Use of CEDR Big Data for Elucidating COVID-19’s Impact on Emergency Care
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What is CEDR?
• The American College of Emergency Physicians’ (ACEP) Clinical Emergency Data Registry (CEDR) is the first Emergency Medicine specialty-wide registry.

• Captured multiple data streams to calculate quality measure scores for reporting to CMS.

• Accumulated 75+ million visits from 30+ million patients since 2015.

• Leveraging big data to bridge knowledge gaps & democratize analytics relevant to emergency medicine

Collecting CEDR Data
• Data are collected on a site-by-site basis with site-specific timelines. This can result in a short data lag.

• All data are normalized before being pushed into the Clinical Data Repository to be queried.

Querying Database for COVID-19 and Emergency Conditions
Queries performed against 164 emergency departments (EDs) in CEDR, across 2019 and 2020. All data are a combinations of revenue cycle management and electronic health record data feeds.

- Site Location
- All Visits
- Diagnoses (ICD-10-CM)
  - AMI, CVA, DVT, stroke, sepsis, fall, hip fracture
- Patient Disposition
- Patient Demographics
- Patient Insurance
- COVID-19-like Orders

Use Case: ED Visit Surveillance During the COVID-19 Pandemic
Cleaning Query-level:
• Excluded all inactive data streams.

- Excluded sites where EHR feeds were not normalized or complete.

Additional cleaning at the Yale analytics-level
• Nonparametric Smoothing (LOWESS)
• Poisson Regression Modelling
• Incident Rate Ratios (IRRs)

Retrospective Findings

Nationwide
The decline in ED visits for emergent conditions suggests COVID-19 may continue to impede patients from seeking essential care.†

In Older Adults (40+)
The decline in ED visits for time-sensitive conditions might explain excess mortality seen nationwide during the COVID-19 pandemic.†

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