Online Table S6.1: Which patients may benefit from a weaning trial ?

Author	Country	Journal	Type of study	Number of patients	Patients weaned
McNamara al. [1]	Australia	Chest	Prospective cohort	24 infants treated with CPAP	13/24 infants could be weaned form CPAP: 11 history of ALTE, 1 choanal atresia, 1 Smith-Lemli-Optiz sd after vascular ring surgery Parents reported decreased compliance in these infants
Downey et al. [2]	USA	Chest	Retrospective study at 1 center 1992-1999	18 infants < 2 yrs treated with CPAP	8/18 infants could be weaned from CPAP
Edwards et al. [3]	Australia	J Ped Child Health	Retrospective study at 1 center 1991-2004	108 children treated with CPAP + 47 NIV	61/108 improved after 3-52 m: airway malacia, CLD, neonatal diaphragmatic weakness, ARF with lung disease (no more details)
Nelson et al. [4]	USA	J Oral Maxillofacial Surgery	Retrospective study	25 children with syndromic bilateral coronal synostosis who had Lefort III distraction	6/9 patients treated with CPAP could discontinue CPAP after Lefort III
Bannink at al. [5]	The Netherlands	Int J Oral Maxillofacial Surgery	Retrospective study at 1 center	11 children treated with CPAP for craniofaciostenosis	After mid-face advancement, 6/11 patients could be weaned for CPAP (CPAP or tracheotomy was maintained in 5)
Rosen [6]	USA	Clin Pediatr	Retrospective cohort	29 infants < 2 yrs with Down syndrome, 6 treated with CPAP	3/6 had no OSA on a repeat PSG after 5, 5, and 110 m and could be weaned form CPAP
Tibbals et al. [7]	Australia	J Ped Child Health	Longitudinal study (1979-2008) in one center in	168 children, 58 (35%) CPAP, 50 (60%) BPAP	25 (15%) could be weaned from ventilatory support

			Melbourne		
McDougall et al. [8]	Canada	Arch Dis Child	Prospective study in one center / 15 yrs	144 children started on NIV	28/144 (19%) discontinued NIV: 7 NMD, 3 spinal injury, 5 abnormal ventilatory control, 5 craniofacial malformation, 4 airway malacia, 4 other Weaning incidence at 5-yrs: 21%, 42% at 10 yrs Time to weaning: 1.9 (0.2-11.5) years Weaning less common in NMD
Girbal et al. [9]	Portugal	Revista Portuguesa Pneumologia	Retrospective cohort at 1 center 1997-2012	68 children with complex OSA, 52 on CPAP, 16 on BPAP	22/68 could be weaned: 17 spontaneous improvement, 5 after surgery Even patients with complex OSA may be weaned from CPAP by time
Chatwin et al. [10]	UK	Plos One	Retrospective cohort at 1 center	496 children on home NIV (follow up data on 449)	42/449 (9%) could be weaned form NIV: 2 chest wall, 1 obesity, 6 CLD, 4 congenital syndrome, 4 upper airway obstruction, 4 NMD, 5 other (+ 5 ventilator intolerance, 5 mask intolerance)
Chau et al. [11]	Hong Kong	Respir Care	Retrospective cohort study at 1 center 1997-2015	96 children < 21 yrs, 71 treated with NIV	7 (8%) children treated with NIV could be weaned due to "improvement of chronic lung disease or underlying airway problems"
Kherani et al. [12]	Canada	Pediatr Pulmonol	Retrospective study	25 infants < 12 m treated with NIV	2 CCHS, 1 other CNS, 14 NMD, 3 CLD, 2 airway malacia, 1 diaphragm paralysis, 1 pulmonary atresia, 1 OSA 7/28 (28%) could be weaned from NIV
Mastouri et al. [13]	France	Pediatr Pulmonol	Retrospective cohort at 1 center 2013-2016	58/213 (27%) could be weaned: 50 CPAP + 8 NIV	Description of major and minor weaning criteria. Diagnosis: 9 laryngeal anomaly, 6 Pierre Robin, 6 Prader Willi syndrome, 6 Treacher Collins syndrome, 4 CLD, 3 achondroplasia, 3 OSA, 2 craniofaciostenosis, 2 pycnodysostosis, 2 mucopolysaccharidosis, polymalformative syndrome, 2 mandibular hypoplasia, 2 lung disease + other
Ikeda et al. [14]	Japan	Brain Dev	Retrospective cohort study	63 children < 20 yrs	3 (6%) children could be weaned due to "improvement of respiration"

			at 1 center 2001-2015		
Castro-Codesal et al. [15]	Canada	Plos One	Retrospective cohort study in Alberta 2005-2014	622 children < 18 yrs	39% of children could be weaned after 3-105 m of NIV due to spontaneous improvement in 16%
Al-Iede et al. [16]	Australia	Sleep Med	Retrospective study	148 children treated with CPAP for cardiorespiratory disorder	6/148 could be weaned from CPAP / 15 m follow up due to improvement
Amaddeo et al. [17]	France	Pediatr Pulmonol	Retrospective study	31 children started on CPAP in an out-patient setting	3/31 children could be weaned from CPAP during a mean follow up of 12.3 m (2.2 - 258.2 m) 1 patient with mucopolysaccharidosis improved after mandibular distraction osteogenesis Spontaneous improvement in 1 patient with 22q11 and 1 patient with polymalformative syndrome
King et al. [18]	Australia	J Clin Sleep Med	Retrospective cohort at 1 center 2016-2017	24 children (1-10.5 yrs) could be weaned during a 2 yrs follow up	11 spontaneous improvement, 7 airway surgery, 2 decrease in body mass index, 4 low physician perceived benefit (no symptoms and normal PSG)
Perriol et al. [19]	France	Sleep & Breathing	Observational cohort over 2 yrs	78 children (10.4 ± 3.2 yrs) with OSA type I initiated on CPAP	Weaning: 6 at 3 m, 15 at 6 m, 23 at 12 m, 44 at 24 m thanks to rehabilitation programs, dentofacial orthopedics ± weight loss

Abbreviations: m: months, yrs: years, CPAP: continuous positive airway pressure, BPAP: bilevel positive airway pressure, NIV: noninvasive ventilation, ALTE: acute life-threatening event, ARF: acute respiratory failure, OSA: obstructive sleep apnea, PSG: polysomnography, NMD: neuromuscular disease, CNS: central nervous system, CCHS: central congenital hypoventilation syndrome, chronic lung disease.

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