

## Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

## **eAppendix 1. Exclusion Criteria**

Patients less than 18 years of age,

Patients for whom we could not obtain consent (e.g., unavailable surrogate, physician refusal)

Patients for whom we could not conduct long-term follow up (inability to speak English, home address unavailable),

Immediate plan to move to palliation or hospice,

Incarcerated individuals.

Prior enrollment in the study on earlier ICU admission

Neurosurgical and trauma patients

**eTable 1.** Outcomes Predicted by Physicians and Nurses

Outcome	Justification	Collection of Data
Hospital mortality	This outcome has been used extensively in critical care studies and is universally accepted as an outcome of interest.	From discharge summary at 6 months
6 month mortality	This outcome has been used extensively in critical care studies and is universally accepted as an outcome of interest.	From surrogate in 6 month follow up
Return to original place of residence	This has been used as an outcome in multiple ICU outcome studies and is considered a global surrogate for overall function. <sup>1,2</sup> We have selected 6 months based on the intensive care medicine roundtable discussion as a point at which outcomes at least need to be assessed. <sup>3</sup>	From surrogate/patient in 6 month follow up
Toileting	This is a complex activity of daily living that involves physical and cognitive faculties to be intact. It is easily definable and measurable <sup>5</sup> and is of value to patients and surrogates to understand what life would be like if they are unable to accomplish this goal.	From patient or surrogate at enrollment and 6 month follow up
Ambulation	The ability to ambulate is important for maintaining independence. The definition we used is based on a recent review on mobility in the elderly that included this question in the assessment of self reporting difficulty with ambulation. <sup>6</sup> This definition is easy to define and able to be answered by either patients or surrogates.	From patient or surrogate at enrollment and 6 month follow up
Cognition	This is a prevalent disability following critical illness and is becoming more recognized as a potential outcome to follow, <sup>7</sup> though is challenging to predict based on existing screening methods. <sup>8</sup> The definition we used is based on the cognitive questioning in the Health Utilities Index score. <sup>9</sup>	From patient or surrogate at enrollment and 6 month follow up

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**eAppendix 2.** Survey for Prognosis Questions for ICU Physicians

1. Do you think the patient will survive their hospitalization?

Yes

No

How confident are you in that answer?

1 Not confident at all

2 Slightly confident

3 Moderately confident

4 Considerably confident

5 Very confident

2. Do you think the patient will be alive in six months?

Yes

No

How confident are you in that answer?

1 Not confident at all

2 Slightly confident

3 Moderately confident

4 Considerably confident

5 Very confident

3. 6 months from now, will the patient be living in their original place of residence (prior to their critical illness)?

Yes

No

How confident are you in that answer?

1 Not confident at all

2 Slightly confident

3 Moderately confident

4 Considerably confident

5 Very confident

4. If the patient is still alive in 6 months, is the patient going to be able to walk up 10 consecutive stairs unassisted by another person?

Yes

No

How confident are you in that answer?

1 Not confident at all

2 Slightly confident

3 Moderately confident

4 Considerably confident

5 Very confident

5. If the patient is still alive in 6 months, is the patient going to be able to use the toilet independently? (Being able to toilet would be defined as; goes to "toilet room," cleans self, and

arranges clothes without assistance (may use object for support such as cane, walker, or wheelchair and may manage night bedpan or com-mode, emptying same in morning))

Yes

No

How confident are you in that answer?

1 Not confident at all

2 Slightly confident

3 Moderately confident

4 Considerably confident

5 Very confident

6. If the patient is still alive in 6 months, is the patient going to be able to do all of the following; "remember most things, think clearly and solve day to day problems?"

Yes

No

How confident are you in that answer?

1 Not confident at all

2 Slightly confident

3 Moderately confident

4 Considerably confident

5 Very confident

**eTable 2.** Mock 2x2 Table With Definitions

	Adverse outcome at follow up	Favorable outcome at follow up	
Predict adverse outcome	A True adverse outcome prediction	B False adverse outcome prediction	Total adverse outcome predictions
Predict favorable outcome	C False favorable outcome prediction	D True favorable outcome prediction	Total favorable outcome predictions
Total	Total adverse outcomes at follow up	Total favorable outcomes at follow up	Total population (TP)

Sensitivity= $A/A+C$

Specificity= $D/B+D$

Likelihood ratio positive (LR+) =  $(A/A+C)/(B/B+D)$  = sensitivity/1-specificity

Likelihood ratio negative (LR-) =  $(C/A+C)/(D/B+D)$  = 1-sensitivity/specificity

