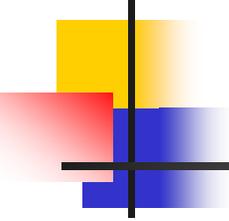


ACCLPP

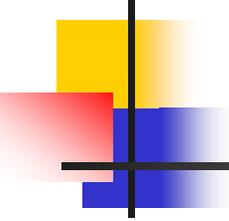
Lead and Pregnancy Work Group Status Report

Jessica Leighton, PhD, MPH
October 17, 2006



Today's Presentation

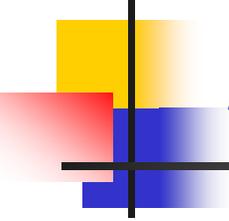
- Review of charge
- Time and progress
- Report Outline
- Recommendations
- Next steps



Charge to the Work Group

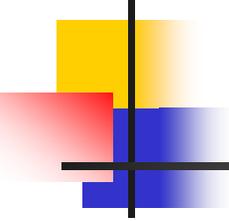
Recommendations will be made on:

- prevention of lead exposure for women of child-bearing ages and pregnant and lactating women
- risk assessment and screening of pregnant women
- medical, public health and environmental management
- breast feeding
- follow-up of infants and children of mothers with elevated blood lead levels.
- further research and health education needs in this field



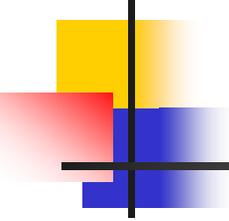
Approach

- Review existing evidence
- Evaluate data and issue recommendations for: prevention, risk assessment, screening, medical & environmental management, breastfeeding, and follow-up of EBLs
- Describe data gaps
- Prepare recommendations for research and health education needs
- Report



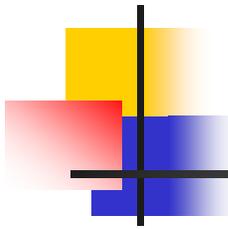
Work Completed and Revised Estimated Timeline

<u>Task</u>	<u>Estimated Completion</u>
■ Workgroup Initiated	April 2004
■ Literature Reviews	March 2005
■ Draft Report on Summary of Literature	September 2005
■ Outline of Report	December 2005
■ First Draft Report	June 2006
■ Circulate Draft Report to ACCLPP	January 2007
■ Incorporate ACCLPP Comments	May 2007
■ Final Draft to ACCLPP	August 2007
■ Incorporate ACCLPP Comments	November 2007
■ Revise and submit for CDC clearance	December 2007



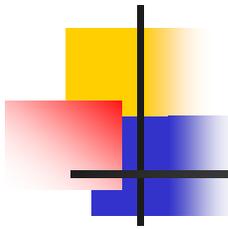
In-Person Meetings

- July 14, 2004 (New York)
- November 19, 2004 (New York)
- April 15, 2005 (Boston)
- September 16, 2005 (Boston)
- December 14, 2005 (Philadelphia)
- May 12, 2006 (Atlanta)
- July 27-28, 2006 (Boston)
- Next meeting November 8,-9 2006 (Boston)
- Future meetings to be scheduled



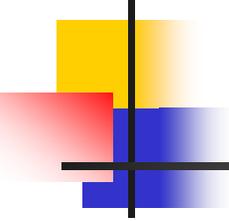
Report Outline

1. Introduction
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 2. Background and Significance
2. Biological and Environmental Measures of Lead



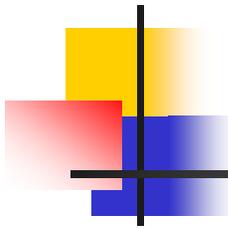
Report Outline

3. Health Effects of Lead in Pregnancy
4. Sources of Lead Exposure and Control of Sources in Pregnant Women
5. Epidemiology, Risk Factors and Screening for Elevated Lead Levels in Women of Child-bearing Age



