Introduction: Cardiopulmonary arrest (CPA), in pediatrics, has high mortality and severe neurological sequelae. Information on the causes and mechanisms of death in children under 20 can provide theoretical support for improving health in childhood and adolescence.

Objectives: To carry out a population analysis of mortality rates (MR) from basic and multiple causes of death, in children under 20 years of age, of both sexes, from 1996 to 2019, and to identify the frequency of description of CPA in death certificates (DC) of these individuals and their places of occurrence, to promote strategies to improve the prevention of deaths.

Method: An ecological time-series study, from 1996 to 2019, of children deaths under 20 years of age, in which MR and we evaluated proportional mortality (PM) due to underlying cause of death. We analyzed the percentage of CPA description in the DC (any lines) and the place of occurrence. Also, we described MR per 100,000 inhabitants and PM due to underlying cause of death under 20 years of age, by sex, and age group. The percentages of death from underlying causes were calculated when CRP was described in any line of parts I and II of the DC, by age groups, and the percentages of death from underlying causes, according to their place of occurrence.

Results: In Brazil, from 1996 to 2019, there were 2,151,716 deaths in children under 20 years of age, with a TxM of 134.38 per 100,000 inhabitants, with higher death rates among male neonates. Two hundred forty-nine thousand three hundred thirty-four had CPA described in any DC line, corresponding to 11.6% of these deaths. We defined four patterns for the underlying cause of death when CPA in the death sequence. In the neonatal period, perinatal causes; in children under five years, respiratory system diseases; 5 to 14 years, neoplastic and hematological; and in adolescents aged 15 to 19, external causes. The central place of occurrence of these deaths was in the hospital.

Conclusion: The highest MR of underlying causes of death, in those under 20 years of age, in Brazil, from 1996 to 2019, was due to perinatal and external causes. When we evaluated multiple causes of death, the leading underlying causes of CPA were respiratory, hematological, and neoplastic diseases, with higher in-hospital mortality. It is crucial to understand deaths sequence events and implement teaching strategies to pediatric cardiopulmonary resuscitation.