

Healthy Housing Surveillance: Current Status, Needs and Directions

Building a Framework for Healthy Housing
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The findings and conclusions in this presentation have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.



Public Health Surveillance: Definition

“The ongoing, systematic collection, analysis, interpretation and dissemination of data regarding a health-related event for use in public health action to reduce morbidity and mortality and to improve health.”

Source: CDC, Updated Guidelines for Evaluating Public Health Surveillance Systems, 2001



Surveillance System Attributes

- Simplicity
- Flexibility
- Data quality
- Acceptability
- Sensitivity
- Positive Predictive Value
- Representativeness
- Timeliness
- Stability

Source: CDC, Updated Guidelines for Evaluating Public Health Surveillance Systems, 2001



Proposed Purpose of Healthy Housing Surveillance

- To identify and track housing-related risk factors and outcomes;
- To inform the development and implementation of public health priorities and policies;
- To inform the generation of research questions and interventions related to housing and health
- To evaluate the long-term effectiveness of interventions and public health policies



Considerations for Healthy Housing Surveillance

■ Stakeholder needs

- Identify all appropriate participants (government and non-government)
- Determine stakeholder needs and contributions

■ Data needs

- Prioritize health outcomes and housing-related exposures and behaviors
- Identify important demographic characteristics and other covariates
- Identify strengths, limitations, and gaps in existing data

■ Infrastructure needs

- Identify resources and mechanisms necessary to operate the surveillance system, e.g., personnel, IT support, security, funding, etc.
- Determine appropriate timetables for design and implementation of system, dissemination of data



Data Sets Representative of U.S. and/or U.S. Census Regions

- National Health and Nutrition Examination Survey (NHANES)
- National Health Interview Survey (NHIS)
- National Vital Statistics System (NVSS)
- National Hospital Discharge Survey (NHDS)
- National Ambulatory Medical Care Survey (NAMCS)
- National Hospital Ambulatory Medical Care Survey (NHAMCS)
- National Electronic Injury Surveillance System – All Injuries Program (NEISS-AIP) – CPSC and NCIPC
- American Housing Survey (AHS) - National Sample
- National Survey of Lead and Allergens in Housing (NSLAH) (1998-2000)
- American Healthy Homes Study (AHHS) (2005-2006)
- Toxic Exposure Surveillance System (TESS)



Data Sets Representative of States or Smaller Geographical Areas

- National Vital Statistics System (NVSS)
- Behavioral Risk Factor Surveillance System (BRFSS)
- Youth Risk Behavior Surveillance System (YRBSS)
- State/EPA Residential Radon Survey
- EPA Map of Radon Zones
- National Survey on Environmental Management of Asthma and Children's Exposure to ETS (NSEMA/CEE) (2003)
- National Survey on Environmental Management of Asthma and Children's Exposure to ETS (NSEMA/CEE) (2003)
- American Housing Survey (AHS) - Metropolitan Samples
- Surveillance, Epidemiology and End Results (SEER)
- Childhood Blood Lead Surveillance System (CBLSS)
- Cancer registries
- Hospitalization data



Existing Data Sources for Use in Healthy Housing Surveillance - Summary

- Many health outcomes of interest (e.g. asthma, lead poisoning, injuries) are represented
- Relatively smaller amount of relevant data at state and local level
- With exception of AHS, NSLAH, and AHHS, most of these data sources have no or limited housing characteristic data
- AHS, NSLAH and AHHS have no health outcome data
- In many cases, direct assessment between housing and health can not be done



Some Strategies for Improvement of Data for Healthy Housing Surveillance

- Add and/or refine housing characteristics variables to existing surveys
- Implement new and/or supplemental studies
- Link datasets with health outcomes to data sets with housing outcomes
- Development and/or expansion of state and local surveillance
- Use of other data sources to supplement existing data and/or fill gaps (e.g., tax assessor data, trade association data)



