

2016 Lung Cancer Screening Registry Report from the American College of Radiology

We are pleased to release the 2016 annual State Aggregate report for Lung Cancer Screening Registry. The PDF report contains the following:

- 1. Measures definition**
- 2. Pre-exam measures aggregated by states**
- 3. During-exam measures aggregated by states**
- 4. Post-exam measures aggregated by states**

Currently the Post-exam (outcome) measures provided within this report are limited to the Abnormal Interpretation Rate. Other measures such as Cancer Detection Rate or Positive Predictive Value are not available at the state aggregate level at this time. Some sites may have limited ability to fully capture outcome (tissue diagnoses) data and state performance may be misconstrued.

Aggregate measure data only reported for states where there are 5 or more sites. Less than 5 are indicated as NR (Not reported).

Measure Definitions

Appropriateness of screening by USPSTF criteria

Percent of screening population who are adults aged 55 to 80 years, have a 30 pack-year smoking history, and currently smoke or have quit within the past 15 years.

Smoking cessation offered

Percent of patients who are offered smoking cessation guidance.

Smoking cessation offered among current smokers

Percent of current smokers who are offered smoking cessation guidance.

Radiation exposure Mean CTDIvol - overall, and by BMI category

Mean Volumetric CT Dose Index (CTDIvol) across all screening exams performed, across all screening exams performed on underweight patients (BMI<18.5), across all screening exams performed on normal weight patients (BMI of 18.5-24.9), across all screening exams performed on overweight patients (BMI of 25-29.9), and across all screening exams performed on obese patients (BMI of 30 or more).

Radiation exposure (DLP) - overall, and by BMI category

Mean Dose Length Product (DLP) across all screening exams performed, across all screening exams performed on underweight patients (BMI<18.5), across all screening exams performed on normal weight patients (BMI of 18.5-24.9), across all screening exams performed on overweight patients (BMI of 25-29.9), and across all screening exams performed on obese patients (BMI of 30 or more).

Abnormal Interpretation Rate, all exams

Percent of screening exams that have a Lung-RADS assessment of 3, 4a, 4b, or 4x (and lead to additional imaging or biopsy).

Abnormal Interpretation Rate, at baseline exam

Percent of baseline screening exams that have a Lung-RADS assessment of 3, 4a, 4b, or 4x (and lead to additional imaging or biopsy).

Abnormal Interpretation Rate, at annual exam

Percent of annual screening exams that have a Lung-RADS assessment of 3, 4a, 4b, or 4x (and lead to additional imaging or biopsy).

Lung Cancer Screening Statistics, Pre-Exam Measures – Screening Exams performed in 2016

