

Investigation of Pediatric Chest X-Ray Utilization in the Emergency Department

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BACKGROUND & SIGNIFICANCE

- Trinity Health Ann Arbor, Chelsea, and Livingston emergency departments (EDs) are members of the Michigan Emergency Department Improvement Collaborative (MEDIC)¹
- Our EDs are engaged in active quality improvement (QI) efforts to reduce ED chest x-ray (CXR) use in children with asthma, bronchiolitis, or croup, as defined & measured by MEDIC²
- In 2023 ED staff expressed concerns about potential missed diagnoses & increased return visits when a CXR was not utilized on pediatric patients presenting with asthma, croup, or bronchiolitis

OBJECTIVES

- Analyze data from MEDIC Tableau reports to:
 - Quantify ED throughput times for pediatric patients with asthma, croup, or bronchiolitis receiving / not receiving a CXR
 - Measure the prevalence of missed diagnoses & return visits when a CXR was not utilized
 - Understand implications of CXR utilization on quality-of-care for pediatric patients with asthma, croup or bronchiolitis
- Enhance pediatric care at Trinity Health Ann Arbor, Chelsea, and Livingston EDs through improving the Triple Aim in medicine - high quality care, lower patient cost, improved patient satisfaction

STAKEHOLDERS

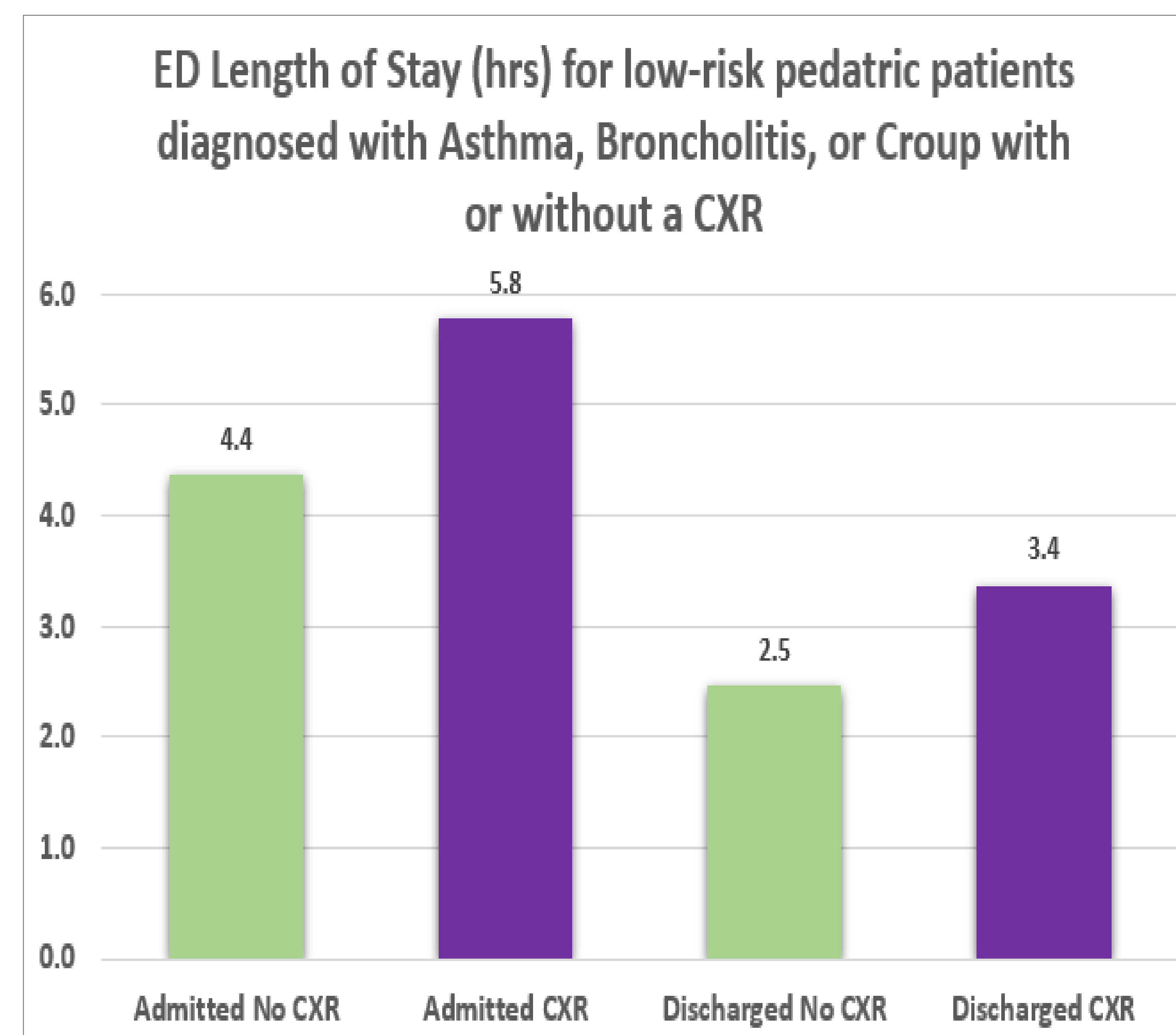
- MEDIC abstractors, physician champions, emergency department providers from Trinity Health Chelsea, Livingston, Ann Arbor