Federal Healthy Housing Surveillance Work Group

- First meeting was held October 22-23, 2007 in Atlanta
- Participants represented federal government stakeholders in Healthy Housing
 - CDC
 - National Center for Environmental Health
 - Agency for Toxic Substances and Disease Registry
 - National Center for Injury Prevention and Control
 - EPA
 - Indoor Environments Division
 - HUD
 - Office for Healthy Homes and Lead Hazard Reduction
 - NIH
 - National Institute of Environmental Health Sciences



Federal Healthy Housing Workgroup: Stakeholders Needs - Other Participants Needed

- Other federal agencies
- State, local health departments, housing agencies
- Professional and trade organizations
- “Think tanks,” academic institutions



Federal Healthy Housing Workgroup: Overarching Stakeholder Needs

- Ability to monitor deaths, illness and injury related to homes
- Ability to monitor interventions
- Ability to monitor health knowledge, attitudes and behaviors



Federal Healthy Housing Workgroup: Data Needs - Prioritization of Health Outcomes and Exposures

Priority Health Outcomes

- Asthma
- Allergies
- Carbon monoxide poisoning
- Other poisonings
- Smoke inhalation
- Lead poisoning
- Falls

Priority Exposures

- Allergens and endotoxins
- Furry pets
- Smoking inside the home
- Carbon monoxide (including subclinical)
- Mold and moisture
- Lead in dust and soil
- Injury hazards (lack of stair rails, grab bars)
- Fuel combustion products (indoor air pollution)
- Firearms
- Radon



Federal Healthy Housing Workgroup: Infrastructure Development in the Next 1-3 Years - 1

- Identify priority needs
- Pilot test subject areas
- Develop common assessment tools and standardized analysis techniques
- Develop “fiscal instrument” templates (e.g., MOUs, IAAs, RFPs)
- Develop an ongoing surveillance oversight workgroup
- Create a clearinghouse to monitor potential data sources continuously



Federal Healthy Housing Surveillance Work Group Meeting - Summary

- Basic framework for Healthy Housing Surveillance developed
- Participants found value in finding out what other agencies were doing
- This awareness will help in minimizing duplication of efforts
- Merging housing and health datasets not addressed as much as hoped
- Still plenty of work for all partners to do





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Three years later: Comparing pre- and post- Katrina blood lead data and challenges in eliminating childhood lead poisoning in New Orleans

Christi LaMark, MPH; Tim Dignam, MPH; Connie B. Thomas, MPH, MA; and Howard Mielke, PhD

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New Orleans Snapshot: Pre-Katrina

- **Pre-Katrina population was 484,674 of which more than one-fourth lived at or below poverty.**
- **New Orleans was the 17th poorest city in the United States of America.**
- **Two-thirds of the population was African American**



New Orleans Snapshot: Pre-Katrina

- **The median household income in 2003 was \$27,408.00.**
- **There were 212,781 housing units in the city and the median value of owner-occupied homes was \$87,300.00.**
- **48.5% of houses in New Orleans were built pre-1950.**



