Supplemental materials for the manuscript: Peri-pandemic outcomes of infants treated for sentinel congenital heart diseases in England and Wales

Supplementary Table S1: Sentinel CHD diagnoses with subgroups.

*we excluded partial AVSD because age at repair is well over 1 year old.

CHD diagnosis (in decreasing order of clinical complexity)	CHD subgroup
Functional single ventricle conditions	
Hypoplastic left heart syndrome (HLHS)	HLHS
Functionally univentricular heart (FUH)	Double inlet ventricle
	Tricuspid atresia
Conditions where a range of anatomy occurs (either a single ventricle or a reparative pathway can occur)	
Transposition of the great arteries (TGA)	Complex TGA with PS
	Complex TGA without PS
	TGA with intact ventricular septum
Pulmonary atresia (PA)	PA with VSD
	PA with intact ventricular septum
Atrioventricular septal defect (AVSD*)	Tetralogy with AVSD
	Unbalanced AVSD
	Complete AVSD
Biventricular conditions	
Tetralogy of Fallot (TOF)	Tetralogy absent pulmonary valve
	Tetralogy with DORV
	Standard tetralogy
Aortic stenosis (AOS)	AOS with multi-level left heart obstruction
	Isolated AOS
Coarctation of the aorta (COA)	Coarctation with VSD
	Isolated COA
Ventricular septal defect (VSD)	Multiple VSDs
	Single VSD

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Supplementary Table S2: Breakdown of patients' number by diagnosis subtype and birth era.

AOS=congenital aortic stenosis; AVSD=atrioventricular septal defect; COA= coarctation of the aorta; DORV=double outlet right ventricle; FUH=functionally univentricular heart; HLHS=hypoplastic left heart syndrome; TGA=transposition of the great arteries; TOF= tetralogy of Fallot; PA= pulmonary atresia; PS=pulmonary stenosis; VSD=ventricular septal defect.

-data are not shown (the sample size was less than 10).

	Number of patients				
	Total	Pre-pandemic baseline	Transition period	Restriction period	Post restriction period
The whole cohort	4900	1545	1175	1375	810
By CHD diagnosis					
Functionally single ventricle CHDs					
HLHS	195	60	50	45	40
FUH (total)	180	55	35	60	30
Double inlet ventricle	85	30	15	25	10
Tricuspid atresia	95	20	20	35	20
CHDs where a range of anatomy occurs					
TGA (Total)	660	200	150	195	115
Complex TGA with PS	60	20	15	15	-
Complex TGA without PS	240	65	55	75	45
TGA with intact ventricular septum	360	115	85	105	60
PA (Total)	290	85	70	75	60
PA with VSD	195	60	50	50	35
PA with intact ventricular septum	95	25	15	30	25
AVSD (Total)	590	190	135	215	100
Tetralogy AVSD	35	15	-	10	-
Unbalanced AVSD	60	20	15	15	-
Complete AVSD	500	155	110	150	80
Biventricular CHDs					
TOF (Total)	820	260	200	225	135
Tetralogy absent pulmonary valve	20	-	-	-	-
Tetralogy with DORV	110	25	30	35	20
Standard tetralogy	690	225	170	185	110
AOS	225	95	40	65	30
AOS with muti-level left heart obstruction	65	30	-	20	-

Isolated AOS	160	65	30	45	20
COA (Total)	740	220	195	205	120
COA with VSD	280	85	80	65	45
Isolated COA	465	135	115	140	75
VSD (Total)	1200	380	300	325	195
Multiple VSDs	95	35	25	20	15
Single VSD	1105	345	275	305	180

Supplementary Table S3: Age of pathway procedures by birth era (measured in days since birth).

Data are n(%) or median (IQR).

There were 15 patients who had both a reparative procedure and a single ventricle stage 2 (CHD subgroups: PA, AVSD, and TOF), and their first occurring procedures were included. P-values for the Wilcoxon rank sum test to determine statistical evidence for a delay in procedure timing between each pandemic period compared to the pre-pandemic baseline period are listed in Table S4.

AOS=congenital aortic stenosis; AVSD=atrioventricular septal defect; COA= coarctation of the aorta; DORV=double outlet right ventricle; FUH=functionally univentricular heart; HLHS=hypoplastic left heart syndrome; TGA=transposition of the great arteries; TOF= tetralogy of Fallot; PA= pulmonary atresia; PS=pulmonary stenosis; VSD=ventricular septal defect.

-Results are not shown (number of patients who had pathway procedure was less than 10).

	Total		Pre-pandemic baseline		Transition period		Restriction period		Post restriction period	
	n (%)	Age at operation	n (%)	Age at operation	n (%)	Age at operation	n (%)	Age at operation	n (%)	Age at operation
Palliative stage 1 procedure										
The whole cohort	1010 (20.6%)	32 (16, 71)	315 (20.3%)	34 (16, 73)	255 (21.9%)	34 (16, 70)	280 (20.3%)	29 (15, 64)	160 (19.7%)	27 (16, 76)
Palliative stage 2 and reparative procedure										
The whole cohort	4535 (92.6%)	131 (30, 217)	1430 (92.6%)	139 (32, 227)	1090 (92.9%)	124 (30, 214)	1275 (92.8%)	126 (31, 215)	740 (91.5%)	135 (26, 208)
By CHD diagnosis										
Palliative stage 1 procedure										
HLHS	190 (98.4%)	13 (8, 18)	55 (98.3%)	13 (8, 18)	50 (98.0%)	14 (8, 17)	45 (100%)	12 (8, 17)	35 (97.4%)	14 (9, 20)
FUH (total)	160 (87.8%)	21 (14, 42)	45 (85.2%)	20 (12, 44)	35 (89.2%)	21 (15, 44)	50 (86.7%)	22 (14, 36)	30 (93.3%)	22 (17, 45)
Double inlet ventricle	75 (88.1%)	20 (13, 44)	30 (87.5%)	22 (13, 54)	15 (87.5%)	18 (12, 27)	20 (87.5%)	19 (14, 25)	10 (91.7%)	22 (16, 46)
Tricuspid atresia	85	25 (16, 40)	20	19 (13, 31)	20	28 (19, 49)	30	25 (14, 37)	15	23 (17, 41)

	(87.6%)		(81.8%)		(90.5%)		(86.1%)		(94.4%)	
TGA (Total)	55 (8.6%)	28 (20, 55)	20 (8.9%)	52 (26, 77)	15 (8.6%)	39 (25, 45)	-	-	15 (14.9%)	21 (16, 47)
Complex TGA with PA	30 (53.3%)	28 (20, 55)	10 (52.4%)	49 (22, 60)	-	-	-	-	-	-
Complex TGA without PS	25 (10.0%)	27 (20, 60)	-	-	-	-	-	-	-	-
TGA with intact ventricular septum	-	-	-	-	-	-	-	-	-	-
PA (Total)	110 (38.4%)	24 (16, 53)	40 (43.7%)	22 (17, 45)	25 (36.8%)	29 (15, 64)	30 (39.5%)	25 (17, 52)	20 (31.0%)	24 (14, 74)
PA with VSD	80 (42.1%)	28 (15, 59)	30 (46.7%)	25 (16, 50)	20 (40.4%)	30 (15, 64)	20 (41.7%)	40 (17, 58)	15 (37.1%)	25 (15, 89)
PA with intact ventricular septum	30 (30.9%)	22 (17, 30)	10 (37.0%)	21 (18, 29)	-	-	10 (35.7%)	21 (17, 26)	-	-
AVSD (Total)	140 (24.0%)	46 (20, 88)	45 (23.3%)	46 (18, 80)	35 (27.8%)	45 (23, 81)	50 (27.4%)	43 (21, 83)	10 (13.3%)	104 (62, 137)
Tetralogy AVSD	20 (51.4%)	68 (32, 123)	-	-	-	-	-	-	-	-
Unbalanced AVSD	35 (56.9%)	37 (15, 94)	-	-	10 (73.3%)	45 (18, 120)	10 (75.0%)	38 (15, 93)	-	-
Complete AVSD	90 (18.3%)	50 (20, 82)	30 (18.2%)	46 (16, 76)	25 (20.7%)	46 (22, 74)	30 (19.1%)	50 (22, 83)	10 (13.6%)	113 (50, 140)
TOF (Total)	135 (16.3%)	39 (24, 67)	35 (13.5%)	41 (28, 70)	40 (19.4%)	37 (26, 60)	40 (18.2%)	38 (24, 57)	20 (14.1%)	45 (24, 88)
Tetralogy absent pulmonary valve	-	-	-	-	-	-	-	-	-	-
Tetralogy with DORV	35 (31.2%)	38 (25, 82)	-	-	10 (35.7%)	32 (24, 49)	15 (41.2%)	54 (26, 76)	-	-
Standard tetralogy	100 (14.3%)	39 (24, 65)	25 (11.9%)	40 (28, 66)	30 (17.3%)	38 (26, 66)	25 (14.4%)	32 (24, 56)	15 (14.7%)	49 (25, 87)
AOS (Total)	25	27 (18, 86)	15	37 (18, 84)	-	-	-	-	-	-

