

Maryland Department of Health and Mental Hygiene/  
Mid-Atlantic Public Health Training Center Grand Rounds

**Is There A Doctor On Board?  
Using Health Impact  
Assessment in  
Transportation Planning**

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June 17, 2009

**Objectives**

- Describe Health Impact Assessment (HIA)
- Present case study of Health Impact Assessment of transit project in Baltimore
- Discuss public health impact of transportation choices and the role of health in transportation planning

**Introduction to HIA**

- Health Impact Assessment is a tool
- Assesses proposed policies & projects
  - Identify which communities are affected
  - Magnitude & direction of health impacts
- Methods:
  - interviews, data analysis, scientific evidence, expert opinion
- Often collaborative effort among agencies
- Baltimore Red Line HIA: completed by partners at DOT and BCHD

**The Red Line**

- New 14-mile transit line running from western Baltimore County to eastern side of Baltimore City
- Critical east-west line will create a system: allow easy transfer with the two current rail lines
- Route will connect directly to major employment centers and downtown

**The Red Line Community Compact:**  
*Defining the Success of Baltimore's Red Line Transit Project*

- Impetus for undertaking HIA
- Mayor's Red Line Summit, May 2008
- Collaborative agreement among City & State agencies, non-profit/private entities and community groups
- Sets specific goals & strategies agreed upon by all parties
- Signed by 60+ groups in Sept. 2008

**The Red Line Community Compact:**  
**Focusing on four project impacts**

- **Making the Red Line Green**
  - Water quality, alternative energy
  - Increase green space
  - Health & safety
- *Putting Baltimore to Work on the Red Line*
- *Community-Centered Station Design & Stewardship*
- *Aggressively Plan & Manage Construction*

## Methods

- Screening
- Scoping
- Assessment
- Recommendations
- Reporting
- Evaluation

## Red Line corridor: Life expectancy

- Neighborhood data compiled from census tracts
- Shows highly variable life expectancy along the corridor

## Red Line corridor: Percent of households without a car

- Again, highly variable
- Another proxy measure for socio-economic status

## Red Line HIA: Findings

- Overall: the Red Line will improve health
- But: How can we maximize positive health impacts?

1. Improve access & make streets safer
2. Improve air quality
3. Mitigate construction issues

## Improving Access

- Healthy People 2010 (HHS): "The broad physical and social environment, which includes housing, urban development, and transportation...shape human health"
- Red Line could impact:
  - Neighborhood cohesion
  - Access to green space
  - Access to services
  - Opportunities for physical activity

## Promoting physical activity

- Currently: limited physical activity
  - 50% Maryland residents do not get recommended exercise per week
- High prevalence of obesity
  - 35% of Baltimore residents obese
  - Increase of 50% over past decade
  - Obesity twice as common among African American adults
- Increase walking and biking to public transit

## Improving Safety

**Table 2. Baltimore City Crashes**

	3 year average (2007)	% statewide crashes	% statewide VMT
<b>Pedestrian involved</b>	949	32.5	6.46
<b>Pedal cyclist involved</b>	207	25.4	6.46

- With better quality pedestrian and bicycle infrastructure, streets are safer for active users
- Findings from Europe and other US cities that have a higher proportion peds/bikers have fewer crashes
- These users are more visible

## Improving Air Quality

- Toxic pollutants affect health
  - Especially for young, elderly
  - Can compromise life-long health
- Proximity to high traffic roads
  - Greater risk when exposed to major roads
- Local benefits
  - Improving traffic conditions may not have regional benefit, but positive local impact

## Construction Issues

- Dust and vehicle emissions
  - Affect air quality
  - Demolition, concrete, uncovered ground
  - Construction equipment
- Noise
  - Increases stress; disturbs sleep, concentration
- Rodents
  - Extremely important issue for residents
  - Seen to increase at construction sites
  - Potential to spread disease

## Recommendations

- Cross-cutting recommendations
  - Maintain community involvement through application of these recommendations

- Make it Light Rail
- Include a public health expert in the planning process
- Increase green space along route

## Baltimore's Urban Forest


We can create a greenbelt across the "tree deficit" center of the city

**Baltimore City Vegetation**

From BONOR multi-spectral satellite image taken October 2, 2001

## Recommendations


- Recommendations for accessibility
  - Ensure connectivity with current rail lines
  - Coordinate with Baltimore City Bicycle Master Plan
  - Use Complete Streets design principles:
    - Comply with ADA
    - Widen sidewalks to 10 feet
    - Plan for numerous crosswalks
    - Include bike facilities



## Recommendations


➤ Recommendations to Mitigate Construction

1. Provide independent monitoring during construction phase
2. Use EPA Clean Construction models for vehicles and care of sites
3. Noise mitigation
4. Plan for rodent control
  - Start early, survey and involve community




## Public Health And The Built Environment

- Emerging discipline looking at the built environment and health
- Previously focused on infectious disease, sanitation
- Emerging: chronic exposures, disease, environmental influences




## Public Health and Transportation

- Historic interest in vehicle emissions, cardiorespiratory disease and cancer
  - Focus on particulates, volatile organic compounds, contributors to ground-level ozone and photochemical smog
  - Exposure and disease estimates were for overall population, not geographic




## Health Impacts Associated With Transportation Choices

- Noise and secondary effects (cardiovascular disease)
- Proximity to traffic and asthma (schools)
- Stress and mental health



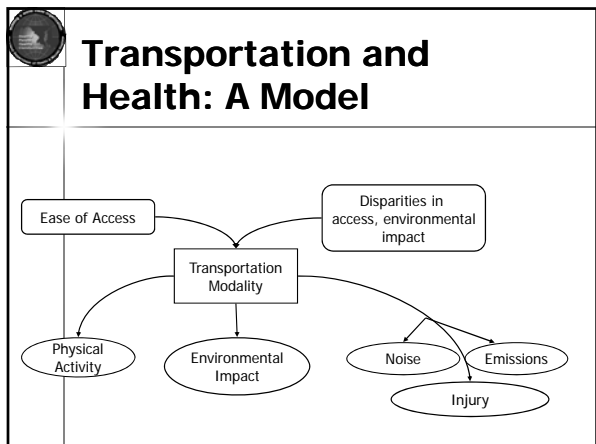
## Secondary Health Effects

- Secondary health effects include:
  1. Possible adverse effects from decrease/increase in physical activity
  2. Neighborhood level effects



## Geography And Exposure Assessment Begin To Play A Role

- Studies have begun to look at more precise exposure-response relationships
  - Using monitoring, other techniques
- Most often cited research involving transportation and health now:
  - Physical activity
  - Obesity
  - Social cohesion



- ### Challenges
- Lack of basic data on exposures, outcomes
  - Indirect effects with low attributable risk
  - Some exceptions – asthma and proximity of schools to roads
  - Need to look at all possible benefits/risks

- ### Possible Future Roles for Health Impact Assessment
- Voluntary or mandatory component of environmental impact assessment?
  - Develop and validate indicators of HIA components

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