

Cancer in Winneshiek County

Mary Charlton, PhD & Whitney Zahnd, PhD

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Who we are



Mary Charlton, PhD

- Professor, University of Iowa College of Public Health
- Director, Iowa Cancer Registry
- President, Iowa Cancer Consortium
- Co-Leader of the Cancer Epidemiology & Population Science Program, Holden Comprehensive Cancer Center
- Research: Rural/ Urban differences in cancer prevention, screening, & quality of care



Whitney Zahnd, PhD

- Assistant Professor, University of Iowa College of Public Health
- Past-president of the Iowa Rural Health Association
- Member of the Cancer Epidemiology and Population Sciences Program, Holden Comprehensive Cancer Center
- Research: rural-urban differences in cancer prevention, incidence and outcomes, access to care

99 Counties Project Team



Iowa Cancer
Consortium

www.canceriowa.org



IOWA
HEALTH CARE

Holden Comprehensive
Cancer Center

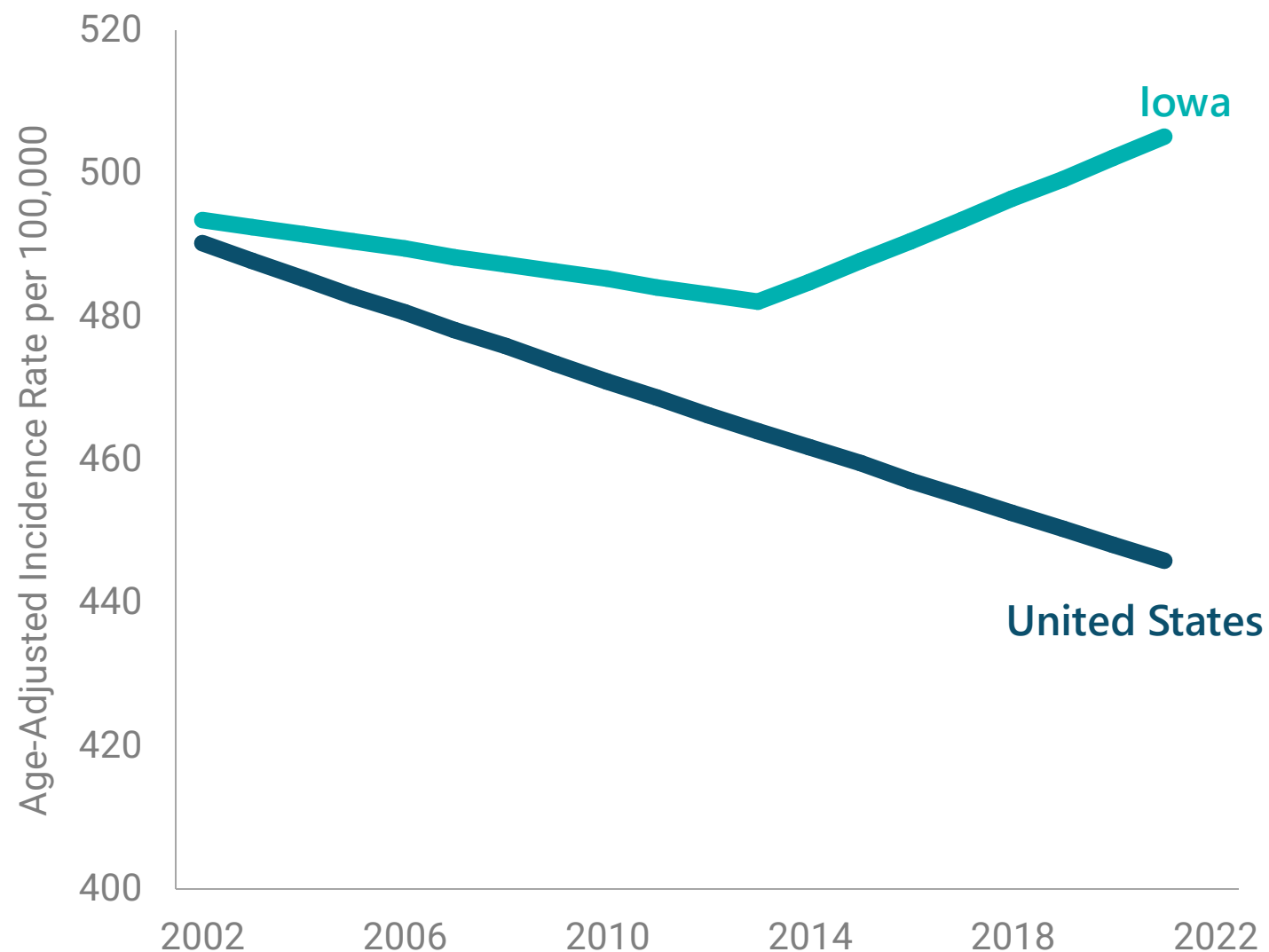
IOWA™ | Health and
Human Services

*“Statistics are people
with the tears wiped away”*

Dr. Irving Selikoff

Iowa has the **#2**
highest rate of new
cancers in the U.S.

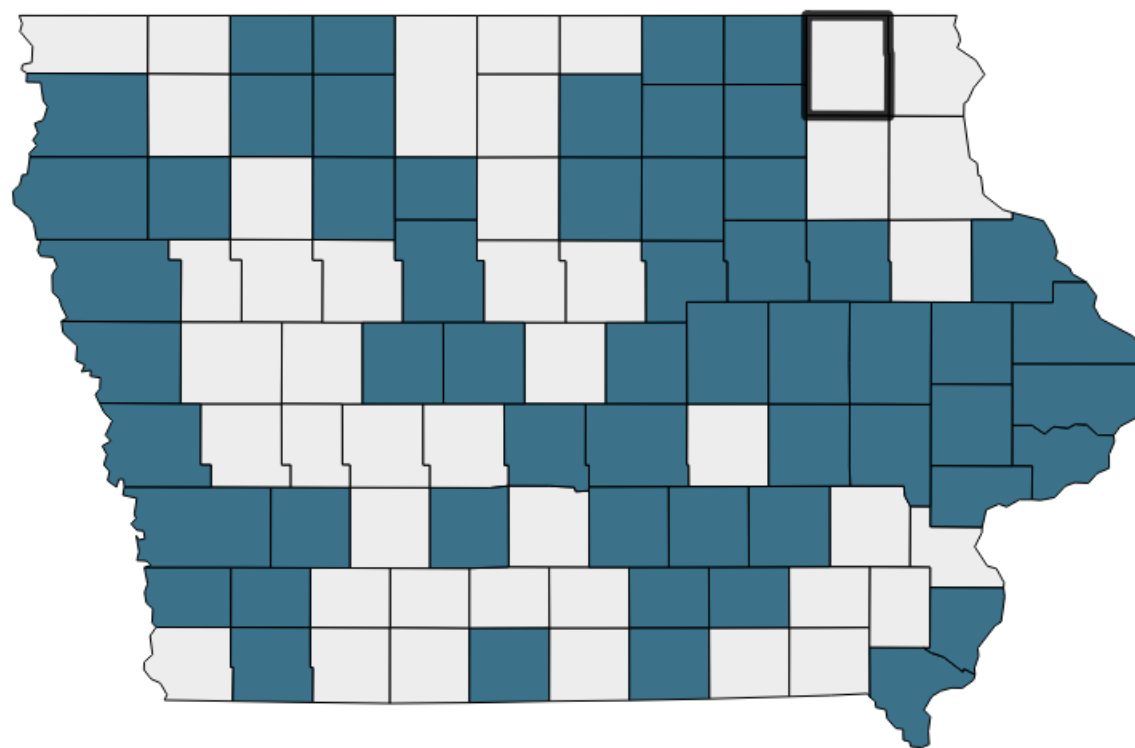
**Iowa's rate is
rising** while the rest
of the country
improves



Over half of Iowa's counties have a higher incidence rate than the U.S.

56 Counties with rates **OVER** the national average

0 Counties below the national average



■ Above National rates
■ Similar to National rates

About the Project

Goal: to enhance community engagement & education around cancer prevention and control across all of Iowa's 99 counties.



Present county-specific cancer data



Listen



Provide
Resources



Recommend
actions

Cancer Control Partners in Iowa

State Government



Governor

- Implement state laws
- Advance and pursue policies and programs

Iowa Legislature

- Propose and vote on legislation
- Appropriate money to state agencies and programs
- Create and modify Iowa laws



Bureau of Chronic, Congenital and Inherited Conditions

Comprehensive Cancer Control Program

Cancer prevention, screening, survivorship

Care for Yourself
(Breast & Cervical
Cancer Program)

Colorectal Cancer
Screening Program

Bureau of Environmental Health Services

- Track environmental health-related diseases
- Assist local boards of health

Local (County) Public Health Services/Boards of Health

- Address health priorities and health disparities
- Promote healthy living
- Protect against environmental hazards
- Assure access to health services

Unity Point, MercyOne, Great River, Avera, Mayo, Methodist, Gundersen, Sanford and numerous independent **health systems, hospitals and clinics across Iowa**

Provide cancer prevention, screening, treatment, and survivorship services



Iowa Cancer Consortium

Advocate, collaborate, plan



Iowa Cancer Action Network

Advocate for better policies

ACS Iowa

Help with cancer treatment and recovery



Holden Comprehensive Cancer Center

Iowa's only NCI Designated Cancer Center

Health Care, research, education



STATE HEALTH REGISTRY OF IOWA

Data, research, education

UI Research Centers



CHEEC

Center for Health Effects of Environmental Contamination



Federal Funding for Cancer Control

- The Iowa Cancer Registry is funded in part with Federal funds from the **National Cancer Institute (National Institutes of Health)**, Department of Health and Human Services, under Contract No. HHSN261201800012I
- The Cancer in Iowa: 99 Counties Project is specifically funded by Federal funds from the **National Cancer Institute** through grant award: 5R01CA254628-04S2, and through National Cancer Institute funds provided to the University of Iowa Holden Comprehensive Cancer Center (P30CA086862)
- The Iowa Cancer Consortium acknowledges the **Centers for Disease Control and Prevention (CDC)** for its funding support under cooperative agreement NU58DP007103 awarded to the Iowa Department of Health and Human Services (Iowa HHS).

The contents of this presentation are solely the responsibility of the authors and do not necessarily represent the official views of CDC or the National Institutes of Health/National Cancer Institute.

Iowa Cancer Registry Goals



Assemble & report data on new cancers, cancer deaths, & survival



Respond to **data requests** from organizations & individuals



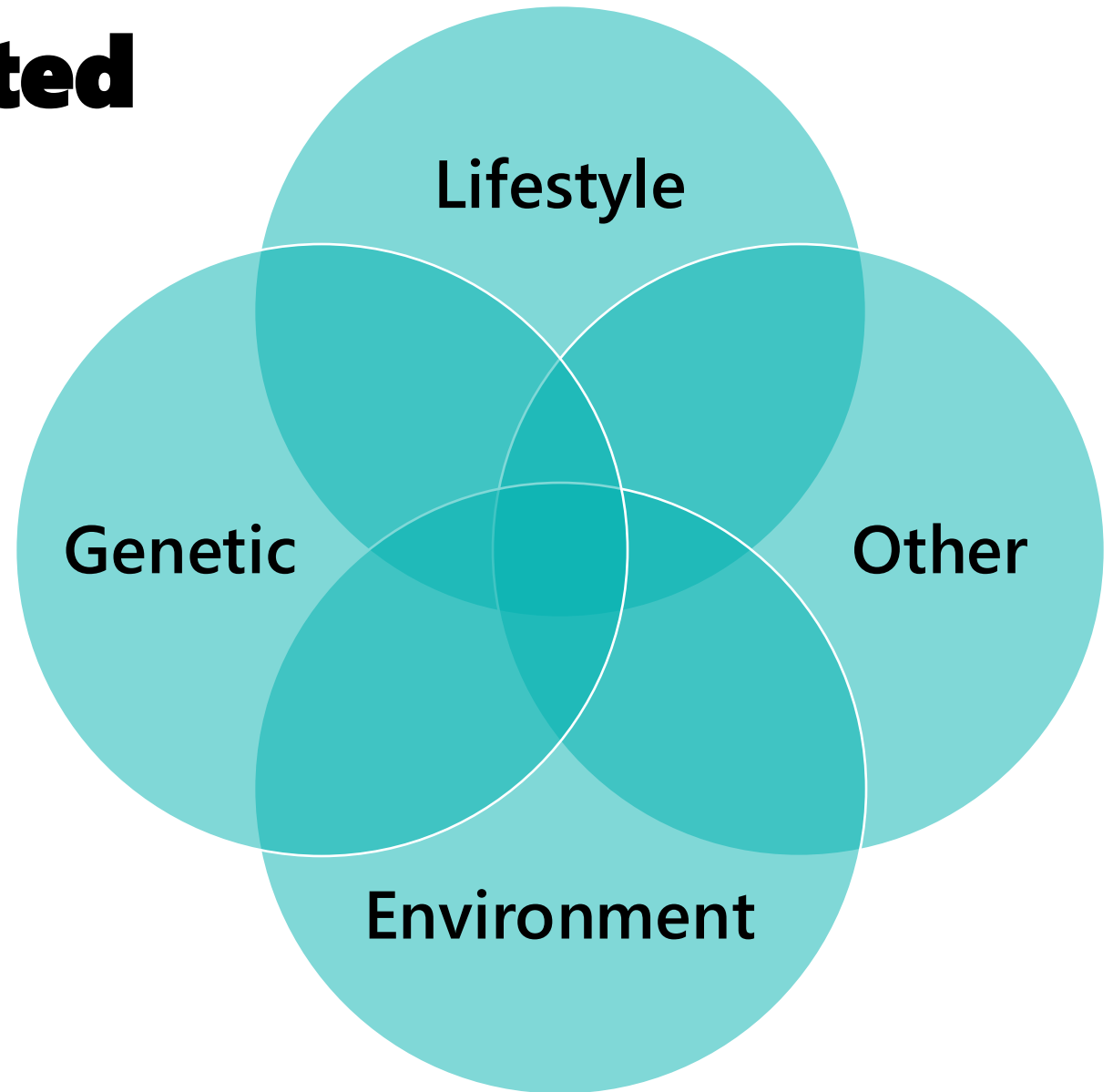
Support studies for cancer prevention, research & education



