Appendix 3. Probability distributions, outcome scores and weighted scores

We assessed safety through aggregating outcome scores by their respective probabilities. Table A lists the outcome scores and probability calculation; Table B shows sensitivity and specificity of the pH test under cut-offs 1-9. The weighted scores are thus the sum product of Column 2 and Column 3 of Table A.

Table C and Table D show respectively the probability distributions and outcome score contributions under cut-offs 1-9.

Table A (Table 1 main text). Probability and safety of decision outcomes of the pH test

Outcome	Probability	Score
Feeding into the stomach by pH	Prior probability of stomach x Sensitivity of pH	100
Feeding into the lung by pH (feeding error)	Prior probability of lung x (1- Specificity in lung)	0
Feeding into the oesophagus by pH (feeding error)	Prior probability of oesophageal x (1- Specificity in oesophagus)	45
Delayed feeding into the stomach by x-rays (unnecessary x-rays)	Prior probability of stomach x (1-Sensitivity of pH)	85
No feeding outside the stomach by pH or by x-rays	Prior probability of lung/oesophagus x Specificity in lung/oesophagus	100

Table B (Table 2 main text). Accuracy of pH test under cut-offs 1-9

pH cut-offs	Sensitivity (stomach)	Specificity (Lung)	Specificity (oesophagus)
1	0.015	1	1
2	0.257	1	1
3	0.39	1	1
4	0.544	1	0.985
5	0.68	1	0.948
5.5	0.743	1	0.81
6	0.81	0.996	0.792
7	0.914	0.91	0.492
8	0.991	0.337	0.225
9	1	0.004	0.068

Table C. Probability distributions across pH cut-offs (data for Fig 2)

Cut-offs	stomach_feed	lung_feed	oes_feed	delayed	Nofeed
1	1.1%	0.0%	0.0%	69.0%	30.0%
2	18.0%	0.0%	0.0%	52.0%	30.0%
3	27.3%	0.0%	0.0%	42.7%	30.0%
4	38.1%	0.0%	0.2%	31.9%	29.8%
5	47.6%	0.0%	0.8%	22.4%	29.2%
5.5	52.0%	0.0%	2.9%	18.0%	27.2%
6	56.7%	0.1%	3.1%	13.3%	26.8%
7	64.0%	1.4%	7.6%	6.0%	21.0%
8	69.4%	9.9%	11.6%	0.6%	8.4%
9	70.0%	14.9%	14.0%	0.0%	1.1%

Table D. Weighted scores with part-contributions from individual outcomes (data for Figure 3)

Cut-offs	stomach_feed	lung_feed	oes_feed	delayed	nofeed	Total
1	1.1	0.0	0.0	58.6	30.0	89.7
2	18.0	0.0	0.0	44.2	30.0	92.2
3	27.3	0.0	0.0	36.3	30.0	93.6
4	38.1	0.0	0.1	27.1	29.8	95.1
5	47.6	0.0	0.4	19.0	29.2	96.2
5.5	52.0	0.0	1.3	15.3	27.2	95.7
6	56.7	0.0	1.4	11.3	26.8	96.2
7	64.0	0.0	3.4	5.1	21.0	93.6
8	69.4	0.0	5.2	0.5	8.4	83.6
9	70.0	0.0	6.3	0.0	1.1	77.4