On-Site Test Collection Intervention Improves Lead Screening Rates at an Urban Family Medicine Practice

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Examine the effect of on-site lead screening collection on resulted lead screening

**Study Aims:**

- Elevated blood lead levels (BLL) can cause multiple deleterious effects in pediatric patients, leading to neurological disease and delays in development.
- The CDC and state governments have made recommendations for screening in pediatric patients to allow for prompt intervention.
- Two blood lead tests for children at "higher risk": one at age 9-12 months and one at age 2 years; screening should be done at 36-72 months if no prior test completed.
- The Philadelphia Department of Health has recommended that 100% of children be screened due to housing conditions.
- In Philadelphia, only 26.80% of children under the age of 7 have been appropriately screened; in Pennsylvania, the number is only 14.05%.

**2014-2015 Quality Improvement Lead Study:**

- Provider reminders within the EMR pediatric note template significantly increased provider ordering behavior (p<0.0001).
- However, this did not lead to a significant increase in resulted lead screening tests (p = 0.8485).

**Materials and Methods**

- **Inclusion Criteria:**
  - Two blood lead tests for children at "higher risk": one at age 9-12 months and one at age 2 years; screening should be done at 36-72 months if no prior test completed.

- **Interventions:**
  - Initiation of on-site lead filter paper testing on 8/12/2015
  - Email to Providers on 8/12/2015
  - QI PowerPoint presentation 9/3/2015

- **Measures:**
  - Number of lead tests ordered and resulted during pre- and post-intervention period
  - Number of on-site lead testing completed post-intervention

- **Provider reminders within the EMR pediatric note template significantly increased provider ordering behavior (p<0.0001).**

**Results**

**Percentage of Eligible Patients**

**Proportion of Tests Ordered that were Completed**

**Fischer's Test Analysis**

<table>
<thead>
<tr>
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<th>Pre-Intervention</th>
<th>Post-Intervention 1</th>
<th>Post-Intervention 2</th>
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<tr>
<td>Eligible Patients</td>
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<td>51</td>
<td>55</td>
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<tr>
<td>Lead Test Ordered</td>
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<td>3</td>
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<td>43</td>
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<td>&gt;0.05</td>
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</table>

**Subgroup Analysis**

**Post Intervention Group # 1**

**Post Intervention Group # 2**

**Conclusions**

- Availability of on-site lead testing increased the rate of appropriate lead screening.
- Over time, the percentage of pediatric patients eligible to be screened decreased.
- Short term increase of physician/MA ordering practices following education but was not sustained.

**Future Directions**

- Qualitative analysis of barriers to Lead Test ordering.
- Determine need and feasibility for on-site hemoglobin assessment in addition to on-site lead testing.
- Introduce a pediatric checklist.

**References**

7. On-Site Test Collection Intervention Improves Lead Screening Rates at an Urban Family Medicine Practice. Askie, MD, MPH; Daniel Chung, MD; Laura Parente, MD; Yury Parra, MD; Grace Amadi, MD; Mariana Kuperman, MD, MPH; Bruce Reaves, MD; Marc Altshuler, MD; Thomas Jefferson University Hospital, Department of Family and Community Medicine, Philadelphia 19107.
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