

AWARENESS OF ESSENTIAL VACCINES FOR DENTISTS AMONG UNDERGRADUATE DENTAL STUDENTS - A QUESTIONNAIRE BASED STUDY

TYPE OF MANUSCRIPT: Research article

RUNNING TITLE: Awareness about essential vaccines among undergraduate dental students

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ABSTRACT:

BACKGROUND:

As epidemiological data demonstrate, dental workers are exposed during their activity to a biological risk that may result in serious damages for their health. Vaccination practice is one of the main instruments for prevention of infectious diseases, and thus an important measure for protection of dental personnel.

AIM:

To create awareness about essential vaccines given for dentists among undergraduate dental students by a survey based questionnaire.

MATERIALS AND METHODS:

A survey is taken in form of a questionnaire and it is given to 100 Dental students. Questionnaire was prepared based on the awareness about essential vaccines among Dental students. The questionnaire include the vaccines that are to be taken by the dentists, organisms that cause nosocomial infections, mode of transmission , vaccination against hepatitis B and other organisms . The questionnaire consists of 10 questions and was distributed to 100 Dental students through online link using survey planet. The results were statistically analysed.

RESULTS:

79% of the dentists have remembered what vaccines they have taken and 11% of the dentists don't remember .83% of the people are aware about the organisms transmitted during dental procedure and 17% don't know.83% of the people are aware of the vaccines that are needed to be taken and 17% are unaware.65% of the dentists are vaccinated against hepatitis B ,9% of the people are vaccinated against MMR , 4% of the people are vaccinated against varicella virus and 22% of the people are vaccinated by the above vaccines.90% of the people are aware of the risk of spreading diseases from patients to dentists and 10% are unaware.

CONCLUSION:

Many dentists do not know the essential vaccines given for rare deadly diseases. Hence this survey helps the dentists understand about the diseases and can be prevented in near future. Since this survey is conducted among small scale, the awareness must be created among broad scale that involves many dental professionals , practioners and even common people so that they can know about the vaccines against diseases that can spread while doing any treatment.

KEYWORDS: Vaccines, dentists, survey , infections , Protection

INTRODUCTION:

Immunizations, also known as vaccinations, help protect you from getting an infectious disease. When you get vaccinated, you help protect others as well. Vaccines are very safe. It is much safer to get the vaccine than an infectious disease [1]. Getting immunized is important for at least two reasons: to protect yourself and to protect those around you. Vaccines are the best way we have to

