care group and absolute benefit increase (ABI) were calculated. Results Six studies were included in the review, of which three were randomized controlled trials (RCTs). Strategies to improve uptake were focused on healthcare providers, pregnant women, or enhancing vaccine access. Healthcare provider interventions included provider reminder, education, feedback and standing orders. Interventions directed at pregnant women focused solely on education. Observational studies showed: (1) the provision of maternal pertussis vaccination by midwives at the place of antenatal care has improved uptake of pertussis vaccine during pregnancy from 20% to 90%; (2) introduction of an automated reminder within the electronic medical record was associated with an improvement in the pertussis immunization rate from 48% to 97%; (3) an increase in prenatal pertussis vaccine uptake from 36% to 61% after strategies to increase provider awareness of recommendations were introduced. In contrast to these findings, interventions in all three RCTs (2 involved education of pregnant women, 1 had multi-component interventions) did not demonstrate improved vaccination uptake. Conclusions Based on the existing research, we recommend incorporating midwife delivered maternal immunization programs at antenatal clinics, use of a provider reminder system to target unvaccinated pregnant women and include maternal pertussis immunization as part of standard antenatal care.Copyright © 2019 Mohammed et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=847e7d4d2bc7475770515ef297d024e9)

1. **Antenatal vaccine uptake-A cross-sectional study investigating factors infuencing women's choices in pregnancy**  
   Moir D. Australian and New Zealand Journal of Obstetrics and Gynaecology 2019;59(Supplement 1):103.

Introduction: Seasonal infuenza and pertussis cause signif-cant morbidity and mortality among expectant mothers and infants. Vaccination during the antenatal period is an important public health intervention, minimising rates of maternal, neonatal and infant infection. Aim(s): The primary aim of this project was to establish the incidence of antenatal vaccine uptake. Secondly, the study aimed to determine socio-demographic factors signifcant to vaccine uptake. Thirdly, the project aimed to produce a thematic analysis of the factors afecting vaccination uptake during pregnancy. Method(s): A cross-sectional observational study was conducted among women attending Sunshine Hospital for perinatal care. Data were collected via self-completed questionnaires after delivery. Data from the questionnaires were entered into an electronic database, and STATA was used to undertake correlation analysis. Result(s): Over a twelve-month period, 1678 women completed the questionnaires, and 1305 were eligible for further analysis. The incidence of infuenza vaccine uptake was 48.3%, and pertussis vaccine uptake was higher, at 82.9%. Uptake of both vaccines strongly correlated with recommendations from healthcare providers. Maternal country of birth, maternal age and parity were signifcant predictors of vaccine uptake. In thematic analysis, healthcare provider recommendation and the perceived risk of the disease were factors resulting in vaccination. Poor knowledge regarding the vaccines and a lack of positive information resulted in non-vaccination. Discussion(s): This study determined the incidence of antenatal vaccine uptake and signifcant socio-demographic determinants afecting uptake. Ensuring healthcare providers recommend vaccination is likely to improve coverage.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=73c5503e917811f97edef74a9de438ce)

1. **Can common characteristics be identified as predictors for seasonal influenza vaccine uptake in pregnancy? A retrospective cohort study from a South London Hospital**  
   Carlisle Naomi Midwifery 2019;72:67-73.

BACKGROUND: Complications due to influenza are contributory factors for maternal deaths in the United Kingdom (UK). Less than half of all pregnant women in the UK receive the influenza vaccination. Increasing immunisation rates for seasonal influenza in pregnant women must remain a public health priority. METHOD(S): A retrospective cohort study was undertaken, utilising the electronic health record of 4817 women who had given birth at a South London NHS Hospital from 1st January-31st December 2015. The data were then analysed to determine if there were any common characteristics of the women who received or did not receive the seasonal influenza vaccination. RESULT(S): It was found that ethnic origin, age at booking, planned pregnancy, parity, and booking in the first trimester were significant predictors for receiving the seasonal influenza vaccination. Index of Multiple Deprivation Deciles, speaking English without a translator, and booking season were not clinically or statistically significant predictors for receiving the seasonal influenza vaccination. CONCLUSION(S): There are common characteristics that are associated with receiving and not receiving the seasonal influenza vaccination for women who gave birth in South London during 2015. These results could be useful to antenatal health professionals working in similarly diverse areas, and to influence the public health agenda. This research ascertains which women in the cohort did not receive the vaccination; future research should explore the factors which affect vaccine uptake and potential strategies to improve vaccination rates.Copyright © 2019 Elsevier Ltd. All rights reserved.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=7578c5248de8425876af475faca2ef30)

1. **Determinants of influenza and pertussis vaccination uptake in pregnancy a multicenter questionnaire study of pregnant women and healthcare professionals**  
   Wilcox Christopher R. Pediatric Infectious Disease Journal 2019;38(6):625-630.

