
A Vulnerable Population: Environmental Health Exposures and the DD Community

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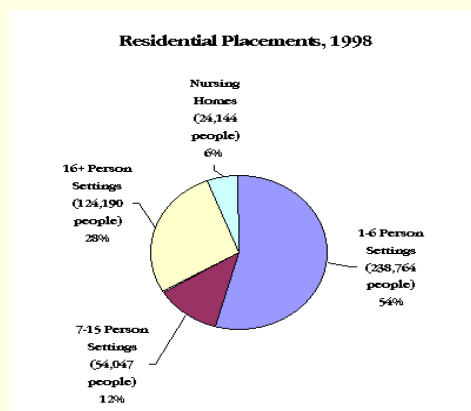
Purpose of the Study

- To explore the home environment and household behaviors and practices that may create environmental health hazards in community-based residential homes for the developmentally disabled.

Study Population

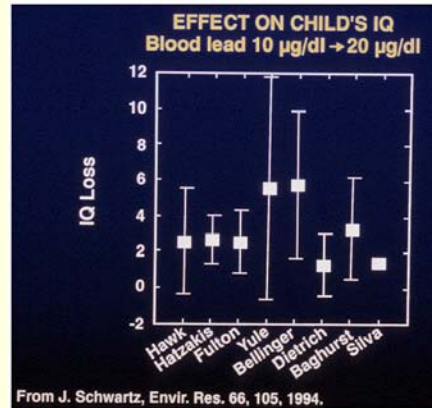
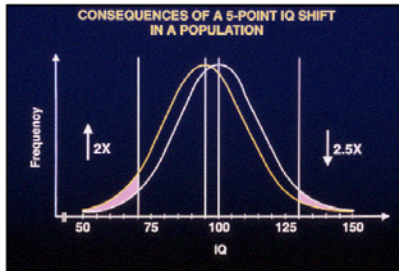
- Developmentally disabled adults who live in community-based residential settings in Anne Arundel County
- ➔
- Formally defined by AHRQ in 2003 as a priority population with recognized healthcare disparities.
- Economically disadvantaged
- Higher rates of DD among blacks 24.3 / 1000 versus 13.6 / 1000 for whites.

Community-Based Residential Settings



Source: D. Braddock, R. Hemp, S. Parish, and M.C. Rizzolo, *The State of the States in Developmental Disabilities* (final report), Chicago: University of Illinois at Chicago, Department of Disability and Human Development, (in press).

Neurological Fragility and Neurotoxicant Exposure



Home Environmental Exposures

- It has been estimated that Americans spend over 90% of their time indoors (ALA, 2006, EPA 2006)
- Human exposure to pollutants is influenced by both outdoor and indoor air (Janssen et al, 2005)
- Pollution indoors is created from both outdoor air coming inside and from products and behavioral practices inside the home

Research Questions

- **Q1. How frequent are known home environmental health hazards present in the homes of people with developmental disabilities receiving community-based residential services and living in community-based residential settings?**
- **Q2. How frequently are there protective devices or less hazardous alternatives present in the homes of people with developmental disabilities receiving community-based residential services and living in community-based residential settings?**
- **Q3. How frequently do the practices and behaviors of people with developmental disabilities receiving community-based residential services, provider agencies and staff, create hazardous health conditions, and contribute to poor indoor air quality and pollution in the home environment?**

Study Design and Sampling

- Descriptive design
- Survey and Observational methods
- Sample selection – convenience sample, random selection of participating houses
- Inclusion Criteria
- Home as unit of analysis

Specific Variables

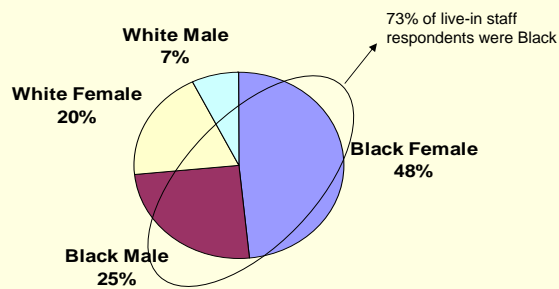
- Lead → Home age, windows, pipes
- Mercury → Metallic, fish consumption
- Carbon Monoxide → Potential exposure, protective devices
- Radon → Abatement, testing
- Pesticides/ Household Products → Use patterns, routine contracts, specific products
- Environmental Tobacco Smoke → Use inside home