Diagnostic odds ratio=Likelihood ratio positive/likelihood ratio negative

Positive predictive value= $A/A+B$

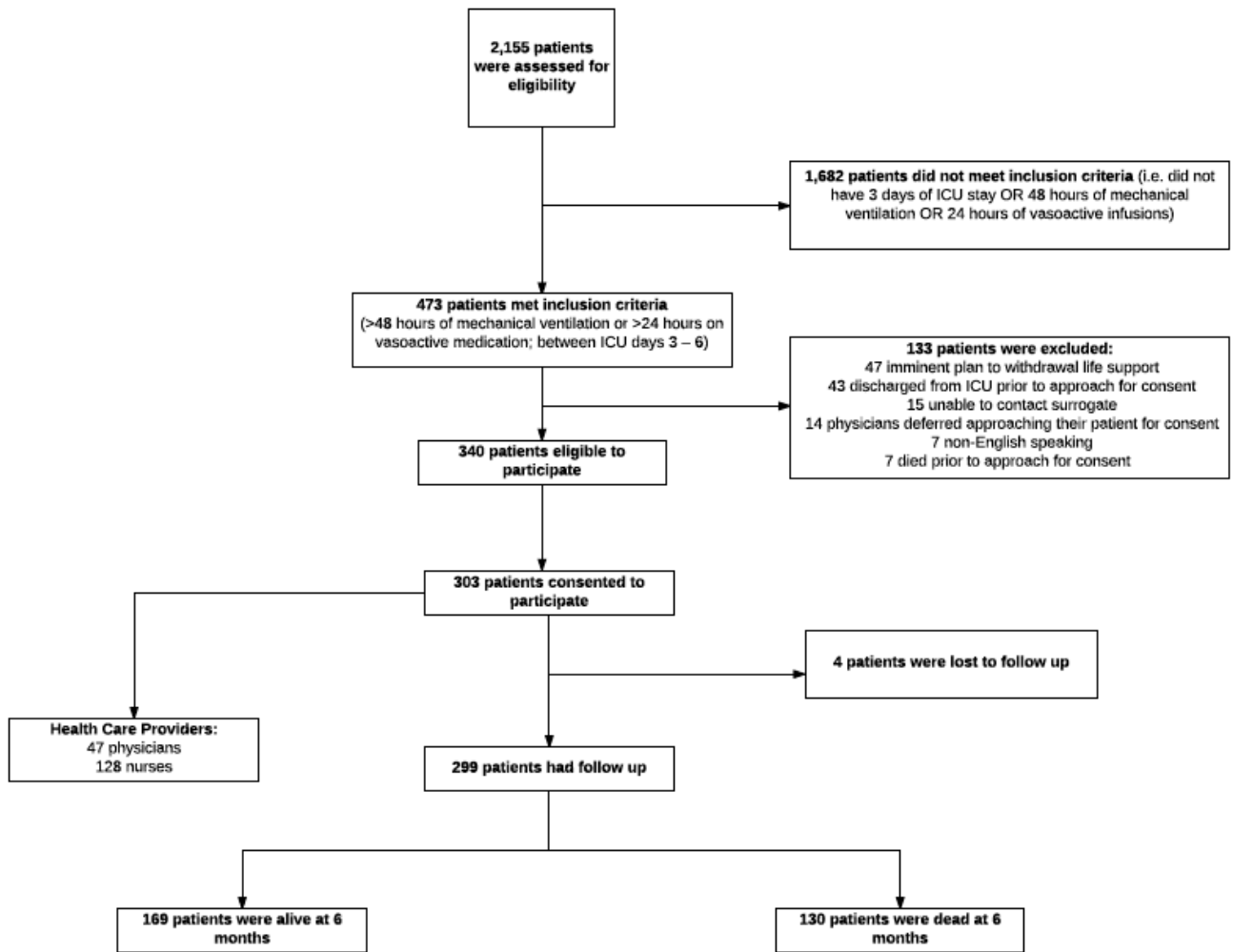
Negative predictive value= $D/C+D$

“Positive test” defined as a predicted adverse outcome and a “negative test” as a predicted favorable outcome.

“Disease positive” is defined as the adverse outcome (e.g., death, not able to toilet independently, etc.) and “disease negative” is defined as the favorable outcome (e.g., alive, able to toilet independently, etc.).

Note: In this study’s context, the LR+ represents the ratio of the probability of having an adverse outcome when patients are predicted to have an adverse outcome (i.e., sensitivity), divided by the probability of having a favourable outcome when patients are predicted to have an adverse outcome (i.e., 1 minus specificity). The LR- represents the ratio of the probability of having an adverse outcome when patients are predicted to fare favourably (i.e. 1 minus sensitivity) divided by the probability of having a favourable outcome when patients are predicted to fare favourably (i.e., specificity).

**eFigure 1.** Flow Diagram for Study Cohort



**eTable 3.** 2x2 Tables for Comparing Physician Predictions to Outcomes for All Predictions

	Hospital mortality			Total
		Died in hospital	Survived hospital	
Physician predictions	Death	29	20	49
	Survival	40	209	249
		69	229	298
	6 month mortality			
		Died by 6 months	Alive at 6 months	
Physician predictions	Death	81	18	99
	Survival	47	150	197
		128	168	296
	Inability to return home at 6 months			
		Not home	Home	
Physician predictions	Not home	94	26	120
	Home	62	112	174
		156	138	294
	Inability to toilet at 6 months			
		Not toileting	Toileting	
Physician predictions	Not toileting	16	12	28
	Toileting	14	123	137
		30	135	165
	Inability to ambulate 10 stairs at 6 months			
		Not ambulating	Ambulating	
Physician predictions	Not ambulating	30	34	64
	Ambulating	17	82	99
		47	116	163
	Abnormal cognition at 6 months			
		Abnormal cognition	Normal cognition	
Physician predictions	Abnormal cognition	23	16	39
	Normal cognition	39	86	125
		62	102	164

n=number of patients



**eTable 4. Operating Characteristics of Physicians for All Predictions<sup>a</sup>**

	Prevalence <sup>b</sup> (No.; % (95% CI))	Sensitivity <sup>b</sup>	Specificity <sup>b</sup>	Likelihood ratio positive <sup>c</sup>	Likelihood ratio negative <sup>c</sup>	Diagnostic odds ratio <sup>c</sup>	Positive predictive value <sup>b</sup>	Negative predictive value <sup>b</sup>
Hospital mortality (n=298)	n=69 23.2 (18.0-28.4)	42.0 (30.2-54.5)	91.3 (86.8-94.6)	4.81 (2.91- 7.95)	0.64 (0.52-0.78)	7.58 (3.93-14.6)	59.2 (44.2-73.0)	83.9 (78.8-88.3)
6 month mortality (n=296)	n=128 43.2 (37.5-49.1)	63.3 (54.3-71.6)	89.3 (83.6-93.5)	5.91 (3.74-9.32)	0.41 (0.33- 0.52)	14.36 (7.86-26.23)	81.8 (72.8-88.9)	76.1 (69.6-81.9)
Inability to return to original residence at 6 months (n=294)	n=156 53.1 (47.2-58.9)	60.3 (52.1-68.0)	81.1 (73.6-87.3)	3.20 (2.21- 4.62)	0.49 (0.40- 0.60)	6.53 (3.84-11.11)	78.3 (69.9-85.3)	64.4 (56.8- 71.5)
Unable to toilet independently at 6 months (n=165)	n=30 18.2 (12.6-24.9)	53.3 (34.3-71.7)	91.1 (85.0-95.3)	6.00 (3.18-11.30)	0.51 (0.35-0.75)	11.71 (4.68- 29.40)	57.1 (37.2-75.5)	89.8 (83.4-94.3)
Unable to ambulate 10 stairs at 6 months (n=163)	n=47 28.8 (22.0-36.4)	63.8 (48.5-77.3)	70.7 (61.5-78.8)	2.18 (1.53-3.11)	0.51 (0.34-0.76)	4.26 (2.09-8.67)	46.9 (34.3-59.8)	82.8 (73.9-89.7)
Abnormal cognition at 6 months (n=164)	n=62 37.8 (30.4-45.7)	37.1 (25.2-50.3)	84.3 (75.8-90.8)	2.36 (1.36-4.12)	0.75 (0.61-0.92)	3.17 (1.52- 6.61)	59.0 (42.1-74.4)	68.8 (59.9-76.8)

<sup>a</sup>( ) represents 95% confidence intervals

<sup>b</sup> presented as percentage

<sup>c</sup> presented as a ratio

n=number of patients

**eTable 5.** 2x2 Tables for Comparing Nurse Predictions to Outcomes for All Predictions

Nurse predictions	Hospital mortality			Total
		Died in hospital	Survived hospital	
	Death	32	22	54
	Survival	39	208	247
		71	230	301
Nurse predictions	6 month mortality			
		Died by 6 months	Alive at 6 months	
	Death	65	20	85
	Survival	64	148	212
		129	168	297
Nurse predictions	Inability to return home at 6 months			
		Not home	Home	
	Not home	103	44	147
	Home	54	94	148
		157	138	295
Nurse predictions	Inability to toilet at 6 months			
		Not toileting	Toileting	
	Not toileting	19	33	52
	Toileting	11	103	114
		30	136	166
Nurse predictions	Inability to ambulate 10 stairs at 6 months			
		Not ambulating	Ambulating	
	Not ambulating	32	39	71
	Ambulating	15	78	93
		47	117	164
Nurse predictions	Abnormal cognition at 6 months			
		Abnormal cognition	Normal cognition	
	Abnormal cognition	18	20	38
	Normal cognition	44	83	127
		62	103	165

