
4th Annual South Dakota State Demography Conference

Colorectal and Female Breast Cancer in South Dakota

May 19, 2016

Patricia Da Rosa, M.Sc.

Public Health Data Analyst



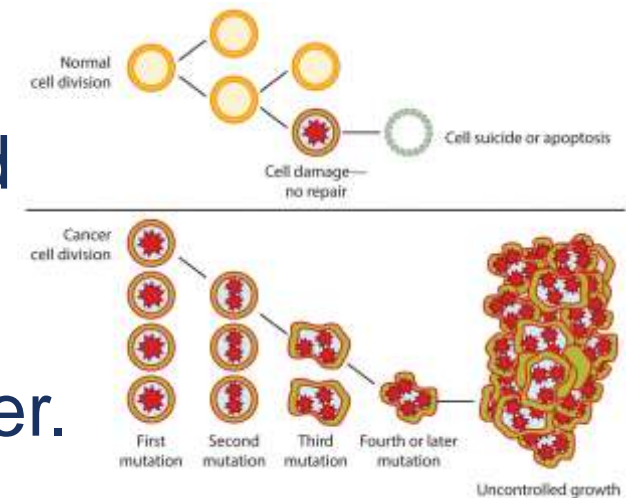
South Dakota State University
College of Nursing



SOUTH DAKOTA
DEPARTMENT OF HEALTH

WHAT IS CANCER?

- A generic term for a large group of diseases that can affect any part of the body.
- The uncontrolled, abnormal growth of cells
- The cells can invade and damage normal tissue and spread to other parts of the body (Metastases).
- Metastases are the major cause of death from cancer.

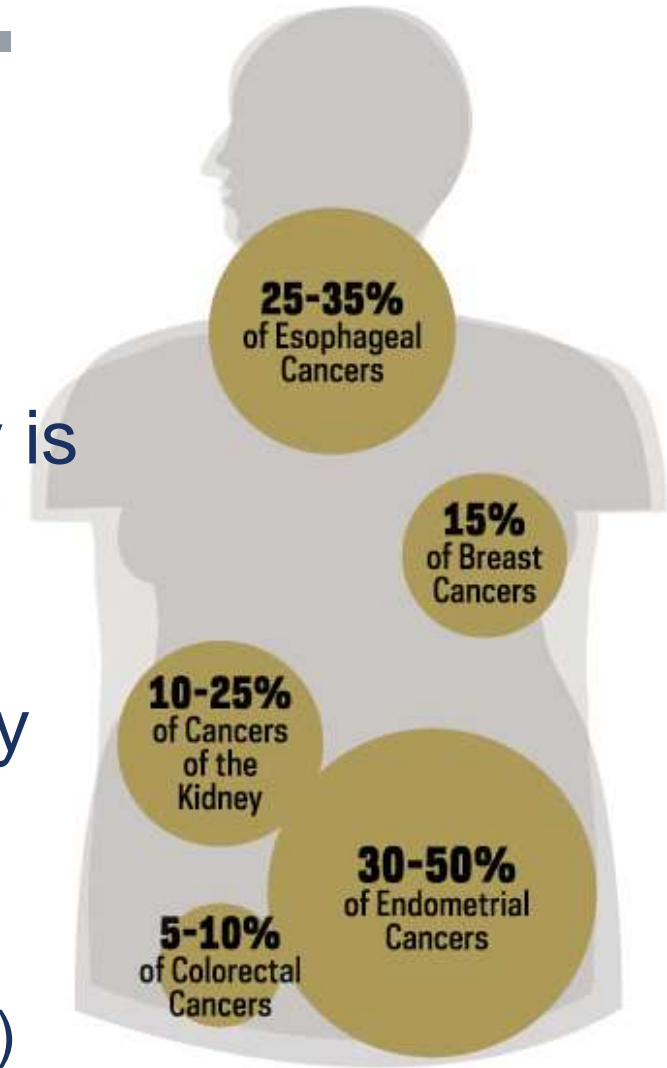


Risk Factors:

- The causes of most cancers remain **unknown**.
- Global variation in cancer incidence and mortality is driven by **multiple factors**.

More than 30% of cancer could be prevented, mainly by:


- Not using tobacco
- Having a healthy diet (high fruit and vegetable intake)
- Being physically active
- Moderating use of alcohol



For some cancer sites, excess body weight accounts for a large proportion of cases.

Ten Leading Cancer Types for the Estimated New Cancer Cases and Death by Sex, US, 2016.

Estimated New Cases

		Males		Females		
Prostate	180,890	21%		Breast	246,660	29%
Lung & bronchus	117,920	14%		Lung & bronchus	106,470	13%
Colon & rectum	70,820	8%		Colon & rectum	63,670	8%
Urinary bladder	58,950	7%		Uterine corpus	60,050	7%
Melanoma of the skin	46,870	6%		Thyroid	49,350	6%
Non-Hodgkin lymphoma	40,170	5%		Non-Hodgkin lymphoma	32,410	4%
Kidney & renal pelvis	39,650	5%		Melanoma of the skin	29,510	3%
Oral cavity & pharynx	34,780	4%		Leukemia	26,050	3%
Leukemia	34,090	4%		Pancreas	25,400	3%
Liver & intrahepatic bile duct	28,410	3%		Kidney & renal pelvis	23,050	3%
All Sites	841,390	100%	All Sites	843,820	100%	

Estimated Deaths


		Males		Females		
Lung & bronchus	85,920	27%		Lung & bronchus	72,160	26%
Prostate	26,120	8%		Breast	40,450	14%
Colon & rectum	26,020	8%		Colon & rectum	23,170	8%
Pancreas	21,450	7%		Pancreas	20,330	7%
Liver & intrahepatic bile duct	18,280	6%		Ovary	14,240	5%
Leukemia	14,130	4%		Uterine corpus	10,470	4%
Esophagus	12,720	4%		Leukemia	10,270	4%
Urinary bladder	11,820	4%		Liver & intrahepatic bile duct	8,890	3%
Non-Hodgkin lymphoma	11,520	4%		Non-Hodgkin lymphoma	8,630	3%
Brain & other nervous system	9,440	3%		Brain & other nervous system	6,610	2%
All Sites	314,290	100%	All Sites	281,400	100%	

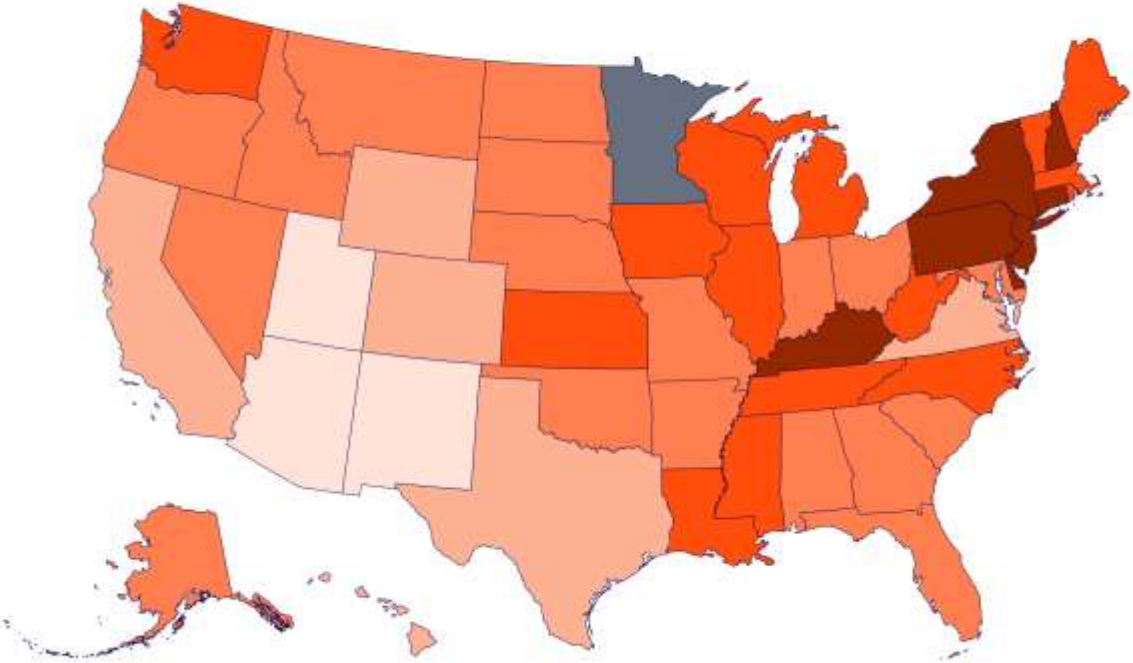
FIGURE 1. Ten Leading Cancer Types for the Estimated New Cancer Cases and Deaths by Sex, United States, 2016. Estimates are rounded to the nearest 10 and cases exclude basal cell and squamous cell skin cancers and in situ carcinoma except urinary bladder.

Incidence Rates, 2008-2012

Per 100,000 age adjusted to the 200 US Standard population

US: 461.9
SD: 449.2

Incidence rates, 2008-2012
Per 100,000, age adjusted to the 2000 US standard population



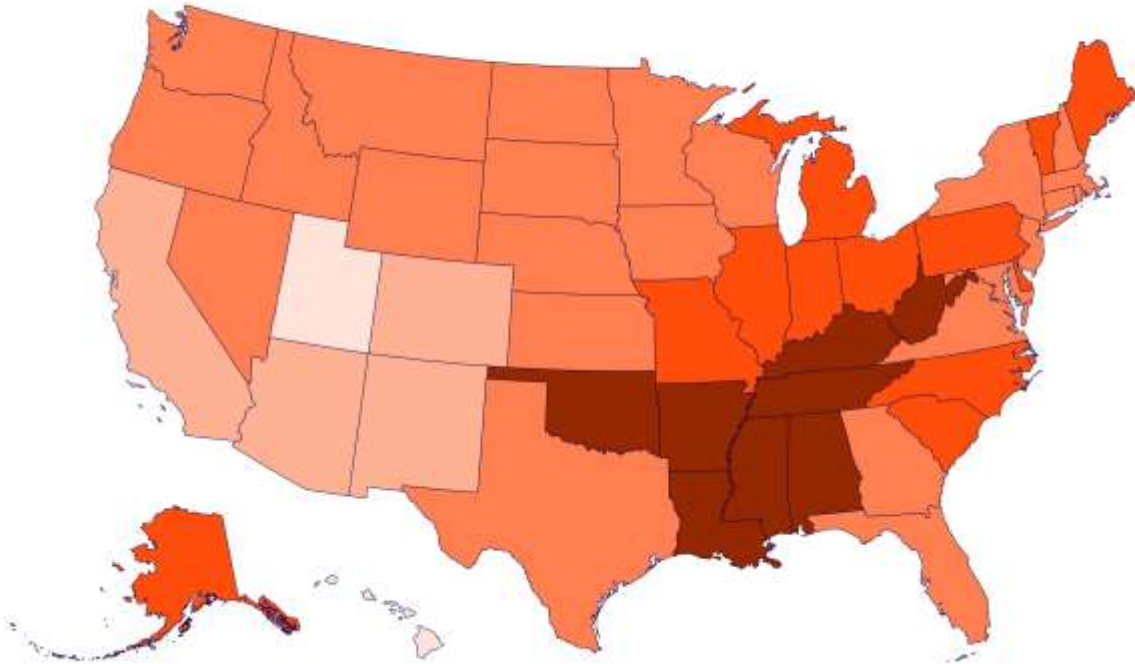
Data Source: North American Association of Central Cancer Registries (NAACCR), 2015
© 2016 American Cancer Society

Death Rates, 2008-2012

Per 100,000 age adjusted to the 200 US Standard population

US: 171.2
SD: 165.3

Death rates, 2008-2012
Per 100,000, age adjusted to the 2000 US standard population



Data Source: National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention, 2015
© 2016 American Cancer Society

Cancer/InfectiousDisease.com/eng

All cancer types combined



Female Breast Cancer

Picture by: Shades of life

Female Breast Cancer Burden

- **Most common** cancer among women worldwide
- In 2012, nearly 1.7 million new cases (**2nd** most common cancer overall)
- Represents 12% of all cancer cases, **25%** of all cancers in women

Estimates for 2016 in **SD**:

- 680 new cases of breast cancer
- 110 deaths due to breast cancer

BREAST CANCER RISK FACTORS:

- Age: risk increases as a women ages
- Personal or family history (5-10%)
- Inherited mutations (genetic alterations) in **BRCA1**, **BRCA2**
- Life time exposure to estrogen:
 - Early menarche/ Late menopause
 - Use of oral contraceptives or estrogen therapy
 - Post-menopausal hormone therapy (PHT)



