

# Which Pediatric Patients Require Pulmonary Pre-op Clearance: Decreasing Resource Utilization within a small children's hospital

Jasmine Kashkoush BS  
USF MCOM- LVHN Campus

Marybeth Browne MD  
Lehigh Valley Health Network, [Marybeth.Browne@lvhn.org](mailto:Marybeth.Browne@lvhn.org)

Follow this and additional works at: <https://scholarlyworks.lvhn.org/select-program>

Part of the [Medical Education Commons](#)

---

## Published In/Presented At

Kashkoush, J. Browne, M. (2019, March). *Which Pediatric Patients Require Pulmonary Pre-op Clearance: Decreasing Resource Utilization within a small children's hospital*. Poster Presented at: 2019 SELECT Capstone Posters and Presentations Day. Kasych Family Pavilion, Lehigh Valley Health Network, Allentown, PA.

This Poster is brought to you for free and open access by LVHN Scholarly Works. It has been accepted for inclusion in LVHN Scholarly Works by an authorized administrator. For more information, please contact [LibraryServices@lvhn.org](mailto:LibraryServices@lvhn.org).

# Which Pediatric Patients Require Pulmonary Pre-op Clearance: Decreasing Resource Utilization within a small children's hospital

Jasmine Kashkoush, B.S.<sup>1</sup>, Marybeth Browne, M.D.<sup>2</sup>

<sup>1</sup>University of South Florida Morsani College of Medicine, Tampa, Florida, United States of America

<sup>2</sup>Department of Pediatric Surgical Specialties, Lehigh Valley Health Network, Allentown, Pennsylvania, United States of America

Lehigh Valley Health Network, Allentown, PA

## Background

- There are no established guidelines for which pediatric patients need to be referred for pre-op clearances to a pulmonary specialist.<sup>2</sup>
- Pediatric pulmonologists are limited at the Lehigh Valley Children's Hospital, and thus, patients tend to have long wait times for pre-op clearances.
- Lengthy wait times lead to additional surgical procedures, unnecessary ED visits, delays, and last minute cancellations in surgical procedures.<sup>3-5</sup>
- Risk stratifying pediatric patients with asthma or other known respiratory illnesses would provide great benefit to smaller hospital systems as they could limit unnecessary clearances sent to pediatric pulmonologists with long wait times.

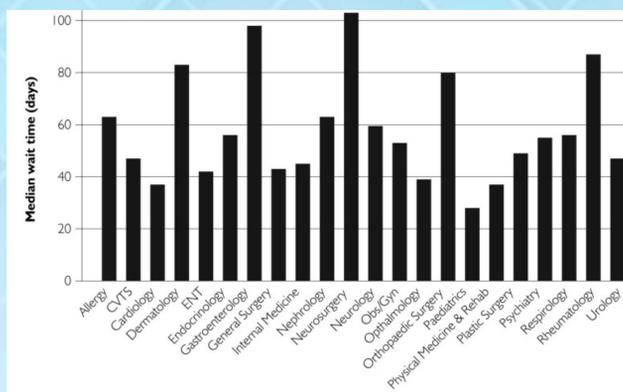


Figure 1. Wait times by specialty.

## Problem Statement

- This project aims to develop specific criteria for risk stratification of pediatric patients for pre-op clearance, reducing wait times for pediatric pulmonologists at the Lehigh Valley Children's Hospital.

## Methods

- A committee of a medical student and a physician representative from each of the following pediatric departments: pulmonary, anesthesia, outpatient pediatrics, family medicine, otolaryngology, and surgery was created to oversee risk stratification criteria.
- A risk stratification tool was created primarily based on expert opinion given the paucity of information from literature review.

## Results

- Literature review yielded two articles.
- A finalized risk stratification tool was created for patients with asthma and other known airway disorders based on combined expert opinion and literature review.
- Low complexity patients may be seen by a general practitioner for a surgical clearance.
- High complexity patients should be seen by a pediatric pulmonologist for clearance.

Author	Year Published	Article Title
Goldschneider, KR., et al.	2014	The pediatrician's role in the evaluation and preparation of pediatric patients undergoing anesthesia
Thind, A., et al.	2012	What are wait times to see a specialist? an analysis of 26,942 referrals in southwestern Ontario

Table 1. Articles included based on literature review.