n=number of patients

**eTable 6.** Operating Characteristics of Nurses for All Predictions<sup>a</sup>

	Prevalence <sup>b</sup> (No.; % (95% CI))	Sensitivity <sup>b</sup>	Specificity <sup>b</sup>	Likelihood ratio positive <sup>c</sup>	Likelihood ratio negative <sup>c</sup>	Diagnostic odds ratio <sup>c</sup>	Positive predictive value <sup>b</sup>	Negative predictive value <sup>b</sup>
Hospital mortality (n=301)	n=71 23.6 (18.9-28.8)	45.1 (33.2-57.3)	90.4 (85.9- 93.9)	4.71 (2.94-7.56)	0.61 (0.49-0.75)	7.76 (4.10-14.70)	59.3 (45-72.4)	84.2 (79.1-88.5)
6 month mortality (n=297)	n=129 43.4 (37.7-49.3)	50.4 (41.5-59.3)	88.1 (82.2-92.6)	4.23 (2.71-6.61)	0.56 (0.47- 0.68)	7.52 (4.22-13.38)	76.5 (66.0-85.0)	69.9 (63.1-75.9)
Inability to return to original residence at 6 months (n=295)	n=157 53.2 (47.3-59.0)	65.6 (57.6-73.0)	68.1 (59.6-75.8)	2.06 (1.57-2.69)	0.51 (0.40-0.65)	4.07 (2.51-6.62)	70.1 (62.0-77.3)	63.5 (55.2-71.3)
Unable to toilet independently at 6 months (n=166)	n=30 18.1 (12.5-24.8)	63.3 (43.9-80.1)	75.7 (67.6-82.7)	2.61 (1.74-3.90)	0.48 (0.30-0.78)	5.39 (2.36-12.30)	36.5 (23.6-51.0)	90.4 (83.4-95.1)
Unable to ambulate 10 stairs at 6 months (n=164)	n=47 28.7 (21.9-36.2)	68.1 (52.9-80.9)	66.7 (57.4-75.1)	2.04 (1.48-2.82)	0.48 (0.31-0.74)	4.27 (2.08-8.74)	45.1 (33.2-57.3)	83.9 (74.8-90.7)
Abnormal cognition at 6 months (n=165)	n=62 37.6 (30.2- 45.4)	29.0 (18.2-41.9)	80.6 (71.6-87.7)	1.50 (0.86- 2.60)	0.88 (0.73-1.06)	1.70 (0.82-3.51)	47.4 (31.0-64.2)	65.4 (56.4-73.6)

<sup>a</sup>( ) represents 95% confidence intervals

<sup>b</sup> presented as percentage

<sup>c</sup> presented as a ratio

n=number of patients

**eTable 7.** Agreement Between Physicians and Nurses Evaluating the Same Patient

Variable	% agreement	Kappa (95% CI)	McNemar's Test (p value)
Hospital mortality (n=296)	86	0.49 (0.36-62)	0.45
6 month mortality (n=298)	79	0.51 (0.41-0.62)	0.13
Inability to return to original place of residence at 6 months (n=294)	69	0.38 (0.28-0.49)	0.002 <sup>a</sup>
Unable to ambulate 10 stairs independently at 6 month (n=295)	73	0.46 (0.36-0.56)	0.06
Inability to toilet independently at 6 months (n=300)	71	0.41 (0.31-51)	<0.001 <sup>a</sup>
Abnormal cognition at 6 months (n=297)	69	0.32 (0.21-0.43)	0.08

<sup>a</sup>For McNemar's, for discordant pairs, both predictions were in the direction that nurses had more estimates of bad outcomes, physicians had more estimates of good outcomes

**eTable 8.** 2x2 Tables of Physician and Nurse Predictions of Outcomes

		Nurse predictions		Total
		Hospital mortality		
Physician predictions		Predict death	Predict survival	
	Death	29	19	48
	Survival	24	224	248
		53	243	296
6 month mortality				
Physician predictions		Predict death	Predict survival	
	Death	61	37	98
	Survival	25	175	200
		86	212	298
Inability to return home at 6 months				
Physician predictions		Not home	Home	
	Not home	87	31	118
	Home	60	116	176
		147	147	294
Inability to toilet at 6 months				
Physician predictions		Not toileting	Toileting	
	Not toileting	75	25	100
	Toileting	61	139	200
		136	164	300
Inability to ambulate 10 stairs at 6 months				
Physician predictions		Not ambulating	Ambulating	
	Not ambulating	126	31	157
	Ambulating	48	90	138
		174	121	295
Abnormal cognition at 6 months				
Physician predictions		Abnormal cognition	Normal cognition	
	Abnormal cognition	58	55	113
	Normal cognition	38	146	184
		96	201	297

n=number of patients

**eTable 9.** 2x2 Tables for Comparing Physician Predictions to Outcomes for Confident Predictions<sup>a</sup>

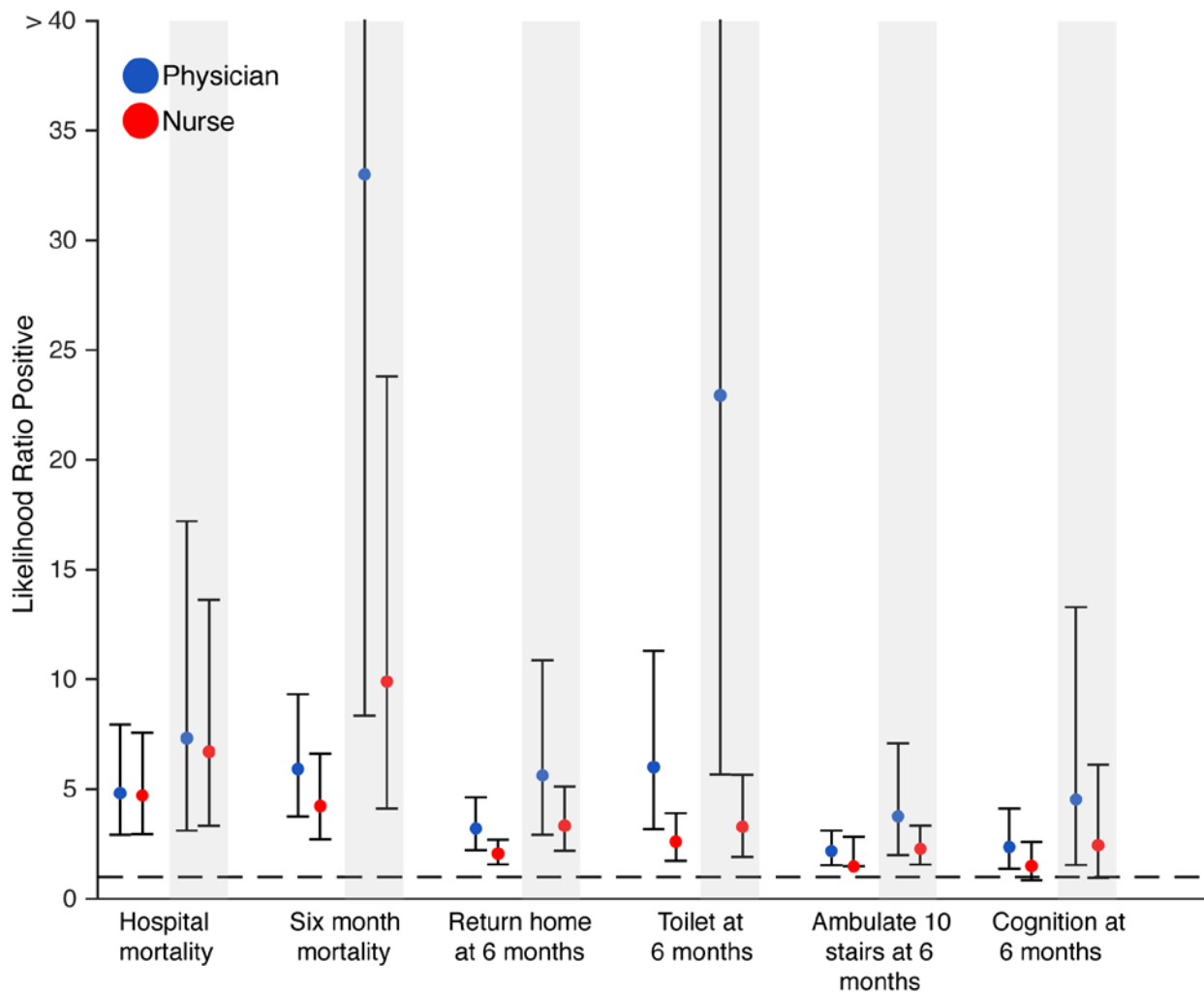
Physician predictions	Hospital mortality			Total
		Died in hospital	Survived hospital	
	Death	8	8	16
	Survival	11	131	142
		19	139	158
Physician predictions	6 month mortality			Total
		Died by 6 months	Alive at 6 months	
	Death	33	2	35
	Survival	7	78	85
		40	80	120
Physician predictions	Inability to return home at 6 months			Total
		Not home	Home	
	Not home	48	8	56
	Home	15	51	66
		63	59	122
Physician predictions	Inability to toilet at 6 months			Total
		Not toileting	Toileting	
	Not toileting	12	2	14
	Toileting	5	63	68
		17	65	82
Physician predictions	Inability to ambulate 10 stairs at 6 months			Total
		Not ambulating	Ambulating	
	Not ambulating	18	9	27
	Ambulating	7	38	45
		25	47	72
Physician predictions	Abnormal cognition at 6 months			Total
		Abnormal cognition	Normal cognition	
	Abnormal cognition	10	4	14
	Normal cognition	22	54	76
		32	58	90

