

Puerto Ricans in the Bronx, NY: Sociocontextual influences on asthma - building and neighborhood type

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Session 3111.0:
Strategies to Reduce Asthma Disparities



American Public Health Association, 2007

Conflict of Interest

None

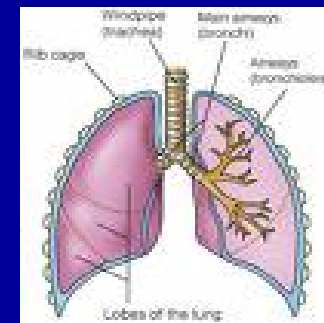
Today

- Overall Context
- NIEHS Study Methods
- Variables and Data Collection of Building and Proximal Neighborhood Characteristics
- Preliminary Findings

Overall Context

- In 2001, ~20.3 million Americans had asthma (6.3 million children)
(American Lung Association, 2003)
- Puerto Ricans (PRs) and Asthma:
Highest asthma rate of any group in the U.S.
 - 1994 Bronx study (children): PRs: **18%**; Black non-Hispanic: 12%; and White non-Hispanic: 8% (Crain, 1994)
 - Puerto Rican children highest lifetime asthma prevalence: **26%**, non-Hispanic Black children: 16%, and non-Hispanic White children: 13% (Lara, 2006)
- Burden of disease not random
 - differentially experienced by age, race/ethnicity, culture, geography

NIEHS Methodology



- NIEHS Puerto Rican Asthma Study (2003): sociocultural
- Original Sample: ~275 mothers recruited at NYC hospitals (postnatal)
 - newborns of Puerto Rican ethnicity (mothers do not have to be)
 - living in NYC at time of recruitment
 - mother has inhalant allergy
- Baseline data collected in 2003: survey follow-up every 6 months (address check every 3 months); blood sample at age 2 and 4
- Dust samples collected every 6 months; each time a participant travels to Puerto Rico, survey team collects samples from Puerto Rico

Overall Study Aims

Aim 1: examine relationship between building and proximal neighborhood characteristics, and respiratory illness and allergy of child at age 1 and 2

Aim 2: examine whether some building and proximal neighborhood characteristics have more explanatory power in relation to respiratory illness and allergy compared to others

Aim 3: create a typology of buildings and neighborhoods in relationship to particular respiratory illness and allergy characteristics of children at ages 1 and 2

Specific Background

- Puerto Ricans and asthma
- Previous studies: factors proximally close and physical to individuals
- Building characteristics related to respiratory illness and allergy
(most work done outside U.S.: Canada, Brazil, Sweden)
- Most measures collected for studies (pest exposures, building dampness), not information already available (building age, zoning/use, % open space, % tree canopy)



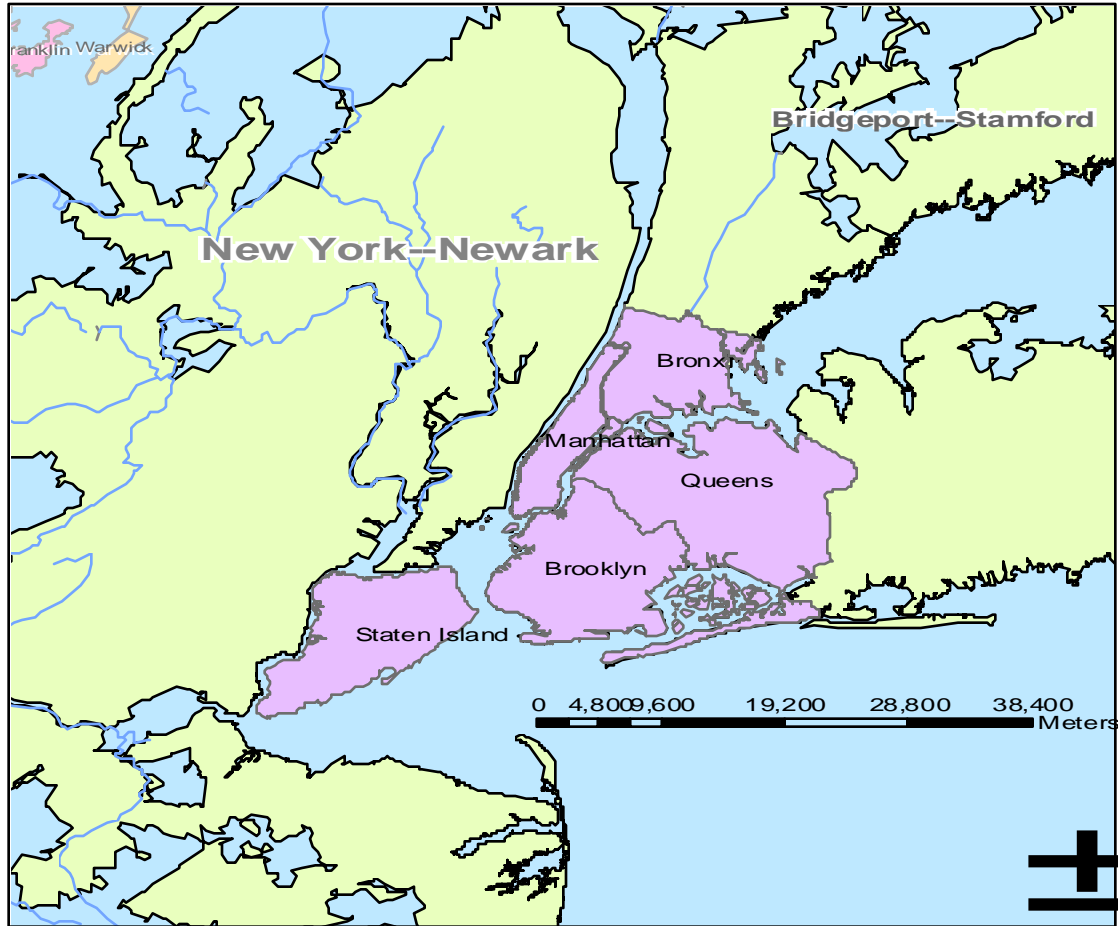
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Legend

