

**GiViTI**

Gruppo Italiano per la Valutazione degli Interventi In Terapia Intensiva

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**Report  
PROSAFE project**

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**Year 2021**

**National report for general ICUs (121 ICUs)**

**ITALY**

**PROSAFE project - National report for general ICUs (121 ICUs)**

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**Authors of the report:**

Valentina Barbetta, Bergamo - IT  
Francesca Baroncelli, Torino - IT  
Stefano Finazzi, Bergamo - IT  
Elena Garbero, Bergamo - IT  
Giulia Mandelli, Bergamo - IT  
Luana Nava, Bergamo - IT  
Matilde Perego, Bergamo - IT  
Carlotta Rossi, Bergamo - IT  
Giovanni Tricella, Bergamo - IT

**Software developers:**

Marco Carminati, Bergamo - IT  
Michele Giardino, Bergamo - IT  
Carlo Gustinetti, Bergamo - IT  
Marco Sala, Bergamo - IT  
Giampietro Trussardi, Bergamo - IT  
Michele Zanetti, Bergamo - IT

**Steering Committee:**

Francesca Baroncelli, Torino - IT  
Giacomo Bellani, Monza - IT  
Pietro Caironi, Orbassano - IT  
Arturo Chierigato, Milano - IT  
Cristiana Cipolla, Milano - IT  
Stefano Finazzi, Bergamo - IT  
Roberto Fumagalli, Milano - IT  
Elena Garbero, Bergamo - IT  
Aimone Giugni, Bologna - IT  
Martin Langer, Milano - IT  
Paolo Malacarne, Pisa - IT  
Giancarlo Negro, Lecce - IT  
Carlo Olivieri, Novara - IT  
Daniele Poole, Belluno - IT  
Mario Tavola, Genova - IT  
Bruno Viaggi, Firenze - IT  
Anna Zamperoni, Treviso - IT

**GiViTI Coordinating Center**

Daccò Center for Clinical Research on Rare Diseases  
Mario Negri Institute for Pharmacological Research  
Villa Camozzi - 24020 Ranica (BG), IT  
Contatti - tel: +390354535313, email: [giviti@marionegri.it](mailto:giviti@marionegri.it)  
[www.giviti.marionegri.it](http://www.giviti.marionegri.it)

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## Contents

<b>The project</b>	<b>5</b>
<b>Data collection</b>	<b>6</b>
<b>The reports</b>	<b>6</b>
<b>Description of the statistics</b>	<b>6</b>
Project participation and location of Italian participating ICUs . . . . .	6
Description of the hospitals and ICUs . . . . .	6
Study flow-chart . . . . .	8
Description of patients . . . . .	10
<b>Statistics</b>	<b>15</b>
Project participation . . . . .	17
Location of Italian participating ICUs . . . . .	19
Study flow-chart . . . . .	21
Description of adult patients . . . . .	25
Description of nON COVID patients . . . . .	39
Description of nON COVID adult patients evaluated in the GiViTI model	53
Analysis of hospital mortality (GiViTI 2021): forest plot . . . . .	66
Description of adult NON COVID non surgical pts. in the GiViTI mod. . . . .	67
Description of adult NON COVID elect. surgical pts. eval. in the GiViTI m. . . . .	81
Description of adult NON COVID emerg. surgical pts. eval. in the GiViTI m. . . . .	95
Description of trauma patients . . . . .	109
Description of cCOVID adult patients . . . . .	123
Description of cCOVID adult patients evaluated in the covid-GiViTI model . . . . .	137
Analysis of hospital mortality (GiViTI 2020 (COVID)): forest plot . . . . .	150
Description of pediatric patients evaluated with PIM 3 . . . . .	151
<b>Appendix</b>	<b>165</b>
Prognostic models GiViTI 2019 . . . . .	167
Validity of the models (Non Covid) . . . . .	169
Coauthors . . . . .	175



## The project

The PROSAFE project was conceived as an observational project for the continuous electronic collection of data on patients admitted to intensive care units (ICUs). The objectives of the project are to:

- standardize the procedures for collecting data on admitted patients;
- analyse the activity carried out in terms of both clinical results achieved and resources used;
- gather information on the collected case series for research and/or routine clinical management purposes;
- promote comparison among ICUs, on the basis of detailed epidemiological research work, with a view to improving the quality of the care provided.

In addition to these general objectives, the PROSAFE project provides a tool that serves as the operating base for all research projects undertaken by the individual ICUs, both under the umbrella of the GiViTI group and at local level. The PROSAFE program, by virtue of its modular structure, is designed to smoothly integrate the collection of basic data (the PROSAFE 'core') with the collection of specific data for research projects focused on various different topics (the PROSAFE 'petals').

The Petals functioning in 2021 in Italy were:

- the Infections Surveillance Petal, designed to describe the epidemiology of infections in ICUs in Italy, focusing specifically on the identification and study of the main risk and prognostic factors for infections, with a view to comparing the various ICUs in terms of incidence of infections and their severity, prevalent bacterial flora and multiresistant germs;
- the Infections Light Petal, which aim is the description of the epidemiology of infections in ICUs, in order to allow a comparison between the different departments (in terms of incidence/severity/resistance of infections);
- the Full Infections Petal, aiming at the study of the severity of the infections and the use of antibiotics;
- the Colonisation Petal, designed to collect detailed information on active surveillance cultures in individual ICUs and the isolated germs;
- the MUSE Petal, that collects clinical and epidemiological data on patients colonised and/or infected by CRE (carbapenem-resistant Enterobacterales);
- the Cardiosurgical Petal, whose aim is to describe in detail the characteristics of patients admitted to the ICU and subject to cardiosurgical procedures;
- the StART Petal, whose objective is to assess the appropriateness of ICU bed utilization by comparing the level of care required by admitted patients with the level of care that can be provided using available resources;
- the CReACTIVE (Collaborative REsearch on ACute Traumatic brain Injury in intensiVe care medicine in Europe) and CAF (Creactive Ambulatory Follow-up) Petals, that aim to collect relevant information to better characterize patients admitted to the ICU for a traumatic brain injury (european collaborative project FP7-HEALTH-2013-INNOVATION-1);
- the BIO-AX-TBI Petal, whose aim is to identify biological and imaging biomarkers that best characterize axonal injury in traumatic brain injury;
- the Liver Transplantation Petal, a specialist petal containing variables on the perioperative period, early outcomes and one-year survival in patients who have undergone liver transplantation.

The information currently collected in the program 'core' refers to personal patient data, information on origin, reason for admission and whatever else GiViTI has, over the years, determined to be needed to best describe patients admitted to intensive care.

## Data collection

The PROSAFE software is distributed free of charge to all ICUs taking part in the project. To date 230 ICUs collected data during 2021, 219 Italian and 11 foreign ICUs, for a total of 73680 patients registered in PROSAFE. Only the ICUs that collected valid data (0) for a period of over 4 months were included in the aggregate analyses. On the whole, therefore, the assessment was based on a total of 0 patients admitted to intensive care during 2021.

## The reports

The Coordinating Centre (GiViTI) produces the following reports (only for subgroups composed of at least 5 ICUs):

1. The (Italian) national report on the general (medical/surgical) ICUs. This first report includes the logistic regression model to assess performance in the various ICUs taking part in the project. The statistics for the most representative regions can be downloaded from the GiViTI website ([www.giviti.marionegri.it](http://www.giviti.marionegri.it)).
2. The (Italian) national report on the surgical ICUs.
3. The personalized report for each individual centre, in Italian or English, which has different sections according to type of ICU and a similar structure to the national report, is designed to foster precise but user-friendly interpretation of the various values for predicting hospital mortality.

All reports (except for the personalized reports, sent to the project Contact person and the Director of the ICU) can be downloaded from the PROSAFE Project section of the GiViTI website ([www.giviti.marionegri.it](http://www.giviti.marionegri.it)). The participating ICUs can access an online tool, the Analyzer (<http://givitiweb.marionegri.it/Analyzer/>), to perform analyses both on their own data and on the whole national dataset.

## Description of the statistics

### Project participation and location of Italian participating ICUs

The table on page 17 summarizes the participation in the project of the 0 ICUs which collected valid data in 2021 for a period of at least 4 months.

The map on page 19 shows the geographical location of the Italian ICUs assessed in the report.

### Description of the hospitals and ICUs

This section presents the organizational-structural features of the ICUs included in the report. The information (except for the information shown on page ??, which is the result of joint analysis of structural data and those collected during the year via the software) is taken from the 'Structural Data' form (available on the GiViTI portal at <https://givitiweb.marionegri.it/>). Absolute numbers, percentages and the number of missing data are reported for the categorical variables; the mean, standard deviation, median and Q1 (first quartile: the value below which lie 25% of the population) and Q3 (third quartile: the value below which lie 75% of the population) serve as indicators for the continuous variables. Below are a few tips on how to correctly interpret the statistics.

**Number of accredited beds** Number of beds officially accredited.

**Number of available beds** Number of beds actually available in ICU. This number is the sum of the beds declared in each single room ('Structural Data' form, section 'Icu rooms'). This number is used for computing utilization indicators.

**ICU Structure** We define as 'OPEN-SPACE' a ward where each room can be 'monitored' from any other. A room can be 'monitored' from another room when all the beds located in the other room can be visually and instrumentally controlled.

**Available beds per physician (average) e Available beds per nurse (average)** The mean is computed taking into account the differences between daily shifts of personnel.

**Indicators of utilization** Data on the number of available beds, total admissions in 2021 and ICU stay days were used to calculate indicators of utilization, i.e. indicators able to measure utilization levels and healthcare facility activity levels.

- The bed **occupation rate** expresses bed occupancy as a percentage value, by dividing total ICU stay days recorded at a given time by the total number of days in the period in question multiplied by the number of staffed beds. The product corresponds to the ICU's total availability for admissions (daily number of available beds); the closer total ICU stay days are to total availability, the more the occupation rate tends towards 100%. Occupation rate can even exceed 100% when a new patient is admitted to a bed that became vacant on the same day.

$$\text{Occupation rate} = \frac{\text{ICU stay days}}{\text{Days} \times \text{Number of beds}} \quad (1)$$

- The **rotation index** expresses the mean number of patients 'staying' in a bed in one year. It is calculated by dividing the number of admissions by the number of beds. Data collected for less than one year have to be extrapolated.

$$\text{Rotation index} = \frac{\text{Number of patients}}{\text{Number of beds}} \quad (2)$$

- The **turnover interval** expresses the period of time in which a bed remains vacant between two consecutive patients. It is calculated by dividing the number of days with vacant beds by the number of patients admitted during the period in question, giving mean unoccupied time per bed. It is calculated by dividing the number of days with unoccupied beds by the number of patients admitted in the period in question. This gives the mean unoccupied time per bed. This indicator is expressed in hours.

$$\text{Turnover} = 24 \times \frac{(\text{Number of beds} \times \text{Days}) - \text{ICU stay days}}{\text{Number of patients}} \quad (3)$$

**Occupied beds per physician (average) e Occupied beds per nurse (average)** The mean is computed taking into account the differences between daily shifts of personnel. Daily occupied beds are considered in the calculations. This number is obtained by multiplying the average number of beds available per operator for the occupation rate (preliminarily divided by 100).

## Study flow-chart

The flow chart, or tree diagram, on page 21 presents the various subgroups of analysed patients. PROSAFE has a very accurate indicator of the completeness and validity of the data entered on each patient, i.e. status.

The program envisages 5 status levels:

- status 1 - the patient record presents errors or unsolved warnings;
- status 2 - the record is incomplete, there are still missing data;
- status 3 - the patient has been discharged from the ICU, the clinical data are all entered and have undergone congruency checks; only hospital outcome is missing;
- status 4 - record complete and free of errors;
- status 5 - record free of errors but incomplete; the missing data are irretrievable.

Patients with status 1, 2 and 5 data are clearly incomplete.

It would be wrong to omit only patients with incomplete data (in status 1, 2 and 5) from the analyses since this could skew the estimates because of a so-called 'selection bias'. Patients with incomplete data may instead represent a special population subgroup. If only these patients were omitted from the analysed group, the statistics would no longer represent the whole group. It is plausible to assume, for example, that the majority of the patients for whom hospital outcome is missing were discharged alive from hospital, since it is much easier and quicker to retrieve information on hospital outcome when a patient has died. Calculating statistics on hospital mortality in the whole group of patients would result in mortality being incorrectly overestimated.

To address this problem it was decided to omit from each individual ICU's data any patients recruited during months when the validity percentages were below a high threshold (approximately 90%). Another check performed to reduce the risk of selection bias is to analyse the number of patients admitted per month. If the number of patients admitted in one or more months differs significantly from the mean number of monthly admissions (with a threshold arbitrarily set at a mean of  $\pm 2$  trimmed SD), or if the variability in the number of admissions is too high (variation coefficient above 40%), a warning message will appear asking for the entered data to be checked. To correctly participate in the PROSAFE project, all patients consecutively admitted to the ICU must be registered in the software on a continuous basis throughout the year; any marked swings in the number of admissions should suggest that there may be patient registration 'gaps'. It is, however, impossible to distinguish between registration 'gaps' and periods in which there is a real reduction/increase in admissions. Hence our objective is to draw attention to potential problems by asking each individual centre for feedback.

To more clearly illustrate the selection methods used in the choice of valid data, we present an extract from the data validity report of a randomly selected, anonymized ICU.

From January to December, Centre XX000 recruits a total of 619 patients. The first table and the bar graph show the number of monthly admissions to intensive care. In this case, a warning will appear at the bottom of the bar graph asking for confirmation of the entered data.



## Centre XX000 - Year 2014

## Data validity

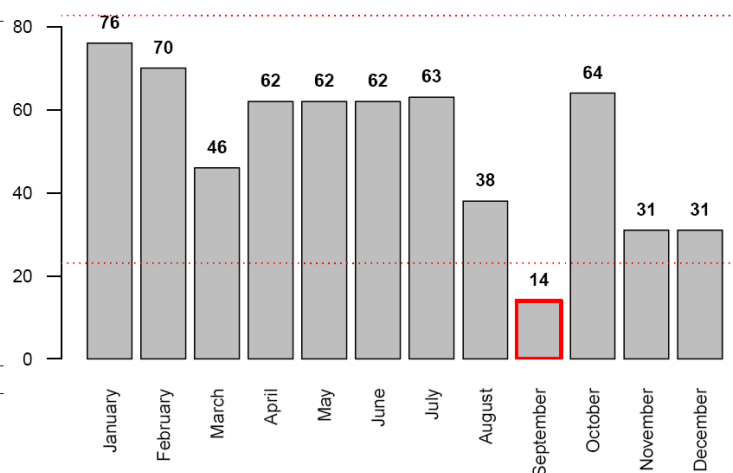
Patients admitted: 619

## Admissions

Month	N	%
January	76	12.3
February	70	11.3
March	46	7.4
April	62	10.0
May	62	10.0
June	62	10.0
July	63	10.2
August	38	6.1
September	14	2.3
October	64	10.3
November	31	5.0
December	31	5.0

## Admissions

Mean	51.6
Median	62.0
SD	19.1
VC	37.1



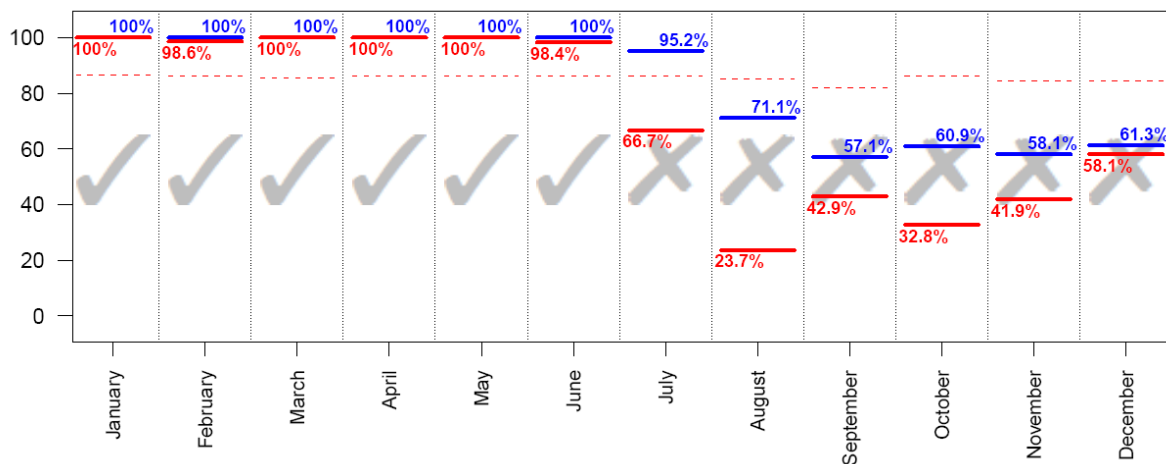
**WARNING!** The highlighted months have a number of patients quite different from the average. Please verify the correctness of the data and, particularly, that all consecutive patients have been registered in the Prosafe software.

The second table divides the recruited patients by admission month and form completion status. Overall, the ICU in question presents complete data for 485 patients. 134 patients still present incomplete data.

Month	Status (N)					Total	% Pts. in status 3/4	% Pts. in status 4
	1	2	3	4	5			
January	0	0	0	76	0	76	100.0	100.0
February	0	0	1	69	0	70	100.0	98.6
March	0	0	0	46	0	46	100.0	100.0
April	0	0	0	62	0	62	100.0	100.0
May	0	0	0	62	0	62	100.0	100.0
June	0	0	1	61	0	62	100.0	98.4
July	0	3	18	42	0	63	95.2	66.7
August	0	11	18	9	0	38	71.1	23.7
September	0	6	2	6	0	14	57.1	42.9
October	4	21	18	21	0	64	60.9	32.8
November	0	13	5	13	0	31	58.1	41.9
December	0	12	1	18	0	31	61.3	58.1
Total	4	66	64	485	0	619	88.7	78.4

The final graph shows level of data completeness in the various months. Percentages of patients with records in status 3 or 4 and in status 4 are shown in blue and red respectively.

According to our elimination criterion, the overall analysis will exclude those patients admitted in the months of August, September, October, November and December since they present a validity percentage below the defined threshold (dashed line). Accordingly, 441 patients have valid data for the analysis. Regarding analysis of hospital mortality, patients admitted in July will also be excluded (in that month the % of patients with record not in status 4 is still too high). Hence, the analysis on hospital outcome will involve 378 patients on 619 admitted.



Patients admitted in months with % of patients in status 3 or 4 over the threshold (drawn in the graph with a dashed line): **441**; patients in status 4: **378**.

## Description of patients

These sections of the report present the results of the analyses conducted on the group of patients with valid data. This part presents patient characteristics at ICU admission and during ICU stay, severity scores, process indicators, and outcomes for the various patient subgroups.

Absolute number, percentage and number of missing data are reported for the categorical data, while mean, standard deviation, median, interquartile range (Q1-Q3) and minimum and maximum range are reported for continuous variables. The acronym 95% CI indicates the 95% confidence interval of the estimate.

Below are a few tips on how to correctly interpret the analyses.

**BMI** The calculation of Body Mass Index is based on weight and height values, with the following formula:

$$BMI = \frac{\text{weight (kg)}}{\text{height (m)}^2} \quad (4)$$

The categories of underweight, overweight and obese are determined according to the following criteria: underweight if BMI<20 (males) or BMI<19 (females); normal weight if 20<=BMI<=25 (males) or 19<=BMI<=24 (females); overweight if 25<BMI<=30 (males) or 24<BMI<=29 (females); obese if BMI>30 (males) or BMI>29 (females).

**CCI** The Charlson Comorbidities Index is calculated according to the Quan formula.

**Stay before ICU** Days spent between admission to hospital and admission to ICU.

**Reason for transfer from other ICU** The reported items refer to the following reasons:

- Specialist expertise -> specialist expertise within the hospital;
- Step-up care -> management of high complexity critical patient;
- Logistical/organizational reasons -> continuation of treatment in stabilized patient (transfer for logistic/ organizational reasons);
- Step-down care-> continuation of treatment in a non-specialist environment.

**Surgical interventions on admission (top 10)** This lists the top 10 surgical interventions, divided by elective surgery and emergency surgery patients, operated between 7 days prior to and one day after admission to the ICU. Each single intervention (even more than one per patient) is counted.

**Timing of surgical interventions on admission** The timing of surgical interventions on admissions is specified. Each single intervention (even more than one per patient) is counted. It may happen that the percentages exceed the threshold of 100 % if patients underwent more than one intervention in the specified time periods.

**Multiple trauma** The category multiple trauma is defined by the presence of trauma in two or more regions.

**SAPSII** The score cannot be calculated if GCS (first 24 hours) is unassessable.

The SAPSII score for individual patients can become the probability of dying in hospital. This is performed by the following formula:

$$\text{Predicted hospital mortality} = \frac{e^{\text{Logit}}}{1 + e^{\text{Logit}}} \quad (5)$$

where

$$\text{Logit} = -7.763 + 0.074 \times \text{SAPSII} + 0.997 \times \ln(\text{SAPSII} + 1) \quad (6)$$

**PELOD** The PELOD score for individual pediatric patients can become the probability of dying in ICU. This is performed by the following formula:

$$\text{Predicted ICU mortality} = \frac{1}{1 + e^{7.64 - 0.30 \times \text{PELOD}}} \quad (7)$$

**PIM 2/PIM 3** The PIM score for individual pediatric patients can become the probability of dying in ICU. This is performed by the following formula:

$$\text{Predicted ICU mortality} = \frac{e^{\text{PIM}}}{1 + e^{\text{PIM}}} \quad (8)$$

**Severity evolution (of infections)** The severity of infection on admission is shown in the rows. Maximum severity reached during ICU stay is indicated in the columns. The table reports the absolute numbers and row percentages by which to assess the evolution of infection severity. For example, in the case below, the severity of the infection did not worsen during ICU stay in 15 out of the 17 patients admitted with SEPSIS (15/17=88.2%). Conversely, the condition of SEPSIS developed into SEPTIC SHOCK in 2 patients (2/17=11.8%).

Severity evolution		During the stay				
		N (R %)	None	Infection without SEPSIS	SEPSIS	SEPTIC SHOCK
Admission	None	173 (93.0%)	9 (4.8%)	1 (0.5%)	3 (1.6%)	186
	Infection without SEPSIS	-	19 (95.0%)	0 (0.0%)	1 (5.0%)	20
	SEPSIS	-	-	15 (88.2%)	2 (11.8%)	17
	SEPTIC SHOCK	-	-	-	36 (100.0%)	36
	TOT	173	28	16	42	259

**VAP** Forms of pneumonia associated with invasive ventilation are defined as VAP (pneumonia onset after the 2nd day of ventilation and developing within 2 days of the end of ventilation).

**Incidence of VAP** Two different incidence rates are presented:

$$\text{Incidence of VAP} = \frac{\text{Number of patients with VAP during stay}}{\text{Mechanical ventilation days pre VAP}} \times 1000 \quad (9)$$

where the variable *mechanical ventilation days pre-VAP* corresponds to the total number of mechanical ventilation days pre-VAP of all patients admitted to the ICU. It is equal to the total duration of mechanical ventilation for patients who do not develop VAP and to the difference between the date of onset of VAP and the start date of mechanical ventilation for infected patients. The mechanical ventilation days in patients who were discharged or died within 2 days of the start of ventilation are excluded from the denominator.

$$\text{Incidence of VAP} = \frac{\text{Number of patients with VAP during stay}}{(\text{Mechanical ventilation days pre VAP})/8} \times 100 \quad (10)$$

The second rate is only a reworking of the previous one, to simplify interpretation of the data. It answers the question: 'Out of 100 patients ventilated for 8 days in the ICU, how many develop VAP?'. The 8-day cut off has been set by convention. The rates are accompanied by 95% confidence intervals.

**Incidence of CR-BSI** Just like VAP, two incidence rates are presented for catheter-related blood stream infections:

$$\text{Incidence of CRBSI} = \frac{\text{Number of patients with CRBSI during stay}}{\text{CVC days pre CRBSI}} \times 1000 \quad (11)$$

$$\text{Incidence of CRBSI} = \frac{\text{Number of patients with CRBSI during stay}}{(\text{CVC days pre CRBSI})/12} \times 100 \quad (12)$$

The second one responds to the question 'Out of 100 theoretical patients catheterized for 12 days in the ICU, how many will develop catheter-related blood stream infections?'.

**Invasive ventilation (approach)** The reported items refer to the following scenarios:

- Due to pulmonary failure -> invasive ventilation in a patient with hypoxic and/or hypercapnic respiratory failure;
- For airway maintenance -> invasive ventilation in a patient without respiratory failure, to support airways (e.g. coma patient);
- In weaning -> final part of invasive ventilation in a patient admitted for weaning from ventilation.

**Non invasive ventilation (approach)** The reported items refer to the following scenarios:

- Non invasive ventilation only -> non-invasive ventilation as the only ventilatory approach to the patient;
- Non invasive ventilation failed -> non-invasive ventilation immediately followed by patient intubation;
- For weaning -> non-invasive ventilation started within one day of the end of invasive ventilation.

**Surgical interventions during stay (top 10)** The surgical interventions performed from the second day of stay.

**Reason of transfer to other ICU** See the item 'Reason of transfer from other ICU'.

**Hospital mortality** Statistics on hospital outcome (indicated with an asterisk, where necessary) involve the subgroup of patients with valid data for this variable or patients admitted during the months when over a defined % of patients were in status 4, after excluding readmissions from another hospital ward.

**Last hospital mortality** For patients transferred to other ICU or to rehabilitation/high dependency care unit in other hospital, is the outcome at the last hospital discharge.

**Readmissions** Only readmissions from other hospital wards are considered.

**ICU stay (days)** Length of pre-ICU, post-ICU and hospital stay are simply calculated as the difference between dates. Calculation of ICU stay can be optimized by using time of patient admission and discharge. The difference between the discharge date and the admission date is calculated. 1 is added if the patient is admitted before 12:00 and discharged after this time. Conversely, 1 is subtracted if the patient is admitted after midday and discharged before midday. If the length of stay in the ICU is equal to 0, length of stay is entered as 1.

**Analysis of mortality:** This section presents indicators or graphs useful for a detailed analysis of mortality. The diagram lists the reference models used for the calculation of expected mortality according to the type of patients evaluated. All the predictive models involve the subgroup of patients admitted during the months when over a defined % of patients were in status 4. Analyses involving adult patients exclude cardiac surgery patients, patients admitted for diagnosis of death/organ donation and readmissions.

Patients	Model	Mortality
Adults non CS - Non Covid	GiViTI 2021	Last hospital mortality
Adults non CS - Covid	GiViTI 2020 COvid	Last hospital mortality
Pediatric	PIM 2	ICU mortality
	PIM 3	ICU mortality
	PELOD	ICU mortality

**Analysis of mortality: forest plot** The graph shows the various O/E scores of the ICUs involved in the project. The O/E score is given by the ratio between the total number of observed deaths and the total number of expected deaths





(according to the indicated reference model). The dotted line, in correspondence to the value of 1, separates the ICUs with lower or higher mortality than predicted by the model. Each estimate is accompanied by a 95% confidence interval.

## **Statistics**





National report for general ICUs - Year 2021  
Project participation\*

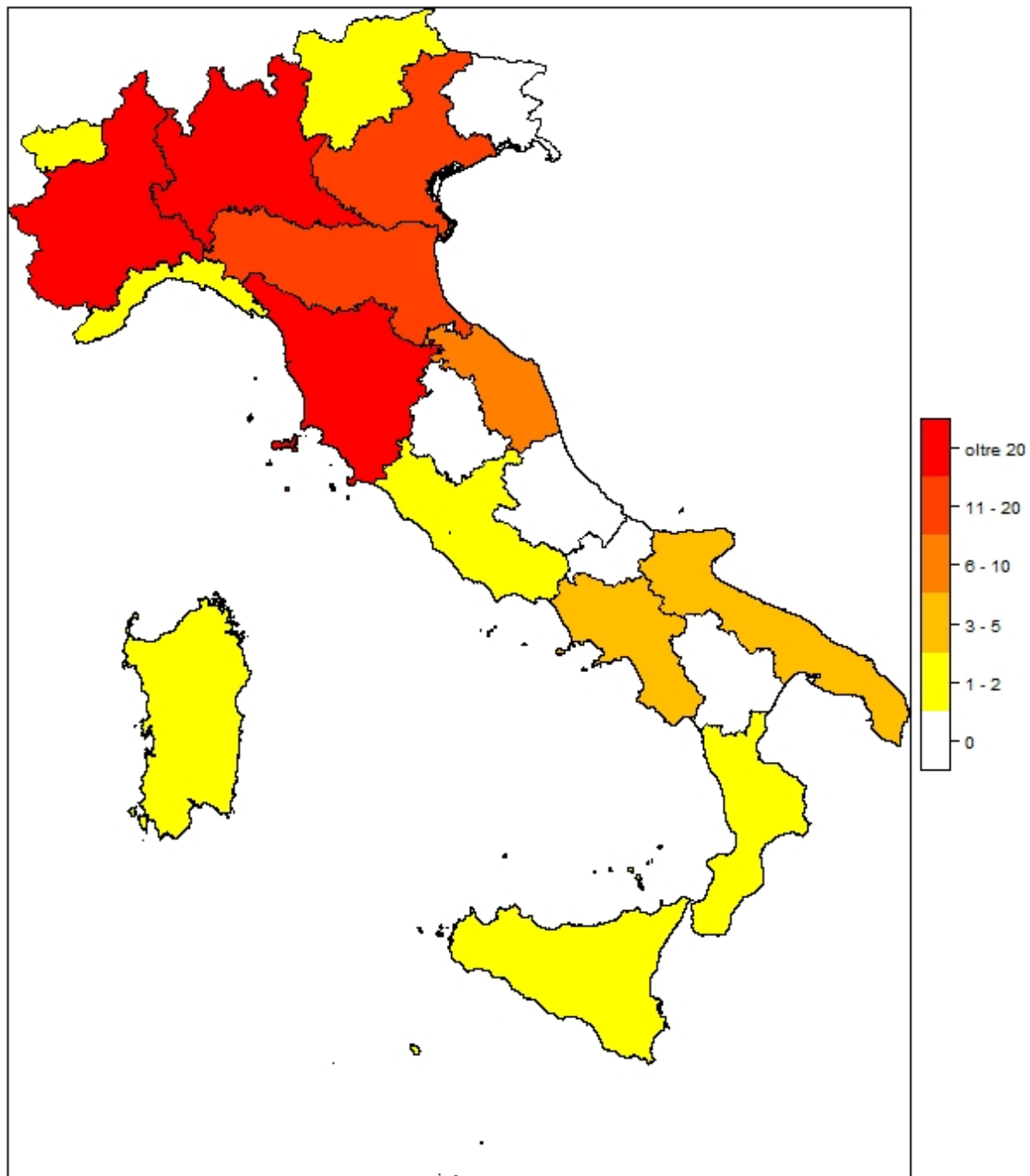
Nation	TYPE							Total
	General	Cardiosurgical	Surgical	Neurosurgical	Pediatrics	HDC	Other	
 Greece	1 ICU 520 patients							1 ICU 520 patients
 Israel					1 ICU 726 patients			1 ICU 726 patients
 Italy	<b>128 ICUs</b> <b>42821 patients</b>	13 ICUs 7705 patients	5 ICUs 2009 patients	6 ICUs 2907 patients	3 ICUs 1224 patients	2 ICUs 815 patients	12 ICUs 5379 patients	169 ICUs 62860 patients
 Slovenia	1 ICU 360 patients		4 ICUs 949 patients					5 ICUs 1309 patients
<b>Total</b>	<b>130 ICUs</b> <b>43701 patients</b>	<b>13 ICUs</b> <b>7705 patients</b>	<b>9 ICUs</b> <b>2958 patients</b>	<b>6 ICUs</b> <b>2907 patients</b>	<b>4 ICUs</b> <b>1950 patients</b>	<b>2 ICUs</b> <b>815 patients</b>	<b>12 ICUs</b> <b>5379 patients</b>	<b>176 ICUs</b> <b>65415 patients</b>

\*Are considered as adhering the ICUs with at least 4 months of valid compilation.



## Location of Italian participating ICUs (N=121)

## ICUs per region



Region	N	%
Abruzzo	0	0
Basilicata	0	0
Calabria	1	0.8
Campania	3	2.5
Emilia Romagna	13	10.7
Friuli Venezia Giulia	0	0
Lazio	1	0.8
Liguria	2	1.7
Lombardia	29	24
Marche	6	5
Molise	0	0
Piemonte	22	18.2
Puglia	3	2.5
Sardegna	1	0.8
Sicilia	1	0.8

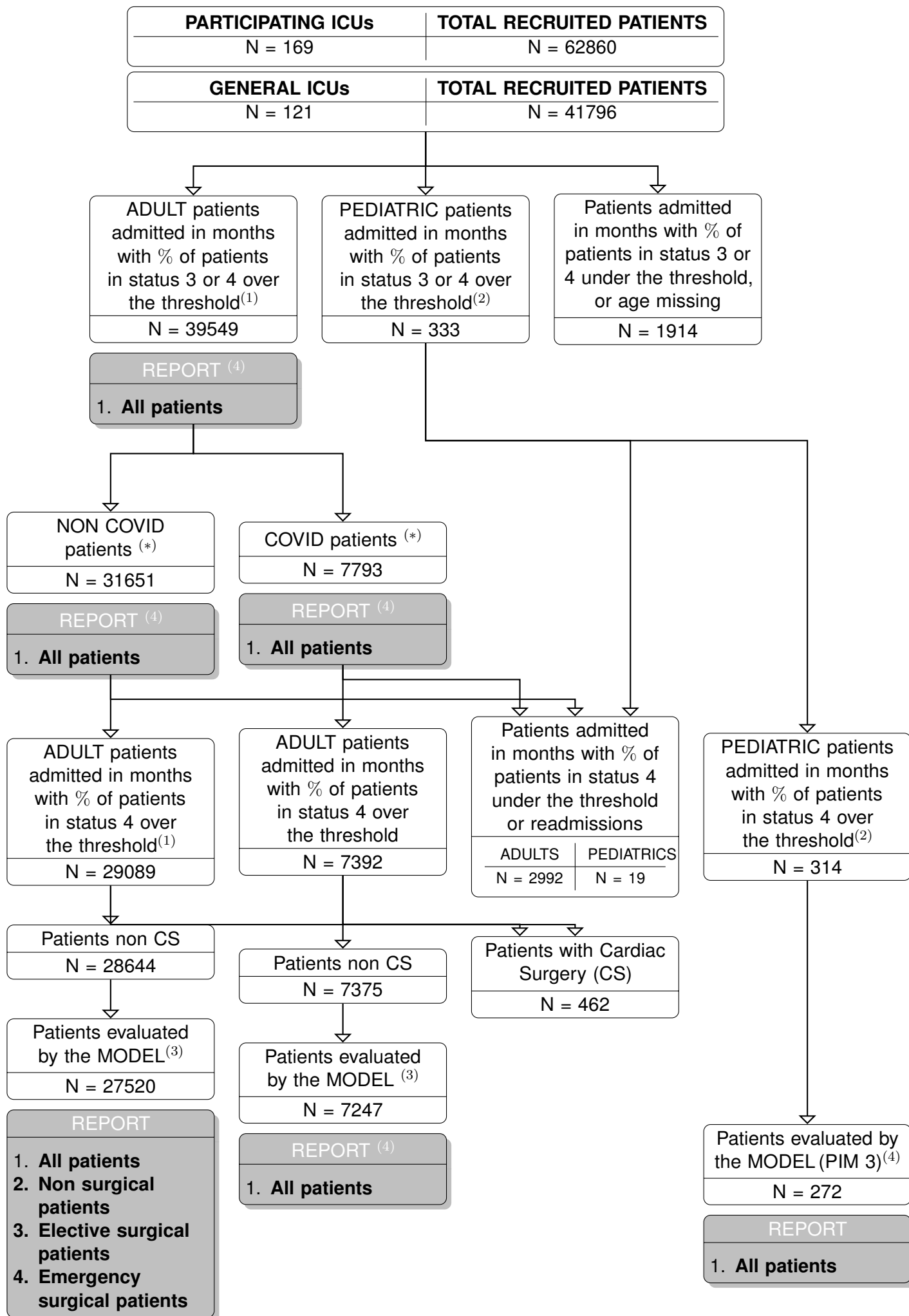
Region	N	%
Toscana	23	19
Trentino Alto Adige	2	1.7
Umbria	0	0
Valle d'Aosta	1	0.8
Veneto	13	10.7

Geographical area	N	%
Northern Italy	82	67.8
Central Italy	30	24.8
Southern Italy	9	7.4



**National report for general ICUs (121 ICUs) - Year 2021**  
**Study flow-chart**



- (1) *Patients older than 17 years are considered ADULT patients.*
  - (2) *Patients under 17 years of age are considered PEDIATRIC patients.*
  - (3) *Patients evaluated by the GiViTI model of hospital mortality are those with all the variables of the model completed, including the hospital outcome. Patients admitted for diagnosis of death/organ donation and readmissions are excluded.*
  - (4) *Statistics produced for groups with more than 20 patients (bold).*
  - (5) *Patients transferred to other ICU are excluded.*
- (\*) *Sono esclusi dall'analisi tutti i pazienti per cui le informazioni relative al COVID sono assenti.*





**National report for general ICUs - Year 2021**  
**Characteristics on admission - Adult patients**

**Patients (N): 39549**

<b>Sex</b>	N	%
Male	24605	62.4
Female	14821	37.6
Missing	123	

<b>Age (years)</b>	N	%
17-45	4293	10.9
46-65	12459	31.5
66-75	11447	28.9
>75	11350	28.7
Missing	0	
Mean	65.5	
SD	15.4	
Median	68	
Q1–Q3	57–77	
Min–Max	17–103	

<b>Body mass Index (BMI)</b>	N	%
Underweight	1781	4.6
Normal	15697	40.3
Overweight	12635	32.4
Obese	8855	22.7
Missing	581	

<b>Pregnancy status</b>	N	%
<b>Females (N=14821)</b>		
Not fertile	7165	48.6
Not pregnant/Unknown	7191	48.8
Currently pregnant	97	0.7
Post partum	276	1.9
Missing	92	

<b>Comorbidities</b>	N	%
No	6543	16.6
Yes	32904	83.4
Missing	102	

<b>Comorbidities (top 10)</b>	N	%
Hypertension	21213	53.8
Arrhythmia	5674	14.4
Diabetes Type II without insulin tr.	5526	14.0
Moderate COPD	4605	11.7
Myocardial infarction	4528	11.5
Any tumour without metastasis	4107	10.4
Peripheral vascular disease	3287	8.3
Cerebrovascular disease	3273	8.3
NYHA class II-III	3216	8.2
Antiplatelet therapy	3049	7.7
Missing	102	

<b>Stay before ICU (days)</b>		
Mean	4.9	
SD	11.1	
Median	1	
Q1–Q3	0–5	
Missing	130	

<b>Source of admission</b>	N	%
Same hospital	34159	86.6
Other hospital	5189	13.2
Long-term chronic care hospital	104	0.3
Directly from the community	1	0.0
Missing	96	

<b>Ward of admission</b>	N	%
<b>Hospital (N=39348)</b>		
Medical ward	8285	21.1
Surgical ward	13484	34.3
Emergency room	12930	32.9
Other ICU	2615	6.6
High dependency care unit	2032	5.2
Missing	2	

<b>Reason for transfer from</b>	N	%
<b>Other ICU (N=2615)</b>		
Specialist expertise	453	17.3
Step-up care	371	14.2
Logistical/organizational reasons	1690	64.6
Step-down care	101	3.9
Missing	0	

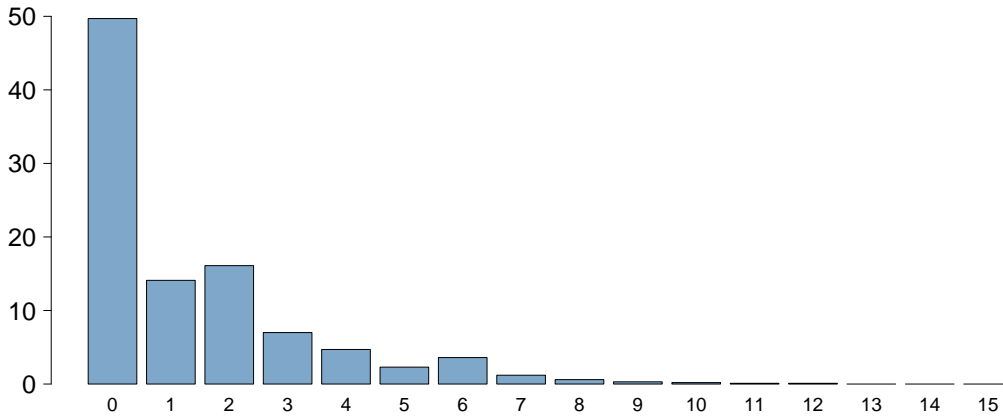
<b>Ward of admission</b>	N	%
<b>Same hospital (N=34159)</b>		
Medical ward	7398	21.7
Surgical ward	13268	38.8
Emergency room	11007	32.2
Other ICU	673	2.0
High dependency care unit	1811	5.3
Missing	2	

<b>Ward of admission</b>	N	%
<b>Other hospital (N=5189)</b>		
Medical ward	887	17.1
Surgical ward	216	4.2
Emergency room	1923	37.1
Other ICU	1942	37.4
High dependency care unit	221	4.3
Missing	0	

<b>Scheduled admission</b>	N	%
No	32781	83.1
Yes	6661	16.9
Missing	107	

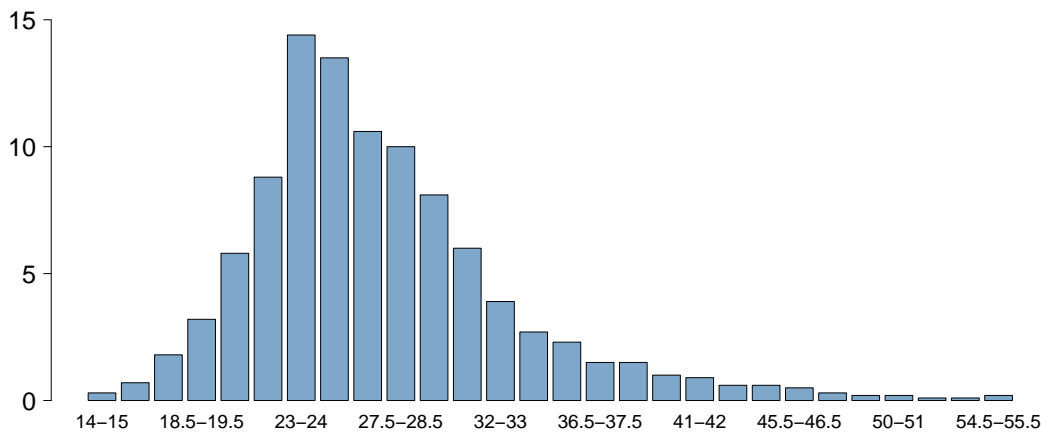
**National report for general ICUs - Year 2021**  
**Characteristics on admission - Adult patients**

**Charlson (%)**



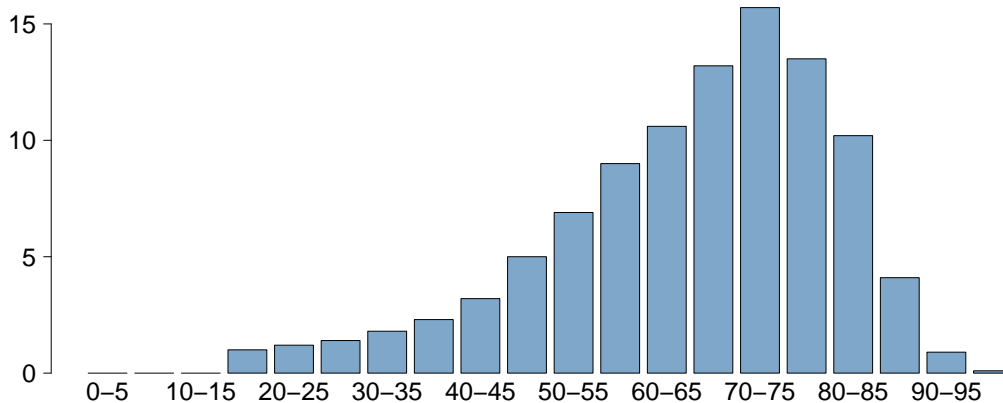
Charlson score	
Mean	1.4
SD	1.9
Median	1
Q1–Q3	0–2
Missing	102

**BMI (%)**



BMI	
Mean	27.6
SD	6.7
Median	26.1
Q1–Q3	23.5–29.9
Missing	591

**Age (%)**



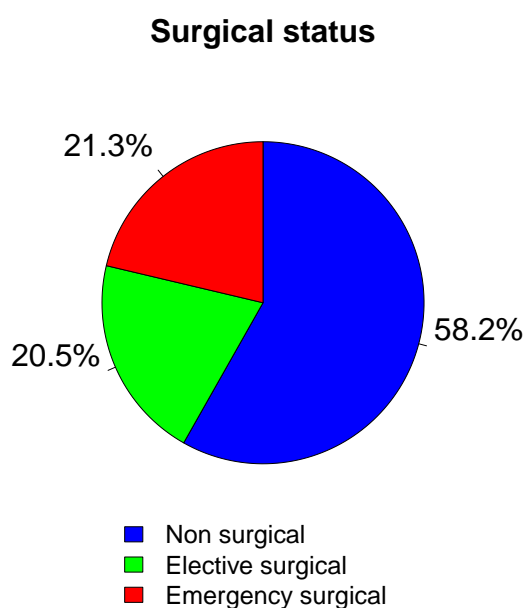
Age	
Mean	65.5
SD	15.4
Median	68
Q1–Q3	57–77
Missing	0

## National report for general ICUs - Year 2021

### Characteristics on admission - Adult patients

Trauma	N	%
No	35323	89.5
Yes	4123	10.5
Multiple trauma	1745	4.4
Missing	103	

Surgical status	N	%
Non surgical	22961	58.2
Elective surgical	8078	20.5
Emergency surgical	8405	21.3
Missing	105	



Source of admission	N	%
<b>Surgical pt. (N=16483)</b>		
Operating theatre of surgical ward	11784	71.6
Operating theatre of emergency room	2000	12.1
Surgical ward	620	3.8
Other	2062	12.5
Missing	17	

Surgical interventions (top 10)	N	%
<b>Elective surgical (N=8078)</b>		
Gastrointestinal surgery	2096	25.9
Neurosurgery	1008	12.5
Nephro/Urological surgery	935	11.6
Orthopaedic surgery	887	11.0
Thoracic surgery	559	6.9
ENT surgery	431	5.3
Pancreatic surgery	346	4.3
Hepatic surgery	335	4.1
Gynaecological surgery	304	3.8
Abdominal vascular surgery	253	3.1
Missing	924	

Timing	N	%
<b>Elective surgical (N=8078)</b>		
From -7 to -3 days	108	1.3
From -2 to -1 days	266	3.3
On ICU admission day	8130	100.6
The day after ICU admission	78	1.0
Missing	13	

Surgical interventions (top 10)	N	%
<b>Emergency surgical (N=8405)</b>		
Gastrointestinal surgery	3617	43.0
Neurosurgery	1209	14.4
Orthopaedic surgery	1048	12.5
Nephro/Urological surgery	476	5.7
Abdominal vascular surgery	303	3.6
Biliary tract surgery	297	3.5
Peripheral vascular surgery	261	3.1
ENT surgery	227	2.7
Thoracic surgery	212	2.5
Obstetric surgery	189	2.2
Missing	566	

Timing	N	%
<b>Emergency surgical (N=8405)</b>		
From -7 to -3 days	223	2.7
From -2 to -1 days	1012	12.0
On ICU admission day	7453	88.7
The day after ICU admission	332	4.0
Missing	32	

Non surgical interventions	N	%
None	36314	92.1
Elective	467	1.2
Emergency	2662	6.7
Missing	106	

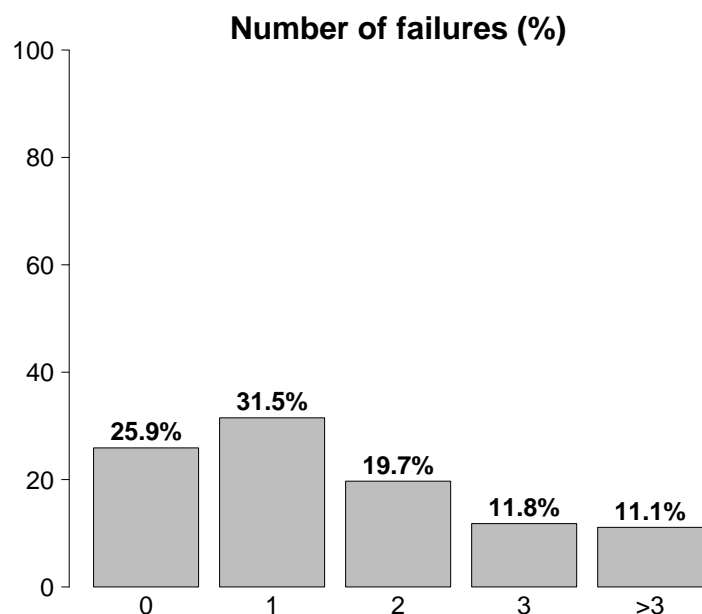
Non surgical interventions	N	%
<b>Elective (N=467)</b>		
Interventional endoscopy	138	29.6
Interventional radiology	110	23.6
Interventional cardiology	78	16.7
Interventional neuroradiology	78	16.7
Missing	63	

Non surgical interventions	N	%
<b>Emergency (N=2662)</b>		
Interventional cardiology	1017	38.2
Interventional radiology	679	25.5
Interventional endoscopy	518	19.5
Interventional neuroradiology	424	15.9
Missing	24	

## National report for general ICUs - Year 2021

## Characteristics on admission - Adult patients

Reason for admission	N	%
Monitoring/Weaning	13634	34.6
Post surgical weaning	4551	11.6
Surgical monitoring	5246	13.4
Post interventional weaning	122	0.3
Interventional monitoring	631	1.6
Non surgical monitoring	2897	7.4
Missing	187	
Intensive Treatment	25457	64.6
Only ventilatory support	14661	37.2
Only cardiovascular support	1625	4.1
Ventilatory and cardiovascular support	9168	23.3
Missing	3	
Palliative Sedation	169	0.4
Diagnosis of death/Organ donation	168	0.4
Missing	121	



Failures on admission	N	%
No	10232	25.9
Yes	29317	74.1
A: Respiratory failure	23829	60.3
B: Cardiovascular failure	10793	27.3
C: Neurological failure	4137	10.5
D: Hepatic failure	277	0.7
E: Renal failure	12357	31.2
F: Acute skin failure	27	0.1
G: Metabolic failure	8979	22.7
H: Coagulation failure	386	1.0
Missing	0	

Failures on admission (top 10)	N	%
A	9129	23.1
ABEG	2568	6.5
AB	2470	6.2
E	1948	4.9
AE	1884	4.8
AC	1304	3.3
ABE	1277	3.2
AEG	878	2.2
ABCEG	836	2.1
EG	770	1.9
Missing	0	

Respiratory failure	N	%
None	15720	39.7
Only hypoxic failure	11389	28.8
Only hypercapnic failure	699	1.8
Hypoxic-hypercapnic failure	2124	5.4
Intubation for airway maint.	9617	24.3
Missing	0	

Cardiovascular failure	N	%
None	28756	72.7
Without shock	2692	6.8
Cardiogenic shock	1662	4.2
Septic shock	2984	7.5
Haemorrhagic/hypovolemic shock	1325	3.4
Hypovolemic shock	642	1.6
Anaphylactic shock	29	0.1
Neurogenic shock	277	0.7
Other shock	512	1.3
Mixed shock	670	1.7
Missing	0	

Neurologic failure	N	%
None	28309	87.2
Cerebral coma	2149	6.6
Metabolic coma	752	2.3
Postanoxic coma	1053	3.2
Toxic coma	183	0.6
Missing or not evaluable	7103	

Renal failure (AKIN)	N	%
None	27037	68.6
Mild	6011	15.3
Moderate	2909	7.4
Severe	3437	8.7
Missing	155	

Metabolic failure	N	%
None	30416	77.2
pH <= 7.3, PaCO <sub>2</sub> < 45 mmHg	2181	5.5
Base deficit >= 5 mmol/L, lactate >1.5x	6798	17.3
Missing	154	

## National report for general ICUs - Year 2021

### Characteristics on admission - Adult patients

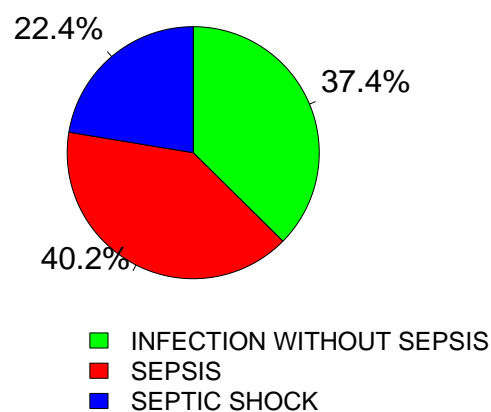
Clinical conditions on admission	N	%
Respiratory	9036	22.9
Severe ARDS	1997	5.1
Moderate ARDS	1989	5.0
Pleural effusion	1012	2.6
Acute exacerbation of COPD	954	2.4
Aspiration pneumonia	674	1.7
Cardiovascular	6182	15.7
Cardiac arrest	1564	4.0
Left heart failure with pulm. edema	929	2.4
Left heart failure without pulm. edema	701	1.8
Acute severe arrhythmia: tachycardias	701	1.8
Acute ischaemia	627	1.6
Neurological	5241	13.3
Spontaneous Intraparenchymal bleeding	1117	2.8
Brain tumour	897	2.3
Cerebral artery stroke	838	2.1
Seizures	745	1.9
Metabolic/postanoxic encephalopathy	565	1.4
Gastrointestinal and hepatic	6822	17.3
Digestive tract malignancy	1814	4.6
Gastrointestinal perforation	1144	2.9
Intestinal occlusion	960	2.4
Bowel ischaemia	512	1.3
Gastrointestinal bleeding: upper tract	456	1.2
Trauma (anatomical districts)	4122	10.5
Pelvis/bone/joint & muscle	1835	4.7
Head	1702	4.3
Chest	1586	4.0
Spine	928	2.4
Abdomen	702	1.8
Major vessels injury	179	0.5
Miscellaneous	81	0.2
Other	7503	19.0
Other disease	1629	4.1
Nephrourologic disease	1614	4.1
Metabolic disorder	1532	3.9
Acute intoxication	728	1.8
Orthopaedic disease	672	1.7
Post transplantation	328	0.8
Liver transplantation	192	0.5
Renal transplantation	81	0.2
Infections	15993	40.5
COVID-19	7793	19.8
Pneumonia	7169	18.2
NON-surgical secondary peritonitis	1025	2.6
NON-catheter-related UTI	647	1.6
Post-surgical peritonitis	574	1.5
L.R.T.I. other than pneumonia	559	1.4
Primary bacteraemia of unknown origin	553	1.4
Cholecystitis/cholangitis	433	1.1
NON-surgical skin/soft tissue infection	373	0.9
Catheter-related UTI	370	0.9
Missing	105	

Trauma (anatomical districts)	N	%
Head	1702	4.3
Traumatic subarachnoid haemorrhage	647	1.6
Traumatic Subdural haematoma	568	1.4
Cerebral contusion/laceration	541	1.4
Maxillofacial fracture	529	1.3
Skull fracture	445	1.1
Spine	928	2.4
Vertebral fracture, without deficit	771	2.0
Cervical injury, incomplete deficit	59	0.1
Paraplegia	35	0.1
Chest	1586	4.0
Other injuries of the chest	928	2.4
Traum. haemothorax/pneumothorax	652	1.7
Severe lung contusion/laceration	362	0.9
Abdomen	702	1.8
Spleen: Moderate-Severe laceration	199	0.5
Minor injuries of the abdomen	184	0.5
Liver: Moderate-Severe laceration	164	0.4
Pelvis/bone/joint & muscle	1835	4.7
Long bone fracture	1501	3.8
Multiple fracture of the pelvis	435	1.1
Very severe or open fracture of the pelvis	88	0.2
Major vessels injury	179	0.5
Proximal limbs vessels: transection	69	0.2
Neck vessels: dissection/transection	46	0.1
Aorta: rupture/dissection	37	0.1
Miscellaneous	81	0.2
Burns (>30% BSA)	58	0.1
Inhalation injury	37	0.1
Missing	105	

Infection severity on admission	N	%
None	23451	59.5
INFECTION WITHOUT SEPSIS	5974	15.1
SEPSIS	6424	16.3
SEPTIC SHOCK	3584	9.1
Missing	116	

### Infection severity on admission

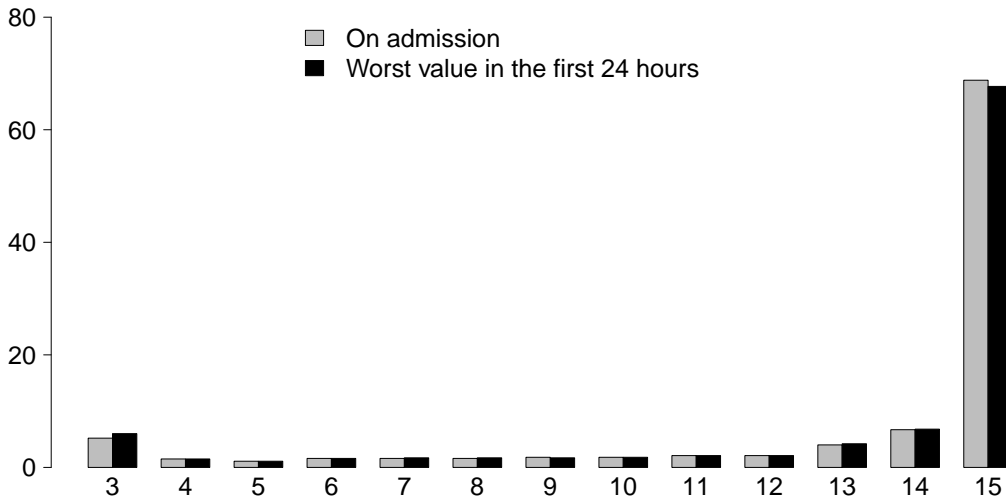
Patients infected (N=15982)



National report for general ICUs - Year 2021

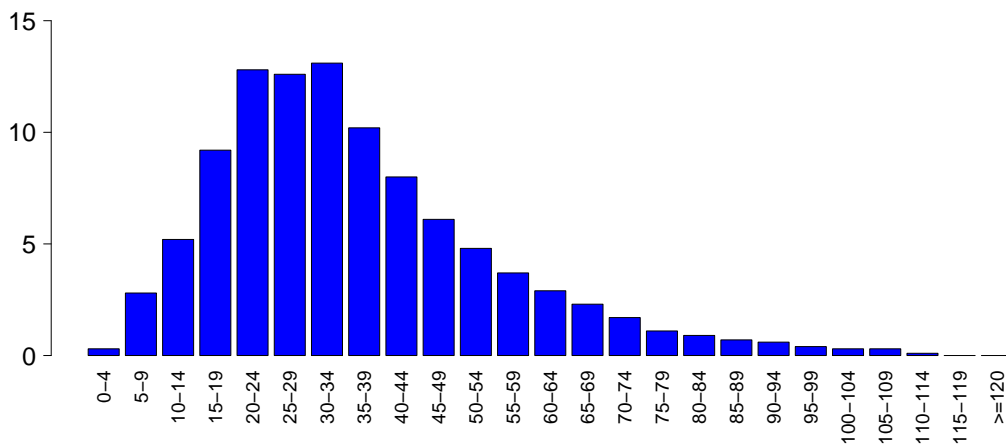
Severity scores - Adult patients

Glasgow Coma Scale (%)



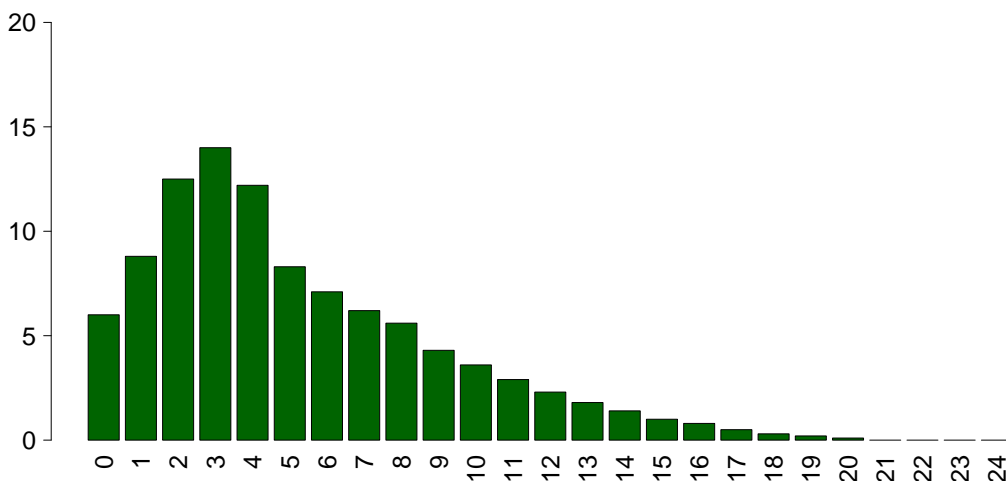
GCS (admission)	
Median	15
Q1–Q3	14–15
Not evaluable	6977
Missing	126
GCS (worst in first 24 hours)	
Median	15
Q1–Q3	13–15
Not evaluable	7162
Missing	144

SAPS II (%)



SAPSII	
Mean	36.0
SD	18.9
Median	32
Q1–Q3	23–45
Not evaluable	7162
Missing	156

SOFA (%)



SOFA	
Mean	5.2
SD	3.9
Median	4
Q1–Q3	2–7
Not evaluable	7162
Missing	157

**National report for general ICUs - Year 2021**  
**Characteristics during the stay - Adult patients**

<b>Complications during the stay</b>	<b>N</b>	<b>%</b>
No	25196	64.0
Yes	14201	36.0
Missing	152	

<b>Failures during the stay</b>	<b>N</b>	<b>%</b>
No	32156	81.3
Yes	7393	18.7
A: Respiratory failure	4077	10.3
B: Cardiovascular failure	3659	9.3
C: Neurological failure	399	1.0
D: Hepatic failure	148	0.4
E: Renal failure (AKIN)	1799	4.5
F: Acute skin failure	15	0.0
G: Metabolic failure	414	1.0
H: Coagulation failure	193	0.5
Missing	0	

<b>Failures during the stay (top 10)</b>	<b>N</b>	<b>%</b>
A	2259	5.7
B	1664	4.2
AB	942	2.4
E	584	1.5
BE	362	0.9
ABE	340	0.9
G	239	0.6
AE	198	0.5
C	101	0.3
AC	74	0.2
Missing	0	

<b>Respiratory failure occurred</b>	<b>N</b>	<b>%</b>
None	35320	89.7
Intubation for airway maint.	1067	2.7
Hypoxic failure	2996	7.6
Hypercapnic failure	578	1.5
Missing	152	