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(10.2%)		(14.0%)							
AOS with muti- level left heart obstruction	25 (34.3%)	27 (18, 86)	15 (44.8%)	37 (18, 84)	-	-	-	-	-	-
Isolated AOS	-	-	-	-	-	-	-	-	-	-
COA (Total)	-	-	-	-	-	-	-	-	-	-
COA with VSD	-	-	-	-	-	-	-	-	-	-
Isolated COA	-	-	-	-	-	-	-	-	-	-
VSD (Total)	190 (15.8%)	91 (61, 164)	60 (15.5%)	93 (66, 160)	60 (19.4%)	82 (57, 166)	45 (13.8%)	108 (64, 228)	25 (13.8%)	98 (60, 159)
Multiple VSDs	55 (56.4%)	90 (59, 142)	15 (50.0%)	89 (48, 124)	15 (57.7%)	90 (64, 146)	10 (57.9%)	66 (50, 141)	10 (66.7%)	120 (76, 205)
Single VSD	135 (12.3%)	92 (61, 170)	40 (12.1%)	94 (72, 188)	45 (15.8%)	79 (56, 171)	35 (11.1%)	112 (65, 238)	15 (9.4%)	85 (55, 142)
Stage 2 and reparative procedure										
HLHS	140 (72.5%)	163 (141, 192)	40 (65.5%)	166 (149, 187)	40 (76.5%)	158 (133, 170)	35 (78.3%)	165 (144, 204)	25 (71.1%)	171 (144, 229)
FUH (total)	165 (90.1%)	193 (147, 254)	55 (98.1%)	198 (145, 248)	35 (89.2%)	193 (159, 232)	55 (90.0%)	188 (150, 263)	25 (76.7%)	180 (154, 264)
Double inlet ventricle	75 (91.7%)	186 (145, 264)	30 (96.9%)	198 (155, 282)	15 (87.5%)	180 (160, 239)	20 (87.5%)	186 (140, 240)	10 (91.7%)	178 (148, 262)
Tricuspid atresia	85 (88.7%)	198 (150, 249)	20 (100%)	191 (134, 236)	20 (90.5%)	202 (148, 232)	35 (91.7%)	191 (155, 263)	10 (66.7%)	213 (167, 265)
TGA (Total)	635 (96.1%)	18 (14, 25)	195 (95.5%)	19 (14, 24)	145 (96.0%)	18 (14, 25)	190 (99.0%)	18 (13, 26)	105 (92.1%)	17 (13, 23)
Complex TGA & PS	50 (83.3%)	215 (65, 378)	15 (81.0%)	249 (64, 576)	15 (86.7%)	208 (32, 323)	15 (100%)	178 (70, 424)	-	-
Complex TGA without PS	230 (95.8%)	20 (14, 26)	60 (95.4%)	21 (15, 24)	50 (96.2%)	18 (16, 26)	75 (98.6%)	19 (13, 27)	45 (91.5%)	20 (14, 30)
TGA with intact ventricular septum	355 (98.3%)	17 (13, 21)	115 (98.3%)	17 (13, 22)	80 (97.6%)	17 (12, 22)	105 (99.0%)	16 (13, 22)	55 (98.3%)	16 (13, 20)
PA (Total)	265	82 (18, 238)	75	60 (18, 219)	65	97 (22, 266)	70	99 (23, 249)	50	21 (12, 196)

	(91.0%)		(88.5%)		(92.6%)		(94.7%)		(87.9%)	
PA with VSD	185 (94.4%)	128 (34, 280)	55 (90.0%)	79 (30, 240)	50 (98.1%)	150 (44, 333)	45 (97.9%)	204 (79, 292)	30 (91.4%)	98 (18, 260)
PA with intact ventricular septum	80 (84.0%)	16 (10, 102)	25 (85.2%)	19 (10, 175)	10 (75.0%)	16 (10, 38)	25 (89.3%)	19 (13, 101)	20 (82.6%)	14 (8, 18)
AVSD (Total)	540 (91.7%)	182 (137, 254)	180 (94.2%)	169 (134, 246)	120 (91.0%)	185 (138, 252)	160 (89.4%)	191 (132, 280)	85 (92.2%)	189 (157, 223)
Tetralogy AVSD	35 (97.1%)	328 (205, 530)	15 (100%)	482 (288, 713)	-	-	10 (90.9%)	354 (256, 530)	-	-
Unbalanced AVSD	45 (81.0%)	201 (142, 325)	15 (81.0%)	180 (142, 260)	15 (86.7%)	201 (158, 259)	10 (75.0%)	364 (254, 463)	-	-
Complete AVSD	460 (92.6%)	174 (132, 226)	145 (95.5%)	165 (130, 215)	100 (91.0%)	181 (138, 252)	140 (90.8%)	178 (128, 230)	75 (92.6%)	189 (160, 220)
TOF (Total)	805 (98.0%)	198 (146, 264)	255 (99.2%)	206 (147, 290)	195 (98.0%)	185 (135, 242)	220 (97.3%)	189 (140, 251)	130 (97.0%)	219 (166, 276)
Tetralogy absent pulmonary valve	20 (100%)	115 (58, 238)	-	-	-	-	-	-	-	-
Tetralogy with DORV	100 (92.7%)	209 (140, 296)	25 (96.2%)	224 (121, 337)	25 (96.4%)	139 (90, 236)	30 (91.2%)	244 (166, 329)	20 (85.7%)	220 (170, 272)
Standard tetralogy	680 (98.8%)	198 (148, 261)	225 (99.6%)	204 (148, 278)	165 (98.2%)	186 (147, 246)	185 (98.4%)	188 (135, 243)	110 (99.1%)	217 (168, 276)
AOS (Total)	205 (91.1%)	63 (19, 168)	85 (89.2%)	63 (19, 176)	40 (100%)	99 (22, 244)	55 (87.7%)	44 (18, 141)	25 (92.9%)	68 (26, 102)
AOS with muti- level left heart obstruction	50 (76.1%)	62 (18, 144)	20 (72.4%)	97 (33, 150)	-	-	15 (71.4%)	44 (14, 85)	-	-
Isolated AOS	155 (97.5%)	64 (20, 174)	60 (96.9%)	54 (19, 182)	30 (100%)	71 (22, 219)	40 (95.5%)	49 (22, 156)	20 (100%)	82 (31, 103)
COA (Total)	730 (98.5%)	22 (14, 54)	215 (96.4%)	24 (15, 74)	195 (99.5%)	20 (13, 47)	205 (100%)	23 (14, 56)	115 (98.3%)	21 (15, 35)
COA with VSD	275 (98.2%)	22 (14, 49)	80 (96.5%)	23 (15, 54)	80 (100%)	20 (12, 48)	65 (100%)	21 (13, 43)	45 (95.7%)	22 (17, 45)

Isolated COA	455 (98.7%)	22 (14, 59)	130 (96.4%)	24 (15, 90)	115 (99.1%)	20 (13, 47)	140 (100%)	25 (14, 67)	75 (100%)	20 (15, 34)
VSD (Total)	1055 (87.8%)	156 (107, 244)	335 (88.7%)	168 (118, 263)	260 (87.0%)	151 (100, 274)	280 (86.5%)	154 (105, 234)	175 (89.8%)	150 (111, 212)
Multiple VSDs	60 (64.9%)	204 (115, 495)	25 (73.5%)	245 (115, 647)	20 (69.2%)	207 (122, 688)	-	-	-	-
Single VSD	995 (89.8%)	154 (107, 238)	310 (90.2%)	166 (119, 244)	240 (88.6%)	149 (98, 257)	270 (88.9%)	152 (105, 233)	165 (92.3%)	148 (108, 207)

Supplementary Table S4: P-values for the Wilcoxon rank sum test to determine statistical evidence for a delay in procedure timing between each pandemic period compared to the pre-pandemic baseline period.

Results for age at palliative stage 1 in TGA, AOS and COA was not shown due to limited sample size when broken down by era (n<10) There were 15 patients who had both a reparative procedure and a single ventricle stage 2 (CHD subgroups: PA, AVSD, and TOF), and their first occurring procedures were used.

^The result found in AVSD was based on small sample size (n=10)

AOS=congenital aortic stenosis; AVSD=atrioventricular septal defect; COA= coarctation of the aorta; FUH=functionally univentricular heart; HLHS=hypoplastic left heart syndrome; TGA=transposition of the great arteries; TOF= tetralogy of Fallot; PA= pulmonary atresia; VSD=ventricular septal defect.

	Pre-pandemic baseline	Transition period	Restriction period	Post restriction period
Age at palliative stage 1 procedure				
The whole cohort	reference	p=0.39	p=0.75	p=0.56
By CHD diagnosis				
HLHS	reference	p=0.54	p=0.59	p=0.15
FUH	reference	p=0.25	p=0.54	p=0.21
PA	reference	p=0.25	p=0.32	p=0.39
AVSD	reference	p=0.44	p=0.44	p=0.01^
TOF	reference	p=0.83	p=0.74	p=0.34
VSD	reference	p=0.79	p=0.44	p=0.58
Age at palliative stage 2 and reparative procedure				
The whole cohort	reference	p=0.99	p=0.98	p=0.99
By CHD diagnosis				
HLHS	reference	p=0.58	p=0.52	p=0.43
FUH	reference	p=0.55	p=0.73	p=0.83
TGA	reference	p=0.07	p=0.06	p=0.91
PA	reference	p=0.21	p=0.14	p=0.09
AVSD	reference	p=0.26	p=0.78	p=0.69
AOS	reference	p=0.99	p=0.79	p=0.94
COA	reference	p=0.98	p=0.95	p=0.18
TOF	reference	p=0.96	p=1	p=0.99
VSD	reference	p=0.99	p=0.98	p=0.99

Supplementary Table S5: Univariable and multivariable quantile regression results for median age of pathway procedures (measured in days since birth).

Complete case analysis was performed.

AOS=congenital aortic stenosis; AVSD=atrioventricular septal defect; COA= coarctation of the aorta; DORV=double outlet right ventricle; FUH=functionally univentricular heart; HLHS=hypoplastic left heart syndrome; TGA=transposition of the great arteries; TOF= tetralogy of Fallot; PA= pulmonary atresia; PS=pulmonary stenosis; VSD=ventricular septal defect.

