

IRISH PAEDIATRIC CRITICAL CARE AUDIT

NATIONAL REPORT 2024

APPENDICES



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APPENDIX 1: ICU AUDIT GOVERNANCE COMMITTEE MEMBERSHIP

NATIONAL ICU AUDIT GOVERNANCE COMMITTEE MEMBERSHIP AND MEETING ATTENDANCE 2024						
Representative	Name	14.03.24	13.06.24	19.09.24 (report approval)	12.12.24	Total for 2024
Chair	Dr Brian Marsh	Attended = ✓	Attended = ✓	Attended = ✓	Attended = ✓	4/4
NOCA Irish National ICU Audit Clinical Lead	Dr Rory Dwyer	Attended = ✓	Apologies =A	Attended = ✓	Attended = ✓	3/4
Joint Faculty of Intensive Care Medicine of Ireland	Dr Bairbre McNicholas	Attended = ✓	Attended = ✓	Attended = ✓	Attended = ✓	4/4
NOCA, Irish Paediatric Critical Care Audit Clinical Lead	Dr Martina Healy	Attended = ✓	X = Not attended	Attended = ✓	Attended = ✓	3/4
Intensive Care Society of Ireland	Dr Catherine Motherway	Attended = ✓	Attended = ✓	Attended = ✓	Attended = ✓	4/4
Royal College of Surgeons in Ireland	Prof. Paul Ridgway	Apologies =A	X = Not attended	X = Not attended	X = Not attended	0/4
Royal College of Physicians in Ireland	Dr Oisín O' Connell	X = Not attended	X = Not attended	X = Not attended	X = Not attended	0/4
Chief Directors of Nursing and Midwifery (CDONMs)	Mr Paul Gallagher	Attended = ✓	Attended = ✓	Attended = ✓	Apologies =A	3/4
Critical Care Programme, HSE	Dr Michael Power	X = Not attended	X = Not attended	X = Not attended	X = Not attended	0/4
HSE Office of the Nursing and Midwifery Services Director	Dr Derek Cribbin	Attended = ✓	Apologies =A	Attended = ✓	Attended = ✓	3/4
IPCCA regional representation	Dr Orla Neylon	Attended = ✓	X = Not attended	Attended = ✓	X = Not attended	2/4
NOCA ICU Audit Manager	Ms Mary Baggot	Attended = ✓	Attended = ✓	Attended = ✓	Attended = ✓	4/4
NOCA ICU Audit Manager	Ms Fionnuala Treanor	Attended = ✓	Attended = ✓	Attended = ✓	Attended = ✓	4/4
NOCA Paediatric Programme Assistant Audit Manager	Ms Karina Hamilton	Attended = ✓	Apologies =A	Attended = ✓	Attended = ✓	3/4
ICU Audit Coordinator representative	Ms Anita Glynn	Attended = ✓	Attended = ✓	Attended = ✓	Attended = ✓	4/4
IPCCU Audit Coordinator & Data Manager, CHI at Crumlin	Ms Mong Hoi Tan	Attended = ✓	Attended = ✓	Apologies =A	Attended = ✓	3/4
PPI (1) for INICUA	Ms Barbara Egan	Attended = ✓	Attended = ✓	Apologies =A	Attended = ✓	3/4
PPI (2) for INICUA	Mr Damian Nee	Attended = ✓	Attended = ✓	Attended = ✓	Attended = ✓	4/4
PPI (3) for IPCCA	Ms Fiona Fallon	Attended = ✓	Apologies =A	Attended = ✓	Attended = ✓	3/4

Attended = ✓

N/A = Not applicable

Apologies =A

R = Retired

X = Not attended

APPENDIX 2: IRISH NATIONAL INTENSIVE CARE UNIT AUDIT DATASET AND DATA COVERAGE

Irish National Intensive Care Unit Audit dataset

Dataset	Examples
Pre-ICU admission data	Demographic data; hospital transfer details; length of stay (LOS) in hospital prior to ICU admission
Severity of illness scoring systems	Acute Physiology and Chronic Health Evaluation (APACHE II); ICNARC Model; Sequential Organ Failure Assessment (SOFA) Score
Chronic illness	Metastatic; cardiovascular; other chronic disease
Interventions in ICU	Ventilation; invasive monitoring; dialysis; nutrition; intracranial pressure monitoring; transfers to operating theatre
Organ support	Respiratory, cardiovascular, renal, neurological, liver, dermatological and gastrointestinal support
Data to support HIPE coding	Diagnosis (current) during ICU stay; hours of ventilation
Infection in ICU	Unit- and hospital-acquired infection
Organ donation	Potential and actual organ donation
Post-ICU discharge data	Outcome and LOS in Unit, ward and hospital; patient journey details

DATA COVERAGE IN INTENSIVE CARE UNITS PARTICIPATING IN THE IRISH NATIONAL INTENSIVE CARE UNIT AUDIT, 2024

Key	Hospital name	Unit name	Q1	Q2	Q3	Q4
A	Beaumont Hospital	Beaumont Hospital General ICU	Y	Y	Y	Y
B	Beaumont Hospital	Beaumont Hospital (Richmond) Neurosurgical ICU	Y	Y	Y	Y
C	Mater Misericordiae University Hospital	Mater Misericordiae University Hospital HDU	Y	Y	Y	Y
D	Mater Misericordiae University Hospital	Mater Misericordiae University Hospital ICU	Y	Y	Y	Y
E	Our Lady of Lourdes Hospital Drogheda	Our Lady of Lourdes Hospital Drogheda ICU	Y	Y	Y	Y
F	St James's Hospital	St James's Hospital Cardiothoracic ICU	Y	Y	Y	Y
G	St James's Hospital	St James's Hospital General ICU	Y	Y	Y	Y
H	Tallaght University Hospital	Tallaght University Hospital ICU	Y	Y	N	Y
I	University Hospital Galway	University Hospital Galway ICU	Y	Y	Y	Y
J	University Hospital Limerick	University Hospital Limerick ICU	Y	Y	Y	Y

