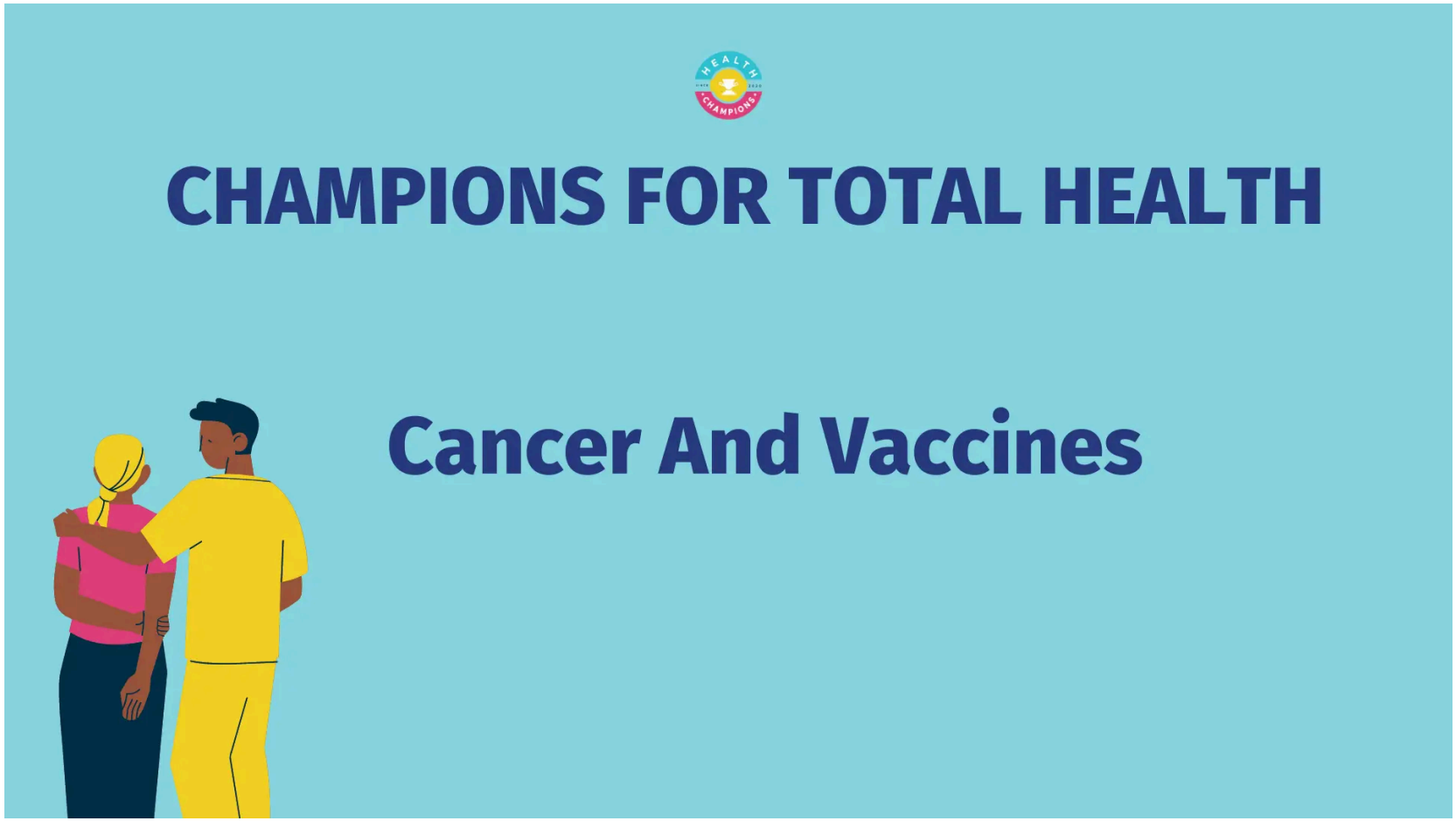


Defining Cancer

Vaccine-Preventable Cancers

Inequities in Cancer Outcomes

Flu & COVID-19 + Cancer

Vaccine Myths/Misconceptions

Patient/Caregiver/Patient Advocate Testimonial

Webinar Recording

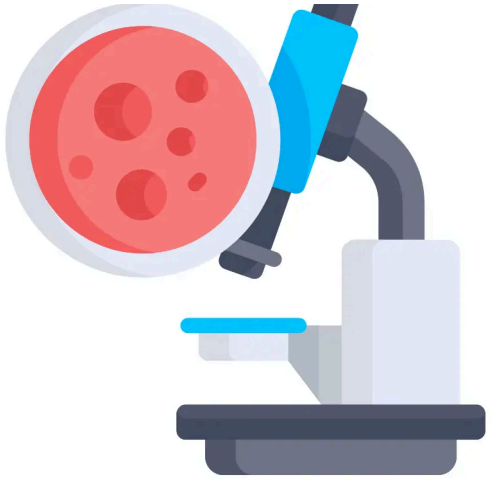
Defining Cancer

- The National Cancer Institute (NCI) defines cancer as “a disease in which some of the body’s cells grow uncontrollably and spread to other parts of the body. [It] may start almost anywhere in the human body, which is made up of trillions of cells”
- Usually, when cells are abnormal or old, they die. Cancer begins when something goes wrong in this process and cells keep making new cells and the old or abnormal cells don’t die
- Causes of cancer developing may include genetics, lifestyle habits, and exposure to cancer-causing agents around you. Often, there is no clear and obvious reason.