Background on Cancer

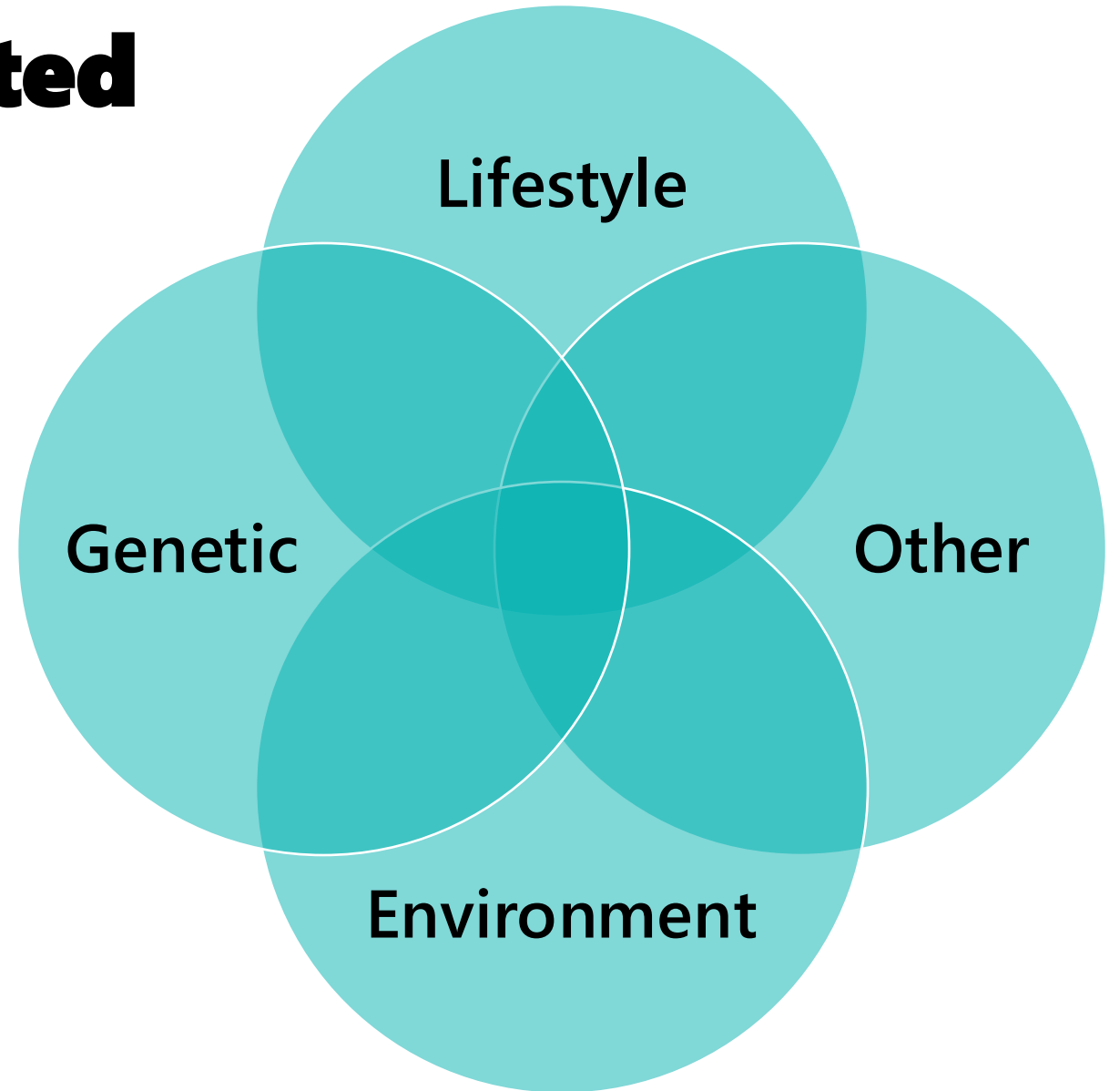
Cancer is Complicated

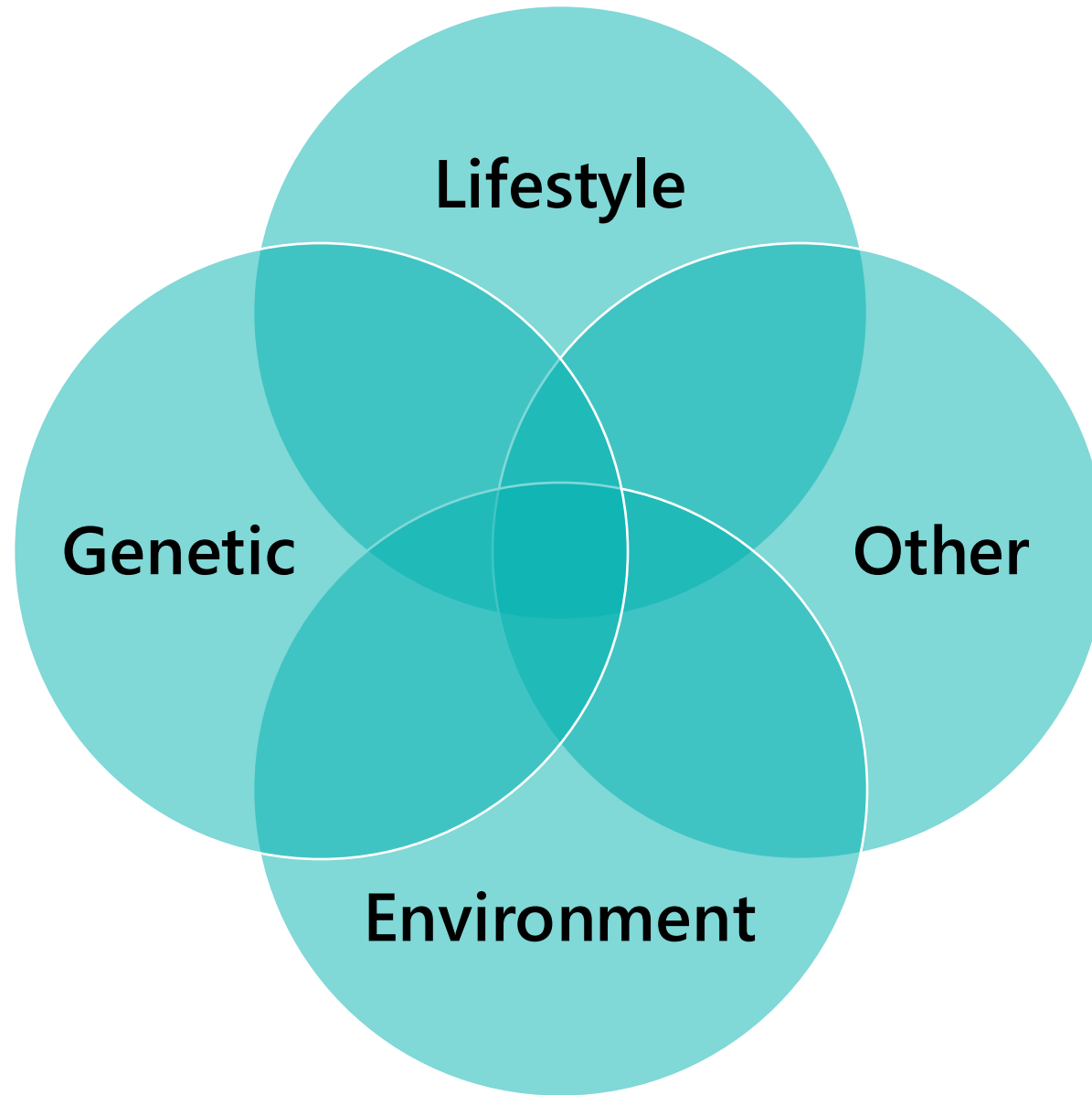
There is no one cause of cancer; it is a combination of different **genetic, lifestyle, and environmental** risk factors that change the function of cells



