PEDIATRIC ED CROWDING & THE IMPACT OF CHILDREN WITH CHRONIC CONDITIONS

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INTRODUCTION & OBJECTIVE

Emergency Department (ED) crowding is a growing systemic challenge worldwide, and is well recognized within the Israeli healthcare system. This overcrowding compromises the quality and availability of medical care, and adversely affects patient safety. Standard metrics (e.g., PEDOCS) quantify crowding by patient **Volume**, overlooking the heavy growing resource burden of children with **Chronic & Complex Conditions**.

PRIMARY OBJECTIVE

To quantify the **"Ripple Effect"**: how the presence of complex patients impacts the flow and wait times of the entire department.

METHODS & SAMPLE

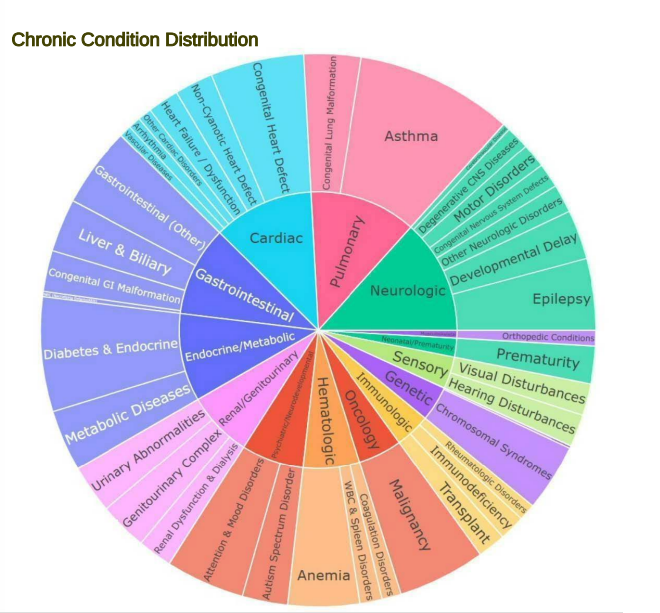
COHORT
12-Month Data
Single Pediatric Quarternary Center

ED VISITS
N = 52,734
40,586 Unique Patients

CLASSIFICATION
Pediatric Complex Chronic Condition System (CCC)

ANALYSIS
Multi-variable Linear Regression
Interaction Analysis

ED PATIENT DISTRIBUTION

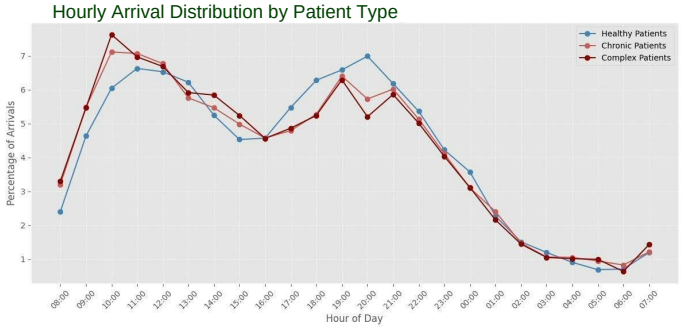


GENDER DISTRIBUTION
56.5% M | 43.5% F

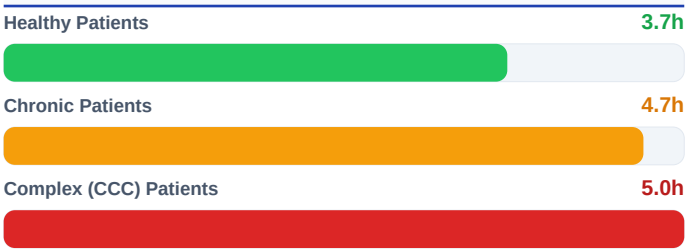
AGE DISTRIBUTION - % PER GROUP

0 - 1 Years old	17%	4 - 10 Years old	27%
1 - 4 Years old	28%	10 - 18 Years old	28%

Hourly Arrival Distribution by Patient Type



MEDIAN LENGTH OF STAY



THE SYSTEMIC RIPPLE EFFECT

+18.5 Min

Added ED stay for healthy patients for every 10% increase in chronic proportion.

Adjusted for total volume & complexity (p=0.067)

OPERATIONAL LOAD ANALYSIS

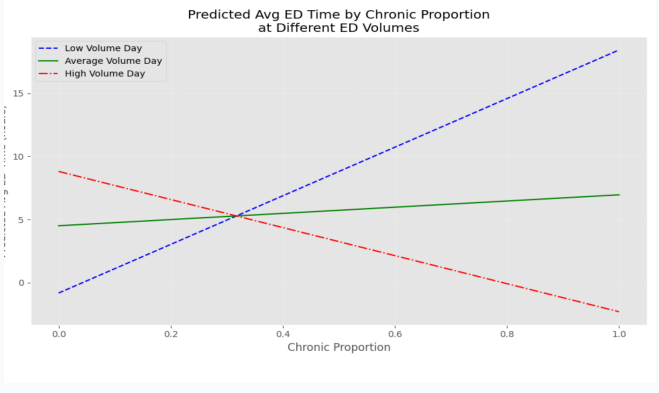
AVG TREATMENTS
2.19
Complex vs 1.45 Healthy

IV INTERVENTIONS
2.5×
Higher in Complex

ADMISSION RATES - Complex vs Healthy
31.9% vs 14.9%

TRIAGE SCORE
2.83 vs 3.43

THE CROWDING INTERACTION



POLICY & RECOMMENDATIONS

1. **RETHINKING KPI'S FOR THE PEDIATRIC ED**
   Transition from volume-based only to **"Complexity-Adjusted"** metrics to accurately reflect workload.
2. **DYNAMIC RESOURCE ALLOCATION**
   Trigger surge staffing based on real-time **Chronicity Scores**, not just headcount.
3. **MACHINE LEARNING INTEGRATION**
   Implement AI to predict **"Complexity Surges"** and prevent bottlenecks.

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