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Prenatal Lead Exposure Risk Assessment by Vermont Maternity Care Providers

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Prenatal Lead Exposure Risk Assessment by Vermont Maternity Care Providers

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Background

One percent of women of childbearing age in the US (15-44 years) have blood lead levels greater than or equal to 5 µg/dL.¹ Lead levels greater than 5 µg/dL are associated with maternal hypertension during pregnancy, neural tube and cardiac defects in infants, low birth weight, prematurity, and spontaneous abortion.^{2,3} It is unknown whether Vermont maternity care providers conduct lead risk assessment and blood lead screening among pregnant patients or provide education regarding risks associated with prenatal lead exposure. Houses built before 1978 have a high risk of containing lead-based paint. VT has a particularly high proportion of older houses (Figure 3).

Study objective: Gain understanding of current lead screening practices by Vermont maternity care providers and develop recommendations for disseminating lead screening information.

Methods

Participants:

- 41 active maternity care providers in VT (OB/GYN physicians, family physicians who practice obstetrics, certified nurse midwives, professional midwives) completed an online survey.

Survey aims:

- Identify current practices and barriers associated with prenatal lead risk assessment
- 22 question survey was designed to assess:
 - % of VT maternity providers doing lead assessment and blood lead screening in pregnant patients
 - Frequency of blood lead level testing and threshold for concern of health risks to the fetus
 - Lead risk assessment guidelines currently in use
 - Provider's perceived importance of lead exposure risk assessment during pregnancy
 - Providers perceived benefit of statewide guidelines to improve prenatal lead risk assessment
 - Best methods of guideline distribution

Results

Figure 1: Do you currently conduct risk assessments for lead exposure with all of your pregnant patients?

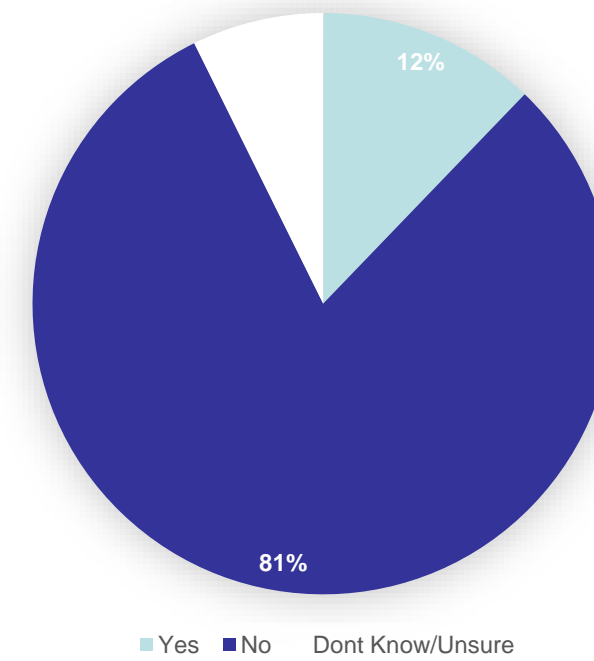


Figure 2: Do you think that having statewide guidelines provided by the Vermont Department of Health would encourage you to begin (or continue) risk assessment for prenatal lead exposure?