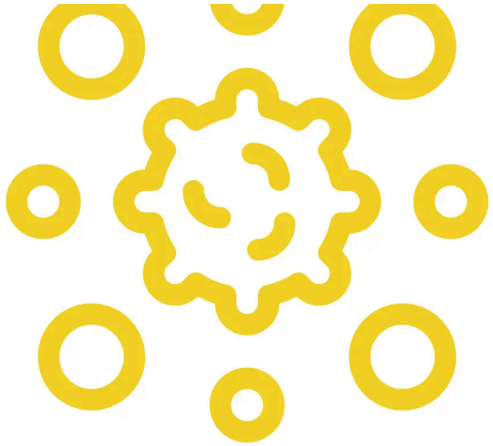
More About Cancer

- Blood Cancers
  - Cancers of the blood cells
- Solid Tumor Cancers

- Tumor
  - A lump or growth
  - Some are cancerous (malignant)
  - Some are not cancerous (benign)
- Cancer Staging
  - Important for choosing the right treatment options for each patient
  - Understands size and location(s) of cancer
  - Lower stages (stages 1 and 2)
  - Higher stages (stages 3 and 4)
  - Stage 4 is the highest and means that the cancer has metastasized/spread



Cancer Metastasis/Spread



- If cancer cells break away from the original tumor, they may use the bloodstream or lymph system to travel to other places in the body
- Most of these cells die before they get to a new location
- However, some may begin growing in another location
  - This is metastasis

Resources About Cancer

American Cancer Society – What is Cancer?

National Cancer Institute – What is Cancer?

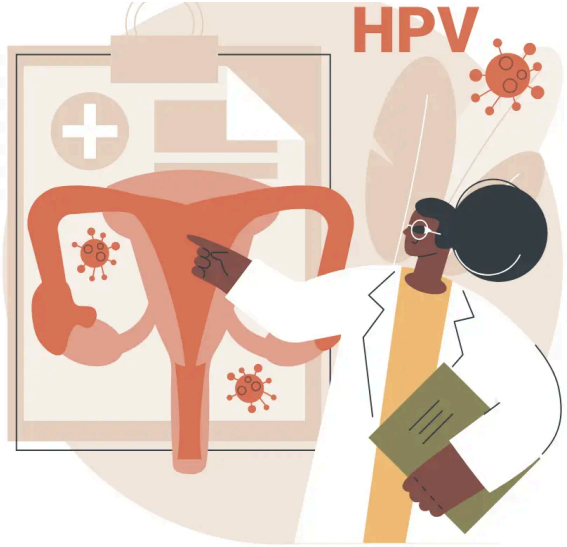
American Association for Cancer Research – What is Cancer?

Mayo Clinic – Cancer Symptoms and Causes

World Health Organization – Cancer

- Some cancers are preventable through vaccinations
- The U.S. Food and Drug Administration (FDA) has approved two types of routine childhood vaccines for the prevention of cancer
- The HPV (human papillomavirus) Vaccine prevents cancers cervical, vaginal, vulvar, and anal cancers, and genital warts
  - HPV may also cause oral cancers, for which there is no vaccine
- The Hepatitis B Vaccine protects against the hepatitis B virus that can cause liver cancer

Human Papillomavirus Vaccine (HPV)



infections each year that can lead to six different types of cancer (cervical, vaginal, vulvar, penile, anal, and oropharyngeal)

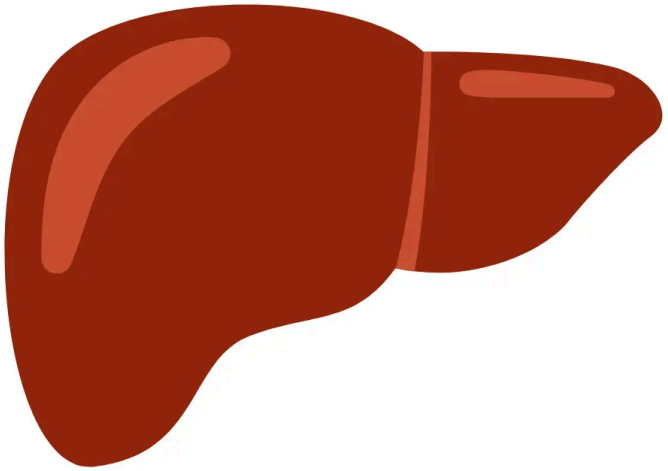
- HPV is spread through intimate skin-to-skin contact with an infected individual
- HPV vaccine was first recommended for administration to adolescent females in 2006. The recommendation was expanded in 2011 to vaccinate all males and females at ages 11-12, but can be administered as early as age 9

- Since the first recommendation in 2006, infections with HPV have decreased 88% among teen girls and 81% among young women
- The vaccine is among the most effective ever developed. Clinical trials found the vaccine to be nearly

infections and precancers caused by all seven cancer-causing HPV types

- Younger people develop a greater immune response to the vaccine, which prompted a reduction in the number of doses needed. Adolescents who initiate the series before the 15th birthday need 2 doses; those who begin after the 15th birthday need 3 doses. Studies have shown no reduction in protection over time.

