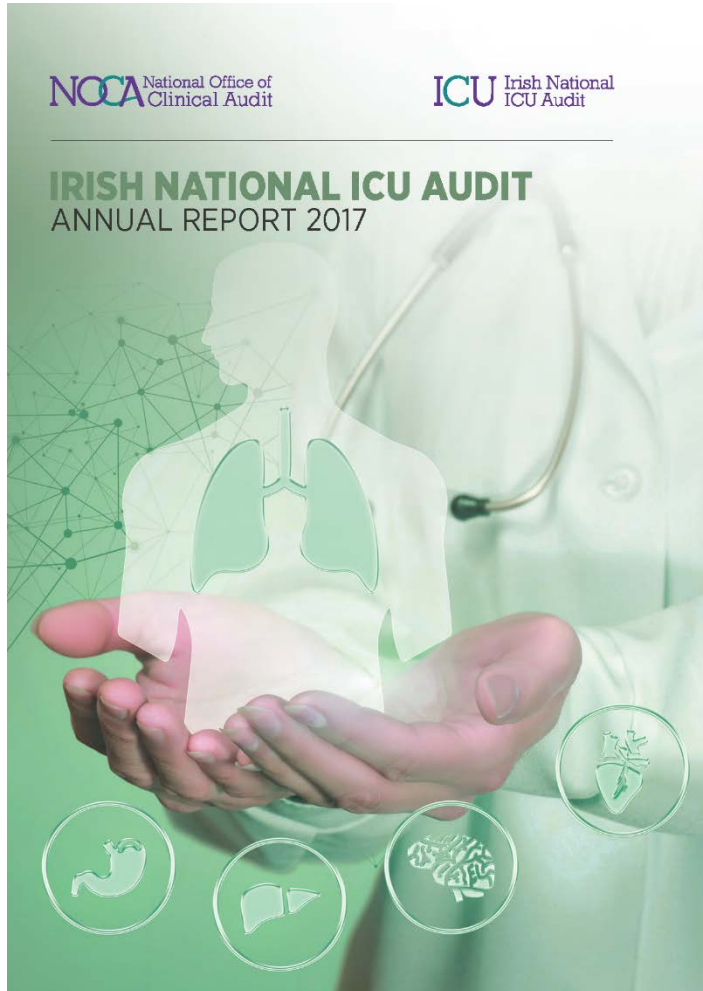


# INICUA ANNUAL REPORT 2017



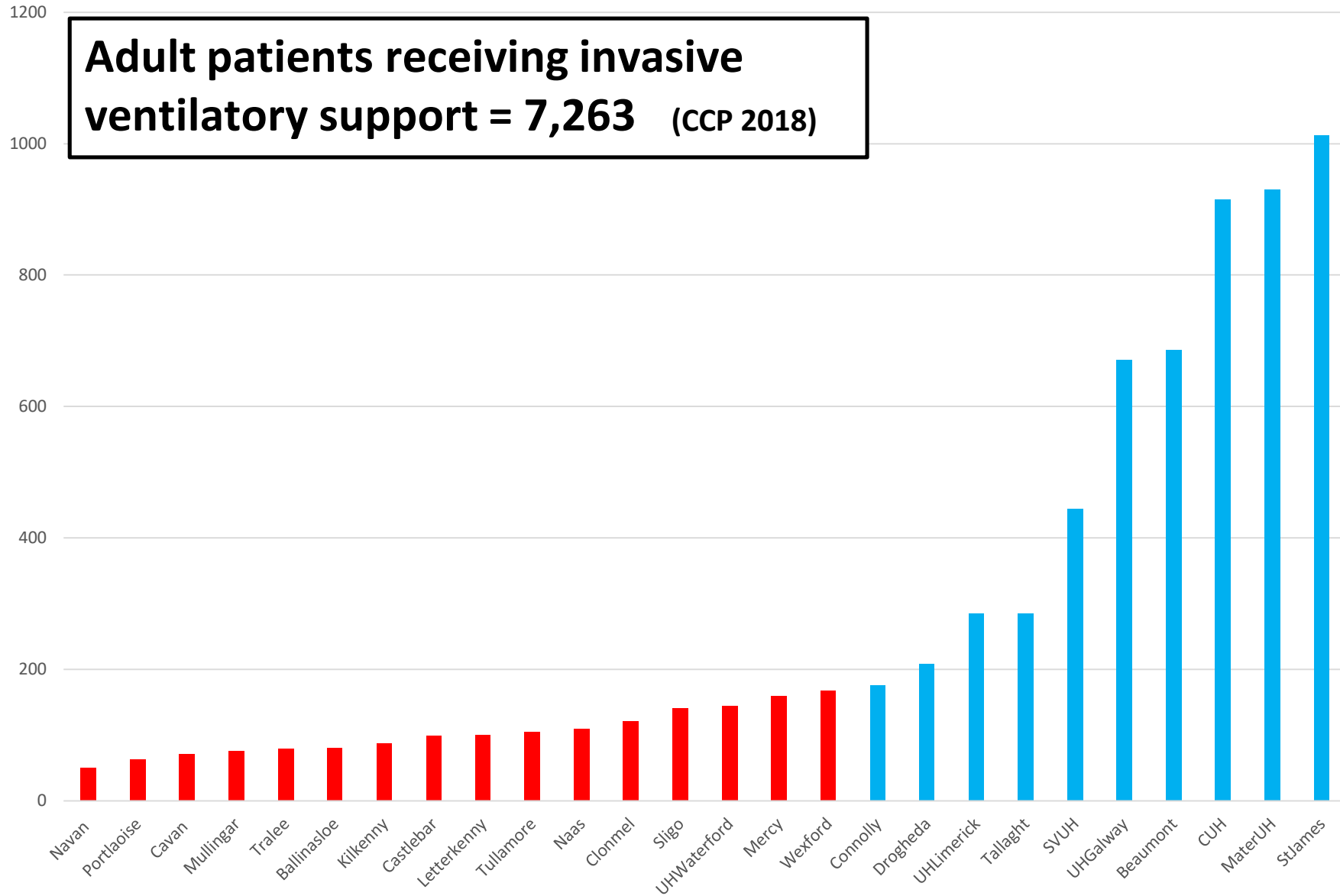
**Dr Rory Dwyer**

**Clinical Lead**

**NOCA Irish National ICU Audit**







## Annual Report 2017; 58% of ICU activity nationally

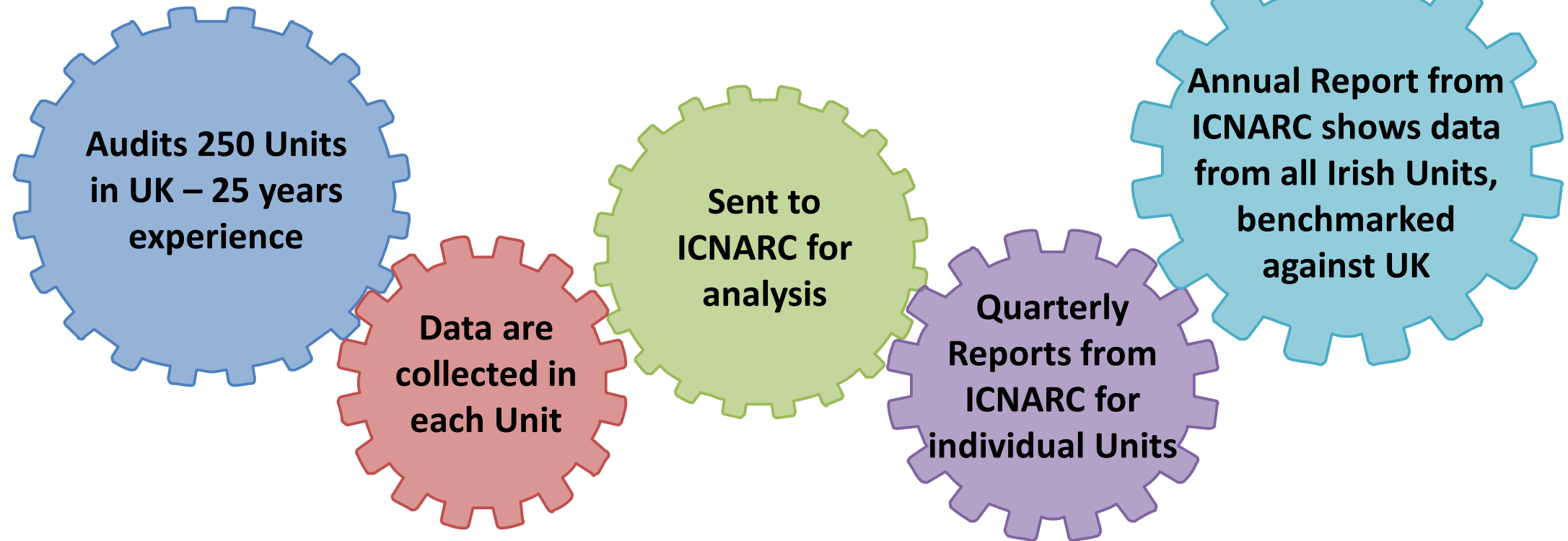
**TABLE 3.1.1: COMPLETE DATA COVERAGE IN PARTICIPATING ICUS, 2017**

Key	Hospital	Critical care unit	Quater 1	Quater 2	Quater 3	Quater 4
A	Beaumont Hospital	General Intensive Care Unit	■	■	■	■
B	Beaumont Hospital	Richmond Intensive Care Unit	■	■	■	■
C	Mater Misericordiae University Hospital	High Dependency Unit	■	■	■	■
D	Mater Misericordiae University Hospital	Intensive Care Unit	■	■	■	■
E	Our Lady of Lourdes Hospital, Drogheda	Intensive Care Unit	■	■	■	■
F	St James's Hospital	Keith Shaw Cardiothoracic Intensive Care Unit	■	■	■	■
G	St James's Hospital	General Intensive Care Unit	■	■	■	■
H	Tallaght University Hospital	Intensive Care Unit	■	■	■	■
I	University Hospital Galway	General Intensive Care Unit	■	■	■	■
J	University Hospital Limerick	Intensive Care Unit	■	■	■	■
K	University Hospital Waterford	Intensive Care Unit	■	■	■	■
L	Regional Hospital Mullingar	Intensive Care Unit	■	■	■	■

■ Data included    ■ Data not included



**icnarc** | intensive care  
national audit &  
research centre



## INICUA Annual Report 2017

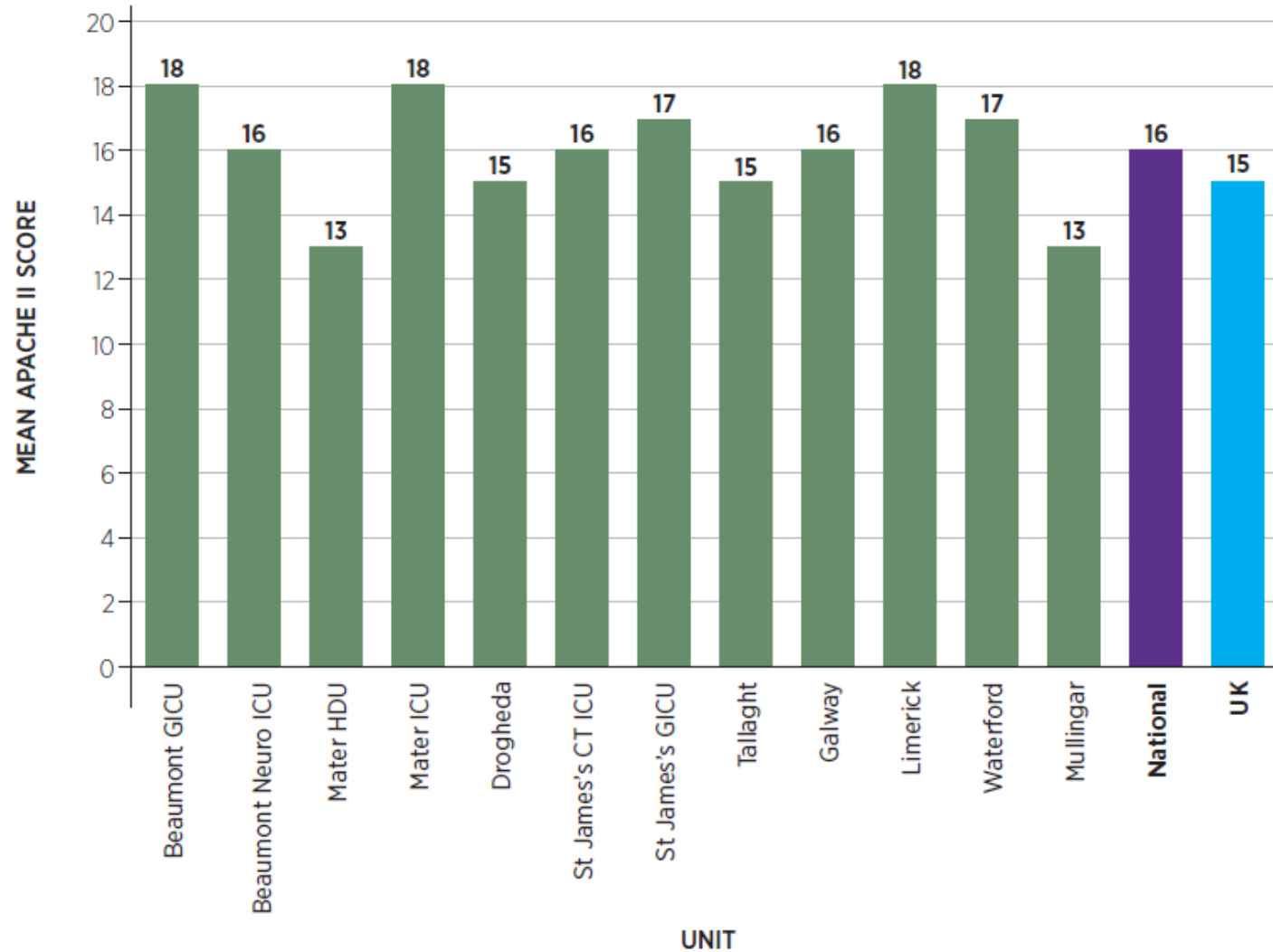
- Activity analyses**
- Quality Indicators**
- Findings and Recommendations**

