



Analysis of Child Deaths in The Black Country.

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Introduction

The Black Country is a large urban conurbation in the West Midlands, comprised of 4 local authorities; Dudley, Sandwell, Walsall and Wolverhampton. The area experiences significant deprivation¹, health inequalities and high infant mortality rates². When child deaths occur, comprehensive reviews are undertaken by the Child Death Overview Panel (CDOP) to serve as an opportunity to learn from these devastating events and to inform strategies and guidelines to reduce and prevent them.

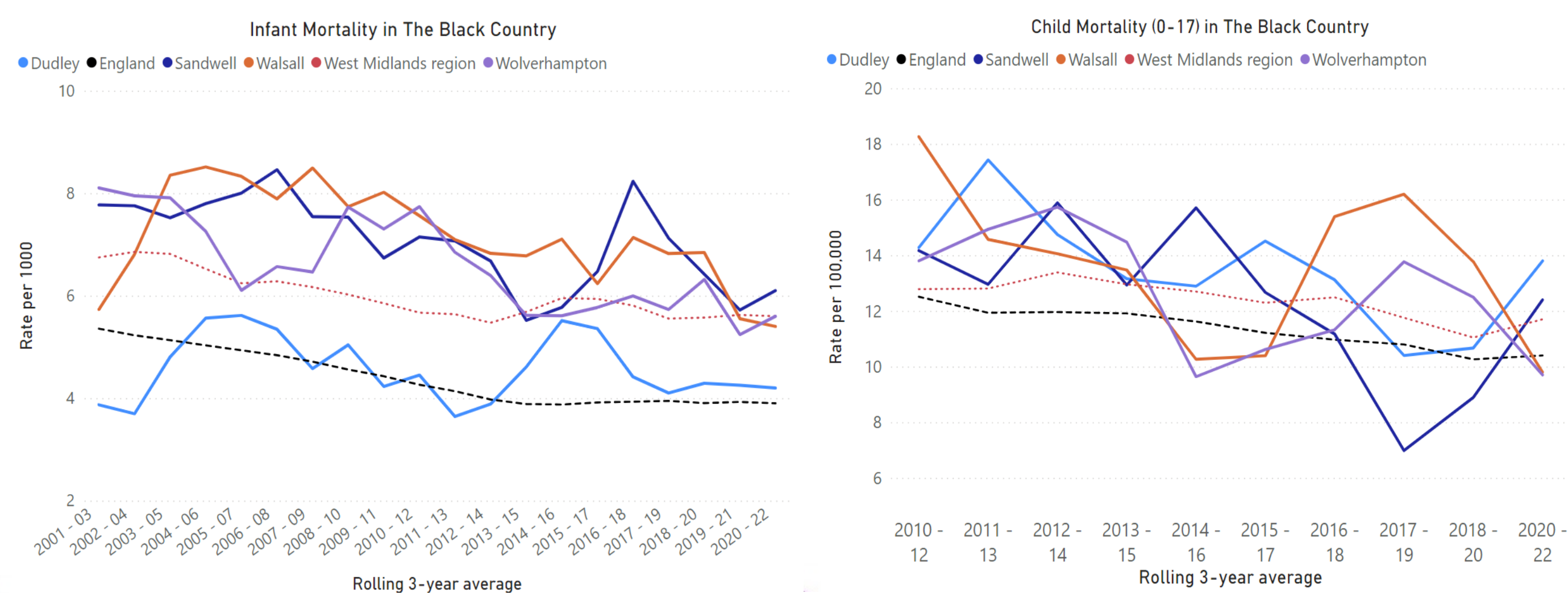
Walsall Council and The Black Country ICB collaborated to conduct an analysis of the rich and complex data that is collated during these reviews, with the objective of identifying trends and risk factors for child death in The Black Country.

Methods

Data were extracted from the Black Country eCDOP system for each of the 4 local authorities for when the death had occurred between 1st April 2019 and 31st March 2024. The data were modelled, analysed and visualised in R and PowerBI.

