



User Manual

MEMORI

infection risk predictor

MEMORI device & accessory version:
20260415_infection-risk-predictor
20260415_user-helper
20260415_model-helper
20260415_ehr-connector

Electronic Health Record: Altera Sunrise

User Manual v5 | Effective from 2nd June 2026

Electronic IFU

Intended Use

MEMORI is a modular software as a medical device (SaMD) which may utilize compatible software to obtain patient data collated from Electronic Health Record systems (EHR) and deliver a risk score (Memori Risk Score) to inform clinical management through the use of a proprietary Machine Learning model to categorise and stratify the risk of patients developing hospital acquired infections (HAIs) and predicting a set time frame of onset in the patient population. The MEMORI score and the information displayed on the explanatory dashboard can be used by a clinician to inform the management of a patient. Potential next actions may be displayed based on national guidelines and/or local policies as appropriate.

MEMORI is intended for use by trained healthcare professionals, including doctors, nurses, and healthcare assistants, for adult patients aged over 18 and under 90 years with acute neurological injuries and/or neurological conditions.

It is to be used within secondary care settings, including but not limited to:

- Acute brain injury wards
- Stroke units
- Complex neuro-rehabilitation units
- Prolonged Disorders of Consciousness (PDOC) units
- Ventilation and complex respiratory wards
- Neuro-behavioural wards
- Neurosurgical intensive care units (Neuro SICU)
- Intermediate neurological wards
- Neurological stepdown units

Use is restricted to the specified patient population and the defined clinical environments such as the above.

MEMORI is viewed on the care facility IT system through the EHR provider. Data from patients entered in the EHR both physiological and non-physiological, is processed by the Memori algorithm and the generated risk score is displayed to the clinicians via the EHR or Memori explainability dashboard. As patient data is updated with more monitoring inputs, so the risk score is updated and displayed. If the MEMORI score falls within a predetermined threshold, an alert message appears to inform the clinician regarding the change in metrics and MEMORI score. On the alert message, the clinician will also be able to access the explainability dashboard where they will be able to visualise patient-information including, but not limited to, vital sign trends, MEMORI score trend, recent investigations, drug history.

MEMORI is designed to predict the onset of HAIs and subsequently **INFORM** the clinician of this, to allow them to consider further investigations. This timely detection will translate into a clinician considering an appropriate intervention thereby significantly reducing the risk of complications and shortening the extra length of stay usually associated with the development of HAIs. Where sufficient data is NOT available from the EHR, MEMORI will not provide a risk score to ensure only accurate information is displayed. Memori is **NOT** intended to replace clinicians or multi-disciplinary team members, drive clinical management, be used in replacement of new observations, investigations or treatment decisions, be used as the sole driver for discharge of patients from the hospital or to replace local or national guidelines.

Excluded use

MEMORI should NOT be used:

- In replacement of a clinician or multi-disciplinary team member
- To drive clinical management of patients
- In replacement of new observations, investigations, or treatment decisions
- Driver for discharge of patients from the hospital
- To replace local or national guidelines

Safety & precautions

MEMORI should never replace a healthcare professional's clinical judgement. The MEMORI risk level should always be used considering other relevant clinical observations and contextual information about the patient.

MEMORI risk level

The output of the device is a risk level called the **MEMORI risk level**. This risk level is generated in real time from the patient information entered into the EHR.

The MEMORI risk level indicates the patient's likelihood of developing an infection in the next 0-7 days. The MEMORI risk level is updated when new observations are entered.

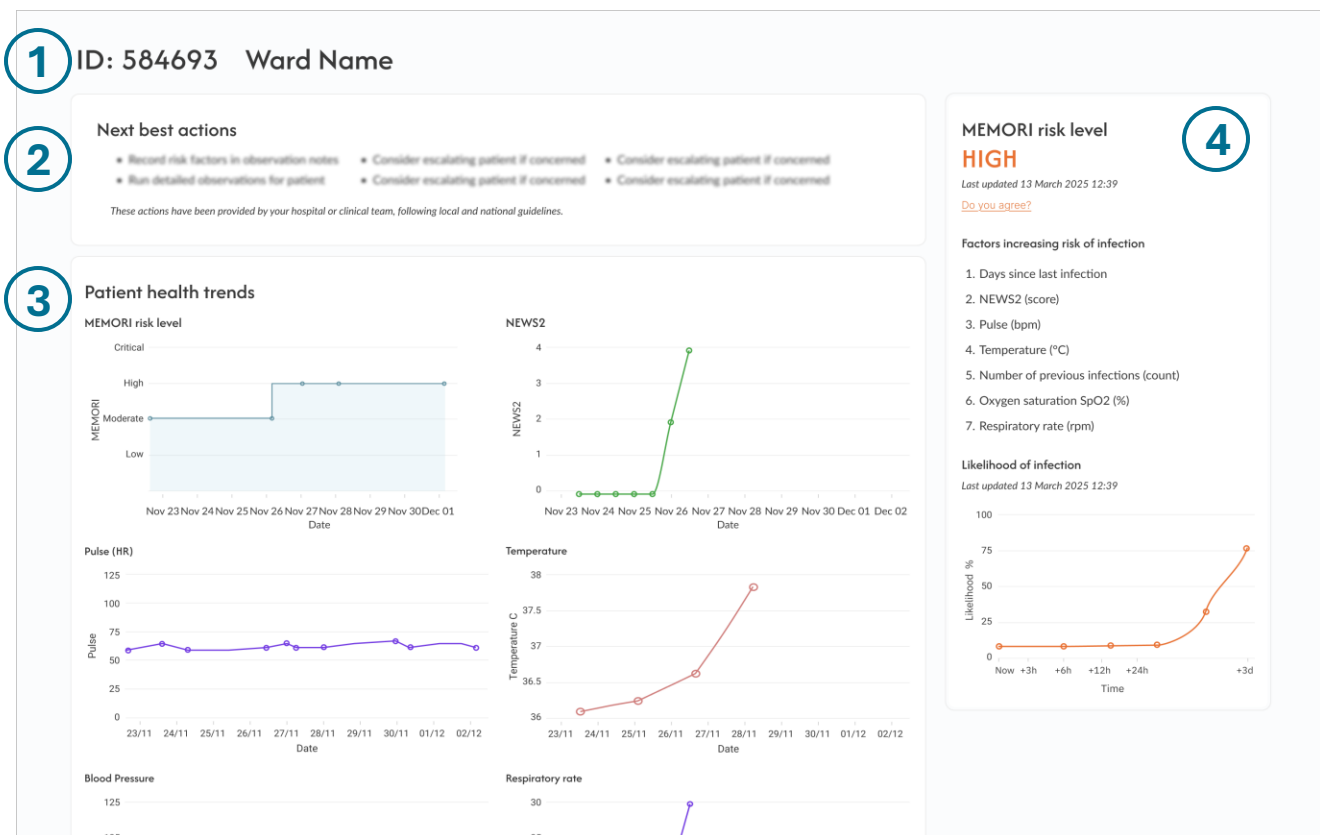
The risk level can take the following values: low, moderate, high or critical.

Low	The patient is very unlikely to develop an infection in the next 3 days
Moderate	The patient is unlikely to develop an infection in the next 3 days
High	The patient is likely to develop an infection in the next 3 days
Critical	The patient is very likely to develop an infection in the next 3 days

Explainability dashboard

The explainability dashboard can be used to understand the key factors behind the patient’s MEMORI risk level and to view further context regarding the patient.

1. Patient’s local hospital ID and the ward they are currently admitted to.
2. Next best actions provided by your hospital or clinical team. The content displayed here is specific to your clinical setting.
3. Patient health trends displays up to 10 days of vital trends for the patient. This data comes directly from the electronic patient record.
4. Information about the MEMORI risk score. Where sufficient data is NOT available from the EHR, MEMORI will not provide a risk score to ensure only accurate information is displayed



1. Patient ID & ward
2. Next best actions
3. Patient health trends
4. MEMORI risk & explainability

Understanding the MEMORI risk level

The explainability dashboard displays the key factors behind a patient's MEMORI risk level for one patient at a time.

1. MEMORI Risk Level

This patient's current risk for infection and when the risk was last updated.

MEMORI risk level

HIGH

Last updated 13 March 2025 12:39

[Do you agree?](#)

1

2. Factors Increasing Risk

This list shows the most important factors increasing this patient's risk of infection.

The list includes up to 10 items.

Factors increasing risk of infection

1. Days since last infection
2. NEWS2 (score)
3. Pulse (bpm)
4. Temperature (°C)
5. Number of previous infections (count)
6. Oxygen saturation SpO2 (%)
7. Respiratory rate (rpm)

2

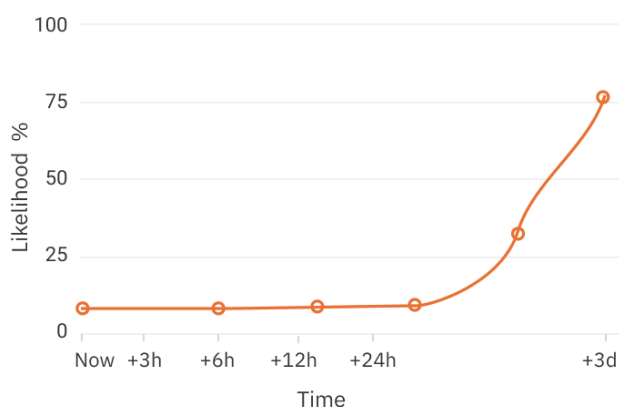
3. Likelihood of Infection

This graph displays the likelihood of this patient developing an infection after 3 hours, 6 hours, 12 hours, 24 hours and three days as a percentage.

This likelihood is calculated by the MEMORI risk predictor and updates every time the patient's risk level updates.

