Table S1: Clinical features of 67 syndromic congenital heart defects identified in the study.

Case ID	Syndrome or Sequence	Maternal Age	CHD Type	Fetal Echo	Timing of Diagnosis	Associated Conditions	Prenatal Exposures	Family History	Consanguinity	Genetic Test
11	Trisomy 21	41	VSD	Yes (normal)	Postnatal	Fetal growth restriction	Hypertension	No	Yes	Karyotype (47, XX, +21)
20	Trisomy 21	36	VSD ASD	No	Postnatal	Fetal growth restriction	Sertraline use, maternal overweight, herpes treatment, preeclampsia	No	No	Karyotype (47, XX, +21)
34	Trisomy 21	32	ASD	No	Postnatal	None	Smoker, hypertension	No	No	Karyotype (47, XX, +21)
36	Trisomy 21	37	PDA OMCC	No	Postnatal	None	GDM, hypothyroidism	No	No	Karyotype (47, XX, +21)
43	Trisomy 21	34	MR AR	Yes (normal)	Postnatal	Fetal hydrops, ascites, hypothyroidism	Smoker	No	No	Karyotype (47, XX, +21)
57	Trisomy 21	42	PDA	Yes (normal)	Postnatal	None	None	No	No	Karyotype (47, XY, +21)
89	Trisomy 21	44	AVSD	No	Postnatal	None	Maternal obesity, smoker	No	No	Karyotype (47, XX, +21)
113	Trisomy 21	24	AVSD	No	Postnatal	None	None	No	No	Karyotype (47, XX, +21)

Case ID	Syndrome or Sequence	Maternal Age	CHD Type	Fetal Echo	Timing of Diagnosis	Associated Conditions	Prenatal Exposures	Family History	Consanguinity	Genetic Test
125	Trisomy 21	41	VSD PDA	Yes (normal)	Postnatal	None	Hypertensive, diabetic,maternal obesity. Used sertraline and quetiapine during pregnancy.	No	No	Prenatal Karyotype (47, XY, +21)
133	Trisomy 21	34	VSD ASD	No	Postnatal	Esophageal atresia with tracheoesophageal fistula	None	No	No	Karyotype (47, XY, +21)
137	Trisomy 21		ASD	No	Postnatal	None	None	No	No	Karyotype (47, XX, +21)
160	Trisomy 21		AVSD	Yes (altered)	Prenatal	None	Maternal obesity, hypothyroidism	No	No	Karyotype (47, XX, +21)
184	Trisomy 21	44	ASD	Yes (normal)	Postnatal	Duodenal atresia, bilateral cryptorchidism	Maternal obesity, hypertension	No	No	Prenatal Karyotype (47, XY, +21)
189	Trisomy 21	42	VSD	Yes (normal)	Postnatal	None	Maternal overweight, GDM	No	No	Karyotype (47, XX, +21)
211	Trisomy 21	23	ASD	No	Postnatal	Congenital hypothyroidism	Smoker, hypothyroidism	No	No	Karyotype (47, XY, +21)
213	Trisomy 21	41	AVSD PDA	Yes (altered)	Prenatal	None	Maternal overweight, hypertension	No	No	Prenatal Karyotype (47, XY, +21)
218	Trisomy 21	17	DORV PA VSD	No	Postnatal	None	Smoker, used alcohol and drugs, with syphilis and	No	No	Karyotype (47, XX, +21)

Case ID	Syndrome or Sequence	Maternal Age	CHD Type	Fetal Echo	Timing of Diagnosis	Associated Conditions	Prenatal Exposures	Family History	Consanguinity	Genetic Test
							herpes treated during pregnancy			
227	Trisomy 21	22	AVSD	Yes (normal)	Postnatal	Fetal growth restriction	None	Yes	Yes	1.NIPT Karyotype (47, XX, +21)
232	Trisomy 21	39	ASD	Yes (normal)	Postnatal	None	Hypothyroidism, GDM	No	No	Karyotype (47, XX, +21)
266	Trisomy 21	43	PDA	No	Postnatal	None	GDM	Yes	No	Karyotype (47, XX, +21)
268	Trisomy 21	43	ASD	Yes (normal)	Postnatal	Fetal growth restriction	Maternal overweight, hypothyroidism	No	No	Karyotype (47, XX, +21)
311	Trisomy 21	32	ASD	No	Postnatal	None	Smoker, hypertension. preeclampsia	Yes	No	Karyotype (47, XX, +21)
340	Trisomy 21	35	ASD	No	Postnatal	None	None	No	No	Karyotype (47, XY, +21)
96	Trisomy 21	40	VSD PDA	No	Postnatal	None	Smoker, hypertension, GDM	No	No	Karyotype (47, XX, +21)
112	Trisomy 21	41	ASD	None	None	None	GDM, used sertraline use	No	No	Karyotype (47, XX, +21)
209	Trisomy 21	36	TOF	Yes (altered)	Prenatal	Limbs defects	Diabetes	No	No	Not available
214	Trisomy 21	40	AVSD PDA	No	Postnatal	None	None	No	No	Karyotype (47, XY, +21)

