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Heart Disease and Diabetes Defined

Heart Disease

- Heart disease (or cardiovascular disease) may refer to several different illnesses
- Many of these illnesses are related to a process called atherosclerosis, which happens when plaque builds up in the walls of arteries in the heart
  - The buildup makes it harder for blood to flow
  - If a clot forms, blood flow may be blocked possibly causing a heart attack or a stroke
- Heart Attack
  - Happens when blood flow to a part of the heart is blocked
- Stroke
-
  - There are two types of strokes
  - One type of stroke is an ischemic stroke
    - This is the most common type of stroke
    - Happens when a blood vessel that feeds the brain is blocked from a blood clot
    - When the blood supply to a part of the brain is cut off, some brain cells will begin to die. This can result in the loss of functions controlled by that part of the brain, such as walking or talking
  - The second type of stroke is a hemorrhagic stroke
    - Happens when a blood vessel in the brain bursts
    - Most often caused by uncontrolled high blood pressure
- Heart Failure
  - Can also be called congestive heart failure
  - It simply means the heart isn't pumping blood as well as it should

- Heart failure can get worse if left untreated
- Arrhythmia
  - The term that refers to an abnormal heart rhythm
  - The heart can beat too slow (bradycardia), too fast (tachycardia), or irregularly
- Heart Valve Problems
  - Stenosis occurs when a heart valve doesn't open enough to allow blood to flow through as it should

(What is cardiovascular disease? 2022)

Diabetes

- Diabetes is a chronic illness that affects how your body processes food and turns it into energy
- Typically, your body breaks down most of the foods you eat into sugar and releases it into your bloodstream
- After sugar is released into the bloodstream, the pancreas (an organ in the body that releases enzymes (substances) that help us digest food) is triggered to release insulin – insulin behaves like a key that lets blood sugar into cells to use for energy
- Diabetes occurs when your body doesn't make enough insulin or is unable to use it as well as it should

(What is diabetes? 2022)

Types of Diabetes

- Type 1 Diabetes
  - Believed to be an autoimmune reaction (the body attacks itself by mistake). This stops your body from making insulin
  - Of the people who have diabetes, about 5-10% are living with type 1 diabetes

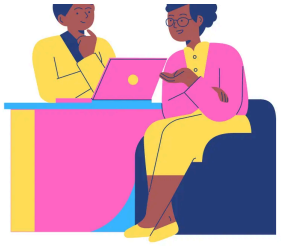
- daily
- Type 2 Diabetes
  - Occurs when your body doesn't use insulin well and cannot control blood sugar levels
  - Of the people who have diabetes, approximately 90-95% are living with type 2 diabetes
  - Usually takes many years to develop
  - Historically diagnosed in adults, but more and more children, teens, and young adults are being diagnosed

(What is diabetes? 2022)

The Link Between Heart Disease and Diabetes

linked

- Individuals living with type 2 diabetes are two times more likely to develop heart disease and die from it
- Obesity, high blood pressure, lack of physical activity, smoking and blood sugar variability (ups and downs) are some of the risk factors for heart disease that are often seen in people living with type 2 diabetes
- Therefore, targeting these risk factors is vitally important for reducing the risk of developing both chronic illnesses



Cardiovascular disease and diabetes 2021) (Leon, 2015)

Risk Factors for Heart Disease and Diabetes

Nutrition

Medication Taking

(CDC, 2022)

(CDC, 2022)

Exercise

Live to the Beat: Working Out (:15)

(CDC, 2022)

Smoking

(Stop Smoking)

Diabetes

- Black adults living in rural areas have the highest mortality rate from heart disease, diabetes, and stroke compared to white adults
- For both diseases, Black adults suffer greater disparities in incidence and mortality. Thus, for patients living with both illnesses, this is compounded
- Likewise, geographic location seems to make a huge difference
  - There has been some improvement in metropolitan areas vs. rural areas over the last two decades

(Aggarwal et al., 2021)

Inequities in Diabetes Outcomes

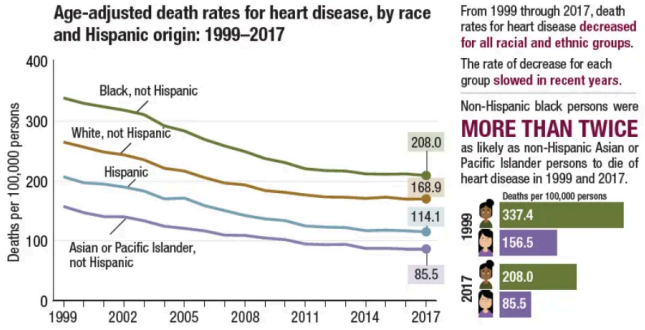
Percentage of US Adults 18 or Older With Diagnosed Diabetes, by Race and Ethnicity, 2018–2019

