

Screen Smart, Live Well: Cancer Screening and Prevention for Women in Nebraska

Rachael Schmidt, DNP, APRN, AOCNP
Assistant Director, Health Promotion & Screening



UNMC

FRED & PAMELA BUFFETT
CANCER CENTER

1

Objectives

- Examine Nebraska-specific cancer incidence, mortality, and screening rates
- Summarize current NCCN, ACS, and USPSTF cancer screening guidelines relevant to women's health
- Identify practical, evidence-based cancer prevention strategies for daily life to reduce cancer risk



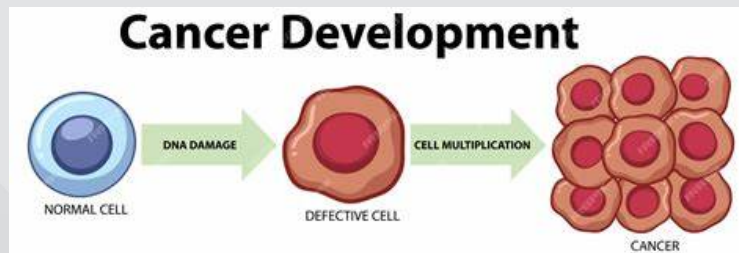
2

What is Cancer?

Cancer is a group of diseases where abnormal cells grow out of control and crowd out normal cells.

It affects 1 in 3 people in the United States.

Chances are that you or someone you know has been affected by cancer



3

What Causes Cancer?

Cancer starts when something goes wrong in the normal process of cells growing and dividing to make new cells.

Gene changes that lead to cancer can have many possible causes, including:

- Lifestyle habits (obesity, alcohol, tobacco use, diet, physical activity, stress, etc)
- Genes you get from your parents
- Exposure to certain chemicals or radiation can all play a role.
- Many times, there is no one clear cause.



4

Cancer Incidence in Nebraska

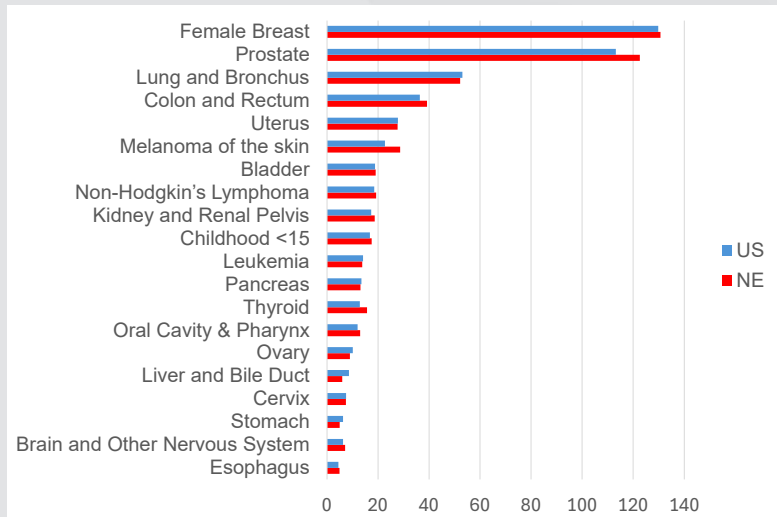
Age-Adjusted Incidence Rates Per 100,000 (2017-2021): NE vs. US

Sites for which NE has significantly* higher rate (per 100,000) than the US

Cancer	NE	US
Overall	456.2	444.4
Breast	130.7	129.8
Prostate	122.6	113.2
Colorectal	39.2	36.4
Melanoma	28.7	22.7
Thyroid	15.7	12.9
Oral	13.0	12.0
Brain	7.1	6.3

*Significant at .05 level

Source: NCI State Cancer Profile



5

Cancer Mortality in Nebraska

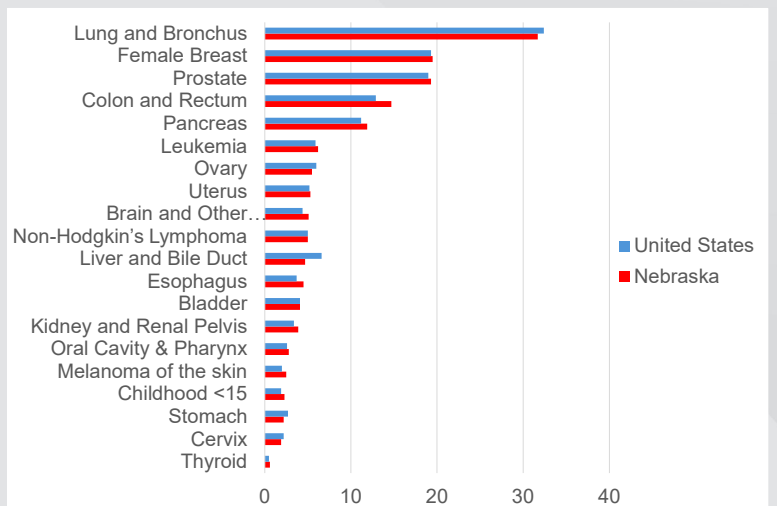
Age-Adjusted Mortality Rates Per 100,000 (2018-2022): NE vs. US

Sites for which NE has significantly* higher rate (per 100,000) than the US

Cancer	NE	US
Colorectal	14.7	12.9
Pancreas	11.9	11.2
Leukemia	6.2	5.9
Brain & CNS	5.1	4.4
Esophagus	4.5	3.7
Kidney	3.9	3.4

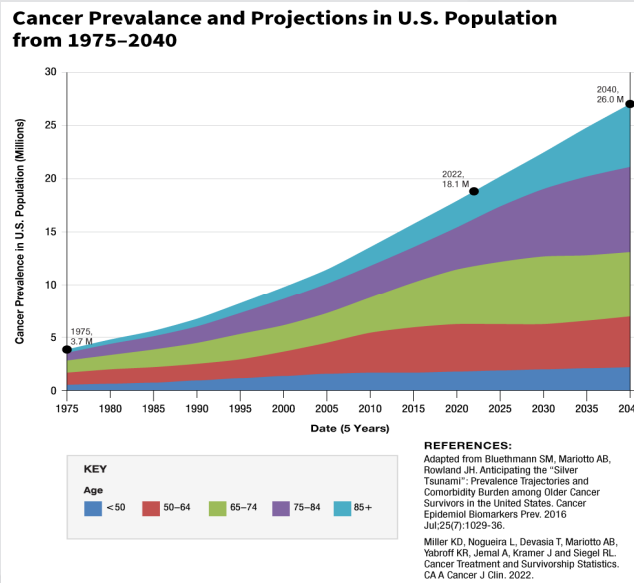
*Significant at .05 level

Source: NCI State Cancer Profile



6

Impact of Cancer Screenings



7

Misconceptions About Cancer Screenings

- I feel fine, so I don't need a screening
- I don't have cancer in my family so I'm not at risk
- Screenings are painful or dangerous (radiation exposure)
- I do not want to know if I have cancer
- Only older people need to worry

4 screenable cancers on the rise

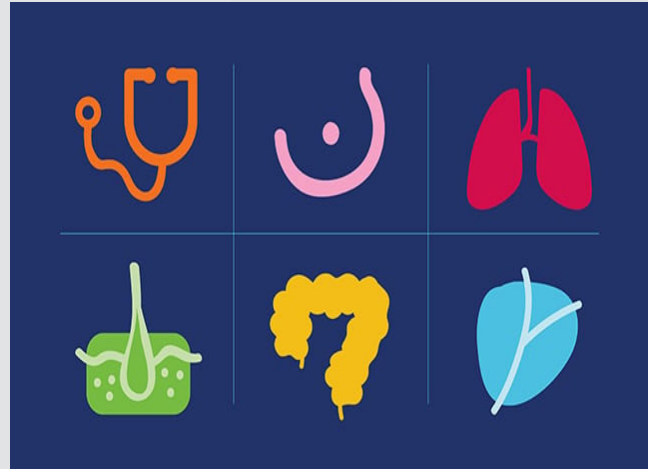
All ages: breast, prostate
Ages 0–54: colorectal
Ages 30–44: cervical

American Cancer Society Cancer Facts & Figures 2024

8

General Population Cancer Screenings

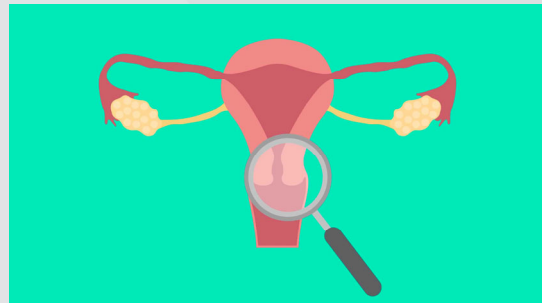
Breast: Age 40
Cervical: Age 21
Colon: Age 45
Lung: Age 50 with smoking history
Prostate: Age 50 (or younger)
Skin: Annually



9

Cervical Cancer Screening

- Caused by the human papillomavirus (HPV)—which is preventable through vaccination.
- Pap test every 3 years or HPV + Pap every 5 years for women ages 21–65.
 - Stop after hysterectomy
- Hispanic and Black women have higher cervical cancer mortality.
- HPV vaccination prevents 90% of cervical cancers and is recommended starting at age 9 (for boys and girls).