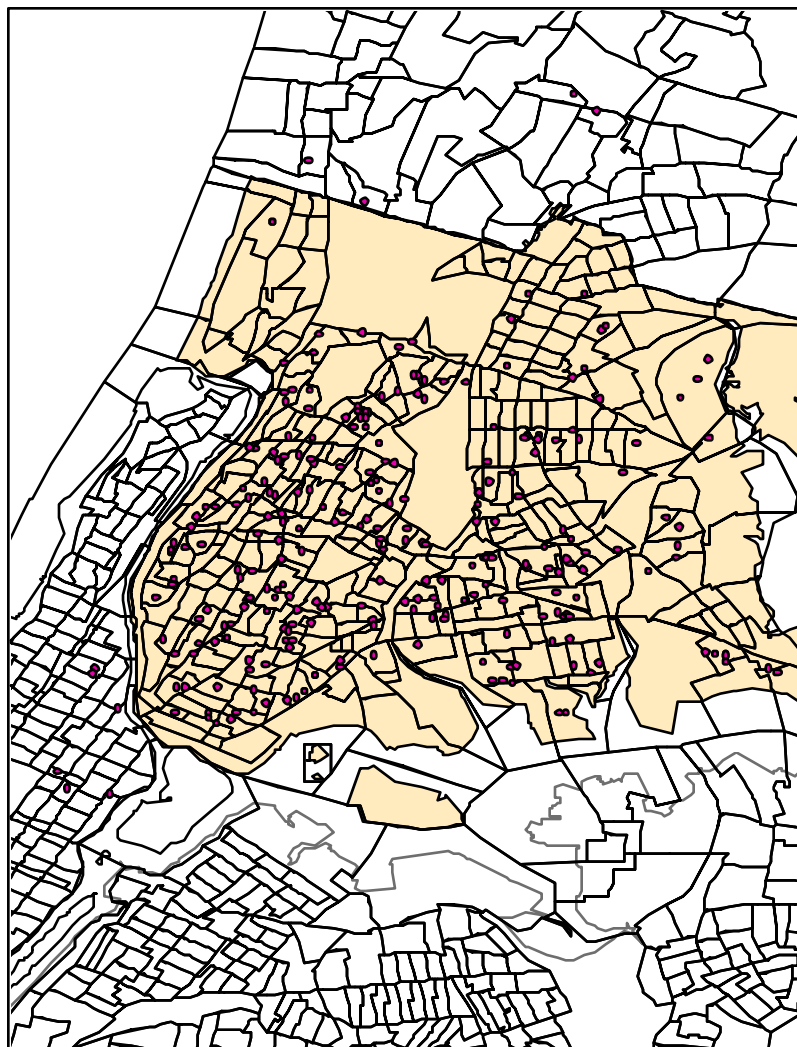
- Major Rivers (States)
- Major Lakes (State)
- Urban Areas (State)
- States (State)
- US Background (National and State)
- Canada and Mexico Background
- Ocean Background

