

## **2018 Lung Cancer Screening Registry Report from the American College of Radiology**

We are pleased to release the 2018 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 2018***

				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	2018	49	8098	92.74%	(7510/8098)	86.45%	(7001/8098)	90.2%	(4693/5203)
Alaska	2018	11	843	94.19%	(794/843)	86.71%	(731/843)	92.05%	(486/528)
Arizona	2018	43	4272	90.85%	(3881/4272)	86.42%	(3692/4272)	89.61%	(2044/2281)
Arkansas	2018	28	3015	91.84%	(2769/3015)	75.66%	(2281/3015)	89.17%	(1754/1967)
California	2018	131	12079	73.38%	(8863/12079)	71.51%	(8638/12079)	80.93%	(5250/6487)
Colorado	2018	54	5480	86.42%	(4736/5480)	74.53%	(4084/5480)	81.99%	(2395/2921)
Connecticut	2018	43	8488	82.81%	(7029/8488)	68.56%	(5819/8488)	76.55%	(3647/4764)
Delaware	2018	16	2299	90.3%	(2076/2299)	73.55%	(1691/2299)	76.27%	(1035/1357)
District of Columbia	2018	<5	NR	NR	NR	NR	NR	NR	NR
Florida	2018	210	20932	90.62%	(18969/20932)	76.08%	(15925/20932)	82.04%	(9253/11279)
Georgia	2018	117	14501	92.21%	(13372/14501)	76.68%	(11120/14501)	85.39%	(7327/8581)
Hawaii	2018	9	1267	97.32%	(1233/1267)	54.7%	(693/1267)	70.53%	(536/760)
Idaho	2018	26	3023	96.49%	(2917/3023)	95.63%	(2891/3023)	96.29%	(1559/1619)
Illinois	2018	112	18374	92.57%	(17009/18374)	76.48%	(14053/18374)	82.23%	(8963/10900)
Indiana	2018	105	14009	80.13%	(11225/14009)	63.41%	(8883/14009)	78.27%	(6163/7874)
Iowa	2018	62	7369	94.6%	(6971/7369)	80.8%	(5954/7369)	85.03%	(3827/4501)
Kansas	2018	56	5017	92.7%	(4651/5017)	67.45%	(3384/5017)	72.05%	(2147/2980)
Kentucky	2018	99	20953	95.99%	(20113/20953)	67.06%	(14051/20953)	72.05%	(10059/13962)
Louisiana	2018	28	3994	89.93%	(3592/3994)	78.19%	(3123/3994)	90.67%	(2148/2369)
Maine	2018	22	4137	95.29%	(3942/4137)	74.11%	(3066/4137)	82.4%	(2060/2500)
Maryland	2018	50	11251	93.87%	(10561/11251)	84%	(9451/11251)	89.11%	(6041/6779)
Massachusetts	2018	59	33924	91.8%	(31143/33924)	74.58%	(25299/33924)	82.59%	(15352/18588)
Michigan	2018	118	27122	92.37%	(25053/27122)	75.17%	(20388/27122)	83.12%	(13637/16407)
Minnesota	2018	85	11471	91.4%	(10484/11471)	56.41%	(6471/11471)	71.34%	(4458/6249)
Mississippi	2018	29	3796	93.07%	(3533/3796)	65.44%	(2484/3796)	79.61%	(1737/2182)

