

# Housing and Health

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Environmental Health Conference

2/6/2009 and 2/7/2009

“Everyone has the right to a standard of living adequate for the health and well being of himself and of his family, including food, clothing, housing and medical care”.

Source- The universal declaration of human rights

# History

- 1842- Chadwick established link between living conditions of the poor and ill health
- Most of health gains stemmed from public health measures:
  - Clean water
  - Sanitation
  - Improved accommodation
- 1854- John Snow and Broad street cholera outbreak

# Poor Housing Conditions



# Poor Sanitation and Dirty Water



# Social Justice

- Vulnerable populations at most risk
  - Elderly
  - Very young
  - Chronic illness
- Greatest exposure to indoor hazards due to the time they spend inside at home
- Shortage of adequate housing
- Provision of reasonable standard of accommodation will have health benefits for the most disadvantaged in society

# Environmental Justice

- Linking environmental health and social justice
- Environmental justice is achieved when everyone, regardless of race, culture, or income, enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn and work

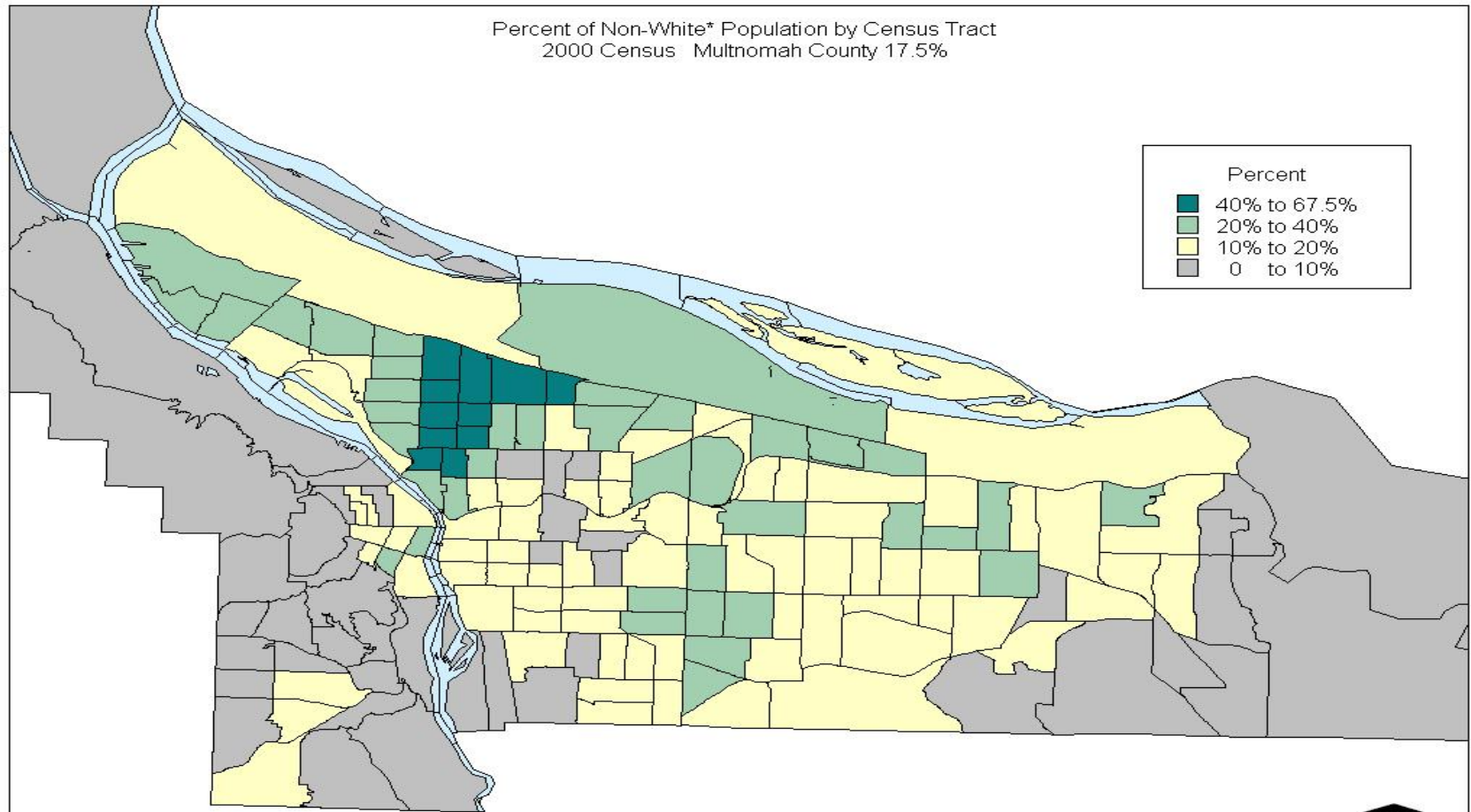
# Housing and Environmental Justice

- Health hazards in homes concentrated in lower-income communities and communities of color
- Disproportionately harm poor and minority families
- Exposures to hazards directly linked to substandard housing conditions
- More likely to live near pollution sources

# Housing and Environmental Justice

- Compounded by:
  - Lack of access to health care
  - High proportion of recent immigrants
  - Language barriers
  - Housing discrimination that limits choice
  - Weak tax base
  - Poor credit
  - Inadequate public services
  - Un/underemployment
  - Relative lack of political power
  - Stress