Likelihood of infection

Last updated 13 March 2025 12:39



3

How to view the MEMORI risk level

Patient's MEMORI risk level is visible for everyone in two locations within Sunrise: the Tracker Board Ward View and Adult NEWS2 Vitals flowsheet.

New Rad Results	VTE Comp?	DNACPR	Ward Comments	EDN Workflow Status	EDN Pharmacy Status	Vital Signs	Enhanced care	RA - Falls	RA - Pressure	RA - Mouth Care	RA - Skins	RA - Manual Handling	RA - Repositioning	RA - IPC	RA - Must	Nutrition Risk	Skin Risk	Falls Risk	Falls Risk2	Nutrition Risk Y/N	MEMORI Score
	Red							Red	Red	Red	Red	Red	Red	Red	Red	Yellow	Green	Yellow			Low
	Red							Red	Red	Red	Red	Red	Red	Red	Red	Yellow					Critical
	Red							Red	Red	Red	Red	Red	Red	Red	Red	Yellow					Moderate
	Red							Red	Red	Red	Red	Red	Red	Red	Red	Yellow					Low
	Red							Red	Red	Red	Red	Red	Red	Red	Red	Yellow					High
	Red							Red	Red	Red	Red	Red	Red	Red	Red	Yellow					High
	Red							Red	Red	Red	Red	Red	Red	Red	Red	Yellow					High

MEMORI risk level in the tracker board ward view

(Adult) Vital Signs - NEWS2, From 14-Jul-2025 to 14-Aug-2025

	25-Jul-2025	25-Jul-2025	29-Jul-2025	30-Jul-2025	30-Jul-2025
NEWS2	14:57	14:59	9:44	11:08	12:55
MEMORI Score		Low	Moderate	Critical	Moderate
NEWS2	NEWS2: 3			2	2
Next Observation Due					

MEMORI risk level in the Adult Vital signs flowsheet view

Additionally, the MEMORI column can be added to the patient list view by users.

Patient Name	Patient ID / Visit Number	Birthdate	Current Location	Visit Status	Admit Date	Admit Time	MEMORI Score	To Sign	Provider
Mr. [Name]	[ID]	[Date]	[Location]	[Status]	[Date]	[Time]	Moderate		[Provider]
Ms. [Name]	[ID]	[Date]	[Location]	[Status]	[Date]	[Time]	Low		[Provider]
Mr. [Name]	[ID]	[Date]	[Location]	[Status]	[Date]	[Time]	Moderate		[Provider]
Ms. [Name]	[ID]	[Date]	[Location]	[Status]	[Date]	[Time]	Moderate		[Provider]
Mr. [Name]	[ID]	[Date]	[Location]	[Status]	[Date]	[Time]	High		[Provider]

MEMORI risk level in the patient list view

How to view the explainability dashboard

The explainability dashboard is a web tab within Sunrise. Click on the web tab to access the patient specific dashboard:

The screenshot displays the Sunrise interface with a navigation bar at the top containing various tabs. The 'MEMORI' tab is highlighted with a red box. The main content area is divided into several sections:

- Next best actions:** A section with the heading "Consider the following actions and carry out as appropriate" and two bullet points:
 - Consider starting a new regimen
 - Consider increasing frequency of observation
- Patient health trends:** A section containing two charts:
 - MEMORI risk level:** A step chart showing the risk level over time from August 5th to August 14th. The risk level starts at Low, increases to Moderate on August 7th, and then to High on August 10th.
 - NEWS2:** A line chart showing the NEWS2 score over the same period. The score remains at 0 until August 8th, then fluctuates between 0 and 1 until August 13th, and finally rises to 4 on August 14th.
- MEMORI risk level:** A summary section on the right side of the dashboard showing the current risk level as **HIGH** (in orange text), last updated on 14 Aug 2025, 15:09. Below this, it lists "Factors increasing risk of infection":
 - Days since last infection
 - Temperature (°C)
 - Pulse (bpm)
 - Age (years)
 - Oxygen saturation SpO2 (%)
 - Respiratory rate (rpm)At the bottom of this section, it shows the "Likelihood of infection" as a percentage, last updated on 14 Aug 2025, 15:09. The likelihood is represented by a bar chart showing a value of approximately 40%.

Emergency & technical support

In case of device malfunction, please email support@sanome.com.

In case of an emergency outside of working hours, follow the standard escalation procedure for your hospital.

For a paper copy of this Manual, please email support@sanome.com

If a serious incident occurs in relation to the product, report should be made to the MHRA through the Yellow Card Scheme: <https://yellowcard.mhra.gov.uk/>

Performance & clinical benefit

The device produces an updated risk score in under 5 mins, from the time that additional observations are entered about a patient.

The intended clinical benefits are to offer clinical decision support to qualified healthcare professionals for the purpose of

- increasing the accuracy of the identification of patients at risk of developing an infection;
- alerting at-risk patients up to 7-days in advance of infection onset.

The intended clinical benefit of MEMORI (the device) is indirect rather than direct. Through demonstrating acceptable clinical performance, software validation, and summative usability, the indirect clinical benefit of “MEMORI” (the device) lies in the provision of accurate medical information on patients, as assessed by being more accurate in performing the task of “identifying patients at risk of developing an infection” to the generally accepted and established State of the Art. Providing such accurate medical information facilitates subsequent clinical assessment and management decisions for patients, made by the responsible clinician.

The clinical outcome parameter(s) to assess clinical benefit is prognostic accuracy, or reliability (timing), and precision of detecting nosocomial infections that require antibiotics up to 7 days from a measurement recording. The prognostic accuracy of detection is compared to current standard-of-care, NEWS2.

Device details



Human Digital Twin Ltd

Fox Court
14 Gray's Inn Road
London
WC1X 8HN



Casus Europe B.V.

Lange Viestraat 2b
3511 BK Utrecht
The Netherlands



2026-04



EHR Connector



Model Helper



Infection Risk Predictor



User Helper

Symbols used



Consult Instructions
for Use

Electronic IFU



Date of
manufacture



Manufacturer



European representative

UDI

Unique Device
Identification



European Medical Device



Medical device

Supporting performance evidence

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Summary of Population Characteristics

Table 1: Summary of Study Population Characteristics. Percentages are calculated over the population (i.e. n patients reported in Data Collection) The median + 95th centile of each characteristic are reported unless otherwise stated. EKHUFT patients selected by specialty and medical history (ICD-10).

	RHN			EKHUFT		
	population	historical training set	held-out testing set	population	historical training set	held-out testing set
Data Collection						
Timeline, year	2019–2026	2019–2024	2024–2026	2024–2025	2024–2025	2024–2025
period, weeks (%)	346	286 (83%)	60 (17%)	52	42 (82%)	10 (18%)
patients, n (%)	1,224	967 (79%)	257 (21%)	4,018	3,272 (81%)	746 (19%)
assessments, n (%)	471k	395k (84%)	76k (16%)	81k	70k (87%)	11k (13%)
observations, n (%)	5.95M	4.97M (84%)	975k (16%)	769k	644k (84%)	125k (16%)
Demographics						
Age, years	57 (28–79)	58 (29–80)	55 (27–76)	66 (29–89)	65 (29–89)	67 (29–90)
Female, n (%)	462 (38%)	382 (40%)	80 (31%)	2,275 (57%)	1,843 (56%)	432 (58%)
Patient History¹						
Disease Status, n (%)						
cardiovascular disease	191 (16%)	154 (16%)	37 (14%)	223 (6%)	164 (5%)	59 (8%)
endocrine disorder	239 (20%)	183 (19%)	56 (22%)	65 (2%)	49 (1%)	16 (2%)
epilepsy	102 (8%)	82 (8%)	20 (8%)	32 (1%)	22 (1%)	10 (1%)
musculoskeletal disorder	108 (9%)	88 (9%)	20 (8%)	78 (2%)	66 (2%)	12 (2%)
neurological disorder	807 (66%)	596 (62%)	211 (82%)	413 (10%)	327 (10%)	86 (12%)
respiratory disease	176 (14%)	144 (15%)	32 (12%)	132 (3%)	98 (3%)	34 (5%)
vascular disease	307 (25%)	230 (24%)	77 (30%)	101 (3%)	75 (2%)	26 (3%)
Other comorbidity, n (%)						
diffuse brain injury	105 (9%)	84 (9%)	21 (8%)	0 (0%)	0 (0%)	0 (0%)
hypertension	283 (23%)	213 (22%)	70 (27%)	70 (2%)	51 (2%)	19 (3%)
brain hypoxia-anoxia	78 (6%)	61 (6%)	17 (7%)	0 (0%)	0 (0%)	0 (0%)
subarachnoid haemorrhage	153 (12%)	105 (11%)	48 (19%)	9 (0%)	7 (0%)	2 (0%)
haemorrhagic stroke	101 (8%)	64 (7%)	37 (14%)	23 (1%)	16 (0%)	7 (1%)
stroke (non-specified)	130 (11%)	81 (8%)	49 (19%)	6 (0%)	4 (0%)	2 (0%)
gastrostomy-peg	120 (10%)	104 (11%)	16 (6%)	5 (0%)	0 (0%)	0 (0%)
type-2 diabetes	169 (14%)	126 (13%)	43 (17%)	17 (0%)	10 (0%)	7 (1%)
prev. surgery (non-specific)	106 (9%)	98 (10%)	8 (3%)	0 (0%)	0 (0%)	0 (0%)
prev. surgery (neurosurgical)	99 (8%)	78 (8%)	21 (8%)	0 (0%)	0 (0%)	0 (0%)
prev. surgery (orthopaedic)	85 (7%)	72 (7%)	13 (5%)	2 (0%)	2 (0%)	0 (0%)
prev. cardiac arrest	91 (7%)	71 (7%)	20 (8%)	5 (0%)	4 (0%)	1 (0%)
Missing, n (%)	262 (21%)	251 (26%)	11 (4%)	1514 (38%)	1239 (38%)	275 (37%)
Study characteristic(s)						
Specialty, n (%) ²						
Neurology	28 (2%)	24 (2%)	4 (2%)	1159 (29%)	968 (30%)	191 (26%)
Spines	-	-	-	803 (20%)	645 (20%)	158 (21%)
Stroke Medicine	-	-	-	746 (19%)	600 (18%)	146 (20%)
TIA	-	-	-	384 (10%)	305 (9%)	79 (11%)
Multiple Sclerosis	-	-	-	146 (4%)	125 (4%)	21 (3%)
Epilepsy	-	-	-	183 (5%)	158 (5%)	25 (3%)
Parkinsons	-	-	-	123 (3%)	100 (3%)	23 (3%)
Rehab	289 (24%)	228 (24%)	31 (16%)	15 (0%)	8 (0%)	7 (1%)
Motor Neurone Disease	-	-	-	7 (0%)	5 (0%)	2 (0%)
Accident & Emergency	-	-	-	67 (2%)	51 (2%)	16 (2%)
General Surgery	-	-	-	29 (1%)	22 (1%)	7 (1%)
Trauma	-	-	-	20 (0%)	15 (0%)	5 (1%)
Gastroenterology	-	-	-	20 (0%)	15 (0%)	5 (1%)
Colorectal Surgery	-	-	-	19 (0%)	17 (1%)	2 (0%)
Cardiology	-	-	-	20 (0%)	16 (0%)	4 (1%)
Dermatology	-	-	-	17 (0%)	10 (0%)	7 (1%)
Respiratory Medicine	31 (3%)	22 (2%)	9 (4%)	16 (0%)	11 (0%)	5 (1%)
Other	876 (72%)	640 (66%)	236 (92%)	193 (5%)	152 (5%)	41 (5%)
Missing, n (%)	9 (1%)	2 (0%)	7 (3%)	51 (1%)	49 (1%)	2 (0%)
Enrolment, weeks	3.22 (0–33.02)	3.11 (0–32.69)	4.89 (0–36.38)	0.03 (0–2.65)	0.03 (0–2.55)	0.03 (0–3.06)
Observations, per patient-day ^c	2 (1–64)	2 (1–64)	2 (1–19)	4 (1–44)	4 (1–44)	4 (1–29)
Infections ³						
total (per 1000 patient-days)	2,477 (12)	2,178 (12)	299 (10)	1,404 (73)	1,185 (74)	219 (73)
per-patient ^c	1 (0–31)	1 (0–31)	1 (0–10)	0 (0–7)	0 (0–7)	0 (0–2)
events ⁴ (%)	37,594 (8%)	32,797 (8%)	4,797 (6%)	11,720 (15%)	10,300 (15%)	1,420 (13%)
Incomplete assessments ⁵ ; n (%)	106,095 (22%)	93,976 (24%)	12,119 (16%)	80,266 (99%)	69,991 (100%)	10,275 (97%)