Key	Hospital name	Unit name	Q1	Q2	Q3	Q4
K	University Hospital Waterford	University Hospital Waterford ICU	Y	Y	Y	Y
L	Regional Hospital Mullingar	Regional Hospital Mullingar ICU	Y	Y	Y	Y
M	Wexford General Hospital	Wexford General Hospital ICU	Y	Y	Y	Y
N	Connolly Hospital	Connolly Hospital ICU	Y	Y	Y	Y
O	Midland Regional Hospital Tullamore	Midland Regional Hospital Tullamore ICU	Y	Y	Y	Y
P	Naas General Hospital	Naas General Hospital ICU	Y	Y	Y	Y
Q	St Luke's General Hospital, Carlow/Kilkenny	St Luke's General Hospital Carlow/Kilkenny ICU	Y	Y	Y	Y
R	St Vincent's University Hospital	St Vincent's University Hospital ICU	Y	Y	Y	Y
S	Cork University Hospital	Cork University Hospital Cardiothoracic ICU	Y	Y	Y	Y
T	Cork University Hospital	Cork University Hospital General ICU	Y	Y	Y	Y
U	Letterkenny University Hospital	Letterkenny University Hospital ICU	Y	Y	N	Y
V	Tipperary University Hospital	Tipperary University Hospital ICU	Y	Y	Y	Y
W	University Hospital Kerry	University Hospital Kerry ICU	Y	Y	Y	Y
X	Cavan General Hospital	Cavan General Hospital ICU	Y	Y	Y	N
Y	Mercy University Hospital	Mercy University Hospital Cork ICU	Y	Y	Y	Y
Z	Sligo University Hospital	Sligo University Hospital ICU	Y	Y	Y	Y
AB	Mayo University Hospital	Mayo University Hospital ICU	Y	Y	Y	Y
AC	Portiuncula University Hospital	Portiuncula University Hospital ICU	Y	Y	Y	Y
AD	Midland Regional Hospital Portlaoise	Midland Regional Hospital Portlaoise ICU	Y	Y	Y	Y

Note: The order in which Units are listed in this table reflects the order in which they began participating in the INICUA; this order is repeated in tables and figures throughout this report.

DATA INCLUDED IN THIS REPORT

NO DATA

APPENDIX 3: DESCRIPTION OF THE HEALTHCARE RESOURCE GROUP DEFINITIONS

Level	HRG code	HRG definitions	Description
Level 0	XB09Z	Enhanced care	Ward level care
Level 1	XB07Z	PCC High Dependency	Monitoring and interventions, high flow oxygen therapy
Level 2	XB06Z	PCC High Dependency Advanced	Non-invasive mechanical ventilation, inotropic support
Level 3	XB05Z	PCC Intensive Care Basic	Invasive ventilatory support and/or support for two or more organ systems
	XB04Z	PCC Intensive Care Basic Advanced	Mechanical ventilation and inotropic support
	XB03Z	PCC Intensive Care Advanced	Mechanical ventilation and renal replacement therapy
	XB02Z	PCC Intensive Care Advanced Enhanced	Complex interventions/organ support
	XB01Z	PCC Intensive Care ECMO/ECLS	ECMO

Mapping of PCCMDS codes to PCC Healthcare Resource Groups

HRG XB01Z Intensive Care ECMO/ECLS

Extracorporeal membrane oxygenation (ECMO)

Or Ventricular assist device (VAD)

Or Aortic balloon pump

HRG XB02Z Intensive Care Advanced Enhanced

Invasive mechanical ventilation (via either endotracheal tube or tracheostomy)

or

Advanced Respiratory Support (HFOV or jet ventilation)

Plus one or more of:

- Burns 50–79% BSA
- >80 ml/kg volume boluses

Or HRG XB03Z + Isolation in a single occupancy cubicle in the presence of a valid ICD10 code

HRG XB03Z Intensive Care Advanced

Invasive Mechanical Ventilation (via either endotracheal tube or tracheostomy)

or Advanced Respiratory Support (HFOV or jet ventilation)

Plus one or more of:

- Haemofiltration
- Haemodialysis
- Peritoneal dialysis
- Burns 50–79% BSA
- Extracorporeal Liver Support (MARS)
- Exchange transfusion
- Inhaled nitric oxide (iNO)
- Surfactant

- Plasmafiltration

Or HRG XB04Z + Isolation in a single occupancy cubicle in the presence of a valid ICD10 code

XB04Z Intensive Care Basic Advanced

Invasive Mechanical Ventilation (via either endotracheal tube or tracheostomy)

Plus one or more of:

- Vasoactive infusion
- Intracranial pressure (ICP) monitoring or external ventricular drain
- Burns 20–49% BSA
- Intravenous thrombolysis
- Cardiopulmonary resuscitation (CPR) in last 24 hrs

Or HRG XB05Z + Isolation in a single occupancy cubicle in the presence of a valid ICD10 code