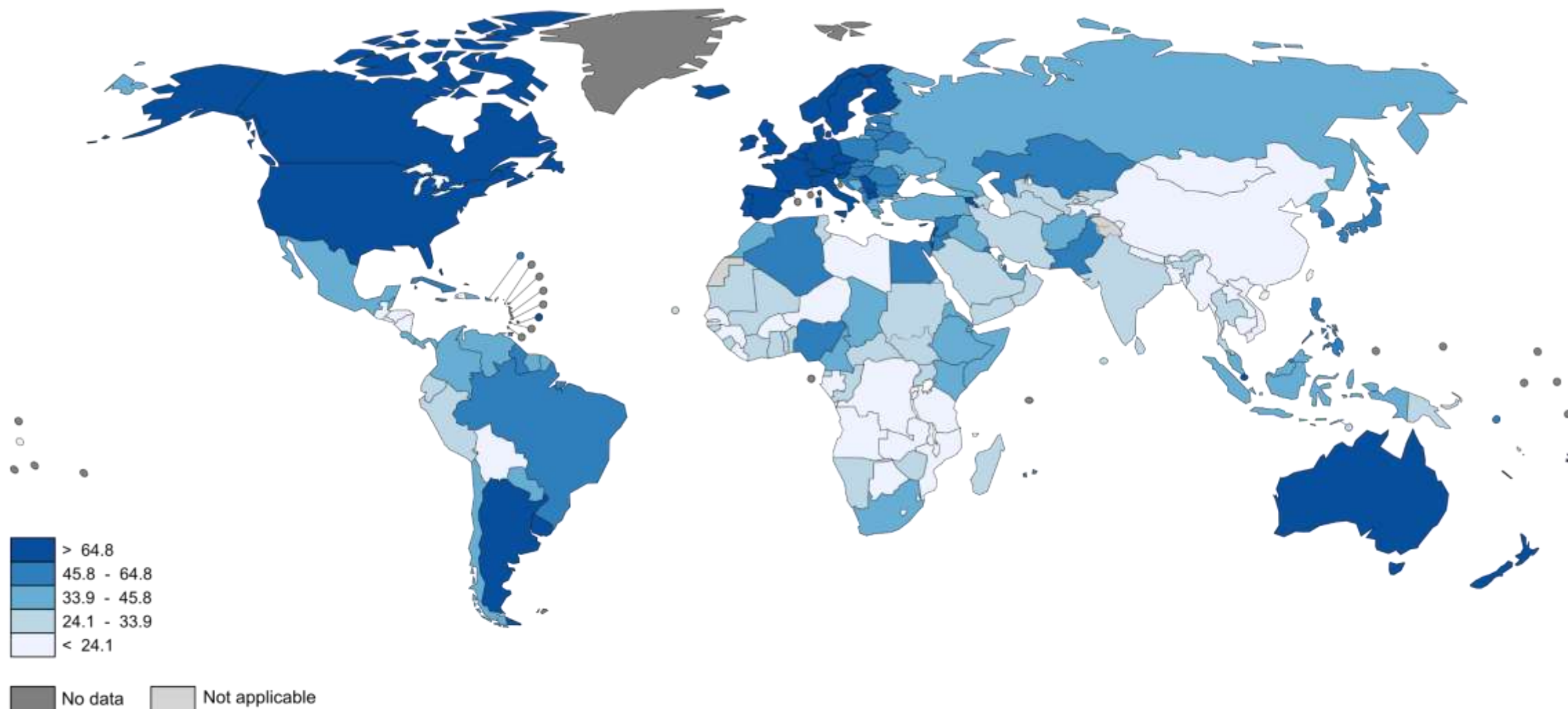
PROTECTIVE EFFECT

Risk Decreased by:

- Pregnancy at early age
- Breastfeeding for at least one year
- Regular moderate or vigorous **physical activity**
- Maintaining a healthy body weight



Estimated Breast Cancer Global Incidence in 2012



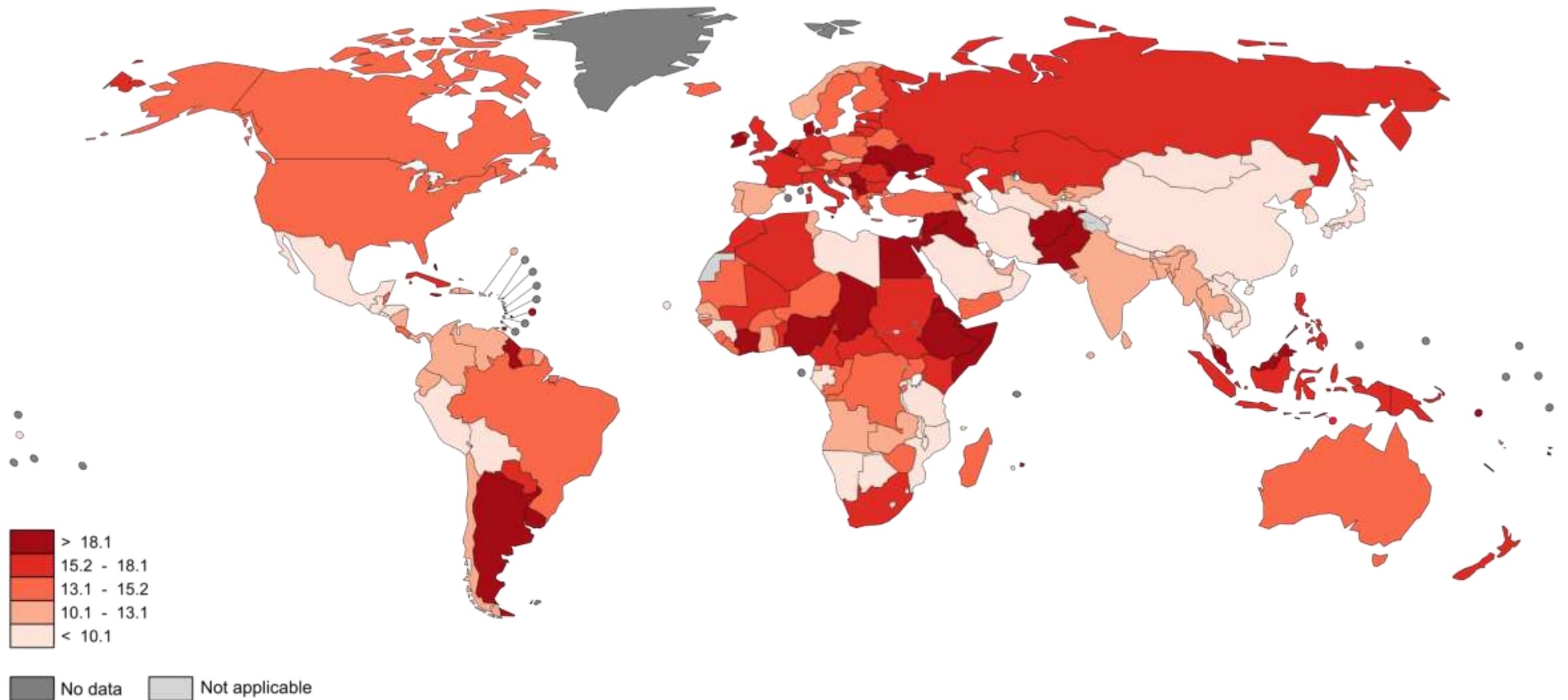
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data source: GLOBOCAN 2012
Map production: IARC
World Health Organization



© WHO 2015. All rights reserved

Estimated Breast Cancer Global Mortality in 2012



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data source: GLOBOCAN 2012
Map production: IARC
World Health Organization

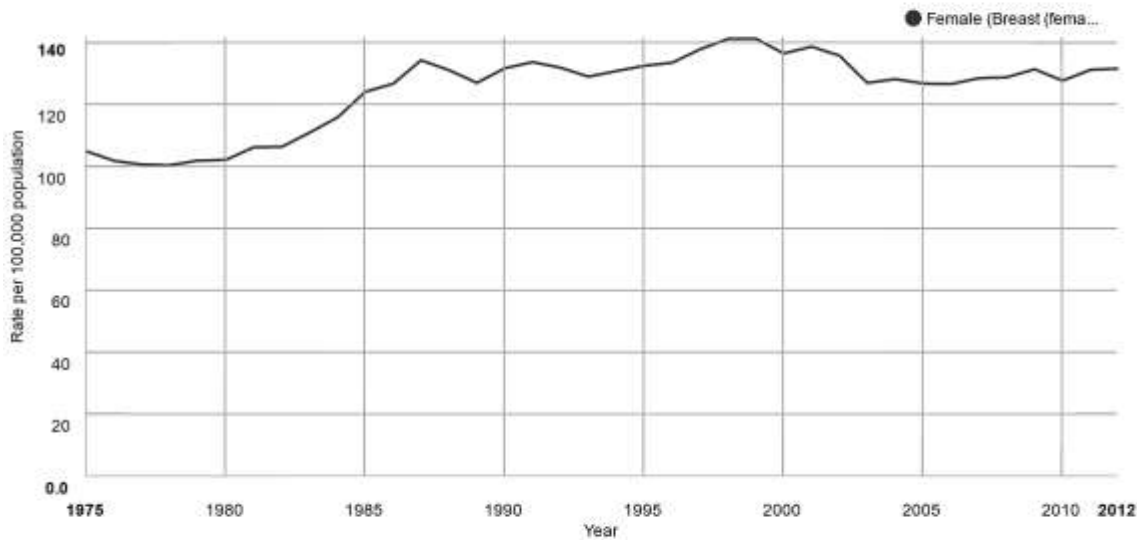


© WHO 2015. All rights reserved

Trends in Breast Cancer Incidence and Death Rates in US

Trends in incidence rates, 1975-2012

Per 100,000, age adjusted to the 2000 US standard population



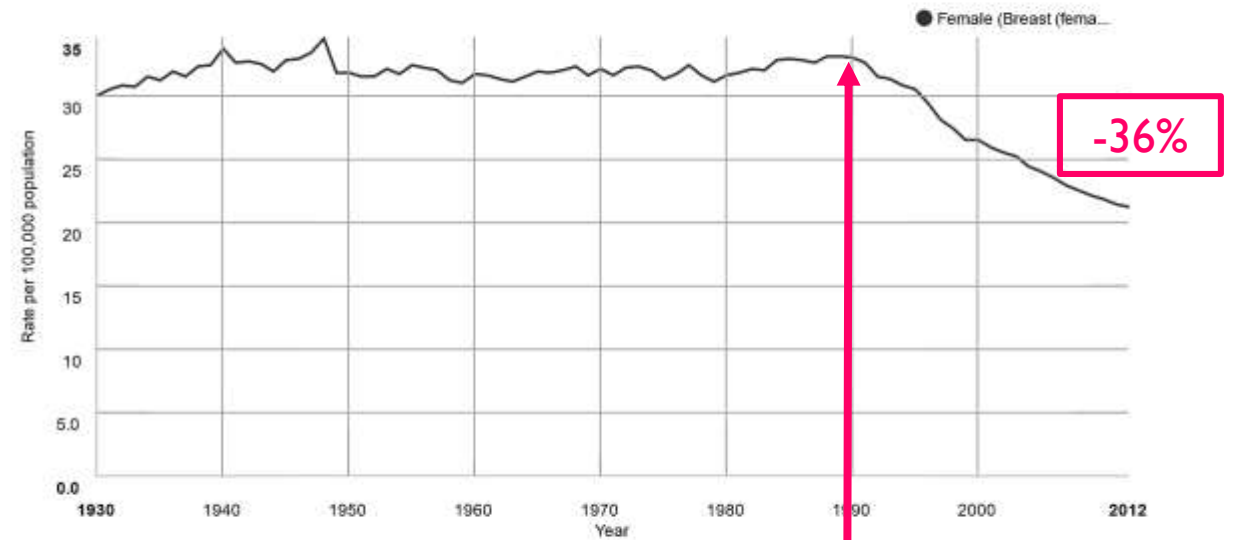
Data Source: Surveillance, Epidemiology, and End Results (SEER) 9 registries, National Cancer Institute, 2015

© 2016 American Cancer Society

Compared to

Trends in death rates, 1930-2012

Per 100,000, age adjusted to the 2000 US standard population

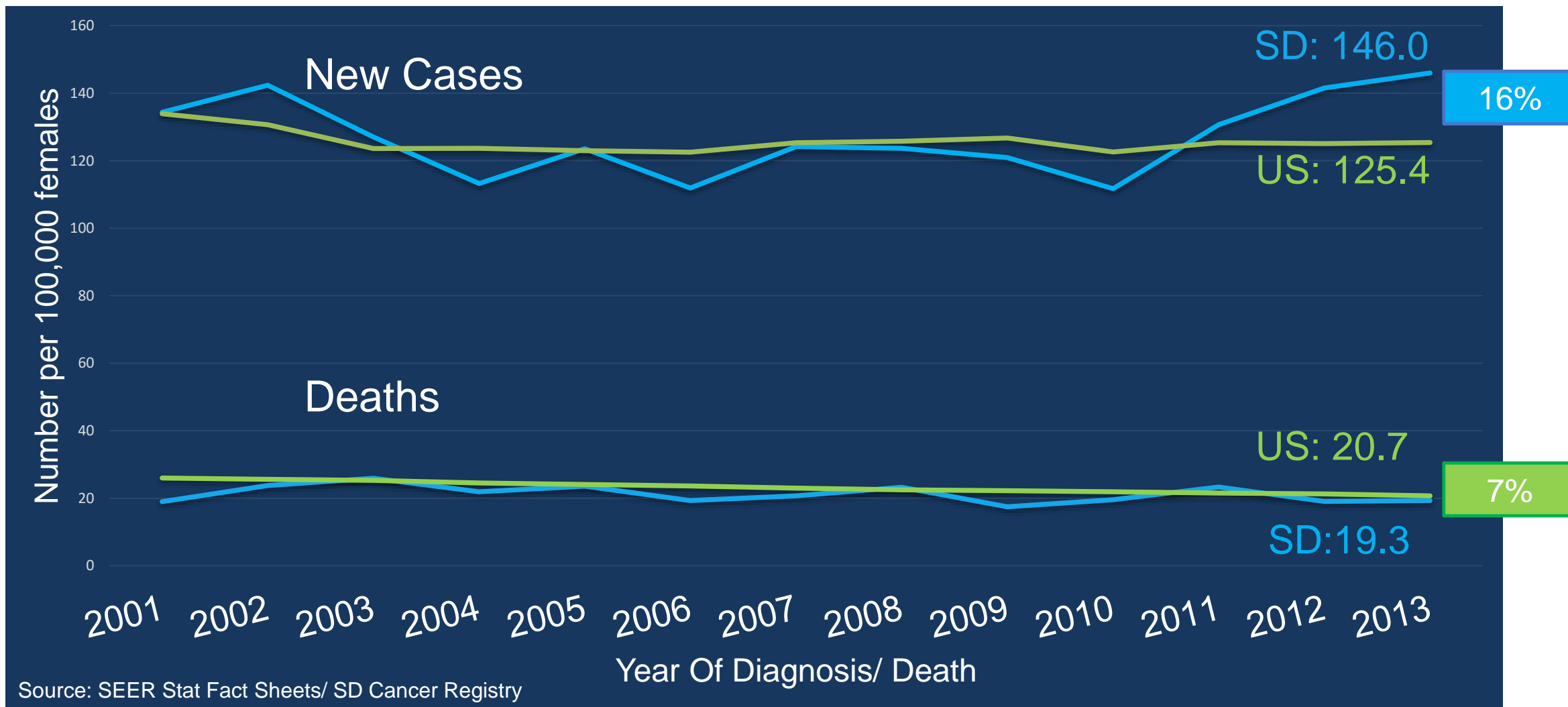


Data Source: National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention, 2015