# People of Color

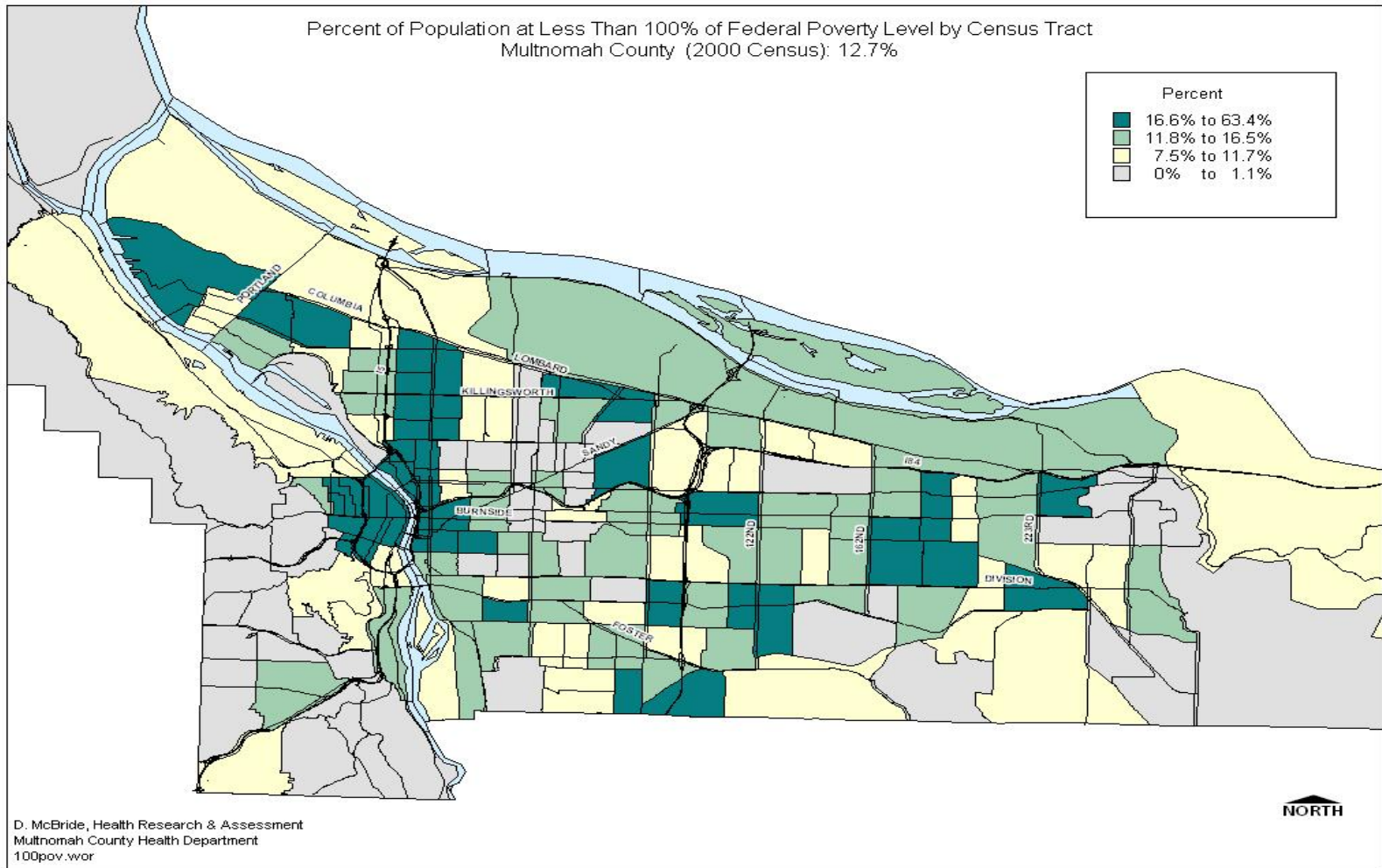


D. McBride, Health Research & Assessment  
Multnomah County Health Department  
Non-white 2000a.wor