Introduction: Uptake rates of antenatal vaccination remain suboptimal. Our aims were to determine (1) the acceptability of routine vaccination among pregnant women, (2) the confidence of maternity healthcare professionals (HCPs) discussing vaccination and (3) HCP opinion regarding the optimum healthcare site for vaccine administration. Method(s): Separate questionnaires for pregnant women and HCPs were distributed within 4 national health service (NHS) trusts in South England (July 2017 to January 2018). Result(s): Responses from 314 pregnant women and 204 HCPs (18% obstetricians, 75% midwives, 7% unidentified) were analyzed. Previous/intended uptake of influenza and pertussis vaccination was 78% and 92%, respectively. The commonest reason for declining vaccination was feared side effects for their child. White British women (79%) were significantly more accepting of influenza [85% vs. 61%; odds ratio (OR) 3.25; 95% confidence interval [CI], 1.67-6.32] and pertussis vaccination (96% vs. 83%; OR 4.83; 95% CI: 1.77-13.19) compared with nonwhite British women. Among HCPs, 25% were slightly or not at all confident discussing vaccination. Obstetricians felt significantly more confident discussing pertussis vaccination than midwives (68% vs. 55% were very/moderately confident; OR 2.05; 95% CI: 1.02-4.12). Among HCPs, 53%, 25% and 16% thought vaccines should be administered in primary care (general practice), community midwifery and in hospital, respectively. Conclusion(s): Misconceptions exist regarding safety/efficacy of antenatal vaccination, and framing information towards the child's safety may increase uptake. Education of HCPs is essential, and vaccine promotion should be incorporated into routine antenatal care, with an emphasis on women from ethnic minorities. Administration of vaccines in primary care presents logistical barriers; however, support for alternative sites appears low among HCPs.Copyright © 2018 Wolters Kluwer Health, Inc.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=fc2cf92e9c9916c034ebfdc2ddd5b336)

1. **Determinants of influenza vaccination uptake in pregnancy: A large single-Centre cohort study**  
   Bartolo Stephanie BMC Pregnancy and Childbirth 2019;19(1):510.

Background: Although vaccination of pregnant women against influenza is recommended, the vaccination rate remains low. We conducted a study to identify determinants of influenza vaccination uptake in pregnancy in order to identify strategies to improve seasonal influenza vaccination rates. Method(s): Prospective observational hospital-based study in the French hospital performing the highest number of deliveries, located in the city of Lille, among all women who had given birth during the 2014-2015 influenza season. Data were collected through a self-completed questionnaire and from medical files. The vaccination uptake was self-reported. Determinants of vaccination uptake were identified using logistic regression analysis. Result(s): Of the 2045 women included in the study, 35.5% reported that they had been vaccinated against influenza during their pregnancy. The principal factors significantly associated with greater vaccination uptake were previous influenza vaccination (50.9% vs 20.2%, OR 4.1, 95% CI 3.1-5.5), nulliparity (41.0% vs 31.3%, OR 2.5, 95% CI 1.7-3.7), history of preterm delivery < 34 weeks (43.4% vs 30.3%, OR 2.3, 95% CI 1.1-4.9), the mother's perception that the frequency of vaccine complications for babies is very low (54.6% vs 20.6%, OR 1.1, 95% CI 0.5-2.2), the mother's good knowledge of influenza and its vaccine (61.7% vs 24.4%, OR 3.1, 95% CI 2.2-4.4), hospital-based prenatal care in their first trimester of pregnancy (55.0% vs 30.2%, OR 2.1, 95% CI 1.2-3.7), vaccination recommendations during pregnancy by a healthcare worker (47.0% vs 2.7%, OR 18.8, 95% CI 10.0-35.8), receipt of a vaccine reimbursement form (52.4% vs 18.6%, OR 2.0, 95% CI 1.5-2.7), and information from at least one healthcare worker about the vaccine (43.8% vs 19.1%, OR 1.8, 95% CI 1.3-2.6). Conclusion(s): Our findings suggest that in order to increase flu vaccination compliance among pregnant women, future public health programmes must ensure cost-free access to vaccination, and incorporate education about the risks of influenza and the efficacy/safety of vaccination and clear recommendations from healthcare professionals into routine antenatal care.Copyright © 2019 The Author(s).

