

PICANet report on COVID-19 confirmed cases admitted to paediatric intensive care

Report date: 23 June 2020

Data cut off for inclusion in this report: 15 June 2020

Please use the following format when citing this report: Paediatric Intensive Care Audit Network report on COVID-19 confirmed cases in PICU (published 23 June 2020): Universities of Leeds and Leicester.

1. Data collection and caveats

- This report presents data on children with a confirmed COVID-19 diagnosis treated in a paediatric intensive care unit (PICU) in the UK. These children **may not primarily be in PICU because of COVID-19** but all have tested positive to the virus either prior to or during the PICU admission.
- This report **does not** contain any information relating to Paediatric Multisystem Inflammatory Syndrome temporally associated with COVID-19 (called PIMS-TS).
- On a real-time basis, PICUs are asked to return brief information on testing information on patients who are screened for COVID-19. This information was collated with routinely collected PICANet data and data from a customised audit on COVID-19 for analysis in this report.
- As with all data collection, there is a lag in terms of reporting and therefore information presented here is **provisional and subject to change**.

2. Patient numbers

- This report contains data on **73 PICU care episodes** (see Section 6 for definition) **for 71 children** (<18 years) where the child tested positive for COVID-19 and was treated in a PICU in the UK, who had data recorded on the PICANet database up to the data cut off point (15 June 2020).
- These 71 children tested positive between 15 March and 13 June 2020.
- Peak weekly admissions occurred in the week commencing 06 April 2020 (Figure 1).

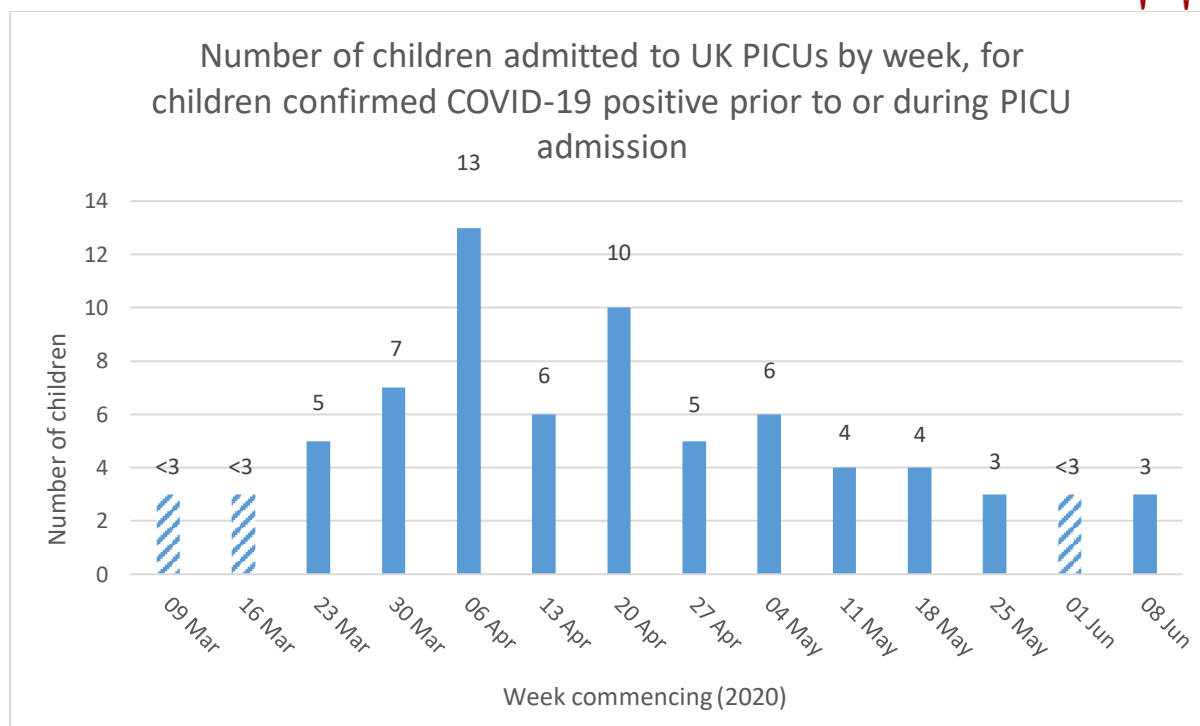


Figure 1: PICU admissions for COVID-19 positive children by week

The number of children admitted to UK PICUs, from the week commencing 09 March 2020, where the child was confirmed COVID-19 positive prior to or during PICU stay, presented by week based on date of admission for the child's first PICU care episode. One child admitted before 09 March 2020 has been excluded from this figure (n=70). Hashed bars indicate where statistical disclosure control has been applied due to small numbers and represent that less than three admissions occurred during a specific week.