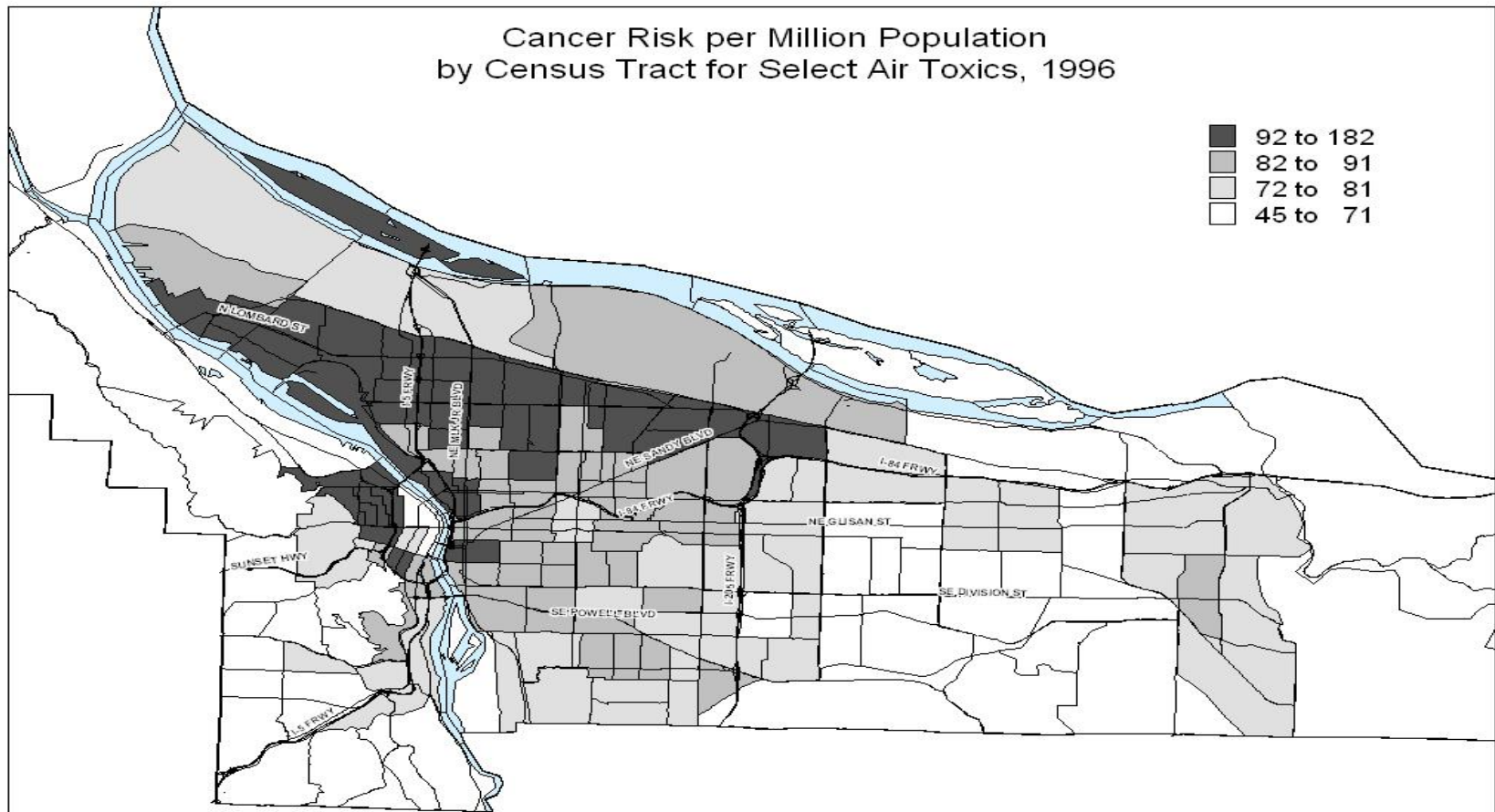
\*Non-White Population: One race only. Includes African American, American Indian, Asian, Pacific Islander, and Other race.