<sup>a</sup>confident predictions are defined as 4 (“considerably confident”) or 5 (“very confident”) on the Likert scale

n=number of patients

**eFigure 2.** Likelihood Ratios for Physicians and Nurses, Total Population and Confident Predictions<sup>a</sup>

Panel A. Positive Likelihood Ratios<sup>b, c</sup>



For positive likelihood ratios, the higher the likelihood ratio is, the more accurate the prediction is for an adverse outcome. The white bars represent “all predictions” and the grey bars are restricted to “confident predictions.”

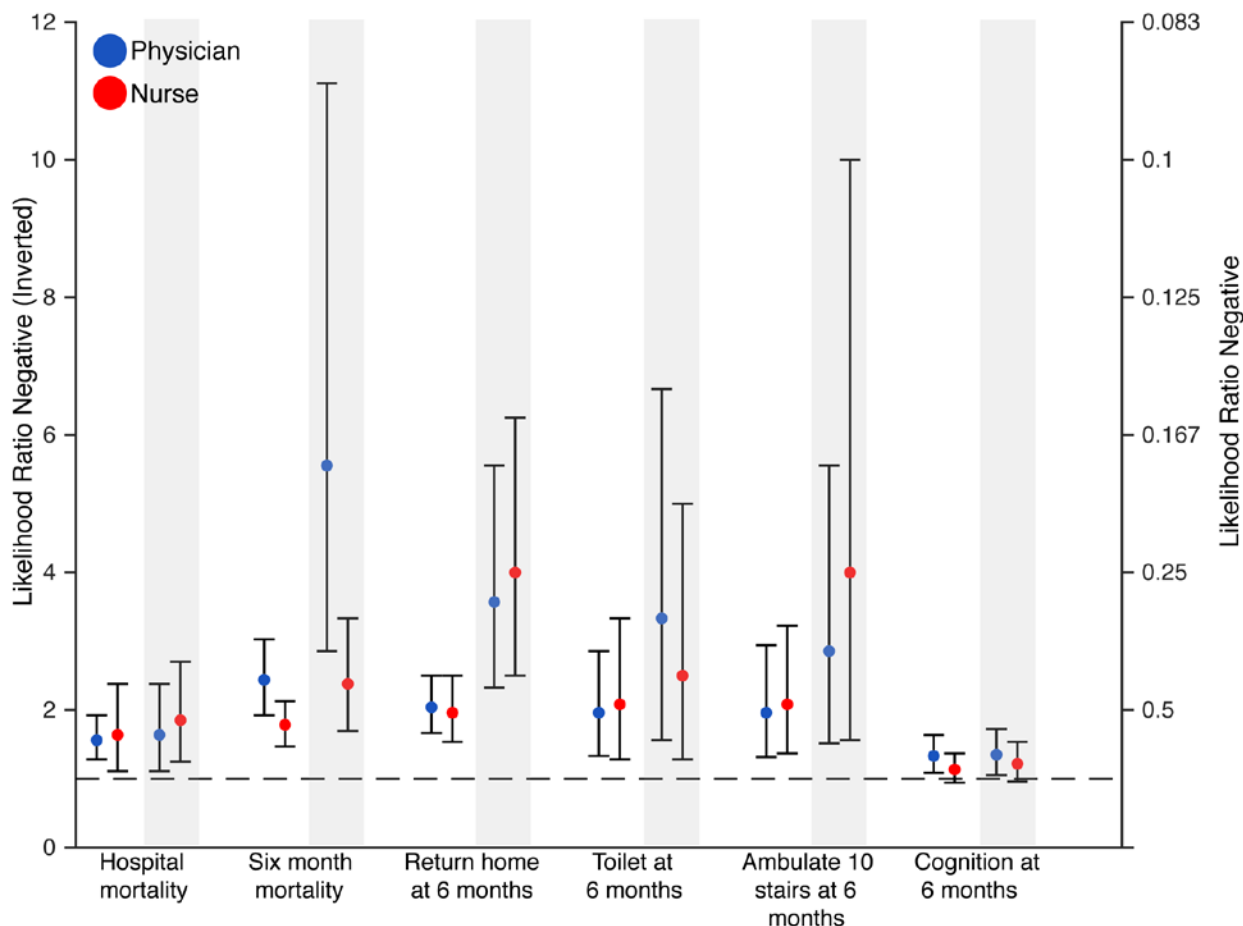
<sup>a</sup>confident predictions are defined as 4 (“considerably confident”) or 5 (“very confident”) on the Likert scale

<sup>b</sup>For 6 month survival, the upper 95% CI for confident predictions of physicians reaches 130.63.

<sup>c</sup>For toilet, the upper 95% CI for confident predictions of physicians reaches 92.89

Error bars represent 95% confidence intervals

Panel B. Negative likelihood ratios



For negative likelihood ratios, the smaller the likelihood ratio is, the more accurate the prediction is for a favorable outcome. The white bars represent “all predictions” and the grey bars are restricted to “confident predictions.”

