Objectives

- Review of Childhood Lead Poisoning Trends in Memphis-Shelby County, Tennessee
- Overview of Social Determinates of Health – Place Matters
- Discuss Public Health strategies to reduce Lead exposures
- Conclusions
- Open Discussion
The Memphis Childhood Lead Poisoning Prevention Program (MCLPPP) is committed to eliminating lead poisoning throughout Shelby County. This program is unique in the State of Tennessee in that it constitutes a successful collaborative of grant-funded efforts between The Shelby County Health Department, Tennessee Department of Health, The City of Memphis Housing and Community Development, and The Shelby County Department of Housing.

**Strategies include:**

- Increase blood Lead Screenings to children residing in high risk communities
- Develop and implement a series of preventative exposure educational plans
- Increase the number of “Lead Safe” housing units
- Ensure a strong public health infrastructure, to provide a comprehensive medical case management Program
- Decrease the rate of Lead Poisoning in children under 6 years old
Shelby County Tennessee known as the
“Capital of the Delta”

Civil War
Shelby County Tennessee

Total Population: 927,644
- 52.1% - Black/African American
- 40.6% - White/Caucasian
- 5.6% - Latino/Hispanic
- 1.7% - Other

338,366 - Households
- 34.50% have children
  - 3 children/household average
Income median = $39,593/yr
Income Per capita = $20,856/yr
- 170,736 people (18%) are living below the poverty line.
  - 26.4% are < 18 yrs old
  - 10.30% are over 65

Data Sources: 2010 Census
HOUSING STOCK – Memphis, TN

• Housing Stock *pre 1950* – 398,274 units
  
  Occupied – 349,775
  
  • Owner Occupied – 212,016
  • Rental – 137,759

  Vacant – 48,499

What happens when you combine old housing stock and an impoverished community?

Data Sources: 2015 American Community Survey
The Lead Poisoning Equation

Pre-1950 Low Income Housing Stock

Families living Poverty

Hundreds of Lead Poisoned Children Yearly
Lead Poisoning – Memphis, TN

Elevated Blood Lead Screening Tests for Children aged 0-5 years by Race, Shelby County, 1998-2015

Percent children with BLL >/= 5mg/dl

- African American
- White

Note: Percent of screening tests with missing data for race has increased most years and ranges from 35% to 70%

Adverse Health Effects of Lead Exposure

- Death
- Encephalopathy
- Nephropathy
- Frank Anemia
- Colic
- Decreased hemoglobin synthesis
- Increased vitamin D metabolism
- Increased risk of hypertension in adulthood
- Increased nerve conduction velocity
- Increased level of erythrocyte protoporphyrin
- Decreased vitamin D metabolism
- Decreased calcium homeostasis
- Developmental toxicity
  - Delayed puberty
  - Decreased growth & hearing
- Developmental toxicity
  - Decreased IQ levels & academic abilities
  - Attention-related behaviors
  - Anti-social behaviors

Data Source: Lead Surveillance and Tracking System of Tennessee, 1990-2015
Lead Exposure in the Home
How much lead dust does it take to poison a child?
Less than the size of a sugar packet spread around a two-bedroom house.
Lead Paint Industry Advertisements

The Dutch Boy's Hobby
A Paint Book for Girls and Boys

CAPITOL WHITE LEAD
Ground in Pure Linseed Oil by the Nassau White Lead and Color Works, New York.
Health Starts in homes, schools, and communities.
Healthy People 2020 highlights the importance of addressing the social determinates of health by including: “Create social and physical environments that promote good health for all”.
Social Determinants of Health

**Economic Hardship Index (EHI)**

EHI focuses on 6 key social determinants that are critical for one’s health:

- **Unemployment** → the percent of the civilian population over the age of 16 who were unemployed
- **Dependency** → the percentage of the population that are under the age of 18 or over the age of 64
- **Education** → the percentage of the population over the age of 25 who have less than a high school education
- **Income Level** → the per capita income
- **Crowded Housing** → measured by the percent of occupied housing units with more than one person per room
- **Poverty** → the percent of people living below the federal poverty level.

