

Table E1. Performance Benchmarks for Diagnostic Mammograms Obtained for the Additional Evaluation of a Recent Mammogram

Performance Measure	No. of Readers Meeting Minimum Volume Requirement*	Percentiles					Acceptable Range†	Percentage of Radiologists within Acceptable Range
		10th	25th	50th (Median)	75th	90th		
Cancer detection rate (per 1000)	157	20.9	30.3	45.2	63.2	74.2	≥20	91.7
Abnormal interpretation rate (%)	157	8.3	10.9	15.2	20.2	27.1	8–25	79.0
PPV ₂ (%)	169	16.7	21.2	28.6	40.3	48.6	15–40	69.2
PPV ₃ (%)	162	19.2	23.5	32.6	44.8	50.0	20–45	66.7
False-negative rate (per 1000)	157	0.0	1.3	3.8	6.4	9.7	NA	
Sensitivity (%)	126	81.8	86.7	92.7	96.3	100.0	≥80	95.2
Specificity (%)	157	77.2	84.2	88.7	92.7	95.1	80–95	78.3
Percentage of stage 0 or 1 cancers	117	60.9	68.8	78.0	83.3	90.5	NA	
Percentage of minimal cancers	115	36.4	44.4	52.9	63.5	68.4	NA	
Percentage of invasive cancers that are node negative	106	68.0	76.0	81.5	86.2	93.8	NA	
Mean invasive cancer size (mm)	107	12.4	14.2	15.7	18.3	20.4	NA	

Note.—NA = not available.

* See Materials and Methods for specific criteria for each performance measure.

† Previously published expert recommendations in Carney et al (5).

Table E2. Performance Benchmarks for Diagnostic Mammograms Obtained for Short-Interval Follow-up

Performance Measure	No. of Readers Meeting Minimum Volume Requirement*	Percentiles				
		10th	25th	50th (Median)	75th	90th
Cancer detection rate (per 1000)	116	0.0	6.0	9.5	14.6	19.3
Abnormal interpretation rate (%)	116	1.4	2.5	4.3	7.1	9.0
PPV ₂ (%)	73	7.1	12.0	18.2	25.0	33.3
PPV ₃ (%)	61	10.0	16.2	21.1	30.0	40.0
False-negative rate (per 1000)	116	0.0	2.4	5.9	9.3	16.3
Sensitivity (%)	23	47.8	53.8	60.0	70.0	86.7
Specificity (%)	115	91.9	94.3	96.7	98.4	99.2
Percentage of stage 0 or 1 cancers	11	NS	NS	NS	NS	NS
Percentage of minimal cancers	9	NS	NS	NS	NS	NS
Percentage of invasive cancers that are node negative	1	NS	NS	NS	NS	NS
Mean invasive cancer size (mm)	1	NS	NS	NS	NS	NS

Note.—NS = not sufficient sample size to compute meaningful percentiles.

* See Materials and Methods for specific criteria for each performance measure.

Table E3. Performance Benchmarks for Diagnostic Mammograms Conducted for the Evaluation of a Breast Problem with a Palpable Lump Reported

Performance Measure	No. of Readers Meeting Minimum Volume Requirement*	Percentile					Acceptable Range [†]	Percentage of Radiologists within Acceptable Range
		10th	25th	50th (Median)	75th	90th		
Cancer detection rate (per 1000)	87	29.3	51.7	69.3	92.7	113.0	≥40	87.4
Abnormal interpretation rate (%)	87	8.2	14.3	17.1	21.3	26.4	10–25	75.9
PPV ₂ (%)	112	21.0	32.4	41.6	50.0	61.9	25–50	62.5
PPV ₃ (%)	98	22.3	34.8	46.9	58.3	68.8	30–55	53.1
False-negative rate (per 1000)	138	0.0	0.0	4.3	7.9	13.2	NA	
Sensitivity (%)	76	84.2	88.3	93.6	100.0	100.0	≥85	89.5
Specificity (%)	83	81.4	85.7	89.3	92.6	95.7	83–95	69.9
Percentage of stage 0 or 1 cancers	66	18.2	23.5	34.9	45.5	50.0	NA	
Percentage minimal cancers	67	0.0	7.7	15.7	20.0	27.3	NA	
Percentage invasive cancers that are node negative	65	42.3	50.0	57.7	66.7	73.3	NA	
Mean invasive cancer size (mm)	64	22.5	24.8	27.0	31.9	36.2	NA	

Note.—NA = not available.

* See Materials and Methods for specific criteria for each performance measure.

† Previously published expert recommendations in Carney et al (5).

Table E4. Performance Benchmarks for Diagnostic Mammograms Obtained for the Evaluation of a Breast Problem with No Lump Reported or Unknown Lump Status

Performance Measure	No. of Readers Meeting Minimum Volume Requirement*	Percentile				
		10th	25th	50th (Median)	75th	90th
Cancer detection rate (per 1000)	98	8.4	14.9	25.2	37.6	53.3
Abnormal interpretation rate (%)	98	3.7	6.2	8.6	13.0	16.5
PPV ₂ (%)	96	15.8	20.0	28.0	40.0	54.2
PPV ₃ (%)	77	20.0	25.0	31.3	43.5	61.7
False-negative rate (per 1000)	98	0.0	2.8	5.0	8.3	11.6
Sensitivity (%)	52	73.3	77.0	84.6	90.8	94.4
Specificity (%)	98	87.4	91.1	93.5	96.1	98.1
Percentage of stage 0 or 1 cancers	41	20.0	32.6	50.0	57.1	70.3
Percentage of minimal cancers	40	9.4	14.8	24.6	41.4	49.7
Percentage of invasive cancers that are node negative	38	41.2	50.0	64.8	73.7	80.0
Mean invasive cancer size (mm)	38	19.3	20.9	25.9	32.4	35.1

* See Materials and Methods for specific criteria for each performance measure.