# People in Poverty



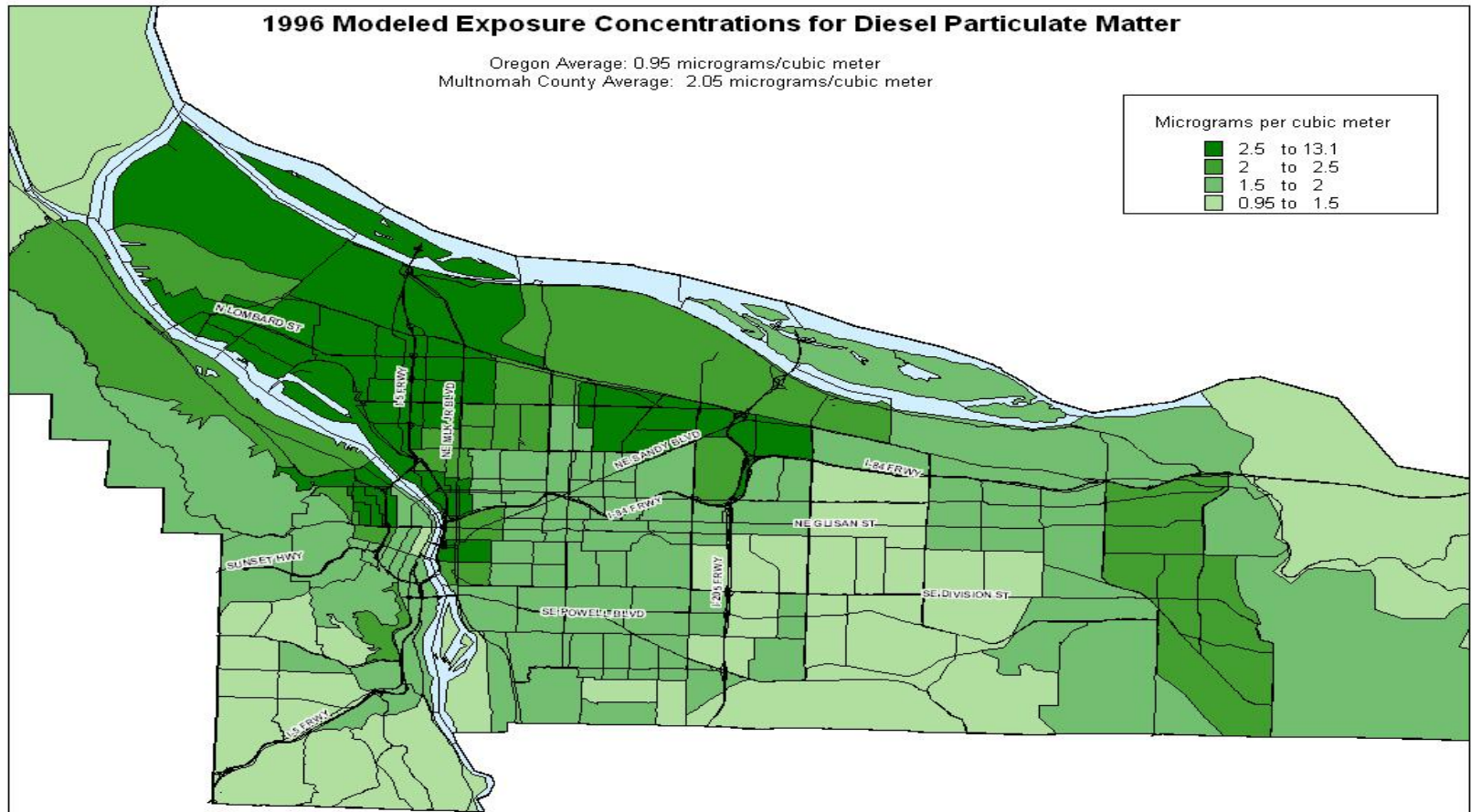
# Exposure to multiple environmental problems