***Lung Cancer Screening Statistics, Pre-Exam Measures – Screening Exams performed in 2018***

				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	2018	65	12662	93.67%	(11861/12662)	74.06%	(9377/12662)	80.88%	(6035/7462)
Montana	2018	16	2165	98.24%	(2127/2165)	93.07%	(2015/2165)	97.22%	(1226/1261)
Nebraska	2018	37	2082	93.37%	(1944/2082)	68.16%	(1419/2082)	82.13%	(965/1175)
Nevada	2018	10	917	78.08%	(716/917)	88.11%	(808/917)	95.39%	(414/434)
New Hampshire	2018	20	5486	97.61%	(5355/5486)	64.55%	(3541/5486)	70.44%	(2188/3106)
New Jersey	2018	119	9420	88.16%	(8305/9420)	71.11%	(6699/9420)	82.54%	(4170/5052)
New Mexico	2018	10	1203	87.7%	(1055/1203)	79.14%	(952/1203)	81.42%	(539/662)
New York	2018	182	24691	86.99%	(21479/24691)	77.04%	(19023/24691)	84.59%	(11887/14053)
North Carolina	2018	119	23737	88.55%	(21020/23737)	79.72%	(18924/23737)	88.33%	(12638/14307)
North Dakota	2018	11	2014	87.88%	(1770/2014)	60.92%	(1227/2014)	86.78%	(814/938)
Ohio	2018	163	24059	91.7%	(22063/24059)	83.52%	(20093/24059)	89.88%	(13227/14716)
Oklahoma	2018	19	2211	89.19%	(1972/2211)	57.21%	(1265/2211)	61.9%	(788/1273)
Oregon	2018	40	8772	95.16%	(8347/8772)	87.93%	(7713/8772)	94.42%	(4651/4926)
Pennsylvania	2018	151	30190	93.48%	(28221/30190)	79.16%	(23899/30190)	86.06%	(15794/18353)
Rhode Island	2018	20	3772	75.98%	(2866/3772)	68.35%	(2578/3772)	81.5%	(1621/1989)
South Carolina	2018	32	8042	93.12%	(7489/8042)	78.08%	(6279/8042)	81.69%	(3659/4479)
South Dakota	2018	26	2221	96.49%	(2143/2221)	56.64%	(1258/2221)	63.9%	(786/1230)
Tennessee	2018	99	13433	76.22%	(10238/13433)	82.95%	(11143/13433)	87.9%	(6740/7668)
Texas	2018	188	13660	86.3%	(11789/13660)	76.01%	(10383/13660)	80.39%	(6564/8165)
Utah	2018	24	1070	95.79%	(1025/1070)	80.47%	(861/1070)	87.07%	(505/580)
Vermont	2018	8	2688	98.1%	(2637/2688)	69.08%	(1857/2688)	96.23%	(1431/1487)
Virginia	2018	89	13959	94.64%	(13211/13959)	81.86%	(11427/13959)	84.69%	(7056/8332)
Washington	2018	71	9225	92.26%	(8511/9225)	77.69%	(7167/9225)	90.9%	(4493/4943)
West Virginia	2018	20	2230	93.05%	(2075/2230)	62.69%	(1398/2230)	63.87%	(960/1503)
Wisconsin	2018	98	16632	87.57%	(14564/16632)	86.45%	(14379/16632)	91.69%	(8379/9138)

*Lung Cancer Screening Statistics, Pre-Exam Measures – Screening Exams performed in 2018*

				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	2018	5	258	75.19%	(194/258)	63.18%	(163/258)	82.48%	(113/137)
LCSR	2018	3209	482975	90.24%	(436141/483320)	76.05%	(367575/483320)	83.55%	(234701/280906)