Projection: NAD 1983
 State Plane
 New York Long Island
 FIPS 3104



- Legend
- new york borough boundaries
 - Stream
 - Intermittent Stream
 - Canal
 - Dam
- New York-Newark: Metro Area

Projection: NADS 1983 UTM Zone 18N
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NIEHS PR Study Households at Baseline

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Building and Proximal Neighborhood Characteristics

(collected every 6 months for 2 years)

Exposures:

- a) Public housing
- b) Commercial/Residential housing
- c) Roaches/Rodents
- d) % Community District Open Space
- e) # Gardens in Community District
- f) Community District Open Space per 1000 people
- g) Community District Asthma Hospitalization per 1000 kids
- h) % People of Color in Community District
- i) Building Age
- j) Department of Building Violations
- k) Environmental Control Board Violations
- l) Total Violations
- m) Distance to Major Road
- n) Congestion (within 100, 200, 300, 400, & 500 meters)



Respiratory Illness and Allergy Outcomes (Year 1 and 2)

In past 6 months:

- a) Child has been sick or had health problems/symptoms
 - Respiratory system was affected
- b) Saw doctor for respiratory infection/wheezing/breathing problem (RI/W/BP)
- c) Was prescribed medication in past 6 months for RI/W/BP
- d) Been to the ER because of RI/W/BP
- e) Hospitalized because of RI/W/BP
- f) Provider said child has asthma
- g) Provider said child has allergies

Data Collection

- PR Asthma Study (NIEHS)
 - Addresses
 - Roaches/Rodents
 - Outcomes
- OASIS
 - Public housing, Building Age, % Tree Canopy in District, etc.
- GIS
 - Geocoding
 - NYMTC (congestion, distance to major road)

Oasis NYC – <http://www.oasisnyc.net>

OASIS Map - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://www.oasisnyc.net/OASISMap.asp?name=OASIS+Map&Left=1012918&Bottom=254752&Right=1014347&Top=256182&Min=&Max=&Min=&Max=&Action=identify&tool=&COUNTIES_BNDY_LABELS=on&EXPRESS Go Links

Search By: Street Address Address: Borough: Select

Redraw Map - zoom to selected area / show new data Help Select all layers Unselect all layers Garden Search Estuary Search

Select a tool (click on the icon) & click on the map:

Identify Zoom In Zoom Out Recenter Tag map Help Support OASIS!

North

College Av Brook Av Claremont Py Park Av E 171 St Washington Av St Pauls Pl

West Frickley Av East

layer label Turn map layers on and off by clicking in the check boxes and then clicking on the Refresh Map button.

New Layers

- Green Markets
- Coastal Storm Impact Zones
 - Cat. 1 (winds 74-95 mph)
 - Cat. 2 (winds 96-110 mph)
 - Cat. 3 (winds 111-130 mph)
 - Cat. 4 (winds 131+ mph)

Photos & Imagery (view 1 at a time)

- Aerial Photo (2004) New [more info]
- Aerial Photo (1996)
- Infrared Aerial Photo (2001)
- Classified Landcover (2001)
 - Tree/Forest
 - Grassland
 - Impervious/Other
 - Water

Boundaries & Labels

- Town/Neighborhood
- County / Borough
- 5 Community Districts
- 10 City Council Districts

Transportation

- Streets
- Bridges / Overpasses
- Highways / Major Roads
- Subway Stations
- Subway Routes
- Ferry Stops
- Ferry Routes

Parks, Playgrounds, & Open Space

- NYC Parks (Dept. of Parks & Rec.)
- New Jersey State Parks & Public Land

start 5 Internet Explorer data Microsoft Excel - oasi... codebook.for.oasis.d... Microsoft PowerPoint ... 5:34 PM

Oasis NYC - <http://www.oasisnyc.net>

INFORMATION ABOUT THE LOT YOU IDENTIFIED:
Borough: Bronx Block: 2895 Lot: 1 Police Precinct: 42
Address, ZIP Code: 1402 WEBSTER AVENUE, 10456
Lot Area: 375012 sq. feet Lot Frontage: 840.42 feet Lot Depth: 340.5 feet
Number of buildings: 4 Year built: 1963
Number of floors: 21 Building Gross Area: 753113 sq. feet
Residential Units: 743 Total # of Units: 743
Landuse: Multi-Family Elevator Buildings
Zoning: R7-1: Residential
Commercial Overlay: Zoning Map #: 03D
([PDF version](#) of most recent City Planning zoning map & proposed zoning changes for this area.)
Floor Area Ratio: 2.01 Max. Allowable Floor Area Ratio: 3.44
(FAR may depend on street widths or other characteristics. Contact [City Planning Dept.](#) for latest information.)
Owner: NYC HOUSING AUTHORITY
More building information: [NYC Dept. of Buildings](#)
More property information: [NYC Dept. of Finance Assessment Roll](#)
More zoning information: [CITI Zoning Guide](#)
Source: The Bytes of the Big Apple (TM) PLUTO (TM) and Tax Block & Tax Lot files are copyrighted by the New York City Department of City Planning, 2006.

