Evidence Search Service
Results of your search request

Vaccination and NHS staff 1 – this is an update of the search done for the Let's Talk Vaccines event 17th November.

ID of request: 32678
Date of request: 18th November, 2021
Date of completion: 25th November, 2021

If you would like to request any articles or any further help, please contact: June White at Library.basingstoke@hhft.nhs.uk

Please acknowledge this work in any resulting paper or presentation as: Evidence search: Vaccination and NHS staff 1. June White. (25th November, 2021). BASINGSTOKE, UK: Hampshire Healthcare Library Service.

Sources searched
EMBASE (4)
Healthcare Analysis & Forecasting (1)
House of Commons Library (1)
Institute for Community Studies (1)
MEDLINE (11)
Nuffield Trust (2)
PubMed (5)
The Lancet (1)
ZOE COVID Symptom Study (1)

Date range used (5 years, 10 years): 2021-2021
Limits used (gender, article/study type, etc.): English
Search terms and notes (full search strategy for database searches below):

HDAS

NHS evidence

For more information about the resources please go to: www.hantshealthcarelibrary.nhs.uk .

Contents

Nuffield Trust
How many care home staff in England have received two Covid-19 vaccine doses?
How to minimise the negative consequences of compulsory vaccines for NHS staff? It was announced this week that front-line NHS staff in England must be fully vaccinated against Covid-19 from April next year. Given that the policy now exists, what can be done to mitigate the downsides? Billy Palmer describes the lessons to learn from other countries and sectors, and states five key tests for effective implementation of the policy.

The Lancet
Promoting COVID-19 vaccine acceptance: recommendations from the Lancet Commission on Vaccine Refusal, Acceptance, and Demand in the USA

ZOE COVID Symptom Study
Does a COVID infection guarantee protective antibodies?

B. Original Research

1. Adverse effects of COVID-19 messenger RNA vaccines among pregnant women: a cross-sectional study on healthcare workers with detailed self-reported symptoms.
2. Adverse effects on female fertility from vaccination against COVID-19 unlikely
3. Adverse events occurring post-covid-19 vaccination among healthcare professionals - A mixed method study.
4. Adverse events of six COVID-19 vaccines in patients with autoimmune rheumatic diseases: a cross-sectional study.
5. COVID-19 and fertility-at the crossroads of autoimmunity and thrombosis
6. COVID-19 vaccination is associated with a decreased risk of orchitis and/or epididymitis in men
7. COVID-19 vaccine - can it affect fertility?
8. Does mRNA SARS-CoV-2 vaccine detrimentally affect male fertility, as reflected by semen analysis?
9. Early effects of the COVID-19 pandemic on fertility preferences in the United States: an exploratory study
10. Effects of COVID-19 and mRNA vaccines on human fertility.
11. Effects of SARS CoV-2, COVID-19, and its vaccines on male sexual health and reproduction: where do we stand?
12. Lack of effects on female fertility and prenatal and postnatal offspring development in rats with BNT162b2, a mRNA-based COVID-19 vaccine.
13. Prenatal maternal COVID-19 vaccination and pregnancy outcomes.
14. Safety and effectiveness of SARS-CoV-2 vaccines: A systematic review and meta-analysis.
15. Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine through 6 Months.
16. Safety of COVID-19 vaccines.
17. Safety, immunogenicity, and efficacy of a COVID-19 vaccine (NVX-CoV2373) co-administered with seasonal influenza vaccines: an exploratory substudy of a randomised, observer-blinded, placebo-controlled, phase 3 trial.
18. Scientific Evidence Supporting Coronavirus Disease 2019 (COVID-19) Vaccine Efficacy and Safety in People Planning to Conceive or Who Are Pregnant or Lactating.
19. Systematic review of the safety, immunogenicity, and effectiveness of COVID-19 vaccines in pregnant and lactating individuals and their infants.
20. Vaccination uptake amongst older adults from minority ethnic backgrounds: A systematic review.

A. Institutional Publications

Healthcare Analysis & Forecasting

How many extra deaths have really occurred in the UK due to the Covid-19 outbreak? (2021)

Jones, R

Available online at this link

The peculiar trend to higher deaths continues in the UK and this is illustrated by the rolling excess winter mortality (EWM) calculation. • The EWM calculation has never risen so rapidly and as early as it has done in 2021 since mid-June. What does influenza vaccination effectiveness measure? • The discussion in Part LV is extended to include an overview of the history of controversies in influenza vaccination and how the unrecognised role of pathogen interference may have contributed to these controversies The author of this paper provides Research and consultancy in healthcare and in the past has looked at issues such as optimum bed provision and occupancy in hospitals, financial risk in healthcare, trends in health care demand.

House of Commons Library

Coronavirus: Covid-19 booster vaccines frequently asked questions (2021)

Available online at this link

This Commons Library briefing addresses commonly asked questions about the roll-out of the Covid-19 booster vaccine.