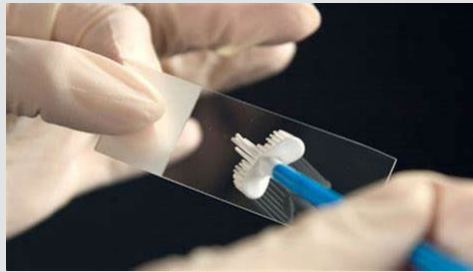
10

Cervical Cancer Screening

Current Screening Rate: In 2023, **75.8%** of women aged 21-65 years were up-to-date with cervical cancer screening.

Mortality Reduction: Pap smear screening has reduced cervical cancer deaths by >70% since its introduction

HPV testing: Detects high-risk types before cancer forms – offering longer intervals between screenings safely.



11

Lung Cancer Screening

- More people in the United States die from lung cancer than any other type of cancer.
- Low-dose CT scan (LDCT) for adults 50–80 with a 20-pack year or 20-year history of smoking.
- Often no symptoms until it's very advanced.
- Black men have the highest death rate from lung cancer.



Blood when you cough or spit
Recurring respiratory infections
Enduring a new or different cough
Aches or pains in the shoulder, back, or chest
Trouble breathing
Hoarseness or wheezing and
Exhaustion, weakness, or loss of appetite

12

Lung Cancer Screening

Current Screening Rate: in 2022, only **16.0%** of all those eligible were screened.

Mortality Reduction: LDCT reduces lung cancer deaths by 20-40% in high-risk adults

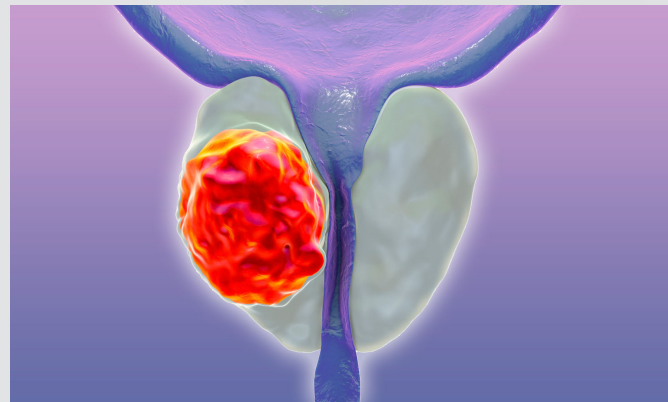
Stage Shift: Before LDCTs, only ~20% of cases were caught at Stage 1, with LDCT, nearly 60% are.



13

Prostate Cancer Screening

- Prostate cancer is the most common cancer in men (after skin cancer).
- Often has no symptoms in early stages.
- **PSA blood test typically recommended starting at age 50— or earlier (age 45) for Black men or those with family history.**
- Black men are more than twice as likely to die from prostate cancer.



14

Prostate Cancer Screening

Current Screening Rate: In 2023, **38.0%** of men aged 55-69 years had a PSA test within the past year.

Mortality Reduction: PSA screening contributed to a 50% drop in cancer death rates between 1993-2013.

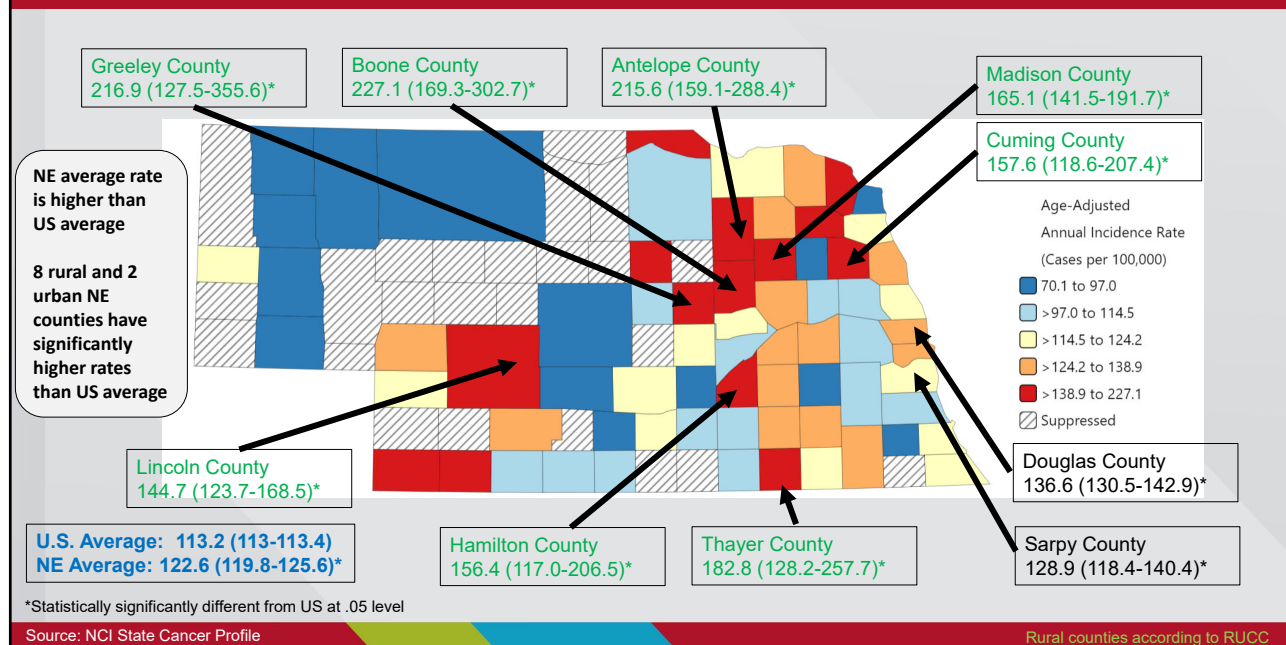
Earlier Detection: Screening often identify prostate cancer while still localized, improving treatment success.

Controversy & Personalization: Risk/benefit discussions recommended, overdiagnosis, overtreatment, false positives leading to unnecessary biopsies



15

Prostate Cancer Incidence Rates Per 100,000: 2017-2021



16

Breast Cancer Screening

- Most common cancer diagnosed among women.
- Black women are more likely to be diagnosed at younger ages and with more aggressive types.
- Men can get breast cancer too—especially with family history.



17

Mammograms

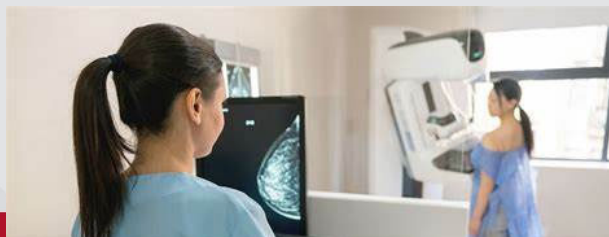
Regular mammograms are an **x-ray** that can find breast cancer early, sometimes up to 3 years before it can be felt.

3D mammograms can detect up to 40 percent more cancers than 2D mammograms.