OPEN SPACE INFORMATION - COMMUNITY DISTRICT PROFILE:
Ranking is out of 59 Community Districts from highest to lowest, except for Asthma Hospitalizations which is ranked lowest to highest.
Open Space: 160.74 acres
District Area: 1032 acres (Rank = 51 out of 59)
% of District that is Open Space: 15.6% (18/59)
of Gardens: 57
Open Space per 1,000 People: 2.34 acres (23/59)
Open Space per 1,000 Kids: 6.42 acres (29/59)
% Tree Canopy: 13.6% (21/59)
Asthma Hospitalizations: 19.3 per 1,000 Kids (54/59)
Race = People of Color including Hispanic: 99% (2/59)
Age = Under 18 Years Old: 36.5% (1/59)
Email corrections or information to sromalewski@gc.cuny.edu
Source: [NYC Environmental Justice Alliance](#), 2000; [U.S. Census](#), 2000

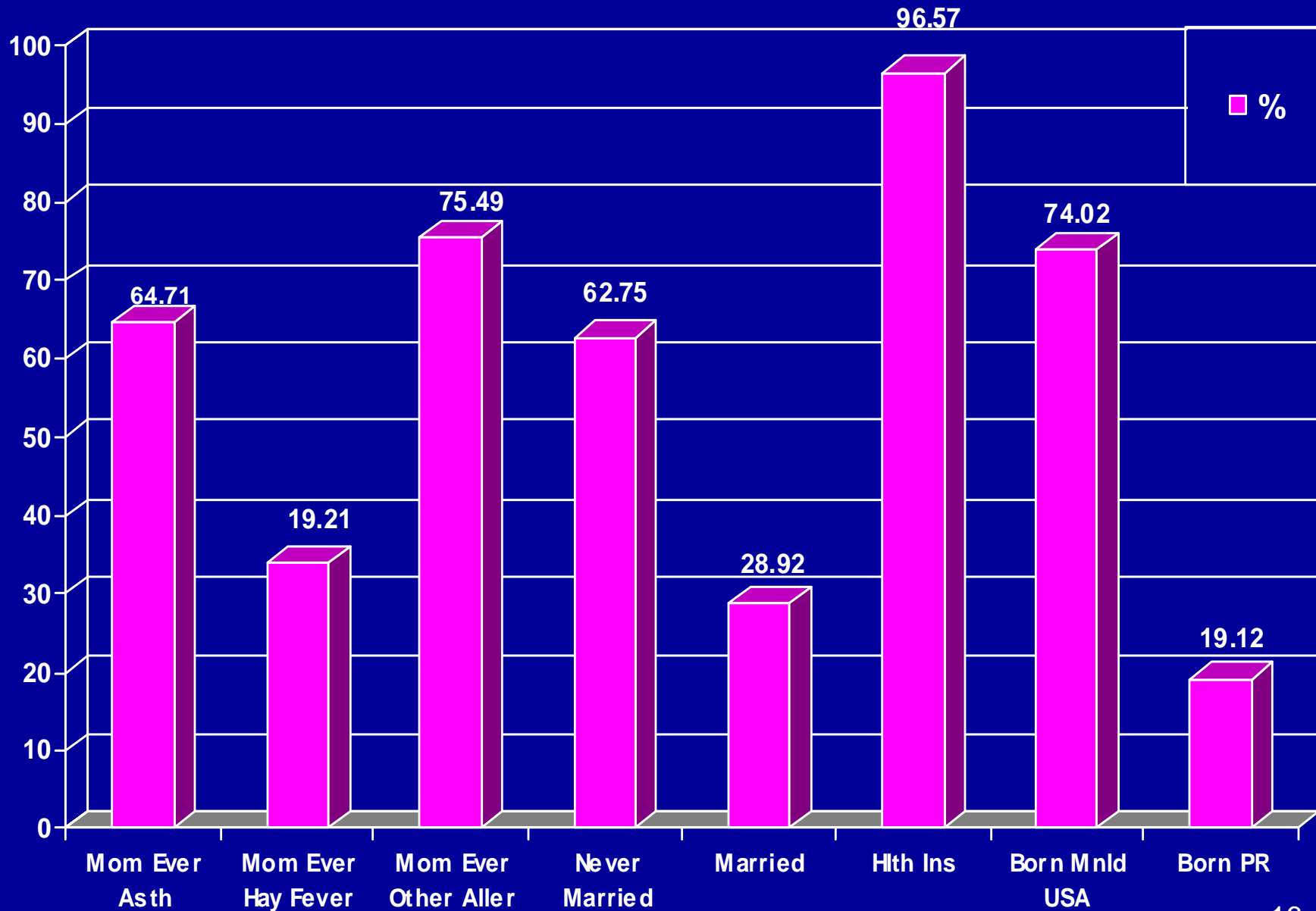
Property & Land Use
 Block/Lot Boundaries
 Buildings
 Piers
 NYCHA Properties
 Schools
 Historic Houses
 1 & 2 Family Residential
 Multi-family Residential
 Mixed Use
 Commercial
 Institutions
 Transportation & Parking
 Industrial
 Vacant Lots