Regression results for median age of palliative stage 1 procedure. Stage 1 for COA with VSD, TGA with intact ventricular septum and tetralogy absent pulmonary valve were not included in the model due to limited occurrence (n<10 in total).			
Factor	**Number of patients (%) n=1000**	**Relative median days with 95% CI (univariate estimates)**	**Relative median days with 95% CI (adjusted estimates)**
Birth era			
Pre-pandemic baseline	310 (30.8%)	Reference	Reference
Transition period	255 (25.5%)	1 (-11, 12)	-1 (-6, 4)
Restriction period	280 (27.8%)	-4 (-15, 7)	-2 (-7, 2)
Post restriction period	160 (15.9%)	-6 (-20, 8)	1 (-5, 7)
Ethnic group			
White	720 (71.7%)	Reference	Reference
Black	50 (4.9%)	12 (-4, 28)	-1 (-11, 10)
Asian	160 (15.9%)	15 (6, 24)**	6 (0, 12)*
Mixed / Other	65 (6.5%)	19 (5, 33)**	1 (-6, 8)
Missing	10 (1.1%)	N/A	N/A
Deprivation			
Quintile 1 (most deprived)	350 (35.7%)	6 (-16, 27)	1 (-5, 7)
Quintile 2	235 (23.4%)	5 (-16, 26)	-1 (-7, 6)
Quintile 3	170 (17.1%)	6 (-15, 26)	2 (-4, 8)
Quintile 4	135 (13.5%)	7 (-14, 28)	2 (-7, 10)
Quintile 5 (least deprived)	95 (9.5%)	Reference	Reference
Missing	10 (0.9%)	N/A	N/A
Gender			
Female	460 (45.9%)	Reference	Reference
Male	545 (54.1%)	-14 (-21, -7)***	-2 (-6, 2)
CHD subgroups			
HLHS	190 (18.9%)	-26 (-32, -20)***	-24 (-32, -17)***
Double inlet ventricle	75 (7.4%)	-19 (-26, -12)***	-17 (-26, -9)***
Tricuspid atresia	85 (8.5%)	-14 (-21, -7)***	-15 (-24, -7)***
Complex TGA with PS	30 (3.2%)	-10 (-29, 8)	-8 (-26, 10)

Complex TGA without PS	25 (2.4%)	-12 (-29, 6)	-10 (-26, 6)
PA with VSD	80 (8.2%)	-11 (-26, 3)	-11 (-25, 3)
PA with intact ventricular septum	30 (2.9%)	-17 (-26, -8)***	-16 (-25, -8)***
Tetralogy AVSD	20 (1.8%)	29 (-12, 71)	24 (-22, 70)
Unbalanced AVSD	35 (3.3%)	-2 (-23, 19)	-13 (-47, 20)
Complete AVSD	90 (9.1%)	11 (-2, 24)	6 (-9, 22)
Tetralogy with DORV	35 (3.4%)	3 (-22, 27)	-1 (-20, 17)
Standard tetralogy	100 (9.9%)	Reference	Reference
AOS with muti-level left heart obstruction	25 (2.3%)	-12 (-76, 52)	-7 (-67, 52)
Multiple VSDs	55 (5.3%)	51 (28, 74)***	53 (28, 79)***
Single VSD	135 (13.6%)	54 (37, 70)***	45 (29, 61)***
Congenital noncardiac comorbidity	330 (32.7%)	24 (16, 32)***	3 (-3, 10)
Preterm birth	200 (20.0%)	36 (29, 43)***	16 (6, 25)***

Regression results for median age of single ventricle stage 2 or reparative procedure.
Regression results for median age of single ventricle stage 2 or reparative procedure.
There were 15 patients who had both a reparative procedure and a single ventricle stage 2 (CHD subgroups: PA with intact ventricular septum, unbalanced AVSD, tetralogy AVSD, and standard tetralogy), and their first occurring procedures were included in the model.

Factor	Number of patients (%) n=4,540	Relative median days with 95% CI (univariate estimates)	Relative median days with 95% CI (adjusted estimates)
Birth era			
Pre-pandemic baseline	1430 (31.5%)	Reference	Reference
Transition period	1090 (24.1%)	-15 (-28, -2)*	-3 (-6, 0)*
Restriction period	1275 (28.1%)	-13 (-27, 1)*	-2 (-5, 1)
Post restriction period	740 (16.3%)	-4 (-20, 12)	-1 (-4, 2)
Ethnic group			
White	3310 (73.0%)	Reference	Reference
Black	200 (4.4%)	14 (-11, 39)	-1 (-10, 8)
Asian	615 (13.6%)	14 (-2, 30)	3 (-3, 9)
Mixed / Other	360 (7.9%)	0 (-18, 18)	-1 (-4, 3)
Missing	50 (1.1%)	N/A	N/A
Deprivation			
Quintile 1 most deprived	1300 (28.7%)	23 (8, 38)**	2 (-1, 6)
Quintile 2	1025 (22.6%)	11 (-6, 28)	-1 (-4, 3)
Quintile 3	860 (19.0%)	11 (-7, 29)	1 (-3, 4)
Quintile 4	705 (15.6%)	9 (-8, 26)	-1 (-5, 3)
Quintile 5 (least deprived)	615 (13.6%)	Reference	Reference
Missing	25 (0.5%)	N/A	N/A

Gender			
Female	1900 (41.9%)	Reference	Reference
Male	2635 (58.1%)	-21 (-32, -11)***	-1 (-4, 1)
CHD subgroups			
HLHS	140 (3.1%)	-35 (-46, -24)***	-30 (-42, -19)***
Double inlet ventricle	75 (1.7%)	-12 (-38, 15)	-7 (-33, 19)
Tricuspid atresia	85 (1.9%)	0 (-26, 26)	-1 (-25, 24)
Complex TGA with PS	50 (1.1%)	18 (-63, 98)	-2 (-100, 95)
Complex TGA without PS	230 (5.0%)	-178 (-188, -170)***	-176 (-186, -166)***
TGA with intact ventricular septum	355 (7.8%)	-181 (-189, -172)***	-179 (-189, -169)***
PA with VSD	60 (1.4%)	-67 (-123, -11)**	-74 (-136, -12)**
PA with intact ventricular septum	185 (4.1%)	-182 (-193, -171)***	-178 (-189, -167)***
Tetralogy AVSD	80 (1.7%)	132 (1, 264)*	144 (-3, 291)*
Unbalanced AVSD	45 (1.0%)	3 (-60, 66)	8 (-55, 70)
Complete AVSD	460 (10.2%)	-24 (-36, -12)***	-23 (-36, -11)***
Tetralogy absent pulmonary valve	20 (0.5%)	-83 (-173, 7)*	-104 (-180, -27)**
Tetralogy with DORV	100 (2.2%)	11 (-21, 44)	7 (-15, 29)
Standard tetralogy	680 (15.2%)	Reference	Reference
AOS with muti-level left heart obstruction	50 (1.1%)	-136 (-175, -96)***	-138 (-185, -91)***
Isolated AOS	155 (3.4%)	-134 (-159, -109)***	-131 (-155, -107)***
COA with VSD	275 (6.1%)	-176 (-185, -167)***	-175 (-184, -166)***
Isolated COA	455 (10.2%)	-176 (-185, -166)***	-174 (-183, -165)***
Multiple VSDs	60 (1.4%)	6 (-63, 75)	11 (-79, 101)
Single VSD	995 (22.2%)	-44 (-55, -32)***	-44 (-56, -32)***
Congenital noncardiac comorbidity	1305 (28.7%)	51 (41, 61)***	0 (-5, 5)
Preterm birth	595 (13.1%)	27 (10, 44)***	21 (13, 29)***

Significance level (p-value): 0.05 * 0.01 ** 0.001 ***

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Supplementary Table S6: Mortality rate at 1-year (using Kaplan-Meier) with 95% confidence interval by CHD diagnosis subtype and birth era.

AOS=congenital aortic stenosis; AVSD=atrioventricular septal defect; COA= coarctation of the aorta; DORV=double outlet right ventricle; FUH=functionally univentricular heart; HLHS=hypoplastic left heart syndrome; TGA=transposition of the great arteries; TOF= tetralogy of Fallot; PA= pulmonary atresia; PS=pulmonary stenosis; VSD=ventricular septal defect.

-Results are not shown (sample size was less than 10).

Diagnosis	Mortality rate at 1-year with 95% confidence interval				
	Total	Pre-pandemic baseline	Transition period	Restriction period	Post restriction period
The whole cohort	4.6% (4.0%, 5.2%)	4.2% (3.2%, 5.2%)	6.0% (4.6%, 7.3%)	4.0% (3.0%, 5.0%)	4.5% (3.0%, 5.9%)
By CHD diagnosis					
HLHS	28.0% (21.4%, 34.0%)	29.3% (16.6%, 40.1%)	27.5% (14.1%, 38.7%)	26.1% (12.2%, 37.7%)	28.9% (13.0%, 42.0%)
FUH (total)	5.5% (2.1%, 8.8%)	0%	18.9% (5.3%, 30.6%)	1.7% (0%, 4.9%)	6.7% (0%, 15.2%)
Double inlet ventricle	4.8% (0.1%, 9.2%)	0%	18.8% (0%, 35.8%)	0%	8.3% (0%, 22.7%)
Tricuspid atresia	6.2% (1.3%, 10.9%)	0%	19.0% (0.4%, 34.2%)	2.8% (0%, 8.0%)	5.6% (0%, 15.6%)
TGA (Total)	5.9% (4.1%, 7.7%)	4.0% (1.2%, 6.6%)	8.6% (4.0%, 13.0%)	6.2% (2.7%, 9.5%)	5.3% (1.1%, 9.3%)
Complex TGA with PS	8.3% (1.1%, 15.1%)	9.5% (0%, 21.2%)	20.0% (0%, 37.9%)	0%	0%
Complex TGA without PS	9.6% (5.8%, 13.3%)	4.6% (0%, 9.6%)	11.3% (2.4%, 19.5%)	13.5% (5.4%, 21.0%)	8.5% (0.2%, 16.2%)
TGA with intact ventricular septum	3.0% (1.3%, 4.8%)	2.6% (0%, 5.4%)	4.8% (0.1%, 9.3%)	1.9% (0%, 4.5%)	3.4% (0%, 8.0%)
PA (Total)	7.6% (4.5%, 10.6%)	6.9% (1.4%, 12.1%)	10.3% (2.8%, 17.2%)	6.6% (0.8%, 12.0%)	6.9% (0.1%, 13.2%)