Institute for Community Studies

Understanding vaccine hesitancy through communities of place (2021)

Available online at this link

This UK-US collaborative study highlights the importance of tapping into local knowledge and leadership in efforts to improve Covid-19 vaccine take-up. Produced together with the Institute for Community Research and Boston University in the United States, the study explores levels of vaccine engagement in four locations: Oldham and Tower Hamlets in the United Kingdom, and the cities of Boston and Hartford in the United States. In all four localities, the survey finds the authorities' 'top-down' approach to vaccine distribution and education has been ineffective, and that applying a 'community engagement approach' instead – involving community groups and trusted leaders in vaccine distribution and education – can improve take-up rates.

Nuffield Trust

How many care home staff in England have received two Covid-19 vaccine doses? (2021)

Available online at this link

This chart looks at Covid vaccination rates amongst care home staff in England. The government projected that between 3% and 13% of this workforce would not have received two doses by 11 November (including those with medical exemptions). The latest data suggests that, as of 26 October, around 11% (just under 63,000 staff) had not received a second dose. Looking at staff by their type of employment suggests there may be far higher rates of agency staff working in care homes who by then had not received a second dose (39%), compared to their directly employed counterparts (10%) in care homes. The rate among agency staff – who account for around one in 20 of the care home workforce – may be due to an inability to access paid time off or decent level of sick pay should they experience side effects from the vaccine, or from juggling shifts with other responsibilities.

How to minimise the negative consequences of compulsory vaccines for NHS staff? It was announced this week that front-line NHS staff in England must be fully vaccinated against Covid-19 from April next year. Given that the policy now exists, what can be done to mitigate the downsides? Billy Palmer describes the lessons to learn from other countries and sectors, and states five key tests for effective implementation of the policy. (2021)

Available online at this link

In under five months, all front-line staff who work in registered health and social care settings in England will have to be fully vaccinated against Covid, unless exempt. Whether this is the right policy decision is hotly debated and, given it distils down to ethical judgements and some speculation on the impact, will continue to be. Unpicking such arguments sits within the sphere of expertise of bioethicists and others. So our focus lies in a related question: given the policy, what can be done to mitigate the downsides? Certainly, given the scale of the backlog, the size of the workforce affected (including some 1.8 million working in health care) and pre-existing staff shortages, it is imperative the NHS and social care make efforts to reduce the expected negative impact on staff retention, recruitment or wellbeing. That no meaningful NHS workforce plan for England has been forthcoming only underlines the importance of managing the effect on staff carefully. Failing to be mindful of this during the implementation is likely to undermine the very purpose of the policy: to safeguard patients

The Lancet

Promoting COVID-19 vaccine acceptance: recommendations from the Lancet Commission on Vaccine Refusal, Acceptance, and Demand in the USA (2021)

Available online at this link

Since the first case of COVID-19 was identified in the USA in January, 2020, over 46 million people in the country have tested positive for SARS-CoV-2 infection. Several COVID-19 vaccines have received emergency use authorisations from the US Food and Drug Administration, with the Pfizer–BioNTech vaccine receiving full approval on Aug 23, 2021. When paired with masking, physical distancing, and ventilation, COVID-19 vaccines are the best intervention to sustainably control the pandemic. However, surveys have consistently found that a sizeable minority of US residents do not plan to get a COVID-19 vaccine. The most severe consequence of an inadequate uptake of COVID-19 vaccines has been sustained community transmission (including of the delta [B.1.617.2] variant, a surge of which began in July, 2021). Exacerbating the direct impact of the virus, a low uptake of COVID-19 vaccines will prolong the social and economic repercussions of the pandemic on families and communities, especially low-income and minority ethnic groups, into 2022, or even longer. The scale and challenges of the COVID-19 vaccination campaign are unprecedented. Therefore, through a series of recommendations, we present a coordinated, evidence-based education, communication, and behavioural intervention strategy that is likely to improve the success of COVID-19 vaccine programmes across the USA.

ZOE COVID Symptom Study

Does a COVID infection guarantee protective antibodies? (2021)

Available online at this link

The latest analysis of data from the ZOE COVID Study shows that one in five ZOE Study participants who tested positive for COVID didn't go on to have detectable anti-N antibodies afterwards. Between April and August 2021 thousands of ZOE COVID Study contributors who had logged a positive COVID test in the app were invited to do an anti-N antibody test at home. Out of 8,193 contributors who tested positive, 6,609 (80.67%) had a positive anti-N antibody test result - so they had Anti-N antibodies. While it's good news that four out of five people infected with COVID-19 ended up with protective antibodies afterwards, it means that one in five did not, and they could be at greater risk of getting infected again.

B. Original Research

1. **Adverse effects of COVID-19 messenger RNA vaccines among pregnant women: a cross-sectional study on healthcare workers with detailed self-reported symptoms.**
   Kadali Renuka Ananth Kalyan American journal of obstetrics and gynecology 2021;225(4):458-460.

   Available online at this link

2. **Adverse effects on female fertility from vaccination against COVID-19 unlikely**
   Markert U.R. Journal of Reproductive Immunology 2021;148:No page numbers.

   This opinion paper briefly presents arguments that support the unlikelihood of an impact on female fertility from current covid-19 vaccines.
Copyright © 2021 Elsevier B.V.

