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

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

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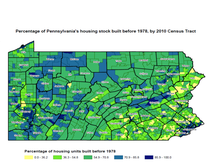
Background and Introduction

- Elevated blood lead levels (BLL) can cause multiple deleterious effects in pediatric patients, leading to neurological disease and delays in development [1, 5]
- The CDC and state governments have made recommendations for screening in pediatric patients to allow for prompt intervention [1, 4, 5]
  - 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 [2, 3, 4]
- In Philadelphia, only 26.80% of children under the age of 7 have been appropriately screened; in Pennsylvania, the number is only 14.05% [3]



Percentage of Pennsylvania's housing stock built before 1978, by 2010 Census Tract

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:

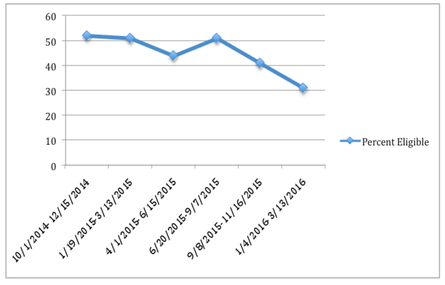
Examine the effect of on-site lead screening collection on resulted lead screening rates.

Materials and Methods

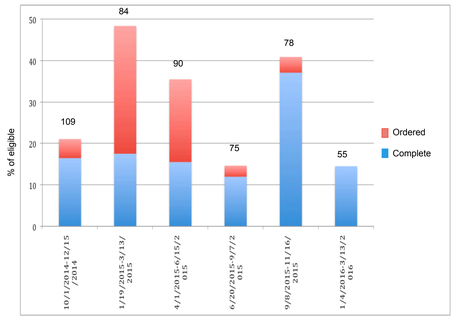
- Inclusion Criteria:
  - Patients ages 9-72 months who visited Jefferson Family Medicine Associates Practice (JFMA) between 4/1/2015-6/15/2015, 9/8/2015-11/16/2015, or 1/4/2016-3/13/2016 without prior lead screening
- Interventions:
  - Initiation of on-site lead filter paper testing on 8/12/2015
  - Email to Providers on 8/12/2015
  - Medical Assistant Education 8/2015
  - 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

Results

Percentage of Eligible Patients



Proportion of Tests Ordered that were Completed

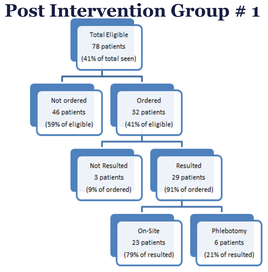


Fischer's Test Analysis

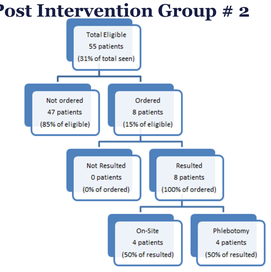
	Pre-intervention	Post-intervention #1	Post-intervention #2
Provider Ordering Behavior			
Eligible Patients			
Lead Test Ordered	32	32	8
No Lead Test Ordered	58	46	47
p-value		**0.5251**	**0.0071***
Appropriate Lead Screening			
Lead Test Ordered			
Test Resulted	14	29	8
Test Not Resulted	18	3	0
p-value		**0.0001***	**0.0047***

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

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