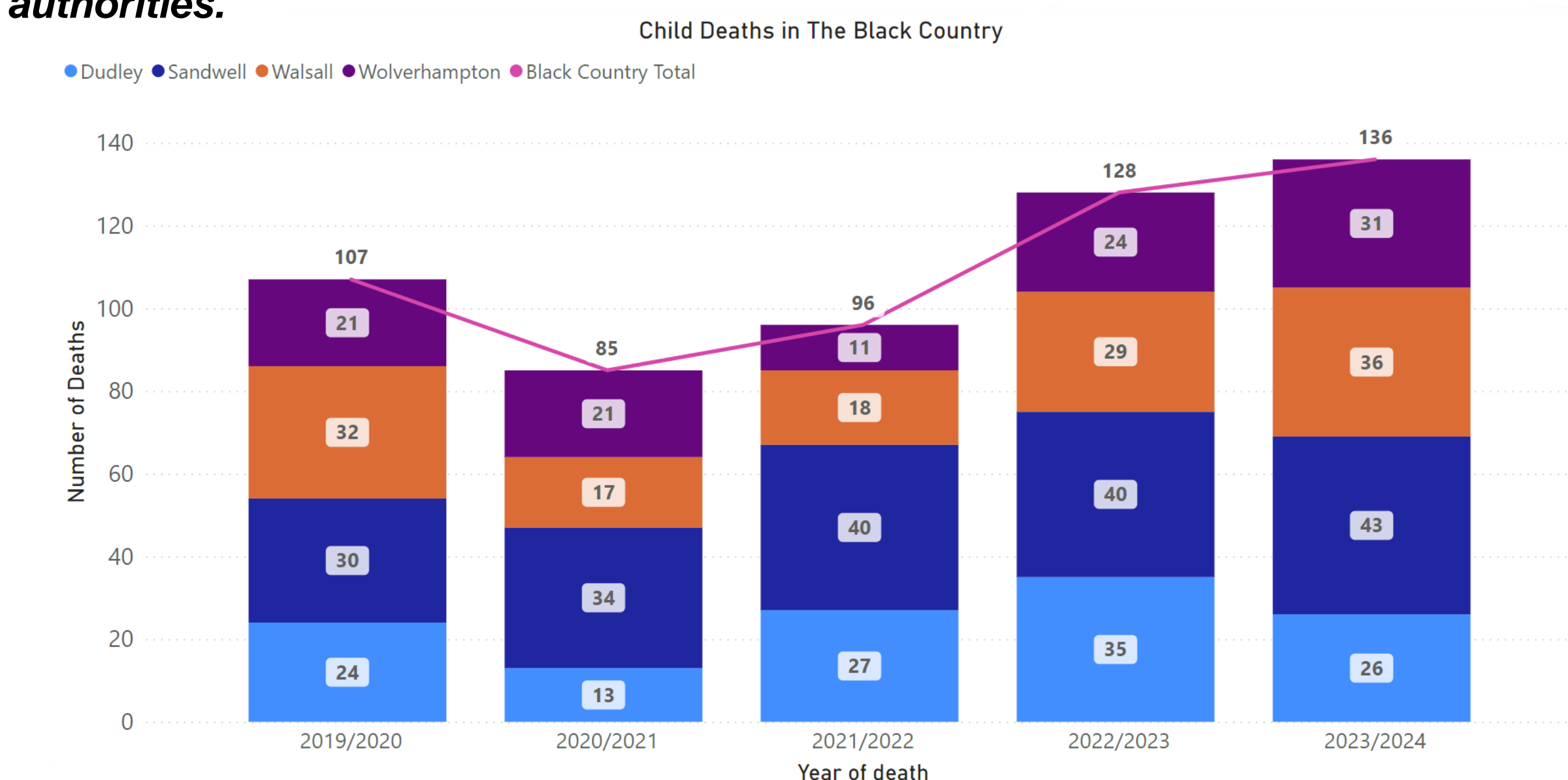
Results

Figure 1. The infant and child mortality rates in Black Country local authorities.