Data Collection

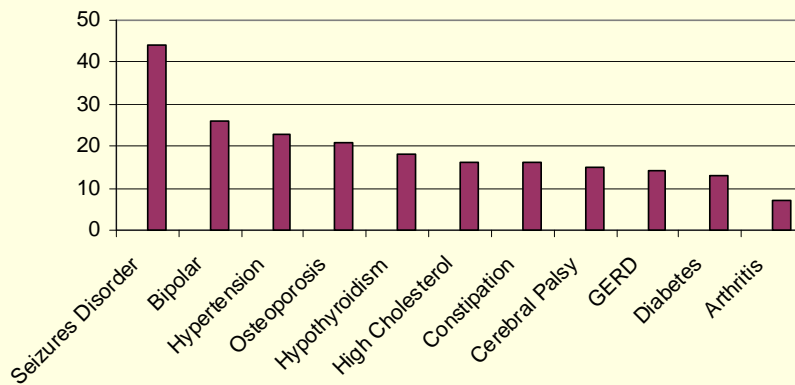
- Survey adapted from the Health and Home Household and Neighborhood Questionnaire (Butterfield, 2005).
- Two sections:
 - 61 question survey
 - 29 questions - Key variables
 - 20 questions - Home characteristics
 - 12 questions - Demographics
 - 11 item observational check list

Demographics

Agency Name	Number of Surveys/ Observations Expected	Refusal	Vacant	Number of Surveys/ Observations Completed
The Arc of AA	20	0	2	18
Bello Machre	20	1	0	19
Langton Green	20	0	0	20
TOTAL				57



Major Diagnosis of Home Residents



Findings

Q1. Frequency of home environmental health hazards?

- 9 out of 27 homes built before 1978 were not tested for lead
- 9 out of 57 homes contained mercury thermometers
- 56 out of 57 homes were not tested for radon

Findings

Q2. How frequently were protective measures in place?

- 21 out of 28 homes with at least 1 one combustion source had no CO detector
- Carbon monoxide detectors were more likely to be in homes with a combustion source than without $X^2(1, n=57) = 3.511, .05 < p < .1$.

Findings

Q3. Frequency of home practices creating risks?

- 86% of homes had a professional pesticide spraying contract
- 95% of homes reported using air fresheners
- 70% of homes had six or more cleaning supplies

Unexpected Findings and Significance

- Basements as living spaces
- Staff risks
- Staff expectations of safety



Summary

- Home environmental health hazards were common in this sample of community-based homes for people with developmental disabilities
- Providers and staff were concerned with providing a high quality, safe environment for the people they support
- Mandated state regulations about the home environment were a priority focus area for staff
- Different agencies and staff had different levels of awareness about home environmental health hazards
- Staff and agency conceptualization of a clean environment may actually increase pollution in the home
- Live in staff members are an at risk population

Recommendations

- Self-advocate, family, staff, and providers need information on home environmental health risks, steps to decrease risks and safer, low-cost alternatives
- On a national advocacy level, there is a need for home environmental health standards
- Developmental disabilities nurses and other visiting nurses can promote and protect health by incorporating home environmental health assessments into routine visits.

Recommendations

- On a regulatory level, there is a need to update the laws that govern community-based residential settings so they more comprehensively protect the health of this vulnerable population and their staff

Future Research

- Further studies with this population are needed to validate the findings of this study.
- Studies testing ambient and biological measures would provide more data on actual exposures in these community-based residential settings.
- There is a need to evaluate the occupational protections of live-in staff to and to educate agencies about current occupational protection laws.

Future Research

- No studies to date have looked at the workplace exposures faced by people with developmental disabilities in non-inclusive settings such as sheltered workshops and the effectiveness of state workplace laws to protect this population.
- It is necessary to explore similar residential settings such as assisted living, juvenile justice, and mental health to evaluate the exposures and protections in these similar settings for vulnerable populations

Questions