prevent infectious disease [2]. Vaccinations prevent you or your child from getting diseases for which there are often no medical treatments. These illnesses can result in serious complications and even death. In dentistry, there are chances of spreading diseases from patients to dentists. Some of the organisms that spread during clinical procedure include Hepatitis B, Chicken pox, MMR, Mycobacterium tuberculosis, Influenza virus etc [3]. These are some of the deadly diseases which should be treated immediately at the early stage. These diseases can be prevented by taking booster vaccine doses monthly. It should be noted that for each vaccine, booster dose may vary [4]. Hepatitis B virus is a type of Herpes virus which is considered as deadliest. Patients with chronic hepatitis will have no symptoms. The chances of spreading hepatitis from patient to dentists is very easy. Several reports found that dentists were three times more likely than general population to be affected with hepatitis B [5]. To decrease the risk of hepatitis B virus (HBV) infection, it is recommended that dental personnel receive immunisation against HBV and use individual protective equipment, such as gloves, to prevent blood-borne infection during dental procedures [6]. The hepatitis B vaccine has been available since 1982 and, since 1990, has been recommended for health-care workers whose activities frequently expose them to blood [7]. Hepatitis B vaccine is made from parts of the hepatitis B virus. It cannot cause hepatitis B infection. The vaccine is usually given as 3 or 4 shots over a 6-month period. Infants should get their first dose of hepatitis B vaccine at birth and will usually complete the series at 6 months of age. All children and adolescents younger than 19 years of age who have not yet gotten the vaccine should also be vaccinated. Chicken pox or varicella, is a very contagious disease caused by the varicella-zoster virus (VZV). It causes a blister-like rash, itching, tiredness, and fever. Chickenpox can be serious, especially in babies, adults, and people with weakened immune systems [8]. It spreads easily from infected people to others who have never had chickenpox or never received the chickenpox vaccine. Chickenpox virus spreads in the air through coughing or sneezing. It can also be spread by touching or breathing in the virus particles that come from chickenpox blisters. All adults who have never had chickenpox or received the vaccination should be vaccinated against it. Two doses of the varicella zoster vaccines should be given at least four weeks apart [9]. The MMR vaccine is an immunisation vaccine against Measles, Mumps and Rubella. It is a mixture of live attenuated viruses of the three diseases, administered via injection. It is usually considered a childhood vaccination [10]. The MMR vaccine is generally administered to children around the age of one year, with a second dose before starting school (i.e. age 4/5). The second dose is a dose to produce immunity in the small number of persons (2–5%) who fail to develop measles immunity after the first dose. TB is caused by a bacterium called *Mycobacterium tuberculosis*. The bacteria usually attack the lungs, but can attack any part of the body such as the kidney, spine, or brain. TB is spread through the air from one person to another, and if not treated properly, can be fatal [11]. The TB bacteria enter the air when a person with active TB of the lungs or throat coughs, sneezes, speaks, or sings. People nearby can breathe in these bacteria and become infected. Patients with TB may seek dental treatment [11]. Dental health-care workers can be at risk for transmission because surgical masks do not prevent inhalation of *M. tuberculosis* droplet nuclei. Although dental health-care workers are not responsible for diagnosis and treatment of TB, they should be trained to recognize signs and symptoms to help with prompt detection [12]. Because potential for transmission of *Mycobacterium tuberculosis* exists in outpatient settings, dental practices should develop a TB control program appropriate for their level of risk. The BCG vaccine has been shown to provide children with excellent protection against the disseminated forms of TB. However protection against pulmonary TB in adults is variable. Since most transmission originates from adult cases of pulmonary TB, the BCG vaccine is generally used to protect children, rather than to interrupt transmission among adults. Isoniazid is one of the drugs used to prevent latent TB from progressing to active TB or TB disease. Isoniazid is a cheap drug, but in a similar way to the use of the BCG vaccine, it is mainly used to protect individuals rather than to interrupt transmission between adults [13]. Influenza (flu) is an area that is ever-changing and unpredictable. The flu is a contagious respiratory illness caused by influenza viruses. It can infect the nose, throat, and lungs and cause mild to severe illness [14]. Serious outcomes of flu infection can result in hospitalization or death. Some people—such as older people, young children, and people with certain health conditions—are at high risk for serious flu complications. Patients with an acute respiratory illness may present for dental treatment at outpatient dental settings [14]. The primary infection control goal is to prevent transmission of disease. Early detection of a suspected or confirmed case of influenza and prompt isolation from susceptible persons will reduce the risk of transmission. To prevent the transmission of influenza, vaccination is essential. The seasonal flu vaccine protects against the influenza viruses research indicates will be most common during the upcoming season. Antibodies develop in the body about two weeks after vaccination. These antibodies provide protection against infection from viruses that are the same as or similar to those used to make the vaccine [15].

MATERIALS AND METHODS:

A survey is taken in form of a questionnaire and it is given to 100 Dental students. This questionnaire was prepared based on the awareness about essential vaccines among Dental students. The questionnaire includes the vaccines that are to be taken by the dentists, organisms that cause nosocomial infections, mode of transmission, vaccination against hepatitis B and other organisms. The questionnaire consists of 10 questions and was distributed to 100 Dental students through online link using survey planet. The results were statistically analysed.

The ten questions are:

1. Do you know about essential vaccines?
2. Do you remember what vaccines you have taken?
3. Do you know about organisms that cause nosocomial infections?
4. Do you know any idea about organisms transmitted during procedure?
5. Are you aware of vaccines to be taken as a dentist?
6. What vaccines you have taken?
7. Are you vaccinated against Hepatitis B?
8. Why do you think vaccines must be taken by dentists before treating patients?
9. Are you aware that there is high risk of spreading disease from patients to dentists?

10.It is the dentists responsibility to undergo essential vaccines before treating patients .Do you agree?