<b>Cardiovascular failure occurred</b>	<b>N</b>	<b>%</b>
None	35738	90.7
Cardiogenic shock	719	1.8
Hypovolemic shock	211	0.5
Haemorrhagic/hypovolemic shock	269	0.7
Septic shock	2086	5.3
Anaphylactic shock	6	0.0
Neurogenic shock	118	0.3
Other shock	449	1.1
Missing	152	

<b>Neurological failure occurred</b>	<b>N</b>	<b>%</b>
None	38998	99.0
Cerebral coma	200	0.5
Metabolic coma	101	0.3
Postanoxic coma	102	0.3
Missing	152	

<b>Renal failure occurred (AKIN)</b>	<b>N</b>	<b>%</b>
None	37598	95.4
Mild	167	0.4
Moderate	308	0.8
Severe	1324	3.4
Missing	152	

<b>Complications during the stay</b>	<b>N</b>	<b>%</b>
Respiratory	2750	7.0
Severe ARDS	827	2.1
Pleural effusion	631	1.6
Pneumothorax/Pneumomediastinum	562	1.4
Atelectasis	439	1.1
Pulmonary embolism	248	0.6
Cardiovascular	2819	7.2
Acute severe arrhythmia: tachycardias	1176	3.0
Cardiac arrest	834	2.1
Deep venous thrombosis	217	0.6
Left heart failure w/o pulm. edema	169	0.4
Pulmonary edema	169	0.4
Neurological	2370	6.0
Drowsiness/agitation/delirium	1189	3.0
Intracranial hypertension	362	0.9
Brain edema	354	0.9
Seizures	337	0.9
CrIMyNe	148	0.4
Gastrointestinal and hepatic	1060	2.7
Bowel ischaemia	165	0.4
Gastrointestinal bleeding: upper tract	160	0.4
Gastrointestinal bleeding: lower tract	147	0.4
Paralytic Ileus	126	0.3
Gastrointestinal perforation	115	0.3
Other	994	2.5
Metabolic disorder	414	1.1
Nephrourologic disease	234	0.6
Other disease	198	0.5
Category/Stage II: Partial Thickness Skin Loss	57	0.1
Other skin and/or soft tissue pathology	56	0.1
Category/Stage IV: Full Thickness Tissue Loss	37	0.1
Category/Stage III: Full Thickness Skin Loss	31	0.1
Infections	5889	14.9
Pneumonia	2671	6.8
L.R.T.I. other than pneumonia	1219	3.1
Catheter-related UTI	865	2.2
Primary bacteraemia of unknown origin	811	2.1
Catheter-related bacteremia (CR-BSI)	788	2.0
NON-catheter-related UTI	140	0.4
Other fungal infections	136	0.3
Upper respiratory tract infection	128	0.3
Post-surgical peritonitis	127	0.3
Clinical sepsis	122	0.3
Missing	152	

## National report for general ICUs - Year 2021

## Characteristics during the stay - Adult patients

Infections	N	%
None	21200	53.8
Only on admission	12306	31.2
On admission and during ICU stay	3660	9.3
Only during ICU stay	2229	5.7
Missing	154	

Maximum severity of infection	N	%
None	21200	53.8
INFECTION WITHOUT SEPSIS	5651	14.3
SEPSIS	7268	18.4
SEPTIC SHOCK	5274	13.4
Missing	156	

## Severity evolution

Severity evolution		N (R %)	During the stay				TOT
			None	INFECTION WITHOUT SEPSIS	SEPSIS	SEPTIC SHOCK	
Admission	None	21200 (90.5%)	1033 (4.4%)	869 (3.7%)	326 (1.4%)	23428	
	INFECTION WITHOUT SEPSIS	-	4616 (77.4%)	857 (14.4%)	494 (8.3%)	5967	
	SEPSIS	-	-	5541 (86.3%)	874 (13.6%)	6417	
	SEPTIC SHOCK	-	-	-	3578 (100.0%)	3578	
	TOT	21200	5651	7267	5272	39390	

Ventil. Associat. Pneumonia (VAP)	N	%
No	37120	93.9
Yes	2392	6.1
Missing	37	

## Incidence of VAP

(Pts. with VAP/1000 days of VM pre-VAP)

Estimate	14.7
CI (95%)	14.2–15.3

## Incidence of VAP

(Pts. with VAP/pts. ventilated for 8 days)

Estimate	11.8%
CI (95%)	11.3–12.3

Catheter Bacteraemia (CR-BSI)	N	%
No	38609	98.0
Yes	788	2.0
Missing	152	

## Incidence of CR-BSI

(Pts. with CR-BSI/1000 days of CVC pre-CR-BSI)

Estimate	3.1
CI (95%)	2.9–3.3

## Incidence of CR-BSI

(Pts. with CR-BSI/pts. catheterized for 12 days)

Estimate	3.7%
CI (95%)	3.4–4.0

Catheter-related urinary tract infection (UTI)	N	%
No	38532	97.8
Yes	865	2.2
Missing	152	

## Incidence of catheter-related UTI

(Pts. with catheter-related UTI/1000 days of UC pre-UTI)

Estimate	3.0
CI (95%)	2.8–3.2

## Incidence of catheter-related UTI

(Pts. with catheter-related UTI/pts. with UC for 12 days)

Estimate	3.6%
CI (95%)	3.4–3.8



## National report for general ICUs - Year 2021

Process indicators - Adult patients Procedures and/or treatments (Missing=111) <b>Procedures (antibiotics excluded)</b>	Use		On admission		On discharge		Length (days)			Days from admission		
	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
	39076	99.1										
Invasive ventilation	26544	67.3	18253	46.3	7360	18.7	3	1-10	47	0	0-1	3
Non invasive ventilation	9041	22.9	3521	8.9	2268	5.8	2	1-5	15	0	0-2	1
Tracheostomy	5468	13.9	1351	3.4	4345	11	12	5-21	20	10	6-15	3
iNO (inhaled nitric oxide)	667	1.7	25	0.1	177	0.4	4	2-9	0	3	1-8	0
Central Venous Catheter	27676	70.2	12880	32.7	22108	56.1	5	2-13	63	0	0-0	7
PICC	1384	3.5	485	1.2	1219	3.1	4	2-9	2	7	1-19	0
Arterial Catheter	35098	89.0	17683	44.8	11801	29.9	4	1-10	64	0	0-0	7
Vasoactive drugs	15579	39.5	6631	16.8	4127	10.5	2	1-6	18	0	0-1	4
Antiarrhythmics	2827	7.2	789	2	1569	4	3	1-9	4	2	0-5	0
IABP	230	0.6	185	0.5	91	0.2	2	1-4	0	0	0-1	0
Invasive monitoring of C.O.	1232	3.1	227	0.6	342	0.9	5	2-9	2	0	0-2	1
Continuous monitoring of ScVO2	104	0.3	38	0.1	26	0.1	3	1-8	0	1	0-4	0
Temporary pacing	255	0.6	199	0.5	180	0.5	2	1-4	1	1	0-4	0
Ventricular assistance	10	0.0	5	0	3	0	2	1-4	0	0	0-1	0
DC-shock	528	1.3								0	0-1	0
CPR	917	2.3								0	0-1	0
Massive blood transfusion	370	0.9								0	0-0	1
ICP monitoring without CSF drainage	288	0.7	143	0.4	56	0.1	6	3-10	0	0	0-1	0
ICP monitoring with CSF drainage	344	0.9	243	0.6	164	0.4	8	3-13	0	0	0-1	0
EVD without ICP monitoring	104	0.3	81	0.2	65	0.2	4	1-12	1	1	0-3	0
Haemofiltration	1478	3.7	130	0.3	418	1.1	4	2-9	4	1	0-5	2
Haemodialysis	1161	2.9	194	0.5	513	1.3	4	1-9	4	1	0-6	2
ECMO	210	0.5	63	0.2	104	0.3	14	5-30	0	2	1-7	0
Hepatic clearance techniques	11	0.0										
Clearance techniques during sepsis	306	0.8	9	0	66	0.2	2	1-3	0	1	0-5	0
IAP (intra-abdominal pressure)	478	1.2										
Hypothermia	212	0.5	58	0.1	18	0	1	1-1	0	0	0-0	0
Enteral nutrition	15945	40.4	3276	8.3	10972	27.8	8	4-17	22	1	0-2	4
Parenteral nutrition	6918	17.5	1079	2.7	3930	10	5	2-11	14	1	0-2	3
SDD (Topical, Topical and systemic)	452	1.1										
Patient restraint	605	1.5										
Peridural catheter	1061	2.7	924	2.3	835	2.1	1	1-2	1	0	0-2	0
Electrical cardioversion	289	0.7								2	1-6	0
Vacuum therapy	232	0.6										
Urinary catheter	37476	95.0	30129	76.4	33174	84.1	3	1-10	69	0	0-0	4
Pronation	4064	10.3	367	0.9	335	0.8	4	2-7	5	0	0-1	1
Antivirals	825	2.1	397	1	500	1.3	5	3-12	1	1	0-7	0

**National report for general ICUs - Year 2021**  
**Process indicators - Adult patients**

Procedures and/or treatments (Missing=111)	Use		On admission		On discharge		Length (days)			Days from admission		
	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
<b>Antibiotics</b>	24352	61.7										
Antibiotic prophylaxis	8296	21.0	6102	15.5	3499	8.9	1	1-2	4	0	0-0	0
Empirical antibiotic therapy (infection diagnosis confirmed)	8081	20.5	3531	9	2628	6.7	4	2-6	9	0	0-4	1
Empirical antibiotic therapy (infection diagnosis unconfirmed)	5420	13.7	2596	6.6	3325	8.4	3	2-6	1	0	0-1	0
Targeted antibiotic therapy	7664	19.4	1239	3.1	4077	10.3	7	4-11	14	6	3-10	0
Antifungal in empirical therapy	1446	3.7	408	1	711	1.8	5	2-9	6	1	0-8	0
Antifungal in targeted therapy	1325	3.4	184	0.5	729	1.8	10	5-16	6	9	4-16	0
Pre-emptive antifungal	304	0.8	87	0.2	155	0.4	5	2-10	1	1	0-6	1

**Antibiotic therapy**

Pt. infected in ICU only (N=2229)	N	%
No therapy	241	10.8
Only empirical	459	20.6
Only targeted	662	29.7
Targeted after empirical	641	28.8
Other	226	10.1
Missing	0	

**Antifungal therapy**

Pt. infected in ICU only (N=2229)	N	%
No therapy	1997	89.6
Only empirical	105	4.7
Only targeted	113	5.1
Targeted after empirical	12	0.5
Other	2	0.1
Missing	0	

## National report for general ICUs - Year 2021

## Process indicators - Adult patients

Invasive ventilation (N=26544)	N	%	Length (days)				
			Mean	SD	Median	Q1-Q3	Missing
Due to pulmonary failure	10977	37.6	11.7	13.9	7	3–16	21
For airway maintenance	9376	32.1	6.2	11.4	2	1–7	7
In weaning	4716	16.1	0.4	0.5	0	0–1	0
Not evaluable	4146	14.2	6.6	11.2	2	1–8	2697
Reintubation within 48 hours	424	1.5	8.9	12.4	5	2–11	0

Non invasive ventilation (N=9041)	N	%
Non invasive ventilation only	4303	47.6
Non invasive ventilation failed	2498	27.6
For weaning	1889	20.9
Other	351	3.9
Missing	0	

Tracheostomy not present on admission (N=4117)	N	%
Surgical	508	12.3
Percutwist	307	7.5
Ciaglia	734	17.8
Monodil. Ciaglia	1936	47.0
Fantoni	17	0.4
Griggs	482	11.7
Other Kind	72	1.7
Unknown	56	1.4
Missing	5	

## Tracheostomy - Days after the beginning of inv. vent. Not present on admission (N=4080)

	Mean	SD	Median	Q1–Q3	Missing
	10.6	7.5	9	6–14	6

Invasive monitoring of C.O. (N=1232)	N	%
Swan Ganz	289	23.5
PICCO	729	59.2
LIDCO	2	0.2
Vigileo-PRAM	132	10.7
Other	78	6.3
Missing	2	

SDD (N=452)	N	%
Topical	445	98.5
Topical and systemic	7	1.5
Missing	0	

Surgical interventions	N	%
No	37787	95.8
Yes	1638	4.2
Missing	124	

Number of surgical interventions	N	%
0	37787	95.8
1	1264	3.2
2	223	0.6
3	90	0.2
>3	61	0.2
Missing	124	

## Surgical interventions

## Days from admission

	Mean	SD	Median	Q1–Q3	Missing
	10.1	15.5	6	3–12	12

Surgical interventions (top 10)	N	%
Gastrointestinal surgery	827	2.1
Orthopaedic surgery	373	0.9
Neurosurgery	203	0.5
ENT surgery	202	0.5
Thoracic surgery	105	0.3
Other surgery	78	0.2
Maxillo-Facial surgery	74	0.2
Plastic surgery	72	0.2
Nephro/Urological surgery	59	0.1
Organ donation	58	0.1
Missing	124	

Non surgical interventions	N	%
No	38697	98.2
Yes	718	1.8
Missing	134	

## Non surgical interventions

## Days from admission

	Mean	SD	Median	Q1–Q3	Missing
	14.1	19.4	9	4–17	19

Non surgical interventions	N	%
Interventional endoscopy	458	1.2
Interventional radiology	219	0.6
Interventional cardiology	118	0.3
Interventional neuroradiology	72	0.2
Missing	134	

## National report for general ICUs - Year 2021

## Outcome indicators - Adult patients

ICU outcome	N	%
Dead	8091	20.5
Transferred to same hospital	27277	69.3
Transferred to other hospital	3598	9.1
Discharged home	255	0.6
Disch. terminally ill	160	0.4
Missing	168	

Transferred to (N=30875)	N	%
Ward	23937	77.5
Other ICU	2391	7.7
High dependency care unit	3457	11.2
Rehabilitation	913	3.0
Day hospital or Long-term care	177	0.6
Missing	0	

Reason of transfer to Other ICU (N=2468)	N	%
Specialist expertise	804	32.6
Step-up care	207	8.4
Logistical/organizational reasons	1421	57.6
Step-down care	36	1.5
Missing	0	

Transferred to Same hospital (N=27277)	N	%
Ward	23106	84.7
Other ICU	757	2.8
High dependency care unit	3255	11.9
Rehabilitation	115	0.4
Day hospital or Long-term care	44	0.2
Missing	0	

Transferred to Other hospital (N=3598)	N	%
Ward	831	23.1
Other ICU	1634	45.4
High dependency care unit	202	5.6
Rehabilitation	798	22.2
Day hospital or Long-term care	133	3.7
Missing	0	

ICU mortality	N	%
Alive	31130	79.0
Dead	8251	21.0
Missing	168	

Timing of ICU mortality (N=8251)	N	%
Daytime (08:00AM - 07:59PM)	5963	72.3
Nighttime (08:00PM - 07:59AM)	2288	27.7
Weekdays (Monday - Friday)	6142	74.4
Weekend (Saturday - Sunday)	2108	25.6
Missing	0	

C.A.M. activation (N=8251)	N	%
Yes, with organ donation	381	4.7
Yes, without organ donation	296	3.7
No, with organ donation	21	0.3
No, without organ donation	7393	91.4
Missing	160	

Tissue removal (N=8251)	N	%
Yes, with C.A.M. activation	213	2.6
Yes, without C.A.M. activation	219	2.7
No	7819	94.8
Missing	0	

Hospital mortality *	N	%
Dead	9334	25.7
Transf. to other acute-care hospital	3534	9.7
Transf. to other type of hosp. stay	6017	16.6
Nursing home	636	1.8
Voluntary discharge	209	0.6
Discharged home	16566	45.6
Missing	261	

To other type of H stay* (N=6017)	N	%
Rehabilitation in the same institute	936	15.6
Rehabilitation in other institute	3800	63.2
DH/long-term care, same inst.	326	5.4
DH/long-term care, other inst.	955	15.9
Missing	0	

Disch. terminally ill* (N=26962)	N	%
Yes	431	1.6
No	26529	98.4
Missing	2	

Hospital mortality *	N	%
Alive	26529	73.1
Dead	9765	26.9
Missing	263	

Timing of hosp. mortality * (N=9765)	N	%
In ICU	7633	78.2
Within 24 hours after ICU	114	1.2
24-47 hours after ICU	116	1.2
48-71 hours after ICU	92	0.9
72-95 hours after ICU	122	1.2
After 95 hours after ICU	1685	17.3
Missing	3	

Timing of hosp. mortality (days from ICU disch.) * Discharged alive from ICU (N=2132)		
Mean		17.6
SD		22.7
Median		11
Q1-Q3		4-22
Missing		0

\* Statistics computed on patients admitted in months with % of patients in status 4 over the threshold (readmissions excluded) (N=36557).

## National report for general ICUs - Year 2021

## Outcome indicators - Adult patients

Last hospital mortality *	N	%
Alive	26129	72.2
Dead	10074	27.8
Missing	354	

Readmission from ward	N	%
No	38373	97.1
Yes	1141	2.9
Missing	35	

Number of readmissions (N=1141)	N	%
1	1057	92.6
2	76	6.7
>2	8	0.7
Missing	0	

Timing of readmission (N=1141)	N	%
Within 48 hours	240	21.3
48-71 hours	127	11.3
72-95 hours	114	10.1
After 95 hours	644	57.2
Missing	16	

Timing readmission (days)	N	1141
Mean	9.0	
SD	14.1	
Median	5	
Q1-Q3	2-10.5	

ICU stay (days)		
Mean	7.9	
SD	11.7	
Median	3	
Q1-Q3	1-10	
Missing	162	

ICU stay (days) Alive (N=31130)		
Mean	7.3	
SD	11.3	
Median	3	
Q1-Q3	1-8	
Missing	4	

ICU stay (days) Dead (N=8251)		
Mean	10.2	
SD	13.0	
Median	6	
Q1-Q3	2-14	
Missing	2	

Stay after ICU (days) * Alive (N=28799)		
Mean	12.9	
SD	16.6	
Median	8	
Q1-Q3	4-16	
Missing	150	

Hospital stay (days) *		
Mean	21.4	
SD	22.5	
Median	15	
Q1-Q3	8-28	
Missing	272	

Hospital stay (days) * Alive (N=26529)		
Mean	22.7	
SD	22.3	
Median	16	
Q1-Q3	9-29	
Missing	9	

Hospital stay (days) * Dead (N=9765)		
Mean	18.0	
SD	22.5	
Median	12	
Q1-Q3	4-24	
Missing	3	

\* Statistics computed on patients admitted in months with % of patients in status 4 over the threshold (readmissions excluded) (N=36557).



**National report for general ICUs - Year 2021**  
**Characteristics on admission - NON COVID patients**

**Patients (N): 31651**

<b>Sex</b>	N	%
Male	19117	60.6
Female	12435	39.4
Missing	99	

<b>Age (years)</b>	N	%
17-45	3685	11.6
46-65	9262	29.3
66-75	8624	27.2
>75	10080	31.8
Missing	0	
Mean	65.9	
SD	16.1	
Median	69	
Q1–Q3	57–78	
Min–Max	17–103	

<b>Body mass Index (BMI)</b>	N	%
Underweight	1706	5.5
Normal	13552	43.3
Overweight	9744	31.2
Obese	6273	20.1
Missing	376	

<b>Pregnancy status</b>	N	%
<b>Females (N=12435)</b>		
Not fertile	6277	50.7
Not pregnant/Unknown	5803	46.9
Currently pregnant	58	0.5
Post partum	244	2.0
Missing	53	

<b>Comorbidities</b>	N	%
No	4729	14.9
Yes	26919	85.1
Missing	3	

<b>Comorbidities (top 10)</b>	N	%
Hypertension	16974	53.6
Arrhythmia	5035	15.9
Diabetes Type II without insulin tr.	4316	13.6
Moderate COPD	3927	12.4
Myocardial infarction	3811	12.0
Any tumour without metastasis	3708	11.7
Peripheral vascular disease	2967	9.4
Cerebrovascular disease	2934	9.3
NYHA class II-III	2906	9.2
Antiplatelet therapy	2664	8.4
Missing	3	

<b>Stay before ICU (days)</b>		
Mean	4.7	
SD	11.7	
Median	1	
Q1–Q3	0–4	
Missing	25	

<b>Source of admission</b>	N	%
Same hospital	27965	88.4
Other hospital	3591	11.3
Long-term chronic care hospital	94	0.3
Directly from the community	1	0.0
Missing	0	

<b>Ward of admission</b>	N	%
<b>Hospital (N=31556)</b>		
Medical ward	4283	13.6
Surgical ward	13328	42.2
Emergency room	11087	35.1
Other ICU	2067	6.6
High dependency care unit	790	2.5
Missing	1	

<b>Reason for transfer from</b>	N	%
<b>Other ICU (N=2067)</b>		
Specialist expertise	335	16.2
Step-up care	253	12.2
Logistical/organizational reasons	1383	66.9
Step-down care	96	4.6
Missing	0	

<b>Ward of admission</b>	N	%
<b>Same hospital (N=27965)</b>		
Medical ward	3928	14.0
Surgical ward	13123	46.9
Emergency room	9647	34.5
Other ICU	551	2.0
High dependency care unit	715	2.6
Missing	1	

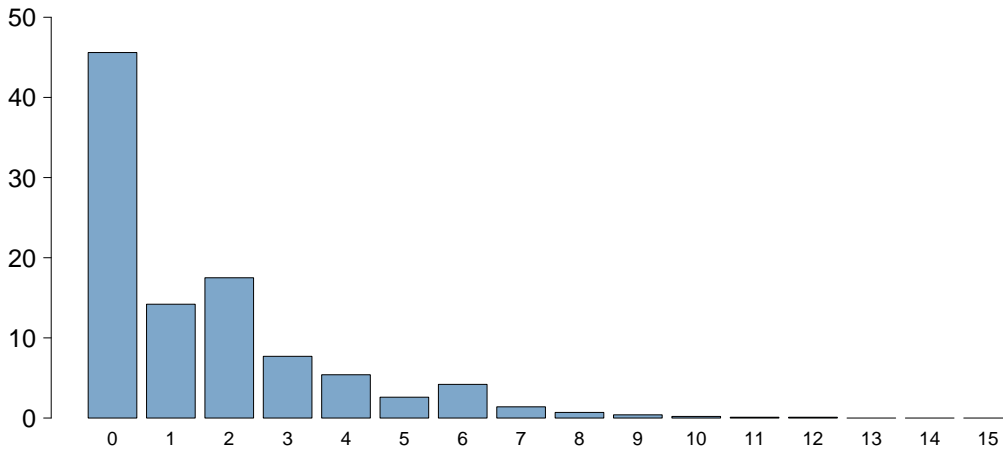
<b>Ward of admission</b>	N	%
<b>Other hospital (N=3591)</b>		
Medical ward	355	9.9
Surgical ward	205	5.7
Emergency room	1440	40.1
Other ICU	1516	42.2
High dependency care unit	75	2.1
Missing	0	

<b>Scheduled admission</b>	N	%
No	25015	79.1
Yes	6629	20.9
Missing	7	

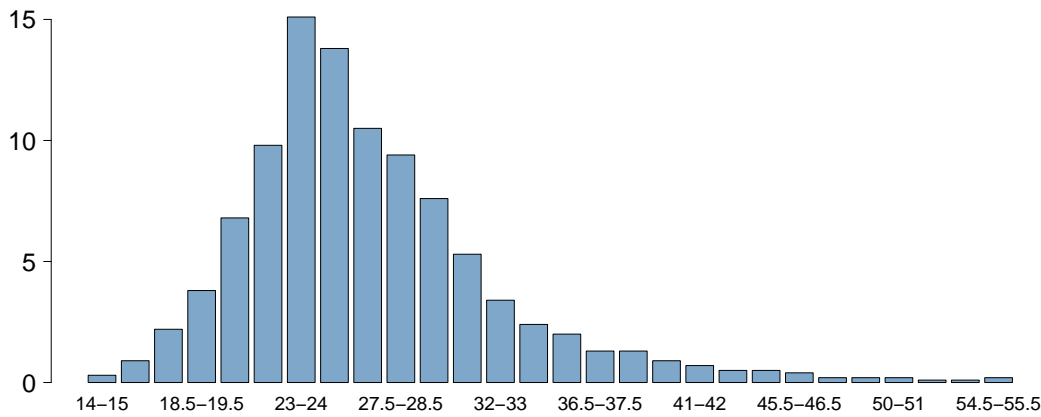
**National report for general ICUs - Year 2021**  
**Characteristics on admission - NON COVID patients**

**Charlson (%)**



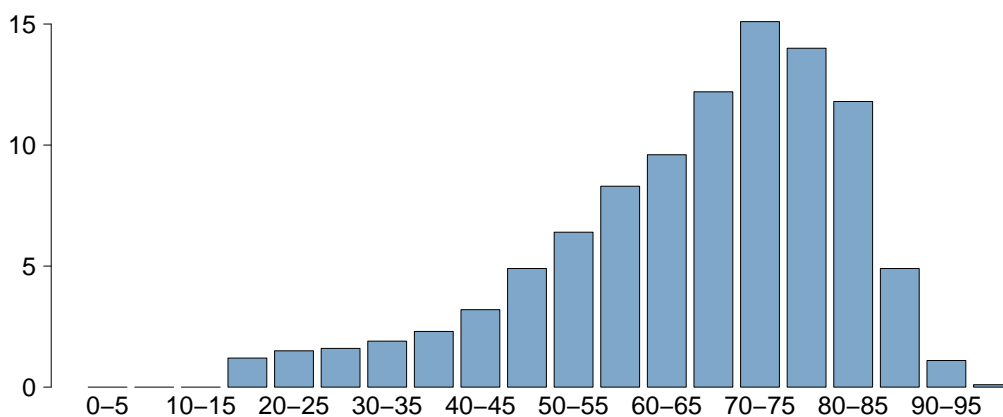
Charlson score	
Mean	1.5
SD	2.0
Median	1
Q1–Q3	0–2
Missing	3

**BMI (%)**



BMI	
Mean	27.1
SD	6.7
Median	25.8
Q1–Q3	23.1–29.4
Missing	386

**Age (%)**



Age	
Mean	65.9
SD	16.1
Median	69
Q1–Q3	57–78
Missing	0



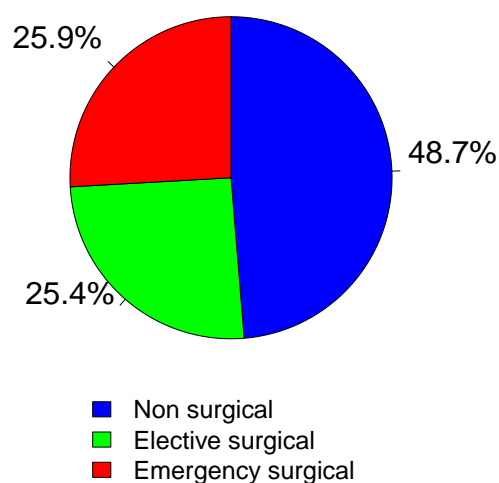
## National report for general ICUs - Year 2021

### Characteristics on admission - NON COVID patients

Trauma	N	%
No	27609	87.2
Yes	4039	12.8
Multiple trauma	1725	5.5
Missing	3	

Surgical status	N	%
Non surgical	15414	48.7
Elective surgical	8046	25.4
Emergency surgical	8186	25.9
Missing	5	

**Surgical status**



Source of admission	N	%
<b>Surgical pt. (N=16232)</b>		
Operating theatre of surgical ward	11706	72.2
Operating theatre of emergency room	1962	12.1
Surgical ward	610	3.8
Other	1937	11.9
Missing	17	

Surgical interventions (top 10)	N	%
<b>Elective surgical (N=8046)</b>		
Gastrointestinal surgery	2091	26.0
Neurosurgery	1004	12.5
Nephro/Urological surgery	935	11.6
Orthopaedic surgery	882	11.0
Thoracic surgery	557	6.9
ENT surgery	430	5.3
Pancreatic surgery	342	4.3
Hepatic surgery	334	4.2
Gynaecological surgery	303	3.8
Abdominal vascular surgery	253	3.1
Missing	915	

Timing	N	%
<b>Elective surgical (N=8046)</b>		
From -7 to -3 days	107	1.3
From -2 to -1 days	263	3.3
On ICU admission day	8102	100.7
The day after ICU admission	78	1.0
Missing	10	

Surgical interventions (top 10)	N	%
<b>Emergency surgical (N=8186)</b>		
Gastrointestinal surgery	3538	43.2
Neurosurgery	1184	14.5
Orthopaedic surgery	1026	12.5
Nephro/Urological surgery	468	5.7
Abdominal vascular surgery	298	3.6
Biliary tract surgery	292	3.6
Peripheral vascular surgery	243	3.0
ENT surgery	222	2.7
Thoracic surgery	201	2.5
Splenectomy	175	2.1
Missing	539	

Timing	N	%
<b>Emergency surgical (N=8186)</b>		
From -7 to -3 days	209	2.6
From -2 to -1 days	985	12.0
On ICU admission day	7283	89.0
The day after ICU admission	316	3.9
Missing	30	

Non surgical interventions	N	%
None	28691	90.7
Elective	458	1.4
Emergency	2496	7.9
Missing	6	

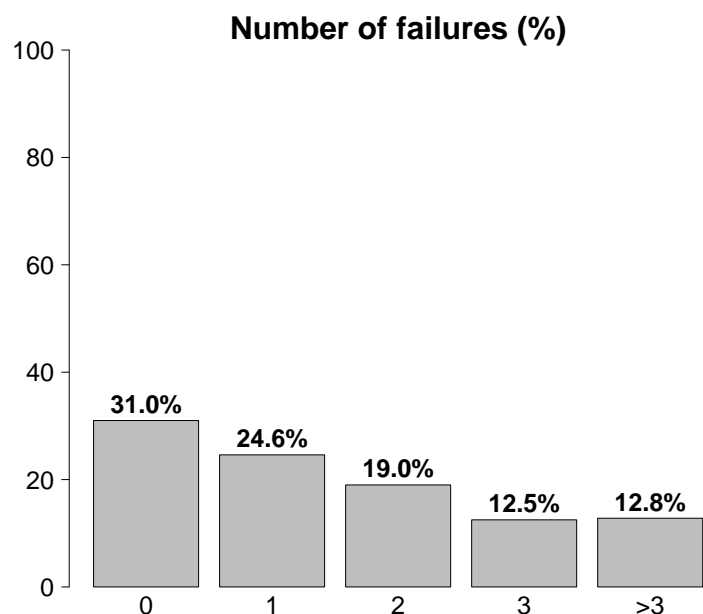
Non surgical interventions	N	%
<b>Elective (N=458)</b>		
Interventional endoscopy	136	29.7
Interventional radiology	110	24.0
Interventional neuroradiology	78	17.0
Interventional cardiology	71	15.5
Missing	63	

Non surgical interventions	N	%
<b>Emergency (N=2496)</b>		
Interventional cardiology	935	37.5
Interventional radiology	633	25.4
Interventional endoscopy	496	19.9
Interventional neuroradiology	410	16.4
Missing	22	

## National report for general ICUs - Year 2021

## Characteristics on admission - NON COVID patients

Reason for admission	N	%
Monitoring/Weaning	13253	41.9
Post surgical weaning	4515	14.4
Surgical monitoring	5206	16.6
Post interventional weaning	119	0.4
Interventional monitoring	572	1.8
Non surgical monitoring	2663	8.5
Missing	178	
Intensive Treatment	18069	57.1
Only ventilatory support	8673	27.4
Only cardiovascular support	1600	5.1
Ventilatory and cardiovascular support	7795	24.6
Missing	1	
Palliative Sedation	144	0.5
Diagnosis of death/Organ donation	167	0.5
Missing	18	



Failures on admission	N	%
No	9817	31.0
Yes	21834	69.0
A: Respiratory failure	16468	52.0
B: Cardiovascular failure	9395	29.7
C: Neurological failure	3986	12.6
D: Hepatic failure	261	0.8
E: Renal failure	10673	33.7
F: Acute skin failure	24	0.1
G: Metabolic failure	7916	25.0
H: Coagulation failure	355	1.1
Missing	0	

Failures on admission (top 10)	N	%
A	4522	14.3
ABEG	2320	7.3
E	1898	6.0
AB	1783	5.6
AC	1268	4.0
AE	1146	3.6
ABE	1060	3.3
ABCEG	798	2.5
EG	747	2.4
G	692	2.2
Missing	0	

Respiratory failure	N	%
None	15183	48.0
Only hypoxic failure	4899	15.5
Only hypercapnic failure	666	2.1
Hypoxic-hypercapnic failure	1574	5.0
Intubation for airway maint.	9329	29.5
Missing	0	

Cardiovascular failure	N	%
None	22256	70.3
Without shock	1955	6.2
Cardiogenic shock	1540	4.9
Septic shock	2670	8.4
Haemorrhagic/hypovolemic shock	1289	4.1
Hypovolemic shock	579	1.8
Anaphylactic shock	29	0.1
Neurogenic shock	274	0.9
Other shock	448	1.4
Mixed shock	611	1.9
Missing	0	

Neurologic failure	N	%
None	21603	84.4
Cerebral coma	2091	8.2
Metabolic coma	708	2.8
Postanoxic coma	1006	3.9
Toxic coma	181	0.7
Missing or not evaluable	6062	

Renal failure (AKIN)	N	%
None	20939	66.2
Mild	5009	15.8
Moderate	2500	7.9
Severe	3164	10.0
Missing	39	

Metabolic failure	N	%
None	23697	75.0
pH <= 7.3, PaCO <sub>2</sub> < 45 mmHg	1894	6.0
Base deficit >= 5 mmol/L, lactate >1.5x	6022	19.0
Missing	38	

## National report for general ICUs - Year 2021

### Characteristics on admission - NON COVID patients

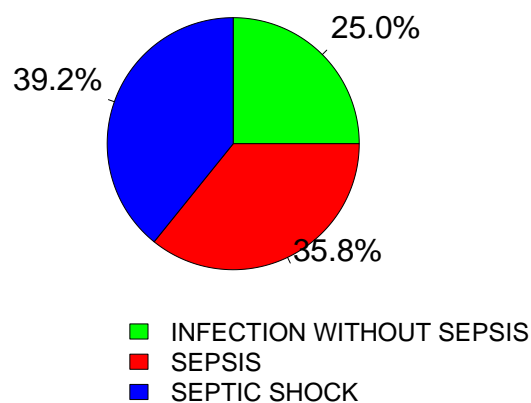
Clinical conditions on admission	N	%
Respiratory	5499	17.4
Pleural effusion	969	3.1
Acute exacerbation of COPD	934	3.0
Aspiration pneumonia	657	2.1
Atelectasis	609	1.9
Lung cancer	521	1.6
Cardiovascular	5757	18.2
Cardiac arrest	1511	4.8
Left heart failure with pulm. edema	874	2.8
Left heart failure without pulm. edema	656	2.1
Acute severe arrhythmia: tachycardias	607	1.9
Acute ischaemia	566	1.8
Neurological	5099	16.1
Spontaneous Intraparenchymal bleeding	1092	3.5
Brain tumour	889	2.8
Cerebral artery stroke	803	2.5
Seizures	725	2.3
Metabolic/postanoxic encephalopathy	546	1.7
Gastrointestinal and hepatic	6659	21.0
Digestive tract malignancy	1806	5.7
Gastrointestinal perforation	1123	3.5
Intestinal occlusion	948	3.0
Bowel ischaemia	497	1.6
Gastrointestinal bleeding: upper tract	439	1.4
Trauma (anatomical districts)	4038	12.8
Pelvis/bone/joint & muscle	1800	5.7
Head	1667	5.3
Chest	1565	4.9
Spine	917	2.9
Abdomen	693	2.2
Major vessels injury	175	0.6
Miscellaneous	80	0.3
Other	7265	23.0
Other disease	1589	5.0
Nephrourologic disease	1559	4.9
Metabolic disorder	1454	4.6
Acute intoxication	716	2.3
Orthopaedic disease	667	2.1
Post transplantation	299	0.9
Liver transplantation	185	0.6
Renal transplantation	65	0.2
Infections	8200	25.9
Pneumonia	2660	8.4
NON-surgical secondary peritonitis	995	3.1
NON-catheter-related UTI	596	1.9
Post-surgical peritonitis	566	1.8
L.R.T.I. other than pneumonia	509	1.6
Primary bacteraemia of unknown origin	454	1.4
Cholecystitis/cholangitis	422	1.3
NON-surgical skin/soft tissue infection	360	1.1
Clinical sepsis	340	1.1
Primary peritonitis	304	1.0
Missing	0	

Trauma (anatomical districts)	N	%
Head	1667	5.3
Traumatic subarachnoid haemorrhage	637	2.0
Traumatic Subdural haematoma	553	1.7
Cerebral contusion/laceration	530	1.7
Maxillofacial fracture	521	1.6
Skull fracture	439	1.4
Spine	917	2.9
Vertebral fracture, without deficit	762	2.4
Cervical injury, incomplete deficit	59	0.2
Paraplegia	34	0.1
Chest	1565	4.9
Other injuries of the chest	917	2.9
Traum. haemothorax/pneumothorax	646	2.0
Severe lung contusion/laceration	358	1.1
Abdomen	693	2.2
Spleen: Moderate-Severe laceration	197	0.6
Minor injuries of the abdomen	182	0.6
Liver: Moderate-Severe laceration	160	0.5
Pelvis/bone/joint & muscle	1800	5.7
Long bone fracture	1467	4.6
Multiple fracture of the pelvis	433	1.4
Very severe or open fracture of the pelvis	88	0.3
Major vessels injury	175	0.6
Proximal limbs vessels: transection	66	0.2
Neck vessels: dissection/transection	46	0.1
Aorta: rupture/dissection	37	0.1
Miscellaneous	80	0.3
Burns (>30% BSA)	57	0.2
Inhalation injury	36	0.1
Missing	0	

Infection severity on admission	N	%
None	23451	74.1
INFECTION WITHOUT SEPSIS	2045	6.5
SEPSIS	2935	9.3
SEPTIC SHOCK	3216	10.2
Missing	4	

### Infection severity on admission

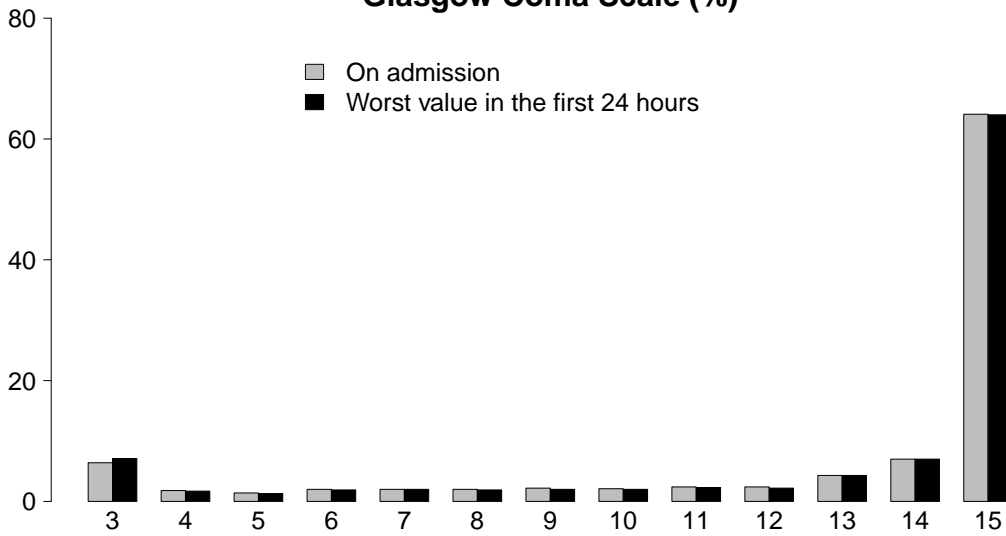
Patients infected (N=8196)



National report for general ICUs - Year 2021

Severity scores - NON COVID patients

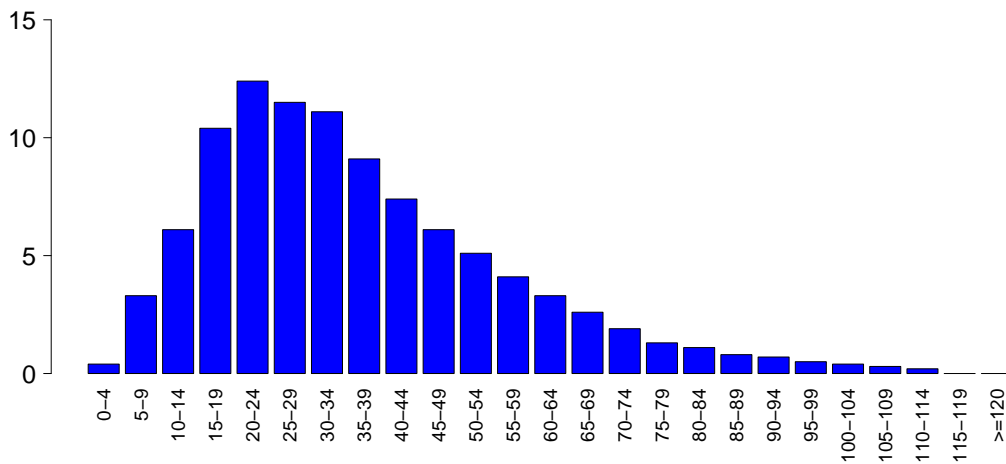
Glasgow Coma Scale (%)



GCS (admission)	
Median	15
Q1–Q3	13–15
Not evaluable	6048
Missing	14

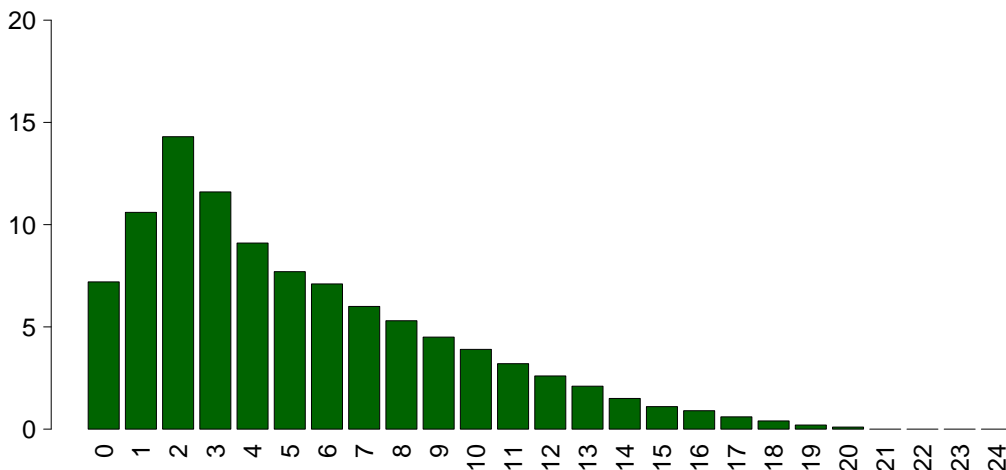
GCS (worst in first 24 hours)	
Median	15
Q1–Q3	13–15
Not evaluable	5442
Missing	31

SAPS II (%)



SAPSII	
Mean	36.3
SD	20.1
Median	32
Q1–Q3	22–47
Not evaluable	5442
Missing	41

SOFA (%)



SOFA	
Mean	5.3
SD	4.2
Median	4
Q1–Q3	2–8
Not evaluable	5442
Missing	41

**National report for general ICUs - Year 2021**  
**Characteristics during the stay - NON COVID patients**

<b>Complications during the stay</b>	<b>N</b>	<b>%</b>
No	22047	69.7
Yes	9568	30.3
Missing	36	

<b>Failures during the stay</b>	<b>N</b>	<b>%</b>
No	27135	85.7
Yes	4516	14.3
A: Respiratory failure	2310	7.3
B: Cardiovascular failure	2055	6.5
C: Neurological failure	334	1.1
D: Hepatic failure	125	0.4
E: Renal failure (AKIN)	1168	3.7
F: Acute skin failure	14	0.0
G: Metabolic failure	349	1.1
H: Coagulation failure	156	0.5
Missing	0	

<b>Failures during the stay (top 10)</b>	<b>N</b>	<b>%</b>
A	1287	4.1
B	979	3.1
AB	450	1.4
E	437	1.4
G	215	0.7
ABE	187	0.6
BE	185	0.6
AE	120	0.4
C	87	0.3
AC	69	0.2
Missing	0	

<b>Respiratory failure occurred</b>	<b>N</b>	<b>%</b>
None	29305	92.7
Intubation for airway maint.	872	2.8
Hypoxic failure	1417	4.5
Hypercapnic failure	339	1.1
Missing	36	

<b>Cardiovascular failure occurred</b>	<b>N</b>	<b>%</b>
None	29560	93.5
Cardiogenic shock	504	1.6
Hypovolemic shock	124	0.4
Haemorrhagic/hypovolemic shock	220	0.7
Septic shock	961	3.0
Anaphylactic shock	4	0.0
Neurogenic shock	117	0.4
Other shock	226	0.7
Missing	36	

<b>Neurological failure occurred</b>	<b>N</b>	<b>%</b>
None	31281	98.9
Cerebral coma	167	0.5
Metabolic coma	79	0.2
Postanoxic coma	92	0.3
Missing	36	

<b>Renal failure occurred (AKIN)</b>	<b>N</b>	<b>%</b>
None	30447	96.3
Mild	105	0.3
Moderate	219	0.7
Severe	844	2.7
Missing	36	

<b>Complications during the stay</b>	<b>N</b>	<b>%</b>
<b>Respiratory</b>	<b>1475</b>	<b>4.7</b>
Pleural effusion	480	1.5
Atelectasis	322	1.0
Severe ARDS	207	0.7
Pneumothorax/Pneumomediastinum	198	0.6
Upper resp. tract disease	106	0.3
<b>Cardiovascular</b>	<b>2057</b>	<b>6.5</b>
Acute severe arrhythmia: tachycardias	825	2.6
Cardiac arrest	687	2.2
Left heart failure w/o pulm. edema	142	0.4
Pulmonary edema	140	0.4
Deep venous thrombosis	119	0.4
<b>Neurological</b>	<b>1947</b>	<b>6.2</b>
Drowsiness/agitation/delirium	888	2.8
Intracranial hypertension	352	1.1
Brain edema	346	1.1
Seizures	310	1.0
New ischaemic stroke	120	0.4
<b>Gastrointestinal and hepatic</b>	<b>874</b>	<b>2.8</b>
Bowel ischaemia	150	0.5
Gastrointestinal bleeding: upper tract	134	0.4
Gastrointestinal bleeding: lower tract	109	0.3
Gastrointestinal perforation	98	0.3
Liver Dysfunction Syndrome	98	0.3
<b>Other</b>	<b>755</b>	<b>2.4</b>
Metabolic disorder	349	1.1
Nephrourologic disease	186	0.6
Other disease	138	0.4
Other skin and/or soft tissue pathology	41	0.1
Category/Stage II: Partial Thickness Skin Loss	28	0.1
F.U.O. fever of unknown origin	18	0.1
Category/Stage III: Full Thickness Skin Loss	16	0.1
<b>Infections</b>	<b>3263</b>	<b>10.3</b>
Pneumonia	1258	4.0
L.R.T.I. other than pneumonia	720	2.3
Catheter-related UTI	394	1.2
Primary bacteraemia of unknown origin	385	1.2
Catheter-related bacteremia (CR-BSI)	367	1.2
Post-surgical peritonitis	120	0.4
Upper respiratory tract infection	98	0.3
Clinical sepsis	82	0.3
Post-surgical skin/soft tissue infection	76	0.2
NON-catheter-related UTI	75	0.2
Missing	36	

## National report for general ICUs - Year 2021

## Characteristics during the stay - NON COVID patients

Infections	N	%
None	21200	67.1
Only on admission	7152	22.6
On admission and during ICU stay	1034	3.3
Only during ICU stay	2229	7.1
Missing	36	

Maximum severity of infection	N	%
None	21200	67.1
INFECTION WITHOUT SEPSIS	2851	9.0
SEPSIS	3725	11.8
SEPTIC SHOCK	3839	12.1
Missing	36	

## Severity evolution

Severity evolution		During the stay				
		None	INFECTION WITHOUT SEPSIS	SEPSIS	SEPTIC SHOCK	TOT
Admission	None	21200 (90.5%)	1033 (4.4%)	869 (3.7%)	326 (1.4%)	23428
	INFECTION WITHOUT SEPSIS	-	1818 (89.0%)	168 (8.2%)	57 (2.8%)	2043
	SEPSIS	-	-	2687 (91.6%)	246 (8.4%)	2933
	SEPTIC SHOCK	-	-	-	3210 (100.0%)	3210
	TOT	21200	2851	3724	3839	31614

Ventil. Associat. Pneumonia (VAP)	N	%
No	30522	96.5
Yes	1101	3.5
Missing	28	

## Incidence of VAP

(Pts. with VAP/1000 days of VM pre-VAP)

Estimate	11.5
CI (95%)	10.8–12.2

## Incidence of VAP

(Pts. with VAP/pts. ventilated for 8 days)

Estimate	9.2%
CI (95%)	8.6–9.7

Catheter Bacteraemia (CR-BSI)	N	%
No	31248	98.8
Yes	367	1.2
Missing	36	

## Incidence of CR-BSI

(Pts. with CR-BSI/1000 days of CVC pre-CR-BSI)

Estimate	2.4
CI (95%)	2.1–2.6

## Incidence of CR-BSI

(Pts. with CR-BSI/pts. catheterized for 12 days)

Estimate	2.8%
CI (95%)	2.5–3.1

Catheter-related urinary tract infection (UTI)	N	%
No	31221	98.8
Yes	394	1.2
Missing	36	

## Incidence of catheter-related UTI

(Pts. with catheter-related UTI/1000 days of UC pre-UTI)

Estimate	2.2
CI (95%)	2.0–2.4

## Incidence of catheter-related UTI

(Pts. with catheter-related UTI/pts. with UC for 12 days)

Estimate	2.6%
CI (95%)	2.4–2.9

## National report for general ICUs - Year 2021

Process indicators - NON COVID patients Procedures and/or treatments (Missing=5) Procedures (antibiotics excluded)	Use		On admission		On discharge		Length (days)			Days from admission		
	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
	31302	98.9										
Invasive ventilation	20873	66.0	16216	51.2	4993	15.8	1	1-6	29	0	0-0	3
Non invasive ventilation	4655	14.7	1355	4.3	1160	3.7	2	1-4	8	0	0-2	0
Tracheostomy	3636	11.5	1218	3.8	3100	9.8	10	5-19	12	8	4-12	1
iNO (inhaled nitric oxide)	92	0.3	10	0	18	0.1	3	2-5	0	2	0-5	0
Central Venous Catheter	21086	66.6	11040	34.9	17432	55.1	4	1-9	42	0	0-0	3
PICC	1057	3.3	402	1.3	961	3	4	1-9	1	5	1-16	0
Arterial Catheter	27539	87.0	15491	49	8394	26.5	3	1-7	43	0	0-0	4
Vasoactive drugs	12006	37.9	6096	19.3	3020	9.5	2	1-4	15	0	0-0	4
Antiarrhythmics	2096	6.6	674	2.1	1214	3.8	3	1-7	0	1	0-3	0
IABP	217	0.7	176	0.6	85	0.3	2	1-4	0	0	0-1	0
Invasive monitoring of C.O.	963	3.0	215	0.7	241	0.8	4	2-8	2	0	0-1	1
Continuous monitoring of ScVO2	80	0.3	36	0.1	18	0.1	2	1-5	0	0	0-1	0
Temporary pacing	238	0.8	196	0.6	173	0.5	2	1-4	0	0	0-2	0
Ventricular assistance	9	0.0	5	0	3	0	2	1-4	0	0	0-2	0
DC-shock	480	1.5										
CPR	760	2.4										
Massive blood transfusion	343	1.1										
ICP monitoring without CSF drainage	282	0.9	140	0.4	53	0.2	6	3-10	0	0	0-1	0
ICP monitoring with CSF drainage	339	1.1	238	0.8	161	0.5	8	3-13	0	0	0-1	0
EVD without ICP monitoring	104	0.3	81	0.3	65	0.2	4	1-12	1	1	0-3	0
Haemofiltration	1149	3.6	114	0.4	316	1	4	2-8	2	1	0-2	1
Haemodialysis	920	2.9	174	0.5	409	1.3	3	1-8	3	1	0-2	2
ECMO	66	0.2	32	0.1	31	0.1	5	1-11	0	1	0-3	0
Hepatic clearance techniques	9	0.0										
Clearance techniques during sepsis	202	0.6	8	0	45	0.1	2	1-3	0	1	0-2	0
IAP (intra-abdominal pressure)	451	1.4										
Hypothermia	202	0.6	54	0.2	17	0.1	1	1-1	0	0	0-0	0
Enteral nutrition	10325	32.6	2312	7.3	7445	23.5	7	3-14	11	1	0-2	1
Parenteral nutrition	4885	15.4	820	2.6	3069	9.7	4	2-9	10	1	0-2	2
SDD (Topical, Topical and systemic)	221	0.7										
Patient restraint	501	1.6										
Peridural catheter	1054	3.3	922	2.9	830	2.6	1	1-2	1	0	0-2	0
Electrical cardioversion	192	0.6										
Vacuum therapy	216	0.7										
Urinary catheter	29976	94.7	25253	79.8	27088	85.6	2	1-7	50	0	0-0	4
Pronation	309	1.0	22	0.1	21	0.1	2	1-5	0	1	0-4	0
Antivirals	353	1.1	162	0.5	238	0.8	5	2-11	0	1	0-6	0

**National report for general ICUs - Year 2021**  
**Process indicators - NON COVID patients**

Procedures and/or treatments (Missing=5)	Use		On admission		On discharge		Length (days)			Days from admission		
	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
<b>Antibiotics</b>	19315	61.0										
Antibiotic prophylaxis	7759	24.5	5822	18.4	3374	10.7	1	1-2	2	0	0-0	0
Empirical antibiotic therapy (infection diagnosis confirmed)	5237	16.5	2559	8.1	1975	6.2	3	2-6	7	0	0-2	0
Empirical antibiotic therapy (infection diagnosis unconfirmed)	4683	14.8	2290	7.2	3052	9.6	3	2-6	1	0	0-1	0
Targeted antibiotic therapy	5034	15.9	1065	3.4	2904	9.2	6	3-10	8	4	2-8	0
Antifungal in empirical therapy	1073	3.4	372	1.2	577	1.8	4	2-9	4	0	0-3	0
Antifungal in targeted therapy	675	2.1	152	0.5	391	1.2	9	4-15	5	7	3-13	0
Pre-emptive antifungal	238	0.8	78	0.2	133	0.4	5	2-9	1	0	0-4	1

**Antibiotic therapy**

Pt. infected in ICU only (N=2229)	N	%
No therapy	241	10.8
Only empirical	459	20.6
Only targeted	662	29.7
Targeted after empirical	641	28.8
Other	226	10.1
Missing	0	

**Antifungal therapy**

Pt. infected in ICU only (N=2229)	N	%
No therapy	1997	89.6
Only empirical	105	4.7
Only targeted	113	5.1
Targeted after empirical	12	0.5
Other	2	0.1
Missing	0	



## National report for general ICUs - Year 2021

## Process indicators - NON COVID patients

Invasive ventilation (N=20873)	N	%	Length (days)				
			Mean	SD	Median	Q1-Q3	Missing
Due to pulmonary failure	5832	25.2	8.5	12.0	4	1–11	8
For airway maintenance	9117	39.4	6.1	11.3	2	1–7	7
In weaning	4680	20.2	0.4	0.5	0	0–1	0
Not evaluable	3523	15.2	4.6	8.7	1	0–4	2300
Reintubation within 48 hours	349	1.5	7.6	12.1	4	2–10	0

Non invasive ventilation (N=4655)	N	%
Non invasive ventilation only	2430	52.2
Non invasive ventilation failed	731	15.7
For weaning	1321	28.4
Other	173	3.7
Missing	0	

Tracheostomy not present on admission (N=2418)	N	%
Surgical	340	14.1
Percutwist	151	6.2
Ciaglia	352	14.6
Monodil. Ciaglia	1121	46.4
Fantoni	9	0.4
Griggs	368	15.2
Other Kind	43	1.8
Unknown	31	1.3
Missing	3	

## Tracheostomy - Days after the beginning of inv. vent. Not present on admission (N=2399)

Mean	8.8
SD	7.1
Median	7
Q1–Q3	4–12
Missing	2

Invasive monitoring of C.O. (N=963)	N	%
Swan Ganz	208	21.6
PICCO	567	58.9
LIDCO	2	0.2
Vigileo-PRAM	120	12.5
Other	64	6.6
Missing	2	

SDD (N=221)	N	%
Topical	215	97.3
Topical and systemic	6	2.7
Missing	0	

Surgical interventions	N	%
No	30169	95.4
Yes	1470	4.6
Missing	12	

Number of surgical interventions	N	%
0	30169	95.4
1	1113	3.5
2	212	0.7
3	86	0.3
>3	59	0.2
Missing	12	

## Surgical interventions

## Days from admission

Mean	9.2
SD	15.0
Median	5
Q1–Q3	3–11
Missing	12

Surgical interventions (top 10)	N	%
Gastrointestinal surgery	775	2.4
Orthopaedic surgery	368	1.2
Neurosurgery	201	0.6
ENT surgery	141	0.4
Thoracic surgery	82	0.3
Other surgery	74	0.2
Maxillo-Facial surgery	70	0.2
Plastic surgery	67	0.2
Organ donation	58	0.2
Nephro/Urological surgery	50	0.2
Missing	12	

Non surgical interventions	N	%
No	31017	98.1
Yes	613	1.9
Missing	21	

## Non surgical interventions

## Days from admission

Mean	13.2
SD	19.1
Median	8
Q1–Q3	4–15
Missing	16

Non surgical interventions	N	%
Interventional endoscopy	398	1.3
Interventional radiology	179	0.6
Interventional cardiology	102	0.3
Interventional neuroradiology	70	0.2
Missing	21	

## National report for general ICUs - Year 2021

## Outcome indicators - NON COVID patients

ICU outcome	N	%
Dead	5300	16.8
Transferred to same hospital	23181	73.4
Transferred to other hospital	2765	8.8
Discharged home	219	0.7
Disch. terminally ill	134	0.4
Missing	52	

Transferred to (N=25946)	N	%
Ward	20913	80.6
Other ICU	1769	6.8
High dependency care unit	2338	9.0
Rehabilitation	760	2.9
Day hospital or Long-term care	166	0.6
Missing	0	

Reason of transfer to Other ICU (N=1826)	N	%
Specialist expertise	715	39.2
Step-up care	137	7.5
Logistical/organizational reasons	947	51.9
Step-down care	27	1.5
Missing	0	

Transferred to Same hospital (N=23181)	N	%
Ward	20206	87.2
Other ICU	602	2.6
High dependency care unit	2226	9.6
Rehabilitation	106	0.5
Day hospital or Long-term care	41	0.2
Missing	0	

Transferred to Other hospital (N=2765)	N	%
Ward	707	25.6
Other ICU	1167	42.2
High dependency care unit	112	4.1
Rehabilitation	654	23.7
Day hospital or Long-term care	125	4.5
Missing	0	

ICU mortality	N	%
Alive	26165	82.8
Dead	5434	17.2
Missing	52	

Timing of ICU mortality (N=5434)	N	%
Daytime (08:00AM - 07:59PM)	3802	70.0
Nighttime (08:00PM - 07:59AM)	1632	30.0
Weekdays (Monday - Friday)	4040	74.3
Weekend (Saturday - Sunday)	1394	25.7
Missing	0	

C.A.M. activation (N=5434)	N	%
Yes, with organ donation	380	7.2
Yes, without organ donation	265	5.0
No, with organ donation	21	0.4
No, without organ donation	4634	87.4
Missing	134	

Tissue removal (N=5434)	N	%
Yes, with C.A.M. activation	212	3.9
Yes, without C.A.M. activation	212	3.9
No	5010	92.2
Missing	0	

Hospital mortality *	N	%
Dead	6417	22.2
Transf. to other acute-care hospital	2689	9.3
Transf. to other type of hosp. stay	4763	16.5
Nursing home	558	1.9
Voluntary discharge	200	0.7
Discharged home	14306	49.4
Missing	156	

To other type of H stay* (N=4763)	N	%
Rehabilitation in the same institute	759	15.9
Rehabilitation in other institute	2900	60.9
DH/long-term care, same inst.	252	5.3
DH/long-term care, other inst.	852	17.9
Missing	0	

Disch. terminally ill* (N=22516)	N	%
Yes	387	1.7
No	22127	98.3
Missing	2	

Hospital mortality *	N	%
Alive	22127	76.5
Dead	6804	23.5
Missing	158	

Timing of hosp. mortality * (N=6804)	N	%
In ICU	4972	73.1
Within 24 hours after ICU	96	1.4
24-47 hours after ICU	107	1.6
48-71 hours after ICU	77	1.1
72-95 hours after ICU	108	1.6
After 95 hours after ICU	1443	21.2
Missing	1	

Timing of hosp. mortality (days from ICU disch.) * Discharged alive from ICU (N=1832)		
Mean	18.1	
SD	23.6	
Median	11	
Q1-Q3	4-23	
Missing	0	

\* Statistics computed on patients admitted in months with % of patients in status 4 over the threshold (readmissions excluded) (N=29089).

## National report for general ICUs - Year 2021

## Outcome indicators - NON COVID patients

Last hospital mortality *	N	%
Alive	21876	75.8
Dead	6990	24.2
Missing	223	

Readmission from ward	N	%
No	30583	96.7
Yes	1037	3.3
Missing	31	

Number of readmissions (N=1037)	N	%
1	955	92.1
2	74	7.1
>2	8	0.8
Missing	0	

Timing of readmission (N=1037)	N	%
Within 48 hours	220	21.5
48-71 hours	113	11.0
72-95 hours	102	10.0
After 95 hours	590	57.6
Missing	12	

Timing readmission (days)	N	1037
Mean	9.3	
SD	14.4	
Median	5.1	
Q1-Q3	2-11.1	

ICU stay (days)		
Mean	6.1	
SD	9.8	
Median	2	
Q1-Q3	1-7	
Missing	51	

ICU stay (days) Alive (N=26165)		
Mean	5.8	
SD	9.4	
Median	2	
Q1-Q3	1-6	
Missing	3	

ICU stay (days) Dead (N=5434)		
Mean	7.5	
SD	11.6	
Median	3	
Q1-Q3	1-9	
Missing	1	

Stay after ICU (days) * Alive (N=24077)		
Mean	12.8	
SD	16.7	
Median	8	
Q1-Q3	4-16	
Missing	123	

Hospital stay (days) *		
Mean	19.7	
SD	21.8	
Median	13	
Q1-Q3	7-25	
Missing	159	

Hospital stay (days) * Alive (N=22127)		
Mean	20.8	
SD	21.1	
Median	14	
Q1-Q3	8-26	
Missing	4	

Hospital stay (days) * Dead (N=6804)		
Mean	16.1	
SD	23.4	
Median	9	
Q1-Q3	3-21	
Missing	0	

\* Statistics computed on patients admitted in months with % of patients in status 4 over the threshold (readmissions excluded) (N=29089).