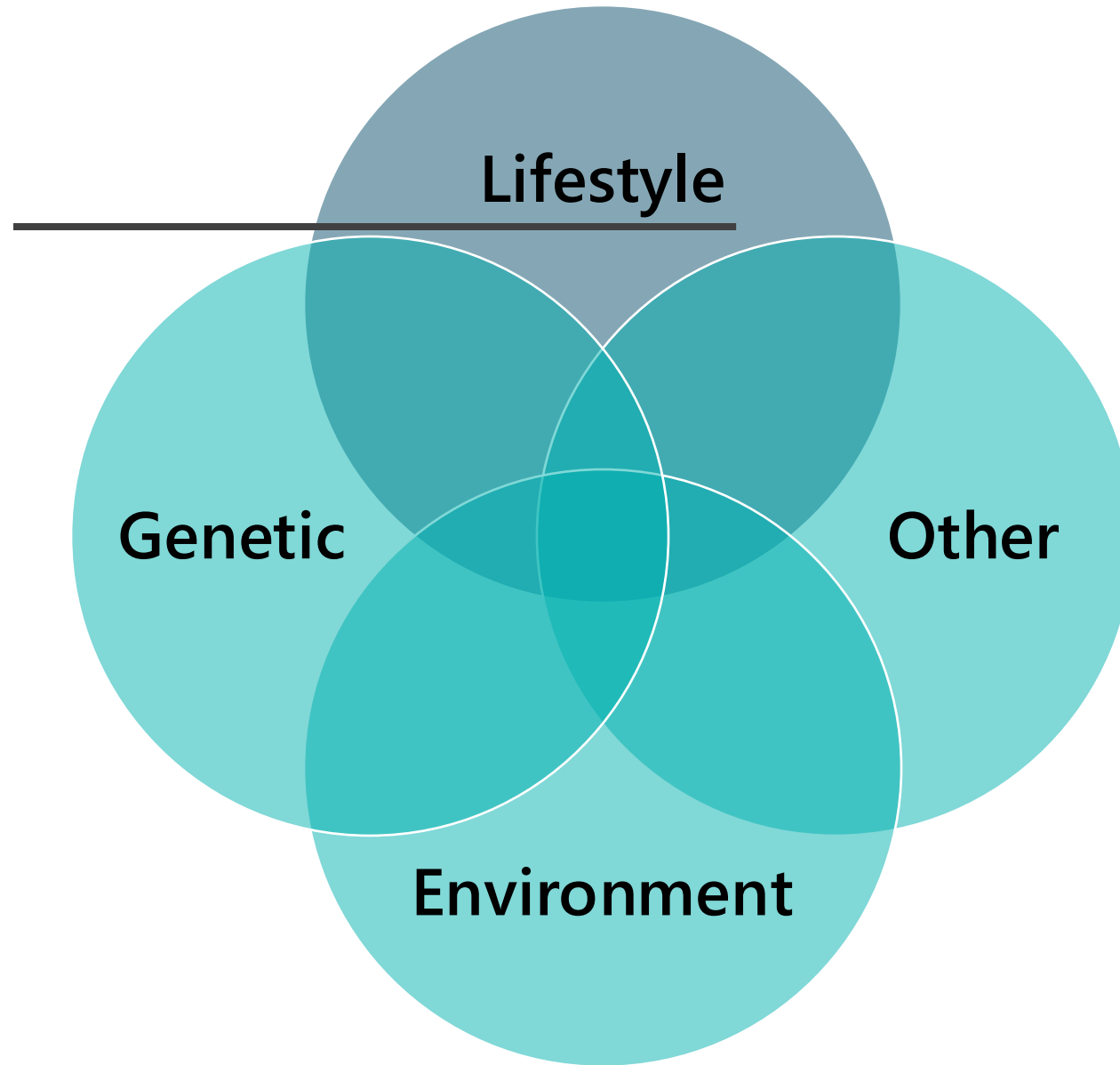
Cancer is Complicated

Risk factors are things that increase your chances of getting cancer

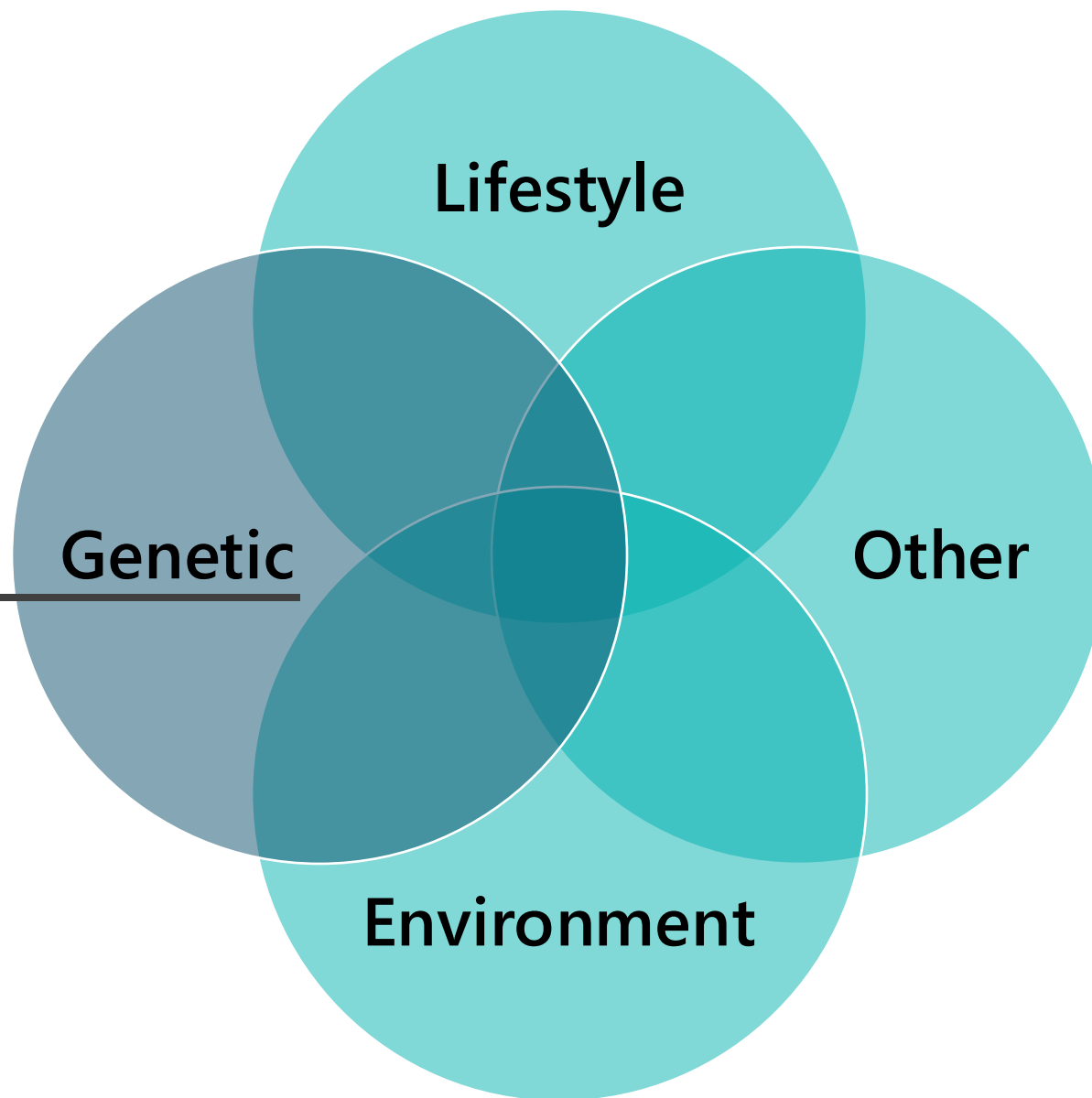


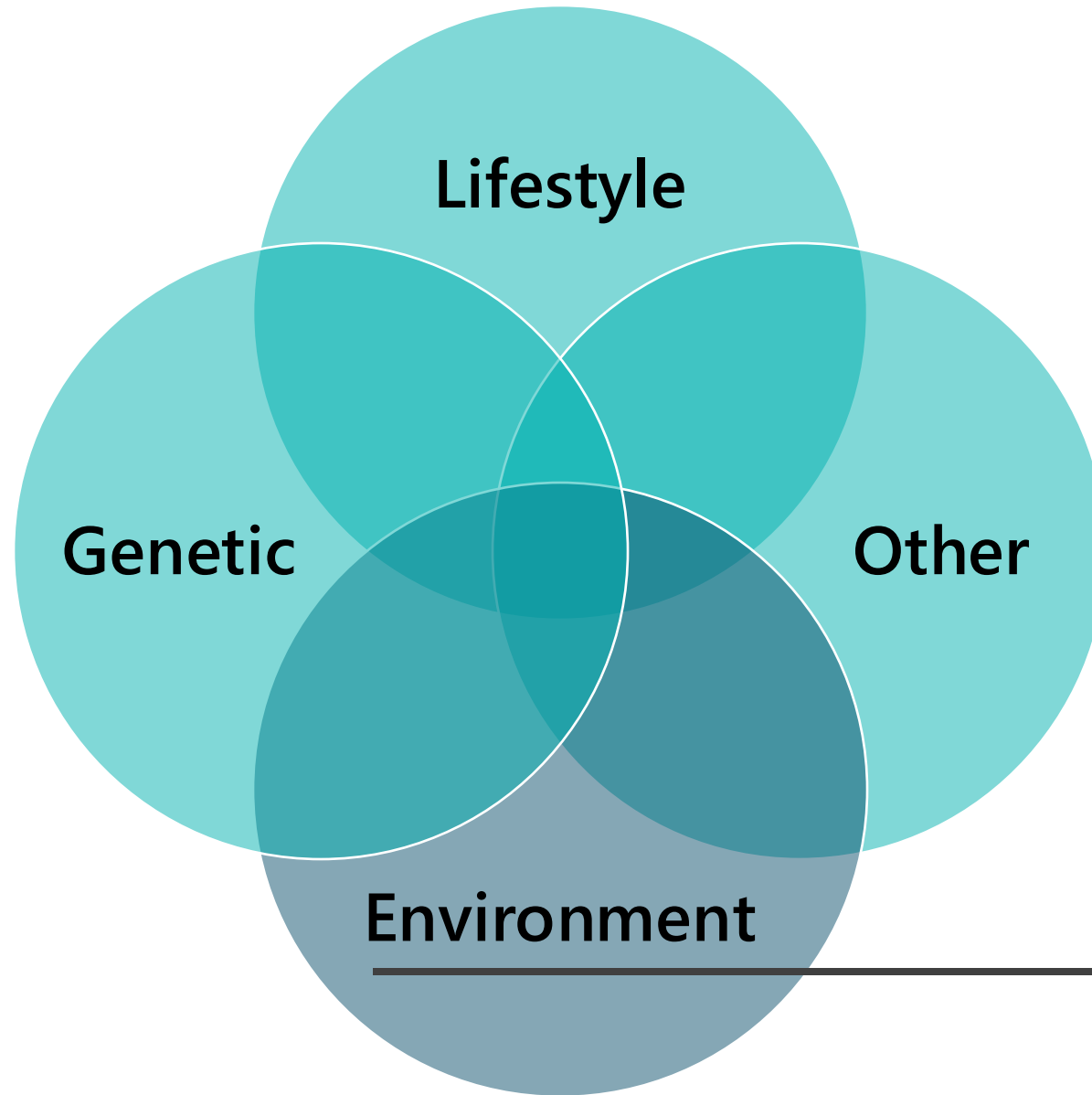


- Tobacco
- Alcohol
- Unhealthy diet
- Not being physically active
- Sunburns

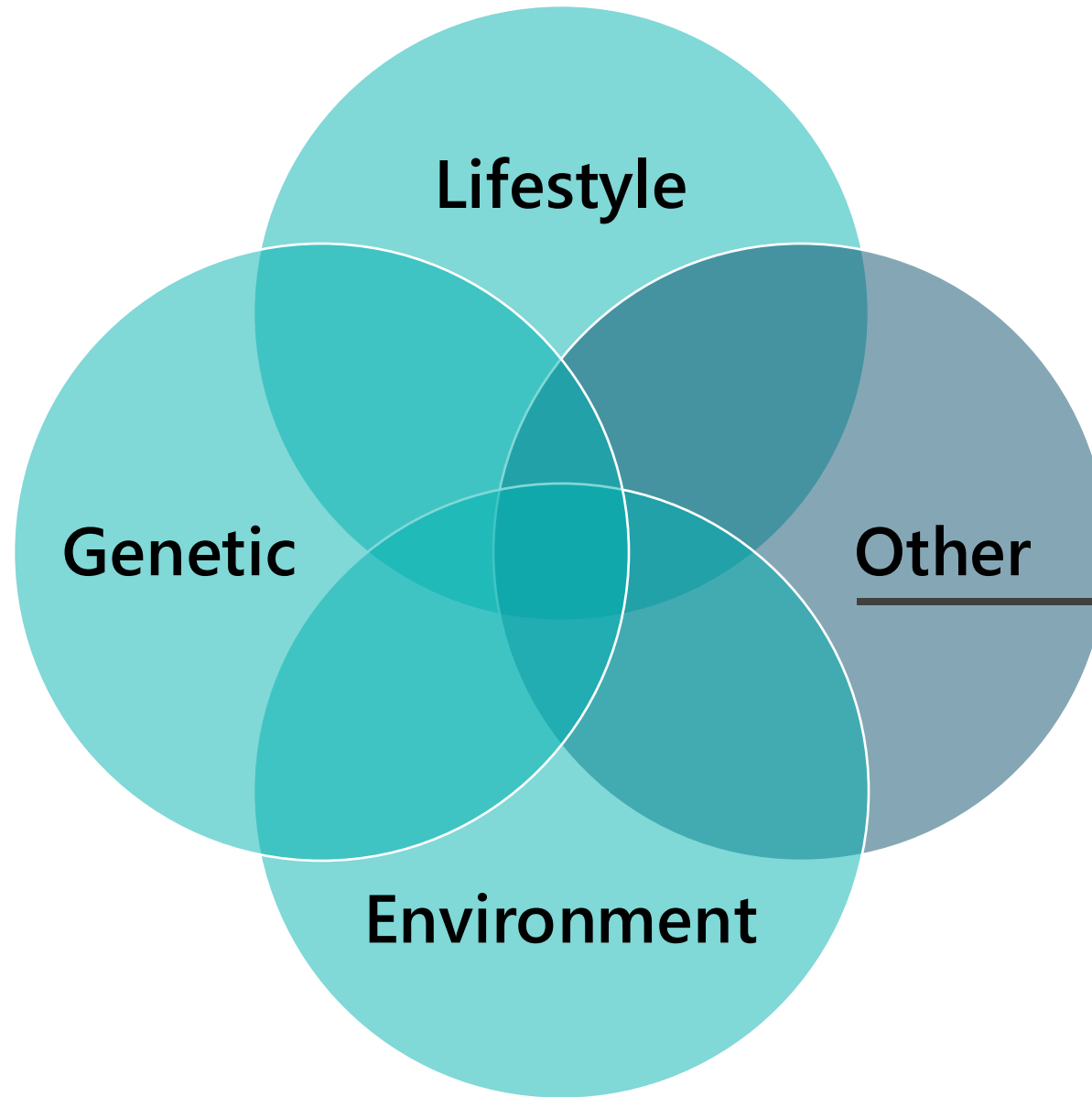


- Family history of cancer
- Random mutations





- Exposure to chemicals
- Radiation



- **Aging**
- Viruses (HPV, HIV)
- Medical conditions like chronic inflammation

Cancer & the Environment

- Many Iowans understandably have questions about potential links between environmental exposures and cancer
- This is an important area of continued research, and Iowans are right to ask questions and be cautious
- ICR, along with other population-based cancer registries, do not collect data on environmental risk factors, but we do share our data with researchers to support studies of cancer & environmental risk factors

Risk Factors

- There can be many years between exposure to risk factors & cancer development, which makes it difficult to prove connections.
 - For example, lung cancer may not occur until 30 years after a person starts smoking
- To reduce your risk, **avoid risk factors** whenever possible
- Today we will focus on things you can do to reduce your cancer risk. These things can be addressed at the state, community, and individual levels.



Key Terms

Incidence & Mortality

- Incidence
 - Number of **new cases** of a disease occurring during a specified time period in a population
- Mortality
 - Number of **deaths** from a disease that occur during a specified time period in a population

Rates & Counts

- Counts
 - The **number** of new cases diagnosed or deaths from cancer
- Rates
 - Adjusts the counts to give a **# per 100,000 people**
- Age-Adjusted Rates
 - Addresses the question: *If the size and age of the populations were the same, would there be a difference in outcomes?*

Stage definition used today

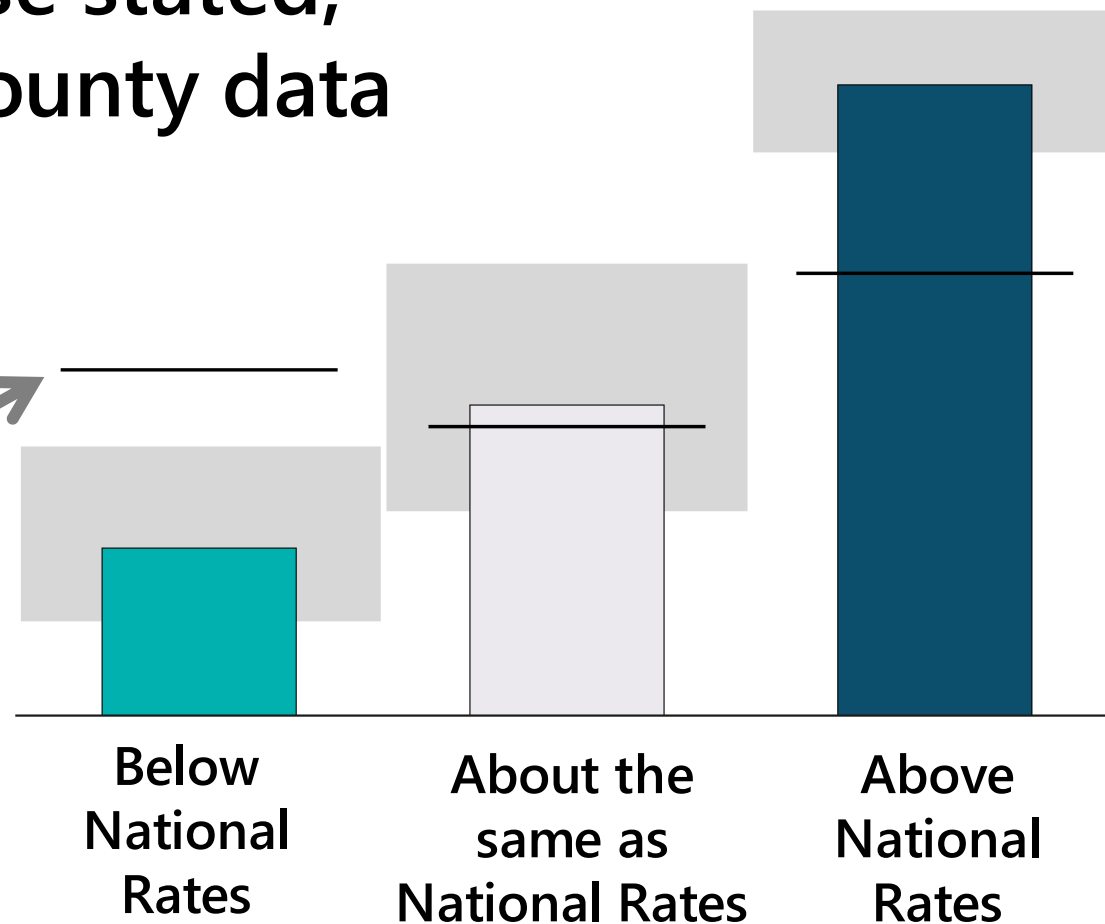
- Early Stage includes
 - Localized: cancer is limited to the place where it started, with no sign that it has spread
- Late Stage includes
 - Regional: cancer has spread to nearby lymph nodes, tissues, or organs.
 - Distant: cancer has spread to distant parts of the body

<https://www.cancer.gov/about-cancer/diagnosis-staging/staging>

How to read the graphs

Unless otherwise stated,
bars are your county data

Black lines on
bar graphs
are United
States data



Grey boxes on
bar graphs are
95% Confidence
Intervals.

These are used to
determine if rates
are statistically
different from
each other



Cancer in Winneshiek County

New Cancers in Winneshiek County

All cancer types, average counts and rates, 2017-2021

Each year, there are about

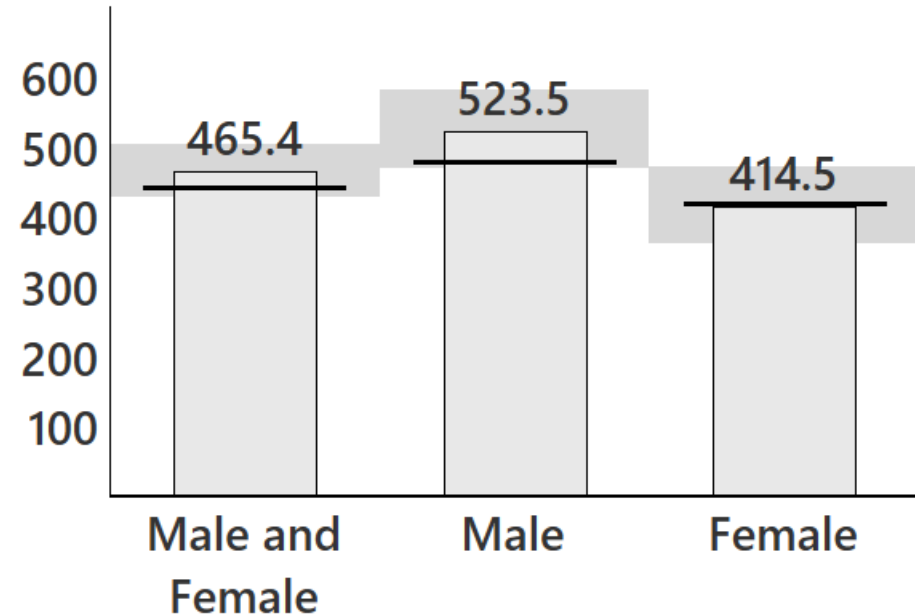
136

new cancers diagnosed in
Winneshiek County

Cancer incidence rates in Winneshiek
County are **not different from the U.S.
average**

Ranks #76 of 99 counties

Cancer incidence rates are typically
higher in men than women



Age-Adjusted rate per 100,000 (2017-2021)

Cancer deaths in Winneshiek County

All cancer types, average counts and rates, 2018-2022

Each year, there are about

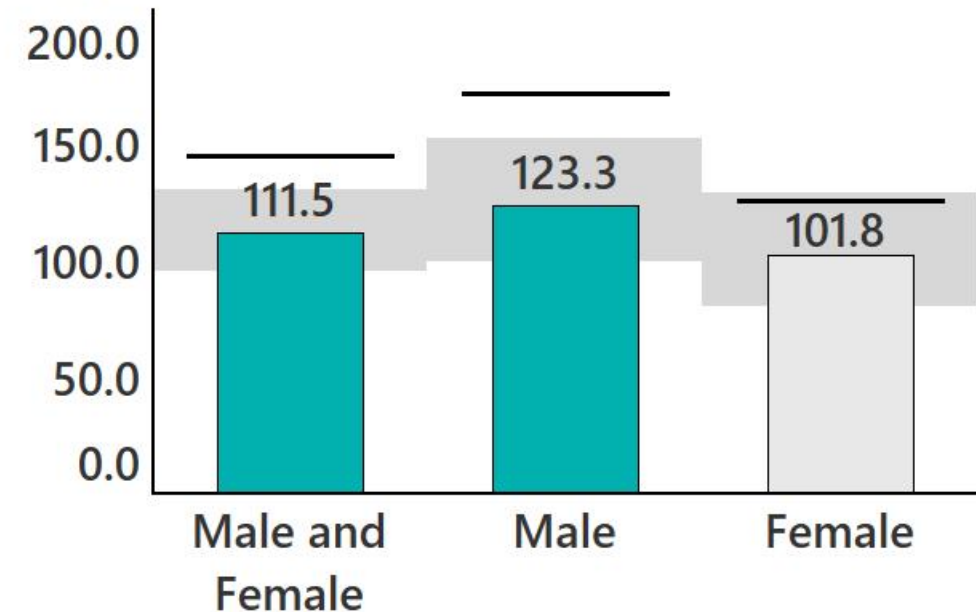
37

cancer deaths in Winneshiek County

Cancer mortality rates in Winneshiek County are **lower than the U.S. average**

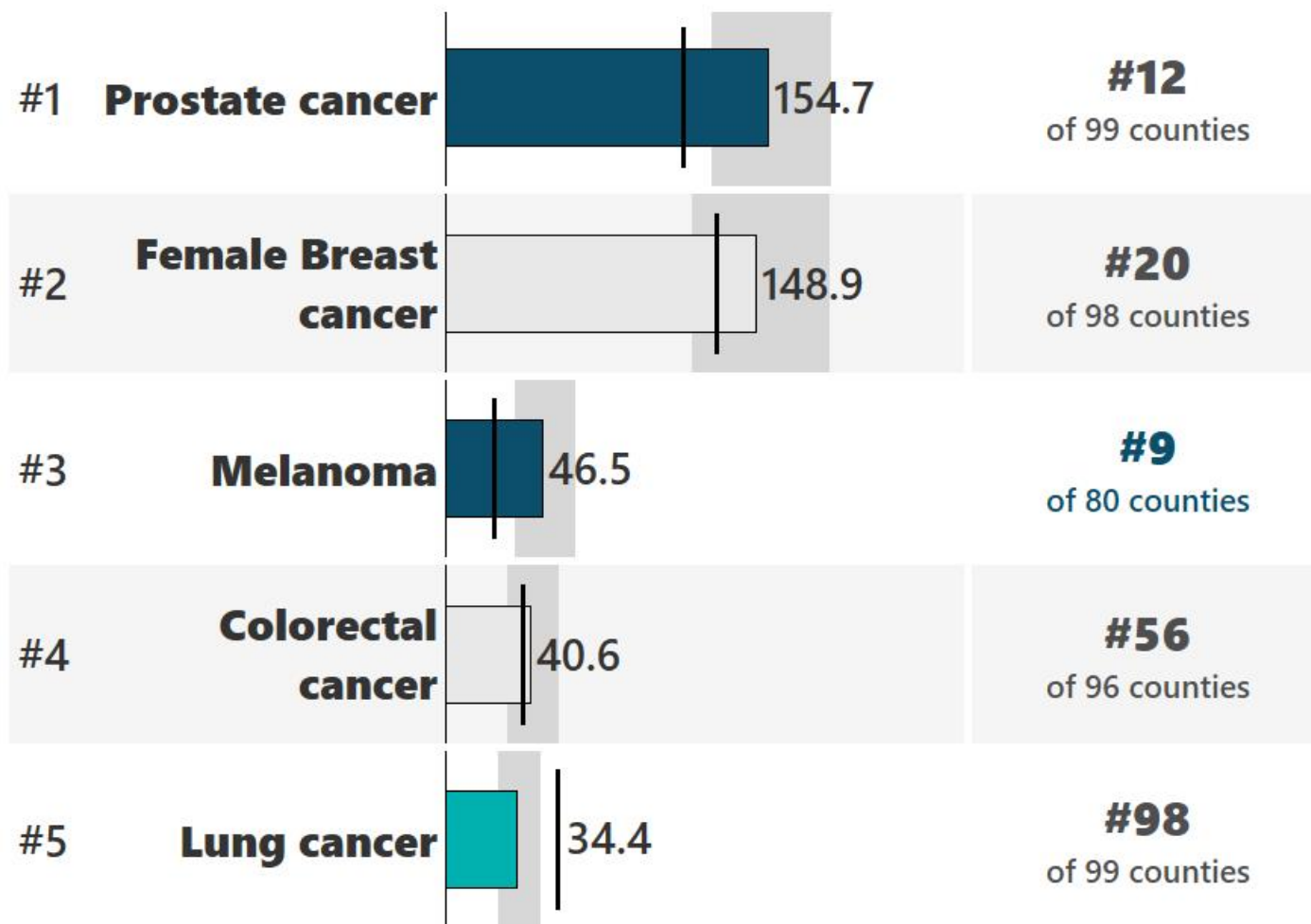
Ranks #98 of 99 counties

Cancer mortality rates are typically higher in men than women



Age-Adjusted rate per 100,000 (2018-2022)

Top cancers in Winneshiek County



Age-Adjusted rate per 100k, 2017-2021

Rank compared to other counties, where #1 is highest in the state

#1 | Prostate cancer

Each year in Winneshiek County, there are about...

26

New Cases per year

<6

Deaths per year

Statewide

125.9

United States

113.2

Winneshiek County

154.7

Statewide

19.8

United States

18.8

Winneshiek County

**Too few cases to show rates*

#1

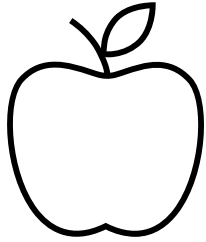
#2

#3

#4

#5

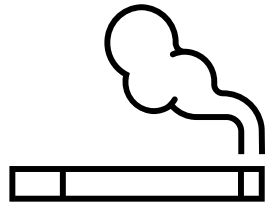
What can you do to prevent prostate cancer?