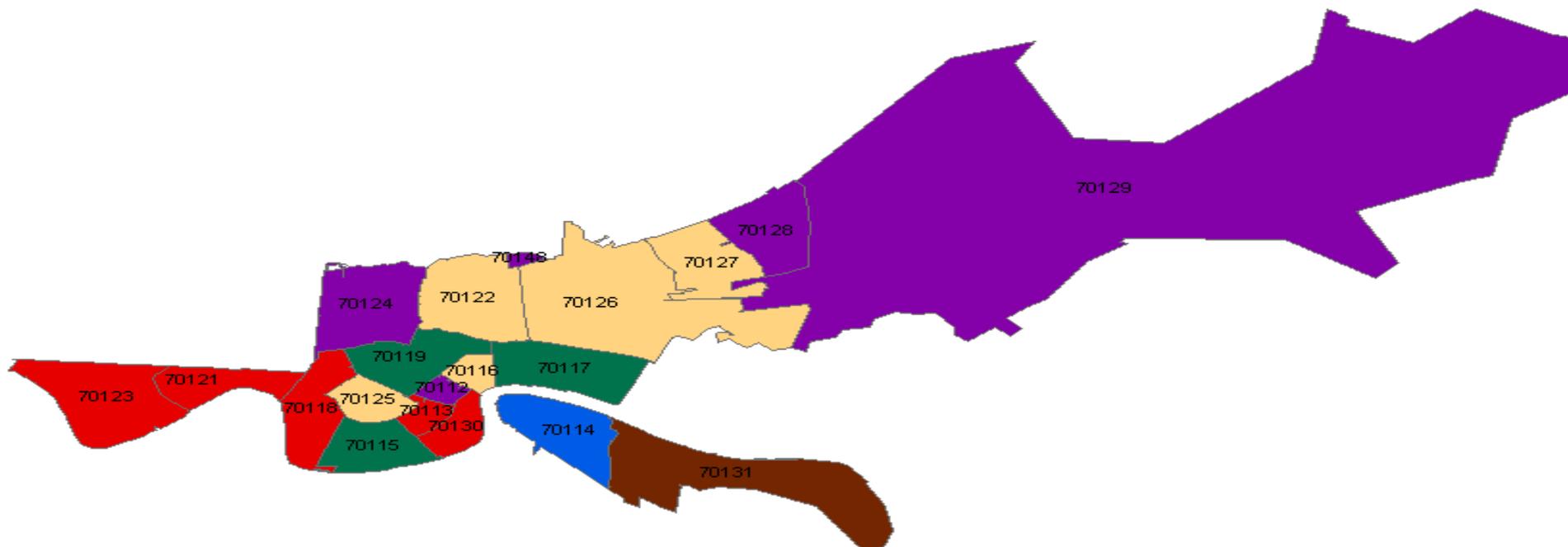
New Orleans Blood Lead Testing and Elevated Blood Lead Levels 2003-2007

	2003	2004	2005	2006	2007
Population of children 6 and under	37,179	37,179	16,149	16,149	16,149
Total children screened	8,503	7,814	5,209	2,359	4,292
Proportion of children screened	22.87%	21.02%	13.1%	14.6	26.5
Total children elevated	1,217	1,078	587	104	226
Percent children elevated $\geq 10 \mu\text{g/dL}$	15.53%	13.79%	11.26%	4.40%	5.27%

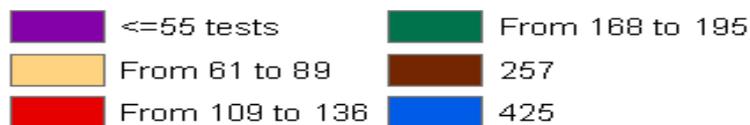
Data provided by Ngoc Hyunh, MD, MPH of Louisiana CLPPP