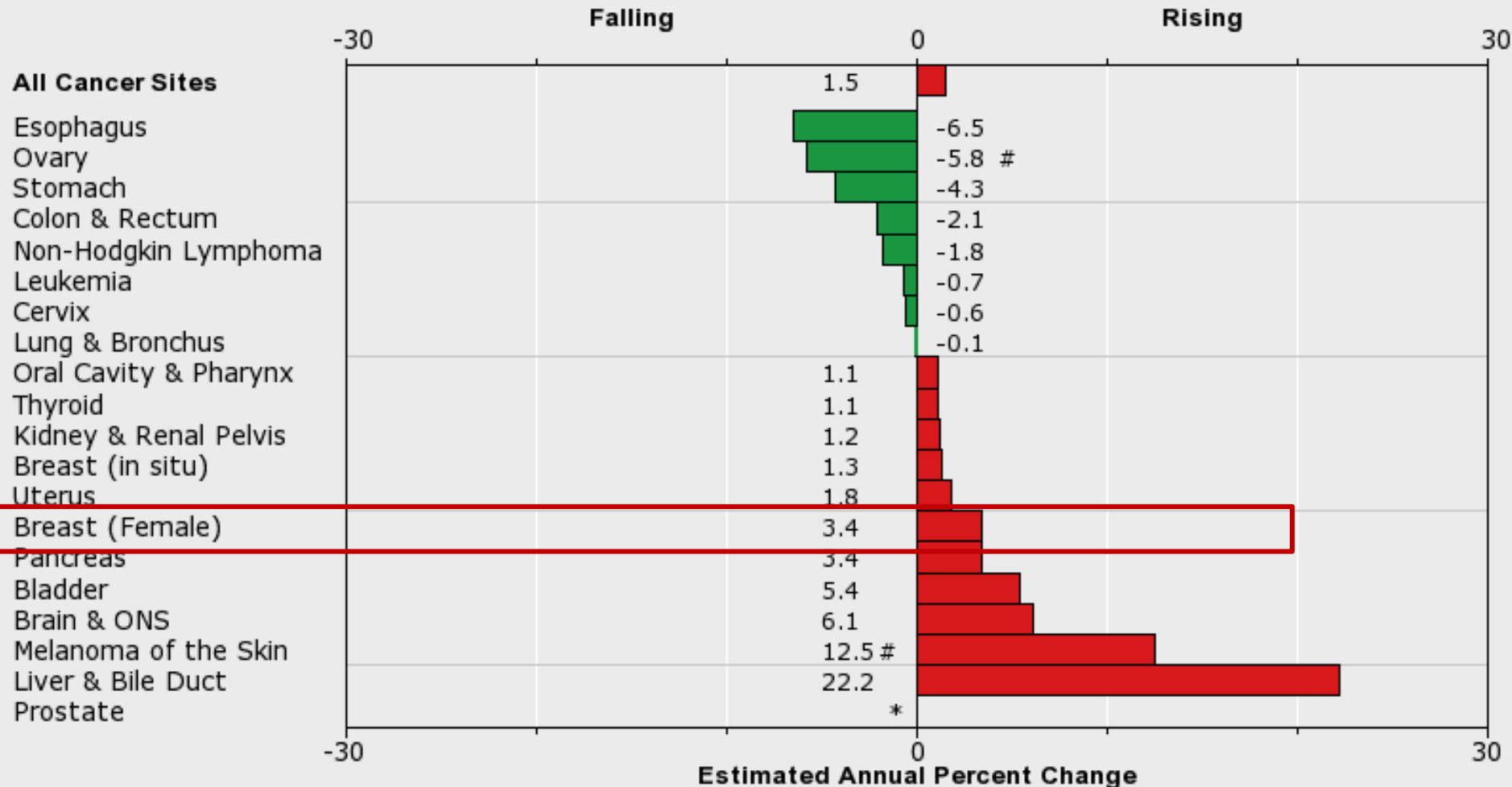
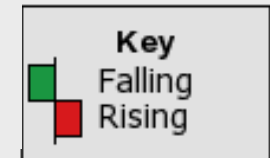
CancerStatisticsCenter.cancer.org

- Improvements in early detection/treatment
- Avoidance of approximately: **249,000** breast cancer deaths

Trends in Breast Cancer Incidence and Mortality Rates, South Dakota and US, 2001 to 2013



5- Year Rate Change- Incidence, South Dakota, 2008-2012, All Ages, Females, All Races (Incl Hisp)

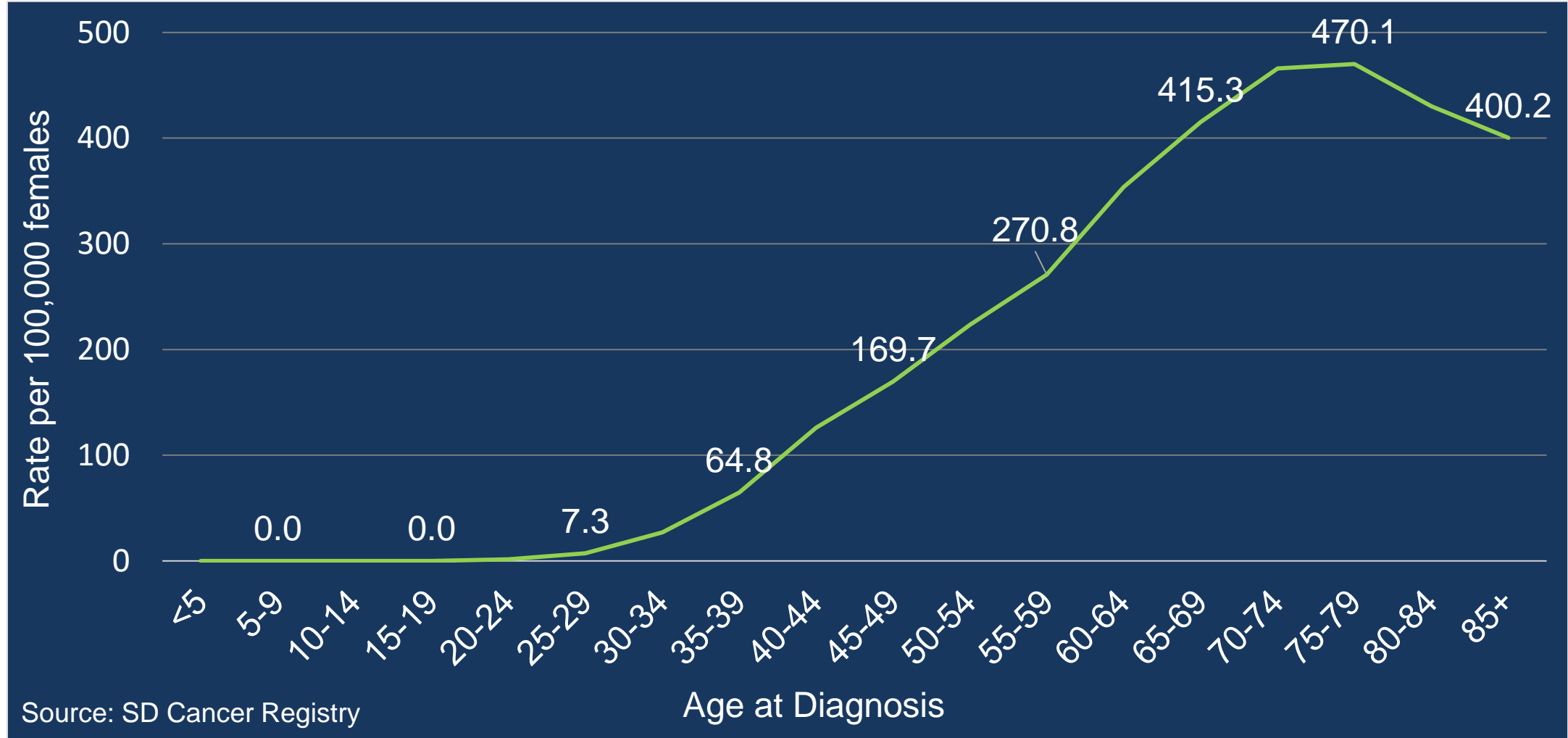


Created by statecancerprofiles.cancer.gov on 03/14/2016 11:14 am.

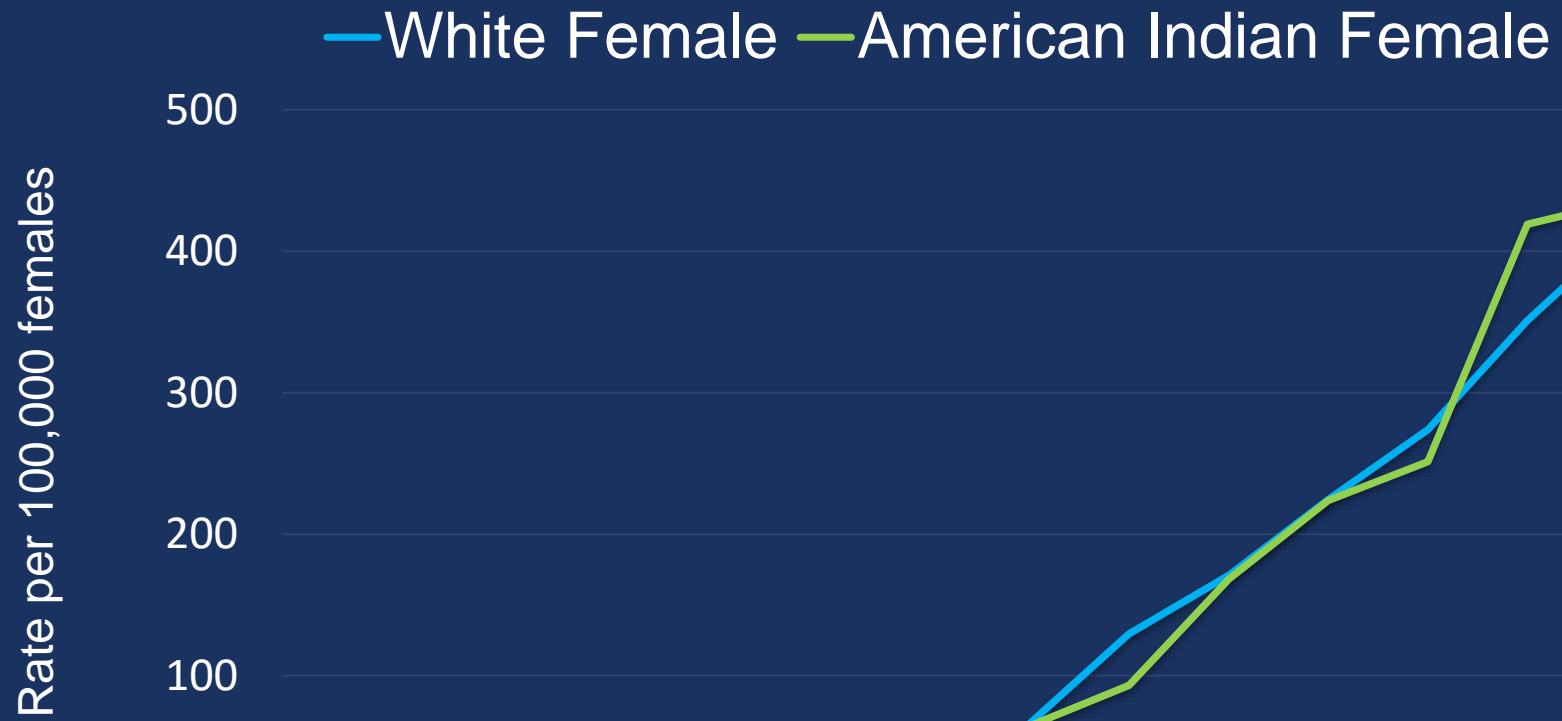
Source: Incidence data provided by the [National Program of Cancer Registries \(NPCR\)](#). EAPCs calculated by the National Cancer Institute using [SEER*Stat](#). Rates are age-adjusted to the [2000 US standard population](#) (19 age groups: <1, 1-4, 5-9, ... , 80-84,85+). Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified. Population counts for denominators are based on Census populations as modified by NCI. The [1969-2013 US Population Data](#) File is used with NPCR November 2014 data.

Please note that the data comes from different sources. Due to [different years](#) of data availability, most of the trends are AAPCs based on APCs but some are EAPCs calculated in [SEER*Stat](#). Please refer to the source for each graph for additional information.

