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Updated vaccination recommendations for people with diabetes

Diabetes mellitus (DM) is a group of chronic metabolic disorders of carbohydrate metabolism. It is characterized by producing secondary chronic hyperglycemia, which may be the result of defects in insulin secretion, defects

in its action, or a combination of both processes. This chronic hyperglycemia increases the likelihood of developing long-term damage to various organs such as the kidneys, eyes, nerves, blood vessels, and heart, known as “chronic complications”.

Diabetes not only leads to these types of complications, but it also increases susceptibility to various infections, worsening the prognosis of these, increasing hospitalizations, and raising mortality rates.

Vaccination not only protects people with diabetes from contracting other diseases, but it can also reduce the severity of these diseases when contracted.

WHY ARE PEOPLE WITH DIABETES MORE VULNERABLE TO INFECTIONS?

There are several factors that contribute to the deterioration of the immune response, with poor metabolic control being the most relevant. Other added factors, such as obesity, smoking, advanced age, and the length of disease progression, can worsen the baseline situation of the individual.

There are different mechanisms by which people with diabetes are more susceptible to infection. On one hand, changes to the natural barrier of the skin and mucous membranes, due to peripheral neuropathy, and on the other hand, dysfunctions at the endothelial layer of blood vessels, which hinder the transport of immune cells to infection sites and favor the proliferation of microorganisms.

Additionally, the existence of complications such as retinopathy, nephropathy, and diabetic neuropathy can make the early detection of certain infections more difficult, potentially leading to more serious complications.

For this reason, the American Diabetes Association (ADA), which guides health care professionals in decision-making regarding the care of people with diabetes and publishes annual Diabetes Care Standards, in its 2024 update, emphasizes the importance of vaccination counseling for people with DM, strongly recommending the administration of vaccines vs COVID-19, influenza, pneumococcus, herpes zoster, hepatitis B, and the new inclusion of immunization against respiratory syncytial virus (RSV), which has recently been implemented in certain autonomous communities for people with diabetes.

Vaccination is presented as a priority tool for this population group, aiming to reduce complications arising from preventable infections through the follow-up of an immunization program.

One of the most notable new additions in this edition is the recommendation to intensify preventive measures in individuals at high risk of developing diabetes.

WHAT VACCINES ARE RECOMMENDED FOR PEOPLE WITH DIABETES?

Influenza (Flu) vaccine: The annual influenza vaccine remains a fundamental recommendation for adults, especially for those with chronic conditions. In the case of people with diabetes, this condition is an important risk factor that increases the number of hospitalizations due to pneumonia or cardiovascular events, as well as the likelihood of death after infection with the virus. On the other hand, the infection can significantly raise glucose levels, triggering a severe episode of ketoacidosis. The inflammation caused by the virus also increases the risk of microvascular and macrovascular complications and is associated with a higher risk of cardiovascular disease or thromboembolism.

For this reason, it is crucial to get vaccinated before the flu season to develop adequate immunity during the critical months. In Spain, the annual vaccination campaign starts in October, prioritizing individuals older than 60 years and those at high risk.

Pneumococcal vaccine: Pneumococcal vaccine is key for people with diabetes, as they are at greater risk of developing pneumococcal pneumonia, meningitis, and other invasive infections caused by *Streptococcus pneumoniae*, which is responsible for almost half of all pneumonias and causes severe clinical presentations. Age, poor metabolic control, and the long progression of the disease are added factors that increase the likelihood of more severe infectious cases.

There are variations in the sequential protocol depending on the disease and available vaccines, which differ between autonomous communities. However, the recommendation for the pneumococcal vaccine remains for those older than 60 years.

Hepatitis B vaccine: Diabetes increases the risk of contracting hepatitis B virus infection, likely related to a higher risk of transmission. This probability is especially high in people who use syringes or insulin pens, as well as capillary glucose meters, as these devices»

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THE AMERICAN DIABETES ASSOCIATION (ADA) EMPHASIZES THE IMPORTANCE OF VACCINATION COUNSELING FOR PEOPLE WITH DM, STRONGLY RECOMMENDING THE ADMINISTRATION OF VACCINES AGAINST COVID-19, INFLUENZA, PNEUMOCOCCUS, HERPES ZOSTER, HEPATITIS B AND THE NEW INCLUSION OF IMMUNIZATION VS RESPIRATORY SYNCYTIAL VIRUS

» can increase exposure to contaminated blood.

Hepatitis B can cause an acute infection or progress to chronicity, leading to complications such as cirrhosis, hepatocellular carcinoma, and/or liver failure.

Vaccination is recommended for the diabetic population whenever there is a risk of contracting this disease.

COVID-19 vaccine: In recent years, various studies have considered diabetes mellitus a predictor of poor prognosis in COVID-19 cases. Systemic inflammatory state and endothelial damage caused by DM can be aggravated by SARS-CoV-2 infection, presenting a worse progression and developing severe complications. Comorbidities commonly associated with diabetes, such as hypertension and obesity, increase the vulnerability of these patients to infection.

Therefore, it is recommended that all individuals with diabetes receive the primary COVID-19 vaccine as well as updated booster doses for circulating SARS-CoV-2 variants.