***Lung Cancer Screening Statistics, During Exam Measures – Screening Exams performed in 2018***

			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	49	8098	2.67	1.93	2.32	2.58	3.1	92.52	67.5	77.23	89.06	109.6
Alaska	11	843	4.63	1.95	4.21	4.67	5.03	178.5	72.12	161.01	172.97	200.53
Arizona	43	4272	2.43	1.92	2.09	2.44	2.85	82.3	71.52	74.66	81.74	93.01
Arkansas	28	3015	2.66	1.9	2.16	2.47	3.28	92.51	70.67	78.97	89.74	107.81
California	131	12079	3.76	3.42	2.6	3.59	4.85	107.97	89.4	90.37	104.95	131.12
Colorado	54	5480	3.18	1.76	2.58	2.86	4.22	98.6	70.35	78.12	102.75	119.36
Connecticut	43	8488	4.31	4.04	3.43	4.21	5.03	87.51	64.66	70.19	83.04	106.86
Delaware	16	2299	3.1	1.92	2.3	3.26	3.5	104.87	72.46	83.63	99.39	122.68
District of Columbia	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Florida	210	20932	2.96	2.37	2.57	2.82	3.54	97.27	74.26	80.81	93.57	117.64
Georgia	117	14501	4.37	4.02	3.73	4.15	5.17	103.38	91.85	89.47	100.48	115.64
Hawaii	9	1267	2.43	1.8	1.86	2.66	3.02	86.38	67.78	70.71	80.47	118.22
Idaho	26	3023	2.92	1.58	1.98	2.64	3.91	100.56	56.93	68	91.52	134.51
Illinois	112	18374	3.17	2.61	2.73	3.08	3.56	100.76	100.69	85.64	94.87	113.73
Indiana	105	14009	3.67	2.41	3.13	3.15	4.56	105.93	80.35	87.57	97.47	123.37
Iowa	62	7369	3.67	1.79	3.11	3.16	4.52	92.63	62.46	69.17	84.79	112.34
Kansas	56	5017	4.7	2.96	3.52	4.24	6.4	112.1	75.58	89.03	99.44	130.77
Kentucky	99	20953	3.08	2.55	2.98	3.16	3.5	89.91	71.47	82.75	89.78	107.19
Louisiana	28	3994	2.96	1.64	2.5	2.63	3.54	92.67	60.57	76.8	89.02	106.82
Maine	22	4137	3.17	3.36	3.17	3.22	3.65	93.93	89.75	81.86	89.59	113.59
Maryland	50	11251	2.96	2.95	2.38	2.75	3.62	96.59	75.41	79.66	92.72	115.15
Massachusetts	59	33924	2.61	2.68	2.11	2.45	3.11	89.38	95.42	71.3	82.33	105.77
Michigan	118	27122	3.07	2.45	2.46	2.91	3.59	99.66	75.6	83.82	94.38	114.83
Minnesota	85	11471	2.89	1.61	2.16	2.76	3.51	95.19	60.59	72.02	91.23	114.06
Mississippi	29	3796	3.01	1.84	2.59	2.55	3.47	91.31	66.78	72	85.74	110.82
Missouri	65	12662	2.87	1.93	2.25	2.66	3.61	91.93	68.91	77.64	86.59	110.39

