

1 [Supplementary Data](#)

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3 [Supplementary Table 1](#)

Congenital heart disease category	Children in hospital [n=44] n(%)	Adults in hospital [n=74] n(%)
Hypoplastic left heart syndrome	3 (6.8)	0 (0.0)
Functionally univentricular heart	3 (6.8)	5 (6.8)
Common arterial trunk	1 (2.3)	0 (0.0)
Transposition of the great arteries and VSD/ Double outlet right ventricle transposition type	5 (11.4)	2 (2.7)
Interrupted aortic arch	0 (0.0)	0 (0.0)
Transposition of the great arteries	1 (2.3)	1 (1.4)
Pulmonary atresia with intact ventricular septum	0 (0.0)	2 (2.7)
Pulmonary atresia with VSD	1 (2.3)	7 (9.5)
Miscellaneous congenital heart disease	0 (0.0)	3 (4.1)
Atrioventricular septal defect	6 (13.6)	10 (13.5)
Tetralogy of Fallot/ Double outlet right ventricle tetralogy type	3 (6.8)	10 (13.5)
Aortic stenosis	3 (6.8)	5 (6.8)
Tricuspid valve abnormality/ Ebstein abnormality	1 (2.3)	1 (1.4)
Mitral valve abnormality	2 (4.5)	5 (6.8)
Total anomalous pulmonary venous connection	1 (2.3)	0 (0.0)
Aortic arch obstruction	2 (4.5)	3 (4.1)
Pulmonary stenosis	2 (4.5)	1 (1.4)
Subaortic stenosis	0 (0.0)	0 (0.0)
VSD +/- atrial septal defect +/- patent ductus arteriosus	0 (0.0)	0 (0.0)
Atrial septal defect	6 (13.6)	11 (14.9)
Patent ductus arteriosus	2 (4.5)	8 (10.8)
Arrhythmia	0 (0.0)	0 (0.0)
Miscellaneous terms	0 (0.0)	0 (0.0)
Cardiomyopathy (including post-transplant)	1 (2.3)	0 (0.0)
Aortic regurgitation	1 (2.3)	0 (0.0)

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5 Supplementary Table 1:

6 Primary cardiac diagnosis of participants in the study who were admitted to hospital

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8 Note: A single primary cardiac diagnosis was assigned to each case using a hierarchical
9 system¹⁹; VSD: ventricular septal defect

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11 **Miscellaneous congenital heart disease includes: congenitally corrected transposition of the*
12 *great arteries +/- other morphological changes. #Miscellaneous terms include: post cardiac*
13 *transplant and aortic root dilatation/ dissection.*

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16 Supplementary Table 2

Genetic diagnoses and syndromes
22q11 microdeletion syndrome
Bardet Biedl syndrome type 2
Beaulieu-Boycott-Innes syndrome
CHARGE syndrome
Ehlers Danlos syndrome
Hurler Syndrome
Marfan syndrome
Nemaline Myopathy - ACTA gene exon
Noonan syndrome
Oculofaciocardiodental syndrome
POLR2A mutation
Trisomy 21
Tuberous Sclerosis
Turner syndrome
VACTERL syndrome
William syndrome

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Supplementary Table 2: List of genetic diagnoses and syndromes that participants in the study were known to live with.

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42 Supplementary Table 3

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Comorbidities
Acquired brain injury
Anorectal malformation
Asthma
Bilateral hearing loss
Bulbar palsy
Chronic kidney disease
Chronic lung disease
Colonic stricture
COPD
Developmental delay
Diabetes
Endocarditis
Epilepsy
Extra dural haematoma
Gastroesophageal reflux disease
Haematological disease
Hydronephrosis
Hypercholesterolaemia
Hypothyroidism
Immune deficiency (Myelodysplastic Syndrome, Asplenia)
Left hemidiaphragm palsy
Medullary nephrocalcinosis
Mental health disease
Migraine
Necrotising enterocolitis (previous)
Neurodisability
Osteoporosis
Prematurity
Previous malignancy
Recurrent lower respiratory tract infection / aspiration
Renal dysplasia
Scoliosis
Single kidney
Unsafe swallow – Nasogastric / Gastrostomy feeding
Vitamin / Iron deficiencies

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45 Supplementary Table 3: List of associated co-morbidities that participants in the study lived
46 with.

