

Title	Evidence summary: Promoting the use of the vaccine(s) in health care workers to prevent COVID-19
Code	12282020CGIH
Requester	COVID-191. Keralty Public Health Crisis Committee
Name	COVID-191. Keralty Public Health Crisis Committee
Answer Date	28 12 2020

Question:

What is the evidence on promoting the use of the vaccine(s) in healthcare workers to prevent COVID-19?

Methodology:

A Systematic Rapid Review (Systematic Rapid Reviews Handbook. Global Institute for Clinical Excellence. 2019)

Search Terms: COVID 19, Coronavirus, Behavior, SARS-CoV-2, Vaccines, Attitudes.

Types of studies: Recommendations from scientific societies and national and international health reference bodies, systematic literature reviews (RSL), meta-analyses, clinical trials, and other primary studies.

Information Sources: Pubmed, Google Scholar.

Background:

Some health care workers have expressed doubts about receiving a COVID-19 vaccine at an early stage, not because they oppose immunizations or believe in misinformation about vaccines, but because they want to see a long history of safety and effectiveness. Both Pfizer's and Moderna's vaccines use a novel technology and went from theoretical schemes to clinical trials in less than a year.

The innovation of this technology lies in that unlike conventional vaccines made from inactive (such as polio or influenza), attenuated (measles, yellow fever), or simply proteins called antigens (hepatitis B), Pfizer-BioNtech's and Moderna's vaccines are based on messenger RNA. Using this technique, strands of genetic instructions called messenger RNA, the molecule that tells our cells what to do, are injected into the body. Each cell is a mini-protein factory, following the genetic instructions contained in its nucleus. Thus, the vaccine's messenger RNA is inserted into the body and takes control of this machinery to make a specific coronavirus antigen: the coronavirus "spike" is such a recognizable tip that it is on its surface and allows it to adhere to human cells to penetrate them. This spike, harmless in itself, will be detected by the immune system, which will produce antibodies, and these antibodies will remain on guard for, hopefully, a long time. The advantage is that, by using this method, there is no need to grow a pathogen in the laboratory because it is the organism that does the job. It is for this reason that these vaccines develop more quickly. No chicken cells or eggs (as with flu vaccines) are needed to make this vaccine. RNA vaccines have an exciting feature that they can be produced in large quantities, very quickly compared to traditional types of vaccines.

The available evidence on safety and efficacy probably will not undergo dramatic changes in the next two years; the studies' short term limits the data on efficacy and safety (Polack et al., 2020). Waiting

two years to convince health care workers to get vaccinated does not seem reasonable in the context of a pandemic.

Regulation on the application of vaccines in the United States in health personnel.

The U.S. Food and Drug Administration (FDA) has issued Emergency Use Authorizations (EUAs) for two COVID-19 vaccines that have shown to be safe and effective as determined by manufacturers' data and the findings of large clinical trials. These data demonstrate that this vaccine's known and potential benefits outweigh the known and potential harms of becoming infected with COVID-19 disease. After FDA determines that a COVID-19 candidate vaccine is safe and effective, the Advisory Committee on Immunization Practices (ACIP), a committee of medical and public health experts, reviews the available data before making vaccine recommendations to CDC. (CDC,2020)

Besides, based on the U.S. Advisory Committee on Immunization Practices (ACIP) recommendations, CDC recommends that health care workers be among the first doses of COVID-19 vaccines to be administered, taking into account that 1. Healthcare workers are at significant risk of exposure; 2. Vaccination of healthcare workers protects healthcare capacity; 3. Vaccination of healthcare workers helps prevent patients from contracting COVID-19 by preventing them from being transmitters. (CDC, 2020)

As for the obligation to require vaccination of health care personnel, generally in the United States, based primarily on The Occupational Safety and Health Act (OSH ACT), private companies have a specific right to maintain their health and safety standards and can legally fire employees who violate their rules, even if they do not receive certain vaccines. However, in the Covid-19 vaccine, the problem is that the vaccine has approval for emergency use only, which means that the vaccine is still considered experimental. As long as the vaccine's authorization is complete, employers' rights to demand a Covid-19 vaccine will be in a legal gray area. An employer who requires the COVID-19 vaccine should carefully investigate medical and safety objections to the vaccination before taking action based primarily on Section 11(c) of the OSH Act of 1970. (The National Law Review, 2020) Finally, the Society for Healthcare Epidemiology of America (SHEA), which has mostly supported requiring approved vaccines for healthcare workers, teachers, and students, has said in its Covid-19 vaccination policy recommendation that a Covid vaccine should not be mandatory for healthcare workers while the vaccine is under emergency approval. Still, healthcare facilities may consider requirements once the vaccine receives full approval.

The WHO European Technical Advisory Group of Experts on Immunization (ETAGE), however, has recommended that should prioritize at-risk health care workers, the elderly, and residents of long-term care facilities for Covid-19 vaccination (WHO,2020)

Technology description

Behavior modification to achieve health goals, including vaccination, has always been a moving target with mixed results.