3. **Adverse events occurring post-covid-19 vaccination among healthcare professionals - A mixed method study.**
   Mahapatra Soumya International immunopharmacology 2021;100:108136.

   BACKGROUNDHealthcare professionals (HCPs) are at the front line of the nation's fight against COVID-19 and are always at a greater risk of contracting contagious disease. But amidst the crisis, the vaccines were not accepted by all the HCPs due to adverse events occurring post-COVID-19 vaccination. Hence, the present study was designed to assess adverse events occurring among HCPs post-COVID-19 vaccination both quantitatively and qualitatively.METHODSequential mixed-method approach was employed. A cross-sectional E-survey was conducted among the healthcare professionals of a North Indian (*Statistically significant ($p < 0.05$)) college and hospital. The second phase included a semi-structured qualitative interview of the participants who were willing to participate.RESULTSAmong all the HCPs with age groups ranging from 20 to 70 years, majority of them experienced pain at the site of injection (88.8-100%) followed by tiredness (87.7-60%) and body ache (86.6-40%) post-vaccination. There is an increased frequency of adverse events in females as compared to males. Qualitative findings are summarised in three major domains i.e vaccine adverse effects, fear and hesitancy for vaccines and vaccine acceptance.CONCLUSIONShort term adverse events of COVISHIELD vaccine

were very few and were mild in severity yet interviews showed hesitancy of study participants for vaccination.

4. **Adverse events of six COVID-19 vaccines in patients with autoimmune rheumatic diseases: a cross-sectional study.**
Esquivel-Valerio Jorge Antonio Rheumatology international 2021;41(12):2105-2108.

Data regarding COVID-19 vaccine efficacy and adverse events (AE) in patients with autoimmune and inflammatory rheumatic diseases (AIIRD) have been published recently although these mostly include the mRNA vaccines (Pfizer-BioNTech and Moderna) and the ChAdOx1 nCoV-19/AZD1222 (Oxford-AstraZeneca). This research aimed to study the prevalence of AE presented with six different SARS-CoV-2 vaccines {ChadOX1 nCoV-19 (AZD1222), Ad5-nCoV2, Ad26.COV2.S, mRNA-1273, BNT162b2, and CoronaVac} in Mexican patients with AIIRD. We performed a cross-sectional study about vaccine history. Two hundred and twenty five consecutive patients were recruited, mean age was 50.7 years and the majority (n = 213; 94.6%) were females. One hundred and seven (47.5%) received BNT162b2 mRNA, 34 (15.1%) Ad5-nCoV, 29 (12.8%) mRNA-1273, 28 (12.4%) ChAdOX1 nCoV-19 (AZD1222), 22 (9.7%) CoronaVac and 5 (2.2%) Ad26.COV2.S. The vaccines that had the most AE proportionally to the number of patients vaccinated were Janssen (5; 100%) followed by Pfizer-BioNTEch (86; 80%) and CanSinoBIO (27; 79.4%). Localized pain was the most frequent (158; 70.2%) AE. Fatigue (78; 34.7%), headache (69; 30.6%) and muscle ache (66; 29.3%) were the most common systemic symptoms. No serious AE that required medical attention or hospitalization were reported. The current results support the safety of different COVID-19 vaccines in patients with AIIRD. This information can help fight vaccine hesitancy in this population.

5. **COVID-19 and fertility-at the crossroads of autoimmunity and thrombosis**
Tariq J. Rheumatology International 2021;41(11):1885-1894.

The SARS-CoV-2 virus is known to mediate attack via ACE-2 Receptor, thus having adverse effects on cardiovascular, respiratory, digestive and reproductive systems, the latter being an area of emerging concern, due to the associated impact on fertility, with potential for an outsized effect on population distribution and socioeconomic road map in subsequent years. This narrative review aims to put forth the current evidence of effect of SARS-CoV-2 on human fertility from a multipronged immunologic, haematologic, and gynaecologic perspective; highlighting the areas of contradiction and potential future measures. A literature search was conducted through the MEDLINE and SCOPUS databases to identify articles on the subject in English. Relevant information was extracted from around 300 articles for this review. The existing data give non-conclusive evidence about the impact of SARS-CoV-2 infection on fertility; however, a greater impact on male fertility as compared to females merits further exploration. However, reproduction and fertility is a key concern and considering the pandemic is prolonged, natural conception or ART require extra precautions.
Copyright © 2021, The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature.

6. **COVID-19 vaccination is associated with a decreased risk of orchitis and/or epididymitis in men**
Carto C. Andrologia 2021;:No page numbers.

Vaccine hesitancy is a major public health obstacle to fighting the ongoing COVID-19 epidemic. Due to studies that show COVID-19 infection can affect sperm parameters and lead to orchitis, the public are concerned about the effect of the COVID vaccines on male

reproduction. In this study, we investigated the association between COVID-19 vaccination and risk of developing orchitis and/or epididymitis outcomes in a cohort of men using a large, US-based, electronic health record database. After balancing for confounding variables, we found that receiving at least 1 COVID-19 vaccine is associated with a decreased risk of developing orchitis and/or epididymitis.
Copyright © 2021 Wiley-VCH GmbH.