				Appropriateness of screening by USPSTF criteria		Smoking cessation offered		Smoking cessation offered among current smokers	
Aggregation Level	Year	# Facilities	# Screening Exams	Rate	Num/Den	Rate	Num/Den	Rate	Num/Den
Alabama	2016	25	3516	87.2%	(3066/3516)	92.8%	(3263/3516)	95.16%	(2065/2170)
Alaska	2016	6	211	86.73%	(183/211)	80.09%	(169/211)	82.54%	(104/126)
Arizona	2016	23	1342	86.36%	(1159/1342)	76.53%	(1027/1342)	76.3%	(557/730)
Arkansas	2016	8	645	82.48%	(532/645)	67.44%	(435/645)	72.02%	(278/386)
California	2016	85	5970	68.48%	(4088/5970)	66.28%	(3957/5970)	74.71%	(2470/3306)
Colorado	2016	22	1828	83.37%	(1524/1828)	59.46%	(1087/1828)	75.44%	(722/957)
Connecticut	2016	37	3229	80.74%	(2607/3229)	85.72%	(2768/3229)	90.59%	(1665/1838)
Delaware	2016	10	649	87.98%	(571/649)	63.02%	(409/649)	72.32%	(277/383)
District of Columbia	2016	<5	NR	NR	NR	NR	NR	NR	NR
Florida	2016	131	10105	84.76%	(8565/10105)	74.03%	(7481/10105)	79.61%	(4225/5307)
Georgia	2016	50	4799	86.81%	(4166/4799)	72.93%	(3500/4799)	78.57%	(2277/2898)
Hawaii	2016	8	580	92.07%	(534/580)	66.72%	(387/580)	70.63%	(267/378)
Idaho	2016	22	1854	88.08%	(1633/1854)	95.25%	(1766/1854)	95.86%	(972/1014)
Illinois	2016	60	6518	90.09%	(5872/6518)	76.68%	(4998/6518)	83.39%	(3212/3852)
Indiana	2016	53	2884	83.81%	(2417/2884)	62.27%	(1796/2884)	73.83%	(1258/1704)
Iowa	2016	36	2430	93.58%	(2274/2430)	83.7%	(2034/2430)	92.73%	(1301/1403)
Kansas	2016	36	2017	91.32%	(1842/2017)	64.75%	(1306/2017)	68.85%	(851/1236)
Kentucky	2016	69	8079	94.67%	(7648/8079)	75.07%	(6065/8079)	81.58%	(4385/5375)
Louisiana	2016	21	1526	84.34%	(1287/1526)	79.36%	(1211/1526)	92.23%	(748/811)
Maine	2016	18	1905	90.13%	(1717/1905)	78.58%	(1497/1905)	85.41%	(1007/1179)
Maryland	2016	44	3282	90.46%	(2969/3282)	74.47%	(2444/3282)	87.91%	(1731/1969)
Massachusetts	2016	53	16558	89.92%	(14889/16558)	84.64%	(14014/16558)	90.05%	(8461/9396)
Michigan	2016	85	10952	86.84%	(9511/10952)	80.71%	(8839/10952)	87.84%	(5650/6432)
Minnesota	2016	52	4264	85.95%	(3665/4264)	65.08%	(2775/4264)	83.18%	(2062/2479)
Mississippi	2016	14	1690	87.69%	(1482/1690)	42.01%	(710/1690)	54.98%	(535/973)

Lung Cancer Screening Statistics, Pre-Exam Measures – Screening Exams performed in 2016

				Appropriateness of screening by USPSTF criteria		Smoking cessation offered		Smoking cessation offered among current smokers	
Aggregation Level	Year	# Facilities	# Screening Exams	Rate	Num/Den	Rate	Num/Den	Rate	Num/Den
Missouri	2016	44	4756	87.26%	(4150/4756)	76.11%	(3620/4756)	82.54%	(2345/2841)
Montana	2016	6	885	93.45%	(827/885)	83.62%	(740/885)	86.21%	(419/486)
Nebraska	2016	30	996	89.56%	(892/996)	68.27%	(680/996)	92.83%	(518/558)
Nevada	2016	7	432	85.19%	(368/432)	95.83%	(414/432)	97.81%	(223/228)
New Hampshire	2016	12	1933	95.76%	(1851/1933)	72.32%	(1398/1933)	75.34%	(843/1119)
New Jersey	2016	91	4812	81.63%	(3928/4812)	54.38%	(2617/4812)	69.31%	(1685/2431)
New Mexico	2016	6	601	81.86%	(492/601)	90.85%	(546/601)	97.55%	(319/327)
New York	2016	110	10107	89.94%	(9090/10107)	75.37%	(7618/10107)	87.2%	(4917/5639)
North Carolina	2016	84	7787	88.75%	(6911/7787)	82.87%	(6453/7787)	90.41%	(3894/4307)
North Dakota	2016	10	1373	96.94%	(1331/1373)	72.91%	(1001/1373)	73.45%	(534/727)
Ohio	2016	116	8351	92.71%	(7742/8351)	82.11%	(6857/8351)	88.54%	(4397/4966)
Oklahoma	2016	11	849	81.74%	(694/849)	70.55%	(599/849)	78.17%	(376/481)
Oregon	2016	29	2935	91.28%	(2679/2935)	76.22%	(2237/2935)	86.85%	(1492/1718)
Pennsylvania	2016	120	13353	90.49%	(12083/13353)	79.94%	(10675/13353)	87.68%	(7043/8033)
Rhode Island	2016	17	1882	84.86%	(1597/1882)	68.7%	(1293/1882)	71.53%	(844/1180)
South Carolina	2016	23	2390	92.34%	(2207/2390)	80.54%	(1925/2390)	84.43%	(1133/1342)
South Dakota	2016	14	1087	92.55%	(1006/1087)	51.52%	(560/1087)	59.35%	(346/583)
Tennessee	2016	66	3737	83.11%	(3106/3737)	64.92%	(2426/3737)	79.6%	(1838/2309)
Texas	2016	125	6571	80.11%	(5264/6571)	59.64%	(3919/6571)	65.29%	(2513/3849)
Vermont	2016	7	1116	95.97%	(1071/1116)	57.35%	(640/1116)	80.93%	(505/624)
Virginia	2016	73	4841	92.89%	(4497/4841)	82.71%	(4004/4841)	90.37%	(2563/2836)
Washington	2016	41	3134	85.1%	(2667/3134)	61.01%	(1912/3134)	77.61%	(1255/1617)
West Virginia	2016	9	673	87.37%	(588/673)	42.94%	(289/673)	46.19%	(206/446)
Wisconsin	2016	56	4884	85.3%	(4166/4884)	74.82%	(3654/4884)	95.17%	(2739/2878)