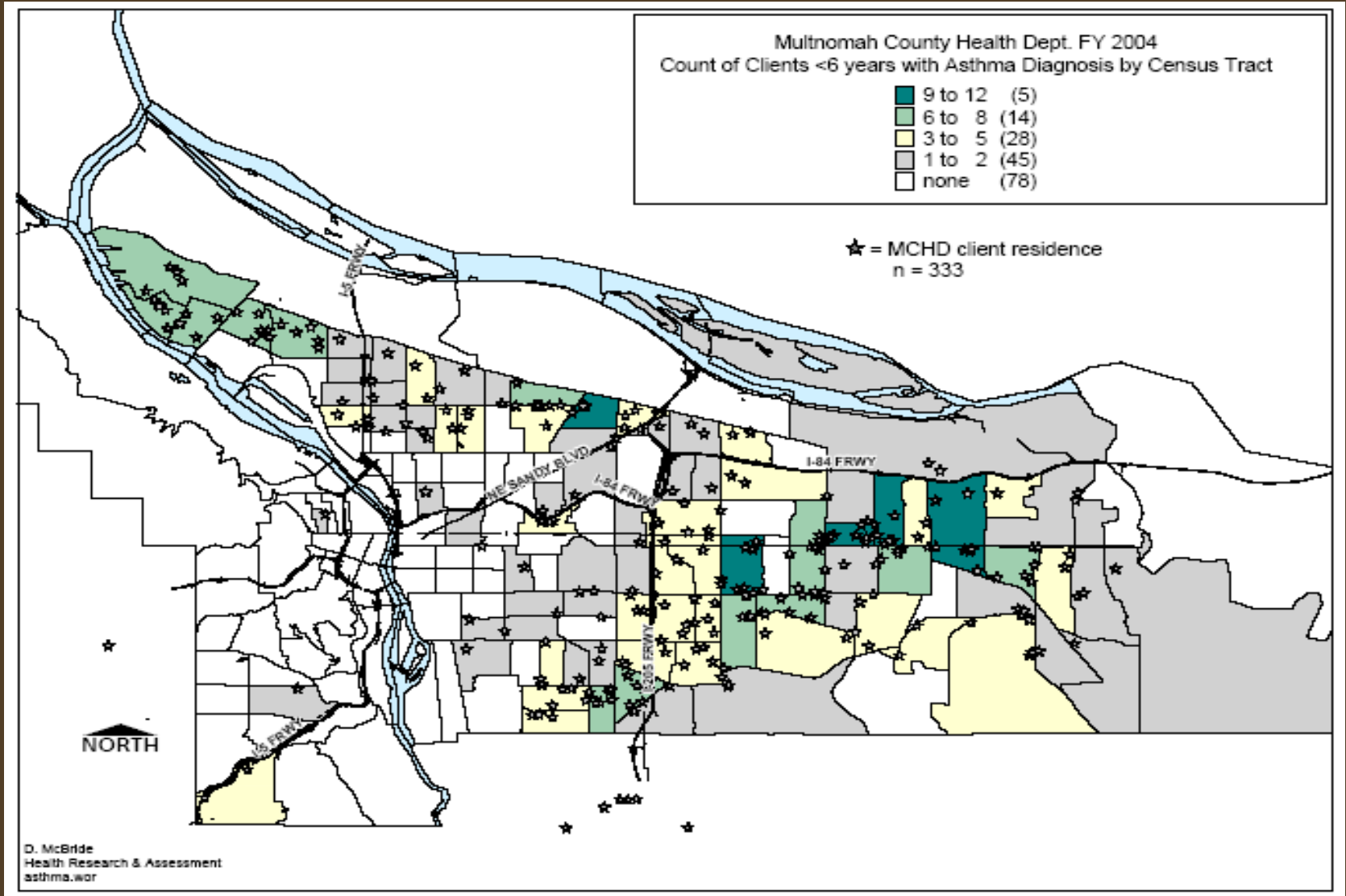
Analysis by National Air Toxics Assessment, 2002



# Exposure to multiple environmental problems



# Asthma Mapping



# Housing and Health

- Poor housing can cause worsened health
- Poor health can also select worse housing
  - Hard to get a mortgage without a regular income



# Link Between Poor Housing and Health

- Increased length of exposure to poor housing leads to worsened health
- Excess winter mortality 2/2 poor heating, ventilation, increased respiratory infection
- Mold: respiratory problems, asthma, allergies, eczema
- Indoor pollutants and infestation: asthma
- Overcrowding: increased risk of infectious disease
- Affects mental well-being, depression
- Stress
- Unsafe outside, unhealthy inside