Trees
 Greening for Breathing Trees
 Neighborhood Trees
 NJ Forested Areas

Environmental Characteristics
 HEP Acquisition Sites
 HEP Restoration Sites
 Living Memorials to 9-11-2001
 Natural Areas
 Forever Wild Sites
zoom in/out Wildlife Refuge
zoom in/out Federal Land

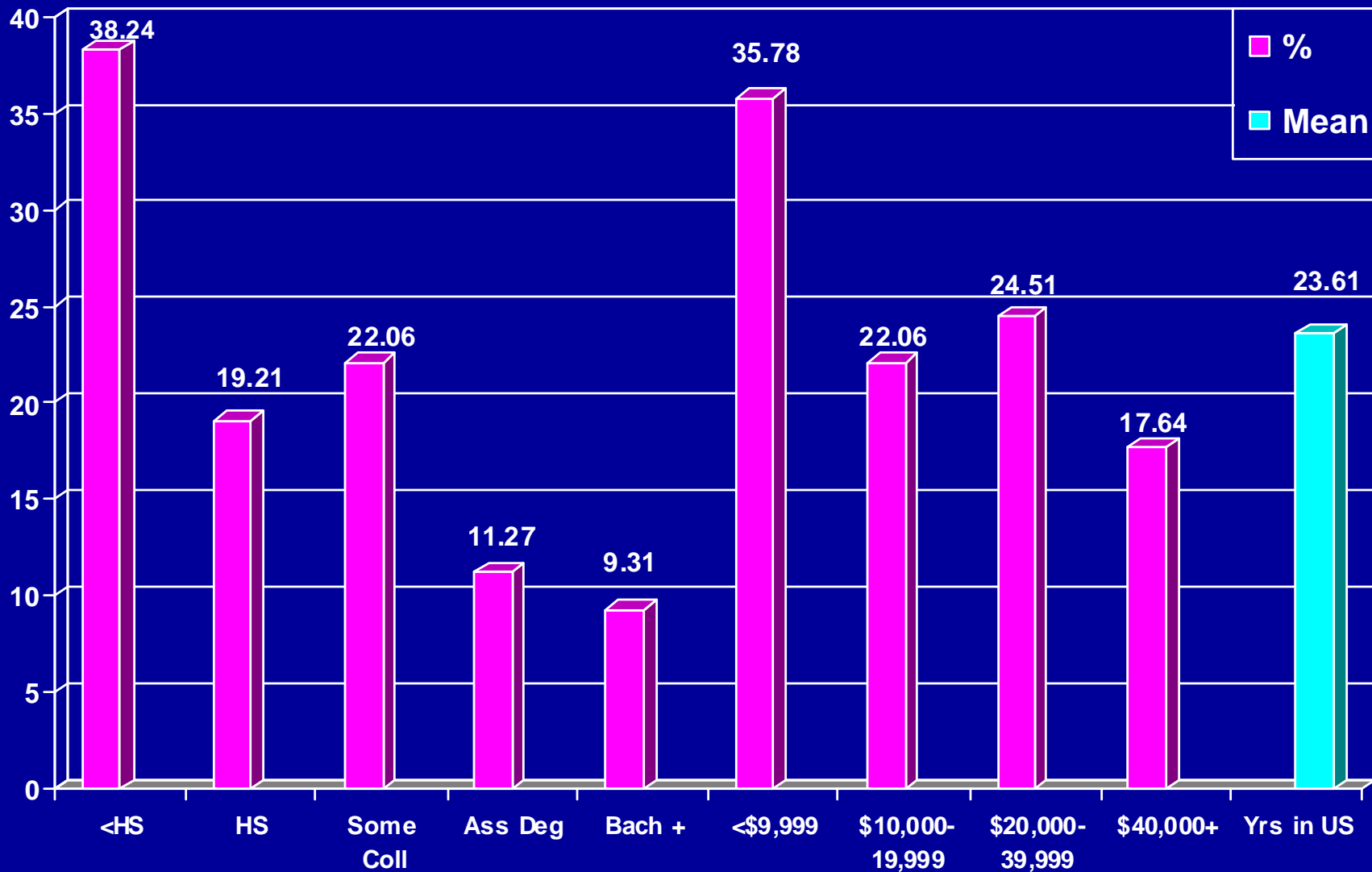
Water & Wetlands
 Waterfront Access Points
● Multiple Use ● Cultural Landmark
● Waterfront Access ● Landmark
● Piers ● Restaurant