## National report for general ICUs - Year 2021

## Characteristics on admission - NON COVID adult patients evaluated in the GiViTI model

Patients (N): 27520

Sex	N	%
Male	16529	60.1
Female	10991	39.9
Missing	0	

Age (years)	N	%
17-45	3280	11.9
46-65	8015	29.1
66-75	7421	27.0
>75	8804	32.0
Missing	0	
Mean	65.8	
SD	16.2	
Median	69	
Q1–Q3	57–78	
Min–Max	17–103	

Body mass Index (BMI)	N	%
Underweight	1476	5.4
Normal	11935	43.4
Overweight	8578	31.2
Obese	5531	20.1
Missing	0	

Pregnancy status	N	%
<b>Females (N=10991)</b>		
Not fertile	5539	50.6
Not pregnant/Unknown	5130	46.9
Currently pregnant	52	0.5
Post partum	228	2.1
Missing	42	

Comorbidities	N	%
No	4209	15.3
Yes	23311	84.7
Missing	0	

Comorbidities (top 10)	N	%
Hypertension	14613	53.1
Arrhythmia	4344	15.8
Diabetes Type II without insulin tr.	3732	13.6
Moderate COPD	3436	12.5
Myocardial infarction	3275	11.9
Any tumour without metastasis	3214	11.7
Peripheral vascular disease	2549	9.3
Cerebrovascular disease	2520	9.2
NYHA class II-III	2403	8.7
Antiplatelet therapy	2315	8.4
Missing	0	

Stay before ICU (days)	Mean	SD	Median	Q1–Q3	Missing
	4.1	10.4	1	0–3	0

Source of admission	N	%
Same hospital	24293	88.3
Other hospital	3227	11.7
Long-term chronic care hospital	0	0.0
Directly from the community	0	0.0
Missing	0	

Ward of admission	N	%
<b>Hospital (N=27520)</b>		
Medical ward	3691	13.4
Surgical ward	11395	41.4
Emergency room	10033	36.5
Other ICU	1768	6.4
High dependency care unit	633	2.3
Missing	0	

Reason for transfer from	N	%
<b>Other ICU (N=1768)</b>		
Specialist expertise	274	15.5
Step-up care	216	12.2
Logistical/organizational reasons	1196	67.6
Step-down care	82	4.6
Missing	0	

Ward of admission	N	%
<b>Same hospital (N=24293)</b>		
Medical ward	3371	13.9
Surgical ward	11208	46.1
Emergency room	8722	35.9
Other ICU	428	1.8
High dependency care unit	564	2.3
Missing	0	

Ward of admission	N	%
<b>Other hospital (N=3227)</b>		
Medical ward	320	9.9
Surgical ward	187	5.8
Emergency room	1311	40.6
Other ICU	1340	41.5
High dependency care unit	69	2.1
Missing	0	

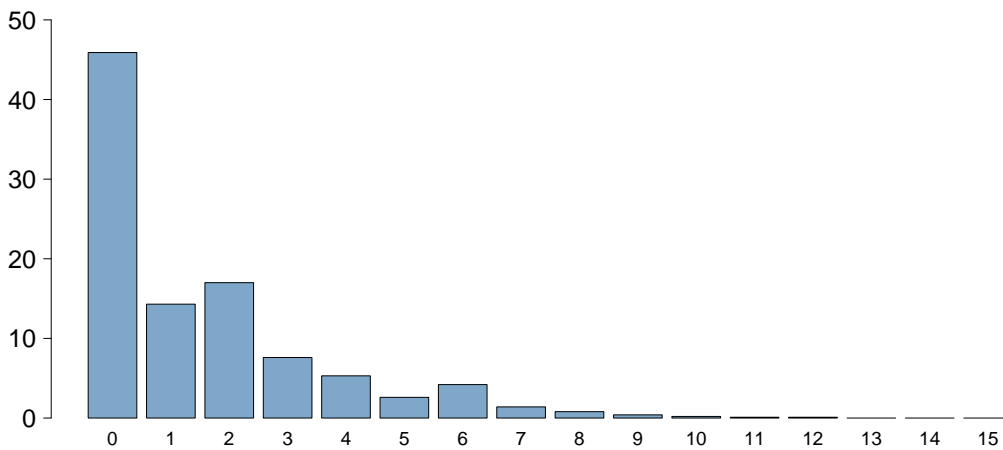
  

Scheduled admission	N	%
No	21846	79.4
Yes	5674	20.6
Missing	0	

National report for general ICUs - Year 2021

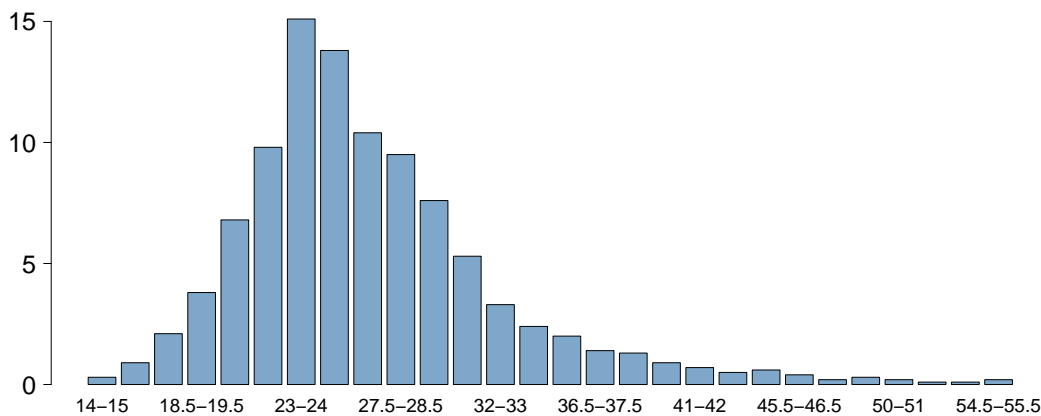
Characteristics on admission - NON COVID adult patients evaluated in the GiViTI model

**Charlson (%)**



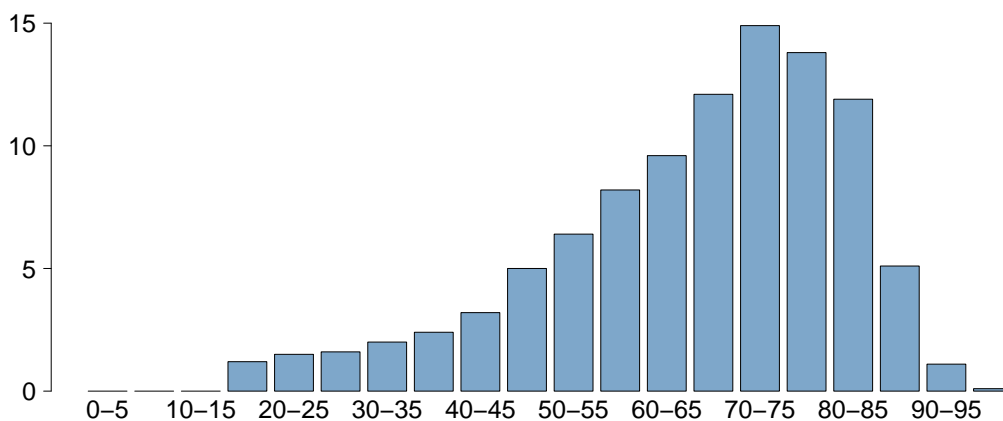
Charlson score	
Mean	1.6
SD	2.0
Median	1
Q1–Q3	0–2
Missing	0

**BMI (%)**



BMI	
Mean	27.1
SD	6.7
Median	25.8
Q1–Q3	23.1–29.4
Missing	0

**Age (%)**



Age	
Mean	65.8
SD	16.2
Median	69
Q1–Q3	57–78
Missing	0

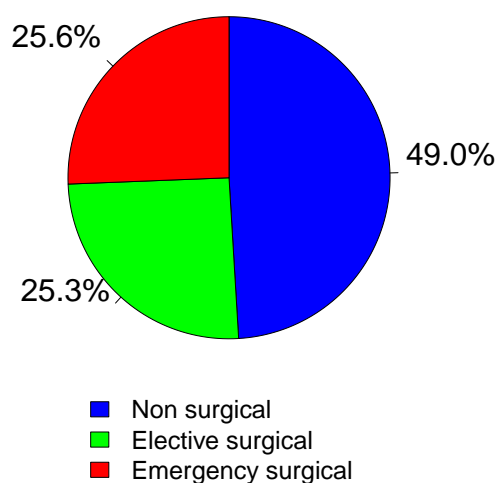
## National report for general ICUs - Year 2021

## Characteristics on admission - NON COVID adult patients evaluated in the GiViTI model

Trauma	N	%
No	23900	86.8
Yes	3620	13.2
Multiple trauma	1556	5.7
Missing	0	

Surgical status	N	%
Non surgical	13496	49.0
Elective surgical	6966	25.3
Emergency surgical	7058	25.6
Missing	0	

Surgical status



Source of admission	N	%
<b>Surgical pt. (N=14024)</b>		
Operating theatre of surgical ward	10160	72.4
Operating theatre of emergency room	1755	12.5
Surgical ward	494	3.5
Other	1615	11.5
Missing	0	

Surgical interventions (top 10)	N	%
<b>Elective surgical (N=6966)</b>		
Gastrointestinal surgery	1891	27.1
Neurosurgery	896	12.9
Nephro/Urological surgery	841	12.1
Orthopaedic surgery	791	11.4
Thoracic surgery	482	6.9
ENT surgery	387	5.6
Pancreatic surgery	313	4.5
Hepatic surgery	311	4.5
Gynaecological surgery	288	4.1
Abdominal vascular surgery	231	3.3
Missing	535	

Timing	N	%
<b>Elective surgical (N=6966)</b>		
From -7 to -3 days	82	1.2
From -2 to -1 days	218	3.1
On ICU admission day	7001	100.5
The day after ICU admission	56	0.8
Missing	4	

Surgical interventions (top 10)	N	%
<b>Emergency surgical (N=7058)</b>		
Gastrointestinal surgery	3049	43.2
Neurosurgery	1039	14.7
Orthopaedic surgery	936	13.3
Nephro/Urological surgery	427	6.0
Abdominal vascular surgery	270	3.8
Biliary tract surgery	265	3.8
Peripheral vascular surgery	210	3.0
ENT surgery	190	2.7
Thoracic surgery	168	2.4
Splenectomy	159	2.3
Missing	345	

Timing	N	%
<b>Emergency surgical (N=7058)</b>		
From -7 to -3 days	163	2.3
From -2 to -1 days	876	12.4
On ICU admission day	6291	89.1
The day after ICU admission	259	3.7
Missing	14	

Non surgical interventions	N	%
None	24889	90.4
Elective	398	1.4
Emergency	2233	8.1
Missing	0	

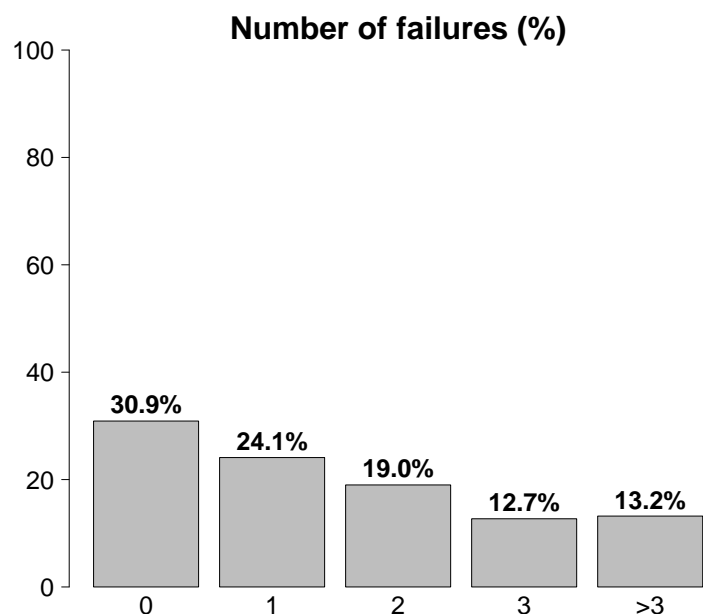
Non surgical interventions	N	%
<b>Elective (N=398)</b>		
Interventional endoscopy	117	29.4
Interventional radiology	94	23.6
Interventional cardiology	65	16.3
Interventional neuroradiology	63	15.8
Missing	59	

Non surgical interventions	N	%
<b>Emergency (N=2233)</b>		
Interventional cardiology	868	38.9
Interventional radiology	544	24.4
Interventional endoscopy	438	19.6
Interventional neuroradiology	364	16.3
Missing	19	

## National report for general ICUs - Year 2021

## Characteristics on admission - NON COVID adult patients evaluated in the GiViTI model

Reason for admission	N	%
Monitoring/Weaning	11567	42.0
Post surgical weaning	3947	14.3
Surgical monitoring	4612	16.8
Post interventional weaning	105	0.4
Interventional monitoring	505	1.8
Non surgical monitoring	2398	8.7
Missing	0	
Intensive Treatment	15953	58.0
Only ventilatory support	7643	27.8
Only cardiovascular support	1423	5.2
Ventilatory and cardiovascular support	6887	25.0
Missing	0	
Palliative Sedation	0	0.0
Diagnosis of death/Organ donation	0	0.0
Missing	0	



Failures on admission	N	%
No	8512	30.9
Yes	19008	69.1
A: Respiratory failure	14530	52.8
B: Cardiovascular failure	8310	30.2
C: Neurological failure	3478	12.6
D: Hepatic failure	231	0.8
E: Renal failure	9357	34.0
F: Acute skin failure	22	0.1
G: Metabolic failure	6905	25.1
H: Coagulation failure	314	1.1
Missing	0	

Failures on admission (top 10)	N	%
A	3923	14.3
ABEG	2055	7.5
E	1652	6.0
AB	1522	5.5
AC	1185	4.3
AE	1006	3.7
ABE	933	3.4
ABCEG	724	2.6
EG	618	2.2
G	595	2.2
Missing	0	

Respiratory failure	N	%
None	12990	47.2
Only hypoxic failure	4308	15.7
Only hypercapnic failure	577	2.1
Hypoxic-hypercapnic failure	1441	5.2
Intubation for airway maint.	8204	29.8
Missing	0	

Cardiovascular failure	N	%
None	19210	69.8
Without shock	1679	6.1
Cardiogenic shock	1373	5.0
Septic shock	2357	8.6
Haemorrhagic/hypovolemic shock	1137	4.1
Hypovolemic shock	516	1.9
Anaphylactic shock	28	0.1
Neurogenic shock	260	0.9
Other shock	411	1.5
Mixed shock	549	2.0
Missing	0	

Neurologic failure	N	%
None	18862	84.4
Cerebral coma	1791	8.0
Metabolic coma	618	2.8
Postanoxic coma	904	4.0
Toxic coma	165	0.7
Missing or not evaluable	5180	

Renal failure (AKIN)	N	%
None	18163	66.0
Mild	4400	16.0
Moderate	2185	7.9
Severe	2772	10.1
Missing	0	

Metabolic failure	N	%
None	20615	74.9
pH ≤ 7.3, PaCO <sub>2</sub> < 45 mmHg	1642	6.0
Base deficit ≥ 5 mmol/L, lactate > 1.5x	5263	19.1
Missing	0	



## National report for general ICUs - Year 2021

## Characteristics on admission - NON COVID adult patients evaluated in the GiViTI model

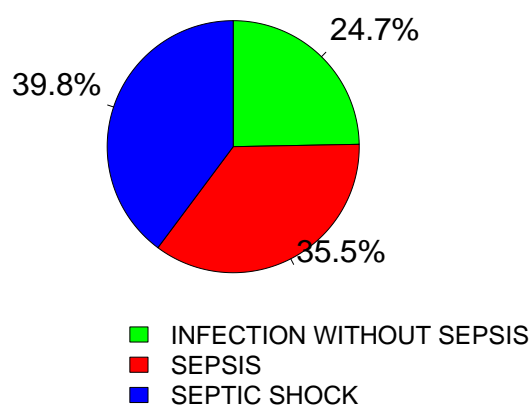
Clinical conditions on admission	N	%
Respiratory	4715	17.1
Acute exacerbation of COPD	836	3.0
Pleural effusion	814	3.0
Aspiration pneumonia	575	2.1
Atelectasis	499	1.8
Lung cancer	462	1.7
Cardiovascular	4770	17.3
Cardiac arrest	1362	4.9
Left heart failure with pulm. edema	771	2.8
Left heart failure without pulm. edema	566	2.1
Acute severe arrhythmia: tachycardias	524	1.9
Acute ischaemia	445	1.6
Neurological	4426	16.1
Spontaneous Intraparenchymal bleeding	902	3.3
Brain tumour	816	3.0
Cerebral artery stroke	705	2.6
Seizures	630	2.3
Metabolic/postanoxic encephalopathy	472	1.7
Gastrointestinal and hepatic	5851	21.3
Digestive tract malignancy	1628	5.9
Gastrointestinal perforation	975	3.5
Intestinal occlusion	854	3.1
Bowel ischaemia	432	1.6
Gastrointestinal bleeding: upper tract	370	1.3
Trauma (anatomical districts)	3620	13.2
Pelvis/bone/joint & muscle	1616	5.9
Head	1479	5.4
Chest	1427	5.2
Spine	821	3.0
Abdomen	637	2.3
Major vessels injury	148	0.5
Miscellaneous	69	0.3
Other	6471	23.5
Nephrourologic disease	1421	5.2
Other disease	1369	5.0
Metabolic disorder	1286	4.7
Acute intoxication	664	2.4
Orthopaedic disease	609	2.2
Post transplantation	270	1.0
Liver transplantation	166	0.6
Renal transplantation	59	0.2
Infections	7098	25.8
Pneumonia	2337	8.5
NON-surgical secondary peritonitis	908	3.3
NON-catheter-related UTI	549	2.0
L.R.T.I. other than pneumonia	436	1.6
Post-surgical peritonitis	406	1.5
Primary bacteraemia of unknown origin	388	1.4
Cholecystitis/cholangitis	377	1.4
NON-surgical skin/soft tissue infection	307	1.1
Clinical sepsis	301	1.1
Primary peritonitis	275	1.0
Missing	0	

Trauma (anatomical districts)	N	%
Head	1479	5.4
Traumatic subarachnoid haemorrhage	554	2.0
Traumatic Subdural haematoma	472	1.7
Cerebral contusion/laceration	470	1.7
Maxillofacial fracture	460	1.7
Skull fracture	375	1.4
Spine	821	3.0
Vertebral fracture, without deficit	680	2.5
Cervical injury, incomplete deficit	54	0.2
Paraplegia	32	0.1
Chest	1427	5.2
Other injuries of the chest	832	3.0
Traum. haemothorax/pneumothorax	587	2.1
Severe lung contusion/laceration	326	1.2
Abdomen	637	2.3
Spleen: Moderate-Severe laceration	181	0.7
Minor injuries of the abdomen	162	0.6
Liver: Moderate-Severe laceration	154	0.6
Pelvis/bone/joint & muscle	1616	5.9
Long bone fracture	1319	4.8
Multiple fracture of the pelvis	397	1.4
Very severe or open fracture of the pelvis	76	0.3
Major vessels injury	148	0.5
Proximal limbs vessels: transection	60	0.2
Neck vessels: dissection/transection	38	0.1
Aorta: rupture/dissection	26	0.1
Miscellaneous	69	0.3
Burns (>30% BSA)	50	0.2
Inhalation injury	30	0.1
Missing	0	

Infection severity on admission	N	%
None	20422	74.2
INFECTION WITHOUT SEPSIS	1751	6.4
SEPSIS	2519	9.2
SEPTIC SHOCK	2828	10.3
Missing	0	

## Infection severity on admission

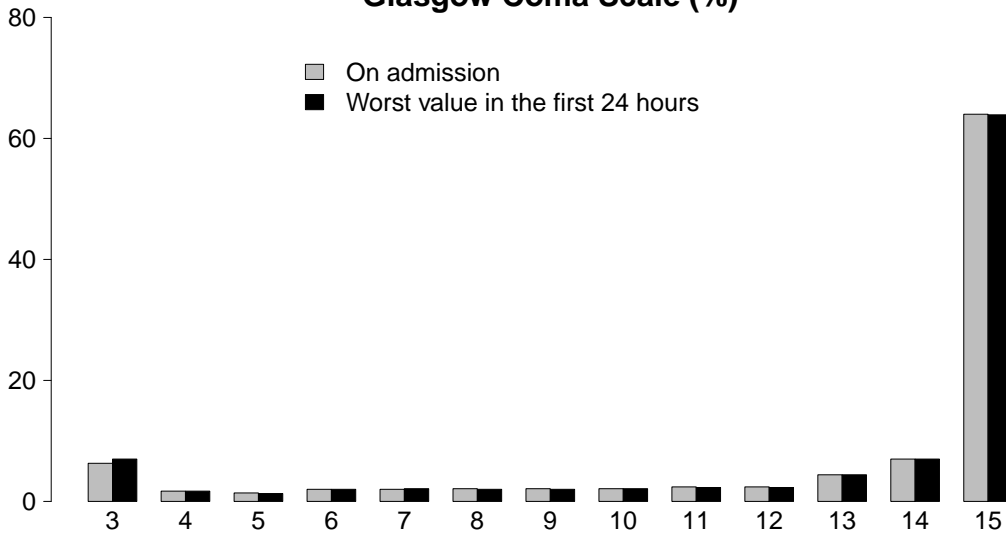
Patients infected (N=7098)



National report for general ICUs - Year 2021

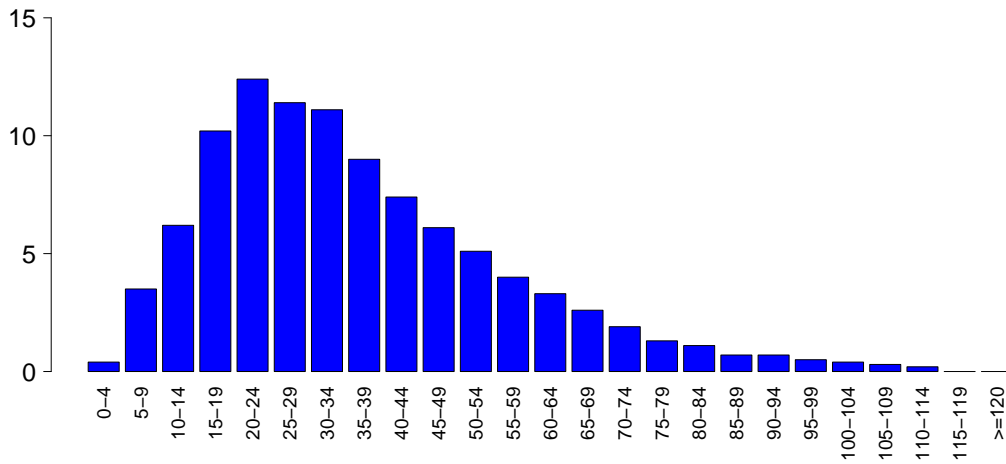
Severity scores - NON COVID adult patients evaluated in the GiViTI model

**Glasgow Coma Scale (%)**



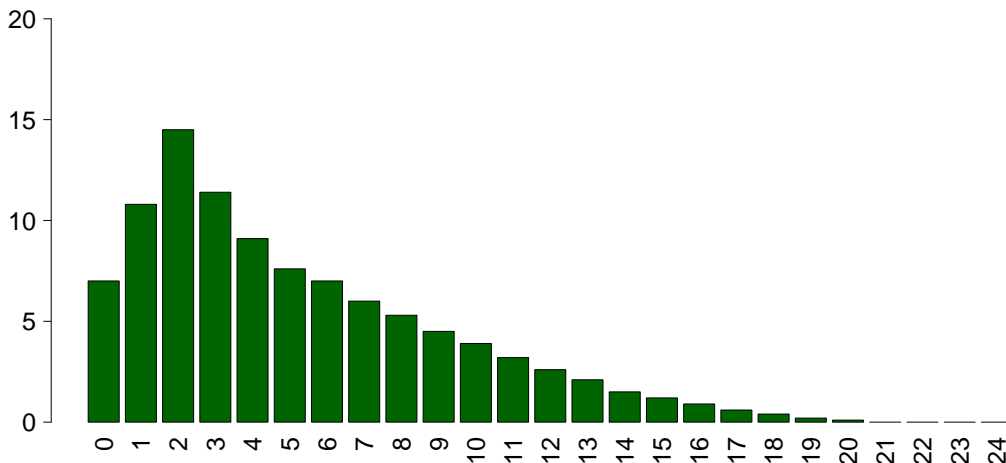
GCS (admission)	
Median	15
Q1–Q3	13–15
Not evaluable	5180
Missing	0
GCS (worst in first 24 hours)	
Median	15
Q1–Q3	13–15
Not evaluable	4665
Missing	0

**SAPS II (%)**



SAPSII	
Mean	36.3
SD	20.2
Median	32
Q1–Q3	21–47
Not evaluable	4665
Missing	0

**SOFA (%)**



SOFA	
Mean	5.3
SD	4.2
Median	4
Q1–Q3	2–8
Not evaluable	4665
Missing	0

## National report for general ICUs - Year 2021

## Characteristics during the stay - NON COVID adult patients evaluated in the GiViTI model

Complications during the stay	N	%
No	19289	70.1
Yes	8231	29.9
Missing	0	

Failures during the stay	N	%
No	23617	85.8
Yes	3903	14.2
A: Respiratory failure	1970	7.2
B: Cardiovascular failure	1788	6.5
C: Neurological failure	295	1.1
D: Hepatic failure	108	0.4
E: Renal failure (AKIN)	1021	3.7
F: Acute skin failure	13	0.0
G: Metabolic failure	295	1.1
H: Coagulation failure	140	0.5
Missing	0	

Failures during the stay (top 10)	N	%
A	1093	4.0
B	849	3.1
E	391	1.4
AB	388	1.4
G	181	0.7
BE	166	0.6
ABE	162	0.6
AE	99	0.4
C	79	0.3
AC	64	0.2
Missing	0	

Respiratory failure occurred	N	%
None	25550	92.8
Intubation for airway maint.	740	2.7
Hypoxic failure	1210	4.4
Hypercapnic failure	293	1.1
Missing	0	

Cardiovascular failure occurred	N	%
None	25732	93.5
Cardiogenic shock	453	1.6
Hypovolemic shock	105	0.4
Haemorrhagic/hypovolemic shock	189	0.7
Septic shock	828	3.0
Anaphylactic shock	2	0.0
Neurogenic shock	102	0.4
Other shock	196	0.7
Missing	0	

Neurological failure occurred	N	%
None	27225	98.9
Cerebral coma	145	0.5
Metabolic coma	67	0.2
Postanoxic coma	87	0.3
Missing	0	

Renal failure occurred (AKIN)	N	%
None	26499	96.3
Mild	89	0.3
Moderate	196	0.7
Severe	736	2.7
Missing	0	

Complications during the stay	N	%
Respiratory	1233	4.5
Pleural effusion	406	1.5
Atelectasis	280	1.0
Severe ARDS	180	0.7
Pneumothorax/Pneumomediastinum	146	0.5
Upper resp. tract disease	92	0.3
Cardiovascular	1771	6.4
Acute severe arrhythmia: tachycardias	707	2.6
Cardiac arrest	606	2.2
Left heart failure w/o pulm. edema	118	0.4
Pulmonary edema	116	0.4
Deep venous thrombosis	113	0.4
Neurological	1678	6.1
Drowsiness/agitation/delirium	769	2.8
Brain edema	300	1.1
Intracranial hypertension	292	1.1
Seizures	266	1.0
New ischaemic stroke	107	0.4
Gastrointestinal and hepatic	733	2.7
Bowel ischaemia	127	0.5
Gastrointestinal bleeding: upper tract	113	0.4
Gastrointestinal bleeding: lower tract	92	0.3
Liver Dysfunction Syndrome	85	0.3
Paralytic Ileus	82	0.3
Other	637	2.3
Metabolic disorder	295	1.1
Nephrourologic disease	158	0.6
Other disease	123	0.4
Other skin and/or soft tissue pathology	32	0.1
Category/Stage II: Partial Thickness Skin Loss	20	0.1
F.U.O. fever of unknown origin	17	0.1
Category/Stage III: Full Thickness Skin Loss	14	0.1
Infections	2788	10.1
Pneumonia	1074	3.9
L.R.T.I. other than pneumonia	629	2.3
Catheter-related UTI	345	1.3
Catheter-related bacteremia (CR-BSI)	320	1.2
Primary bacteraemia of unknown origin	315	1.1
Post-surgical peritonitis	96	0.3
Upper respiratory tract infection	85	0.3
Clinical sepsis	69	0.3
Post-surgical skin/soft tissue infection	64	0.2
NON-catheter-related UTI	61	0.2
Missing	0	

**National report for general ICUs - Year 2021****Characteristics during the stay - NON COVID adult patients evaluated in the GiViTI model**

<b>Infections</b>	N	%
None	18518	67.3
Only on admission	6214	22.6
On admission and during ICU stay	884	3.2
Only during ICU stay	1904	6.9
Missing	0	

<b>Maximum severity of infection</b>	N	%
None	18518	67.3
INFECTION WITHOUT SEPSIS	2418	8.8
SEPSIS	3220	11.7
SEPTIC SHOCK	3364	12.2
Missing	0	

**Severity evolution**

		N (R %)	During the stay				TOT
			None	INFECTION WITHOUT SEPSIS	SEPSIS	SEPTIC SHOCK	
<b>Admission</b>	None	18518 (90.7%)	869 (4.3%)	761 (3.7%)	274 (1.3%)	20422	
	INFECTION WITHOUT SEPSIS	-	1549 (88.5%)	152 (8.7%)	50 (2.9%)	1751	
	SEPSIS	-	-	2307 (91.6%)	212 (8.4%)	2519	
	SEPTIC SHOCK	-	-	-	2828 (100.0%)	2828	
	TOT	18518	2418	3220	3364	27520	

<b>Ventil. Associat. Pneumonia (VAP)</b>	N	%
No	26564	96.5
Yes	956	3.5
Missing	0	

**Incidence of VAP***(Pts. with VAP/1000 days of VM pre-VAP)*

Estimate	11.4
CI (95%)	10.7–12.2

**Incidence of VAP***(Pts. with VAP/pts. ventilated for 8 days)*

Estimate	9.1%
CI (95%)	8.6–9.7

<b>Catheter Bacteraemia (CR-BSI)</b>	N	%
No	27200	98.8
Yes	320	1.2
Missing	0	

**Incidence of CR-BSI***(Pts. with CR-BSI/1000 days of CVC pre-CR-BSI)*

Estimate	2.4
CI (95%)	2.1–2.6

**Incidence of CR-BSI***(Pts. with CR-BSI/pts. catheterized for 12 days)*

Estimate	2.8%
CI (95%)	2.5–3.2

<b>Catheter-related urinary tract infection (UTI)</b>	N	%
No	27175	98.7
Yes	345	1.3
Missing	0	

**Incidence of catheter-related UTI***(Pts. with catheter-related UTI/1000 days of UC pre-UTI)*

Estimate	2.2
CI (95%)	2.0–2.4

**Incidence of catheter-related UTI***(Pts. with catheter-related UTI/pts. with UC for 12 days)*

Estimate	2.6%
CI (95%)	2.4–2.9

## National report for general ICUs - Year 2021

Process indicators - NON COVID adult patients evaluated in the PROSAFE study (Missing=0)	N		%		N		%		On discharge		Length (days)		Days from admission	
	27237		99.0		N		%		N		%		Missing	
	N	%	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
<b>Procedures (antibiotics excluded)</b>	27237	99.0												
Invasive ventilation	17942	65.2	13912	50.6	4291	15.6	1	1-6	0	0	0-0	0	0-0	0
Non invasive ventilation	4077	14.8	1202	4.4	1028	3.7	2	1-4	0	0	0-2	0	0-2	0
Tracheostomy	3122	11.3	999	3.6	2676	9.7	10	5-19	0	8	4-12	0	4-12	0
iNO (inhaled nitric oxide)	71	0.3	8	0	13	0	3	2-6	0	2	0-4	0	0-4	0
Central Venous Catheter	18074	65.7	9044	32.9	14953	54.3	4	1-10	1	0	0-0	0	0-0	0
PICC	922	3.4	340	1.2	839	3	4	1-9	0	5	1-15	0	1-15	0
Arterial Catheter	23951	87.0	13318	48.4	7118	25.9	3	1-7	3	0	0-0	0	0-0	0
Vasoactive drugs	10362	37.7	5212	18.9	2601	9.5	2	1-4	0	0	0-0	0	0-0	0
Antiarrhythmics	1814	6.6	584	2.1	1062	3.9	3	1-7	0	1	0-3	0	0-3	0
IABP	187	0.7	152	0.6	77	0.3	2	1-3	0	0	0-1	0	0-1	0
Invasive monitoring of C.O.	863	3.1	193	0.7	210	0.8	4	2-7	0	0	0-1	0	0-1	0
Continuous monitoring of ScVO2	69	0.3	34	0.1	15	0.1	2	1-4	0	0	0-1	0	0-1	0
Temporary pacing	87	0.3	53	0.2	36	0.1	2	1-4	0	0	0-2	0	0-2	0
Ventricular assistance	8	0.0	4	0	3	0	2	1-4	0	0	0-2	0	0-2	0
DC-shock	432	1.6												
CPR	678	2.5												
Massive blood transfusion	301	1.1												
ICP monitoring without CSF drainage	251	0.9	124	0.5	47	0.2	6	3-10	0	0	0-1	0	0-1	0
ICP monitoring with CSF drainage	275	1.0	198	0.7	135	0.5	8	2-13	0	0	0-1	0	0-1	0
EVD without ICP monitoring	85	0.3	65	0.2	53	0.2	4	1-11	0	0	0-3	0	0-3	0
Haemofiltration	1019	3.7	99	0.4	275	1	3	2-8	0	1	0-2	0	0-2	0
Haemodialysis	808	2.9	145	0.5	360	1.3	3	1-7	0	1	0-2	0	0-2	0
ECMO	56	0.2	29	0.1	26	0.1	6	1-13	0	1	0-3	0	0-3	0
Hepatic clearance techniques	7	0.0												
Clearance techniques during sepsis	179	0.7	8	0	43	0.2	2	1-3	0	1	0-2	0	0-2	0
IAP (intra-abdominal pressure)	393	1.4												
Hypothermia	191	0.7	52	0.2	15	0.1	1	1-1	0	0	0-0	0	0-0	0
Enteral nutrition	9005	32.7	1877	6.8	6503	23.6	7	3-14	2	1	0-2	0	0-2	0
Parenteral nutrition	4276	15.5	656	2.4	2669	9.7	4	2-9	0	1	0-2	0	0-2	0
SDD (Topical, Topical and systemic)	212	0.8												
Patient restraint	435	1.6												
Peridural catheter	953	3.5	839	3	757	2.8	1	1-2	0	0	0-2	0	0-2	0
Electrical cardioversion	170	0.6												
Vacuum therapy	181	0.7												
Urinary catheter	26109	94.9	21871	79.5	23681	86.1	2	1-7	1	0	0-0	0	0-0	0
Pronation	272	1.0	17	0.1	19	0.1	2	1-5	0	1	0-4	0	0-4	0
Antivirals	311	1.1	146	0.5	205	0.7	5	2-10	0	1	0-6	0	0-6	0

**National report for general ICUs - Year 2021**  
**Process indicators - NON COVID adult patients evaluated in the GiViTI model**

Procedures and/or treatments (Missing=0)	Use		On admission		On discharge		Length (days)			Days from admission		
	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
<b>Antibiotics</b>	16754	60.9										
Antibiotic prophylaxis	6727	24.4	4980	18.1	2985	10.8	1	1-2	0	0	0-0	0
Empirical antibiotic therapy (infection diagnosis confirmed)	4569	16.6	2176	7.9	1722	6.3	3	2-6	0	0	0-2	0
Empirical antibiotic therapy (infection diagnosis unconfirmed)	4166	15.1	2012	7.3	2710	9.8	3	2-6	0	0	0-1	0
Targeted antibiotic therapy	4274	15.5	857	3.1	2445	8.9	6	3-10	2	4	2-8	0
Antifungal in empirical therapy	903	3.3	303	1.1	485	1.8	4	2-8	1	0	0-4	0
Antifungal in targeted therapy	549	2.0	109	0.4	315	1.1	9	4-16	0	7	3-14	0
Pre-emptive antifungal	195	0.7	59	0.2	111	0.4	5	2-8	0	0	0-4	0

**Antibiotic therapy**

Pt. infected in ICU only (N=1904)	N	%
No therapy	203	10.7
Only empirical	395	20.7
Only targeted	554	29.1
Targeted after empirical	560	29.4
Other	192	10.1
Missing	0	

**Antifungal therapy**

Pt. infected in ICU only (N=1904)	N	%
No therapy	1706	89.6
Only empirical	90	4.7
Only targeted	96	5.0
Targeted after empirical	10	0.5
Other	2	0.1
Missing	0	

## National report for general ICUs - Year 2021

## Process indicators - NON COVID adult patients evaluated in the GiViTI model

Invasive ventilation (N=17942)	N	%	Length (days)				
			Mean	SD	Median	Q1-Q3	Missing
Due to pulmonary failure	5160	25.7	8.5	12.0	4	1–11	0
For airway maintenance	8019	40.0	6.0	10.9	2	1–7	0
In weaning	3987	19.9	0.4	0.5	0	0–1	0
Not evaluable	2880	14.4	4.8	9.3	1	0–5	2110
Reintubation within 48 hours	308	1.5	7.8	12.7	4	2–9.25	0

Non invasive ventilation (N=4077)	N	%
Non invasive ventilation only	2160	53.0
Non invasive ventilation failed	636	15.6
For weaning	1131	27.7
Other	150	3.7
Missing	0	

Tracheostomy not present on admission (N=2123)	N	%
Surgical	282	13.3
Percutwist	130	6.1
Ciaglia	301	14.2
Monodil. Ciaglia	999	47.1
Fantoni	9	0.4
Griggs	351	16.5
Other Kind	29	1.4
Unknown	22	1.0
Missing	0	

## Tracheostomy - Days after the beginning of inv. vent. Not present on admission (N=2110)

	Mean	SD	Median	Q1–Q3	Missing
	8.8	7.1	7	4–12	1

Invasive monitoring of C.O. (N=863)	N	%
Swan Ganz	185	21.4
PICCO	508	58.9
LIDCO	1	0.1
Vigileo-PRAM	112	13.0
Other	57	6.6
Missing	0	

SDD (N=212)	N	%
Topical	208	98.1
Topical and systemic	4	1.9
Missing	0	

Surgical interventions	N	%
No	26292	95.5
Yes	1228	4.5
Missing	0	

Number of surgical interventions	N	%
0	26292	95.5
1	925	3.4
2	181	0.7
3	70	0.3
>3	52	0.2
Missing	0	

## Surgical interventions

## Days from admission

	Mean	SD	Median	Q1–Q3	Missing
	8.8	10.3	5	3–10	5

Surgical interventions (top 10)	N	%
Gastrointestinal surgery	655	2.4
Orthopaedic surgery	328	1.2
Neurosurgery	165	0.6
ENT surgery	118	0.4
Thoracic surgery	68	0.2
Other surgery	65	0.2
Maxillo-Facial surgery	61	0.2
Plastic surgery	56	0.2
Nephro/Urological surgery	40	0.1
Organ donation	39	0.1
Missing	0	

Non surgical interventions	N	%
No	26995	98.1
Yes	525	1.9
Missing	0	

## Non surgical interventions

## Days from admission

	Mean	SD	Median	Q1–Q3	Missing
	12.7	14.0	8	4–15	13

Non surgical interventions	N	%
Interventional endoscopy	337	1.2
Interventional radiology	156	0.6
Interventional cardiology	87	0.3
Interventional neuroradiology	62	0.2
Missing	0	

**National report for general ICUs - Year 2021****Outcome indicators - NON COVID adult patients evaluated in the GiViTI model**

ICU outcome	N	%
Dead	4461	16.2
Transferred to same hospital	20318	73.8
Transferred to other hospital	2447	8.9
Discharged home	180	0.7
Disch. terminally ill	113	0.4
Missing	1	

Transferred to (N=22765)	N	%
Ward	18506	81.3
Other ICU	1546	6.8
High dependency care unit	1877	8.2
Rehabilitation	691	3.0
Day hospital or Long-term care	145	0.6
Missing	0	

Reason of transfer to Other ICU (N=1597)	N	%
Specialist expertise	622	38.9
Step-up care	123	7.7
Logistical/organizational reasons	829	51.9
Step-down care	23	1.4
Missing	0	

Transferred to Same hospital (N=20318)	N	%
Ward	17863	87.9
Other ICU	542	2.7
High dependency care unit	1782	8.8
Rehabilitation	93	0.5
Day hospital or Long-term care	38	0.2
Missing	0	

Transferred to Other hospital (N=2447)	N	%
Ward	643	26.3
Other ICU	1004	41.0
High dependency care unit	95	3.9
Rehabilitation	598	24.4
Day hospital or Long-term care	107	4.4
Missing	0	

ICU mortality	N	%
Alive	22945	83.4
Dead	4574	16.6
Missing	1	

Timing of ICU mortality (N=4574)	N	%
Daytime (08:00AM - 07:59PM)	3197	69.9
Nighttime (08:00PM - 07:59AM)	1377	30.1
Weekdays (Monday - Friday)	3383	74.0
Weekend (Saturday - Sunday)	1191	26.0
Missing	0	

C.A.M. activation (N=4574)	N	%
Yes, with organ donation	281	6.3
Yes, without organ donation	202	4.5
No, with organ donation	11	0.2
No, without organ donation	3967	88.9
Missing	113	

Tissue removal (N=4574)	N	%
Yes, with C.A.M. activation	157	3.4
Yes, without C.A.M. activation	178	3.9
No	4239	92.7
Missing	0	

Hospital mortality	N	%
Dead	5975	21.7
Transf. to other acute-care hospital	2545	9.2
Transf. to other type of hosp. stay	4344	15.8
Nursing home	541	2.0
Voluntary discharge	193	0.7
Discharged home	13922	50.6
Missing	0	

To other type of H stay (N=4344)	N	%
Rehabilitation in the same institute	533	12.3
Rehabilitation in other institute	2741	63.1
DH/long-term care, same inst.	246	5.7
DH/long-term care, other inst.	824	19.0
Missing	0	

Disch. terminally ill (N=21545)	N	%
Yes	373	1.7
No	21172	98.3
Missing	0	

Hospital mortality	N	%
Alive	21172	76.9
Dead	6348	23.1
Missing	0	

Timing of hosp. mortality (N=6348)	N	%
In ICU	4574	72.1
Within 24 hours after ICU	94	1.5
24-47 hours after ICU	104	1.6
48-71 hours after ICU	76	1.2
72-95 hours after ICU	105	1.7
After 95 hours after ICU	1394	22.0
Missing	1	

Timing of hosp. mortality (days from ICU disch.) Discharged alive from ICU (N=1774)		
Mean		18.0
SD		23.6
Median		11
Q1-Q3		4-23
Missing		0



## National report for general ICUs - Year 2021

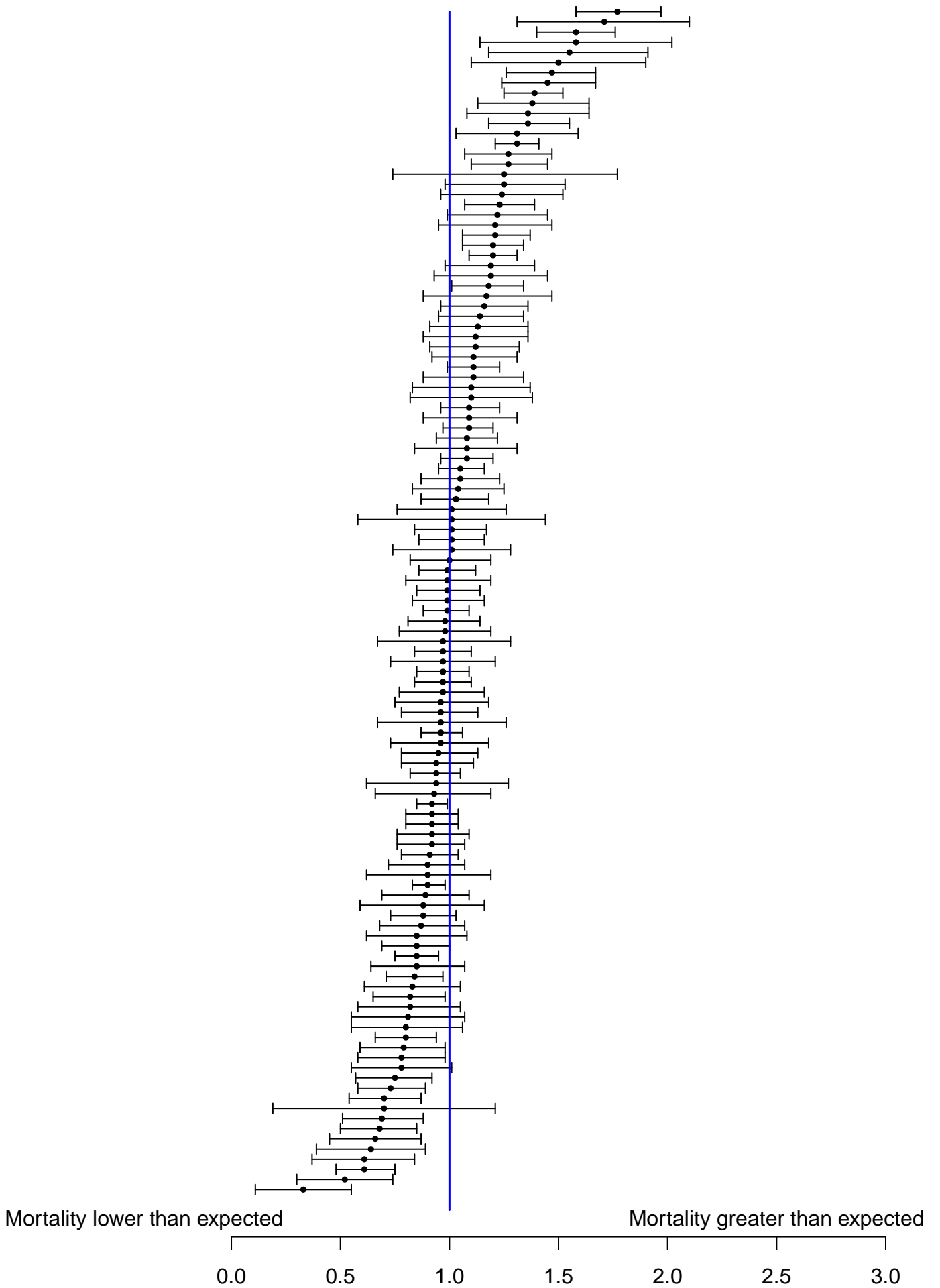
## Outcome indicators - NON COVID adult patients evaluated in the GiViTI model

<b>Last hospital mortality</b>			<b>ICU stay (days)</b>		
	N	%			
Alive	20990	76.3	Mean		6.1
Dead	6530	23.7	SD		9.8
Missing	0		Median		2
			Q1–Q3		1–7
			Missing		2
<b>ICU stay (days)</b>			<b>ICU stay (days)</b>		
<b>Alive (N=22945)</b>			<b>Alive (N=22945)</b>		
			Mean		5.8
			SD		9.3
			Median		2
			Q1–Q3		1–6
			Missing		1
<b>ICU stay (days)</b>			<b>ICU stay (days)</b>		
<b>Dead (N=4574)</b>			<b>Dead (N=4574)</b>		
			Mean		7.7
			SD		11.9
			Median		3
			Q1–Q3		1–9
			Missing		1
<b>Stay after ICU (days)</b>			<b>Stay after ICU (days)</b>		
<b>Alive (N=22945)</b>			<b>Alive (N=22945)</b>		
			Mean		12.9
			SD		16.7
			Median		8
			Q1–Q3		4–16
			Missing		6
<b>Hospital stay (days)</b>			<b>Hospital stay (days)</b>		
<b>Alive (N=22945)</b>			<b>Alive (N=22945)</b>		
			Mean		19.9
			SD		21.7
			Median		13
			Q1–Q3		7–25
			Missing		4
<b>Hospital stay (days)</b>			<b>Hospital stay (days)</b>		
<b>Alive (N=21172)</b>			<b>Alive (N=21172)</b>		
			Mean		20.9
			SD		21.2
			Median		14
			Q1–Q3		8–26
			Missing		4
<b>Hospital stay (days)</b>			<b>Hospital stay (days)</b>		
<b>Dead (N=6348)</b>			<b>Dead (N=6348)</b>		
			Mean		16.5
			SD		22.9
			Median		9
			Q1–Q3		3–21
			Missing		0

National report for general ICUs - Year 2021

Analysis of hospital mortality NON COVID adult patients evaluated in the GiViTI model

Predictive model: GiViTI 2021



## National report for general ICUs - Year 2021

## Characteristics on admission - Adult NON COVID non surgical pts. in the GiViTI mod.

Patients (N): 13496

Sex	N	%
Male	8466	62.7
Female	5030	37.3
Missing	0	

Age (years)	N	%
17-45	1678	12.4
46-65	4143	30.7
66-75	3742	27.7
>75	3933	29.1
Missing	0	
Mean	64.9	
SD	16.2	
Median	68	
Q1–Q3	56–77	
Min–Max	17–103	

Body mass Index (BMI)	N	%
Underweight	746	5.5
Normal	5638	41.8
Overweight	4311	31.9
Obese	2801	20.8
Missing	0	

Pregnancy status	N	%
<b>Females (N=5030)</b>		
Not fertile	2494	49.8
Not pregnant/Unknown	2450	48.9
Currently pregnant	26	0.5
Post partum	38	0.8
Missing	22	

Comorbidities	N	%
No	2038	15.1
Yes	11458	84.9
Missing	0	

Comorbidities (top 10)	N	%
Hypertension	6955	51.5
Arrhythmia	2217	16.4
Diabetes Type II without insulin tr.	1955	14.5
Moderate COPD	1669	12.4
Myocardial infarction	1611	11.9
Cerebrovascular disease	1420	10.5
NYHA class II-III	1367	10.1
Moderate or severe renal disease	1234	9.1
Peripheral vascular disease	1144	8.5
Antiplatelet therapy	1134	8.4
Missing	0	

Stay before ICU (days)	Mean	SD	Median	Q1–Q3	Missing
	4.5	11.6	1	0–3	0

Source of admission	N	%
Same hospital	10880	80.6
Other hospital	2616	19.4
Long-term chronic care hospital	0	0.0
Directly from the community	0	0.0
Missing	0	

Ward of admission	N	%
<b>Hospital (N=13496)</b>		
Medical ward	3021	22.4
Surgical ward	741	5.5
Emergency room	7688	57.0
Other ICU	1545	11.4
High dependency care unit	501	3.7
Missing	0	

Reason for transfer from	N	%
<b>Other ICU (N=1545)</b>		
Specialist expertise	210	13.6
Step-up care	173	11.2
Logistical/organizational reasons	1086	70.3
Step-down care	76	4.9
Missing	0	

Ward of admission	N	%
<b>Same hospital (N=10880)</b>		
Medical ward	2726	25.1
Surgical ward	674	6.2
Emergency room	6707	61.6
Other ICU	330	3.0
High dependency care unit	443	4.1
Missing	0	

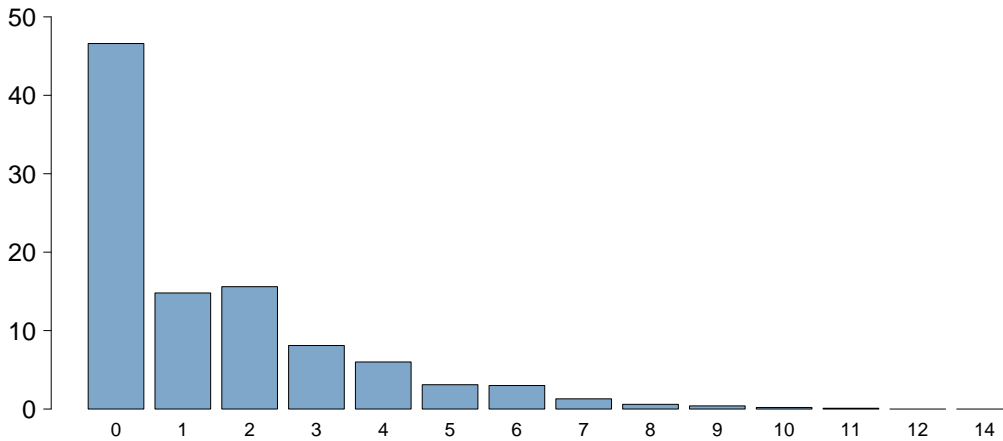
Ward of admission	N	%
<b>Other hospital (N=2616)</b>		
Medical ward	295	11.3
Surgical ward	67	2.6
Emergency room	981	37.5
Other ICU	1215	46.4
High dependency care unit	58	2.2
Missing	0	

Scheduled admission	N	%
No	13395	99.3
Yes	101	0.7
Missing	0	

National report for general ICUs - Year 2021

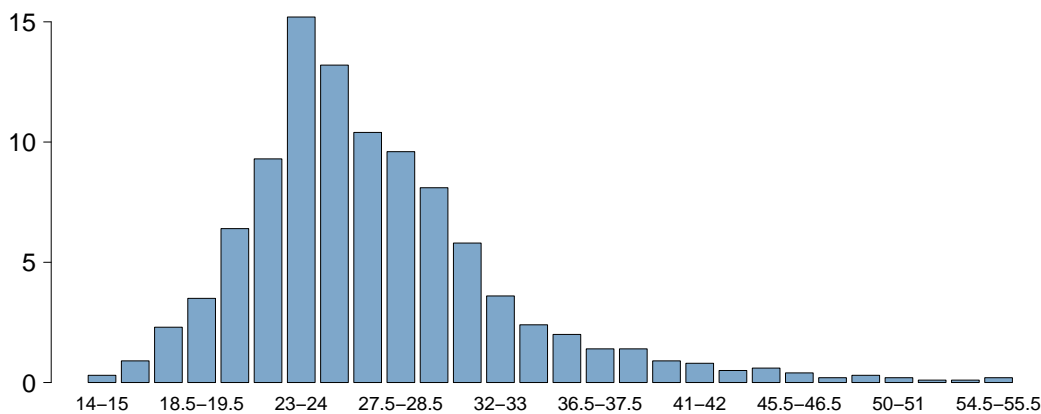
Characteristics on admission - Adult NON COVID non surgical pts. in the GiViTI mod.

**Charlson (%)**



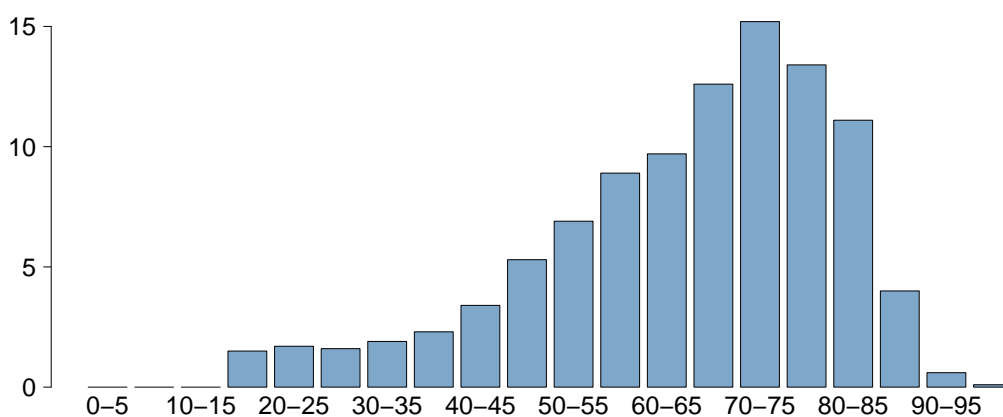
Charlson score	
Mean	1.5
SD	2.0
Median	1
Q1–Q3	0–2
Missing	0

**BMI (%)**



BMI	
Mean	27.2
SD	6.7
Median	25.9
Q1–Q3	23.4–29.4
Missing	0

**Age (%)**



Age	
Mean	64.9
SD	16.2
Median	68
Q1–Q3	56–77
Missing	0

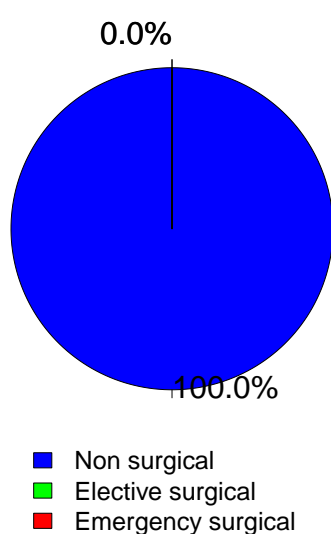
## National report for general ICUs - Year 2021

## Characteristics on admission - Adult NON COVID non surgical pts. in the GiViTI mod.

Trauma	N	%
No	11746	87.0
Yes	1750	13.0
Multiple trauma	834	6.2
Missing	0	

Surgical status	N	%
Non surgical	13496	100.0
Elective surgical	0	0.0
Emergency surgical	0	0.0
Missing	0	

## Surgical status



Timing	N	%
Elective surgical (N=0)		
From -7 to -3 days	0	0.0
From -2 to -1 days	0	0.0
On ICU admission day	0	0.0
The day after ICU admission	0	0.0
Missing	0	

Surgical interventions (top 10)	N	%
Emergency surgical (N=0)		
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
Missing	0	

Timing	N	%
Emergency surgical (N=0)		
From -7 to -3 days	0	0.0
From -2 to -1 days	0	0.0
On ICU admission day	0	0.0
The day after ICU admission	0	0.0
Missing	0	

Source of admission	N	%
Surgical pt. (N=0)		
Operating theatre of surgical ward	0	0.0
Operating theatre of emergency room	0	0.0
Surgical ward	0	0.0
Other	0	0.0
Missing	0	

Surgical interventions (top 10)	N	%
Elective surgical (N=0)		
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
Missing	0	

Non surgical interventions	N	%
None	11451	84.8
Elective	264	2.0
Emergency	1781	13.2
Missing	0	

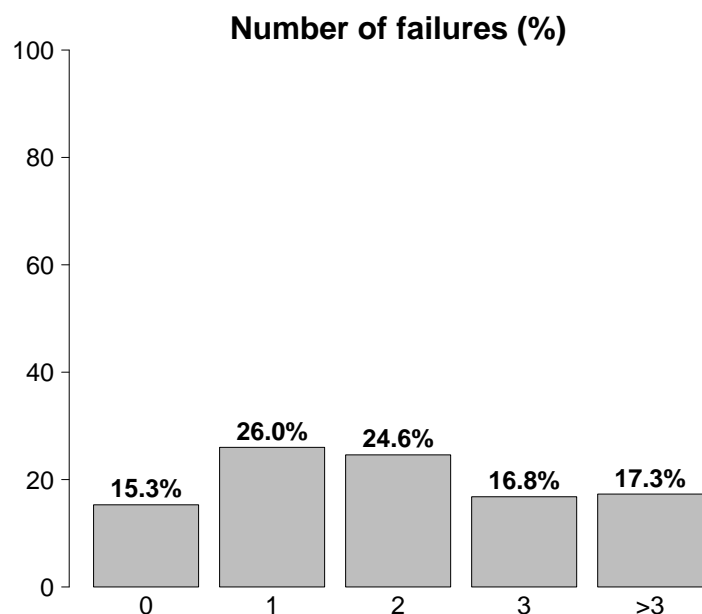
Non surgical interventions	N	%
Elective (N=264)		
Interventional endoscopy	87	33.0
Interventional radiology	63	23.9
Interventional cardiology	60	22.7
Interventional neuroradiology	52	19.7
Missing	2	

Non surgical interventions	N	%
Emergency (N=1781)		
Interventional cardiology	840	47.2
Interventional radiology	372	20.9
Interventional endoscopy	344	19.3
Interventional neuroradiology	247	13.9
Missing	0	

## National report for general ICUs - Year 2021

Characteristics on admission - Adult NON COVID non surgical pts. in the GiViTI mod.

