Protect Michigan's Children (PMC): Actions to Prevent Childhood Lead poisoning

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Pilot Project Overview

- Mission of the PMC is to implement a pilot project to screen pregnant women and infants under 3 years old for lead exposure that is scalable to a larger level.
- This pilot project will make recommendations for screening pregnant women for lead exposure, establish partnerships with environmental specialist, provide lead poisoning prevention education, and training program for health care professionals.
- Pregnant women and their infants under the age of 3 will be recruited from existing maternal infant health home visiting programs such as the Maternal Infant Health Promotion Program (MIHP) and Healthy Start.
- Community based Nurses, Social Workers, and Community Health Workers will screen and educate pregnant women and parents of infants during home visits.
- The Screening Tool developed from this pilot project will be presented to health care providers at FQHC clinics and other organizations that provide prenatal and infant care.
- This pilot project will close the gap between what is known about screening and testing pregnant women for lead exposure and what actions can be taken now to prevent lead exposure in pregnant women, infants, and toddlers so that future generations of children living in Michigan can live free of lead

Work Plan Objectives

- Recruit 4 staff and 4 pregnant women to conduct 3 Focus Groups Sessions to review the Lead Primary Prevention Screening Tool by September 30, 2018. Test the screening tool with 10 clients before implementing agency-wide.
- By May 31, 2019 educate 300 pregnant women and 100 parents from existing maternal and child health programs about preventing lead exposure.
- By May 31, 2019 collaborate with 20 family service workers from Early Head Start to recruit pregnant women and non-lead poisoned children for Primary Prevention education.
- By May 31, 2019 collaborate with exiting lead inspection agencies to conduct lead inspections on identified owner-occupied properties.
- By May 31, 2019 collaborate with FQHC and the Healthy Start Community Action Network (CAN) to use the newly developed Screening tool and provide feedback.
- By May 31, 2019 plan and coordinate professional development training for 40 health care professionals on how to prevent lead exposure during pregnancy.

Work Plan Activities

- The Lead Prevention Screening Tool was designed with input from pregnant women during 3 Focus Group session in August, 2018.
- The questions on the tool were adapted from the American College of Obstetrician and Gynecologist (August, 2012, 533) Lead Screening during Pregnancy and Lactation. Modified from the Centers for Disease Control and Prevention (2010) Guidelines for the identification and Management of Lead Exposure in pregnant and Lactating women, OTIS Mother To Baby, Minnesota health Department Screening Tool and the New York Risk Screening Tool.
- Implement the Screening Tool across all IPH MCH programs beginning September, 2018.
- Educate pregnant women and parents of toddlers about preventing lead exposure using literature from MDHHS Michigan Childhood Lead Poisoning Prevention Program for Pregnant and Nursing Mothers.
- Collaborate with Matrix Human Services, Early Head Start to use the Screening Tool and refer women for testing.
- Educate FQHC Providers to use the Screening tools.
- Monitor the results of the screening tools to educate program participants.
- Coordinate lead remediation/abatement for pregnant women with MDHHS.
- Evaluate the results of the screening tools to improve practice.

Expected Outcomes

- By May 31, 2019 the following outcomes were achieved:
  - 93% (279/300) of the targeted pregnant women screened using the newly developed screening tool.
  - 160 of the projected 100 infants screened using the newly developed screening tool.
  - May 29, 2019 conference held at FQHC CHASS, national speakers included: Dr. David Jacobs, NCHH, Dr. Alfred Romeo, OTIS/Mother to Baby, Utah Health Department, Kate Taft, AMCHP, and Panel Discussion with Tamara Brickey and Porsha Black, Healthy Start Project Genesee County. Robert Windom and Mike Muni Healthy Start Project Officers (HRSA/MCHB). Detroit Health Department, Aimee Surma speaker also.
  - As a result of the conference, 45 health professionals educated on preventing lead exposure during pregnancy, 16 agencies represented (Focus Hope Early Learning Center for Children, Molina Health Plan, Meridian Health Plan, Head Start, Ascension MIHP, CDI Head Start, Matrix Head Start, Oakland, Wayne, Genesee, and Kent County Health Departments, Black Mothers Breast Feeding Association, CHAP-Flint), IPH, and CHASS FQHC.

Screening Tool: Measurement of Risk Factors

Occupations, hobbies or substances that are known to have lead

- Proportion of pregnant women whose household has someone with an occupation that involves lead exposure: **2.52% (**3 / 119)
- Proportion of pregnant women that use any traditional folk remedies or cosmetics that are not sold in a regular drug store or are homemade: **0.00%** (0/119)
- Proportion of pregnant women whose household has someone that has any hobbies or activities likely to cause lead exposure: **0.84%** (1/119)

Risk Factors Summary

Old homes

- Proportion of pregnant women who live in a house built before 1978: **35.29%**
- Proportion of pregnant women who don't know if their home was built before 1978: **23.53%** (28 /119)
- Proportion of infants who live in a house built before 1978: **48.15%** (26 / 54)
- Proportion of infants' households who don't know if their home was built before 1978: **7.41%** (4 /54)

Risk Factors Summary

Old homes with renovations

- Proportion of pregnant women who live in a house **built before 1978** with ongoing renovations that generate a lot of dust: **5.88% (**7 /119)
- Proportion of infants who live in a house **built before 1978** with ongoing renovations that generate a lot of dust: **14.81%** (8 / 54)

Risk Factors Summary

Lead in drinking water (pregnancy)