Mortality Reduction: Routine mammography has reduced breast cancer deaths by 30-40%


Earlier Detection: Almost 100% of breast cancers diagnosed at a local (early) stage are still alive 5 years later, but only 64% of breast cancers are localized stages (due to underutilization of mammograms)

- Compared to <50% before screening programs were started



18

Breast Cancer Screening Rate

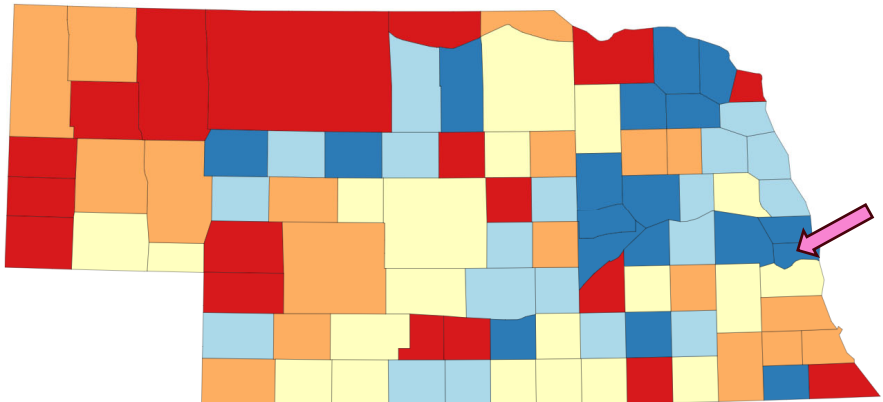


Current Screening Rate: In 2023, **79.8%** of women aged **50-74** years had a mammogram within the past 2 years.

American Cancer Society data shows that **1 in 3** women who are 45 years and older **are not** getting screened as recommended

19

Mammogram in Past 2 Years (Women Ages 40-75): 2017-2019



Model-Based Percent
(95% Confidence Interval)

- 55.0 to 61.3
- >61.3 to 64.8
- >64.8 to 67.0
- >67.0 to 70.4
- >70.4 to 77.7

U.S. Average: 70.2%
NE Average: 67.6% (65.3-69.9)
 (There is no statistical significance difference at .05 level)

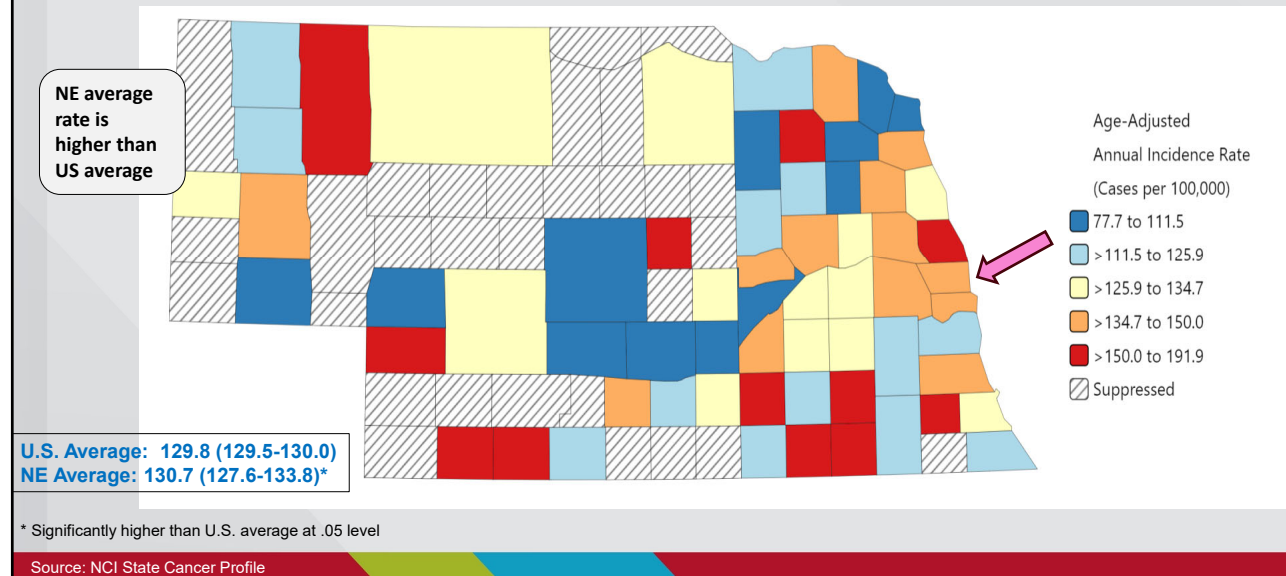
US Data for 2023: 79.8%

81 rural and 8 urban NE counties have significantly lower rates than US average

Source: NCI State Cancer Profile

20

Female Breast Cancer Incidence Rate per 100,000: 2017-2021



21

Breast Cancer Screening Guidelines

USPSTF: start at age 40, recommend every 2 years

NCCN: start age 40, recommend every 1 year

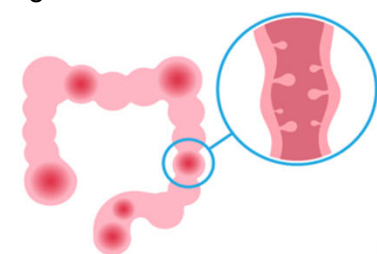
- Women who had mammograms every 2 years were also diagnosed with larger cancers.
- Interval cancers, which are cancers found in the time between screenings, were more likely in the women who had mammograms every 2 years.
- Women who had mammograms every 2 years tended to have more aggressive treatment, such as chemotherapy and axillary lymph node surgery.

The USPSTF is a group of physicians and non-physicians with no expertise in breast cancer screening (no breast oncologists, breast surgeons, breast imagers, etc.), nor do they provide care for women with breast cancer.


22

Colorectal Cancer Screening


- Colorectal cancer is one of the most preventable cancers with regular screening.
- 1 in 24 people will be diagnosed with colorectal cancer.
- Recommended for adults ages **45** to 75.
- Black Americans have the highest incidence and death rates.




Common signs and symptoms to watch for include:




Change in bowel habits




Fatigue



Abdominal pain



Blood in your stool and or rectal bleeding



Unexplained weight loss

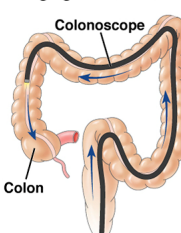

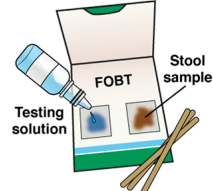
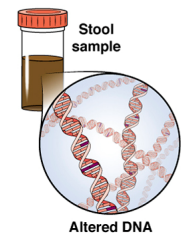
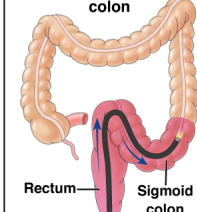

23

Colorectal Cancer Screening

Current Screening Rate: In 2023, **72.6%** of adults aged 50-75 had received colorectal cancer screening based on the most recent guidelines.