Reason for admission	N	%
Monitoring/Weaning	2996	22.2
Post surgical weaning	0	0.0
Surgical monitoring	0	0.0
Post interventional weaning	100	0.7
Interventional monitoring	498	3.7
Non surgical monitoring	2398	17.8
Missing	0	
Intensive Treatment	10500	77.8
Only ventilatory support	5628	41.7
Only cardiovascular support	851	6.3
Ventilatory and cardiovascular support	4021	29.8
Missing	0	
Palliative Sedation	0	0.0
Diagnosis of death/Organ donation	0	0.0
Missing	0	



Failures on admission	N	%
No	2060	15.3
Yes	11436	84.7
A: Respiratory failure	9649	71.5
B: Cardiovascular failure	4872	36.1
C: Neurological failure	2810	20.8
D: Hepatic failure	175	1.3
E: Renal failure	5271	39.1
F: Acute skin failure	18	0.1
G: Metabolic failure	4098	30.4
H: Coagulation failure	182	1.3
Missing	0	

Failures on admission (top 10)	N	%
A	2710	20.1
ABEG	1103	8.2
AC	971	7.2
AB	793	5.9
AE	727	5.4
ABCEG	566	4.2
ABE	491	3.6
AEG	389	2.9
E	386	2.9
BEG	382	2.8
Missing	0	

Respiratory failure	N	%
None	3847	28.5
Only hypoxic failure	3223	23.9
Only hypercapnic failure	524	3.9
Hypoxic-hypercapnic failure	1291	9.6
Intubation for airway maint.	4611	34.2
Missing	0	

Cardiovascular failure	N	%
None	8624	63.9
Without shock	999	7.4
Cardiogenic shock	1254	9.3
Septic shock	1234	9.1
Haemorrhagic/hypovolemic shock	327	2.4
Hypovolemic shock	236	1.7
Anaphylactic shock	23	0.2
Neurogenic shock	152	1.1
Other shock	311	2.3
Mixed shock	336	2.5
Missing	0	

Neurologic failure	N	%
None	8513	75.2
Cerebral coma	1351	11.9
Metabolic coma	477	4.2
Postanoxic coma	822	7.3
Toxic coma	160	1.4
Missing or not evaluable	2173	

Renal failure (AKIN)	N	%
None	8225	60.9
Mild	2131	15.8
Moderate	1275	9.4
Severe	1865	13.8
Missing	0	

Metabolic failure	N	%
None	9398	69.6
pH ≤ 7.3, PaCO <sub>2</sub> < 45 mmHg	975	7.2
Base deficit ≥ 5 mmol/L, lactate > 1.5x	3123	23.1
Missing	0	

## National report for general ICUs - Year 2021

## Characteristics on admission - Adult NON COVID non surgical pts. in the GiViTI mod.

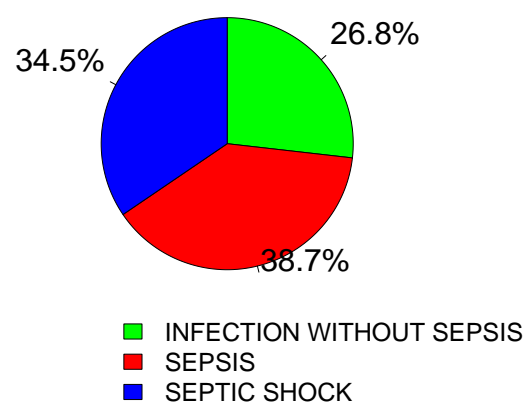
Clinical conditions on admission	N	%
Respiratory	3444	25.5
Acute exacerbation of COPD	797	5.9
Pleural effusion	621	4.6
Aspiration pneumonia	468	3.5
Moderate ARDS	383	2.8
Atelectasis	351	2.6
Cardiovascular	3441	25.5
Cardiac arrest	1204	8.9
Left heart failure with pulm. edema	717	5.3
Left heart failure without pulm. edema	481	3.6
Acute myocardial infarction	417	3.1
Acute ischaemia	402	3.0
Neurological	2836	21.0
Cerebral artery stroke	623	4.6
Spontaneous Intraparenchymal bleeding	604	4.5
Seizures	574	4.3
Metabolic/postanoxic encephalopathy	440	3.3
Spontaneous Subarachnoid haemorrhage	268	2.0
Gastrointestinal and hepatic	1079	8.0
Gastrointestinal bleeding: upper tract	280	2.1
Acute pancreatitis	184	1.4
Liver Dysfunction Syndrome	109	0.8
Ascites	100	0.7
Acute bile-duct disease	82	0.6
Trauma (anatomical districts)	1750	13.0
Head	915	6.8
Chest	883	6.5
Spine	447	3.3
Pelvis/bone/joint & muscle	440	3.3
Abdomen	274	2.0
Miscellaneous	54	0.4
Major vessels injury	44	0.3
Other	2681	19.9
Metabolic disorder	1016	7.5
Acute intoxication	638	4.7
Other disease	501	3.7
Nephrourologic disease	432	3.2
Coagulation disorder	182	1.3
Post transplantation	57	0.4
Bone marrow transplantation	19	0.1
Renal transplantation	18	0.1
Infections	4401	32.6
Pneumonia	2123	15.7
L.R.T.I. other than pneumonia	382	2.8
NON-catheter-related UTI	342	2.5
Primary bacteraemia of unknown origin	329	2.4
Clinical sepsis	245	1.8
Catheter-related UTI	197	1.5
Cholecystitis/cholangitis	166	1.2
NON-surgical CNS infection	159	1.2
NON-surgical skin/soft tissue infection	157	1.2
Gastroenteritis	114	0.8
Missing	0	

Trauma (anatomical districts)	N	%
Head	915	6.8
Traumatic subarachnoid haemorrhage	362	2.7
Cerebral contusion/laceration	317	2.3
Maxillofacial fracture	277	2.1
Traumatic Subdural haematoma	270	2.0
Skull fracture	235	1.7
Spine	447	3.3
Vertebral fracture, without deficit	406	3.0
Cervical injury, incomplete deficit	20	0.1
Tetraplegia	11	0.1
Chest	883	6.5
Other injuries of the chest	551	4.1
Traum. haemothorax/pneumothorax	366	2.7
Severe lung contusion/laceration	192	1.4
Abdomen	274	2.0
Spleen: Moderate-Severe laceration	96	0.7
Liver: Moderate-Severe laceration	92	0.7
Minor injuries of the abdomen	84	0.6
Pelvis/bone/joint & muscle	440	3.3
Long bone fracture	289	2.1
Multiple fracture of the pelvis	203	1.5
Very severe or open fracture of the pelvis	18	0.1
Major vessels injury	44	0.3
Neck vessels: dissection/transection	16	0.1
Proximal limbs vessels: transection	14	0.1
Aorta: rupture/dissection	13	0.1
Miscellaneous	54	0.4
Burns (>30% BSA)	38	0.3
Inhalation injury	25	0.2
Missing	0	

Infection severity on admission	N	%
None	9095	67.4
INFECTION WITHOUT SEPSIS	1179	8.7
SEPSIS	1705	12.6
SEPTIC SHOCK	1517	11.2
Missing	0	

## Infection severity on admission

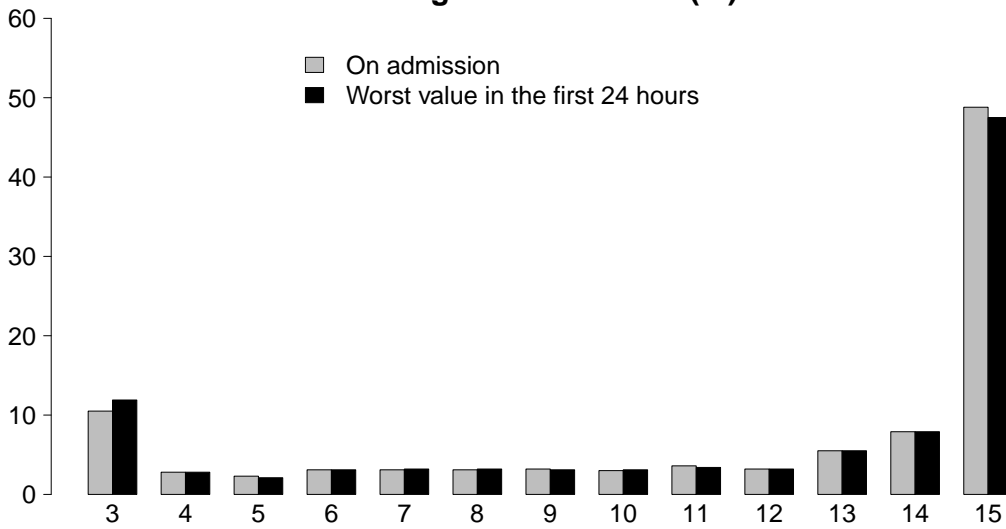
Patients infected (N=4401)



**National report for general ICUs - Year 2021**

**Severity scores - Adult NON COVID non surgical pts. in the GiViTI mod.**

**Glasgow Coma Scale (%)**

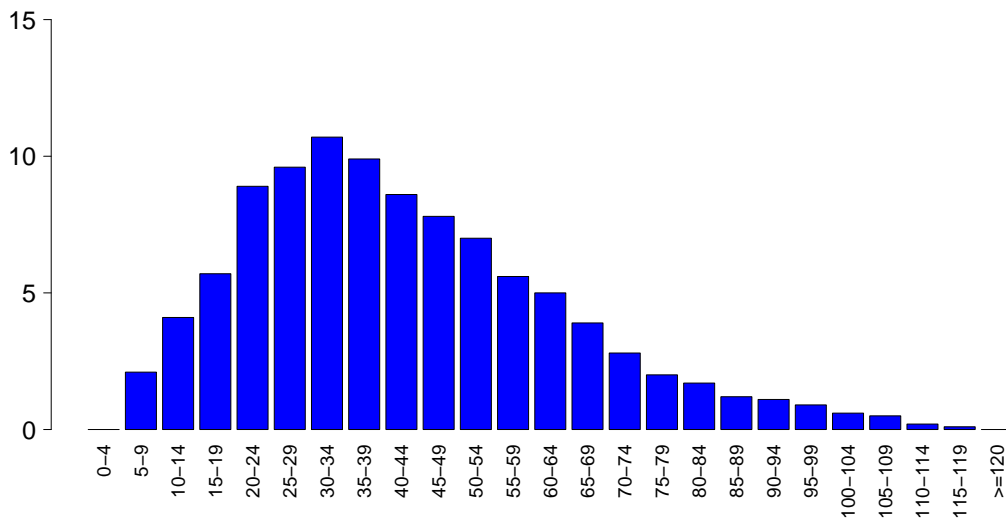


<b>GCS (admission)</b>	
Median	14
Q1–Q3	9–15
Not evaluable	2173
Missing	0

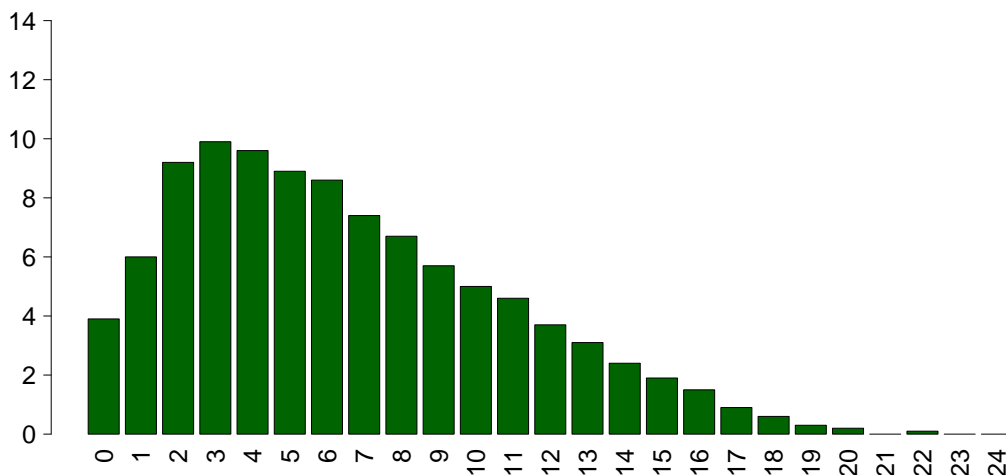
<b>GCS (worst in first 24 hours)</b>	
Median	14
Q1–Q3	8–15
Not evaluable	2473
Missing	0

**SAPS II (%)**



<b>SAPSII</b>	
Mean	42.5
SD	21.1
Median	39
Q1–Q3	27–55
Not evaluable	2473
Missing	0

**SOFA (%)**



<b>SOFA</b>	
Mean	6.5
SD	4.3
Median	6
Q1–Q3	3–9
Not evaluable	2473
Missing	0



## National report for general ICUs - Year 2021

Characteristics during the stay - Adult NON COVID non surgical pts. in the GiViTI mod.

Complications during the stay	N	%
No	8205	60.8
Yes	5291	39.2
Missing	0	

Failures during the stay	N	%
No	10966	81.3
Yes	2530	18.7
A: Respiratory failure	1268	9.4
B: Cardiovascular failure	1197	8.9
C: Neurological failure	216	1.6
D: Hepatic failure	65	0.5
E: Renal failure (AKIN)	630	4.7
F: Acute skin failure	9	0.1
G: Metabolic failure	179	1.3
H: Coagulation failure	83	0.6
Missing	0	

Failures during the stay (top 10)	N	%
A	687	5.1
B	587	4.3
AB	262	1.9
E	226	1.7
G	106	0.8
ABE	104	0.8
BE	101	0.7
AE	71	0.5
C	66	0.5
AC	43	0.3
Missing	0	

Respiratory failure occurred	N	%
None	12228	90.6
Intubation for airway maint.	447	3.3
Hypoxic failure	806	6.0
Hypercapnic failure	215	1.6
Missing	0	

Cardiovascular failure occurred	N	%
None	12299	91.1
Cardiogenic shock	378	2.8
Hypovolemic shock	58	0.4
Haemorrhagic/hypovolemic shock	78	0.6
Septic shock	534	4.0
Anaphylactic shock	2	0.0
Neurogenic shock	65	0.5
Other shock	133	1.0
Missing	0	

Neurological failure occurred	N	%
None	13280	98.4
Cerebral coma	101	0.7
Metabolic coma	43	0.3
Postanoxic coma	76	0.6
Missing	0	

Renal failure occurred (AKIN)	N	%
None	12866	95.3
Mild	45	0.3
Moderate	116	0.9
Severe	469	3.5
Missing	0	

Complications during the stay	N	%
Respiratory	791	5.9
Pleural effusion	238	1.8
Atelectasis	152	1.1
Severe ARDS	139	1.0
Pneumothorax/Pneumomediastinum	95	0.7
Upper resp. tract disease	57	0.4
Cardiovascular	1177	8.7
Cardiac arrest	483	3.6
Acute severe arrhythmia: tachycardias	416	3.1
Pulmonary edema	97	0.7
Left heart failure w/o pulm. edema	87	0.6
Acute severe arrhythmia: bradycardias	64	0.5
Neurological	1089	8.1
Drowsiness/agitation/delirium	477	3.5
Brain edema	217	1.6
Seizures	198	1.5
Intracranial hypertension	193	1.4
New ischaemic stroke	66	0.5
Gastrointestinal and hepatic	313	2.3
Gastrointestinal bleeding: upper tract	65	0.5
Gastrointestinal bleeding: lower tract	53	0.4
Liver Dysfunction Syndrome	50	0.4
Bowel ischaemia	46	0.3
Paralytic Ileus	32	0.2
Other	352	2.6
Metabolic disorder	179	1.3
Nephrourologic disease	87	0.6
Other disease	69	0.5
Other skin and/or soft tissue pathology	13	0.1
Category/Stage III: Full Thickness Skin Loss	12	0.1
Category/Stage II: Partial Thickness Skin Loss	11	0.1
F.U.O. fever of unknown origin	11	0.1
Infections	1746	12.9
Pneumonia	681	5.0
L.R.T.I. other than pneumonia	404	3.0
Catheter-related UTI	238	1.8
Primary bacteraemia of unknown origin	228	1.7
Catheter-related bacteremia (CR-BSI)	228	1.7
Upper respiratory tract infection	62	0.5
NON-catheter-related UTI	40	0.3
Clinical sepsis	38	0.3
Other fungal infections	32	0.2
NON-surgical skin/soft tissue infection	27	0.2
Missing	0	

**National report for general ICUs - Year 2021**

Characteristics during the stay - Adult NON COVID non surgical pts. in the GiViTI mod.

Infections	N	%
None	7932	58.8
Only on admission	3818	28.3
On admission and during ICU stay	583	4.3
Only during ICU stay	1163	8.6
Missing	0	

Maximum severity of infection	N	%
None	7932	58.8
INFECTION WITHOUT SEPSIS	1556	11.5
SEPSIS	2130	15.8
SEPTIC SHOCK	1878	13.9
Missing	0	

**Severity evolution**

Severity evolution		During the stay				
		None	INFECTION WITHOUT SEPSIS	SEPSIS	SEPTIC SHOCK	TOT
<b>Admission</b>	None	7932 (87.2%)	538 (5.9%)	463 (5.1%)	162 (1.8%)	9095
	INFECTION WITHOUT SEPSIS	-	1018 (86.3%)	119 (10.1%)	42 (3.6%)	1179
	SEPSIS	-	-	1548 (90.8%)	157 (9.2%)	1705
	SEPTIC SHOCK	-	-	-	1517 (100.0%)	1517
	TOT	7932	1556	2130	1878	13496

Ventil. Associat. Pneumonia (VAP)	N	%
No	12892	95.5
Yes	604	4.5
Missing	0	

**Incidence of VAP***(Pts. with VAP/1000 days of VM pre-VAP)*

Estimate	10.3
CI (95%)	9.5–11.2

**Incidence of VAP***(Pts. with VAP/pts. ventilated for 8 days)*

Estimate	8.3%
CI (95%)	7.6–8.9

Catheter Bacteraemia (CR-BSI)	N	%
No	13268	98.3
Yes	228	1.7
Missing	0	

**Incidence of CR-BSI***(Pts. with CR-BSI/1000 days of CVC pre-CR-BSI)*

Estimate	2.6
CI (95%)	2.2–2.9

**Incidence of CR-BSI***(Pts. with CR-BSI/pts. catheterized for 12 days)*

Estimate	3.1%
CI (95%)	2.7–3.5

Catheter-related urinary tract infection (UTI)	N	%
No	13258	98.2
Yes	238	1.8
Missing	0	

**Incidence of catheter-related UTI***(Pts. with catheter-related UTI/1000 days of UC pre-UTI)*

Estimate	2.4
CI (95%)	2.1–2.7

**Incidence of catheter-related UTI***(Pts. with catheter-related UTI/pts. with UC for 12 days)*

Estimate	2.8%
CI (95%)	2.5–3.2

## National report for general ICUs - Year 2021

Process indicators - Adult NON COVID non surgical Procedures and/or treatments (Missing=0)	surgical		in the		GiViTI		admission		On discharge		Length (days)		Days from admission				
	N	%	N	%	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing	
	13320	98.7															
Invasive ventilation	8744	64.8	5612	41.6	3180	23.6	4	1-9	0	0	0	0-0	0	0	0-0	0	0
Non invasive ventilation	2922	21.7	927	6.9	697	5.2	2	1-4	0	0	0	0-2	0	0	0-2	0	0
Tracheostomy	2105	15.6	710	5.3	1796	13.3	11	6-19	0	0	8	4-12	0	8	4-12	0	0
iNO (inhaled nitric oxide)	64	0.5	8	0.1	12	0.1	3	2-6	0	0	1	0-4	0	1	0-4	0	0
Central Venous Catheter	10155	75.2	3745	27.7	7986	59.2	5	2-11	1	1	0	0-0	0	0	0-0	0	0
PICC	579	4.3	184	1.4	518	3.8	5	2-10	0	0	5	1-14	0	5	1-14	0	0
Arterial Catheter	11993	88.9	4056	30.1	4591	34	4	2-10	1	1	0	0-0	0	0	0-0	0	0
Vasoactive drugs	5959	44.2	2349	17.4	1850	13.7	2	1-5	0	0	0	0-0	0	0	0-0	0	0
Antiarrhythmics	1123	8.3	370	2.7	661	4.9	3	1-8	0	0	1	0-3	0	1	0-3	0	0
IABP	184	1.4	150	1.1	75	0.6	2	1-3	0	0	0	0-1	0	0	0-1	0	0
Invasive monitoring of C.O.	450	3.3	45	0.3	138	1	5	2-8	0	0	0	0-1	0	0	0-1	0	0
Continuous monitoring of ScVO2	29	0.2	2	0	8	0.1	4	2-10	0	0	0	0-1	0	0	0-1	0	0
Temporary pacing	74	0.5	47	0.3	32	0.2	2	1-4	0	0	1	0-2	0	1	0-2	0	0
Ventricular assistance	8	0.1	4	0	3	0	2	1-4	0	0	0	0-2	0	0	0-2	0	0
DC-shock	363	2.7									0	0-0	0	0	0-0	0	0
CPR	564	4.2									0	0-0	0	0	0-0	0	0
Massive blood transfusion	102	0.8									0	0-1	0	0	0-1	0	0
ICP monitoring without CSF drainage	93	0.7	21	0.2	16	0.1	8	4-12	0	0	0	0-1	0	0	0-1	0	0
ICP monitoring with CSF drainage	45	0.3	29	0.2	20	0.1	10	6-16	0	0	0	0-1	0	0	0-1	0	0
EVD without ICP monitoring	8	0.1	4	0	7	0.1	10	5-19	0	0	4	3-6	0	4	3-6	0	0
Haemofiltration	696	5.2	73	0.5	196	1.5	3	2-8	0	0	0	0-2	0	0	0-2	0	0
Haemodialysis	587	4.3	102	0.8	246	1.8	3	1-7	0	0	0	0-2	0	0	0-2	0	0
ECMO	51	0.4	26	0.2	25	0.2	7	2-16	0	0	1	0-3	0	1	0-3	0	0
Hepatic clearance techniques	5	0.0															
Clearance techniques during sepsis	96	0.7	4	0	32	0.2	2	1-4	0	0	1	0-2	0	1	0-2	0	0
IAP (intra-abdominal pressure)	123	0.9															
Hypothermia	184	1.4	49	0.4	15	0.1	1	1-1	0	0	0	0-0	0	0	0-0	0	0
Enteral nutrition	6431	47.7	1509	11.2	4571	33.9	7	3-14	1	1	1	0-2	0	1	0-2	0	0
Parenteral nutrition	1981	14.7	329	2.4	1078	8	5	2-9	0	0	1	0-2	0	1	0-2	0	0
SDD (Topical, Topical and systemic)	131	1.0															
Patient restraint	270	2.0															
Peridural catheter	57	0.4	13	0.1	29	0.2	3	1-6	0	0	0	0-2	0	0	0-2	0	0
Electrical cardioversion	124	0.9									2	0-3	0	2	0-3	0	0
Vacuum therapy	26	0.2															
Urinary catheter	12713	94.2	9547	70.7	11116	82.4	4	2-10	0	0	0	0-0	0	0	0-0	0	0
Pronation	248	1.8	15	0.1	18	0.1	2	1-5	0	0	1	0-3	0	1	0-3	0	0
Antivirals	263	1.9	116	0.9	161	1.2	5	2-11	0	0	1	0-6	0	1	0-6	0	0

**National report for general ICUs - Year 2021**  
**Process indicators - Adult NON COVID non surgical pts. in the GiViTI mod.**

Procedures and/or treatments (Missing=0)	Use		On admission		On discharge		Length (days)			Days from admission		
	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
<b>Antibiotics</b>	7551	55.9										
Antibiotic prophylaxis	1249	9.3	429	3.2	519	3.8	2	1-4	0	0	0-0	0
Empirical antibiotic therapy (infection diagnosis confirmed)	2672	19.8	1077	8	837	6.2	3	2-6	0	0	0-2	0
Empirical antibiotic therapy (infection diagnosis unconfirmed)	2494	18.5	992	7.4	1470	10.9	4	2-6	0	0	0-0	0
Targeted antibiotic therapy	2878	21.3	649	4.8	1639	12.1	6	4-10	0	4	2-7	0
Antifungal in empirical therapy	357	2.6	117	0.9	169	1.3	4	2-9	1	1	0-6	0
Antifungal in targeted therapy	357	2.6	80	0.6	199	1.5	9	4-15	0	8	3-17	0
Pre-emptive antifungal	89	0.7	25	0.2	42	0.3	6	3-10	0	2	0-7	0

**Antibiotic therapy**

Pt. infected in ICU only (N=1163)	N	%
No therapy	150	12.9
Only empirical	238	20.5
Only targeted	331	28.5
Targeted after empirical	324	27.9
Other	120	10.3
Missing	0	

**Antifungal therapy**

Pt. infected in ICU only (N=1163)	N	%
No therapy	1053	90.5
Only empirical	37	3.2
Only targeted	66	5.7
Targeted after empirical	5	0.4
Other	2	0.2
Missing	0	

## National report for general ICUs - Year 2021

Process indicators - Adult NON COVID non surgical pts. in the GiViTI mod.

Invasive ventilation (N=8744)	N	%	Length (days)				
			Mean	SD	Median	Q1-Q3	Missing
Due to pulmonary failure	3905	39.7	8.9	12.4	5	2–11	0
For airway maintenance	4513	45.9	6.6	12.3	3	1–8	0
In weaning	112	1.1	0.5	0.5	0	0–1	0
Not evaluable	1303	13.3	9.3	12.0	5	1–14	1090
Reintubation within 48 hours	166	1.7	8.5	14.7	4	2–9.75	0

Non invasive ventilation (N=2922)	N	%
Non invasive ventilation only	1655	56.6
Non invasive ventilation failed	566	19.4
For weaning	609	20.8
Other	92	3.1
Missing	0	

Tracheostomy not present on admission (N=1395)	N	%
Surgical	182	13.0
Percutwist	103	7.4
Ciaglia	199	14.3
Monodil. Ciaglia	664	47.6
Fantoni	2	0.1
Griggs	206	14.8
Other Kind	26	1.9
Unknown	13	0.9
Missing	0	

## Tracheostomy - Days after the beginning of inv. vent. Not present on admission (N=1384)

Mean	9.0
SD	7.4
Median	7
Q1–Q3	4–12
Missing	1

Invasive monitoring of C.O. (N=450)	N	%
Swan Ganz	80	17.8
PICCO	297	66.0
LIDCO	0	0.0
Vigileo-PRAM	45	10.0
Other	28	6.2
Missing	0	

SDD (N=131)	N	%
Topical	129	98.5
Topical and systemic	2	1.5
Missing	0	

Surgical interventions	N	%
No	12935	95.8
Yes	561	4.2
Missing	0	

Number of surgical interventions	N	%
0	12935	95.8
1	465	3.4
2	68	0.5
3	16	0.1
>3	12	0.1
Missing	0	

## Surgical interventions

## Days from admission

Mean	8.8
SD	9.6
Median	6
Q1–Q3	3–11
Missing	4

Surgical interventions (top 10)	N	%
Orthopaedic surgery	144	1.1
Gastrointestinal surgery	113	0.8
Neurosurgery	101	0.7
ENT surgery	85	0.6
Maxillo-Facial surgery	41	0.3
Thoracic surgery	41	0.3
Plastic surgery	30	0.2
Organ donation	30	0.2
Other surgery	25	0.2
Nephro/Urological surgery	20	0.1
Missing	0	

Non surgical interventions	N	%
No	13140	97.4
Yes	356	2.6
Missing	0	

## Non surgical interventions

## Days from admission

Mean	12.7
SD	14.9
Median	7
Q1–Q3	4–15
Missing	11

Non surgical interventions	N	%
Interventional endoscopy	241	1.8
Interventional cardiology	79	0.6
Interventional radiology	78	0.6
Interventional neuroradiology	18	0.1
Missing	0	

**National report for general ICUs - Year 2021****Outcome indicators** - Adult NON COVID non surgical pts. in the GiViTI mod.

<b>ICU outcome</b>	<b>N</b>	<b>%</b>
Dead	3299	24.4
Transferred to same hospital	8082	59.9
Transferred to other hospital	1904	14.1
Discharged home	124	0.9
Disch. terminally ill	86	0.6
Missing	1	

<b>Transferred to (N=9986)</b>	<b>N</b>	<b>%</b>
Ward	6861	68.7
Other ICU	1214	12.2
High dependency care unit	1273	12.7
Rehabilitation	514	5.1
Day hospital or Long-term care	124	1.2
Missing	0	

<b>Reason of transfer to Other ICU (N=1254)</b>	<b>N</b>	<b>%</b>
Specialist expertise	526	41.9
Step-up care	109	8.7
Logistical/organizational reasons	602	48.0
Step-down care	17	1.4
Missing	0	

<b>Transferred to Same hospital (N=8082)</b>	<b>N</b>	<b>%</b>
Ward	6378	78.9
Other ICU	422	5.2
High dependency care unit	1195	14.8
Rehabilitation	61	0.8
Day hospital or Long-term care	26	0.3
Missing	0	

<b>Transferred to Other hospital (N=1904)</b>	<b>N</b>	<b>%</b>
Ward	483	25.4
Other ICU	792	41.6
High dependency care unit	78	4.1
Rehabilitation	453	23.8
Day hospital or Long-term care	98	5.1
Missing	0	

<b>ICU mortality</b>	<b>N</b>	<b>%</b>
Alive	10110	74.9
Dead	3385	25.1
Missing	1	

<b>Timing of ICU mortality (N=3385)</b>	<b>N</b>	<b>%</b>
Daytime (08:00AM - 07:59PM)	2377	70.2
Nighttime (08:00PM - 07:59AM)	1008	29.8
Weekdays (Monday - Friday)	2526	74.6
Weekend (Saturday - Sunday)	859	25.4
Missing	0	

<b>C.A.M. activation (N=3385)</b>	<b>N</b>	<b>%</b>
Yes, with organ donation	224	6.8
Yes, without organ donation	165	5.0
No, with organ donation	7	0.2
No, without organ donation	2903	88.0
Missing	86	

<b>Tissue removal (N=3385)</b>	<b>N</b>	<b>%</b>
Yes, with C.A.M. activation	125	3.7
Yes, without C.A.M. activation	124	3.7
No	3136	92.6
Missing	0	

<b>Hospital mortality</b>	<b>N</b>	<b>%</b>
Dead	4111	30.5
Transf. to other acute-care hospital	1850	13.7
Transf. to other type of hosp. stay	2547	18.9
Nursing home	245	1.8
Voluntary discharge	136	1.0
Discharged home	4607	34.1
Missing	0	

<b>To other type of H stay (N=2547)</b>	<b>N</b>	<b>%</b>
Rehabilitation in the same institute	281	11.0
Rehabilitation in other institute	1639	64.4
DH/long-term care, same inst.	140	5.5
DH/long-term care, other inst.	487	19.1
Missing	0	

<b>Disch. terminally ill (N=9385)</b>	<b>N</b>	<b>%</b>
Yes	212	2.3
No	9173	97.7
Missing	0	

<b>Hospital mortality</b>	<b>N</b>	<b>%</b>
Alive	9173	68.0
Dead	4323	32.0
Missing	0	

<b>Timing of hosp. mortality (N=4323)</b>	<b>N</b>	<b>%</b>
In ICU	3385	78.3
Within 24 hours after ICU	57	1.3
24-47 hours after ICU	64	1.5
48-71 hours after ICU	36	0.8
72-95 hours after ICU	63	1.5
After 95 hours after ICU	717	16.6
Missing	1	

<b>Timing of hosp. mortality (days from ICU disch.) Discharged alive from ICU (N=938)</b>	
Mean	16.9
SD	22.3
Median	10
Q1-Q3	4-22.8
Missing	0

## National report for general ICUs - Year 2021

Outcome indicators - Adult NON COVID non surgical pts. in the GiViTI mod.

<b>Last hospital mortality</b>			<b>ICU stay (days)</b>		
	N	%			
Alive	9019	66.8	Mean	8.0	
Dead	4477	33.2	SD	11.2	
Missing	0		Median	4	
			Q1–Q3	2–10	
			Missing	2	
			<b>ICU stay (days)</b>		
			<b>Alive (N=10110)</b>		
			Mean	8.2	
			SD	10.8	
			Median	4	
			Q1–Q3	2–10	
			Missing	1	
			<b>ICU stay (days)</b>		
			<b>Dead (N=3385)</b>		
			Mean	7.5	
			SD	12.0	
			Median	3	
			Q1–Q3	1–9	
			Missing	1	
			<b>Stay after ICU (days)</b>		
			<b>Alive (N=10110)</b>		
			Mean	12.5	
			SD	16.4	
			Median	8	
			Q1–Q3	2–16	
			Missing	4	
			<b>Hospital stay (days)</b>		
			Mean	19.9	
			SD	22.0	
			Median	14	
			Q1–Q3	6–26	
			Missing	2	
			<b>Hospital stay (days)</b>		
			<b>Alive (N=9173)</b>		
			Mean	22.3	
			SD	21.7	
			Median	16	
			Q1–Q3	9–29	
			Missing	2	
			<b>Hospital stay (days)</b>		
			<b>Dead (N=4323)</b>		
			Mean	15.0	
			SD	21.8	
			Median	8	
			Q1–Q3	2–19	
			Missing	0	





## National report for general ICUs - Year 2021

Characteristics on admission - Adult NON COVID elect. surgical pts. eval. in the GiViTI m.

Patients (N): 6966

Sex	N	%
Male	4039	58.0
Female	2927	42.0
Missing	0	

Age (years)	N	%
17-45	561	8.1
46-65	2048	29.4
66-75	2047	29.4
>75	2310	33.2
Missing	0	
Mean	67.7	
SD	14.2	
Median	70	
Q1–Q3	60–78	
Min–Max	17–101	

Body mass Index (BMI)	N	%
Underweight	339	4.9
Normal	2992	43.0
Overweight	2080	29.9
Obese	1555	22.3
Missing	0	

Pregnancy status	N	%
<b>Females (N=2927)</b>		
Not fertile	1421	48.7
Not pregnant/Unknown	1462	50.1
Currently pregnant	5	0.2
Post partum	29	1.0
Missing	10	

Comorbidities	N	%
No	753	10.8
Yes	6213	89.2
Missing	0	

Comorbidities (top 10)	N	%
Hypertension	4069	58.4
Any tumour without metastasis	1562	22.4
Moderate COPD	1072	15.4
Arrhythmia	1036	14.9
Diabetes Type II without insulin tr.	966	13.9
Myocardial infarction	941	13.5
Peripheral vascular disease	727	10.4
Antiplatelet therapy	632	9.1
Metastatic cancer	584	8.4
NYHA class II-III	536	7.7
Missing	0	

Stay before ICU (days)	Mean	SD	Median	Q1–Q3	Missing
	3.8	8.7	1	0–3	0

Source of admission	N	%
Same hospital	6885	98.8
Other hospital	81	1.2
Long-term chronic care hospital	0	0.0
Directly from the community	0	0.0
Missing	0	

Ward of admission	N	%
<b>Hospital (N=6966)</b>		
Medical ward	198	2.8
Surgical ward	6649	95.4
Emergency room	43	0.6
Other ICU	50	0.7
High dependency care unit	26	0.4
Missing	0	

Reason for transfer from	N	%
<b>Other ICU (N=50)</b>		
Specialist expertise	16	32.0
Step-up care	11	22.0
Logistical/organizational reasons	20	40.0
Step-down care	3	6.0
Missing	0	

Ward of admission	N	%
<b>Same hospital (N=6885)</b>		
Medical ward	192	2.8
Surgical ward	6614	96.1
Emergency room	35	0.5
Other ICU	22	0.3
High dependency care unit	22	0.3
Missing	0	

Ward of admission	N	%
<b>Other hospital (N=81)</b>		
Medical ward	6	7.4
Surgical ward	35	43.2
Emergency room	8	9.9
Other ICU	28	34.6
High dependency care unit	4	4.9
Missing	0	

Scheduled admission	N	%
No	1401	20.1
Yes	5565	79.9
Missing	0	



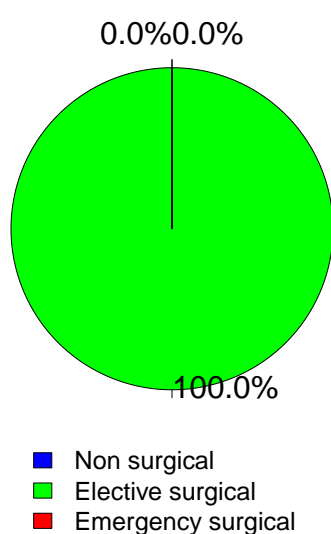
## National report for general ICUs - Year 2021

## Characteristics on admission - Adult NON COVID elect. surgical pts. eval. in the GiViTI m.

Trauma	N	%
No	6671	95.8
Yes	295	4.2
Multiple trauma	37	0.5
Missing	0	

Surgical status	N	%
Non surgical	0	0.0
Elective surgical	6966	100.0
Emergency surgical	0	0.0
Missing	0	

## Surgical status



Timing	N	%
<b>Elective surgical (N=6966)</b>		
From -7 to -3 days	82	1.2
From -2 to -1 days	218	3.1
On ICU admission day	7001	100.5
The day after ICU admission	56	0.8
Missing	4	

## Surgical interventions (top 10)

Emergency surgical (N=0)	N	%
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
Missing	0	

## Timing

Emergency surgical (N=0)	N	%
From -7 to -3 days	0	0.0
From -2 to -1 days	0	0.0
On ICU admission day	0	0.0
The day after ICU admission	0	0.0
Missing	0	

## Source of admission

Surgical pt. (N=6966)	N	%
Operating theatre of surgical ward	6410	92.0
Operating theatre of emergency room	18	0.3
Surgical ward	239	3.4
Other	299	4.3
Missing	0	

## Surgical interventions (top 10)

Elective surgical (N=6966)	N	%
Gastrointestinal surgery	1891	27.1
Neurosurgery	896	12.9
Nephro/Urological surgery	841	12.1
Orthopaedic surgery	791	11.4
Thoracic surgery	482	6.9
ENT surgery	387	5.6
Pancreatic surgery	313	4.5
Hepatic surgery	311	4.5
Gynaecological surgery	288	4.1
Abdominal vascular surgery	231	3.3
Missing	535	

## Non surgical interventions

	N	%
None	6815	97.8
Elective	97	1.4
Emergency	54	0.8
Missing	0	

## Non surgical interventions

Elective (N=97)	N	%
Interventional radiology	21	21.6
Interventional endoscopy	15	15.5
Interventional neuroradiology	6	6.2
Interventional cardiology	4	4.1
Missing	51	

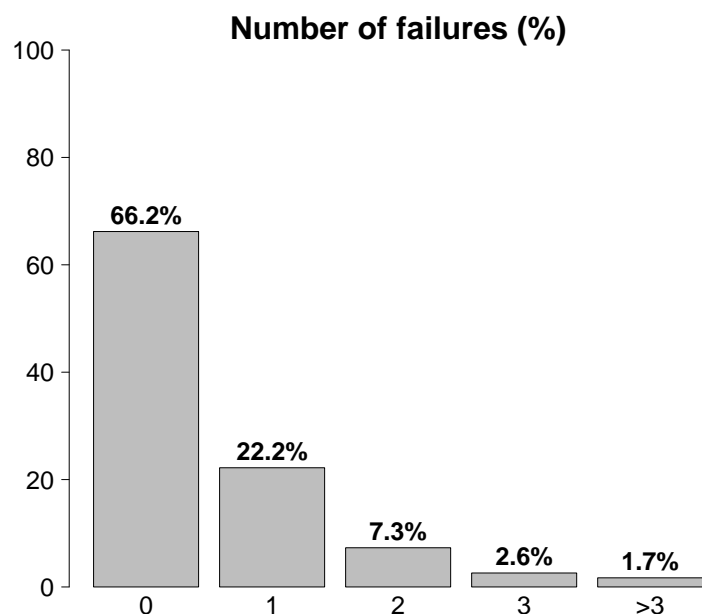
## Non surgical interventions

Emergency (N=54)	N	%
Interventional cardiology	16	29.6
Interventional radiology	15	27.8
Interventional endoscopy	11	20.4
Interventional neuroradiology	1	1.9
Missing	11	

## National report for general ICUs - Year 2021

Characteristics on admission - Adult NON COVID elect. surgical pts. eval. in the GiViTI m.

Reason for admission	N	%
Monitoring/Weaning	5837	83.8
Post surgical weaning	2546	36.5
Surgical monitoring	3288	47.2
Post interventional weaning	2	0.0
Interventional monitoring	1	0.0
Non surgical monitoring	0	0.0
Missing	0	
Intensive Treatment	1129	16.2
Only ventilatory support	609	8.7
Only cardiovascular support	183	2.6
Ventilatory and cardiovascular support	337	4.8
Missing	0	
Palliative Sedation	0	0.0
Diagnosis of death/Organ donation	0	0.0
Missing	0	



Failures on admission	N	%
No	4613	66.2
Yes	2353	33.8
A: Respiratory failure	946	13.6
B: Cardiovascular failure	520	7.5
C: Neurological failure	78	1.1
D: Hepatic failure	22	0.3
E: Renal failure	1302	18.7
F: Acute skin failure	1	0.0
G: Metabolic failure	717	10.3
H: Coagulation failure	31	0.4
Missing	0	

Failures on admission (top 10)	N	%
E	762	10.9
A	428	6.1
G	268	3.8
EG	163	2.3
AB	121	1.7
AE	87	1.2
ABEG	77	1.1
B	66	0.9
BE	47	0.7
ABE	46	0.7
Missing	0	

Respiratory failure	N	%
None	6020	86.4
Only hypoxic failure	184	2.6
Only hypercapnic failure	20	0.3
Hypoxic-hypercapnic failure	36	0.5
Intubation for airway maint.	706	10.1
Missing	0	

Cardiovascular failure	N	%
None	6446	92.5
Without shock	127	1.8
Cardiogenic shock	54	0.8
Septic shock	61	0.9
Haemorrhagic/hypovolemic shock	143	2.1
Hypovolemic shock	75	1.1
Anaphylactic shock	4	0.1
Neurogenic shock	4	0.1
Other shock	20	0.3
Mixed shock	32	0.5
Missing	0	

Neurologic failure	N	%
None	5720	98.7
Cerebral coma	36	0.6
Metabolic coma	18	0.3
Postanoxic coma	21	0.4
Toxic coma	3	0.1
Missing or not evaluable	1168	

Renal failure (AKIN)	N	%
None	5664	81.3
Mild	897	12.9
Moderate	232	3.3
Severe	173	2.5
Missing	0	

Metabolic failure	N	%
None	6249	89.7
pH $\leq$ 7.3, PaCO <sub>2</sub> $<$ 45 mmHg	208	3.0
Base deficit $\geq$ 5 mmol/L, lactate $>$ 1.5x	509	7.3
Missing	0	

## National report for general ICUs - Year 2021

## Characteristics on admission - Adult NON COVID elect. surgical pts. eval. in the GiViTI m.

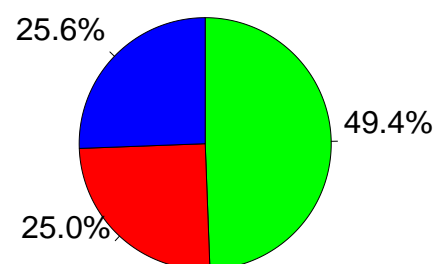
Clinical conditions on admission	N	%
Respiratory	746	10.7
Lung cancer	366	5.3
Upper respiratory tract disease	107	1.5
Atelectasis	72	1.0
Pleural effusion	61	0.9
Pneumothorax/Pneumomediastinum	38	0.5
Cardiovascular	629	9.0
Non-ruptured aneurysm	217	3.1
Peripheral vascular disease	127	1.8
Acute severe arrhythmia: tachycardias	62	0.9
Cardiac arrest	57	0.8
Left heart failure without pulm. edema	35	0.5
Neurological	864	12.4
Brain tumour	694	10.0
Neuropathy/myopathy	41	0.6
Cerebral artery stroke	31	0.4
Cerebral Aneurysm	31	0.4
Seizures	28	0.4
Gastrointestinal and hepatic	2113	30.3
Digestive tract malignancy	1312	18.8
Pancreatic malignancy	287	4.1
Hepatic malignancy	258	3.7
Acute bile-duct disease	92	1.3
Intestinal occlusion	64	0.9
Trauma (anatomical districts)	295	4.2
Pelvis/bone/joint & muscle	256	3.7
Chest	29	0.4
Head	27	0.4
Spine	27	0.4
Major vessels injury	7	0.1
Abdomen	6	0.1
Miscellaneous	1	0.0
Other	2707	38.9
Nephrourologic disease	742	10.7
Other disease	730	10.5
Orthopaedic disease	437	6.3
ENT/maxillofacial disease	409	5.9
Gynaecological disease	252	3.6
Post transplantation	48	0.7
Liver transplantation	34	0.5
Renal transplantation	11	0.2
Infections	328	4.7
Pneumonia	47	0.7
NON-catheter-related UTI	34	0.5
Cholecystitis/cholangitis	27	0.4
Post-surgical peritonitis	27	0.4
Orthopaedic prosthesis infection	21	0.3
NON-surgical secondary peritonitis	19	0.3
Clinical sepsis	18	0.3
NON-surgical skin/soft tissue infection	17	0.2
Primary bacteraemia of unknown origin	12	0.2
L.R.T.I. other than pneumonia	12	0.2
Missing	0	

Trauma (anatomical districts)	N	%
Head	27	0.4
Maxillofacial fracture	17	0.2
Traumatic subarachnoid haemorrhage	11	0.2
Traumatic Subdural haematoma	7	0.1
Skull fracture	6	0.1
Cerebral contusion/laceration	3	0.0
Spine	27	0.4
Vertebral fracture, without deficit	21	0.3
Cervical injury, incomplete deficit	4	0.1
Tetraplegia	1	0.0
Chest	29	0.4
Other injuries of the chest	17	0.2
Traum. haemothorax/pneumothorax	7	0.1
Severe lung contusion/laceration	4	0.1
Abdomen	6	0.1
Minor injuries of the abdomen	3	0.0
Spleen: Moderate-Severe laceration	2	0.0
Liver: Moderate-Severe laceration	1	0.0
Pelvis/bone/joint & muscle	256	3.7
Long bone fracture	243	3.5
Multiple fracture of the pelvis	20	0.3
Very severe or open fracture of the pelvis	1	0.0
Major vessels injury	7	0.1
Neck vessels: dissection/transection	3	0.0
Proximal limbs vessels: transection	2	0.0
Major thoracic vessels: transection	1	0.0
Miscellaneous	1	0.0
Inhalation injury	1	0.0
-	0	0.0
Missing	0	

Infection severity on admission	N	%
None	6638	95.3
INFECTION WITHOUT SEPSIS	162	2.3
SEPSIS	82	1.2
SEPTIC SHOCK	84	1.2
Missing	0	

## Infection severity on admission

Patients infected (N=328)

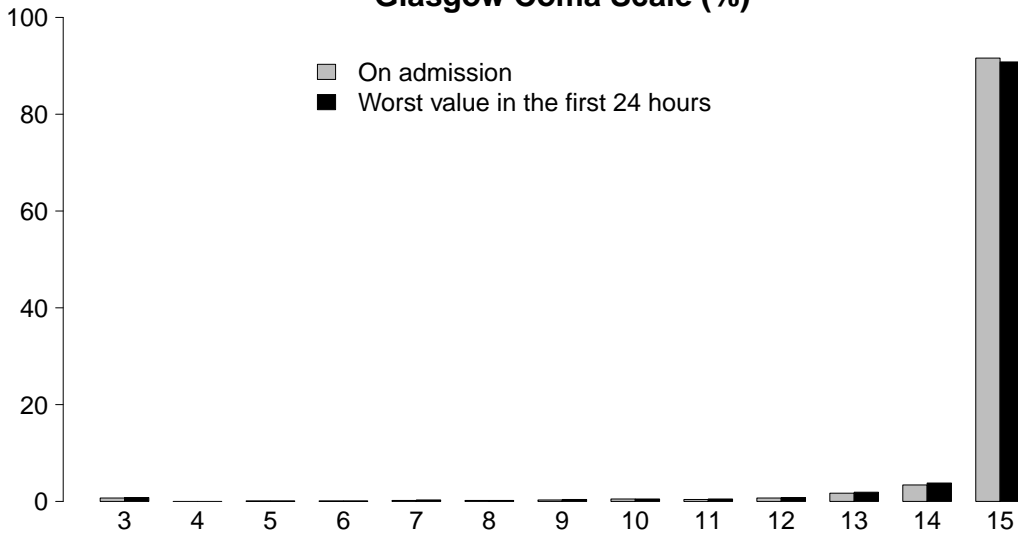


■ INFECTION WITHOUT SEPSIS  
■ SEPSIS  
■ SEPTIC SHOCK

**National report for general ICUs - Year 2021**

**Severity scores** - Adult NON COVID elect. surgical pts. eval. in the GiViTI m.

**Glasgow Coma Scale (%)**



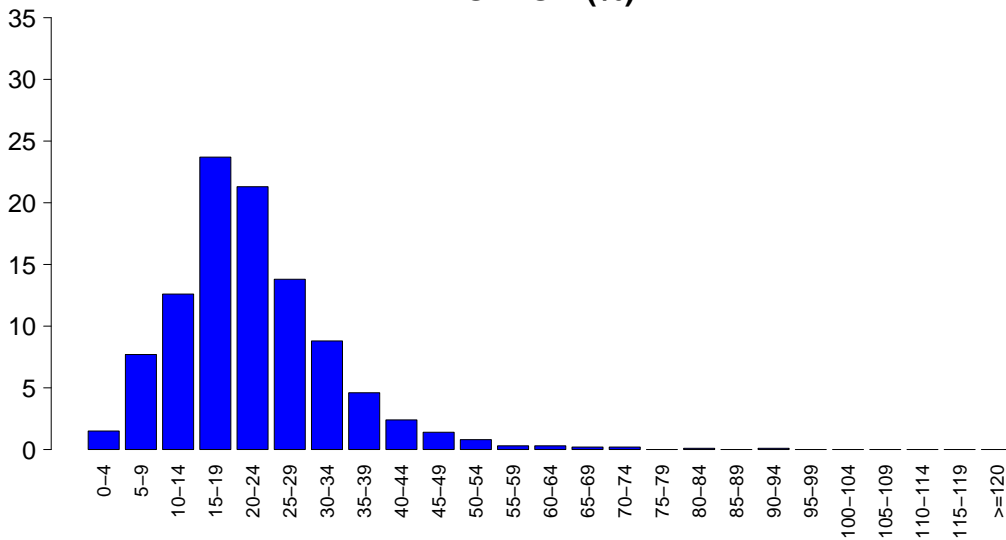
**GCS (admission)**

Median	15
Q1–Q3	15–15
Not evaluable	1168
Missing	0

**GCS (worst in first 24 hours)**

Median	15
Q1–Q3	15–15
Not evaluable	646
Missing	0

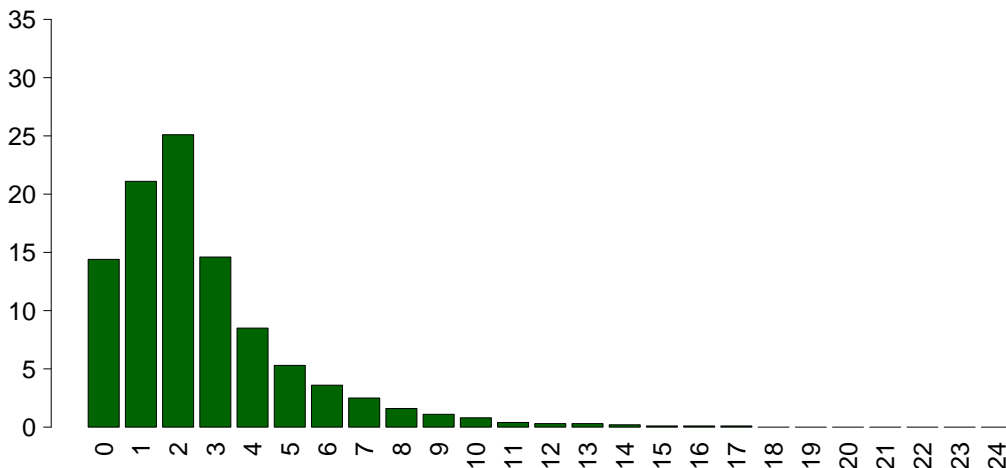
**SAPS II (%)**



**SAPSII**

Mean	22.1
SD	11.2
Median	21
Q1–Q3	15–27
Not evaluable	646
Missing	0

**SOFA (%)**



**SOFA**

Mean	2.6
SD	2.5
Median	2
Q1–Q3	1–3
Not evaluable	646
Missing	0

## National report for general ICUs - Year 2021

## Characteristics during the stay - Adult NON COVID elect. surgical pts. eval. in the GiViTI m.

Complications during the stay	N	%
No	6360	91.3
Yes	606	8.7
Missing	0	

Failures during the stay	N	%
No	6683	95.9
Yes	283	4.1
A: Respiratory failure	174	2.5
B: Cardiovascular failure	107	1.5
C: Neurological failure	9	0.1
D: Hepatic failure	11	0.2
E: Renal failure (AKIN)	71	1.0
F: Acute skin failure	0	0.0
G: Metabolic failure	17	0.2
H: Coagulation failure	12	0.2
Missing	0	

Failures during the stay (top 10)	N	%
A	105	1.5
B	39	0.6
AB	34	0.5
E	29	0.4
G	13	0.2
ABE	12	0.2
BE	11	0.2
AE	9	0.1
D	5	0.1
ABC	3	0.0
Missing	0	

Respiratory failure occurred	N	%
None	6792	97.5
Intubation for airway maint.	73	1.0
Hypoxic failure	98	1.4
Hypercapnic failure	15	0.2
Missing	0	

Cardiovascular failure occurred	N	%
None	6859	98.5
Cardiogenic shock	15	0.2
Hypovolemic shock	10	0.1
Haemorrhagic/hypovolemic shock	28	0.4
Septic shock	42	0.6
Anaphylactic shock	0	0.0
Neurogenic shock	4	0.1
Other shock	15	0.2
Missing	0	

Neurological failure occurred	N	%
None	6957	99.9
Cerebral coma	5	0.1
Metabolic coma	2	0.0
Postanoxic coma	2	0.0
Missing	0	

Renal failure occurred (AKIN)	N	%
None	6895	99.0
Mild	13	0.2
Moderate	25	0.4
Severe	33	0.5
Missing	0	

Complications during the stay	N	%
Respiratory	108	1.6
Pleural effusion	37	0.5
Atelectasis	28	0.4
Upper resp. tract disease	15	0.2
Pneumothorax/Pneumomediastinum	13	0.2
Pulmonary embolism	8	0.1
Cardiovascular	141	2.0
Acute severe arrhythmia: tachycardias	68	1.0
Cardiac arrest	21	0.3
Hypertensive crisis	14	0.2
Acute severe arrhythmia: bradycardias	11	0.2
Deep venous thrombosis	9	0.1
Neurological	106	1.5
Drowsiness/agitation/delirium	62	0.9
Seizures	23	0.3
Brain edema	6	0.1
CrIMyNe	6	0.1
New ischaemic stroke	6	0.1
Gastrointestinal and hepatic	89	1.3
Intrabdominal bleeding	20	0.3
Gastrointestinal bleeding: lower tract	13	0.2
Paralytic Ileus	13	0.2
Gastrointestinal bleeding: upper tract	11	0.2
Bowel ischaemia	8	0.1
Other	65	0.9
Other disease	20	0.3
Metabolic disorder	17	0.2
Nephrourologic disease	17	0.2
Other skin and/or soft tissue pathology	3	0.0
Fat embolism	2	0.0
Category/Stage I: Nonblanchable Erythema	2	0.0
Anastomotic stricture or leak	1	0.0
Infections	159	2.3
Pneumonia	49	0.7
L.R.T.I. other than pneumonia	35	0.5
Post-surgical peritonitis	17	0.2
Catheter-related UTI	15	0.2
Clinical sepsis	11	0.2
Primary bacteraemia of unknown origin	10	0.1
Catheter-related bacteremia (CR-BSI)	8	0.1
Upper respiratory tract infection	6	0.1
Post-surgical skin/soft tissue infection	5	0.1
Post-surgical CNS infection	4	0.1
Missing	0	

**National report for general ICUs - Year 2021**

Characteristics during the stay - Adult NON COVID elect. surgical pts. eval. in the GiViTI m.

Infections	N	%
None	6504	93.4
Only on admission	303	4.3
On admission and during ICU stay	25	0.4
Only during ICU stay	134	1.9
Missing	0	

Maximum severity of infection	N	%
None	6504	93.4
INFECTION WITHOUT SEPSIS	214	3.1
SEPSIS	131	1.9
SEPTIC SHOCK	117	1.7
Missing	0	

**Severity evolution**

Severity evolution		During the stay				
		None	INFECTION WITHOUT SEPSIS	SEPSIS	SEPTIC SHOCK	TOT
<b>Admission</b>	None	6504 (98.0%)	58 (0.9%)	47 (0.7%)	29 (0.4%)	6638
	INFECTION WITHOUT SEPSIS	-	156 (96.3%)	6 (3.7%)	0 (0.0%)	162
	SEPSIS	-	-	78 (95.1%)	4 (4.9%)	82
	SEPTIC SHOCK	-	-	-	84 (100.0%)	84
	TOT	6504	214	131	117	6966

Ventil. Associat. Pneumonia (VAP)	N	%
No	6926	99.4
Yes	40	0.6
Missing	0	

**Incidence of VAP***(Pts. with VAP/1000 days of VM pre-VAP)*

Estimate	13.8
CI (95%)	9.8–18.8

**Incidence of VAP***(Pts. with VAP/pts. ventilated for 8 days)*

Estimate	11.0%
CI (95%)	7.9–15.0

Catheter Bacteraemia (CR-BSI)	N	%
No	6958	99.9
Yes	8	0.1
Missing	0	

**Incidence of CR-BSI***(Pts. with CR-BSI/1000 days of CVC pre-CR-BSI)*

Estimate	0.9
CI (95%)	0.4–1.8

**Incidence of CR-BSI***(Pts. with CR-BSI/pts. catheterized for 12 days)*

Estimate	1.1%
CI (95%)	0.5–2.2

Catheter-related urinary tract infection (UTI)	N	%
No	6951	99.8
Yes	15	0.2
Missing	0	

**Incidence of catheter-related UTI***(Pts. with catheter-related UTI/1000 days of UC pre-UTI)*

Estimate	1.1
CI (95%)	0.6–1.8

**Incidence of catheter-related UTI***(Pts. with catheter-related UTI/pts. with UC for 12 days)*

Estimate	1.3%
CI (95%)	0.7–2.2



## National report for general ICUs - Year 2021

Process indicators - Adult NON COVID elect. Procedures and/or treatments (Missing=0)	surgical		% eval. in theatre		% Division		On discharge		Length (days)		Days from admission			
	N	%	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
	6879	98.8												
Invasive ventilation	3595	51.6	3358	48.2	158	2.3	0	0-1	0	0	0	0	0-0	0
Non invasive ventilation	486	7.0	184	2.6	187	2.7	1	1-2	0	0	0	0	0-1	0
Tracheostomy	271	3.9	181	2.6	249	3.6	2	1-6	0	0	0	7	2-9	0
iNO (inhaled nitric oxide)	2	0.0	0	0	0	0	5	4-6	0	0	0	1	0-2	0
Central Venous Catheter	2811	40.4	2201	31.6	2597	37.3	1	1-3	0	0	0	0	0-0	0
PICC	132	1.9	93	1.3	129	1.9	2	1-3	0	0	0	1	0-5	0
Arterial Catheter	5696	81.8	4839	69.5	799	11.5	1	1-2	1	0	0	0	0-0	0
Vasoactive drugs	915	13.1	593	8.5	89	1.3	1	0-2	0	0	0	0	0-1	0
Antiarrhythmics	174	2.5	66	0.9	110	1.6	1	1-3	0	0	0	1	0-2	0
IABP	1	0.0	1	0	1	0	0	0-0	0	0	0	0	0-0	0
Invasive monitoring of C.O.	57	0.8	23	0.3	7	0.1	2	1-4	0	0	0	1	0-4	0
Continuous monitoring of ScVO2	7	0.1	4	0.1	2	0	2	1-4	0	0	0	1	1-4	0
Temporary pacing	4	0.1	2	0	0	0	2	1-2	0	0	0	0	0-0	0
Ventricular assistance	0	0.0												
DC-shock	21	0.3										0	0-1	0
CPR	31	0.4										0	0-0	0
Massive blood transfusion	37	0.5										0	0-0	0
ICP monitoring without CSF drainage	5	0.1	4	0.1	3	0	2	1-2	0	0	0	0	0-0	0
ICP monitoring with CSF drainage	40	0.6	33	0.5	18	0.3	2	1-7	0	0	0	0	0-0	0
EVD without ICP monitoring	20	0.3	20	0.3	12	0.2	1	1-1	0	0	0			
Haemofiltration	41	0.6	5	0.1	14	0.2	3	2-8	0	0	0	1	0-2	0
Haemodialysis	50	0.7	12	0.2	26	0.4	1	0-6	0	0	0	1	1-2	0
ECMO	1	0.0	1	0	0	0	2	2-2	0	0	0			
Hepatic clearance techniques	0	0.0												
Clearance techniques during sepsis	4	0.1	0	0	1	0	2	2-3	0	0	0	2	2-4	0
IAP (intra-abdominal pressure)	56	0.8												
Hypothermia	2	0.0	2	0	0	0	1	1-1	0	0	0			
Enteral nutrition	489	7.0	83	1.2	402	5.8	4	1-9	0	0	0	1	1-3	0
Parenteral nutrition	606	8.7	117	1.7	469	6.7	2	1-4	0	0	0	1	0-1	0
SDD (Topical, Topical and systemic)	19	0.3												
Patient restraint	59	0.8												
Peridural catheter	778	11.2	743	10.7	661	9.5	1	1-2	0	0	0	0	0-0	0
Electrical cardioversion	7	0.1										4	2-5	0
Vacuum therapy	11	0.2												
Urinary catheter	6565	94.2	6120	87.9	6243	89.6	1	1-2	0	0	0	0	0-0	0
Pronation	1	0.0	0	0	0	0	1	1-1	0	0	0	1	1-1	0
Antivirals	8	0.1	6	0.1	8	0.1	4	1-6	0	0	0	10	5-15	0

**National report for general ICUs - Year 2021**  
**Process indicators - Adult NON COVID elect. surgical pts. eval. in the GiViTI m.**

Procedures and/or treatments (Missing=0)	Use		On admission		On discharge		Length (days)			Days from admission		
	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
<b>Antibiotics</b>	3732	53.6										
Antibiotic prophylaxis	3175	45.6	2793	40.1	1420	20.4	1	1-1	0	0	0-0	0
Empirical antibiotic therapy (infection diagnosis confirmed)	176	2.5	83	1.2	85	1.2	3	1-5	0	1	0-3	0
Empirical antibiotic therapy (infection diagnosis unconfirmed)	320	4.6	166	2.4	265	3.8	2	1-4	0	0	0-1	0
Targeted antibiotic therapy	216	3.1	77	1.1	140	2	5	2-8	0	5	2-9	0
Antifungal in empirical therapy	38	0.5	10	0.1	24	0.3	6	2-10	0	2	0-6	0
Antifungal in targeted therapy	30	0.4	11	0.2	24	0.3	6	2-9	0	5	3-9	0
Pre-emptive antifungal	16	0.2	2	0	10	0.1	4	2-6	0	2	0-4	0

**Antibiotic therapy**

Pt. infected in ICU only (N=134)	N	%
No therapy	10	7.5
Only empirical	39	29.1
Only targeted	40	29.9
Targeted after empirical	40	29.9
Other	5	3.7
Missing	0	

**Antifungal therapy**

Pt. infected in ICU only (N=134)	N	%
No therapy	115	85.8
Only empirical	13	9.7
Only targeted	5	3.7
Targeted after empirical	1	0.7
Other	0	0.0
Missing	0	

## National report for general ICUs - Year 2021

## Process indicators - Adult NON COVID elect. surgical pts. eval. in the GiViTI m.

		Length (days)					
Invasive ventilation (N=3595)	N	%	Mean	SD	Median	Q1-Q3	Missing
Due to pulmonary failure	205	4.8	4.7	7.0	2	1–5	0
For airway maintenance	672	15.7	2.7	5.6	1	0–2	0
In weaning	2513	58.7	0.4	0.5	0	0–1	0
Not evaluable	894	20.9	2.8	6.6	1	0–1	689
Reintubation within 48 hours	35	0.8	5.0	5.0	2	1–10	0

Non invasive ventilation (N=486)	N	%
Non invasive ventilation only	315	64.8
Non invasive ventilation failed	22	4.5
For weaning	139	28.6
Other	10	2.1
Missing	0	

Tracheostomy not present on admission (N=90)	N	%
Surgical	31	34.4
Percutwist	3	3.3
Ciaglia	5	5.6
Monodil. Ciaglia	35	38.9
Fantoni	0	0.0
Griggs	15	16.7
Other Kind	0	0.0
Unknown	1	1.1
Missing	0	

Tracheostomy - Days after the beginning of inv. vent. Not present on admission (N=90)	Mean	SD	Median	Q1–Q3	Missing
	6.8	5.4	7	2–9	0

Invasive monitoring of C.O. (N=57)	N	%
Swan Ganz	6	10.5
PICCO	26	45.6
LIDCO	0	0.0
Vigileo-PRAM	19	33.3
Other	6	10.5
Missing	0	

SDD (N=19)	N	%
Topical	19	100.0
Topical and systemic	0	0.0
Missing	0	

Surgical interventions	N	%
No	6906	99.1
Yes	60	0.9
Missing	0	

Number of surgical interventions	N	%
0	6906	99.1
1	46	0.7
2	7	0.1
3	4	0.1
>3	3	0.0
Missing	0	

Surgical interventions Days from admission	Mean	SD	Median	Q1–Q3	Missing
	7.1	7.1	4	3–8	0

Surgical interventions (top 10)	N	%
Gastrointestinal surgery	34	0.5
ENT surgery	6	0.1
Biliary tract surgery	6	0.1
Neurosurgery	6	0.1
Orthopaedic surgery	5	0.1
Thoracic surgery	5	0.1
Other surgery	5	0.1
Pancreatic surgery	4	0.1
Hepatic surgery	4	0.1
Peripheral vascular surgery	3	0.0
Missing	0	

Non surgical interventions	N	%
No	6944	99.7
Yes	22	0.3
Missing	0	

Non surgical interventions Days from admission	Mean	SD	Median	Q1–Q3	Missing
	13.4	12.1	11	3.5–16	2

Non surgical interventions	N	%
Interventional radiology	12	0.2
Interventional endoscopy	7	0.1
Interventional cardiology	4	0.1
Interventional neuroradiology	1	0.0
Missing	0	

**National report for general ICUs - Year 2021****Outcome indicators** - Adult NON COVID elect. surgical pts. eval. in the GiViTI m.