- Proportion of pregnant women whose home has been tested for lead in the water and had high lead levels: **0.00%** (0/119)
- Proportion of pregnant women whose home has been tested for lead in the water and had low or no lead levels: **26.05%** (31/ 119)
- Proportion of pregnant women whose home may not have been tested for lead in the water (answered “no” or “don’t know”): **63.87%** (76 / 119)

Risk Factors Summary

Lead in drinking water (infants)

- Proportion of infants whose home has been tested for lead in the water and had high lead levels: **1.85%** (1 /54)
- Proportion of infants whose home has been tested for lead in the water and had low or no lead levels: **33.33%** (18/ 54)
- Proportion of infants whose home may not have been tested for lead in the water (answered “no” or “don’t know”): **55.55%** (30 / 54)

Risk Factors Summary

Pottery with lead

- Proportion of pregnant women that use pottery **that wasn't made to be sold** or leaded crystal **glassware: 0.00%** (0 / 119)
- Proportion of infants that use pottery **that wasn't made to be sold** or leaded crystal **glassware: 0.00%** (0 / 54)

Risk Factors Summary

Clients with pica

- Proportion of pregnant women that eat nonfood substances (pica) such as soil or lead-glazed ceramic pottery: **8.57%** (3 / 35) (only 35 confirmed pregnant women have answered this question)
- Proportion of infants that eat nonfood substances (pica) such as soil or lead-glazed ceramic pottery: **0.00%** 0 / 9 (only 9 confirmed infants' parents have answered this question)

Risk Factors Summary

Iron and calcium in diet

- Proportion of pregnant women that do not eat a diet rich in iron and calcium frequently: **31.09%** 37 / 119
- Proportion of infants that do not eat a diet rich in iron and calcium frequently: **29.63%** (16 / 54)

Risk Factors Summary

Breastfeeding

- Proportion of breastfeeding mothers with elevated blood lead level: **6.72%** (8/ 119)
- Proportion of breastfeeding mothers with elevated blood lead level whose infant's blood lead level is being frequently monitored: **25.00%** (2 / 8 said yes)
- Proportion of breastfeeding mothers with elevated blood lead level whose infant's blood lead level is **not** being frequently monitored: **75.00%** (6 / 8 did not say yes)

Risk Factors Summary

Foreign countries, substances with risk

- Proportion of pregnant women who previously lived in another country or used substances, spices, herbs, or therapies from East Indian, Middle Eastern, West Asian, and/or Hispanic cultures: **0.84%** (1 / 119)
- Proportion of infants who previously lived in another country or used substances, spices, herbs, or therapies from East Indian, Middle Eastern, West Asian, and/or Hispanic cultures: **1.85% (**1 / 54)

Risk Factors Summary

Childhood lead exposure

- Proportion of pregnant women who were exposed to or treated for lead poisoning as a child: **5.04%** (6 / 119)
- Proportion of infants who were exposed to or treated for lead poisoning: **7.41%** (4 / 54)

Risk Factors Summary

Gunshot wounds

- Proportion of pregnant women who sustained a gunshot wound and have bullets/bullet fragments or shrapnel still in their body: **1.68%** (2 / 119)
- Proportion of infants who sustained a gunshot wound and have bullets/bullet fragments or shrapnel still in their body: **0.00%** (0 / 54)

Risk Factors Summary

Gunshot wounds

- Proportion of pregnant women who sustained a gunshot wound and have bullets/bullet fragments or shrapnel still in their body: **1.68%** (2 / 119)
- Proportion of infants who sustained a gunshot wound and have bullets/bullet fragments or shrapnel still in their body: **0.00%** (0 / 54)

Risk Factors Summary

Living near a demolition site

- Proportion of pregnant women who have had a demolition **of a house within 400 feet** of their home **in the past five years: 3.36%** (4 / 119)
- Proportion of infants who have had a demolition **of a house within 400 feet** of their home **in the past five years: 5.55%** (3 / 54)

Project Evaluation

- Monitored the number of partners and identified barriers to linking resources to the family monthly.
- Monitored the number of lead education provided to pregnant women and parents of infants.
- Monitor the number of pregnant women or infants with one risk factor for lead exposure and provided follow up.
- Monitored the number of lead test for pregnant women and infants.
- Monitored the results of the lead test and follow up.
- Use PDSA cycles to include feedback on the use of the screening tool and modify the questions.

Coordination of Care

- Establish partnership with Lead remediation and abatement in the community.
- Pregnant women move toward getting lead tested.
- Educate health providers on interventions for lead exposure and breast feeding.
- Elimination of lead sources during pregnancy.

Lessons Learned

- We are finding that after being screened, families need follow up calls to get a blood lead test.
- The Screening Tool is useful in primary prevention and education of risks for exposure. There has been 5 agencies interested in using the screening tool across the state.
- Include the Social Determinants of Health risk factors such lack of education, jobs, housing, and transportation as reasons for lead exposure and delayed follow up for a lead test.
- Need to educate FQHC providers to screen pregnant women for lead exposure during pregnancy because those clients live in underserved high risk areas.
- FQHC providers need education how to link pregnant women to MDHHS Healthy Homes Section for lead-based paint abatement services.
- FQHC need to educate prenatal care providers about lead exposure during pregnancy, importance of WIC food supplements, and Michigan.gov/leadsafe website to learn more about lead.

Recommendations

- As more agencies use the Screening Tool, aggregate the data to find common results for risks of exposure in pregnant women to target primary prevention strategies across the state.
- Test more pregnant women for lead exposure to understand the incidence and prevalence rates in the state.
- Educate providers on standard protocols for elevated blood lead levels during pregnancy and breastfeeding. Providers not sure of the treatment.