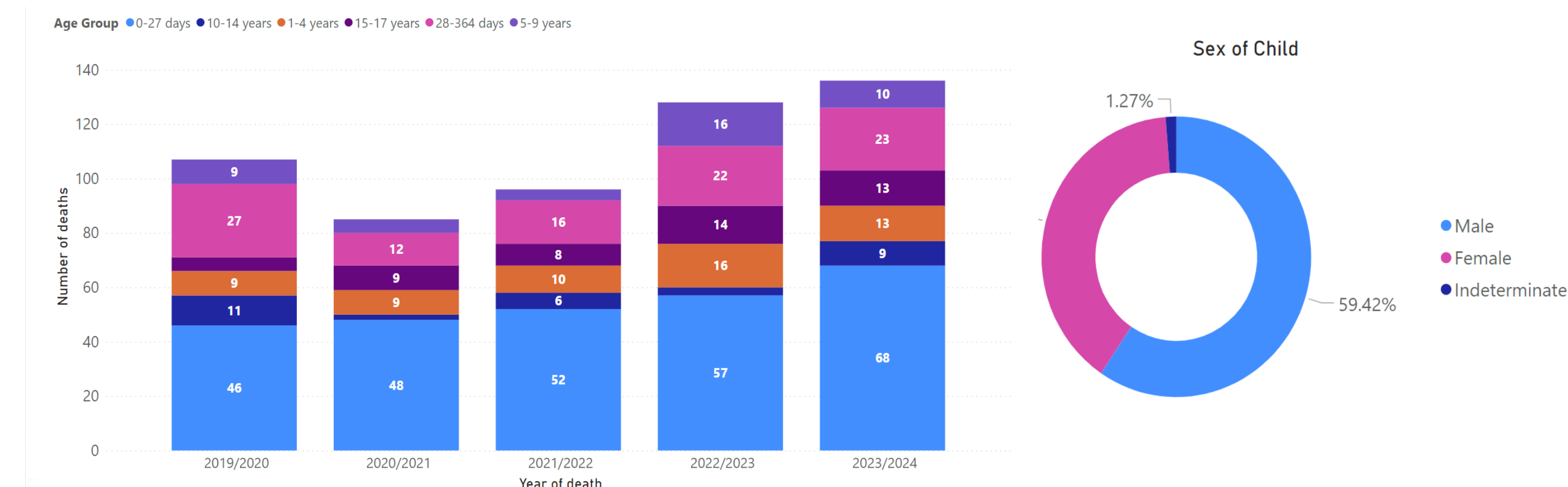
- The infant mortality rate in 3 of the 4 Black Country local authorities is **significantly higher** than the national rate for England, although there has been a gradually decreasing trend since 2001. The child mortality rate in The Black Country however, is similar to the national rate².

Figure 2. The trend and proportion of child deaths in each of the 4 Black Country local authorities.