Lung Cancer Screening Statistics, Pre-Exam Measures – Screening Exams performed in 2016

				Appropriateness of screening by USPSTF criteria		Smoking cessation offered		Smoking cessation offered among current smokers	
Aggregation Level	Year	# Facilities	# Screening Exams	Rate	Num/Den	Rate	Num/Den	Rate	Num/Den
Wyoming	2016	<5	NR	NR	NR	NR	NR	NR	NR
LCSR	2016	2081	186613	87.72%	(163992/186953)	75.06%	(140328/186953)	83.51%	(90303/108134)

Lung Cancer Screening Statistics, During Exam Measures – Screening Exams performed in 2016

			CTDIvol - Mean (mGy)					DLP - Mean (mGy-cm)				
Aggregation Level	# Facilities	# Screening Exams	Overall	underweight (BMI<18.5)	normal (BMI 18.5-24.9)	overweight (BMI 25.0-29.9)	obese (BMI 30 or greater)	Overall	underweight (BMI<18.5)	normal (BMI 18.5-24.9)	overweight (BMI 25.0-29.9)	obese (BMI 30 or greater)
Alabama	25	3516	3.22	2.08	2.49	3.27	3.82	98.43	77.06	84.72	97.58	111.23
Alaska	6	211	5.05	1.97	3.58	2.95	8.45	126.52	77.23	124.9	112.06	145.64
Arizona	23	1342	3.07	2.12	2.09	3.43	3.75	87.12	81.21	74.07	89.02	98.09
Arkansas	8	645	2.09	1.44	1.65	1.86	2.48	76.42	54.02	61.62	69.16	89.06
California	85	5970	3.37	2.32	2.88	3.12	4.44	97.94	84.91	83.46	96.61	117.62
Colorado	22	1828	3.09	2.22	2.21	3.11	4.15	103.37	82.72	80.33	97	137.42
Connecticut	37	3229	3.57	6.78	3.26	3	4.15	94.09	80.95	78.19	92.58	108.69
Delaware	10	649	2.39	1.79	1.94	2.26	2.83	87.87	62.02	74.62	83.95	101.54
District of Columbia	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Florida	131	10105	3.35	2.68	2.79	2.83	4.68	98.05	71.77	85.72	96.1	117.83
Georgia	50	4799	4.99	2.82	3.39	3.48	4.36	111.34	89.69	102.61	110.75	123.61
Hawaii	8	580	3.15	2.93	2.81	3.22	3.9	103.02	108.8	86.19	106.54	134.73
Idaho	22	1854	3.34	2.1	2.62	3.16	4.12	114.45	75.06	89.56	108.22	141.7
Illinois	60	6518	3.41	2.33	2.82	3.05	4.25	110.55	86.53	91.56	106.24	131.17
Indiana	53	2884	3.32	2.14	2.57	3.09	4.24	111.44	76.87	101.05	106.16	131.43
Iowa	36	2430	3.06	4.21	2.22	2.4	3.97	96.55	68.5	75.22	84.6	118.99
Kansas	36	2017	3.69	2.29	4	3.11	4.23	103.77	87.11	87.66	97.25	121.68
Kentucky	69	8079	2.76	1.87	2.51	2.69	3.06	90	66.44	79.29	87.55	100.89
Louisiana	21	1526	2.55	1.74	2.32	2.4	2.94	86.01	62.67	74.24	82.8	100.5
Maine	18	1905	3.7	2.94	3.91	3.52	3.85	102.02	109.1	84.03	100.89	115.55
Maryland	44	3282	3.06	2.34	2.56	3.01	3.55	103.68	91.71	90.96	100.18	119.99
Massachusetts	53	16558	2.64	1.97	2.19	2.47	3.13	87.59	66.74	71.44	81.98	99.36
Michigan	85	10952	3.06	1.88	2.53	2.95	3.64	99.62	70.44	78.39	99.64	116.28
Minnesota	52	4264	3.04	1.89	2.13	2.75	3.99	101.65	99.35	89.43	94.05	116.4
Mississippi	14	1690	4.32	2.35	3.29	3.07	6.26	109.49	86.07	81.62	93.46	143.53
Missouri	44	4756	3.61	2.65	2.98	3.42	4.22	91.45	63.73	72.98	84.26	104.66