<b>ICU outcome</b>	<b>N</b>	<b>%</b>
Dead	131	1.9
Transferred to same hospital	6679	95.9
Transferred to other hospital	118	1.7
Discharged home	34	0.5
Disch. terminally ill	4	0.1
Missing	0	

<b>Transferred to (N=6797)</b>	<b>N</b>	<b>%</b>
Ward	6585	96.9
Other ICU	56	0.8
High dependency care unit	128	1.9
Rehabilitation	22	0.3
Day hospital or Long-term care	6	0.1
Missing	0	

<b>Reason of transfer to Other ICU (N=56)</b>	<b>N</b>	<b>%</b>
Specialist expertise	22	39.3
Step-up care	1	1.8
Logistical/organizational reasons	32	57.1
Step-down care	1	1.8
Missing	0	

<b>Transferred to Same hospital (N=6679)</b>	<b>N</b>	<b>%</b>
Ward	6515	97.5
Other ICU	32	0.5
High dependency care unit	126	1.9
Rehabilitation	3	0.0
Day hospital or Long-term care	3	0.0
Missing	0	

<b>Transferred to Other hospital (N=118)</b>	<b>N</b>	<b>%</b>
Ward	70	59.3
Other ICU	24	20.3
High dependency care unit	2	1.7
Rehabilitation	19	16.1
Day hospital or Long-term care	3	2.5
Missing	0	

<b>ICU mortality</b>	<b>N</b>	<b>%</b>
Alive	6831	98.1
Dead	135	1.9
Missing	0	

<b>Timing of ICU mortality (N=135)</b>	<b>N</b>	<b>%</b>
Daytime (08:00AM - 07:59PM)	93	68.9
Nighttime (08:00PM - 07:59AM)	42	31.1
Weekdays (Monday - Friday)	100	74.1
Weekend (Saturday - Sunday)	35	25.9
Missing	0	

<b>C.A.M. activation (N=135)</b>	<b>N</b>	<b>%</b>
Yes, with organ donation	2	1.5
Yes, without organ donation	3	2.3
No, with organ donation	0	0.0
No, without organ donation	126	96.2
Missing	4	

<b>Tissue removal (N=135)</b>	<b>N</b>	<b>%</b>
Yes, with C.A.M. activation	1	0.7
Yes, without C.A.M. activation	6	4.4
No	128	94.8
Missing	0	

<b>Hospital mortality</b>	<b>N</b>	<b>%</b>
Dead	347	5.0
Transf. to other acute-care hospital	203	2.9
Transf. to other type of hosp. stay	595	8.5
Nursing home	116	1.7
Voluntary discharge	23	0.3
Discharged home	5682	81.6
Missing	0	

<b>To other type of H stay (N=595)</b>	<b>N</b>	<b>%</b>
Rehabilitation in the same institute	104	17.5
Rehabilitation in other institute	367	61.7
DH/long-term care, same inst.	24	4.0
DH/long-term care, other inst.	100	16.8
Missing	0	

<b>Disch. terminally ill (N=6619)</b>	<b>N</b>	<b>%</b>
Yes	69	1.0
No	6550	99.0
Missing	0	

<b>Hospital mortality</b>	<b>N</b>	<b>%</b>
Alive	6550	94.0
Dead	416	6.0
Missing	0	

<b>Timing of hosp. mortality (N=416)</b>	<b>N</b>	<b>%</b>
In ICU	135	32.5
Within 24 hours after ICU	16	3.8
24-47 hours after ICU	12	2.9
48-71 hours after ICU	9	2.2
72-95 hours after ICU	13	3.1
After 95 hours after ICU	231	55.5
Missing	0	

<b>Timing of hosp. mortality (days from ICU disch.)</b>	
<b>Discharged alive from ICU (N=281)</b>	
Mean	21.7
SD	26.9
Median	14
Q1-Q3	6-27
Missing	0

## National report for general ICUs - Year 2021

Outcome indicators - Adult NON COVID elect. surgical pts. eval. in the GiViTI m.

Last hospital mortality	N	%
Alive	6546	94.0
Dead	420	6.0
Missing	0	

ICU stay (days)	
Mean	2.0
SD	3.8
Median	1
Q1–Q3	1–1
Missing	0

ICU stay (days) Alive (N=6831)	
Mean	1.9
SD	3.6
Median	1
Q1–Q3	1–1
Missing	0

ICU stay (days) Dead (N=135)	
Mean	7.6
SD	8.9
Median	3
Q1–Q3	1–11.5
Missing	0

Stay after ICU (days) Alive (N=6831)	
Mean	11.4
SD	14.8
Median	7
Q1–Q3	4–13
Missing	2

Hospital stay (days)	
Mean	16.9
SD	18.4
Median	11
Q1–Q3	7–21
Missing	2

Hospital stay (days) Alive (N=6550)	
Mean	16.3
SD	17.5
Median	11
Q1–Q3	7–20
Missing	2

Hospital stay (days) Dead (N=416)	
Mean	26.9
SD	27.0
Median	20.5
Q1–Q3	9–36
Missing	0



## National report for general ICUs - Year 2021

## Characteristics on admission - Adult NON COVID emerg. surgical pts. eval. in the GiViTI m.

## Patients (N): 7058

Sex	N	%
Male	4024	57.0
Female	3034	43.0
Missing	0	

Age (years)	N	%
17-45	1041	14.7
46-65	1824	25.8
66-75	1632	23.1
>75	2561	36.3
Missing	0	
Mean	65.8	
SD	18.0	
Median	70	
Q1–Q3	55–80	
Min–Max	17–100	

Body mass Index (BMI)	N	%
Underweight	391	5.5
Normal	3305	46.8
Overweight	2187	31.0
Obese	1175	16.6
Missing	0	

Pregnancy status	N	%
<b>Females (N=3034)</b>		
Not fertile	1624	53.7
Not pregnant/Unknown	1218	40.3
Currently pregnant	21	0.7
Post partum	161	5.3
Missing	10	

Comorbidities	N	%
No	1418	20.1
Yes	5640	79.9
Missing	0	

Comorbidities (top 10)	N	%
Hypertension	3589	50.9
Arrhythmia	1091	15.5
Diabetes Type II without insulin tr.	811	11.5
Any tumour without metastasis	762	10.8
Myocardial infarction	723	10.2
Moderate COPD	695	9.8
Peripheral vascular disease	678	9.6
Cerebrovascular disease	606	8.6
Antiplatelet therapy	549	7.8
Moderate or severe renal disease	502	7.1
Missing	0	

Stay before ICU (days)	Mean	SD	Median	Q1–Q3	Missing
	3.5	9.5	1	0–3	0

Source of admission	N	%
Same hospital	6528	92.5
Other hospital	530	7.5
Long-term chronic care hospital	0	0.0
Directly from the community	0	0.0
Missing	0	

Ward of admission	N	%
<b>Hospital (N=7058)</b>		
Medical ward	472	6.7
Surgical ward	4005	56.7
Emergency room	2302	32.6
Other ICU	173	2.5
High dependency care unit	106	1.5
Missing	0	

Reason for transfer from	N	%
<b>Other ICU (N=173)</b>		
Specialist expertise	48	27.7
Step-up care	32	18.5
Logistical/organizational reasons	90	52.0
Step-down care	3	1.7
Missing	0	

Ward of admission	N	%
<b>Same hospital (N=6528)</b>		
Medical ward	453	6.9
Surgical ward	3920	60.0
Emergency room	1980	30.3
Other ICU	76	1.2
High dependency care unit	99	1.5
Missing	0	

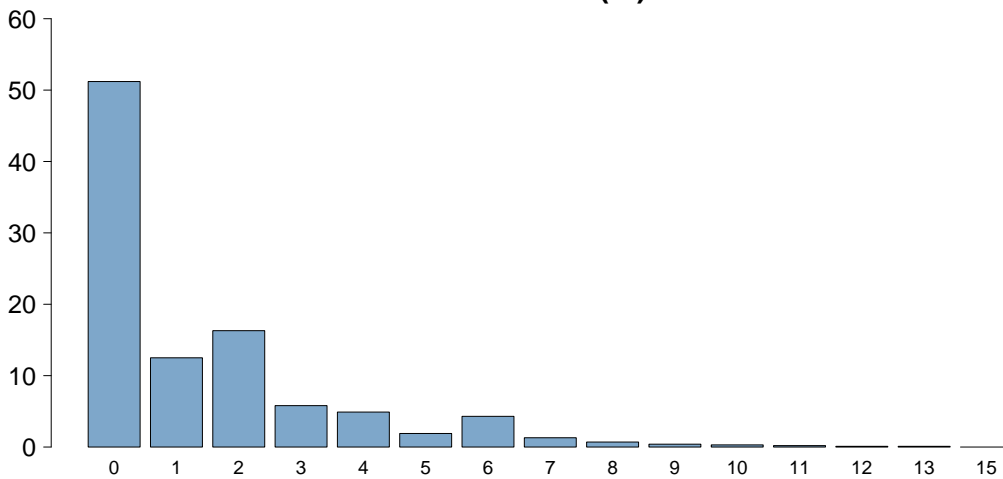
Ward of admission	N	%
<b>Other hospital (N=530)</b>		
Medical ward	19	3.6
Surgical ward	85	16.0
Emergency room	322	60.8
Other ICU	97	18.3
High dependency care unit	7	1.3
Missing	0	

Scheduled admission	N	%
No	7050	99.9
Yes	8	0.1
Missing	0	

**National report for general ICUs - Year 2021**

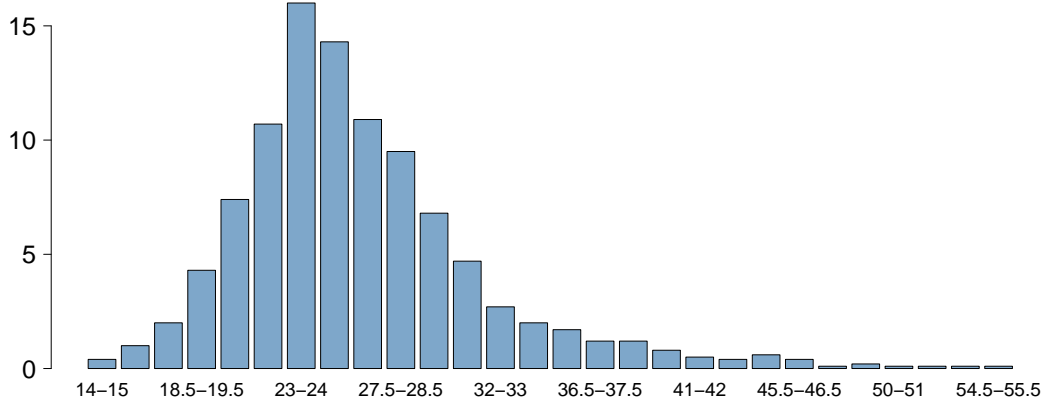
**Characteristics on admission** - Adult NON COVID emerg. surgical pts. eval. in the GiViTI m.

**Charlson (%)**



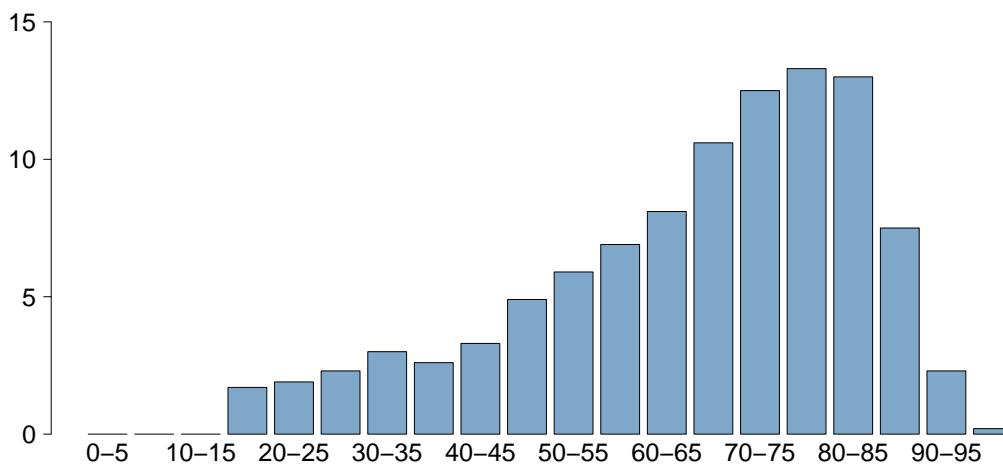
Charlson score	
Mean	1.4
SD	2.1
Median	0
Q1–Q3	0–2
Missing	0

**BMI (%)**



BMI	
Mean	26.4
SD	5.8
Median	25.4
Q1–Q3	22.9–28.5
Missing	0

**Age (%)**



Age	
Mean	65.8
SD	18.0
Median	70
Q1–Q3	55–80
Missing	0

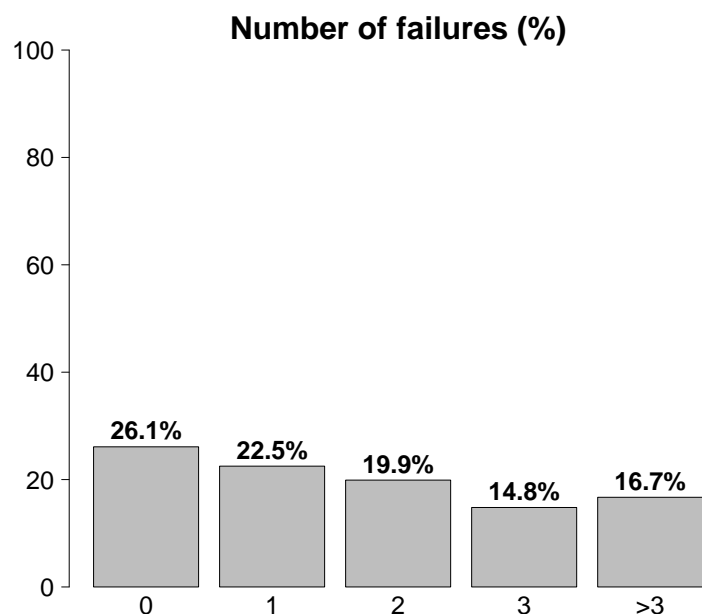




## National report for general ICUs - Year 2021

Characteristics on admission - Adult NON COVID emerg. surgical pts. eval. in the GiViTI m.

Reason for admission	N	%
Monitoring/Weaning	2734	38.7
Post surgical weaning	1401	19.8
Surgical monitoring	1324	18.8
Post interventional weaning	3	0.0
Interventional monitoring	6	0.1
Non surgical monitoring	0	0.0
Missing	0	
Intensive Treatment	4324	61.3
Only ventilatory support	1406	19.9
Only cardiovascular support	389	5.5
Ventilatory and cardiovascular support	2529	35.8
Missing	0	
Palliative Sedation	0	0.0
Diagnosis of death/Organ donation	0	0.0
Missing	0	



Failures on admission	N	%
No	1839	26.1
Yes	5219	73.9
A: Respiratory failure	3935	55.8
B: Cardiovascular failure	2918	41.3
C: Neurological failure	590	8.4
D: Hepatic failure	34	0.5
E: Renal failure	2784	39.4
F: Acute skin failure	3	0.0
G: Metabolic failure	2090	29.6
H: Coagulation failure	101	1.4
Missing	0	

Failures on admission (top 10)	N	%
ABEG	875	12.4
A	785	11.1
AB	608	8.6
E	504	7.1
ABE	396	5.6
ABG	243	3.4
EG	203	2.9
AE	192	2.7
AC	188	2.7
G	154	2.2
Missing	0	

Respiratory failure	N	%
None	3123	44.2
Only hypoxic failure	901	12.8
Only hypercapnic failure	33	0.5
Hypoxic-hypercapnic failure	114	1.6
Intubation for airway maint.	2887	40.9
Missing	0	

Cardiovascular failure	N	%
None	4140	58.7
Without shock	553	7.8
Cardiogenic shock	65	0.9
Septic shock	1062	15.0
Haemorrhagic/hypovolemic shock	667	9.5
Hypovolemic shock	205	2.9
Anaphylactic shock	1	0.0
Neurogenic shock	104	1.5
Other shock	80	1.1
Mixed shock	181	2.6
Missing	0	

Neurologic failure	N	%
None	4629	88.7
Cerebral coma	404	7.7
Metabolic coma	123	2.4
Postanoxic coma	61	1.2
Toxic coma	2	0.0
Missing or not evaluable	1839	

Renal failure (AKIN)	N	%
None	4274	60.6
Mild	1372	19.4
Moderate	678	9.6
Severe	734	10.4
Missing	0	

Metabolic failure	N	%
None	4968	70.4
pH <= 7.3, PaCO <sub>2</sub> < 45 mmHg	459	6.5
Base deficit >= 5 mmol/L, lactate >1.5x	1631	23.1
Missing	0	

## National report for general ICUs - Year 2021

## Characteristics on admission - Adult NON COVID emerg. surgical pts. eval. in the GiViTI m.

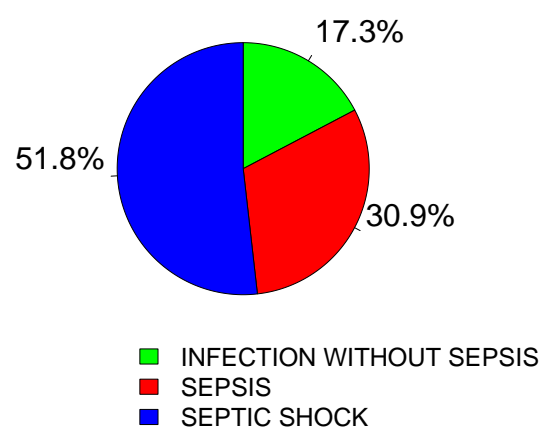
Clinical conditions on admission	N	%
Respiratory	525	7.4
Pleural effusion	132	1.9
Aspiration pneumonia	88	1.2
Upper respiratory tract disease	79	1.1
Atelectasis	76	1.1
Pulmonary embolism	46	0.7
Cardiovascular	700	9.9
Ruptured or fissured aneurysm	209	3.0
Peripheral vascular disease	135	1.9
Cardiac arrest	101	1.4
Acute severe arrhythmia: tachycardias	100	1.4
Left heart failure without pulm. edema	50	0.7
Neurological	726	10.3
Spontaneous Intraparenchymal bleeding	283	4.0
Spontaneous Subarachnoid haemorrhage	188	2.7
Cerebral Aneurysm	144	2.0
Brain tumour	64	0.9
Cerebral artery stroke	51	0.7
Gastrointestinal and hepatic	2659	37.7
Gastrointestinal perforation	903	12.8
Intestinal occlusion	748	10.6
Bowel ischaemia	367	5.2
Digestive tract malignancy	268	3.8
Intrabdominal bleeding (non traumatic)	191	2.7
Trauma (anatomical districts)	1575	22.3
Pelvis/bone/joint & muscle	920	13.0
Head	537	7.6
Chest	515	7.3
Abdomen	357	5.1
Spine	347	4.9
Major vessels injury	97	1.4
Miscellaneous	14	0.2
Other	1083	15.3
Nephrourologic disease	247	3.5
Metabolic disorder	194	2.7
Other disease	138	2.0
Orthopaedic disease	122	1.7
Coagulation disorder	101	1.4
Post transplantation	165	2.3
Liver transplantation	120	1.7
Renal transplantation	30	0.4
Infections	2369	33.6
NON-surgical secondary peritonitis	832	11.8
Post-surgical peritonitis	345	4.9
Primary peritonitis	221	3.1
Cholecystitis/choolangitis	184	2.6
NON-catheter-related UTI	173	2.5
Pneumonia	167	2.4
NON-surgical skin/soft tissue infection	133	1.9
Pleurisy/Pleural empyema	49	0.7
Primary bacteraemia of unknown origin	47	0.7
L.R.T.I. other than pneumonia	42	0.6
Missing	0	

Trauma (anatomical districts)	N	%
Head	537	7.6
Traumatic Subdural haematoma	195	2.8
Traumatic subarachnoid haemorrhage	181	2.6
Maxillofacial fracture	166	2.4
Cerebral contusion/laceration	150	2.1
Skull fracture	134	1.9
Spine	347	4.9
Vertebral fracture, without deficit	253	3.6
Cervical injury, incomplete deficit	30	0.4
Paraplegia	25	0.4
Chest	515	7.3
Other injuries of the chest	264	3.7
Traum. haemothorax/pneumothorax	214	3.0
Severe lung contusion/laceration	130	1.8
Abdomen	357	5.1
Spleen: Massive rupture	84	1.2
Spleen: Moderate-Severe laceration	83	1.2
Minor injuries of the abdomen	75	1.1
Pelvis/bone/joint & muscle	920	13.0
Long bone fracture	787	11.2
Multiple fracture of the pelvis	174	2.5
Very severe or open fracture of the pelvis	57	0.8
Major vessels injury	97	1.4
Proximal limbs vessels: transection	44	0.6
Neck vessels: dissection/transection	19	0.3
Major abdominal vessels: transection	16	0.2
Miscellaneous	14	0.2
Burns (>30% BSA)	12	0.2
Inhalation injury	4	0.1
Missing	0	

Infection severity on admission	N	%
None	4689	66.4
INFECTION WITHOUT SEPSIS	410	5.8
SEPSIS	732	10.4
SEPTIC SHOCK	1227	17.4
Missing	0	

## Infection severity on admission

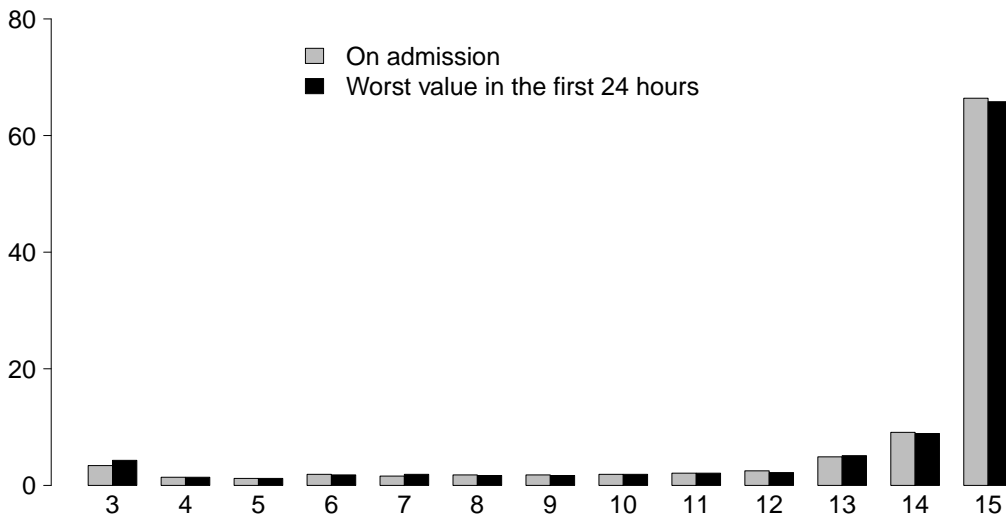
Patients infected (N=2369)



**National report for general ICUs - Year 2021**

**Severity scores - Adult NON COVID emerg. surgical pts. eval. in the GiViTI m.**

**Glasgow Coma Scale (%)**



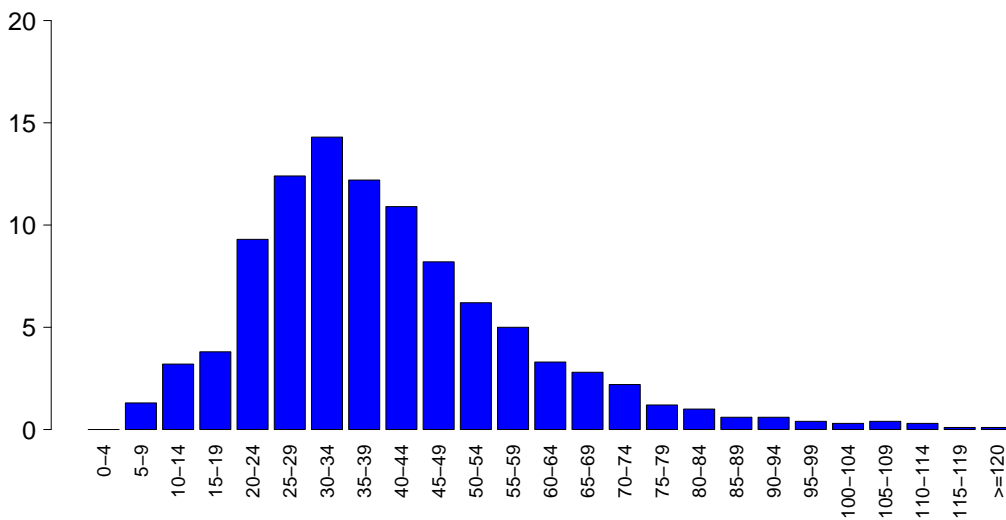
**GCS (admission)**

Median	15
Q1–Q3	14–15
Not evaluable	1839
Missing	0

**GCS (worst in first 24 hours)**

Median	15
Q1–Q3	13–15
Not evaluable	1546
Missing	0

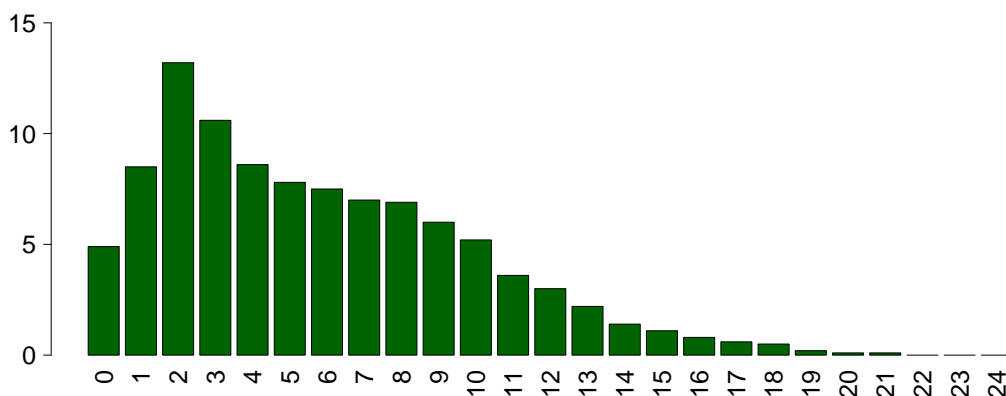
**SAPS II (%)**



**SAPSII**

Mean	40.0
SD	18.2
Median	37
Q1–Q3	27–49
Not evaluable	1546
Missing	0

**SOFA (%)**



**SOFA**

Mean	5.8
SD	4.1
Median	5
Q1–Q3	2–8
Not evaluable	1546
Missing	0

## National report for general ICUs - Year 2021

## Characteristics during the stay - Adult NON COVID emerg. surgical pts. eval. in the GiViTI m.

Complications during the stay	N	%
No	4724	66.9
Yes	2334	33.1
Missing	0	

Failures during the stay	N	%
No	5968	84.6
Yes	1090	15.4
A: Respiratory failure	528	7.5
B: Cardiovascular failure	484	6.9
C: Neurological failure	70	1.0
D: Hepatic failure	32	0.5
E: Renal failure (AKIN)	320	4.5
F: Acute skin failure	4	0.1
G: Metabolic failure	99	1.4
H: Coagulation failure	45	0.6
Missing	0	

Failures during the stay (top 10)	N	%
A	301	4.3
B	223	3.2
E	136	1.9
AB	92	1.3
G	62	0.9
BE	54	0.8
ABE	46	0.7
AC	19	0.3
AE	19	0.3
C	12	0.2
Missing	0	

Respiratory failure occurred	N	%
None	6530	92.5
Intubation for airway maint.	220	3.1
Hypoxic failure	306	4.3
Hypercapnic failure	63	0.9
Missing	0	

Cardiovascular failure occurred	N	%
None	6574	93.1
Cardiogenic shock	60	0.9
Hypovolemic shock	37	0.5
Haemorrhagic/hypovolemic shock	83	1.2
Septic shock	252	3.6
Anaphylactic shock	0	0.0
Neurogenic shock	33	0.5
Other shock	48	0.7
Missing	0	

Neurological failure occurred	N	%
None	6988	99.0
Cerebral coma	39	0.6
Metabolic coma	22	0.3
Postanoxic coma	9	0.1
Missing	0	

Renal failure occurred (AKIN)	N	%
None	6738	95.5
Mild	31	0.4
Moderate	55	0.8
Severe	234	3.3
Missing	0	

Complications during the stay	N	%
Respiratory	334	4.7
Pleural effusion	131	1.9
Atelectasis	100	1.4
Severe ARDS	39	0.6
Pneumothorax/Pneumomediastinum	38	0.5
Pulmonary embolism	26	0.4
Cardiovascular	453	6.4
Acute severe arrhythmia: tachycardias	223	3.2
Cardiac arrest	102	1.4
Deep venous thrombosis	44	0.6
Peripheral vascular disease	27	0.4
Left heart failure w/o pulm. edema	26	0.4
Neurological	483	6.8
Drowsiness/agitation/delirium	230	3.3
Intracranial hypertension	94	1.3
Brain edema	77	1.1
Seizures	45	0.6
New ischaemic stroke	35	0.5
Gastrointestinal and hepatic	331	4.7
Bowel ischaemia	73	1.0
Gastrointestinal perforation	63	0.9
Anastomotic dehiscence	56	0.8
Gastrointestinal bleeding: upper tract	37	0.5
Paralytic Ileus	37	0.5
Other	220	3.1
Metabolic disorder	99	1.4
Nephrourologic disease	54	0.8
Other disease	34	0.5
Other skin and/or soft tissue pathology	16	0.2
Extremity compartment syndrome (severe)	9	0.1
Category/Stage II: Partial Thickness Skin Loss	8	0.1
F.U.O. fever of unknown origin	6	0.1
Infections	883	12.5
Pneumonia	344	4.9
L.R.T.I. other than pneumonia	190	2.7
Catheter-related UTI	92	1.3
Catheter-related bacteremia (CR-BSI)	84	1.2
Primary bacteraemia of unknown origin	77	1.1
Post-surgical peritonitis	72	1.0
Post-surgical skin/soft tissue infection	44	0.6
NON-surgical secondary peritonitis	30	0.4
NON-surgical skin/soft tissue infection	22	0.3
Clinical sepsis	20	0.3
Missing	0	

**National report for general ICUs - Year 2021**

Characteristics during the stay - Adult NON COVID emerg. surgical pts. eval. in the GiViTI m.

Infections	N	%
None	4082	57.8
Only on admission	2093	29.7
On admission and during ICU stay	276	3.9
Only during ICU stay	607	8.6
Missing	0	

Maximum severity of infection	N	%
None	4082	57.8
INFECTION WITHOUT SEPSIS	648	9.2
SEPSIS	959	13.6
SEPTIC SHOCK	1369	19.4
Missing	0	

**Severity evolution**

Severity evolution		During the stay				
		None	INFECTION WITHOUT SEPSIS	SEPSIS	SEPTIC SHOCK	TOT
<b>Admission</b>	None	4082 (87.1%)	273 (5.8%)	251 (5.4%)	83 (1.8%)	4689
	INFECTION WITHOUT SEPSIS	-	375 (91.5%)	27 (6.6%)	8 (2.0%)	410
	SEPSIS	-	-	681 (93.0%)	51 (7.0%)	732
	SEPTIC SHOCK	-	-	-	1227 (100.0%)	1227
	TOT	4082	648	959	1369	7058

Ventil. Associat. Pneumonia (VAP)	N	%
No	6746	95.6
Yes	312	4.4
Missing	0	

**Incidence of VAP***(Pts. with VAP/1000 days of VM pre-VAP)*

Estimate	13.9
CI (95%)	12.4–15.6

**Incidence of VAP***(Pts. with VAP/pts. ventilated for 8 days)*

Estimate	11.2%
CI (95%)	10.0–12.5

Catheter Bacteraemia (CR-BSI)	N	%
No	6974	98.8
Yes	84	1.2
Missing	0	

**Incidence of CR-BSI***(Pts. with CR-BSI/1000 days of CVC pre-CR-BSI)*

Estimate	2.2
CI (95%)	1.8–2.8

**Incidence of CR-BSI***(Pts. with CR-BSI/pts. catheterized for 12 days)*

Estimate	2.7%
CI (95%)	2.1–3.3

Catheter-related urinary tract infection (UTI)	N	%
No	6966	98.7
Yes	92	1.3
Missing	0	

**Incidence of catheter-related UTI***(Pts. with catheter-related UTI/1000 days of UC pre-UTI)*

Estimate	2.2
CI (95%)	1.8–2.7

**Incidence of catheter-related UTI***(Pts. with catheter-related UTI/pts. with UC for 12 days)*

Estimate	2.6%
CI (95%)	2.1–3.2

## National report for general ICUs - Year 2021

Process indicators - Adult NON COVID emerg. Procedures and/or treatments (Missing=0)	surg		eval.		On admission		On discharge		Length (days)		Days from admission			
	N	%	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
	7038	99.7												
<b>Procedures (antibiotics excluded)</b>														
Invasive ventilation	5603	79.4	4942	70	953	13.5	1	1-5	0	0	0-0	0	0-0	0
Non invasive ventilation	669	9.5	91	1.3	144	2	2	1-3	0	1	0-4	0	0-4	0
Tracheostomy	746	10.6	108	1.5	631	8.9	12	6-21	0	8	4-12	0	4-12	0
iNO (inhaled nitric oxide)	5	0.1	0	0	1	0	4	2-6	0	7	3-7	0	3-7	0
Central Venous Catheter	5108	72.4	3098	43.9	4370	61.9	4	2-9	0	0	0-0	0	0-0	0
PICC	211	3.0	63	0.9	192	2.7	3	2-8	0	10	1-17	0	1-17	0
Arterial Catheter	6262	88.7	4423	62.7	1728	24.5	3	1-8	1	0	0-0	0	0-0	0
Vasoactive drugs	3488	49.4	2270	32.2	662	9.4	2	1-4	0	0	0-0	0	0-0	0
Antiarrhythmics	517	7.3	148	2.1	291	4.1	3	1-7	0	1	0-3	0	0-3	0
IABP	2	0.0	1	0	1	0	2	2-2	0	0	0-0	0	0-0	0
Invasive monitoring of C.O.	356	5.0	125	1.8	65	0.9	4	1-7	0	0	0-1	0	0-1	0
Continuous monitoring of ScVO2	33	0.5	28	0.4	5	0.1	1	1-3	0	0	0-1	0	0-1	0
Temporary pacing	9	0.1	4	0.1	4	0.1	1	1-6	0	0	0-4	0	0-4	0
Ventricular assistance	0	0.0												
DC-shock	48	0.7											0-2	0
CPR	83	1.2											0-1	0
Massive blood transfusion	162	2.3											0-0	0
ICP monitoring without CSF drainage	153	2.2	99	1.4	28	0.4	6	3-9	0	0	0-1	0	0-1	0
ICP monitoring with CSF drainage	190	2.7	136	1.9	97	1.4	8	3-13	0	0	0-0	0	0-0	0
EVD without ICP monitoring	57	0.8	41	0.6	34	0.5	6	3-12	0	0	0-1	0	0-1	0
Haemofiltration	282	4.0	21	0.3	65	0.9	4	2-8	0	1	0-2	0	0-2	0
Haemodialysis	171	2.4	31	0.4	88	1.2	3	1-9	0	1	0-4	0	0-4	0
ECMO	4	0.1	2	0	1	0	0	0-1	0	0	0-1	0	0-1	0
Hepatic clearance techniques	2	0.0												
Clearance techniques during sepsis	79	1.1	4	0.1	10	0.1	3	1-3	0	1	0-1	0	0-1	0
IAP (intra-abdominal pressure)	214	3.0												
Hypothermia	5	0.1	1	0	0	0	1	0-1	0	0	0-0	0	0-0	0
Enteral nutrition	2085	29.5	285	4	1530	21.7	7	3-15	1	1	0-3	0	0-3	0
Parenteral nutrition	1689	23.9	210	3	1122	15.9	5	2-9	0	1	0-2	0	0-2	0
SDD (Topical, Topical and systemic)	62	0.9												
Patient restraint	106	1.5												
Peridural catheter	118	1.7	83	1.2	67	0.9	2	1-3	0	1	0-2	0	0-2	0
Electrical cardioversion	39	0.6											1-3	0
Vacuum therapy	144	2.0												
Urinary catheter	6831	96.8	6204	87.9	6322	89.6	3	1-7	1	0	0-0	0	0-0	0
Pronation	23	0.3	2	0	1	0	2	2-4	0	4	2-8	0	2-8	0
Antivirals	40	0.6	24	0.3	36	0.5	5	2-9	0	2	0-12	0	0-12	0

**National report for general ICUs - Year 2021**  
**Process indicators - Adult NON COVID emerg. surgical pts. eval. in the GiViTI m.**

Procedures and/or treatments (Missing=0)	Use		On admission		On discharge		Length (days)			Days from admission		
	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
<b>Antibiotics</b>	5471	77.5										
Antibiotic prophylaxis	2303	32.6	1758	24.9	1046	14.8	1	1-2	0	0	0-0	0
Empirical antibiotic therapy (infection diagnosis confirmed)	1721	24.4	1016	14.4	800	11.3	3	2-5	0	0	0-3	0
Empirical antibiotic therapy (infection diagnosis unconfirmed)	1352	19.2	854	12.1	975	13.8	3	1-5	0	0	0-1	0
Targeted antibiotic therapy	1180	16.7	131	1.9	666	9.4	6	3-10	2	5	3-8	0
Antifungal in empirical therapy	508	7.2	176	2.5	292	4.1	4	2-8	0	0	0-2	0
Antifungal in targeted therapy	162	2.3	18	0.3	92	1.3	10	5-18	0	6	3-10	0
Pre-emptive antifungal	90	1.3	32	0.5	59	0.8	4	2-8	0	0	0-1	0

**Antibiotic therapy**

Pt. infected in ICU only (N=607)	N	%
No therapy	43	7.1
Only empirical	118	19.4
Only targeted	183	30.1
Targeted after empirical	196	32.3
Other	67	11.0
Missing	0	

**Antifungal therapy**

Pt. infected in ICU only (N=607)	N	%
No therapy	538	88.6
Only empirical	40	6.6
Only targeted	25	4.1
Targeted after empirical	4	0.7
Other	0	0.0
Missing	0	



## National report for general ICUs - Year 2021

## Process indicators - Adult NON COVID emerg. surgical pts. eval. in the GiViTI m.

Length (days)

Invasive ventilation (N=5603)	N	%	Mean	SD	Median	Q1-Q3	Missing
Due to pulmonary failure	1050	17.7	7.9	11.1	4	1–10	0
For airway maintenance	2834	47.8	6.0	9.2	2	1–7.8	0
In weaning	1362	23.0	0.5	0.5	0	0–1	0
Not evaluable	683	11.5	3.2	7.6	1	0–2	331
Reintubation within 48 hours	107	1.8	7.8	11.1	4	2–9	0

Non invasive ventilation (N=669)	N	%
Non invasive ventilation only	190	28.4
Non invasive ventilation failed	48	7.2
For weaning	383	57.2
Other	48	7.2
Missing	0	

Tracheostomy not present on admission (N=638)	N	%
Surgical	69	10.8
Percutwist	24	3.8
Ciaglia	97	15.2
Monodil. Ciaglia	300	47.0
Fantoni	7	1.1
Griggs	130	20.4
Other Kind	3	0.5
Unknown	8	1.3
Missing	0	

## Tracheostomy - Days after the beginning of inv. vent. Not present on admission (N=636)

Mean	8.8
SD	6.4
Median	7.5
Q1–Q3	4–12
Missing	0

Invasive monitoring of C.O. (N=356)	N	%
Swan Ganz	99	27.8
PICCO	185	52.0
LIDCO	1	0.3
Vigileo-PRAM	48	13.5
Other	23	6.5
Missing	0	

SDD (N=62)	N	%
Topical	60	96.8
Topical and systemic	2	3.2
Missing	0	

Surgical interventions	N	%
No	6451	91.4
Yes	607	8.6
Missing	0	

Number of surgical interventions	N	%
0	6451	91.4
1	414	5.9
2	106	1.5
3	50	0.7
>3	37	0.5
Missing	0	

## Surgical interventions

## Days from admission

Mean	9.0
SD	11.0
Median	5
Q1–Q3	3–11
Missing	1

Surgical interventions (top 10)	N	%
Gastrointestinal surgery	508	7.2
Orthopaedic surgery	179	2.5
Neurosurgery	58	0.8
Other surgery	35	0.5
ENT surgery	27	0.4
Plastic surgery	24	0.3
Thoracic surgery	22	0.3
Nephro/Urological surgery	19	0.3
Maxillo-Facial surgery	18	0.3
Peripheral vascular surgery	15	0.2
Missing	0	

Non surgical interventions	N	%
No	6911	97.9
Yes	147	2.1
Missing	0	

## Non surgical interventions

## Days from admission

Mean	12.5
SD	12.2
Median	8.5
Q1–Q3	5–13
Missing	0

Non surgical interventions	N	%
Interventional endoscopy	89	1.3
Interventional radiology	66	0.9
Interventional neuroradiology	43	0.6
Interventional cardiology	4	0.1
Missing	0	

**National report for general ICUs - Year 2021****Outcome indicators** - Adult NON COVID emerg. surgical pts. eval. in the GiViTI m.

<b>ICU outcome</b>	<b>N</b>	<b>%</b>
Dead	1031	14.6
Transferred to same hospital	5557	78.7
Transferred to other hospital	425	6.0
Discharged home	22	0.3
Disch. terminally ill	23	0.3
Missing	0	

<b>Transferred to (N=5982)</b>	<b>N</b>	<b>%</b>
Ward	5060	84.6
Other ICU	276	4.6
High dependency care unit	476	8.0
Rehabilitation	155	2.6
Day hospital or Long-term care	15	0.3
Missing	0	

<b>Reason of transfer to Other ICU (N=287)</b>	<b>N</b>	<b>%</b>
Specialist expertise	74	25.8
Step-up care	13	4.5
Logistical/organizational reasons	195	67.9
Step-down care	5	1.7
Missing	0	

<b>Transferred to Same hospital (N=5557)</b>	<b>N</b>	<b>%</b>
Ward	4970	89.4
Other ICU	88	1.6
High dependency care unit	461	8.3
Rehabilitation	29	0.5
Day hospital or Long-term care	9	0.2
Missing	0	

<b>Transferred to Other hospital (N=425)</b>	<b>N</b>	<b>%</b>
Ward	90	21.2
Other ICU	188	44.2
High dependency care unit	15	3.5
Rehabilitation	126	29.6
Day hospital or Long-term care	6	1.4
Missing	0	

<b>ICU mortality</b>	<b>N</b>	<b>%</b>
Alive	6004	85.1
Dead	1054	14.9
Missing	0	

<b>Timing of ICU mortality (N=1054)</b>	<b>N</b>	<b>%</b>
Daytime (08:00AM - 07:59PM)	727	69.0
Nighttime (08:00PM - 07:59AM)	327	31.0
Weekdays (Monday - Friday)	757	71.8
Weekend (Saturday - Sunday)	297	28.2
Missing	0	

<b>C.A.M. activation (N=1054)</b>	<b>N</b>	<b>%</b>
Yes, with organ donation	55	5.3
Yes, without organ donation	34	3.3
No, with organ donation	4	0.4
No, without organ donation	938	91.0
Missing	23	

<b>Tissue removal (N=1054)</b>	<b>N</b>	<b>%</b>
Yes, with C.A.M. activation	31	2.9
Yes, without C.A.M. activation	48	4.6
No	975	92.5
Missing	0	

<b>Hospital mortality</b>	<b>N</b>	<b>%</b>
Dead	1517	21.5
Transf. to other acute-care hospital	492	7.0
Transf. to other type of hosp. stay	1202	17.0
Nursing home	180	2.6
Voluntary discharge	34	0.5
Discharged home	3633	51.5
Missing	0	

<b>To other type of H stay (N=1202)</b>	<b>N</b>	<b>%</b>
Rehabilitation in the same institute	148	12.3
Rehabilitation in other institute	735	61.1
DH/long-term care, same inst.	82	6.8
DH/long-term care, other inst.	237	19.7
Missing	0	

<b>Disch. terminally ill (N=5541)</b>	<b>N</b>	<b>%</b>
Yes	92	1.7
No	5449	98.3
Missing	0	

<b>Hospital mortality</b>	<b>N</b>	<b>%</b>
Alive	5449	77.2
Dead	1609	22.8
Missing	0	

<b>Timing of hosp. mortality (N=1609)</b>	<b>N</b>	<b>%</b>
In ICU	1054	65.5
Within 24 hours after ICU	21	1.3
24-47 hours after ICU	28	1.7
48-71 hours after ICU	31	1.9
72-95 hours after ICU	29	1.8
After 95 hours after ICU	446	27.7
Missing	0	

<b>Timing of hosp. mortality (days from ICU disch.) Discharged alive from ICU (N=555)</b>	
Mean	18.1
SD	24.0
Median	10
Q1-Q3	4-22
Missing	0

## National report for general ICUs - Year 2021

Outcome indicators - Adult NON COVID emerg. surgical pts. eval. in the GiViTI m.

<b>Last hospital mortality</b>			<b>ICU stay (days)</b>		
	N	%			
Alive	5425	76.9	Mean	6.4	
Dead	1633	23.1	SD	9.9	
Missing	0		Median	3	
			Q1–Q3	1–7	
			Missing	0	
<b>ICU stay (days)</b>			<b>ICU stay (days)</b>		
<b>Alive (N=6004)</b>			<b>Alive (N=6004)</b>		
			Mean	6.1	
			SD	9.5	
			Median	2	
			Q1–Q3	1–7	
			Missing	0	
<b>ICU stay (days)</b>			<b>ICU stay (days)</b>		
<b>Dead (N=1054)</b>			<b>Dead (N=1054)</b>		
			Mean	8.1	
			SD	11.8	
			Median	4	
			Q1–Q3	1–10	
			Missing	0	
<b>Stay after ICU (days)</b>			<b>Stay after ICU (days)</b>		
<b>Alive (N=6004)</b>			<b>Alive (N=6004)</b>		
			Mean	15.3	
			SD	19.0	
			Median	10	
			Q1–Q3	5–19	
			Missing	0	
<b>Hospital stay (days)</b>			<b>Hospital stay (days)</b>		
<b>Alive (N=5449)</b>			<b>Alive (N=5449)</b>		
			Mean	22.6	
			SD	23.6	
			Median	16	
			Q1–Q3	8–29	
			Missing	0	
<b>Hospital stay (days)</b>			<b>Hospital stay (days)</b>		
<b>Alive (N=5449)</b>			<b>Alive (N=5449)</b>		
			Mean	24.0	
			SD	23.4	
			Median	17	
			Q1–Q3	10–31	
			Missing	0	
<b>Hospital stay (days)</b>			<b>Hospital stay (days)</b>		
<b>Dead (N=1609)</b>			<b>Dead (N=1609)</b>		
			Mean	18.0	
			SD	23.8	
			Median	11	
			Q1–Q3	3–23	
			Missing	0	



**National report for general ICUs - Year 2021**  
**Characteristics on admission - Trauma patients**

**Patients (N): 3620**

<b>Sex</b>	N	%
Male	2516	69.5
Female	1104	30.5
Missing	0	

<b>Age (years)</b>	N	%
17-45	996	27.5
46-65	1021	28.2
66-75	566	15.6
>75	1037	28.6
Missing	0	
Mean	58.9	
SD	21.4	
Median	62	
Q1–Q3	43–77	
Min–Max	17–101	

<b>Body mass Index (BMI)</b>	N	%
Underweight	165	4.6
Normal	1831	50.6
Overweight	1172	32.4
Obese	452	12.5
Missing	0	

<b>Pregnancy status</b>	N	%
<b>Females (N=1104)</b>		
Not fertile	611	55.4
Not pregnant/Unknown	483	43.8
Currently pregnant	6	0.5
Post partum	2	0.2
Missing	2	

<b>Comorbidities</b>	N	%
No	1431	39.5
Yes	2189	60.5
Missing	0	

<b>Comorbidities (top 10)</b>	N	%
Hypertension	1334	36.9
Arrhythmia	420	11.6
Diabetes Type II without insulin tr.	309	8.5
Antiplatelet therapy	268	7.4
Cerebrovascular disease	244	6.7
Myocardial infarction	242	6.7
Moderate COPD	232	6.4
NYHA class II-III	202	5.6
Drug-induced coagulopathy	187	5.2
Peripheral vascular disease	161	4.4
Missing	0	

<b>Stay before ICU (days)</b>	Mean	SD	Median	Q1–Q3	Missing
	1.7	5.1	0	0–1	0

<b>Source of admission</b>	N	%
Same hospital	3144	86.9
Other hospital	476	13.1
Long-term chronic care hospital	0	0.0
Directly from the community	0	0.0
Missing	0	

<b>Ward of admission</b>	N	%
<b>Hospital (N=3620)</b>		
Medical ward	123	3.4
Surgical ward	889	24.6
Emergency room	2312	63.9
Other ICU	256	7.1
High dependency care unit	40	1.1
Missing	0	

<b>Reason for transfer from</b>	N	%
<b>Other ICU (N=256)</b>		
Specialist expertise	48	18.8
Step-up care	39	15.2
Logistical/organizational reasons	166	64.8
Step-down care	3	1.2
Missing	0	

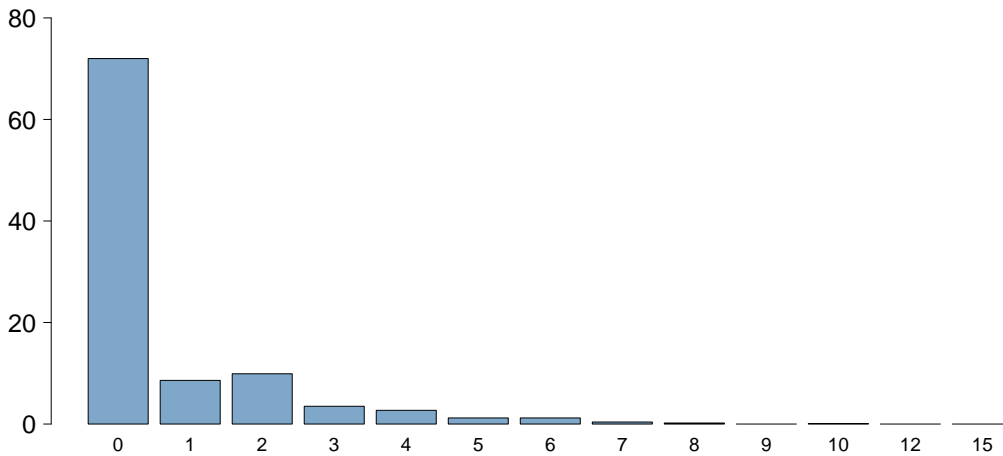
<b>Ward of admission</b>	N	%
<b>Same hospital (N=3144)</b>		
Medical ward	109	3.5
Surgical ward	873	27.8
Emergency room	2053	65.3
Other ICU	78	2.5
High dependency care unit	31	1.0
Missing	0	

<b>Ward of admission</b>	N	%
<b>Other hospital (N=476)</b>		
Medical ward	14	2.9
Surgical ward	16	3.4
Emergency room	259	54.4
Other ICU	178	37.4
High dependency care unit	9	1.9
Missing	0	

<b>Scheduled admission</b>	N	%
No	3439	95.0
Yes	181	5.0
Missing	0	

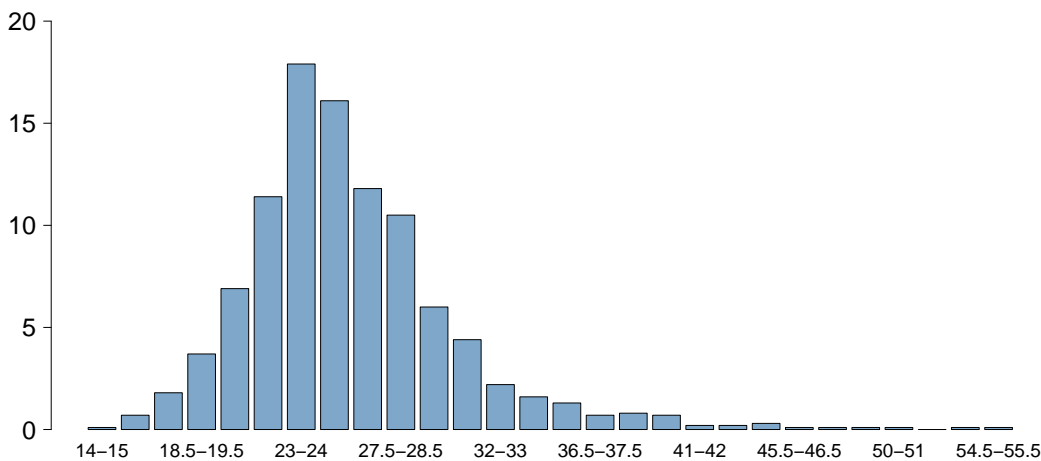
**National report for general ICUs - Year 2021**  
**Characteristics on admission - Trauma patients**

**Charlson (%)**



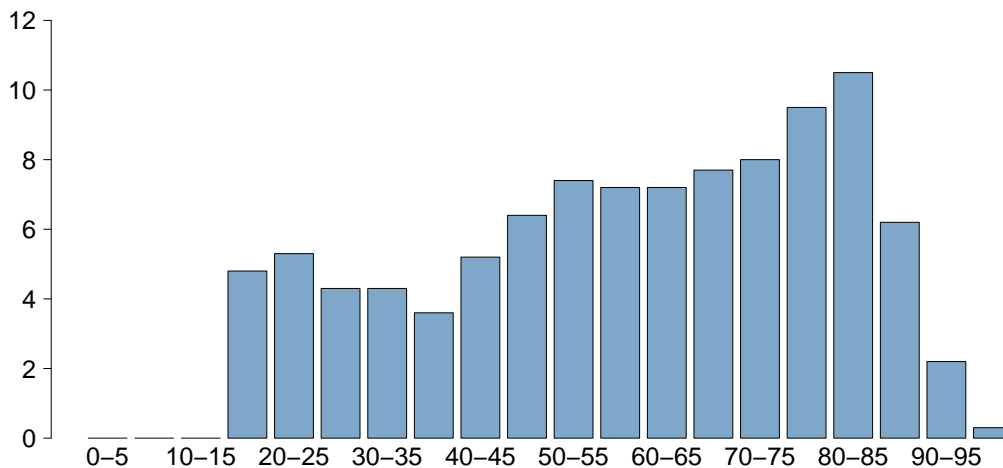
Charlson score	
Mean	0.7
SD	1.4
Median	0
Q1–Q3	0–1
Missing	0

**BMI (%)**



BMI	
Mean	26.0
SD	5.2
Median	25.3
Q1–Q3	23–27.8
Missing	0

**Age (%)**



Age	
Mean	58.9
SD	21.4
Median	62
Q1–Q3	43–77
Missing	0

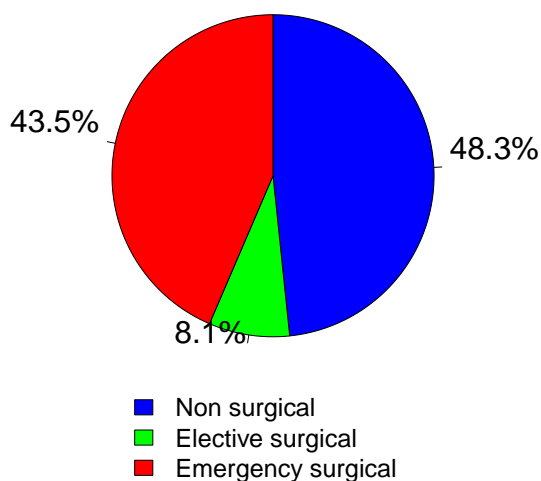
## National report for general ICUs - Year 2021

## Characteristics on admission - Trauma patients

Trauma	N	%
No	0	0.0
Yes	3620	100.0
Multiple trauma	1556	43.0
Missing	0	

Surgical status	N	%
Non surgical	1750	48.3
Elective surgical	295	8.1
Emergency surgical	1575	43.5
Missing	0	

Surgical status



Source of admission	N	%
<b>Surgical pt. (N=1870)</b>		
Operating theatre of surgical ward	757	40.5
Operating theatre of emergency room	619	33.1
Surgical ward	58	3.1
Other	436	23.3
Missing	0	

Surgical interventions (top 10)	N	%
<b>Elective surgical (N=295)</b>		
Orthopaedic surgery	257	87.1
Neurosurgery	17	5.8
Maxillo-Facial surgery	12	4.1
Thoracic surgery	4	1.4
Gynaecological surgery	3	1.0
ENT surgery	2	0.7
Nephro/Urological surgery	1	0.3
Plastic surgery	1	0.3
Peripheral vascular surgery	1	0.3
Other surgery	1	0.3
Missing	0	

Timing	N	%
<b>Elective surgical (N=295)</b>		
From -7 to -3 days	8	2.7
From -2 to -1 days	20	6.8
On ICU admission day	261	88.5
The day after ICU admission	10	3.4
Missing	0	

Surgical interventions (top 10)	N	%
<b>Emergency surgical (N=1575)</b>		
Orthopaedic surgery	828	52.6
Neurosurgery	359	22.8
Gastrointestinal surgery	173	11.0
Splenectomy	108	6.9
Thoracic surgery	53	3.4
Peripheral vascular surgery	50	3.2
Nephro/Urological surgery	49	3.1
Maxillo-Facial surgery	32	2.0
ENT surgery	29	1.8
Other surgery	27	1.7
Missing	0	

Timing	N	%
<b>Emergency surgical (N=1575)</b>		
From -7 to -3 days	51	3.2
From -2 to -1 days	214	13.6
On ICU admission day	1409	89.5
The day after ICU admission	114	7.2
Missing	2	

Non surgical interventions	N	%
None	3378	93.3
Elective	13	0.4
Emergency	229	6.3
Missing	0	

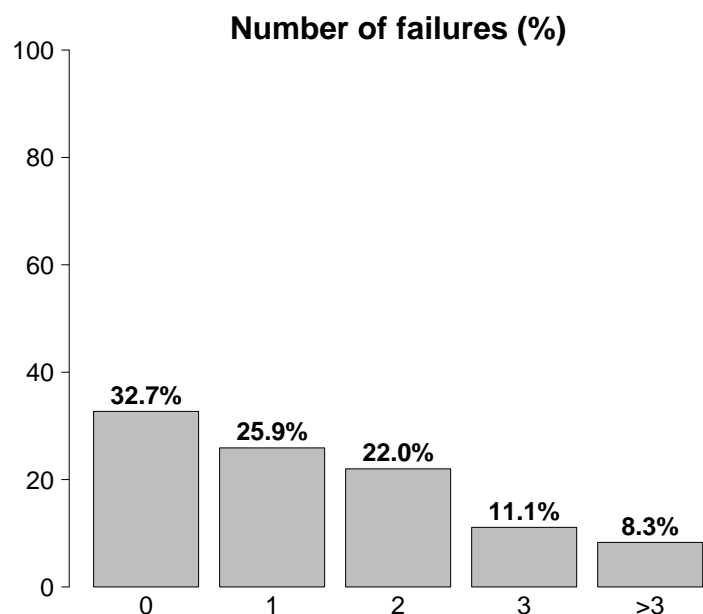
Non surgical interventions	N	%
<b>Elective (N=13)</b>		
Interventional radiology	5	38.5
Interventional neuroradiology	1	7.7
Interventional endoscopy	1	7.7
Interventional cardiology	0	0.0
Missing	6	

Non surgical interventions	N	%
<b>Emergency (N=229)</b>		
Interventional radiology	189	82.5
Interventional cardiology	15	6.6
Interventional endoscopy	12	5.2
Interventional neuroradiology	6	2.6
Missing	7	

## National report for general ICUs - Year 2021

## Characteristics on admission - Trauma patients

Reason for admission	N	%
Monitoring/Weaning	1484	41.0
Post surgical weaning	331	9.1
Surgical monitoring	457	12.6
Post interventional weaning	6	0.2
Interventional monitoring	61	1.7
Non surgical monitoring	629	17.4
Missing	0	
Intensive Treatment	2136	59.0
Only ventilatory support	1144	31.6
Only cardiovascular support	111	3.1
Ventilatory and cardiovascular support	881	24.3
Missing	0	
Palliative Sedation	0	0.0
Diagnosis of death/Organ donation	0	0.0
Missing	0	



Failures on admission	N	%
No	1183	32.7
Yes	2437	67.3
A: Respiratory failure	2025	55.9
B: Cardiovascular failure	992	27.4
C: Neurological failure	557	15.4
D: Hepatic failure	4	0.1
E: Renal failure	740	20.4
F: Acute skin failure	0	0.0
G: Metabolic failure	684	18.9
H: Coagulation failure	26	0.7
Missing	0	

Failures on admission (top 10)	N	%
A	661	18.3
AB	309	8.5
AC	224	6.2
E	157	4.3
ABEG	128	3.5
ABC	112	3.1
ABG	101	2.8
AE	93	2.6
ABCEG	77	2.1
G	76	2.1
Missing	0	

Respiratory failure	N	%
None	1595	44.1
Only hypoxic failure	446	12.3
Only hypercapnic failure	22	0.6
Hypoxic-hypercapnic failure	67	1.9
Intubation for airway maint.	1490	41.2
Missing	0	

Cardiovascular failure	N	%
None	2628	72.6
Without shock	310	8.6
Cardiogenic shock	58	1.6
Septic shock	28	0.8
Haemorrhagic/hypovolemic shock	394	10.9
Hypovolemic shock	46	1.3
Anaphylactic shock	1	0.0
Neurogenic shock	94	2.6
Other shock	23	0.6
Mixed shock	38	1.0
Missing	0	

Neurologic failure	N	%
None	2389	81.1
Cerebral coma	428	14.5
Metabolic coma	42	1.4
Postanoxic coma	76	2.6
Toxic coma	11	0.4
Missing or not evaluable	674	

Renal failure (AKIN)	N	%
None	2880	79.6
Mild	448	12.4
Moderate	161	4.4
Severe	131	3.6
Missing	0	

Metabolic failure	N	%
None	2936	81.1
pH <= 7.3, PaCO <sub>2</sub> < 45 mmHg	173	4.8
Base deficit >= 5 mmol/L, lactate >1.5x	511	14.1
Missing	0	