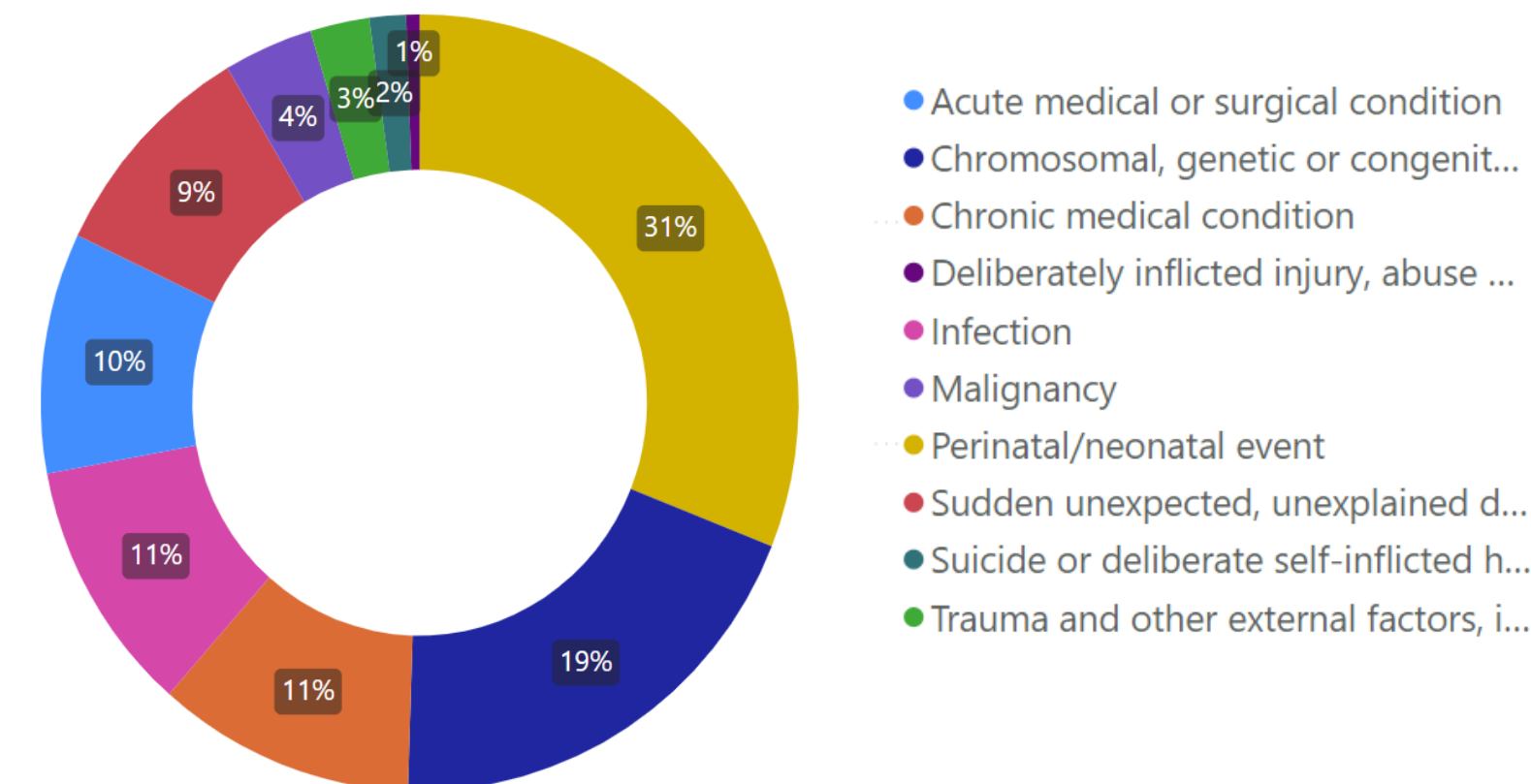
- The number of child deaths in The Black Country increased substantially in 2022/23 and 2023/24, particularly in Walsall and Wolverhampton, although Sandwell consistently experiences the highest number of deaths within The Black Country.

Figure 3. The sex and age group of child deaths in The Black Country.