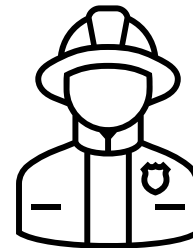
Healthy
Foods



Alcohol



Smoking

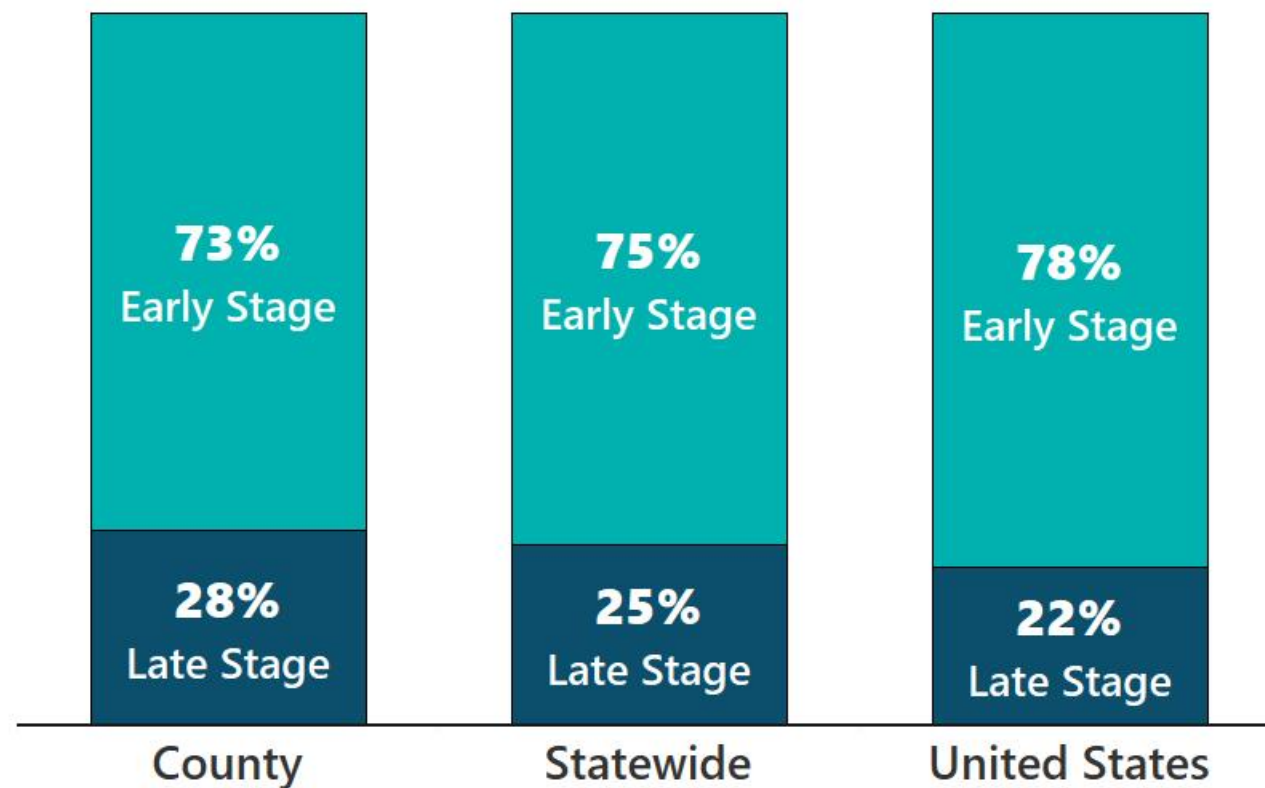


Chemical
Exposures

**+ Get
Screened!**

#1 | Prostate cancer Stage at Diagnosis

Early stage = Easier to treat, Higher survival rates



28%
Diagnosed at a Late Stage

#1

#2

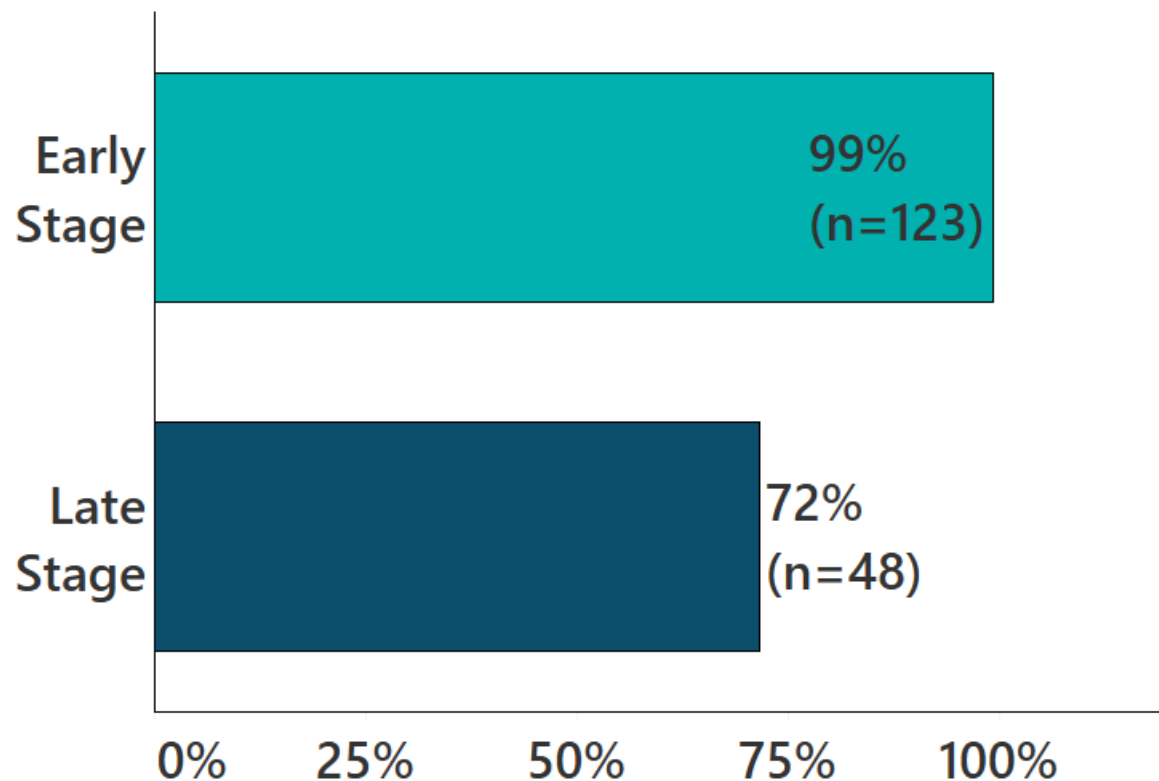
#3

#4

#5

#1 | Prostate cancer | 5-Year Survival

5-Year Relative Survival Rates, by Stage



**Finding cancer
early leads to
higher survival
rates**

#1

#2

#3

#4

#5

Prostate Cancer Screening

Screening Guidelines

Screening test: Prostate-specific antigen (PSA) blood test

If you have a prostate and are 55-69 years old, discuss
with your doctor if a PSA test is right for you

(U.S. Preventative Services Task Force)

#2 | Female Breast cancer

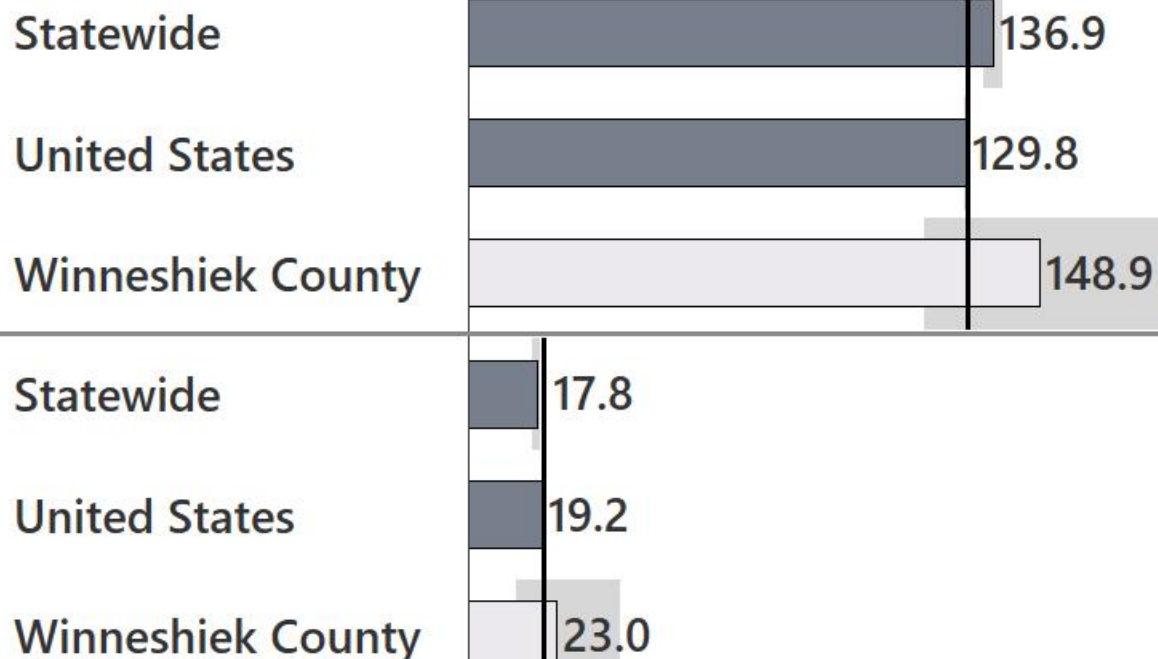
Each year in Winneshiek County, there are about...

21

New Cases per year

<6

Deaths per year



#1

#2

#3

#4

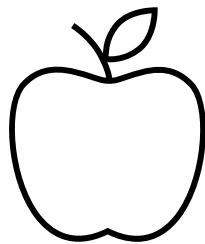
#5

Age-Adjusted Rate per 100,000
Incidence (2017-2021); Mortality (2018-2022)

What can you do to prevent breast cancer?