Hepatitis B Vaccine (HepB Vaccine)

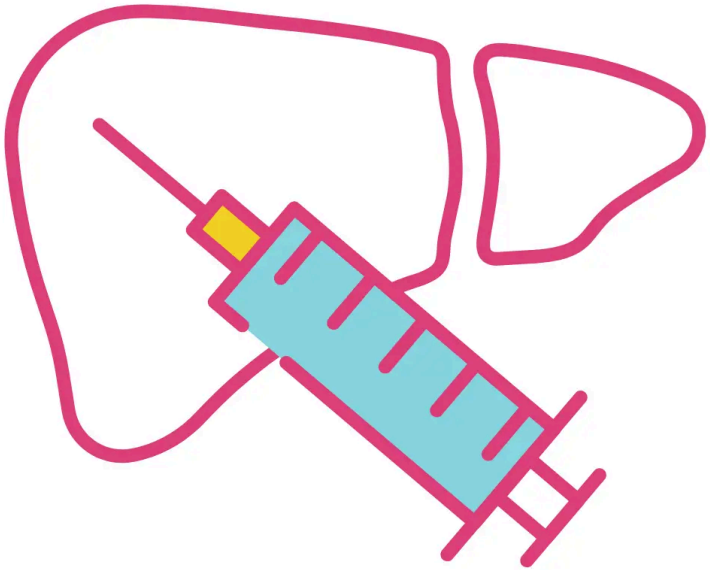


become chronic and result in liver damage (cirrhosis), liver cancer, and death

- HepB vaccine is spread through contact with infected body fluids or transmitted from mother to fetus. It is primarily spread through injected drug use and sexual contact.
- HepB vaccine was first recommended for administration to all newborns in 1991 in an effort to eliminate hepatitis B infections. The vaccine, along with hepatitis B immune globulin (HBIG), is also given to newborns of hepatitis B+ mothers to prevent infection.

HepB vaccination were first issued. 95% of newly reported chronic infections in the U.S. are now from foreign-born persons

- 80-90% of persons infected during infancy will develop chronic infection. Approximately 25% of them will die prematurely from cirrhosis or liver cancer
- The 3-dose HepB vaccine series protects approximately 95% of healthy infants and >90% of health adults aged <40 years.



Cancer and Vaccine Resources

CDC - Human Papillomavirus (HPV) Vaccination & Cancer Prevention

CDC – Cancers Caused by HPV

NCI - Large Study Confirms that HPV Vaccine Prevents Cervical Cancer

Inequities in Cancer Outcomes

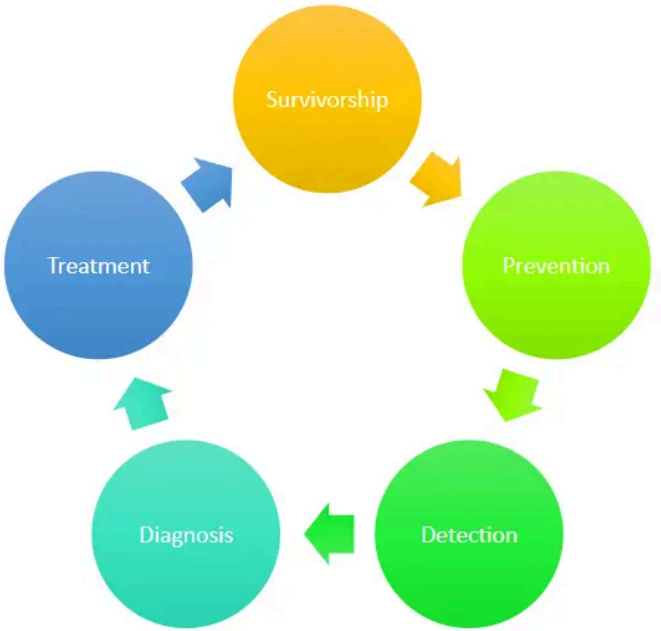
Disparities & Inequities

- Disparities are differences/gaps in cancer incidence and outcomes based on factors such as race, ethnicity, age, income, sexual orientation, gender identity, and where one might live
- According to the American Public Health Association (APHA), “inequities are created when barriers prevent individuals and communities from accessing [high quality healthcare] and reaching their full potential. Inequities differ from health disparities, which are differences in health status between people related to social or demographic factors such as race, gender, income or geographic region. Health disparities are one way we can measure our progress toward achieving health equity”

Disparities

- Incidence (new cases)
- Prevalence (all existing cases)
- Mortality (deaths)
- Survival (how long people survive after diagnosis)
- Morbidity (cancer-related health complications)
- Survivorship (including quality of life after cancer treatment)
- Financial burden of cancer or related health conditions
- Screening rates
- Stage at diagnosis
- Cancer disparities can also be seen when outcomes are improving overall but the improvements are not seen in some groups relative to other groups.