Available online at this link

7. **COVID-19 vaccine - can it affect fertility?**
Schaler L. Irish journal of medical science 2021;:No page numbers.

Headlines have appeared across multiple social media platforms questioning the effects of newly authorised COVID-19 vaccines on fertility. Although the effects on future fertility were not studied in the initial trials, at present, there is no evidence that the COVID-19 vaccine has any effect of future fertility. It is well known that pregnant women are at a higher risk of complications associated with COVID-19 such as ICU admission and death, and there is a rare but tragic increase in placentitis and stillbirth, highlighting the importance for those planning a pregnancy any time in the future to be vaccinated. Here we summarise international consensus from multiple organisations advising on fertility and the COVID-19 vaccine. Preliminary studies all suggest that there is neither link, nor indeed any theoretical reason why any of the COVID-19 vaccines might affect fertility. Dissemination of misinformation regarding the impact of the vaccine on future fertility needs to be controlled in order to avoid any hesitancy amongst young women attending for vaccination. It is also vital that the medical profession counteract this information, and, in order to do that, healthcare providers must be well informed on the latest recommendations and research.

8. **Does mRNA SARS-CoV-2 vaccine detrimentally affect male fertility, as reflected by semen analysis?**
Lifshitz D. Reproductive biomedicine online 2021;:No page numbers.

RESEARCH QUESTION: Does Pfizer's coronavirus disease 2019 (COVID-19) vaccination detrimentally affect semen analysis parameters?
DESIGN: A prospective cohort study was conducted at a single large tertiary centre in Israel between February and March of 2021. Semen samples from 75 fertile men were analysed 1-2 months following their second dose of Pfizer's COVID-19 vaccine. The semen parameters were compared with the World Health Organization (WHO) reference ranges. The primary outcome was the percentage of abnormal semen parameters in those who were vaccinated, i.e. the rates of oligozoospermia, reduced percentage of motile spermatozoa and abnormal sperm morphology.
RESULTS: The interval from the time of the second vaccination to the date of participation was on average 37 days, with most subjects describing either mild or no side effects after the first or second dose. The mean sperm concentration was 63.2 ± 33.6 × 106/ml, with only a single participant (1.3%) with a sperm count of 12.5 × 106/ml, considered by the WHO to be oligozoospermic. The mean sperm motility percentage was 64.5 ± 16.7%, with only a single man (1.3%) displaying reduced motility. No notable morphological abnormalities were observed. This constituted a lower percentage of abnormal semen parameters compared with the 5% rates reported in fertile men by the WHO.
CONCLUSIONS: The semen parameters following COVID-19 vaccination were predominantly within the normal reference ranges as set by the WHO and do not reflect any causative detrimental effect from COVID-19 vaccination. The results strengthen the notion that the Pfizer's severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) vaccine is safe and should be recommended to men wishing to conceive.

9. **Early effects of the COVID-19 pandemic on fertility preferences in the United States: an exploratory study**
   Naya C.H. Fertility and Sterility 2021;116(4):1128-1138.

   Objective: To explore early disparate impacts of the COVID-19 pandemic on fertility preferences Design: Cross-sectional study Setting: Online survey questionnaire Patient(s): A total of 440 female participants who were trying to conceive (TTC) in the past year or currently are TTC. Intervention(s): No interventions administered. Main Outcome Measure(s): Change in fertility preference Result(s): Approximately 1 in 3 participants reported changing their fertility preferences because of the COVID-19 pandemic. Of those that reported changing their fertility preferences, 23.9% reported TTC earlier and 61.6% reported TTC later. Preliminary findings show the odds of changing fertility preferences in black or African American women were 5.45 (95% confidence interval [CI], 1.50-19.90) times that of white women and in nonheterosexual women were 2.76 (95% CI, 1.41-5.42) times that of heterosexual women. Furthermore, every 1 unit increase in state anxiety and depressive symptoms was associated with a 26% (95% CI, 3%-54%) or 17% (95% CI, 5%-31%) increase in odds of pushing back TTC, respectively. Conclusion(s): This exploratory study highlights how the fertility preferences of racial and ethnic minorities, sexual minorities, and those experiencing mental health issues may be disparately influenced by the pandemic. Research is needed to examine further the disparate effect of the COVID-19 pandemic on fertility preferences.
Copyright © 2021 American Society for Reproductive Medicine

10. **Effects of COVID-19 and mRNA vaccines on human fertility.**
    Chen F. Human reproduction (Oxford, England) 2021;:No page numbers.