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PA with VSD	6.2% (2.7%, 9.5%)	6.7% (0.1%, 12.8%)	7.7% (0.2%, 14.7%)	4.2% (0%, 9.7%)	5.7% (0%, 13.1%)
PA with intact ventricular septum	10.6% (4.2%, 16.7%)	7.4% (0%, 16.8%)	18.8% (0%, 35.8%)	10.7% (0%, 21.5%)	8.7% (0%, 19.5%)
AVSD (Total)	8.8% (6.5%, 11.1%)	9.0% (4.8%, 13.0%)	13.5% (7.5%, 19.2%)	6.1% (2.6%, 9.6%)	6.7% (1.4%, 11.7%)
Tetralogy AVSD	5.7% (0%, 13.1%)	7.1% (0%, 19.7%)	-	0%	0%
Unbalanced AVSD	15.5% (5.7%, 24.3%)	23.8% (3.2%, 40.0%)	13.3% (0%, 28.9%)	6.2% (0%, 17.4%)	-
Complete AVSD	8.2% (5.8%, 10.6%)	7.1% (3.0%, 11.1%)	13.5% (6.9%, 19.6%)	6.6% (2.6%, 10.4%)	6.2% (0.8%, 11.3%)
TOF (Total)	2.2% (1.2%, 3.2%)	1.9% (0.2%, 3.6%)	2.0% (0%, 3.9%)	2.2% (0.3%, 4.1%)	3.0% (0.1%, 5.8%)
Tetralogy absent pulmonary valve	9.5% (0%, 21.2%)	-	0%	0%	-
Tetralogy with DORV	2.8% (0%, 5.8%)	3.8% (0%, 11.0%)	3.6% (0%, 10.2%)	2.9% (0%, 8.5%)	0%
Standard tetralogy	1.9% (0.9%, 2.9%)	1.3% (0%, 2.8%)	1.8% (0%, 3.8%)	2.1% (0%, 4.2%)	2.8% (0%, 5.8%)
AOS (Total)	3.6% (1.1%, 5.9%)	4.3% (0.1%, 8.3%)	0%	6.2% (0.1%, 11.8%)	0%
AOS with muti-level left heart obstruction	7.5% (1.0%, 13.5%)	6.9% (0%, 15.7%)	0%	14.3% (0%, 28.0%)	0%
Isolated AOS	1.9% (0%, 4.0%)	3.1% (0%, 7.3%)	0%	2.3% (0%, 6.6%)	0%
COA (Total)	1.8% (0.8%, 2.7%)	2.7% (0.5%, 4.8%)	0.5% (0%, 1.5%)	2.4% (0.3%, 4.5%)	0.8% (0%, 2.5%)
COA with VSD	3.2% (1.1%, 5.3%)	4.7% (0.1%, 9.1%)	1.2% (0%, 3.6%)	4.5% (0%, 9.4%)	2.2% (0%, 6.3%)
Isolated COA	0.9% (0%, 1.7%)	1.5% (0%, 3.4%)	0%	1.4% (0%, 3.4%)	0%
VSD (Total)	0.8% (0.3%, 1.3%)	0.5% (0%, 1.3%)	2.0% (0.4%, 3.6%)	0%	1.0% (0%, 2.4%)
Multiple VSDs	1.1% (0%, 3.1%)	2.9% (0%, 8.5%)	0%	0%	0%
Single VSD	0.8% (0.3%, 1.3%)	0.3% (0%, 0.9%)	2.2% (0.4%, 3.9%)	0%	1.1% (0%, 2.6%)

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Supplementary Table S7: Univariable and multivariable logistic regression results for infant mortality (before age of 1 year).

To increase the degrees of freedom, ethnicity, deprivation and CHD diagnosis subgroup were collapsed into broad groups. Complete case analysis was performed.

AOS=congenital aortic stenosis; AVSD=atrioventricular septal defect; COA=coarctation of the aorta; FUH=functionally univentricular heart; HLHS=hypoplastic left heart syndrome; TGA=transposition of the great arteries; TOF= tetralogy of Fallot; PA= pulmonary atresia; VSD=ventricular septal defect.

-Results are not shown (the sample size was greater than 0 and less than 10).

Factor	Overall number of patients (n=4900)	Number of deaths under age one year old (%) (n=225 (4.6%))	Univariable odds ratio (95% CI)	Adjusted odds ratio (95% CI)
Birth era				
Pre-pandemic baseline	1545	65 (4.2%)	Reference	Reference
Transition period	1175	70 (6.0%)	1.44 (0.98, 2.11)*	1.60 (1.06, 2.42)*
Restriction period	1375	55 (4.0%)	0.95 (0.63, 1.42)	1.01 (0.66, 1.56)
Post restriction period	810	35 (4.5%)	1.06 (0.67, 1.68)	1.05 (0.64, 1.71)
Ethnicity				
Non-white	1270	70 (5.4%)	Reference	Reference
White	3570	155 (4.3%)	0.85 (0.62, 1.17)	0.83 (0.59, 1.18)
Missing	65	-	N/A	N/A
Deprivation				
Non-deprived area	2330	75 (3.3%)	Reference	Reference
Deprived area	2545	145 (5.7%)	1.80 (1.33, 2.42)***	1.56 (1.11, 2.18)**
Missing	25	-	N/A	N/A
Gender				
Female	2090	100 (4.7%)	Reference	Reference
Male	2810	125 (4.5%)	0.95 (0.71, 1.28)	0.90 (0.66, 1.25)

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CHD diagnosis				
HLHS	195	55 (28.0%)	17.31 (9.31, 32.20)***	21.73 (11.29, 41.85)***
FUH	180	10 (5.5%)	2.61 (1.09, 6.23)*	3.07 (1.26, 7.51)**
TGA	660	40 (5.9%)	2.79 (1.49, 5.23)***	3.67 (1.89, 7.10)***
PA	290	20 (7.6%)	3.67 (1.82, 7.42)***	3.74 (1.82, 7.70)***
AVSD	590	50 (8.8%)	4.30 (2.35, 7.86)***	3.71 (1.94, 7.10)***
TOF	820	20 (2.2%)	Reference	Reference
AOS	225	-	1.64 (0.65, 4.17)	1.95 (0.72, 5.29)
COA	740	15 (1.8%)	0.79 (0.36, 1.76)	0.91 (0.40, 2.04)
VSD	1200	10 (0.8%)	0.37 (0.16, 0.88)*	0.34 (0.14, 0.84)**
Congenital noncardiac comorbidity	1430	85 (6.0%)	1.52 (1.12, 2.06)**	1.39 (0.93, 2.09)
Preterm birth	695	55 (8.2%)	2.14 (1.52, 3.02)***	2.74 (1.87, 4.02)***

Significance level (p-value): 0.05 * 0.01 ** 0.001 ***.

Supplementary Table S8: P-values for the Wilcoxon rank sum test to determine statistical evidence for difference in length of hospital stay during the first year of patients' lives between each pandemic period compared to the pre-pandemic baseline period.

AOS=congenital aortic stenosis; AVSD=atrioventricular septal defect; COA= coarctation of the aorta; FUH=functionally univentricular heart; HLHS=hypoplastic left heart syndrome; TGA=transposition of the great arteries; TOF= tetralogy of Fallot; PA= pulmonary atresia; VSD=ventricular septal defect.

	Pre-pandemic baseline	Transition period	Restriction period	Post restriction period
Length of overall hospital stay before the age of 1 year (including inpatient, outpatient and emergency care services)				
The whole cohort	reference	p=0.13	p<0.001	p<0.001
By CHD diagnosis				
HLHS	reference	p=0.81	p=0.99	p=0.01
FUH	reference	p=0.24	p=0.68	p=0.48
TGA	reference	p=0.41	p<0.001	p<0.001
PA	reference	p=0.36	p=0.95	p=0.12
AVSD	reference	p=0.33	p=0.96	p=0.26
AOS	reference	p=0.06	p<0.001	p=0.001
COA	reference	p=0.93	p=0.37	p=0.13
TOF	reference	p=0.03	p=0.08	p=0.05
VSD	reference	p=0.58	p=0.02	p=0.003
Length of inpatient hospital stay				
The whole cohort	reference	p=0.41	p<0.001	p<0.001
By CHD diagnosis				
HLHS	reference	p=0.72	p=0.31	p=0.86
FUH	reference	p=0.41	p=0.004	p=0.4
TGA	reference	p=0.33	p=0.003	p=0.002
PA	reference	p=0.37	p=0.001	p=0.16
AVSD	reference	p=0.25	p<0.001	p=0.02
AOS	reference	p=0.02	p<0.001	p<0.001
COA	reference	p=0.57	p=0.11	p=0.23
TOF	reference	p=0.01	p=0.008	p=0.008
VSD	reference	p=0.02	p=0.62	p=0.01
Length of outpatient hospital stay				
The whole cohort	reference	p=0.13	p=0.004	p<0.001
By CHD diagnosis				
HLHS	reference	p=0.95	p=0.43	p=0.04
FUH	reference	p=0.32	p=0.37	p=0.57
TGA	reference	p=0.29	p=0.008	p<0.001
PA	reference	p=0.7	p=0.26	p=0.35

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AVSD	reference	p=0.57	p=0.3	p=0.33
AOS	reference	p=0.38	p=0.03	p=0.05
COA	reference	p=0.92	p=0.82	p=0.52
TOF	reference	p=0.04	p=0.24	p=0.07
VSD	reference	p=0.57	p=0.04	p=0.04

Supplementary Table S9: Length of overall hospital stay before the age of 1 year by CHD diagnosis subgroup, ethnicity, and deprivation among birth eras

Data are median days (IQR). Patients from Wales (n=235, 4.8% of the whole cohort) were not included because we don't have their outpatient and emergency care records. Additionally, patients with missing data ethnicity (n=10) and deprivation (n=25) were not included in the sub tables of ethnicity and deprivation due to limited sample size. P-values for the Wilcoxon rank sum test to determine statistical evidence for a difference in length of hospital stay during the first year of patients' lives between each pandemic period compared to the pre-pandemic baseline period were listed in Table S8.

Separate inpatient and outpatient data were shown in Supplementary table S10-11. Emergency visit data are not presented separately since these were a median of days 1-2 for all CHD diagnoses.

AOS=congenital aortic stenosis; AVSD=atrioventricular septal defect; COA= coarctation of the aorta; DORV=double outlet right ventricle; FUH=functionally univentricular heart; HLHS=hypoplastic left heart syndrome; TGA=transposition of the great arteries; TOF= tetralogy of Fallot; PA= pulmonary atresia; PS=pulmonary stenosis; VSD=ventricular septal defect.

-Results are not shown (sample size was less than 10).

