PCH Aerodigestive and Pediatric Feeding Disorders Program

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Aerodigestive Program Phoenix Children's Hospital- GASTROENTEROLOGIST ROLE

- Leader
- Process development, manager
- QI indicators
- Medical program-philosophy of treatment
- Dysphagia, aspiration
- Motility and therapeutics
- Research

- **Structure and Functions of Pediatric Aerodigestive Programs: A Consensus Statement.**
- Boesch RP[1], Balakrishnan K[2], Acra S[3], Benscoter DT[4], Cofer SA[2], Collaco JM[5], Dahl JP[6], Daines CL[7], DeAlarcon A[4], DeBoer EM[8], Deterding RR[8], Friedlander JA[8], Gold BD[9], Grothe RM[2], Hart CK[4], Kazachkov M[10], Lefton-Greif MA[5], Miller CK[4], Moore PE[3], Pentiuk S[4], Peterson-Carmichael S[6], Piccione J[11], Prager JD[8], Putnam PE[4], Rosen R[12], Rutter MJ[4], Ryan MJ[11], Skinner ML[5], Torres-Silva C[4], Wootten CT[3], Zur KB[11], Cotton RT[4], Wood R
- Pediatrics. 2018 Mar;141(3). pii: e20171701. doi: 10.1542/peds.2017-1701. Epub 2018 Feb 7
- coordinated interdisciplinary care to pediatric patients with complex congenital or acquired conditions affecting breathing, swallowing, and growth

PCH Aerodigestive and Feeding Program

- ADC: Interdisciplinary diagnostic clinic focused on issues of Aerodigestive symptoms
  - Pulm (Woodward, Smith J)
  - ENT (Crockett, Gnagi, Bhuskute, Gerber)
  - GI (Schroeder, Williams, Khan)
  - Feeding therapy (Pam Clarke, Jenna Warner)
  - Coordinators: Jessica Smith, Paola Torres, Cali Crever
  - Research data coordinator: Terrie Garcia
- Children maintain primary specialists and continue to follow-up after Aero clinic visits/endoscopy
- PFD Clinic and Intensive Feeding therapy program
- Dysphagia interdisciplinary treatment protocols: TWP (Thickener wean protocol)
- 7 years in existence
- 160/180 visits per year 85% patients with dysphagia aspiration

Criteria for referral

- Dysphagia with oral aspiration, any age, any severity
  - MBS with no safe consistency-common
- ALTEs
- Recurrent croup
- Feeding problems associated with dysphagia
- Medical comorbidies with more than 2 systems affected
- TEF, tracheomalacia
- Vascular ring or concern for aberrant vessels
- Recurrent respiratory symptoms/infections
- Decannulation work-up, complex airway reconstruction
- Obstructive sleep apnea with other co-morbidities
- Families seeking integrated care following long time in the system

ADC growth

- Current: 2 half day clinics and 2 half day triples procedures/month, 2 half day double procedure days/month
- April 1, 2020: 4 half day clinic and 4 full days procedures
- June 1, 2020: 4 full days clinics, 4 full days procedures with double rooms capabilities
- Value based care/billing
- Increase numbers of complex airway patients/recons

PFD interdisciplinary clinic

- Interdisciplinary management of tube depedency and tube weaning
- Interdisciplinary management of dysphagia with aspiration for systematic thickener wean
- Since 2010
- 4 half day clinics multidisciplinary evaluations/month
- 8 patient per month in intensive feeding therapy, 5 weeks with 6 month wean down

Why: Aerodigestive Program

- decrease in non-ICU length of stay (*Pediatrics. 2005* www.pediatrics.org/cgi/content/full/115/6/e63715930189)
- reduction in hospitalization rates and total costs billed to Medicaid for medically complex patients in the year following enrollment (*Arch Adolesc Med 2011)*
- improved parent satisfaction and decreased caregiver strain with a coordinated multidisciplinary model of care *(Pediatrics 2005, 116)*
- Interdisciplinary Aerodigestive care model improves risk, cost and efficiency *Boesch 2018, Int J Pediatr Otorhinolaryngology*
- *Primary elements:* 1. interdisciplinary medical and surgical team 2. care coordination 3.team meeting 4. combined endoscopic procedures

Process

- Receive referral (we take verbal requests and post-its, but placing order in SCM is preferred ☺)
  - Currently 2 clinics per month
- Child seen in clinic by multidisciplinary team
  - Discussed in post clinic conference
  - Parents updated with plan & orders placed
  - Aerodigestive Comprehensive Care Plan completed
- Endoscopy procedures (if ordered)
  - Parents notified & Combined Endoscopy Care Plan completed
- Children return back to primary specialists and/or follow-up with Jessica (current goal to see 4 weeks after scopes)

Swallow Studies

Modified barium swallow (MBS)

- Child sits in x-ray field while swallowing different consistencies of barium
- Consistencies from ultrathin-solid cookie
- Radiation exposure
- Limited fluoro-time to catch good sample of swallows
- Done by feeding therapist and radiologist

Fiberoptic endoscopic evaluation of swallow (FEES)

- Flexible endoscope placed in nare to sit in pharynx while child takes different consistencies
- No radiation
- More time to trial different textures, consistencies
- Done by specialized feeding therapist +/- ENT

Patient characteristics

- Dysphagia
  - Liquid (multiple MBS studies)
  - Solids (food feeding stuck in throat)
- Syndromic (Trisomy 21, Pierre-Robin, VACTERL, chromosomal anomalies)
- Tracheoesophageal fistula, esophageal atresia
- Multiple co-morbidities
- Feeding difficulties
  - 92% of patients seen in clinic had feeding therapy needs (currently enrolled or ordered at clinic)
- IUDE and children in foster care (future research project…)

Multidisciplinary Care of Children With Repaired Esophageal Atresia and Tracheoesophageal Fistula

Emily M. DeBoer, MD,[1,2*] Jeremy D. Prager, MD,[2,3] Amanda G. Ruiz,[3] Emily L. Jensen,[3] Robin R. Deterding, MD,[1,2] Joel A. Friedlander, DO, MBe,[1,4] and Jason Soden, MD[1,4]

Pediatric Pulmonology 51:576–581 (2016)

- After repair, symptoms include cough, pneumonia, dyspnea, GERD, feeding issues
- Retrospective
- 29 children
- Mean age: 3.8, 52% had syndrome
- Less than half followed by each subspecialist in year prior
- High incidence of tracheomalacia, bacterial bronchitis, and bronchiectasis
- Support multidisciplinary eval by 6-12 months and continued routine follow-up
- Goal to try to improve long term health

Aero clinic/procedures

- Diagnostic clinic to provide multidisciplinary care for kids with complex airway, feeding issues.
- Goals include improving treatment plans with comprehensive diagnostics and minimizing number of procedures under anesthesia if needed. Multidisciplinary structure facilitates communication between providers
- Endoscopy block on the Tuesday morning of the 3rd and 4th week of the month
- No dedicated time in Main OR (to accommodate additional surgical procedures, single ventricle, severe OSA or difficult airways requiring PICU post-op)

What is PFD: Pediatric Feeding Disorder

https://www.dropbox.com/s/c4fmgro9kss95xq/FM_FMMO_2019_v6.0.mp4?dl=0