    The coronavirus disease 2019 (COVID-19), which is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has precipitated a global health crisis of unprecedented proportions. Because of its severe impact, multiple COVID-19 vaccines are being rapidly developed, approved and manufactured. Among them, mRNA vaccines are considered as ideal candidates with special advantages to meet this challenge. However, some serious adverse events have been reported after their application, significantly increasing concerns about the safety and efficacy of the vaccines and doubts about the necessity of vaccination. Although several fertility societies have announced that COVID-19 mRNA vaccines are unlikely to affect fertility, there is no denying that the current evidence is very limited, which is one of the reasons for vaccine hesitancy in the population, especially in pregnant women. Herein, we provide an in-depth discussion on the involvement of the male and female reproductive systems during SARS-CoV-2 infection or after vaccination. On one hand, despite the low risk of infection in the male reproductive system or fetus, COVID-19 could pose an enormous threat to human reproductive health. On the other hand, our review indicates that both men and women, especially pregnant women, have no fertility problems or increased adverse pregnancy outcomes after vaccination, and, in particular, the benefits of maternal antibodies transferred through the placenta outweigh any known or potential risks. Thus, in the case of the rapid spread of COVID-19, although further research is still required, especially a larger population-based longitudinal study, it is obviously a wise option to be vaccinated instead of suffering from serious adverse symptoms of virus infection.

11. **Effects of SARS CoV-2, COVID-19, and its vaccines on male sexual health and reproduction: where do we stand?**
    Lo SP International journal of impotence research 2021;:No page numbers.

Since severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was first discovered, there have been questions surrounding the effects of coronavirus disease 2019 (COVID-19), and more recently the COVID-19 vaccine, on men's health and fertility. Significant research has been conducted to study viral tropism, potential causes for gender susceptibility, the impact of COVID-19 on male sexual function in the acute and recovery phases, and the effects of the virus on male reproductive organs and hormones. This review provides a recent assessment of the literature regarding the impact of COVID-19 and its vaccine on male sexual health and reproduction.

12. **Lack of effects on female fertility and prenatal and postnatal offspring development in rats with BNT162b2, a mRNA-based COVID-19 vaccine.**
Bowman Christopher J. Reproductive toxicology (Elmsford, N.Y.) 2021;103:28-35.

BNT162b2 is a vaccine developed to prevent coronavirus disease 2019 (COVID-19). BNT162b2 is a lipid nanoparticle formulated nucleoside-modified messenger RNA (mRNA) encoding the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) spike protein locked in its prefusion conformation. A developmental and reproductive toxicity study was conducted in rats according to international regulatory guidelines. The full human BNT162b2 dose of 30 μg mRNA/dose (>300 times the human dose on a mg/kg basis) was administered intramuscularly to 44 female rats 21 and 14 days prior to mating and on gestation days 9 and 20. Half of the rats were subject to cesarean section and full fetal examination at the end of gestation, and the other half were allowed to deliver and were monitored to the end of lactation. A robust neutralizing antibody response was confirmed prior to mating and at the end of gestation and lactation. The presence of neutralizing antibodies was also confirmed in fetuses and offspring. Nonadverse effects, related to the local injection site reaction, were noted in dams as expected from other animal studies and consistent with observations in humans. There were no effects of BNT162b2 on female mating performance, fertility, or any ovarian or uterine parameters nor on embryo-fetal or postnatal survival, growth, physical development or neurofunctional development in the offspring through the end of lactation. Together with the safety profile in nonpregnant people, this ICH-compliant nonclinical safety data supports study of BNT162b2 in women of childbearing potential and pregnant and lactating women.

Available online at this link

13. **Prenatal maternal COVID-19 vaccination and pregnancy outcomes.**
Wainstock Tamar Vaccine 2021;39(41):6037-6040.

BACKGROUNDPrenatal maternal physiological changes may cause severe COVID-19 among pregnant women. The Pfizer-BioNTech COVID-19 vaccine (BNT162b2 mRNA) has been shown to be highly effective and it is recommended for individuals aged ≥16 years, including pregnant women, although the vaccine has not been tested on the latter.OBJECTIVETo study the association between prenatal Pfizer-BioNTech COVID-19 vaccination, pregnancy course and outcomes.STUDY DESIGNA retrospective cohort study was performed, including all women who delivered between January and June 2021 at Soroka University Medical Center, the largest birth center in Israel. Excluded were women diagnosed with COVID-19 in the past, multiple gestations or unknown vaccination status. Pregnancy, delivery and newborn complications were compared between women who received 1 or 2-dose vaccines during pregnancy and unvaccinated women. Multivariable models were used to adjust for background characteristics.RESULTSA total of 4,399 women participated in this study, 913 (20.8%) of which were vaccinated during pregnancy. All vaccinations occurred during second or third trimesters. As compared to the unvaccinated women, vaccinated women were older, more likely to conceive following fertility treatments, to have sufficient prenatal care, and of higher socioeconomic position. In both crude and multivariable analyses, no differences were found between the groups in

pregnancy, delivery and newborn complications, including gestational age at delivery, incidence of small for gestational age and newborn respiratory complications.CONCLUSIONSPrenatal maternal COVID-19 vaccine has no adverse effects on pregnancy course and outcomes. These findings may help pregnant women and health care providers to make informed decision regarding vaccination.

14. **Safety and effectiveness of SARS-CoV-2 vaccines: A systematic review and meta-analysis.**
Ling Yunzhi Journal of medical virology 2021;93(12):6486-6495.