Length of hospital stay (measured in days; including inpatient, outpatient and emergency care services) before the age of 1 year					
	Total	**Pre-pandemic baseline**	**Transition period**	**Restriction period**	**Post restriction period**
The whole cohort	44 (26, 80)	40 (24, 76)	41 (25, 71)	47 (29, 80)	50 (31, 92)
By CHD diagnosis					
HLHS	113 (64, 164)	109 (53, 148)	110 (64, 159)	106 (62, 156)	150 (87, 222)
FUH (total)	80 (59, 118)	83 (58, 118)	69 (55, 90)	80 (65, 116)	96 (58, 123)
Double inlet ventricle	76 (58, 116)	74 (56, 118)	68 (52, 99)	80 (62, 100)	92 (64, 128)
Tricuspid atresia	80 (59, 118)	92 (63, 118)	69 (58, 86)	83 (67, 122)	98 (48, 123)
TGA (Total)	33 (25, 50)	30 (24, 42)	32 (23, 46)	36 (27, 54)	42 (28, 58)
Complex TGA with PS	70 (42, 116)	47 (39, 99)	54 (33, 101)	75 (44, 154)	-

Complex TGA without PS	40 (28, 58)	34 (27, 46)	38 (27, 55)	42 (28, 60)	46 (32, 68)
TGA with intact ventricular septum	29 (23, 39)	26 (21, 34)	28 (21, 36)	31 (24, 43)	32 (25, 44)
PA (Total)	78 (48, 122)	78 (45, 105)	83 (48, 126)	73 (46, 115)	87 (61, 146)
PA with VSD	92 (54, 146)	89 (48, 135)	94 (46, 146)	79 (65, 126)	104 (67, 162)
PA with intact ventricular septum	62 (42, 87)	53 (38, 82)	74 (54, 108)	66 (41, 88)	62 (40, 86)
AVSD (Total)	69 (43, 110)	68 (41, 124)	63 (40, 92)	68 (48, 106)	75 (48, 118)
Tetralogy AVSD	81 (50, 138)	70 (43, 141)	-	94 (81, 151)	-
Unbalanced AVSD	74 (47, 118)	68 (45, 107)	73 (58, 123)	96 (66, 122)	-
Complete AVSD	67 (42, 108)	67 (39, 124)	62 (36, 92)	66 (45, 102)	79 (51, 119)
TOF (Total)	44 (28, 71)	36 (24, 65)	43 (28, 66)	48 (30, 83)	49 (33, 72)
Tetralogy absent pulmonary valve	182 (79, 263)	-	-	-	-
Tetralogy with DORV	71 (40, 128)	80 (50, 185)	55 (41, 142)	88 (51, 136)	60 (38, 81)
Standard tetralogy	40 (26, 63)	32 (23, 59)	39 (28, 62)	45 (30, 71)	48 (32, 70)
AOS (Total)	25 (13, 45)	22 (11, 45)	23 (16, 34)	26 (14, 42)	32 (16, 62)
AOS with muti-level left heart obstruction	40 (26, 80)	36 (22, 68)	-	40 (26, 86)	-
Isolated AOS	20 (11, 32)	19 (10, 30)	20 (13, 31)	22 (13, 32)	21 (14, 38)
COA (Total)	31 (20, 51)	28 (18, 46)	31 (22, 58)	33 (20, 55)	31 (23, 51)
COA with VSD	39 (25, 68)	36 (25, 58)	39 (26, 69)	40 (24, 62)	37 (28, 82)
Isolated COA	26 (19, 43)	24 (16, 36)	26 (20, 43)	31 (19, 49)	28 (21, 44)
VSD (Total)	41 (26, 72)	40 (23, 69)	37 (23, 67)	45 (29, 72)	45 (32, 79)
Multiple VSDs	52 (30, 96)	58 (32, 98)	38 (24, 87)	56 (24, 214)	54 (38, 79)
Single VSD	41 (26, 70)	38 (22, 65)	37 (23, 66)	45 (29, 71)	44 (31, 78)
By ethnicity					
	Total	**Pre-pandemic baseline**	**Transition period**	**Restriction period**	**Post restriction period**
White	43 (26, 80)	39 (24, 73)	39 (25, 71)	46 (28, 80)	47 (30, 84)
Black	57 (30, 102)	45 (28, 84)	58 (32, 90)	64 (30, 98)	79 (45, 125)
Asian	52 (30, 102)	40 (26, 86)	49 (27, 92)	55 (34, 90)	63 (34, 116)

	Total	Pre-pandemic baseline	Transition period	Restriction period	Post restriction period
Mixed / Other	43 (25, 73)	40 (20, 86)	44 (26, 64)	44 (25, 74)	45 (30, 70)
Missing in ethnicity	39 (22, 84)	-	-	-	-
By IMD (area deprivation) score					
	Total	**Pre-pandemic baseline**	**Transition period**	**Restriction period**	**Post restriction period**
Quintile 1 (most deprived)	48 (29, 88)	44 (27, 87)	45 (28, 81)	54 (31, 88)	55 (32, 108)
Quintile 2	45 (27, 84)	40 (25, 81)	40 (24, 78)	50 (31, 86)	50 (30, 88)
Quintile 3	43 (26, 76)	36 (23, 70)	39 (24, 67)	46 (27, 80)	52 (32, 105)
Quintile 4	40 (25, 73)	36 (22, 70)	39 (24, 73)	44 (27, 75)	44 (30, 68)
Quintile 5 (least deprived)	42 (25, 69)	36 (23, 66)	41 (24, 70)	43 (26, 63)	46 (31, 77)
Missing in deprivation	29 (16, 56)	-	-	-	-

Supplementary Table S10: Length of inpatient hospital stay before the age of 1 year by CHD diagnosis subgroup, ethnicity, and deprivation among birth eras

Data are median days (IQR).

AOS=congenital aortic stenosis; AVSD=atrioventricular septal defect; COA= coarctation of the aorta; DORV=double outlet right ventricle; FUH=functionally univentricular heart; HLHS=hypoplastic left heart syndrome; TGA=transposition of the great arteries; TOF= tetralogy of Fallot; PA= pulmonary atresia; PS=pulmonary stenosis; VSD=ventricular septal defect.

-Results are not shown (sample size was less than 10).

	Length of inpatient hospital stay (measured in days) before the age of 1 year				
	Total	Pre-pandemic baseline	Transition period	Restriction period	Post restriction period
The whole cohort	27 (15, 55)	24 (13, 52)	26 (15, 54)	29 (16, 55)	30 (17,61)
By CHD diagnosis					
HLHS	86 (43, 145)	90 (42, 126)	86 (44, 142)	62 (36, 127)	118 (64, 218)
FUH (total)	51 (37, 85)	54 (38, 85)	45 (35, 65)	46 (36, 84)	54 (42, 96)
Double inlet ventricle	51 (37, 84)	54 (38, 88)	44 (34, 76)	43 (34, 78)	58 (48, 108)
Tricuspid atresia	51 (37, 87)	56 (39, 84)	45 (37, 61)	49 (36, 90)	54 (38, 96)
TGA (Total)	25 (18, 38)	22 (18, 31)	25 (17, 38)	26 (19, 42)	28 (21, 46)
Complex TGA with PS	51 (29, 86)	40 (23, 81)	45 (28, 77)	54 (31, 106)	-
Complex TGA without PS	29 (21, 47)	27 (21, 37)	27 (19, 51)	32 (20, 51)	32 (24, 48)
TGA with intact ventricular septum	21 (17, 29)	20 (16, 26)	22 (16, 28)	22 (18, 31)	24 (18, 30)
PA (Total)	49 (29, 94)	55 (27, 84)	52 (29, 99)	44 (29, 66)	54 (32, 118)
PA with VSD	58 (32, 114)	65 (32, 106)	55 (28, 125)	48 (33, 94)	81 (46, 139)
PA with intact ventricular septum	34 (23, 56)	34 (24, 54)	46 (32, 66)	34 (23, 49)	32 (19, 64)
AVSD (Total)	44 (22, 81)	46 (20, 98)	43 (23, 77)	43 (22, 76)	48 (27, 96)
Tetralogy AVSD	56 (17, 80)	47 (14, 88)	-	59 (30, 75)	-
Unbalanced AVSD	50 (36, 94)	46 (30, 71)	54 (38, 95)	70 (48, 96)	-
Complete AVSD	43 (22, 80)	46 (20, 100)	38 (22, 75)	38 (21, 66)	52 (30, 97)
TOF (Total)	21 (13, 45)	20 (12, 40)	21 (13, 41)	23 (14, 50)	26 (15, 48)

Tetralogy absent pulmonary valve	161 (39, 249)	-	-	-	-
Tetralogy with DORV	37 (20, 86)	44 (20, 118)	34 (22, 104)	48 (20, 103)	28 (23, 49)
Standard tetralogy	20 (13, 38)	18 (12, 33)	20 (12, 36)	21 (13, 42)	23 (14, 44)
AOS (Total)	13 (7, 31)	12 (7, 33)	13 (7, 25)	16 (6, 29)	14 (6, 37)
AOS with muti-level left heart obstruction	29 (15, 52)	26 (11, 41)	-	30 (17, 53)	-
Isolated AOS	10 (5, 21)	10 (5, 22)	10 (6, 24)	9 (5, 20)	10 (4, 20)
COA (Total)	20 (13, 37)	19 (12, 34)	21 (14, 38)	21 (13, 39)	22 (15, 36)
COA with VSD	26 (18, 48)	26 (18, 42)	28 (20, 54)	26 (16, 47)	26 (17, 49)
Isolated COA	17 (12, 30)	16 (10, 24)	18 (13, 31)	18 (12, 36)	19 (13, 29)
VSD (Total)	23 (12, 48)	19 (10, 48)	21 (11, 47)	26 (13, 48)	24 (14, 51)
Multiple VSDs	28 (16, 72)	40 (17, 77)	24 (10, 72)	22 (14, 129)	28 (21, 44)
Single VSD	22 (12, 47)	18 (10, 45)	21 (11, 46)	26 (13, 48)	24 (12, 51)
By ethnicity					
	Total	**Pre-pandemic baseline**	**Transition period**	**Restriction period**	**Post restriction period**
White	26 (15, 51)	23 (13, 49)	25 (14, 51)	28 (16, 52)	29 (16, 53)
Black	38 (18, 79)	32 (16, 62)	40 (17, 76)	42 (18, 73)	58 (26, 103)
Asian	32 (18, 68)	28 (15, 59)	32 (17, 73)	33 (20, 60)	44 (22, 88)
Mixed / Other	26 (14, 54)	26 (12, 70)	28 (15, 44)	24 (14, 53)	29 (17, 53)
Missing in ethnicity	13 (6, 23)	29 (7, 80)	8 (7, 16)	10 (6, 18)	18 (10, 23)
By IMD (area deprivation) score					
	Total	**Pre-pandemic baseline**	**Transition period**	**Restriction period**	**Post restriction period**
Quintile 1 (most deprived)	32 (17, 62)	29 (16, 61)	31 (17, 58)	33 (17, 61)	34 (19, 81)
Quintile 2	27 (15, 56)	24 (13, 52)	25 (15, 56)	29 (17, 60)	30 (16, 58)
Quintile 3	26 (14, 53)	22 (12, 44)	24 (13, 47)	28 (16, 56)	35 (17, 72)
Quintile 4	23 (14, 47)	22 (13, 47)	23 (14, 50)	23 (14, 45)	25 (17, 44)
Quintile 5 (least deprived)	24 (13, 47)	20 (12, 42)	24 (14, 50)	24 (15, 42)	28 (14, 53)
Missing in deprivation	29 (14, 45)	-	-	22 (14, 47)	-

Supplementary Table S11: Length of outpatient hospital stay before the age of 1 year by CHD diagnosis subgroup, ethnicity, and deprivation among birth eras

Data are median days (IQR). Patients from Wales (n=235, 4.8% of the whole cohort) were not included because we don't have their outpatient records. Additionally, patients with missing data ethnicity (n=10) and deprivation (n=25) were not included in the sub tables of ethnicity and deprivation due to limited sample size.