Report Outline

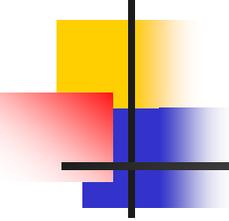
6. Assessment and Intervention of Lead-exposed Women
 1. Source Identification
 2. Source Elimination
 3. Behavioral Intervention
 4. Chelation
 5. Follow-up



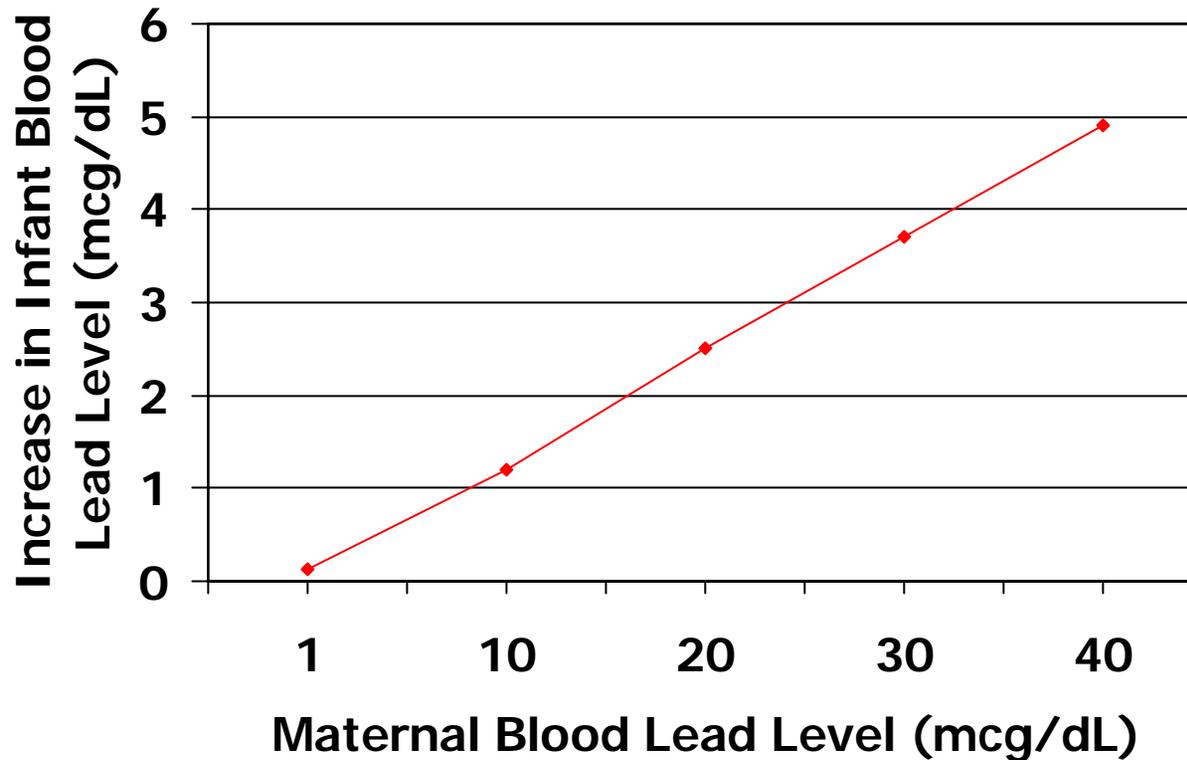
Report Outline

7. Nutrition and Lead in Pregnancy
8. Breastfeeding
9. Research, Policy and Education Needs

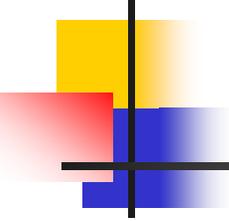
Issue: Breastfeeding

- 
-
- Breastfeeding has innumerable benefits to the Mother and the Infant.
 - Some Lead does pass from the mother to the infant via breast milk.
 - Theoretical calculations of exposure based on evidence in the literature estimate that an exclusively breastfed infant will ingest enough lead to raise the infants BLL.