XB05Z Intensive Care Basic

Invasive Mechanical Ventilation via either endotracheal tube

Or Invasive mechanical ventilation via tracheostomy

Plus one or more of:

- Continuous intravenous infusion of a sedative agent
- Invasive arterial monitoring
- Central venous pressure monitoring
- Epidural infusion

Or Non-invasive ventilation

Plus one or more of:

- Continuous intravenous infusion of a sedative agent
- Invasive arterial monitoring
- Central venous pressure monitoring
- Epidural infusion
- Vasoactive infusion
- >80 ml/kg volume boluses
- Haemofiltration
- Haemodialysis
- Peritoneal dialysis
- Plasmafiltration
- Extracorporeal Liver Support (MARS)
- CPR in last 24 hrs
- Intravenous thrombolysis
- Burns >20% BSA
- iNO
- Surfactant
- Exchange transfusion
- Intracranial pressure (ICP) monitoring or external ventricular drain

XB06Z High Dependency Advanced

Airway: Nasopharyngeal airway

Care of tracheostomy (first seven days of episode only)

Breathing:

- Non-invasive ventilation (including CPAP and BiPAP) (to max of 90 consecutive days of episode at 06Z)
- Invasive ventilation via a tracheostomy (to max of 90 consecutive days of episode at 06Z)

Circulation:

- >80 ml/kg volume boluses

- Vasoactive infusion (including inotropes and prostaglandin)
- Temporary external pacing
- Cardiopulmonary resuscitation in the last 24 hours

Diagnosis:

- Acute renal failure requiring dialysis or haemofiltration
- Status epilepticus requiring treatment with continuous IV infusion

Monitoring:

- Invasive arterial monitoring
- Central venous pressure monitoring
- Intracranial pressure (ICP) monitoring or external ventricular drain

Other:

- Exchange transfusion
- Intravenous thrombolysis
- Extracorporeal liver support (MARS)
- Plasmafiltration
- Epidural infusion

XB07Z High Dependency

Airway:

- Upper airway obstruction requiring nebulised adrenaline

Breathing:

- Apnoea – recurrent
- Oxygen therapy plus continuous pulse oximetry plus ECG monitoring
- Heated humidified high flow therapy plus continuous pulse oximetry plus ECG monitoring
- Invasive ventilation via a tracheostomy (after 90 days of episode at XB06Z)
- Non-invasive ventilation (including CPAP and BiPAP) (after 90 days of episode at XB06Z)

Circulation:

- Arrhythmia requiring IV anti-arrhythmic therapy

Diagnosis:

- Severe asthma (IV bronchodilator / continuous nebulisers)
- Diabetic ketoacidosis requiring continuous insulin infusion

Other:

Reduced level of consciousness (Glasgow Coma Score (GCS) 12 or below) and hourly (or more frequent) GCS monitoring

DEFINITION OF PAEDIATRIC CRITICAL CARE LEVELS IN IRELAND

Level 0: Ward-based care
Hospital ward clinical management.
Level 1: High-dependency care requiring a nurse–patient ratio 0.5:1
A discrete area or unit where Level 1 paediatric critical care is delivered. Close monitoring and observation are required, but not acute mechanical ventilation. Patients who require basic respiratory, circulatory, neurological or renal support and whose needs cannot be met on the acute ward, and who instead require the input of the critical care team, or, in the case of a Regional High Dependency Unit (RH DU), the agreed paediatric cover according to the standards.
Level 1: HDU: Regional HDU care
In addition to providing enhanced observation and basic system supports, regional level 1 HDUs due to availability of subspecialist expertise may continue to care for those requiring more complex care such as a continuation of long-term ventilation via tracheostomy or non-invasively. A consensus to care for such patients locally should be reached on a case-by-case basis following early communication with the lead centre.
Level 2: Critical care requiring a nurse–patient ratio of 1:1
The child who is receiving advanced respiratory support (complex non-invasive or invasive ventilation) and who requires continuous nursing supervision. Level 2 also pertains to the unstable, non-intubated child, e.g. the haemodynamically unstable patient who requires invasive cardiovascular monitoring, frequent fluid challenges, and vasoactive drug infusions. The child meeting Level 2 criteria should be treated at a paediatric critical care medicine lead centre, except in a case where the regional and lead centre consultants agree that the child can be safely cared for locally.
Level 3: Critical care requiring a nurse–patient ratio of 1:1
The critically ill child with two or more organ failures, requiring intensive supervision, who needs additional complex therapeutic procedures. For example, patients requiring respiratory support, patients with multi-organ failure requiring vasoactive and inotropic medications, and postoperative patients requiring ventilation and vasoactive medications, such as those who have had major abdominal surgery or paediatric scoliosis surgery.
Level 3s: Critical care requiring a nurse–patient ratio of 2:1
The critically ill child requiring the most intensive therapeutic interventions, e.g. paediatric neuro-critical care, paediatric extracorporeal life support (ECLS), paediatric cardiac critical care, and/or paediatric renal replacement therapy (RRT). These criteria may change with advances in technology.

Source: Joint Faculty of Intensive Care Medicine of Ireland, 2018.