Number of Children with Blood Lead Test in Orleans Parish by zipcode 2006 Data



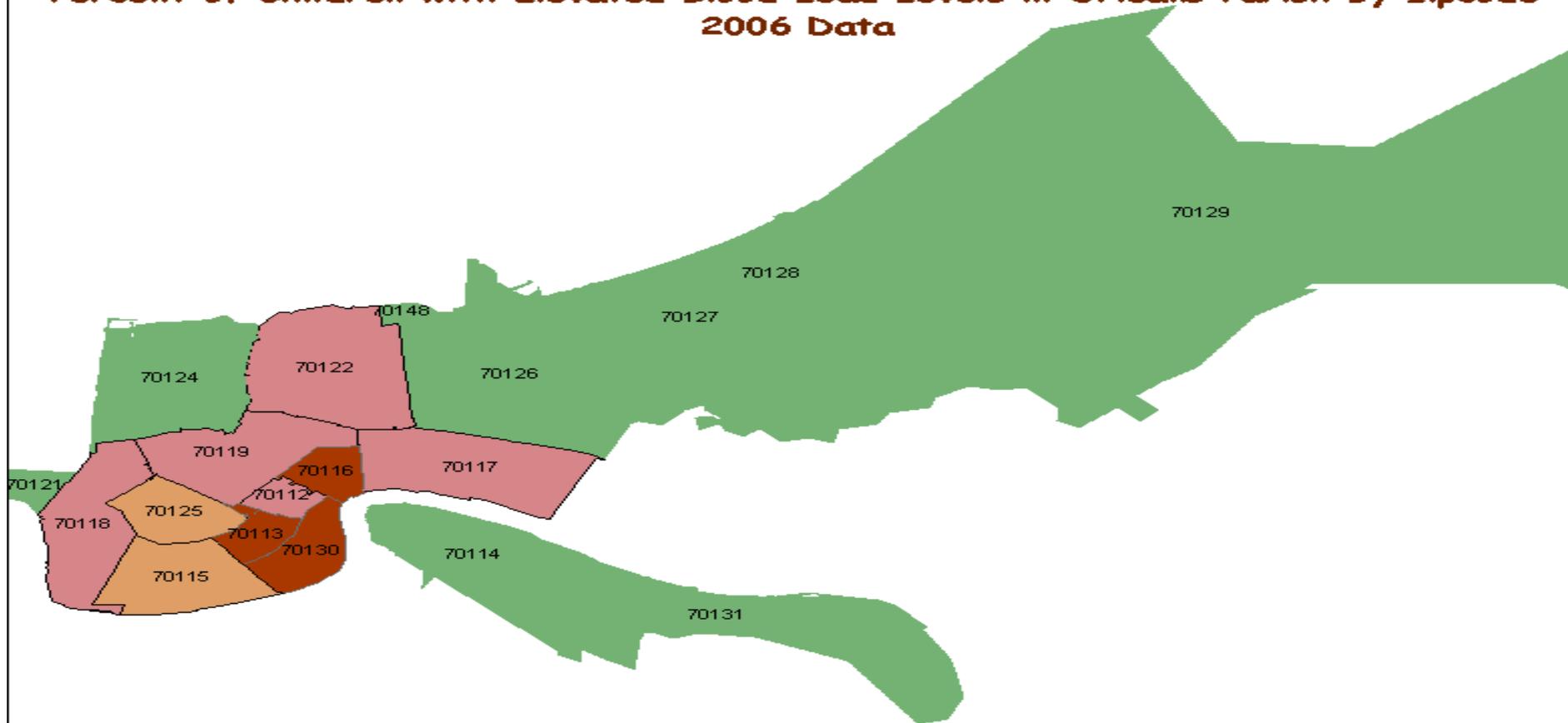
Number of Blood Lead Tests by Zipcode in Orleans - 2006 Data



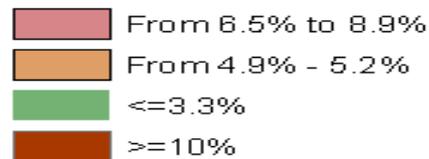
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Percent of Children with Elevated Blood Lead Levels in Orleans Parish by zipcode 2006 Data



Elevated Blood Lead Level by Zipcode in Orleans - 2006 Data



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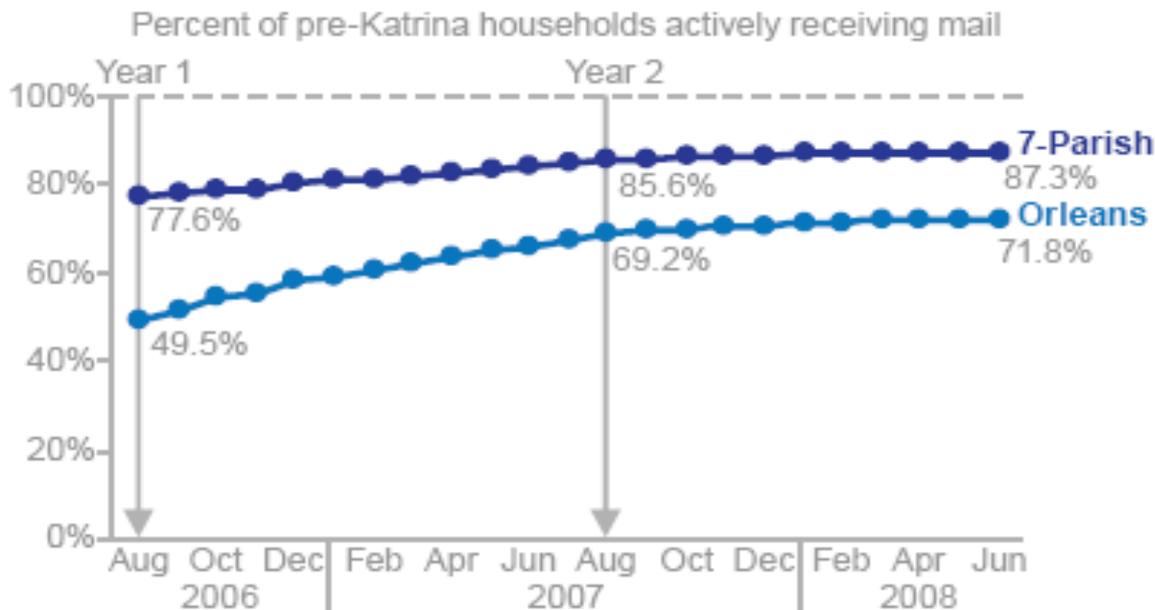