## INICUA Report 2017; Activity analyses

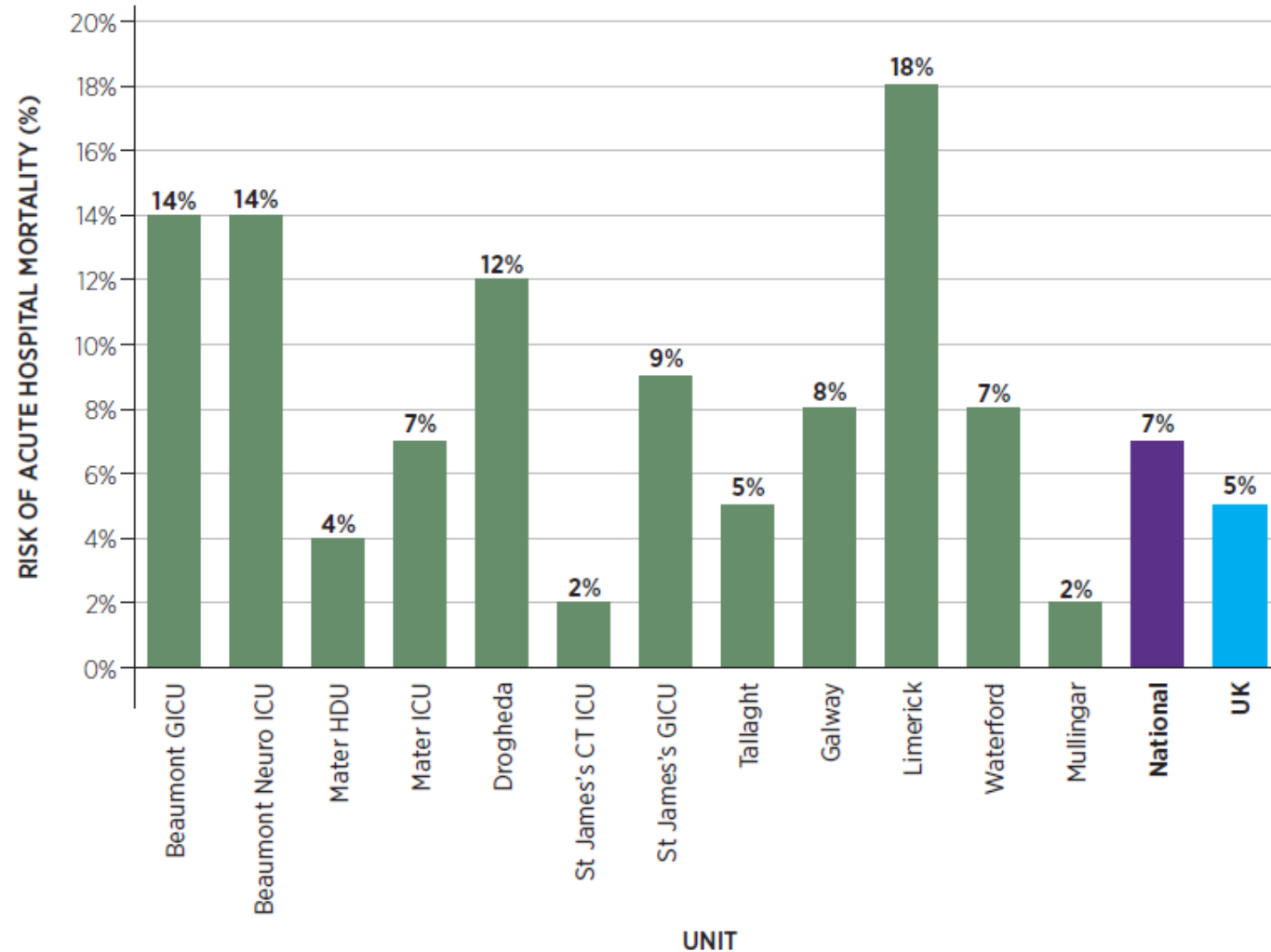
- Patient numbers and demographics
- Case-mix
- Illness severity
- Organ support provided
- Bed occupancy
- Length of stay



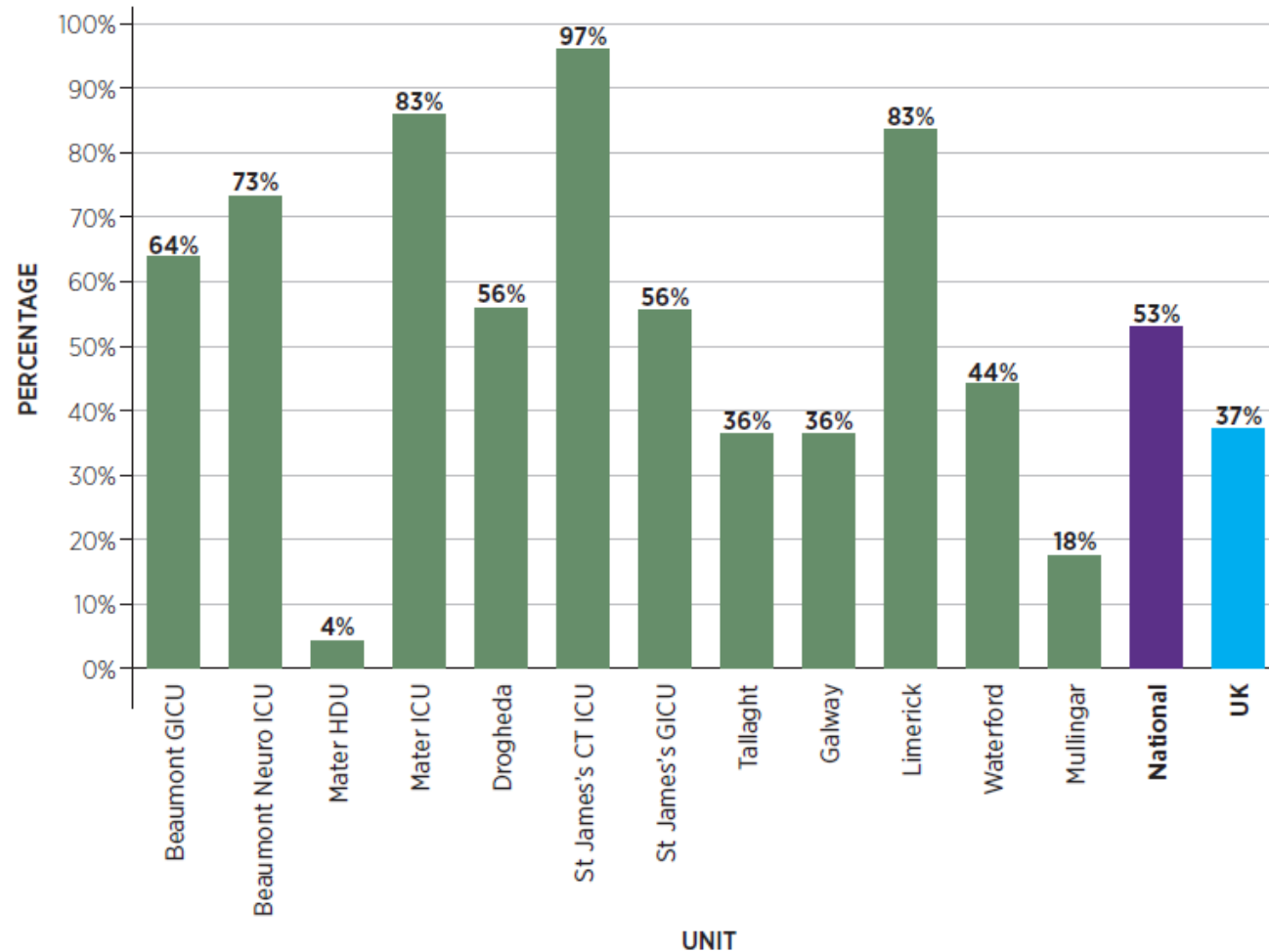
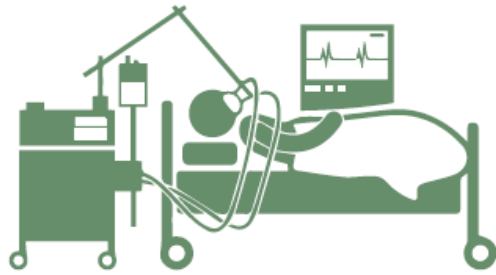
## Illness severity (APACHE II scores)



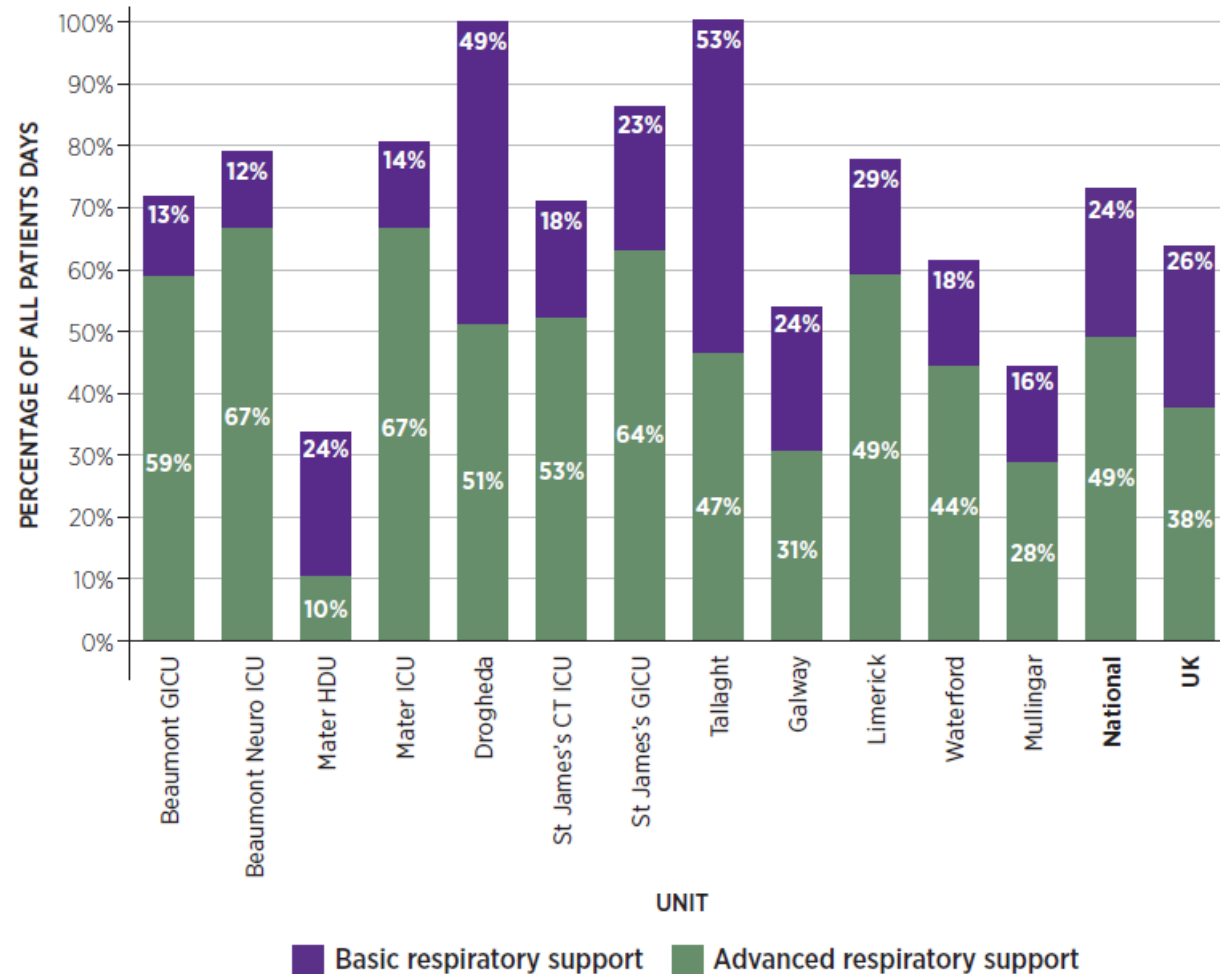
## Predicted risk of death (%)



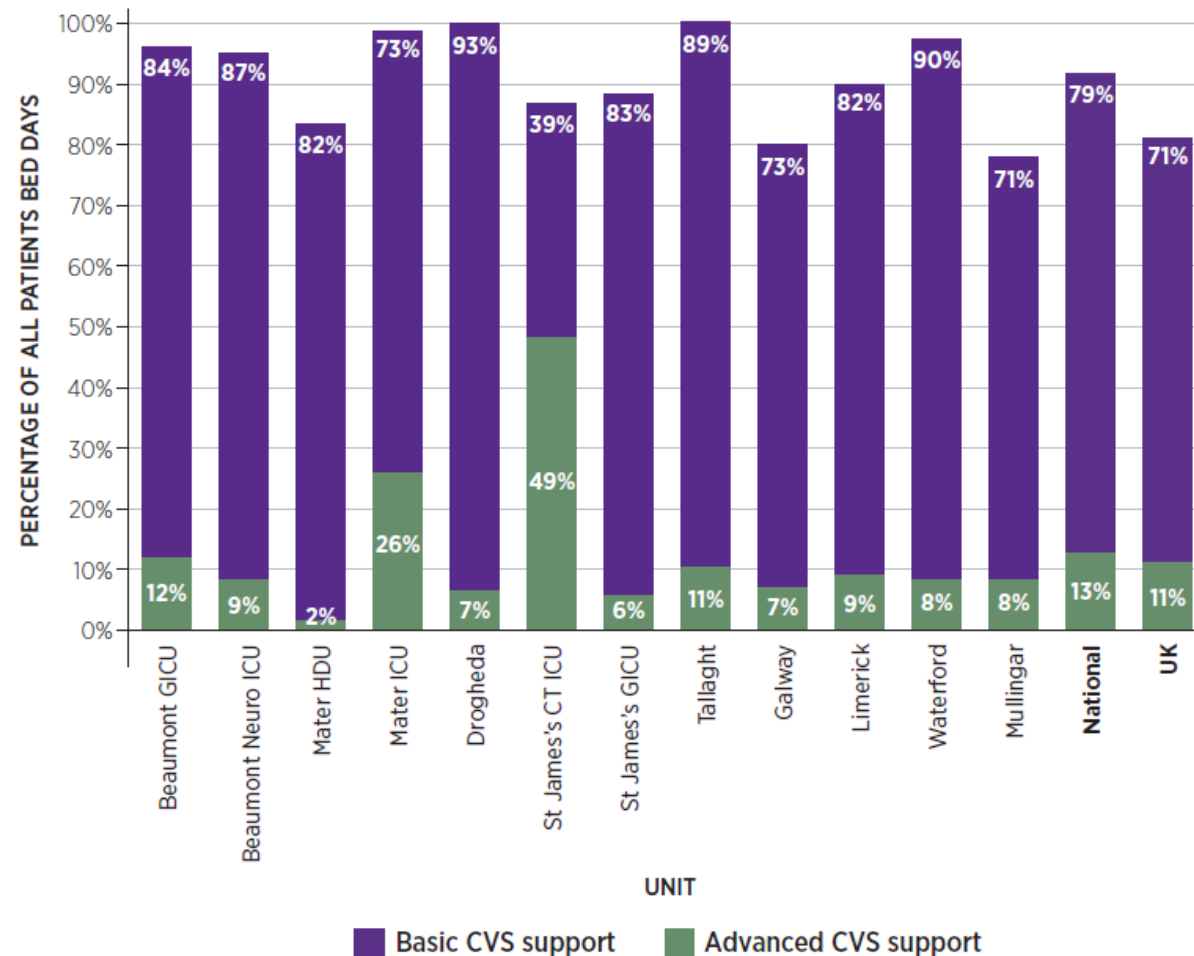
## Patients ventilated after admission (% of all admissions)



