Table 1S: Transition probabilities by histology*

From	To	AD	SQ	SM	OTH
Preclinical IA	Preclinical IB	0.85	0.87	0.97	0.92
	Clinical detection IA	0.15	0.13	0.03	0.08
Preclinical IB	Preclinical II	0.88	0.85	0.97	0.94
	Clinical detection IB	0.12	0.15	0.03	0.06
Preclinical II	Preclinical IIIA	0.93	0.87	0.97	0.95
	Clinical detection II	0.07	0.13	0.03	0.05
Preclinical IIIA	Preclinical IIIB	0.87	0.81	0.89	0.87
	Clinical detection IIA	0.13	0.19	0.11	0.13
Preclinical IIIB	Preclinical IV	0.76	0.65	0.80	0.80
	Clinical detection IIB	0.24	0.35	0.20	0.20
Preclinical IV	Clinical detection IV	1.00	1.00	1.00	1.00

***Parameters were estimated by model calibration. Transition probabilities are applicable when screening does not occur.**

Table 2S: Additional duration parameter estimates

Parameter	Estimate (approximate lower and upper bounds*)
Weibull shape parameter (similar for all histologies and stages)	1.4411 (1.3131-1.6091)
Correlation between the duration of preclinical states in an individual (similar for all histologies and stages)	0.6403 (0.3515-0.7489)
SQ duration parameter	1.0974 (1.0264-1.2278)
AD duration parameter	0.9251 (0.8993-1.0360)
SM duration parameter	0.6339 (0.5933-0.8525)
Female SQ duration multiplier	0.9987 (0.8104-1.1623)
Female AD duration multiplier	1.3406 (1.2927-1.6582)
Female SM duration multiplier	1.0884 (0.9234-1.4618)
Female OTH duration multiplier	1.1753 (1.0347-1.3711)

Profile likelihood confidence intervals were obtained by varying the value of one parameter at a time, holding all others constant at their maximum likelihood estimates. The deviance was defined as -2(loglikelihood of the model – loglikelihood of the saturated model). Deviances were computed for a number of different values of each parameter. Quadratic functions were estimated based on these deviances. These functions were used to determine which values of the scaling parameters result in a deviance which is 3.84 (the critical value corresponding to the 95th percentile of a chi-square distribution with one degree of freedom) points higher compared to the minimum obtained through maximum likelihood estimation. These values of the parameters correspond to approximate lower and upper bounds for the parameters, as shown in Table 2S.

Table 3S: Sensitivity estimates for round three in NLST by screening modality.

CXR

	AD	SQ	SM	OTH
IA	16.96%	9.75%	2.52%	6.29%
IB	27.21%	28.98%	4.27%	7.60%
II	27.34%	30.10%	6.66%	7.60%
IIIA	48.20%	46.40%	14.78%	29.86%
IIIB	49.39%	48.06%	53.28%	34.49%
IV	96.32%	78.68%	97.32%	37.03%

CT

	AD	SQ	SM	OTH
IA	70.31%	44.84%	14.93%	32.23%
IB	76.42%	52.69%	17.20%	37.36%
II	76.70%	53.89%	18.59%	37.39%
IIIA	85.12%	80.64%	56.35%	73.44%
IIIB	88.02%	87.48%	92.42%	79.60%
IV	99.38%	98.69%	99.64%	97.57%