APPENDIX 4: FREQUENCY TABLES

Figure 4.1: Total number of admissions to Units participating in PICANet, by Unit, 2024 (N=18,021)

NHS trust	2024
E1, E2, E3	1793
V	1117
CHI at Crumlin	1081
P	958
D	945
F1	820
ZA	765
W	753
R	731
N	688
Y	669
CHI at Temple Street	612
I	589
A	563
Q	539
K3	528
T	500
M	471
H	461
F2	454

U	448
C	426
Z	413
X3X1	357
ZB	349
X2	324
K2	228
ZF	228
L	211
Total	18 021

Figure 4.2: Age profile of children in PCCUs in CHI at Crumlin (n=1098) and CHI at Temple Street (n=617), 2024

Age Group	CHI at Crumlin		CHI at Temple St.	
	Count	%	Count	%
Neonates	280	25.5%	106	17.2%
Under 1s	265	24.1%	114	18.5%
1–4 years	242	22.0%	169	27.4%
5–10 years	151	13.8%	119	19.3%
11–15 years	143	13.0%	104	16.9%
16 years and over	17	1.5%	~	*
Total	1098		617	

~ Denotes five cases or fewer.

* Further suppression required in order to prevent disclosure of five cases or fewer.

Figure 4.3: Admissions to CHI at Crumlin (n=606) and CHI at Temple Street (n=473), by type, 2023–2024

Year	Crumlin		Temple Street	
	2023	2024	2023	2024
Planned following surgery	363	383	101	94
Planned other	51	57	18	13
Unplanned following surgery	79	43	17	37
Unplanned other	703	615	391	473
Total	1196	1098	527	617

Figure 4.4: Source of ‘unplanned – other’ PCCU admissions to CHI at Crumlin (n=606) and CHI at Temple Street (n=473), 2024

	CHI at Crumlin		CHI at Temple Street	
	n	%	n	%
Other hospital	267	44%	306	65%
Same hospital	339	56%	167	35%
Total	606		473	

Figure 4.5: Admissions to PCCUs in the ROI, by primary diagnosis, 2024 (N=1693)

	Crumlin		Temple Street	
	n	%	n	%
Musculoskeletal	34	3.1%	23	3.8%
Oncology	16	1.5%	31	5.1%
Infection	39	3.6%	20	3.3%
Endocrine / metabolic	36	3.3%	45	7.4%
Gastrointestinal	66	6.1%	36	5.9%
Neurological	66	6.1%	139	22.7%
Cardiovascular	429	39.7%	15	2.5%
Respiratory	294	27.2%	230	37.6%
Other	101	9.3%	73	11.9%
Total	1081		612	

Figure 4.6: Admissions to PCCUs in the ROI, by primary diagnosis and elective status, 2024 (N=1693)

Primary diagnosis	Planned		Unplanned	
Musculoskeletal	52	91%	5	9%
Oncology	40	85%	7	15%
Infection	2	3%	57	97%
Endocrine / metabolic	2	2%	79	98%
Gastrointestinal	21	21%	81	79%
Neurological	19	9%	186	91%

Cardiovascular	299	67%	145	33%
Respiratory	44	8%	480	92%
Other	57	33%	117	67%

Figure 4.7: Neonatal PCCU admissions in CHI at Crumlin (n=280) and CHI at Temple Street (n=106), by primary diagnosis, 2024

Primary diagnosis		Crumlin		Temple Street
Oncology	~	*	~	*
Neurological	~	*	14	13%
Endocrine / metabolic	6	2%	~	*
Infection	7	3%	~	4%
Gastrointestinal	34	12%	27	25%
Other	45	16%	17	16%
Respiratory	46	16%	36	34%
Cardiovascular	135	48%	~	*

~ Denotes five cases or fewer.

* Further suppression required in order to prevent disclosure of five cases or fewer.

Figure 4.8: Neonatal respiratory admissions to PCCUs in the ROI, by age, 2023 (n=148) and 2024 (n=82)

Age	2023	2024
Neonate	148	82
Total	148	82

Figure 4.9: Paediatric admissions to adult ICUs in the ROI, by HSE health region, 2024 (n=128)

Health Region	Unit	n
HSE West and North West	University Hospital Galway	49
	Portiuncula University Hospital	19
	Sligo University Hospital	14
	Mayo University Hospital	14
	Letterkenny University Hospital	7
HSE South West	Cork University Hospital	8
	University Hospital Kerry	8
HSE Dublin and South East	Tipperary University Hospital	2
	University Hospital Waterford	5
	Wexford General Hospital	1
	St Luke's General Hospital	1

Figure 5.1: Number of bed days delivered in each Unit participating in PICANet, by Unit, 2024 (N=144586)

NHS trust	Total Bed Days
L	1738
X2	2032
K2	2670
ZB	2670

CHI at Temple Street	2790
X3X1	2859
Z	2926
K3	3066
A	3103
C	3109
U	3334
E3	3401
F2	3509
T	4132
H	4321
Q	4564
I	4766
M	4933
N	5022
Y	5121
E1	5357
F1	5384
ZF	5412
R	5451
ZA	5986
W	6047
P	6145
E2	6515
CHI at Crumlin	7484

D	9763
V	10976
Total	144 586

Figure 5.2: Percentage of total bed days delivered in CHI at Crumlin (n=7484) and CHI at Temple Street (n=2790), by age group, 2024

Bed days	CHI at Crumlin		CHI at Temple Street	
<1 month	2479	33%	456	16%
1–3 months	1135	15%	306	11%
4–5 months	369	5%	57	2%
6–11 months	703	10%	247	9%
Over 1 year	2798	37%	1724	62%

Figure 5.3: Bed occupancy in CHI at Crumlin and CHI at Temple Street, by month, 2024