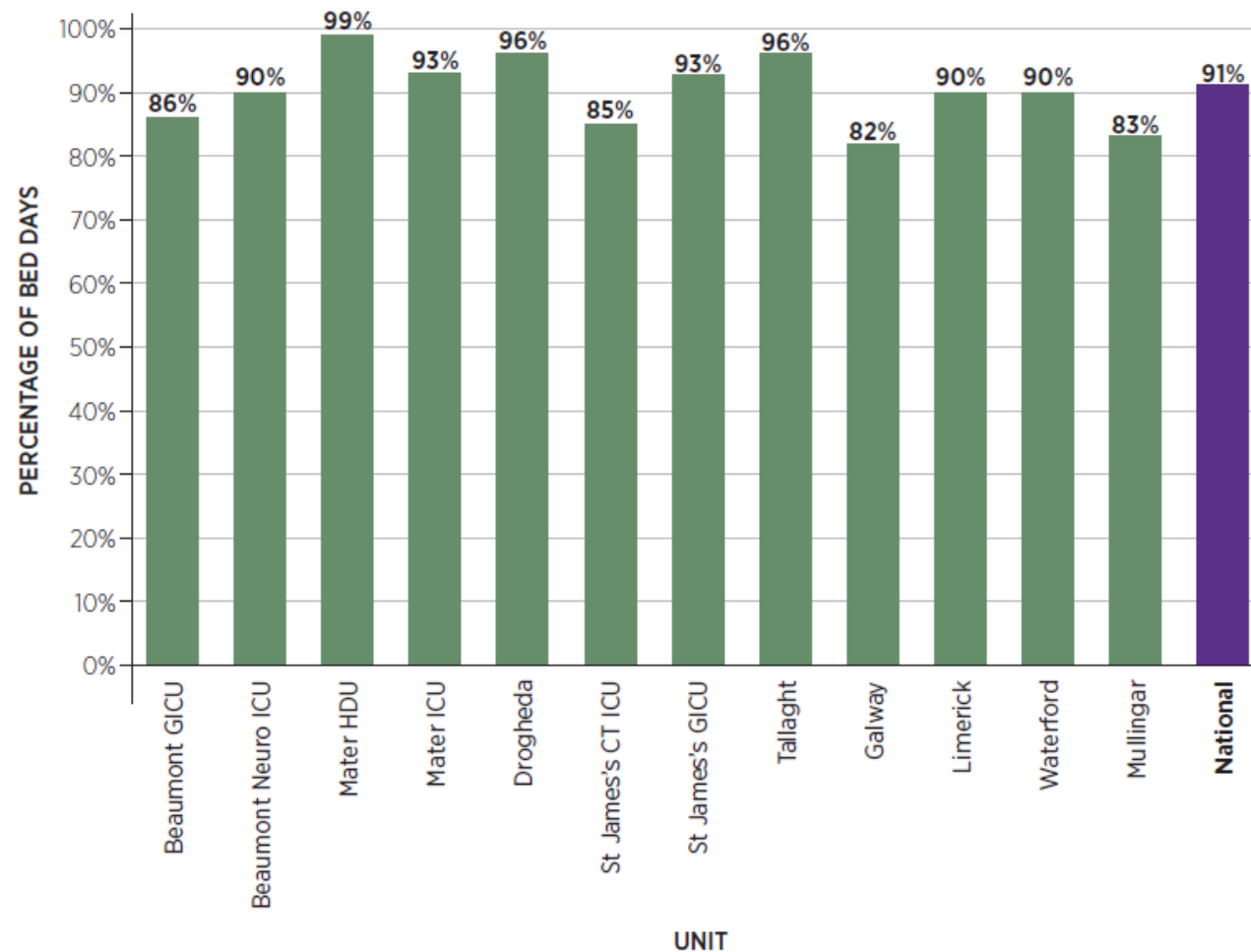
## % of patient days with advanced and basic respiratory support



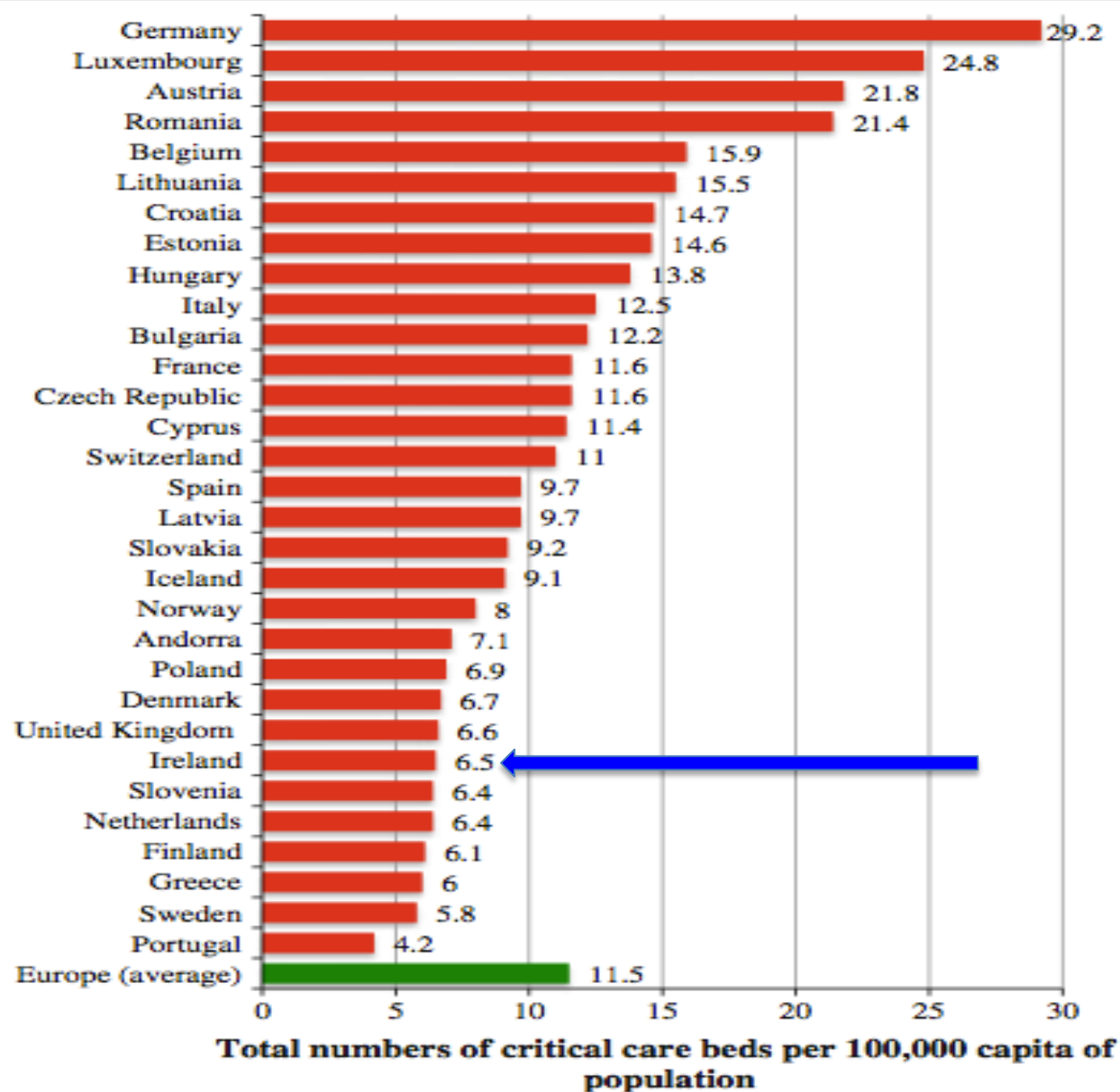
# % of patient days with advanced and with basic CVS support



## Bed occupancy (as % of bed days available)





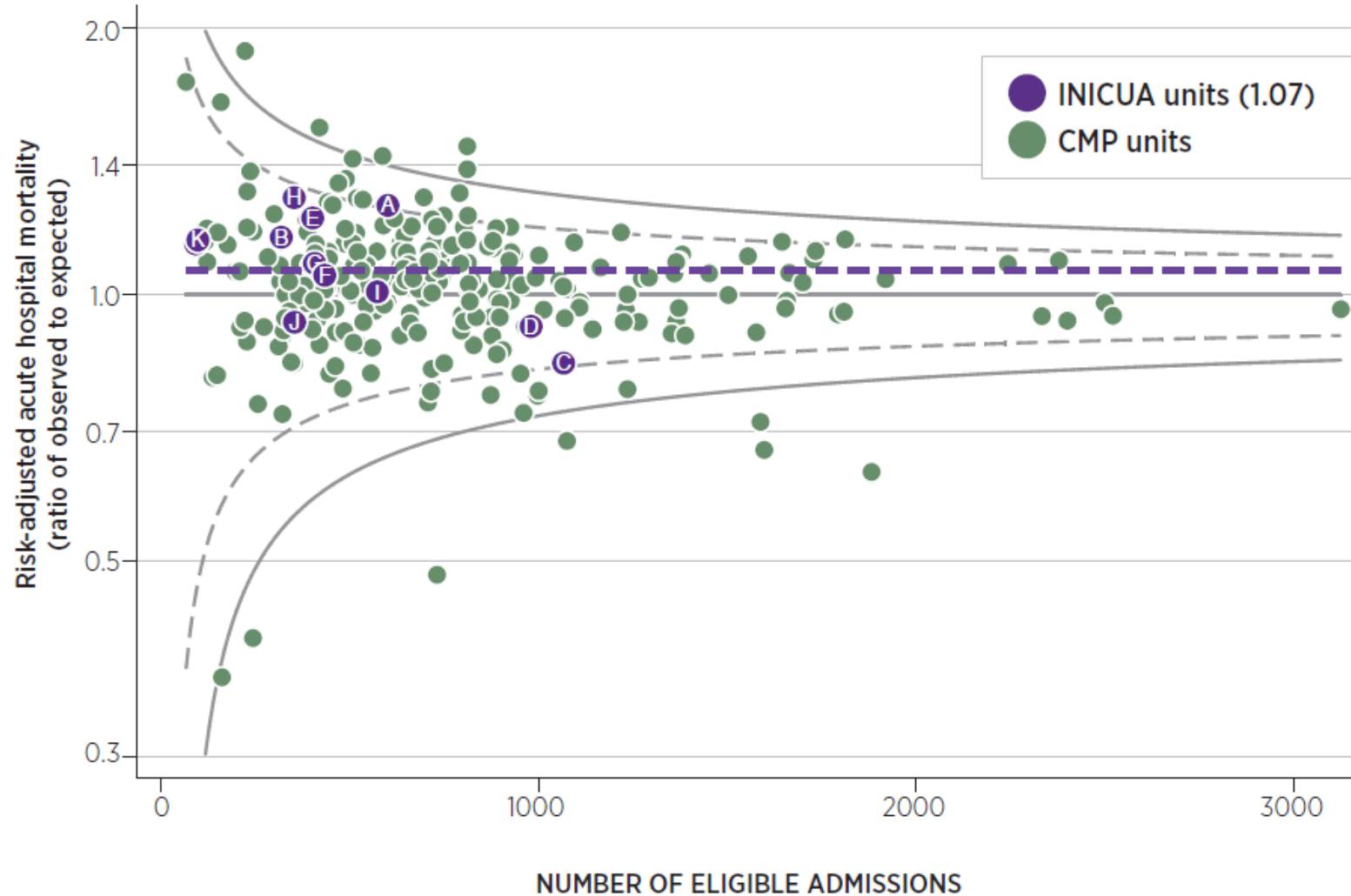


**These data refer to 2008.**

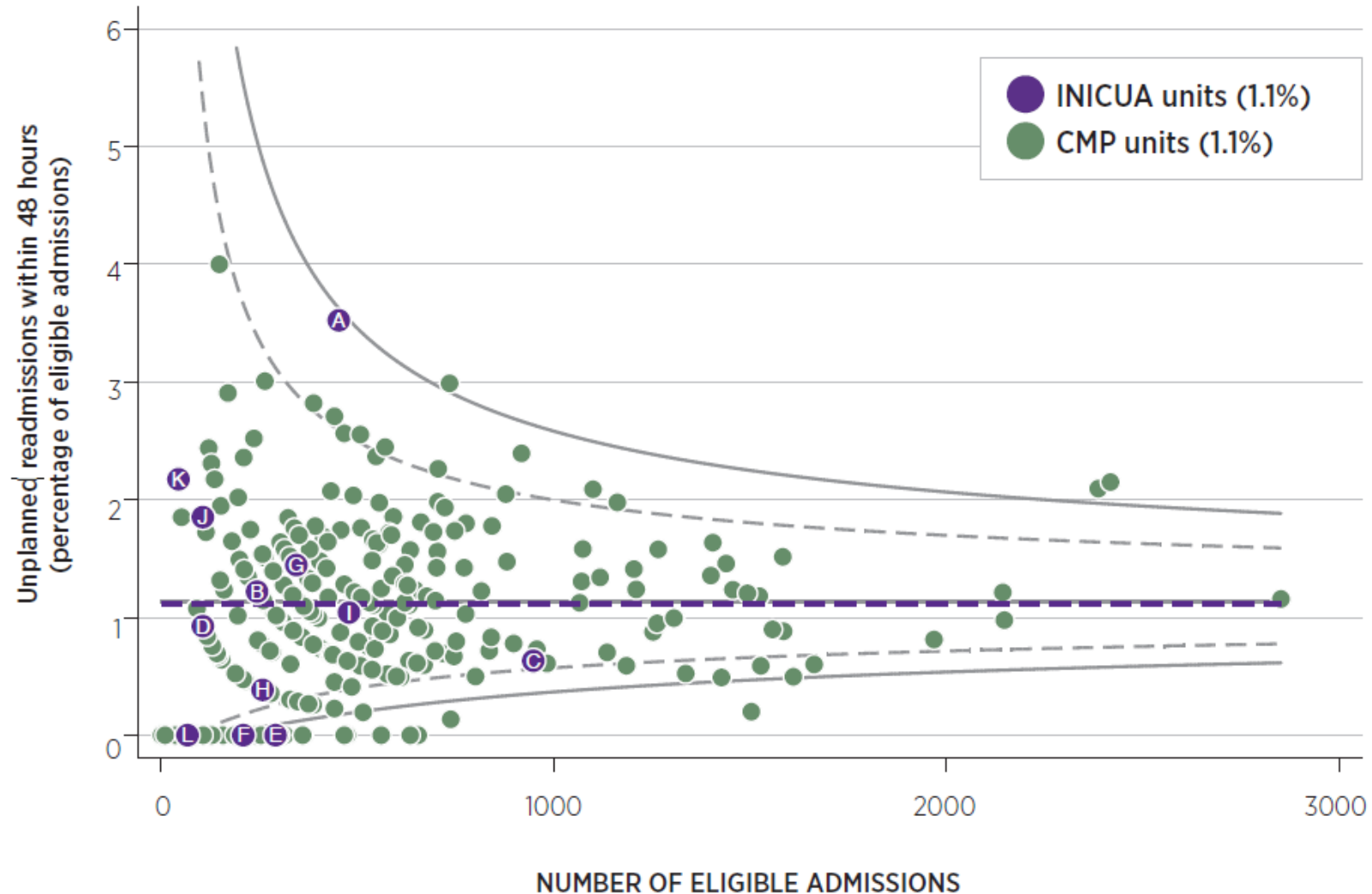
**The 2018 figure for Ireland is less;  
6.1 beds / 100,000.**