For physician predictions of a) total population and b) confident predictions, the number of patients were;

- Hospital mortality (total n=298, confident n=158)
- 6 month mortality (total n=296, confident n=120)
- Return to original place of residence at 6 months (total n=294 confident n=122)
- Toileting at 6 months total (n=165, confident n=82)
- Ambulating 10 stairs at 6 months (total n=163, confident n=72)
- Cognition total (n=164, confident n=113)

For nurse predictions of a) total population and b) confident predictions, the number of patients were;

- Hospital mortality total (n=301, confident n=160)
- 6 month mortality total (n=297, confident n=135)
- Return to original place of residence at 6 months total (n=295, confident n=154)
- Toileting at 6 months total (n=166, confident n=91)
- Ambulating 10 stairs at 6 months total (n=164, confident n=82)
- Cognition total (n=165, confident n=116)

Error bars represent 95% confidence intervals



**eTable 10.** Operating Characteristics by Physicians When Restricted to Confident Predictions<sup>a, b</sup>

	Prevalence <sup>c</sup> (No.; % (95% CI))	Sensitivity <sup>c</sup>	Specificity <sup>c</sup>	Likelihood ratio positive <sup>d</sup>	Likelihood ratio negative <sup>d</sup>	Diagnostic odds ratio <sup>c</sup>	Positive predictive value <sup>c</sup>	Negative predictive value <sup>c</sup>
Hospital mortality (n=158)	n=19 12.0 (7.4-18.1)	42.1 (20.3-66.5)	94.2 (89.0-97.5)	7.32 (3.11-17.20)	0.61 (0.42-0.90)	11.91 (3.86-37.01)	50.0 (24.7-75.3)	92.3 (86.6-96.1)
6 month mortality (n=120)	n=40 33.3 (25.0-42.5)	82.5 (67.2- 92.7)	97.5 (91.3-99.7)	33.00 (8.34-130.63)	0.18 (0.09-0.35)	183.86 (39.00-∞)	94.3 (80.8-99.3)	91.8 (83.8-96.6)
Inability to return to original place of residence at 6 months (n=122)	n=63 51.6 (42.4-60.8)	76.2 (63.8-86.0)	86.4 (75.0-94.0)	5.62 (2.91-10.86)	0.28 (0.18-0.43)	20.40 (8.02-51.76)	85.7 (73.8-93.6)	77.3 (65.3- 86.7)
Unable to toilet independently at 6 months (n=82)	n=17 20.7 (12.6-31.1)	70.6 (44.0-89.7)	96.9 (89.3-99.6)	22.94 (5.67-92.89)	0.30 (0.15-0.64)	75.60 (14.14-389.34)	85.7 (57.2-98.2)	92.6 (83.7-97.6)
Unable to ambulate 10 stairs at 6 months (n=72)	n=25 34.7 (23.9-46.9)	72.0 (50.6-87.9)	80.9 (66.7-90.9)	3.76 (1.99-7.10)	0.35 (0.18-0.66)	10.86 (3.54-33.26)	66.7 (46.0-83.5)	84.4 (70.5-93.5)
Abnormal cognition at 6 months (n=90)	n=32 38.9 (29.9-48.6)	31.3 (16.1-50.0)	93.1 (83.3-98.1)	4.53 (1.54-13.29)	0.74 (0.58-0.95)	6.14 (1.82-20.49)	71.4(59.5-80.9)	71.1 (59.5-80.9)

<sup>a</sup>confident predictions are defined as 4 (“considerably confident”) or 5 (“very confident”) on the Likert scale

<sup>b</sup>( ) represents 95% confidence intervals

<sup>c</sup> presented as percentage

<sup>d</sup> presented as a ratio

n=number of patients

**eTable 11.** 2x2 Tables for Comparing Nurses Predictions to Outcomes for Confident Predictions<sup>a</sup>

Nurse predictions	Hospital mortality		Total	
		Died in hospital	Survived hospital	
	Death	13	10	23
	Survival	13	124	134
		26	134	160
Nurse predictions	6 month mortality			
		Died by 6 months	Alive at 6 months	
	Death	32	5	37
	Survival	21	77	98
		53	82	135
Nurse predictions	Inability to return home at 6 months			
		Not home	Home	
	Not home	68	17	85
	Home	16	53	69
		84	70	154
Nurse predictions	Inability to toilet at 6 months			
		Not toileting	Toileting	
	Not toileting	13	15	28
	Toileting	6	57	63
		19	72	91
Nurse predictions	Inability to ambulate 10 stairs at 6 months			
		Not ambulating	Ambulating	
	Not ambulating	21	21	42
	Ambulating	4	36	40
		25	57	82
Nurse predictions	Abnormal cognition at 6 months			
		Abnormal cognition	Normal cognition	
	Abnormal cognition	8	7	15
	Normal cognition	22	57	79
		30	64	94

<sup>a</sup>confident predictions are defined as 4 (“considerably confident”) or 5 (“very confident”) on the Likert scale

n=number of patients

**eTable 12.** Operating Characteristics of Nurses When Restricted to Confident Predictions<sup>a, b</sup>

	Prevalence <sup>c</sup> (No.; % (95% CI))	Sensitivity <sup>c</sup>	Specificity <sup>c</sup>	Likelihood ratio positive <sup>d</sup>	Likelihood ratio negative <sup>d</sup>	Diagnostic odds ratio <sup>d</sup>	Positive predictive value <sup>c</sup>	Negative predictive value <sup>c</sup>
Hospital mortality (n=160)	n=26 16.3 (10.9-22.9)	50.0 (29.9-70.1)	92.5 (86.7- 96.4)	6.70 (3.30-13.62)	0.54 (0.37-0.80)	12.40 (4.62-33.35)	56.5 (34.5-76.8)	90.5 (84.3-94.9)
6 month mortality (n=135)	n=53 38.8 (30.5-47.6)	60.4 (46.0-73.5)	93.9 (86.3-98.0)	9.90 (4.12-23.80)	0.42 (0.30- 0.59)	23.47 (8.34-65.48)	86.5 (71.2-95.5)	78.6 (69.1-86.2)
Inability to return to original residence at 6 months (n=154)	n=84 54.5 (46.3-62.6)	81.0 (70.9-88.7)	75.7 (64.0-85.2)	3.33 (2.18-5.11)	0.25 (0.16-0.40)	13.25 (6.16-28.52)	80.0 (69.9-87.9)	76.8 (65.1-86.1)
Unable to toilet independently at 6 months (n=91)	n=19 20.9 (13.1-30.7)	68.4 (43.4-87.4)	79.2 (68.0-87.8)	3.28 (1.91-5.66)	0.40 (0.20-0.78)	8.23 (2.74-24.61)	46.4 (27.5-66.1)	90.5 (80.4-96.4)
Unable to ambulate 10 stairs at 6 months (n=82)	n=25 30.5 (20.8-41.6)	84.0 (63.9-95.5)	63.2 (49.3-75.6)	2.28 (1.56-3.34)	0.25 (0.10-0.64)	9.00 (2.81-28.39)	50.0 (34.2-65.8)	90.0 (76.3-97.2)
Abnormal cognition at 6 months (n=94)	n=30 31.9 (22.7- 42.3)	26.7 (12.8-45.9)	89.1 (78.8-95.5)	2.44 (0.97- 6.10)	0.82 (0.65-1.04)	2.96 (0.99-8.86)	53.3(26.6-78.7)	72.2 (60.9-81.7)

<sup>a</sup>confident predictions are defined as 4 (“considerably confident”) or 5 (“very confident”) on the Likert scale