Estimated increase in Blood Lead Level of an Exclusively Breastfed 1 Month Old Infant

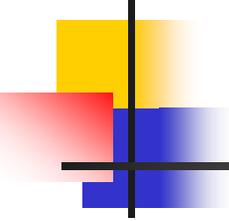


Issue: Breastfeeding

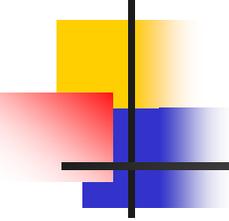


- Do the benefits of breastfeeding (mortality, immunity, IQ) outweigh the exposure to lead?
- At what maternal BLL (if any) should breastfeeding be discontinued?
- At what increase in a nursing infant's BLL should breastfeeding be discontinued?

Proposed Recommendation for Breastfeeding



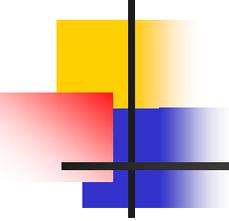
- Discontinue breastfeeding if maternal BLL ≥ 40 $\mu\text{g}/\text{dL}$
- Blood lead levels 10-40 $\mu\text{g}/\text{dL}$:
 - Take wait and see approach
 - Conduct environmental source investigation appropriate to maternal or infant BLL
 - Serial blood lead tests of mother and baby
 - Discontinue breastfeeding if infant BLL rises and no additional source of exposure has been found
 - Continue Calcium supplementation and Prenatal Vitamins



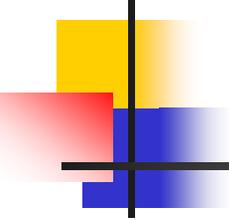
Issue: Nutrition during Pregnancy

- Should supplementation exceed levels already recommended during pregnancy?
- Evidence is strongest for Calcium which may:
 - Decrease Bone Resorption and subsequent release of stored lead into the blood stream
 - May decrease gastrointestinal absorption of ingested lead
 - Reduce BLLs when supplemented with 1200 mg per day above normal intake (Mexico City Study)
- Inadequate evidence to support supplementation of other nutrients, such as Iron and Vitamin C over recommended levels

Proposed Recommendation Nutrition during Pregnancy

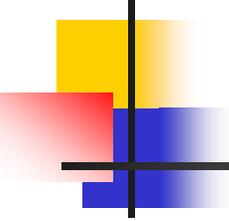


- Recommend supplementation with 1200 mg calcium intake per day during pregnancy if $BLL \geq 10 \mu\text{g/dL}$
 - Stress that the majority of this be from dietary sources as opposed to supplements
- Reinforce current nutritional recommendations for supplementation of other nutrients during pregnancy
- Recommendation that WIC / health insurance cover calcium supplementation



Issue: Pica

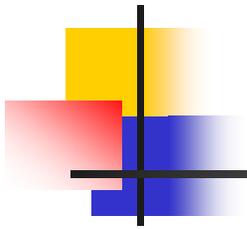
- What definition of Pica is appropriate for these guidelines?
- DSM-IV:
 - Persistent eating of non-nutritive substances for at least one month
 - The eating of non-nutritive substances is inappropriate to the developmental level
 - The eating behavior is not part of a culturally sanctioned practice.



Recommendation

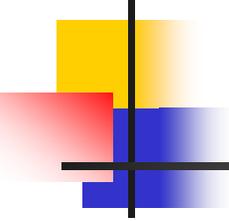
Pica during Pregnancy

- Recommend that providers obtain a BLL of any pregnant women that admits to or is suspected of engaging in Pica Behavior



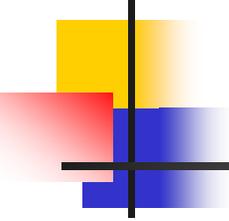
Issue: Chelation

- At what BLL should provider's consider chelation in pregnant women and neonates?
- When in pregnancy do the risks of lead exposure outweigh the risk of chelation therapy?
- Are symptoms a prerequisite to considering chelation therapy in pregnant women?



