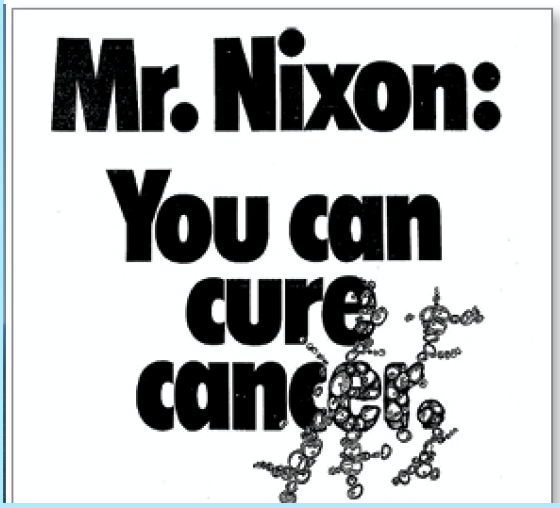
Reflecting on Progress:

From Nixon's War on Cancer to Modern Cancer Innovations & Trends

September 2024

THE WAR ON CANCER

Before the “War on Cancer,” which began in the early 1970s with President Richard Nixon, cancer was widely misunderstood and often considered a death sentence, with some Americans even fearing it could spread like a contagious disease. In the early 1900s, there was little federal spending on cancer research, and cancer wasn't a topic people talked about openly, even though cancer had become the second leading cause of death by 1970. In the 1950s and 60s, breakthroughs in chemotherapy studies greatly improved survival rates from near-zero to around 50% for certain cancers. These successes inspired hope that cancer could be treated with medicine, similar to how antibiotics changed the game for infectious diseases. After years of Americans pushing for change, President Nixon signed the National Cancer Act into law on December 23, 1971, describing it as a “wonderful Christmas present” for the American people. The legislation established a national commitment to cancer research and control, leading to increased funding, coordination, & focus on fighting cancer by the United States government.



THE WAR ON CANCER

The passage of the National Cancer Act in 1971 led to a large investment of $1.6 billion, which is equal to almost $11 billion today. **The U.S. government has spent more money combatting cancer than on any other disease, including COVID-19**, which has resulted in improved outcomes for many cancers. However, the ambitious goals set by lawmakers, including finding a cure for common cancers within five years, created unrealistic expectations. The failure to achieve these goals sparked skepticism and criticism from both the public and the media over the years. Still, the act allowed the government to boost investments in cancer research, leading to a large increase in the National Cancer Institute's annual budget from $227 million in 1971 to $7.3 billion in 2023 and has greatly contributed to advancements in cancer treatment and prevention over the past several decades.

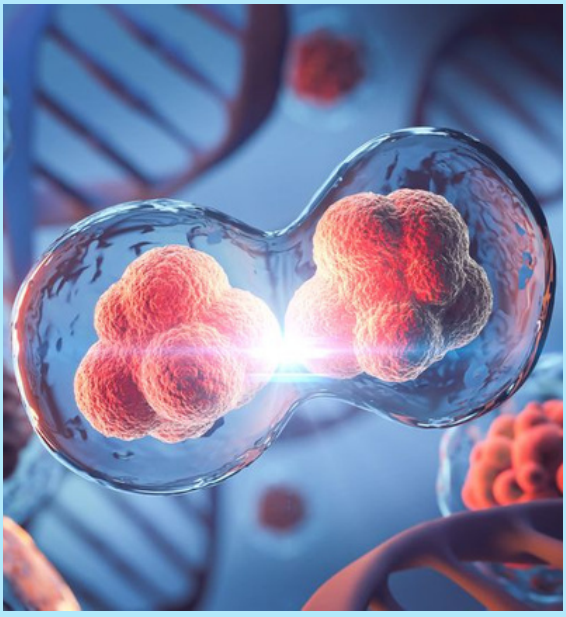
1971 - PRESIDENT NIXON DECLARES "WAR ON CANCER"
Launching a $1.6 Billion (US) dollar crusade.

WHAT IS CANCER?

Cancer is a collection of diseases where abnormal cells grow and spread uncontrollably, which can lead to negative health outcomes and even death. Cancerous cells invade and damage nearby tissues and organs, disrupting their normal functions. **The causes of cancer development are not fully understood, but they often involve a mix of genetic, environmental, and lifestyle factors**:

- Changes in our genes, called mutations, can play a large role in cancer development because they can alter the normal functioning of cells and lead to uncontrolled growth.
- Environmental factors such as exposure to carcinogens like tobacco smoke, ultraviolet radiation from the sun, and certain chemicals or pollutants can also increase the risk of cancer.
- Lifestyle choices such as smoking, excessive alcohol consumption, poor diet, lack of physical activity, and exposure to infections like human papillomavirus (HPV) or hepatitis B and C viruses can contribute to cancer development.