<sup>b</sup>( ) represents 95% confidence intervals

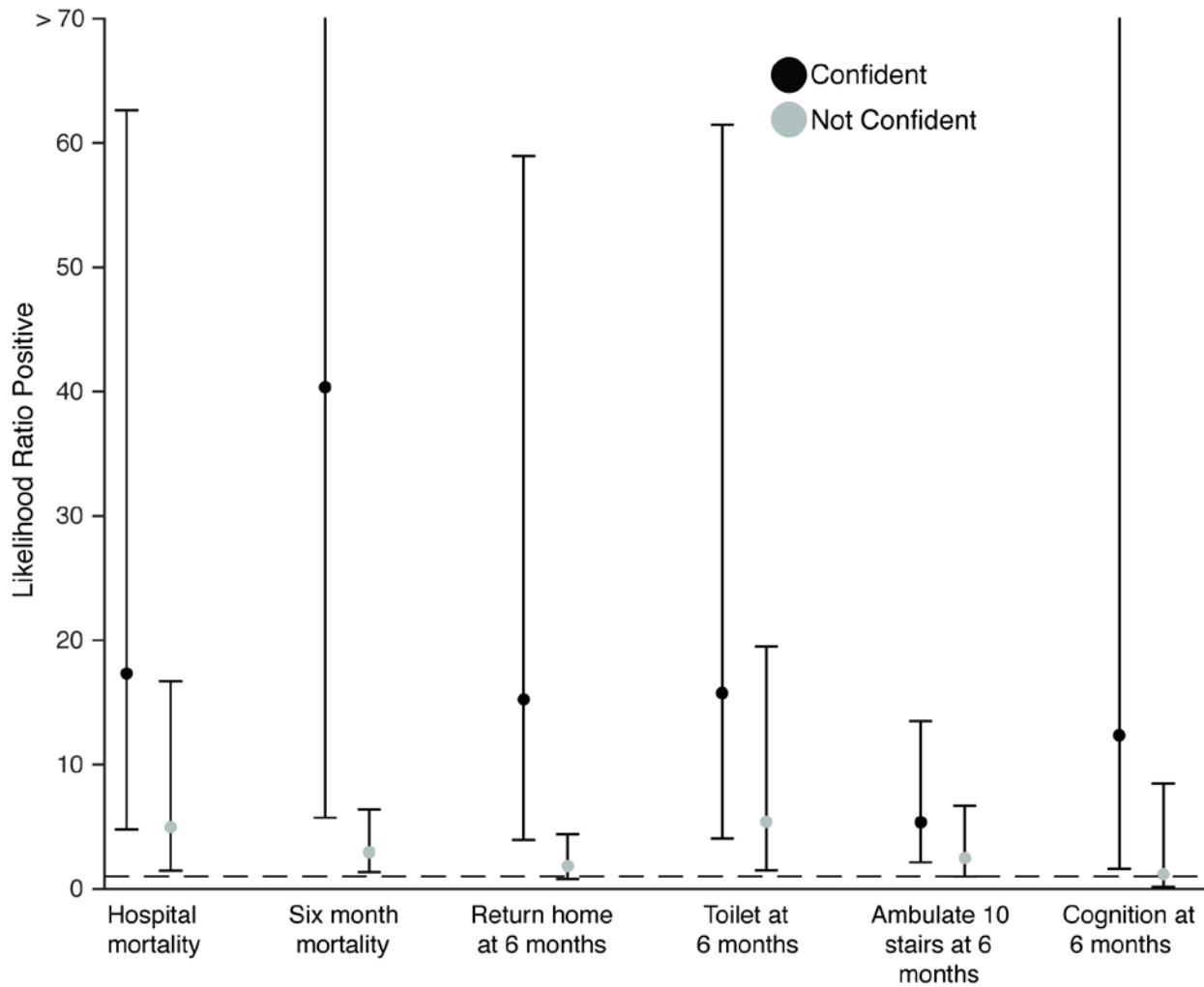
<sup>c</sup> presented as percentage

<sup>d</sup> presented as a ratio

n=number of patients

**eFigure 3. Likelihood Ratios for Physicians and Nurses Concordant Predictions<sup>a</sup>**

Panel A. Positive likelihood ratios<sup>b</sup>



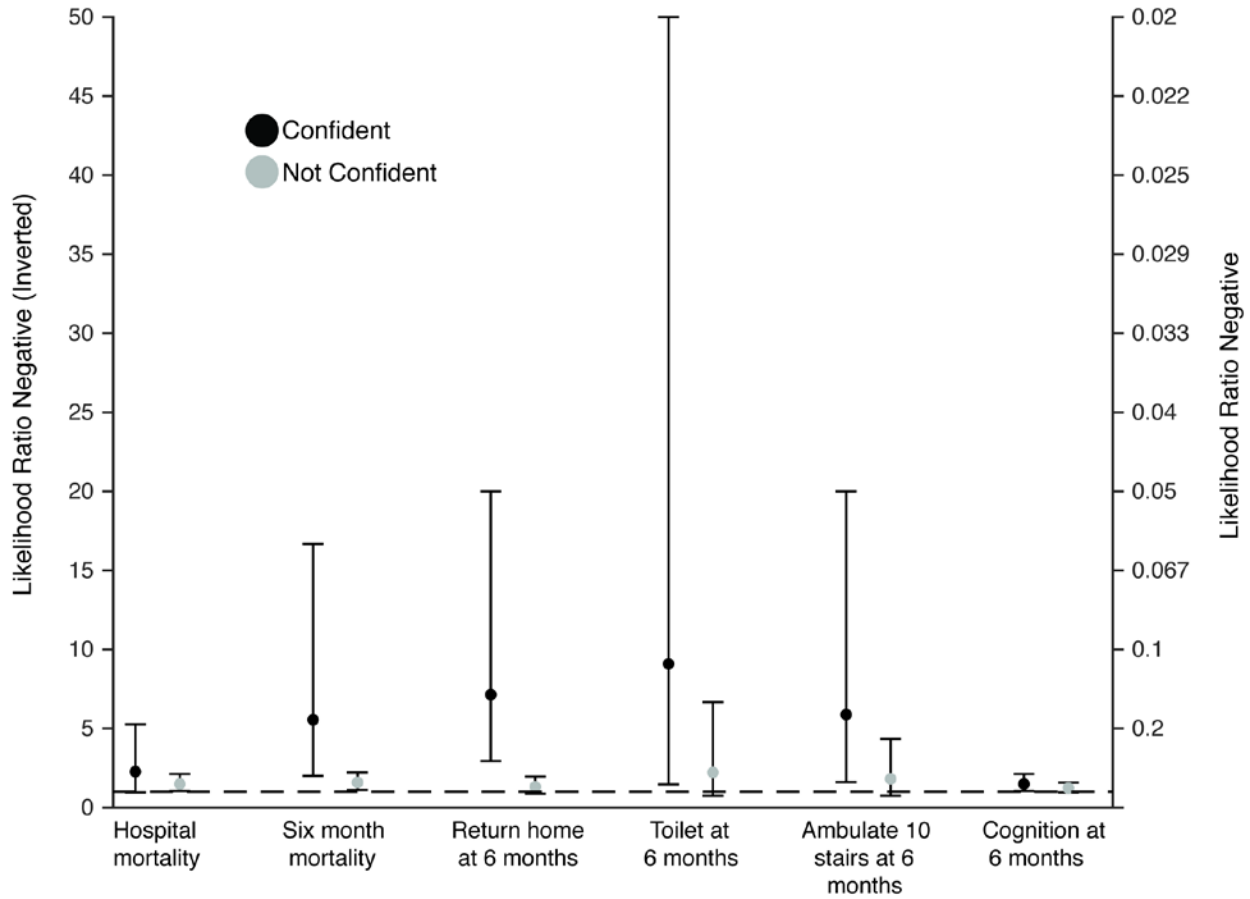
For positive likelihood ratios, the higher the likelihood ratio is, the more accurate the prediction is for an adverse outcome. The black points represent when the physicians and nurses were both confident predictions and the grey points represent when physicians and nurses were both not confident.