Lung Cancer Screening Statistics, During Exam Measures – Screening Exams performed in 2016

			CTDIvol - Mean (mGy)					DLP - Mean (mGy-cm)				
Aggregation Level	# Facilities	# Screening Exams	Overall	underweight (BMI<18.5)	normal (BMI 18.5-24.9)	overweight (BMI 25.0-29.9)	obese (BMI 30 or greater)	Overall	underweight (BMI<18.5)	normal (BMI 18.5-24.9)	overweight (BMI 25.0-29.9)	obese (BMI 30 or greater)
Montana	6	885	1.64	1.16	1.22	1.46	2.15	59.72	41.76	43.31	53.16	78.51
Nebraska	30	996	3	2.87	2.04	3.03	3.53	96.62	74.56	72.38	84.88	120.05
Nevada	7	432	2.7	1.71	2.17	2.66	3.25	97.31	66.28	79.97	97.88	113.38
New Hampshire	12	1933	2.93	2.88	2.67	2.77	3.26	98.39	64.93	79.69	98.3	116.9
New Jersey	91	4812	3.67	3.88	3.33	3.1	4.29	101.46	84.34	82.6	92.43	115.5
New Mexico	6	601	2.77	2.09	2.72	2.56	3.28	92.71	83.3	80.29	85.8	125.49
New York	110	10107	3.1	2.47	2.34	3.08	3.81	91.79	72.1	71.68	88.56	112.82
North Carolina	84	7787	3.18	1.78	2.54	2.84	4.16	92.98	67.78	71.61	88.52	115.79
North Dakota	10	1373	2.61	1.15	2.21	2.18	3.16	89.65	41.54	61.76	79.57	110.95
Ohio	116	8351	3.26	3.24	2.86	2.93	3.86	101.63	100.54	90.2	98.17	112.63
Oklahoma	11	849	3.44	2.61	3.07	3.58	3.57	115.29	91.24	106.92	113.56	120.67
Oregon	29	2935	3.06	1.62	2.3	2.75	4.03	90.18	62.62	70.68	81.84	115
Pennsylvania	120	13353	3.2	3	2.62	3.29	3.6	90.02	74.22	78.82	87	102.87
Rhode Island	17	1882	4.19	1.88	3.4	3.63	4.68	85.63	63.88	72.12	80.08	92.02
South Carolina	23	2390	3.28	5.06	2.97	3.1	3.64	109.79	126.75	94.5	101.47	132.27
South Dakota	14	1087	4.56	2.6	5.02	4.38	4.62	116.74	69.71	88.65	98.59	149.05
Tennessee	66	3737	3.15	3.73	2.82	3.02	3.37	100	80.54	88.94	98.46	105.38
Texas	125	6571	3.2	3.16	2.56	2.99	3.78	100.75	80.45	83.29	95.7	119.81
Vermont	7	1116	2.69	1.91	2.15	2.64	3.13	99.27	79.05	86.61	94.61	113.6
Virginia	73	4841	2.93	1.68	2.49	2.77	3.57	76.65	59.73	61.95	74.79	91.75
Washington	41	3134	2.8	1.86	2.25	2.23	3.96	86.99	67.35	70.06	81.63	107.59
West Virginia	9	673	2.91	1.91	2.05	2.92	3.66	101.61	79.97	76.96	103.38	120.92
Wisconsin	56	4884	3.3	2.04	2.41	2.98	4.14	113.74	76.76	86.61	102.61	140.32
Wyoming	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
LCSR	2081	186613	3.2	2.6	2.65	2.95	3.84	96.66	77.91	80.69	92.47	113.62