Disparities Along the Cancer Continuum



Disparities may occur across the cancer continuum of care.

- Black men have the highest overall cancer mortality rate at 221 per 100,000 people
- Prostate cancer mortality in Black men is more than double that of any other racial or ethnic group
- Black women have a 41% higher breast cancer death rates than white women, even though both groups have similar incidence rates
- Disproportionate poverty due to systemic racism that reduces access to equitable care contribute to disparities in cancer survival rates

Racial & Ethnic Inequities

221 per 100,000 people

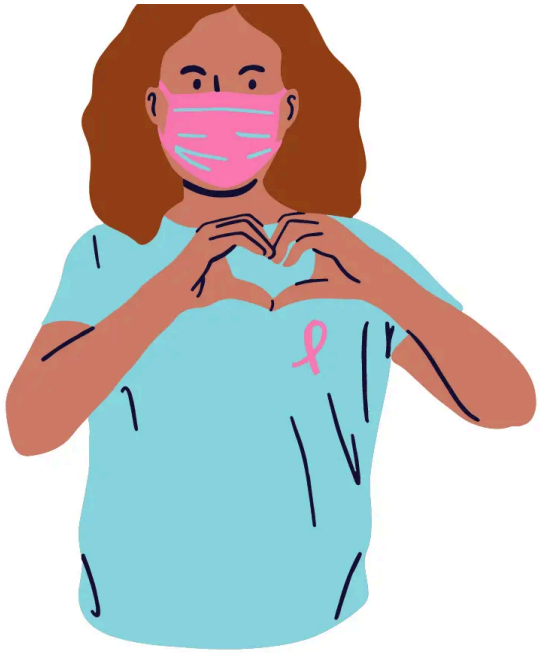
- Prostate cancer mortality in Black men is more than double that of any other racial or ethnic group
- Black women have a 41% higher breast cancer death rates than white women, even though both groups have similar incidence rates
- Disproportionate poverty due to systemic racism that reduces access to equitable care contribute to disparities in cancer survival rates

Cancer Inequities in Asian and Pacific Islander Populations

leading cause of death in the US

- Asian and Pacific Islander populations have the double the rates of liver and stomach cancer as that in white populations
- Due to historically high smoking prevalence, Native Hawaiian populations have higher rates of lung cancer than white people
- Variations in cancer occurrence within the Asian and Pacific Islander population reflects diversity in geographic origin, language, acculturation, and SES
- Current cancer data is largely unavailable for individual Asian and Pacific Islander populations

Hispanic and Latino Populations



Latino populations

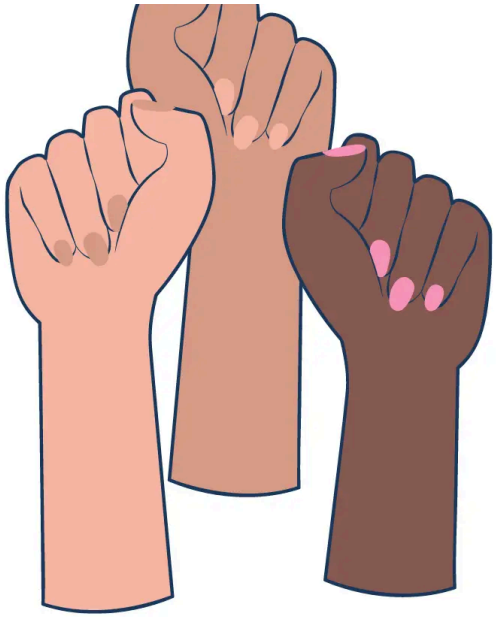
- Hispanic and Latino populations have the highest rates of cancer associated with infectious agents – cervical cancer, liver cancer, and stomach cancer
- Rates for the most common cancers – female breast, colorectum, lung, and prostate – are lower for Hispanic and Latino populations
- Cancer rates vary according to country of origin, generation, birthplace, and duration of residence in the US (acculturation)

Achieving Health Equity

- In order to achieve health equity, we must be invested in reducing patient risk and providing

self

- The APHA has outlined some ways for reaching this goal
  - Valuing people equally
  - Optimize the conditions in which people are born, grow, live, work, learn, and age
  - Work with other sectors to address the factors that influence health, including employment, housing, education, health care, public safety, and food access
  - Name racism as a force in determining how these social determinants are distributed