We must avoid errors in health behavior modification. Six errors exist in the application of health-related behavior modification techniques, including 1. It is just common sense 2. It is about getting the message across 3. Knowledge and information drive behavior. 4. People act rationally 5. People act irrationally, and 6. It is possible to predict accurately (Kelly & Barker, 2016)

Evidence related to the question

Alteration of the environment with incentives

According to Stulberg (2014), cognitive psychology and social psychology - illustrates that while individuals retain "free choice," their environment significantly influences the choices they make, and in some cases, may lead them to act contrary to their real preference. Differential social incentives between men and women can be appealed to since, as the work of Proestakis indicates, social incentives have a positive effect on achieving behavior change (51.8% increase), with women being more receptive to the direct reciprocity plan (76.4%) and men to team (collective) rewards (131.5%). Network interventions adapted to the specific characteristics of the network can be a powerful tool for behavior change (Proestakis et al., 2018)

Authority and responsibility

A randomized controlled trial used charts designed to increase influenza vaccination in Medicare beneficiaries with 228,000 people over 66 years of age, finding that a single letter significantly increased influenza vaccination compared to no letter (Yokum et al., 2018)

According to Jachimowicz et al. (2018), interventions that have targeted people's individual beliefs (so-called first-order beliefs) have been unsuccessful: making people aware of their behaviors' environmental impact has had little effect on changing those behaviors. An alternative approach has been to provide descriptive norms: letting people know what others around them are doing is effective in several contexts.

CDC reports that among health care workers in settings where employees are required to vaccinate against flu, about 96.5% choose to get vaccinated rather than risk being fired (CDC, 2020). If compliance is the goal, then obviously, it works.

Findings / Response to Question

To the question What is the evidence on promoting the use of the vaccine(s) in health care workers to prevent COVID-19?

We did not find high-quality, published evidence on strategies for promoting vaccines in health care workers. We did find opinions and concepts, most of which lean toward the position that health care employers should choose to protect the patients they serve by preventing doctors, nurses, and other related personnel from becoming ill or at risk of becoming ill with COVID-19 (Dror et al., 2020; Detoc et al., 2020).

Surveys of initial positions on COVID-19 vaccination (Guidry et al., 2020; La Vecchia et al., 2020) were also mostly discouraged by the numbers of people who say they are unwilling to be vaccinated against COVID-19. A comprehensive study by Kwok et al. (2020) found that less than two-thirds of nurses intended to take the COVID-19 vaccine when it became available, with the most strikingly high COVID-

19-related workload and stress being the nurses most willing to take the COVID-19 vaccine (Kwok et al., 2020).

Another factor to consider is membership in ethnic, cultural, and religious groups that can lead to more or less open positions on vaccination; these types of primary beliefs are considered impossible in the short and medium-term. For example, a global survey of positions on potential COVID-19 vaccination in the general population found that in 13,426 people in 19 countries, 71.5% of participants reported that they would be very or somewhat likely to get the COVID-19 vaccine, and 61.4% said that they would accept their employer's recommendation to do so. Differences in acceptance rates ranged from nearly 90% (in China) to less than 55% (in Russia, Canada, and France) (Lazarus et al., 2020). Similarly, in another survey conducted in China in the general population, it was concluded that "Logistic regression showed that being male, being married, perceiving a high risk of infection, being vaccinated against flu in the last season, believing in the effectiveness of COVID-19 vaccine, or evaluating physician recommendations could increase the likelihood of accepting COVID-19 vaccine" (Wang et al., 2020), in the United States in an overall survey conducted by Fisher et al. (2020), concluded that factors independently associated with vaccine hesitation (a "no" or "not sure" response) included younger age, black background, lower education level, and not having received the flu vaccine in the previous year.

A survey of health workers in the Congo found that "Based on logistic regression analysis, male health workers (ORa=1.17, 95% CI 1.15-2.60), primarily physicians (ORa=1.59, 95% CI 1.03-2.44) and having a positive attitude toward COVID-19 vaccine (ORa=11.49, 95% CI 5.88-22.46) were significantly associated with reporting willingness to be vaccinated. (Kabamba et al., 2020). In surveys conducted in Israel by Dror et al. (2020) found vaccine acceptance among physicians (78%), higher than in nurses (61%; $P < 0.01$), which compares to 75% of the entire population. When comparing subspecialties, health workers in internal medicine departments show a significantly higher vaccine acceptance rate (91%) than those in general surgery departments (75%; $P < .01$). Medical teams in COVID-19 departments show higher acceptance rates (94%) compared to those in non-COVID-19 departments (77%; $P < .01$).