Race and Ethnicity	Percentage
American Indian or Alaska Native	14.5
Asian, non-Hispanic	9.5
Black, non-Hispanic	12.1
Hispanic, overall	11.8
White, non-Hispanic	7.4

Data sources: 2018–2019 National Health Interview Survey, except the American Indian and Alaska Native data, which are from the Indian Health Service National Data Warehouse (2019 data only).

(By the numbers: Diabetes in America 2022)

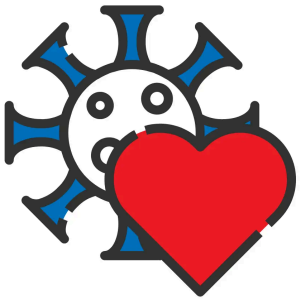
Inequities in Heart Disease Outcomes



(Infographics - health, United States - products 2019)

CDC says...

- “Having heart conditions such as heart failure, coronary artery disease, cardiomyopathies, and possibly high blood pressure (hypertension) can make you more likely to get very sick from COVID-19.”
- Having heart disease increases your risk of severe illness, hospitalization, or death from COVID-19
- Getting vaccinated and getting appropriate boosters against COVID-19 are the best risk mitigation strategy for reducing risk of serious complications, hospitalization, or death from COVID-19



(People with certain medical conditions)

Heart Disease and Flu

CDC says...

- “Among adults hospitalized with flu during recent flu seasons, heart disease was one of the most common chronic (long-term)

- Studies have also shown that the risk of having a heart attack was 6 times higher within a week of confirmed flu infection
- Flu vaccination is your best protection from complications from the flu
- Flu shots are approved for use in all adults, including people with heart disease and certain other health conditions. Flu shots have a long, established safety record in people with heart disease.
- The live attenuated influenza vaccine (LAIV) or the nasal spray vaccine, is an option for people who are not pregnant and who are 2 through 49 years old.
- Note: People with some chronic medical conditions (such as heart disease) should generally not get LAIV.

(Flu & people with heart disease or history of stroke 2021)

Diabetes and COVID-19

Association Says…

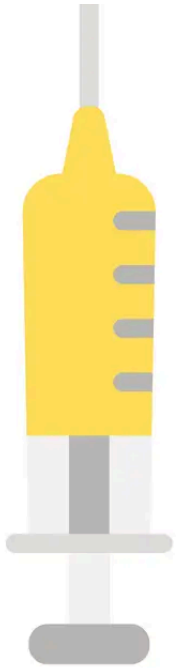
- Patients living with diabetes are more likely to have complications from COVID-19
- Risk of getting severely sick is likely to be lower if your diabetes is well-managed
- Having heart disease AND diabetes could increase your risk of getting seriously ill from COVID-19
- Getting vaccinated and getting appropriate boosters against COVID-19 are the best risk mitigation strategy for reducing risk of serious complications, hospitalization, or death from COVID-19

(Frequently asked questions: Covid-19 and diabetes)

Diabetes and Flu

CDC says...

- “People with diabetes (type 1, type 2, or gestational), even when well-managed, are at higher risk of