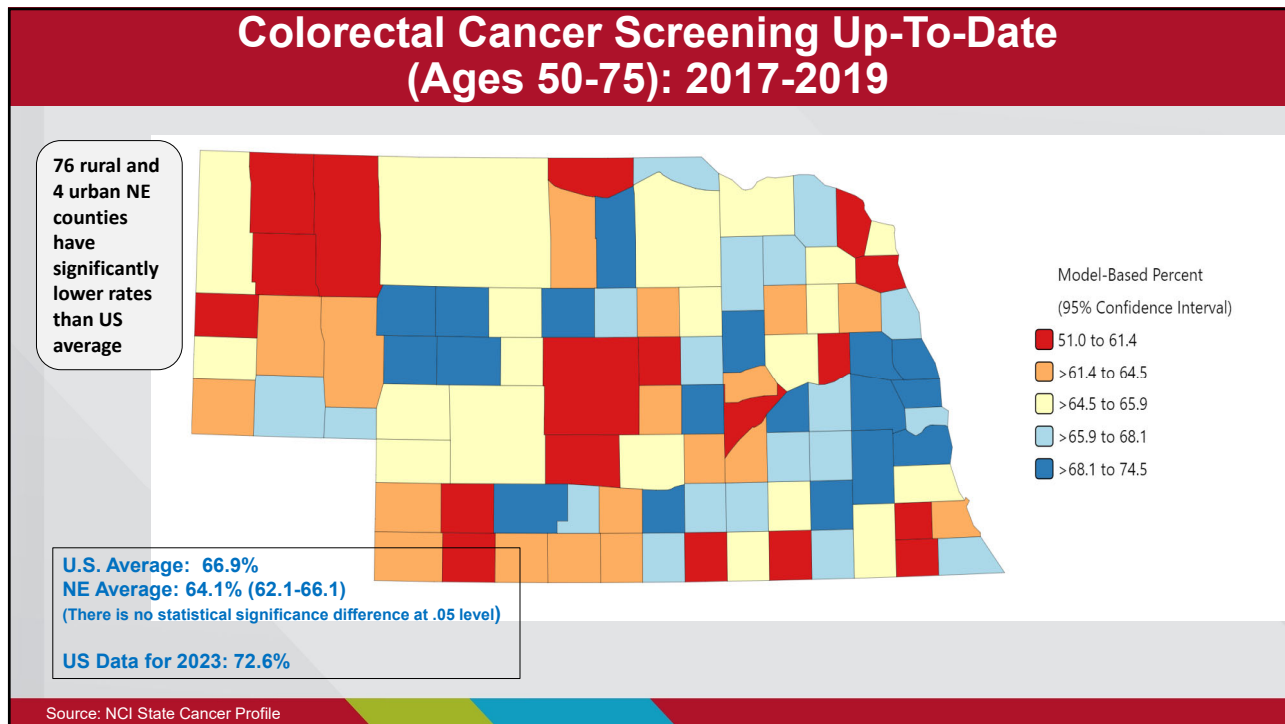
Mortality Reduction: CRC death rates have dropped over 50% since 1980s, largely due to screening

Prevention: Colonoscopy removes precancerous polyps, preventing cancer altogether

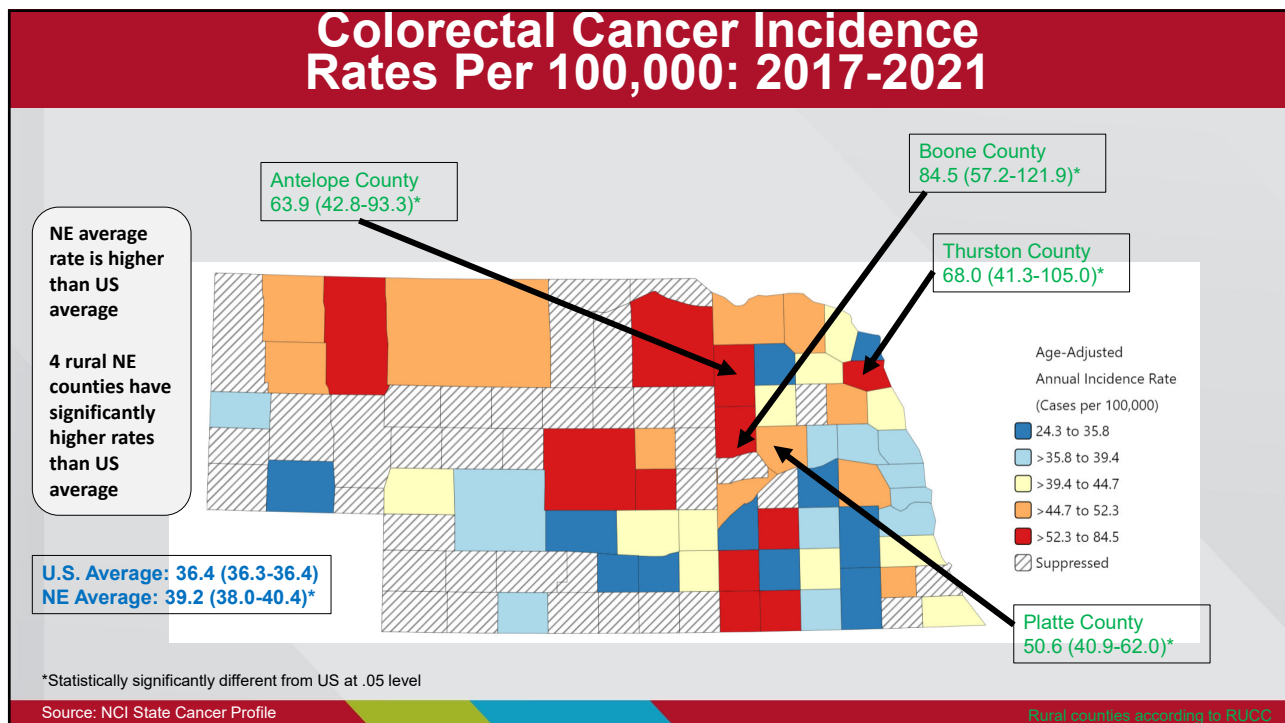
<p style="text-align: center; background-color: #4b4b9b; color: white; padding: 2px;">Colonoscopy</p> <p style="font-size: small;">Imaging of entire colon</p> 	<p style="text-align: center; background-color: #add8e6; padding: 2px;">Stool tests</p> <div style="display: flex; justify-content: space-between; font-size: x-small;"> <div style="width: 45%;"> <p>Fecal immunochemical test (FIT)</p>  </div> <div style="width: 45%;"> <p>Fecal occult blood test (FOBT)</p>  </div> </div>	
<p style="text-align: center; background-color: #4682b4; color: white; padding: 2px;">Stool DNA test</p> 	<p style="text-align: center; background-color: #90ee90; padding: 2px;">Flexible sigmoidoscopy</p> <p style="font-size: small;">Imaging of the lower colon</p> 	<p style="text-align: center; background-color: #90ee90; padding: 2px;">CT colonography</p> <p style="font-size: x-small;">CT machine</p> 

24

12

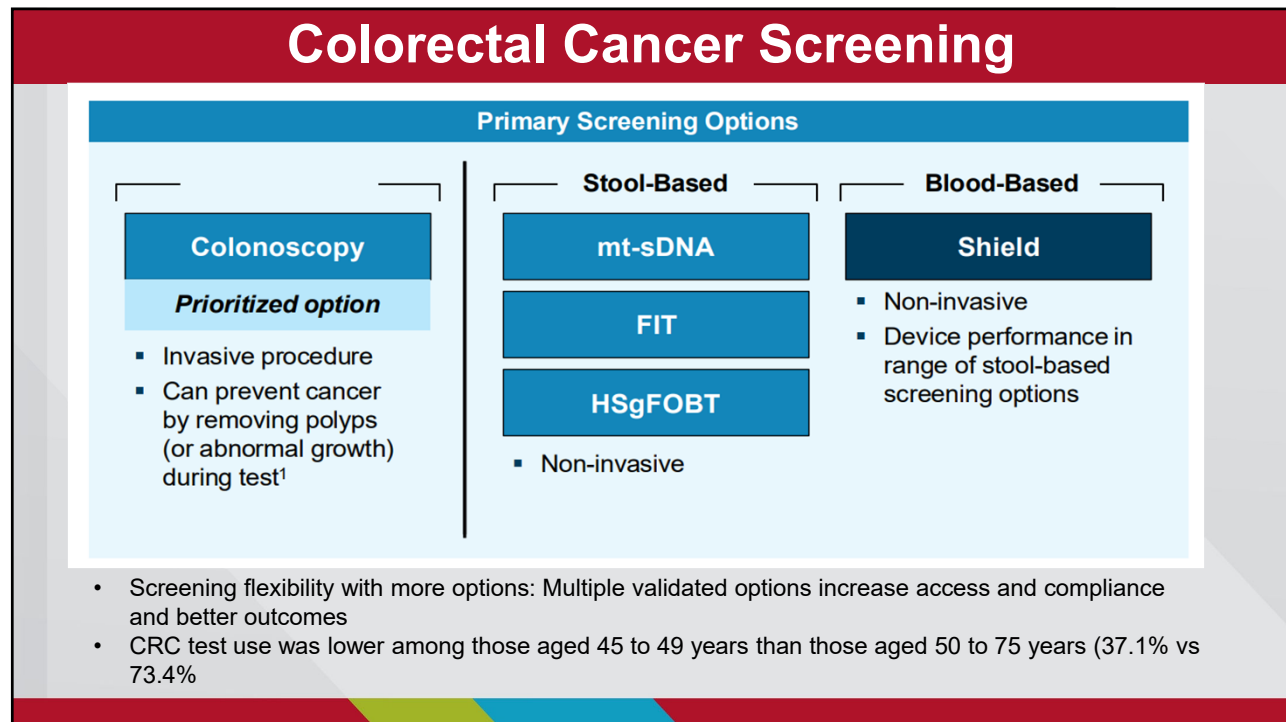


25



26

Colorectal Cancer Screening



27

Cancer Screening Guidelines Aren't Always the Same

Different Organizations, Different Lenses

- American Cancer Society (ACS), United States Preventive Services Task Force (USPSTF), National Comprehensive Cancer Network (NCCN), and other specialty societies may review the same research but come to slightly different recommendations based on:
 - Risks/Benefits
 - Cost Effectiveness vs Early Detection
 - Public Health vs Individual Care

