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**Title:** Sleep disordered breathing in children with trisomy 21 and pulmonary hypertension

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**Body:** Introduction: Children with trisomy 21 (T21) have a significantly high prevalence of sleep disordered breathing (SDB), specifically obstructive sleep apnea (OSA). Children with T21 are also at risk for pulmonary arterial hypertension (PAH). It is unclear if PAH per se confers additional risk for OSA in this population. Aim: To compare the prevalence of SDB in T21 children with PAH and without PAH and with controls. Methods: This was a retrospective study where PSG data on all non-obese children at the Hospital for Sick Children, Toronto with T21 and/or PAH referred over a 5 year period, were reviewed and compared with PSG data in age-matched controls. The main outcome measure was the obstructive apnea-hypopnea index (OAH). Results: PSG of 33 children aged 0.2 – 8 years with a BMI < 25kg/m<sup>2</sup> were reviewed and compared in 4 groups; 1) controls (n=8), 2) children with PAH (n=9), 3) children with T21 (n=10), and 4) children with both T21 and PAH (n=6). In children with both T21 and PAH, there was a significantly higher OAH (p=0.01) and a trend for lower oxygen saturations and a higher tcCO<sub>2</sub> when compared with the other groups (see figures below). Conclusions: Children with both T21 and PAH are at increased risk of severe OSA. All children with T21 who are known to have PAH should undergo sleep surveillance with PSG. Future research may be directed towards understanding the interaction of T21 and PAH predisposing to OSA.