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49 Supplementary Table 4

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Outcome	Odds Ratio	P-value	95% Confidence Interval
Ethnicity (<i>Reference: White</i>)			
- Asian	0.94	0.93	0.22-4.03
- Black	5.01	0.15	0.57-44.09
- Mixed/Other	0.48	0.29	0.12-1.85
Univentricular circulation	0.17	0.08	0.02-1.23
Age (years)	0.88	<0.05	0.77-1.00
Female sex	2.58	0.07	0.91-7.29
Deprivation quintile (<i>Reference: 1=most deprived</i>)			
- 2	0.89	0.88	0.19-4.08
- 3	2.87	0.22	0.53-15.58
- 4	0.97	0.97	0.15-6.26
- 5	1.12	0.91	0.14-8.96
Number of comorbidities	1.52	0.46	0.51-4.54
Genetic disease	0.52	0.31	0.15-1.83
Oxygen saturations <90%	5.45	0.06	0.93-31.97
Z-score weight	0.92	0.49	0.72-1.17
Second wave of COVID-19 (<i>Reference: first COVID-19 wave</i>)	0.04	<0.01	0.01-0.23

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Supplementary table 4: Predictors of hospitalisation in children (n=127) – sensitivity analysis
adjusted for COVID-19 wave

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76 Supplementary Table 5

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Outcome	Odds Ratio	P-value	95% Confidence Interval
Ethnicity (<i>Reference: White</i>)			
- Asian	2.08	0.44	0.33-13.16
- Black	1.42	0.84	0.05-39.56
- Mixed/Other	0.72	0.57	0.23-2.21
Univentricular circulation	0.79	0.79	0.14-4.33
Age (years)	1.05	<0.01	1.01-1.09
Female sex	0.50	0.21	0.17-1.49
Deprivation quintile (<i>Reference: 1=most deprived</i>)			
- 2	0.27	0.16	0.04-1.66
- 3	0.25	0.12	0.04-1.41
- 4	0.37	0.26	0.07-2.06
- 5	1.71	0.43	0.45-6.60
Number of comorbidities	0.34	0.14	0.08-1.46
Genetic disease	4.64	0.07	0.86-24.94
Pulmonary arterial hypertension	6.34	0.02	1.39-28.84
Oxygen saturations <90%	2.05	0.36	0.43-9.81
BMI ≥ 30	2.16	0.34	0.43-10.76
Second wave of COVID-19 (<i>Reference: first COVID-19 wave</i>)	0.47	0.24	0.14-1.66

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79 Supplementary Table 5: Predictors of mortality in adults (n=278) – sensitivity analysis
80 adjusted for COVID-19 wave.

81 Supplementary Table 6

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Outcome	Odds Ratio	P-value	95% Confidence Interval
Ethnicity (<i>Reference: White</i>)			
- Asian	1.45	0.55	0.43-4.95
- Black	0.46	0.48	0.05-3.93
- Mixed/Other	0.45	0.04	0.21-0.96
Univentricular circulation	0.26	0.02	0.09-0.78
Age (years)	1.02	0.06	1.00-1.05
Female sex	0.96	0.91	0.48-1.91
Deprivation quintile (<i>Reference: 1=most deprived</i>)			
- 2	0.77	0.60	0.29-2.07
- 3	0.49	0.19	0.17-1.42
- 4	0.43	0.13	0.15-1.28
- 5	0.37	0.08	0.12-1.14
Number of comorbidities	3.52	0.01	1.30-9.50
Genetic disease	2.93	0.05	0.99-8.65
Pulmonary arterial hypertension	1.01	0.98	0.36-2.80
Oxygen saturations <90%	2.85	0.05	0.97-8.40
BMI ≥30	1.60	0.37	0.57-4.49
Second wave of COVID-19 (<i>Reference: first COVID-19 wave</i>)	0.36	0.03	0.15-0.90

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84 Supplementary Table 6: Predictors of hospitalisation in adults (n=278) – sensitivity analysis

85 adjusted for COVID-19 wave

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