Finally, citing Ottenberg (2011) regarding mandatory influenza vaccination and putting it in the context of the current pandemic, "When public health is at risk, and a safe, low-cost and effective method for achieving patient safety exists, health care organizations and public health authorities have a responsibility to take action and change the status quo. Mandatory flu vaccination for health care workers is supported not only by scientific data but also by ethical principles and legal precedent" (Ottenberg et al., 2011)

The highest-quality evidence on factors influencing vaccination in health care workers relates to influenza in Lorenc et al. (2017) systematic review of qualitative evidence that explored beliefs about flu, such as the risks and consequences of getting influenza; beliefs about the vaccine, such as efficacy and side effects; ethical and organizational issues; and perceptions regarding interventions to promote vaccination. Carrying out that dialogue, clarifying any doubts that may exist directly can help encourage vaccination's effective implementation (Lorenc et al., 2017). Hill et al. (2015) report similar findings on the importance of building consensus.

The World Health Organization's position promotes vaccination of all health care workers for influenza while not ignoring the possibility of mandatory vaccination. (Cherian et al., 2019)

Vallée-Tourangeau et al. (2018) emphasize the need to provide sufficient context for promoting vaccination, while Vasilevska et al. (2014) conclude that individual interest in influenza vaccination benefits is the main driver for making a vaccination decision.

Ongoing Clinical Trials

A search for ongoing clinical trials on vaccines for COVID-19 found 338 ongoing; of these, only seven refer to behavior or attitude modification in health care workers. The ongoing clinical trials are summarized in table 3, all of which have no published results as of the review date.

Titles	Status	Outcomes	Locations	URL
COVID-19 and Vaccination Attitudes	Completed	No Results Available	The survey, London, United Kingdom	https://ClinicalTrials.gov/show/NCT04352582
Effect of COVID-19 Pandemic on Vaccination Compliance	Not yet recruiting	No Results Available		https://ClinicalTrials.gov/show/NCT04618796
App-based Symptom Tracking After Corona Vaccination (CoCoV)	Not yet recruiting	No Results Available	Universitätsklinikum Ulm, Ulm, Germany	https://ClinicalTrials.gov/show/NCT04686409
COVID-19 Vaccine and Impact on Fertility Study	Recruiting	No Results Available	University of Miami, Miami, Florida, United States	https://ClinicalTrials.gov/show/NCT04665258
Covid 19 Pandemic. Emerging Legal and Ethical Disputes Over Patient Confidentiality	Not yet recruiting	No Results Available		https://ClinicalTrials.gov/show/NCT04344938
Persuasion in Medicine: Experimental Evidence on Sender and Signal Effects	Enrolling by invitation	No Results Available	Harvard University, Cambridge, Massachusetts, United States	https://ClinicalTrials.gov/show/NCT04160975
Attitudes Towards Influenza Vaccinations Among the Healthcare Workers of Medical University of Warsaw	Recruiting	No Results Available	Warsaw Medical University, Warsaw, Poland	https://ClinicalTrials.gov/show/NCT04569019

Source: ClinicalTrials.gov 29.December.2020

Conclusions / General recommendations:

To promote vaccination against COVID-19, we recommend a three-pronged strategy:

1. Listen and resolve doubts and concerns in a systematic and empathetic way, establishing scenarios of consensus and transparency. Remember that trust is an intrinsic and potentially modifiable component of the successful acceptance of a COVID-19 vaccine.
 2. Adapt communications to the health and scientific literacy level of the teams, identify reliable local information sources, and go beyond merely saying that the vaccines are safe and effective. Clear and consistent communication is critical to building confidence in vaccine programs. This includes explaining how vaccines work and how they are developed, from recruitment to regulatory approval in terms of safety and efficacy. Effective campaigns should also aim to carefully explain the level of effectiveness of a vaccine, the time needed for protection (with multiple doses, if necessary), and the importance of population-wide coverage to achieve community immunity. Credible and culturally informed health communication is vital to influencing positive health behaviors.
 3. Strategies to promote literacy and acceptance of vaccines should directly address community-specific concerns or misconceptions, address historical issues that generate mistrust, be sensitive to religious or philosophical beliefs, and include formal and informal leaders, hopefully very close to the care teams.
- Some health workers may invoke Amendment 14 to disallow vaccination, so we recommend building a consensus team involving natural leaders, experts, and peers who are committed to vaccination to promote social incentives for reciprocity and teamwork.

- To generate systems that allow access to clear and truthful information, as well as close monitoring of their physical and mental health status, pharmacovigilance program, and availability of leaders to resolve doubts and questions.

Searches

1. ("covid 19 vaccines"[MeSH Terms] OR ("covid 19"[All Fields] AND "vaccines"[All Fields]) OR "covid 19 vaccines"[All Fields] OR "covid 19 vaccine"[All Fields]) AND ("attitude"[MeSH Terms] OR "attitude"[All Fields] OR "attitudes"[All Fields] OR "attitude s"[All Fields]) covid-19 vaccine: "covid-19 vaccines"[MeSH Terms] OR ("covid-19"[All Fields] AND "vaccines"[All Fields]) OR "covid-19 vaccines"[All Fields] OR "covid 19 vaccine"[All Fields] attitudes: "attitude"[MeSH Terms] OR "attitude"[All Fields] OR "attitudes"[All Fields] OR "attitude's"[All Fields]
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