<sup>a</sup>confident predictions are defined as 4 (“considerably confident”) or 5 (“very confident”) on the Likert scale

<sup>b</sup>For 6 month survival, the upper 95% CI for confident predictions of physicians reaches 284.28.

Error bars represent 95% confidence intervals

Panel B. Negative likelihood ratios



For negative likelihood ratios, the smaller the likelihood ratio is, the more accurate the prediction is for a favorable outcome. The black points represent when the physicians and nurses were both confident predictions and the grey points represent when physicians and nurses were both not confident.

For concordant predictions that are a) confident and b) not confident predictions, the sample sizes were  
 Hospital mortality (confident n=98, not confident n=60)  
 6-month mortality (confident n=66, not confident n =76)  
 Return to original place of residence at 6 months (confident n=66 not confident=49)  
 Toileting at 6 months (confident n=45, not confident n =32)  
 Ambulating 10 stairs at 6 months (confident n=39, not confident n =34)  
 Cognition (confident n=65, not confident n =10)

Error bars represent 95% confidence intervals

**eTable 13.** Operating Characteristics of Concordant Responses and at Both Providers Being Confident at Predicting Mortality and 6 Month Physical and Cognitive Function<sup>a, b</sup>

	Prevalence <sup>c</sup> (No; % (95% CI))	Sensitivity <sup>c</sup>	Specificity <sup>c</sup>	Likelihood ratio positive <sup>d</sup>	Likelihood ratio negative <sup>d</sup>	Diagnostic odds ratio <sup>d</sup>	Positive predictive value <sup>c</sup>	Negative predictive value <sup>c</sup>
Hospital mortality (n=98)	n=7 7.1 (2.9-14.2)	57.1 (18.4-90.1)	96.7 (90.7- 99.3)	17.33 (4.80-62.62)	0.44 (0.19-1.04)	39.11 (6.61-240.04)	57.1 (18.4-90.1)	96.7 (90.7-99.3)
6 month mortality (n=66)	n=17 25.76 (15.8-38.0)	82.4 (56.6-96.2)	98.0 (89.1-99.9)	40.35 (5.73-284.28)	0.18 (0.06-0.50)	224.00 (25.6-∞)	93.3 (68.1-99.8)	94.1 (83.8-98.8)
Inability to return to original residence at months (n=66)	n=31 47.0 (34.6-59.7)	87.1 (70.2-96.4)	94.3 (80.8-99.3)	15.24 (3.94-58.94)	0.14 (0.05-0.34)	111.38 (20.23-591.09)	93.1 (77.2-99.2)	89.2 (74.6-97.0)
Unable to toilet at 6 months (n=45)	n=10 22.2 (11.2-37.1)	90.0 (55.5-99.7)	94.3 (80.8-99.3)	15.75 (4.04-61.46)	0.11 (0.02-0.68)	148.50 (14.31-∞)	81.8 (48.2-97.7)	97.1 (84.7-99.9)
Unable to ambulate 10 stairs at 6 months (n=39)	n=14 35.9 (21.2-52.8)	85.7 (57.2-98.2)	84.0 (63.9-95.5)	5.36 (2.13-13.49)	0.17 (0.05-0.62)	31.50 (5.38-178.01)	75.0 (47.6-92.7)	91.3 (72.0-98.9)
Abnormal cognition <sup>§</sup> at 6 months (n=52)	n=17 32.7 (20.3- 47.1)	35.3 (14.2-61.74)	97.1 (83.1-99.9)	12.35 (1.61-94.63)	0.67 (0.47-0.95)	18.55 (2.53-∞)	85.7 (42.1-99.6)	75.6 (60.5-87.1)

<sup>a</sup>confident predictions are defined as 4 (“considerably confident”) or 5 (“very confident”) on the Likert scale