AOS=congenital aortic stenosis; AVSD=atrioventricular septal defect; COA= coarctation of the aorta; DORV=double outlet right ventricle; FUH=functionally univentricular heart; HLHS=hypoplastic left heart syndrome; TGA=transposition of the great arteries; TOF= tetralogy of Fallot; PA= pulmonary atresia; PS=pulmonary stenosis; VSD=ventricular septal defect.

-Results are not shown (sample size was less than 10).

Length of outpatient hospital stay (measured in days) before the age of 1 year					
	Total	Pre-pandemic baseline	Transition period	Restriction period	Post restriction period
The whole cohort	11 (6, 20)	10 (6, 17)	10 (6, 18)	13 (7, 22)	13 (7, 22)
By CHD diagnosis					
HLHS	10 (1, 23)	10 (1, 17)	10 (0, 21)	12 (5, 27)	10 (1, 22)
FUH (total)	19 (11, 30)	14 (10, 26)	15 (8, 24)	28 (15, 34)	18 (13, 29)
Double inlet ventricle	19 (10, 29)	15 (10, 26)	15 (8, 24)	28 (18, 36)	20 (14, 30)
Tricuspid atresia	18 (12, 31)	14 (12, 23)	15 (8, 23)	27 (15, 32)	18 (12, 25)
TGA (Total)	6 (4, 11)	6 (4, 9)	6 (4, 11)	8 (4, 13)	8 (4, 15)
Complex TGA with PS	14 (7, 24)	10 (6, 16)	12 (3, 18)	15 (11, 26)	-
Complex TGA without PS	8 (4, 13)	7 (4, 9)	8 (4, 12)	8 (5, 14)	8 (4, 14)
TGA with intact ventricular septum	5 (4, 9)	5 (4, 7)	6 (4, 7)	6 (4, 10)	6 (4, 12)
PA (Total)	15 (9, 27)	12 (8, 20)	15 (9, 22)	19 (13, 33)	18 (10, 27)
PA with VSD	16 (10, 27)	13 (8, 22)	14 (9, 22)	22 (14, 34)	21 (13, 30)
PA with intact ventricular septum	14 (6, 21)	11 (5, 17)	16 (12, 21)	16 (9, 28)	12 (4, 19)
AVSD (Total)	17 (10, 26)	15 (10, 22)	14 (7, 24)	20 (13, 30)	19 (12, 27)
Tetralogy AVSD	21 (14, 43)	18 (15, 49)	-	40 (32, 47)	-

Unbalanced AVSD	18 (8, 26)	13 (8, 22)	14 (7, 23)	24 (17, 28)	-
Complete AVSD	17 (10, 25)	-	-	-	-
TOF (Total)	14 (9, 23)	15 (10, 22)	14 (8, 25)	19 (12, 29)	19 (12, 27)
Tetralogy absent pulmonary valve	10 (2, 18)	12 (8, 20)	14 (10, 22)	17 (12, 25)	16 (10, 27)
Tetralogy with DORV	17 (12, 33)	-	-	-	-
Standard tetralogy	14 (9, 22)	17 (9, 31)	14 (11, 22)	24 (15, 39)	16 (11, 32)
AOS (Total)	7 (4, 12)	12 (8, 19)	14 (10, 21)	16 (12, 24)	16 (10, 26)
AOS with muti-level left heart obstruction	9 (6, 13)	7 (4, 10)	8 (4, 13)	8 (5, 13)	8 (4, 13)
Isolated AOS	7 (4, 11)	8 (7, 12)	-	10 (6, 17)	-
COA (Total)	7 (4, 12)	6 (3, 10)	7 (4, 10)	8 (5, 11)	8 (4, 14)
COA with VSD	8 (5, 13)	6 (4, 10)	7 (5, 12)	7 (4, 14)	7 (5, 13)
Isolated COA	7 (4, 11)	7 (4, 12)	8 (5, 13)	7 (4, 14)	9 (6, 13)
VSD (Total)	12 (8, 20)	6 (4, 10)	7 (5, 10)	7 (5, 14)	6 (4, 12)
Multiple VSDs	13 (6, 21)	12 (7, 20)	10 (7, 17)	13 (7, 21)	14 (10, 22)
Single VSD	12 (8, 20)	14 (8, 23)	9 (6, 15)	7 (5, 14)	19 (13, 22)
By ethnicity					
	Total	**Pre-pandemic baseline**	**Transition period**	**Restriction period**	**Post restriction period**
White	11 (6, 20)	10 (6, 18)	10 (6, 18)	13 (7, 22)	13 (8, 22)
Black	12 (6, 18)	10 (6, 13)	12 (7, 18)	15 (6, 23)	16 (8, 23)
Asian	13 (7, 12)	11 (6, 20)	11 (5, 18)	15 (8, 25)	13 (8, 22)
Mixed / Other	10 (5, 18)	9 (4, 14)	10 (5, 17)	12 (6, 20)	9 (4, 18)
Missing in ethnicity	3 (0, 5)	-	-	-	-
By IMD (area deprivation) score					
	Total	**Pre-pandemic baseline**	**Transition period**	**Restriction period**	**Post restriction period**
Quintile 1 (most deprived)	11 (6, 18)	10 (5, 16)	10 (5, 17)	13 (6, 21)	12 (7, 22)
Quintile 2	12 (6, 20)	11 (6, 18)	10 (5, 18)	14 (7, 24)	14 (7, 21)
Quintile 3	11 (6, 20)	10 (6, 17)	11 (6, 20)	13 (6, 21)	13 (7, 22)

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Quintile 4	12 (6, 20)	10 (6, 18)	10 (6, 18)	16 (8, 25)	13 (7, 21)
Quintile 5 (least deprived)	12 (7, 21)	11 (6, 19)	12 (7, 19)	13 (7, 20)	14 (8, 24)
Missing in deprivation	2 (1, 5)	-	-	2 (1, 5)	-

Supplementary Table S12: Univariable and multivariable quantile regression results for median days spent at home in the first year of life.

N=225 (4.5%) infant mortality were assigned at 0 days at home as the worst outcome. Complete case analysis was performed.

AOS=congenital aortic stenosis; AVSD=atrioventricular septal defect; COA=coarctation of the aorta; DORV=double outlet right ventricle; FUH=functionally univentricular heart; HLHS=hypoplastic left heart syndrome; TGA=transposition of the great arteries; TOF= tetralogy of Fallot; PA= pulmonary atresia; PS=pulmonary stenosis; VSD=ventricular septal defect.

Factor	Number of patients (%) (n=4900)	Relative median days with 95% CI (univariate estimates)	Relative median days with 95% CI (adjusted estimates)
Birth era			
Pre-pandemic baseline	1545 (31.5%)	Reference	Reference
Transition period	1175 (24.0%)	-2 (-5, 1)	-1 (-3, 1)
Restriction period	1375 (28.0%)	-4 (-7, -1)**	-1 (-3, 1)
Post restriction period	810 (16.5%)	-6 (-9, -3)***	-2 (-4, 0)
Ethnic group			
White	3570 (72.8%)	Reference	Reference
Black	220 (4.5%)	-13 (-24, -2)*	-7 (-12, -1)*
Asian	665 (13.6%)	-7 (-11, -3)***	-3 (-6, 0)*
Mixed / Other	380 (7.8%)	0 (-4, 4)	0 (-2, 2)
Missing	65 (1.3%)	N/A	N/A
Deprivation			
Quintile 1 most deprived	1435 (29.3%)	-9 (-12, -6)***	-4 (-6, -2)***
Quintile 2	1110 (22.6%)	-4 (-7, -1)**	-2 (-4, 0)*
Quintile 3	925 (18.8%)	-2 (-6, 2)	-3 (-5, -1)**
Quintile 4	750 (15.3%)	0 (-3, 3)	-1 (-3, 1)
Quintile 5 (least deprived)	655 (13.3%)	Reference	Reference
Missing	25 (0.6%)	N/A	N/A
Gender			
Female	2090 (42.6%)	Reference	Reference
Male	2810 (57.4%)	2 (-1, 5)	1 (0, 2)
CHD subgroup			
HLHS	195 (3.9%)	-120 (-144, -96)***	-116 (-138, -94)***
Double inlet ventricle	85 (1.7%)	-35 (-48, -22)***	-30 (-42, -18)***
Tricuspid atresia	95 (2.0%)	-33 (-45, -21)***	-34 (-43, -25)***
Complex TGA with PS	60 (1.2%)	-36 (-53, -20)***	-37 (-53, -21)***
Complex TGA without PS	240 (4.9%)	-10 (-14, -6)***	-13 (-17, -10)***
TGA with intact	360 (7.4%)	-2 (-4, 0)*	-5 (-7, -3)***

ventricular septum			
PA with VSD	195 (4.0%)	-44 (-56, -32)***	-33 (-43, -24)***
PA with intact ventricular septum	95 (1.9%)	-23 (-33, -13)***	-19 (-27, -12)***
Tetralogy AVSD	35 (0.7%)	-37 (-62, -12)**	-1 (-29, 26)
Unbalanced AVSD	60 (1.2%)	-51 (-75, -26)***	-37 (-62, -12)**
Complete AVSD	500 (10.2%)	-24 (-29, -19)***	-9 (-14, -4)***
Tetralogy absent pulmonary valve	20 (0.4%)	-152 (-272, -32)**	-115 (-233, 2)*
Tetralogy with DORV	110 (2.2%)	-17 (-28, -6)***	-9 (-17, -1)*
Standard tetralogy	690 (14.1%)		Reference
AOS with muti-level left heart obstruction	65 (1.4%)	-9 (-17, -1)*	-8 (-17, 1)*
Isolated AOS	160 (3.2%)	10 (8, 12)***	5 (3, 8)***
COA with VSD	280 (5.7%)	-6 (-9, -3)***	-7 (-11, -4)***
Isolated COA	465 (9.4%)	3 (1, 5)***	1 (-1, 2)
Multiple VSDs	95 (1.9%)	-8 (-21, 5)	-9 (-17, 0)*
Single VSD	1105 (22.6%)	-2 (-4, 0)	1 (-1, 3)
Congenital noncardiac comorbidity	1430 (29.2%)	-26 (-30, -22)***	-20 (-24, -16)***
Preterm birth	695 (14.1%)	-50 (-57, -43)***	-41 (-48, -34)***

Significance level (p-value): 0.05 * 0.01 ** 0.001 ***.