¹ Most common disease/disorder-type and comorbidity observed, loosely grouped.

² Specialty information; Note, patients may change specialty or be denoted by multiple specialties over data collection period.

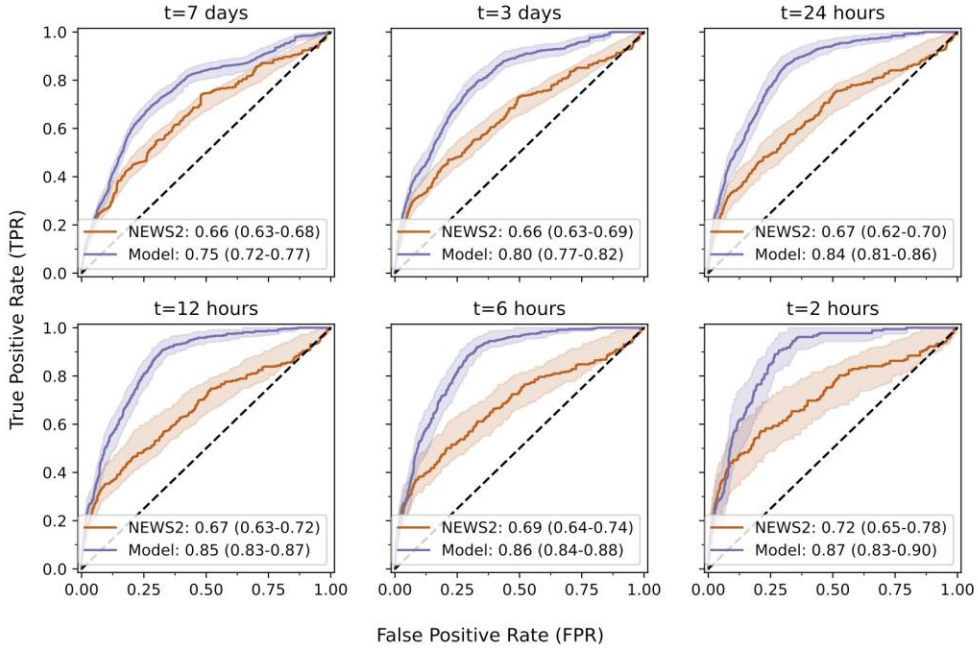
³ Infections are defined by the timing of acute antibiotic prescriptions (non-prophylactically administered, non-topically administered antibiotics).

⁴ Median (Min-Max) values reported.

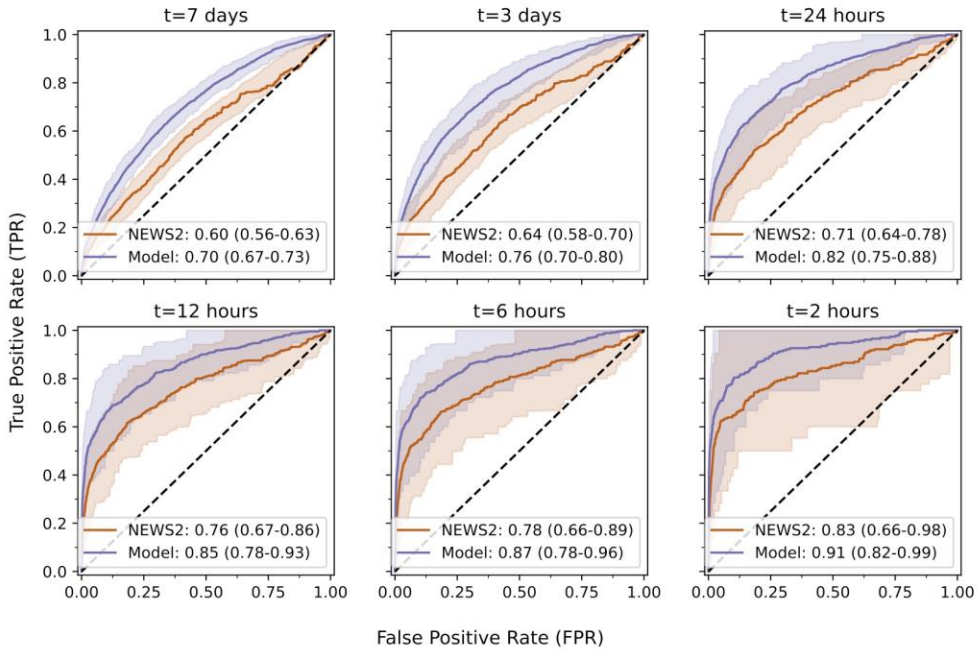
⁵ Positive infection events, with right-censoring determined at 7-days from assessment.

^c Defined as any assessment with at least one missing observation.

Model performance in comparison to NEWS2



(a) EKHUFT



(b) RHN

Figure 1: **Time-dependent AUROC for MEMORI compared to NEWS2** in (a) EKHUFT and (b) RHN. Time-dependent area under the receiver operating characteristic curve, $AUROC(t)$, evaluated at decreasing time horizons, t , prior to infection events, comparing MEMORI against NEWS2. Plots depict pointwise AUROC estimates on $n \approx 10k$ and $n \approx 76k$ observations for EKHUFT and RHN respectively, with shaded 5th–95th percentile confidence intervals over 500 random bootstrap samples of the held-out test data.

Model performance in comparison to NEWS2

Table 2: **Risk stratification performance outcomes for hospital-acquired infections across test cohorts.** Comparison of survival model calibration and performance outcome metrics between NEWS2 scores—the standard of care—and MEMORI risk predictions, reported separately for the EKHUFT and RHN held-out test cohorts. The hazard ratio (HR) is estimated from a Cox proportional hazards model with site included as a covariate across the combined test set. All other metrics are reported as pointwise estimates with 5th–95th percentile confidence intervals over 500 random bootstrap samples of the held-out test data.