Month	Crumlin	Temple Street	Target
Jan	91%	113%	85%
Feb	96%	90%	85%
Mar	100%	96%	85%
Apr	97%	94%	85%
May	93%	78%	85%
Jun	88%	79%	85%
Jul	87%	73%	85%
Aug	68%	70%	85%
Sept	89%	90%	85%
Oct	93%	89%	85%
Nov	100%	81%	85%
Dec	102%	102%	85%

Figure 5.4: Median LOS in each Unit participating in PICANet, by Unit, 2024

NHS trust	Median LOS (days)
E3	5.0
K2	4.1
E2	3.9
L	3.7
D	3.3
V	3.2
X3X1	3.1

U	3.0
F2	3.0
I	3.0
Z	2.9
ZB	2.9
C	2.9
T	2.9
H	2.9
CHI at Crumlin	2.9
F1	2.9
M	2.8
W	2.8
R	2.8
P	2.7
K3	2.7
N	2.4
E1	2.3
ZA	2.3
ZF	2.2
Q	2.0
Y	2.0
X2	1.9
A	1.8
CHI at Temple Street	1.7

Figure 5.5: Proportion of admissions receiving care at each HRG level in CHI at Crumlin (n=1081) and CHI at Temple Street (n=612), 2024

HRG level	CHI at Temple Street		CHI at Crumlin	
Level 5 Advanced Critical Care (ECMO/ECLS)	1	0.2%	15	1.4%
Level 4 Advanced Critical Care	11	1.8%	15	1.4%
Level 3 Advanced Critical Care	18	2.9%	83	7.7%
Level 2 Advanced Critical Care	110	18.0%	380	35.2%
Level 1 Advanced Critical Care	156	25.5%	201	18.6%
Intermediate Critical Care	150	24.5%	210	19.4%
Basic Critical Care	116	19.0%	121	11.2%
Enhanced Care	50	8.2%	56	5.2%

Figure 5.6: Interventions delivered to patients in CHI at Crumlin and CHI at Temple Street, 2024

Intervention	CHI at Crumlin		CHI at Temple Street	
Invasive ventilation	679	62%	293	47%
Non-invasive ventilation	250	23%	163	26%
High-flow nasal cannula therapy	459	42%	256	41%
Vasoactive drugs	278	44%	81	13%
ECMO	15	1%	~	*
Renal support	24	2%	12	2%
ICP device	~	*	40	6%

~ Denotes five cases or fewer.

* Further suppression required in order to prevent disclosure of five cases or fewer.

Figure 5.7: Admissions to PCCUs in the ROI (N=1693) and all PICANet participating units, by PIM3 risk groups, 2024 (N=18021)

PCCU	<1%	1–5%	5–15%	15–30%	>30%
CHI at Crumlin	40%	44%	12%	3%	1%
CHI at Temple Street	32%	50%	14%	2%	2%
All PICANet participating units	37%	46%	11%	3%	2%

Figure 5.8: Crude mortality rate in each Unit participating in PICANet, by Unit, 2024

NHS trust	Raw number of deaths	Crude mortality
ZF	~	0.9%
T	9	1.8%
Y	15	2.2%
F2	11	2.4%
N	19	2.8%
H	13	2.8%
Z	12	2.9%
F1	24	2.9%
E2	22	2.9%
ZA	24	3.1%
ZB	11	3.2%
CHI at Temple Street	21	3.3%
C	14	3.3%
CHI at Crumlin	36	3.3%
Q	18	3.3%
A	19	3.4%

R	25	3.4%
D	35	3.7%
X2	12	3.7%
X3X1	14	3.9%
K2	9	3.9%
M	19	4.0%
U	19	4.2%
W	32	4.2%
K3	24	4.5%
L	10	4.7%
E3	12	4.8%
V	60	5.4%
E1	46	5.8%
I	37	6.3%
P	66	6.9%

~ Denotes five cases or fewer.

Figure 5.10: Age distribution of deaths in PCCUs in the ROI, 2024 (n=57)

Age	n	Percentage
Extremely/very preterm (<32 weeks)	8	14%
Moderate to late preterm (33-37 weeks)	10	18%
Term (38-42 weeks)	8	14%
<1yr (excluding Neonates)	13	23%
1-4 years	~	7%

5-10 years	~	7%
11-15 years	10	18%

~ Denotes five cases or fewer.

Figure 5.11: Deaths in PCCUs in the ROI, by primary diagnosis, 2024 (n=57)

Primary Diagnosis Group	Deaths	%
Body wall and cavities	6	11%
Respiratory	6	11%
Neurological	10	18%
Gastrointestinal	10	18%
*Other	12	21%
Cardiovascular	13	23%
Total	57	

Figure 5.12: Mode of death in PCCUs in the ROI, 2024 (n=56)

Mode of death	n	%
Treatment withdrawn	37	65%
Treatment limitation	8	14%
Death by neurological criteria	6	11%

Failed cardiopulmonary resuscitation	6	11%
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Figure 6.1: Cardiology category of cardiovascular admissions to PCCUs in CHI (n=447), 2024

Cardiology Group	Percentage	
Cardiothoracic	285	64%
Cardiology medical	109	24%
Cardiac catheterisation	53	12%

Figure 6.2: Age profile of cardiovascular admissions to PCCUs in CHI (n=447), by category, 2024

Age group	Cardiothoracic	Cardiology Medical	Cardiac catheterisation
Neonate	22%	39%	70%
<1 year (excluding neonates)	43%	21%	19%
1–4 years	21%	16%	5%
5–10 years	8%	9%	4%
11–16 years	6%	16%	2%