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Supplementary Table S13: Length of overall hospital stay before the age of 1 year by CHD diagnosis subgroup and social determinants (ethnicity and deprivation)

Data are median days (IQR). Patients from Wales (n=235, 4.8% of the whole cohort) were not included because we don't have their outpatient and emergency care records. Additionally, patients with missing data ethnicity (n=10) and deprivation (n=25) were not included due to limited sample size among each CHD diagnosis.

AOS=congenital aortic stenosis; AVSD=atrioventricular septal defect; COA= coarctation of the aorta; DORV=double outlet right ventricle; FUH=functionally univentricular heart; HLHS=hypoplastic left heart syndrome; TGA=transposition of the great arteries; TOF= tetralogy of Fallot; PA= pulmonary atresia; PS=pulmonary stenosis; VSD=ventricular septal defect.

-Results are not shown (sample size was less than 10).

Length of hospital stay (measured in days; including inpatient, outpatient and emergency care services) before the age of 1 year									
Diagnosis	**Ethnicity**				**Deprivation**				
	White	**Black**	**Asian**	**Mixed / Other**	**Quintile 1 (most deprived)**	**Quintile 2**	**Quintile 3**	**Quintile 4**	**Quintile 5 (least deprived)**
HLHS	110 (60, 158)	134 (72, 247)	145 (64, 166)	130 (73, 170)	128 (64, 173)	95 (57, 146)	125 (90, 182)	113 (84, 168)	111 (64, 140)
FUH (total)	80 (61, 119)	174 (147, 180)	75 (58, 106)	59 (49, 77)	68 (54, 113)	92 (68, 126)	72 (58, 121)	76 (66, 101)	90 (69, 109)
Double inlet ventricle	76 (57, 115)	-	67 (59, 98)	-	65 (53, 113)	93 (67, 128)	76 (62, 131)	-	-
Tricuspid atresia	86 (66, 121)	-	80 (57, 108)	57 (46, 66)	69 (55, 113)	86 (74, 120)	70 (58, 119)	79 (71, 146)	-

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TGA (Total)	32 (25, 47)	36 (30, 83)	40 (26, 74)	29 (24, 46)	33 (27, 51)	37 (26, 55)	31 (24, 44)	31 (24, 45)	32 (26, 48)
Complex TGA with PS	56 (39, 110)	-	88 (64, 132)	-	101 (75, 133)	100 (46, 142)	83 (38, 102)	40 (34, 52)	65 (37, 127)
Complex TGA without PS	38 (27, 54)	40 (32, 72)	56 (40, 91)	40 (32, 49)	40 (28, 59)	44 (34, 70)	40 (30, 54)	38 (27, 61)	34 (26, 46)
TGA with intact ventricular septum	29 (23, 39)	31 (30, 52)	32 (23, 39)	24 (20, 30)	31 (24, 37)	31 (21, 41)	27 (21, 34)	27 (22, 34)	28 (25, 46)
PA (Total)	78 (45, 117)	73 (60, 83)	93 (58, 146)	67 (52, 100)	74 (46, 110)	81 (54, 126)	75 (52, 125)	99 (54, 159)	59 (44, 102)
PA with VSD	93 (54, 143)	-	94 (60, 148)	67 (56, 110)	83 (48, 134)	99 (65, 146)	97 (60, 128)	108 (71, 173)	64 (47, 140)
PA with intact ventricular septum	60 (39, 83)	-	85 (53, 116)	-	62 (42, 83)	65 (47, 96)	64 (50, 90)	-	46 (34, 92)
AVSD (Total)	67 (42, 105)	67 (38, 115)	89 (50, 139)	65 (43, 108)	74 (45, 115)	71 (42, 118)	76 (48, 110)	62 (38, 95)	66 (38, 88)
Tetralogy AVSD	74 (50, 110)	-	81 (44, 120)	-	74 (43, 177)	87 (42, 118)	-	-	-
Unbalanced AVSD	81 (51, 119)	-	-	-	72 (46, 108)	-	104 (93, 129)	-	-
Complete AVSD	63 (41, 101)	66 (38, 115)	92 (49, 138)	66 (45, 107)	75 (45, 115)	68 (44, 116)	69 (47, 105)	60 (38, 95)	58 (36, 82)
TOF (Total)	45 (27,	49 (29,	40 (30,	44 (28,	45 (28, 71)	46 (30, 76)	37 (26,	42 (27, 64)	47 (28, 72)

	70)	80)	64)	76)			68)		
Tetralogy absent pulmonary valve	168 (51, 268)	-	-	-	-	-	-	-	-
Tetralogy with DORV	71 (42, 109)	-	70 (38, 130)	-	71 (49, 150)	59 (33, 119)	68 (34, 116)	48 (36, 78)	146 (95, 162)
Standard tetralogy	42 (26, 64)	44 (25, 74)	38 (27, 55)	40 (26, 59)	41 (28, 65)	44 (29, 63)	33 (24, 59)	40 (26, 63)	42 (26, 64)
AOS (Total)	25 (13, 44)	-	25 (17, 63)	20 (16, 35)	28 (15, 56)	26 (14, 40)	23 (11, 48)	22 (13, 34)	22 (16, 32)
AOS with muti-level left heart obstruction	38 (26, 68)	-	-	-	80 (38, 104)	36 (27, 52)	42 (22, 51)	45 (22, 82)	-
Isolated AOS	20 (11, 32)	-	23 (14, 29)	17 (15, 26)	22 (12, 40)	22 (12, 32)	17 (10, 38)	20 (12, 30)	18 (14, 25)
COA (Total)	29 (20, 48)	38 (28, 51)	36 (24, 68)	33 (23, 56)	33 (23, 58)	30 (20, 52)	31 (22, 45)	29 (19, 48)	31 (20, 50)
COA with VSD	34 (24, 59)	45 (38, 63)	66 (37, 113)	48 (32, 70)	47 (30, 74)	38 (25, 58)	36 (24, 63)	33 (22, 57)	34 (24, 72)
Isolated COA	26 (19, 42)	30 (23, 46)	26 (20, 43)	30 (18, 44)	28 (20, 44)	25 (18, 44)	27 (21, 37)	24 (18, 39)	29 (20, 47)
VSD (Total)	41 (26, 67)	47 (25, 86)	46 (27, 81)	41 (24, 72)	44 (26, 84)	40 (27, 69)	41 (26, 73)	41 (26, 66)	41 (24, 63)
Multiple VSDs	41 (29, 92)	-	68 (39, 96)	-	82 (40, 171)	36 (27, 59)	71 (44, 196)	36 (30, 84)	26 (16, 50)

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| Single VSD | 41 (26, 66) | 48 (25, 84) | 42 (27, 80) | 38 (24, 69) | 42 (25, 74) | 40 (27, 70) | 41 (26, 71) | 41 (26, 65) | 41 (24, 64) |

Supplementary Table S14: Length of inpatient hospital stay before the age of 1 year by CHD diagnosis subgroup and social determinants (ethnicity and deprivation)

Data are median days (IQR). Patients with missing data ethnicity (n=65, 1.3% of the whole cohort) and deprivation (n=25, 0.6% of the whole cohort) were not included due to limited sample size among each CHD diagnosis.

AOS=congenital aortic stenosis; AVSD=atrioventricular septal defect; COA= coarctation of the aorta; DORV=double outlet right ventricle; FUH=functionally univentricular heart; HLHS=hypoplastic left heart syndrome; TGA=transposition of the great arteries; TOF= tetralogy of Fallot; PA= pulmonary atresia; PS=pulmonary stenosis; VSD=ventricular septal defect.

-Results are not shown (sample size was less than 10).

	Length of inpatient hospital stay (measured in days) before the age of 1 year								
Diagnosis	**Ethnicity**				**Deprivation**				
	White	**Black**	**Asian**	**Mixed / Other**	**Quintile 1 (most deprived)**	**Quintile 2**	**Quintile 3**	**Quintile 4**	**Quintile 5 (least deprived)**
HLHS	81 (42, 132)	108 (43, 224)	106 (55, 153)	96 (62, 154)	97 (46, 150)	65 (40, 128)	94 (47, 161)	93 (52, 138)	74 (59, 104)
FUH (total)	51 (38, 90)	154 (109, 172)	50 (29, 70)	41 (34, 52)	46 (33, 76)	53 (43, 96)	61 (36, 104)	52 (37, 79)	48 (38, 84)
Double inlet ventricle	50 (38, 82)	-	57 (30, 69)	-	47 (30, 75)	62 (44, 105)	64 (38, 117)	-	-
Tricuspid atresia	52 (38, 93)	-	45 (26, 71)	38 (31, 44)	45 (34, 78)	52 (40, 89)	42 (33, 88)	60 (47, 90)	-
TGA (Total)	24 (18,	29 (24,	30 (21,	22 (16,	26 (20, 42)	28 (18,	23 (17,	22 (19,	26 (19, 38)