***Lung Cancer Screening Statistics, During Exam Measures – Screening Exams performed in 2018***

			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	16	2165	2.2	1.33	1.57	2.5	2.45	66.06	52.85	55.44	59.64	79.34
Nebraska	37	2082	3.08	1.95	2.15	2.86	3.59	96.49	69.14	77.28	86.92	112.46
Nevada	10	917	3.64	2.25	2.81	2.79	5.02	111.63	88.31	92.38	108.43	128.1
New Hampshire	20	5486	2.82	3.27	2.02	2.84	3.15	86.46	58.44	66.47	84.68	105.72
New Jersey	119	9420	3.34	2.66	2.87	3.29	3.84	96.02	69.1	78.94	92.86	110.83
New Mexico	10	1203	2.55	1.88	1.95	2.45	3.42	93.43	75.24	75.38	85.85	128.22
New York	182	24691	2.97	1.69	2.31	2.72	3.7	93.95	59.68	73.66	88.57	115.1
North Carolina	119	23737	2.85	2.25	2.2	2.61	3.52	99.7	77.49	77.73	91.64	123.42
North Dakota	11	2014	2.93	1.29	1.74	2.24	3.69	93.38	47.96	63.01	80.01	118.05
Ohio	163	24059	3.82	3.64	3.37	3.72	4.24	93.58	79.76	81.67	90.63	104.54
Oklahoma	19	2211	3.49	2.19	3.21	3.51	3.59	102.75	78.25	89.78	98.17	114.25
Oregon	40	8772	2.71	1.92	1.92	2.47	3.61	95.32	62.08	74.8	88.71	120.12
Pennsylvania	151	30190	3.39	2.54	2.91	3.34	3.84	94.14	72.5	79.97	90.71	107.23
Rhode Island	20	3772	2.72	1.7	2.33	2.37	3.23	81.25	60.63	70.93	78.33	91.82
South Carolina	32	8042	3.59	3.44	3.06	3.36	4.14	105.5	115.44	100.4	95.28	118.17
South Dakota	26	2221	3.47	1.94	2.31	2.91	4.66	110.89	68.72	81.67	91.96	144.94
Tennessee	99	13433	3.08	2.41	2.5	2.85	3.44	97.07	83.02	83.87	91.77	108.48
Texas	188	13660	3.08	2.44	2.34	2.87	3.85	104.35	93.24	84.27	97.29	126.2
Utah	24	1070	2.98	1.72	2.54	3.04	3.36	112.02	67.65	92.63	116.58	126.27
Vermont	8	2688	2.91	1.79	2.22	2.87	3.59	105.06	71.55	82.85	97.8	132.3
Virginia	89	13959	3.27	2.59	3.09	3.14	3.79	82.04	65.79	73.93	78.89	93.61
Washington	71	9225	3.02	3.01	2.55	2.77	3.57	93.04	61.17	76.14	87.77	111
West Virginia	20	2230	3.43	3.05	3.19	2.87	4.04	116.3	75.19	84.38	107.04	145.22
Wisconsin	98	16632	4.17	2.76	3.24	3.64	5.08	110.83	73.03	82.63	98.86	132.41
Wyoming	5	258	10.77	4.43	9.68	15.54	8.1	152.19	157.99	97.56	187.73	167.61
LCSR	3209	482975	3.22	2.61	2.65	3.04	3.85	96.56	77.69	79.81	91.33	114.12

**Lung Cancer Screening Statistics, Post-Exam Measures – Screening Exams performed in 2018**

			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	49	8098	19.21%	(1556/8098)	21.33%	(985/4618)	16.4%	(545/3323)
Alaska	11	843	18.51%	(156/843)	19.86%	(147/740)	8%	(8/100)
Arizona	43	4272	16.78%	(717/4272)	16.2%	(569/3512)	12.56%	(83/661)
Arkansas	28	3015	14.63%	(441/3015)	17.21%	(382/2220)	7.43%	(59/794)
California	131	12079	15.53%	(1876/12079)	17.07%	(1449/8490)	10.85%	(361/3328)
Colorado	54	5480	17.08%	(936/5480)	19.24%	(756/3930)	10.94%	(149/1362)
Connecticut	43	8488	15.87%	(1347/8488)	18.5%	(973/5259)	11.03%	(342/3101)
Delaware	16	2299	14.09%	(324/2299)	15.64%	(198/1266)	14.41%	(97/673)
District of Columbia	<5	NR	NR	NR	NR	NR	NR	NR
Florida	210	20932	15.8%	(3308/20932)	17.65%	(2570/14562)	11.25%	(708/6293)
Georgia	117	14501	15.03%	(2180/14501)	16.88%	(1593/9440)	10.92%	(521/4772)
Hawaii	9	1267	13.5%	(171/1267)	14.33%	(149/1040)	9.29%	(21/226)
Idaho	26	3023	14.79%	(447/3023)	16.08%	(334/2077)	11.61%	(107/922)
Illinois	112	18374	14.83%	(2725/18374)	18.03%	(1878/10416)	9.61%	(752/7826)
Indiana	105	14009	16.38%	(2295/14009)	17.47%	(1913/10948)	10.93%	(316/2890)
Iowa	62	7369	15.08%	(1111/7369)	17.92%	(858/4788)	9.24%	(225/2435)
Kansas	56	5017	18.72%	(939/5017)	21.87%	(761/3480)	10.89%	(151/1387)
Kentucky	99	20953	15.89%	(3329/20953)	16.67%	(2395/14366)	10.74%	(676/6292)
Louisiana	28	3994	15.82%	(632/3994)	19%	(507/2668)	9.15%	(119/1300)
Maine	22	4137	17.38%	(719/4137)	18.6%	(540/2904)	14.16%	(173/1222)
Maryland	50	11251	17.35%	(1952/11251)	18.23%	(1379/7563)	15.52%	(571/3680)
Massachusetts	59	33924	13.75%	(4664/33924)	16.75%	(2648/15810)	10.55%	(1891/17919)
Michigan	118	27122	13.72%	(3721/27122)	15.29%	(2867/18745)	10.05%	(830/8262)
Minnesota	85	11471	13.51%	(1550/11471)	16.47%	(1205/7316)	8.1%	(331/4088)