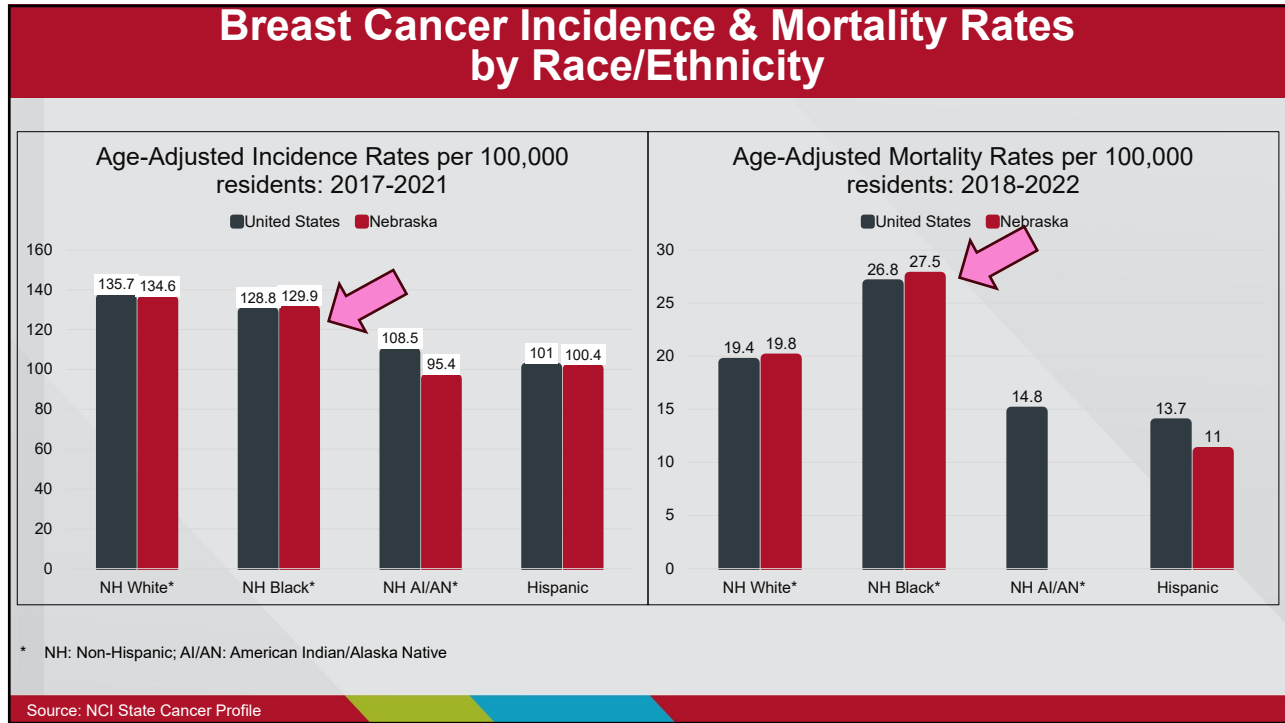
Evolving Science

- As research grows, guidelines get updated (what we recommend today, may change tomorrow)

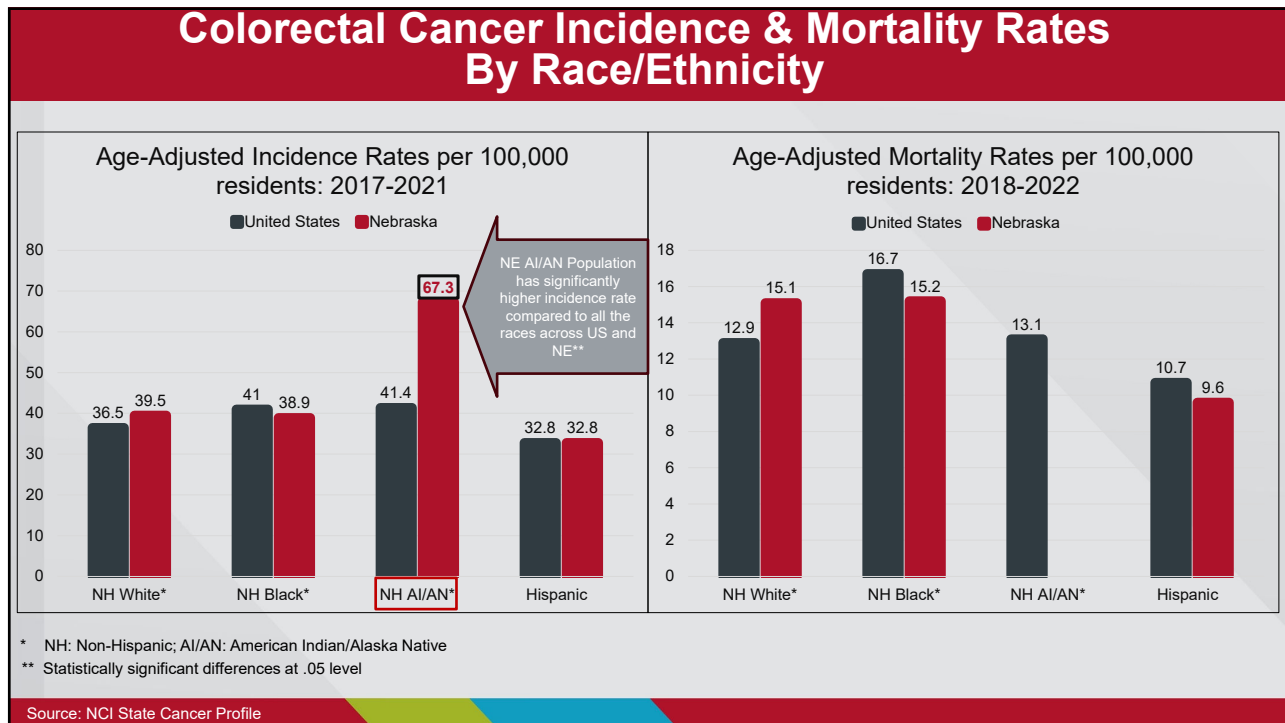
Screening Isn't One-Size-Fits-All

- Some people have a higher risk (family history, race, smoking, etc)
- Some tests work better for certain age groups or sexes
- Guidelines may suggest more frequent screening for some and less for others