Figure 6.3: Admission type for cardiovascular admissions to PCCUs in CHI (n=447), by category, 2024

Admission Type	Cardiothoracic	Cardiology Medical	Cardiac catheterisation
Planned – following surgery	90%	2%	34%

Planned – other	2%	11%	28%
Unplanned – following surgery	1%	4%	6%
Unplanned – other	8%	83%	32%

Figure 6.4a: LOS and days ventilated for specific cardiac diagnosis admissions to PCCUs in CHI (n=123), 2024

Defect	Median LOS	Median Invasive Ventilation days
Single ventricle defect	4.8	2
Ventricular septal defect	2.9	2
Atrial septal defect	1.8	2
Atrioventricular septal defect	3.4	3
Double outlet right ventricle	3.7	2

Figure 6.4b: LOS for cardiovascular admissions to PCCUs in CHI (n=447), by category,2024

LOS group	Cardiothoracic		Cardiology Medical		Cardiac catheterisation	
<1 day	25	9%	20	18%	13	25%
1 to <3 days	108	38%	35	32%	26	49%
3 to <7 days	92	32%	21	19%	10	19%
7 to <14 days	40	14%	14	13%	1	2%
14 to <28 days	16	6%	11	10%	1	2%
28+ days	4	1%	8	7%	2	4%

Figure 6.5: Cardiac group admissions to PCCUs in the ROI, by PIM3 risk groups, 2024 (N=447)

Cardiology Group	PIM 3 group	n	Percentage
Cardiothoracic	<1%	121	42%
	1–5%	147	52%
	5–15%	13	5%
	15–30%	3	1%
	30%+	1	0.50%
Cardiology Medical	<1%	7	6%
	1–5%	60	55%
	5–15%	25	23%
	15–30%	13	12%
	30%+	4	4%
Cardiac catheterisation	<1%	9	17%
	1–5%	32	60%
	5–15%	10	19%
	15–30%	1	2%
	30%+	1	2%

Figure 6.6: Mortality of cardiac admissions to PCCUs in the ROI, by category, 2024 (N=447)

	Cardiothoracic	Cardiology Medical	Cardiac catheterisation
Alive	99%	91%	98%
	283	99	52
Dead	1%	9%	2%
	2	10	1

Figure 6.7: Neurosurgical admissions to PCCUs in the ROI, by category, 2024 (N=75)

Category	n	Percentage
Neuro-oncology	35	47%
Trauma	17	23%
CSF diversion	15	20%
Other	8	11%
Total	75	

Figure 6.8: Age profile of neurosurgical admissions to PCCUs in CHI (n=75), by category, 2024

Age	Neuro-oncology	Trauma	CSF diversion	Other
Neonates	0%	0%	27%	0%
<1 year (excluding neonates)	3%	18%	13%	13%
1–4 years	43%	24%	13%	13%
5–10 years	40%	41%	40%	25%
11–16 years	14%	18%	7%	50%

Figure 6.9: Median length of stay and invasive ventilation days for neurosurgical admissions to PCCUs in CHI (n=75), by category, 2024

Neurological admission	Median LOS	Median Invasive Ventilation days
Neuro-oncology	1.2	1
Trauma	2.9	3
CSF diversion	1.1	1
Other	1.5	1

Figure 6.10: Neurosurgical admissions to PCCUs in the ROI, by PIM3 risk groups, 2024 (N=75)

PIM 3 risk group	Neuro-oncology	Trauma	CSF Diversion	Other
<1%	49%	12%	13%	25%
1–5%	51%	76%	74%	38%
5–15%	0%	6%	13%	38%
15–30%	0%	0%	0%	0%
30%+	0%	6%	0%	0%

Figure 6.11: Mortality of neurosurgical admissions to PCCUs in the ROI, by category, 2024 (N=75)

	Neuro-oncology	Trauma	CSF diversion	Other
Alive	100%	94%	93%	100%
	35	*	*	8
Dead	0%	6%	7%	0%
	0	~	~	0

~ Denotes five cases or fewer.

* Further suppression required in order to prevent disclosure of five cases or fewer.

Figure 7.1: TOF admissions (n=181) to PCCUs in the ROI as a percentage of total admissions and rate per 1,000 live births, 2015–2024

Year	% of Total admissions	Rate per 1,000 live births
2015	0.9%	0.20
2016	0.7%	0.16
2017	1.3%	0.32

2018	1.6%	0.39
2019	0.6%	0.17
2020	1.2%	0.30
2021	2.0%	0.56
2022	1.0%	0.31
2023	1.2%	0.38
2024	0.9%	0.28

Figure 7.2: TOF admissions (n=181) to PCCUs in the ROI, 2015–2024

Year	CHI at Crumlin	CHI at Temple Street
2015	5	8
2016	8	2
2017	12	8
2018	18	6
2019	5	5
2020	12	5
2021	24	10
2022	7	10
2023	15	6
2024	13	2

Figure 7.3: Age distribution of TOF (n=181) admissions to PCCUs in the ROI, 2015–2024

Age group	TOF
Neonate	86%
<1 year (excluding neonates)	9%
Over 1 year	5%

Figure 7.4: Days of invasive ventilation for TOF (n=181) admissions to PCCUs in the ROI, 2015–2024

Days of invasive ventilation	Percentage
0	10%
1 to 7 days	64%
8 to 14 days	13%
15 to 30 days	7%
>31 days	6%

