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Congenital Heart Defects and Autism: Associated Risk Factors In A Clinically Referred Sample

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Background

- Children with Congenital Heart Defects (CHD) have higher odds of developing social difficulties and/or an Autism Spectrum Disorder (AuSD) than the general population.^{1,2,3,4,5}
- Higher rates of AuSD occur in children with less severe forms of CHD (e.g., atrial septal defect, ventral septal defect, aortic obstruction).^{3,4}
- CHD associated risk factors (e.g., genetic disorders, hypoxia/anoxia, neurological conditions) are also associated with a higher incidence of AuSD.^{6,7,8}
- Purpose: To identify the prevalence of actual AuSD diagnosis and associated risk factors in a patient sample from a medium-size children's hospital.**

Participants

Inclusion Criteria

- Diagnosed with CHD
- High neurodevelopmental risk according to AHA and AAP Position Statement
- Cardiac Neurodevelopmental (CND) program neuropsychological evaluation (01/01/21 – 12/31/22)
- < 18 years old

Total Sample Size: 356

Gender	Age	Race/Ethnicity
Male: 203	Mean: 5.29	White/Non-Hispanic: 276
Female: 153	Median: 3.80	Black/Non-Hispanic: 23
	Range: 17.80	Asian: 11
		Hispanic: 7
		Biracial: 15
		Other: 21
		Missing: 3

Methods/Results

- Patients were seen as part of their regular CND follow-up clinic visits.
- Those with + screen for AuSD symptoms were referred for further evaluation by CND-affiliated provider (52%), or by an outside provider.
- Thirty-five** patients were diagnosed with AuSD, **10** are still awaiting assessment, and **4** were evaluated and did not meet AuSD criteria (Fig 1).
- Patients with AuSD or a pending evaluation were further characterized by the presence of comorbid conditions (Fig 2).

Figure 1: Percentage of AuSD diagnosis in Total Sample

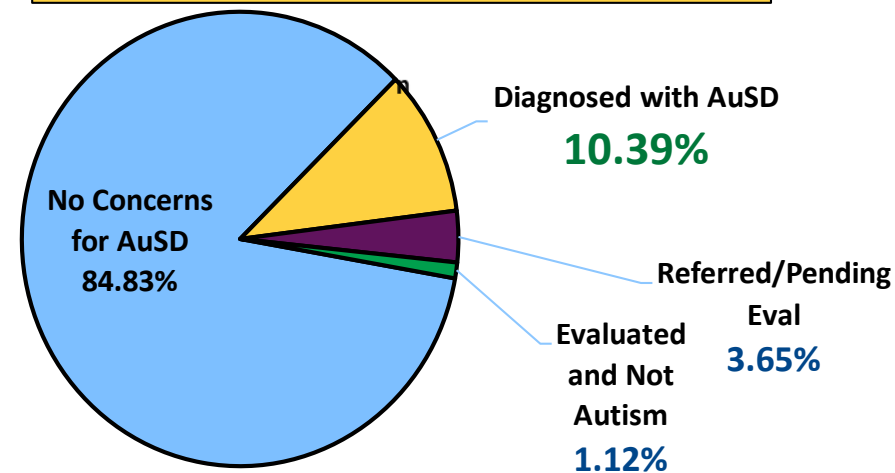
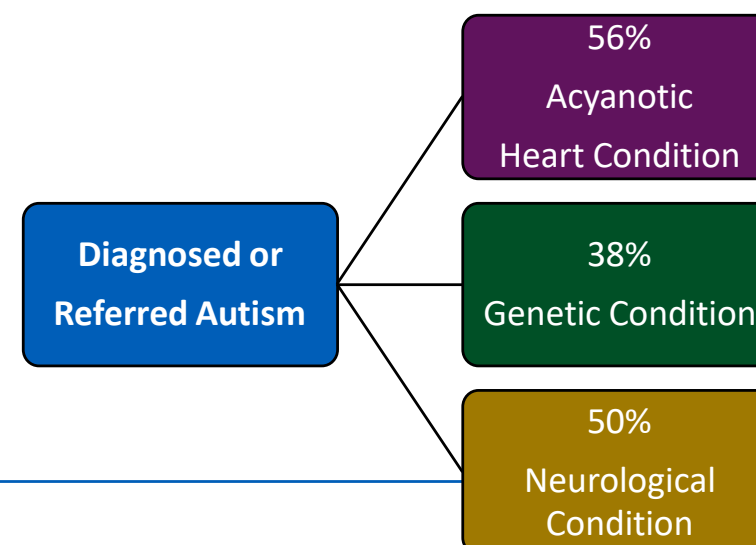


Figure 2: CHD type and comorbid genetic/neurological conditions



Conclusion

- High prevalence of diagnosed AuSD in this sample compared to population data⁹.**
- Diagnosis of AuSD was slightly higher among those with acyanotic CHD.**
- Children with CHD and AuSD had high prevalence of comorbid genetic and neurological conditions.**

Cardiac neurodevelopmental providers should include regular autism screening in clinics to ensure appropriate access to evaluation, treatment, and family support.

- Rates of *diagnosed* AuSD may be higher in sample due to associated factors including:
 - Gender:** More boys than girls (AuSD diagnosed more often in boys⁹)
 - Access:** More than half of patients were tested by their CND provider and avoided long waitlists for AuSD eval.
 - Awareness:** Parents receive ongoing counseling around neurodevelopmental conditions through program.
- Next Steps:**
 - Further examine risk factors associated with an AuSD diagnosis in CHD population.
 - Improve rate of AuSD screening among CHD providers through ongoing education and training.

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