**This leaves Ireland 4th from  
bottom in Europe.**

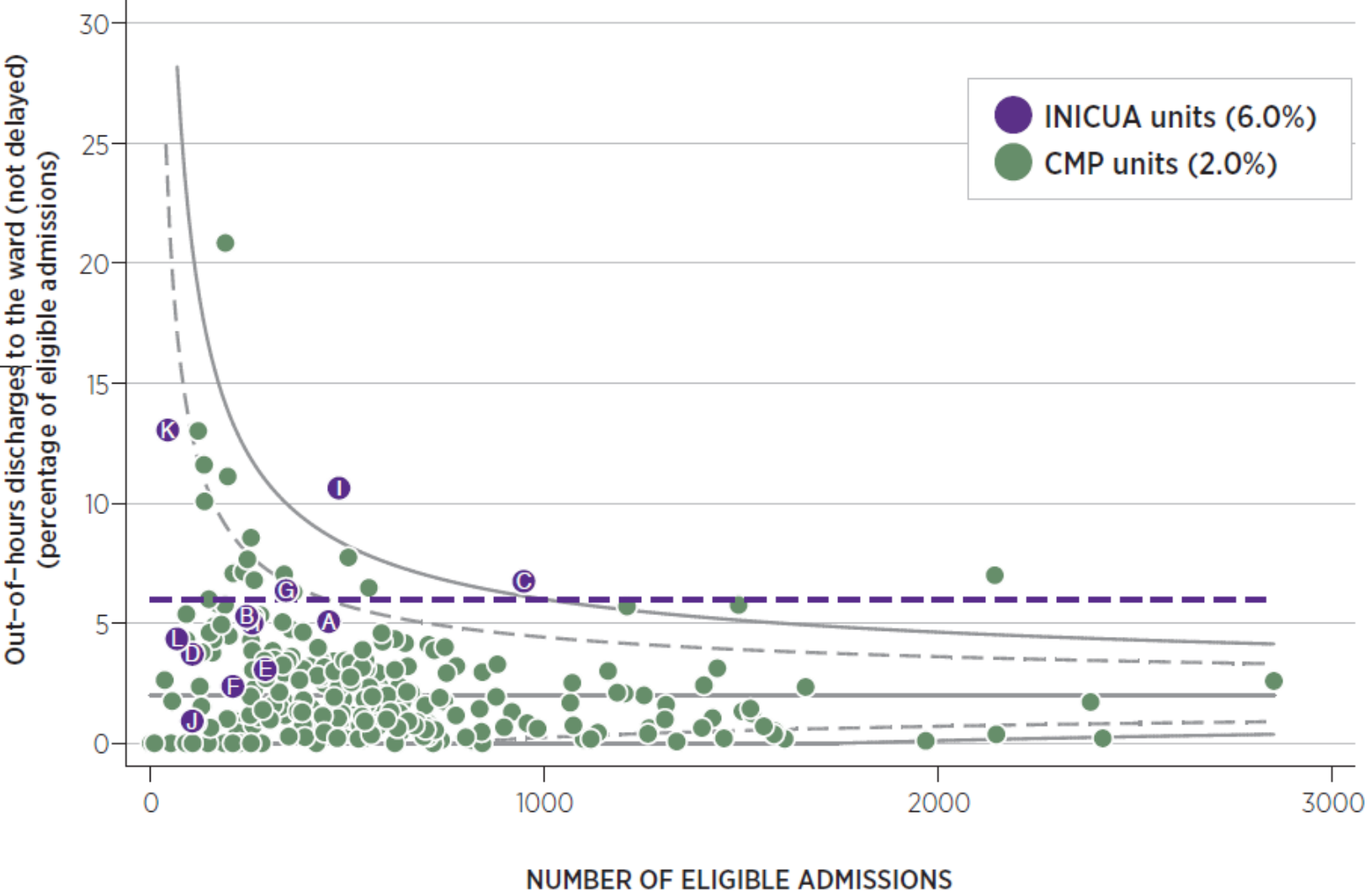
## Risk-adjusted acute hospital mortality



## Unplanned re-admissions within 48 hrs



# Unplanned discharges to the ward out-of hours



## INICUA Report 2017; Findings

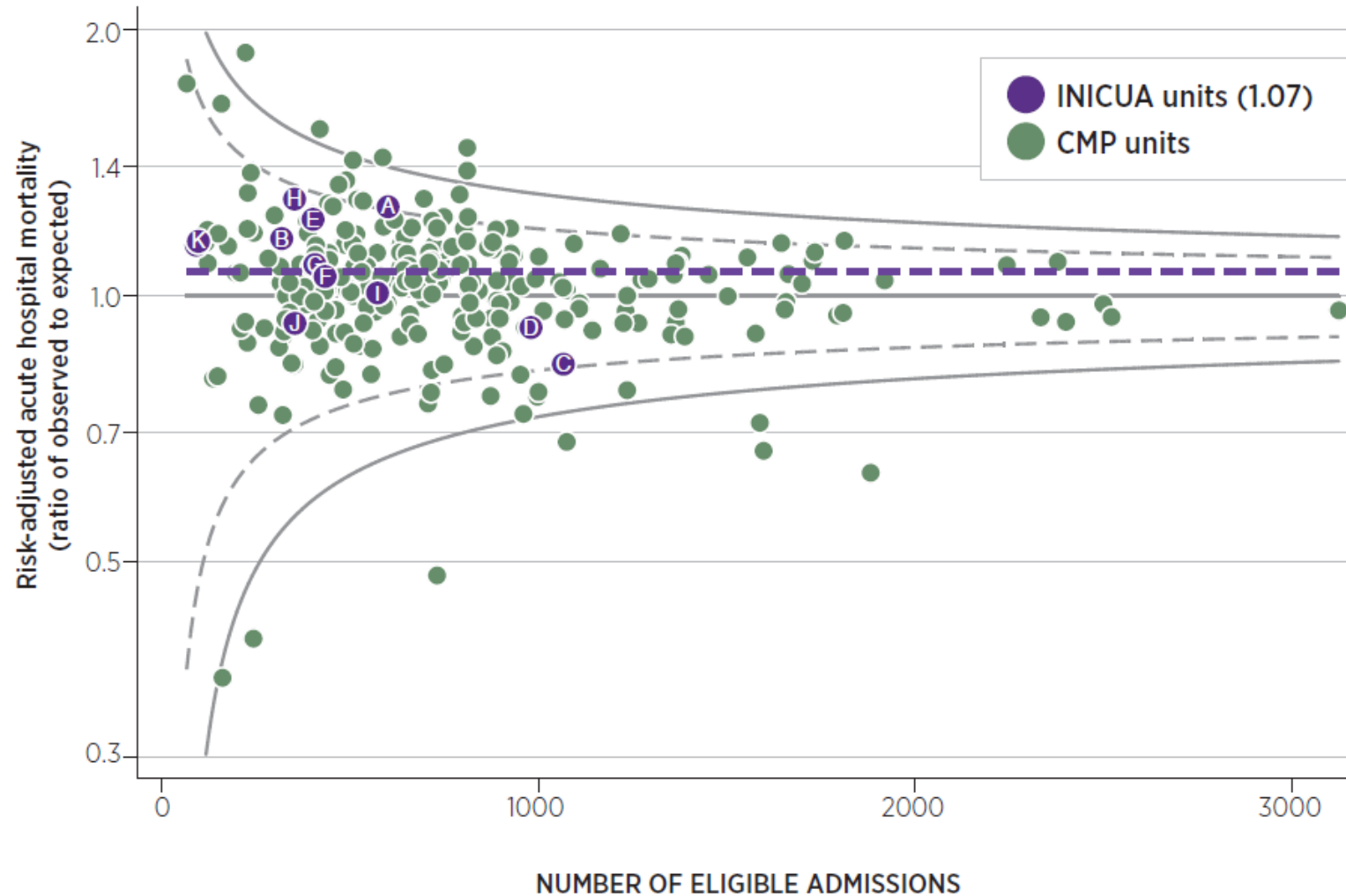
Patient outcomes in Irish Units were comparable to the UK, including mortality.



CONCLUSION

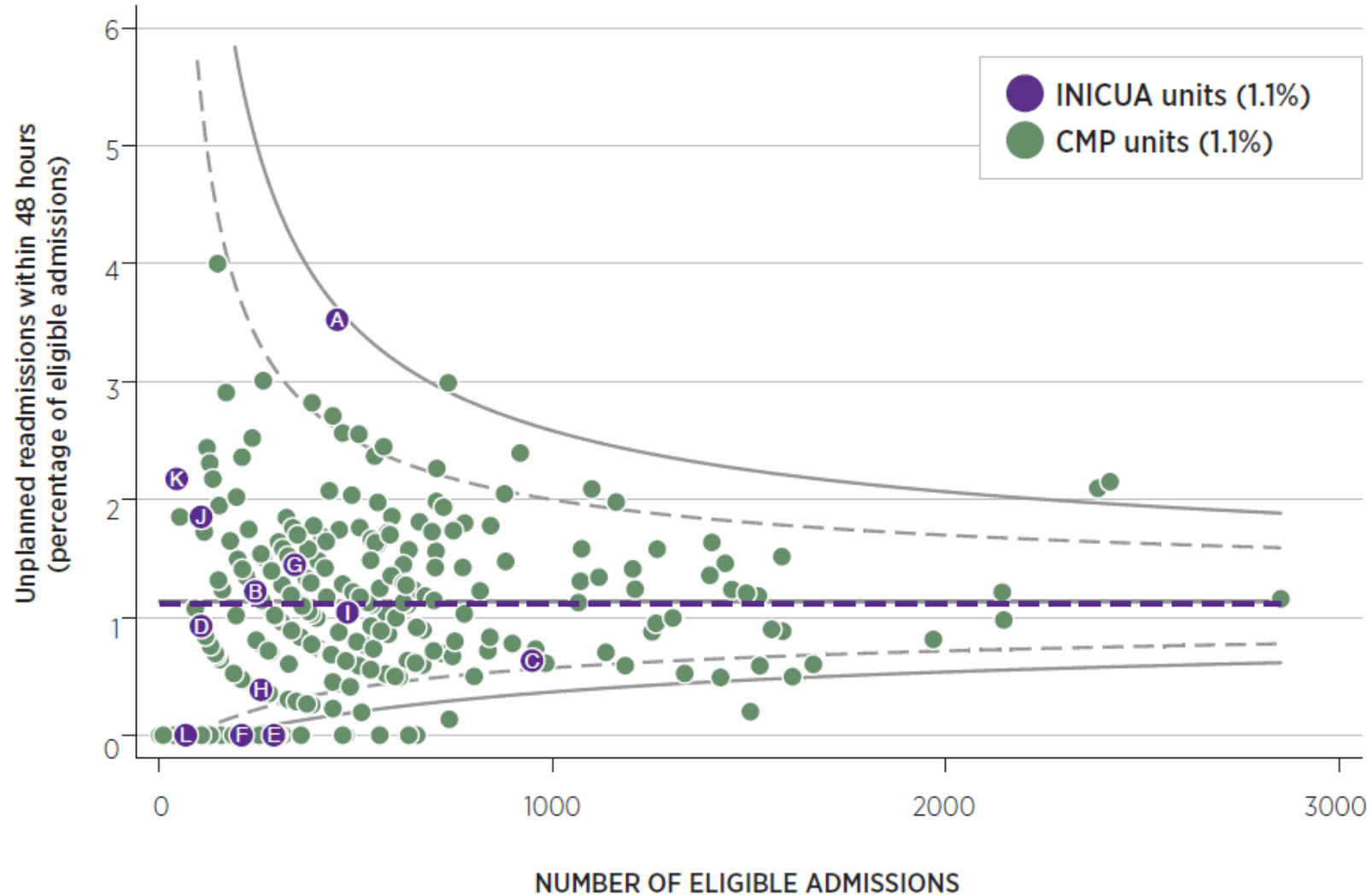
Irish Units provide a high quality of care for patients and are a relatively safe environment for critically ill patients.

## Risk-adjusted acute hospital mortality





## Unplanned readmissions within 48 hrs



## Beaumont Hospital's response to outlier data for General ICU mortality

Outlier outcomes were noted for the following QIs for 2017:

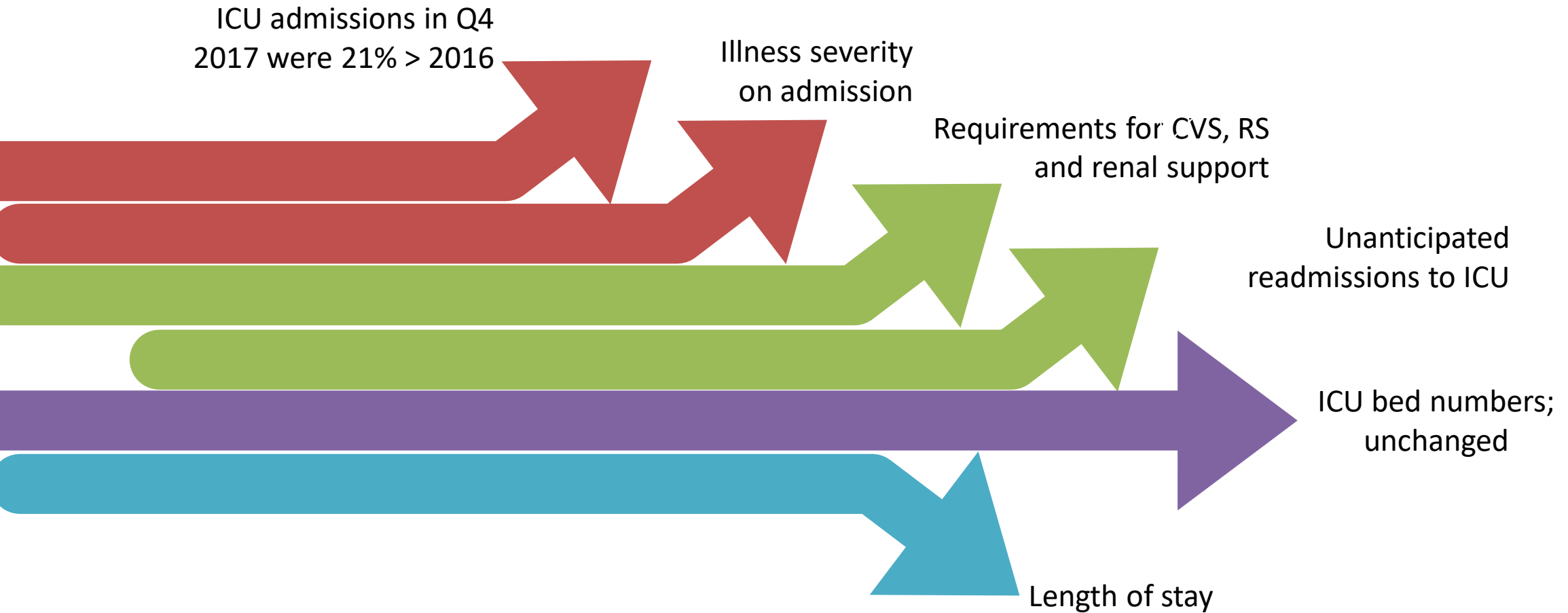
1. Risk-adjusted hospital mortality for all ICU admissions (Figure 5.22).
2. Unplanned readmissions within 48 hours of discharge (Figure 5.35).