Figure 7.5: LOS for TOF (n=181) admissions to PCCUs in the ROI, 2015–2024

LOS (days)	TOF
<1	5%
1 to <3	13%
3 to <7	39%
7 to <14	20%
14 to <28	13%
28+	9%

Figure 7.6: PIM3 risk groups for TOF (n=181) admissions to PCCUs in the ROI, 2015–2024

PIM3 group	TOF
<1%	13%
1–5%	68%
5–15%	18%
15–30%	1%
30%+	1%

Figure 7.7: CDH admissions (n=249) to PCCUs in the ROI, as a percentage of total admissions and rate per 1,000 live births, 2010–2025

Year	% of Total admissions	Rate per 1,000 live births
2010	0.5%	0.09
2011	0.7%	0.15
2012	0.9%	0.2
2013	0.8%	0.17
2014	1.9%	0.43
2015	1.6%	0.35
2016	0.8%	0.17
2017	0.9%	0.21
2018	0.7%	0.16
2019	1.0%	0.27
2020	1.1%	0.29
2021	1.0%	0.26
2022	1.2%	0.37
2023	0.7%	0.22

2024	1.3%	0.41
2025	1.0%	0.31

Figure 7.8: Place of birth for CDH admissions (n=249) to PCCUs in the ROI, 2010–2025

Maternity hospital	%	n
Coombe Hospital	23%	58
National Maternity Hospital	29%	72
Rotunda Hospital	20%	49
Other hospital	28%	69
Missing	0.4%	1

Figure 7.9: Mode of delivery for CDH admissions (n=249) to PCCUs in the ROI, 2010–2025

Mode of delivery	Percentage	n
Spontaneous vaginal delivery	41%	101
Emergency caesarian section	17%	42
Planned caesarian section	33%	81
Not available	10%	25

Figure 7.10: Defect location for CDH admissions (n=249) to PCCUs in the ROI, 2010–2025

CDH side	Percentage	n
Left side	84%	210
Right side	13%	32
Bilateral	*	~

Central	*	~
Missing	*	~
Total	100%	249

~ Denotes five cases or fewer.

* Further suppression required in order to prevent disclosure of five cases or fewer.

Figure 7.11: Duration of invasive ventilation for CDH admissions (n=249) to PCCUs in the ROI, 2010–2025

ETT duration (days)	n	Percentage
0	23	9%
1 to 7	62	25%
8 to 14	62	25%
15 to 21	40	16%
22 to 30	34	14%
>31	28	12%

Figure 7.12: LOS by gestation for CDH admissions (n=249) to PCCUs in the ROI, 2010–2025

	LOS	<34 weeks	34–37 weeks	>38 weeks
PICU LOS	<7 days	29%	19%	26%
	7–30 days	29%	52%	54%
	>30 days	41%	29%	20%
Total Hospital LOS	<7 days	23.5%	13%	11%
	7–30 days	23.5%	23%	39%
	>30 days	53%	64%	50%

Figure 7.13: LOS by side of defect for CDH admissions (n=249) to PCCUs in the ROI, 2010–2025

	LOS	Left side	Right side	Bilateral/Central
PICU LOS	<7 days	23%	16%	80%
	7–30 days	53%	40%	20%
	>30 days	24%	44%	0%

Figure 7.14: Survival for CDH admissions (n=249) to PCCUs in the ROI, 2010–2025

Year	Alive	RIP
2010	86%	14%
2011	73%	27%
2012	71%	29%
2013	92%	8%
2014	79%	21%
2015	78%	22%
2016	82%	18%
2017	62%	38%
2018	70%	30%
2019	81%	19%
2020	81%	19%
2021	94%	6%
2022	85%	15%
2023	92%	8%
2024	68%	32%
2025	100%	0%

Figure 8.1: Proportion of admission records completed within 3 months of discharge by CHI at Crumlin and CHI at Temple Street, 2022–2024

	CHI at Crumlin			CHI at Temple Street		
Year	2022	2023	2024	2022	2023	2024
Completed within 3 months	1%	69%	100%	98%	90%	78%
Not completed within 3 months	99%	31%	0%	2%	10%	22%

Figure 8.2: Non-elective transports by mobilisation times (in minutes) in the ROI, 2022–2024 (n=463)

Year	0–30 minutes	31–60 minutes	61–180 minutes	>180 minutes	Not recorded
2018	5%	63%	26%	0%	6%
2019	13%	59%	22%	0%	6%
2020	18%	54%	16%	1%	11%
2021	18%	59%	15%	2%	6%
2022	27%	50%	19%	0%	4%
2023	27%	48%	20%	0%	5%
2024	39%	47%	10%	0%	4%

Figure 8.3: Non-elective transports in the ROI, by time (in minutes) to bedside, 2022–2024 (n=463)

Year	0–60 mins	61–120 mins	121–180 mins	181–240 mins	241+ mins	Not recorded
2018	5%	22%	30%	31%	6%	6%
2019	12%	23%	33%	23%	2%	6%
2020	8%	22%	25%	30%	3%	11%
2021	9%	20%	28%	30%	7%	6%
2022	10%	22%	35%	19%	10%	4%
2023	11%	21%	33%	24%	6%	5%
2024	13%	29%	29%	22%	4%	3%

Figure 8.4: Percentage of emergency readmissions within 48 hours of discharge from Units participating in PICANet, 2024