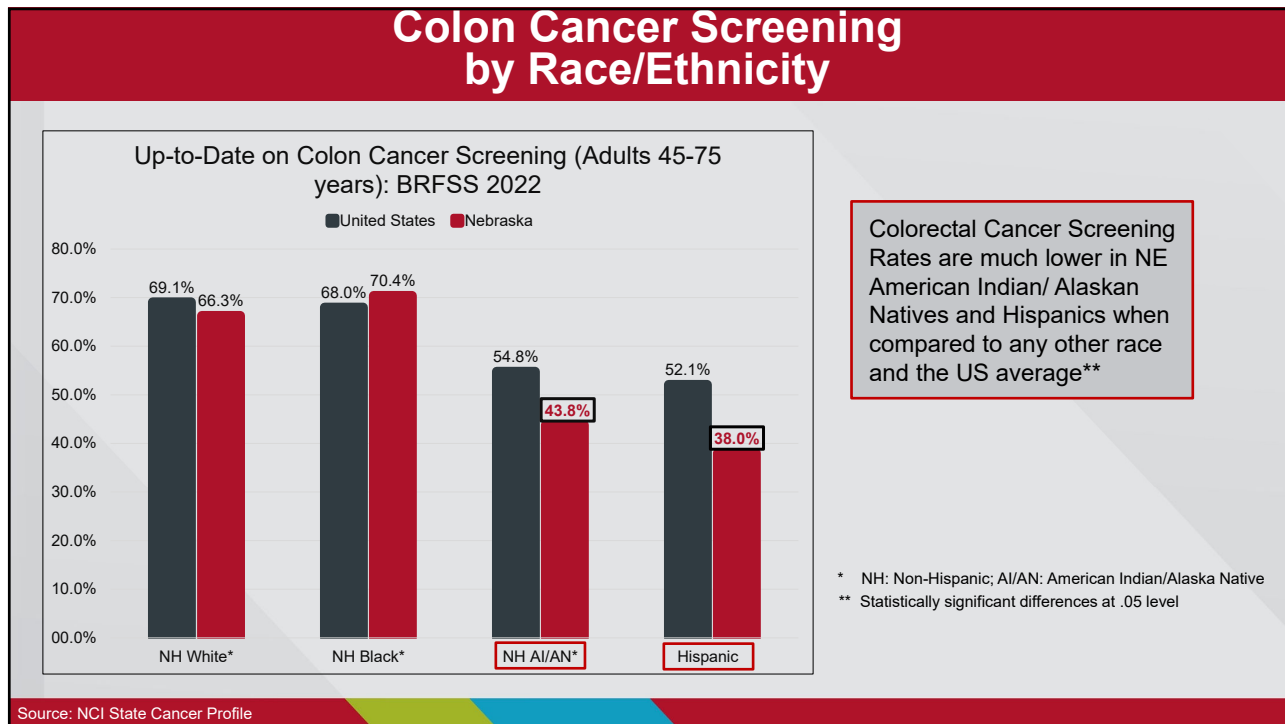
28



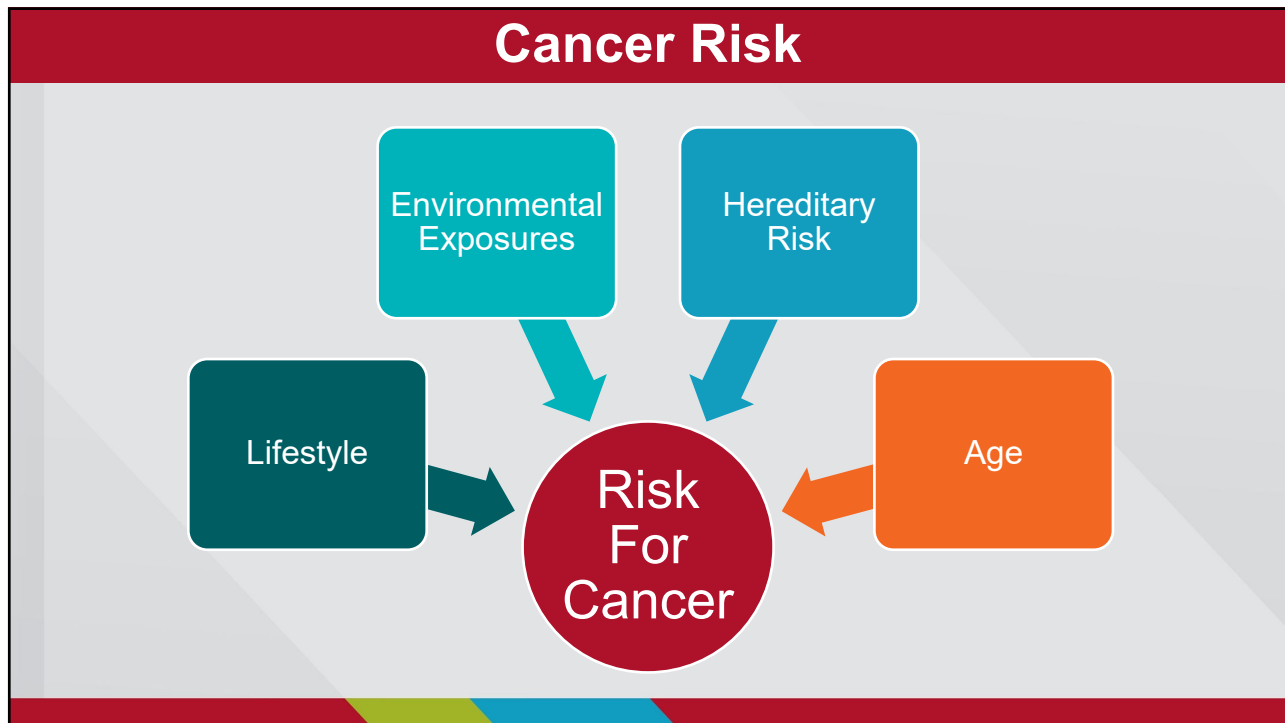
29



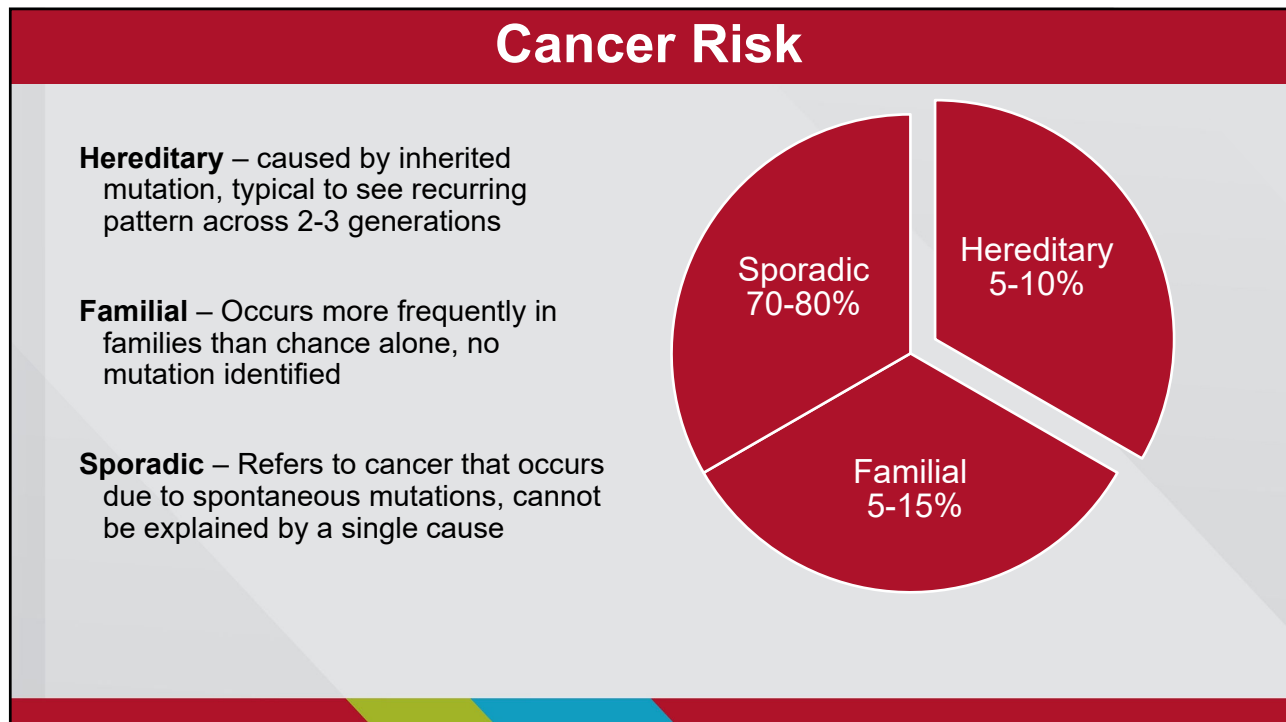
30



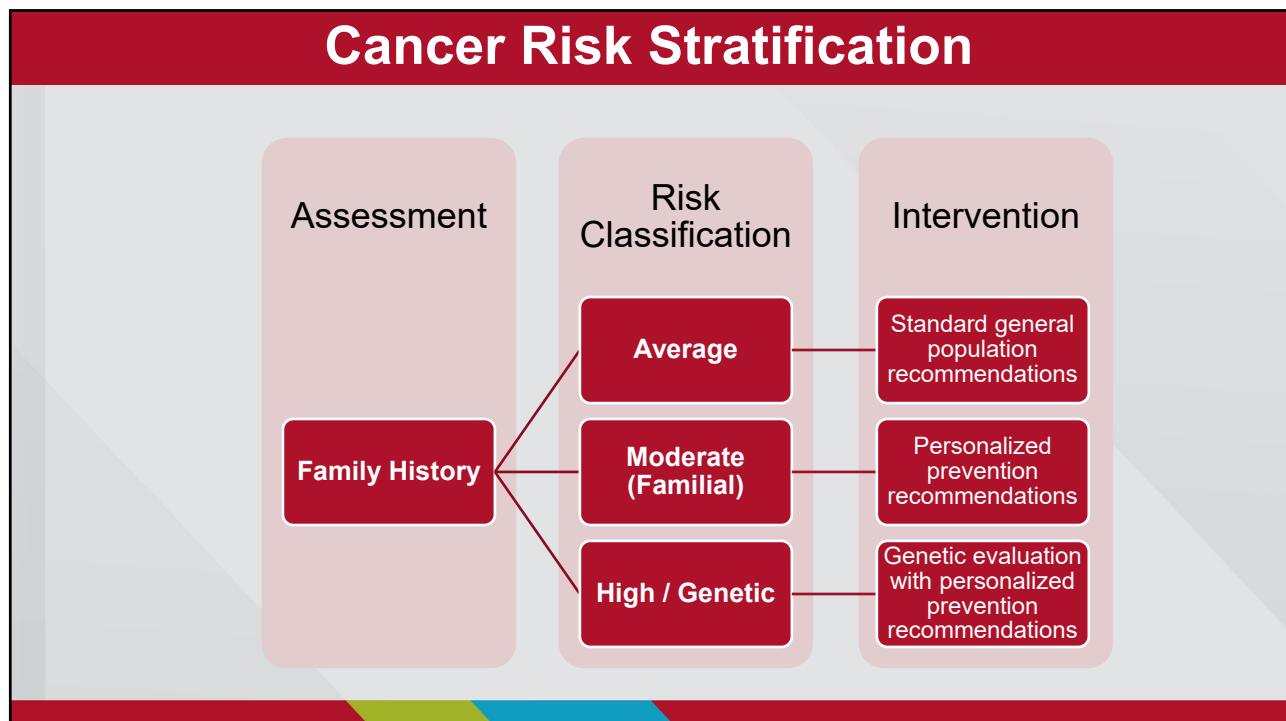
31



32



33



34

Red Flags for Hereditary Cancer

Cancer at
a young age
(<50)

Cancer Clusters
(Breast and
Ovarian)

Multiple primary
cancers in one
individual

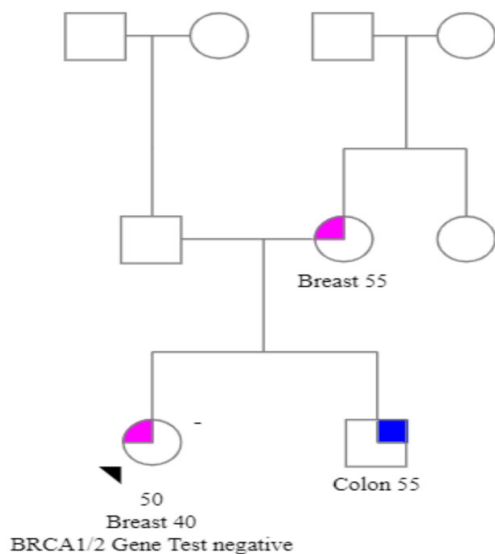
The same