Herpes Zoster vaccine: Herpes zoster, caused by the varicella-zoster virus, is more common in older individuals and those with chronic conditions, such as diabetes. The relationship between diabetes and herpes zoster is clear: having diabetes increases the likelihood of developing herpes zoster compared to the same age group without this condition. The presence of cardio-renal disease is considered an independent factor

for the development of herpes zoster, which represents an added risk for people with diabetes mellitus.

Herpes zoster infection can cause chronic pain and severe neurological complications in DM patients. Therefore, vaccination against herpes zoster is recommended for adults with diabetes.

Tetanus, Diphtheria, and Pertussis (Tdap) vaccine: Adults who have not been vaccinated with Tdap during adulthood should receive a dose, followed by booster doses of the Td vaccine every 10 years. Keeping vaccinations updated vs tetanus, diphtheria, and pertussis is especially important for people with diabetes.

Respiratory Syncytial Virus (RSV) vaccine: Regarding RSV vaccination, the ADA advises in its latest update that vaccination should be given to people with diabetes older than 60 years. However, the Interterritorial Council of the National Health System does not consider diabetes a condition for RSV vaccination. Implementing vaccination in the diabetic population is necessary due to the immunological conditions of this group.

Table 1 lists the vaccines recommended by the Interterritorial Council of the National Health System for adults with risk conditions.

THE ROLE OF NURSES IN THE VACCINATION OF DIABETES PATIENTS

Nurses play an essential role in promo-

ting and administering vaccines, acting as a bridge between patients and the health care system. Their ability to build trust is fundamental, as they are considered reliable professionals, making it easier for vaccines to be accepted in the community. Their accessibility in various healthcare settings also contributes to improved access to immunization.

Health promotion is another area where nurses actively participate, raising awareness among the population about the importance of vaccination and helping to identify, based on each patient's individual characteristics, the required vaccines. This work not only aims to reduce long-term risks but also helps prevent serious complications and improve individuals' quality of life.

Their responsibilities include health education, assessment of vaccination status, administration and recording of doses given, and follow-up on vaccinated patients, allowing them to identify issues related to the immunization process. Additionally, they play a crucial role in debunking myths and raising awareness about the importance of vaccination.

Myths about vaccination in people with diabetes include the belief that vaccines are dangerous for them and can destabilize glucose levels, but it is important to clarify that vaccines are safe and protect health. The benefits of vaccination outweigh their potential side effects, which are usually mild. Vaccination reduces the risk of infections, which helps maintain glycemic control. Although some vaccines may temporarily affect »

Interterritorial Council of the National Health System											
Specific vaccination for adult people (> 18 years) with risk conditions*. Calendar recommended for 2024											
Vaccination	CONDICIÓN DE RIESGO										
	Pregnancy	Immunosuppression (except HIV)	HIV infection		Asplenia, complement deficiencies, and treatment with eculizumab or ravulizumab	Advanced chronic kidney disease and hemodialysis	Chronic cardiovascular and respiratory disease	Liver disease and chronic alcoholism	Healthcare personnel	Smoking	Men who have sex with men
			CD4 < 200 µL	CD4 > 200 µL							
Diphtheria, tetanus, pertussis ¹	Tdap	Td if susceptible or incomplete vaccination: dTpa in pertussis and cancer/malignant									
Haemophilus influenzae b ²					Hib						
Measles, mumps, rubella ³	Contraindicated			TV if susceptible							
Hepatitis B ⁴			HB		HB(a)		HB	HB			HB
Hepatitis A ⁵			HA				HA				HA
Meningococcal disease ⁶			MenACWY		MenACWY MenB						
Chickenpox ⁷	Contraindicated			VZV if susceptible							
Herpes zoster ⁸		HZ/su									
Human papillomavirus ⁹											
Pneumococcal disease ¹⁰		VN									
Influenza10	Flu	Annual flu									

(a)A high antigen load or dialysis and pre-dialysis specific vaccine will be used. Serological review and revaccination when necessary.
 *COVID-19 vaccination recommendations will be evaluated at the end of the 2023-2024 season.

Specific recommendation by pathology or conditi
 General recommendation
 Contraindicated
 Not recommended

TABLA 1

blood glucose, this impact is smaller than the risk of serious disease.

Another widespread myth is that if diabetes is controlled, vaccination might not be necessary. Even those with good glucose control can suffer severe complications from diseases like the flu or COVID-19, so vaccination is key to preventing hospitalizations. It is also believed that people with diabetes experience more side effects from vaccines, but common symptoms after vaccination, such as fever or pain at the injection site, are similar across the population. Furthermore, while maintaining a healthy lifestyle is essential in managing diabetes, vaccination against preventable diseases is a fundamental health strategy to protect oneself and improve quality of life. **D**

CONCLUSIONS

Vaccination in children and adults is a fundamental public health strategy to prevent serious diseases and reduce the burden of infections in the population. With the aging population and the increase in chronic diseases like diabetes, updated immunization plays an important role in reducing severe complications.

The review of immunization status and its adaptation to the current vaccination schedule should be as relevant as eye exams, foot examinations, and lab tests.

The follow-up of the Vaccination Schedule throughout life, published by the Spanish Ministry of Health, and its updates, should be the reference guide for all involved healthcare professionals, applying the specific corrections of each community.

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