**Lung Cancer Screening Statistics, Post-Exam Measures – Screening Exams performed in 2018**

			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	29	3796	16.99%	(645/3796)	18.64%	(357/1915)	15.22%	(285/1873)
Missouri	65	12662	18.2%	(2304/12662)	21.36%	(1562/7312)	13.75%	(686/4988)
Montana	16	2165	14.92%	(323/2165)	18.45%	(247/1339)	9.26%	(76/821)
Nebraska	37	2082	15.47%	(322/2082)	20.33%	(271/1333)	6.59%	(49/743)
Nevada	10	917	14.29%	(131/917)	15.29%	(102/667)	11.6%	(29/250)
New Hampshire	20	5486	13.62%	(747/5486)	16.72%	(528/3158)	8.47%	(195/2302)
New Jersey	119	9420	16.17%	(1523/9420)	17.92%	(1220/6807)	10.56%	(268/2537)
New Mexico	10	1203	17.79%	(214/1203)	18.86%	(63/334)	17.46%	(151/865)
New York	182	24691	14.56%	(3596/24691)	17.27%	(2481/14368)	10.98%	(1096/9985)
North Carolina	119	23737	15.55%	(3691/23737)	17.3%	(2897/16749)	10.89%	(739/6784)
North Dakota	11	2014	11.97%	(241/2014)	14.4%	(178/1236)	8.1%	(63/778)
Ohio	163	24059	16.08%	(3869/24059)	18.47%	(2704/14639)	12%	(1080/9000)
Oklahoma	19	2211	19.13%	(423/2211)	23.52%	(353/1501)	9.92%	(70/706)
Oregon	40	8772	14.2%	(1246/8772)	16.47%	(917/5568)	10.03%	(314/3132)
Pennsylvania	151	30190	15.75%	(4755/30190)	17.9%	(3768/21050)	10.56%	(917/8682)
Rhode Island	20	3772	16.46%	(621/3772)	15.97%	(382/2392)	17.12%	(235/1373)
South Carolina	32	8042	14.81%	(1191/8042)	15.64%	(843/5390)	11.99%	(313/2611)
South Dakota	26	2221	13.28%	(295/2221)	15%	(199/1327)	9.24%	(81/877)
Tennessee	99	13433	13.85%	(1861/13433)	16.21%	(1549/9553)	8%	(298/3725)
Texas	188	13660	17.07%	(2332/13660)	18.68%	(1771/9480)	12.28%	(471/3836)
Utah	24	1070	13.55%	(145/1070)	15.15%	(118/779)	8.74%	(25/286)
Vermont	8	2688	11.61%	(312/2688)	15.44%	(178/1153)	8.68%	(131/1510)
Virginia	89	13959	15.15%	(2115/13959)	18.01%	(1638/9093)	9.77%	(473/4841)
Washington	71	9225	13.71%	(1265/9225)	15.41%	(1015/6588)	9%	(230/2555)

***Lung Cancer Screening Statistics, Post-Exam Measures – Screening Exams performed in 2018***

			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
West Virginia	20	2230	22.83%	(509/2230)	23.19%	(488/2104)	12.28%	(14/114)
Wisconsin	98	16632	14.32%	(2382/16632)	15.57%	(1909/12263)	10.35%	(445/4299)
Wyoming	5	258	19.38%	(50/258)	19.49%	(46/236)	15%	(3/20)
LCSR	3209	482975	15.37%	(74278/483320)	17.43%	(54899/315041)	10.94%	(17784/162601)