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Population Recovery in New Orleans

Three years after Katrina, New Orleans is home to 72 percent of its pre-storm population, up slightly from one year ago



The Brookings Institution Metropolitan Policy Program & Greater New Orleans Community Data Center



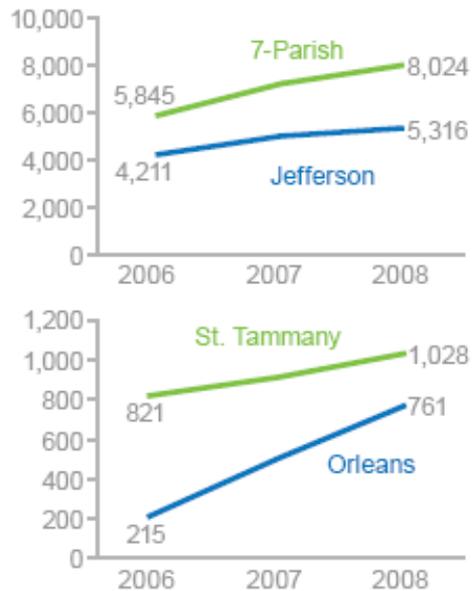
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New Demographics = New Risks?

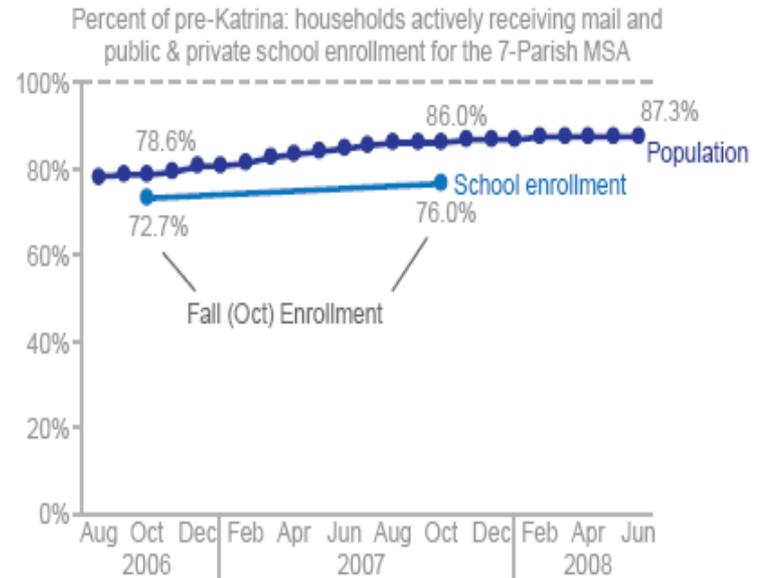
The number of Hispanic students in public schools has grown every year in the region since Katrina, reaching 8,024 by spring 2008

February Hispanic enrollment in public schools, by year



graph source: Louisiana Department of Education.

School enrollment lags population recovery, suggesting fewer families with children have returned to the New Orleans area



graph sources: GNO Community Data Center analysis of USPS Delivery Statistics Product acquired from Sammamish Data Systems and Louisiana Department of Education.