In the U.S., an estimated 40 out of 100 men and 39 out of 100 women will develop cancer during their lifetime. Various factors can increase the risk of developing cancer. These risk factors can act alone or in combination to promote cancer growth, highlighting the importance of lifestyle changes and early detection strategies in reducing cancer risk.



RISK FACTORS

Modifiable Risk Factors

Some factors are modifiable, meaning they can be changed.

- **Tobacco use**
  - Smoking cigarettes, cigars, or pipes, as well as using smokeless tobacco, greatly increases the risk of various cancers, including lung, mouth, throat, esophagus, and bladder cancer.
- **Unhealthy diet**
  - Consuming a diet high in processed foods, red meat, and sugary beverages, while low in fruits, vegetables, and whole grains, is associated with a higher risk of cancer, especially colorectal cancer.
- **Excessive alcohol consumption**
  - Regular and heavy alcohol consumption can increase the risk of developing cancers of the mouth, throat, esophagus, liver, colon, and breast.
- **Physical Inactivity**
  - Studies have shown that individuals who engage in regular physical activity have a lower risk of developing colon, breast, and endometrial cancer compared to those who do not.
  - Regular exercise not only helps maintain a healthy weight but also reduces inflammation and improves immune function, all of which contribute to a lower cancer risk.
- **Obesity**
  - Obesity increases the risk of breast, colon, kidney, pancreatic, and endometrial cancer.
  - Excess fat tissue in the body can produce hormones and growth factors that promote the growth of cancer cells.
  - Obesity is often accompanied by chronic inflammation, insulin resistance, and alterations in hormone levels, all of which can contribute to cancer development.

RISK FACTORS

Non- Modifiable Risk Factors

Some factors are non-modifiable, meaning they cannot be changed.

- **Age**
  - While everyone is at risk, the likelihood greatly rises with age, with most cancer diagnoses occurring in individuals aged 55 and older.
- **Genetics**
  - Inherited genetic mutations can predispose individuals to certain types of cancer, including breast, ovarian, and colorectal cancer.
- **Family History**
  - A family's medical history may show they're more likely to get cancer because of their genes, and because they share similar lifestyles and environments with other family members.
- **Gender**
  - Some cancers can only be developed by certain genders, like ovarian and prostate cancers. Breast cancer is more prevalent in women, but can be experienced by men too.
- **Race/ Ethnicity**
  - Certain racial and ethnic groups may have a higher incidence or mortality rate for specific types of cancer due to genetic, environmental, or socioeconomic factors.
  - Black individuals experience disproportionately higher death rates for prostate, stomach, and uterine cancers compared to white individuals.

CANCER TRENDS

Mortality Rates

Over the years, there has been a significant decrease in the number of deaths from all types of cancer, dropping by 27% since 1971 and by 32% since 1991. This progress has been largely seen in 12 out of 15 commonly studied cancer locations, including cervical and stomach cancer, where mortality rates have decreased by sometimes up to 70%. However, despite these positive strides, there are still concerning trends ahead. **In 2024, it's projected that the US will see over 2 million new cancer cases for the first time**, alongside an estimated 611,000 deaths from cancer. That translates to more than 1,600 deaths daily. **The leading causes of cancer deaths include lung and bronchus, colorectal, pancreatic, and breast cancers**, which are all together responsible for almost 50% of all cancer deaths.