Age Specific incidence Rates of Breast Cancer in South Dakota, 2001-2013



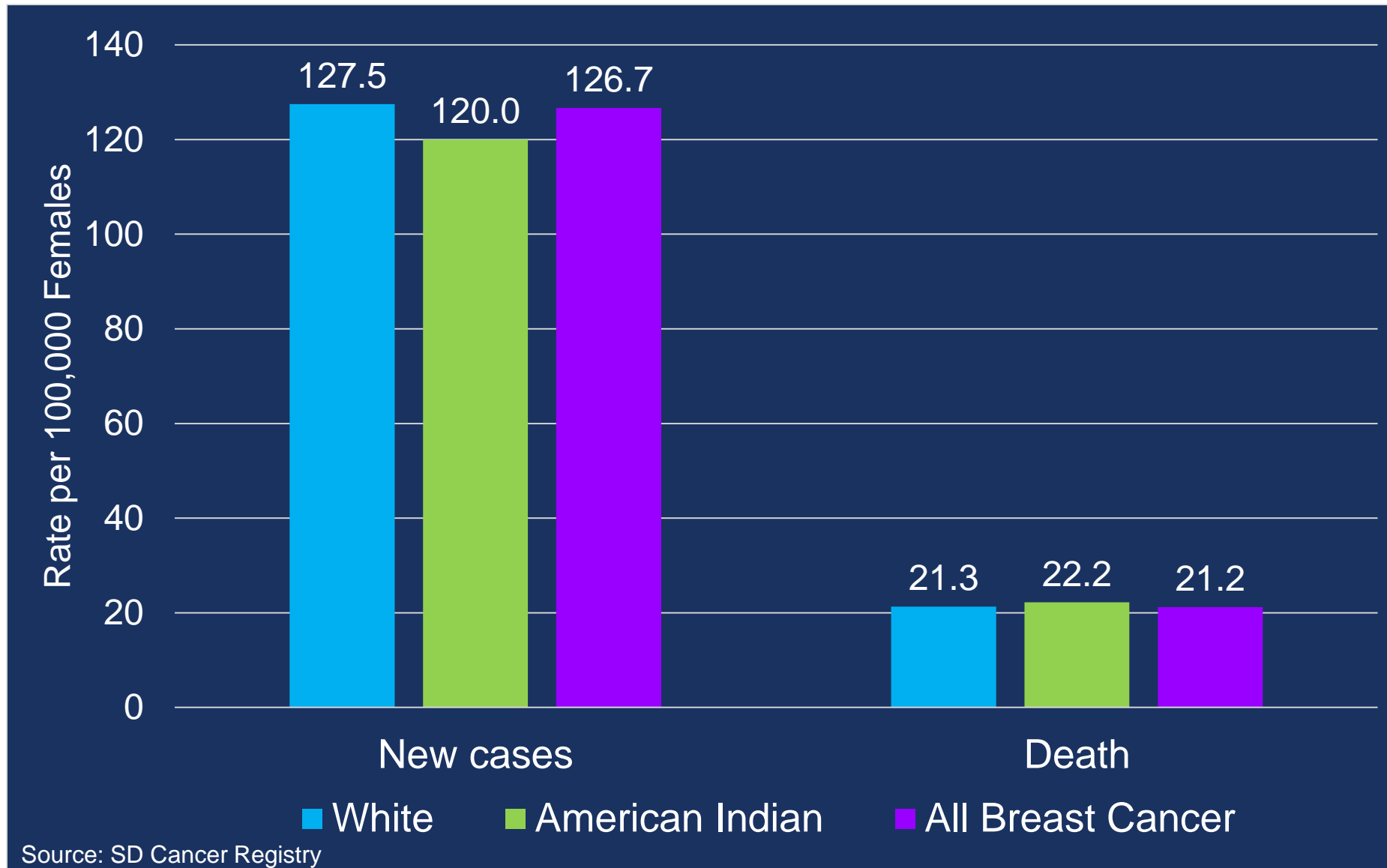
Age Specific Incidence Rate of Female Breast Cancer in South Dakota, by Race, 2001-2013



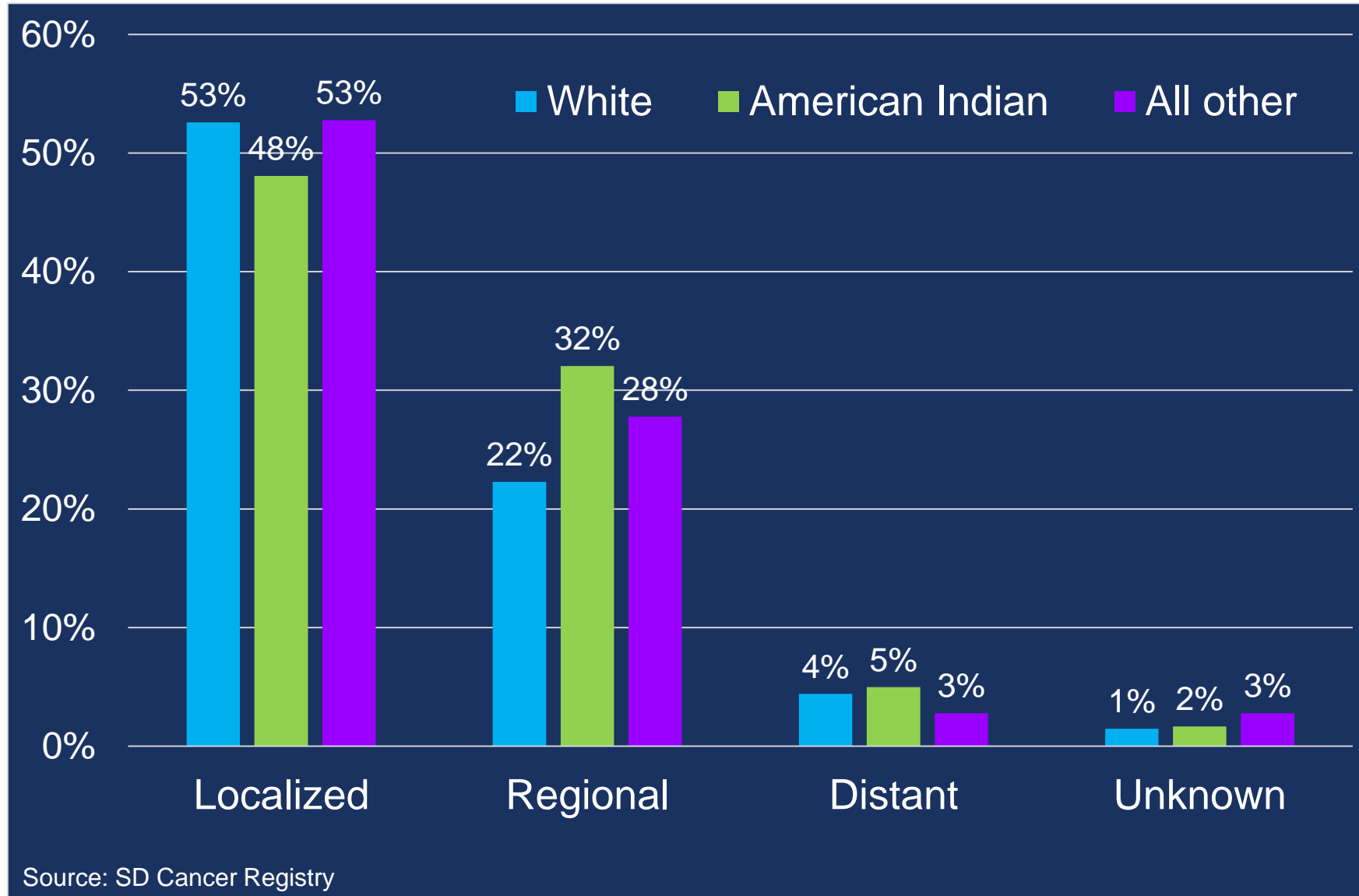
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
White Female	0.0	0.0	0.0	0.0	0.9	7.0	28.1	66.0	129.6	170.9	224.6	273.8	351.1	415.9	470.1	467.6	435.6	398.8
American Indian Female	0.0	0.0	0.0	0.0	4.9	8.5	23.3	64.4	93.2	168.3	223.9	251.2	419.1	436.1	361.5	436.3	273.0	447.2

Source: SD Cancer Registry

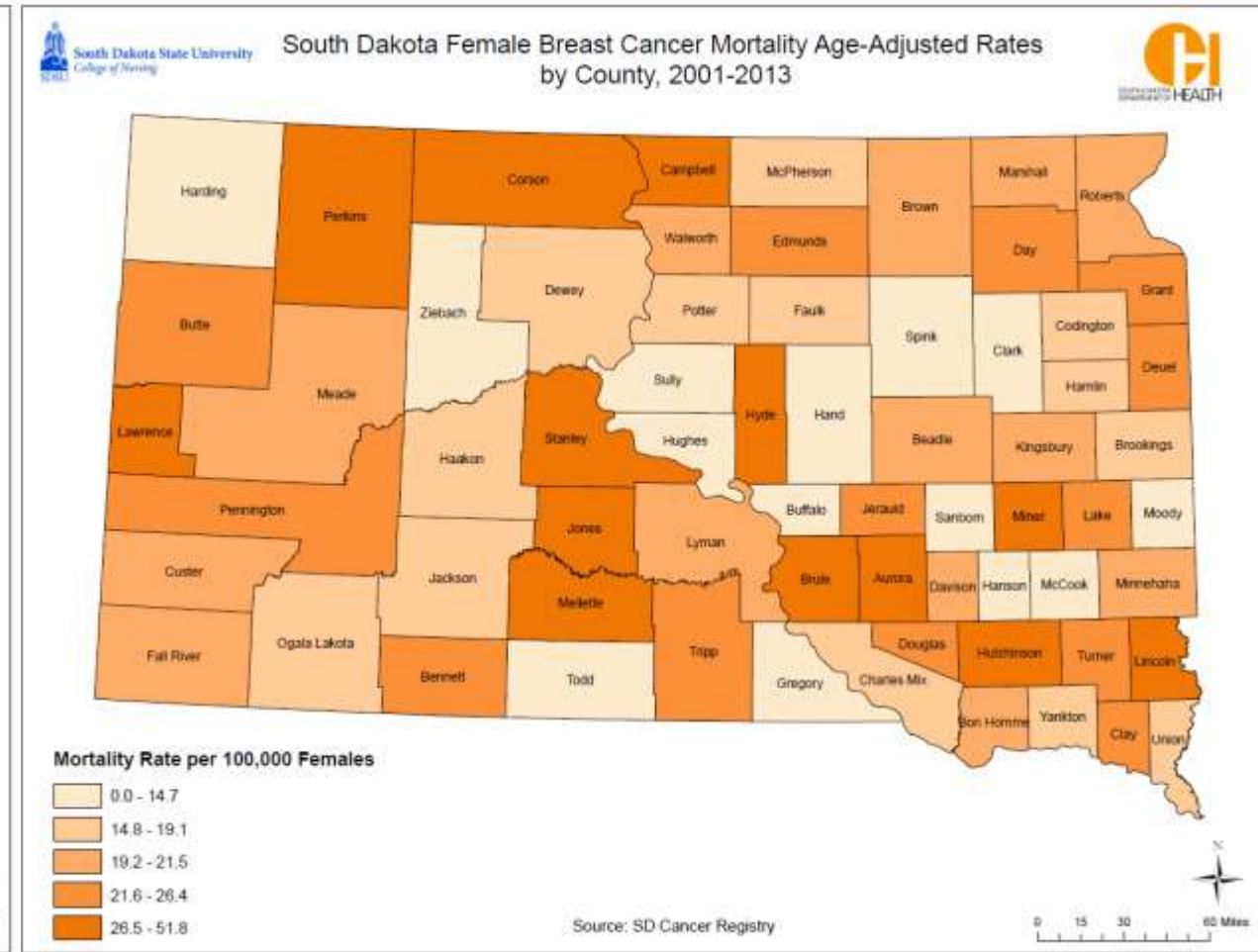
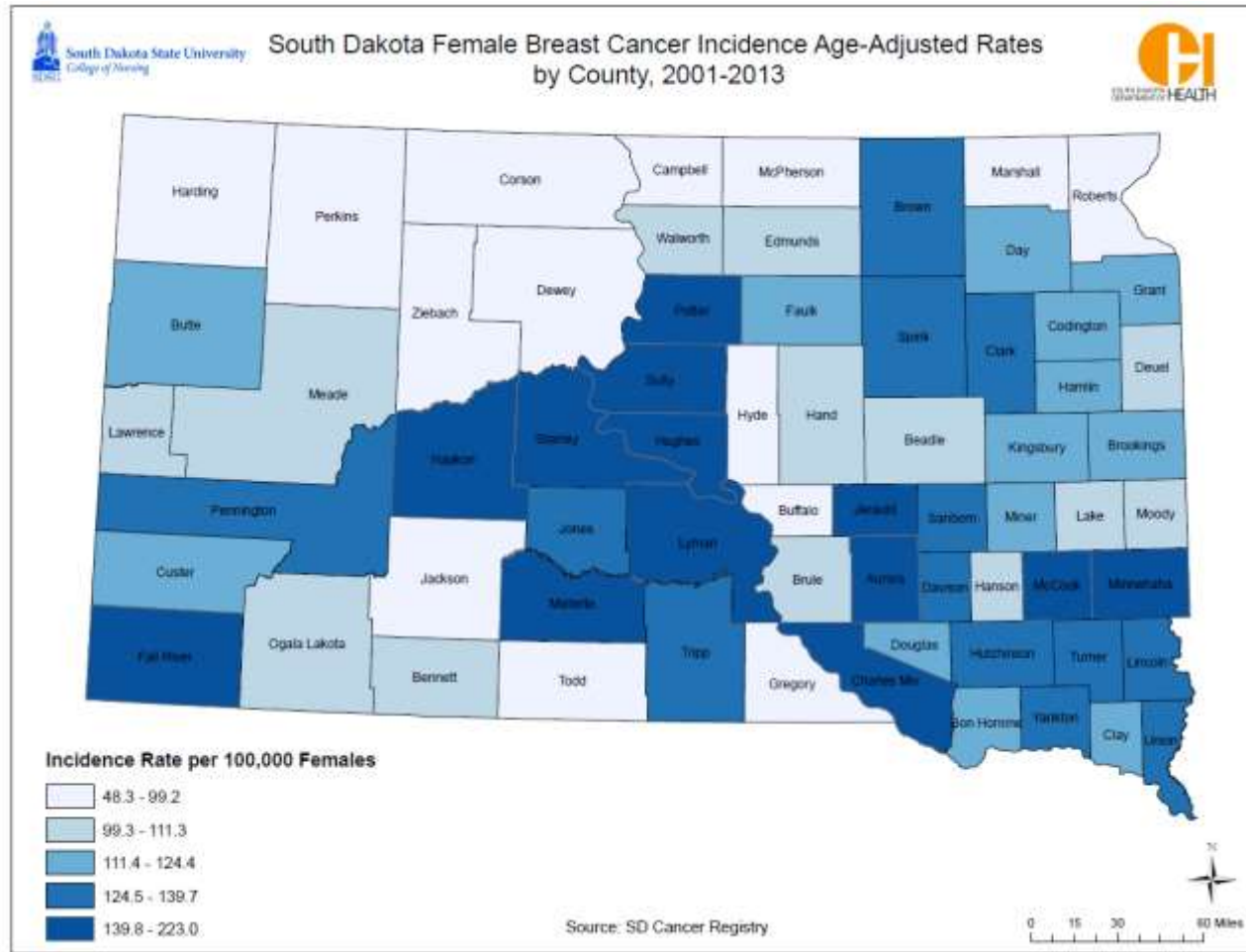
Age-Adjusted Incidence and Mortality Rates of Female Breast Cancer in South Dakota, by Race, 2001-2013



