

# New study into pediatric intensive care paves the way for improving care for critically ill children

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A new study carried out in collaboration with the University of Birmingham has identified factors that increase the likelihood of critically ill children needing life-saving cardiopulmonary resuscitation (CPR).

Using anonymised [hospital](#) records in the first multi-center study of its kind in England, the team found that one of these factors related to race, with [children](#) from Black and Asian ethnic backgrounds more likely to require CPR.

The study, published in the *Journal of the American Heart Association*, involved data collected by the Paediatric Intensive Care Audit Network (PICANet) from records of more than 1,500 children who received CPR after admission to Paediatric Intensive Care Units (PICUs) in England over a five-year period.

Co-author Dr. Barney Scholefield, National Institute for Health Research (NIHR) Clinician Scientist at

the University of Birmingham and Honorary Consultant Paediatric Intensivist at Birmingham Children's Hospital, said: "We found that children who had a prior history of heart problems; were less than 12 months old; and had a longer stay in PICU, were all more likely to require CPR than children who had suffered cardiac arrest prior to PICU admission.

"Children with a history of heart problems were more likely to die in PICU following CPR, and this group of children had lower likelihood of receiving CPR and dying in PICU if they were treated in a specialist cardiac ICU."

Led by Leeds Children's Hospital and also carried out in collaboration with the University of Leeds and Birmingham Women's and Children's Hospital NHS Foundation Trust, the study also showed that children from Black and Asian ethnic backgrounds were, respectively, 1.7 times and 1.5 times more likely to receive CPR than white children.

Lead author Dr. Khurram Mustafa, of Leeds Children's Hospital, explained: "We found that, overall, only two in every 100 admissions to a PICU went on to require CPR so this is still a relatively rare but potentially fatal event. Our study helps understand the factors that increase the likelihood of needing CPR and can be used to improve care for at-risk children as well as preventing cardiac arrests in the PICU.

"Our work has also highlighted the link between ethnicity and the need for CPR. There are a number of possible reasons for this including social deprivation and inequity in access to specialized services. We hope this study will pave the way for more research in this area."

**More information:** Epidemiology of

Cardiopulmonary Resuscitation in Critically Ill Children Admitted to Pediatric Intensive Care Units Across England: A Multicenter Retrospective Cohort Study. *Journal of the American Heart Association*. DOI: [10.1161/JAHA.120.018177](https://doi.org/10.1161/JAHA.120.018177)

Provided by University of Birmingham

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