The ICU group investigated these outliers: (i) data entry was rechecked for accuracy, (ii) two intensivists reviewed the data and reviewed charts of all those who died and (iii) data were presented to the Department for discussion.

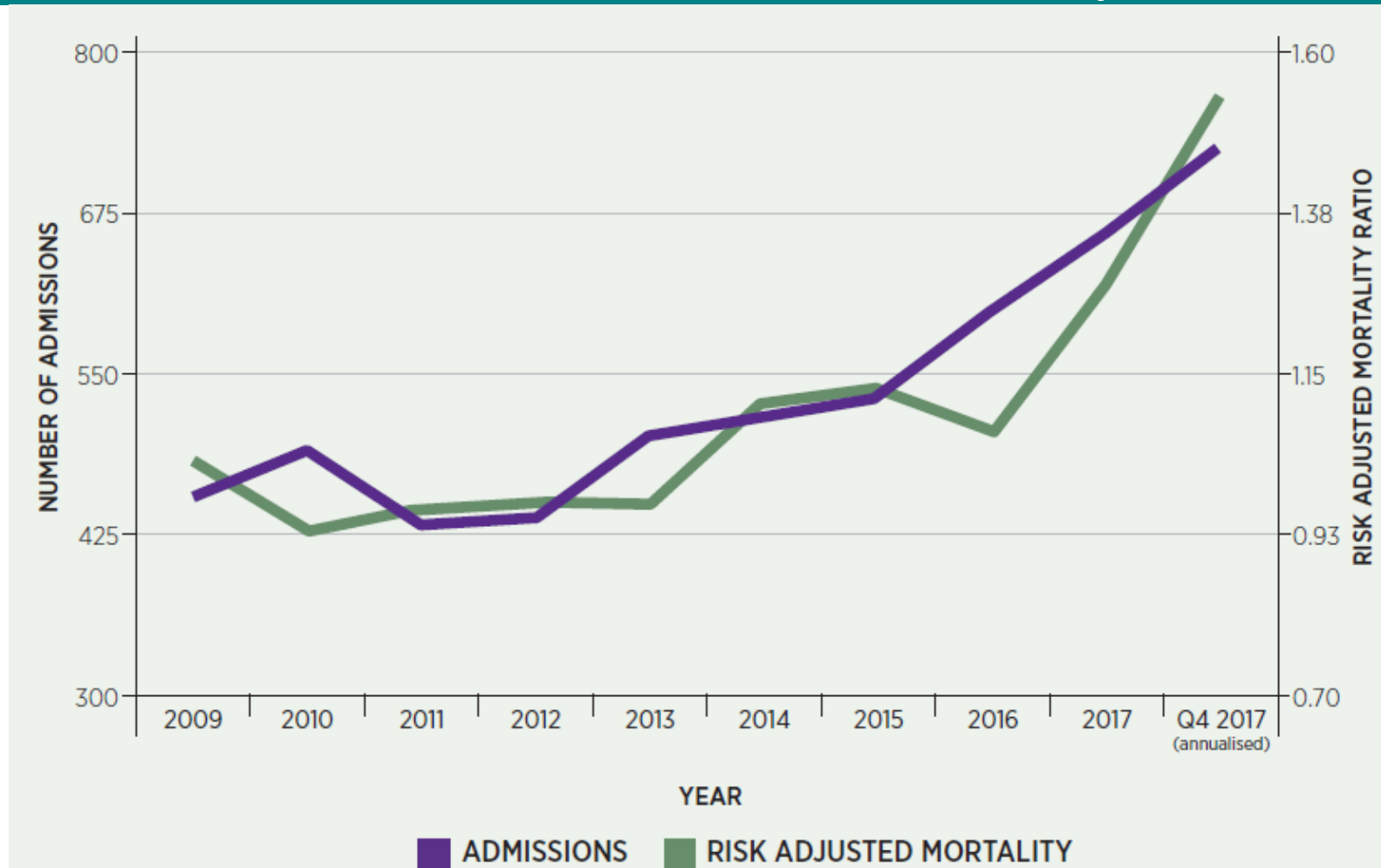
### FINDINGS

- The annual number of admissions increased by 10% in 2017 compared with 2016.



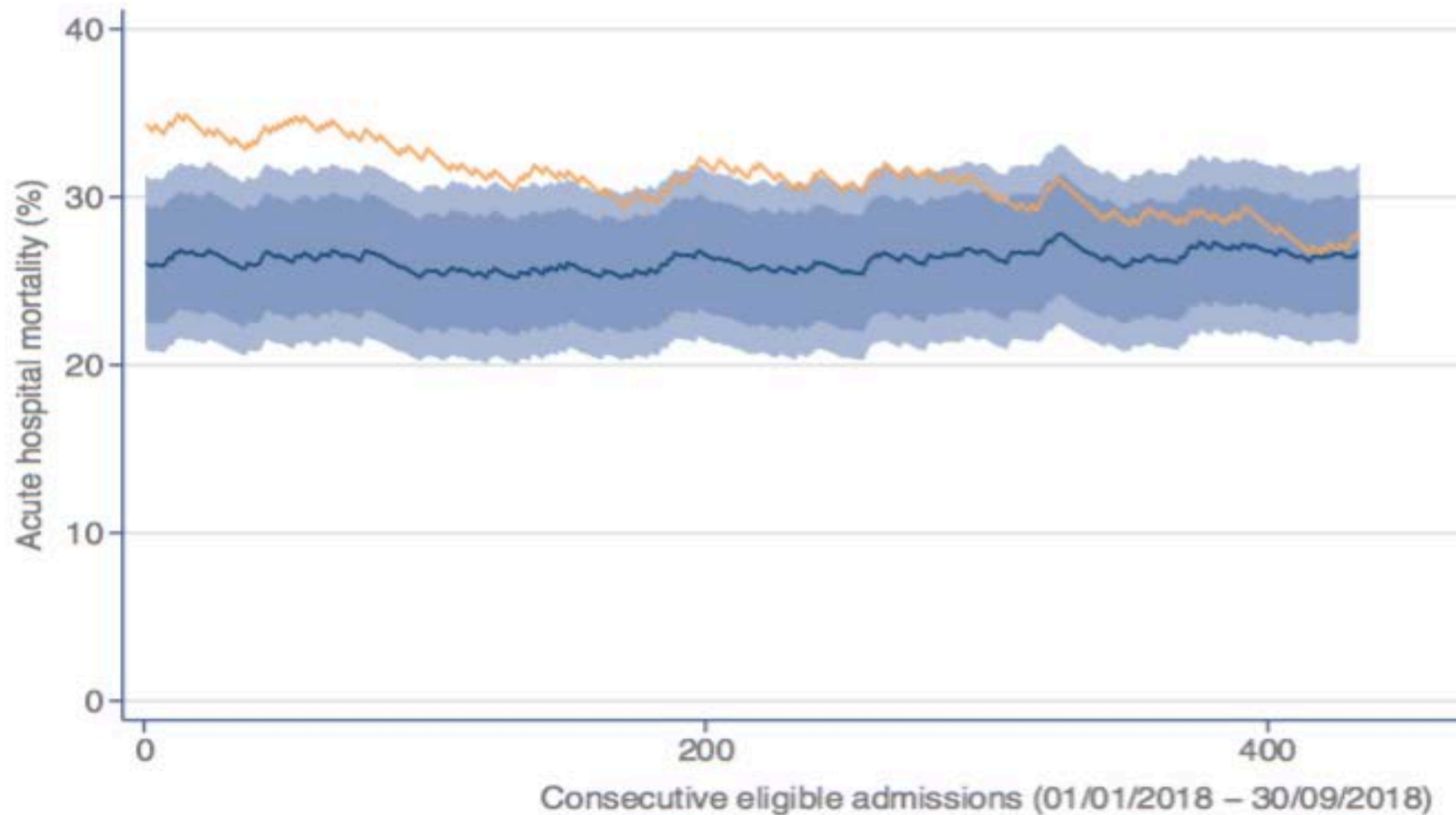


## Increased demand with capacity unchanged was associated with an increase in mortality





## Beaumont Hospital; mortality in 2018



## Conclusion

If demand exceeds capacity in ICU, patient outcomes are likely to be affected

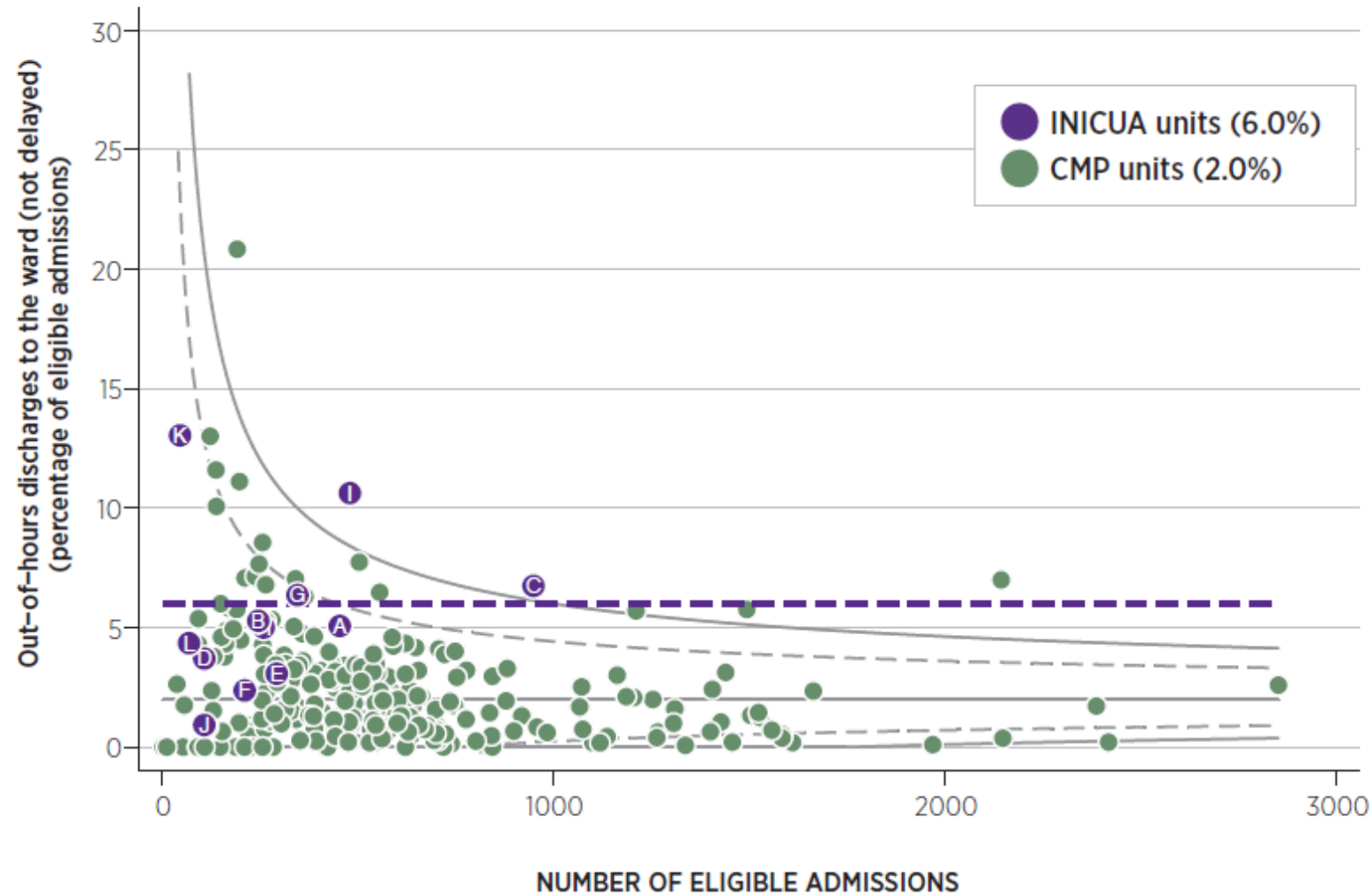


RECOMMENDATION

HSE should ensure ICUs have adequate reserve capacity to deal with surges in demand



# Unplanned discharges to the ward out-of hours



## INICUA Report 2017; unplanned discharges

### Findings

- Outliers for unplanned discharges at night
  - Mater HDU
  - Galway ICU

### Hospital responses

- Other indicators of patient outcome were not affected.
- Plan to document patient's discharge status better.
- Mater noted the need for increased ICU capacity

## Inadequate ICU bed capacity; effects

- Delay in admission to ICU until patient is 'sick enough'
- Unit is 'over-capacity', which impacts on quality of care
- Early discharges and increased readmissions to ICU
- Difficulty in staff recruitment and staff retention
- No reserve capacity for major incidents / epidemics

## INICUA Report; recommendations for HSE

1

- HSE should bring capacity in ICU/HDU to appropriate levels.
- DOH review (2018) recommended 100 extra beds by 2031