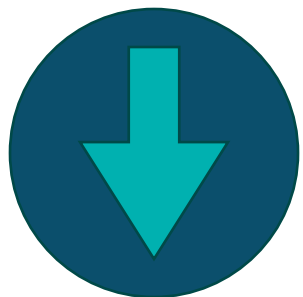


Physical
Activity



Healthy
Foods

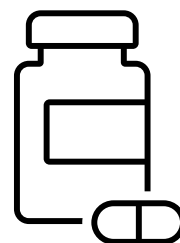
**+ Get
Screened!**



Alcohol



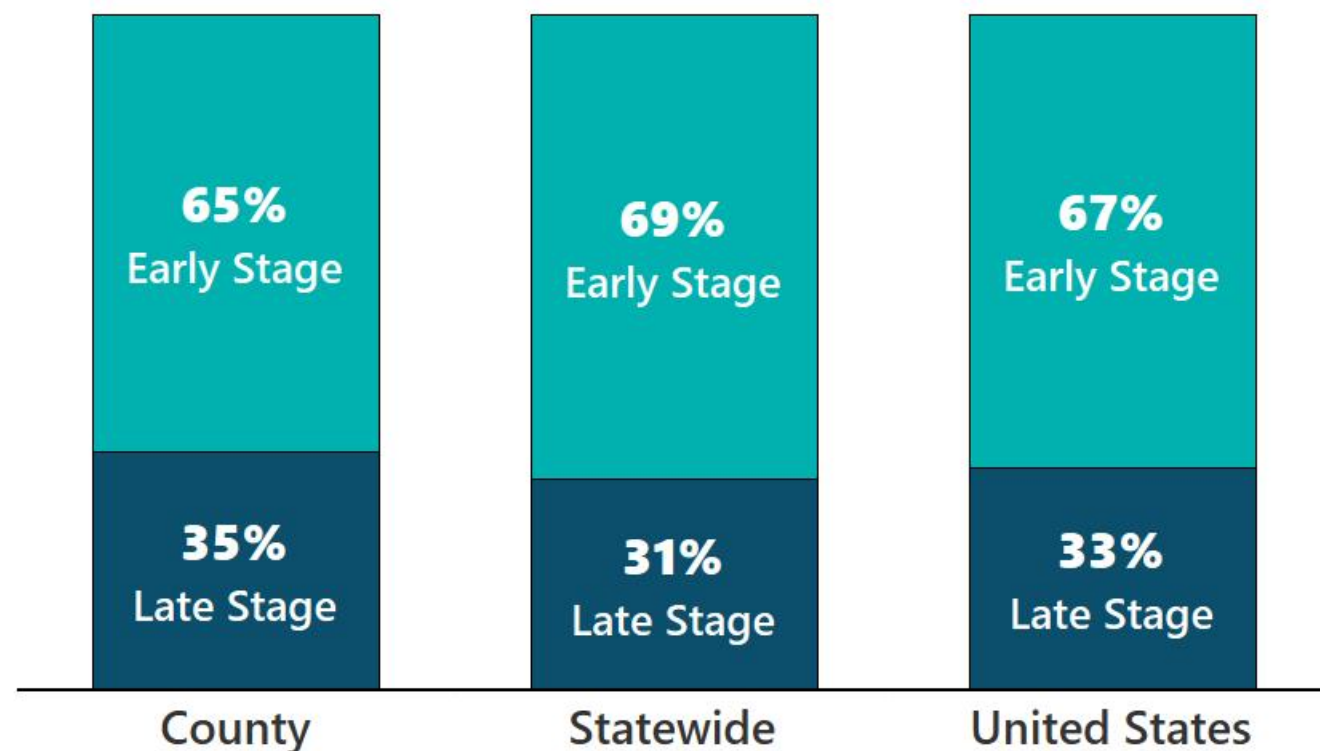
Excess Body
Weight



Taking
Hormones

#2 | Female Breast cancer | Stage at Diagnosis

Early stage = Easier to treat, Higher survival rates



35%
Diagnosed at a Late
Stage

#1

#2

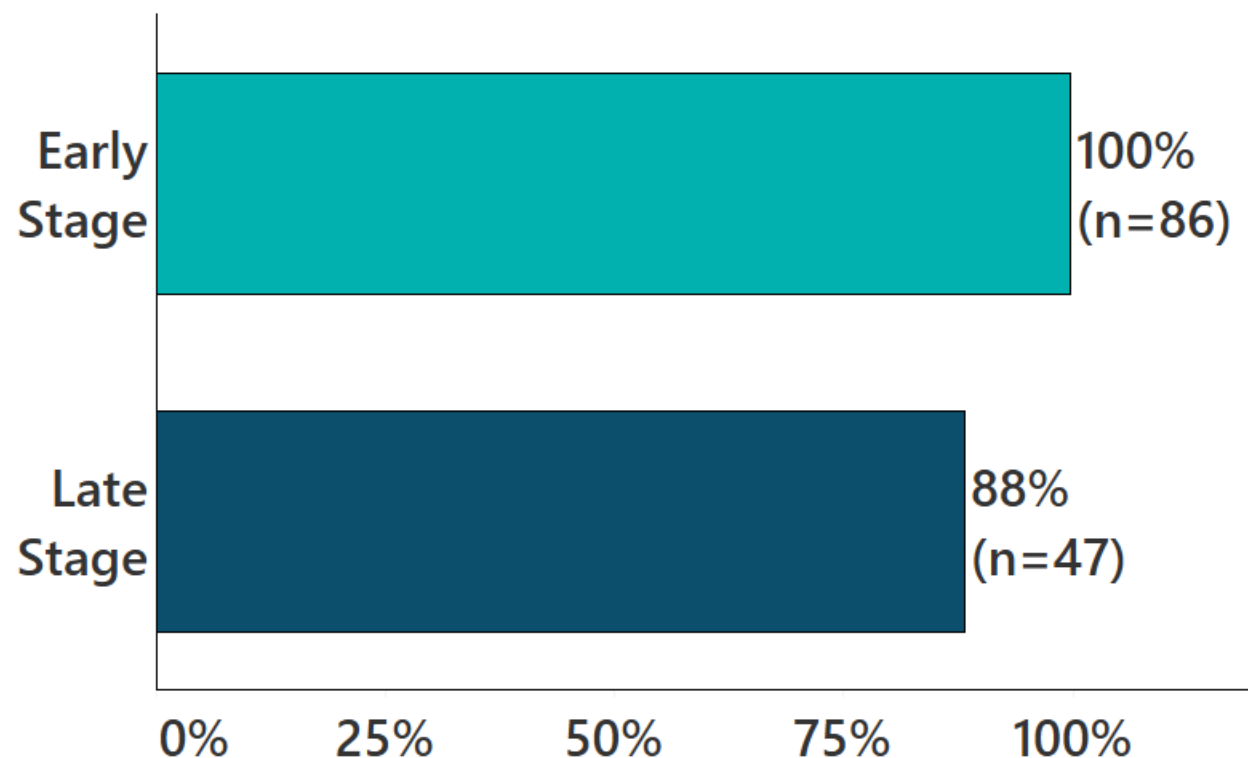
#3

#4

#5

#2 | Female Breast cancer | 5-Year Survival

5-Year Relative Survival Rates, by Stage



**Finding cancer
early leads to
higher survival
rates**

#1

#2

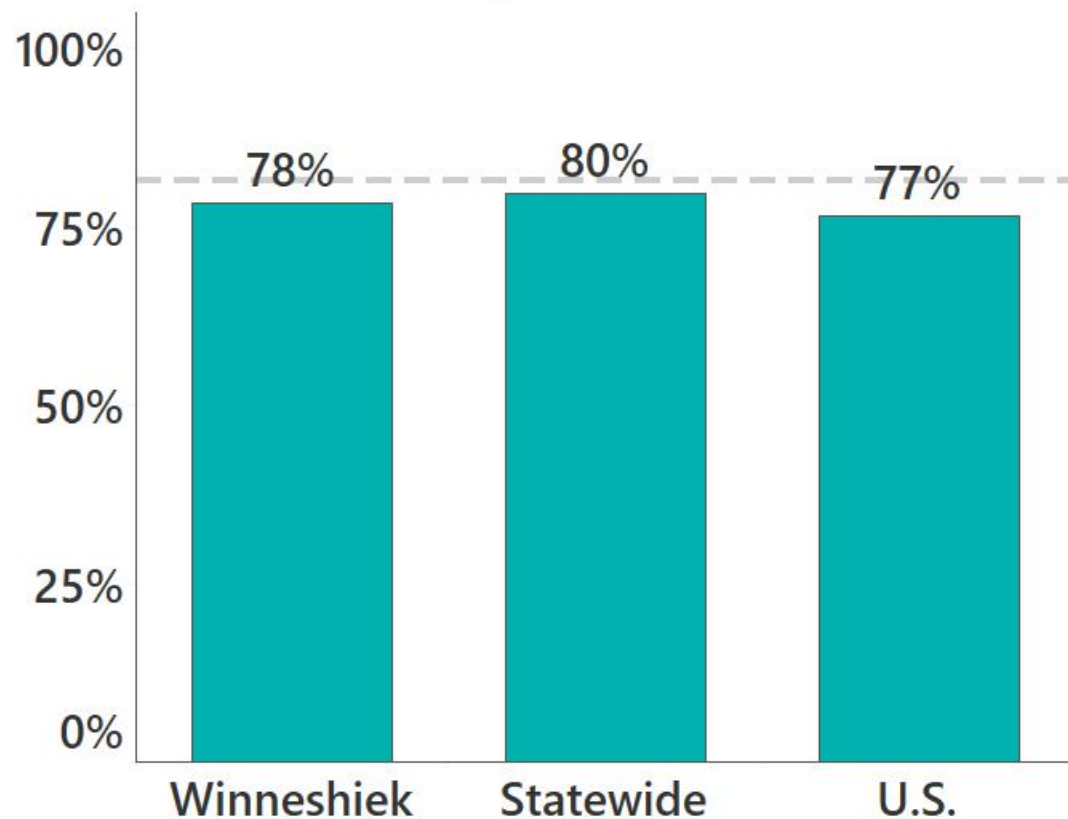
#3

#4

#5

Breast Cancer Screening

Women age 50+ who are up to date with their breast cancer screening



Screening Guidelines

People with breasts ages 40-74 should screen with a mammogram every 2 years

Talk to your doctor if you have a family history of breast cancer

(U.S. Preventative Services Task Force)

*Data from 2022 BRFSS
Goal: 81.4% by 2027*

The Care for Yourself – Breast and Cervical Cancer Program (CFY-BCC)

We provide free breast and cervical cancer screenings across Iowa.

- ▶ CFY-BCC is also called the Iowa Breast and Cervical Cancer Early Detection Program.
- ▶ CFY-BCC serves Iowans between 21 and 64 years of age.
- ▶ Are at or earn less than 250% of the Federal Poverty Level.
- ▶ Call (866) 339-7909 to speak to a confidential coordinator immediately.
- ▶ CFY-BCC coordinators are available to help you Monday-Friday, 8:00 a.m. to 4:00 p.m.



<https://hhs.iowa.gov/public-health/cancer/cfy>

#3 | Melanoma

Each year in Winneshiek County, there are about...

10

New Cases per year

<6

Deaths per year

Statewide

31.4

United States

22.7

Winneshiek County

46.5

Statewide

2.6

United States

2.0

Winneshiek County

**Too few cases to show rates*

#1

#2

#3

#4

#5

What can you do to prevent melanoma?



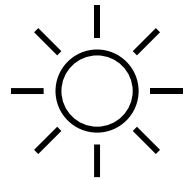
Wear broad spectrum sunscreen with at least SPF 30



Wear long sleeves and hats when outdoors



Sit in the shade when possible



Avoid being in the sun from 10am – 2pm

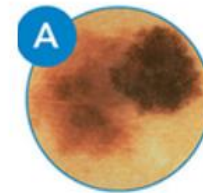
Do not use indoor tanning beds

Melanoma Self-Exams

Perform regular **self-examinations** using a mirror. Look for new spots or changes in existing spots.

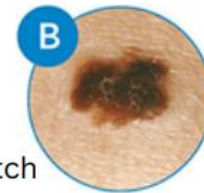
If you are concerned about a spot, talk to your doctor or a dermatologist

Most moles and brown spots are harmless, but following the **ABCDE's** can help you detect melanoma early.



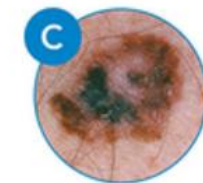
A is for **Asymmetry**

the shape of one half does not match the other



B is for **Border**

the edges are ragged, blurred, or irregular



C is for **Color**

color is uneven and may include shades of black, brown, or tan



D is for **Diameter**

there is a change in size, usually an increase



E is for **Evolving**

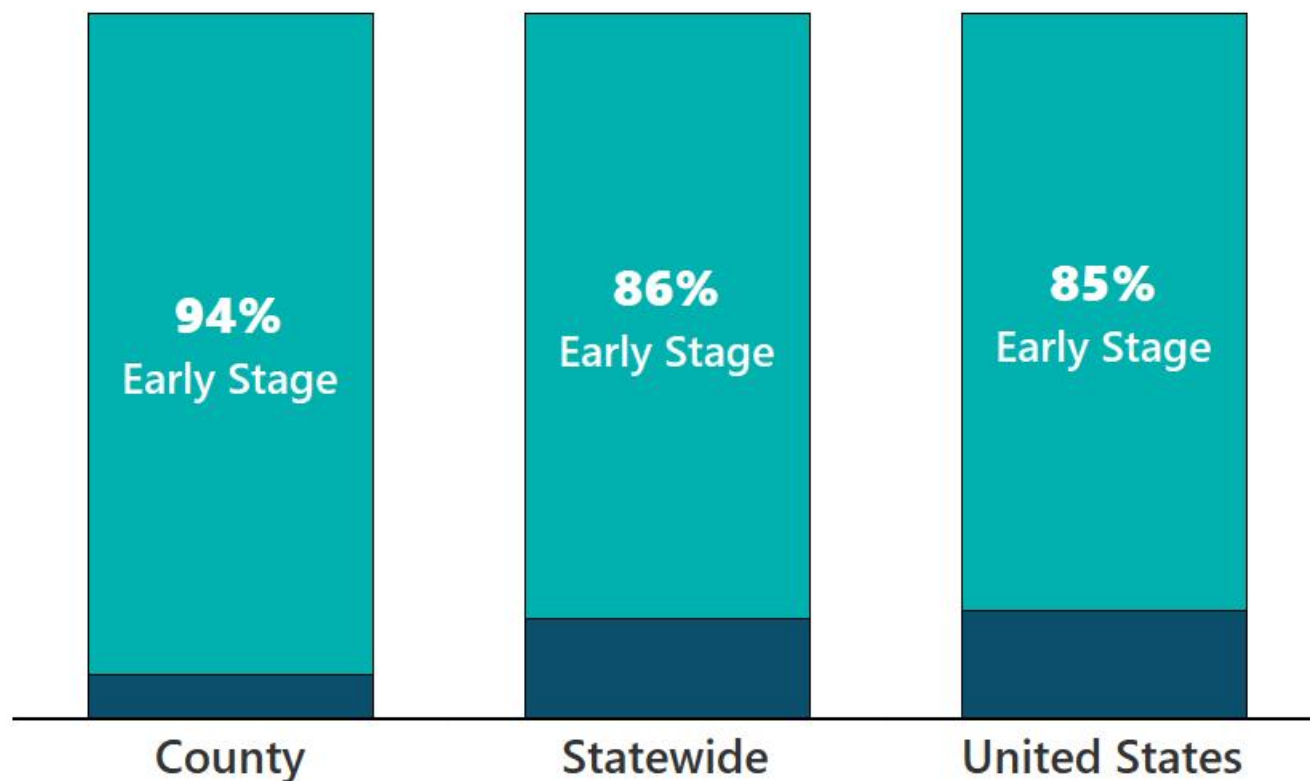
the mole has changed over the past few weeks or months

American Academy of Dermatologist

[Check out the Iowa Cancer Registry Melanoma Spotlight](#)

#3 | Melanoma | Stage at Diagnosis

Early stage = Easier to treat, Higher survival rates

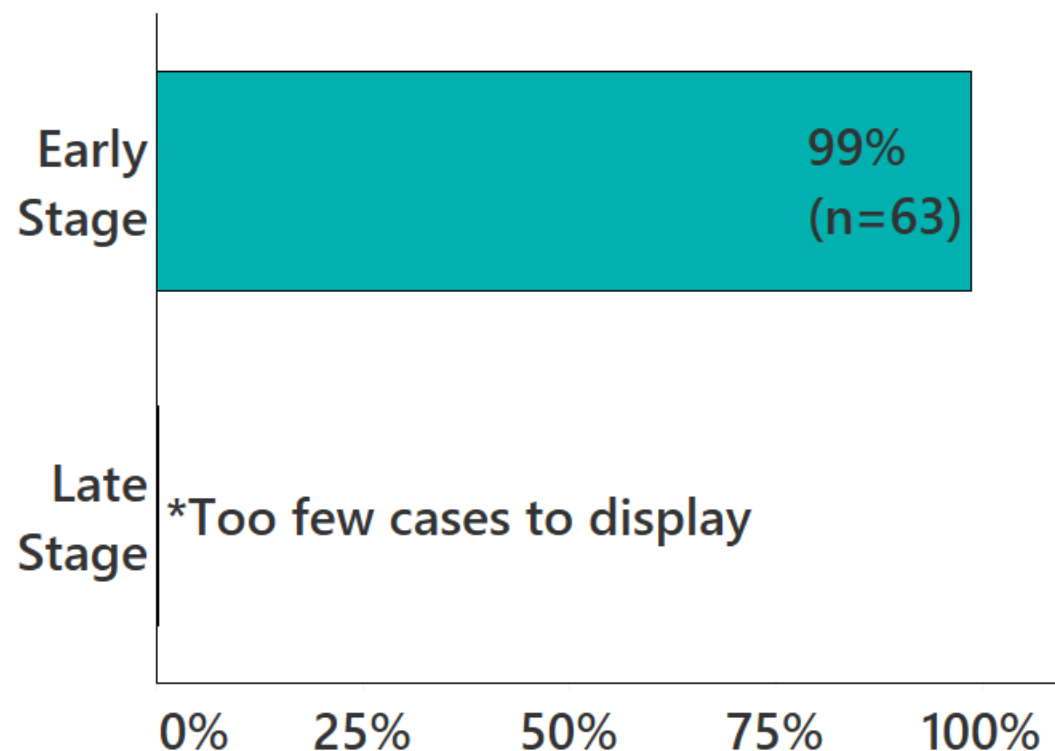


6%
Diagnosed at a Late
Stage



#3 | Melanoma | 5-Year Survival

5-Year Relative Survival Rates, by Stage



**Finding cancer
early leads to
higher survival
rates**

#1

#2

#3

#4

#5

#4 | Colorectal cancer

Each year in Winneshiek County, there are about...

11

New Cases per year

<6

Deaths per year

Statewide

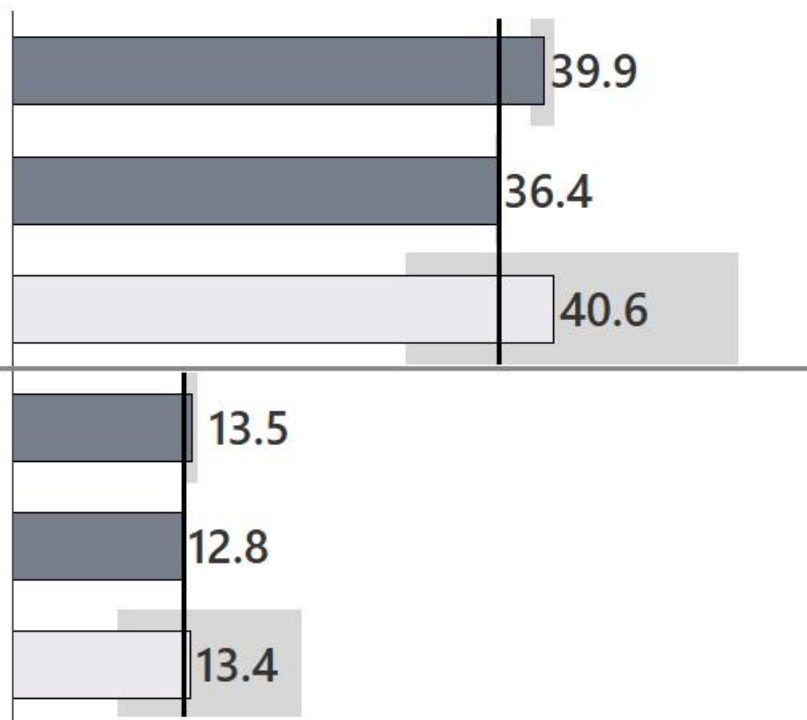
United States

Winneshiek County

Statewide

United States

Winneshiek County



#1

#2

#3

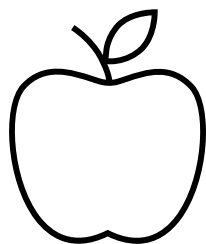
#4

#5

What can you do to prevent colorectal cancer?