Female Breast Cancer Stage Distribution, South Dakota, 2009-2013 (N=3847)



Breast Cancer Age-Adjusted Incidence and Mortality Rates, South Dakota, 2001-2013





Colorectal Cancer

COLORECTAL CANCER

- 3rd most common cancer in men and women
- 2nd leading cause of cancer-related death in US (both sexes)

Estimates for 2016 in SD:

- 390 new cases of colorectal cancer
- 130 deaths due to colorectal cancer
- It is estimated that more than HALF of all cases could be prevented by regular colonoscopy screening!

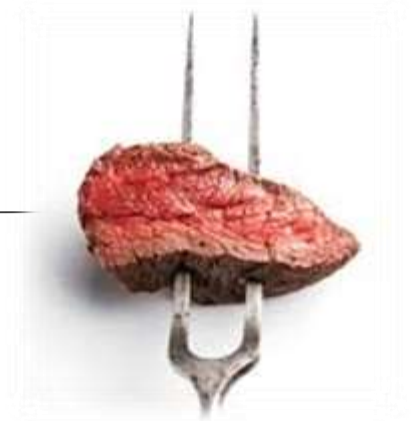
RISK FACTORS

Risk increases with age

Nearly 90% of colon cancer patients are over the age of 50.

Other risk factors include:

- family or personal history of colon cancer or polyps
- chronic inflammatory bowel disease
- hereditary colorectal syndromes
- smoking and heavy alcohol use
- diet high in red meats and low in fiber
- physical inactivity
- being overweight or obese

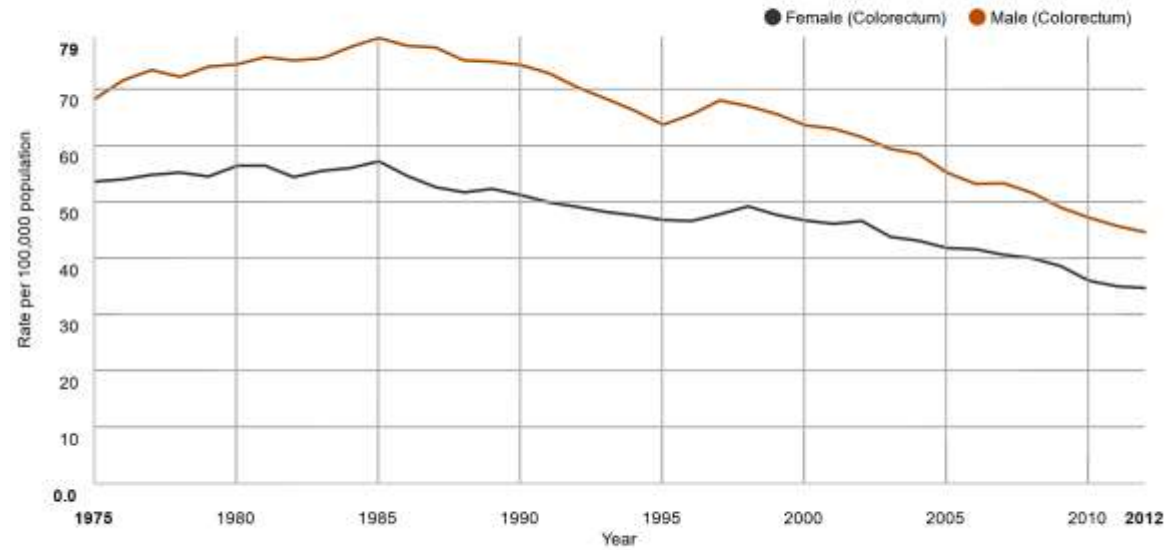


Trends in Colorectal Cancer Incidence and Death Rates in US

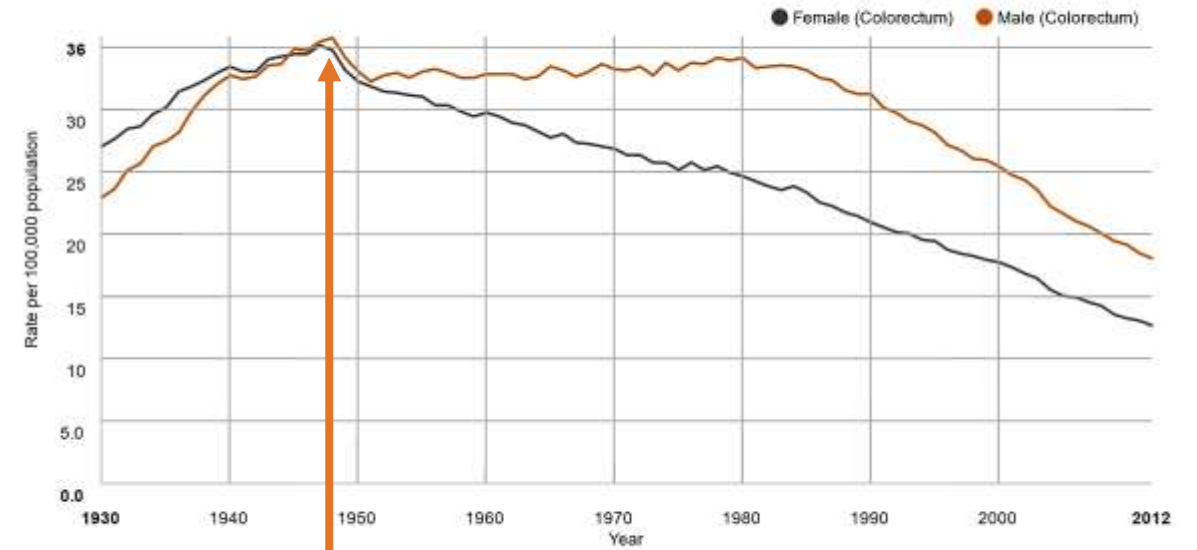
Trends in incidence rates, 1975-2012
Per 100,000, age adjusted to the 2000 US standard population



Trends in death rates, 1930-2012
Per 100,000, age adjusted to the 2000 US standard population



Data Source: Surveillance, Epidemiology, and End Results (SEER) 9 registries, National Cancer Institute, 2015
© 2016 American Cancer Society



Data Source: National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention, 2015

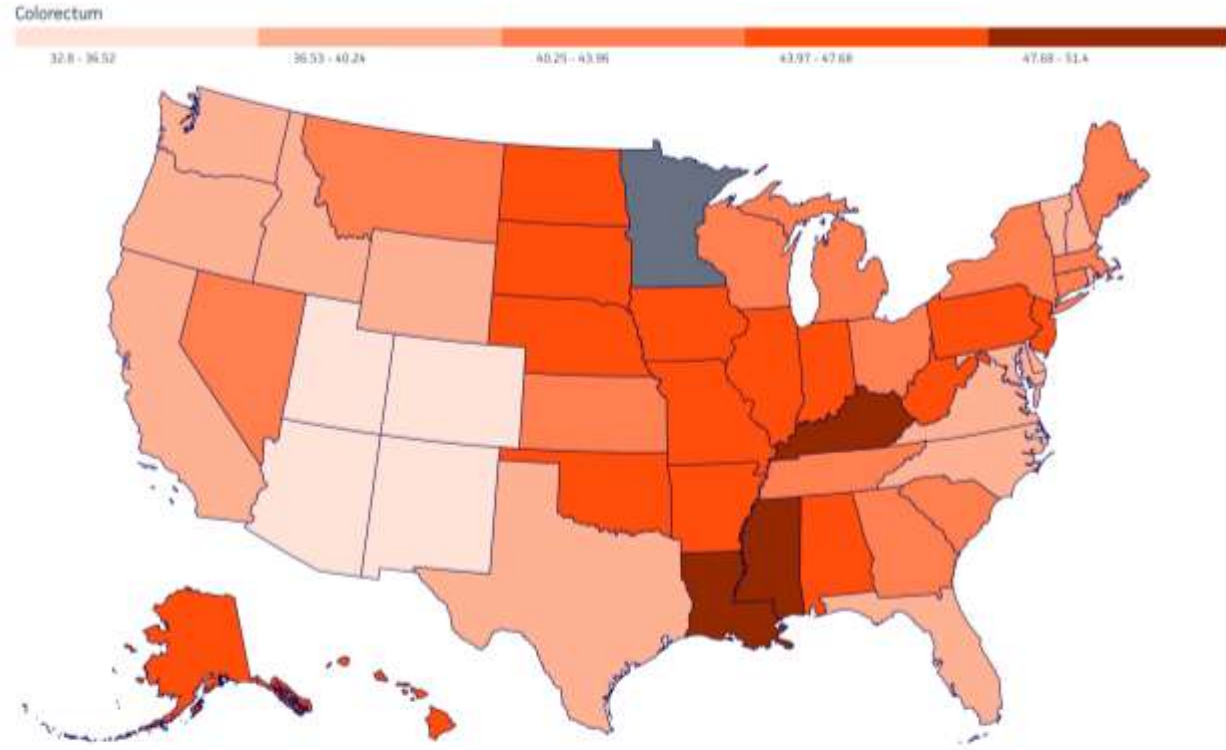
CancerStatisticsCenter.cancer.org

Improvements in early detection/treatment

Incidence Rates, 2008-2012

Per 100,000 age adjusted to the 2000 US standard population

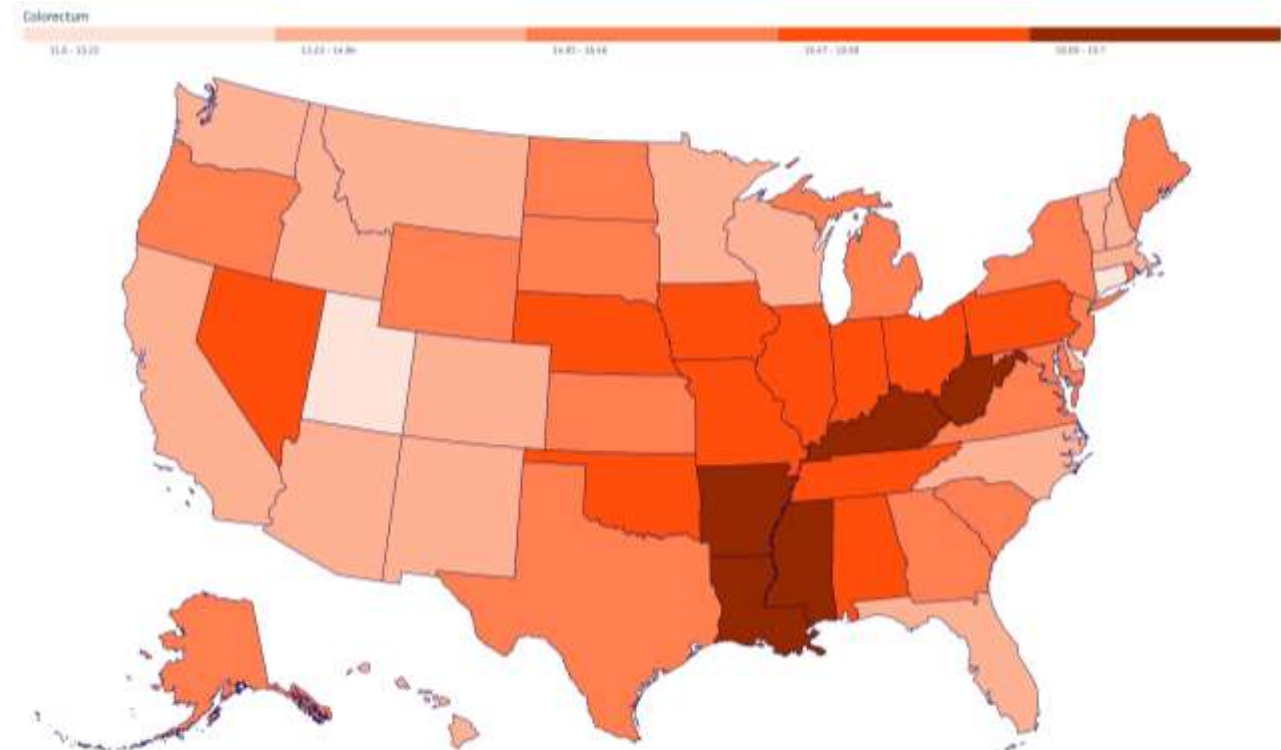
US: 41.9
SD: 46.3



Death Rates, 2008-2012

Per 100,000 age adjusted to the 2000 US standard population

US: 15.5
SD: 15.7



Data Source: North American Association of Central Cancer Registries (NAACCR), 2015
© 2016 American Cancer Society