2

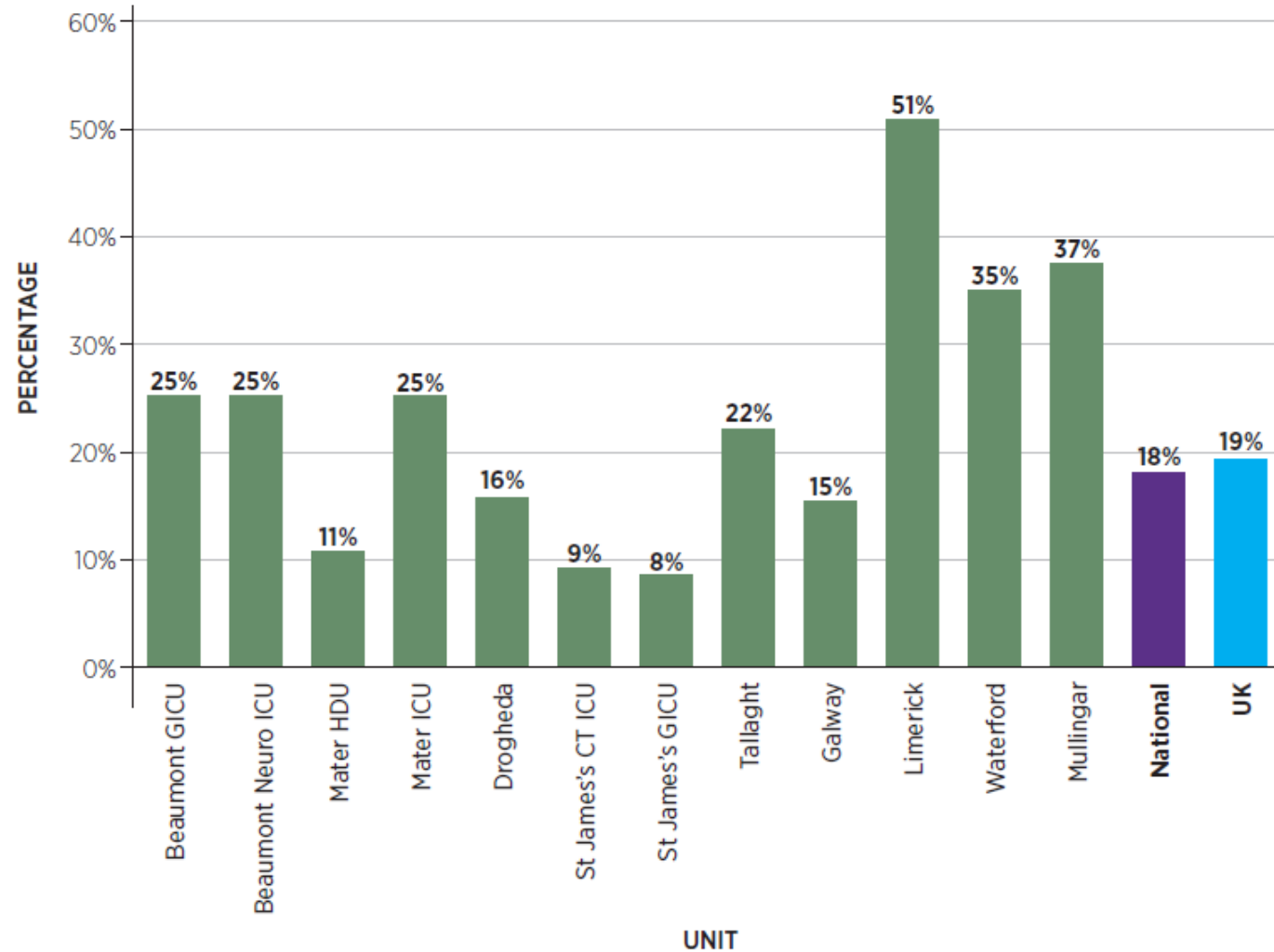
Use the data in NOCA reports to identify Units which receive extra capacity

- These are likely to be the 'hub' hospitals in Hospital Groups, as per Critical Care Programme Model of Care

## Recommendations for HSE

- 3** To optimise use of scarce ICU bed capacity, the HSE should facilitate inter-hospital transfers by:
  - a Bed Information System for ICU beds
  - a comprehensive transfer service for critically ill patients

## % of discharges delayed > 24 hours





## Recommendations for hospitals

6

Hospitals should prioritise discharges from ICU

- to reduce delays in ICU admission
- to provide ICU care to patients who need it

7

Hospitals should minimise discharges from ICU at night

## Recommendations for NOCA

- 11 Develop metrics for 'unmet need' for ICU / HDU
- 12 Develop metrics to audit deaths after ICU (6% of admissions)
- 13 Develop PROMs (patient reported outcomes) for ICU
- 14 Establish a National Database to increase the number of Reports provided

# PICANet

## Annual Report Summary

### 2015 - 2017



Our Lady's Children's Hospital, Crumlin  
Temple St Children's University Hospital

Dr Martina Healy, Clinical Lead  
Dr Dermot Doherty, TSCUH Clinical Lead



## Paediatric Intensive Care Audit Network (PICANet) Report 2015-17

### **PICANet - background**

- ❑ Established 2002, (University of Leeds)
- ❑ Audits all Paediatric ICUs in UK and Ireland
- ❑ Crumlin and Temple St PICUs participating since 2009
- ❑ Governance and funding for Irish PICUs by NOCA

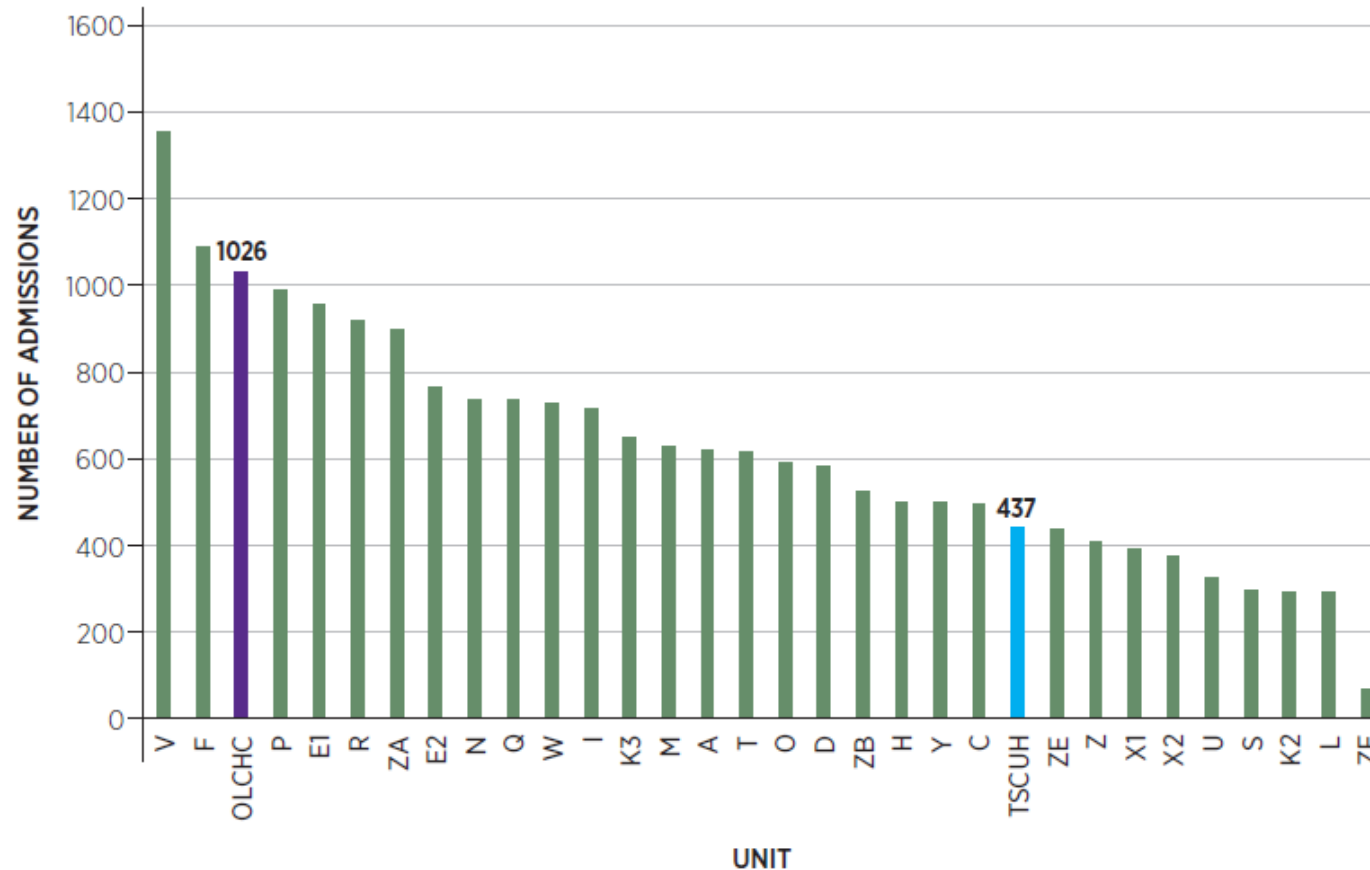
## Admissions and bed occupancy 2017

	Crumlin	Temple Street	National
<b>Admissions</b>	1026	437	1463
<b>Bed occupancy</b>	97%	86%	94%
<b>Length of stay</b>	2.9 days	1.9 days	

## Admissions to participating PICUs

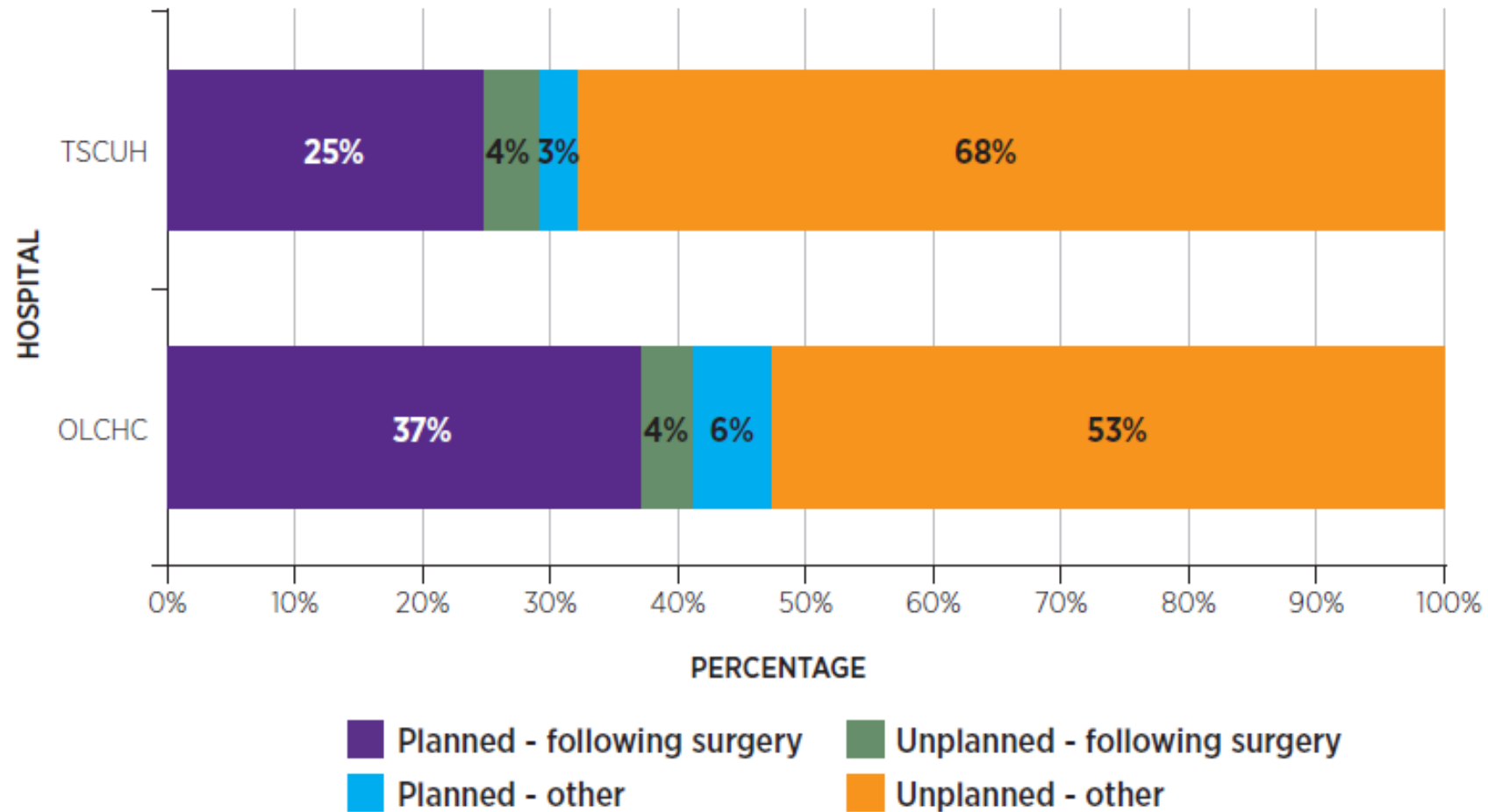
Admissions to all participating PICANet PICU in 2017 are presented in Figure 6.2.

OLCHC in Dublin was the third busiest PICU of all participating PICANet Units in terms of the number of children admitted in 2017 (Figure 6.2).