RESULTS:

Figure 1:



Figure 2:

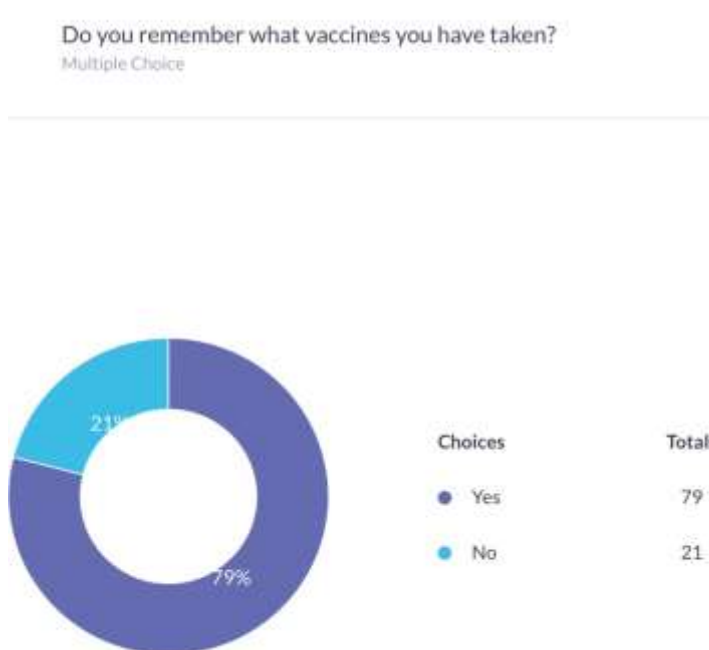


Figure 3:

Do you know about organisms that cause nosocomial infections?
Multiple Choice

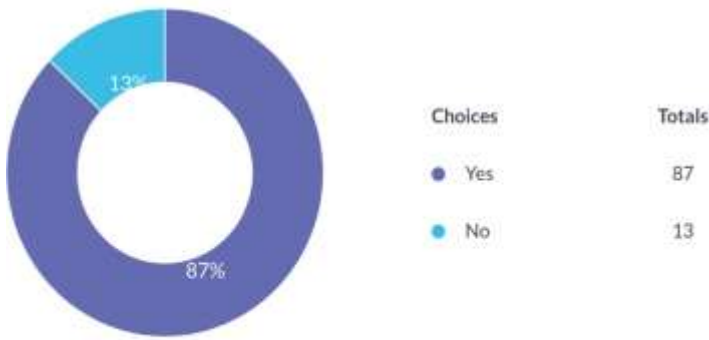


Figure 4:

Do you have any idea about organisms transmitted during dental procedure?
Multiple Choice

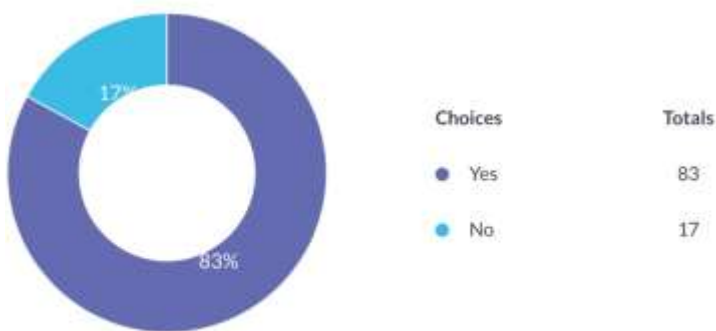


Figure 5:

Are you aware of vaccines to be taken as a dentist?
Multiple Choice

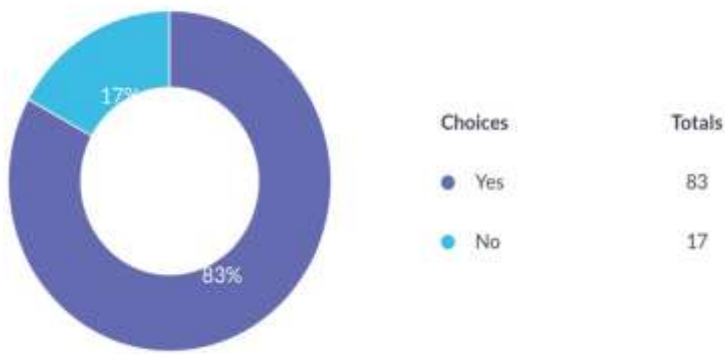


Figure 6:

What vaccines you have taken?
Multiple Choice

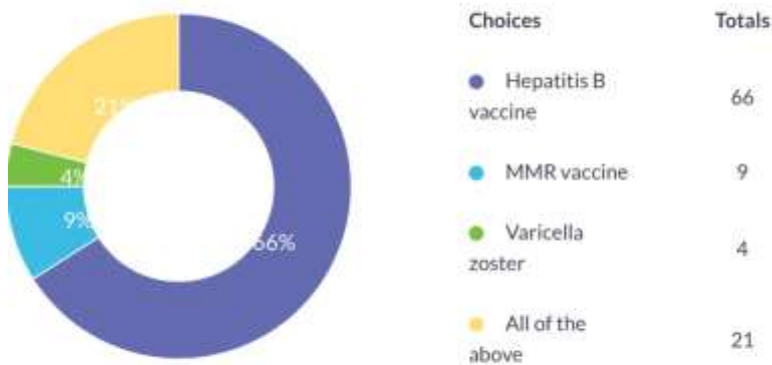


Figure 7:

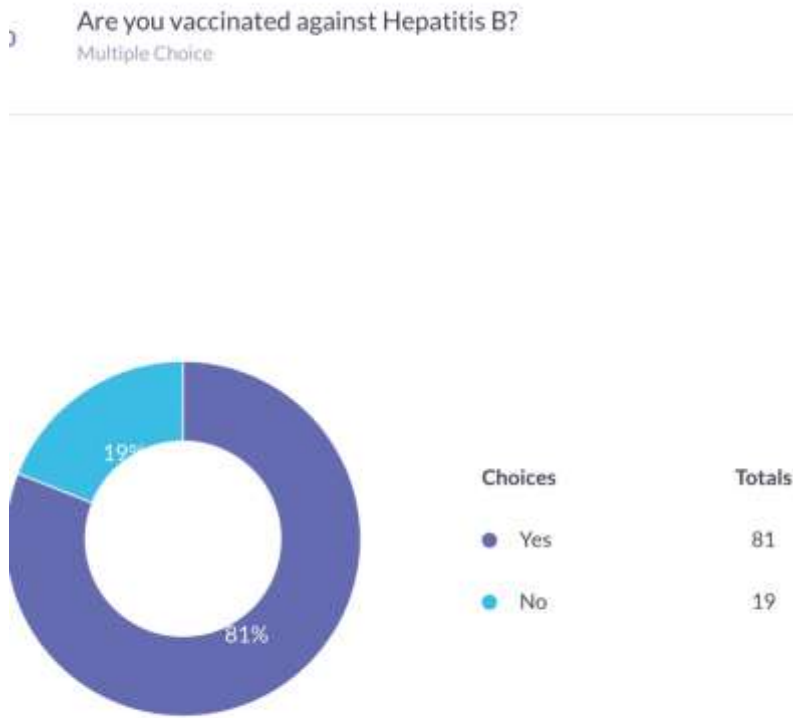


Figure 8:

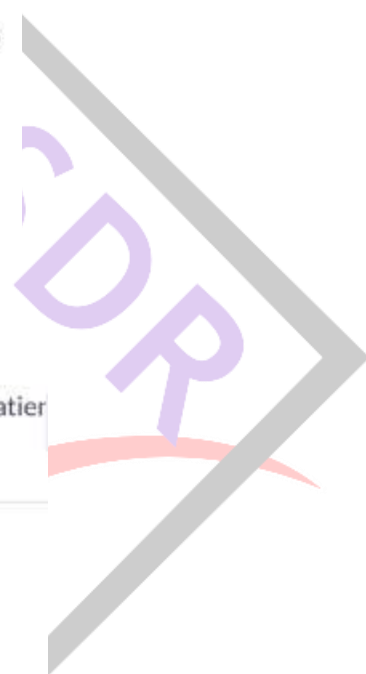
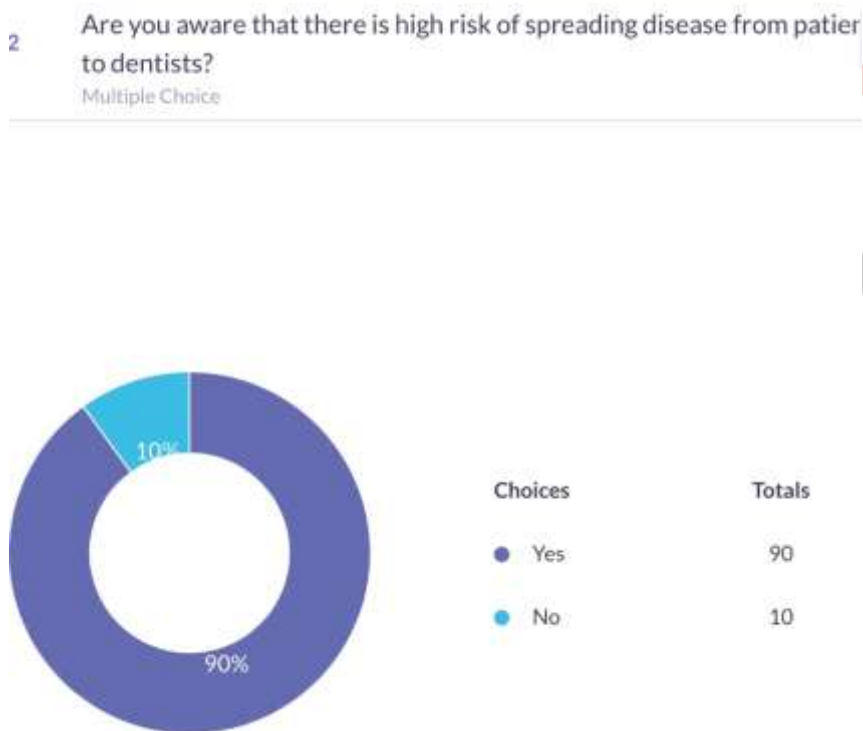


Figure 9:

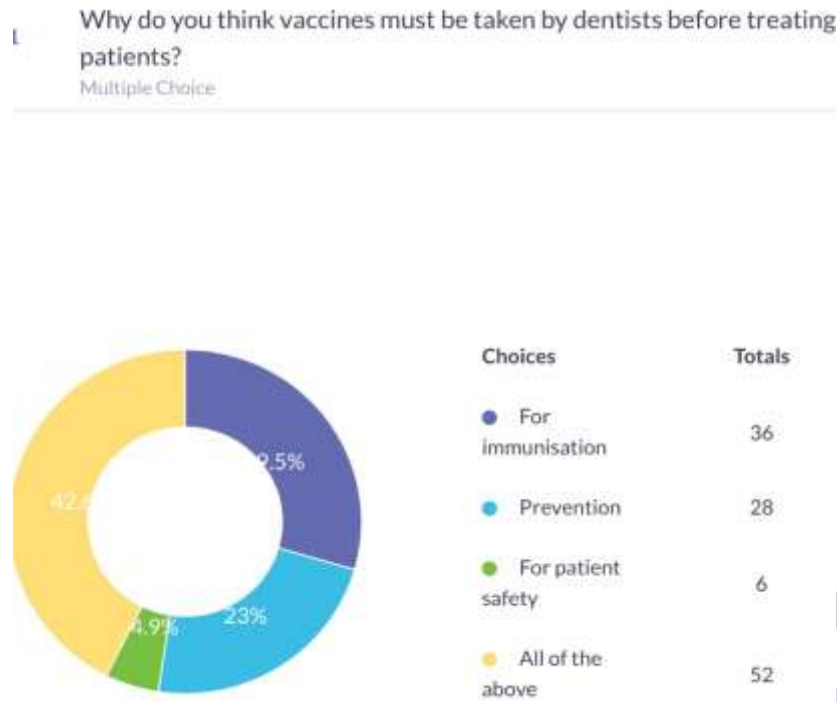
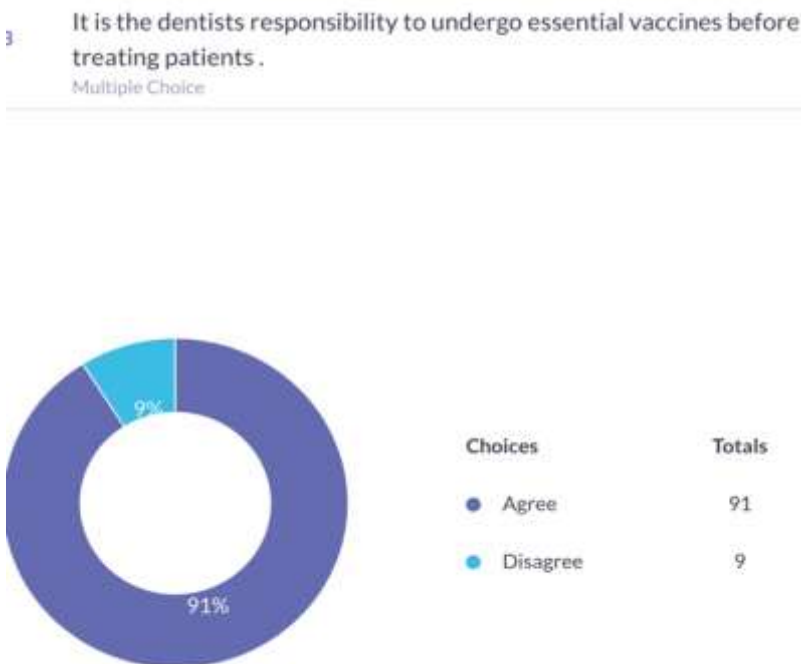