	NEWS2	MEMORI	p ^d
Hazard Ratio	1.113 (1.099–1.128)	2.690 (2.584–2.800)	***
EKHUFT			
C-Index ^a	0.649 (0.606–0.691)	0.741 (0.708–0.775)	***
AUROC ^b			
3 days	0.659 (0.581–0.726)	0.800 (0.745–0.848)	***
24 hrs.	0.670 (0.578–0.752)	0.837 (0.786–0.887)	***
12 hrs.	0.668 (0.561–0.764)	0.852 (0.794–0.904)	***
6 hrs.	0.689 (0.571–0.799)	0.861 (0.795–0.913)	***
2 hrs.	0.719 (0.544–0.871)	0.868 (0.786–0.935)	***
IBS ^c	1.665 (1.430–1.899)	0.883 (0.870–0.893)	-
RHN			
C-Index ^a	0.595 (0.574–0.615)	0.700 (0.680–0.720)	***
AUROC ^b			
3 days	0.640 (0.595–0.685)	0.762 (0.722–0.800)	***
24 hrs.	0.711 (0.643–0.778)	0.820 (0.760–0.874)	***
12 hrs.	0.763 (0.685–0.846)	0.853 (0.783–0.915)	***
6 hrs.	0.783 (0.685–0.888)	0.872 (0.788–0.942)	***
2 hrs.	0.830 (0.688–0.968)	0.915 (0.819–0.988)	***
IBS ^c	1.381 (1.306–1.453)	0.965 (0.963–0.967)	-

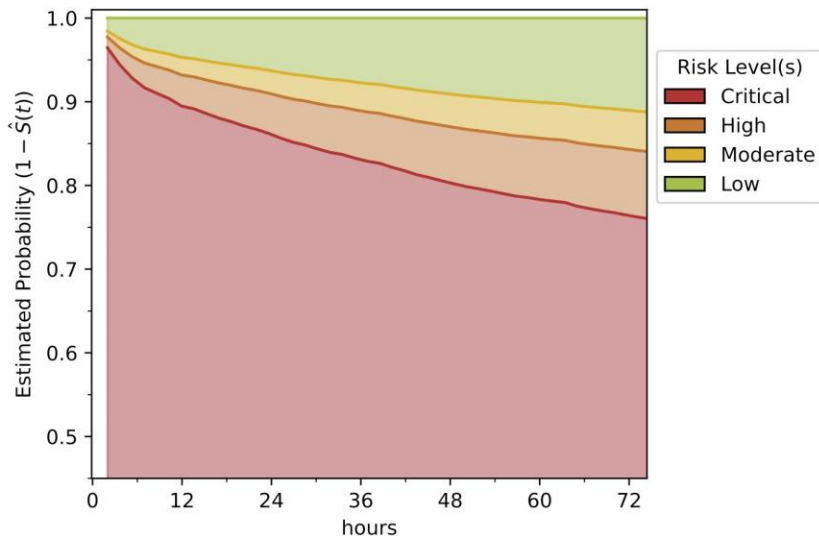
^a C-Index, concordance index with inverse probability of censoring weighting (IPCW).

^b AUROC, time-dependent area under the receiver operating characteristic curve.

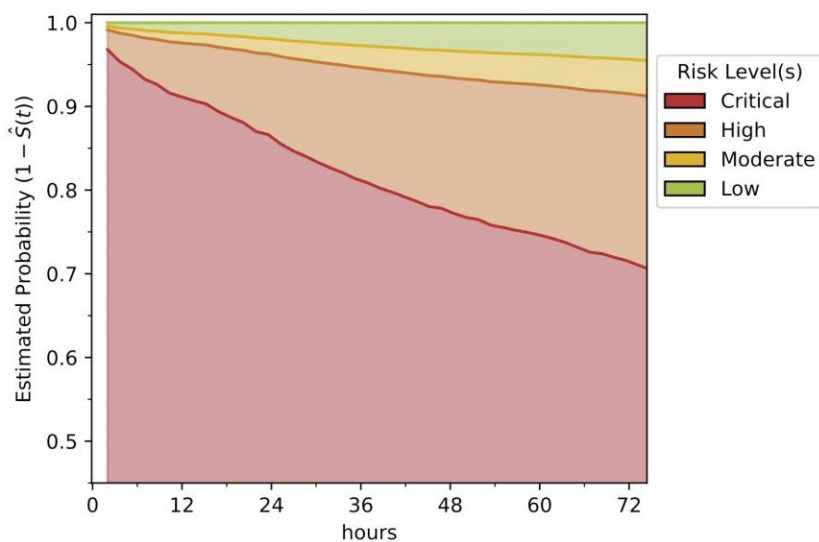
^c IBS, integrated Brier score across time (lower is better).

^d Benjamini–Hochberg adjusted p-values; * $p < 0.05$, ** $p < 0.001$, *** $p < 0.0001$.

Risk stratification of hospital acquired infections (HAI) by MEMORI-defined risk levels



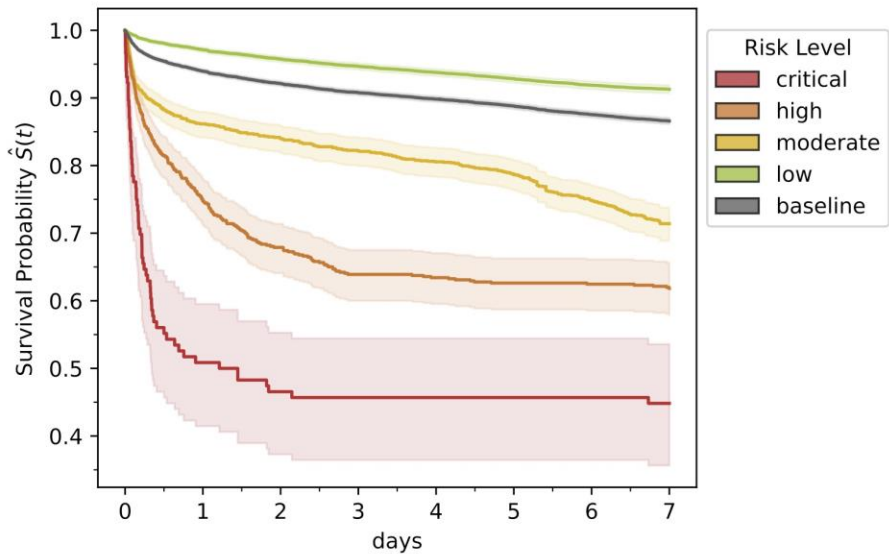
(a) EKHUFT



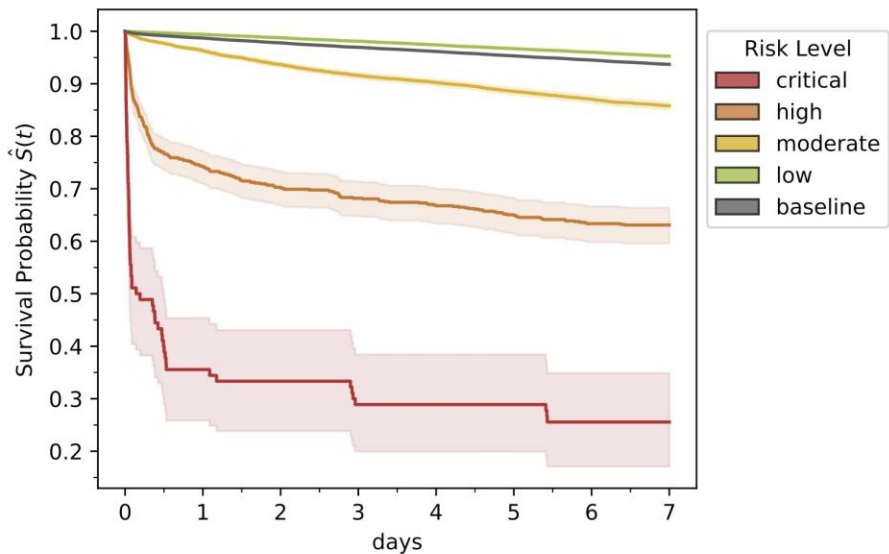
(b) RHN

Figure 2: **Baseline survival probability stratified by MEMORI-derived risk thresholds** for (a) EKHUFT and (b) RHN. Each curve depicts the estimated survival probability $S(t | x) = S_0(t) \cdot \exp(f(x))$ for patients within a given MEMORI risk stratum, where $f(x)$ is the log-hazard risk score and $S_0(t)$ is the site-specific baseline survival function estimated using the Breslow estimator. Site-specific baseline hazards are used to account for differences in prior infection rate distributions between EKHUFT and RHN. Curves are evaluated over a 7-day horizon, $t \in [0, 7]$. The probability of infection by time t is $p = 1 - \hat{S}(t)$.

Risk stratification of hospital acquired infections (HAI) by MEMORI-defined risk levels



(a) EKHUFT



(b) RHN

Figure 3: **Risk stratification of hospital-acquired infection (HAI) survival by MEMORI-defined risk level at EKHUFT and RHN.** Kaplan-Meier survival functions estimated from MEMORI-defined risk strata in the out-of-sample test data in (a) EKHUFT and (b) RHN. MEMORI log-hazard risk scores were categorised into low-, moderate-, high-, and critical-risk groups at each site independently. Baseline survival rates calculated over the held-out test population are shown for reference. Log-rank tests confirmed that survival distributions for moderate-, high-, and critical-risk groups were each significantly lower than the low-risk group at both sites (all $p < 0.0001$).

Alerting performance outcomes for hospital acquired infections (HAI)

Table 3: Alerting performance outcomes for hospital-acquired infections. Comparison of infection alerting performance between NEWS2 (standard of care) and MEMORI at increasing NEWS2 alert thresholds. At each threshold, the MEMORI risk score is calibrated to match NEWS2 sensitivity; precision is then compared between the two systems at equivalent sensitivity. Pointwise sensitivity and precision are reported with 5th–95th percentile confidence intervals over 500 random bootstrap samples. Sensitivity is evaluated on a per-event basis and precision on a per-observation basis.