	36)	66)	56)	34)		48)	34)	30)	
Complex TGA with PS	46 (27, 86)	-	65 (48, 80)	-	-	65 (33, 88)	52 (33, 78)	26 (23, 41)	44 (19, 78)
Complex TGA without PS	28 (20, 43)	32 (27, 56)	46 (30, 66)	28 (24, 44)	30 (23, 52)	29 (20, 54)	30 (19, 47)	28 (21, 42)	27 (20, 36)
TGA with intact ventricular septum	21 (17, 29)	26 (22, 47)	23 (19, 30)	19 (15, 24)	22 (18, 28)	24 (18, 33)	20 (16, 27)	20 (17, 26)	24 (18, 32)
PA (Total)	48 (28, 89)	47 (26, 66)	60 (35, 122)	38 (32, 86)	57 (32, 91)	51 (28, 94)	48 (28, 104)	42 (23, 94)	41 (26, 64)
PA with VSD	62 (32, 115)	-	61 (36, 130)	48 (32, 86)	61 (36, 115)	66 (32, 109)	54 (30, 110)	56 (34, 148)	52 (34, 104)
PA with intact ventricular septum	34 (23, 54)	-	55 (28, 99)	-	43 (29, 59)	36 (26, 60)	44 (23, 69)	20 (17, 31)	30 (16, 46)
AVSD (Total)	42 (21, 74)	51 (22, 96)	63 (33, 123)	44 (20, 74)	47 (26, 96)	47 (22, 80)	48 (26, 84)	34 (17, 60)	36 (17, 62)
Tetralogy AVSD	38 (13, 69)	-	59 (34, 64)	-	56 (28, 144)	48 (14, 69)	-	-	-
Unbalanced AVSD	52 (32, 96)	-	-	-	46 (31, 80)	-	84 (70, 107)	-	-
Complete AVSD	41 (21, 71)	48 (22, 97)	70 (32, 124)	45 (21, 73)	47 (26, 98)	46 (22, 90)	42 (24, 80)	32 (17, 63)	32 (17, 60)
TOF (Total)	21 (13, 43)	30 (16, 56)	22 (15, 38)	22 (13, 58)	25 (15, 47)	21 (15, 48)	18 (11, 40)	21 (13, 40)	21 (13, 48)

Tetralogy absent pulmonary valve	143 (30, 264)	-	-	-	-	-	-	-	-
Tetralogy with DORV	38 (22, 73)	-	32 (22, 112)	-	36 (25, 114)	35 (20, 78)	36 (23, 71)	34 (19, 48)	-
Standard tetralogy	20 (13, 39)	26 (15, 52)	20 (13, 32)	22 (12, 41)	23 (14, 39)	20 (15, 38)	17 (11, 35)	20 (12, 36)	20 (13, 41)
AOS (Total)	13 (6, 28)	-	14 (8, 58)	14 (10, 28)	16 (6, 38)	16 (6, 26)	14 (7, 34)	11 (7, 26)	10 (8, 15)
AOS with muti-level left heart obstruction	26 (15, 42)	-	-	-	33 (26, 95)	25 (20, 38)	24 (14, 41)	22 (10, 52)	-
Isolated AOS	9 (5, 21)	-	9 (4, 22)	10 (10, 16)	10 (4, 26)	12 (5, 18)	10 (5, 20)	10 (6, 17)	9 (6, 10)
COA (Total)	19 (13, 34)	25 (16, 43)	24 (18, 46)	26 (14, 43)	24 (15, 42)	20 (13, 33)	21 (14, 32)	18 (12, 32)	20 (12, 35)
COA with VSD	25 (17, 42)	35 (21, 56)	40 (25, 94)	36 (24, 55)	36 (23, 59)	26 (17, 40)	25 (18, 45)	23 (17, 43)	24 (14, 40)
Isolated COA	17 (12, 29)	23 (16, 34)	19 (13, 28)	23 (12, 32)	19 (13, 32)	16 (12, 30)	17 (12, 24)	15 (10, 26)	18 (11, 30)
VSD (Total)	22 (12, 46)	32 (14, 66)	28 (15, 58)	21 (10, 49)	27 (14, 57)	22 (12, 45)	23 (12, 50)	22 (12, 44)	18 (9, 43)
Multiple VSDs	25 (14, 62)	-	48 (23, 64)	-	54 (22, 151)	22 (10, 40)	42 (12, 168)	25 (22, 67)	24 (12, 37)
Single VSD	21 (11,	32 (14,	26 (15,	21 (10,	25 (13, 52)	22 (12,	23 (12,	21 (11,	17 (10, 43)

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| | | 46) | 64) | 54) | 46) | | 46) | 47) | 44) | |

Supplementary Table S15: Length of outpatient hospital stay before the age of 1 year by CHD diagnosis subgroup and social determinants (ethnicity and deprivation)

Data are median days (IQR). Patients from Wales (n=235, 4.8% of the whole cohort) were not included because we don't have their outpatient records. Additionally, patients with missing data ethnicity (n=10) and deprivation (n=25) were not included due to limited sample size among each CHD diagnosis.

AOS=congenital aortic stenosis; AVSD=atrioventricular septal defect; COA= coarctation of the aorta; DORV=double outlet right ventricle; FUH=functionally univentricular heart; HLHS=hypoplastic left heart syndrome; TGA=transposition of the great arteries; TOF= tetralogy of Fallot; PA= pulmonary atresia; PS=pulmonary stenosis; VSD=ventricular septal defect.

-Results are not shown (sample size was less than 10).

Length of hospital stay (measured in days; including inpatient, outpatient and emergency care services) before the age of 1 year									
	Ethnicity				Deprivation				
Diagnosis	White	Black	Asian	Mixed / Other	Quintile 1 (most deprived)	Quintile 2	Quintile 3	Quintile 4	Quintile 5 (least deprived)
HLHS	12 (1, 23)	11 (4, 22)	7 (0, 19)	12 (6, 24)	9 (0, 17)	12 (0, 25)	14 (7, 20)	20 (8, 29)	10 (1, 30)
FUH (total)	20 (12, 30)	14 (6, 26)	20 (11, 32)	15 (11, 20)	15 (10, 26)	19 (12, 32)	20 (10, 28)	22 (15, 29)	19 (13, 47)
Double inlet ventricle	20 (12, 29)	-	21 (9, 32)	-	17 (10, 27)	20 (13, 30)	20 (12, 35)	-	-
Tricuspid atresia	19 (10, 30)	-	18 (12, 31)	15 (15, 20)	15 (12, 24)	18 (13, 35)	21 (10, 24)	20 (14, 29)	-
TGA (Total)	7 (4,	7 (4,	8 (4,	5 (3, 8)	6 (3, 11)	6 (4, 11)	7 (4, 10)	6 (4, 12)	8 (5, 13)

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Open Heart

	11)	12)	14)						
Complex TGA with PS	13 (6, 19)	-	18 (14, 47)	-	11 (7, 13)	16 (11, 36)	12 (2, 30)	12 (5, 16)	20 (14, 35)
Complex TGA without PS	8 (4, 13)	7 (6, 10)	8 (5, 14)	8 (6, 10)	7 (4, 13)	8 (5, 12)	8 (6, 18)	9 (5, 14)	8 (5, 10)
TGA with intact ventricular septum	6 (4, 9)	5 (3, 9)	5 (4, 9)	4 (3, 6)	5 (3, 9)	5 (4, 8)	6 (4, 9)	5 (4, 8)	6 (5, 13)
PA (Total)	14 (9, 26)	18 (12, 27)	18 (9, 29)	18 (10, 23)	13 (8, 22)	18 (11, 33)	15 (9, 23)	18 (12, 40)	15 (8, 27)
PA with VSD	14 (10, 27)	-	19 (13, 29)	20 (13, 26)	14 (9, 22)	21 (12, 40)	15 (10, 24)	19 (12, 30)	14 (8, 28)
PA with intact ventricular septum	15 (7, 19)	-	11 (4, 24)	-	12 (5, 17)	17 (10, 22)	12 (6, 16)	-	16 (10, 21)
AVSD (Total)	18 (11, 27)	16 (10, 23)	17 (5, 25)	14 (8, 22)	14 (9, 21)	18 (11, 29)	21 (14, 34)	19 (12, 31)	18 (11, 28)
Tetralogy AVSD	39 (14, 48)	-	17 (13, 20)	-	16 (12, 20)	21 (17, 57)	-	-	-
Unbalanced AVSD	19 (10, 26)	-	-	-	19 (9, 26)	-	21 (19, 24)	-	-
Complete AVSD	17 (11, 26)	16 (10, 23)	17 (4, 24)	14 (9, 22)	13 (8, 19)	18 (11, 28)	19 (13, 31)	19 (12, 31)	18 (10, 26)
TOF (Total)	15 (10, 25)	11 (6, 18)	15 (8, 22)	13 (7, 18)	14 (9, 22)	14 (9, 26)	14 (9, 20)	16 (10, 24)	16 (11, 25)

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Tetralogy absent pulmonary valve	11 (6, 23)	-	-	-	-	-	-	-	-
Tetralogy with DORV	17 (12, 33)	-	22 (13, 34)	-	20 (12, 26)	15 (7, 33)	15 (13, 30)	16 (11, 29)	34 (15, 44)
Standard tetralogy	14 (10, 23)	11 (6, 18)	15 (8, 21)	13 (9, 19)	13 (9, 21)	14 (10, 26)	14 (9, 20)	16 (10, 25)	16 (10, 23)
AOS (Total)	8 (4, 13)	-	6 (4, 9)	6 (5, 9)	8 (4, 11)	8 (5, 13)	7 (4, 11)	7 (5, 10)	9 (7, 14)
AOS with muti-level left heart obstruction	8 (6, 13)	-	-	-	9 (4, 12)	10 (7, 13)	8 (5, 10)	10 (6, 24)	-
Isolated AOS	7 (4, 12)	-	6 (5, 8)	6 (4, 7)	7 (4, 10)	7 (5, 12)	6 (3, 10)	6 (4, 10)	9 (7, 13)
COA (Total)	7 (4, 12)	8 (5, 14)	8 (5, 13)	5 (4, 10)	7 (4, 13)	7 (5, 12)	7 (5, 11)	7 (4, 12)	8 (5, 14)
COA with VSD	8 (5, 12)	9 (5, 16)	13 (8, 21)	6 (4, 11)	8 (4, 13)	8 (6, 15)	8 (5, 12)	8 (4, 12)	9 (4, 13)
Isolated COA	7 (4, 12)	7 (5, 13)	7 (5, 9)	5 (5, 7)	7 (4, 11)	6 (4, 10)	7 (4, 10)	6 (4, 12)	8 (5, 14)
VSD (Total)	12 (7, 21)	12 (9, 17)	13 (8, 20)	12 (7, 18)	12 (7, 18)	12 (7, 19)	12 (7, 21)	13 (9, 22)	14 (9, 22)
Multiple VSDs	12 (7, 22)	-	13 (8, 21)	-	15 (8, 22)	9 (6, 16)	12 (6, 22)	12 (7, 22)	7 (5, 13)
Single VSD	12 (8,	12 (9,	13 (8,	12 (7, 18)	12 (7, 18)	12 (7, 19)	12 (7, 20)	13 (9, 22)	15 (10, 22)

		20)	17)	20)						