Demographics – Moms at Baseline (N=261)



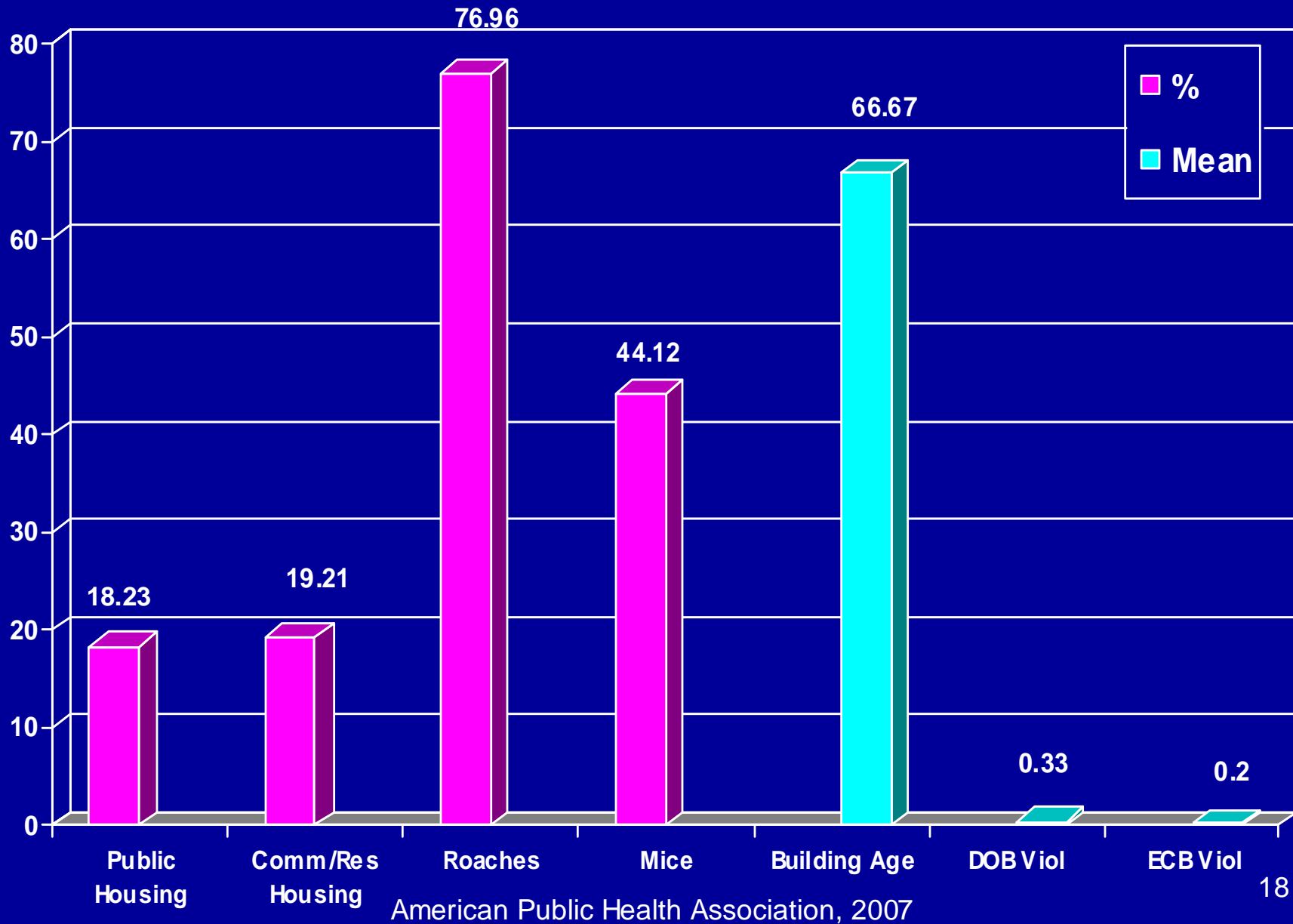
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Demographics – Moms at Baseline (N=261)