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=eed486cd035a02d1584643fcf0e6086d)

1. **Determinants of satisfaction with information and additional information-seeking behaviour for the pertussis vaccination given during pregnancy**  
   Clarke Richard M. Vaccine 2019;37(20):2712-2720.

Objectives: Information search and processing is critical to the vaccine decision-making process. However, the role of drivers of information satisfaction and search is not fully understood. Here, we investigated the predictive potential of psychosocial characteristics related to satisfaction with information and additional information-seeking about the pertussis vaccine currently recommended during pregnancy. Design(s): Cross-sectional online questionnaire study. Method(s): A UK based sample of 314 women who had given birth during the previous six months was recruited to participate. The questionnaire included measures of the psycho-social predictors: trust, coping strategies, attitude towards vaccine information-seeking behaviour and risk perception of vaccination during pregnancy, and measures of two outcome variables: satisfaction with information received from a health care professional and whether participants engaged in vaccine information-seeking behaviour. Result(s): Trust in health care professionals, a perceived behavioural control of own vaccine information-seeking behaviour, and an engaged problem-focused strategy for coping with stress were significant predictors of satisfaction with official information given by a health care professional. 40% of women sought out additional information about vaccination however, none of the psychosocial factors measured significantly predicted the behaviour. Conclusion(s): We found that high trust in health care professionals, a perceived ability to seek out accurate information about vaccines and actively focusing on problems as a means of coping with stress, drives satisfaction in official vaccine information. We also developed measures of these variables that could be used in further research.Copyright © 2019

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=5d843826c656289bb9a256cb15b91c32)

1. **Do previously held vaccine attitudes dictate the extent and influence of vaccine information-seeking behavior during pregnancy?**  
   Clarke Richard M. Human Vaccines and Immunotherapeutics 2019;15(9):2081-2089.

Pregnancy represents a high information need state, where uncertainty around medical intervention is common. As such, the pertussis vaccination given during pregnancy presents a unique opportunity to study the interaction between vaccine attitudes and vaccine information-seeking behavior. We surveyed a sample of pregnant women (N = 182) during early pregnancy and again during late pregnancy. The variables of vaccine confidence and risk perception of vaccination during pregnancy were measured across two questionnaires. Additional variables of decision conflict and intention to vaccinate were recorded during early pregnancy, while vaccine information-seeking behavior and vaccine uptake were recorded during late pregnancy. 88.8% of participants reported seeking additional information about the pertussis vaccine during pregnancy. Women that had a lower confidence in vaccination (p =.004) and those that saw the risk of pertussis disease as high compared to the risk of side effects from the pertussis vaccination during pregnancy (p =.004) spent significantly more time seeking information about the pertussis vaccination. Women's perception of risk related to vaccination during pregnancy significantly changed throughout the pregnancy (t(182) = 4.685 p<.001), with women perceiving the risk of pertussis disease higher as compared to the risk of side effects from the vaccine as the pregnancy progresses. The strength and influence of information found through seeking was predicted by intention to vaccinate (p =.011). As such, we suggest that intention to vaccinate during early pregnancy plays a role in whether the information found through seeking influences women towards or away from vaccination.Copyright © 2019, © 2019 The Author(s). Published with license by Taylor & Francis Group, LLC.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=a2f0ae44c122e3dc5d642d81e03c1bb8)

1. **Knowledge, attitudes and beliefs towards compulsory vaccination: a systematic review**  
   Gualano M.R. Human Vaccines and Immunotherapeutics 2019;15(4):918-931.

Currently, many countries are dealing with groups refusing available recommended vaccinations. Despite several studies having demonstrated the efficacy of mandatory vaccinations in ensuring herd immunity, opposition is widespread. The aim of our study was to systematically review published studies evaluating attitudes towards mandatory vaccination programs. PubMed and Scopus scientific databases were searched and 4,198 results were returned, of these 29 met the inclusion criteria. Twenty-two studies assessed attitudes towards mandatory vaccination programs in general, while 9 papers focused specifically on the Human Papilloma Virus (HPV) vaccine. Most of the studies were performed in Europe and North America. According to the assessed studies, the majority of the population seems to be in favour of compulsory vaccinations, although attitudes differed among studies. The results presented in this review could be an important starting point to further understand the issue of vaccine hesitancy and support the implementation of effective vaccination strategies.Copyright © 2019, © 2019 Taylor & Francis Group, LLC.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=77f4b90a23acc8f46372e8bd68e3239e)

1. **Near-Real Time Monitoring of Vaccine Uptake of Pregnant Women in a Primary Care Sentinel Network: Ontological Case Definition Across Heterogeneous Data Sources**  
   Liyanage Harshana Studies in health technology and informatics 2019;264:1855-1856.

