NORC at the University of Chicago

Only 14% of Cancers Are Detected Through a Preventive Screening Test

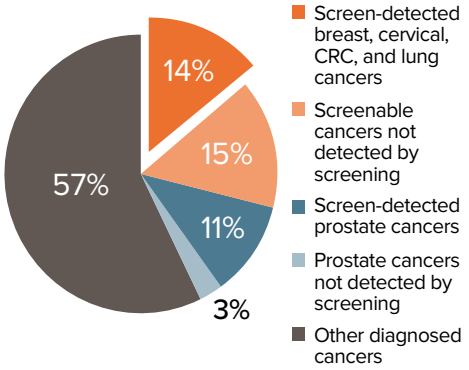
Improved cancer screening has the potential to detect cancers earlier, when treatment is more likely to improve outcomes and save lives. However, at present, only 14% of diagnosed cancers are detected by screening with a recommended screening test.

Calculating Percent of Cancers Detected by Screening (PCDS)

Until now, the proportion of cancers detected each year by a preventive screening test has not been calculated. NORC at the University of Chicago developed a method to calculate this statistic, which we call the percent of cancers detected by screening (PCDS). We estimate PCDS using annual incidence data (National Cancer Institute), self-reported preventive screening data (National Health Information Survey), screening test efficacy (published literature), and state cancer statistics (Behavioral Risk Factor Surveillance System).

TOTAL CANCERS IN THE UNITED STATES

Percent of Diagnosed Cancers Detected by Screening



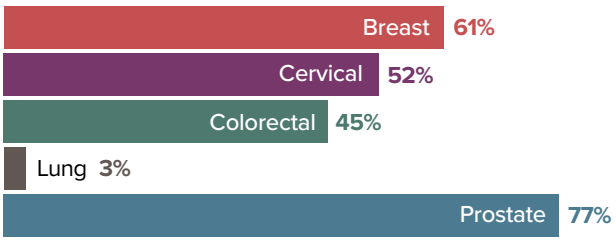
Cancer Screening Tests

Regular screening is recommended[1] for breast, cervical, and colorectal cancers, as well as lung cancer screening for people who are at a high risk. Together, in 2017, these cancers made up 29% of all diagnosed cancers and 25% of all cancer deaths in the US.[2] Though not broadly recommended, prostate-specific antigen (PSA) tests can also screen for prostate cancer, which accounts for another 14% of all cancers in the US. The other 57% of cancers do not have recommended screening tests and account for 70% of cancer deaths in the US.

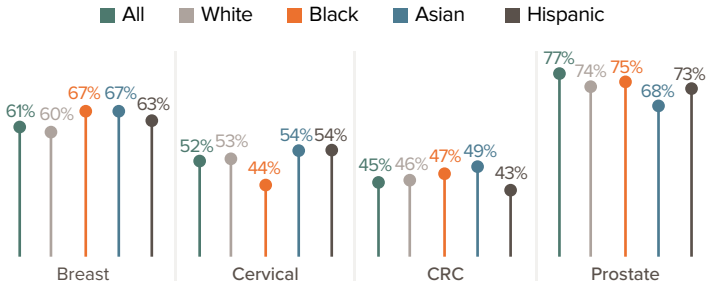
National PCDS by Cancer Type

Among cancers with screening tests, the PCDS varies widely across cancer types. A majority (61%) of diagnosed breast cancers are detected through mammography. While the incidence of cervical cancer is low, 52% of all cases are detected by a PAP test, while 45% of diagnosed colorectal cancers are detected by screening. Only 3% of diagnosed lung cancers are detected through screening. Given high rates of prostate cancer screening and some over-diagnosis, we estimate that 77% of diagnosed prostate cancers are detected through the PSA test.[3]

Percent of Cancers Detected by Screening, by Cancer Type



National PCDS by Race and Ethnicity, by Cancer Type



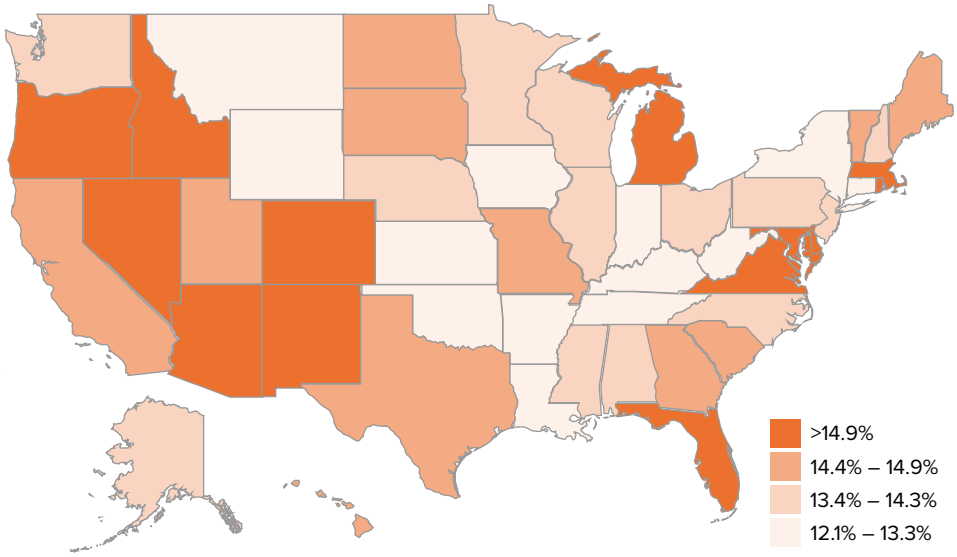
Demographic Differences

PCDS by race and ethnicity vary by cancer type, as a result of differences in incidence and screening rates. In breast cancer, Hispanic women have the highest PCDS because of their relatively low incidence rates. Black people have the highest rate of PCDS for colorectal cancer, owing to relatively higher screening and incidence rates than other groups. People of color, especially people of Asian and Pacific Islander descent are consistently underrepresented in cancer data in the US,[1] which limits our ability to calculate state-specific PCDS for these groups.