Resources

ACS – Cancer Facts and Figures 2022

ACS - Global Cancer Facts & Figures

ACS - Cancer Facts & Figures for Hispanic and Latino People

ACS - Breast Cancer Facts & Figures

ACS - Colorectal Cancer Facts & Figures

ACS - Cancer Prevention & Early Detection Facts & Figures

ACS - Cancer Treatment & Survivorship Facts & Figures

ACS - Cancer Facts & Figures for African American/Black People

Flu & COVID-19 + Cancer

Flu Vaccination + Cancer

each year

- People living with cancer should be vaccinated against the flu with the shot that has an inactive (dead) virus annually
- However, **people with cancer should NOT get the nasal mist flu vaccine,** as it contains a weakened version of the live virus
- People who live with (including children) or are caregivers of a person with cancer and is at high risk for flu-related complications should get vaccinated against the flu
- Consult with your clinical team if you have more questions

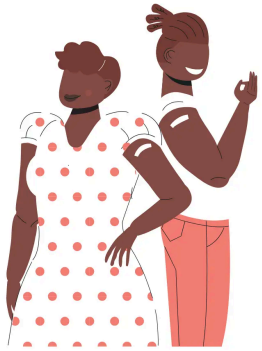
COVID-19 Vaccination + Cancer

recommends that all patients living with cancer and cancer survivors be vaccinated against COVID-19 as soon as they can, plus additional booster doses

- Some cancer treatments that affect the immune system might make the vaccine less effective
- People with certain types of cancers (ex. leukemias or lymphomas) can also have weakened immune systems, which may make the vaccine less effective

lymphomas) can also have weakened immune systems, which may make the vaccine less effective

- Given this, the NCCN and the CDC recommend that people with cancer who have a weakened immune system should get 3 doses of one of the mRNA COVID-19 vaccines as the primary series, plus an additional 2 booster doses (for a total of 5 shots)



- For people with cancer who do not have a weakened immune system, the NCCN and the CDC recommend 2 doses of an mRNA COVID-19 vaccine or one dose of the Janssen vaccine, plus an additional booster dose
- Always talk to your doctor if you have cancer, to help you determine your immune status.

Vaccine Recommendations for Cancer Survivors

- It’s generally recommended that vaccines not be given during chemo or radiation treatments – the only exception to this is the flu shot. This is mainly because vaccines need an immune system response to work, and you may not get an adequate response during cancer treatment.
- People with cancer who have a weakened immune system should get 3 doses of one of the mRNA COVID-19 vaccines as the primary series, plus an additional 2 booster doses (for a total of 5 shots)

system, the NCCN and the CDC recommend 2 doses of an mRNA COVID-19 vaccine or one dose of the Janssen vaccine, plus an additional booster dose

- People living with cancer should be vaccinated against the flu with the shot that has an inactive (dead) virus annually
- People who have weak immune systems should not get the measles-mumps-rubella (MMR) vaccine because it contains live virus. But it's safe for other household members to get it. If needed, your doctor may consider giving you the vaccine before cancer treatment starts

- The pneumococcus vaccine can help people with weak immune systems fight off certain lung,

doctor if you need to receive the pneumococcal vaccine and when you need to get it

- The meningocoocal vaccines (MenACWY and MenB) help prevent meningococcal disease, which can cause meningitis or other infections. This vaccine should not be given during cancer treatment. It may be offered before treatment, or after the patient's immune system has recovered. In cases where a patient is having the spleen removed, this vaccine may be given before surgery. Talk to your doctor to see if and when you may need to receive the meningococcal vaccines

linked to severe illness and physical disability. Since the vaccine came out in 1955, polio has been eradicated from much of the world and there has not been a reported case in the U.S. since 1979*

- Children who have weak immune systems, as well as their siblings and others who live with them, only should get inactivated polio virus vaccines. Most doctors in the United States use only the inactivated polio vaccine, but you should ask to be sure in case the child received vaccinations outside of the US

who have never had it. This is a live virus vaccine. It should not be given to people with weak immune systems, or to people with leukemia, lymphoma, or any cancer of the bone marrow or lymphatic system unless it's treated and under control. It's OK for household members of the person with weak immunity to get the varicella vaccine. If a vaccinated person develops a rash, it is recommended that close contact with persons who do not have evidence of varicella immunity and who are at high risk of complications of varicella, such as immunocompromised persons, be avoided until the rash has resolved. Talk to your doctor for more information or if you have questions

adults age 50 and older who have had chickenpox or shingles in the past to help prevent shingles or make symptoms of shingles less severe. If you have a weak immune system from cancer or cancer treatment, talk to your doctor about chicken pox and shingles vaccine options and whether one of these vaccines might be right for you

*Two of the three wild type strains of poliovirus have been eradicated from the world. The only two countries with remaining endemic polio are Afghanistan and Pakistan, although a few cases of polio from vaccine-derived virus (from the live attenuated oral vaccine) have popped up recently (one in Israel and the U.K. just reported detecting the vaccine-derived virus in their waste water). The U.S. has used only the injected (dead) polio vaccine since 2000, although the live attenuated virus vaccine is still used in difficult to reach areas of the world where it's difficult to keep the injected vaccine under conditions that keep it stable.

Cancer + Vaccine Resouces

NCI - COVID-19 Vaccines and People with Cancer: A Q&A with Dr. Steven Pergam

Stanford Medicine - COVID-19 vaccine effective in people with cancer, study finds

NCCN - COVID-19 Resources

Vaccine Myths/Misconceptions

See pdfs for flu and COVID-19 to upload.