Vaccination against influenza is important in pregnancy for the health of both mother and unborn baby. Influenza introduces risks to pregnancy and to the baby who relies on maternal antibodies for protection. Because the data associated with pregnancy is fragmented across multiple providers of health care, it is challenging to conduct pregnancy-related public health surveillance using a single data source. We report the integration of a novel ontological approach to identifying pregnancies in routine data with a web-based dashboard that feeds back information to general practices in a sentinel network. As a result, practices receive information about how well they are performing influenza vaccination in pregnancy in near-real-time.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=d36a182426d0c8195161cf4a4c2a5b88)

1. **Strategies to improve maternal vaccination acceptance**  
   Wilson R. BMC public health 2019;19(1):342.

BACKGROUND: In England, influenza and pertussis vaccination has been recommended for all pregnant women since 2010 and 2012 respectively. However, in some areas, vaccination uptake rates have been low. A qualitative study was conducted to gain a contextualised understanding of factors influencing vaccination acceptance during pregnancy in Hackney, a borough in north-east London, UK. This paper draws on in-depth insights gained from the above study, to provide recommendations for increasing long-term maternal vaccination acceptance. METHOD(S): Hackney was chosen as the study site because it has one of the lowest vaccination coverage rates in pregnancy in the UK. A maximum variation sampling method was used to recruit 47 pregnant and recently pregnant women from a wide range of backgrounds, as well as ten healthcare professionals from three general practices; two community antenatal clinics; nine parent-toddler groups; and four community centres. In-depth interviews and a video-recording of a pregnant patient's consultation, explored experiences of care within the National Health Service during pregnancy, and women's views about maternal vaccination. In-depth interviews with healthcare professionals explored their views towards, and how they discuss and provide maternal vaccination. Study data were analysed both deductively, through drawing on insights from anthropological works that address diverse conceptualisations and practices around vaccination; and inductively, with a thematic analysis approach. RESULT(S): The findings of this study and the recommendations based on them were divided into five broad themes: access to maternal vaccination; healthcare institution rhetoric and its effect on maternal vaccination acceptance; community and family influences on maternal vaccination decisions; healthcare professionals' views towards maternal vaccination; and the influence of patient-healthcare professional relationships on maternal vaccination acceptance. CONCLUSION(S): The strategies to improve maternal vaccination acceptance recommended in this paper would engender a more open and democratised healthcare system.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=f087b11eee8c62f432a38a2e81521009)

1. **Improving vaccine coverage in adolescence and beyond**  
   Falconer Michelle Human Vaccines and Immunotherapeutics 2018;14(1):225-228.

High vaccine coverage is required to ensure population protection, including protection of those that cannot receive vaccines either due to contraindications or age. Despite this, some areas continue to report low vaccine coverage. Reasons for this may vary but can include factors such as difficulties accessing services, conflicting priorities and false contraindications or fear of potential side effects. Population groups with reported low vaccine coverage include pregnant women, adolescents and those aged 70-80 years and eligible to receive the shingles vaccine. The afternoon symposium included presentations from speakers each describing interventions for promoting vaccine uptake in these particular groups. Such interventions may include: \* Ensuring effective leadership with clear aims for the delivery and on-going evaluation of the program \* Providing health care workers with training and access to factually correct immunization resources \* Offering a flexible service with vaccination in venues that are easy to access.Copyright © 2018 Taylor & Francis.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=bfc0669b24a120f987d0defa5169bcfc)

1. **Influenza vaccination in pregnancy: Vaccine uptake, maternal and healthcare providers' knowledge and attitudes. A quantitative study**  
   Cleary Brian BJGP Open 2018;2(3):No page numbers.