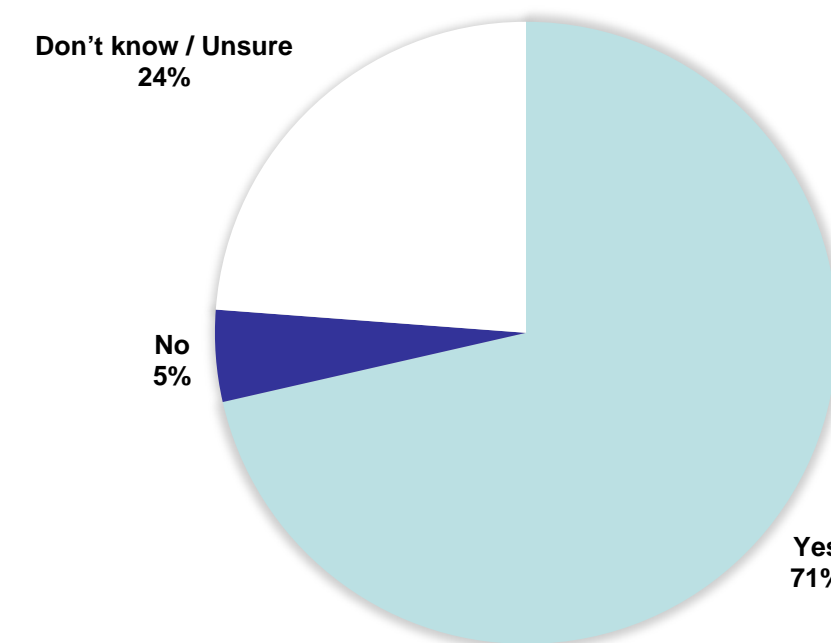
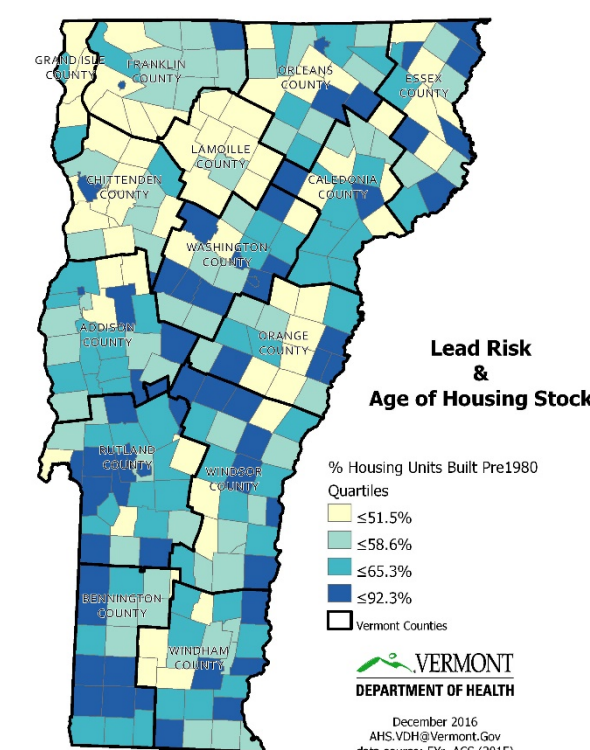
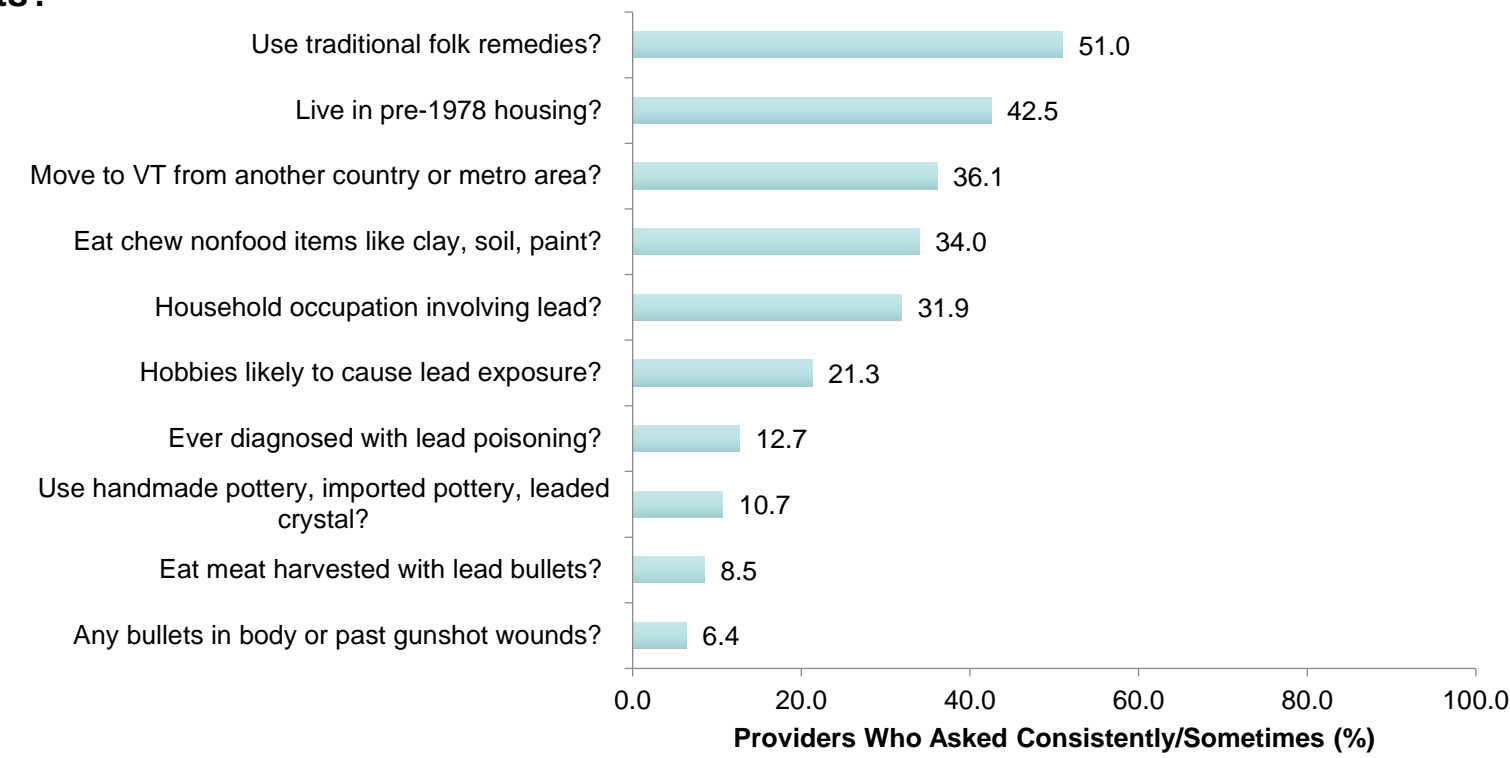