3. Patient characteristics

Characteristics of the 71 children included in this report are presented in Table 1.

- The **median age** of COVID-19 positive children when admitted to PICU was **9 years** (interquartile range (IQR): 1-13 years).
- **61%** of the children were **male**.
- Around **one-third** of children were **White (30%)**, approximately **one quarter were Asian (23%)** and **14%** were **Black**. Data on ethnicity were **unavailable** for 21% of children.
- **Just under 60%** of children were admitted to PICU **for infections or respiratory conditions** with a further 12% for endocrine/metabolic reasons and 9% for cardiovascular problems.
- **Over 90% (n>66)** of the initial admissions for these children were **unplanned admissions** to PICU (where the admission was not expected and therefore was an emergency admission).
- 16% had laboratory confirmation of COVID-19 prior to their first PICU admission (n=11).

Table 1: Characteristics of the 71 children treated in UK PICUs who were laboratory confirmed positive for COVID-19.

	n=71
Age at admission (years)	
Median (IQR)	9 (1-13)
Min-Max	0-17
Sex	
Male, n(%)	43 (60.6%)
Female, n(%)	28 (39.4%)
Ethnicity	
White, n(%)	21 (29.6%)
Asian, n(%)	16 (22.5%)
Black, n(%)	10 (14.1%)
Other, n(%)	9 (12.7%)
Unknown, n (%)	15 (21.1%)
Primary diagnosis group	
Infection/Respiratory, n(%)	41 (57.6%)
Endocrine/metabolic, n(%)	9 (12.7%)
Cardiovascular, n(%)	8 (11.3%)
Other, n(%)	13 (18.3%)
Laboratory confirmation timing	
Prior to first PICU admission, n(%)	11 (15.5%)
On date of first PICU admission, n(%)	35 (49.3%)
Post first PICU admission, n(%)	23 (32.4%)
Date of confirmation missing, n(%)	2 (2.8%)

Abbreviations: IQR=Interquartile range; Min=minimum; Max=maximum

4. Treatment provided in the 73 PICU care episodes for the 71 children who tested positive for COVID-19

This section presents information on treatment provided at any point during the 73 PICU care episodes including before confirmation of COVID-19, where applicable. Three PICU care episodes were ongoing at the time of data cut off; these episodes are included in analysis but are not yet complete.

- **Invasive ventilation** (the highest level of respiratory support) was required in **60% of care episodes** (n=44) for a median of 6 days (IQR: 3-12 days).
- **Renal support** was provided in less than 5 of the 73 care episodes (**<7%**).
- The child received a **continuous vasoactive infusion** in 35 care episodes (**48%**)
- **Extracorporeal membrane oxygenation (ECMO)** was received in less than 5 care episodes (**<7%**).

5. Patient outcomes

- At the time of data cut off, **three children remained on PICU**. Of the remaining 68 children, **5 died** in PICU and **63 had been discharged** either to an alternative intensive care facility, another ward or unit within hospital or home.
- The **median length of stay** for the 70 care episodes where the child had been discharged from PICU was **4 days** (IQR: 2-10 days).

6. Methods

If a child was transferred between PICUs or was readmitted to PICU less than 48 hours post PICU discharge then the child's care is classed as a continuous care episode. For children readmitted to PICU more than 48 hours post PICU discharge the re-admission is considered separately as a new episode of PICU care. Analysis based on PICU care episodes uses the first available patient characteristics and admission details and the last available discharge information. Treatment provided in a care episode is an aggregate of all information available. Length of stay is calculated based on PICU care episode as the difference in days between the admission date for the care episode and the discharge date from the episode; in cases where the child was re-admitted to PICU within 48 hours of PICU discharge or transferred, the calculation of length of stay includes the period where the child was not being treated within a PICU.

Length of stay in days is calculated as the difference in days between the admission date and discharge date. Days of invasive ventilation includes any day where invasive ventilation was given at any point.

7. Acknowledgements

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PICANet would like to thank the teams at all Paediatric Intensive Care Units across the UK for providing the data relating to these patients in such a timely manner under difficult circumstances and members of our Clinical Advisory Group for their valued input.