Lung Cancer Screening Statistics, Post-Exam Measures – Screening Exams performed in 2016

			Abnormal Interpretation Rate, baseline, annual, not indicated (%)		Abnormal Interpretation Rate, at baseline exam (%)		Abnormal Interpretation Rate, at annual exam (%)	
Aggregation Level	# Facilities	# Screening Exams	Rate	Num/Den	Rate	Num/Den	Rate	Num/Den
Alabama	25	3516	17.24%	(606/3516)	17.57%	(400/2277)	17.09%	(201/1176)
Alaska	6	211	21.8%	(46/211)	23.59%	(46/195)	0%	(0/16)
Arizona	23	1342	18.55%	(249/1342)	16.81%	(202/1202)	15.48%	(13/84)
Arkansas	8	645	21.55%	(139/645)	23%	(112/487)	16.99%	(26/153)
California	85	5970	17.5%	(1045/5970)	16.31%	(801/4912)	12.28%	(110/896)
Colorado	22	1828	21.99%	(402/1828)	22.48%	(362/1610)	15.35%	(31/202)
Connecticut	37	3229	18.06%	(583/3229)	20.35%	(518/2545)	9.51%	(64/673)
Delaware	10	649	14.48%	(94/649)	14.61%	(58/397)	9.68%	(3/31)
District of Columbia	<5	NR	NR	NR	NR	NR	NR	NR
Florida	131	10105	19.51%	(1971/10105)	20.39%	(1765/8655)	13.27%	(188/1417)
Georgia	50	4799	19.25%	(924/4799)	19.55%	(825/4220)	12.74%	(66/518)
Hawaii	8	580	17.07%	(99/580)	16.3%	(90/552)	14.29%	(3/21)
Idaho	22	1854	14.99%	(278/1854)	16.42%	(252/1535)	7.07%	(21/297)
Illinois	60	6518	17.75%	(1157/6518)	18.95%	(960/5065)	13.04%	(183/1403)
Indiana	53	2884	21.71%	(626/2884)	22.79%	(572/2510)	12.54%	(44/351)
Iowa	36	2430	18.6%	(452/2430)	20.08%	(406/2022)	10.7%	(43/402)
Kansas	36	2017	19.14%	(386/2017)	19.46%	(359/1845)	12.03%	(16/133)
Kentucky	69	8079	21.23%	(1715/8079)	22.38%	(1632/7291)	10.12%	(77/761)
Louisiana	21	1526	21.17%	(323/1526)	21.6%	(276/1278)	18.41%	(44/239)
Maine	18	1905	18.48%	(352/1905)	18.78%	(308/1640)	15.48%	(39/252)
Maryland	44	3282	18.71%	(614/3282)	19.75%	(575/2912)	10.6%	(39/368)
Massachusetts	53	16558	15.33%	(2538/16558)	17.77%	(1986/11173)	10.13%	(541/5342)
Michigan	85	10952	17.04%	(1866/10952)	16.9%	(1538/9103)	15.76%	(264/1675)
Minnesota	52	4264	16.89%	(720/4264)	18.45%	(632/3426)	9.54%	(78/818)