OBJECTIVETo systematically evaluate the effectiveness and safety of the SARS-CoV-2 vaccines currently undergoing clinical trials.METHODSPubMed, EMBASE, and Cochrane Library databases were searched to collect open human COVID-19 vaccines randomized controlled trials, without limiting the search time and language. The research papers collected in the above-mentioned databases were initially screened according to the title and abstract content and merged, and the repeated ones were removed. After reading the full text of the remaining research, the studies that did not meet the inclusion criteria were excluded, and finally, nine studies were obtained. After extracting the statistical data of adverse events in the study, load them into Review Manager for heterogeneity analysis.RESULTSThe incidence of adverse reactions of inactivated virus vaccines, RNA vaccines, and adenovirus vector vaccines was higher than that of placebo. Common adverse reactions included pain, swelling, and fever at the injection site.CONCLUSIONFrom the perspective of effectiveness, RNA vaccine > adenovirus vector vaccine > inactivated virus vaccine. From the perspective of safety, the incidence of adverse reactions of the three vaccines is higher than that of a placebo, and the incidence of adverse reactions of the adenovirus vector vaccine is higher.

Available online at this link

Available online at this link

15. **Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine through 6 Months.**
Thomas Stephen J. The New England journal of medicine 2021;385(19):1761-1773.

BACKGROUNDBNT162b2 is a lipid nanoparticle-formulated, nucleoside-modified RNA vaccine encoding a prefusion-stabilized, membrane-anchored severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) full-length spike protein. BNT162b2 is highly efficacious against coronavirus disease 2019 (Covid-19) and is currently approved, conditionally approved, or authorized for emergency use worldwide. At the time of initial authorization, data beyond 2 months after vaccination were unavailable.METHODSIn an ongoing, placebo-controlled, observer-blinded, multinational, pivotal efficacy trial, we randomly assigned 44,165 participants 16 years of age or older and 2264 participants 12 to 15 years of age to receive two 30-μg doses, at 21 days apart, of BNT162b2 or placebo. The trial end points were vaccine efficacy against laboratory-confirmed Covid-19 and safety, which were both evaluated through 6 months after vaccination.RESULTSBNT162b2 continued to be safe and have an acceptable adverse-event profile. Few participants had adverse events leading to withdrawal from the trial. Vaccine efficacy against Covid-19 was 91.3% (95% confidence interval [CI], 89.0 to 93.2) through 6 months of follow-up among the participants without evidence of previous SARS-CoV-2 infection who could be evaluated. There was a gradual decline in vaccine efficacy. Vaccine efficacy of 86 to 100% was seen across countries and in populations with diverse ages, sexes, race or ethnic groups, and risk factors for Covid-19 among participants without evidence of previous infection with SARS-CoV-2. Vaccine efficacy against severe disease was 96.7% (95% CI, 80.3 to 99.9). In South Africa, where the SARS-CoV-2 variant of concern B.1.351 (or beta) was

predominant, a vaccine efficacy of 100% (95% CI, 53.5 to 100) was observed.CONCLUSIONSThrough 6 months of follow-up and despite a gradual decline in vaccine efficacy, BNT162b2 had a favorable safety profile and was highly efficacious in preventing Covid-19. (Funded by BioNTech and Pfizer; ClinicalTrials.gov number, NCT04368728.).

Available online at this link

16. **Safety of COVID-19 vaccines.**
Al Khames Aga Qutaiba A. Journal of medical virology 2021;93(12):6588-6594.

This study is aimed to identify the adverse effects associated with three types of coronavirus disease 2019 vaccines. Approximately 1736 individuals agreed to participate in this study. The participants involved in the study were individuals who had received the first dose or full course (two doses) of the vaccine at least 30 days before the survey. A direct and interactive web-based system interview with a paper and electronic version of the questionnaire was used for all participants. A total of 1736 randomized individuals were identified. The reactogenicity of the vaccines including pain, redness, urticaria, and swelling at the site of the injection was reported in 34.56% of the participants. Local site reaction was reported in more individuals who had Pfizer and AstraZeneca vaccines than those who received the Sinopharm vaccine. The systemic events were more common with AstraZeneca and Pfizer vaccines, symptoms reported were fatigue, body pain, headache, muscle pain, fever, and gastrointestinal side effects. There were no correlations between age or gender, and the duration of the adverse effects for the three vaccines. Swelling and severe allergic reaction of the eyelids, severe hypotension, generalized body aches, shortness of breath, weakness and numbness on the injected arm, acute hyperglycemia, severe chest pain, and fever more than 39°C were among the unusual signs and symptoms reported by the participants. Pfizer, AstraZeneca, and Sinopharm vaccines were found to be safe and Sinopharm vaccine showed a lower prevalence of adverse effects compared with the other vaccines. The duration and severity of adverse effects were not affected by age or gender. Unusual side effects should be closely monitored to establish determine they are linked to the immunization.

Available online at this link

Available online at this link

17. **Safety, immunogenicity, and efficacy of a COVID-19 vaccine (NVX-CoV2373) co-administered with seasonal influenza vaccines: an exploratory substudy of a randomised, observer-blinded, placebo-controlled, phase 3 trial.**
Toback Seth The Lancet. Respiratory medicine 2021;:No page numbers.