Incidence Rates

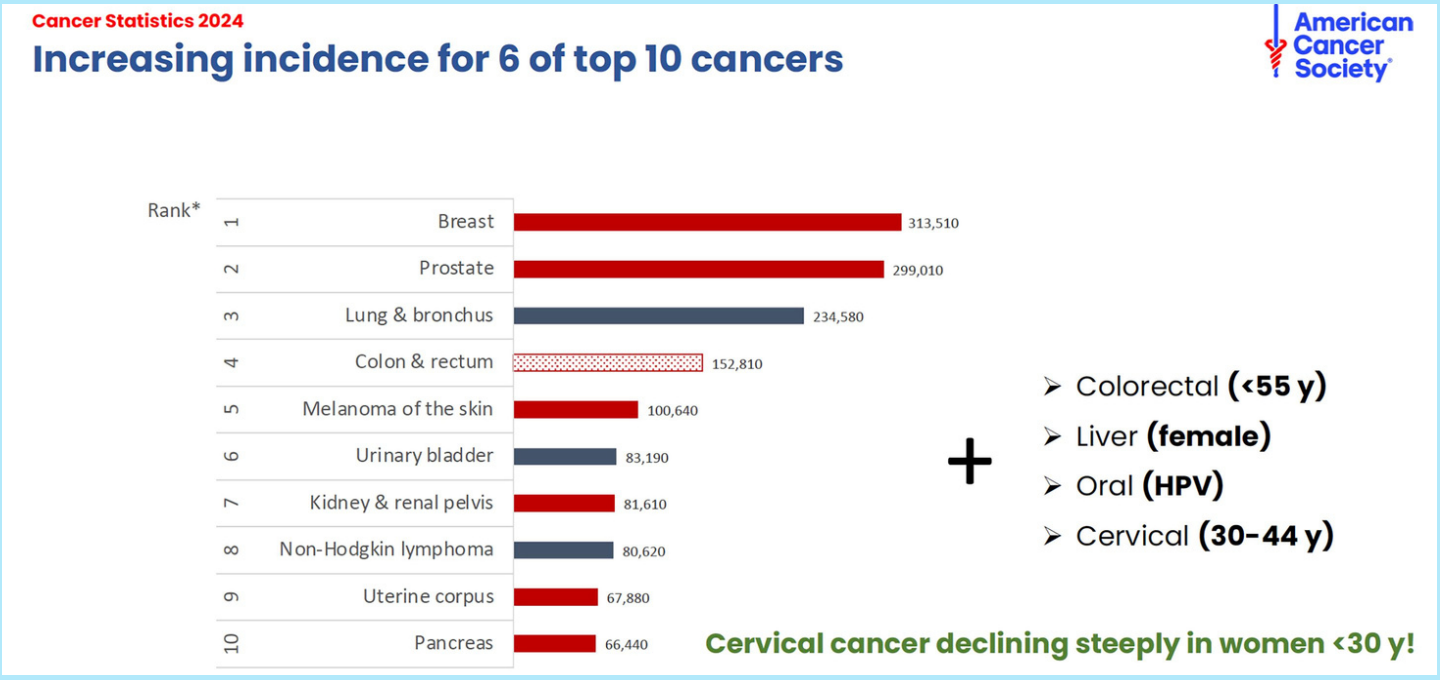
While overall cancer death rates have seen a decline, **the incidence (new cases) of many common cancers, including six of the top ten, is on the rise**. The projection of 2 million new cancer cases in 2024 indicates an average of 5,500 new diagnoses daily. Breast, lung, prostate, and colorectal cancers make up nearly half of all new cancer cases. In 2024, breast cancer is expected to be the most diagnosed cancer, followed by prostate and lung cancer.

CANCER TRENDS

The increase in cancer incidence is driven by many factors. This includes the aging population and increased diagnosis rates in over half of the top 10 most common cancers. Also, certain types of cancer are increasing in specific populations, including:

- colorectal cancer in individuals under 55,
- liver cancer in women,
- HPV-linked oral cancers,
- and cervical cancer in women aged 30 to 44.

An alarming trend is the increasing occurrence of cancer among younger age groups. Colorectal cancer diagnoses among individuals under 50 have greatly increased and have become the primary cause of cancer death in men under 50 and the second leading cause in women of the same age.



CAN CANCER BE PREVENTED?

Preventing cancer is crucial to reducing its impact, and lifestyle changes can make a big difference. Many cases, especially those linked to tobacco and unhealthy habits, can be avoided. **In the US, around 42% of new cancer cases in 2022 were preventable.** totaling about 805,600 cases. This includes 19% from smoking and 18% from factors like being overweight, drinking too much, poor diet, and not exercising.

Protecting the skin from sun exposure and **avoiding indoor tanning beds** can also prevent millions of skin cancer cases. Screening is also important in preventing cancer by detecting and removing precancerous growths in various areas like the colon, rectum, and cervix, which helps to avoid colorectal and cervical cancers. **Early detection through screening** can lead to more successful treatment for cancers such as breast, colon, rectal, cervical, lung, and prostate. Overall, the decline in cancer death rates, which has led to nearly 3.5 million fewer deaths between 1991 and 2019, highlights the effectiveness of preventive strategies and improvements in cancer treatment.

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