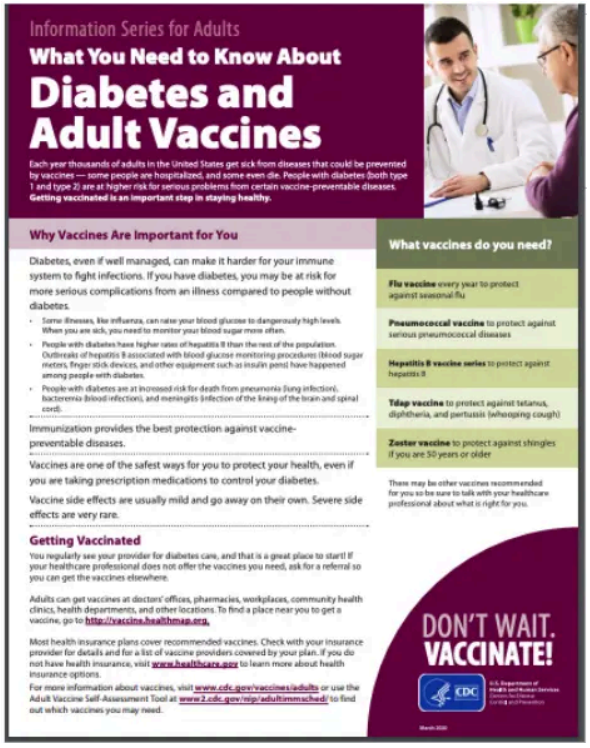


- About 30% of adults hospitalized with the flu in recent years had diabetes
- Flu can also make diabetes worse because the immune system is less able to fight off infections
- A flu vaccine is the best protection against the flu
- Injectable influenza vaccines (flu shots) are recommended for use in people with diabetes and certain other health conditions. Flu shots have a long, established safety record in people with diabetes
- The live attenuated influenza vaccine (LAIV), also known as the nasal spray vaccine, is recommended as an option for use in people 2 through 49 years old who are not pregnant. But people with some chronic medical conditions (such as diabetes) should generally NOT receive LAIV. Your doctor or other health care professional can answer any questions you might have about flu vaccine
- Having flu increases your risk of getting pneumococcal disease. Pneumonia is an example of a serious complication that can cause death.
- People who have diabetes also should be up to date with pneumococcal vaccination to help protect against pneumococcal disease. Pneumococcal vaccination should be part of a diabetes management plan. Talk to your health care provider to find out which pneumococcal vaccines are recommended for you.

Heart Disease, Diabetes, and Adult Vaccines

Type 1 and Type 2 Diabetes and Adult Vaccination

- People with diabetes (both type 1 and type 2) are at higher risk for serious problems from certain vaccine-preventable diseases.
- Diabetes, even if well managed, can make it harder for your immune system to fight infections, so you may be at risk for more serious complications from an illness compared to people without diabetes.
  - Some illnesses, like influenza, can raise your blood glucose to dangerously high levels.
  - People with diabetes have higher rates of hepatitis B infection than the rest of the population. Outbreaks of hepatitis B


Information Series for Adults

What You Need to Know About

Diabetes and Adult Vaccines

Each year thousands of adults in the United States get sick from diseases that could be prevented by vaccines — some people are hospitalized, and some even die. People with diabetes (both type 1 and type 2) are at higher risk for serious problems from certain vaccine-preventable diseases. **Getting vaccinated is an important step in staying healthy.**

Why Vaccines Are Important for You

Diabetes, even if well managed, can make it harder for your immune system to fight infections. If you have diabetes, you may be at risk for more serious complications from an illness compared to people without diabetes.

- Some illnesses, like influenza, can raise your blood glucose to dangerously high levels. When you are sick, you need to monitor your blood sugar more often.
- People with diabetes have higher rates of hepatitis B than the rest of the population. Outbreaks of hepatitis B associated with blood glucose monitoring procedures (blood sugar meters, finger-stick devices, and other equipment such as insulin pens) have happened among people with diabetes.
- People with diabetes are at increased risk for death from pneumonia (lung infection), bacteremia (blood infection), and meningitis (infection of the lining of the brain and spinal cord).

Immunization provides the best protection against vaccine-preventable diseases.

Vaccines are one of the safest ways for you to protect your health, even if you are taking prescription medications to control your diabetes.

Vaccine side effects are usually mild and go away on their own. Severe side effects are very rare.

Getting Vaccinated

You regularly see your provider for diabetes care, and that is a great place to start! If your healthcare professional does not offer the vaccines you need, ask for a referral so you can get the vaccines elsewhere.

Adults can get vaccines at doctors' offices, pharmacies, workplaces, community health clinics, health departments, and other locations. To find a place near you to get a vaccine, go to http://vaccine.healthmap.org.

Most health insurance plans cover recommended vaccines. Check with your insurance provider for details and for a list of vaccine providers covered by your plan. If you do not have health insurance, visit www.healthcare.gov to learn more about health insurance options.

For more information about vaccines, visit www.cdc.gov/vaccines/adults or use the Adult Vaccine Self-Assessment Tool at www2.cdc.gov/nip/adultimmsched/ to find out which vaccines you may need.

What vaccines do you need?

Flu vaccine every year to protect against seasonal flu

Pneumococcal vaccine to protect against serious pneumococcal diseases

Hepatitis B vaccine series to protect against hepatitis B

Tdap vaccine to protect against tetanus, diphtheria, and pertussis (whooping cough)

Zoster vaccine to protect against shingles if you are 50 years or older

There may be other vaccines recommended for you so be sure to talk with your healthcare professional about what is right for you.