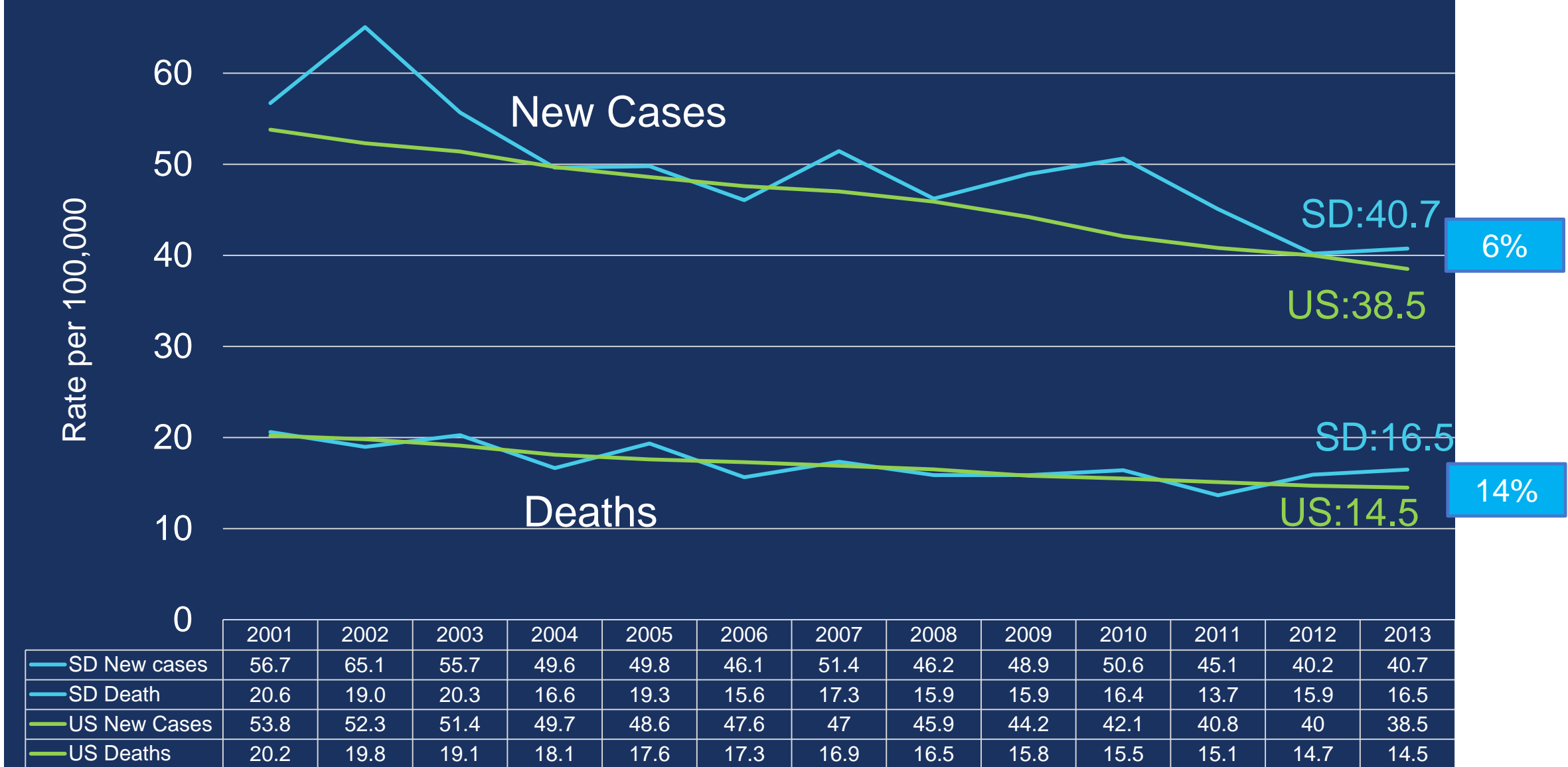
CancerStatisticsCenter.cancer.org

Data Source: National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention, 2015
© 2016 American Cancer Society

CancerStatisticsCenter.cancer.org

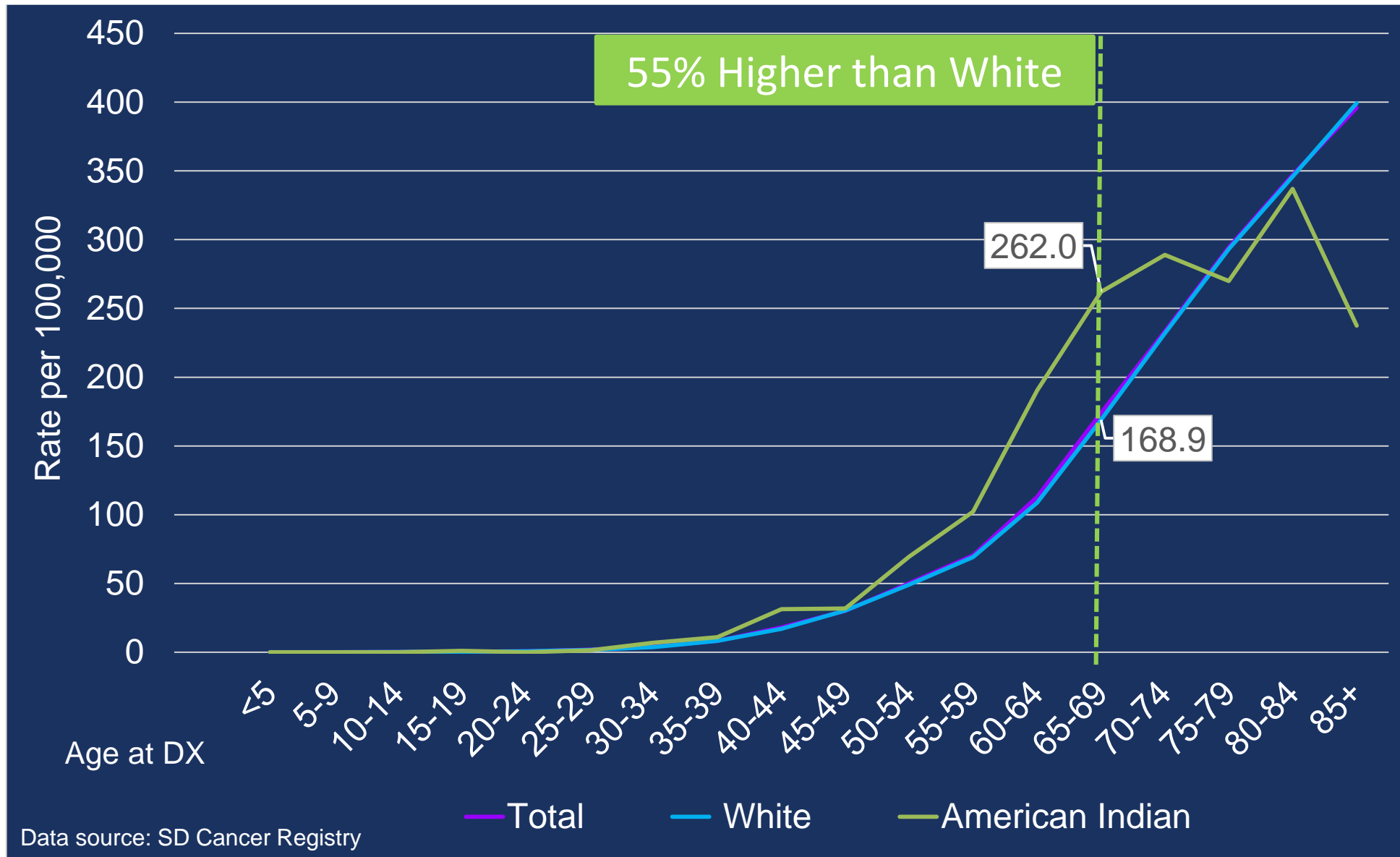
Data sources: North American Association of Central Cancer Registries (NAACCR), 2015
American Cancer Society 2016

Trend in Colorectal Cancer Incidence and Mortality Rates, South Dakota and US, 2001-2013