Family physicians want you to know what's true.

MYTH 1: You can delay routine vaccinations until the pandemic is over.
You shouldn't postpone your vaccinations. Routine childhood and adult vaccinations are an important part of maintaining your health because they prevent other illnesses. Talk with your family physician about what vaccinations you still need and how to safely catch up. They may have alternate times or locations to vaccinate healthy patients, decreasing exposure to those who might be sick with COVID-19.

MYTH 2: The COVID-19 vaccines were developed too fast to be safe.
The technology used to develop the new mRNA COVID-19 vaccines isn't new. It's been studied and used for cancer research, and the original research on messenger RNA (mRNA) vaccines is decades old. The other vaccine platform uses a weakened adenovirus, which has been studied extensively for other vaccines. Clinical trials for the COVID-19 vaccines were done with the same rigor applied to all vaccine trials, and the results were reviewed and approved by multiple independent advisory panels. Increased collaboration, use of new technology and more funding meant that vaccine developers could work quickly during this pandemic.

MYTH 3: There weren't enough clinical trial participants to declare the vaccines safe.
This is false. The authorized COVID-19 vaccines enrolled tens of thousands of participants. They were followed for two months after receiving the second dose, which is common with vaccine trials.

MYTH 4: I already had COVID-19, so I don't need the vaccine.
It's not clear how long a natural infection with COVID-19 provides immunity from the disease. There are reports of individuals being reinfected with the virus, even after being very ill with COVID-19. The CDC recommends that a recovering COVID-19 patient get the COVID-19 vaccine 90 days after being infected.

MYTH 5: The vaccine will alter my DNA.
This isn't possible. mRNA vaccines work in the cell's cytoplasm and never enter the cell nucleus, where the DNA, your genetic material, lives. It's broken down quickly once it enters the cell and delivers the needed vaccine "message" to the cell's machinery. The virus spike protein is also rapidly broken down once there is no longer any mRNA. The adenovirus platform uses DNA encoding the spike protein which does enter the nucleus. However, it does not alter the cell's DNA in any way.

MYTH 6: COVID-19 vaccines will deliver a microchip into my body.
There is not a microchip in the vaccines. This false rumor started after comments about digital vaccine records. State electronic immunization records help patients and physicians track vaccines they have received. There are no electronic components in the vaccines. The mRNA, lipids (fat bubble), salts and other stabilizing agents are routinely used in other medicines.

MYTH 7: I won't need to wear a mask after I'm vaccinated.
The COVID-19 vaccines protect you from getting seriously ill. But it's not known if the vaccine will keep you from being infected and transmitting the virus to others. Wear your mask, wash your hands and maintain physical distance until more is known and more people have been vaccinated.

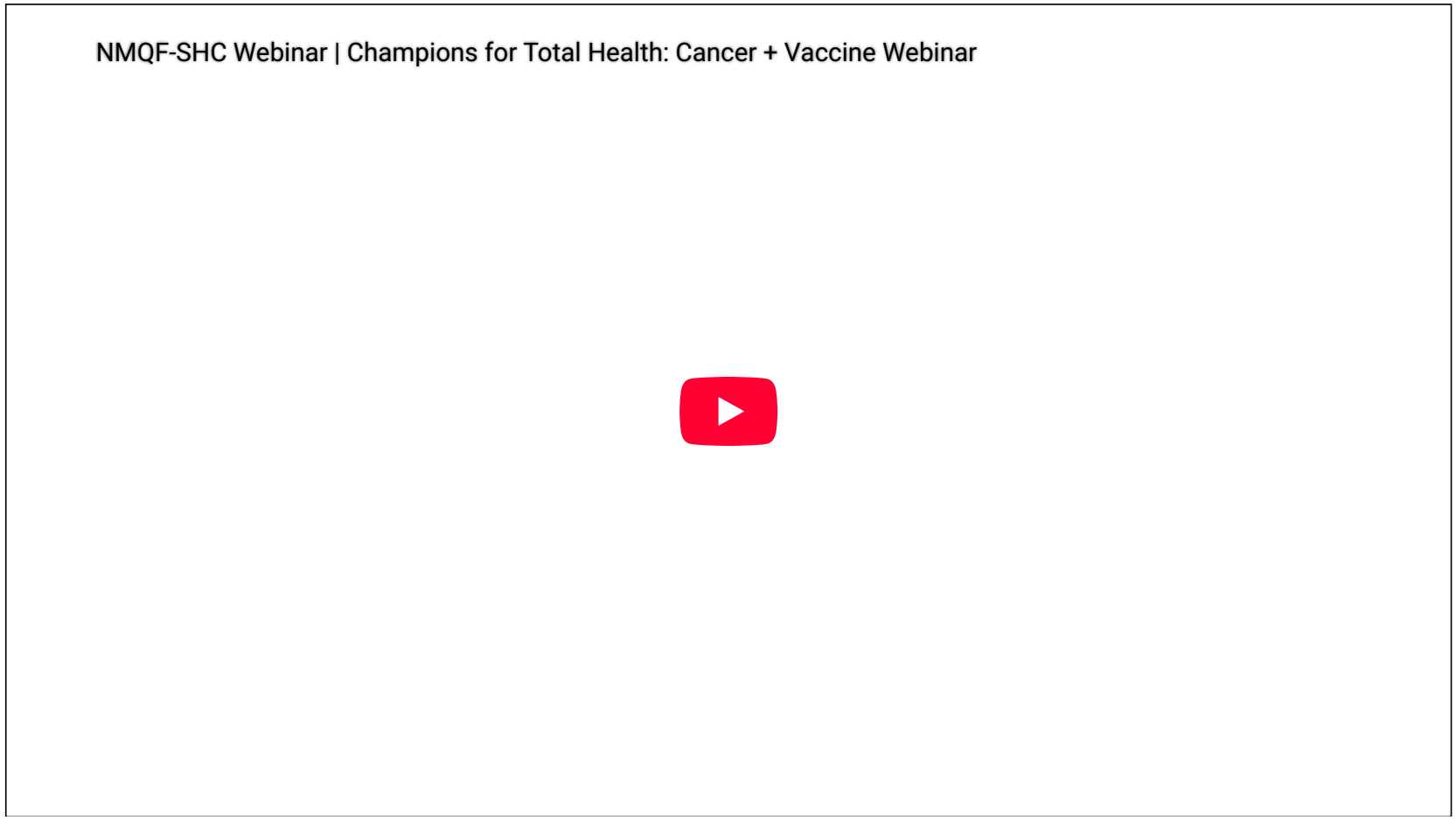
MYTH 8: I only need one dose of the vaccine to be protected against COVID-19.
There isn't enough data to support changing the COVID-19 vaccine dosing recommendations. While the COVID-19 vaccine developed with the adenovirus platform is given in one dose, you should get two doses of the mRNA vaccines to achieve the best level of immunity and protection.