EKHUFT								
NEWS2	NEWS2			Risk Score ^a	MEMORI		h ¹	p ²
	Sensitivity	Precision			Sensitivity	Precision		
1.0+	0.834 (0.792–0.876)	0.130 (0.107–0.156)	0.376	0.834 (0.791–0.874)	0.243 (0.201–0.293)	-0.293	***	
2.0+	0.654 (0.598–0.715)	0.185 (0.148–0.228)	0.607	0.654 (0.610–0.714)	0.326 (0.274–0.397)	-0.325	***	
3.0+	0.507 (0.452–0.564)	0.296 (0.233–0.365)	0.792	0.507 (0.450–0.557)	0.388 (0.312–0.467)	-0.194	***	
4.0+	0.327 (0.273–0.382)	0.380 (0.293–0.471)	1.059	0.327 (0.263–0.367)	0.532 (0.421–0.627)	-0.297	*	
5.0+	0.223 (0.174–0.273)	0.474 (0.357–0.605)	1.222	0.223 (0.162–0.258)	0.545 (0.415–0.662)	-0.144	0.470	
6.0+	0.147 (0.110–0.186)	0.521 (0.370–0.667)	1.406	0.147 (0.100–0.181)	0.569 (0.413–0.769)	-0.102	0.619	
7.0+	0.095 (0.064–0.128)	0.579 (0.386–0.736)	1.588	0.095 (0.064–0.128)	0.628 (0.428–0.820)	-0.094	0.690	
8.0+	0.076 (0.047–0.109)	0.676 (0.480–0.818)	1.687	0.076 (0.051–0.113)	0.643 (0.450–0.920)	+0.094	0.690	
9.0+	0.047 (0.025–0.073)	0.591 (0.389–0.773)	1.994	0.047 (0.025–0.075)	0.730 (0.500–1.000)	-0.289	0.513	
10.0+	0.038 (0.018–0.060)	0.533 (0.312–0.750)	2.046	0.038 (0.017–0.062)	0.750 (0.421–1.000)	-0.394	0.479	

RHN								
NEWS2	NEWS2			Risk Score ^a	MEMORI		h ¹	p ²
	Sensitivity	Precision			Sensitivity	Precision		
1.0+	0.899 (0.839–0.951)	0.045 (0.035–0.055)	-0.115	0.898 (0.832–0.946)	0.072 (0.057–0.087)	-0.117	***	
2.0+	0.766 (0.686–0.845)	0.063 (0.048–0.079)	0.071	0.766 (0.682–0.841)	0.118 (0.094–0.144)	-0.194	***	
3.0+	0.646 (0.562–0.730)	0.096 (0.067–0.133)	0.294	0.645 (0.548–0.739)	0.184 (0.140–0.228)	-0.255	***	
4.0+	0.544 (0.451–0.639)	0.157 (0.106–0.227)	0.569	0.544 (0.447–0.634)	0.302 (0.233–0.375)	-0.348	***	
5.0+	0.424 (0.333–0.514)	0.220 (0.140–0.334)	1.126	0.424 (0.333–0.512)	0.534 (0.425–0.644)	-0.662	***	
6.0+	0.329 (0.253–0.417)	0.280 (0.165–0.443)	1.594	0.329 (0.235–0.413)	0.626 (0.472–0.757)	-0.709	***	
7.0+	0.203 (0.138–0.281)	0.326 (0.204–0.492)	2.134	0.203 (0.136–0.284)	0.716 (0.500–0.917)	-0.798	***	
8.0+	0.127 (0.068–0.191)	0.440 (0.241–0.696)	2.449	0.126 (0.064–0.181)	0.783 (0.556–1.000)	-0.729	***	
9.0+	0.076 (0.030–0.125)	0.368 (0.167–0.692)	2.869	0.076 (0.029–0.131)	0.819 (0.537–1.000)	-0.910	*	
10.0+	0.044 (0.012–0.084)	0.350 (0.083–0.833)	3.007	0.044 (0.000–0.077)	0.866 (0.200–1.000)	-1.196	*	

^a MEMORI infection risk score, as determined by the log-hazard ratio. Corresponding MEMORI alert thresholds are calculated based on the closest match at \leq NEWS2 sensitivity at each given threshold.

¹ Cohen's h, effect size for proportions;

² Differences in overall "point-wise" precision @ matched sensitivity between NEWS2 and MEMORI are computed using a z-proportions test. See section ?? for more details;

Benjamini-Hochberg adjusted p-values, *p<0.05, **p<0.001, ***p<0.0001.

Explainability of device

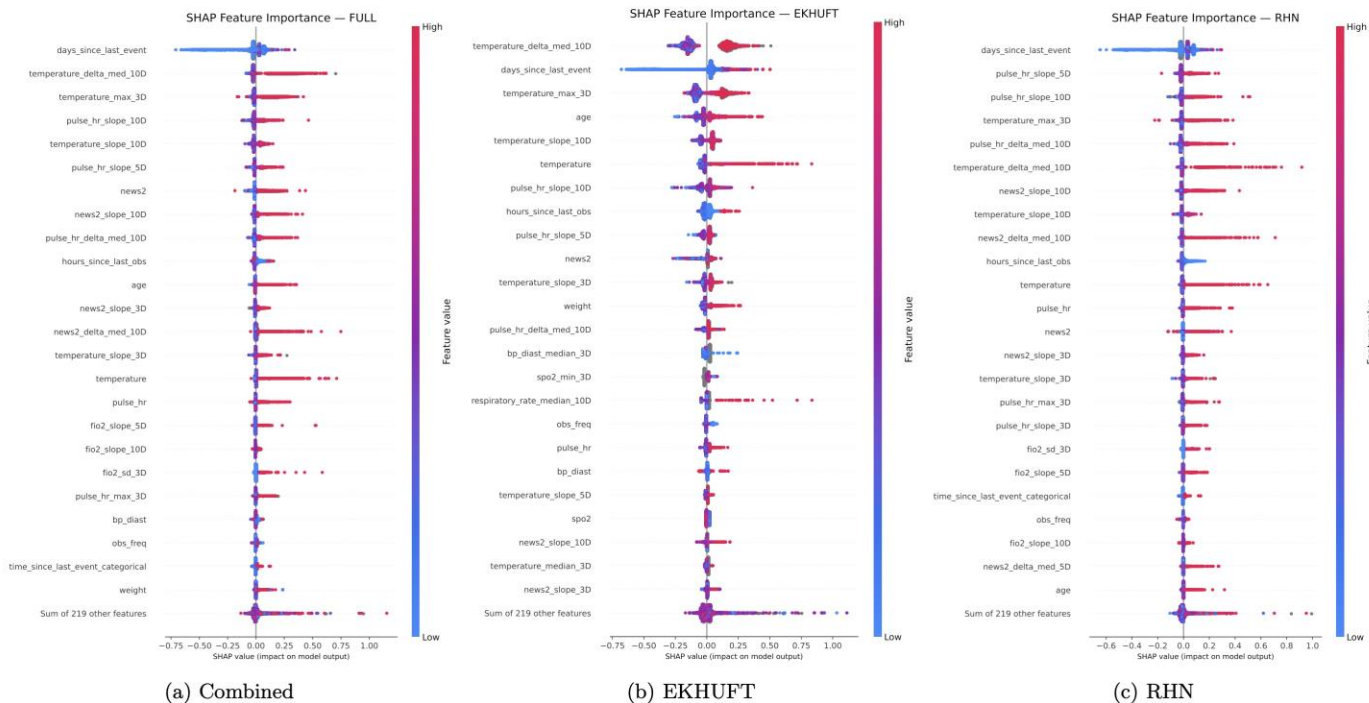


Figure 4: **SHAP-based feature importance for MEMORI** across (a) combined EKHUFT+RHN, (b) EKHUFT, and (c) RHN. Beeswarm plots show the distribution of SHAP values for the top-ranked features at each site. Higher absolute SHAP values indicate a greater impact on the model's prediction outcome. Positive SHAP values indicate features that contribute to a shorter predicted survival time (i.e. increased infection risk), while negative SHAP values represent features associated with longer survival times (i.e. reduced infection risk).

Survival rates stratified by key demographic sub-groups

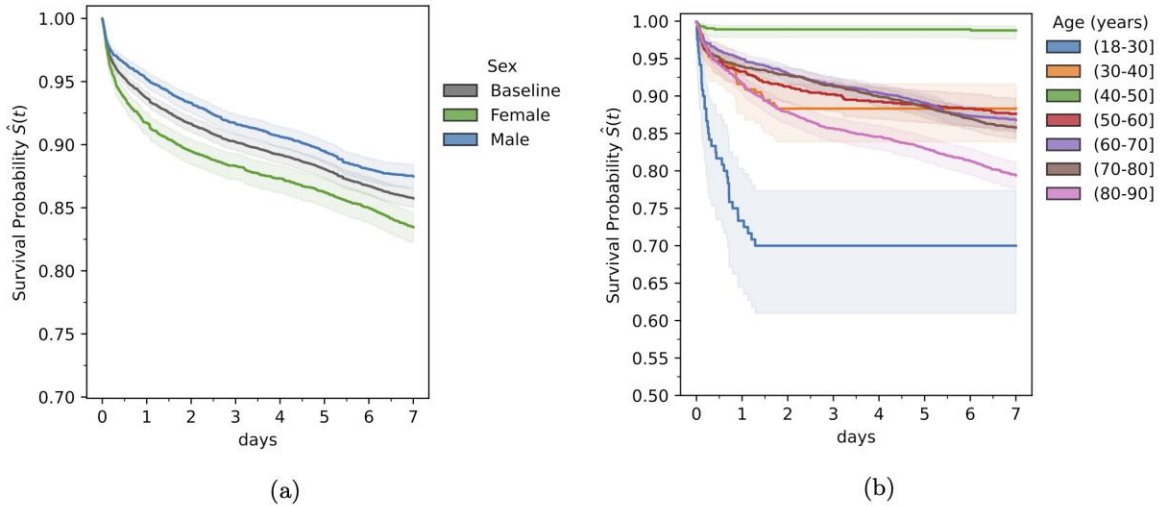


Figure 5: **Infection-free survival rates by demographic factors at East Kent Hospitals University NHS Foundation Trust (EKHUFT)**. Kaplan-Meier estimator of 7-day infection-free survival functions stratified by (a) sex and (b) 10-year age group, estimated from the held-out test set. Baseline survival rate for the full test population is shown for reference.

