Number of ventilated admissions to adult, general critical care units in the Case Mix Programme (CMP) compared to size of unit

Question

What was the average number of ventilated admissions to adult, general critical care units participating in the Case Mix Programme (CMP), categorised by days of advanced respiratory support and levels of PaO\(_2\)/FiO\(_2\) ratio, compared to the size of unit, for the financial year 2012/13?

Available data for report

136,826 admissions to 207 adult, general critical care units participating in the CMP between 1 April 2012 and 31 March 2013.

Selection of cases

127,749 admissions to 184 critical care units that had a full 12 months of data.

Definitions for variables included

The size of unit was defined as the number of beds reported to the CMP by the unit.

An admission was identified as receiving mechanical ventilation if the number of calendar days of advanced respiratory support (recorded for the CCMDS) was at least 1. One calendar day of advanced respiratory support was considered to be advanced respiratory support at any point in a calendar day (00:00 to 23:59) with any part-days considered as total calendar days. Ventilated patients were categorised in the analysis depending on the number of days of ventilation.

The PaO\(_2\)/FiO\(_2\) ratio (PF) in the first 24 hours of critical care was defined as the PaO\(_2\) from arterial blood gas with lowest PaO\(_2\) divided by the associated FiO\(_2\) (i.e. the FiO\(_2\) from arterial blood gas with lowest PaO\(_2\)). The PF was defined in millimetres of mercury (mm Hg). Ventilated patients were categorised in the analysis depending on their PF level.
Results

Bar charts

Figure 1 illustrates the number of units by the number of beds.

Figure 2 illustrates the number of units by the annual number of admissions.

Figure 3 illustrates the average number of admissions by unit by the number of beds.

Figure 4 illustrates the average number of ventilated admissions by unit by the number of beds.

Figures 5 to 13 illustrate the average number of ventilated admissions by unit by the number of beds, for nine different combinations of days of ventilation and PaO$_2$/FiO$_2$ ratio.

Scatter graphs

Figure 14 illustrates the total number of admissions by unit by the number of beds.

Figures 15 to 20 illustrate the total number of ventilated admissions by unit by the number of beds, for six different combinations of days of ventilation and PaO$_2$/FiO$_2$ ratio.

Raw data

Please find the raw data in the attached spreadsheet. Overall figures are included, as well as totals categorised by number of beds.

Sheet 1 contains data for the total number of patients ventilated for more than: 2 days; 5 days; 7 days; 14 days; and 21 days.

Sheet 2 contains data for the total number and associated lengths of stay of patients ventilated for more than 2 days with: PF ≤ 100; 101 ≤ PF ≤ 150; PF ≤ 150; and PF ≥ 151.

Sheet 3 contains data for the total number of ventilated patients with PF ≤ 150 ventilated for more than: 2 days; 5 days; and 7 days. These were compared to all patients ventilated for more than 2 days.
Figure 1: Number of units by number of reported beds

Figure 2: Number of units by annual number of admissions
Figure 3: Average number of admissions by unit by number of beds

Figure 4: Average number of ventilated admissions by unit by number of beds
Figures 5-7: Average number of ventilated admissions by unit by number of beds (ventilated for more than 2 days, 5 days or 7 days respectively)
Figures 8-10: Average number of admissions ventilated for more than 2 days by unit by number of beds (PF ≤ 100, 101 ≤ PF ≤ 150 or 151 ≤ PF ≤ 200)

- Ventilated for more than 2 days and PF ≤ 100
- Ventilated for more than 2 days and 101 ≤ PF ≤ 150
- Ventilated for more than 2 days and 151 ≤ PF ≤ 200
Figures 11-13: Average number of ventilated admissions with PF ≤ 150 by unit by number of beds (ventilated for more than 2 days, 5 days or 7 days)

Ventilated for more than 2 days and PF ≤ 150

Ventilated for more than 5 days and PF ≤ 150

Ventilated for more than 7 days and PF ≤ 150
Figure 14: Total number of admissions by unit by number of beds
Figures 15-17: Total number of ventilated admissions by unit by number of beds (ventilated for more than 2 days, 5 days or 7 days)

Ventilated for more than 2 days

Ventilated for more than 5 days

Ventilated for more than 7 days
Figures 18-20: Total number of ventilated admissions with PF ≤ 150 by unit by number of beds (ventilated for more than 2 days, 5 days or 7 days)
Acknowledgement

Please acknowledge the source of these data in all future presentations (oral and/or written), as follows:

“These data derive from the Case Mix Programme Database. The Case Mix Programme is the national, comparative audit of patient outcomes from adult critical care coordinated by the Intensive Care National Audit & Research Centre (ICNARC). These analyses are based on data for 127,749 admissions to 184 adult, general critical care units based in NHS hospitals geographically spread across England, Wales and Northern Ireland. For more information on the representativeness and quality of these data, please contact ICNARC.”