DON'T WAIT. VACCINATE!

CDC

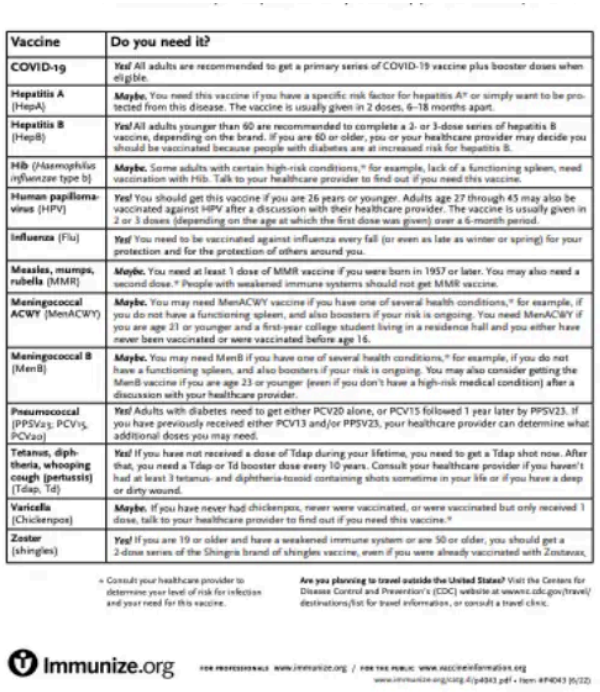
March 2020

https://www.cdc.gov/vaccines/hcp/adults/downloads/fs-diabetes-vaccines.pdf

happened among people with diabetes.

- People with diabetes are at increased risk for death from pneumonia (lung infection), bacteremia (blood infection) and meningitis (infection of the lining of the brain and spinal cord).

https://www.cdc.gov/vaccines/adults/rec-vac/health-conditions/diabetes.html



Vaccine	Do you need it?
COVID-19	**Yes!** All adults are recommended to get a primary series of COVID-19 vaccine plus booster doses when eligible.
Hepatitis A (HepA)	**Maybe.** You need this vaccine if you have a specific risk factor for hepatitis A* or simply want to be protected from this disease. The vaccine is usually given in 2 doses, 6–18 months apart.
Hepatitis B (HepB)	**Yes!** All adults younger than 60 are recommended to complete a 2- or 3-dose series of hepatitis B vaccine, depending on the brand. If you are 60 or older, you or your healthcare provider may decide you should be vaccinated because people with diabetes are at increased risk for hepatitis B.
Hib (*Haemophilus influenzae* type b)	**Maybe.** Some adults with certain high-risk conditions,* for example, lack of a functioning spleen, need vaccination with Hib. Talk to your healthcare provider to find out if you need this vaccine.
Human papillomavirus (HPV)	**Yes!** You should get this vaccine if you are 26 years or younger. Adults age 27 through 45 may also be vaccinated against HPV after a discussion with their healthcare provider. The vaccine is usually given in 2 or 3 doses (depending on the age at which the first dose was given) over a 6-month period.
Influenza (Flu)	**Yes!** You need to be vaccinated against influenza every fall (or even as late as winter or spring) for your protection and for the protection of others around you.
Measles, mumps, rubella (MMR)	**Maybe.** You need at least 1 dose of MMR vaccine if you were born in 1957 or later. You may also need a second dose.* People with weakened immune systems should not get MMR vaccine.
Meningococcal ACWY (MenACWY)	**Maybe.** You may need MenACWY vaccine if you have one of several health conditions,* for example, if you do not have a functioning spleen, and also boosters if your risk is ongoing. You need MenACWY if you are age 21 or younger and a first-year college student living in a residence hall and you either have never been vaccinated or were vaccinated before age 16.
Meningococcal B (MenB)	**Maybe.** You may need MenB if you have one of several health conditions,* for example, if you do not have a functioning spleen, and also boosters if your risk is ongoing. You may also consider getting the MenB vaccine if you are age 23 or younger (even if you don't have a high-risk medical condition) after a discussion with your healthcare provider.
Pneumococcal (PPSV23, PCV15, PCV20)	**Yes!** Adults with diabetes need to get either PCV20 alone, or PCV15 followed 1 year later by PPSV23. If you have previously received either PCV13 and/or PPSV23, your healthcare provider can determine what additional doses you may need.
Tetanus, diphtheria, whooping cough (pertussis) (Tdap, Td)	**Yes!** If you have not received a dose of Tdap during your lifetime, you need to get a Tdap shot now. After that, you need a Tdap or Td booster dose every 10 years. Consult your healthcare provider if you haven't had at least 3 tetanus- and diphtheria-toxoid containing shots sometime in your life or if you have a deep or dirty wound.
Varicella (Chickenpox)	**Maybe.** If you have never had chickenpox, never were vaccinated, or were vaccinated but only received 1 dose, talk to your healthcare provider to find out if you need this vaccine.*
Zoster (shingles)	**Yes!** If you are 19 or older and have a weakened immune system or are 50 or older, you should get a 2-dose series of the Shingrix brand of shingles vaccine, even if you were already vaccinated with Zostavax.