## National report for general ICUs - Year 2021

### Characteristics on admission - Trauma patients

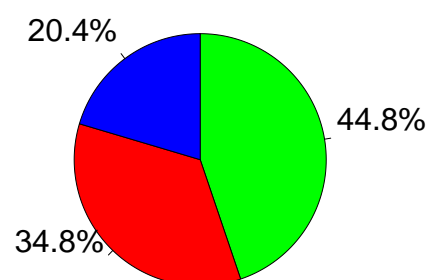
Clinical conditions on admission	N	%
Respiratory	205	5.7
Aspiration pneumonia	48	1.3
Atelectasis	39	1.1
Pleural effusion	35	1.0
Pulmonary embolism	29	0.8
Moderate ARDS	19	0.5
Cardiovascular	158	4.4
Cardiac arrest	77	2.1
Acute severe arrhythmia: tachycardias	27	0.7
Left heart failure without pulm. edema	15	0.4
Left heart failure with pulm. edema	15	0.4
Acute ischaemia	15	0.4
Neurological	131	3.6
Seizures	45	1.2
Metabolic/postanoxic encephalopathy	20	0.6
Spontaneous Intraparenchymal bleeding	20	0.6
Cerebral artery stroke	15	0.4
Spontaneous Subarachnoid haemorrhage	12	0.3
Gastrointestinal and hepatic	53	1.5
Gastrointestinal perforation	9	0.2
Bowel ischaemia	8	0.2
Intrabdominal bleeding (non traumatic)	8	0.2
Gastrointestinal bleeding: upper tract	6	0.2
Intestinal occlusion	6	0.2
Trauma (anatomical districts)	3620	100.0
Pelvis/bone/joint & muscle	1616	44.6
Head	1479	40.9
Chest	1427	39.4
Spine	821	22.7
Abdomen	637	17.6
Major vessels injury	148	4.1
Miscellaneous	69	1.9
Other	279	7.7
Orthopaedic disease	128	3.5
Metabolic disorder	49	1.4
Other disease	39	1.1
Coagulation disorder	26	0.7
Acute intoxication	18	0.5
Post transplantation	1	0.0
Renal transplantation	1	0.0
-	0	0.0
Infections	230	6.4
Pneumonia	75	2.1
L.R.T.I. other than pneumonia	44	1.2
NON-surgical secondary peritonitis	19	0.5
NON-surgical skin/soft tissue infection	19	0.5
Clinical sepsis	14	0.4
Primary bacteraemia of unknown origin	13	0.4
NON-catheter-related UTI	11	0.3
Catheter-related UTI	10	0.3
NON-surgical bone and joint infection	7	0.2
Cholecystitis/cholangitis	4	0.1
Missing	0	

Trauma (anatomical districts)	N	%
Head	1479	40.9
Traumatic subarachnoid haemorrhage	554	15.3
Traumatic Subdural haematoma	472	13.0
Cerebral contusion/laceration	470	13.0
Maxillofacial fracture	460	12.7
Skull fracture	375	10.4
Spine	821	22.7
Vertebral fracture, without deficit	680	18.8
Cervical injury, incomplete deficit	54	1.5
Paraplegia	32	0.9
Chest	1427	39.4
Other injuries of the chest	832	23.0
Traum. haemothorax/pneumothorax	587	16.2
Severe lung contusion/laceration	326	9.0
Abdomen	637	17.6
Spleen: Moderate-Severe laceration	181	5.0
Minor injuries of the abdomen	162	4.5
Liver: Moderate-Severe laceration	154	4.3
Pelvis/bone/joint & muscle	1616	44.6
Long bone fracture	1319	36.4
Multiple fracture of the pelvis	397	11.0
Very severe or open fracture of the pelvis	76	2.1
Major vessels injury	148	4.1
Proximal limbs vessels: transection	60	1.7
Neck vessels: dissection/transection	38	1.0
Aorta: rupture/dissection	26	0.7
Miscellaneous	69	1.9
Burns (>30% BSA)	50	1.4
Inhalation injury	30	0.8
Missing	0	

Infection severity on admission	N	%
None	3390	93.6
INFECTION WITHOUT SEPSIS	103	2.8
SEPSIS	80	2.2
SEPTIC SHOCK	47	1.3
Missing	0	

### Infection severity on admission

Patients infected (N=230)

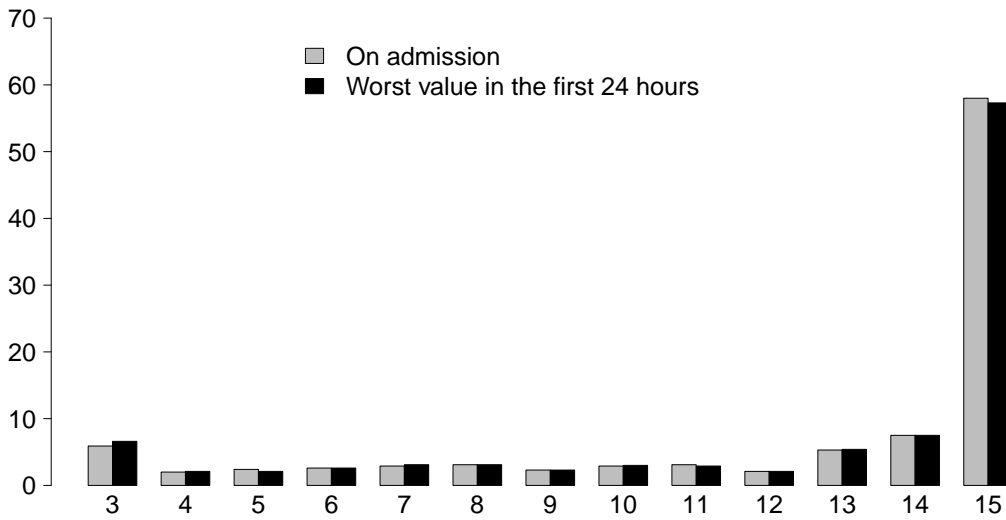


■ INFECTION WITHOUT SEPSIS  
■ SEPSIS  
■ SEPTIC SHOCK

National report for general ICUs - Year 2021

Severity scores - Trauma patients

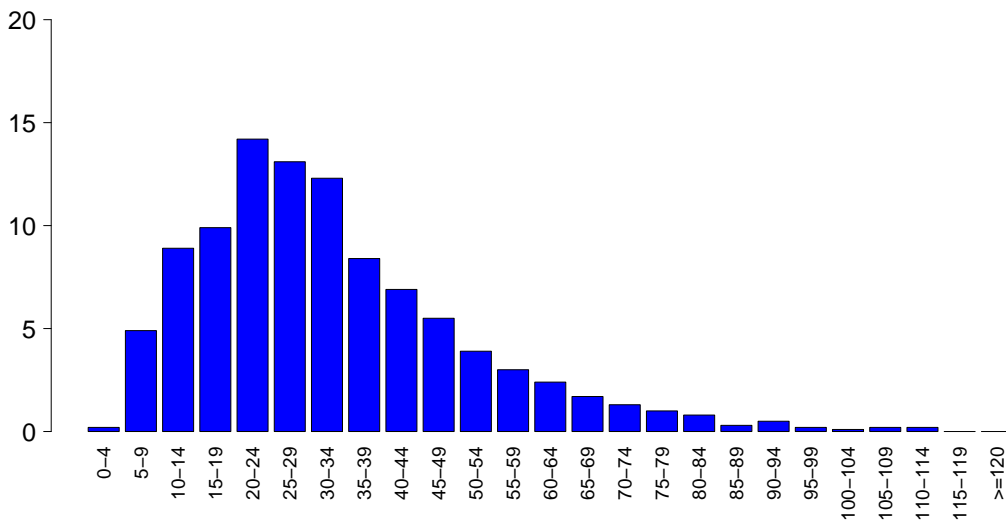
Glasgow Coma Scale (%)



GCS (admission)	
Median	15
Q1–Q3	11–15
Not evaluable	674
Missing	0

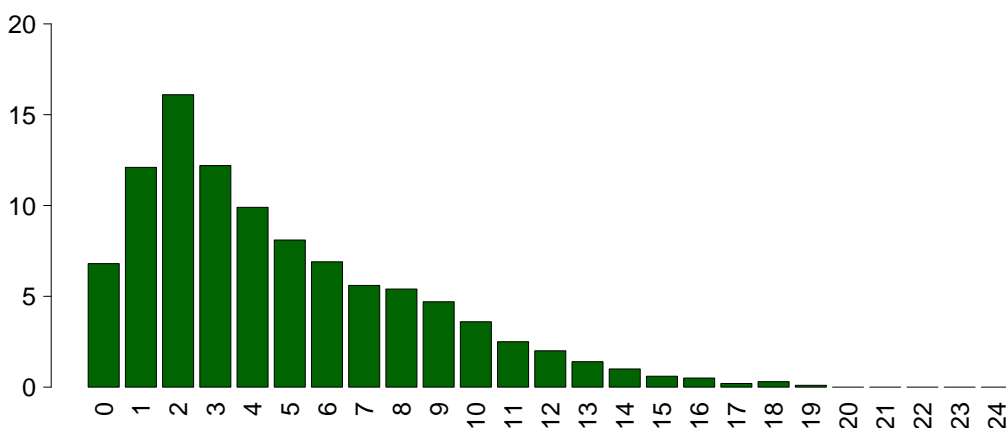
GCS (worst in first 24 hours)	
Median	15
Q1–Q3	11–15
Not evaluable	574
Missing	0

SAPS II (%)



SAPSII	
Mean	32.6
SD	18.1
Median	29
Q1–Q3	20–42
Not evaluable	574
Missing	0

SOFA (%)



SOFA	
Mean	4.8
SD	3.7
Median	4
Q1–Q3	2–7
Not evaluable	574
Missing	0

**National report for general ICUs - Year 2021**  
**Characteristics during the stay - Trauma patients**

<b>Complications during the stay</b>	<b>N</b>	<b>%</b>
No	2351	64.9
Yes	1269	35.1
Missing	0	

<b>Failures during the stay</b>	<b>N</b>	<b>%</b>
No	3163	87.4
Yes	457	12.6
A: Respiratory failure	252	7.0
B: Cardiovascular failure	186	5.1
C: Neurological failure	33	0.9
D: Hepatic failure	10	0.3
E: Renal failure (AKIN)	93	2.6
F: Acute skin failure	3	0.1
G: Metabolic failure	39	1.1
H: Coagulation failure	12	0.3
Missing	0	

<b>Failures during the stay (top 10)</b>	<b>N</b>	<b>%</b>
A	171	4.7
B	91	2.5
AB	43	1.2
E	35	1.0
BE	18	0.5
G	18	0.5
ABE	11	0.3
AC	11	0.3
C	9	0.2
AE	6	0.2
Missing	0	

<b>Respiratory failure occurred</b>	<b>N</b>	<b>%</b>
None	3368	93.0
Intubation for airway maint.	97	2.7
Hypoxic failure	152	4.2
Hypercapnic failure	27	0.7
Missing	0	

<b>Cardiovascular failure occurred</b>	<b>N</b>	<b>%</b>
None	3434	94.9
Cardiogenic shock	28	0.8
Hypovolemic shock	12	0.3
Haemorrhagic/hypovolemic shock	30	0.8
Septic shock	82	2.3
Anaphylactic shock	0	0.0
Neurogenic shock	18	0.5
Other shock	26	0.7
Missing	0	

<b>Neurological failure occurred</b>	<b>N</b>	<b>%</b>
None	3587	99.1
Cerebral coma	22	0.6
Metabolic coma	2	0.1
Postanoxic coma	9	0.2
Missing	0	

<b>Renal failure occurred (AKIN)</b>	<b>N</b>	<b>%</b>
None	3527	97.4
Mild	10	0.3
Moderate	25	0.7
Severe	58	1.6
Missing	0	

<b>Complications during the stay</b>	<b>N</b>	<b>%</b>
<b>Respiratory</b>	<b>249</b>	<b>6.9</b>
Atelectasis	93	2.6
Pleural effusion	86	2.4
Pneumothorax/Pneumomediastinum	42	1.2
Haemothorax	24	0.7
Pulmonary embolism	21	0.6
<b>Cardiovascular</b>	<b>185</b>	<b>5.1</b>
Acute severe arrhythmia: tachycardias	87	2.4
Cardiac arrest	49	1.4
Deep venous thrombosis	31	0.9
Acute severe arrhythmia: bradycardias	19	0.5
Left heart failure w/o pulm. edema	10	0.3
<b>Neurological</b>	<b>375</b>	<b>10.4</b>
Drowsiness/agitation/delirium	204	5.6
Intracranial hypertension	84	2.3
Brain edema	66	1.8
Seizures	42	1.2
New ischaemic stroke	16	0.4
<b>Gastrointestinal and hepatic</b>	<b>68</b>	<b>1.9</b>
Paralytic Ileus	19	0.5
Bowel ischaemia	9	0.2
Abdominal compartment syndrome	8	0.2
Intrabdominal bleeding	8	0.2
Liver Dysfunction Syndrome	8	0.2
<b>Other</b>	<b>84</b>	<b>2.3</b>
Metabolic disorder	39	1.1
Other disease	11	0.3
Nephrourologic disease	10	0.3
Fat embolism	6	0.2
Extremity compartment syndrome (severe)	6	0.2
Other skin and/or soft tissue pathology	6	0.2
Delayed spleen rupture	4	0.1
<b>Infections</b>	<b>649</b>	<b>17.9</b>
Pneumonia	310	8.6
L.R.T.I. other than pneumonia	162	4.5
Primary bacteraemia of unknown origin	80	2.2
Catheter-related bacteremia (CR-BSI)	72	2.0
Catheter-related UTI	66	1.8
Post-surgical skin/soft tissue infection	19	0.5
Upper respiratory tract infection	18	0.5
Clinical sepsis	16	0.4
NON-surgical skin/soft tissue infection	12	0.3
NON-catheter-related UTI	11	0.3
Missing	0	

## National report for general ICUs - Year 2021

## Characteristics during the stay - Trauma patients

Infections	N	%
None	2801	77.4
Only on admission	170	4.7
On admission and during ICU stay	60	1.7
Only during ICU stay	589	16.3
Missing	0	

Maximum severity of infection	N	%
None	2801	77.4
INFECTION WITHOUT SEPSIS	359	9.9
SEPSIS	337	9.3
SEPTIC SHOCK	123	3.4
Missing	0	

## Severity evolution

Severity evolution		During the stay				
		None	INFECTION WITHOUT SEPSIS	SEPSIS	SEPTIC SHOCK	TOT
Admission	None	2801 (82.6%)	272 (8.0%)	253 (7.5%)	64 (1.9%)	3390
	INFECTION WITHOUT SEPSIS	-	87 (84.5%)	11 (10.7%)	5 (4.9%)	103
	SEPSIS	-	-	73 (91.2%)	7 (8.8%)	80
	SEPTIC SHOCK	-	-	-	47 (100.0%)	47
	TOT	2801	359	337	123	3620

Ventil. Associat. Pneumonia (VAP)	N	%
No	3333	92.1
Yes	287	7.9
Missing	0	

## Incidence of VAP

(Pts. with VAP/1000 days of VM pre-VAP)

Estimate	23.4
CI (95%)	20.8–26.3

## Incidence of VAP

(Pts. with VAP/pts. ventilated for 8 days)

Estimate	18.8%
CI (95%)	16.6–21.0

Catheter Bacteraemia (CR-BSI)	N	%
No	3548	98.0
Yes	72	2.0
Missing	0	

## Incidence of CR-BSI

(Pts. with CR-BSI/1000 days of CVC pre-CR-BSI)

Estimate	3.3
CI (95%)	2.6–4.1

## Incidence of CR-BSI

(Pts. with CR-BSI/pts. catheterized for 12 days)

Estimate	3.9%
CI (95%)	3.1–5.0

Catheter-related urinary tract infection (UTI)	N	%
No	3554	98.2
Yes	66	1.8
Missing	0	

## Incidence of catheter-related UTI

(Pts. with catheter-related UTI/1000 days of UC pre-UTI)

Estimate	2.5
CI (95%)	1.9–3.2

## Incidence of catheter-related UTI

(Pts. with catheter-related UTI/pts. with UC for 12 days)

Estimate	3.0%
CI (95%)	2.3–3.8

## National report for general ICUs - Year 2021

Process indicators - Trauma patients Procedures and/or treatments (Missing=0) Procedures (antibiotics excluded)	Use		On admission		On discharge		Length (days)		Days from admission			
	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
	3588	99.1										
Invasive ventilation	2372	65.5	1936	53.5	540	14.9	2	1-9	0	0	0-1	0
Non invasive ventilation	417	11.5	85	2.3	91	2.5	2	1-4	0	1	0-3	0
Tracheostomy	572	15.8	63	1.7	460	12.7	13	7-22	0	6	4-10	0
iNO (inhaled nitric oxide)	8	0.2	1	0	0	0	4	2-8	0	7	5-9	0
Central Venous Catheter	2386	65.9	1127	31.1	1923	53.1	5	2-13	0	0	0-0	0
PICC	115	3.2	19	0.5	110	3	5	2-8	0	13	5-22	0
Arterial Catheter	3171	87.6	1677	46.3	1073	29.6	4	2-10	1	0	0-0	0
Vasoactive drugs	1266	35.0	624	17.2	226	6.2	2	1-6	0	0	0-0	0
Antiarrhythmics	163	4.5	37	1	94	2.6	3	1-6	0	2	1-6	0
IABP	1	0.0	0	0	1	0	1	1-1	0	6	6-6	0
Invasive monitoring of C.O.	86	2.4	12	0.3	21	0.6	6	3-13	0	0	0-3	0
Continuous monitoring of ScVO2	2	0.1	1	0	0	0	7	6-8	0	6	6-6	0
Temporary pacing	5	0.1	1	0	0	0	1	0-3	0	0	0-2	0
Ventricular assistance	1	0.0	1	0	0	0	1	1-1	0			
DC-shock	27	0.7								0	0-4	0
CPR	51	1.4								0	0-0	0
Massive blood transfusion	87	2.4								0	0-0	0
ICP monitoring without CSF drainage	174	4.8	88	2.4	31	0.9	6	3-11	0	0	0-0	0
ICP monitoring with CSF drainage	18	0.5	8	0.2	5	0.1	10	6-13	0	0	0-1	0
EVD without ICP monitoring	6	0.2	4	0.1	2	0.1	8	5-13	0	16	11-20	0
Haemofiltration	69	1.9	5	0.1	8	0.2	6	2-19	0	1	0-4	0
Haemodialysis	33	0.9	9	0.2	14	0.4	2	1-3	0	1	0-9	0
ECMO	1	0.0	0	0	0	0	1	1-1	0	0	0-0	0
Hepatic clearance techniques	1	0.0										
Clearance techniques during sepsis	3	0.1	0	0	0	0	1	1-1	0	0	0-2	0
IAP (intra-abdominal pressure)	30	0.8										
Hypothermia	7	0.2	3	0.1	0	0	1	1-1	0	0	0-0	0
Enteral nutrition	1498	41.4	314	8.7	1063	29.4	8	4-16	1	1	0-2	0
Parenteral nutrition	429	11.9	55	1.5	213	5.9	5	2-11	0	1	0-2	0
SDD (Topical, Topical and systemic)	22	0.6										
Patient restraint	59	1.6										
Peridural catheter	76	2.1	19	0.5	43	1.2	2	1-6	0	1	0-2	0
Electrical cardioversion	17	0.5								5	2-6	0
Vacuum therapy	28	0.8										
Urinary catheter	3476	96.0	2852	78.8	3222	89	3	1-9	1	0	0-0	0
Pronation	17	0.5	0	0	1	0	2	1-4	0	4	3-7	0
Antivirals	1	0.0	0	0	0	0	6	6-6	0	30	30-30	0

**National report for general ICUs - Year 2021**  
**Process indicators - Trauma patients**

Procedures and/or treatments (Missing=0)	Use		On admission		On discharge		Length (days)			Days from admission		
	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
<b>Antibiotics</b>	2137	59.0										
Antibiotic prophylaxis	1273	35.2	731	20.2	454	12.5	2	1-3	0	0	0-0	0
Empirical antibiotic therapy (infection diagnosis confirmed)	451	12.5	89	2.5	62	1.7	4	2-6	0	3	0-6	0
Empirical antibiotic therapy (infection diagnosis unconfirmed)	410	11.3	133	3.7	234	6.5	4	2-6	0	0	0-2	0
Targeted antibiotic therapy	585	16.2	36	1	242	6.7	6	4-11	2	7	5-11	0
Antifungal in empirical therapy	44	1.2	7	0.2	9	0.2	7	3-10	0	5	2-11	0
Antifungal in targeted therapy	26	0.7	1	0	8	0.2	11	7-17	0	16	8-22	0
Pre-emptive antifungal	11	0.3	2	0.1	2	0.1	9	2-12	0	4	0-16	0

**Antibiotic therapy**

Pt. infected in ICU only (N=589)	N	%
No therapy	49	8.3
Only empirical	97	16.5
Only targeted	154	26.1
Targeted after empirical	228	38.7
Other	61	10.4
Missing	0	

**Antifungal therapy**

Pt. infected in ICU only (N=589)	N	%
No therapy	546	92.7
Only empirical	22	3.7
Only targeted	21	3.6
Targeted after empirical	0	0.0
Other	0	0.0
Missing	0	

## National report for general ICUs - Year 2021

## Process indicators - Trauma patients

Invasive ventilation (N=2372)	N	%	Length (days)				
			Mean	SD	Median	Q1-Q3	Missing
Due to pulmonary failure	470	17.6	10.4	12.5	6	2–15	0
For airway maintenance	1467	55.0	7.5	10.6	3	1–10	0
In weaning	340	12.8	0.4	0.5	0	0–1	0
Not evaluable	389	14.6	6.0	9.8	1	0–7	295
Reintubation within 48 hours	48	1.8	6.5	7.0	4	1–10	0

Non invasive ventilation (N=417)	N	%
Non invasive ventilation only	221	53.0
Non invasive ventilation failed	48	11.5
For weaning	133	31.9
Other	15	3.6
Missing	0	

Tracheostomy not present on admission (N=509)	N	%
Surgical	44	8.6
Percutwist	23	4.5
Ciaglia	91	17.9
Monodil. Ciaglia	195	38.3
Fantoni	3	0.6
Griggs	148	29.1
Other Kind	3	0.6
Unknown	2	0.4
Missing	0	

## Tracheostomy - Days after the beginning of inv. vent. Not present on admission (N=509)

Mean	7.3
SD	5.7
Median	6
Q1–Q3	3–10
Missing	1

Invasive monitoring of C.O. (N=86)	N	%
Swan Ganz	2	2.3
PICCO	70	81.4
LIDCO	0	0.0
Vigileo-PRAM	5	5.8
Other	9	10.5
Missing	0	

SDD (N=22)	N	%
Topical	22	100.0
Topical and systemic	0	0.0
Missing	0	

Surgical interventions	N	%
No	3159	87.3
Yes	461	12.7
Missing	0	

Number of surgical interventions	N	%
0	3159	87.3
1	337	9.3
2	80	2.2
3	22	0.6
>3	22	0.6
Missing	0	

## Surgical interventions

## Days from admission

Mean	9.4
SD	11.1
Median	5
Q1–Q3	3–11
Missing	2

Surgical interventions (top 10)	N	%
Orthopaedic surgery	305	8.4
Gastrointestinal surgery	84	2.3
Neurosurgery	80	2.2
Maxillo-Facial surgery	57	1.6
Plastic surgery	45	1.2
Thoracic surgery	29	0.8
ENT surgery	22	0.6
Organ donation	8	0.2
Other surgery	8	0.2
Peripheral vascular surgery	7	0.2
Missing	0	

Non surgical interventions	N	%
No	3555	98.2
Yes	65	1.8
Missing	0	

## Non surgical interventions

## Days from admission

Mean	18.9
SD	18.3
Median	12
Q1–Q3	5–29
Missing	2

Non surgical interventions	N	%
Interventional endoscopy	41	1.1
Interventional radiology	26	0.7
Interventional cardiology	4	0.1
Interventional neuroradiology	0	0.0
Missing	0	

## National report for general ICUs - Year 2021

## Outcome indicators - Trauma patients

ICU outcome	N	%
Dead	360	9.9
Transferred to same hospital	2741	75.7
Transferred to other hospital	493	13.6
Discharged home	14	0.4
Disch. terminally ill	12	0.3
Missing	0	

Transferred to (N=3234)	N	%
Ward	2295	71.0
Other ICU	353	10.9
High dependency care unit	416	12.9
Rehabilitation	157	4.9
Day hospital or Long-term care	13	0.4
Missing	0	

Reason of transfer to Other ICU (N=361)	N	%
Specialist expertise	95	26.3
Step-up care	15	4.2
Logistical/organizational reasons	247	68.4
Step-down care	4	1.1
Missing	0	

Transferred to Same hospital (N=2741)	N	%
Ward	2209	80.6
Other ICU	108	3.9
High dependency care unit	398	14.5
Rehabilitation	22	0.8
Day hospital or Long-term care	4	0.1
Missing	0	

Transferred to Other hospital (N=493)	N	%
Ward	86	17.4
Other ICU	245	49.7
High dependency care unit	18	3.7
Rehabilitation	135	27.4
Day hospital or Long-term care	9	1.8
Missing	0	

ICU mortality	N	%
Alive	3248	89.7
Dead	372	10.3
Missing	0	

Timing of ICU mortality (N=372)	N	%
Daytime (08:00AM - 07:59PM)	262	70.4
Nighttime (08:00PM - 07:59AM)	110	29.6
Weekdays (Monday - Friday)	282	75.8
Weekend (Saturday - Sunday)	90	24.2
Missing	0	

C.A.M. activation (N=372)	N	%
Yes, with organ donation	53	14.7
Yes, without organ donation	27	7.5
No, with organ donation	1	0.3
No, without organ donation	279	77.5
Missing	12	

Tissue removal (N=372)	N	%
Yes, with C.A.M. activation	34	9.1
Yes, without C.A.M. activation	16	4.3
No	322	86.6
Missing	0	

Hospital mortality	N	%
Dead	490	13.5
Transf. to other acute-care hospital	504	13.9
Transf. to other type of hosp. stay	904	25.0
Nursing home	83	2.3
Voluntary discharge	40	1.1
Discharged home	1599	44.2
Missing	0	

To other type of H stay (N=904)	N	%
Rehabilitation in the same institute	100	11.1
Rehabilitation in other institute	653	72.2
DH/long-term care, same inst.	29	3.2
DH/long-term care, other inst.	122	13.5
Missing	0	

Disch. terminally ill (N=3130)	N	%
Yes	36	1.2
No	3094	98.8
Missing	0	

Hospital mortality	N	%
Alive	3094	85.5
Dead	526	14.5
Missing	0	

Timing of hosp. mortality (N=526)	N	%
In ICU	372	70.7
Within 24 hours after ICU	9	1.7
24-47 hours after ICU	12	2.3
48-71 hours after ICU	9	1.7
72-95 hours after ICU	11	2.1
After 95 hours after ICU	113	21.5
Missing	0	

Timing of hosp. mortality (days from ICU disch.) Discharged alive from ICU (N=154)		
Mean		17.9
SD		24.7
Median		9
Q1-Q3		3-21.8
Missing		0



## National report for general ICUs - Year 2021

## Outcome indicators - Trauma patients

Last hospital mortality	N	%
Alive	3073	84.9
Dead	547	15.1
Missing	0	

ICU stay (days)		
	Mean	7.7
	SD	11.2
	Median	3
	Q1–Q3	1–9
	Missing	0

ICU stay (days) Alive (N=3248)		
	Mean	7.7
	SD	10.6
	Median	3
	Q1–Q3	1–9
	Missing	0

ICU stay (days) Dead (N=372)		
	Mean	8.2
	SD	15.4
	Median	3
	Q1–Q3	1–8
	Missing	0

Stay after ICU (days) Alive (N=3248)		
	Mean	13.0
	SD	15.8
	Median	8
	Q1–Q3	3–17
	Missing	0

Hospital stay (days)		
	Mean	20.5
	SD	19.7
	Median	15
	Q1–Q3	8–26.2
	Missing	0

Hospital stay (days) Alive (N=3094)		
	Mean	21.5
	SD	18.9
	Median	16
	Q1–Q3	9–28
	Missing	0

Hospital stay (days) Dead (N=526)		
	Mean	14.5
	SD	22.6
	Median	6
	Q1–Q3	2–17
	Missing	0



**National report for general ICUs - Year 2021**  
**Characteristics on admission - COVID adult patients**

**Patients (N): 7793**

<b>Sex</b>	N	%
Male	5415	69.7
Female	2355	30.3
Missing	23	

<b>Age (years)</b>	N	%
17-45	601	7.7
46-65	3155	40.5
66-75	2793	35.8
>75	1244	16.0
Missing	0	
Mean	64.1	
SD	12.0	
Median	66	
Q1–Q3	57–73	
Min–Max	17–98	

<b>Body mass Index (BMI)</b>	N	%
Underweight	75	1.0
Normal	2139	27.8
Overweight	2889	37.6
Obese	2582	33.6
Missing	108	

<b>Pregnancy status</b>	N	%
<b>Females (N=2355)</b>		
Not fertile	876	37.5
Not pregnant/Unknown	1388	59.4
Currently pregnant	39	1.7
Post partum	32	1.4
Missing	20	

<b>Comorbidities</b>	N	%
No	1813	23.3
Yes	5976	76.7
Missing	4	

<b>Comorbidities (top 10)</b>	N	%
Hypertension	4233	54.3
Diabetes Type II without insulin tr.	1206	15.5
Myocardial infarction	714	9.2
Moderate COPD	676	8.7
Arrhythmia	638	8.2
Diabetes Type II with insulin treatment	414	5.3
Any tumour without metastasis	397	5.1
Antiplatelet therapy	384	4.9
Endocrine-metabolic diseases	342	4.4
Cerebrovascular disease	338	4.3
Missing	4	

<b>Stay before ICU (days)</b>		
Mean	5.6	
SD	8.6	
Median	3	
Q1–Q3	1–7	
Missing	11	

<b>Source of admission</b>	N	%
Same hospital	6182	79.4
Other hospital	1597	20.5
Long-term chronic care hospital	10	0.1
Directly from the community	0	0.0
Missing	4	

<b>Ward of admission</b>	N	%
<b>Hospital (N=7779)</b>		
Medical ward	4002	51.4
Surgical ward	147	1.9
Emergency room	1841	23.7
Other ICU	548	7.0
High dependency care unit	1241	16.0
Missing	0	

<b>Reason for transfer from</b>	N	%
<b>Other ICU (N=548)</b>		
Specialist expertise	118	21.5
Step-up care	118	21.5
Logistical/organizational reasons	307	56.0
Step-down care	5	0.9
Missing	0	

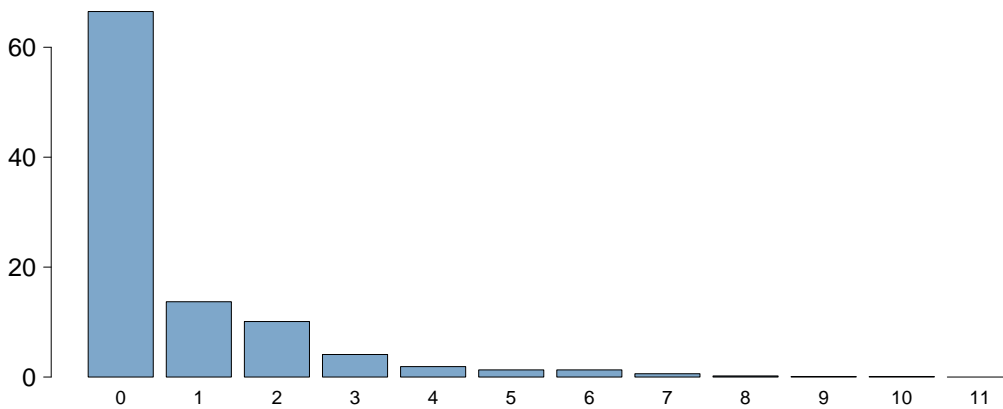
<b>Ward of admission</b>	N	%
<b>Same hospital (N=6182)</b>		
Medical ward	3470	56.1
Surgical ward	137	2.2
Emergency room	1358	22.0
Other ICU	122	2.0
High dependency care unit	1095	17.7
Missing	0	

<b>Ward of admission</b>	N	%
<b>Other hospital (N=1597)</b>		
Medical ward	532	33.3
Surgical ward	10	0.6
Emergency room	483	30.2
Other ICU	426	26.7
High dependency care unit	146	9.1
Missing	0	

<b>Scheduled admission</b>	N	%
No	7760	99.6
Yes	29	0.4
Missing	4	

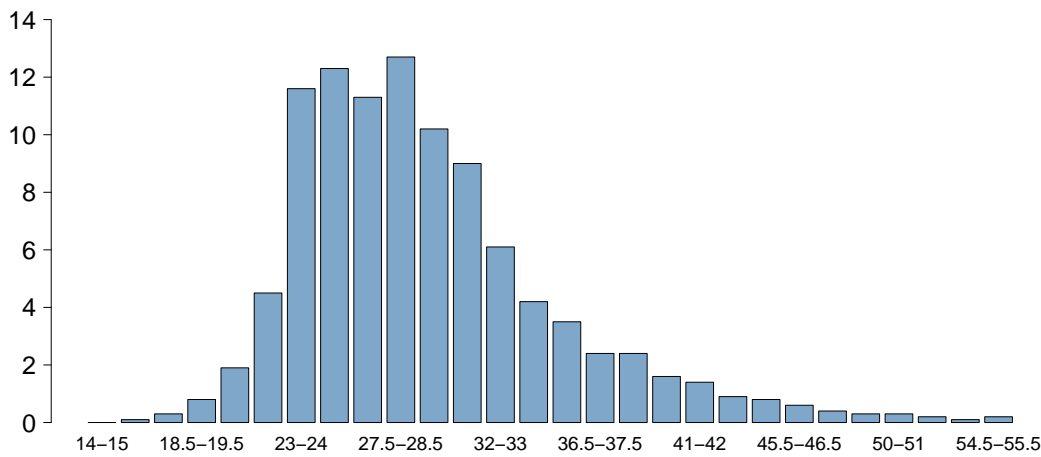
**National report for general ICUs - Year 2021**  
**Characteristics on admission - COVID adult patients**

**Charlson (%)**



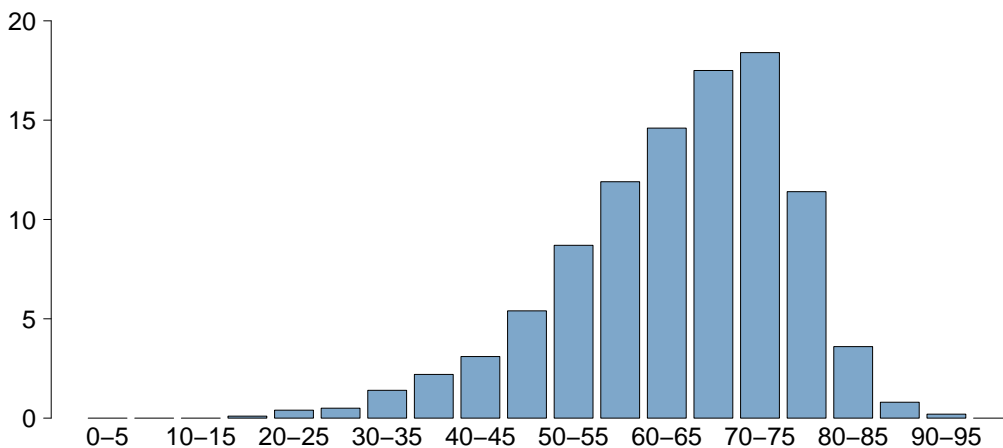
Charlson score	
Mean	0.8
SD	1.4
Median	0
Q1–Q3	0–1
Missing	4

**BMI (%)**



BMI	
Mean	29.5
SD	6.3
Median	27.8
Q1–Q3	25.4–32.2
Missing	108

**Age (%)**



Age	
Mean	64.1
SD	12.0
Median	66
Q1–Q3	57–73
Missing	0

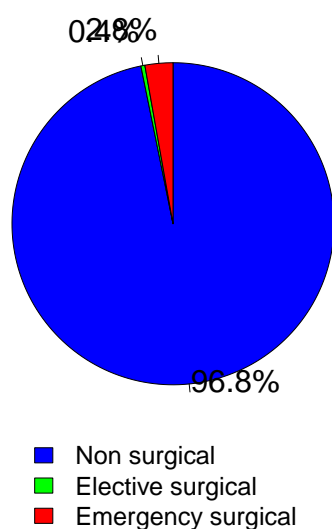
## National report for general ICUs - Year 2021

### Characteristics on admission - COVID adult patients

Trauma	N	%
No	7705	98.9
Yes	84	1.1
Multiple trauma	20	0.3
Missing	4	

Surgical status	N	%
Non surgical	7542	96.8
Elective surgical	29	0.4
Emergency surgical	218	2.8
Missing	4	

#### Surgical status



Source of admission	N	%
<b>Surgical pt. (N=247)</b>		
Operating theatre of surgical ward	74	30.0
Operating theatre of emergency room	38	15.4
Surgical ward	10	4.0
Other	125	50.6
Missing	0	

Surgical interventions (top 10)	N	%
<b>Elective surgical (N=29)</b>		
Orthopaedic surgery	5	17.2
Gastrointestinal surgery	5	17.2
Pancreatic surgery	4	13.8
Neurosurgery	4	13.8
Acquired valv. heart dis. surgery	2	6.9
Other cardiac surgery	2	6.9
Obstetric surgery	2	6.9
Thoracic surgery	2	6.9
Hepatic surgery	1	3.4
Gynaecological surgery	1	3.4
Missing	1	

Timing	N	%
<b>Elective surgical (N=29)</b>		
From -7 to -3 days	1	3.4
From -2 to -1 days	3	10.3
On ICU admission day	28	96.6
The day after ICU admission	0	0.0
Missing	0	

Surgical interventions (top 10)	N	%
<b>Emergency surgical (N=218)</b>		
Gastrointestinal surgery	79	36.2
Neurosurgery	25	11.5
Obstetric surgery	23	10.6
Orthopaedic surgery	22	10.1
Peripheral vascular surgery	18	8.3
Thoracic surgery	11	5.0
Nephro/Urological surgery	8	3.7
Other cardiac surgery	5	2.3
ENT surgery	5	2.3
Abdominal vascular surgery	5	2.3
Missing	17	

Timing	N	%
<b>Emergency surgical (N=218)</b>		
From -7 to -3 days	14	6.4
From -2 to -1 days	27	12.4
On ICU admission day	170	78.0
The day after ICU admission	16	7.3
Missing	1	

Non surgical interventions	N	%
None	7614	97.8
Elective	9	0.1
Emergency	166	2.1
Missing	4	

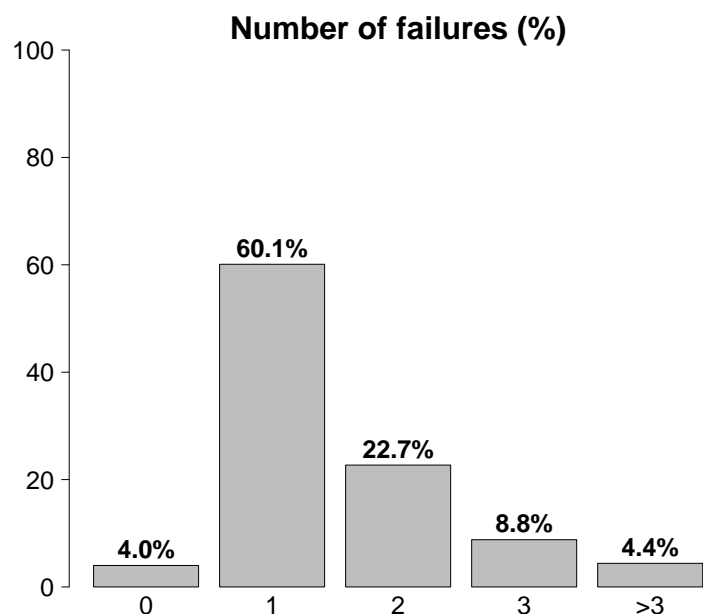
Non surgical interventions	N	%
<b>Elective (N=9)</b>		
Interventional cardiology	7	77.8
Interventional endoscopy	2	22.2
Interventional radiology	0	0.0
Interventional neuroradiology	0	0.0
Missing	0	

Non surgical interventions	N	%
<b>Emergency (N=166)</b>		
Interventional cardiology	82	49.4
Interventional radiology	46	27.7
Interventional endoscopy	22	13.3
Interventional neuroradiology	14	8.4
Missing	2	

## National report for general ICUs - Year 2021

## Characteristics on admission - COVID adult patients

Reason for admission	N	%
Monitoring/Weaning	378	4.9
Post surgical weaning	36	0.5
Surgical monitoring	40	0.5
Post interventional weaning	3	0.0
Interventional monitoring	59	0.8
Non surgical monitoring	234	3.0
Missing	6	
Intensive Treatment	7385	94.8
Only ventilatory support	5988	76.9
Only cardiovascular support	25	0.3
Ventilatory and cardiovascular support	1372	17.6
Missing	0	
Palliative Sedation	25	0.3
Diagnosis of death/Organ donation	1	0.0
Missing	4	



Failures on admission	N	%
No	311	4.0
Yes	7482	96.0
A: Respiratory failure	7360	94.4
B: Cardiovascular failure	1397	17.9
C: Neurological failure	151	1.9
D: Hepatic failure	16	0.2
E: Renal failure	1684	21.6
F: Acute skin failure	3	0.0
G: Metabolic failure	1063	13.6
H: Coagulation failure	31	0.4
Missing	0	

Failures on admission (top 10)	N	%
A	4607	59.1
AE	738	9.5
AB	686	8.8
AEG	286	3.7
AG	271	3.5
ABEG	248	3.2
ABE	217	2.8
ABG	124	1.6
E	50	0.6
ABCEG	38	0.5
Missing	0	

Respiratory failure	N	%
None	433	5.6
Only hypoxic failure	6489	83.3
Only hypercapnic failure	33	0.4
Hypoxic-hypercapnic failure	550	7.1
Intubation for airway maint.	288	3.7
Missing	0	

Cardiovascular failure	N	%
None	6396	82.1
Without shock	737	9.5
Cardiogenic shock	122	1.6
Septic shock	313	4.0
Haemorrhagic/hypovolemic shock	36	0.5
Hypovolemic shock	63	0.8
Anaphylactic shock	0	0.0
Neurogenic shock	3	0.0
Other shock	64	0.8
Mixed shock	59	0.8
Missing	0	

Neurologic failure	N	%
None	6706	97.8
Cerebral coma	58	0.8
Metabolic coma	44	0.6
Postanoxic coma	47	0.7
Toxic coma	2	0.0
Missing or not evaluable	936	

Renal failure (AKIN)	N	%
None	6098	78.4
Mild	1002	12.9
Moderate	409	5.3
Severe	273	3.5
Missing	11	

Metabolic failure	N	%
None	6719	86.3
pH $\leq$ 7.3, PaCO <sub>2</sub> $<$ 45 mmHg	287	3.7
Base deficit $\geq$ 5 mmol/L, lactate $>$ 1.5x	776	10.0
Missing	11	

## National report for general ICUs - Year 2021

## Characteristics on admission - COVID adult patients

Clinical conditions on admission	N	%
Respiratory	3537	45.4
Severe ARDS	1642	21.1
Moderate ARDS	1492	19.1
Pulmonary embolism	251	3.2
Pneumothorax/Pneumomediastinum	211	2.7
Mild ARDS	170	2.2
Cardiovascular	425	5.5
Acute severe arrhythmia: tachycardias	94	1.2
Acute ischaemia	61	0.8
Left heart failure with pulm. edema	55	0.7
Cardiac arrest	53	0.7
Acute myocardial infarction	51	0.7
Neurological	142	1.8
Cerebral artery stroke	35	0.4
Spontaneous Intraparenchymal bleeding	25	0.3
Neuropathy/myopathy	22	0.3
Seizures	20	0.3
Metabolic/postanoxic encephalopathy	19	0.2
Gastrointestinal and hepatic	163	2.1
Retroperitoneal bleeding	25	0.3
Gastrointestinal perforation	21	0.3
Gastrointestinal bleeding: upper tract	17	0.2
Bowel ischaemia	15	0.2
Acute pancreatitis	14	0.2
Trauma (anatomical districts)	84	1.1
Head	35	0.4
Pelvis/bone/joint & muscle	35	0.4
Chest	21	0.3
Spine	11	0.1
Abdomen	9	0.1
Major vessels injury	4	0.1
Miscellaneous	1	0.0
Other	238	3.1
Metabolic disorder	78	1.0
Nephrourologic disease	55	0.7
Other disease	40	0.5
Coagulation disorder	31	0.4
Haematological disease	17	0.2
Post transplantation	29	0.4
Renal transplantation	16	0.2
Liver transplantation	7	0.1
Infections	7793	100.0
COVID-19	7793	100.0
Pneumonia	4509	57.9
Primary bacteraemia of unknown origin	99	1.3
Catheter-related UTI	74	0.9
NON-catheter-related UTI	51	0.7
L.R.T.I. other than pneumonia	50	0.6
Catheter-related bacteremia (CR-BSI)	43	0.6
NON-surgical secondary peritonitis	30	0.4
Other fungal infections	19	0.2
Upper respiratory tract infection	14	0.2
Missing	0	

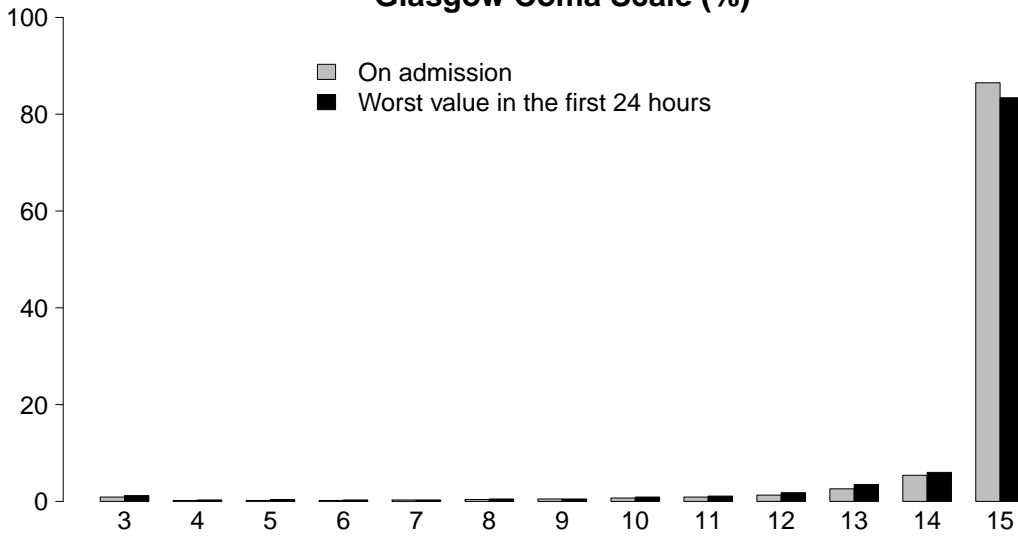
Trauma (anatomical districts)	N	%
Head	35	0.4
Traumatic Subdural haematoma	15	0.2
Cerebral contusion/laceration	11	0.1
Traumatic subarachnoid haemorrhage	10	0.1
Maxillofacial fracture	8	0.1
Skull fracture	6	0.1
Spine	11	0.1
Vertebral fracture, without deficit	9	0.1
Dorsal injury, incomplete deficit	1	0.0
Paraplegia	1	0.0
Chest	21	0.3
Other injuries of the chest	11	0.1
Traum. haemothorax/pneumothorax	6	0.1
Severe lung contusion/laceration	4	0.1
Abdomen	9	0.1
Liver: Moderate-Severe laceration	4	0.1
Spleen: Moderate-Severe laceration	2	0.0
Kidney: Rupture/laceration	2	0.0
Pelvis/bone/joint & muscle	35	0.4
Long bone fracture	34	0.4
Multiple fracture of the pelvis	2	0.0
-	0	0.0
Major vessels injury	4	0.1
Proximal limbs vessels: transection	3	0.0
Major abdominal vessels: transection	1	0.0
-	0	0.0
Miscellaneous	1	0.0
Inhalation injury	1	0.0
Burns (>30% BSA)	1	0.0
Missing	0	

PaO <sub>2</sub> /FiO <sub>2</sub> (100*mmHg%) (prime 24h)	N	%
>=400 >=53.2 (0)	84	1.1
300-399 39.9-53.1 (1)	153	2.0
200-299 26.6-39.8 (2)	506	6.5
100-199 13.3-26.5 (3)	3204	41.2
<100 <13.3 (4)	3833	49.3
Missing	13	

National report for general ICUs - Year 2021

Severity scores - COVID adult patients

Glasgow Coma Scale (%)



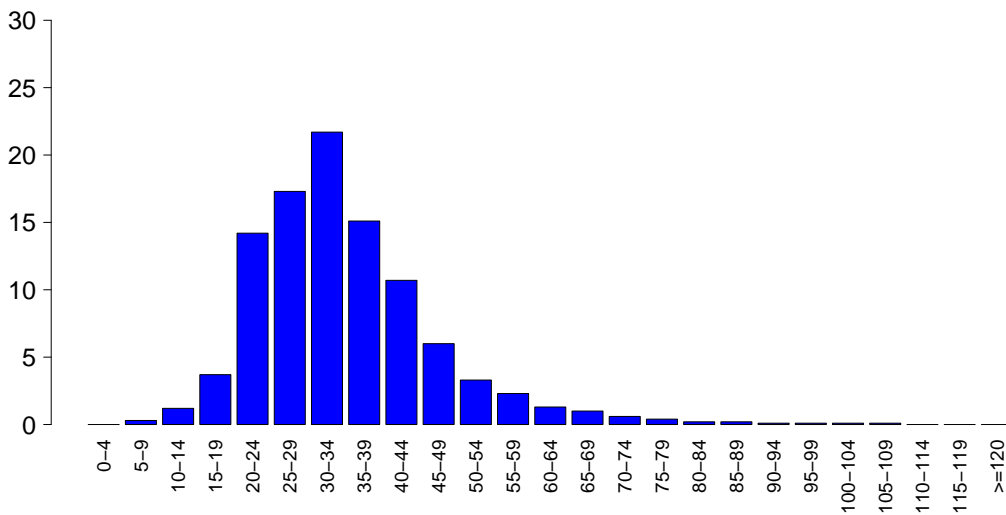
GCS (admission)

Median	15
Q1–Q3	15–15
Not evaluable	929
Missing	7

GCS (worst in first 24 hours)

Median	15
Q1–Q3	15–15
Not evaluable	1720
Missing	8

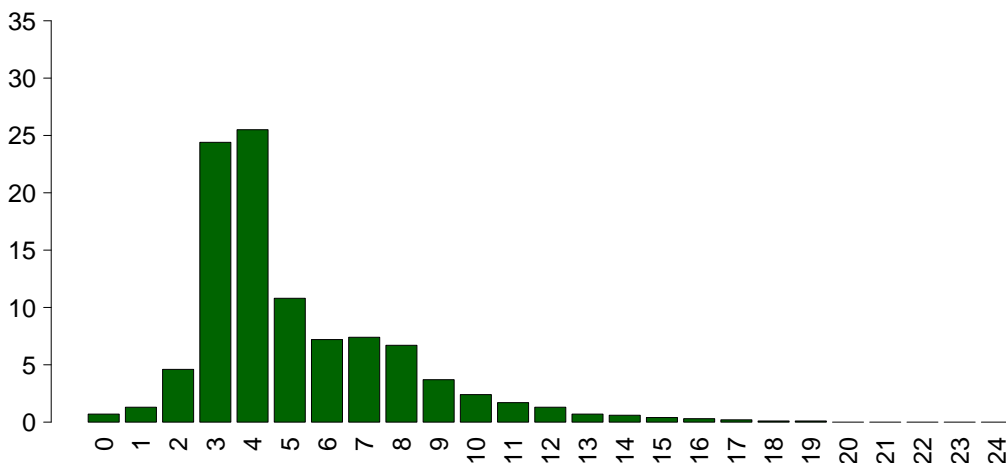
SAPS II (%)



SAPSII

Mean	34.7
SD	12.4
Median	32
Q1–Q3	27–40
Not evaluable	1720
Missing	10

SOFA (%)



SOFA

Mean	5.2
SD	2.8
Median	4
Q1–Q3	3–7
Not evaluable	1720
Missing	11



## National report for general ICUs - Year 2021

## Characteristics during the stay - COVID adult patients

Complications during the stay	N	%
No	3149	40.5
Yes	4631	59.5
Missing	13	

Failures during the stay	N	%
No	4917	63.1
Yes	2876	36.9

A: Respiratory failure	1766	22.7
B: Cardiovascular failure	1604	20.6
C: Neurological failure	65	0.8
D: Hepatic failure	23	0.3
E: Renal failure (AKIN)	631	8.1
F: Acute skin failure	1	0.0
G: Metabolic failure	65	0.8
H: Coagulation failure	37	0.5
Missing	0	

Failures during the stay (top 10)	N	%
A	971	12.5
B	685	8.8
AB	492	6.3
BE	177	2.3
ABE	153	2.0
E	147	1.9
AE	78	1.0
G	24	0.3
C	14	0.2
ABCE	13	0.2
Missing	0	

Respiratory failure occurred	N	%
None	6014	77.3
Intubation for airway maint.	194	2.5
Hypoxic failure	1579	20.3
Hypercapnic failure	238	3.1
Missing	13	

Cardiovascular failure occurred	N	%
None	6176	79.4
Cardiogenic shock	215	2.8
Hypovolemic shock	87	1.1
Haemorrhagic/hypovolemic shock	49	0.6
Septic shock	1125	14.5
Anaphylactic shock	2	0.0
Neurogenic shock	1	0.0
Other shock	223	2.9
Missing	13	

Neurological failure occurred	N	%
None	7715	99.2
Cerebral coma	33	0.4
Metabolic coma	22	0.3
Postanoxic coma	10	0.1
Missing	13	

Renal failure occurred (AKIN)	N	%
None	7149	91.9
Mild	62	0.8
Moderate	89	1.1
Severe	480	6.2
Missing	13	

Complications during the stay	N	%
Respiratory	1275	16.4
Severe ARDS	620	8.0
Pneumothorax/Pneumomediastinum	364	4.7
Pleural effusion	151	1.9
Pulmonary embolism	145	1.9
Atelectasis	117	1.5
Cardiovascular	762	9.8
Acute severe arrhythmia: tachycardias	351	4.5
Cardiac arrest	147	1.9
Deep venous thrombosis	98	1.3
Pulmonary hypertension	95	1.2
Right heart failure	70	0.9
Neurological	423	5.4
Drowsiness/agitation/delirium	301	3.9
CrIMyNe	76	1.0
Seizures	27	0.3
New ischaemic stroke	19	0.2
Non-surgical intracranial bleeding	17	0.2
Gastrointestinal and hepatic	185	2.4
Gastrointestinal bleeding: lower tract	38	0.5
Paralytic Ileus	28	0.4
Gastrointestinal bleeding: upper tract	26	0.3
Retroperitoneal bleeding	22	0.3
Liver Dysfunction Syndrome	17	0.2
Other	239	3.1
Metabolic disorder	65	0.8
Other disease	60	0.8
Nephrourologic disease	48	0.6
Category/Stage II: Partial Thickness Skin Loss	29	0.4
Category/Stage IV: Full Thickness Tissue Loss	24	0.3
Category/Stage III: Full Thickness Skin Loss	15	0.2
Other skin and/or soft tissue pathology	15	0.2
Infections	2626	33.8
Pneumonia	1413	18.2
L.R.T.I. other than pneumonia	499	6.4
Catheter-related UTI	471	6.1
Primary bacteraemia of unknown origin	426	5.5
Catheter-related bacteremia (CR-BSI)	421	5.4
COVID-19	90	1.2
Other fungal infections	87	1.1
NON-catheter-related UTI	65	0.8
Clinical sepsis	40	0.5
Catheter-related local infection	32	0.4
Missing	13	

## National report for general ICUs - Year 2021

## Characteristics during the stay - COVID adult patients

Infections	N	%
None	0	0.0
Only on admission	5154	66.2
On admission and during ICU stay	2626	33.8
Only during ICU stay	0	0.0
Missing	13	

Ventil. Associat. Pneumonia (VAP)	N	%
No	6494	83.4
Yes	1291	16.6
Missing	8	

**Incidence of VAP***(Pts. with VAP/1000 days of VM pre-VAP)*

Estimate	19.4
CI (95%)	18.4–20.5

**Incidence of VAP***(Pts. with VAP/pts. ventilated for 8 days)*

Estimate	15.5%
CI (95%)	14.7–16.4

Catheter Bacteraemia (CR-BSI)	N	%
No	7359	94.6
Yes	421	5.4
Missing	13	

**Incidence of CR-BSI***(Pts. with CR-BSI/1000 days of CVC pre-CR-BSI)*

Estimate	4.2
CI (95%)	3.8–4.6

**Incidence of CR-BSI***(Pts. with CR-BSI/pts. catheterized for 12 days)*

Estimate	5.1%
CI (95%)	4.6–5.6

Catheter-related urinary tract infection (UTI)	N	%
No	7309	93.9
Yes	471	6.1
Missing	13	

**Incidence of catheter-related UTI***(Pts. with catheter-related UTI/1000 days of UC pre-UTI)*

Estimate	4.4
CI (95%)	4.0–4.8

**Incidence of catheter-related UTI***(Pts. with catheter-related UTI/pts. with UC for 12 days)*

Estimate	5.3%
CI (95%)	4.8–5.8

## National report for general ICUs - Year 2021

Process indicators - COVID adult patients Procedures and/or treatments (Missing=4) Procedures (antibiotics excluded)	Use		On admission		On discharge		Length (days)		Days from admission			
	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
	7771	99.8										
Invasive ventilation	5668	72.8	2035	26.1	2367	30.4	11	5-21	15	0	0-1	0
Non invasive ventilation	4385	56.3	2166	27.8	1108	14.2	3	1-6	6	0	0-1	0
Tracheostomy	1831	23.5	133	1.7	1245	16	14	7-24	7	13	9-18	1
iNO (inhaled nitric oxide)	575	7.4	15	0.2	159	2	4	2-10	0	3	1-9	0
Central Venous Catheter	6587	84.6	1839	23.6	4676	60	12	6-21	18	0	0-0	2
PICC	327	4.2	83	1.1	258	3.3	6	2-11	1	12	1-28	0
Arterial Catheter	7556	97.0	2192	28.1	3407	43.7	11	5-20	18	0	0-0	1
Vasoactive drugs	3573	45.9	535	6.9	1107	14.2	5	2-11	3	1	0-4	0
Antiarrhythmics	731	9.4	115	1.5	355	4.6	5	2-13	4	4	1-10	0
IABP	13	0.2	9	0.1	6	0.1	2	1-2	0	2	1-3	0
Invasive monitoring of C.O.	269	3.5	12	0.2	101	1.3	7	3-15	0	2	0-10	0
Continuous monitoring of ScVO2	24	0.3	2	0	8	0.1	7	3-17	0	2	1-9	0
Temporary pacing	17	0.2	3	0	7	0.1	2	1-4	1	10	0-19	0
Ventricular assistance	1	0.0	0	0	0	0	3	3-3	0	0	0-0	0
DC-shock	48	0.6								6	0-11	0
CPR	157	2.0								4	0-10	0
Massive blood transfusion	27	0.3								0	0-12	0
ICP monitoring without CSF drainage	6	0.1	3	0	3	0	8	3-11	0	0	0-0	0
ICP monitoring with CSF drainage	5	0.1	5	0.1	3	0	9	2-13	0			
EVD without ICP monitoring	0	0.0										
Haemofiltration	328	4.2	16	0.2	102	1.3	5	2-11	1	7	2-15	0
Haemodialysis	241	3.1	20	0.3	104	1.3	6	2-13	1	10	3-17	0
ECMO	144	1.8	31	0.4	73	0.9	20	11-34	0	3	1-7	0
Hepatic clearance techniques	2	0.0										
Clearance techniques during sepsis	104	1.3	1	0	21	0.3	2	1-4	0	7	2-12	0
IAP (intra-abdominal pressure)	27	0.3										
Hypothermia	10	0.1	4	0.1	1	0	1	1-2	0	0	0-0	0
Enteral nutrition	5620	72.2	964	12.4	3527	45.3	12	6-22	11	1	0-2	3
Parenteral nutrition	2032	26.1	259	3.3	861	11.1	8	4-15	3	0	0-2	0
SDD (Topical, Topical and systemic)	231	3.0										
Patient restraint	104	1.3										
Peridural catheter	7	0.1	2	0	5	0.1	5	4-14	0	3	1-32	0
Electrical cardioversion	97	1.2								6	1-12	0
Vacuum therapy	16	0.2										
Urinary catheter	7499	96.3	4875	62.6	6086	78.1	11	6-20	18	0	0-0	0
Pronation	3755	48.2	345	4.4	314	4	4	2-7	5	0	0-1	1
Antivirals	472	6.1	235	3	262	3.4	6	3-14	1	1	0-9	0

**National report for general ICUs - Year 2021**  
**Process indicators - COVID adult patients**

Procedures and/or treatments (Missing=4)	Use		On admission		On discharge		Length (days)			Days from admission		
	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
<b>Antibiotics</b>	5037	64.7										
Antibiotic prophylaxis	537	6.9	280	3.6	125	1.6	3	2-6	2	0	0-0	0
Empirical antibiotic therapy (infection diagnosis confirmed)	2844	36.5	972	12.5	653	8.4	4	2-7	2	2	0-6	1
Empirical antibiotic therapy (infection diagnosis unconfirmed)	737	9.5	306	3.9	273	3.5	5	3-8	0	0	0-4	0
Targeted antibiotic therapy	2630	33.8	174	2.2	1173	15.1	8	5-13	6	8	5-12	0
Antifungal in empirical therapy	373	4.8	36	0.5	134	1.7	5	3-9	2	8	4-15	0
Antifungal in targeted therapy	650	8.3	32	0.4	338	4.3	10	5-17	1	10	6-17	0
Pre-emptive antifungal	66	0.8	9	0.1	22	0.3	6	4-13	0	5	1-10	0

Antibiotic therapy			
Pt. infected in ICU only (N=0)	N	%	
No therapy	0	0.0	
Only empirical	0	0.0	
Only targeted	0	0.0	
Targeted after empirical	0	0.0	
Other	0	0.0	
Missing	0		

Antifungal therapy			
Pt. infected in ICU only (N=0)	N	%	
No therapy	0	0.0	
Only empirical	0	0.0	
Only targeted	0	0.0	
Targeted after empirical	0	0.0	
Other	0	0.0	
Missing	0		

## National report for general ICUs - Year 2021

## Process indicators - COVID adult patients

Invasive ventilation (N=5668)	N	%	Length (days)				
			Mean	SD	Median	Q1-Q3	Missing
Due to pulmonary failure	5145	84.9	15.4	15.0	11	6–21	13
For airway maintenance	259	4.3	11.3	14.7	6	2–15	0
In weaning	36	0.6	0.6	0.5	1	0–1	0
Not evaluable	620	10.2	17.7	16.0	14	7–24	394
Reintubation within 48 hours	75	1.2	14.5	12.2	10	5–22.5	0

Non invasive ventilation (N=4385)	N	%
Non invasive ventilation only	1873	42.7
Non invasive ventilation failed	1766	40.3
For weaning	568	13.0
Other	178	4.1
Missing	0	

Tracheostomy not present on admission (N=1698)	N	%
Surgical	168	9.9
Percutwist	156	9.2
Ciaglia	381	22.4
Monodil. Ciaglia	815	48.0
Fantoni	8	0.5
Griggs	114	6.7
Other Kind	29	1.7
Unknown	25	1.5
Missing	2	

### Tracheostomy - Days after the beginning of inv. vent. Not present on admission (N=1680)

Mean	13.0
SD	7.4
Median	12
Q1–Q3	8–17
Missing	3

Invasive monitoring of C.O. (N=269)	N	%
Swan Ganz	81	30.1
PICCO	162	60.2
LIDCO	0	0.0
Vigileo-PRAM	12	4.5
Other	14	5.2
Missing	0	

SDD (N=231)	N	%
Topical	230	99.6
Topical and systemic	1	0.4
Missing	0	

Surgical interventions	N	%
No	7617	97.8
Yes	168	2.2
Missing	8	

Number of surgical interventions	N	%
0	7617	97.8
1	151	1.9
2	11	0.1
3	4	0.1
>3	2	0.0
Missing	8	

### Surgical interventions

#### Days from admission

Mean	19.2
SD	17.6
Median	15
Q1–Q3	8–24
Missing	0

Surgical interventions (top 10)	N	%
ENT surgery	61	0.8
Gastrointestinal surgery	52	0.7
Thoracic surgery	23	0.3
Peripheral vascular surgery	11	0.1
Nephro/Urological surgery	9	0.1
Obstetric surgery	6	0.1
Plastic surgery	5	0.1
Orthopaedic surgery	5	0.1
Maxillo-Facial surgery	4	0.1
Other surgery	4	0.1
Missing	8	

Non surgical interventions	N	%
No	7680	98.7
Yes	105	1.3
Missing	8	

### Non surgical interventions

#### Days from admission

Mean	19.5
SD	20.3
Median	15
Q1–Q3	7–23.5
Missing	3

Non surgical interventions	N	%
Interventional endoscopy	60	0.8
Interventional radiology	40	0.5
Interventional cardiology	16	0.2
Interventional neuroradiology	2	0.0
Missing	8	

## National report for general ICUs - Year 2021

## Outcome indicators - COVID adult patients

ICU outcome	N	%
Dead	2789	35.9
Transferred to same hospital	4088	52.6
Transferred to other hospital	832	10.7
Discharged home	36	0.5
Disch. terminally ill	26	0.3
Missing	22	

Transferred to (N=4920)	N	%
Ward	3015	61.3
Other ICU	622	12.6
High dependency care unit	1119	22.7
Rehabilitation	153	3.1
Day hospital or Long-term care	11	0.2
Missing	0	

Reason of transfer to Other ICU (N=642)	N	%
Specialist expertise	89	13.9
Step-up care	70	10.9
Logistical/organizational reasons	474	73.8
Step-down care	9	1.4
Missing	0	

Transferred to Same hospital (N=4088)	N	%
Ward	2892	70.7
Other ICU	155	3.8
High dependency care unit	1029	25.2
Rehabilitation	9	0.2
Day hospital or Long-term care	3	0.1
Missing	0	

Transferred to Other hospital (N=832)	N	%
Ward	123	14.8
Other ICU	467	56.1
High dependency care unit	90	10.8
Rehabilitation	144	17.3
Day hospital or Long-term care	8	1.0
Missing	0	

ICU mortality	N	%
Alive	4956	63.8
Dead	2815	36.2
Missing	22	

Timing of ICU mortality (N=2815)	N	%
Daytime (08:00AM - 07:59PM)	2160	76.7
Nighttime (08:00PM - 07:59AM)	655	23.3
Weekdays (Monday - Friday)	2101	74.6
Weekend (Saturday - Sunday)	714	25.4
Missing	0	

C.A.M. activation (N=2815)	N	%
Yes, with organ donation	1	0.0
Yes, without organ donation	31	1.1
No, with organ donation	0	0.0
No, without organ donation	2757	98.9
Missing	26	

Tissue removal (N=2815)	N	%
Yes, with C.A.M. activation	1	0.0
Yes, without C.A.M. activation	7	0.2
No	2807	99.7
Missing	0	

Hospital mortality *	N	%
Dead	2914	39.6
Transf. to other acute-care hospital	845	11.5
Transf. to other type of hosp. stay	1254	17.1
Nursing home	78	1.1
Voluntary discharge	9	0.1
Discharged home	2253	30.6
Missing	39	

To other type of H stay* (N=1254)	N	%
Rehabilitation in the same institute	177	14.1
Rehabilitation in other institute	900	71.8
DH/long-term care, same inst.	74	5.9
DH/long-term care, other inst.	103	8.2
Missing	0	

Disch. terminally ill* (N=4439)	N	%
Yes	44	1.0
No	4395	99.0
Missing	0	

Hospital mortality *	N	%
Alive	4395	59.8
Dead	2958	40.2
Missing	39	

Timing of hosp. mortality * (N=2958)	N	%
In ICU	2659	89.9
Within 24 hours after ICU	18	0.6
24-47 hours after ICU	9	0.3
48-71 hours after ICU	15	0.5
72-95 hours after ICU	14	0.5
After 95 hours after ICU	242	8.2
Missing	1	

Timing of hosp. mortality (days from ICU disch.) * Discharged alive from ICU (N=299)		
Mean	14.5	
SD	16.5	
Median	11	
Q1-Q3	5-18	
Missing	0	

\* Statistics computed on patients admitted in months with % of patients in status 4 over the threshold (readmissions excluded) (N=7392).