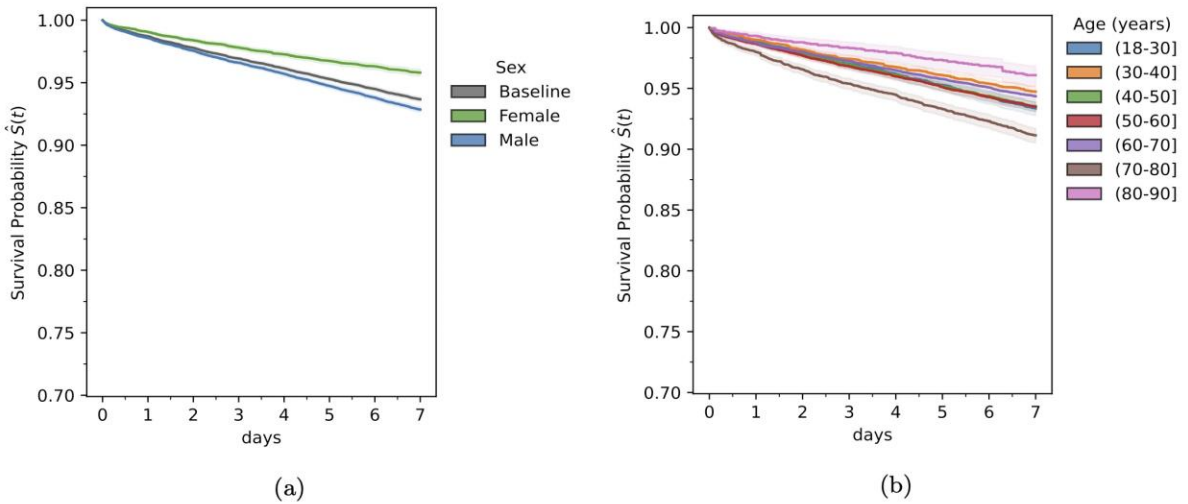


Figure 6: **Infection-free survival rates by demographic factors at the Royal Hospital for Neuro-Disability (RHN)**. Kaplan-Meier estimator of 7-day infection-free survival functions stratified by (a) sex and (b) 10-year age group, estimated from the held-out test set. Baseline survival rate for the full test population is shown for reference.

Survival rates stratified by major comorbidity type

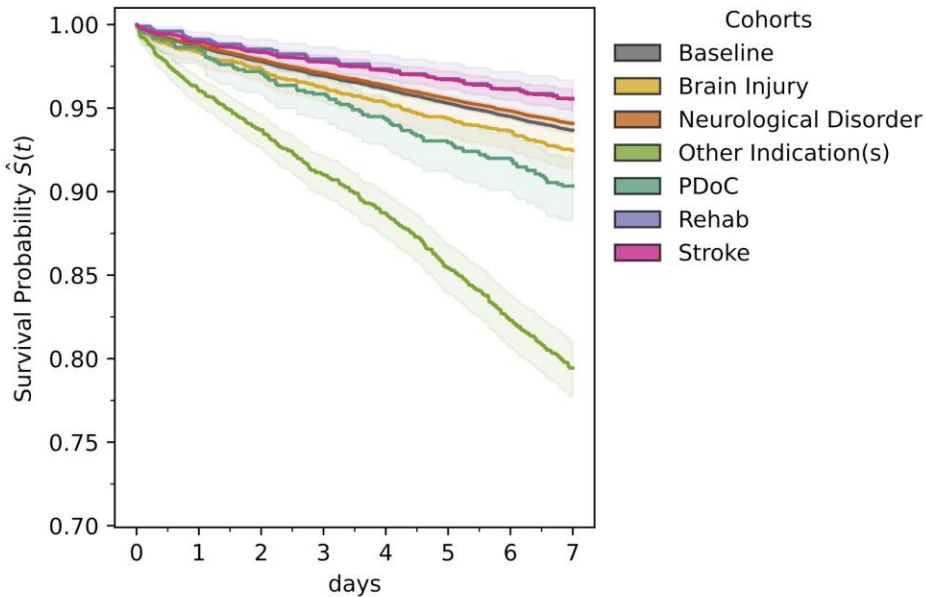


Figure 7: **Infection-free survival rates by comorbidity profile at the Royal Hospital for Neuro-Disability (RHN).** Kaplan-Meier estimator of 7-day infection-free survival functions for major patient comorbidity subgroups—brain injury, neurological disorders, other conditions, prolonged disorders of consciousness (PDoC), rehabilitation, and stroke—estimated from the held-out test set. Baseline survival rate for the full test population is shown for reference.

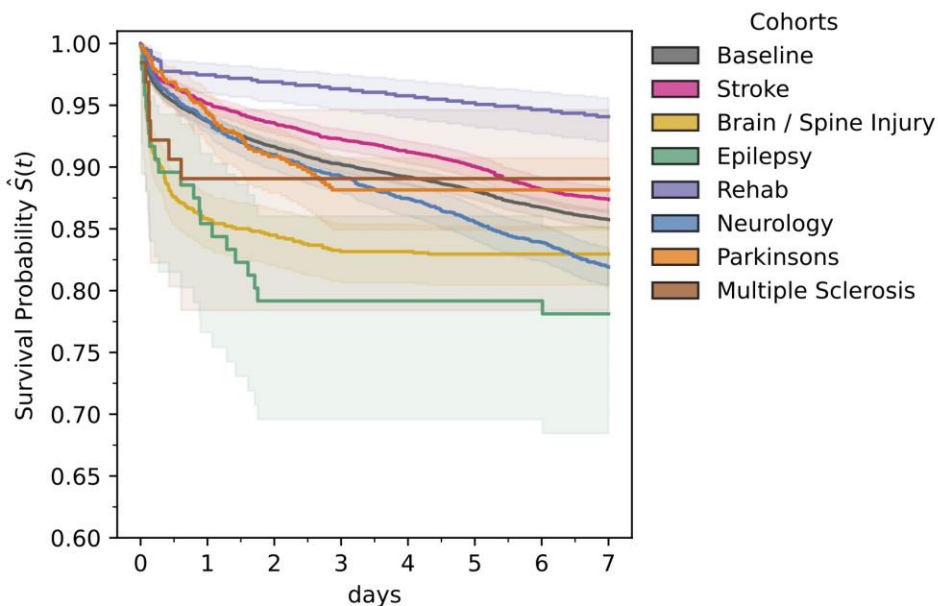


Figure 8: **Infection-free survival rates by comorbidity profile at East Kent Hospitals University NHS Foundation Trust (EKHUFT).** Kaplan-Meier estimator of 7-day infection-free survival functions for major patient comorbidity subgroups—brain injury, neurological disorders, other conditions, prolonged disorders of consciousness (PDoC), rehabilitation, and stroke—estimated from the held-out test set. Baseline survival rate for the full test population is shown for reference.

Multivariable Cox proportional hazards model with three-way interactions

Table 4: Multivariable Cox proportional hazards model with three-way interactions (EKHUFT). Coefficients and hazard ratios (HR) quantifying the association between risk score and hazard of clinical suspicion of infection, estimated separately for MEMORI and NEWS2 across sex, age, and patient-type subgroups at EKHUFT. The key term of interest is `score:C(model_type)[T.MEMORI]`, which compares the score-hazard gradient of MEMORI against NEWS2. MEMORI and NEWS2 scores were independently z-score normalised prior to fitting to enable direct comparison.