Physical
Activity

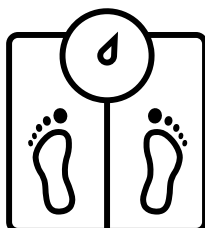


Healthy
Foods

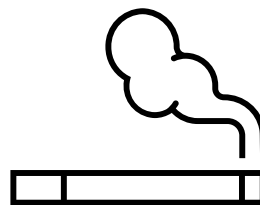
**+ Get
Screened!**



Alcohol



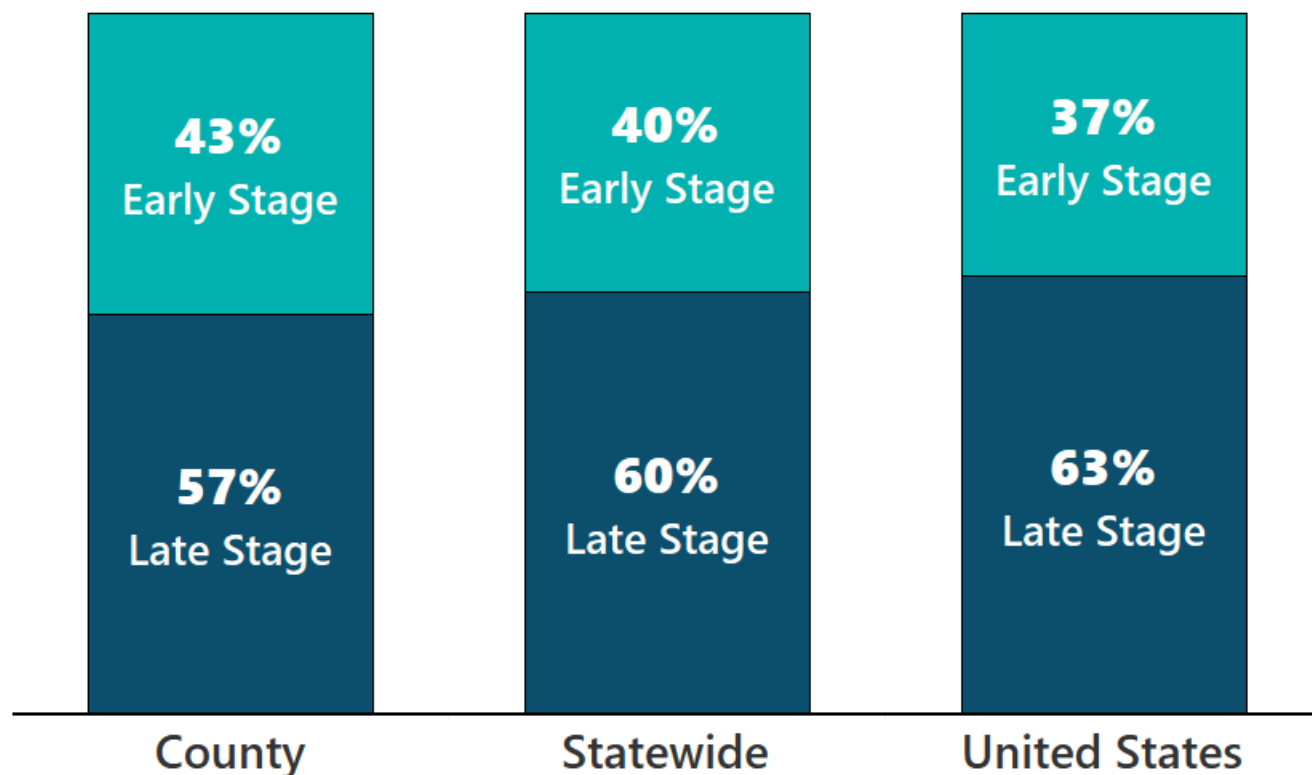
Excess Body
Weight



Smoking/
Tobacco

#4 | Colorectal cancer | Stage at Diagnosis

Early stage = Easier to treat, Higher survival rates

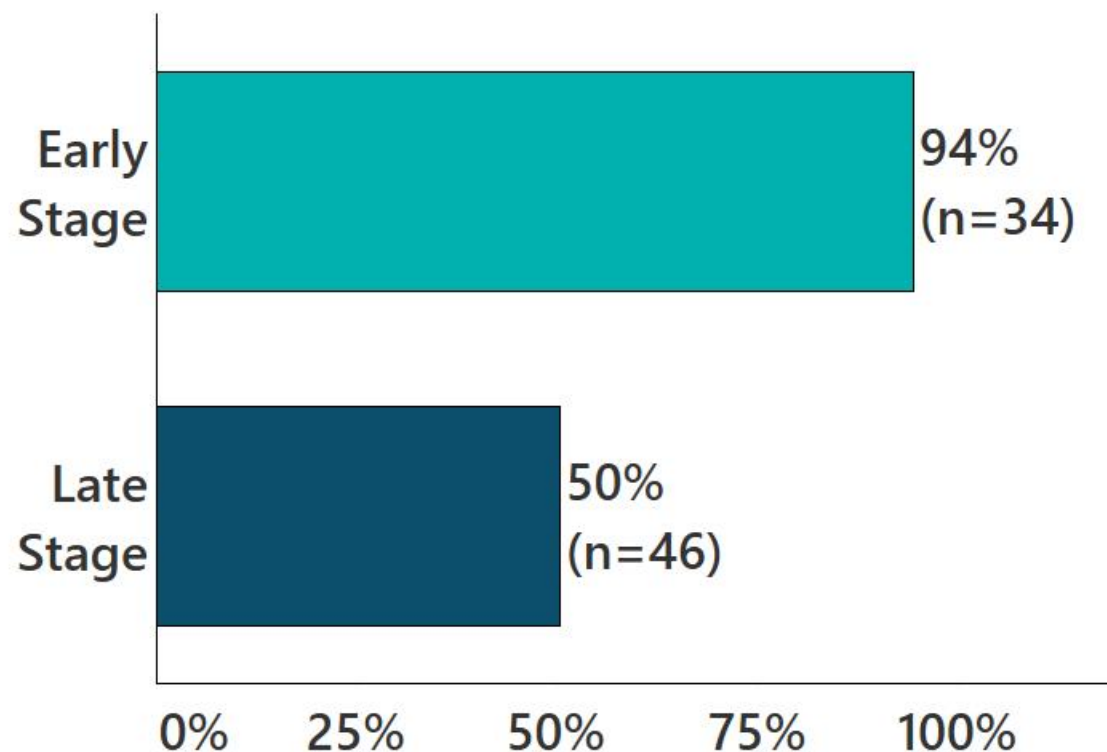


57%
Diagnosed at a Late
Stage



#4 | Colorectal cancer | 5-Year Survival

5-Year Relative Survival Rates, by Stage



**Finding cancer
early leads to
higher survival
rates**

#1

#2

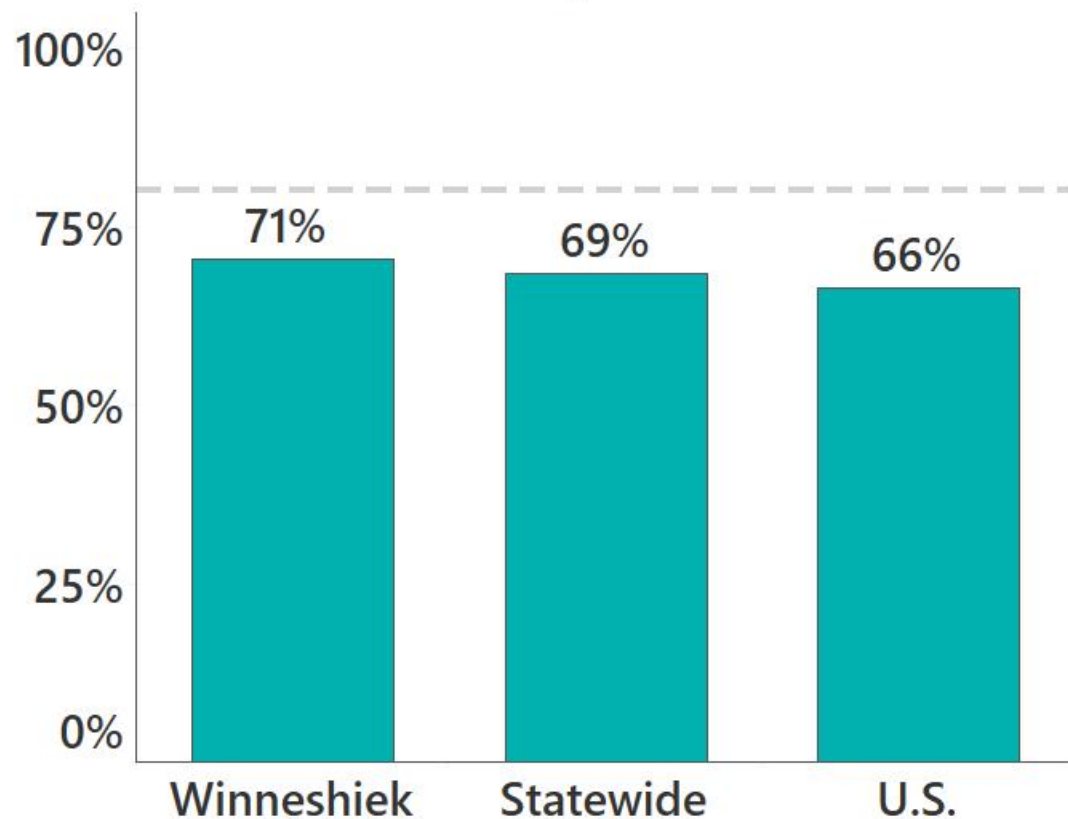
#3

#4

#5

Colorectal Cancer Screening

Adults ages 45-75 who are up to date with their colorectal cancer screening



Screening Guidelines

Adults ages 45-75 can screen with either (1) an at-home, stool-based test, or (2) a colonoscopy.

Talk to your doctor about which is best for you.

(U.S. Preventative Services Task Force)

*Data from 2022 BRFSS
Goal: 80% by 2027*

Iowa Get Screened (IGS): Colorectal Cancer Program

We partner with Iowa's Federally Qualified Health Centers (FQHCs) and local public health agencies to increase colorectal cancer screening.

Through a collaboration with the Iowa Primary Care Association (Iowa PCA) and FQHCs, the program serves low-income Iowans, ages 45-75, to:

- ▶ Increase the number of cancers prevented
- ▶ Increase the diagnosis of early-stage colorectal cancer
- ▶ Reduce colorectal cancer incidence and mortality in the state



<https://hhs.iowa.gov/public-health/cancer/colorectal-cancer-screening-program>

#5 | Lung cancer

Each year in Winneshiek County, there are about...

11

New Cases per year

6

Deaths per year

Statewide

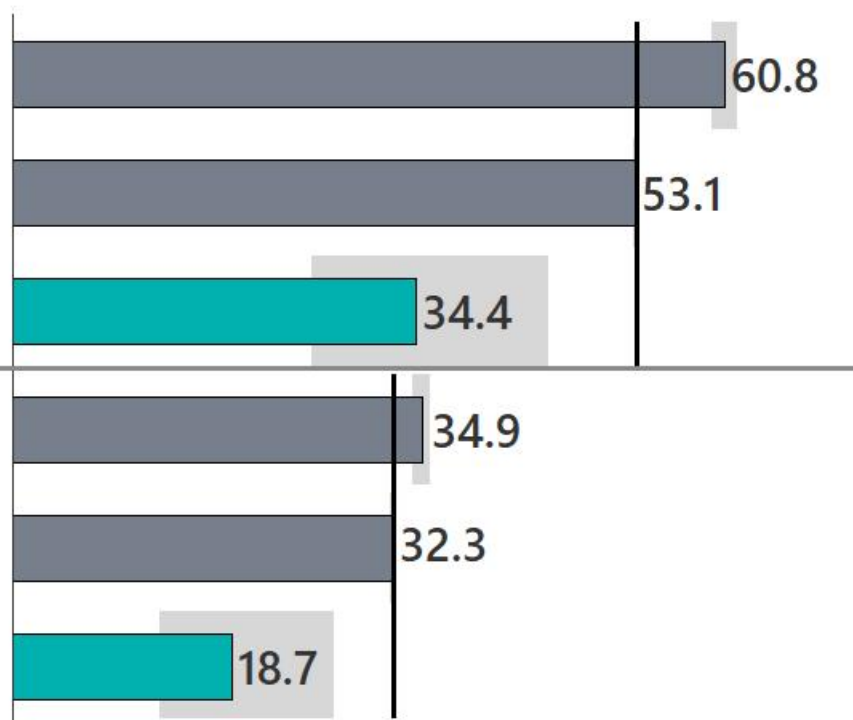
United States

Winneshiek County

Statewide

United States

Winneshiek County



Age-Adjusted Rate per 100,000
Incidence (2017-2021); Mortality (2018-2022)

#1

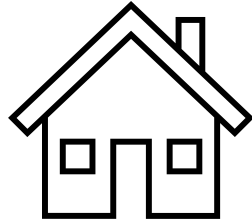
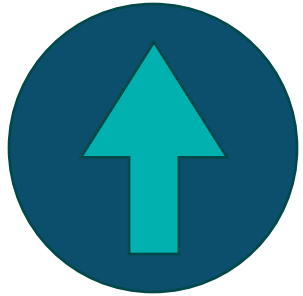
#2

#3

#4

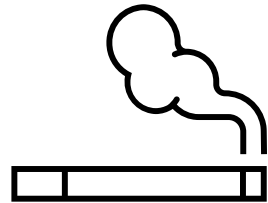
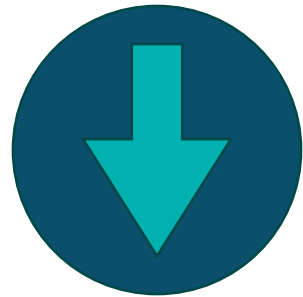
#5

What can you do to prevent lung cancer?



Test your home
for Radon

**+ Get
Screened!**



Smoking

What is Radon?

- Radon is an invisible, tasteless, odorless, radioactive gas
- It is naturally produced by radium and uranium in the soil
- Radon becomes harmful when it becomes trapped and concentrated in the air
 - For example, when it leaks into a basement through a crack in the foundation or a space around a pipe

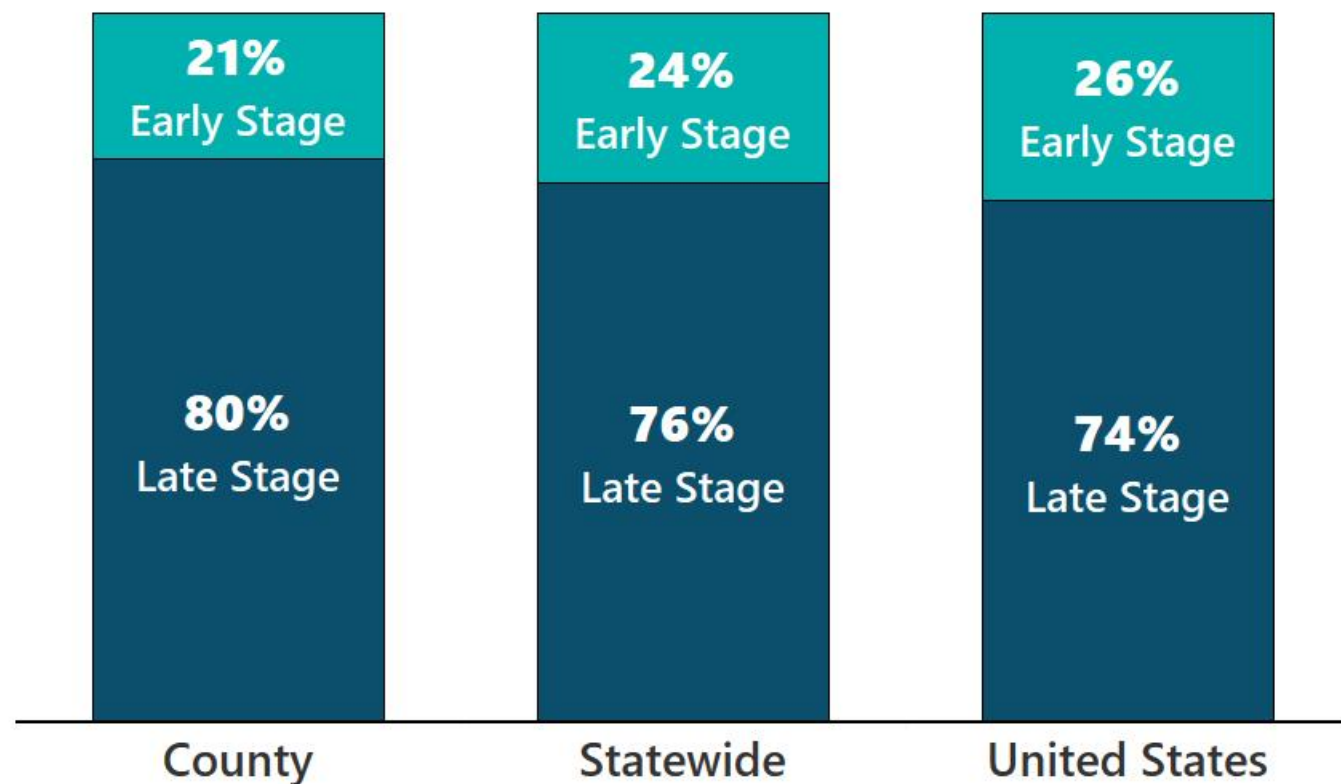
Learn more about Radon testing and mitigation:

Iowa Health & Human Services
hhs.iowa.gov/radiological-health/radon

Iowa Cancer Consortium
canceriowa.org/radon/

#5 | Lung cancer | Stage at Diagnosis

Early stage = Easier to treat, Higher survival rates

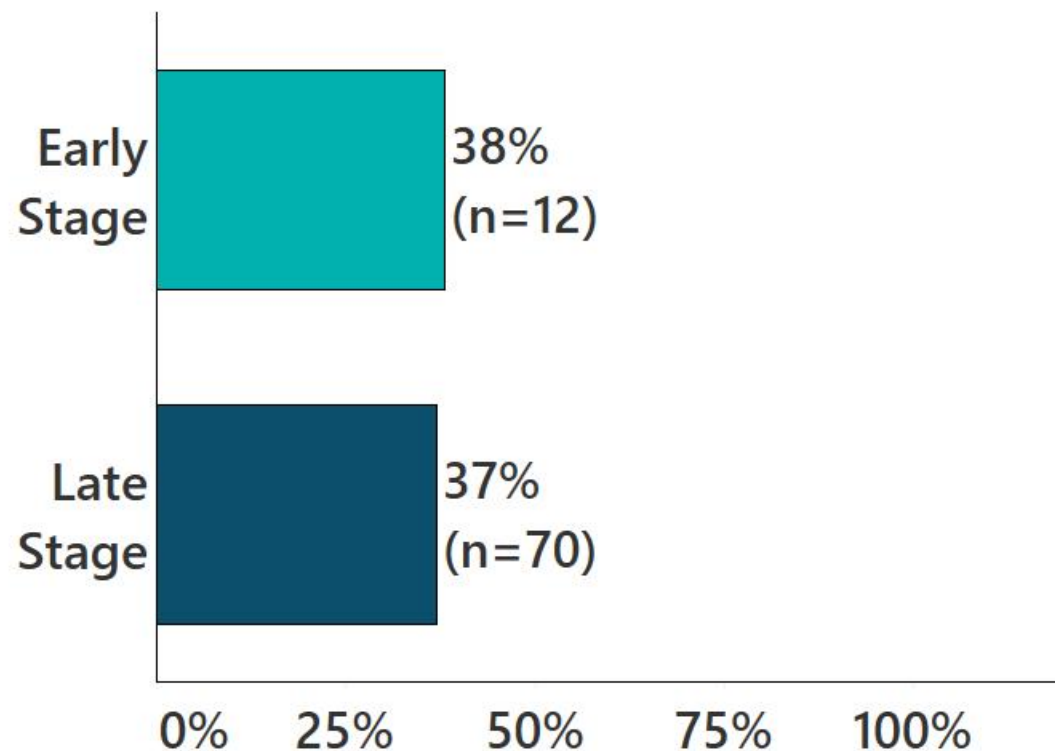


80%
Diagnosed at a Late
Stage



#5 | Lung cancer | 5-Year Survival

5-Year Relative Survival Rates, by Stage



**Finding cancer
early leads to
higher survival
rates**

#1

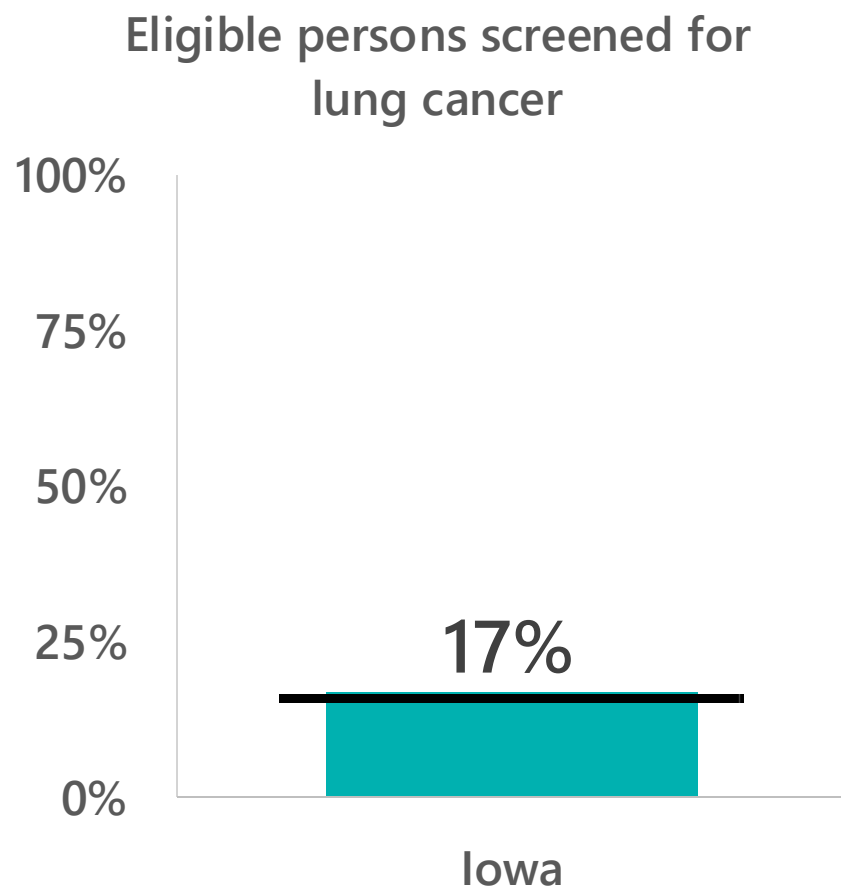
#2

#3

#4

#5

Lung Cancer Screening



Screening Guidelines

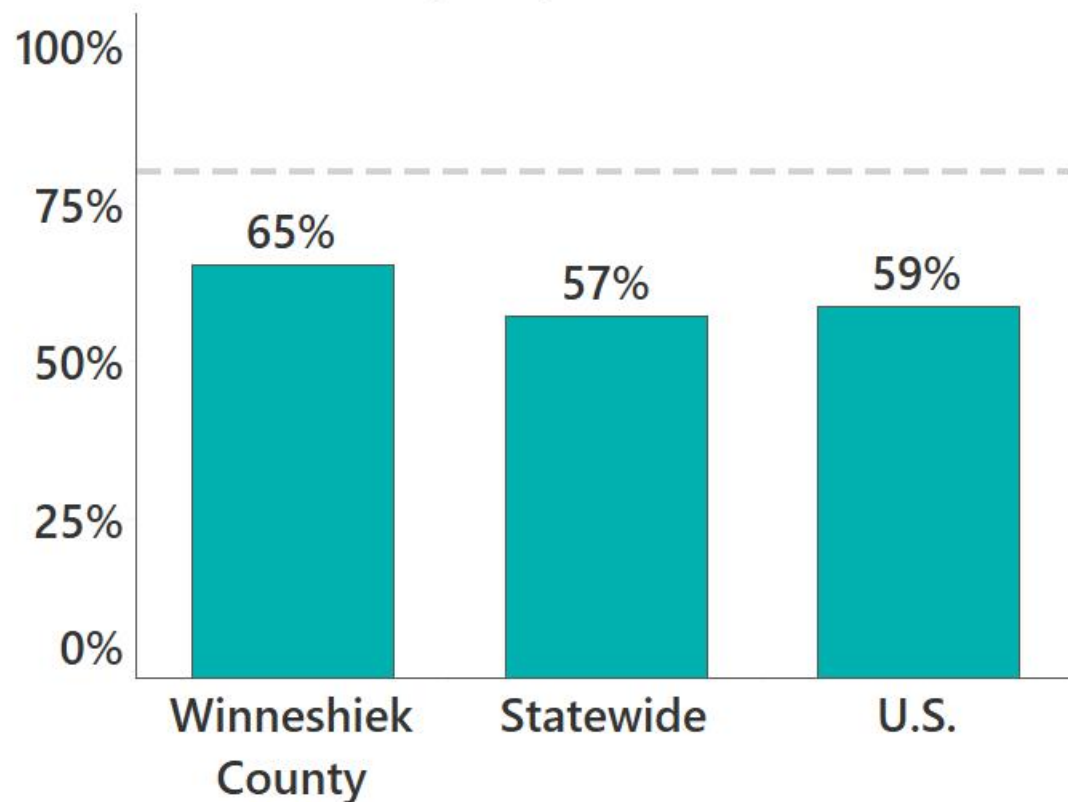
Lung cancer screening is a low-dose CT scan

If you have smoked in the last 15 years and are between the ages 50-80 years talk to your doctor about being screened for lung cancer

(U.S. Preventative Services Task Force)

A vaccine that prevents cancer: HPV

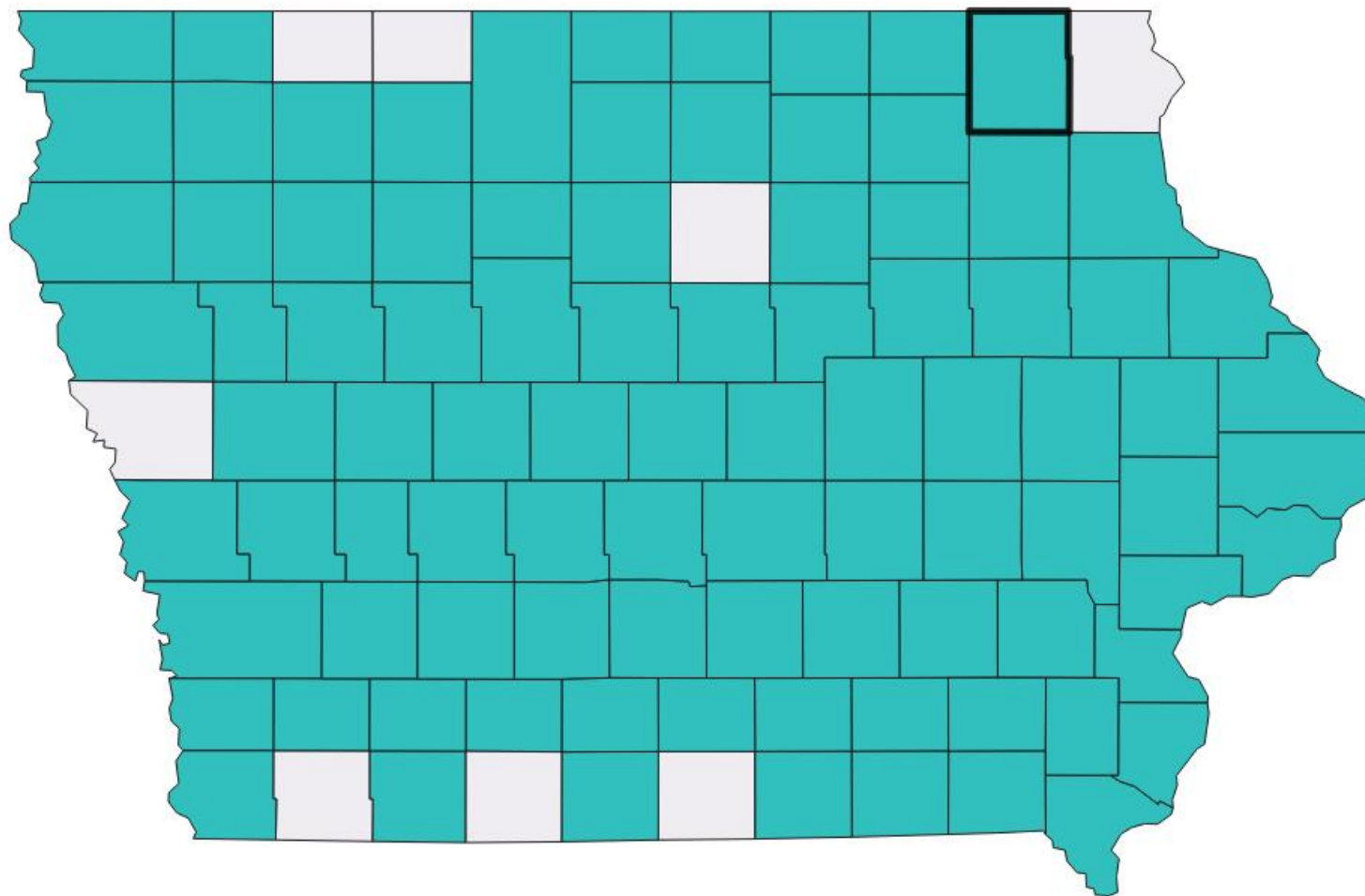
Adolescents ages 13-15 who have completed their HPV vaccine series (2022)



- HPV infection can cause cancers of the cervix, mouth and throat, anus, rectum, penis, vulva, and vagina.
- Iowa has the highest rate of oropharyngeal cancer in the U.S.
- Vaccine provides safe, effective, and lasting protection against HPV, thus reducing cancer risk
- Recommended at age 11 or 12 years, when immune response is best & before HPV exposure

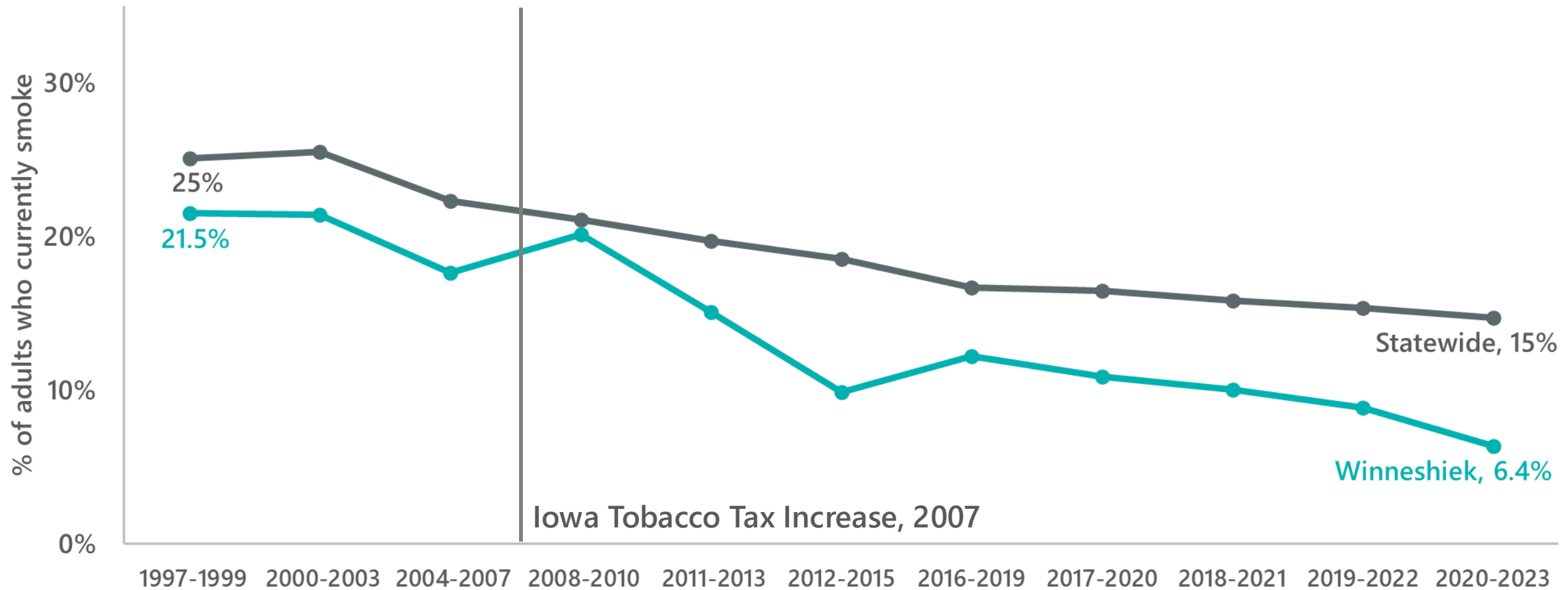
*Data from 2022 IHHS & NIS-Teen
Goal: 80% by 2027*

After the last tobacco tax was passed in 2007, smoking rates
decreased in **92%** of Iowa counties

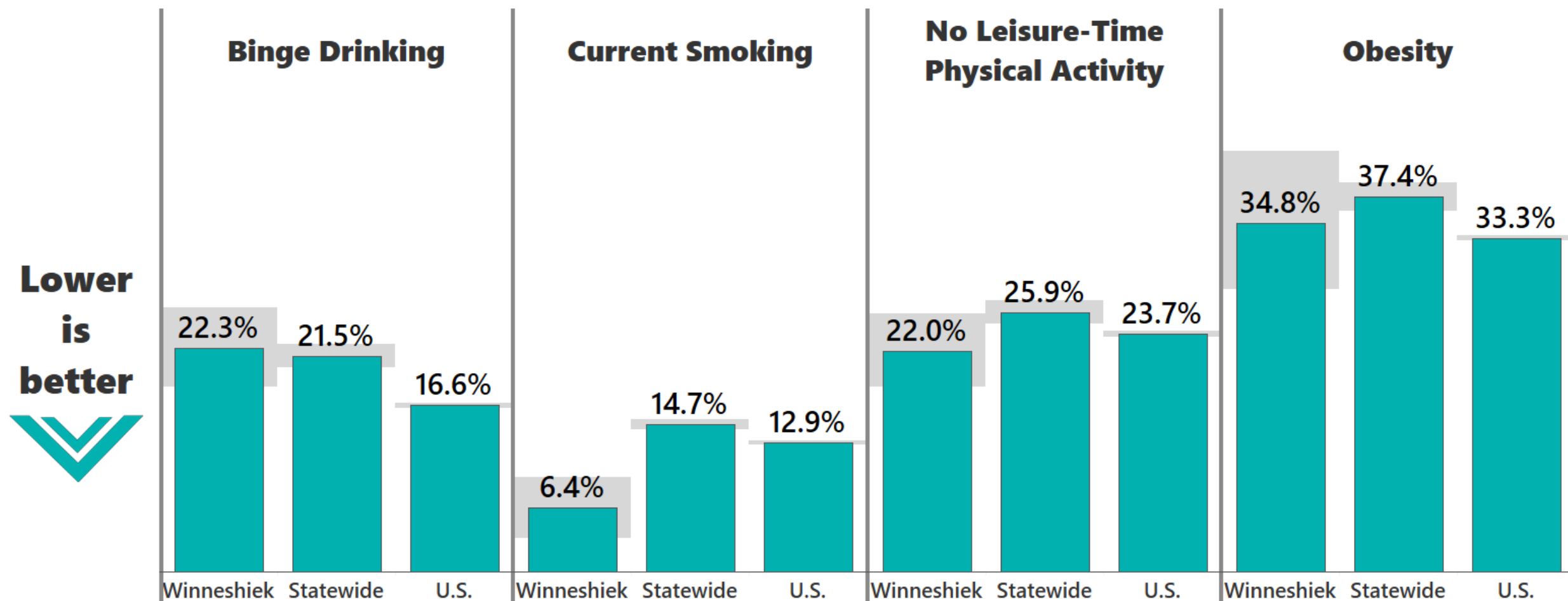


After the last increase to the tobacco tax was passed in 2007, smoking rates **decreased*** in Winneshiek County

** Determined by comparing data from 2004-2007 combined to 2011-2013 combined*



Other Cancer Risk Factors



Resources to help understand
and address cancer in Iowa
communities

Iowa Comprehensive Cancer Control Program (CCCCP)

We work with partners to prevent cancer whenever possible and support cancer survivors across Iowa.