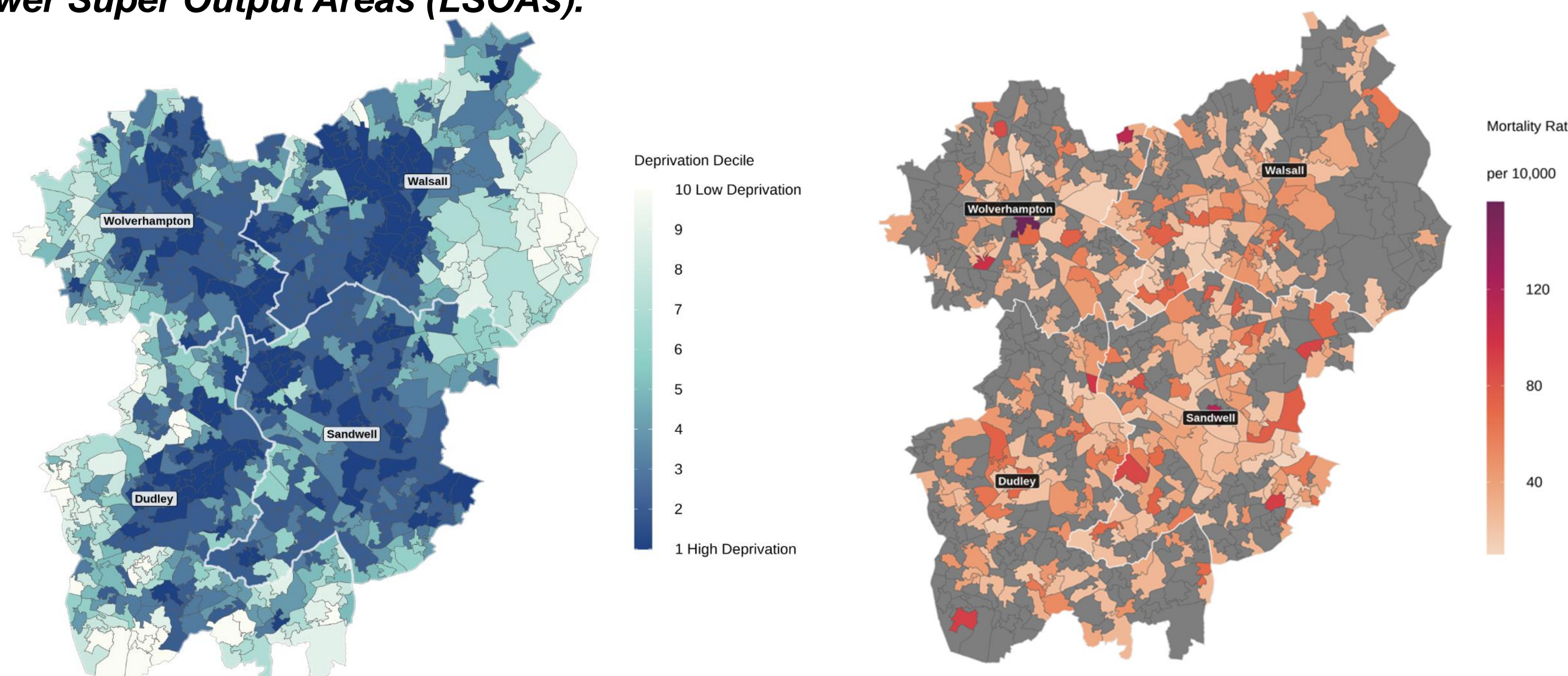
- The majority of child deaths occur within the first month of life, followed by the 28-364 days age group. It was increases in the number of deaths the 0-27 day age group that drove the overall spike in 2022/23 and 2023/24.
- Overall, around 6 in 10 child deaths occur in male children and in every age group the proportion of males is higher than in females.
- In 5-9 year olds and 10-14 year olds, the proportion of deaths that were males was 80% and 71% respectively.