* Consult your healthcare provider to determine your level of risk for infection and your need for this vaccine.

Are you planning to travel outside the United States? Visit the Centers for Disease Control and Prevention's (CDC) website at www.nc.cdc.gov/travel/destinations/list for travel information, or consult a travel clinic.

Immunize.org

https://www.immunize.org/catg.d/p4043.pdf

have diabetes:

- Influenza
- Pneumococcal
- Tdap (tetanus, diphtheria, and pertussis (whooping cough))
- Hep B
- Zoster (Shingles)

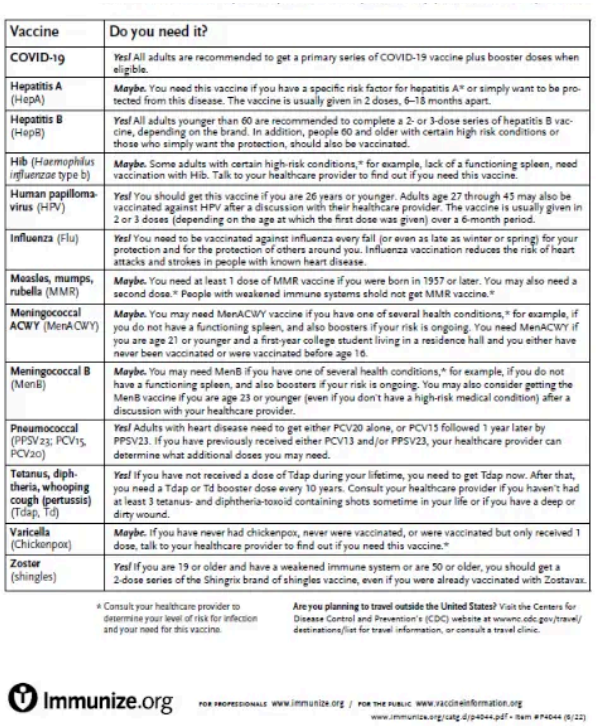
There may be other vaccines recommended for you based on your lifestyle, travel habits, and other factors.

Likewise, local pharmacies are a great place to receive vaccinations.

Heart Disease, Stroke, or Other Cardiovascular Disease and Adult Vaccination

are at higher risk for serious problems from certain diseases.

- Heart disease can make it harder for you to fight off certain diseases or make it more likely that you will have serious complications from certain diseases.
- Immunization provides the best protection against vaccine-preventable diseases.
- Vaccines are one of the safest ways for you to protect your health, even if you are taking prescription medications. Vaccine side effects are usually mild and go away on their own. Severe side effects are very rare.
- Some vaccine-preventable diseases, like the flu, can increase the risk of another heart attack.



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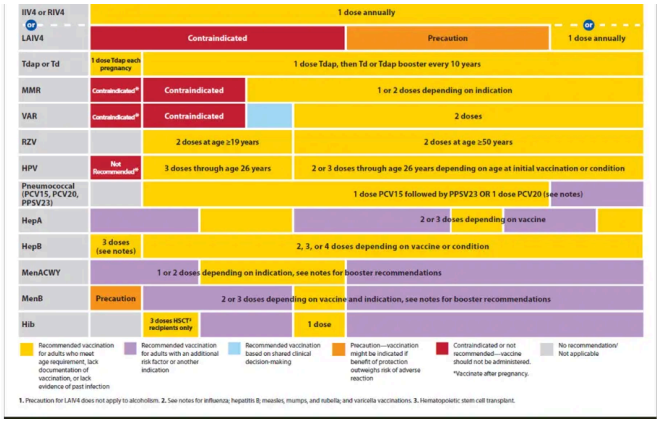
Immunize.org FOR PROFESSIONALS www.immunize.org / FOR THE PUBLIC www.vaccineinformation.org
www.immunize.org/catg.d/p4044.pdf • Item #P4044 (6/22)

https://www.cdc.gov/vaccines/adults/rec-vac/health-conditions/heart-disease.html



have heart disease, history of stroke or other cardiovascular disease:

- Influenza vaccine
- Pneumococcal vaccine
- Tdap vaccine (tetanus, diphtheria, and pertussis (whooping cough))
- Zoster vaccine (shingles)

There may be other vaccines recommended for you based on your lifestyle, travel habits, and other factors.

Likewise, local pharmacies are a great place to receive vaccinations.

Vaccine Myths and Misconceptions

Monkeypox Information

How to Protect Yourself

Ways to Mitigate Risk

- Good hand hygiene
- Wearing a N95 or KN95 mask
- Physical distancing (only engaging in public places for essentials)
- Social distancing (remaining 6 feet a part from others in public places and places that are not your home)
- Good sleep and nutrition
- Getting vaccinated with a primary series of COVID-19 and all appropriate boosters, as well as all other adult vaccinations

and diabetes

Resources

CDC – Million Hearts Campaign

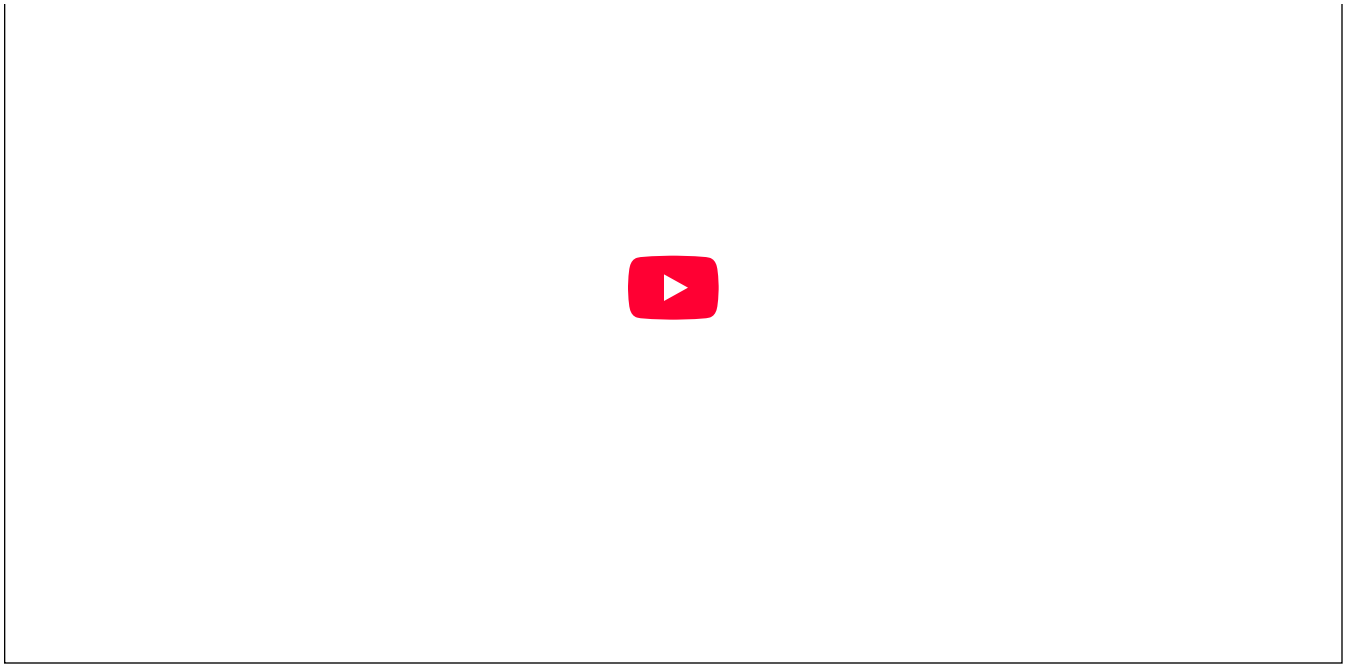
Live by the Beat

Heart Healthy Steps

Beyond Type 2

Get Insulin

Webinar: Heart Disease, Diabetes, and Vaccines



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