BACKGROUNDThe safety and immunogenicity profile of COVID-19 vaccines when administered concomitantly with seasonal influenza vaccines have not yet been reported. We therefore aimed to report the results of a substudy within a phase 3 UK trial, by evaluating the safety, immunogenicity, and efficacy of NVX-CoV2373 when co-administered with licensed seasonal influenza vaccines.METHODSWe did a planned exploratory substudy as part of the randomised, observer-blinded, placebo-controlled, phase 3 trial of the safety and efficacy of the COVID-19 vaccine (NVX-CoV2373) by co-administrating the influenza vaccine at four study hospitals in the UK. Approximately, the first 400 participants meeting the main study entry criteria-with no contraindications to influenza vaccination-were invited to join the substudy. Participants of the main study were randomly assigned (1:1) to receive two intramuscular injections of either NVX-CoV2373 (5 µg) or placebo (normal saline) 21 days apart; participants enrolled into the substudy were

co-vaccinated with a single (0·5 mL) intramuscular, age-appropriate (quadrivalent influenza cell-based vaccine [Flucelvax Quadrivalent; Seqirus UK, Maidenhead] for those aged 18-64 years and adjuvanted trivalent influenza vaccine [Fluad; Seqirus UK, Maidenhead] for those ≥65 years), licensed, influenza vaccine on the opposite deltoid to that of the first study vaccine dose or placebo. The influenza vaccine was administered in an open-label manner and at the same time as the first study injection. Reactogenicity was evaluated via an electronic diary for 7 days after vaccination in addition to monitoring for unsolicited adverse events, medically attended adverse events, and serious adverse events. Immunogenicity was assessed with influenza haemagglutination inhibition and SARS-CoV-2 anti-spike protein IgG assays. Vaccine efficacy against PCR-confirmed, symptomatic COVID-19 was assessed in participants who were seronegative at baseline, received both doses of study vaccine or placebo, had no major protocol deviations affecting the primary endpoint, and had no confirmed cases of symptomatic COVID-19 from the first dose until 6 days after the second dose (per-protocol efficacy population). Immunogenicity was assessed in participants who received scheduled two doses of study vaccine, had a baseline sample and at least one post-vaccination sample, and had no major protocol violations before unmasking (per-protocol immunogenicity population). Reactogenicity was analysed in all participants who received at least one dose of NVX-CoV2373 or placebo and had data collected for reactogenicity events. Safety was analysed in all participants who received at least one dose of NVX-CoV2373 or placebo. Comparisons were made between participants of the substudy and the main study (who were not co-vaccinated for influenza). This study is registered with ClinicalTrials.gov, number NCT04583995.FINDINGSBetween Sept 28, 2020, and Nov 28, 2020, a total of 15 187 participants were randomised into the main phase 3 trial, of whom 15 139 received treatment (7569 received dose one of NVX-CoV2373 and 7570 received dose one of placebo). 431 participants were co-vaccinated with a seasonal influenza vaccine in the substudy (217 received NVX-CoV2373 plus the influenza vaccine and 214 received placebo plus the influenza vaccine). In general, the substudy participants were younger, more racially diverse, and had fewer comorbid conditions than those in the main study. Reactogenicity events were more common in the co-administration group than in the NVX-CoV2373 alone group: tenderness (113 [64·9%] of 174 vs 592 [53·3%] of 1111) or pain (69 [39·7%] vs 325 [29·3%]) at injection site, fatigue (48 [27·7%] vs 215 [19·4%]), and muscle pain (49 [28·3%] vs 237 [21·4%]). Incidences of unsolicited adverse events, treatment-related medically attended adverse events, and serious adverse events were low and balanced between the co-administration group and the NVX-CoV2373 alone group. No episodes of anaphylaxis or deaths were reported within the substudy. Co-administration resulted in no change to influenza vaccine immune response although a reduction in antibody responses to the NVX-CoV2373 vaccine was noted. NVX-CoV2373 vaccine efficacy in the substudy (ie, participants aged 18 to <65 years) was 87·5% (95% CI -0·2 to 98·4) and in the main study was 89·8% (95% CI 79·7-95·5).INTERPRETATIONTo our knowledge, this substudy is the first to show the safety, immunogenicity, and efficacy profile of a COVID-19 vaccine when co-administered with seasonal influenza vaccines. Our results suggest concomitant vaccination might be a viable immunisation strategy.FUNDINGNovavax.

18. **Scientific Evidence Supporting Coronavirus Disease 2019 (COVID-19) Vaccine Efficacy and Safety in People Planning to Conceive or Who Are Pregnant or Lactating.**
Girardi G. Obstetrics and gynecology 2021;:No page numbers.