MYTH 9: I should wait for the vaccine that is more effective.
All COVID-19 vaccines are safe and effective options. There is no preference. The goal is to get everyone vaccinated, so it's important to take the vaccine that is offered to you.

AAFP
AMERICAN ACADEMY OF FAMILY PHYSICIANS

Need more information on COVID-19 and the vaccine?
familydoctor.org

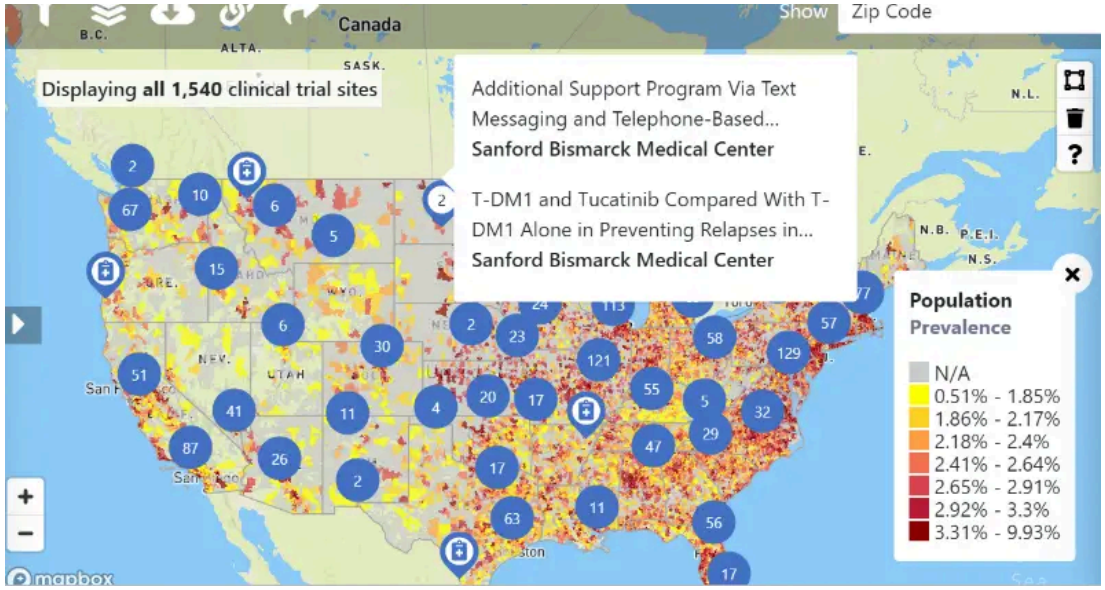
Watch Now: Cancer + Vaccines



NMQF Cancer Work

- Promote adoption of actionable CWG Cancer Indices
- Address cancer health equity in high-risk communities
- Increase Diversity in Cancer Research
- Drive Community and Patient Engagement
- Special Focus for 2022: Engaging the Medicaid population and new Cancer Moonshot Initiative
- Involvement in the Cancer Moonshot

Cancer Index



- **Over 5 billion** CMS patient records to define disease prevalence, costs and outcomes for demographic subpopulations by geography (zip code, state, country, congressional and state legislative districts