covariate	coef	exp(coef)	se(coef)	coef lower 95%	coef upper 95%	exp(coef) lower 95%	exp(coef) upper 95%	z	p	-log2(p)	
score	0.15	1.16	0.02	0.11	0.19	1.12	1.21	0.00	7.39	0.00	42.68
C(model_type)[T.MEMORI]	0.06	1.06	0.03	0.01	0.12	1.01	1.12	0.00	2.21	0.03	5.21
C(sex)[T.male]	-0.14	0.87	0.12	-0.37	0.09	0.69	1.09	0.00	-1.23	0.22	2.18
C(age_cat)[T.(30.0, 40.0)]	-0.16	0.86	0.18	-0.51	0.20	0.60	1.22	0.00	-0.86	0.39	1.36
C(age_cat)[T.(40.0, 50.0)]	-0.48	0.62	0.12	-0.72	-0.23	0.49	0.79	0.00	-3.84	0.00	13.00
C(age_cat)[T.(50.0, 60.0)]	-0.11	0.90	0.17	-0.45	0.23	0.64	1.26	0.00	-0.62	0.54	0.90
C(age_cat)[T.(60.0, 70.0)]	-0.05	0.95	0.13	-0.30	0.20	0.74	1.22	0.00	-0.38	0.71	0.50
C(age_cat)[T.(70.0, 80.0)]	-0.00	1.00	0.11	-0.23	0.22	0.80	1.25	0.00	-0.03	0.98	0.03
C(age_cat)[T.(80.0, 90.0)]	0.22	1.25	0.14	-0.05	0.50	0.95	1.65	0.00	1.59	0.11	3.16
C(patient_type)[T.Epilepsy]	0.32	1.38	0.41	-0.48	1.11	0.62	3.05	0.00	0.79	0.43	1.21
C(patient_type)[T.Multiple Sclerosis]	-0.27	0.76	0.21	-0.68	0.14	0.51	1.15	0.00	-1.30	0.19	2.37
C(patient_type)[T.Neurology]	0.11	1.12	0.13	-0.15	0.37	0.86	1.45	0.00	0.83	0.41	1.29
C(patient_type)[T.Other]	0.63	1.88	0.17	0.30	0.97	1.35	2.64	0.00	3.70	0.00	12.15
C(patient_type)[T.Parkinsons]	-0.31	0.73	0.16	-0.63	0.01	0.53	1.01	0.00	-1.92	0.05	4.19
C(patient_type)[T.Rehab]	-0.14	0.87	0.18	-0.48	0.21	0.62	1.23	0.00	-0.78	0.44	1.20
C(patient_type)[T.Stroke]	-0.11	0.89	0.11	-0.34	0.11	0.71	1.12	0.00	-0.98	0.33	1.61
score:C(model_type)[T.MEMORI]	0.15	1.16	0.03	0.09	0.21	1.09	1.23	0.00	4.81	0.00	19.31
score:C(sex)[T.male]	0.10	1.10	0.03	0.03	0.16	1.03	1.17	0.00	2.94	0.00	8.27
score:C(age_cat)[T.(30.0, 40.0)]	0.21	1.23	0.13	-0.04	0.46	0.96	1.59	0.00	1.62	0.10	3.25
score:C(age_cat)[T.(40.0, 50.0)]	-0.18	0.83	0.07	-0.32	-0.04	0.73	0.96	0.00	-2.60	0.01	6.73
score:C(age_cat)[T.(50.0, 60.0)]	0.20	1.23	0.06	0.10	0.31	1.10	1.37	0.00	3.69	0.00	12.09
score:C(age_cat)[T.(60.0, 70.0)]	0.10	1.11	0.07	-0.03	0.23	0.97	1.26	0.00	1.52	0.13	2.97
score:C(age_cat)[T.(70.0, 80.0)]	0.10	1.11	0.05	0.01	0.20	1.01	1.22	0.00	2.11	0.03	4.86
score:C(age_cat)[T.(80.0, 90.0)]	0.10	1.11	0.04	0.03	0.17	1.03	1.19	0.00	2.69	0.01	7.11
score:C(patient_type)[T.Epilepsy]	0.02	1.02	0.22	-0.42	0.46	0.66	1.58	0.00	0.08	0.93	0.10
score:C(patient_type)[T.Multiple Sclerosis]	0.31	1.36	0.25	-0.17	0.79	0.84	2.20	0.00	1.25	0.21	2.24
score:C(patient_type)[T.Neurology]	0.10	1.11	0.04	0.02	0.19	1.02	1.20	0.00	2.56	0.01	6.58
score:C(patient_type)[T.Other]	0.40	1.50	0.08	0.25	0.56	1.28	1.75	0.00	5.08	0.00	21.33
score:C(patient_type)[T.Parkinsons]	0.27	1.31	0.10	0.07	0.47	1.07	1.59	0.00	2.67	0.01	7.04
score:C(patient_type)[T.Rehab]	0.03	1.03	0.08	-0.12	0.18	0.89	1.20	0.00	0.40	0.69	0.54
score:C(patient_type)[T.Stroke]	0.01	1.01	0.04	-0.08	0.09	0.93	1.10	0.00	0.22	0.83	0.27
C(model_type)[T.MEMORI]:C(sex)[T.male]	0.02	1.02	0.07	-0.11	0.15	0.90	1.17	0.00	0.34	0.73	0.45
C(model_type)[T.MEMORI]:C(age_cat)[T.(30.0, 40.0)]	-0.22	0.80	0.10	-0.41	-0.02	0.66	0.98	0.00	-2.17	0.03	5.04
C(model_type)[T.MEMORI]:C(age_cat)[T.(40.0, 50.0)]	-0.40	0.67	0.09	-0.57	-0.23	0.56	0.80	0.00	-4.55	0.00	17.53
C(model_type)[T.MEMORI]:C(age_cat)[T.(50.0, 60.0)]	-0.02	0.98	0.14	-0.29	0.24	0.75	1.27	0.00	-0.18	0.86	0.22
C(model_type)[T.MEMORI]:C(age_cat)[T.(60.0, 70.0)]	0.08	1.09	0.09	-0.10	0.27	0.90	1.31	0.00	0.88	0.38	1.41
C(model_type)[T.MEMORI]:C(age_cat)[T.(70.0, 80.0)]	0.11	1.11	0.09	-0.07	0.28	0.94	1.32	0.00	1.22	0.22	2.16
C(model_type)[T.MEMORI]:C(age_cat)[T.(80.0, 90.0)]	0.08	1.08	0.10	-0.11	0.27	0.89	1.31	0.00	0.80	0.43	1.23
C(model_type)[T.MEMORI]:C(patient_type)[T.Epilepsy]	0.13	1.14	0.19	-0.24	0.50	0.79	1.64	0.00	0.69	0.49	1.03
C(model_type)[T.MEMORI]:C(patient_type)[T.Multiple Sclerosis]	-0.39	0.68	0.15	-0.67	-0.10	0.51	0.91	0.00	-2.64	0.01	6.92
C(model_type)[T.MEMORI]:C(patient_type)[T.Neurology]	0.04	1.04	0.09	-0.13	0.21	0.88	1.24	0.00	0.48	0.63	0.66
C(model_type)[T.MEMORI]:C(patient_type)[T.Other]	0.92	2.50	0.37	0.20	1.64	1.22	5.16	0.00	2.49	0.01	6.30
C(model_type)[T.MEMORI]:C(patient_type)[T.Parkinsons]	-0.21	0.81	0.08	-0.37	-0.04	0.69	0.96	0.00	-2.49	0.01	6.31
C(model_type)[T.MEMORI]:C(patient_type)[T.Rehab]	0.06	1.06	0.18	-0.28	0.41	0.75	1.50	0.00	0.35	0.73	0.46
C(model_type)[T.MEMORI]:C(patient_type)[T.Stroke]	-0.02	0.98	0.07	-0.15	0.11	0.86	1.12	0.00	-0.27	0.79	0.34
score:C(model_type)[T.MEMORI]:C(sex)[T.male]	0.10	1.10	0.06	-0.03	0.23	0.97	1.25	0.00	1.51	0.13	2.93
score:C(model_type)[T.MEMORI]:C(age_cat)[T.(30.0, 40.0)]	0.27	1.31	0.19	-0.10	0.64	0.90	1.89	0.00	1.43	0.15	2.70
score:C(model_type)[T.MEMORI]:C(age_cat)[T.(40.0, 50.0)]	0.14	1.15	0.15	-0.16	0.44	0.85	1.55	0.00	0.92	0.36	1.49
score:C(model_type)[T.MEMORI]:C(age_cat)[T.(50.0, 60.0)]	0.40	1.49	0.17	0.07	0.72	1.07	2.06	0.00	2.38	0.02	5.84
score:C(model_type)[T.MEMORI]:C(age_cat)[T.(60.0, 70.0)]	0.27	1.31	0.17	-0.07	0.61	0.94	1.84	0.00	1.58	0.11	3.14
score:C(model_type)[T.MEMORI]:C(age_cat)[T.(70.0, 80.0)]	0.14	1.15	0.08	-0.02	0.29	0.98	1.34	0.00	1.72	0.09	3.54
score:C(model_type)[T.MEMORI]:C(age_cat)[T.(80.0, 90.0)]	-0.00	1.00	0.07	-0.14	0.13	0.87	1.14	0.00	-0.06	0.95	0.08
score:C(model_type)[T.MEMORI]:C(patient_type)[T.Epilepsy]	0.12	1.13	0.30	-0.46	0.71	0.63	2.03	0.00	0.42	0.68	0.56
score:C(model_type)[T.MEMORI]:C(patient_type)[T.Multiple Sclerosis]	-0.00	1.00	0.22	-0.43	0.43	0.65	1.53	0.00	-0.01	0.99	0.01
score:C(model_type)[T.MEMORI]:C(patient_type)[T.Neurology]	0.05	1.05	0.09	-0.13	0.22	0.88	1.24	0.00	0.52	0.60	0.37
score:C(model_type)[T.MEMORI]:C(patient_type)[T.Other]	-0.07	0.93	0.24	-0.55	0.41	0.58	1.50	0.00	-0.29	0.78	0.37
score:C(model_type)[T.MEMORI]:C(patient_type)[T.Parkinsons]	0.48	1.62	0.11	0.26	0.71	1.30	2.03	0.00	4.24	0.00	15.48
score:C(model_type)[T.MEMORI]:C(patient_type)[T.Rehab]	-0.17	0.84	0.40	-0.95	0.61	0.39	1.84	0.00	-0.43	0.67	0.58
score:C(model_type)[T.MEMORI]:C(patient_type)[T.Stroke]	-0.01	0.99	0.07	-0.14	0.13	0.87	1.14	0.00	-0.10	0.92	0.12

To enable comparisons between NEWS2 and MEMORI, each score has been independently normalised to have zero mean and unit variance using the z-score. p-values, *p<0.05; **p<0.01; ***p<0.005

Multivariable Cox proportional hazards model with three-way interactions

Table 5: Multivariable Cox proportional hazards model with three-way interactions (RHN). Coefficients and hazard ratios (HR) quantifying the association between risk score and hazard of clinical suspicion of infection, estimated separately for MEMORI and NEWS2 across sex, age, and patient-type subgroups at RHN. The key term of interest is `score:C(model_type)[T.MEMORI]`, which compares the score-hazard gradient of MEMORI against NEWS2. MEMORI and NEWS2 scores were independently z-score normalised prior to fitting to enable direct comparison.