Lung Cancer Screening Statistics, Post-Exam Measures – Screening Exams performed in 2016

			Abnormal Interpretation Rate, baseline, annual, not indicated (%)		Abnormal Interpretation Rate, at baseline exam (%)		Abnormal Interpretation Rate, at annual exam (%)	
Aggregation Level	# Facilities	# Screening Exams	Rate	Num/Den	Rate	Num/Den	Rate	Num/Den
Mississippi	14	1690	24.5%	(414/1690)	24.46%	(399/1631)	18.37%	(9/49)
Missouri	44	4756	20.56%	(978/4756)	21.15%	(811/3834)	17.71%	(142/802)
Montana	6	885	20%	(177/885)	18.96%	(84/443)	21.04%	(93/442)
Nebraska	30	996	17.77%	(177/996)	19.25%	(149/774)	11.27%	(24/213)
Nevada	7	432	20.14%	(87/432)	20.53%	(85/414)	12.5%	(2/16)
New Hampshire	12	1933	17.95%	(347/1933)	19.17%	(286/1492)	11.24%	(48/427)
New Jersey	91	4812	19.22%	(925/4812)	19.51%	(829/4249)	14.23%	(74/520)
New Mexico	6	601	25.12%	(151/601)	9.09%	(5/55)	26.61%	(145/545)
New York	110	10107	18.41%	(1861/10107)	19.88%	(1663/8365)	11.02%	(189/1715)
North Carolina	84	7787	18.08%	(1408/7787)	18.66%	(1247/6681)	12.72%	(123/967)
North Dakota	10	1373	17.41%	(239/1373)	18.08%	(233/1289)	6.02%	(5/83)
Ohio	116	8351	18.21%	(1521/8351)	20.03%	(1318/6580)	10.91%	(179/1641)
Oklahoma	11	849	22.26%	(189/849)	29.04%	(160/551)	9.8%	(29/296)
Oregon	29	2935	18.16%	(533/2935)	20%	(449/2245)	11.47%	(78/680)
Pennsylvania	120	13353	18.79%	(2509/13353)	19.85%	(2257/11372)	12.43%	(223/1794)
Rhode Island	17	1882	21.04%	(396/1882)	20.17%	(356/1765)	27.06%	(23/85)
South Carolina	23	2390	18.28%	(437/2390)	19.18%	(391/2039)	12.12%	(40/330)
South Dakota	14	1087	15.36%	(167/1087)	15.83%	(152/960)	11.38%	(14/123)
Tennessee	66	3737	16.48%	(616/3737)	18.36%	(549/2990)	8.59%	(61/710)
Texas	125	6571	21.15%	(1390/6571)	21.95%	(1166/5312)	15.74%	(172/1093)
Vermont	7	1116	13.71%	(153/1116)	15.38%	(131/852)	6.11%	(14/229)
Virginia	73	4841	20.04%	(970/4841)	20.85%	(899/4311)	13.15%	(68/517)
Washington	41	3134	18.57%	(582/3134)	19.51%	(528/2706)	11.76%	(48/408)
West Virginia	9	673	27.49%	(185/673)	27.56%	(183/664)	25%	(2/8)

Lung Cancer Screening Statistics, Post-Exam Measures – Screening Exams performed in 2016

			Abnormal Interpretation Rate, baseline, annual, not indicated (%)		Abnormal Interpretation Rate, at baseline exam (%)		Abnormal Interpretation Rate, at annual exam (%)	
Aggregation Level	# Facilities	# Screening Exams	Rate	Num/Den	Rate	Num/Den	Rate	Num/Den
Wisconsin	56	4884	16.15%	(789/4884)	16.72%	(734/4390)	10.68%	(52/487)
Wyoming	<5	NR	NR	NR	NR	NR	NR	NR
LCSR	2081	186613	18.42%	(34446/186953)	19.42%	(29792/153383)	12.57%	(3957/31471)