Understanding Social Determinates of Health

- Safe Housing and local food markets
- Access to educational, economic and job opportunities
- Transportation
- Access to Health Care
- Availability of Community Resources
Social Determinants of Health and Health Outcomes

Economic Hardship Index in Shelby County TN 2015

Life Expectancy at Birth in Shelby County TN 2011-2015

Data Source: Shelby County Health Department, Office of Epidemiology and Infectious Diseases, Presentation: Ogari L. “Moving Upstream: Examining Economic Hardship and Life Expectancy in Shelby County TN”, 04/07/2017.
Lead Poisoning rates are not evenly distributed across Shelby County. Zip Codes with the Highest Lead Poisoning Rates Have:

- High Poverty Rates
- High Unemployment
- Low Educational Attainment
- High Crime Rate
- Food Desserts
- Transportation Concerns
- Socioeconomic Conditions

Data Source: Shelby County Health Department Office of Epidemiology and Infectious Diseases, prepared from State of Tennessee Lead Tracking and Surveillance System, 2012–2016.
What Accounted for positive changes in lowering the Lead Poisoning Rate?

Partnerships/Collaborations
Programs/Projects/Initiatives
Collective Impact
Agency PARTNERING

- Housing Agencies/Funding
- Medical Centers/Clinics
- Educational System
- Faith Based Organizations
- National Initiatives
Partnering for Lead Safe Communities

The recommendations present many layers of responsibility to achieve the vision of a “Lead Safe Community”. The following chart will detail and indicate some of the partnerships that have been established to eliminate Lead Poisoning in Shelby County.

Policy Makers
How should federal, state and local governments and corporate entities help public health, providers and agencies to reduce Lead hazard exposure and increase Lead safe housing units?

Community Agencies
How can social service provider and other community agencies address Lead Poisoning Prevention and Healthy Homes Principles?

Individuals/Consumers
What actions can individuals and families take to reduce Lead hazard exposure?

Health Clinics/Provider Groups Private Practices
How can healthcare providers increase blood lead screening and Lead hazard awareness to reduce the rate of Lead Poisoning?

Memphis Shelby County Community Groups
How can the community be empowered to action? How can the community act to reduce Lead poisoning and increase safe housing?
HOUSING STOCK – Memphis, TN

Before
Lead Hazard Control Work

After
Lead Hazard Control Work

Photo Courtesy of Shelby County Department of Housing
Before lead hazard control

3135 Lead Safe Units

After lead hazard control

Photo Courtesy of Shelby County Department of Housing
Health and Housing

What a great combination!
Screening Opportunities

Partners In Health

SHELBY COUNTY HEAD START

LeadFree KIDS for a Healthy Future
Conclusions and Implications
PREVENTION and AWARENESS OPPORTUNITIES

• Multifaceted Lead poisoning prevention educational outreach initiatives are essential to reaching at risk families.

• Availability to provide FREE household cleaning kits to families with exposed children living in pre-1978 housing.

• Continued expansion and collaboration will continue to address Lead poisoning and the importance of providing Lead Safe/Healthy Home environments to ensure positive outcomes.

• Collaborate with Stakeholders – view “who is NOT at the table versus who is at the table”
Final Comment

• Lead Poisoning problems demand Community Engagement

• An engaged and informed community will decrease Lead Exposure/Poisoning
LEAD PAINT COMES WITH A LIFETIME GUARANTEE. IT WILL DO DAMAGE FOR GENERATIONS.

Find a Lead-Safe Certified Contractor

Protect Your Family Look for the Logo

epa.gov/lead
Special Thanks!

The Shelby County Health Department extends our sincere gratitude to the many community representatives and organizations, including those involved with addressing Lead Poisoning Elimination and who are committed to ensuring every child in Shelby County has the opportunity to live in a Lead safe home.

To join the movement, please visit www.shelbytnhealth.com or call (901) 222-9000.
Questions?

Shelby County Health Department
Childhood Lead Poisoning Prevention Program

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The National Lead Information Center
www.epa.gov/lead
1-800-424-5323

HUD Office of Healthy Homes and Lead Hazard Control
www.hud.gov/offices/lead