## National report for general ICUs - Year 2021

## Outcome indicators - COVID adult patients

Last hospital mortality *	N	%
Alive	4246	58.0
Dead	3081	42.0
Missing	65	

Readmission from ward	N	%
No	7690	98.7
Yes	102	1.3
Missing	1	

Number of readmissions (N=102)	N	%
1	100	98.0
2	2	2.0
>2	0	0.0
Missing	0	

Timing of readmission (N=102)	N	%
Within 48 hours	20	20.2
48-71 hours	14	14.1
72-95 hours	12	12.1
After 95 hours	53	53.5
Missing	3	

Timing readmission (days)	N	%
Mean	6.2	
SD	10.5	
Median	4	
Q1-Q3	2.1-7.5	

ICU stay (days)	Mean	SD	Median	Q1-Q3	Missing
	15.4	15.3	11	5-20	22

ICU stay (days) Alive (N=4956)	Mean	SD	Median	Q1-Q3	Missing
	15.4	16.0	10	5-20	1

ICU stay (days) Dead (N=2815)	Mean	SD	Median	Q1-Q3	Missing
	15.4	14.0	12	6-20	0

Stay after ICU (days) * Alive (N=4718)	Mean	SD	Median	Q1-Q3	Missing
	13.2	16.1	10	4-18	26

Hospital stay (days) *	Mean	SD	Median	Q1-Q3	Missing
	28.1	23.9	22	14-36	40

Hospital stay (days) * Alive (N=4395)	Mean	SD	Median	Q1-Q3	Missing
	32.0	25.5	26	16-41	1

Hospital stay (days) * Dead (N=2958)	Mean	SD	Median	Q1-Q3	Missing
	22.3	19.8	19	11-28	0

\* Statistics computed on patients admitted in months with % of patients in status 4 over the threshold (readmissions excluded) (N=7392).





## National report for general ICUs - Year 2021

## Characteristics on admission - COVID adult patients evaluated in the covid-GiViTI model

Patients (N): 7247

Sex	N	%
Male	5050	69.7
Female	2197	30.3
Missing	0	

Age (years)	N	%
17-45	557	7.7
46-65	2933	40.5
66-75	2598	35.8
>75	1159	16.0
Missing	0	
Mean	64.1	
SD	12.0	
Median	66	
Q1–Q3	57–73	
Min–Max	17–98	

Body mass Index (BMI)	N	%
Underweight	68	0.9
Normal	1982	27.6
Overweight	2709	37.8
Obese	2412	33.6
Missing	76	

Pregnancy status	N	%
<b>Females (N=2197)</b>		
Not fertile	809	37.0
Not pregnant/Unknown	1309	59.9
Currently pregnant	39	1.8
Post partum	27	1.2
Missing	13	

Comorbidities	N	%
No	1688	23.3
Yes	5559	76.7
Missing	0	

Comorbidities (top 10)	N	%
Hypertension	3946	54.5
Diabetes Type II without insulin tr.	1100	15.2
Myocardial infarction	654	9.0
Moderate COPD	631	8.7
Arrhythmia	588	8.1
Diabetes Type II with insulin treatment	390	5.4
Any tumour without metastasis	371	5.1
Antiplatelet therapy	356	4.9
Endocrine-metabolic diseases	319	4.4
Cerebrovascular disease	309	4.3
Missing	0	

Stay before ICU (days)	Mean	SD	Median	Q1–Q3	Missing
	5.4	7.9	3	1–7	0

Source of admission	N	%
Same hospital	5763	79.5
Other hospital	1476	20.4
Long-term chronic care hospital	8	0.1
Directly from the community	0	0.0
Missing	0	

Ward of admission	N	%
<b>Hospital (N=7239)</b>		
Medical ward	3762	52.0
Surgical ward	135	1.9
Emergency room	1670	23.1
Other ICU	510	7.0
High dependency care unit	1162	16.1
Missing	0	

Reason for transfer from	N	%
<b>Other ICU (N=510)</b>		
Specialist expertise	112	22.0
Step-up care	110	21.6
Logistical/organizational reasons	284	55.7
Step-down care	4	0.8
Missing	0	

Ward of admission	N	%
<b>Same hospital (N=5763)</b>		
Medical ward	3264	56.6
Surgical ward	128	2.2
Emergency room	1236	21.4
Other ICU	109	1.9
High dependency care unit	1026	17.8
Missing	0	

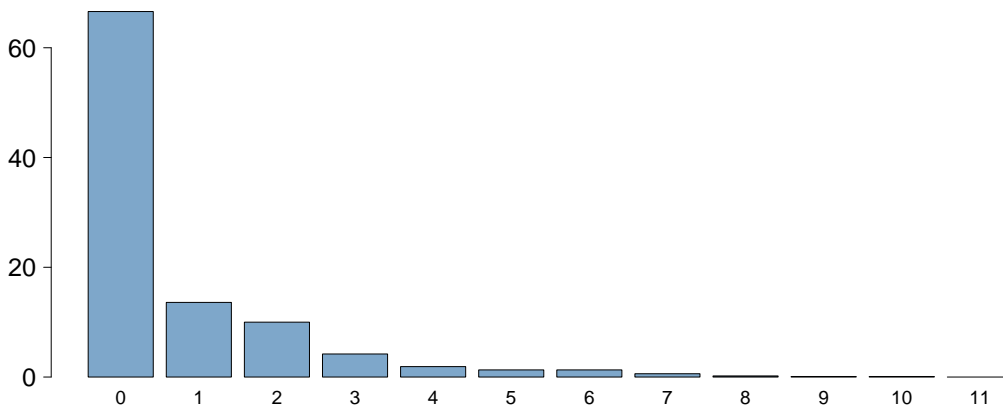
Ward of admission	N	%
<b>Other hospital (N=1476)</b>		
Medical ward	498	33.7
Surgical ward	7	0.5
Emergency room	434	29.4
Other ICU	401	27.2
High dependency care unit	136	9.2
Missing	0	

Scheduled admission	N	%
No	7223	99.7
Yes	24	0.3
Missing	0	

**National report for general ICUs - Year 2021**

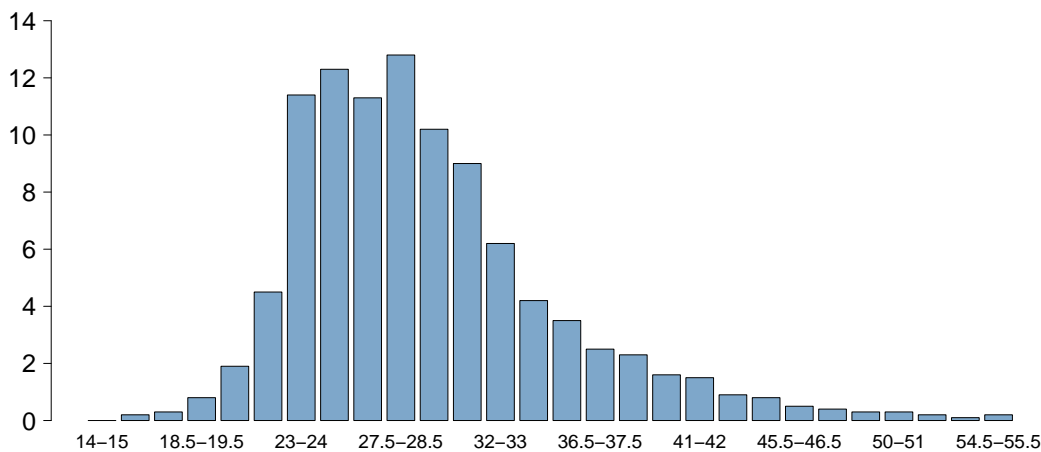
**Characteristics on admission - COVID adult patients evaluated in the covid-GiViTI model**

**Charlson (%)**



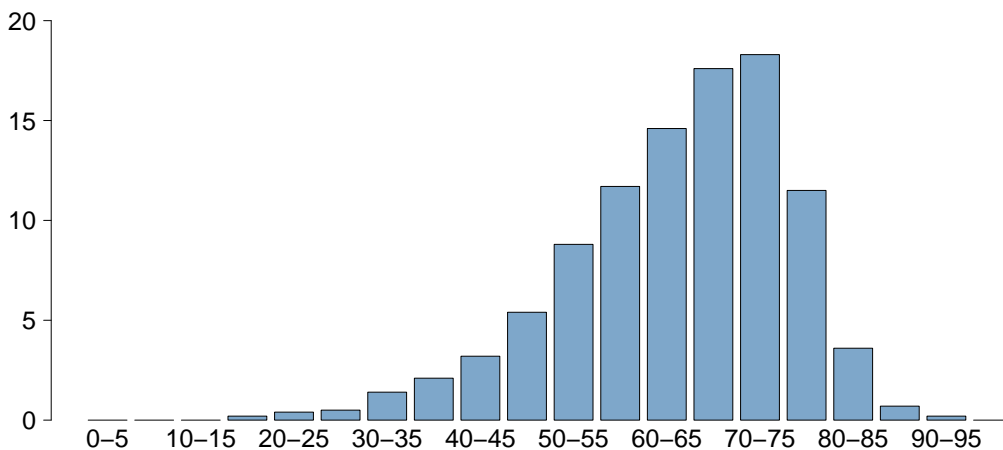
Charlson score	
Mean	0.8
SD	1.4
Median	0
Q1–Q3	0–1
Missing	0

**BMI (%)**



BMI	
Mean	29.5
SD	6.3
Median	27.8
Q1–Q3	25.4–32.3
Missing	76

**Age (%)**



Age	
Mean	64.1
SD	12.0
Median	66
Q1–Q3	57–73
Missing	0

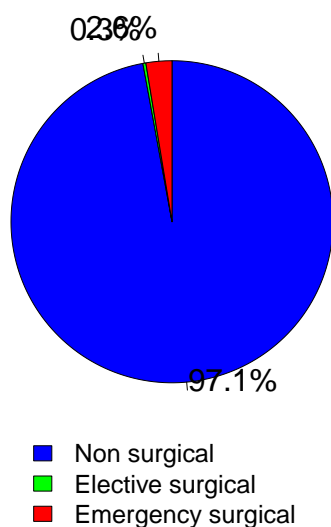
## National report for general ICUs - Year 2021

## Characteristics on admission - COVID adult patients evaluated in the covid-GiViTI model

Trauma	N	%
No	7171	99.0
Yes	76	1.0
Multiple trauma	19	0.3
Missing	0	

Surgical status	N	%
Non surgical	7036	97.1
Elective surgical	22	0.3
Emergency surgical	189	2.6
Missing	0	

## Surgical status



Timing	N	%
<b>Elective surgical (N=22)</b>		
From -7 to -3 days	0	0.0
From -2 to -1 days	2	9.1
On ICU admission day	23	104.5
The day after ICU admission	0	0.0
Missing	0	

## Surgical interventions (top 10)

Emergency surgical (N=189)	N	%
Gastrointestinal surgery	72	38.1
Orthopaedic surgery	22	11.6
Obstetric surgery	20	10.6
Neurosurgery	18	9.5
Peripheral vascular surgery	16	8.5
Thoracic surgery	11	5.8
Nephro/Urological surgery	7	3.7
ENT surgery	5	2.6
Gynaecological surgery	4	2.1
Abdominal vascular surgery	4	2.1
Missing	10	

## Timing

Emergency surgical (N=189)	N	%
From -7 to -3 days	11	5.8
From -2 to -1 days	18	9.5
On ICU admission day	150	79.4
The day after ICU admission	16	8.5
Missing	1	

## Source of admission

Surgical pt. (N=211)	N	%
Operating theatre of surgical ward	64	30.3
Operating theatre of emergency room	32	15.2
Surgical ward	9	4.3
Other	106	50.2
Missing	0	

## Surgical interventions (top 10)

Elective surgical (N=22)	N	%
Orthopaedic surgery	5	22.7
Pancreatic surgery	4	18.2
Gastrointestinal surgery	4	18.2
Neurosurgery	3	13.6
Thoracic surgery	2	9.1
Hepatic surgery	1	4.5
Gynaecological surgery	1	4.5
Obstetric surgery	1	4.5
ENT surgery	1	4.5
Biliary tract surgery	1	4.5
Missing	0	

## Non surgical interventions

	N	%
None	7085	97.8
Elective	9	0.1
Emergency	153	2.1
Missing	0	

## Non surgical interventions

Elective (N=9)	N	%
Interventional cardiology	7	77.8
Interventional endoscopy	2	22.2
Interventional radiology	0	0.0
Interventional neuroradiology	0	0.0
Missing	0	

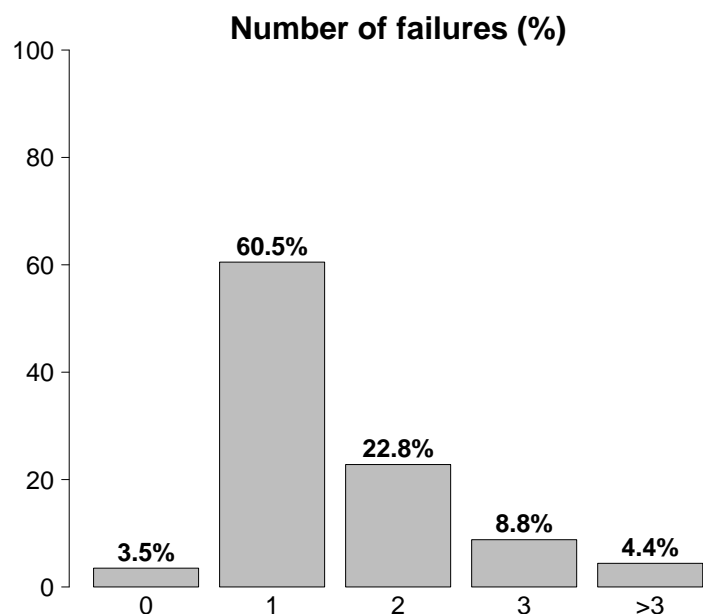
## Non surgical interventions

Emergency (N=153)	N	%
Interventional cardiology	76	49.7
Interventional radiology	41	26.8
Interventional endoscopy	21	13.7
Interventional neuroradiology	13	8.5
Missing	2	

## National report for general ICUs - Year 2021

## Characteristics on admission - COVID adult patients evaluated in the covid-GiViTI model

Reason for admission	N	%
Monitoring/Weaning	332	4.6
Post surgical weaning	30	0.4
Surgical monitoring	35	0.5
Post interventional weaning	3	0.0
Interventional monitoring	57	0.8
Non surgical monitoring	201	2.8
Missing	6	
Intensive Treatment	6915	95.4
Only ventilatory support	5615	77.5
Only cardiovascular support	21	0.3
Ventilatory and cardiovascular support	1279	17.6
Missing	0	
Palliative Sedation	0	0.0
Diagnosis of death/Organ donation	0	0.0
Missing	0	



Failures on admission	N	%
No	256	3.5
Yes	6991	96.5
A: Respiratory failure	6894	95.1
B: Cardiovascular failure	1300	17.9
C: Neurological failure	141	1.9
D: Hepatic failure	12	0.2
E: Renal failure	1574	21.7
F: Acute skin failure	2	0.0
G: Metabolic failure	979	13.5
H: Coagulation failure	28	0.4
Missing	0	

Failures on admission (top 10)	N	%
A	4322	59.6
AE	701	9.7
AB	641	8.8
AEG	267	3.7
AG	243	3.4
ABEG	236	3.3
ABE	200	2.8
ABG	113	1.6
E	38	0.5
ABCEG	35	0.5
Missing	0	

Respiratory failure	N	%
None	353	4.9
Only hypoxic failure	6080	83.9
Only hypercapnic failure	29	0.4
Hypoxic-hypercapnic failure	525	7.2
Intubation for airway maint.	260	3.6
Missing	0	

Cardiovascular failure	N	%
None	5947	82.1
Without shock	688	9.5
Cardiogenic shock	113	1.6
Septic shock	291	4.0
Haemorrhagic/hypovolemic shock	30	0.4
Hypovolemic shock	60	0.8
Anaphylactic shock	0	0.0
Neurogenic shock	2	0.0
Other shock	60	0.8
Mixed shock	56	0.8
Missing	0	

Neurologic failure	N	%
None	6275	97.8
Cerebral coma	51	0.8
Metabolic coma	42	0.7
Postanoxic coma	46	0.7
Toxic coma	2	0.0
Missing or not evaluable	831	

Renal failure (AKIN)	N	%
None	5673	78.3
Mild	939	13.0
Moderate	382	5.3
Severe	253	3.5
Missing	0	

Metabolic failure	N	%
None	6268	86.5
pH $\leq$ 7.3, PaCO <sub>2</sub> $<$ 45 mmHg	260	3.6
Base deficit $\geq$ 5 mmol/L, lactate $>$ 1.5x	719	9.9
Missing	0	

## National report for general ICUs - Year 2021

## Characteristics on admission - COVID adult patients evaluated in the covid-GiViTI model

Clinical conditions on admission	N	%
Respiratory	3293	45.4
Severe ARDS	1549	21.4
Moderate ARDS	1382	19.1
Pulmonary embolism	236	3.3
Pneumothorax/Pneumomediastinum	195	2.7
Mild ARDS	155	2.1
Cardiovascular	388	5.4
Acute severe arrhythmia: tachycardias	80	1.1
Acute ischaemia	53	0.7
Cardiac arrest	50	0.7
Left heart failure with pulm. edema	49	0.7
Acute myocardial infarction	49	0.7
Neurological	122	1.7
Cerebral artery stroke	29	0.4
Spontaneous Intraparenchymal bleeding	20	0.3
Neuropathy/myopathy	20	0.3
Seizures	18	0.2
Metabolic/postanoxic encephalopathy	16	0.2
Gastrointestinal and hepatic	145	2.0
Retroperitoneal bleeding	23	0.3
Gastrointestinal perforation	19	0.3
Gastrointestinal bleeding: upper tract	15	0.2
Bowel ischaemia	13	0.2
Gastrointestinal bleeding: lower tract	13	0.2
Trauma (anatomical districts)	76	1.0
Pelvis/bone/joint & muscle	34	0.5
Head	31	0.4
Chest	19	0.3
Spine	10	0.1
Abdomen	9	0.1
Major vessels injury	2	0.0
Miscellaneous	1	0.0
Other	214	3.0
Metabolic disorder	70	1.0
Nephrourologic disease	52	0.7
Other disease	33	0.5
Coagulation disorder	28	0.4
Haematological disease	16	0.2
Post transplantation	28	0.4
Renal transplantation	16	0.2
Liver transplantation	6	0.1
Infections	7247	100.0
COVID-19	7247	100.0
Pneumonia	4275	59.0
Primary bacteraemia of unknown origin	87	1.2
Catheter-related UTI	69	1.0
NON-catheter-related UTI	47	0.6
L.R.T.I. other than pneumonia	45	0.6
Catheter-related bacteremia (CR-BSI)	42	0.6
NON-surgical secondary peritonitis	26	0.4
Other fungal infections	17	0.2
NON-surgical skin/soft tissue infection	12	0.2
Missing	0	

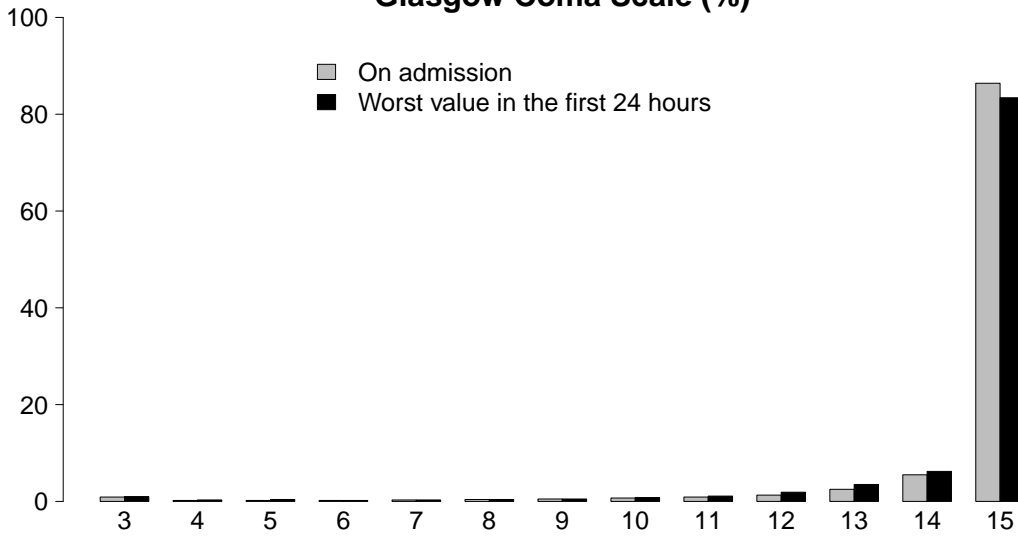
Trauma (anatomical districts)	N	%
Head	31	0.4
Cerebral contusion/laceration	11	0.2
Traumatic Subdural haematoma	11	0.2
Traumatic subarachnoid haemorrhage	9	0.1
Maxillofacial fracture	8	0.1
Skull fracture	6	0.1
Spine	10	0.1
Vertebral fracture, without deficit	8	0.1
Dorsal injury, incomplete deficit	1	0.0
Paraplegia	1	0.0
Chest	19	0.3
Other injuries of the chest	10	0.1
Traum. haemothorax/pneumothorax	6	0.1
Severe lung contusion/laceration	3	0.0
Abdomen	9	0.1
Liver: Moderate-Severe laceration	4	0.1
Spleen: Moderate-Severe laceration	2	0.0
Kidney: Rupture/laceration	2	0.0
Pelvis/bone/joint & muscle	34	0.5
Long bone fracture	33	0.5
Multiple fracture of the pelvis	2	0.0
-	0	0.0
Major vessels injury	2	0.0
Proximal limbs vessels: transection	2	0.0
-	0	0.0
-	0	0.0
Miscellaneous	1	0.0
Inhalation injury	1	0.0
Burns (>30% BSA)	1	0.0
Missing	0	

PaO <sub>2</sub> /FiO <sub>2</sub> (100*mmHg%) (prime 24h)	N	%
>=400 >=53.2 (0)	72	1.0
300-399 39.9-53.1 (1)	132	1.8
200-299 26.6-39.8 (2)	459	6.3
100-199 13.3-26.5 (3)	2982	41.1
<100 <13.3 (4)	3602	49.7
Missing	0	

**National report for general ICUs - Year 2021**

**Severity scores - COVID adult patients evaluated in the covid-GiViTI model**

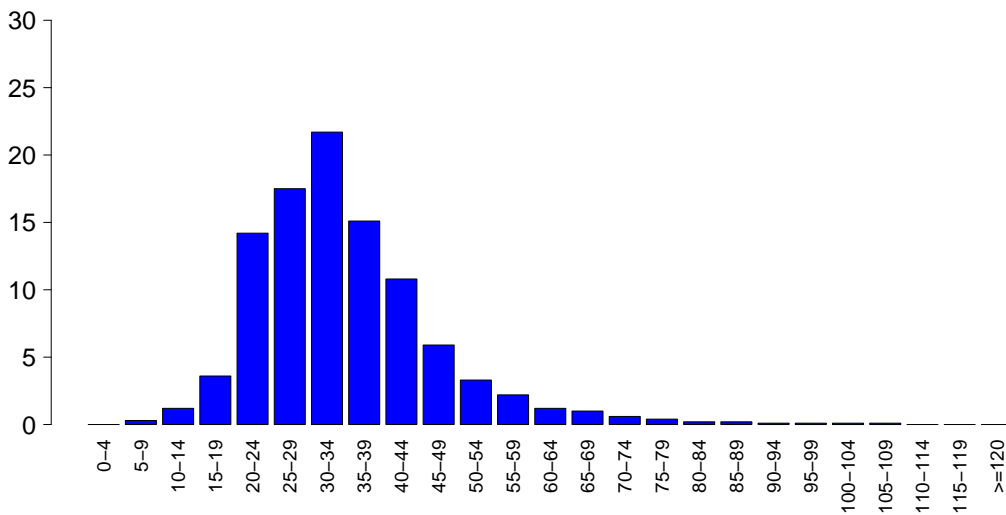
**Glasgow Coma Scale (%)**



<b>GCS (admission)</b>	
Median	15
Q1–Q3	15–15
Not evaluable	831
Missing	0

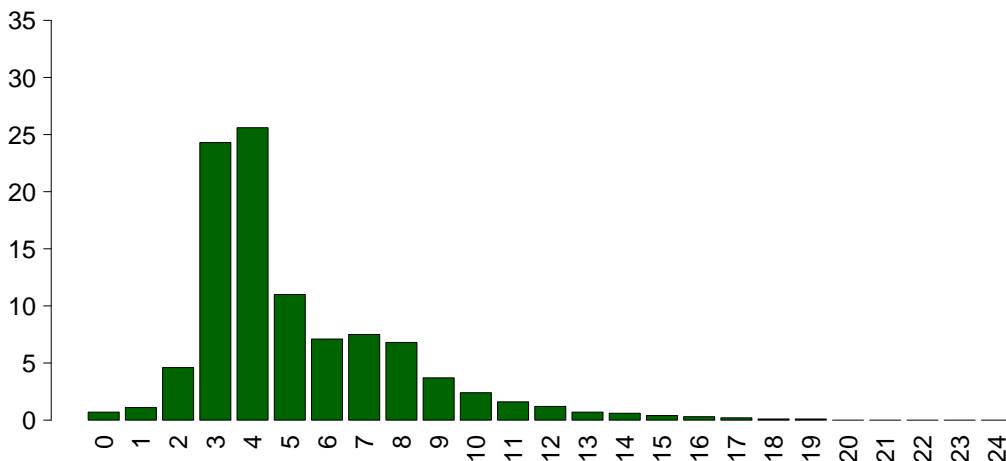
<b>GCS (worst in first 24 hours)</b>	
Median	15
Q1–Q3	15–15
Not evaluable	1596
Missing	0

**SAPS II (%)**



<b>SAPSII</b>	
Mean	34.6
SD	12.3
Median	32
Q1–Q3	27–40
Not evaluable	1596
Missing	0

**SOFA (%)**



<b>SOFA</b>	
Mean	5.2
SD	2.8
Median	4
Q1–Q3	3–7
Not evaluable	1596
Missing	0

## National report for general ICUs - Year 2021

## Characteristics during the stay - COVID adult patients evaluated in the covid-GiViTI model

Complications during the stay	N	%
No	2920	40.3
Yes	4327	59.7
Missing	0	

Failures during the stay	N	%
No	4549	62.8
Yes	2698	37.2

A: Respiratory failure	1664	23.0
B: Cardiovascular failure	1502	20.7
C: Neurological failure	60	0.8
D: Hepatic failure	22	0.3
E: Renal failure (AKIN)	593	8.2
F: Acute skin failure	1	0.0
G: Metabolic failure	57	0.8
H: Coagulation failure	36	0.5
Missing	0	

Failures during the stay (top 10)	N	%
A	917	12.7
B	637	8.8
AB	464	6.4
BE	169	2.3
ABE	141	1.9
E	139	1.9
AE	73	1.0
G	19	0.3
ABC	12	0.2
ABCE	12	0.2
Missing	0	

Respiratory failure occurred	N	%
None	5583	77.0
Intubation for airway maint.	175	2.4
Hypoxic failure	1501	20.7
Hypercapnic failure	222	3.1
Missing	0	

Cardiovascular failure occurred	N	%
None	5745	79.3
Cardiogenic shock	201	2.8
Hypovolemic shock	82	1.1
Haemorrhagic/hypovolemic shock	45	0.6
Septic shock	1049	14.5
Anaphylactic shock	2	0.0
Neurogenic shock	0	0.0
Other shock	209	2.9
Missing	0	

Neurological failure occurred	N	%
None	7187	99.2
Cerebral coma	29	0.4
Metabolic coma	22	0.3
Postanoxic coma	9	0.1
Missing	0	

Renal failure occurred (AKIN)	N	%
None	6654	91.8
Mild	58	0.8
Moderate	87	1.2
Severe	448	6.2
Missing	0	

Complications during the stay	N	%
Respiratory	1166	16.1
Severe ARDS	568	7.8
Pneumothorax/Pneumomediastinum	341	4.7
Pleural effusion	144	2.0
Pulmonary embolism	135	1.9
Atelectasis	115	1.6
Cardiovascular	705	9.7
Acute severe arrhythmia: tachycardias	323	4.5
Cardiac arrest	136	1.9
Deep venous thrombosis	96	1.3
Pulmonary hypertension	90	1.2
Right heart failure	67	0.9
Neurological	392	5.4
Drowsiness/agitation/delirium	279	3.8
CrIMyNe	70	1.0
Seizures	24	0.3
New ischaemic stroke	18	0.2
Non-surgical intracranial bleeding	16	0.2
Gastrointestinal and hepatic	171	2.4
Gastrointestinal bleeding: lower tract	36	0.5
Gastrointestinal bleeding: upper tract	25	0.3
Paralytic Ileus	25	0.3
Retroperitoneal bleeding	19	0.3
Liver Dysfunction Syndrome	17	0.2
Other	218	3.0
Other disease	59	0.8
Metabolic disorder	57	0.8
Nephrourologic disease	45	0.6
Category/Stage II: Partial Thickness Skin Loss	28	0.4
Category/Stage IV: Full Thickness Tissue Loss	18	0.2
Category/Stage III: Full Thickness Skin Loss	14	0.2
Other skin and/or soft tissue pathology	10	0.1
Infections	2476	34.2
Pneumonia	1330	18.4
L.R.T.I. other than pneumonia	475	6.6
Catheter-related UTI	452	6.2
Catheter-related bacteremia (CR-BSI)	400	5.5
Primary bacteraemia of unknown origin	397	5.5
Other fungal infections	84	1.2
COVID-19	81	1.1
NON-catheter-related UTI	63	0.9
Clinical sepsis	36	0.5
Catheter-related local infection	31	0.4
Missing	0	

**National report for general ICUs - Year 2021****Characteristics during the stay - COVID adult patients evaluated in the covid-GiViTI model**

<b>Infections</b>	<b>N</b>	<b>%</b>
None	0	0.0
Only on admission	4771	65.8
On admission and during ICU stay	2476	34.2
Only during ICU stay	0	0.0
Missing	0	

<b>Ventil. Associat. Pneumonia (VAP)</b>	<b>N</b>	<b>%</b>
No	6031	83.2
Yes	1216	16.8
Missing	0	

**Incidence of VAP***(Pts. with VAP/1000 days of VM pre-VAP)*

Estimate	19.3
CI (95%)	18.2–20.4

**Incidence of VAP***(Pts. with VAP/pts. ventilated for 8 days)*

Estimate	15.4%
CI (95%)	14.6–16.3

<b>Catheter Bacteraemia (CR-BSI)</b>	<b>N</b>	<b>%</b>
No	6847	94.5
Yes	400	5.5
Missing	0	

**Incidence of CR-BSI***(Pts. with CR-BSI/1000 days of CVC pre-CR-BSI)*

Estimate	4.3
CI (95%)	3.8–4.7

**Incidence of CR-BSI***(Pts. with CR-BSI/pts. catheterized for 12 days)*

Estimate	5.1%
CI (95%)	4.6–5.6

<b>Catheter-related urinary tract infection (UTI)</b>	<b>N</b>	<b>%</b>
No	6795	93.8
Yes	452	6.2
Missing	0	

**Incidence of catheter-related UTI***(Pts. with catheter-related UTI/1000 days of UC pre-UTI)*

Estimate	4.5
CI (95%)	4.1–4.9

**Incidence of catheter-related UTI***(Pts. with catheter-related UTI/pts. with UC for 12 days)*

Estimate	5.4%
CI (95%)	4.9–5.9



## National report for general ICUs - Year 2021

Procedures and/or treatments (Missing=0) <b>Procedures (antibiotics excluded)</b>	N		%		N		%		N		%		Length (days)		On discharge		Days from admission	
	7230		99.8										Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
	N	%	N	%	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing		
Invasive ventilation	5304	73.2	1876	25.9	2218	30.6	11	5-21	0	0	0-1	0	0	0-1	0			
Non invasive ventilation	4087	56.4	2022	27.9	1041	14.4	3	1-6	0	0	0-2	0	0	0-2	0			
Tracheostomy	1705	23.5	114	1.6	1153	15.9	14	7-23	0	0	9-18	0	13	9-18	0			
iNO (inhaled nitric oxide)	535	7.4	13	0.2	149	2.1	4	2-9	0	0	1-9	0	3	1-9	0			
Central Venous Catheter	6149	84.8	1652	22.8	4369	60.3	12	6-21	1	0	0-0	0	0	0-0	0			
PICC	299	4.1	76	1	236	3.3	6	2-10	0	0	1-28	0	12	1-28	0			
Arterial Catheter	7033	97.0	1978	27.3	3163	43.6	11	6-20	0	0	0-0	0	0	0-0	0			
Vasoactive drugs	3342	46.1	482	6.7	1031	14.2	5	2-11	0	0	0-4	0	1	0-4	0			
Antiarrhythmics	682	9.4	105	1.4	338	4.7	5	2-13	0	0	1-10	0	5	1-10	0			
IABP	10	0.1	6	0.1	4	0.1	2	1-4	0	0	1-3	0	2	1-3	0			
Invasive monitoring of C.O.	255	3.5	11	0.2	93	1.3	7	3-15	0	0	0-10	0	2	0-10	0			
Continuous monitoring of ScVO2	24	0.3	2	0	8	0.1	7	3-17	0	0	1-9	0	2	1-9	0			
Temporary pacing	14	0.2	2	0	7	0.1	2	1-6	0	0	0-19	0	4	0-19	0			
Ventricular assistance	1	0.0	0	0	0	0	3	3-3	0	0	0-0	0	0	0-0	0			
DC-shock	43	0.6											7	0-12	0			
CPR	149	2.1											4	0-10	0			
Massive blood transfusion	23	0.3											0	0-12	0			
ICP monitoring without CSF drainage	6	0.1	3	0	3	0	8	3-11	0	0	0-0	0	0	0-0	0			
ICP monitoring with CSF drainage	3	0.0	3	0	2	0	9	6-11	0	0								
EVD without ICP monitoring	0	0.0																
Haemofiltration	310	4.3	14	0.2	98	1.4	5	2-11	0	0	2-15	0	7	2-15	0			
Haemodialysis	222	3.1	17	0.2	95	1.3	6	2-13	0	0	3-17	0	10	3-17	0			
ECMO	142	2.0	31	0.4	71	1	20	11-36	0	0	1-7	0	3	1-7	0			
Hepatic clearance techniques	2	0.0																
Clearance techniques during sepsis	98	1.4	1	0	21	0.3	2	1-4	0	0	2-12	0	6	2-12	0			
IAP (intra-abdominal pressure)	26	0.4																
Hypothermia	10	0.1	4	0.1	1	0	1	1-2	0	0	0-0	0	0	0-0	0			
Enteral nutrition	5269	72.7	874	12.1	3297	45.5	12	6-22	0	0	0-2	0	1	0-2	0			
Parenteral nutrition	1916	26.4	237	3.3	820	11.3	9	4-15	0	0	0-2	0	0	0-2	0			
SDD (Topical, Topical and systemic)	219	3.0																
Patient restraint	103	1.4																
Peridural catheter	7	0.1	2	0	5	0.1	5	4-14	0	0	1-32	0	3	1-32	0			
Electrical cardioversion	91	1.3											6	1-12	0			
Vacuum therapy	16	0.2																
Urinary catheter	6978	96.3	4506	62.2	5687	78.5	11	6-21	0	0	0-0	0	0	0-0	0			
Pronation	3523	48.6	295	4.1	286	3.9	4	2-7	0	0	0-1	0	0	0-1	0			
Antivirals	436	6.0	205	2.8	232	3.2	5	3-12	0	0	0-9	0	0	0-9	0			

**National report for general ICUs - Year 2021**  
**Process indicators - COVID adult patients evaluated in the covid-GiViTI model**

Procedures and/or treatments (Missing=0)	Use		On admission		On discharge		Length (days)			Days from admission		
	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
<b>Antibiotics</b>	4691	64.7										
Antibiotic prophylaxis	492	6.8	255	3.5	105	1.4	3	2-6	0	0	0-0	0
Empirical antibiotic therapy (infection diagnosis confirmed)	2689	37.1	912	12.6	610	8.4	4	2-7	0	2	0-6	0
Empirical antibiotic therapy (infection diagnosis unconfirmed)	681	9.4	271	3.7	243	3.4	5	3-8	0	0	0-3	0
Targeted antibiotic therapy	2443	33.7	148	2	1077	14.9	8	5-13	0	8	5-12	0
Antifungal in empirical therapy	356	4.9	34	0.5	127	1.8	5	3-10	0	8	4-15	0
Antifungal in targeted therapy	614	8.5	30	0.4	322	4.4	10	5-17	0	10	6-17	0
Pre-emptive antifungal	54	0.7	5	0.1	15	0.2	6	4-12	0	5	1-9	0

Antibiotic therapy			
Pt. infected in ICU only (N=0)	N	%	
No therapy	0	0.0	
Only empirical	0	0.0	
Only targeted	0	0.0	
Targeted after empirical	0	0.0	
Other	0	0.0	
Missing	0		

Antifungal therapy			
Pt. infected in ICU only (N=0)	N	%	
No therapy	0	0.0	
Only empirical	0	0.0	
Only targeted	0	0.0	
Targeted after empirical	0	0.0	
Other	0	0.0	
Missing	0		

## National report for general ICUs - Year 2021

## Process indicators - COVID adult patients evaluated in the covid-GiViTI model

Invasive ventilation (N=5304)	N	%	Length (days)				
			Mean	SD	Median	Q1-Q3	Missing
Due to pulmonary failure	4835	85.1	15.5	15.1	11	6–21	0
For airway maintenance	232	4.1	11.9	15.2	6	2–16	0
In weaning	32	0.6	0.5	0.5	1	0–1	0
Not evaluable	585	10.3	17.8	16.2	14	7–24	380
Reintubation within 48 hours	74	1.3	14.5	12.3	9.5	5–22.75	0

Non invasive ventilation (N=4087)	N	%
Non invasive ventilation only	1724	42.2
Non invasive ventilation failed	1657	40.5
For weaning	539	13.2
Other	167	4.1
Missing	0	

Tracheostomy not present on admission (N=1591)	N	%
Surgical	158	9.9
Percutwist	148	9.3
Ciaglia	363	22.8
Monodil. Ciaglia	769	48.3
Fantoni	6	0.4
Griggs	107	6.7
Other Kind	20	1.3
Unknown	20	1.3
Missing	0	

## Tracheostomy - Days after the beginning of inv. vent. Not present on admission (N=1573)

Mean	13.1
SD	7.5
Median	12
Q1–Q3	8–17
Missing	2

Invasive monitoring of C.O. (N=255)	N	%
Swan Ganz	79	31.0
PICCO	153	60.0
LIDCO	0	0.0
Vigileo-PRAM	11	4.3
Other	12	4.7
Missing	0	

SDD (N=219)	N	%
Topical	218	99.5
Topical and systemic	1	0.5
Missing	0	

Surgical interventions	N	%
No	7098	97.9
Yes	149	2.1
Missing	0	

Number of surgical interventions	N	%
0	7098	97.9
1	134	1.8
2	10	0.1
3	3	0.0
>3	2	0.0
Missing	0	

## Surgical interventions

## Days from admission

Mean	19.7
SD	18.3
Median	15
Q1–Q3	8–24
Missing	0

Surgical interventions (top 10)	N	%
ENT surgery	53	0.7
Gastrointestinal surgery	48	0.7
Thoracic surgery	21	0.3
Nephro/Urological surgery	9	0.1
Peripheral vascular surgery	9	0.1
Obstetric surgery	6	0.1
Plastic surgery	5	0.1
Orthopaedic surgery	5	0.1
Maxillo-Facial surgery	4	0.1
Other surgery	4	0.1
Missing	0	

Non surgical interventions	N	%
No	7149	98.6
Yes	98	1.4
Missing	0	

## Non surgical interventions

## Days from admission

Mean	19.5
SD	20.2
Median	15
Q1–Q3	7.8–24
Missing	3

Non surgical interventions	N	%
Interventional endoscopy	56	0.8
Interventional radiology	39	0.5
Interventional cardiology	15	0.2
Interventional neuroradiology	1	0.0
Missing	0	

**National report for general ICUs - Year 2021****Outcome indicators - COVID adult patients evaluated in the covid-GiViTI model**

<b>ICU outcome</b>	<b>N</b>	<b>%</b>
Dead	2596	35.8
Transferred to same hospital	3833	52.9
Transferred to other hospital	761	10.5
Discharged home	33	0.5
Disch. terminally ill	23	0.3
Missing	1	

<b>Transferred to (N=4594)</b>	<b>N</b>	<b>%</b>
Ward	2829	61.6
Other ICU	570	12.4
High dependency care unit	1042	22.7
Rehabilitation	144	3.1
Day hospital or Long-term care	9	0.2
Missing	0	

<b>Reason of transfer to Other ICU (N=587)</b>	<b>N</b>	<b>%</b>
Specialist expertise	81	13.8
Step-up care	65	11.1
Logistical/organizational reasons	435	74.1
Step-down care	6	1.0
Missing	0	

<b>Transferred to Same hospital (N=3833)</b>	<b>N</b>	<b>%</b>
Ward	2717	70.9
Other ICU	142	3.7
High dependency care unit	964	25.2
Rehabilitation	8	0.2
Day hospital or Long-term care	2	0.1
Missing	0	

<b>Transferred to Other hospital (N=761)</b>	<b>N</b>	<b>%</b>
Ward	112	14.7
Other ICU	428	56.2
High dependency care unit	78	10.2
Rehabilitation	136	17.9
Day hospital or Long-term care	7	0.9
Missing	0	

<b>ICU mortality</b>	<b>N</b>	<b>%</b>
Alive	4627	63.9
Dead	2619	36.1
Missing	1	

<b>Timing of ICU mortality (N=2619)</b>	<b>N</b>	<b>%</b>
Daytime (08:00AM - 07:59PM)	2022	77.2
Nighttime (08:00PM - 07:59AM)	597	22.8
Weekdays (Monday - Friday)	1952	74.5
Weekend (Saturday - Sunday)	667	25.5
Missing	0	

<b>C.A.M. activation (N=2619)</b>	<b>N</b>	<b>%</b>
Yes, with organ donation	1	0.0
Yes, without organ donation	27	1.0
No, with organ donation	0	0.0
No, without organ donation	2568	98.9
Missing	23	

<b>Tissue removal (N=2619)</b>	<b>N</b>	<b>%</b>
Yes, with C.A.M. activation	1	0.0
Yes, without C.A.M. activation	6	0.2
No	2612	99.7
Missing	0	

<b>Hospital mortality</b>	<b>N</b>	<b>%</b>
Dead	2871	39.6
Transf. to other acute-care hospital	816	11.3
Transf. to other type of hosp. stay	1242	17.1
Nursing home	76	1.0
Voluntary discharge	8	0.1
Discharged home	2234	30.8
Missing	0	

<b>To other type of H stay (N=1242)</b>	<b>N</b>	<b>%</b>
Rehabilitation in the same institute	176	14.2
Rehabilitation in other institute	890	71.7
DH/long-term care, same inst.	74	6.0
DH/long-term care, other inst.	102	8.2
Missing	0	

<b>Disch. terminally ill (N=4376)</b>	<b>N</b>	<b>%</b>
Yes	44	1.0
No	4332	99.0
Missing	0	

<b>Hospital mortality</b>	<b>N</b>	<b>%</b>
Alive	4332	59.8
Dead	2915	40.2
Missing	0	

<b>Timing of hosp. mortality (N=2915)</b>	<b>N</b>	<b>%</b>
In ICU	2619	89.9
Within 24 hours after ICU	17	0.6
24-47 hours after ICU	9	0.3
48-71 hours after ICU	15	0.5
72-95 hours after ICU	13	0.4
After 95 hours after ICU	241	8.3
Missing	1	

<b>Timing of hosp. mortality (days from ICU disch.) Discharged alive from ICU (N=296)</b>	
Mean	14.6
SD	16.5
Median	11
Q1-Q3	5-18
Missing	0

## National report for general ICUs - Year 2021

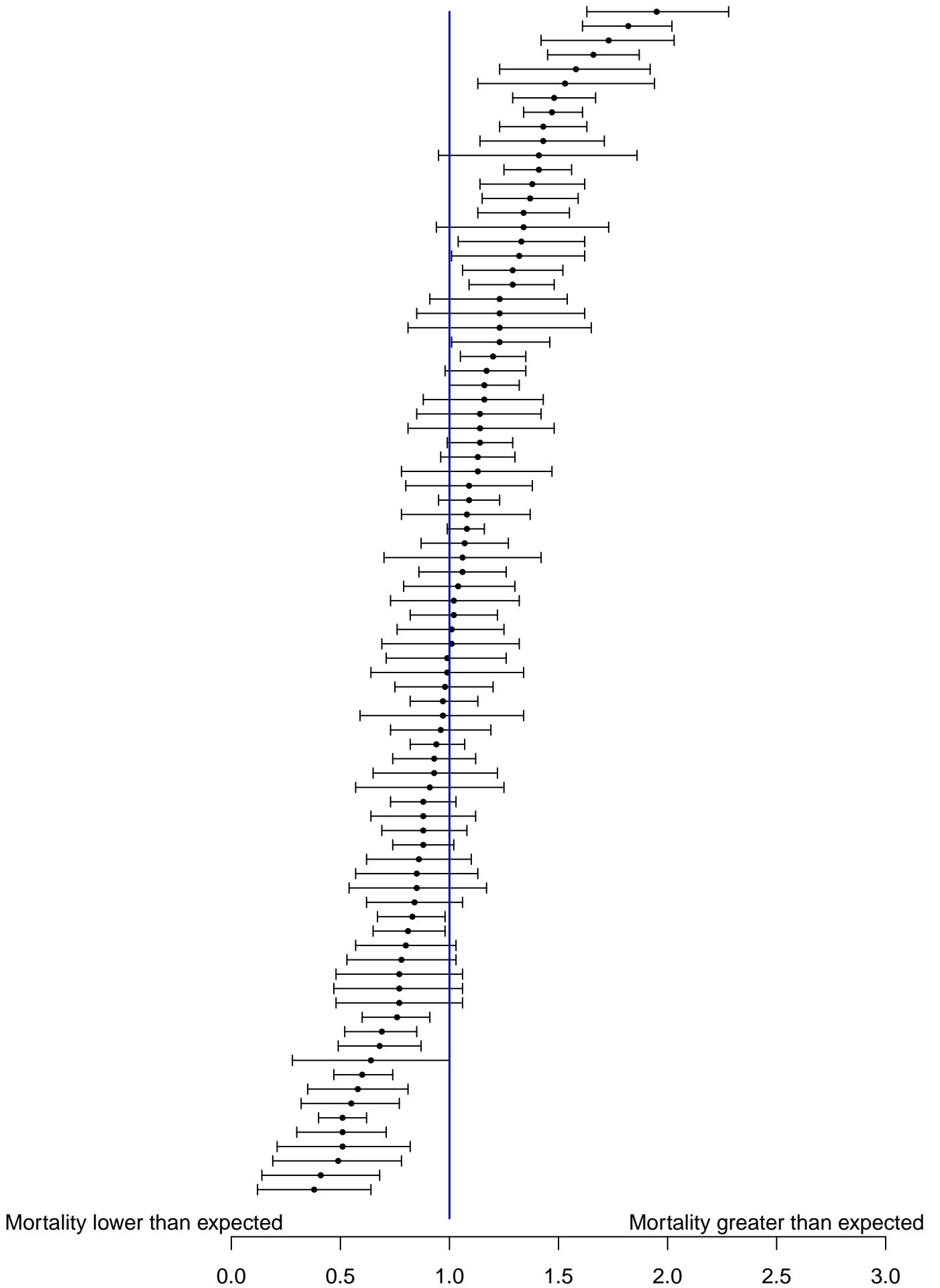
## Outcome indicators - COVID adult patients evaluated in the covid-GiViTI model

<b>Last hospital mortality</b>			<b>ICU stay (days)</b>		
	N	%			
Alive	4209	58.1	Mean	15.5	
Dead	3038	41.9	SD	15.3	
Missing	0		Median	11	
			Q1–Q3	5–21	
			Missing	0	
<b>ICU stay (days)</b>			<b>ICU stay (days)</b>		
<b>Alive (N=4627)</b>			<b>Alive (N=4627)</b>		
			Mean	15.5	
			SD	16.0	
			Median	10	
			Q1–Q3	5–21	
			Missing	0	
<b>ICU stay (days)</b>			<b>ICU stay (days)</b>		
<b>Dead (N=2619)</b>			<b>Dead (N=2619)</b>		
			Mean	15.6	
			SD	14.2	
			Median	12	
			Q1–Q3	7–21	
			Missing	0	
<b>Stay after ICU (days)</b>			<b>Stay after ICU (days)</b>		
<b>Alive (N=4627)</b>			<b>Alive (N=4627)</b>		
			Mean	13.2	
			SD	16.0	
			Median	10	
			Q1–Q3	4–18	
			Missing	1	
<b>Hospital stay (days)</b>			<b>Hospital stay (days)</b>		
<b>Alive (N=4332)</b>			<b>Alive (N=4332)</b>		
			Mean	28.1	
			SD	22.5	
			Median	22	
			Q1–Q3	14–36	
			Missing	1	
<b>Hospital stay (days)</b>			<b>Hospital stay (days)</b>		
<b>Dead (N=2915)</b>			<b>Dead (N=2915)</b>		
			Mean	22.2	
			SD	17.0	
			Median	19	
			Q1–Q3	11–28	
			Missing	0	

National report for general ICUs - Year 2021

Analysis of hospital mortality COVID adult patients evaluated in the covid-GiViTI model

Predictive model: GiViTI 2020 (COVID)



## National report for general ICUs - Year 2021

## Characteristics on admission - Pediatric patients evaluated with PIM 3

Patients (N): 272

Sex	N	%
Male	165	60.7
Female	107	39.3
Missing	0	

Age	N	%
Newborn (0-4 weeks)	0	0.0
1-6 months	1	0.4
6-12 months	1	0.4
12-24 months	18	6.6
2-4 years	27	9.9
5-8 years	34	12.5
9-16 years	191	70.2
Missing	0	
Mean	11.1	
SD	5.1	
Median	14	
Q1–Q3	7–15	
Min–Max	0–16	

Weight (kg) Newborns (N=0)	N	%
Mean		
SD		
Median		
Q1–Q3		
Missing	0	

Gestational age Newborns (N=0)	N	%
At term	0	0.0
Not at term	0	0.0
Missing	0	

Comorbidities	N	%
No	188	69.1
Yes	84	30.9
Missing	0	

Comorbidities (top 10)	N	%
Epilepsy	14	5.1
Genetic diseases	12	4.4
Encephalopathy	11	4.0
Hemiplegia or paraplegia or quadriplegia	10	3.7
Congenital heart defect	7	2.6
Malignant haematological disease	7	2.6
Severe psychosis	6	2.2
Skeletal malformations/disorders	6	2.2
Asthma	5	1.8
Brain and skull malformations	5	1.8
Missing	0	

Previous ICU admissions	N	%
None	207	76.1
≤2	23	8.5
>2	12	4.4
Unknown	30	11.0
Missing	0	

Previous ICU admissions (N=35)	N	%
Paediatric	10	28.6
Neonatal	9	25.7
General - adult	20	57.1
Other/Unknown	1	2.9
Missing	0	

Stay before ICU (days)	Mean	SD
Mean	2.0	
SD	6.5	
Median	0	
Q1–Q3	0–1	
Missing	0	

Source of admission	N	%
Same hospital	230	84.6
Other hospital	28	10.3
Long-term chronic care hospital	0	0.0
Directly from the community	14	5.1
Missing	0	

Ward of admission Hospital (N=258)	N	%
Medical ward	40	15.5
Surgical ward	52	20.2
Emergency room	159	61.6
Other ICU	7	2.7
High dependency care unit	0	0.0
Neonatology	0	0.0
Missing	0	

Reason for transfer from Other ICU (N=7)	N	%
Specialist expertise	2	28.6
Step-up care	2	28.6
Logistical/organizational reasons	3	42.9
Step-down care	0	0.0
Missing	0	

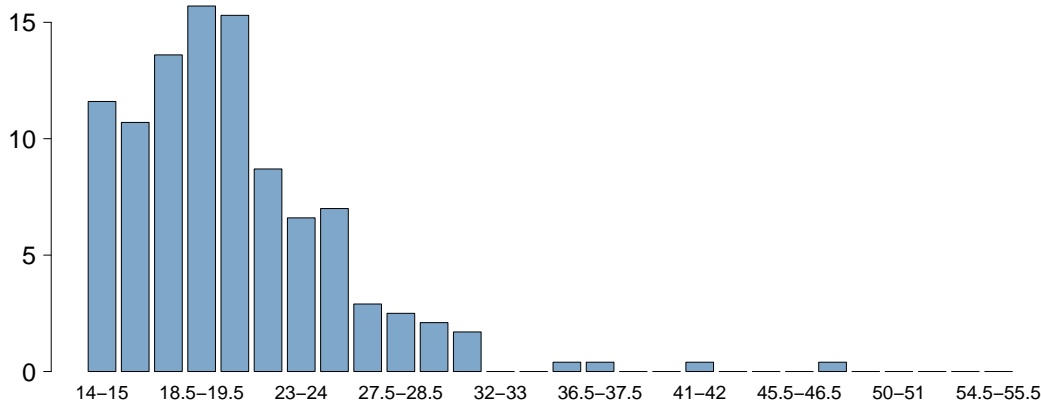
Scheduled admission	N	%
No	234	86.0
Yes	38	14.0
Missing	0	

National report for general ICUs - Year 2021

Characteristics on admission - Pediatric patients evaluated with PIM 3

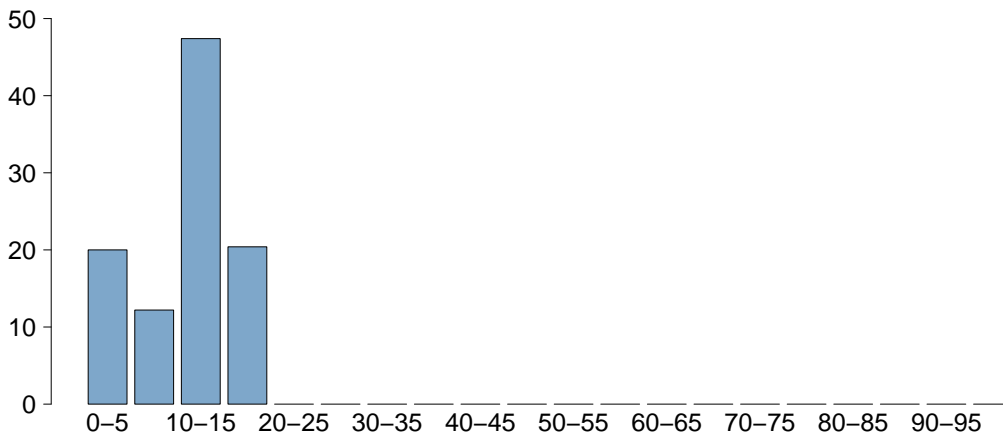
Charlson score (%)

BMI (%)



BMI	
Mean	20.0
SD	5.1
Median	19.5
Q1-Q3	16.5-22.5
Missing	9

Age (%)



Age	
Mean	11.1
SD	5.1
Median	14
Q1-Q3	7-15
Missing	0



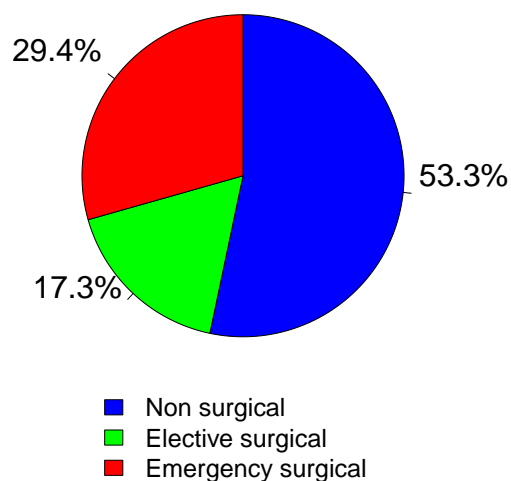
## National report for general ICUs - Year 2021

## Characteristics on admission - Pediatric patients evaluated with PIM 3

Trauma	N	%
No	166	61.0
Yes	106	39.0
Multiple trauma	52	19.1
Missing	0	

Surgical status	N	%
Non surgical	145	53.3
Elective surgical	47	17.3
Emergency surgical	80	29.4
Missing	0	

Surgical status



## Source of admission

Surgical pt. (N=127)	N	%
Operating theatre of surgical ward	49	38.9
Operating theatre of emergency room	32	25.4
Surgical ward	2	1.6
Other	43	34.1
Missing	1	

## Surgical interventions (top 10)

Elective surgical (N=47)	N	%
ENT surgery	10	21.3
Orthopaedic surgery	10	21.3
Gastrointestinal surgery	6	12.8
Thoracic surgery	6	12.8
Neurosurgery	5	10.6
Maxillo-Facial surgery	4	8.5
Nephro/Urological surgery	2	4.3
Other surgery	2	4.3
Ophthalmic surgery	1	2.1
Organ/s transplantation	1	2.1
Missing	0	

Timing	N	%
Elective surgical (N=47)		
From -7 to -3 days	0	0.0
From -2 to -1 days	2	4.3
On ICU admission day	44	93.6
The day after ICU admission	3	6.4
Missing	0	

## Surgical interventions (top 10)

Emergency surgical (N=80)	N	%
Neurosurgery	22	27.5
Orthopaedic surgery	20	25.0
Gastrointestinal surgery	16	20.0
Splenectomy	8	10.0
Thoracic surgery	7	8.8
Hepatic surgery	4	5.0
Maxillo-Facial surgery	4	5.0
Nephro/Urological surgery	3	3.8
ENT surgery	3	3.8
Plastic surgery	2	2.5
Missing	0	

## Timing

Emergency surgical (N=80)	N	%
From -7 to -3 days	0	0.0
From -2 to -1 days	11	13.8
On ICU admission day	72	90.0
The day after ICU admission	10	12.5
Missing	0	