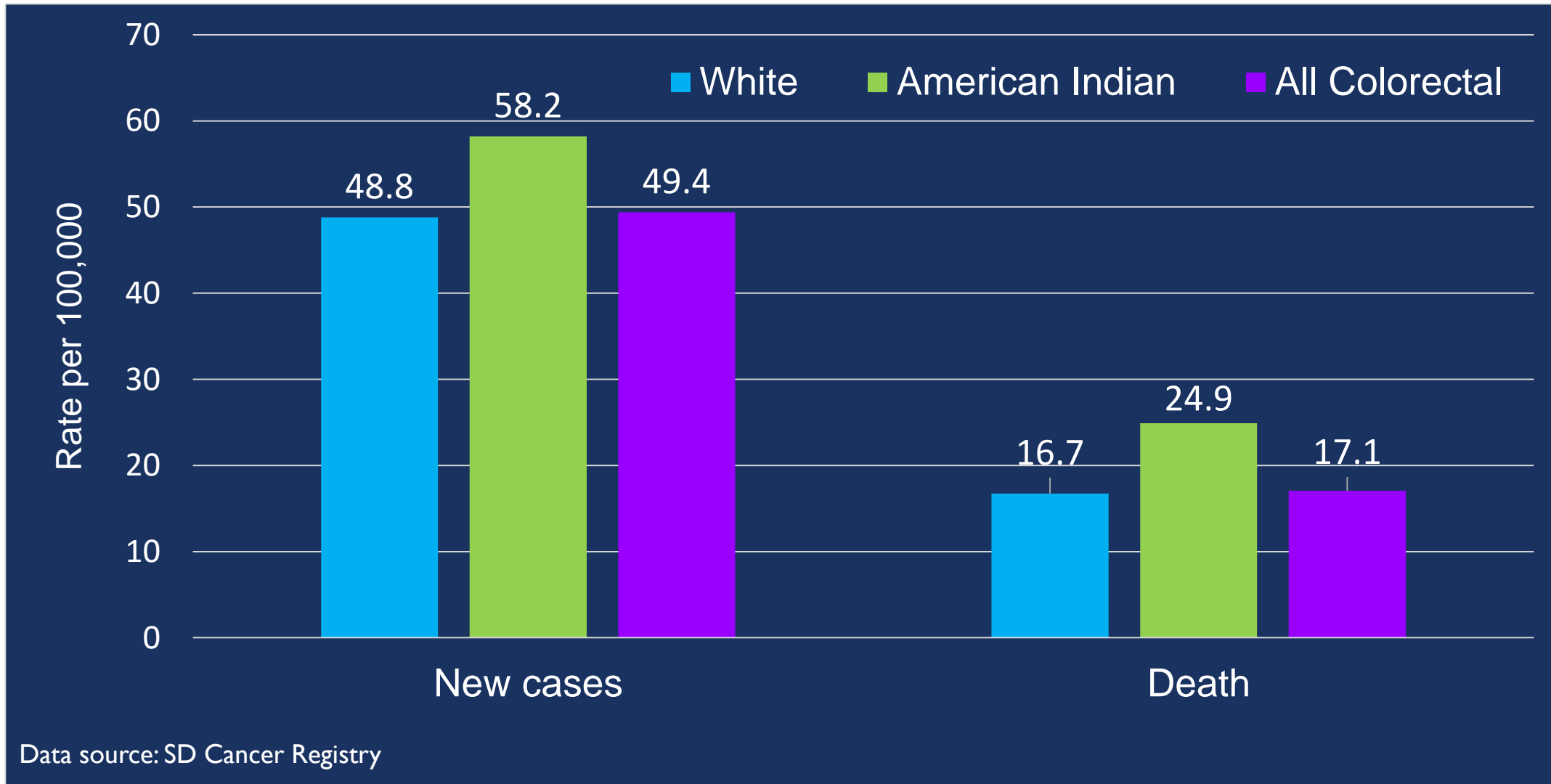


Source: SEER Stat Fact Sheets/ SD Cancer Registry

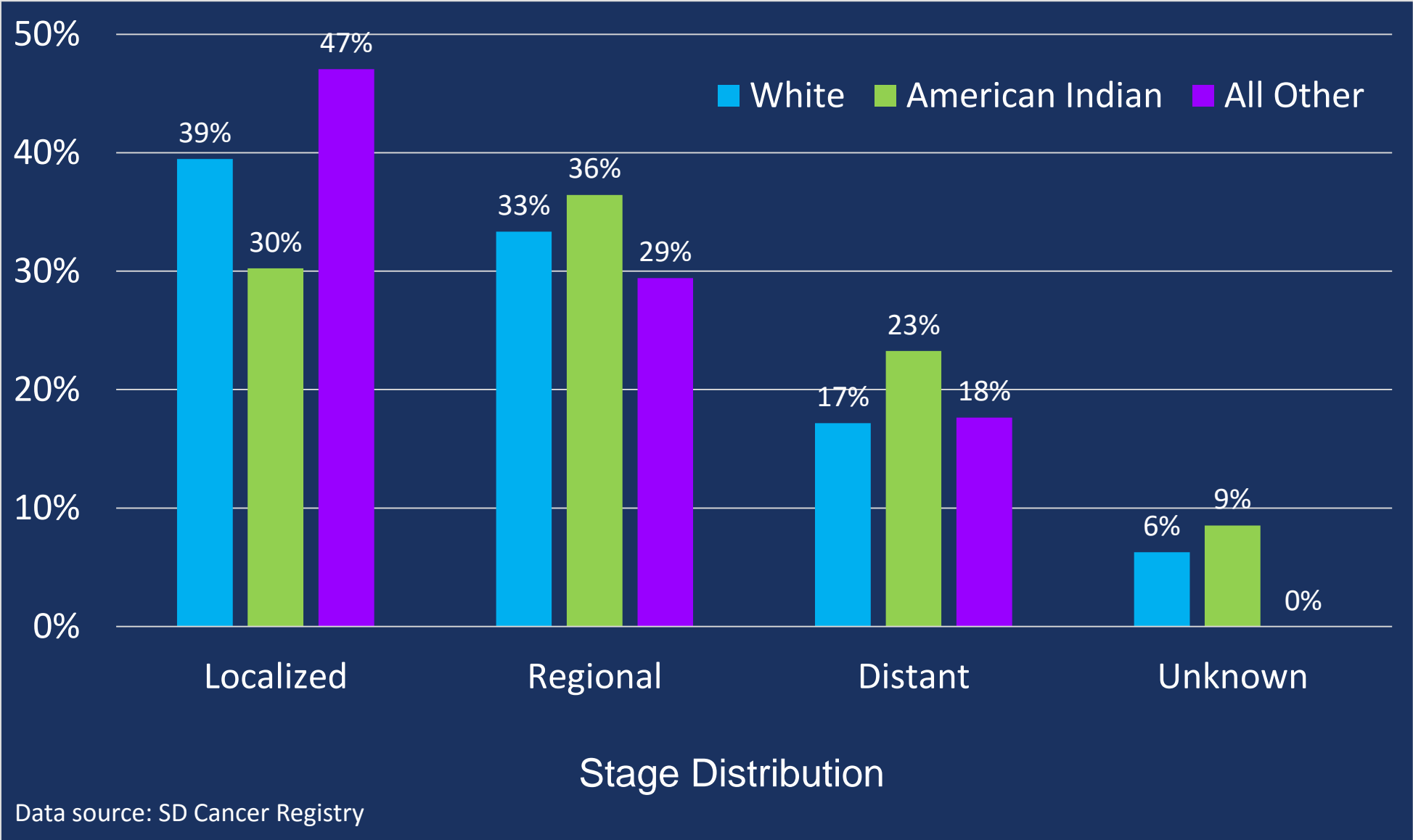
Age Specific Incidence Rate of Colorectal Cancer in South Dakota, by Race, 2001-2013



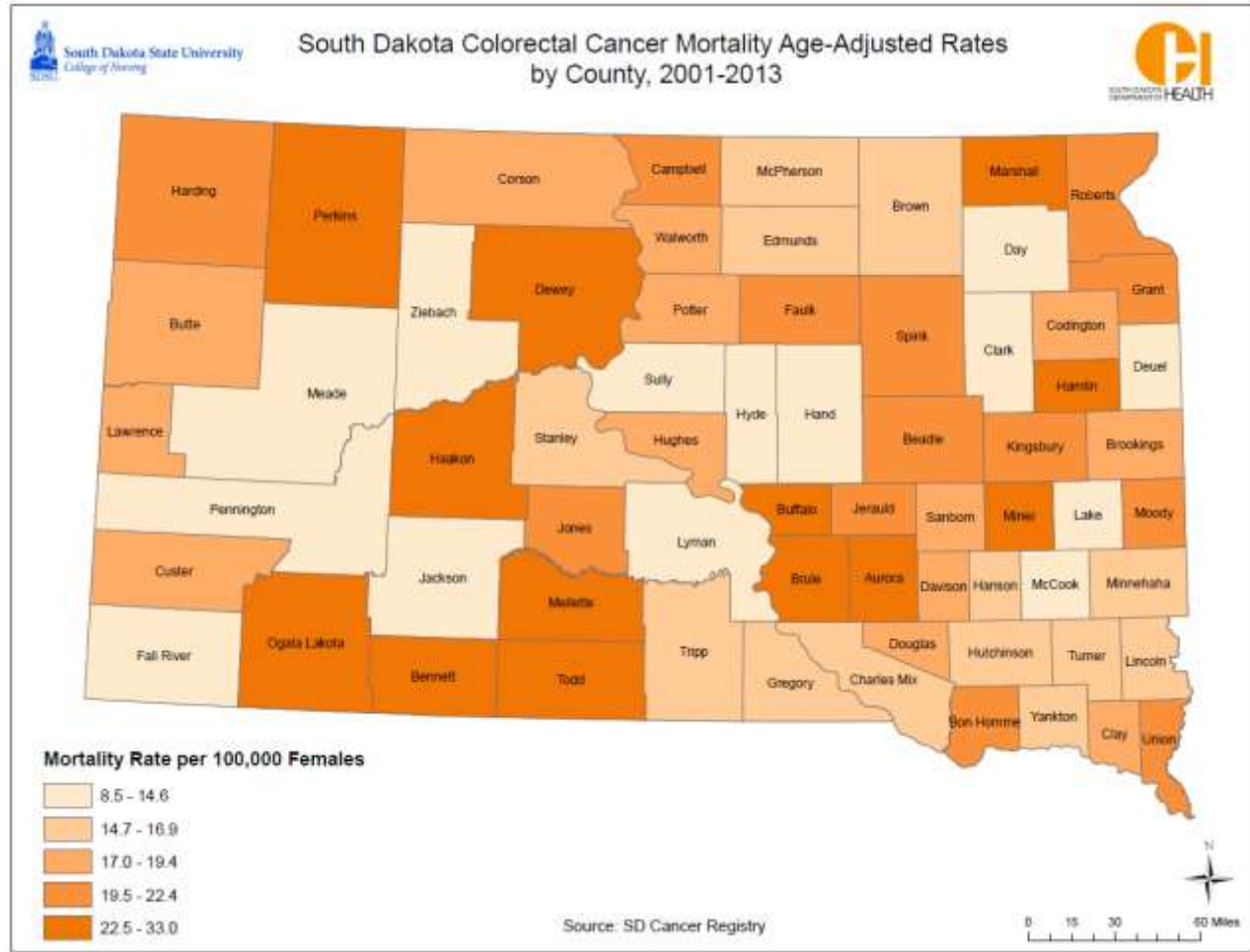
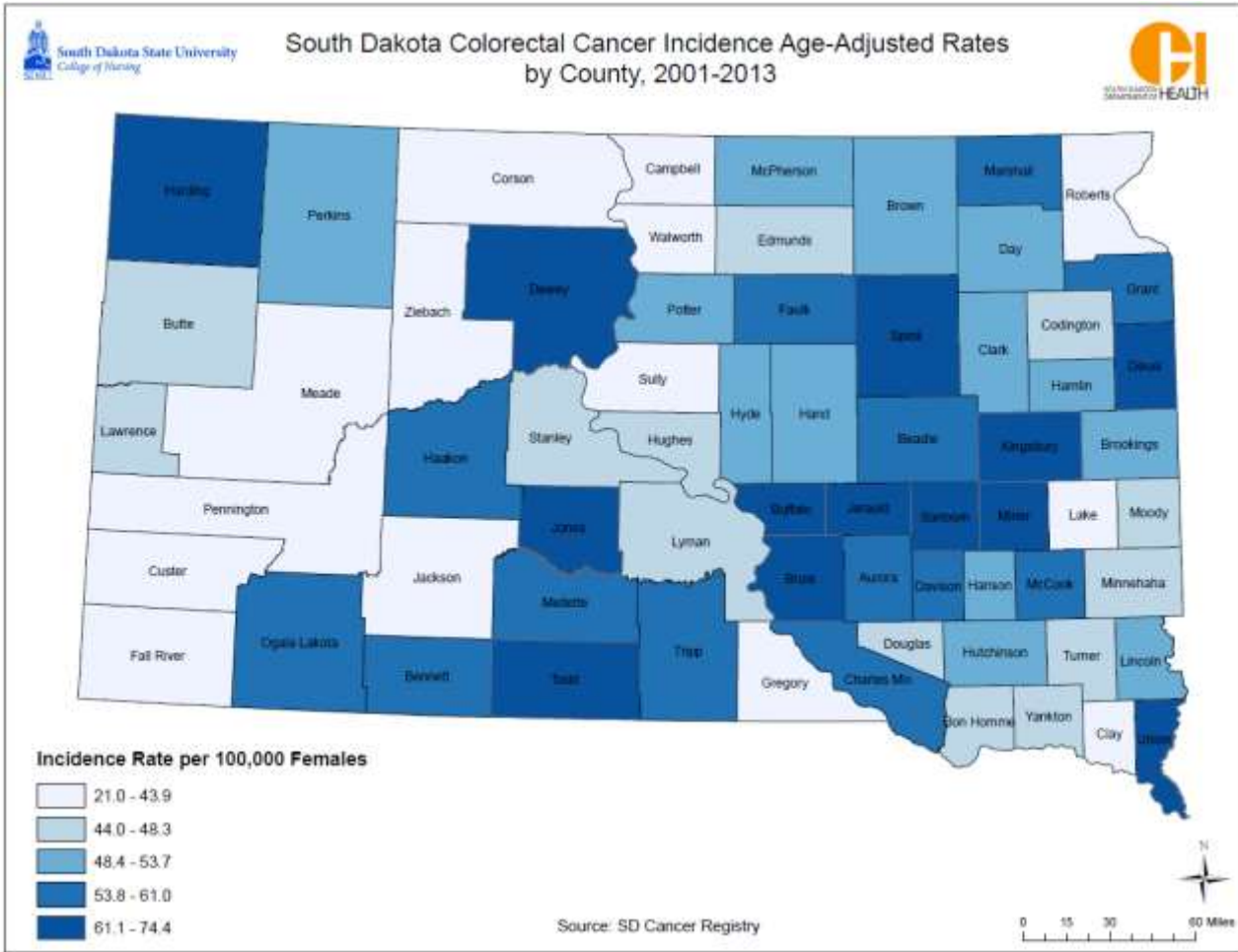
Age-Adjusted Incidence and Mortality Rates of Colorectal Cancer in South Dakota, by Race, 2001-2013



Colorectal Cancer Stage Distribution, South Dakota, 2009-2013 (N=2267)



Colorectal Cancer Age-Adjusted Incidence and Mortality Rates, South Dakota, 2001-2013



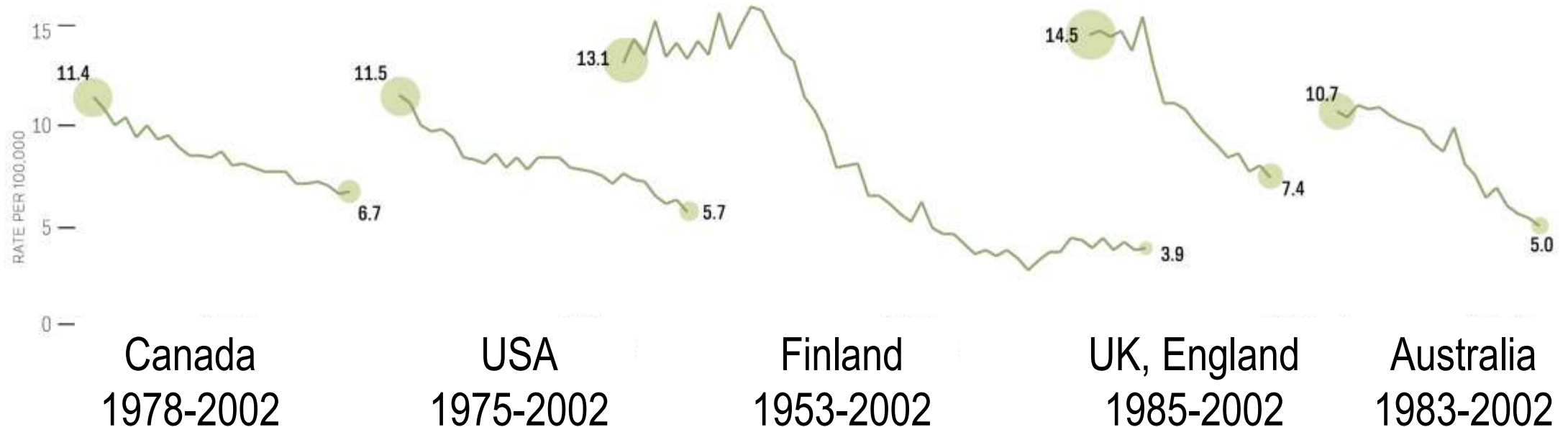


CANCER SCREENING



Decrease in Cervical Cancer Incidence with the Advent of Screening Programs.