<sup>b</sup>( ) represents 95% confidence intervals

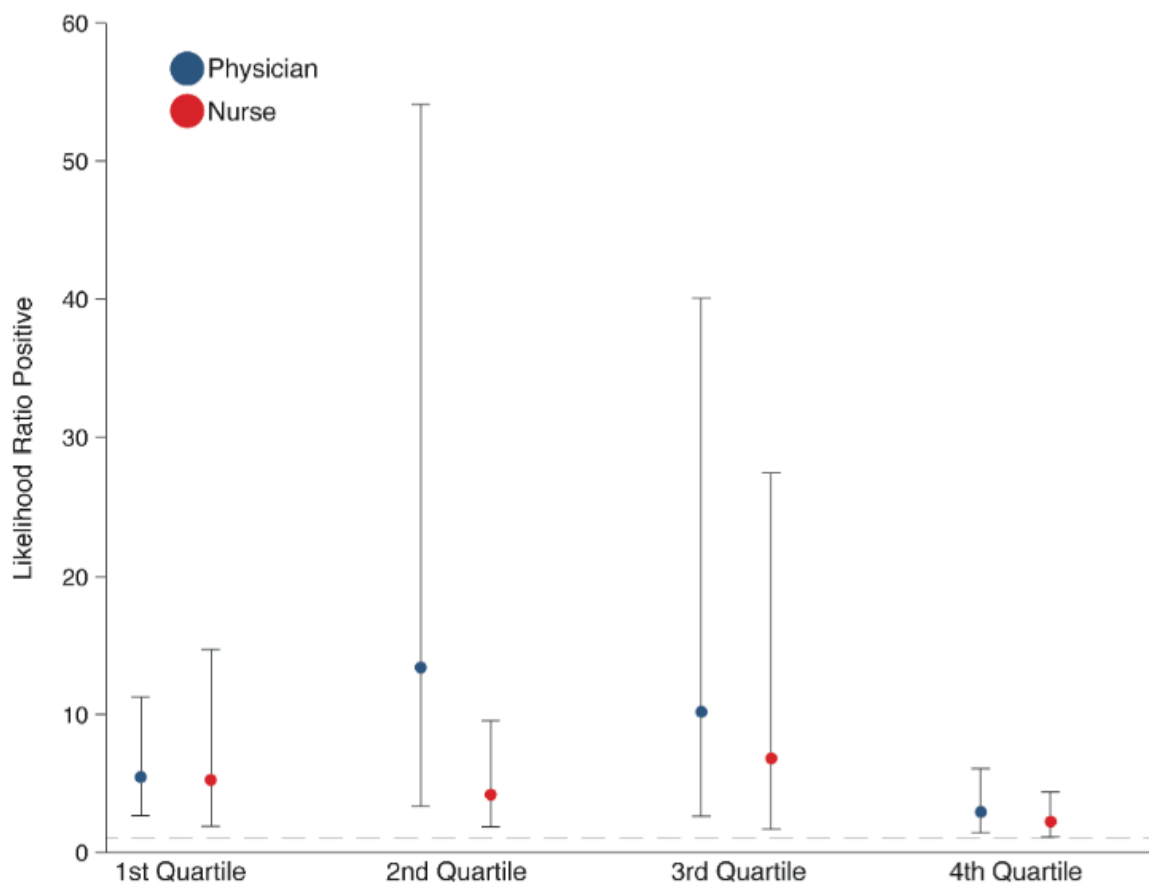
<sup>c</sup> presented as percentage

<sup>d</sup> presented as a ratio

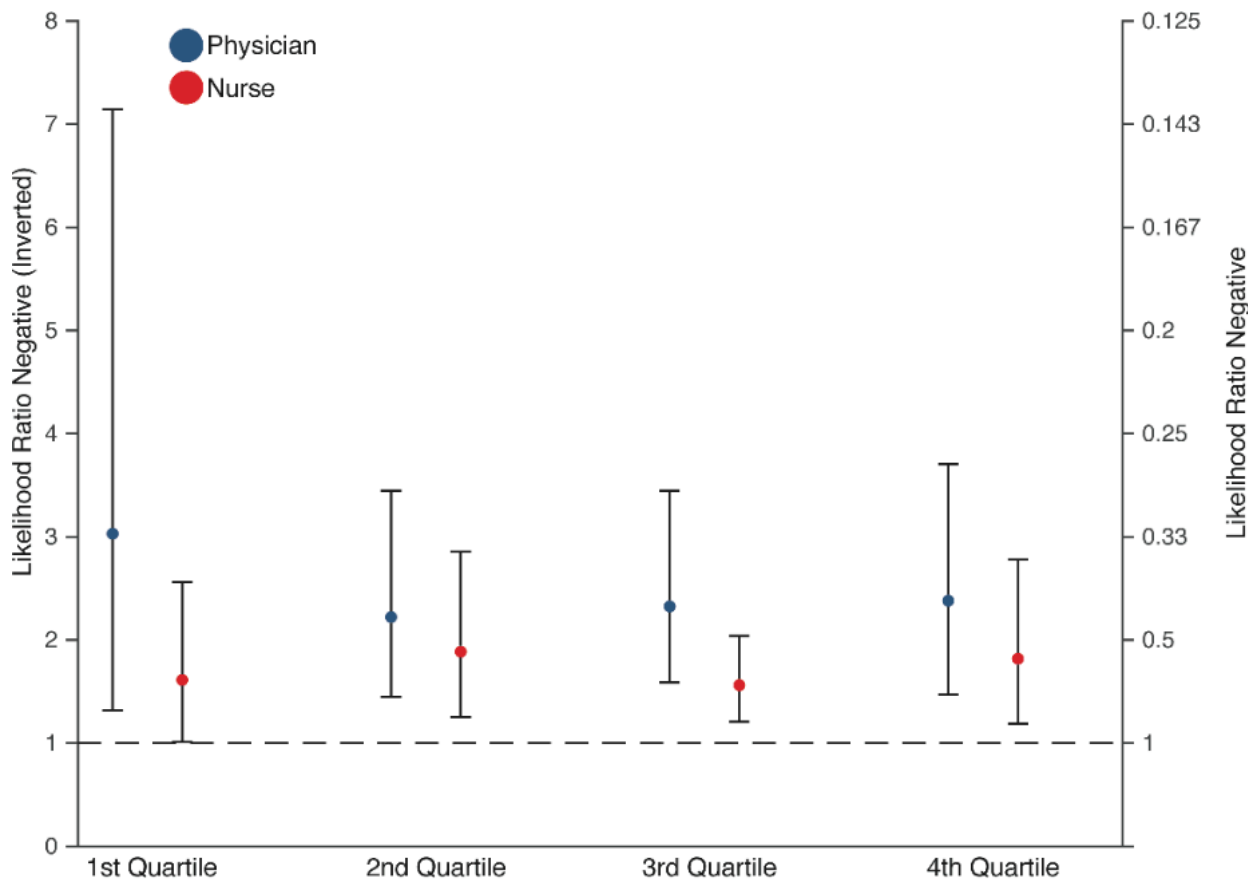
n=number of patients

**eFigure 4.** Physician and Nurse Predictions of 6-Month Mortality by APACHE III Quartile<sup>a,b</sup>

Panel A. Positive likelihood ratio



Panel B. Negative likelihood ratio



<sup>a</sup>The APACHE III mean quartiles are 1 (n=78, mean 59.1, median 63, range 18-75), 2 (n=76 mean 86.3, median 86.5, range 76-95), 3 (n=76, mean 109.0, median 110 range 97-120), 4 (n=73, mean 140.9, median 137, range 121-205)

<sup>b</sup>Error bars represent 95% confidence intervals



**eTable 14.** Prediction of Outcomes Based on Objective Measures, Physician, Nurse Predictions and Confidence

Outcome <sup>a</sup>	Model number <sup>b</sup>	C statistic	95% CI	p-value compared to model 1
Hospital mortality (n=294)	1	0.789	(0.728-0.850)	
	2	0.850	(0.801-0.898)	0.007
	3	0.837	(0.783-0.890)	0.02
	4	0.865	(0.818-0.911)	0.002
6 month mortality (n=291)	1	0.803	(0.751-0.855)	
	2	0.870	(0.829-0.912)	<0.001
	3	0.829	(0.782-0.877)	0.06
	4	0.875	(0.834-0.916)	<0.001
Inability to return to original place of residence at 6 months (n=285)	1	0.800	(0.749-0.851)	
	2	0.844	(0.798-0.889)	0.009
	3	0.819	(0.771-0.867)	0.11
	4	0.848	(0.804-0.893)	0.005
Unable to toilet independently at 6 months (n=161)	1	0.769	(0.685-0.853)	
	2	0.846	(0.759-0.932)	0.03
	3	0.818	(0.732-0.903)	0.16
	4	0.849	(0.759-0.938)	0.06
Unable to ambulate 10 stairs at 6 months (n=160)	1	0.721	(0.635-0.807)	
	2	0.774	(0.690-0.859)	0.10
	3	0.769	(0.681-0.857)	0.10
	4	0.784	(0.698-0.870)	0.06
Abnormal cognition at 6 months (n=164)	1	0.654	(0.565-0.743)	
	2	0.669	(0.580-0.758)	0.52
	3	0.657	(0.568-0.746)	0.76
	4	0.669	(0.581-0.758)	0.52

<sup>a</sup>For each outcome only patients who had all available data for that outcome and the below covariates used in models 1-4 were included. For hospital survival, 6—month survival, and return to home 299 patients were eligible. The outcomes of toileting, ambulating 10 stairs and cognition were only examined among survivors (n=169). Differences between these numbers and those in column 1 represent missing data.

<sup>b</sup>Model 1 includes age, APACHE III score, functional comorbidity index and indicator variables for sex, ICU patient type (medical versus surgical admission), and hospitalization in the prior year. Model 2 includes all variables in model 1 plus physicians' prediction and confidence. Confidence is on a 1 to 5 scale; 1 is "not confident at all", 2 is "slightly confident", 3 is "moderately confident", 4 is "considerably confident" and 5 is "very confident" Model 3 includes all variables in model 1 plus nurses' prediction and confidence. Model 4 includes all variables in model 1 plus both physician and nurses' prediction and confidence.

n=total number of patients included in each model