Unit	Percentage of emergency readmissions (%)
T	0.5
ZF	0.7
E2	0.8
Temple Street	0.8
L	1.0
ZB	1.0
N	1.0
Q	1.1
D	1.2
Z	1.2
K2	1.3
W	1.5
P	1.5

F2	1.5
X2	1.5
U	1.6
E3	1.6
I	1.7
A	1.8
Y	1.8
K3	1.9
Crumlin	1.9
X3X1	2.0
H	2.0
V	2.0
F1	2.2
ZA	2.2
M	2.3
E1	2.4
C	2.6
R	2.9

Figure 8.5: Rate of unplanned extubations per 1,000 days of invasive ventilation by country of admission, 2024

Year	England	Wales	Scotland	Northern Ireland	ROI
2018	5.1	2.4	6.4	3.5	4.0
2019	4.7	2.9	6.2	5.9	4.2
2020	4.5	7.4	5.7	0.9	2.4
2021	4.3	4.4	4.8	4.0	6.2
2022	4.2	1.8	6.5	6.4	6.1

2023	4.1	3.9	7	3.1	6.5
2024	3.8	11.2	4.4	2.4	6.3

Figure 8.6: Rates of unplanned extubations at PCCUs in the ROI by year, 2022–2024 (n=90)

Unit	2022	2023	2024
CHI at Crumlin	5.9	7.0	6.1
CHI at Temple Street	6.6	5.0	7.0

Figure 8.7: Risk-adjusted SMRs by PCCUs participating in PICANet, 2024

Unit	Admission	SMR	control_hi	control_lo
L	210	0.94	2.68436	0.2237906
ZF	227	1.14	2.554109	0.2498315
K2	226	1.04	2.553739	0.2498459
E3	252	0.82	2.449918	0.2733404
X2	322	1.05	2.291611	0.3140965
ZB	349	1.17	2.22674	0.3320819
X3X1	356	1.49	2.167151	0.348896
C	425	0.80	2.074452	0.3783924
Z	413	0.60	2.073168	0.3785117
F2	451	0.55	2.034197	0.3917316
U	446	1.17	2.033729	0.3917785
M	469	0.89	1.997127	0.4042846
H	461	0.71	1.996429	0.4043596
T	500	0.74	1.96448	0.4159481
K3	525	1.41	1.934177	0.4269716
A	559	1.10	1.906911	0.4372953

Q	538	1.12	1.905579	0.4374658
CHI at Temple Street	611	0.79	1.85752	0.4564152
I	589	1.25	1.856344	0.4565808
N	687	0.89	1.795605	0.4816337
Y	665	0.82	1.794666	0.4817831
R	724	0.92	1.760131	0.4966271
ZA	759	1.26	1.744546	0.5035318
W	752	1.08	1.744303	0.5035745
E2	744	0.83	1.744021	0.5036243
E1	789	1.25	1.729649	0.5101764
F1	817	0.88	1.715492	0.5165606
D	944	1.16	1.654389	0.5450424
P	953	1.12	1.643475	0.5502129
CHI at Crumlin	1072	1.03	1.605989	0.5688481
V	1112	1.09	1.589085	0.5773837

Figure 8.8: Out-of-hours discharges from PCCUs in the ROI, 2022–2024 (N=681)

Hours	2018	2019	2020	2021	2022	2023	2024
Out of hours 8.00pm–07.59am	9.70%	10.47%	9.75%	11.80%	12.75%	14.19%	13.01%
Within hours 8.00am–7.59pm	90.09%	89.53%	89.96%	88.32%	87.31%	85.81%	86.99%

Figure 8.9: Number of nurses per critical care bed in CHI, 2022–2024

Unit	2022	2023	2024
CHI	5.22	5.44	5.45

Figure 9.1: Central venous catheter (CVC) and peripherally inserted central catheter (PICC) line infection rates per 1000 line days in CHI at Crumlin PCCU, 2024

Month	CVC Infection Rate in lines <15 days old	CVC Infection Rate in lines >15 days old	PICC Infection Rate in lines <15 days old	PICC Infection Rate in lines >15 days old
Jan-24	0	0	0	0
Feb-24	2.15	0	0	0
Mar-24	2.09	0	13.89	13.89
Apr-24	0	0	0	0
May-24	0	0	0	0
Jun-24	2.45	0	0	0
Jul-24	0	0	0	0
Aug-24	0	0	0	0
Sept-24	0	0	0	0
Oct-24	0	0	0	0
Nov-24	2.08	8.55	0	0
Dec-24	2.2	0	0	0

Figure 9.2: CAUTI rates per 1,000 catheter days in CHI at Crumlin PCCU, 2023–2024

Month	2023 Urinary Catheter Infections	2024 Urinary Catheter Infections
Jan	5.36	3.42
Feb	2.43	0
Mar	0	0
Apr	2.85	0
May	0	6.54
Jun	3.39	6.43
Jul	3.38	0
Aug	3.29	0
Sep	3.18	0
Oct	2.7	0
Nov	0	2.35
Dec	0	0

Figure 9.3: VAP rates per 1,000 ventilator days in CHI at Crumlin PCCU, 2023–2024

Month	2023 VAP rates	2024 VAP rates
Jan	2.32	2.7
Feb	2.39	2.55
Mar	4.8	4.62
Apr	4.87	0

May	2.8	2.99
Jun	6.01	0
Jul	5.56	8.88
Aug	6.23	0
Sep	3.1	7.22
Oct	0	0
Nov	4.41	10.5
Dec	0	0