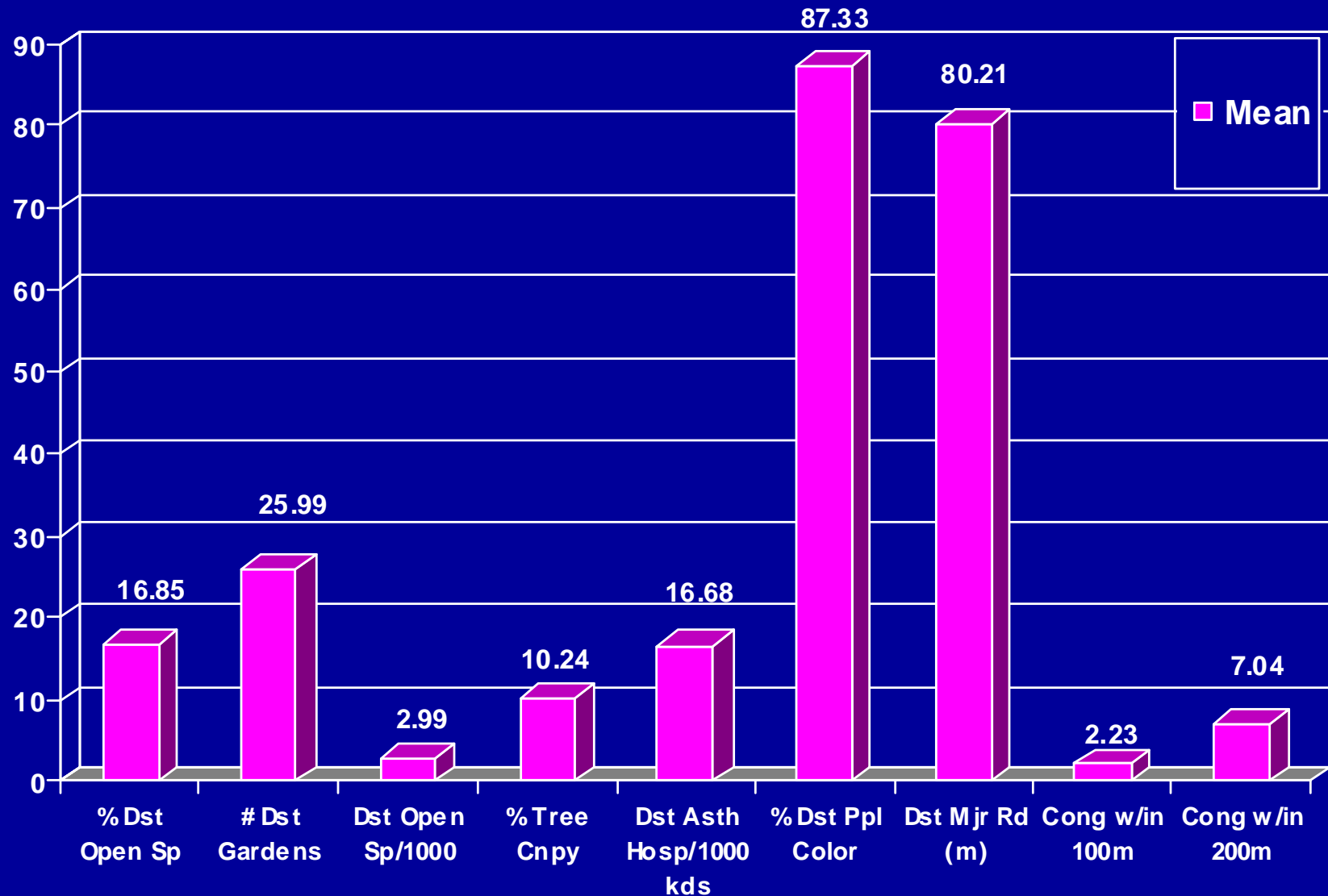


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Building Characteristics (weighted) at Year 1 (N=204)