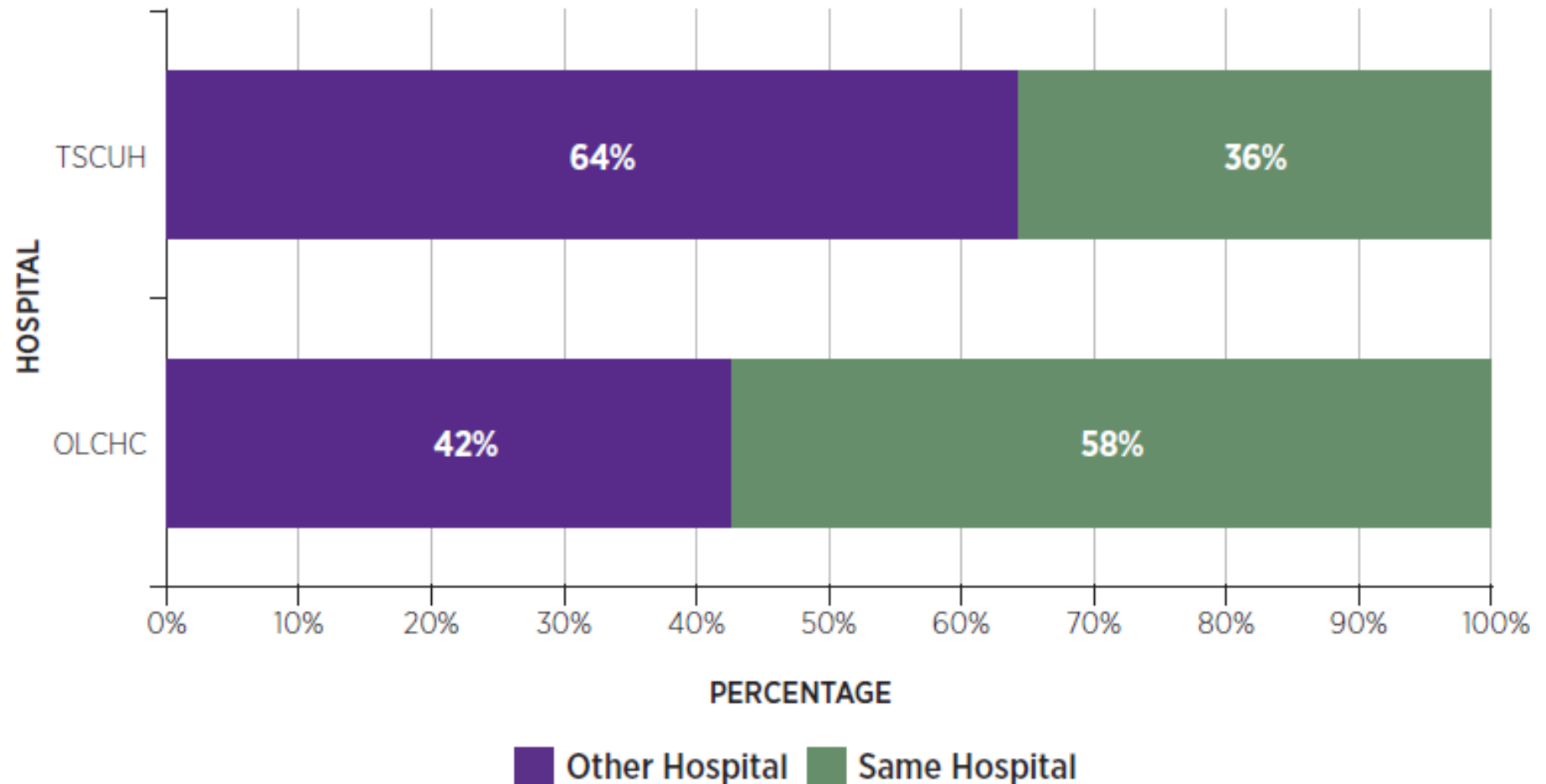




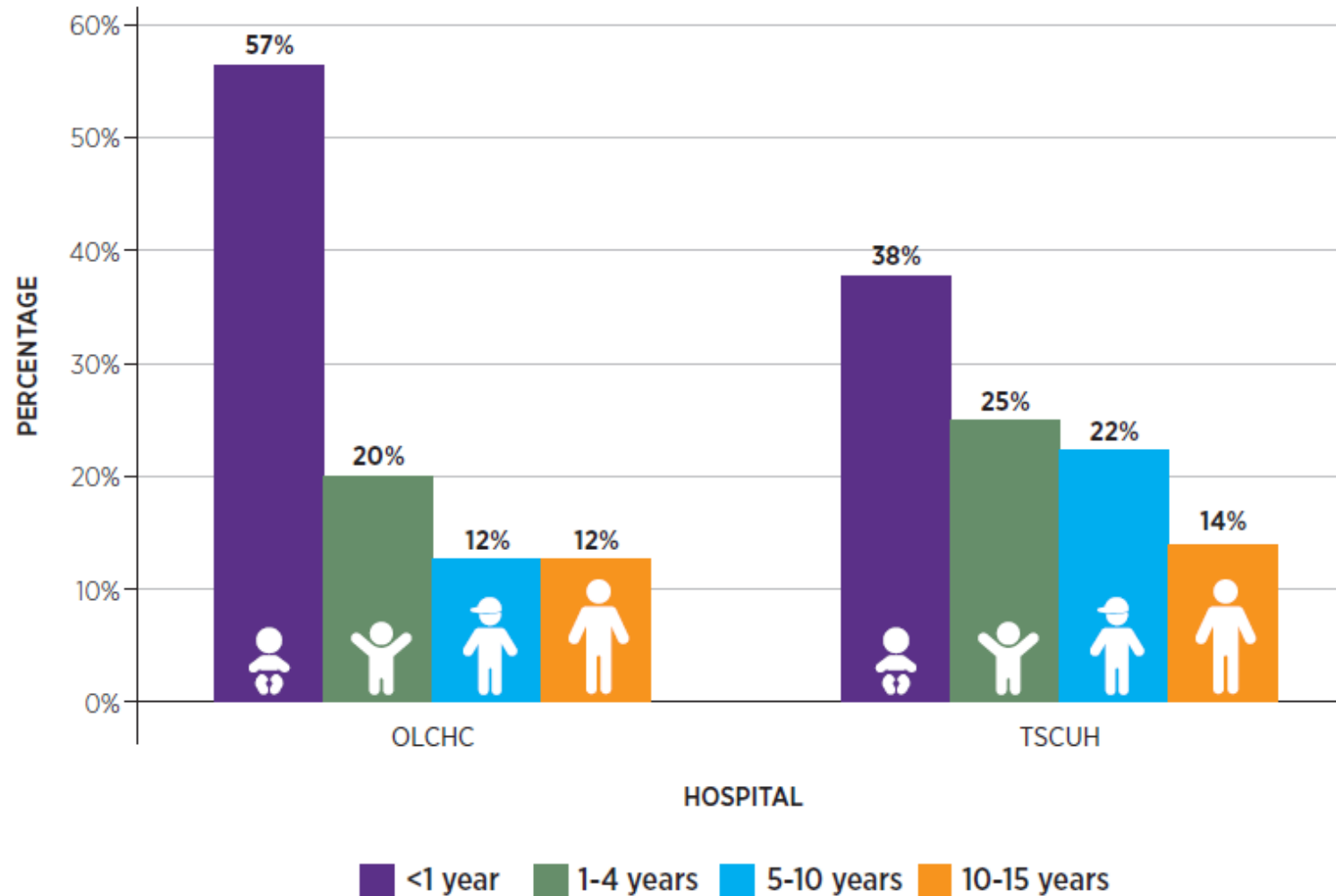
## Admissions to PICU in Ireland 2015–2017\*