STUDY POPULATION

- Patients <18 years with asthma, bronchiolitis, or croup determined to be low-risk per MEDIC quality initiative measure definition
- Dates of service include July 2022 - June 2023
- EDs include one large academic center (Ann Arbor), & two community hospitals (Livingston & Chelsea)
- Patients were treated by ED providers at all locations; only our Ann Arbor location included patients potentially treated by pediatric physicians

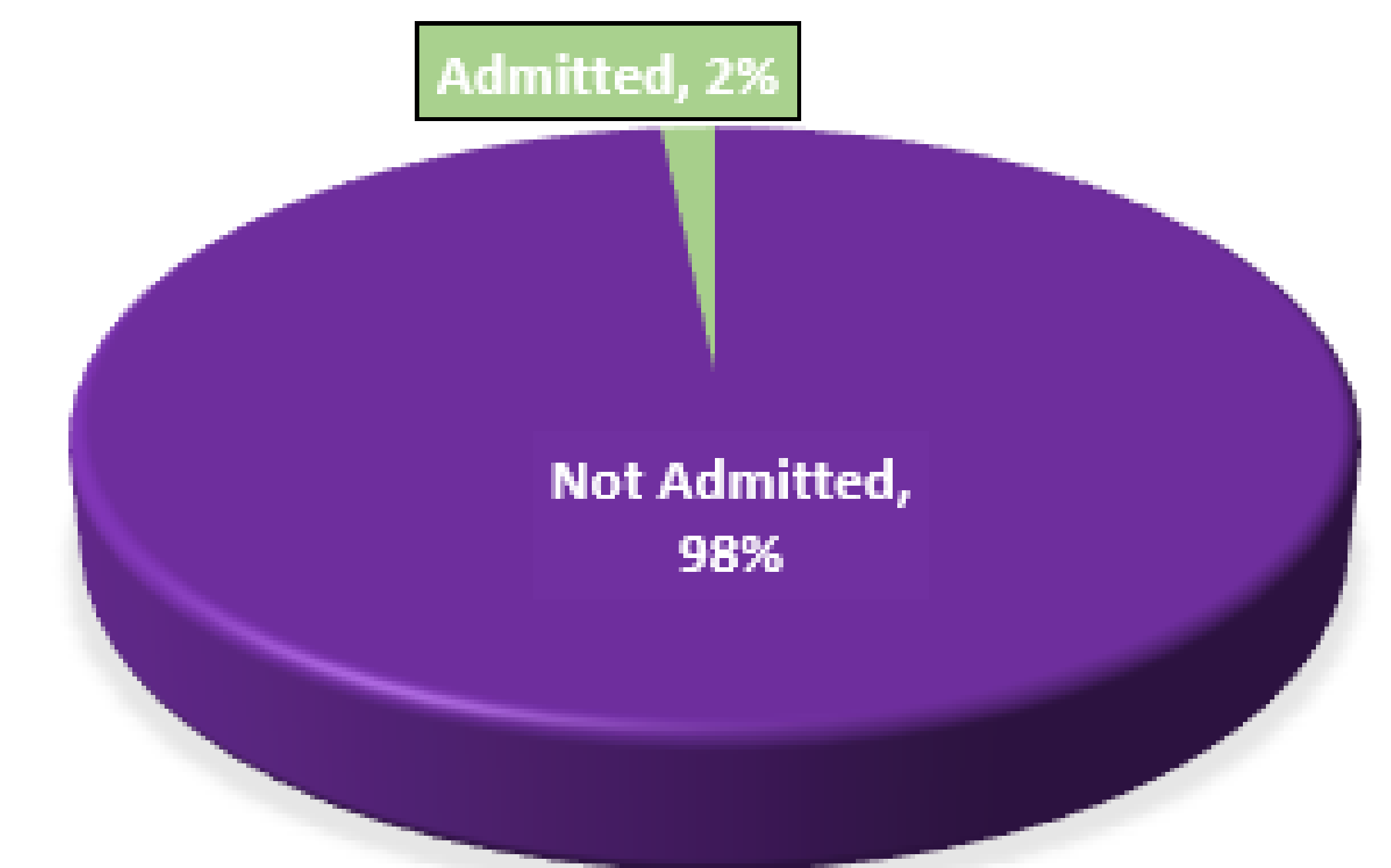
RESULTS

Utilizing a CXR for low-risk patients increased ED length of stay by an average of 1 hour



RESULTS CONT.

PEDIATRIC ADMISSIONS 72HRS POST INITIAL VISIT WITHOUT A CXR



Only 1.63% (9/553) of low-risk patients not receiving a CXR had a return visit to our hospital system within 72 hours resulting in an admission

Upon chart review, 1 of the 9 patients identified had a change in management based on CXR findings

NEXT STEPS: PDSA

- Utilize this investigation & Choosing Wisely guidelines³ to assist providers in their decision-making process for pediatric CXR utilization
 - Recommendations for identifying low-risk patients
 - Leadership support of Choosing Wisely recommendations
 - Continue trending & reviewing return visits within 72hrs

SOURCES

¹<https://www.medicqi.org>
²MEDIC Low-Value CXR Guidelines, MEDIC Pediatric Respiratory Illness CXR Flow Diagram; <https://www.medicqi.org/Initiatives/CXR-in-Pediatric-Respiratory-Illness>
³American Academy of Pediatrics – Section on Emergency Medicine and the Canadian Association of Emergency Physicians. Five Things Physicians and Patients Should Question. Choosing Wisely. Dec 2022.