## Non surgical interventions

	N	%
None	261	96.0
Elective	5	1.8
Emergency	6	2.2
Missing	0	

## Non surgical interventions

Elective (N=5)	N	%
Therapeutic endoscopy (bronchoscopy excluded)	2	40.0
Diagnostic bronchoscopy on admission	2	40.0
Interventional neuroradiology	1	20.0
Interventional radiology	0	0.0
Interventional cardiology	0	0.0
Interventional endoscopy	0	0.0
Missing	0	

## Non surgical interventions

Emergency (N=6)	N	%
Interventional radiology	5	83.3
Interventional neuroradiology	1	16.7
Interventional cardiology	0	0.0
Interventional endoscopy	0	0.0
Therapeutic endoscopy (bronchoscopy excluded)	0	0.0
Therapeutic bronchoscopy	0	0.0
Missing	0	

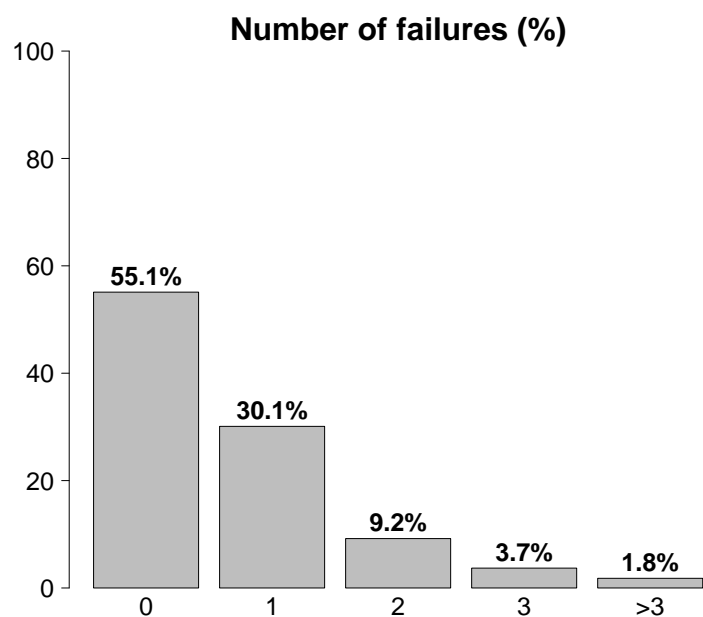
## National report for general ICUs - Year 2021

## Characteristics on admission - Pediatric patients evaluated with PIM 3

Reason for admission	N	%
Monitoring/Weaning	169	63.8
Post surgical weaning	39	15.2
Surgical monitoring	45	17.5
Post interventional weaning	1	0.4
Interventional monitoring	2	0.8
Non surgical monitoring	74	28.8
Missing	8	
Admission for procedures/treatments	0	0.0
Intensive Treatment	94	35.5
Ventilatory support	82	30.1
Cardiovascular support	20	7.4
Metabolic support	16	5.9
Missing	0	
Palliative Sedation	0	0.0
Diagnosis of death/Organ donation	2	0.8
Missing	7	

Failures on admission (top 10)	N	%
A	43	15.8
G	11	4.0
B	9	3.3
AB	7	2.6
E	7	2.6
D	6	2.2
C	5	1.8
ABC	3	1.1
ABE	3	1.1
AC	3	1.1
Missing	0	

Respiratory failure	N	%
None	190	69.9
Only hypoxic failure	19	7.0
Only hypercapnic failure	1	0.4
Hypoxic-hypercapnic failure	2	0.7
Intubation for airway maint.	60	22.1
Missing	0	



Cardiovascular failure	N	%
None	252	92.6
Without shock	9	3.3
Cardiogenic shock	1	0.4
Septic shock	0	0.0
Haemorrhagic/hypovolemic shock	4	1.5
Hypovolemic shock	1	0.4
Anaphylactic shock	0	0.0
Neurogenic shock	4	1.5
Other shock	0	0.0
Mixed shock	1	0.4
Missing	0	

Neurologic failure	N	%
None	208	88.1
Cerebral coma	22	9.3
Metabolic coma	1	0.4
Postanoxic coma	4	1.7
Toxic coma	1	0.4
Missing or not evaluable	36	

Failures on admission	N	%
No	150	55.1
Yes	122	44.9
A: Respiratory failure	73	26.8
B: Cardiovascular failure	31	11.4
C: Neurological failure	21	7.7
D: Hepatic failure	19	7.0
E: Renal failure	17	6.2
F: Acute skin failure	0	0.0
G: Metabolic failure	22	8.1
H: Coagulation failure	2	0.7
Missing	0	

Renal failure (RIFLE)	N	%
None	255	93.8
Risk	10	3.7
Injury	1	0.4
Failure	3	1.1
Loss	2	0.7
End-stage renal disease	1	0.4
Missing	0	

## National report for general ICUs - Year 2021

## Characteristics on admission - Pediatric patients evaluated with PIM 3

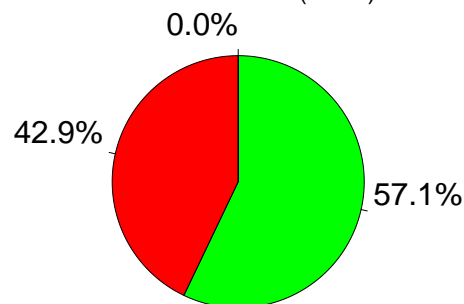
Clinical conditions on admission	N	%
<b>Respiratory</b>	<b>35</b>	<b>12.9</b>
Pneumothorax/Pneumomediastinum	8	2.9
Upper respiratory tract disease	7	2.6
Acute asthma/bronchospasm	6	2.2
Atelectasis	4	1.5
Aspiration pneumonia	4	1.5
<b>Cardiovascular</b>	<b>4</b>	<b>1.5</b>
Acute severe arrhythmia: tachycardias	2	0.7
Cardiac arrest	2	0.7
Left heart failure with pulm. edema	1	0.4
-	0	0.0
-	0	0.0
<b>Neurological</b>	<b>41</b>	<b>15.1</b>
Seizures	23	8.5
Brain tumour	6	2.2
AVM (ArterioVenous Malformation)	4	1.5
Spontaneous Intraparenchymal bleeding	4	1.5
Spontaneous Hydrocephalus	2	0.7
<b>Gastrointestinal and hepatic</b>	<b>15</b>	<b>5.5</b>
Oesophago-gastro-intestinal malf.	4	1.5
Intestinal occlusion	3	1.1
Acute inflammatory bowel disease	3	1.1
Paralytic Ileus	2	0.7
Liver Dysfunction Syndrome	2	0.7
<b>Trauma (anatomical districts)</b>	<b>106</b>	<b>39.0</b>
Head	50	18.4
Abdomen	40	14.7
Chest	36	13.2
Pelvis/bone/joint & muscle	36	13.2
Spine	15	5.5
Major vessels injury	4	1.5
Miscellaneous	4	1.5
<b>Other</b>	<b>76</b>	<b>27.9</b>
Metabolic disorder	22	8.1
Acute intoxication	17	6.2
Other disease	14	5.1
ENT/maxillofacial disease	11	4.0
Orthopaedic disease	4	1.5
<b>Post transplantation</b>	<b>4</b>	<b>1.5</b>
Liver transplantation	2	0.7
Bone marrow transplantation	1	0.4
<b>Infections</b>	<b>28</b>	<b>10.3</b>
Pneumonia	9	3.3
L.R.T.I. other than pneumonia	5	1.8
Clinical sepsis	4	1.5
NON-surgical CNS infection	2	0.7
Gastroenteritis	2	0.7
Primary peritonitis	2	0.7
NON-surgical secondary peritonitis	2	0.7
Primary bacteraemia of unknown origin	1	0.4
Catheter-related bacteremia (CR-BSI)	1	0.4
Pleurisy/Pleural empyema	1	0.4
Missing	0	

Trauma (anatomical districts)	N	%
<b>Head</b>	<b>50</b>	<b>18.4</b>
Traumatic subarachnoid haemorrhage	22	8.1
Cerebral contusion/laceration	18	6.6
Maxillofacial fracture	18	6.6
Skull fracture	15	5.5
Traumatic Subdural haematoma	9	3.3
<b>Spine</b>	<b>15</b>	<b>5.5</b>
Vertebral fracture, without deficit	10	3.7
Cervical injury, incomplete deficit	1	0.4
Tetraplegia	1	0.4
<b>Chest</b>	<b>36</b>	<b>13.2</b>
Traum. haemothorax/pneumothorax	16	5.9
Other injuries of the chest	16	5.9
Severe lung contusion/laceration	10	3.7
<b>Abdomen</b>	<b>40</b>	<b>14.7</b>
Spleen: Moderate-Severe laceration	15	5.5
Liver: Moderate-Severe laceration	11	4.0
Spleen: Massive rupture	8	2.9
<b>Pelvis/bone/joint &amp; muscle</b>	<b>36</b>	<b>13.2</b>
Long bone fracture	27	9.9
Multiple fracture of the pelvis	12	4.4
Very severe or open fracture of the pelvis	1	0.4
<b>Major vessels injury</b>	<b>4</b>	<b>1.5</b>
Neck vessels: dissection/transection	3	1.1
Proximal limbs vessels: transection	1	0.4
-	0	0.0
<b>Miscellaneous</b>	<b>4</b>	<b>1.5</b>
Inhalation injury	4	1.5
Burns (>30% BSA)	1	0.4
Missing	0	

Infection severity on admission	N	%
None	244	89.7
INFECTION WITHOUT SEPSIS	16	5.9
SEPSIS	12	4.4
SEPTIC SHOCK	0	0.0
Missing	0	

## Infection severity on admission

Patients infected (N=28)

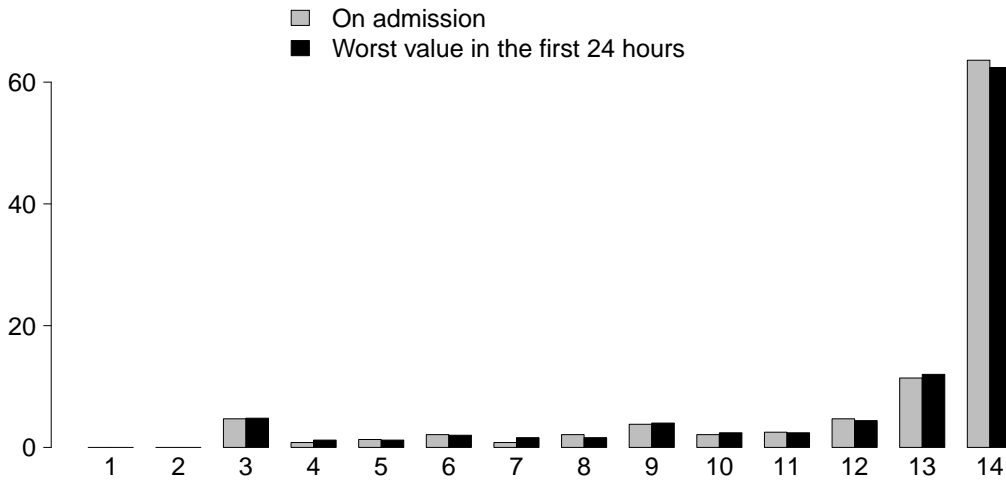


■ INFECTION WITHOUT SEPSIS  
■ SEPSIS  
■ SEPTIC SHOCK

National report for general ICUs - Year 2021

Severity scores - Pediatric patients evaluated with PIM 3

Glasgow Coma Scale (%)



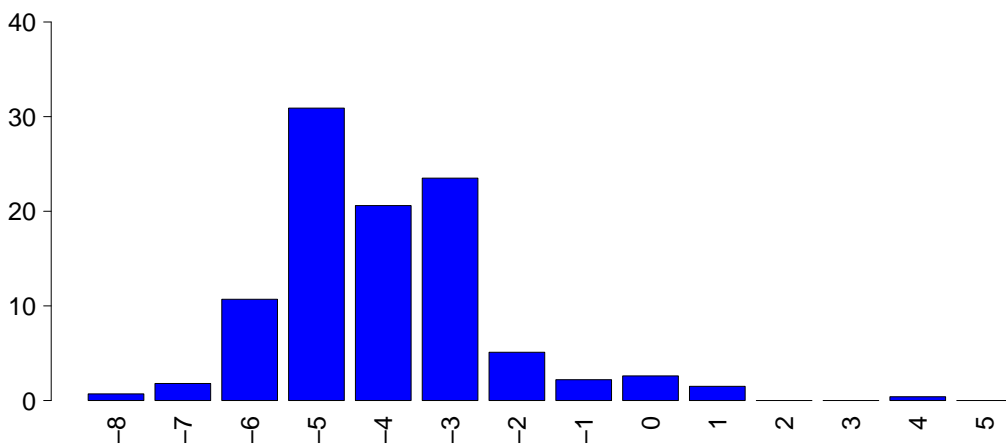
GCS (admission)

Median	14
Q1-Q3	12.8-14
Not evaluable	36
Missing	0

GCS (worst in first 24 hours)

Median	14
Q1-Q3	12-14
Not evaluable	22
Missing	0

PIM 2 (%)



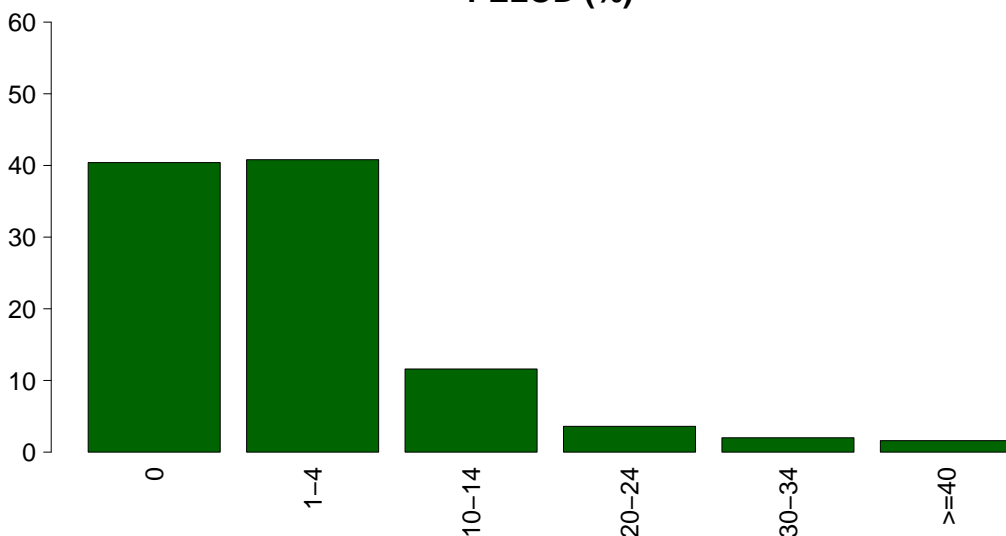
PIM 2

Median	-4.4
Q1-Q3	-4.9--3.1
Not evaluable	0
Missing	0

PIM 3

Median	-4.4
Q1-Q3	-5.4--3.4
Not evaluable	0
Missing	0

PELOD (%)



PELOD

Mean	3.9
SD	8.3
Median	1
Q1-Q3	0-2
Not evaluable	22
Missing	0

## National report for general ICUs - Year 2021

## Characteristics during the stay - Pediatric patients evaluated with PIM 3

Complications during the stay	N	%
No	242	89.0
Yes	30	11.0
Missing	0	

Failures during the stay	N	%
No	256	94.1
Yes	16	5.9
A: Respiratory failure	6	2.2
B: Cardiovascular failure	6	2.2
C: Neurological failure	1	0.4
D: Hepatic failure	1	0.4
E: Renal failure (AKIN)	2	0.7
F: Acute skin failure	0	0.0
G: Metabolic failure	4	1.5
H: Coagulation failure	0	0.0
Missing	0	

Failures during the stay (top 10)	N	%
A	5	1.8
B	3	1.1
G	2	0.7
AB	1	0.4
BEG	1	0.4
BG	1	0.4
C	1	0.4
D	1	0.4
E	1	0.4
-	0	0.0
Missing	0	

Respiratory failure occurred	N	%
None	266	97.8
Intubation for airway maint.	3	1.1
Hypoxic failure	2	0.7
Hypercapnic failure	2	0.7
Missing	0	

Cardiovascular failure occurred	N	%
None	266	97.8
Cardiogenic shock	0	0.0
Hypovolemic shock	1	0.4
Haemorrhagic/hypovolemic shock	0	0.0
Septic shock	3	1.1
Anaphylactic shock	0	0.0
Neurogenic shock	1	0.4
Other shock	1	0.4
Missing	0	

Neurological failure occurred	N	%
None	271	99.6
Cerebral coma	1	0.4
Metabolic coma	0	0.0
Postanoxic coma	0	0.0
Missing	0	

Renal failure occurred (AKIN)	N	%
None	270	99.3
Mild	0	0.0
Moderate	0	0.0
Severe	2	0.7
Missing	0	

Complications during the stay	N	%
Respiratory	4	1.5
Pneumothorax/Pneumomediastinum	2	0.7
Mild ARDS	1	0.4
Moderate ARDS	1	0.4
Pleural effusion	1	0.4
Pulmonary embolism	1	0.4
Cardiovascular	4	1.5
Cardiac arrest	3	1.1
Left heart failure w/o pulm. edema	1	0.4
Acute severe arrhythmia: tachycardias	1	0.4
-	0	0.0
-	0	0.0
Neurological	12	4.4
Drowsiness/agitation/delirium	5	1.8
Intracranial hypertension	4	1.5
Non-surgical intracranial bleeding	2	0.7
Brain edema	1	0.4
CrIMyNe	1	0.4
Gastrointestinal and hepatic	1	0.4
Bowel ischaemia	1	0.4
Intestinal occlusion	1	0.4
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
Other	7	2.6
Metabolic disorder	4	1.5
Delayed liver rupture	1	0.4
Graft vascular thrombosis	1	0.4
Other disease	1	0.4
Other skin and/or soft tissue pathology	1	0.4
-	0	0.0
-	0	0.0
Infections	15	5.5
Pneumonia	8	2.9
Primary bacteraemia of unknown origin	3	1.1
Catheter-related bacteremia (CR-BSI)	3	1.1
Upper respiratory tract infection	2	0.7
Catheter-related UTI	2	0.7
Burn infection	1	0.4
L.R.T.I. other than pneumonia	1	0.4
Other intra-abdominal infection	1	0.4
Pleurisy/Pleural empyema	1	0.4
Primary peritonitis	1	0.4
Missing	0	

## National report for general ICUs - Year 2021

## Characteristics during the stay - Pediatric patients evaluated with PIM 3

Infections	N	%
None	230	84.6
Only on admission	27	9.9
On admission and during ICU stay	1	0.4
Only during ICU stay	14	5.1
Missing	0	

Maximum severity of infection	N	%
None	230	84.6
INFECTION WITHOUT SEPSIS	23	8.5
SEPSIS	16	5.9
SEPTIC SHOCK	3	1.1
Missing	0	

## Severity evolution

Severity evolution		N (R %)	During the stay				TOT
			None	INFECTION WITHOUT SEPSIS	SEPSIS	SEPTIC SHOCK	
Admission	None	230 (94.3%)	8 (3.3%)	3 (1.2%)	3 (1.2%)	244	
	INFECTION WITHOUT SEPSIS	-	15 (93.8%)	1 (6.2%)	0 (0.0%)	16	
	SEPSIS	-	-	12 (100.0%)	0 (0.0%)	12	
	SEPTIC SHOCK	-	-	-	0 (0.0%)	0	
	TOT	230	23	16	3	272	

Ventil. Associat. Pneumonia (VAP)	N	%
No	266	97.8
Yes	6	2.2
Missing	0	

## Incidence of VAP

(Pts. with VAP/1000 days of VM pre-VAP)

Estimate	12.4
CI (95%)	4.6–27.0

## Incidence of VAP

(Pts. with VAP/pts. ventilated for 8 days)

Estimate	9.9%
CI (95%)	3.6–21.6

Catheter Bacteraemia (CR-BSI)	N	%
No	269	98.9
Yes	3	1.1
Missing	0	

## Incidence of CR-BSI

(Pts. with CR-BSI/1000 days of CVC pre-CR-BSI)

Estimate	3.6
CI (95%)	0.7–10.4

## Incidence of CR-BSI

(Pts. with CR-BSI/pts. catheterized for 12 days)

Estimate	4.3%
CI (95%)	0.9–12.5

Catheter-related urinary tract infection (UTI)	N	%
No	270	99.3
Yes	2	0.7
Missing	0	

## Incidence of catheter-related UTI

(Pts. with catheter-related UTI/1000 days of UC pre-UTI)

Estimate	1.8
CI (95%)	0.2–6.5

## Incidence of catheter-related UTI

(Pts. with catheter-related UTI/pts. with UC for 12 days)

Estimate	2.1%
CI (95%)	0.3–7.8

**National report for general ICUs - Year 2021**  
**Process indicators - Pediatric patients evaluated with PIM 3**

Procedures and/or treatments (Missing=0) <b>Procedures (antibiotics excluded)</b>	Use		On admission		On discharge		Length (days)		Days from admission		
	N	%	N	%	N	%	Median	Q1-Q3	Median	Q1-Q3	Missing
	235	86.4									
Invasive ventilation	128	47.1	107	39.3	13	4.8	1	1-4	0	0-0	0
Non invasive ventilation	16	5.9	4	1.5	4	1.5	2	1-4	0	0-0	0
Tracheostomy	20	7.4	8	2.9	16	5.9	14	7-20	0	5-14	0
iNO (inhaled nitric oxide)	0	0.0									
Central Venous Catheter	111	40.8	62	22.8	84	30.9	3	1-9	0	0-0	0
PICC	6	2.2	1	0.4	6	2.2	5	4-8	0	12-28	0
Arterial Catheter	169	62.1	82	30.1	33	12.1	2	1-5	0	0-0	0
Vasoactive drugs	31	11.4	14	5.1	6	2.2	3	1-8	0	0-1	0
Antiarrhythmics	0	0.0									
IABP	0	0.0									
Invasive monitoring of C.O.	2	0.7	2	0.7	1	0.4	38	19-57	0	0-0	0
Continuous monitoring of ScVO2	1	0.4	0	0	0	0	1	1-1	0	0-0	0
Temporary pacing	0	0.0									
Ventricular assistance	0	0.0									
DC-shock	1	0.4								4-4	0
CPR	1	0.4								4-4	0
Massive transfusion	1	0.4								0-0	0
ICP monitoring without CSF drainage	11	4.0	6	2.2	2	0.7	7	4-10	0	0-0	0
ICP monitoring with CSF drainage	3	1.1	2	0.7	2	0.7	8	6-11	0	16-16	0
EVD without ICP monitoring	2	0.7	0	0	0	0	8	7-8	0	0-0	0
Haemofiltration	3	1.1	1	0.4	0	0	5	2-25	0	2-3	0
Haemodialysis	0	0.0									
ECMO	0	0.0									
Hepatic clearance techniques	0	0.0									
Clearance techniques during sepsis	0	0.0									
IAP (intra-abdominal pressure)	2	0.7									
Hypothermia	0	0.0									
Enteral nutrition	58	21.3	17	6.2	41	15.1	7	3-16	0	0-2	0
Parenteral nutrition	17	6.2	1	0.4	11	4	4	2-7	0	1-5	0
SDD (Topical, Topical and systemic)	0	0.0									
Patient restraint	2	0.7									
Diagnostic fiberochoscopy	2	0.7									
Surfactant treatment	0	0.0									
Vacuum therapy	1	0.4								3-4	0
Oxygen therapy	33	12.1	18	6.6	21	7.7	1	1-2	0	0-6	0
Blood transfusion	0	0.0									
Peritoneal dialysis	0	0.0									
Plasmapheresis	0	0.0									
Thoracic drainage	4	1.5	2	0.7	1	0.4	4	2-4	0	0-0	0
Peridural catheter	3	1.1	2	0.7	3	1.1	1	0-1	0	5-5	0
Urinary catheter	199	73.2	143	52.6	154	56.6	2	1-5	0	0-0	0
Near-infrared spectroscopy	0	0.0									
Phototherapy	0	0.0									
Electrical cardioversion	0	0.0									
Pronation	0	0.0									
Antivirals	3	1.1	1	0.4	2	0.7	1	0-2	0	0-1	0

**National report for general ICUs - Year 2021**  
**Process indicators - Pediatric patients evaluated with PIM 3**

Procedures and/or treatments (Missing=0)	Use		On admission		On discharge		Length (days)			Days from admission		
	N	%	N	%	N	%	Median	Q1-Q3	Missing	Median	Q1-Q3	Missing
<b>Antibiotics</b>	127	46.7										
Antibiotic prophylaxis	76	27.9	49	18	44	16.2	1	1-2	0	0	0-0	0
Empirical antibiotic therapy (infection diagnosis confirmed)	19	7.0	11	4	14	5.1	1	1-4	0	1	0-3	0
Empirical antibiotic therapy (infection diagnosis unconfirmed)	30	11.0	12	4.4	18	6.6	2	1-6	0	0	0-1	0
Targeted antibiotic therapy	14	5.1	2	0.7	3	1.1	8	4-21	0	5	0-8	0
Antifungal in empirical therapy	4	1.5	4	1.5	4	1.5	2	1-9	0			
Antifungal in targeted therapy	3	1.1	0	0	1	0.4	39	26-46	0	12	7-17	0
Pre-emptive antifungal	1	0.4	0	0	1	0.4	11	11-11	0	0	0-0	0

**Antibiotic therapy**

Pt. infected in ICU only (N=14)	N	%
No therapy	0	0.0
Only empirical	5	35.7
Only targeted	4	28.6
Targeted after empirical	3	21.4
Other	2	14.3
Missing	0	

**Antifungal therapy**

Pt. infected in ICU only (N=14)	N	%
No therapy	11	78.6
Only empirical	0	0.0
Only targeted	3	21.4
Targeted after empirical	0	0.0
Other	0	0.0
Missing	0	



## National report for general ICUs - Year 2021

## Process indicators - Pediatric patients evaluated with PIM 3

Invasive ventilation (N=128)	N	%	Length (days)				
			Mean	SD	Median	Q1-Q3	Missing
Due to pulmonary failure	13	8.9	12.2	20.3	7	1–10	0
For airway maintenance	60	41.1	6.9	11.2	2	1–8.2	0
In weaning	47	32.2	0.6	0.5	1	0–1	0
Not evaluable	26	17.8	1.6	2.2	1	1–1	18
Reintubation within 48 hours	1	0.7	0.0		0	0–0	0

Non invasive ventilation (N=16)	N	%
Non invasive ventilation only	12	75.0
Non invasive ventilation failed	2	12.5
For weaning	2	12.5
Other	0	0.0
Missing	0	

Tracheostomy not present on admission (N=12)	N	%
Surgical	1	8.3
Percutwist	1	8.3
Ciaglia	4	33.3
Monodil. Ciaglia	5	41.7
Fantoni	0	0.0
Griggs	1	8.3
Other Kind	0	0.0
Unknown	0	0.0
Missing	0	

### Tracheostomy - Days after the beginning of inv. vent. Not present on admission (N=12)

Mean	8.2
SD	5.5
Median	7.5
Q1–Q3	4.8–11
Missing	0

Invasive monitoring of C.O. (N=2)	N	%
Swan Ganz	1	50.0
PICCO	1	50.0
LIDCO	0	0.0
Vigileo-PRAM	0	0.0
Other	0	0.0
Missing	0	

SDD (N=0)	N	%
Topical	0	0.0
Topical and systemic	0	0.0
Missing	0	

Surgical interventions	N	%
No	258	94.9
Yes	14	5.1
Missing	0	

Number of surgical interventions	N	%
0	258	94.9
1	10	3.7
2	2	0.7
3	0	0.0
>3	2	0.7
Missing	0	

### Surgical interventions Days from admission

Mean	27.2
SD	24.8
Median	18
Q1–Q3	8.2–33
Missing	0

Surgical interventions (top 10)	N	%
Plastic surgery	8	2.9
Neurosurgery	5	1.8
Orthopaedic surgery	4	1.5
Hepatic surgery	3	1.1
Nephro/Urological surgery	3	1.1
Ophthalmic surgery	2	0.7
Maxillo-Facial surgery	1	0.4
ENT surgery	1	0.4
Gastrointestinal surgery	1	0.4
Thoracic surgery	1	0.4
Missing	0	

Non surgical interventions	N	%
No	272	100.0
Yes	0	0.0
Missing	0	

### Non surgical interventions Days from admission

Mean	
SD	
Median	
Q1–Q3	
Missing	0

Non surgical interventions	N	%
Interventional radiology	0	0.0
Interventional cardiology	0	0.0
Interventional neuroradiology	0	0.0
Interventional endoscopy	0	0.0
Therapeutic endoscopy (bronchoscopy excluded)	0	0.0
Therapeutic bronchoscopy	0	0.0
Missing	0	

**National report for general ICUs - Year 2021****Outcome indicators - Pediatric patients evaluated with PIM 3**

ICU outcome	N	%
Dead	12	4.4
Transferred to same hospital	237	87.1
Transferred to other hospital	14	5.1
Discharged home	8	2.9
Disch. terminally ill	1	0.4
Missing	0	

Transferred to (N=251)	N	%
Ward	236	94.0
Other ICU	0	0.0
High dependency care unit	6	2.4
Rehabilitation	8	3.2
Day hospital or Long-term care	1	0.4
Missing	0	

Reason of transfer to Other ICU (N=0)	N	%
Specialist expertise	0	0.0
Step-up care	0	0.0
Logistical/organizational reasons	0	0.0
Step-down care	0	0.0
Missing	0	

Transferred to Same hospital (N=237)	N	%
Ward	226	95.4
Other ICU	0	0.0
High dependency care unit	6	2.5
Rehabilitation	4	1.7
Day hospital or Long-term care	1	0.4
Missing	0	

Transferred to Other hospital (N=14)	N	%
Ward	10	71.4
Other ICU	0	0.0
High dependency care unit	0	0.0
Rehabilitation	4	28.6
Day hospital or Long-term care	0	0.0
Missing	0	

ICU mortality	N	%
Alive	259	95.2
Dead	13	4.8
Missing	0	

Timing of ICU mortality (N=13)	N	%
Daytime (08:00AM - 07:59PM)	10	76.9
Nighttime (08:00PM - 07:59AM)	3	23.1
Weekdays (Monday - Friday)	10	76.9
Weekend (Saturday - Sunday)	3	23.1
Missing	0	

C.A.M. activation (N=13)	N	%
Yes, with organ donation	7	58.3
Yes, without organ donation	0	0.0
No, with organ donation	0	0.0
No, without organ donation	5	41.7
Missing	1	

Tissue removal (N=13)	N	%
Yes, with C.A.M. activation	4	30.8
Yes, without C.A.M. activation	0	0.0
No	9	69.2
Missing	0	

Hospital mortality	N	%
Dead	13	4.8
Transf. to other acute-care hospital	21	7.7
Transf. to other type of hosp. stay	21	7.7
Nursing home	5	1.8
Voluntary discharge	1	0.4
Discharged home	211	77.6
Missing	0	

To other type of H stay (N=21)	N	%
Rehabilitation in the same institute	6	28.6
Rehabilitation in other institute	13	61.9
DH/long-term care, same inst.	1	4.8
DH/long-term care, other inst.	1	4.8
Missing	0	

Disch. terminally ill (N=259)	N	%
Yes	3	1.2
No	256	98.8
Missing	0	

Hospital mortality	N	%
Alive	256	94.1
Dead	16	5.9
Missing	0	

Timing of hosp. mortality (N=16)	N	%
In ICU	13	81.2
Within 24 hours after ICU	2	12.5
24-47 hours after ICU	0	0.0
48-71 hours after ICU	0	0.0
72-95 hours after ICU	0	0.0
After 95 hours after ICU	1	6.2
Missing	0	

Timing of hosp. mortality (days from ICU disch.) Discharged alive from ICU (N=3)		
Mean		4.7
SD		8.1
Median		0
Q1-Q3		0-7
Missing		0

## National report for general ICUs - Year 2021

## Outcome indicators - Pediatric patients evaluated with PIM 3

Last hospital mortality	N	%
Alive	256	94.1
Dead	16	5.9
Missing	0	

Expected outcome (N=259)	N	%
Recovery/resolution of acute episode	252	97.3
Palliative care grade 1	3	1.2
Palliative care grade 2	2	0.8
Palliative care grade 3	0	0.0
Palliative care grade 4	2	0.8
Missing	0	

Outcome treatments (N=8)	N	%
NON invasive ventilation	0	0.0
Invasive ventilation	1	12.5
Oxygen therapy	3	37.5
Tracheostomy	4	50.0
Diuretics grugs	0	0.0
Inotropic agents drugs	0	0.0
Antiepileptics drugs	3	37.5
Dialytic therapy	0	0.0
Limb replacement	0	0.0
Nasogastric tube	1	12.5
Ostomies	3	37.5
Home based parenteral nutrition	1	12.5
Motor physiotherapy	5	62.5
Respiratory physiotherapy	2	25.0
Posture	3	37.5
Psychological counselling	2	25.0
Missing	0	

ICU stay (days)		
	Mean	4.9
	SD	11.1
	Median	1
	Q1–Q3	1–4
	Missing	0

ICU stay (days) Alive (N=259)		
	Mean	4.6
	SD	10.4
	Median	1
	Q1–Q3	1–3.5
	Missing	0

ICU stay (days) Dead (N=13)		
	Mean	11.2
	SD	20.3
	Median	2
	Q1–Q3	1–10
	Missing	0

Stay after ICU (days) Alive (N=259)		
	Mean	10.0
	SD	17.3
	Median	7
	Q1–Q3	2–11
	Missing	0

Hospital stay (days)		
	Mean	16.0
	SD	22.1
	Median	10
	Q1–Q3	5–17
	Missing	0

Hospital stay (days) Alive (N=256)		
	Mean	16.2
	SD	22.2
	Median	10
	Q1–Q3	5–17
	Missing	0

Hospital stay (days) Dead (N=16)		
	Mean	13.4
	SD	20.4
	Median	3.5
	Q1–Q3	1–15.2
	Missing	0



## **Appendix**



# National report for general ICUs - Year 2021

## Prognostic models GiVITI 2019 - NON COVID adult patients

**Model:** Logistic regression.

**Dependent variable:** Hospital mortality°.

**Sample used for model development:** Adults patients from general Italian ICUs, with infection from COVID-19 at admission.

**Sample size (TRAINING set):** 5092 patients.

Independent variables	Coefficients (95% CI)	Odds Ratio (95% CI)	p
Intercept	-3.71 (-4.29;-3.13)	/	/
<b>Miscellanea</b>			
Min((Age - 52), 0) in decades	0.37 (0.09;0.65)	1.45 (1.09;1.92)	<0.001
Max((Age - 52), 0) in decades	0.72 (0.63;0.80)	2.05 (1.88;2.23)	<0.001
Ventilatory support (Non-invasive vs Not)	1.16 (0.64;1.68)	3.19 (1.89;5.37)	<0.001
Ventilatory support (Invasive vs Not)	1.53 (1.00;2.05)	4.61 (2.73;7.79)	<0.001
Sex (Female vs Male)	-0.33 (-0.48;-0.17)	0.72 (0.62;0.84)	<0.001
Admitted in hospital the same day of ICU admission (Yes vs No)	0.43 (-0.22;0.64)	1.54 (1.25;1.89)	<0.001
exp(- Stay before ICU (days) / 9.4)	-0.91 (-1.22;-0.59)	0.40 (0.30;0.55)	<0.001
Transfer from other ICU: Logistical/organizational reasons (Yes vs No)	-0.69 (-1.04;-0.35)	0.50 (0.35;0.70)	<0.001
<b>Physiopathological components</b>			
PaO <sub>2</sub> /FiO <sub>2</sub> (100*mmHg/%) (<100 vs >=200)	1.26 (1.01;1.51)	3.51 (2.73;4.52)	<0.001
PaO <sub>2</sub> /FiO <sub>2</sub> (100*mmHg/%) (100-199 vs >=200)	0.65 (0.41;0.90)	1.92 (1.50;2.46)	<0.001
Platelets (10 <sup>3</sup> /mm3) (100-150 vs >=150)	0.27 (0.06;0.49)	1.32 (1.07;1.63)	<0.001
Platelets (10 <sup>3</sup> /mm3) (50-99 vs >=150)	0.53 (0.16;0.91)	1.71 (1.17;2.49)	<0.001
Platelets (10 <sup>3</sup> /mm3) (<50 vs >=150)	1.18 (0.46;1.90)	3.24 (1.58;6.66)	<0.001
Systolic Blood Pressure (mmHg) (<70 vs >=100)	0.48 (0.20;0.75)	1.61 (1.22;2.13)	0.001
Systolic Blood Pressure (mmHg) (70-99 vs >=100)	0.17 (0.02;0.33)	1.19 (1.02;1.39)	0.001
Bilirubin (mg/100ml) (1.2-1.9 vs <1.2)	0.27 (0.06;0.47)	1.30 (1.06;1.60)	0.001
Bilirubin (mg/100ml) (2-5.9 vs <1.2)	0.42 (0.09;0.75)	1.52 (1.10;2.11)	0.001
Bilirubin (mg/100ml) (>=6 vs <1.2)	1.18 (-0.01;2.37)	3.24 (0.99;10.65)	<0.001
WBC (10 <sup>9</sup> /L) (>=20 vs <20)	0.31 (0.03;0.59)	/	×
Creatinine (mg/dl) (2-3.4 vs <2)	0.55 (0.13;0.98)	/	×
Creatinine (mg/dl) (>=3.5 vs <2)	1.74 (0.41;3.06)	/	×
<b>Comorbidities</b>			
Myocardial infarction (Yes vs No)	0.37 (0.14;0.59)	1.45 (1.16;1.81)	0.001
Chronic respiratory comorbidities (Moderate COPD vs No)	0.25 (0.01;0.50)	1.29 (1.01;1.64)	0.002
Chronic respiratory comorbidities (Severe COPD o Restrictive lung disease vs No)	0.61 (0.21;1.01)	1.85 (1.24;2.75)	0.002
Immunitary comorbidities (Autoimmune disease o Immunosuppression o Malignant haematological disease vs Not)	0.86 (0.57;1.15)	/	×
<b>Organ failures</b>			
GCS and Coma (3,4,5,6,7,8 and None vs 14,15)	1.24 (0.27;2.20)	3.44 (1.31;9.04)	<0.001
GCS and Coma (3,4,5,6,7,8 and Metabolic coma or Toxic coma or Postanoxic coma vs 14,15)	0.89 (0.19;1.60)	2.44 (1.20;4.96)	<0.001
GCS and Coma (3,4,5,6,7,8 and Cerebral coma vs 14,15)	0.43 (-0.16;1.02)	1.54 (0.85;2.76)	<0.001
GCS and Coma (9,10,11,12,13 vs 14,15)	0.43 (0.20;0.66)	1.54 (1.22;1.93)	<0.001
GCS and Coma (Not evaluable in the first 24 hours in neurological patient* vs 14,15)	1.03 (-0.05;2.12)	2.81 (0.95;8.29)	<0.001
GCS and Coma (Not evaluable in the first 24 hours in NON-neurological patient* vs 14,15)	0.42 (0.26;0.58)	1.53 (1.30;1.79)	<0.001
Cardiogenic shock (Yes vs No)	1.02 (0.39;1.66)	2.78 (1.48;5.24)	<0.001
Numero di insufficienze d'organo	0.17 (0.08;0.27)	1.19 (1.08;1.31)	<0.001
Renal failure (AKIN): Moderate-Severe vs Mild-None	0.92 (0.48;1.36)	/	×
<b>Interactions among independent variables</b>			
Immunitary comorbidities × WBC (10 <sup>9</sup> /L) (>20)	-1.46 (-2.33;-0.59)	/	0.001
Creatinine (mg/dl) (2-3.4 vs <2) × Renal failure (AKIN) (Moderate-Severe)	-0.86 (-1.53;-0.18)	/	0.002
Creatinine (mg/dl) (>=3.5 vs <2) × Renal failure (AKIN) (Moderate-Severe)	-1.90 (-3.34;-0.46)	/	0.002

### Dependent variable explained

Likelihood Ratio Test: 1573.6  
Degree of freedom: 37  
p-value: <0.0001

### Goodness-of-fit

Area under the ROC curve: 0.806  
GiVITI Calibration Test: 2.33  
p-value: 0.127  
Polynomial Degree: 2

°For patients transferred to other ICU or to rehabilitation/high dependency care unit in other hospital, it is considered the outcome at the last hospital discharge.

\* A neurological patient is a one with an altered consciousness, probably due to a direct brain injury. It is defined by the presence of at least one of these clinical conditions on admission: Cerebral artery stroke, Vertebral basilar ischemic stroke, Intracranial hypertension, Spontaneous Hydrocephalus, Non traumatic cerebral oedema, Metabolic/postanoxic encephalopathy, Seizures, Brain tumour, Cerebral Aneurysm, AVM (ArterioVenous Malformation), Chronic Subdural haematoma, Spontaneous Subarachnoid haemorrhage, Spontaneous Intraparenchymal bleeding, CNS degenerative disease, Brain and skull malformations, Cerebral contusion/laceration, Traumatic diffuse injury without oedema, Traumatic diffuse injury with oedema, Extradural/epidural haematoma, Traumatic Subdural haematoma, Traumatic intraparenchymal bleeding, Traumatic subarachnoid haemorrhage, Skull fracture, NON-surgical CNS infection, Post-surgical CNS infection, Ventriculostomy-related CNS infection.

× See interaction significance.





**National report for general ICUs - Year 2021****Validity of the models2021 - Calibration belts**

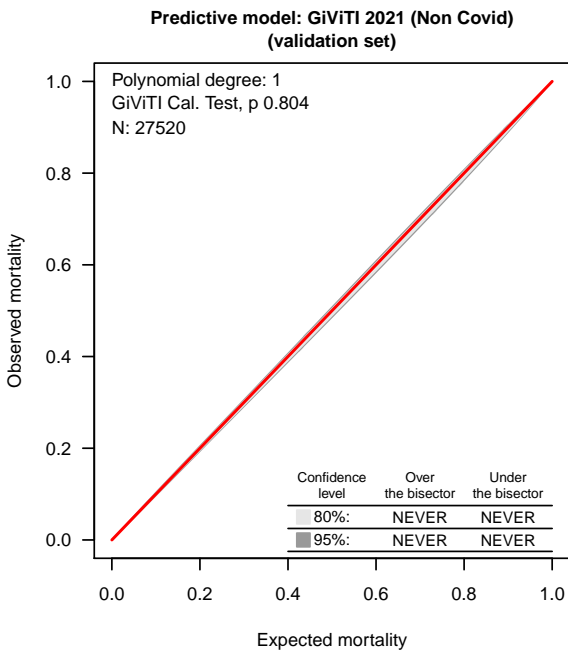
The calibration belt is designed to compare actually observed mortality with expected mortality according to a given prediction model. Expected mortality is plotted on the x axis while observed mortality is plotted on the y-axis. Two overlapping belts are presented in each graph: the first, in light grey, with a confidence level of 80%, and the second, in dark grey, with a confidence level of 95%. The belt lying above the bisector indicates that observed mortality is higher than expected mortality; vice versa, the belt lying below the bisector indicates that observed mortality is lower than expected mortality. The belt is plotted in the range of expected mortality values actually present in the sample under study. The higher the polynomial, the more complex the relationship between expected and observed mortality. A significant test ( $p < 0.05$ ) indicates poor calibration.

These pages show the calibration belts built on two different sets of data:

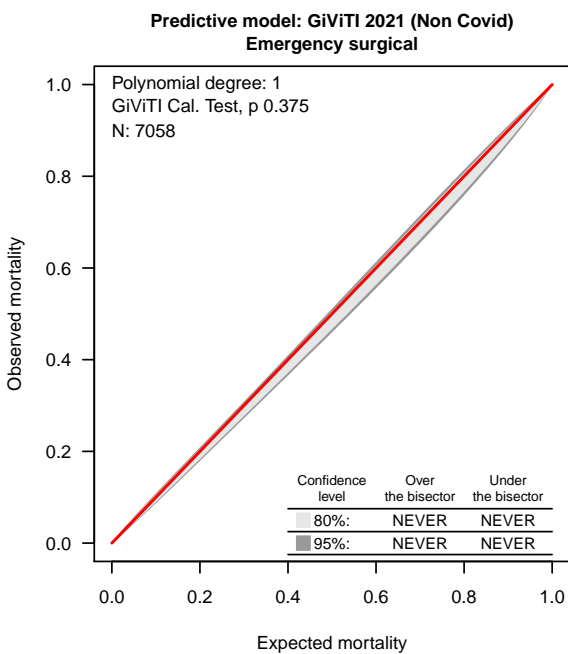
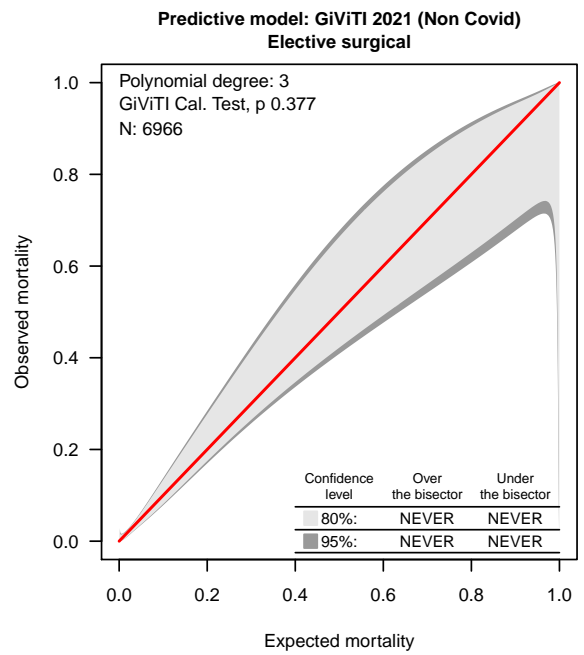
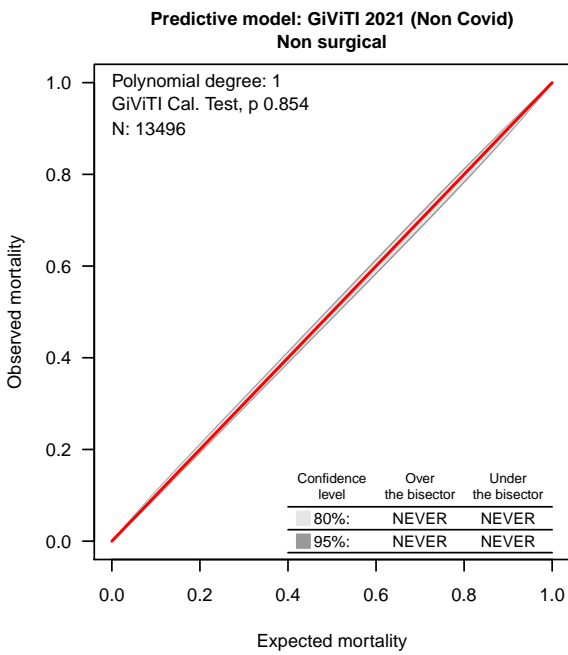
- **Non Covid patients of 2021** - PIM 2, PIM 3, PELOD, SAPSII scores and GiViTI 2021 prognostic model are proposed. The latter is reported for both the overall population and the subgroups presented in the report.
- **Covid patients 2021** - SAPSII scores and GiViTI Covid 2020 prognostic model are proposed. Patients with valid data for the Covid 2020 model were splitted in two subgroups in order to build the model on the first one (*training set*- 85% patients) and to validate it on the second one (*validation set* - 15% patients). The aim of this belt is to investigate 2020 to 2021 difference in terms of performance of the GiViTI general ICUs. Moreover, the calibration belt built on 2021 data using the GiViTI 2019 model is reported.

For further informations please look at [PLoS ONE 6(2): e16110].

**National report for general ICUs - Year 2021**  
**Validity of the models Non Covid - Calibration belts**



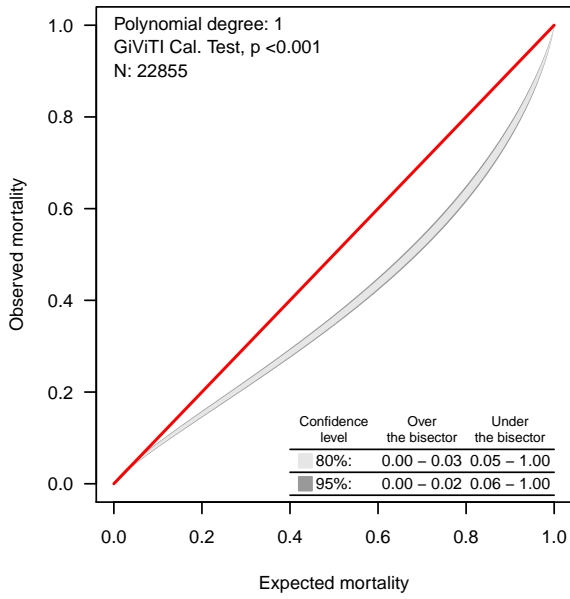
**UNIFORMITY OF FIT - Medici, chirurgici d'elezione, chirurgici d'urgenza**



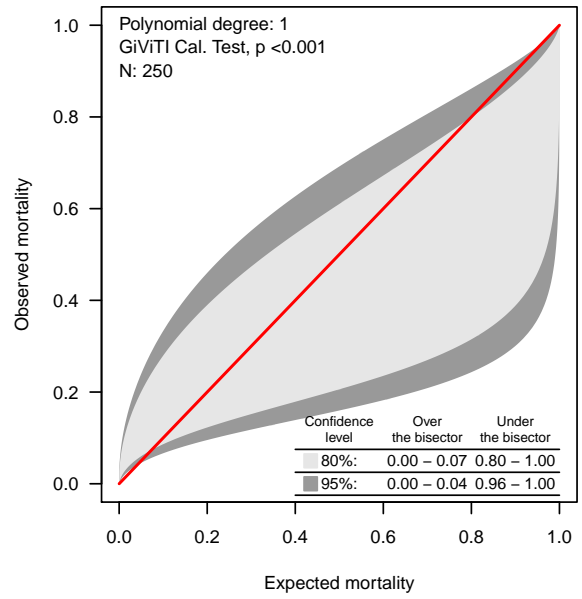
National report for general ICUs - Year 2021  
 Validity of the models Non Covid - Calibration belts

EXTERNAL SCORE

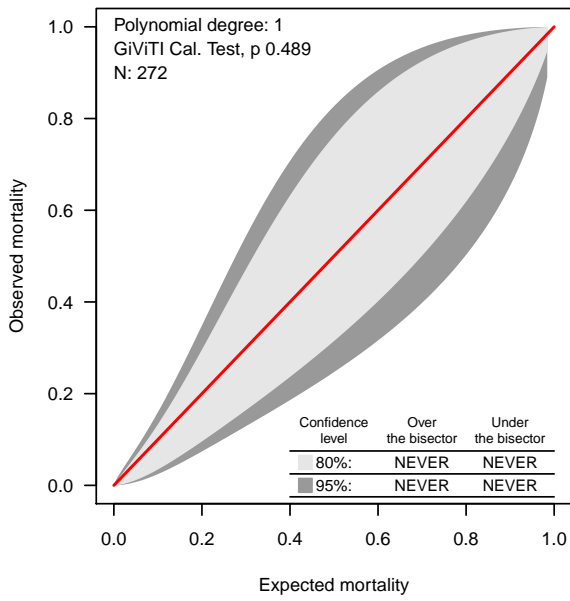
Predictive model: SAPSII



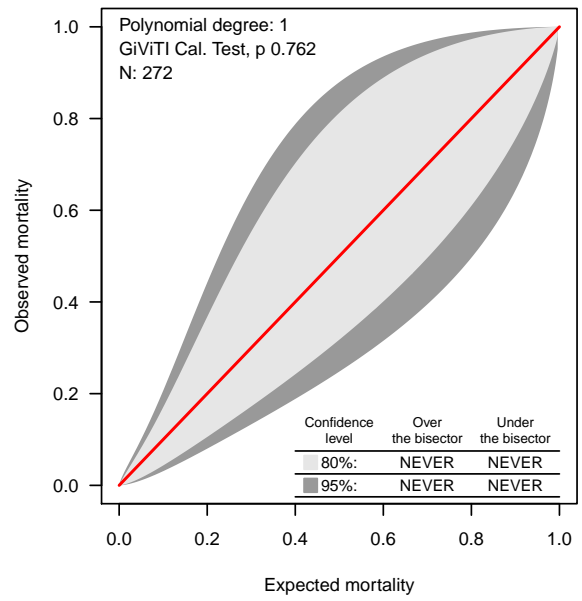
Predictive model: PELOD



Predictive model: PIM2



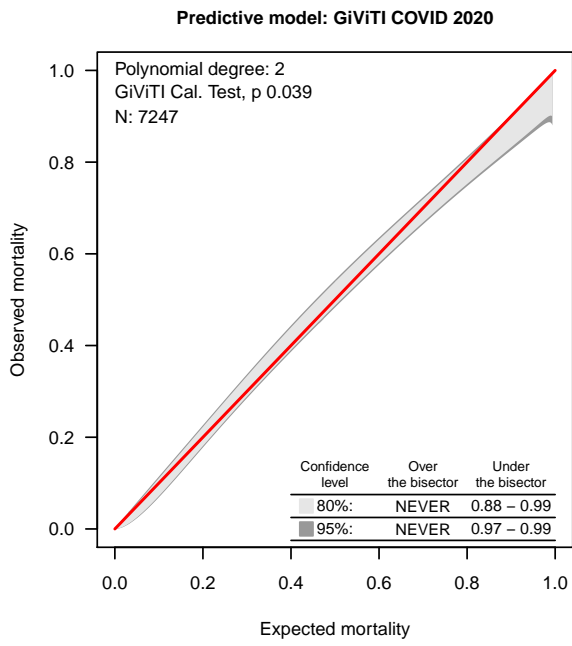
Predictive model: PIM3





# National report for general ICUs - Year 2021

## Validity of the models COVID - Calibration belts





## Coauthors

ABASCIÀ ARIANNA (TORINO - TO), ADORNI ADELE (COMO - CO), AGOSTINI FULVIO (TORINO - TO), ALAMPI DANIELA (ROMA - RM), ALBORGHETTI ARMANDO (PONTE SAN PIETRO - BG), ALESSANDRO GATTA (RICCIONE - RN), ANTONINI BENVENUTO (MANERBIO - BS), AVALLI LEONELLO (MONZA - MB), AZAN GAETANO (NAPOLI), BABINI MARIA (LUGO - RA), BAGALINI GIAMPIERO (FERMO - FM), BALATA ANDREA (SASSARI - SS), BALDASSARRE DANIELA (CAVA DE' TIRRENI - SA), BARBAGALLO MARIA (PARMA - PR), BARBERI ELISA (MASSA - MS), BASSI GIOVANNI (MASSA - MS), BASSO MARCO (TORINO - TO), BELGIORNO NICOLANGELA (OME - BS), BELLONZI ALESSANDRA (FERRARA - FE), BENDINELLI MATTEO (PISTOIA - PT), BENSI MARCO (TORTONA - AL), BERRUTO FRANCESCO (ORBASSANO - TO), BERTAZZOLI ALBERTO (BRESCIA - BS), BERTOLINI ROBERTA (PISA - PI), BERTONE STEFANIA (CHIVASSO - TO), BOCCALATTE-ROSA DANIELA LUCIANA (LUCCA - LU), BOCCHI ANNA (ABANO TERME - PD), BONATO VALERIA (ALESSANDRIA - AL), BONAZZI MAURIZIO (MILANO - MI), BONCRISTIANO DANIELA MONIQUE (TORINO - TO), BONICALZI VINCENZO (TORINO - TO), BONIOTTI CORINNA (BRESCIA - BS), BONIZZOLI MANUELA (FIRENZE - FI), BONUCCI PAOLA (SIENA - SI), BOTTAZZI ANDREA (PAVIA - PV), BRANCALEONI PAOLO (URBINO - PU), BRESADOLA FRANCESCA (BENTIVOGLIO - BO), BRIZIO ELISABETTA (SAVIGLIANO - CN), BRUZZONE CRISTINA (LAVAGNA - GE), BUSCAGLIA GIUSEPPE (GENOVA - GE), CALICCHIO GIUSEPPE (SALERNO - SA), CALZOLARI ALESSANDRO (LEGNANO - MI), CALZOLARI ALESSANDRO (LEGNANO - MI), CAPITANIO GUIDO (PALERMO - PA), CAPRA CARLO (MAGENTA - MI), CARACCILO ADALGISA (BARI - BA), CARIA FEDERICO CARLO (MONTEBELLUNA - TV), CARRER SARA (RHO - MI), CASAGLI SERGIO (PISA - PI), CASALINI PIERPAOLO (FAENZA - RA), CASTELLI GIAN PAOLO (MANTOVA - MN), CASTIGLIONE GIACOMO (CATANIA - CT), CIANI ANDREA (PESCIA - PT), CICERI RITA (LECCO - LC), CIGADA MARCO GUIDO ALBERTO (MILANO - MI), CIVITA MARINA (PINEROLO - TO), COCCIOLO FRANCESCO (CESENA - ), COCCO LIVIO (ARIANO IRPINO - AV), COVANI FRIGIERI FRANCESCA (BAGNO A RIPOLI - FI), CURTO FRANCESCO CURTO (MILANO - MI), DAL CERRO PAOLO (CONEGLIANO - TV), DE CRISTOFARO ANNA (PESARO - PU), DE LUCIA MARTA (PONDERANO - BI), DE PRISCO MARIA LUISA (OLIVETO CITRA - SA), DELLA SELVA ANDREA (VERDUNO - CN), DEMOZZI ENRICO (ROVERETO - TN), DI PASQUALE DINO AURELIO CLETO (PONTEDERA - PI), FABI MARIA CRISTINA (FANO - PU), FALINI STEFANO (GROSSETO - GR), FALINI STEFANO (GROSSETO - GR), FANFANI ELENA (FIRENZE - FI), FARALDI LOREDANA (MILANO - MI), FIOCCA FEDERICO (BRESCIA - BS), FIORE GILBERTO (CARMAGNOLA - TO), FIORE GILBERTO (MONCALIERI - TO), FRACCARO MARIA GIOVANNA (CITTADELLA - PD), FRANCESCONI SILVIA (DESIO - MB), FRUGIUELE JACOPO (BAGHERIA - PA), GALEOTTI ELSA (FELTRE - BL), GALLO MAURO (TORINO - TO), GAVINELLI VERONICA (BORGOMANERO - NO), GIACOMINI MATTEO (OSIO SOTTO - BG), GIANNI MASSIMO (AOSTA - AO), GIRARDIS MASSIMO (MODENA - MO), GIUDICI RICCARDO (MILANO - MI), GIUGNI AIMONE (BOLOGNA - BO), GIUNTINI ROMANO (EMPOLI - FI), GIUNTOLI MONICA (LIVORNO - LI), GUADAGNUCCI ALBERTO (MASSA - MS), GUAGLIARDI CLEMENTINA (GALLARATE - VA), GUFFANTI ELENA ANGELA AUGUSTA (MILANO - MI), JORIO ANTONELLA (JESI - AN), LAICI CRISTIANA (BOLOGNA - BO), LANZA MARIA CONCETTA (FORLÌ - FC), LEGNANI MARTINO GREGORIO (CENTO - FE), LIVERANI CHIARA MARIA (SESTO SAN GIOVANNI - MI), MAIO MARIELLA (TORINO - TO), MANNOLINI GIOVANNI (PONTREMOLI - MS), MARAFON SILVIO (ARZIGNANO - VI), MARICONTI LAURA (LODI - LO), MARINI FEDERICA (POGGIBONSI - SI), MARINO GIOVANNI (VIZZOLO PREDABISSI - MI), MARZULLO ANTONELLA (TORINO - TO), MASTROIANNI ALESSANDRO (CHIERI - TO), MELIS MARTINA (OLBIA - OT), MICHELI FABIO (BERGAMO - BG), MONTI GIANPAOLA (MILANO - MI), MONTILLO GERARDO (ROSSANO - CS), MORIGI ARISTIDE (BOLOGNA - BO), MUTTINI STEFANO (MILANO - MI), NARDIN GIORDANO (TARANTO - TA), NARDINI MASSIMILIANO (LIDO DI CAMAIORE - LU), NASCIMBEN ENNIO (TREVISO - TV), NAVA LUANA (GENOVA - GE), NEGRO GIANCARLO (CASARANO - LE), NONINI SANDRA (MILANO - MI), NUCCI MARIA LETIZIA (SIENA - SI), PARNIGOTTO ALESSANDRA (MONSELICE - PD), PARRINI VIERI (BORGO SAN LORENZO - FI), PASETTI GIOVANNI STEFANO (ORBETELLO - GR), PEDEFERRI MATTEO (MERATE - LC), PELLICIOLI ISABELLA (BERGAMO - BG), PERINO BERT PAOLO (TORINO - TO), PERO ALICE (VERCELLI - VC), PESSANO PAOLO (TRENTO - TN), PETA MARIO (TREVISO - TV), PETRUCCI NICOLA (DESENZANO DEL GARDA - BS), PEYRONEL CRISTINA (PINEROLO - TO), PEZZI ANGELO (CINISELLO BALSAMO - MI), PICCIRILLO FABIO (ROZZANO - MI), PIERELLI DANIELE (NOVARA - NO), PIGNATTI ALESSANDRO (CARPI - MO), POOLE DANIELE (BELLUNO - BL), RANDELLINI ROBERTO (MONTEPULCIANO - SI), RECH ALESSANDRO (VARESE - VA), RIGHETTI FILIPPO (SAN BONIFACIO - VR), RIGHINI ERMINIO (LAGOSANTO - FE), RIVA IVANO (BERGAMO - BG), RIVA ETTORE (ROMA - RM), RONA ROBERTO (MONZA - MB), ROSANÒ ELISABETTA (ANCONA - AN), ROSSI MAURIZIO (MENAGGIO - CO), ROTICIANI VALERIA (MONTEVARCHI - AR), RUGGERI PATRIZIA (CREMONA - CR), SALSÌ PIERPAOLO (REGGIO NELL'EMILIA - RE), SALVI GIOVANNI (IMPERIA - IM), SAVIOLI MONICA (MILANO - MI), SCAPINO BRUNO (IVREA - TO), SELVAGGI PAOLA (TORINO - TO), SOLDÀ PAOLA ROSA (DOMODOSSOLA - VB), SUCRE MARIA JOSÉ (CASTELLAMMARE DI STABIA), TENIO RITA (MONDOVI - CN), TINI LAURA (VENEZIA - VE), TINTORI DAVIDE (BRESCIA - BS), TROMPEO ANNA

CHIARA (TORINO - TO), TURCHET FEDERICA (CASTELFRANCO VENETO - TV), UGOLINI ANDREA (NEGRAR - VR), VACCARI CATERINA (NOVI LIGURE - AL), VANZINO ROMANO (VIGEVANO - PV), VINCENZI MATTEO (BOLOGNA - BO), VLASSICH FRANCESCA (PORTO VIRO - RO), ZAMPERONI ANNA (TREVISO - TV), ZANI GIANLUCA (RAVENNA - RA), ZAPPA SERGIO (BRESCIA - BS), ZARDIN MICHELA (TRENTO - TN), ZOMPANTI VALERIA (MACERATA - MC).