## Unplanned admissions to PICU 2015–2017\*

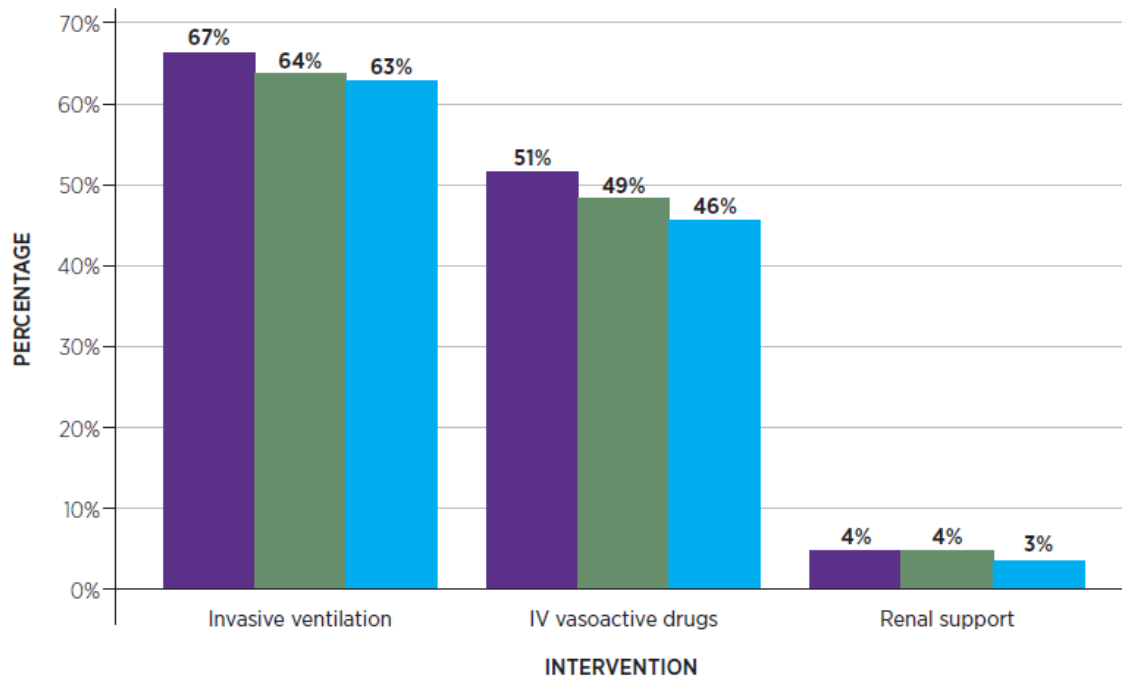


## Ages of children admitted to PICU (2017)

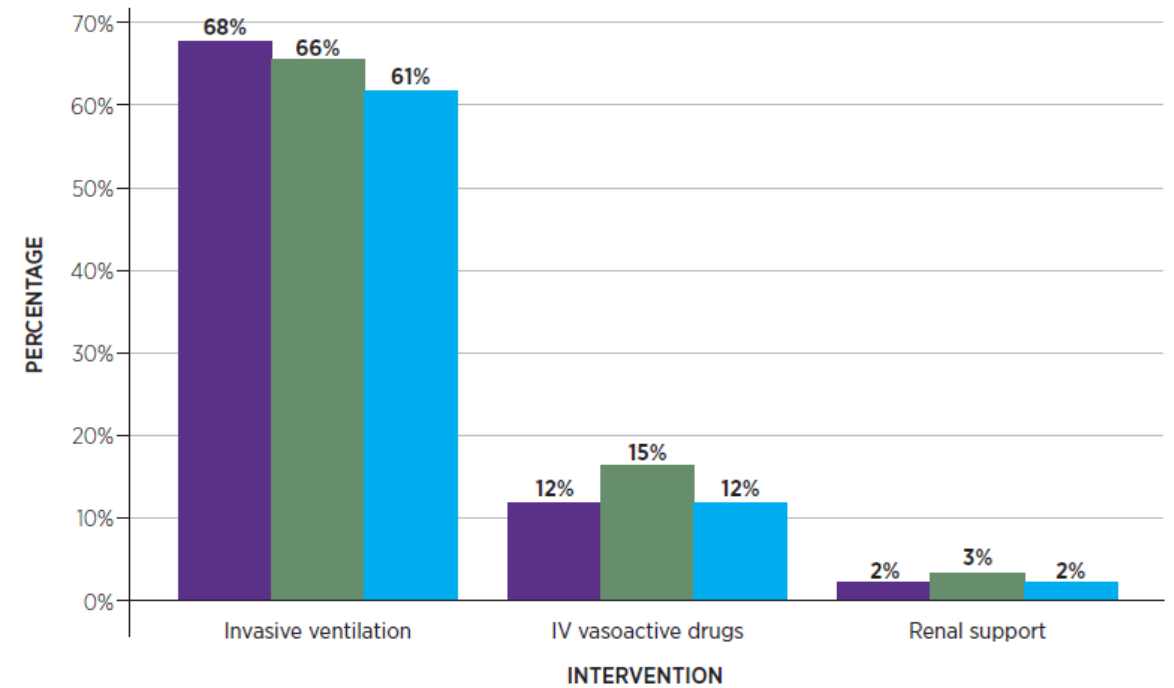


## Ventilation, vasoactive drugs and dialysis, 2015-17

OLCHC

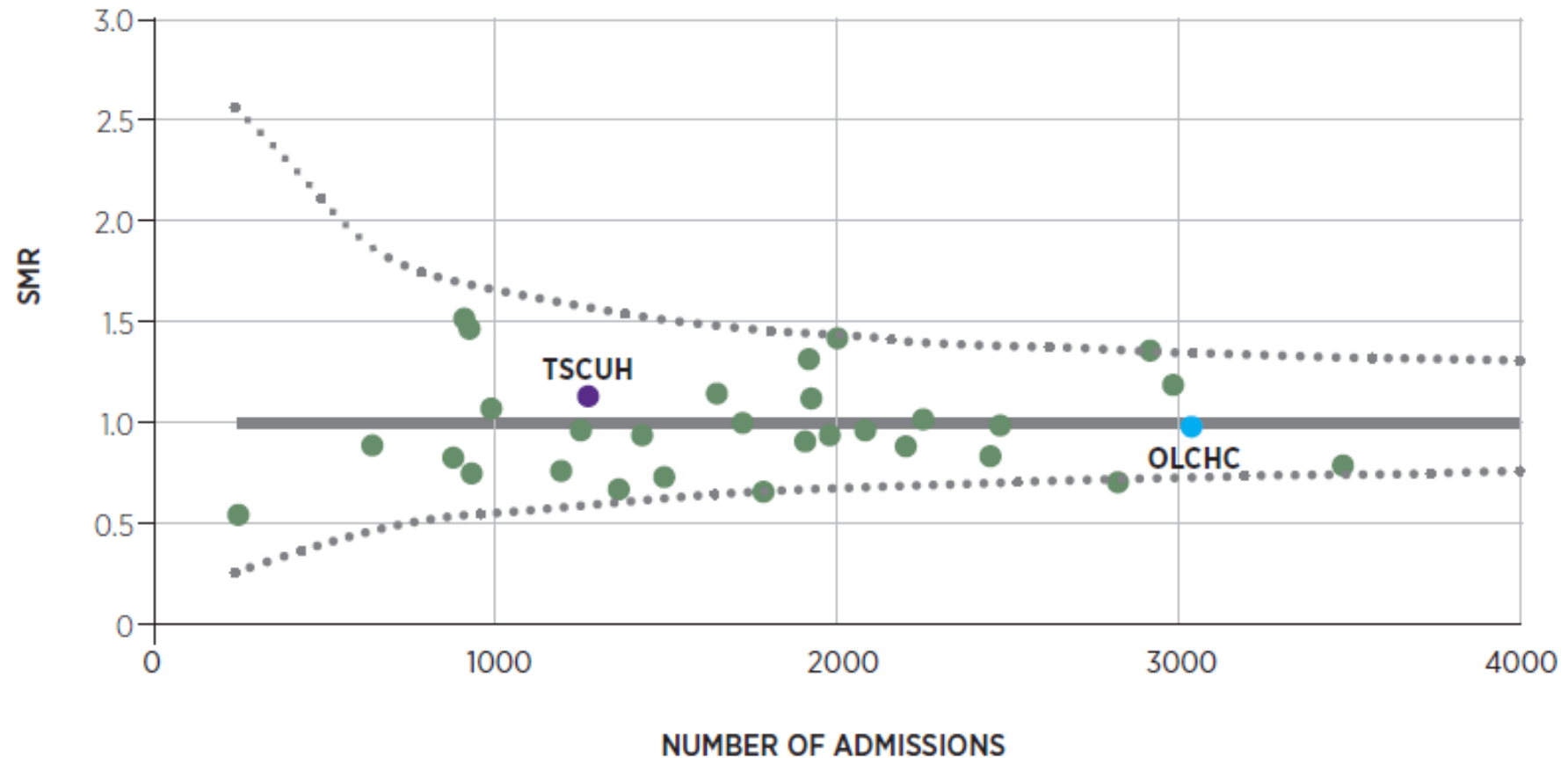


TSCUH

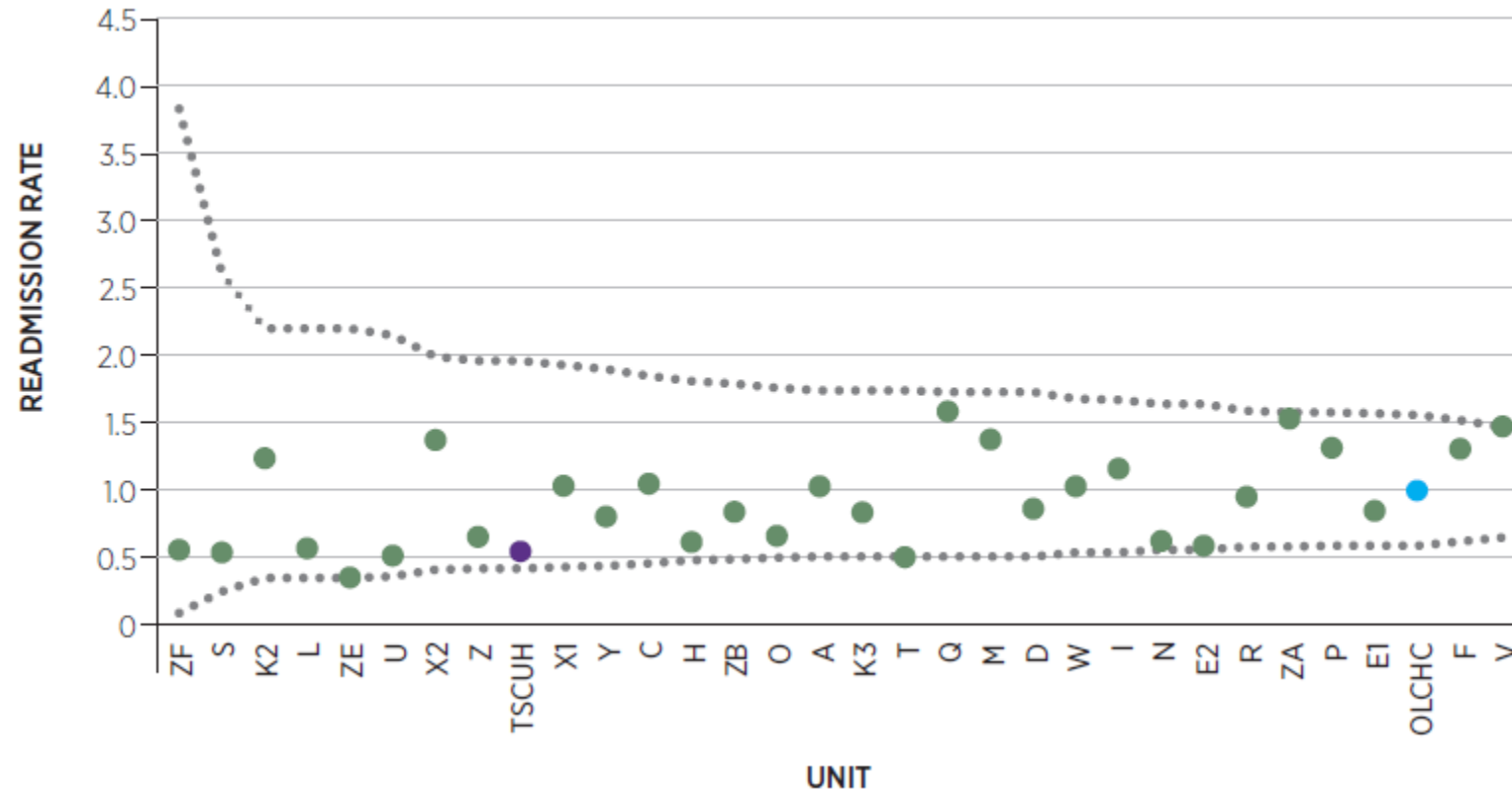


■ 2015 ■ 2016 ■ 2017

## Mortality; actual / predicted (SMR)

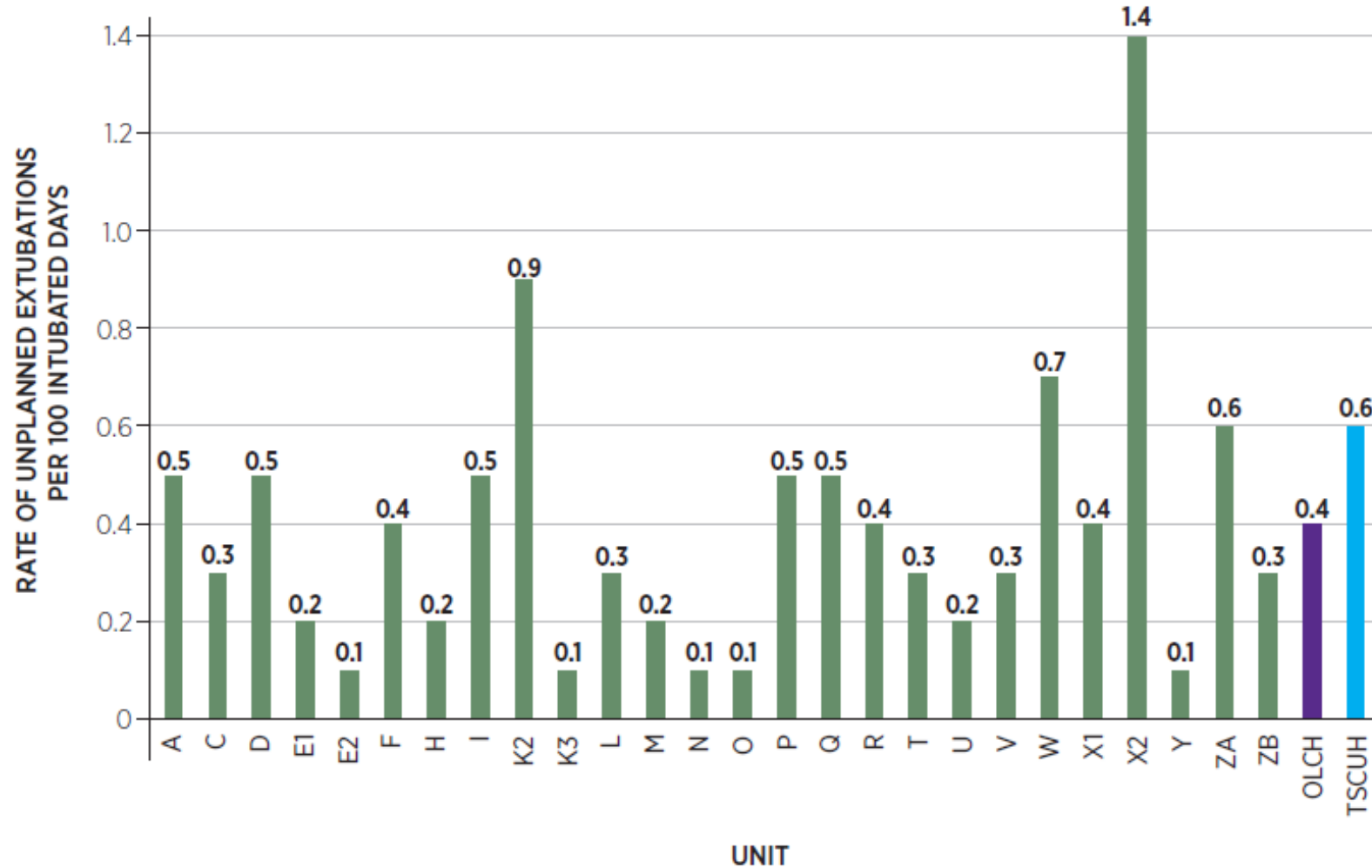


## Emergency readmissions within 48 hours





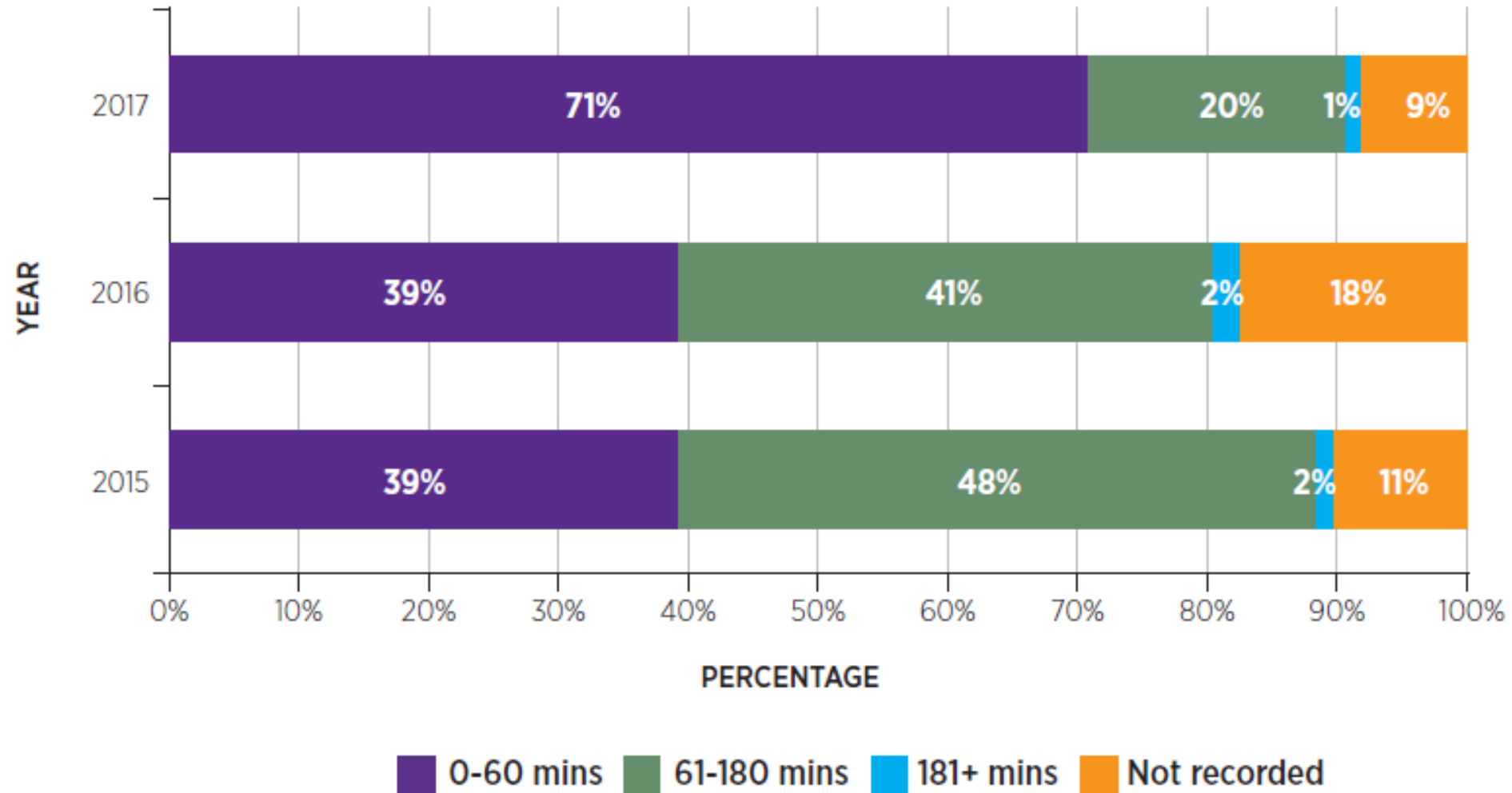
# Unplanned extubation



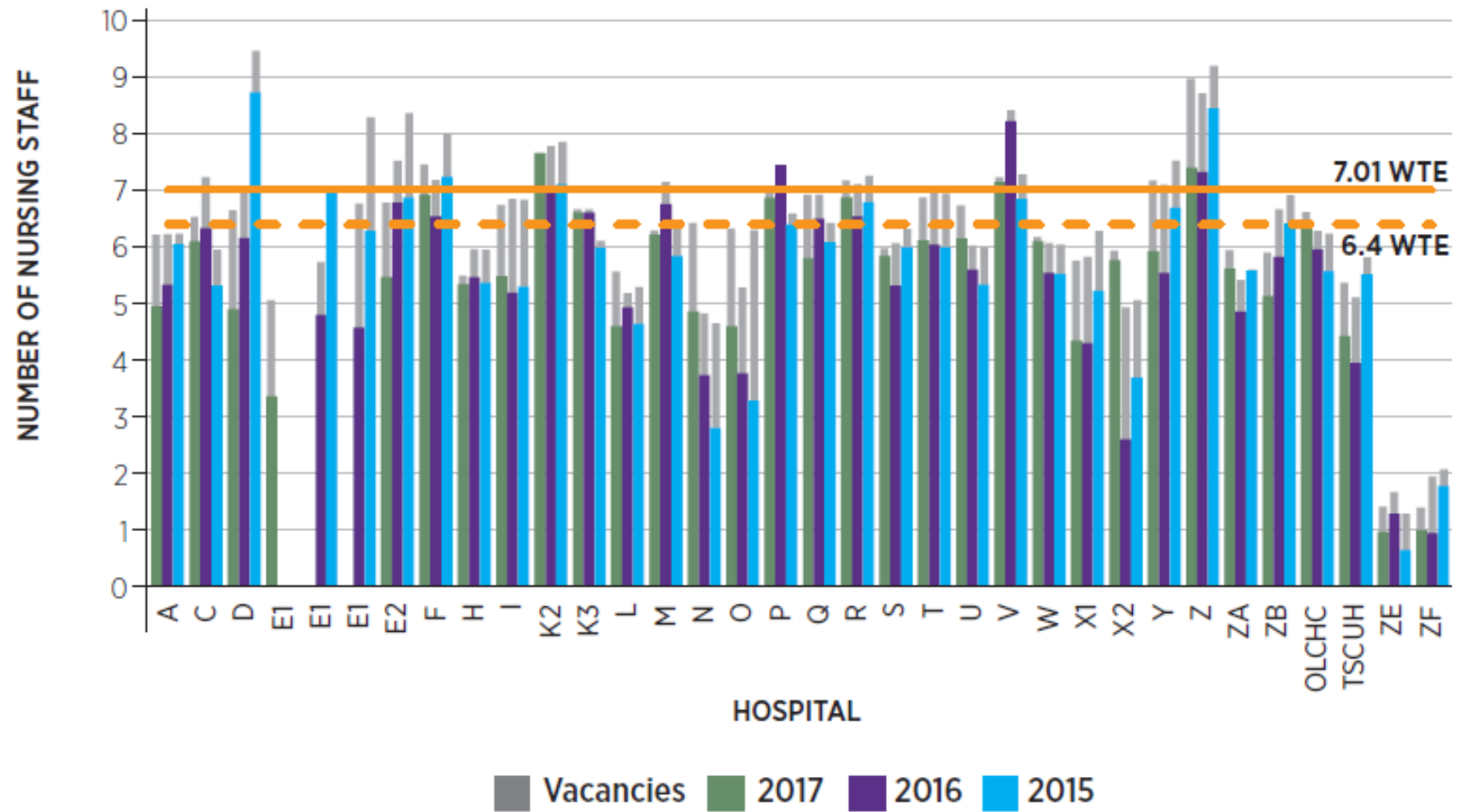
## Paediatric critical care transfers

**TABLE 6.8: IRELAND: ELECTIVE AND NON-ELECTIVE TRANSPORT, 2015-2017**

	<b>Total</b>	<b>Non-elective</b>	<b>Elective</b>	<b>Transported</b>	<b>Not transported</b>
<b>2015</b>	95	78	17	88	7
<b>2016</b>	115	106	9	108	7
<b>2017</b>	105	100	5	99	6



# Number of qualified nurses per ICU bed



## Findings

01



Mortality and unplanned readmission rates were within acceptable limits in both Units.

02



PICUs in Ireland provide good quality care and are a safe environment for critically ill children.

03



Both Units are operating at the limits of their capability (bed occupancy = 94%).

04



Children < 1 year old made up 51% of admissions. This means a challenging working environment.

05



Both PICUs (but especially Temple St) had problems with inadequate staffing levels and vacant nursing posts.

## PICANet; recommendations

- 1 The HSE should increase capacity in both PICUs to bring bed occupancy down to acceptable levels.
- 2 The HSE should work to extend the paediatric transfer service IPATS to 24 hours daily.
- 3 Develop a National database for ICU Audit to define the level of paediatric activity in adult ICUs

REPORT PREPARED BY THE FOLLOWING WITH ASSISTANCE FROM MEMBERS OF THE ICU AUDIT GOVERNANCE COMMITTEE

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*Irish National ICU Audit Clinical Lead*  
National Office of Clinical Audit (NOCA)

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**Professor David Harrison**

*Head Statistician*  
Intensive Care National Audit and Research Centre (ICNARC)

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And finally, a huge thank you to our dedicated ICU Audit  
Coordinators