Case ID	Syndrome or Sequence	Maternal Age	CHD Type	Fetal Echo	Timing of Diagnosis	Associated Conditions	Prenatal Exposures	Family History	Consanguinity	Genetic Test
219	Trisomy 21	22	ASD	None	Postnatal	None	Hypertension	No	No	Karyotype (47, XX, +21)
230	Trisomy 21	41	AVSD ASD VSD	No	Postnatal	None	Maternal obesity	No	No	Karyotype (47, XX, +21)
294	Trisomy 21	26	ASD	No	Postnatal	None	Hypothyroidism, hypertension, maternal obesity	No	No	Karyotype (47, XY, +21)
302	Trisomy 21	41	VSD PDA		Postnatal	None	Hypertension, GDM, maternal overweight, alcohol use, sertraline use	No	No	Karyotype (47, XY, +21)
343	Trisomy 21	39	VSD PS		Postnatal	None	Smoker, GDM	No	No	Karyotype (47, XX, +21)
370	Trisomy 21	44	ASD	Yes (normal)	Postnatal	None	None	No	No	Karyotype (47, XX, +21)
185	Trisomy 13	32	CoA BAV ASD VSD	No	Postnatal	None	Smoker, alcohol use	No	No	Karyotype (47, XX, +13, Robertsonian translocation)
306	Trisomy 13	16	VSD ASD PDA	No	Postnatal	Omphalocele with bilateral duplication of the collecting system Postaxial polydactyly of the hands, bilaterally	None	No	No	Karyotype (47, XY, +13)

Case ID	Syndrome or Sequence	Maternal Age	CHD Type	Fetal Echo	Timing of Diagnosis	Associated Conditions	Prenatal Exposures	Family History	Consanguinity	Genetic Test
378	Trisomy 13	41	ASD BAV PDA	No	Postnatal	None	Maternal obesity	No	No	Karyotype (47, XX, +13)
328	Trisomy 13	39	DXC ASD	No	Postnatal	None	None	No	No	Karyotype (47, XX, +13)
100	Trisomy 18	29	VSD BAV	No	Postnatal	Neonatal cholestasis	None	No	No	Karyotype (47, XY, +18)
159	Trisomy 18	40	TOF	Yes (altered)	Prenatal	Cleft lip and palate Bilateral duplication of the upper urinary tract, fetal growth restriction	Hypotireoidism, vitiligo	No	No	Karyotype (47, XX, +18)
314	Trisomy 18	30	DORV	Yes (altered)	Prenatal	Fetal growth restriction	Smoker	No	No	1.NIPT 2.Prenatal Karyotype (47, XY, +18)
269	Klinefelter syndrome	34	SVPS		Postnatal	Epilepsy, neuropsychomotor developmental delay, right cryptorchidism	Sodium valproate and risperidone use.	Yes	No	1.Karyotype (47, XXY) 2.Variant of uncertain significance - FASN c.6638A>G (p.Gln2213Arg) - PLAA c.1445C>T (p.Ser482Leu)

Case ID	Syndrome or Sequence	Maternal Age	CHD Type	Fetal Echo	Timing of Diagnosis	Associated Conditions	Prenatal Exposures	Family History	Consanguinity	Genetic Test
134	Klinefelter syndrome	31	PDA	No	Postnatal	None	GDM	No	No	Karyotype (47, XXY)
237	Turner syndrome	43	AIH VSD	No	Postnatal	Fetal growth restriction	Hypertension, maternal obesity, syphilis treated during pregnancy	No	No	Karyotype (45, X)
26	Turner syndrome	30	CoA	Yes (altered)	Prenatal	None	GDM, maternal overweight	No	No	Not available
318	Di George Syndrome	39	VSD	Yes (altered)	Prenatal	Myelomeningocele, duodenal atresia, bilateral talipes equinovarus	None	No	No	1.Karyotype (46, XX) 2.Array-CGH (2.2 Mb deletion at 22q11.21)
224	4q31 deletion syndrome	26	AVSD ASD	No	Postnatal	Epilepsy	None	No	No	Karyotype (46, XX, del (4) (q31.1))
241	1p36 deletion syndrome	27	VSD ASD PDA	No	Postnatal	None	Epilepsy, sertraline and fluoxetine use.	Yes	No	1.Prenatal karyotype 46, XY, t(1p;3p) 2.Array-CGH (deletion 1p36 distal)
183	Beckwith-Wiedemann syndrome	28	SVSP ASD	No	Postnatal	None	None	No	No	Karyotype (46, XX)