Figure 4. Category of child deaths in The Black Country



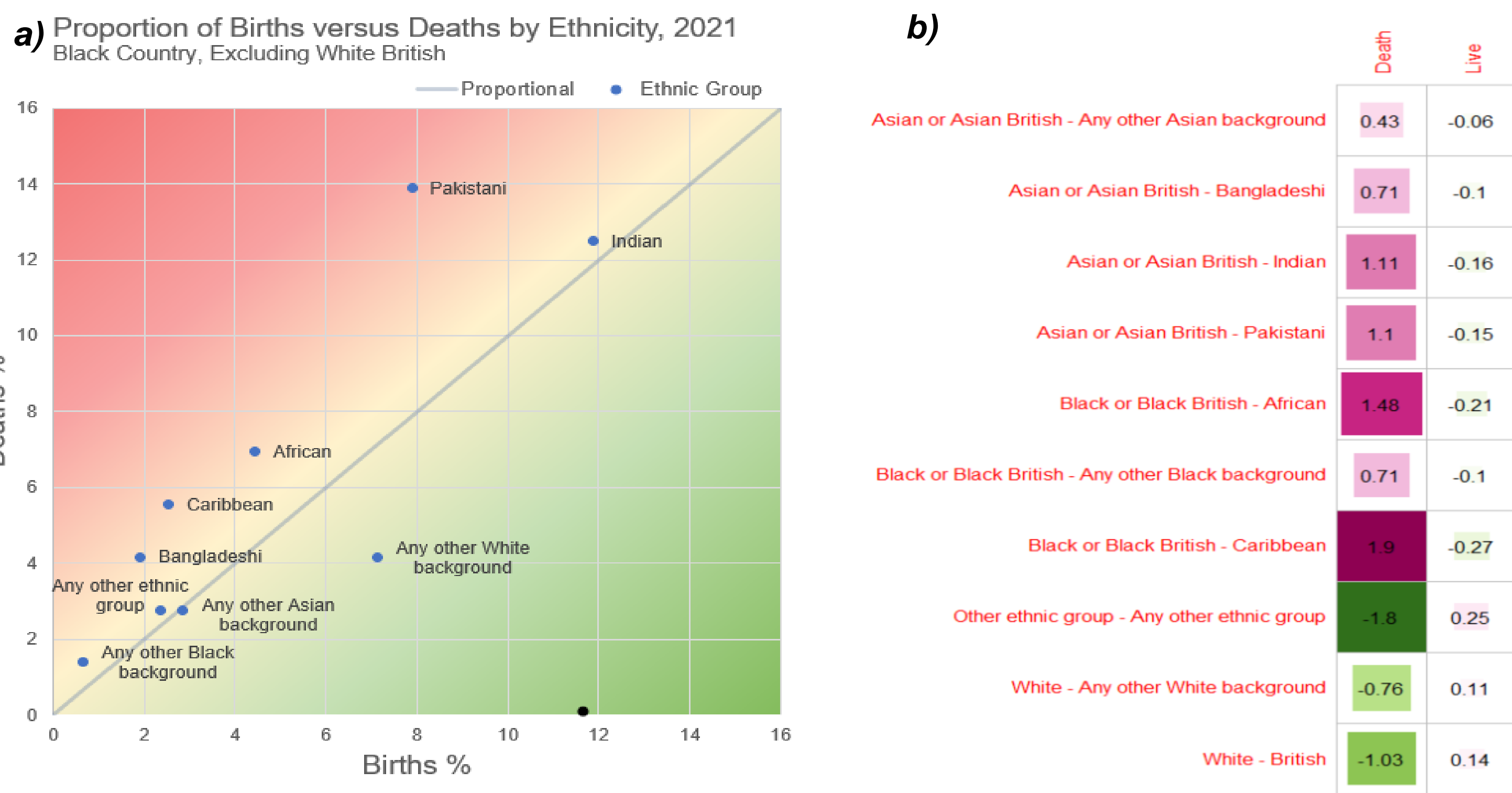
- Perinatal/neonatal events and chromosomal/genetic/congenital anomalies comprise the significantly largest proportion of child deaths in the Black Country, further illustrating that the majority of child deaths occur in this very early age group.

Figure 5. Choropleth maps showing deprivation and child mortality rates in Black Country Lower Super Output Areas (LSOAs).



- Mapping of child deaths in The Black Country very closely reflected the pattern of deprivation, with deaths concentrated in the more highly deprived urban parts of the region, and fewer or no deaths (shaded grey) in more affluent suburban LSOAs.

Figure 6. Correlation co-efficient between the proportion of child deaths relative to number of births in ethnic groups



- Data on live births by ethnicity³ in The Black Country in 2021 were correlated with the number of child deaths in each ethnic category that year.
- In Figure 6a, ethnic groups that are above the line of proportionality (i.e. in the red zone) had a higher proportion of child deaths than corresponding births in that group. This was most pronounced in the Pakistani ethnic group. Conversely, groups below the line (in the green zone) had a higher proportion of births than deaths in that ethnic group, which was most pronounced in the “White Other” group.
- Figure 6b visualises the correlation coefficient for a Chi-Squared test. Purple shading suggests there are more observed instances of deaths than expected when calculated across all ethnicities. The green shading suggests there were fewer deaths than would be expected in this group, based on the population data. These preliminary analyses indicated that Black Caribbean and Black African groups experienced higher than expected rates of child deaths, although the sample size was small.

Discussion and Future work

- This work characterises child deaths in a region where infant mortality is significantly higher than the national rate, and that has experienced an increased incidence in recent years. This highlights the importance of understanding local context around child mortality.
- In The Black Country, deaths in the first month of life from genetic/congenital causes are the most common, particularly in male children. Our analyses also identified correlation between deprivation and ethnicity at a local level and this topic has been prioritised for further analyses.
- Ongoing surveillance of these rich and complex data will be used to identify trends, themes and communities at increased risk of child deaths in the area. This is essential to the development of a range of local strategies, tailoring service design and delivery, and improving education and communication to prevent child deaths.