Trends in Age-Standardized incidence Rate (World) per 100,000 1953-2002

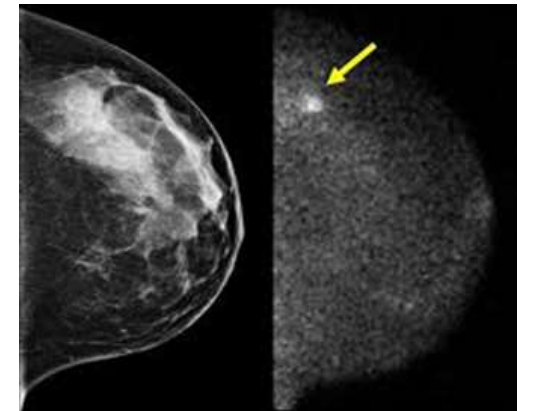


BREAST CANCER SCREENING

- Test to find cancer early in people who have no symptoms.
- Small cancers and not spread = better chance of cure

Breast cancer screening:

- Clinical Breast Exam (CBE)
- Mammograms (X-ray breast tissue)
- MRI (if needed)

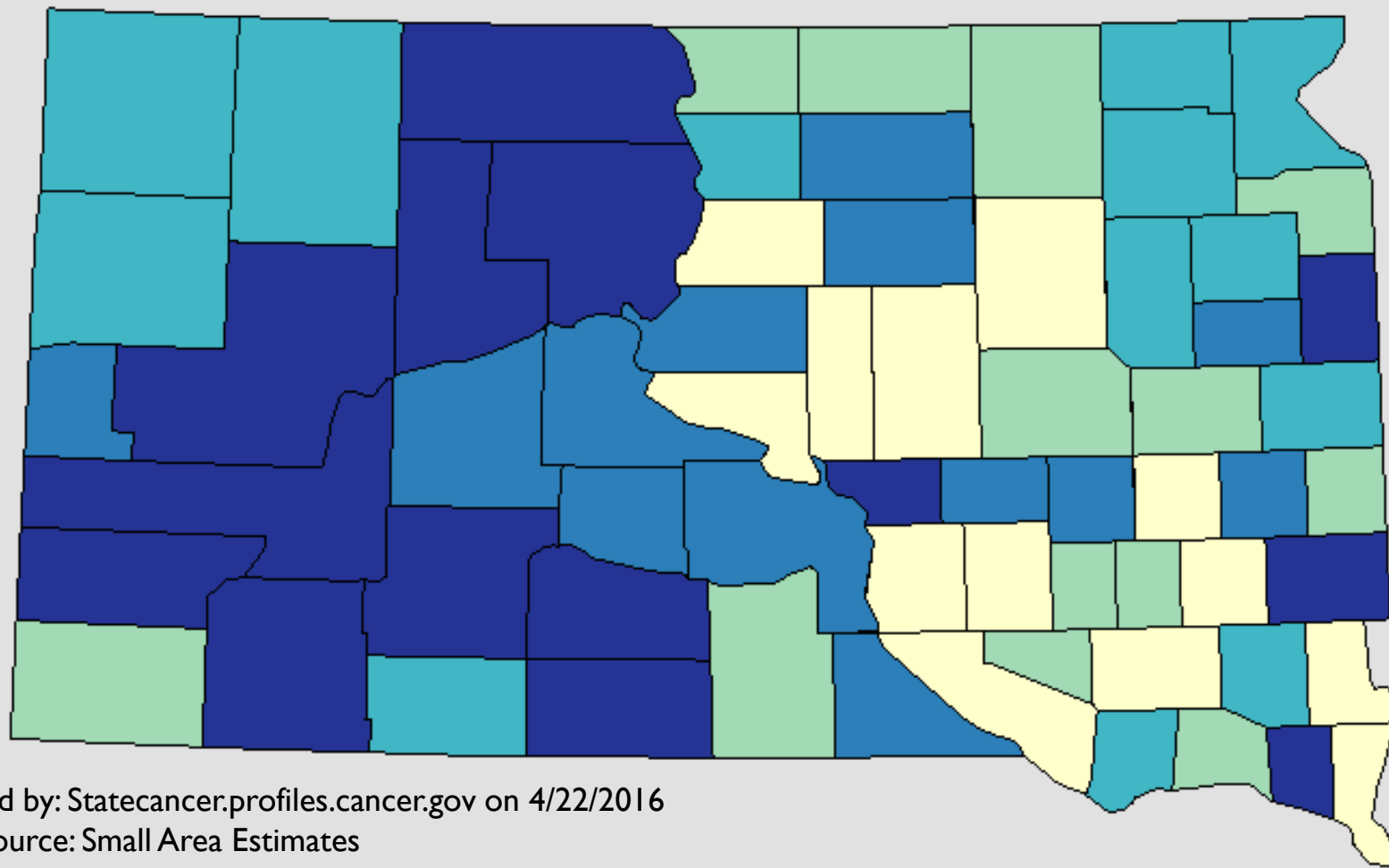


CANCER SCREENING AND RISK FACTOR PREVALENCE

Cancer Screening	South Dakota	National Rank	U.S.
Mammography, women 40 years and older, 2014	74.7%	19	72.8%
Fecal occult blood test (FOBT)/endoscopy, 50 years and older, 2014	67.5%	27	67.6%
Pap test, women 21 to 65 years, 2014	84.7%	15	82.6%
Cancer Risk Factors	South Dakota	National Rank	U.S.
Current tobacco use, 18 years and older, 2014	18.6%	24	18.1%
Overweight prevalence, 18 years and older, 2014	35.4%	25	35.4%
Obesity prevalence, 18 years and older, 2014	29.8%	23	29.6%
Overweight or obesity prevalence, 18 years and older, 2014	65.2%	24	64.9%
Current tobacco use, high school students, 2013	16.5%	9	15.7%

* *National rank 1 = highest value*

Screening and Risk Factors for South Dakota
(2008-2010 County Level Modeled Estimate Combining BRFSS & NHIS)
Had a Mammogram in Past 2 Years
All Races (includes Hispanic), Female, Ages 40+



Had a Mammogram in
Past 2 Years
(Percent of Respondents)

[Quantile Interval](#)

- 38.5 to 57.3
- 57.3 to 61.8
- 61.8 to 66.3
- 66.3 to 70.2
- 70.2 to 81.6

Data Not Available \diamond

South Dakota
Rate (95% C.I.)
Data not available.

All Women Count!

- Breast & Cervical Cancer Screening Program (1997)
- Serves women 30-64 years old (Pap tests) 40-64 (Pap tests and mammograms)
- Eligibility: low income, uninsured (or cannot pay the deductible or co-payment)
- 200 participating provider sites across South Dakota

Screenings/ Diagnosis:

- Number of women enrolled: 24,621
- Clinical Breast Exam: 47,595
- Number of mammograms: 25,993
- Number of abnormalities: 3,789
- Invasive breast cancer diagnosed: 231



COLORECTAL CANCER SCREENING

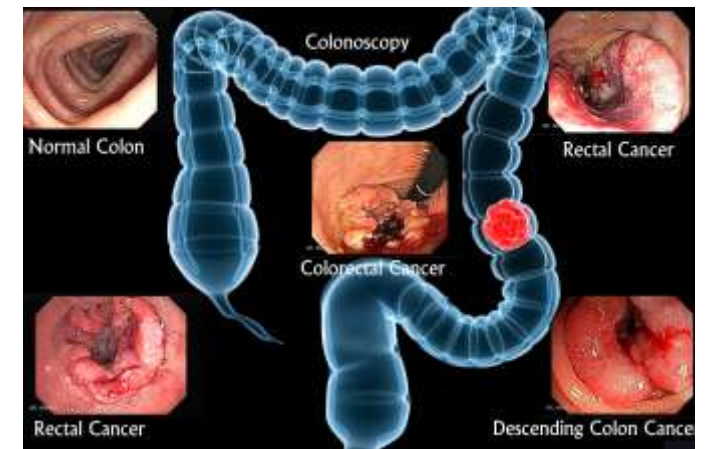
The U.S. Preventive Services Task Force recommends screening for men and women aged 50–75.

- Fecal occult blood testing (FOBT, yearly)
- Sigmoidoscopy (every 5 years)
- Colonoscopy (every 10 years)



Screening
for
Colorectal
Cancer
Can Save
Your Life.

[GetScreenedSD](#)

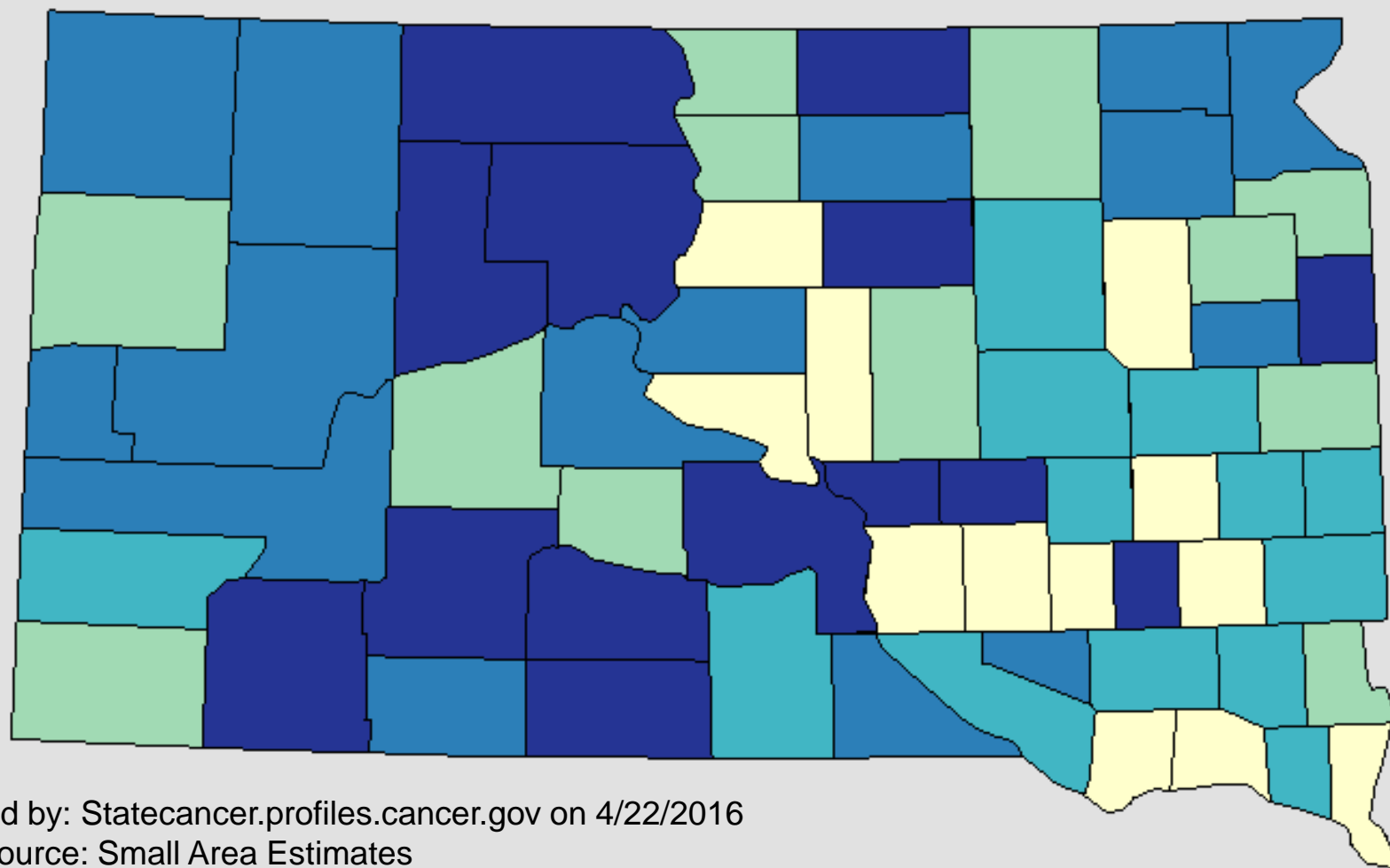


CANCER SCREENING AND RISK FACTOR PREVALENCE

Cancer Screening	South Dakota	National Rank	U.S.
Mammography, women 40 years and older, 2014	74.7%	19	72.8%
Fecal occult blood test (FOBT)/endoscopy, 50 years and older, 2014	67.5%	27	67.6%
Pap test, women 21 to 65 years, 2014	84.7%	15	82.6%
Cancer Risk Factors	South Dakota	National Rank	U.S.
Current tobacco use, 18 years and older, 2014	18.6%	24	18.1%
Overweight prevalence, 18 years and older, 2014	35.4%	25	35.4%
Obesity prevalence, 18 years and older, 2014	29.8%	23	29.6%
Overweight or obesity prevalence, 18 years and older, 2014	65.2%	24	64.9%
Current tobacco use, high school students, 2013	16.5%	9	15.7%

* National rank 1 = highest value

Screening and Risk Factors for South Dakota
(2008-2010 County Level Modeled Estimate Combining BRFSS & NHIS)
Ever Had Colorectal Endoscopy (Sigmoidoscopy or Colonoscopy)
All Races (includes Hispanic), Both Sexes, Ages 50+



Ever Had Colorectal
Endoscopy
(Sigmoidoscopy or
Colonoscopy)
(Percent of Respondents)

[Quantile Interval](#)

- 30.5 to 48.5
- 48.5 to 54.4
- 54.4 to 58.7
- 58.7 to 61.7
- 61.7 to 72.2

Data Not Available \diamond

South Dakota
Rate (95% C.I.)
Data not available.

Summary

Female Breast and Colorectal cancer are among the most common cancers in South Dakota.

More than 30% of cancer could be prevented, mainly by:

- Not smoking
- Having a healthy diet (high fruit and vegetable intake)
- Being physically active
- Moderating use of alcohol
- Continue to promote screening ([AWC!](#) [GetScreenedSD](#))
- Work within health systems to improve physician/patient communication
- Educate about cancer outcomes



MORE INFORMATION

- All Women Count! <https://getscreened.sd.gov/count/>
- American Cancer Society- www.cancer.org
- Behavioral Risk Factor Surveillance System-<http://www.cdc.gov/brfss/>
- Cancer Atlas- <http://canceratlas.cancer.org/>
- Centers For Disease Control and Prevention-
<http://www.cdc.gov/cancer/breast/statistics/state.htm>
- South Dakota Cancer Registry- <https://getscreened.sd.gov/registry>
- World Health Organization- <http://www.who.int/cancer/en/>



THANK YOU!

THIS WORK WAS SUPPORTED BY THE GRANT OR COOPERATIVE AGREEMENT NUMBER DP003943, FUNDED BY THE CENTERS FOR DISEASE CONTROL AND PREVENTION.



South Dakota State University
College of Nursing