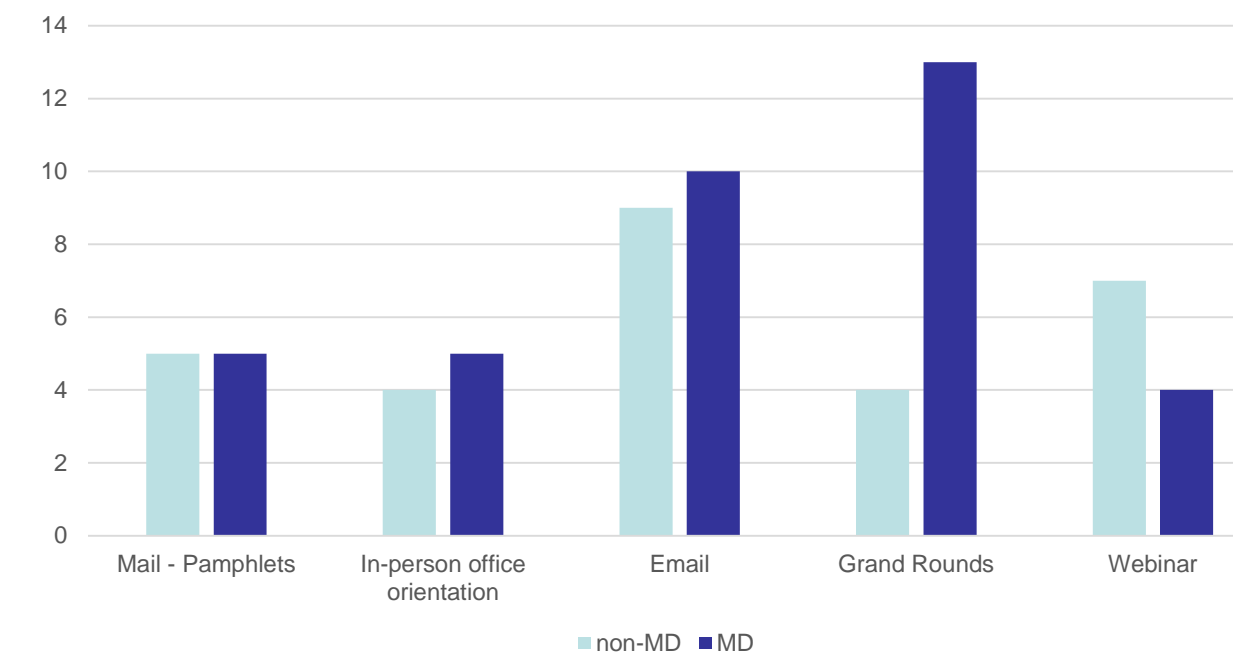
Figure 3: Age of Housing Stock in Vermont



