Boston Medical Center

- Boston Medical Center (BMC) is the largest safety net hospital in New England
- 8 BMC-affiliated Federally Qualified Community Health Centers
- Electronic Health Record (EMR) from 1999
- MA Health Disparities Repository (MHDR)

www.vitalvillage.org
Establish a platform for tracking benchmarks of child wellbeing.

**Village Vital Signs:** longitudinal, geocoded data

- MA Clinical Data Repository
- Child Opportunity Index
- Boston Public Schools
- Dept. Police Department
- Dept. Children and Families
- Dept. Transitional Assistance
- Public Health Commission
- Public Housing Authority
- Early Intervention

Caregivers can obtain information, Service Providers, Agencies, Schools, Clinics

Agencies can improve programs, Communities can ask new questions

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Shared Data Warehouse, Publicly Accessible

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Establish a platform for tracking benchmarks of child wellbeing.

Leverage existing data for meaningful use.

Village Vital Signs: longitudinal, geocoded data

Shared Data Warehouse

Caregivers can obtain information

Service Providers

Agencies, Schools, Clinics

Communities can ask new questions

Agencies can improve programs

Cultivate cross-sector collaboration

Web-accessible data dashboard

Centralized and shared existing data

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Our Plan

1. • Meaningful use of the EMR to develop a set of child health indicators

2. • Integrate Boston metro Child Opportunity Index with Boston crime data (Boston Police Dept.) and explore associations with cardiovascular health

3. • Identify vulnerable neighborhoods, regional patterns, and positive deviance and outliers to inform programming and policy.

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Opportunity Varies across Boston Neighborhoods

Boston Metro Area

- Boston is among the most inequitable metro areas in neighborhood opportunities for Hispanic and Black children.
  - 6 in 10 Hispanic children and over half of Black children live in very low opportunity neighborhoods in Boston.

Child Opportunity Index

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Opportunity Varies across Boston Neighborhoods

**Violent Crime Rate**

- Childhood adversities affect chronic disease risk.

- High violent crime rate is associated with very low Child Opportunity
  - 2009 Boston Police Department violent incidents (robbery, assault, murder)
  - Aggregated census-tract level crime rates as incidents per square mile.

[Map showing Child Opportunity Index and Violent Crime Rate]

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Opportunity Varies across Boston Neighborhoods

Clustering of Violent Crime

- Patterning of risk for low opportunity and crime is regional

- Clustering of census tracts with high violent crime rates (green highlight) overlaid clustering of very low Child Opportunity

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Child Opportunity Index & Obesity Rate

• BMC aggregate EMR data on obesity for children ages 3-18 years old.

• Rates of obesity correlate with very low opportunity (COI), but outliers are present.

• Census tract violent crime is significantly associated with rates of childhood obesity.

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COI & Hypertension Rate among Children in MHDR

• BMC aggregate EMR data on hypertension for children 3-18 years old.

• Hypertension for children associated with COI.

• Clusters of high crime census tracts are significantly associated with high rates of hypertension

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The Geography of Opportunity

• Child Opportunity Index allows exploration of:
  – Multiple neighborhood-level factors
  – Adjacent geographic regional context

• Identification of positive deviance and outliers

• Enhanced opportunity for:
  – Comprehensive metrics and evaluation tools within place-based efforts
  – Comparison across place-based efforts
  – Population-level change surveillance model

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Implications

• High crime rates are associated with very low child opportunity.
• Both crime and child opportunity index are associated with early predictors of cardiovascular health risk: obesity and hypertension.
• Policy makers may use this information to consider the population health benefit of crime reduction and building community assets.
Renée Boynton-Jarrett, MD, ScD
Libby McClure, BS
William Adams, MD, MPH
Anthony Braga, PhD

Boston Medical Center
72 East Concord Street, Vose 3
Boston, MA 02118

www.vitalvillage.org
@Vital_Village