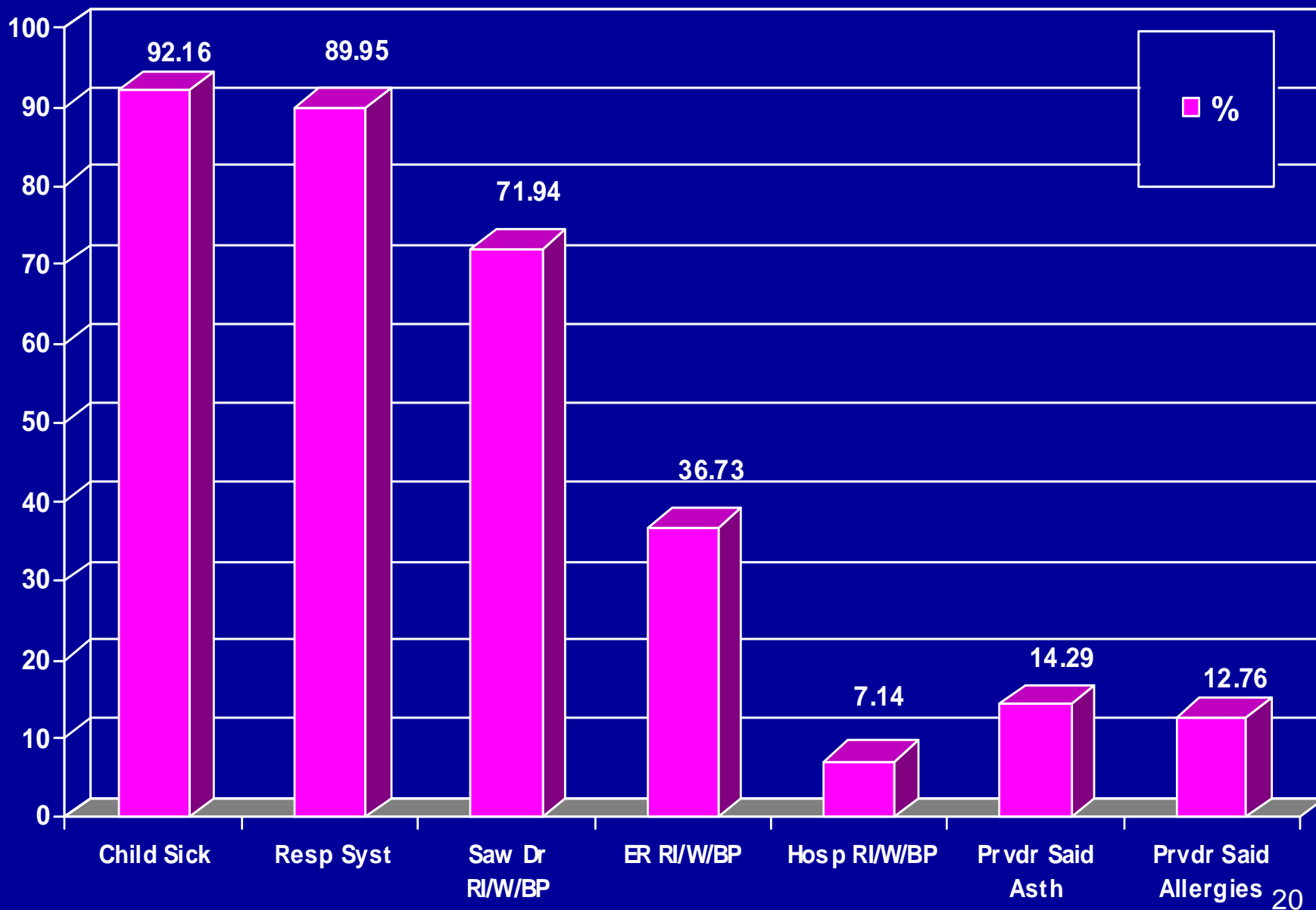


Proximal Neighborhood Characteristics (weighted) at Year 1 (N=204)



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Outcomes at Year 1 (N=204)



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Implications

- Design of programs and policies
 - fines (landlords, developers)
 - tolls (traffic)
 - urban planning
 - licensing/continuing education for planners, architects, public health professionals
- Further research
 - uniform data collection across levels
 - more detailed/precise data collection of current and new
 - use of building characteristics definition
 - use of typologies
 - data collection for study involving multilevel modeling

Acknowledgements

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Thank you!

Questions?

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