Figure 10:



DISCUSSION:

In figure 1, 84% of the students know about the essential vaccines and 16% of the students doesn't know. Essential vaccines in dentistry include Hepatitis B, BCG vaccine, Varicella zoster vaccine, MMR vaccine etc. These vaccines vary with doses hence it must be continued and the dentists must be vaccinated against these viruses. In figure 2, 79% of the students remember the vaccines which they have taken and 21% of the students doesn't remember. In figure 3, 87% of the students know about the organisms that cause nosocomial infections and 13% doesn't know. Generally nosocomial infections occur due to unsterile environment, improper maintenance of instruments. Organisms like Staphylococcus aureus can cause respiratory, gastric infections. Hence the dentists must keep the working environment sterile and clean and make sure that the instruments are properly sterilised. In figure 4, 83% of the people are aware of the organisms that are transmitted during dental procedure and 17% are unaware. The organisms that spreads through Dental procedure are the bacterias like S.aureus,

Streptococcus pneumoniae, *Haemophilus influenzae*, *Neisseria meningitidis*, *Corynebacterium diphtheriae*. [16] These organisms can easily spread through various dental treatment like root canal treatment, surgery, caries removal etc. Dentist must wear proper face masks to avoid spreading of diseases as well as vaccination must be done. In figure 5, 83% of the people are aware of the vaccines to be taken as a dentist whereas 17% are unaware. It is to be noted that dentists are aware of vaccines that are needed to be taken but many people are unaware about the importance of vaccines. In figure 6, 66% of the students have taken hepatitis B vaccine, 9% of the people have taken MMR vaccine and Varicella zoster vaccine is taken by only 4% of the students. The above mentioned vaccines must be taken by dentists before treating patients because Herpes virus and streptococcus bacteria are the deadliest of all organisms. The infection caused by these organisms are rapidly spreading so the dentist must be careful while treating the patient with bacterial/ viral infection. In figure 7, Almost 90% of the students are vaccinated against Hepatitis B and 10% of the students didn't vaccinate against hepatitis B. Hepatitis B is the most commonly available vaccine and cost effective. 3 doses between monthly intervals must be taken. In figure 8, 36% of the students answered that vaccines must be taken by dentists for better immunization before treating patients, 28% told prevention, 6% for patient safety. 52% of the students agreed with above 3 criteria. Generally vaccination greatly helps in preventing infection and also provide greater immunity against microorganisms. But we must know about each and every vaccine that must be taken as a dentist. In figure 9, 90% of the students are aware about the risk of spreading disease from patients to dentists, only 10% are unaware. In figure 10, 91% of the students agree that it's their responsibility to undergo essential vaccines before treating patients. 9% of the students disagree to this.

CONCLUSION:

From the above results, we can come to a conclusion that most of the dentists are aware about the rapidly spreading organisms during Dental treatment, their mode of transmission, methods to prevent infection etc. But the vaccination among Dental students is minimal here. Since the survey is conducted among small group of individuals, This survey can be conducted in a broad scale involving dental professionals, professors, teachers and even common people.

Even today in India, 30% of the patients affected by nosocomial organisms die because they are not aware about the vaccines that must be taken to prevent from infections. As a dentist,

It is our responsibility to create awareness about vaccines to our patients so that we can avoid the spreading of microbial infections in near future.

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