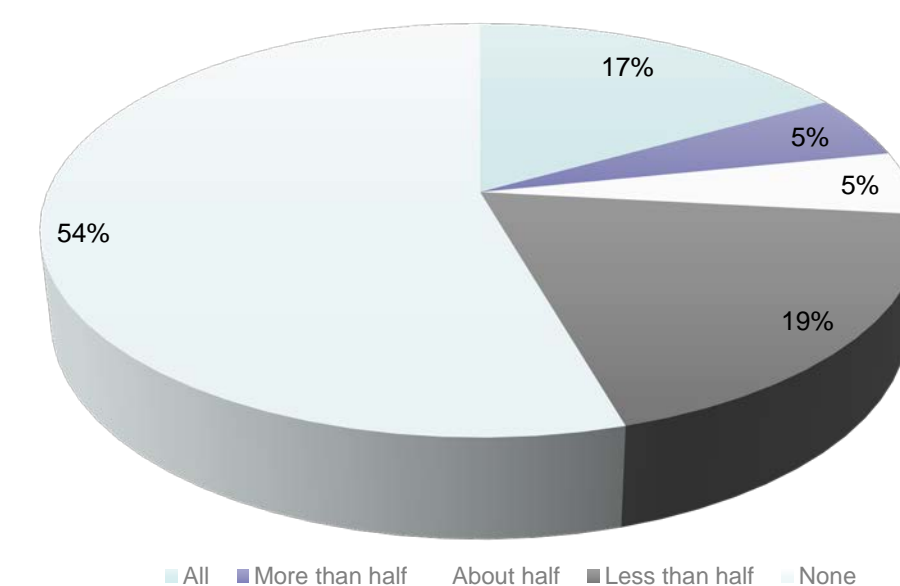
Lead Risk Assessment Questions



What would be the best method to communicate these guidelines to you?



What proportion of your pregnant patients receive educational materials about lead exposure and associated risk of toxicity?



Discussion

- Most Vermont maternity care providers do not conduct risk assessment or patient education for prenatal lead exposure.
- The majority of survey respondents believe guidelines on this topic from the Vermont Department of Health would be useful.
- Preferred method of guideline dissemination differs by provider type.

Recommendations

- Vermont Department of Health should consider developing and disseminating prenatal guidelines for lead risk assessment, testing and follow up.
 - Guidelines should include the 10 risk assessment questions shown on the graph entitled "Lead Risk Assessment Questions" for topics
- Disseminate guidelines in multiple formats to increase uptake:
 - Grand Rounds
 - E-mail
 - Webinars
- Assess patient preferences for dissemination of educational materials

References

- CDC's National Surveillance Data (1997-2015). (2016, October). Retrieved December 09, 2016, from <https://www.cdc.gov/nceh/lead/data/national.htm>
- Bellinger DC. Teratogen update: lead and pregnancy. *Birth Defects Res A Clin Mol Teratol.* 2005;73:409-20.
- Taylor CM, Golding J and Emond AM. Adverse effects of maternal lead levels on birth outcomes in the ALSPAC study: a prospective birth cohort study. *BJOG.* 2015;122:322-8.
- Davis DA, Thomson MA, Oxman AD and Haynes RB. Changing physician performance. A systematic review of the effect of continuing medical education strategies. *JAMA.* 1995;274:700-5.