Background: Influenza during pregnancy is a potentially life threatening illness. There are limited data on influenza vaccination uptake and determinants of uptake in Irish obstetric populations. Aim(s): To determine the uptake of influenza vaccination during pregnancy; determinants of vaccination uptake; knowledge, attitudes, and concerns of postnatal women; and knowledge and attitudes of healthcare professionals (HCPs) surrounding vaccination. Design & setting: A quantitative study of postnatal women attending the Rotunda Hospital, a tertiary referral maternity hospital in Dublin, Ireland. A separate quantitative study conducted by the North Dublin City GP Training Programme surveyed GPs, pharmacists, and Rotunda Hospital clinical staff. Method(s): A paper-based survey was distributed to postnatal women. HCPs completed the survey via the online tool Survey Monkey. Result(s): 330 patient surveys were disseminated, with a 60.0% response rate. Of 198 responders, 109 (55.1%) were vaccinated against influenza. Non-professionals were less likely to be vaccinated (adjusted odds ratio [aOR] 0.29, 95% confidence interval [CI] = 0.09 to 0.89). Vaccination in previous pregnancy (aOR 5.2, 95% CI = 1.69 to 15.62) and information from an HCP were strongly associated with vaccination (aOR 12.8, 95% CI = 2.65 to 62.5). There was a 20.2% (n = 1180) response rate among HCPs. More GPs felt that it was their role to discuss vaccination (92.9%; n = 676), and offer to vaccinate women (91.7%; n = 666) than any other HCP. Conclusion(s): Provision of information about the importance of vaccination against influenza and pertussis during pregnancy by HCPs and their consistent recommendations in support of vaccination were key determinants of vaccine uptake during pregnancy. The sociodemographic determinants of a woman's vaccination status should be addressed in health promotion campaigns. Education of HCPs may address knowledge gaps surrounding vaccination.Copyright © 2018, The Authors.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=82710934ecb782d9ddf0d0f3484f71d5)

1. **To vaccinate or not to vaccinate? Women's perception of vaccination in pregnancy: A qualitative study**  
   O'Shea Aisling BJGP Open 2018;2(2):No page numbers.

Background: Vaccination against influenza and pertussis in pregnancy can reduce the significant morbidity and mortality associated with these infections. Despite this, there is poor uptake of both vaccines in pregnancy. Aim(s): To explore women's perception of vaccination in pregnancy and thereby determine the reasons behind such low vaccination rates. Design & setting: This is a qualitative study undertaken at a large maternity hospital. Method(s): Seventeen post-partum women completed a semi-structured interview discussing vaccination. They were recruited from a quantitative study looking at vaccination rates in pregnancy. The interview transcripts were discussed among three researchers and underwent thematic analysis. Result(s): Three themes emerged. The first theme explored the influencing factors that shaped the women's decision to vaccinate in pregnancy. The recommendation of a healthcare provider was the most important influencing factor for this study's cohort of women. The second theme highlighted the deficiency in knowledge women had regarding vaccine safety. The last theme related to the pertussis vaccine, and the reluctance of healthcare providers to discuss and offer this vaccine in pregnancy. Conclusion(s): The qualitative approach gives voice to the thoughts and concerns of women as they make the complex decision to vaccinate in pregnancy. Clinicians must be cognizant of the important role they play in advising women to vaccinate in pregnancy. They must advise women that the vaccine is safe and address any of their concerns. Lastly, a message on vaccine safety should be included in future public health campaigns to promote vaccination in pregnancy.Copyright © 2018, BJGP Open.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=1329c9b10611de9a90a143824e417b10)

### Opening Internet Links

The links to internet sites in this document are 'live' and can be opened by holding down the CTRL key on your keyboard while clicking on the web address with your mouse

### Full text papers

Links are given to full text resources where available. For some of the papers, you will need an **NHS OpenAthens Account**. If you do not have an account you can [register online](https://openathens.nice.org.uk/).

You can then access the papers by simply entering your username and password. If you do not have easy access to the internet to gain access, please let us know and we can download the papers for you.

### Guidance on searching within online documents

Links are provided to the full text of each document. Relevant extracts have been copied and pasted into these results. Rather than browse through lengthy documents, you can search for specific words as follows:

**Portable Document Format / pdf / Adobe**  
Click on the Search button (illustrated with binoculars). This will open up a search window. Type in the term you need to find and links to all of the references to that term within the document will be displayed in the window. You can jump to each reference by clicking it.

**Word documents**  
Select Edit from the menu, the Find and type in your term in the search box which is presented. The search function will locate the first use of the term in the document. By pressing 'next' you will jump to further references.

**Disclaimer**  
We hope that you find the evidence search service useful. Whilst care has been taken in the selection of the materials included in this evidence search, the Library and Knowledge Service is not responsible for the content or the accuracy of the enclosed research information. Accordingly, whilst every endeavour has been undertaken to execute a comprehensive search of the literature, the Library and Knowledge Service is not and will not be held responsible or liable for any omissions to pertinent research information not included as part of the results of the enclosed evidence search. Users are welcome to discuss the evidence search findings with the librarian responsible for executing the search. We welcome suggestions on additional search strategies / use of other information resources for further exploration. You must not use the results of this search for commercial purposes. Any usage or reproduction of the search output should acknowledge the Library and Knowledge Service that produced it.