cancer in
multiple
generations

>10 colon polyps
(lifetime)

Rare cancers
(Pancreas, Ovarian)

35

Case Study

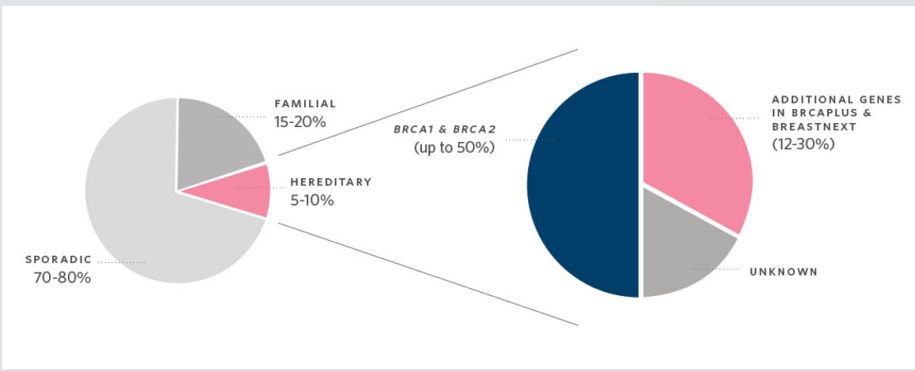


Patient diagnosed with breast cancer in 2008 at age 40 and had negative genetic testing
It's now 2018 (patient is 50 years old)

- She has 2 children, ages 20 & 18 (not pictured on pedigree)
- Brother just diagnosed with colon cancer at age 55