Three coronavirus disease 2019 (COVID-19) vaccines have been authorized for use in the United States; specifically, the Pfizer-BioNTech, Moderna, and Johnson & Johnson-Janssen COVID-19 vaccines were granted emergency use authorization by the U.S. Food and Drug Administration in late 2020 and early 2021. Vaccination coverage and intent among adults are lowest among those aged 18-39 years and among females in particular. In females of reproductive age, enthusiasm for receiving a COVID-19 vaccine may be negatively affected by claims currently circulating widely on diverse social media platforms regarding the vaccines adversely affecting fertility and pregnancy. Yet it is important to note

that these claims are anecdotal in nature and not supported by the available scientific evidence. It is also imperative that the effects of COVID-19 vaccine on reproductive health are clarified. Herein, we discuss the existing scientific data supporting COVID-19 vaccine safety and efficacy in people who are planning to conceive or who are pregnant or lactating and highlight the importance of COVID-19 vaccination in females of reproductive age.

Available online at this link

19. **Systematic review of the safety, immunogenicity, and effectiveness of COVID-19 vaccines in pregnant and lactating individuals and their infants.**
Fu Winnie International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics 2021;:No page numbers.

BACKGROUNDThere is significant risk of complications and vulnerability to severe COVID-19 disease in pregnancy, yet hesitancy exists around COVID-19 vaccination during pregnancy and lactation.OBJECTIVETo summarize the safety, immunogenicity, and effectiveness of COVID-19 vaccines in pregnancy and lactation.SEARCH STRATEGYA systematic search of MEDLINE, Embase, PubMed, medRxiv, and bioRxiv.SELECTION CRITERIAIdentified original studies published on pregnant and/or lactating individuals who received one or more doses of a COVID-19 vaccine.DATA COLLECTION AND ANALYSISA descriptive summary organized by safety, immunogenicity, and effectiveness outcomes of COVID-19 vaccination in pregnancy and lactation.MAIN RESULTSIn total, 23 studies were identified. Humoral response and functional immunity were interrogated and found. Increasing placental transfer ratios in cord blood were associated with increasing time from the first vaccine dose to delivery. Safety data indicated that pregnant and lactating populations experienced vaccine-related reactions at similar rates to the general population. No increased risk of adverse obstetrical or neonatal outcomes were reported. One study demonstrated that pregnant individuals were less likely to experience COVID-19 when vaccinated.CONCLUSIONCOVID-19 vaccination in pregnant and lactating individuals is immunogenic, does not cause significant vaccine-related adverse events or obstetrical and neonatal outcomes, and is effective in preventing COVID-19 disease.

Available online at this link

20. **Vaccination uptake amongst older adults from minority ethnic backgrounds: A systematic review.**
Bhanu Cini PLoS medicine 2021;18(11):e1003826.

BACKGROUNDOlder adults from minority ethnic backgrounds are at increased risk of contracting COVID-19 and developing severe infection and have increased risk of mortality. Whilst an age-based vaccination approach prioritising older groups is being implemented worldwide, vaccine hesitancy is high amongst minority ethnic groups.METHODS AND FINDINGSWe conducted a systematic review and convergent synthesis to systematically examine perceptions of vaccinations amongst older adults from minority ethnic backgrounds. We included studies that reported on perceptions, beliefs, and attitudes towards vaccinations in older adults aged ≥65 years from a minority ethnic background. We excluded studies of vaccinations in investigation or development, studies focused on specific medical conditions, studies where ethnic background or age group was unidentifiable, systematic reviews, editorials, and conference abstracts. We searched MEDLINE, Embase, Virtual Health Library, Web of Science, Cochrane Library, medRxiv, and PROSPERO databases from inception to 15 July 2021. Risk of bias for studies was assessed using the Mixed Methods Appraisal Tool. The quality of evidence of collective outcomes was estimated using the Grading of Recommendations Assessment, Development and Evaluation-Confidence in the Evidence from Reviews of Qualitative

research (GRADE-CERQual) framework. A total of 28 eligible studies conducted between 1997 and 2020 were included in the final analysis (17 quantitative surveys, 8 focus group or interview studies, 2 mixed methods studies, and 1 case-control study). The majority were US studies in English or Spanish, except for 6 studies set in Hong Kong, 2 studies in Japan, 1 study in Brazil, and 1 multi-centre study (including China, Indonesia, Turkey, South Korea, Greece, UK, Brazil, and Nigeria). In total, 28,262 individuals with an estimated mean age of 69.8 years were included, 63.2% of whom were female. We summarised the common concepts and themes across studies and populations using a convergent synthesis analysis. Thirteen themes categorised as barriers or facilitators were identified and grouped into structural factors-healthcare provider and system related, patient related, and policy and operational-and were analysed by minority ethnic group. The main limitation of the study was the predominance of studies from the US and East Asia.CONCLUSIONSIn this systematic review, we found that factors influencing vaccination uptake involve healthcare provider and system, patient-related, and governance-level factors that are specific to the older ethnic minority community being served. The evidence included in this review is supported by high or moderate certainty and can be translated to practice and policy. A tailored, multi-level approach combining increased education, access, and culturally competent discussions with trusted healthcare professionals to address health beliefs can maximise the potential impact of widespread vaccination policies.

Available online at this link

Available online at this link

Available online at this link

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.

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.