Case ID	Syndrome or Sequence	Maternal Age	CHD Type	Fetal Echo	Timing of Diagnosis	Associated Conditions	Prenatal Exposures	Family History	Consanguinity	Genetic Test
121	Charge syndrome	28	VSD ASD	Yes (altered)	Prenatal	Bilateral choanal atresia, single umbilical artery	None	No	No	Karyotype (46, XXl)
260	Abernethy syndrome	34	ASD	No	Postnatal	Neonatal cholestasis, hepatic vascular malformation	GDM	No	No	Not available
132	Fetal skeletal dysplasia	29	PDA	Yes (normal)	Postnatal	Multifactorial cholestasis	Maternal obesity	No	No	Fetal exome sequencing: 1.DYNC2H1: c.12764G>A (p.Cys4255Tyr) 2.DYNC2H1: c.6614G>A (p.Arg2205His)
48	VACTERL	33	ASD	No	Postnatal	Esophageal atresia Skeletal anomalies	Hypertension, maternal obesity, alcohol use	No	No	Karyotype (46, XY)
97	VACTERL	52	ASD	No	Postnatal	Facial dysmorphic features	Glyphosate exposure	No	No	Karyotype (46, XY)
320	VACTERL	27	PDA	No	Postnatal	None	Maternal obesity, Metabolic syndrome, chronic venous insufficiency CEAP class 3	No	No	Karyotype (46, XY)
381	VACTERL	30	VSD ASD PDA	No	Postnatal	Hypospadias	GDM	Yes	No	1.Karyotype (46, XY) 2.Array-CGH (normal)

Case ID	Syndrome or Sequence	Maternal Age	CHD Type	Fetal Echo	Timing of Diagnosis	Associated Conditions	Prenatal Exposures	Family History	Consanguinity	Genetic Test
206	Pierre Robin sequence	31	PDA	No	Postnatal	None	Diabetes	Yes	No	Not available
239	Pierre Robin sequence	16	ASD	No	Postnatal	Soft palate cleft	Alcohol use	No	No	Karyotype (46, XX)
359	Pierre Robin sequence	41	VSD	No	Postnatal	None	Smoker, hypothyroidism, diabetes, sertraline use	Yes	No	1.Karyotype (46, XX) 2.Array-CGH (normal)
99	Prune Belly sequence	40	ASD	No	Postnatal	None	None	No	No	Karyotype (46, XY)
41	Prune Belly sequence	38	VSD	Yes (altered)	Prenatal	None	None	No	No	Not available
69	Omenn syndrome	39	SVPS ASD	No	Postnatal	Cytomegalovirus infection	None	No	Yes	Exome sequencing: RAG1–chr11:36,573,728C>T,p.Arg142*,ENST00000299440, homozygous – Pathogenic
178	Peters syndrome	24	ASD PS	No	Postnatal	Congenital glaucoma	None	No	No	Karyotype (46, XY)
186	Caudal regression syndrome	20	PAD	No	Postnatal	Bilateral congenital knee dislocation, single kidney (right),	Maternal obesity, diabetes, hypertension	Yes	No	Karyotype (46, XY)

Case ID	Syndrome or Sequence	Maternal Age	CHD Type	Fetal Echo	Timing of Diagnosis	Associated Conditions	Prenatal Exposures	Family History	Consanguinity	Genetic Test
						morphological anomalies of the anal canal				
259	Fetal alcohol syndrome	40	ASD	No	Postnatal	None	Smoker, alcohol use	No	No	Karyotype (46, XY)
374	Undiagnosed case	19	DXC VSD	No	Postnatal	Fetal growth restriction, semilobar holoprosencephaly, esophageal atresia	Hypothyroidism	Yes	No	1.Karyotype (46, XX) 2.Array-CGH (normal)
258	Undiagnosed case	27	VSD	No	Postnatal	Esophageal atresia, Multiple facial malformations, Skeletal malformations, Hypospadias	Maternal obesity, hypertension	Yes	No	Array-CGH: 3.0 Mb duplication at 10q11.22q11.23, heterozygous non pathogenic

VSD: Ventricular Septal Defects; **ASD:** Atrial Septal Defects; **PDA:** Patent Ductus Arteriosus; **AVSD:** Atrioventricular Septal Defects; **TOF:** Tetralogy of Fallot; **CoA:** Coarctation of the Aorta; **BAV**: Bicuspid Aortic Valve; **OMCC:** Other Malformations of Cardiac Chambers; **MR**: Mitral Regurgitation; **AR:** Aortic Regurgitation; **DORV:** Double outlet right ventricle; **PA**: Pulmonary Atresia; **PS**: Pulmonary Stenosis; **DXC:** Dextrocardia; **SVPS**: Supravalvular Pulmonary Stenosis; **AIH:** Aortic isthmus hypoplasia; **GDM**: Gestational diabetes mellitus; **NIPT:** Non-invasive prenatal test.