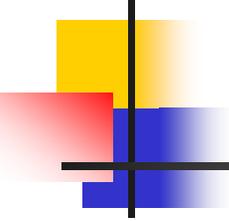
Recommendations: Chelation

- Recommend chelation for pregnant women with a BLL ≥ 45 $\mu\text{g}/\text{dL}$ in the second half of pregnancy
- In consultation with an experienced specialist



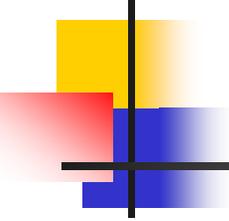
Issue: Prevention

- What actions should health care providers and public health agencies take to prevent lead exposure among pregnant women in the United States?



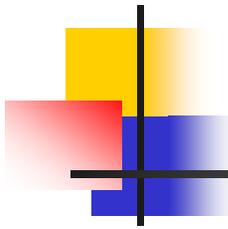
Recommendations: Prevention

- All health care providers should provide routine anticipatory guidance to educate their pregnant patients on the risk factors associated with exposure to lead.
- Public Health Agencies can develop materials for distribution to health care providers to educate them on lead exposure during pregnancy including risk factors, screening recommendations and management.



Issue: Blood Lead Level of Concern

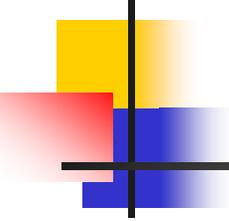
- Currently working with $\geq 10 \mu\text{g/dL}$
- Consistent with Childhood BLL of Concern
- Considering $\geq 5 \mu\text{g/dL}$ as the level for health-care providers to take some additional steps:
 - Counseling
 - Follow-up Testing
- $\geq 5 \mu\text{g/dL}$ not a level for public health agencies to act



Proposed Recommendation: Level of Concern

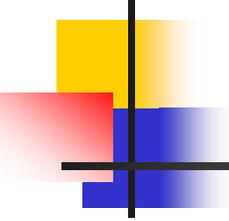
At a Blood Lead Level $\geq 5 \mu\text{g}/\text{dL}$ clinical health care providers should provide;

- counseling on the sources of lead
- nutritional assessment and counseling
- follow-up testing



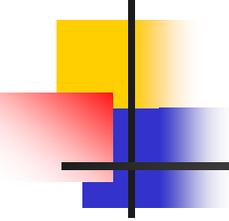
Proposed Recommendation: Level of Concern

- At a Blood Lead Level $\geq 10 \mu\text{g/dL}$
 - Clinical health care providers should;
 - Notify their local LPPP
 - Public Health Agencies should;
 - Send out health education materials to the provider and the patient



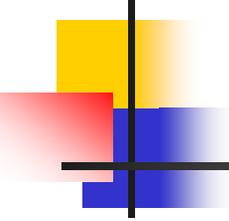
Proposed Recommendation: Level of Concern

- At a Blood Lead Level $\geq 15 \mu\text{g/dL}$
 - Clinical health care providers should;
 - Provide source reduction counseling
 - Public Health Agencies should;
 - Attempt exposure source identification and reduction



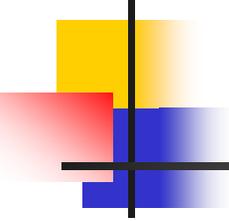
Proposed Recommendation: Level of Concern

- At a Blood Lead Level $\geq 40 \mu\text{g/dL}$
 - Clinical health care providers should;
 - Recommend cessation of breastfeeding in nursing mothers



Proposed Recommendation: Level of Concern

- At a Blood Lead Level $\geq 45 \mu\text{g/dL}$
 - Clinical health care providers should;
 - Consider hospitalization and chelation
 - Public Health Agencies should;
 - Refer provider to experts in the management of lead exposed pregnant women



Next Steps

Meetings in November to continue the discussions on:

- Level of Concern
- Recommendations at each action level
- Chapter by chapter discussions
- Identify future research and policy needs