The Brookings Institution Metropolitan Policy Program & Greater New Orleans Community Data Center



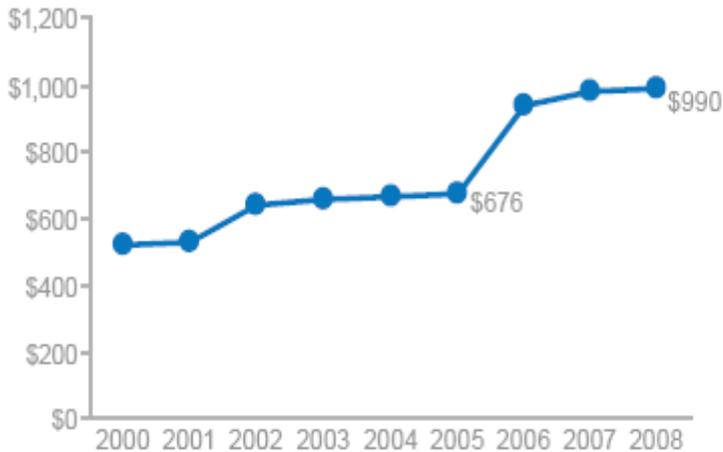
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Housing “Un”Affordability

The rent for a two-bedroom apartment has increased 46 percent since 2005

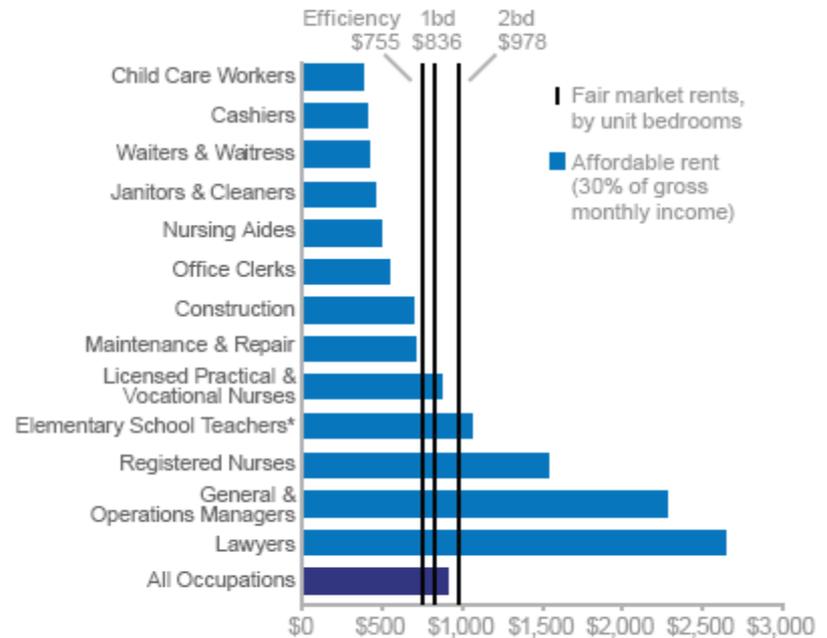
Fair market rent for a 2-bedroom in New Orleans MSA, 2000-2008



Left graph: U.S. Department of Housing and Urban Development, Fair Market Rent History 2000 to 2005 and County Level Data File for 2006-2008.

Few workers in key service sector jobs can afford an apartment in greater New Orleans with 30 percent (or less) of their monthly wages

Affordable monthly rent, by occupation, with 2007 Fair Market Rents



*Does not include special education teachers.

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Major Hindrances

Before Katrina

- Barriers to screening in high risk areas
- Data collection, storage, and analysis
- Illegal sanding of structures built before 1979
- Educating audience segments about childhood lead poisoning