[1] ACS Cancer Facts & Figures 2021 (51) – data limitations prevented researchers from calculating PCDS at the state level; [2] See detailed methodology; [3] Estimates for prostate cancer assume that all cancers diagnosed at grade 1 and 2 were detected through preventive screening PSA test, while grade 3 and 4 cancers were not detected by screening.

State-Specific PCDSs

PCDSs are sensitive to incidence and screening rates. In states with low cancer incidence and high preventive screening rates, PCDS is highest. Arizona has the highest overall PCDS (16.8%). Arkansas and Louisiana have the lowest overall PCDS (12%).



State	Overall	Breast	Cervical	CRC	Lung
US	14.1%	61.3%	51.5%	45.4%	3.0%
AL	14.3%	70.1%	49.4%	38.9%	2.9%
AK	13.4%	61.6%	-	33.5%	3.5%
AZ	16.8%	76.1%	66.6%	49.0%	1.3%
AR	12.0%	62.6%	50.6%	36.6%	0.9%
CA	14.8%	61.9%	55.5%	40.8%	1.0%
CO	15.8%	61.1%	66.3%	46.0%	3.3%
CT	13.1%	51.2%	-	57.3%	4.3%
DE	15.8%	75.3%	-	54.3%	3.1%
DC	14.6%	55.5%	-	42.0%	2.0%
FL	16.2%	77.0%	43.0%	56.9%	1.9%
GA	14.7%	67.0%	53.5%	44.6%	2.8%
HI	14.7%	55.3%	-	41.0%	2.7%
ID	15.4%	67.5%	-	45.9%	5.7%
IL	13.7%	60.8%	52.2%	38.1%	2.8%
IN	12.8%	54.8%	42.3%	40.6%	2.8%
IA	13.1%	57.0%	51.7%	43.0%	4.2%
KS	13.3%	58.1%	58.7%	42.5%	4.2%
KY	12.7%	59.2%	39.8%	38.9%	5.8%
LA	12.0%	59.3%	42.0%	33.3%	1.4%
ME	14.4%	63.4%	-	53.7%	4.7%
MD	16.0%	66.7%	58.7%	47.2%	5.3%
MA	16.0%	60.6%	84.7%	57.9%	9.9%
MI	15.5%	69.9%	67.8%	51.7%	4.4%
MN	13.9%	57.8%	73.9%	52.7%	4.3%
MS	13.3%	69.3%	46.7%	32.9%	1.9%

State	Overall	Breast	Cervical	CRC	Lung
MO	14.3%	57.2%	50.6%	52.7%	2.9%
MT	12.8%	54.2%	-	49.2%	3.7%
NE	13.4%	63.1%	-	41.7%	3.0%
NV	15.0%	67.1%	45.8%	46.0%	0.8%
NH	13.6%	56.8%	-	55.1%	7.4%
NJ	13.8%	59.6%	51.3%	45.0%	2.7%
NM	16.6%	73.7%	-	38.3%	1.8%
NY	12.2%	52.0%	42.7%	46.4%	2.6%
NC	13.7%	54.0%	59.1%	55.8%	3.6%
ND	14.8%	63.0%	-	42.3%	8.7%
OH	14.1%	61.4%	50.4%	45.8%	3.2%
OK	13.1%	59.8%	44.0%	34.9%	0.9%
OR	14.9%	65.7%	62.6%	48.2%	4.3%
PA	13.8%	60.7%	52.8%	46.3%	4.0%
RI	15.6%	61.2%	-	56.7%	5.4%
SC	14.4%	61.3%	59.6%	49.8%	2.5%
SD	14.9%	68.9%	-	46.9%	7.1%
TN	13.2%	64.9%	50.6%	39.3%	2.3%
TX	14.8%	67.0%	46.7%	37.2%	1.4%
UT	14.3%	63.3%	54.7%	50.9%	1.1%
VT	14.8%	65.6%	-	41.7%	9.3%
VA	15.6%	61.6%	73.5%	54.2%	3.5%
WA	13.5%	54.2%	61.0%	48.0%	2.4%
WV	12.8%	66.3%	37.3%	42.3%	1.3%
WI	13.8%	58.6%	79.3%	50.3%	4.8%
WY	12.5%	68.2%	-	44.5%	1.1%

Note: '-' PCDS estimates are not displayed due to small samples at the state level.

PCDS is the proportion of screen-detected cancers (Breast, Colorectal, Cervical, Lung) among all diagnosed cancers detected by screening including prostate cancer.

More Information

For more information about our PCDS methodology and results, please visit https://cancerdetection.norc.org.

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