covariate	coef	exp(coef)	se(coef)	coef lower 95%	coef upper 95%	exp(coef) lower 95%	exp(coef) upper 95%	z	p	-log2(p)	
score	0.06	1.06	0.01	0.05	0.08	1.05	1.08	0.00	8.47	0.00	55.14
C(model_type)[T.MEMORI]	0.02	1.02	0.01	-0.00	0.04	1.00	1.04	0.00	1.60	0.11	3.19
C(sex)[T.male]	0.13	1.14	0.05	0.03	0.23	1.03	1.26	0.00	2.48	0.01	6.25
C(age_cat)[T.(30.0, 40.0)]	-0.03	0.97	0.06	-0.14	0.09	0.87	1.09	0.00	-0.44	0.66	0.60
C(age_cat)[T.(40.0, 50.0)]	-0.01	0.99	0.05	-0.11	0.08	0.90	1.09	0.00	-0.28	0.78	0.36
C(age_cat)[T.(50.0, 60.0)]	0.01	1.01	0.07	-0.12	0.15	0.88	1.16	0.00	0.18	0.86	0.22
C(age_cat)[T.(60.0, 70.0)]	-0.05	0.96	0.06	-0.16	0.06	0.85	1.07	0.00	-0.81	0.42	1.27
C(age_cat)[T.(70.0, 80.0)]	0.09	1.09	0.07	-0.05	0.22	0.95	1.25	0.00	1.28	0.20	2.31
C(age_cat)[T.(80.0, 90.0)]	-0.05	0.95	0.07	-0.19	0.09	0.83	1.10	0.00	-0.65	0.52	0.95
C(patient_type)[T.Long-term Stay]	-0.08	0.92	0.09	-0.26	0.09	0.77	1.10	0.00	-0.93	0.35	1.49
C(patient_type)[T.Neurological Disorder]	-0.10	0.91	0.05	-0.19	-0.01	0.82	0.99	0.00	-2.10	0.04	4.81
C(patient_type)[T.Other]	0.59	1.80	0.16	0.27	0.91	1.30	2.48	0.00	3.58	0.00	11.49
C(patient_type)[T.PDoC]	0.14	1.15	0.11	-0.07	0.35	0.94	1.43	0.00	1.34	0.18	2.47
C(patient_type)[T.Rehab]	-0.06	0.94	0.07	-0.19	0.07	0.83	1.08	0.00	-0.84	0.40	1.33
C(patient_type)[T.Stroke]	-0.07	0.93	0.06	-0.19	0.04	0.83	1.04	0.00	-1.27	0.20	2.29
score:C(model_type)[T.MEMORI]	0.06	1.06	0.01	0.04	0.08	1.04	1.08	0.00	6.74	0.00	35.92
score:C(sex)[T.male]	0.05	1.06	0.02	0.02	0.08	1.02	1.09	0.00	3.57	0.00	11.43
score:C(age_cat)[T.(30.0, 40.0)]	0.08	1.08	0.03	0.01	0.14	1.01	1.15	0.00	2.41	0.02	5.95
score:C(age_cat)[T.(40.0, 50.0)]	0.06	1.06	0.02	0.02	0.11	1.02	1.11	0.00	2.70	0.01	7.19
score:C(age_cat)[T.(50.0, 60.0)]	0.07	1.08	0.02	0.03	0.12	1.03	1.13	0.00	3.20	0.00	9.52
score:C(age_cat)[T.(60.0, 70.0)]	0.02	1.03	0.02	-0.02	0.07	0.98	1.08	0.00	1.00	0.32	1.65
score:C(age_cat)[T.(70.0, 80.0)]	0.07	1.08	0.05	-0.03	0.17	0.97	1.19	0.00	1.42	0.16	2.69
score:C(age_cat)[T.(80.0, 90.0)]	-0.06	0.94	0.03	-0.12	-0.01	0.89	0.99	0.00	-2.29	0.02	5.50
score:C(patient_type)[T.Long-term Stay]	-0.02	0.98	0.02	-0.05	0.01	0.95	1.01	0.00	-1.17	0.24	2.04
score:C(patient_type)[T.Neurological Disorder]	0.08	1.08	0.01	0.06	0.10	1.06	1.10	0.00	7.35	0.00	42.20
score:C(patient_type)[T.Other]	0.10	1.11	0.03	0.05	0.16	1.05	1.17	0.00	3.78	0.00	12.61
score:C(patient_type)[T.PDoC]	-0.04	0.96	0.04	-0.12	0.04	0.89	1.04	0.00	-1.03	0.30	1.72
score:C(patient_type)[T.Rehab]	-0.07	0.93	0.06	-0.18	0.04	0.83	1.04	0.00	-1.30	0.19	2.38
score:C(patient_type)[T.Stroke]	-0.04	0.97	0.03	-0.09	0.02	0.91	1.02	0.00	-1.27	0.21	2.28
C(model_type)[T.MEMORI]:C(sex)[T.male]	0.06	1.06	0.02	0.02	0.10	1.02	1.11	0.00	2.89	0.00	8.03
C(model_type)[T.MEMORI]:C(age_cat)[T.(30.0, 40.0)]	-0.01	0.99	0.05	-0.10	0.09	0.90	1.09	0.00	-0.16	0.87	0.20
C(model_type)[T.MEMORI]:C(age_cat)[T.(40.0, 50.0)]	0.01	1.01	0.04	-0.07	0.09	0.93	1.09	0.00	0.16	0.87	0.19
C(model_type)[T.MEMORI]:C(age_cat)[T.(50.0, 60.0)]	0.03	1.03	0.05	-0.08	0.14	0.93	1.15	0.00	0.54	0.59	0.76
C(model_type)[T.MEMORI]:C(age_cat)[T.(60.0, 70.0)]	-0.05	0.95	0.04	-0.12	0.03	0.89	1.03	0.00	-1.27	0.20	2.30
C(model_type)[T.MEMORI]:C(age_cat)[T.(70.0, 80.0)]	0.04	1.04	0.05	-0.05	0.14	0.95	1.15	0.00	0.92	0.36	1.47
C(model_type)[T.MEMORI]:C(age_cat)[T.(80.0, 90.0)]	-0.09	0.92	0.07	-0.22	0.05	0.80	1.05	0.00	-1.22	0.22	2.17
C(model_type)[T.MEMORI]:C(patient_type)[T.Long-term Stay]	-0.01	0.99	0.14	-0.29	0.26	0.75	1.30	0.00	-0.09	0.93	0.11
C(model_type)[T.MEMORI]:C(patient_type)[T.Neurological Disorder]	0.01	1.01	0.01	-0.02	0.03	0.98	1.03	0.00	0.68	0.49	1.02
C(model_type)[T.MEMORI]:C(patient_type)[T.Other]	0.33	1.40	0.07	0.19	0.47	1.22	1.60	0.00	4.72	0.00	18.68
C(model_type)[T.MEMORI]:C(patient_type)[T.PDoC]	-0.01	0.99	0.07	-0.15	0.12	0.86	1.13	0.00	-0.20	0.84	0.24
C(model_type)[T.MEMORI]:C(patient_type)[T.Rehab]	-0.02	0.98	0.07	-0.15	0.12	0.86	1.12	0.00	-0.26	0.79	0.33
C(model_type)[T.MEMORI]:C(patient_type)[T.Stroke]	-0.11	0.90	0.04	-0.18	-0.03	0.83	0.97	0.00	-2.67	0.01	7.02
score:C(model_type)[T.MEMORI]:C(sex)[T.male]	0.00	1.00	0.02	-0.03	0.04	0.97	1.04	0.00	0.15	0.88	0.18
score:C(model_type)[T.MEMORI]:C(age_cat)[T.(30.0, 40.0)]	0.11	1.11	0.04	0.04	0.17	1.04	1.19	0.00	2.98	0.00	8.43
score:C(model_type)[T.MEMORI]:C(age_cat)[T.(40.0, 50.0)]	0.07	1.07	0.03	0.02	0.12	1.02	1.13	0.00	2.72	0.01	7.27
score:C(model_type)[T.MEMORI]:C(age_cat)[T.(50.0, 60.0)]	0.02	1.02	0.03	-0.05	0.08	0.96	1.08	0.00	0.49	0.62	0.69
score:C(model_type)[T.MEMORI]:C(age_cat)[T.(60.0, 70.0)]	0.02	1.02	0.04	-0.05	0.09	0.95	1.10	0.00	0.56	0.58	0.79
score:C(model_type)[T.MEMORI]:C(age_cat)[T.(70.0, 80.0)]	0.09	1.09	0.03	0.03	0.15	1.03	1.16	0.00	3.04	0.00	8.71
score:C(model_type)[T.MEMORI]:C(age_cat)[T.(80.0, 90.0)]	-0.14	0.87	0.07	-0.29	0.00	0.75	1.00	0.00	-1.95	0.05	4.30
score:C(model_type)[T.MEMORI]:C(patient_type)[T.Long-term Stay]	0.07	1.07	0.04	-0.01	0.15	0.99	1.17	0.00	1.75	0.08	3.64
score:C(model_type)[T.MEMORI]:C(patient_type)[T.Neurological Disorder]	0.08	1.08	0.01	0.06	0.10	1.06	1.11	0.00	6.52	0.00	33.70
score:C(model_type)[T.MEMORI]:C(patient_type)[T.Other]	-0.06	0.94	0.04	-0.14	0.01	0.87	1.01	0.00	-1.72	0.09	3.54
score:C(model_type)[T.MEMORI]:C(patient_type)[T.PDoC]	-0.09	0.91	0.07	-0.22	0.04	0.80	1.05	0.00	-1.31	0.19	2.40
score:C(model_type)[T.MEMORI]:C(patient_type)[T.Rehab]	-0.09	0.91	0.08	-0.24	0.05	0.79	1.05	0.00	-1.26	0.21	2.26
score:C(model_type)[T.MEMORI]:C(patient_type)[T.Stroke]	-0.06	0.94	0.03	-0.13	-0.00	0.88	1.00	0.00	-2.00	0.05	4.47

To enable comparisons between NEWS2 and MEMORI, each score have been independently normalised to have zero mean and unit variance using the z-score. p-values. *p<0.05; **p<0.01; ***p<0.005