Major Hindrances

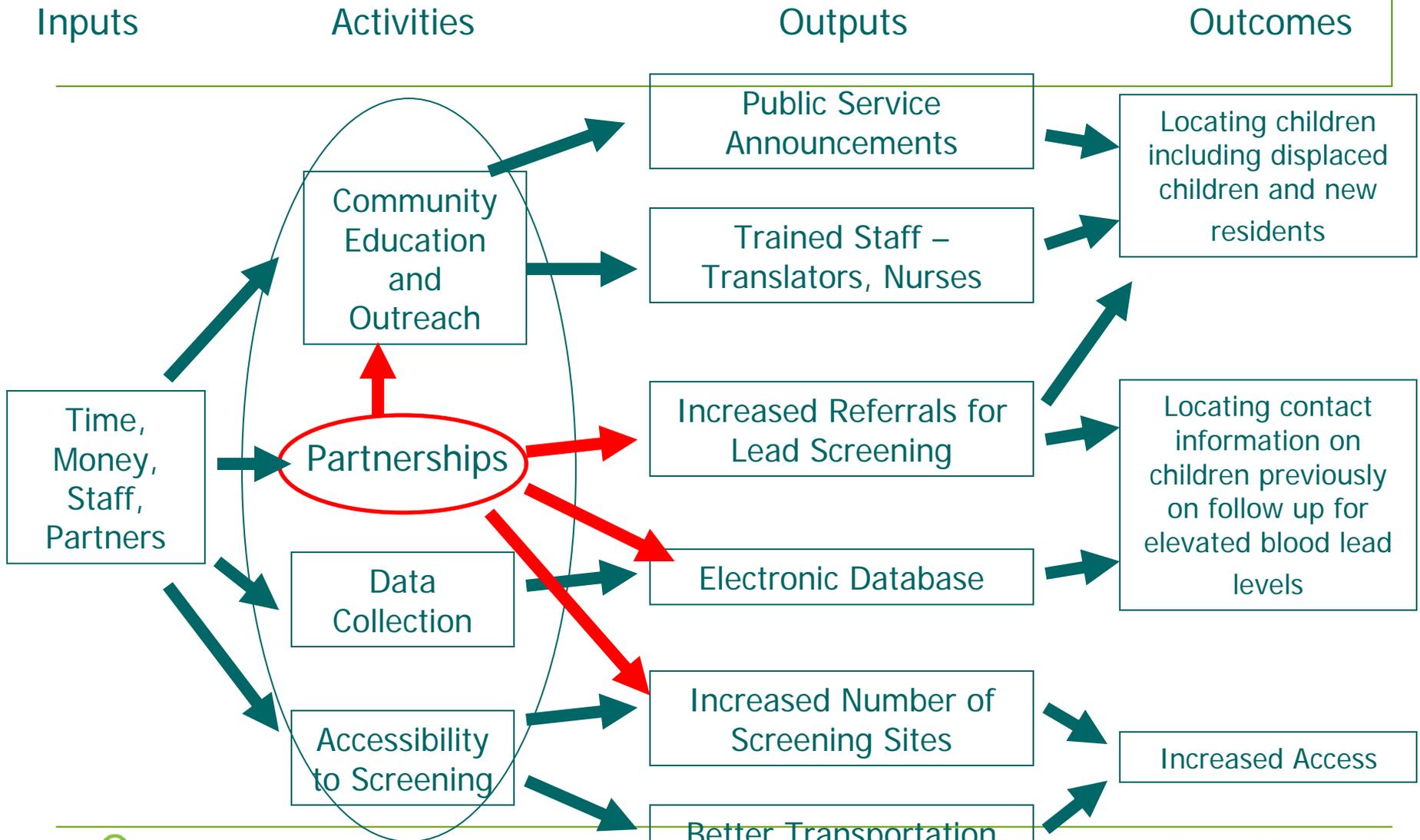
After Katrina

- Who do we screen? Who will screen them? Where?
- Where are the electronic data? Who are the new people in the city? Are they more or less at risk? Do they need follow-up?
- Your house is brand new and has lead hazards!
- *My patients need a lead test? My child has an EBLL? Why can't I sand my properties?*



Health Impact: Eliminating elevated blood lead levels and its harmful effects

Long term Outcome: Increased blood lead screening in all children from 6 months to 6 years in New Orleans Parish by zip code



Strategies to Address Surveillance Challenges

- Maximize Partnerships
 - Risk assessments and referrals
- Office of Recovery and Development and other city agencies
- Educating policy makers