- ▶ The CCCCp partners with many organizations, including the Iowa Cancer Consortium, Iowa's cancer coalition.
- ▶ CCCCp is involved in the revision and implementation of the Iowa Cancer Plan.
- ▶ Currently CCCCp is focused on increasing HPV vaccination, increasing lung cancer screening, and supporting cancer survivors.

<https://hhs.iowa.gov/public-health/cancer>
<https://canceriowa.org/iowa-cancer-plan/>



Photo from the Iowa Cancer Consortium, taken at the Iowa Cancer Summit

Iowa Cancer Consortium



A non-profit cancer coalition that provides

- Connections and partnership
- Latest news and cancer updates via email
- Training and educational opportunities
- Grant opportunities and technical assistance
- Free cancer educational materials for distribution
- The Iowa Cancer Plan

Virtually-hosted workgroups include:

- *Cancer Screening & Early Detection*
- *Health Equity*
- *HPV (w/ Iowa Immunizes coalition)*
- *Policy*
- *Radon*
- *Research & Clinical Trials*
- *Rural Cancer*
- *Quality of Life*
- *Cancer & the Environment Task Force*

www.canceriowa.org



Mission: To advance cancer prevention and control through advocacy, equity, and collaboration.
Vision: An Iowa where cancer is not a burden.

Blueprint for cancer control, the *Iowa Cancer Plan*

Chapters with sections that include priorities, strategies, and specific action steps which may be tailored to many settings to guide cancer control activities.

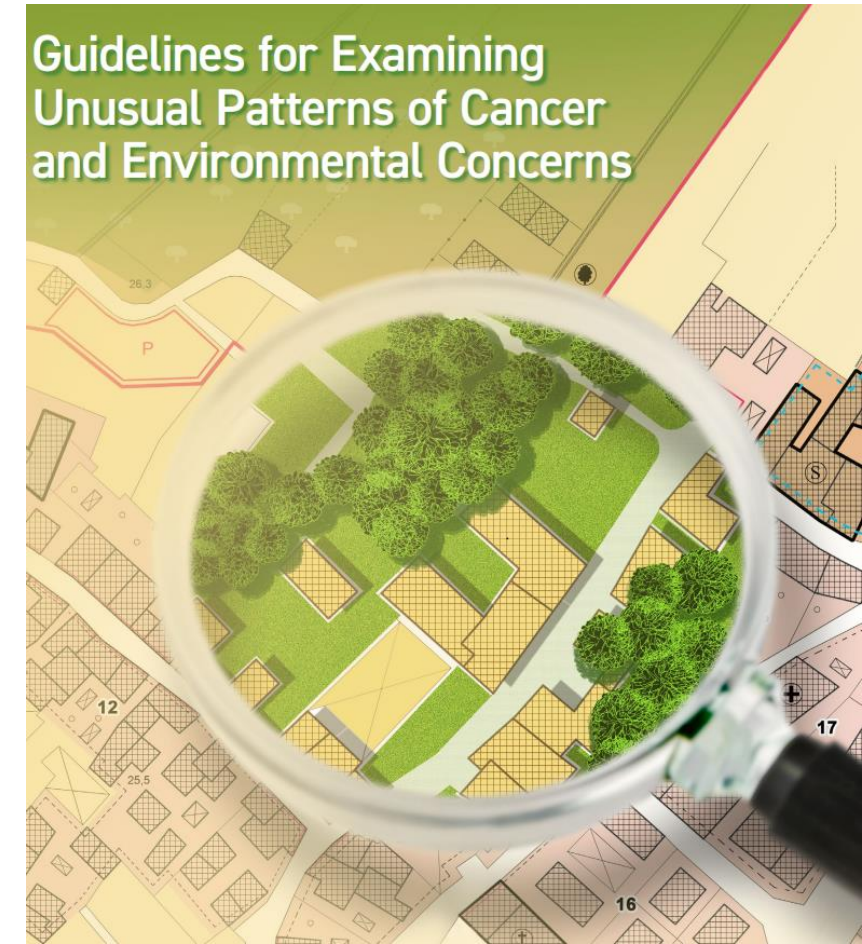
- 1. Health Equity:** identify and eliminate cancer health disparities.
- 2. Prevention and Risk Reduction:** whenever possible, prevent cancer from occurring.
- 3. Early Detection and Screening:** promote the benefits of screening tests to ensure early diagnosis.
- 4. Diagnosis and Cancer-Directed Therapy:** reduce barriers to care, promote evidence-based practices, and encourage participation in clinical trials and other forms of research.
- 5. Survivorship and End-of-Life Care:** ensure resources to optimize quality-of-life for cancer survivors and their families.



[https://canceriowa.org/
iowa-cancer-plan/](https://canceriowa.org/iowa-cancer-plan/)

What to do if you suspect a cancer cluster in your community

- If you are concerned about cancer excess in your area, please email us at ICR-CancerConcerns@uiowa.edu
- We will ask you about:
 - Geographic area of concern
 - Cancer types diagnosed in the area
 - Time frame
 - Exposure(s) of concern
- If possible, ICR will conduct an analysis comparing the expected number of cancers to what's been observed
- A meeting will be held to discuss the results of the analysis and a written copy of the report will be sent to you



**This is only the
first step.**

Recommended Actions



Iowa Cancer Plan

Use to identify strategies aligned with community-specific needs

canceriowa.org/iowa-cancer-plan/

American Cancer Society Cancer Action Network



Engage American Cancer Society Cancer Action Network (ACSCAN) to promote cancer-relevant legislation

www.fightcancer.org



Iowa Cancer Consortium

Connect for state-wide collaboration and potential community-level funding

www.canceriowa.org

Include cancer in needs assessments

Include cancer-relevant strategies in your hospital's community health needs assessments or public health department's needs assessment

hhs.iowa.gov/lphs/cha-chip



What can you do next?

Reduce Lung Cancer

We know tobacco- and nicotine-free policies, reducing out-of-pocket costs for cessation treatments, and mass communications can help reduce lung cancer

Breast Cancer

We know engaging community health workers, developing clinic-specific interventions, and supporting care navigation are effective in addressing breast cancer.

Prevent Skin Cancer

We know providing sunscreen and UV-safety education in outdoor occupational, recreation/tourism, and childcare settings can help prevent skin cancer.

Prostate Cancer

We know educating about the link between

- tobacco, alcohol, and obesity and prostate cancer;
- chemical exposures and prostate cancer;

as well as promoting shared decision-making between individuals and providers helps reduce the burden of prostate cancer.

Every community is different

- **Your expertise is key**
 - Your expertise as community members and leaders and local policy makers is key to answering the question of what to do next. You know best what your community needs and what will work.
- **Cancer control partners** like the Iowa Cancer Registry, the Iowa Cancer Consortium, Iowa HHS, and your local public health department can provide ideas, advise, and help find data, evidence, and other resources, but ultimately you are the experts.
- A good place to start is by **taking stock of the information presented today** and where the opportunities for change might be within your county, town, or organization. Use the Iowa Cancer Plan for inspiration and reach out to the Iowa Cancer Consortium for partnership in moving forward.

Winneshiek Resources

Radon Test Kits

- Winneshiek County Public Health Educates the public about the dangers of radon gasses in the home and to make available testing materials and information on remediation of problem situations.
- Radon test kits for sale: call 563-382-4662

Immunization Program

- HPV Vaccinations are available.
- Please contact Winneshiek County Public Health at: 563-382-4662

Cancer in Iowa: 99 Counties Project Resource Guide

- Organizations and programs we presented today
- IHHS Programs
 - Tobacco Use Prevention and Control
 - Immunization Program
 - The Hepatitis Program
 - Radon
- Iowa Rural Health Association

In the next slides we will highlight the...

- Agricultural Health Study
- Environmental Exposures and Health Risks Fact Sheets
- Center for Health Effects of Environmental Contamination
- Iowa Private Well Grants Program



www.iowacancerregistry.org/99

Agricultural Health Study



The Agricultural Health Study (AHS) has been working for more than 30 years to understand factors that impact the health of farmers and their families.

- Includes over 31,000 private and 5,000 commercial pesticide applicators from Iowa
 - Study is also following applicator's spouses and children
- Linked with Iowa Cancer Registry data to study risk of developing cancer among pesticide applicators

The aim of this study is to understand how agricultural, lifestyle, and genetic factors affect the health of farming populations.

aghealth.nih.gov

Visit the Ag Health website to read their annual study updates related to pesticides and other agricultural exposures and cancer.

Environmental Exposures and Health Risks Fact Sheets

These facts sheets include information on

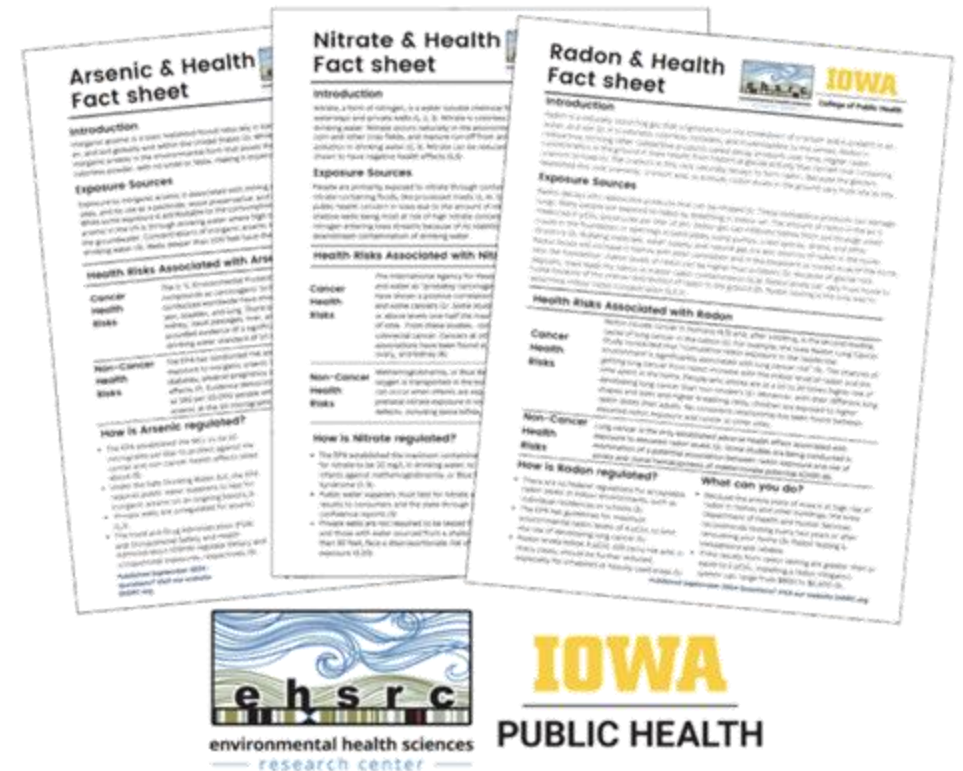
- Cancer and non-cancer health risks for each environmental exposure
- How the exposures are regulated
- What you can do to limit your exposure

Environmental Health Fact Sheets

- [Arsenic](#)
- [Atrazine](#)
- [Glyphosate](#)
- [Nitrate](#)
- [Radon](#)



NEW Environmental Exposures & Health Risks Fact Sheets



<https://ehsrc.public-health.uiowa.edu/communityengagement/resources-information/>

Center for Health Effects of Environmental Contamination (CHEEC)

CHEEC

The University of Iowa Center for Health Effects of Environmental Contamination (CHEEC) supports and conducts research to identify, measure and study adverse health outcomes related to exposure to environmental toxins. CHEEC was established through the 1987 Iowa Groundwater Protection Act and has focused its efforts to date mainly on drinking water contaminants.

For questions about environmental contaminants, please contact Dr. Cwiertny at the email address below.



David Cwiertny
Director of CHEEC



cheec.uiowa.edu

Email: cheec@uiowa.edu

Iowa Private Well Grants Program

Iowa Health & Human Services

Iowa's [Private Well Grants Program](#) (PWG) provides free water testing to all private well owners and users for the analytes listed. The Iowa DNR recommends that all private well owners have their water tested at least annually.

- [Bacteria/coliform](#) (annually)
- [E.coli/fecal coliform](#) (annually)
- [Nitrate](#) (annually)
- [Arsenic](#) (every 3 years)
- [Manganese](#) (every 3 years)
- [PFAS](#) (requires pre-approval from the DNR)

To get your private well tested, please contact your local county health department.

[County Health Department - contact list](#)

Follow this QR code or the links below to learn more!



<https://hhs.iowa.gov/public-health/environmental-health/private-well-grants>

<https://www.iowadnr.gov/environmental-protection/water-quality/private-well-program/well-testing>

Nitrate & Health Fact sheet



Coll

Introduction

Nitrate, a form of nitrogen, is a water-soluble chemical found at high concentration in waterways and private wells (1, 2, 3). Nitrate is colorless and has no smell, so it is undetectable in drinking water. Nitrate occurs naturally in the environment; however, applying nitrogen fertilizer to corn and other crop fields, and manure run-off from animal feeding operations can contribute to nitrate pollution in drinking water (2, 3). Nitrate can be reduced to nitrite and other compounds, which have been shown to have negative health effects (1,5).

Exposure Sources

People are primarily exposed to nitrate through contaminated drinking water and food. Nitrate-containing foods, like processed meats (1, 4). Drinking water contaminated with nitrate is a public health concern in Iowa due to the amount of nitrogen fertilizer used in agriculture, with shallow wells being most at risk of high nitrate concentrations (3). Nitrate is the most common nitrogen entering Iowa streams because of its stability and water-solubility, potentially leading to downstream contamination of drinking water.

Health Risks Associated with Nitrate

Cancer Health Risks

The International Agency for Research on Cancer (IARC) classifies nitrate in food and water as "probably carcinogenic to humans" (1, 5). Studies conducted in Iowa have shown a positive correlation between exposure to nitrate in the drinking water and some cancers (1). Some studies conducted in Iowa have analyzed cancer risk at or above levels one-half the maximum contaminant level (MCL) over long periods of time. From these studies, consistent associations have been discovered for **colorectal cancer**. Cancers at other sites have been less studied, however, positive associations have been found at levels below the MCL for cancers of the **thyroid, ovary, and kidney** (6).

Non-Cancer Health Risks

Methemoglobinemia, or Blue Baby Syndrome, is a condition in which not enough oxygen is transported in the blood to the body's tissues (3). Blue Baby Syndrome can occur when infants are exposed to nitrate levels higher than 10 mg/L. Elevated prenatal nitrate exposure in Iowa has also been connected to increased risk of birth defects, including spina bifida, limb deficiencies, and cleft palate (7,8).

How is Nitrate regulated?

- The EPA established the maximum contaminant level for nitrate to be 10 mg/L in drinking water, to protect infants against methemoglobinemia, or Blue Baby Syndrome (7, 9).
- Public water suppliers must test for nitrate and present results to consumers and the state through consumer confidence reports (3).
- Private wells are not required to be tested for nitrate, and those with water sourced from a shallow well, less than 50 feet, face a disproportionate risk of high nitrate exposure (3,10).

What can you do?

- Test well water for nitrate once a year if the well is privately-owned.
- Water purification methods that remove nitrate include reverse osmosis, ion exchange, and distillation. Using Brita filters, refrigerator filters, and boiling water are not effective at removing nitrate (7).
- Maintain a healthy diet rich in antioxidants and limited in processed, cured, and red meats (1). **Published September 2024**
Questions? Visit our website EHSRC.org

<https://ehsrc.public-health.uiowa.edu/communityengagement/resources-information/>

Other initiatives in Iowa

Understanding Cancer and Environmental Risk Factors in Iowa

A New Initiative from the Iowa Environmental Council and The Harkin Institute



The Harkin Institute and the Iowa Environmental Council are announcing the launch of a new initiative that explores the relationship between environmental risk factors and cancer rates in Iowa.

<https://harkininstitute.drake.edu/2025/04/18/the-harkin-institute-and-the-iowa-environmental-council-are-teaming-up-for-a-new-cancer-research-initiative/>

Expert Panel

UI Holden Cancer Center is bringing renowned national and international cancer experts together to investigate Iowa's cancer rates



The Iowa Farmers Union has invited state legislators and local medical professionals to join a conversation at Listening Sessions across the state to find out what local citizens are thinking and suggestions they might have to fight this battle.



<https://iowafarmersunion.org/>

Main Takeaways

Cancer is an important health issue facing your county

There are proven ways to prevent cancer & find it early
You can avoid risk factors and get screened

Iowa has a strong Cancer Plan, resources, & organizations to help fight cancer

Policy changes at the local and state levels can have a huge impact!
Please communicate your concerns & needs with your state representatives and local policymakers

And let us know how we can help!

These slides will be posted

These slides will be posted to the Iowa Cancer Registry website:

www.iowacancerregistry.org/99



If you have questions, please email us at

ICR-99countiesproject@uiowa.edu

Media

If you are a representative of the media and would like more information on this presentation or to speak with someone from the Iowa Cancer Registry, contact ICR-Media@uiowa.edu.

Thank you for attending!

If you would like to **share your thoughts** on this meeting, please participate in our brief survey. The QR code will direct you to the survey.

This brief survey should take no more than 5-10 minutes of your time.