- **Continuous** integration of additional data and overlays
    - Medicaid, 2015-2018
    - Medicare FFS, 2015-2019

- **Cancer**
    - Breast Cancer
    - Colorectal Cancer
    - Endometrial Cancer
    - Lung Cancer

- Quest Diagnostics site overlay (in production, April 2022)

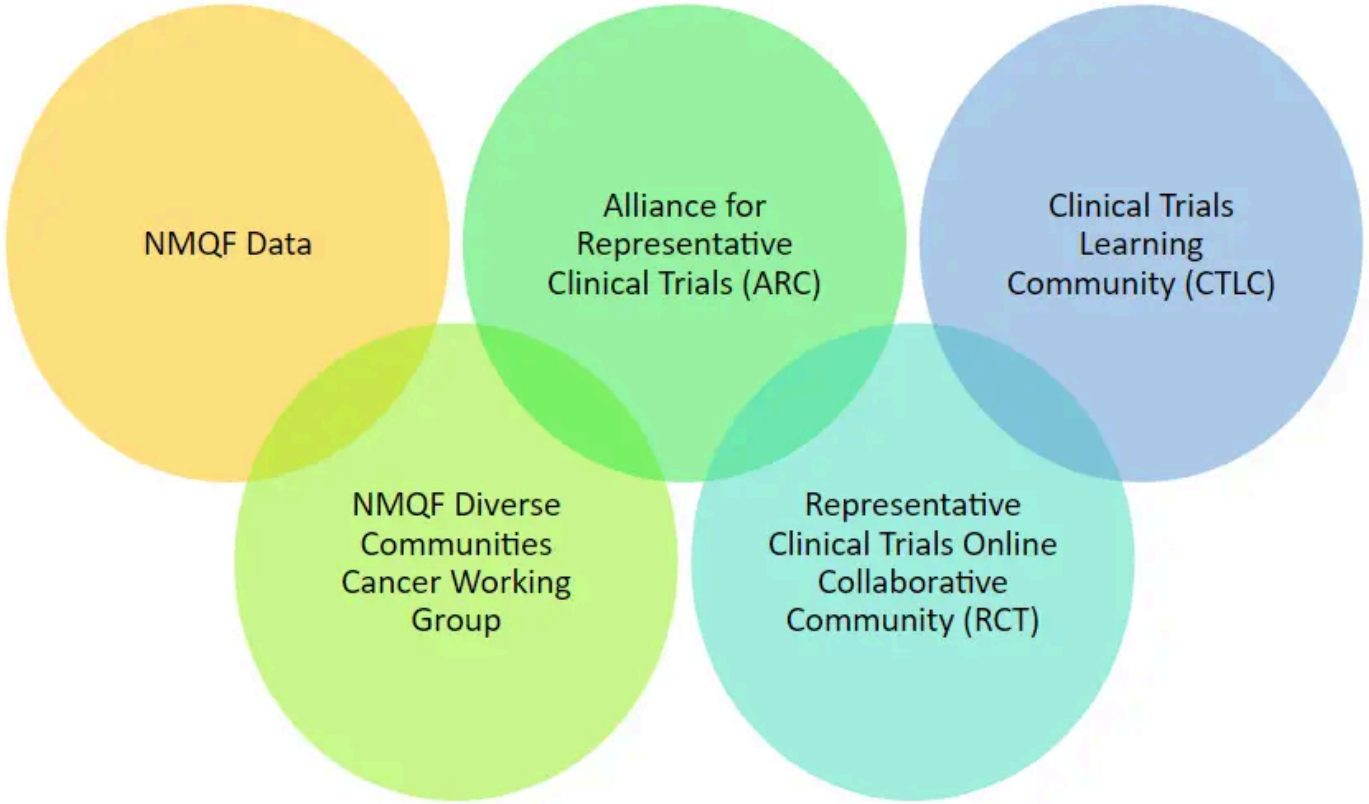
Cancer Stage Shifting Initiative

- Mission: Move from late stage to early-stage diagnosis and treatment of cancer, improving cancer care and reducing the incidence of cancer deaths for all, with a particular focus on equity and underrepresented populations
- Involve all sectors at NMQF
- Partner with industry leaders to bring to fruition
- Build on the notion of collective action networks

Representative Clinical Trials

A peer-to-peer online, collaborative community for clinical development professionals and advocates t**o build capabilities to create and perform best**

the needs of diverse populations when designing and conducting clinical research



Clinical Trials | Clinical Trials (ACS) | All Of Us

Cancer Support Groups | Support Groups | Cancer Care

Risk Mitigation Strategies

gatherings
- Engage in good hand washing and hand hygiene
- Remain physically distant when around people who do not live with you
- Engage in stress management tactics, including self-care, meditation, and therapy
- Engage in eating nutrient-dense foods and regular exercise
- Get regular fresh air

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HEALTH
SINCE 2020
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NATIONAL
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Center for
Sustainable Health Care
Quality and Equity


iREACH
resource. engage. connect.


AIM
Association of
Immunization
Managers