## Discussion

- Low complexity patients may be seen by a PCP for a pre-op clearance given the low risk of complications from surgery.
  - Higher complexity patients may require pre-op interventions including pulse oximetry, ABGs, and pulmonary function testing to assist the surgeon intraoperatively.
- A. Project Relationship to SELECT Principles**
- Improves VBPC as patients will not have to wait as long for an operation, minimizing frustration among families.
  - Improves VBPC for patients that travel long distances to see specialists in select locations.
  - Improves health systems by addressing disparities in healthcare such as cost, access, and quality.
- B. Project Limitations**
- Majority of diagnoses for stratification were designated based on expert opinion.
  - Committee comprised of physicians only at the Lehigh Valley Children's Hospital.

## Conclusions

- The risk stratification tool serves as a guideline in determining which patients require surgical clearances by primary care physicians versus pediatric pulmonologists.
- Delays in surgery lead to increased morbidity for patients.
- We hope that these stratification guidelines will decrease wait times when seeing pediatric pulmonologists.

## REFERENCES

1. Section on A, Pain M. The pediatrician's role in the evaluation and preparation of pediatric patients undergoing anesthesia. *Pediatrics*. 2014;134(3):634-641.
2. Goodman LF, St-Louis E, Yousef Y, et al. The Global Initiative for Children's Surgery: Optimal Resources for Improving Care. *Eur J Pediatr Surg*. 2018;28(1):51-59.
3. Lawrence JT, Argawal N, Ganley TJ. Degeneration of the knee joint in skeletally immature patients with a diagnosis of an anterior cruciate ligament tear: is there harm in delay of treatment? *Am J Sports Med*. 2011;39(12):2582-2587.
4. Ahn H, Kreder H, Mahomed N, Beaton D, Wright JG. Empirically derived maximal acceptable wait time for surgery to treat adolescent idiopathic scoliosis. *CMAJ*. 2011;183(9):E565-570.
5. Li WY, Chaudhry O, Reinisch JF. Guide to early surgical management of lip hemangiomas based on our experience of 214 cases. *Plast Reconstr Surg*. 2011;128(5):1117-1124.
6. Thind A, Stewart M, Manuel D, et al. What are wait times to see a specialist? an analysis of 26,942 referrals in southwestern Ontario. *Healthc Policy*. 2012;8(1):80-91.
7. Wright JG, Li K, Seguin C, et al. Development of pediatric wait time access targets. *Can J Surg*. 2011;54(2):107-110.
8. Wright JG, Menaker RJ. Canadian Paediatric Surgical Wait Times Study G. Waiting for children's surgery in Canada: the Canadian Paediatric Surgical Wait Times project. *CMAJ*. 2011;183(9):E559-564.
9. Stainkey LA, Seidl IA, Johnson AJ, Tulloch GE, Pain T. The challenge of long waiting lists: how we implemented a GP referral system for non-urgent specialist appointments at an Australian public hospital. *BMC Health Serv Res*. 2010;10:303.
10. Blatter JA, FINDER JD. Perioperative respiratory management of pediatric patients with neuromuscular disease. *Paediatr Anaesth*. 2013;23(9):770-776.

Figure 2. Finalized risk stratification tool for pulmonary clearance for pediatric patients with asthma or other known airway disorders.

**Pulmonary Clearance for Pediatric Patients with ASTHMA or other Known Airway Disorders.**

**High Complexity (To be cleared by pulmonologist)**

- Cystic fibrosis patients
- Patients with severe persistent asthma or asthma patients with recent hospitalization, >1 exacerbation, and/or oral steroids within the past 3 months
- Patients on home oxygen or ventilator support
- History of intubations due to respiratory illness within the past year
- Patients with complicated birth histories including NICU stays or premature birth with active respiratory condition and under the age of 2 years
- History of airway surgery
- Patients with airway disorders including Pierre Robin, Treacher Collins, Down Syndrome, Muscular Dystrophy, primary ciliary dyskinesia
- Obstructive sleep apnea patients using a CPAP

\*\*\*If 1 or more checkbox in the high complexity group, patient is to be cleared by pediatric pulmonologist

\*\*\*Any checkbox in the high complexity group warrants clearance by a pediatric pulmonologist regardless of the number of checkboxes in the low complexity group

**Low Complexity (To be cleared by PCP)**

- Patients with intermittent and mild/moderate persistent asthma that has been under good control within the past 3 months (without the need for oral steroids, ER visits, or hospitalization)
- Patients with an acute upper respiratory tract infection or lower respiratory tract infection within the last 6 weeks
- BMI >94<sup>th</sup> percentile with no snoring or respiratory issues
- Patients with complicated birth histories including NICU stays or premature birth with no active respiratory condition and under the age of 2 years

\*\*\*If 1 or more checkbox in the low complexity group, patient is to be cleared by PCP