Introduction

- COVID-19 has disrupted pediatric well child care (WCC), delaying necessary vaccinations and routine screening.
- Patient safety is critical, however delaying vaccinations and screenings threatens long-term health outcomes.
- Resurgence of measles outbreaks highlights the impact of reduced vaccination rates.
- The majority of child lead exposure occurs at home. More time at home due to quarantines may result in increased exposure to lead.

Here we show a panel management approach supported by Electronic Medical Record (EMR) tools to evaluate our rates of lead screening and vaccinations, as well as design a outreach strategy to close deficits.

Methods

Report Generation

- Patient Outreach
- Screening Workflow

Vaccination and lead data were collected using Reporting Workbench to query for visits at the Yale Internal Medicine/Pediatrics continuity practice under the designation of Well Child Examination.

Data Analysis and plotting were conducted in R (R version 3.5.0)

Screening Workflow

- Create Pediatric Panel
- Lead Screening Age 1-2 y
- No POC Age <1 y
- Elevated POC POC ≥ 4.5 with no venous confirmation
- Elevated Venous Levels ≥ 1 in a 3 month period

- Vaccinations
  - Age 1-2 y: No POC
  - Age 3-5 y: No POC
  - Age > 5 y: No POC

- No POC in age range had screening missing

- Lead Screening
  - Age 1-2 y
  - No POC
  - Elevated POC POC ≥ 4.5 with no venous confirmation
  - Elevated Venous Levels ≥ 1 in a 3 month period

- Patient Outreach

In addition to regularly scheduled WCC visits, patients part of the above designated Tiers have been prioritized for proactive outreach to schedule follow up well child visits.

WCC volume data was collected using Reporting Workbench to query for visits at the Yale Internal Medicine/Pediatrics continuity practice under the designation of Well Child Examination.

Results

COVID-19 created a deficit in WCC primarily affecting school-aged children.

A. WCC Volume 2019 vs. 2020. There is a deficit of visits corresponding to the peak of the COVID-19 pandemic in Connecticut. Dashed lines show time points after Q2 initiative began.

B. Cumulative visit deficit. By June 2020, the visit deficit exceeded 100, but has declined in subsequent months. Dashed lines show time points after the Q2 initiative began.

C. WCC Volume by age. Through the pandemic peak, WCC for <1 years old and 1-2 years old were relatively preserved. The majority of missed visits came from children 3-18 years of age.

Lead Screening and follow-up are needed.

A. Lead Screening Status. The status of lead screening for 3 different categories was obtained. POC denotes the number of children age 3-4 who had not had a POC lead screen. Confirmation denotes the number of children who had an elevated POC screening value that requires confirmation with venous testing. Follow-up denotes children with known venous lead levels whose last venous blood draw date was ≥ 3 months prior.

B. POC Lead Result Value Trend. Bars show the mean of last POC lead value per patient binned by month and year of sample date. Red line is a LOESS smoothed estimate of the trend. Comparing 2020 to 2019, May-July have higher mean values. This suggests that POC lead values have increased during the pandemic. While this is consistent with a mechanism of increased exposure, further work to rule out contributions from technical sources or POC tests ordered in place of venous levels for children with lower lead levels is required.

Conclusions

Effect of COVID-19 on Well Child Care

COVID-19 has disrupted well child care within the Yale Internal Medicine – Pediatrics Resident clinic leading to a deficit of approximately 120 visits by June 2020.

School age children account for the majority of postponed or missed visits.

Lead and Vaccinations

Significant numbers of patients meet EMR-based criteria for lead screening and vaccinations. It is likely that COVID-19 has increased these numbers given the reduction in WCC observed, however data to directly compare is not available at this time.

Mean POC lead values have risen from May-July 2020 suggesting potential increased exposure which may occur due to increased time spent at home.

Improving Quality of Care

EMR tools can identify patients with potential deficits in age-appropriate screening or follow up and vaccinations.

Efforts are ongoing to review charts for patients in Tier 1-3 and reach out to parents/guardians to schedule well child visits, laboratory draws, and vaccine visits as appropriate.

References


Maintaining Age Appropriate Screening and Vaccinations During the COVID-19 Pandemic

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