36

Breast Cancer Genes



PTEN

TP53

STK11

ATM

CDH1

CHEK2

PALB2

🧬

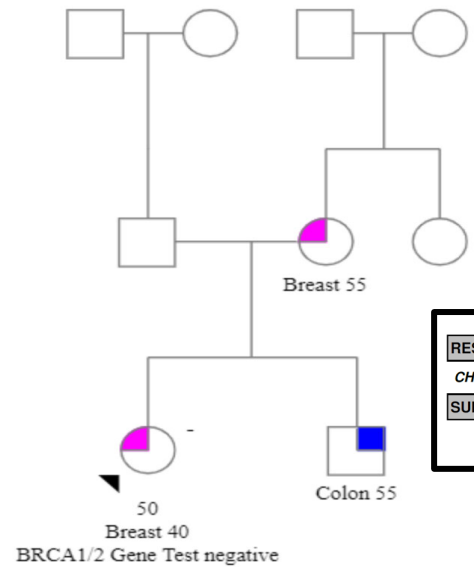
1994 BRCA1 /BRCA2 cloned & sequenced

👤

2013 - multi-cancer gene panel testing available

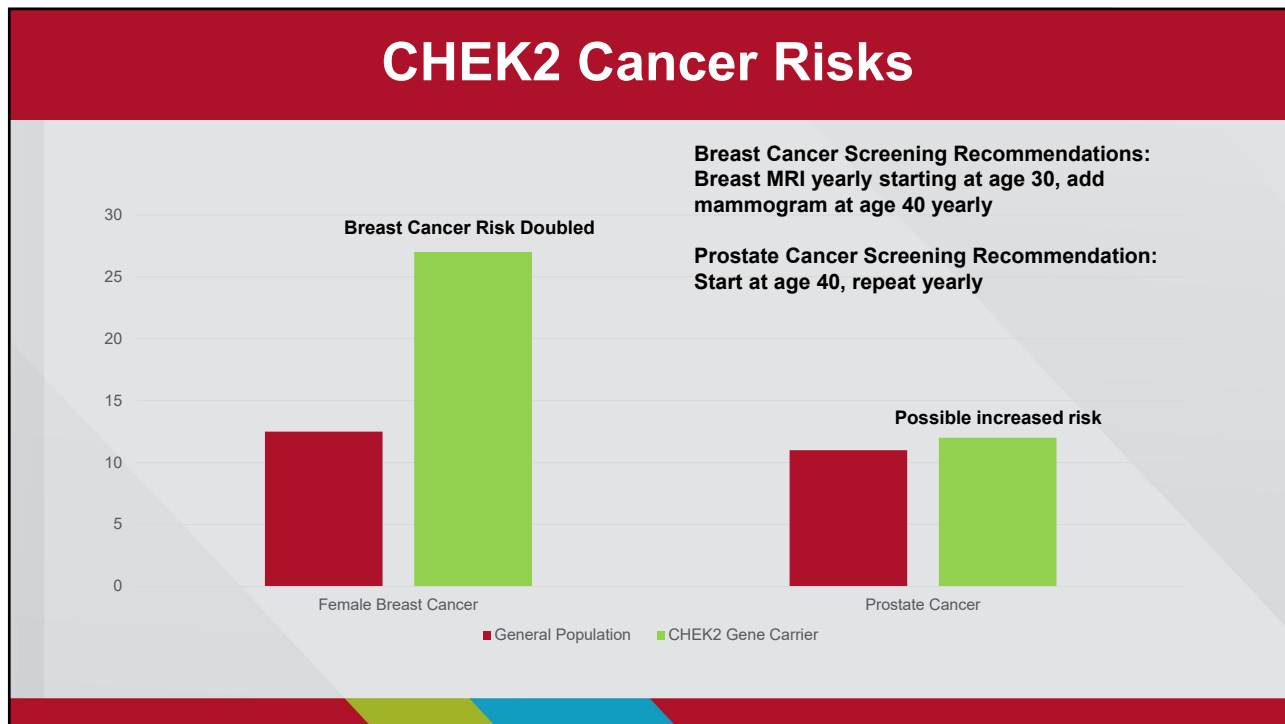
37

Case Study: Updated Testing Results



RESULTS	
<i>CHEK2</i>	c.1100delC Pathogenic Mutation: Detected
SUMMARY	
POSITIVE: Pathogenic Mutation Detected	

38



39

**At least 40% of all cancers
can be prevented with
healthy lifestyle choices.**

Source: American Cancer Society

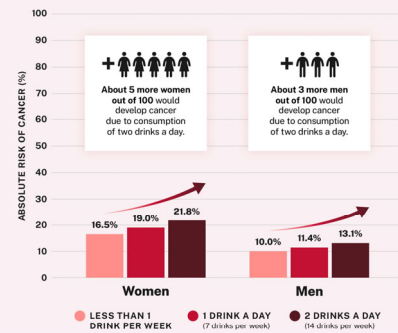
40

Diet and Nutrition

- **Antioxidants:** block free radical activity
- **Fiber:** moves waste faster, feeds gut bacteria
- More fruits/veggies, less red meat (colon cancer)
- Can lower risk by 10-20%
- **Alcohol:** linked with higher risk of 7 types of cancers, multiple theories why

Source: National Cancer Institute, UCLA Health

Higher alcohol consumption increases alcohol-related cancer risk in women and men



This graph represents the cumulative absolute risk of alcohol-related cancer in women and men over the lifespan by age 80. Alcohol-related cancer includes breast, colorectum, esophagus, liver, mouth, throat, and voice box cancers.

Source: Calculated with data from Sartorius, P., Canhali, K., Egger, S., Blanks, E., Joshi, G., Grogan, P., & Weber, M. F. (2021). Alcohol consumption, drinking patterns and cancer incidence in an Australian cohort of 226,162 participants aged 45 years and over. *British journal of cancer*, 124(2), 513-523. <https://doi.org/10.1038/s41416-020-01101-2>

Office of the
U.S. Surgeon General

41

Physical Activity

- **Exercise regularly**
Can decrease cancer risk by up to 25% in studies (colon, breast, etc)
- Helps with hormone regulation
- Reduces inflammation
- Improves immune system
- Helps prevent obesity – which increases risk for 13 types of cancer

Source: National Cancer Institute

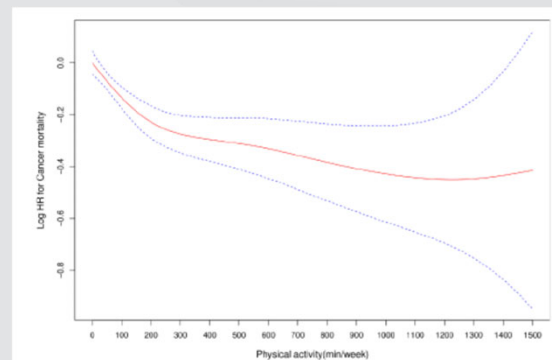


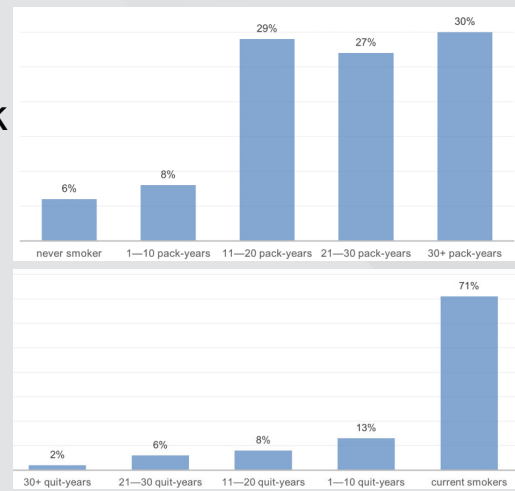
Figure 3 Dose-response association between total leisure time physical activity (as a continuous variable, min/week) and risk of cancer-specific mortality.

Zhao, Min & Veeranki, S Phani & Li, Shengxu & Steffen, Lyn & Xi, Bo. (2019). Beneficial associations of low and large doses of leisure time physical activity with all-cause, cardiovascular disease and cancer mortality: A national cohort study of 88,140 US adults. *British Journal of Sports Medicine*. 53. [bjsports-2018. 10.1136/bjsports-2018-099254](https://doi.org/10.1136/bjsports-2018-099254).

42

Tobacco

- 1 in 5 people are current tobacco users, increases risk for up to 16 types of cancers
- 250+ harmful chemicals in tobacco smoke
 - 69+ are cancerous
- Weakens immune system
- Damages/weakens DNA
- Causes 80-90% of lung cancers



Markaki, M., et al., A Validated Clinical Risk Prediction Model for Lung Cancer in Smokers of All Ages and Exposure Types: A HUNT Study, EBioMedicine (2018), <https://doi.org/10.1016/j.ebiom.2018.03.027>

Source: National Cancer Institute, CDC

43

What You Can Do to Live Well

44



Eat Well!

- Fruits, vegetables, whole grains, legumes
- Healthy fats and lean proteins
- Limit alcohol, processed meats, red meat, sugary drinks



Source: Mayo Clinic, UNMC

45



Not Sure Where to Start?

- Eat 1 extra serving of a plant-based food
- Swap 1 sugary/alcoholic drink for water or unsweetened tea
- Try a plant-based meal once this week
- Try the 1-2-3 rule for meal planning
 - 1 serving of plants at breakfast
 - 2 at lunch
 - 3 at dinner



Source: UNMC Fred and Pamela Buffett Cancer Center

46



Be Active!

- 150 minutes of moderate aerobic activity or 75 minutes of vigorous aerobic activity per week
- Muscle-strengthening activities 2+ days per week
- Balance/flexibility exercises



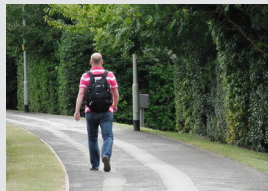
Source: National Cancer Institute, CDC

47



Not Sure Where to Start?

- Walk during TV commercial breaks or work breaks
- Do calf raises or sit-to-stands
- Practice balance by standing on one foot while waiting in line
- Take a short walk after lunch and dinner
- Take the stairs instead of elevators



Source: UNMC Fred and Pamela Buffett Cancer Center

48

Don't Use Tobacco!

- Avoid secondhand smoke
- Quit tobacco if you use it
 - Lowers risk of 12 types of cancer
 - Adds up to 10 years to your life
- Call Nebraska Medicine's Smoking Cessation Program
 - 800-922-0000



Source: National Cancer Institute, American Cancer Society

49

Protect Yourself from the Sun!

- Sunscreen (SPF 30+)
- Avoid midday sun
- No tanning beds or sunlamps
- Pay attention to your skin



Source: Mayo Clinic Health System, UNMC

50

Takeaways:



1. Begin Again: Rewriting Nebraska's Cancer Story

Understanding Nebraska's cancer trends can help us all take targeted action to protect our neighbors and loved ones.

2. Facts Never Go Out of Style

Reliable evidence-based screening saves lives and tells us when and how to get screened.

3. Be Fearless

Small, daily choices add up — because your era should be one of prevention and protection.



51



NCI Cancer Center
A Cancer Center Designated by the
National Cancer Institute

UNIVERSITY OF
Nebraska
Medical Center

52