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

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**Background and Introduction**

- Elevated blood lead levels ( BLL ) can cause multiple deleterious effects in pediatric patients, leading to neurological disease and delays in development. 1-3
- The CDC and state governments have made recommendations for screening in pediatric patients to allow for prompt intervention. 1-4
  - 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. 4-5
  - In Philadelphia, only 26.80% of children under the age of 7 have been appropriately screened; in Pennsylvania, the number is only 14.03%. 5

**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)

**Study Aims:**
Examine the effect of on-site lead screening collection on resulted lead screening rates.

**Materials and Methods**

**Inclusion Criteria:**

**Interventions:**
- Post intervention: on-site lead testing ordered and resulted during pre- and post-intervention
- Pre intervention: on-site lead testing completed post-intervention

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

**Results**

**Percentage of Eligible Patients**

<table>
<thead>
<tr>
<th>Eligible Patients</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Resulted</td>
<td>32</td>
<td>30</td>
</tr>
<tr>
<td>No Test Resulted</td>
<td>28</td>
<td>41</td>
</tr>
</tbody>
</table>

**Proportion of Tests Ordered that were Completed**

<table>
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<th>Post-Intervention</th>
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**Fischer’s Test Analysis**

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**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**

6. Wengrovitz, Anne, MPH and Mary Jean Brown, ScD. Recommendations for Blood Lead Screening of Medicaid-eligible Children Aged 1-5 years: an Updated Approach to Targeting a Group at High Risk. MMWR Recommendations and Reports. 8/7/2009. 58(RR09);1-11.
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