# Linking Housing to Health

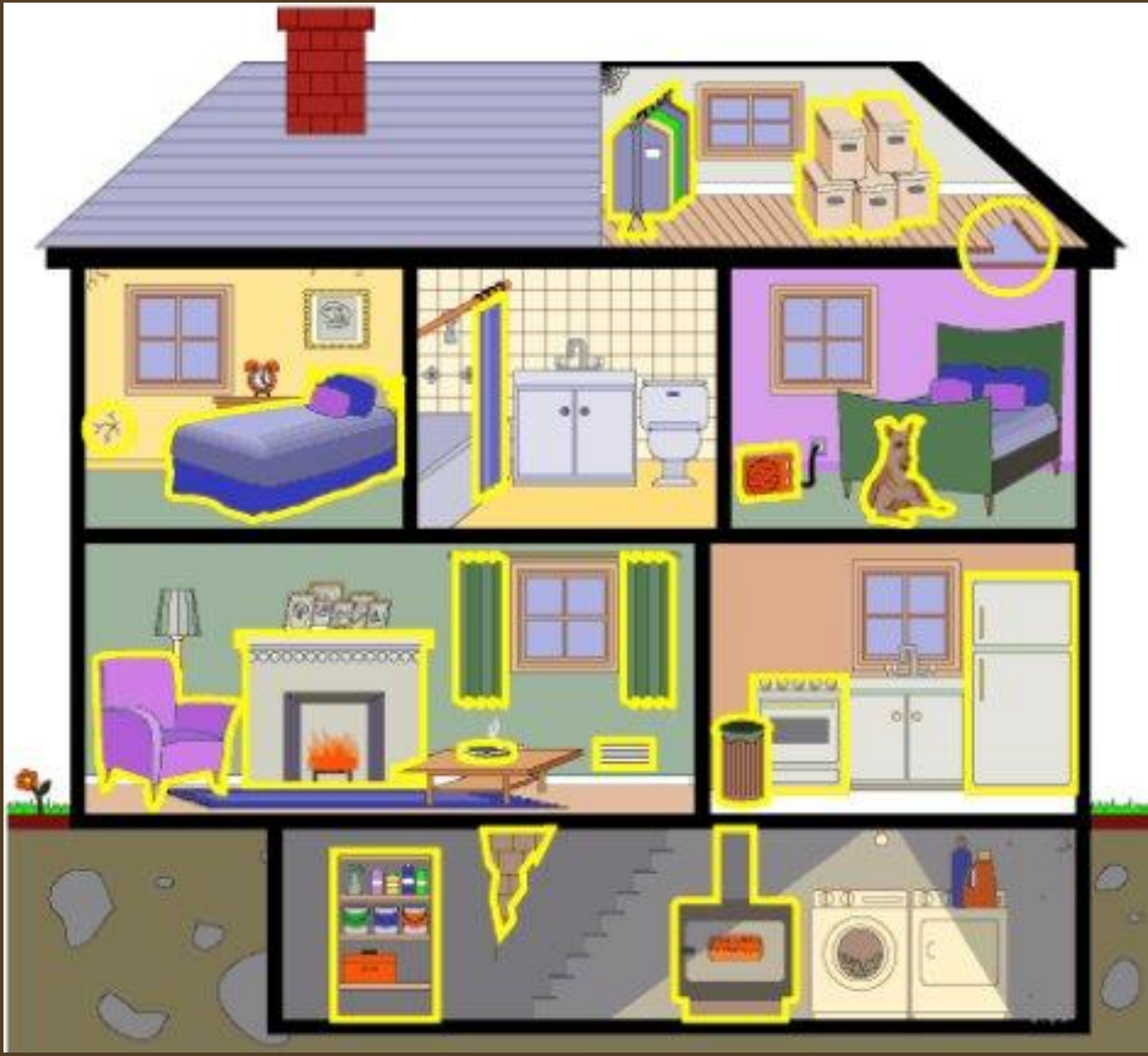
Substandard housing conditions are intimately linked with three of the leading pediatric health concerns:

- Asthma
- Lead poisoning
- Household Injuries

Estimated 40% of doctor diagnosed asthma is due to residential exposure

# Poor Indoor Air Quality

- People spend 80% of time indoors
- Damp housing :
  - due to poor construction and materials, inadequate heat, lack of ventilation
  - Ideal conditions for mold
  - Evidence of link is strongest in children
- House dust mites, cockroaches
- Pets
- Tobacco smoke
- VOCs (volatile organic compounds)- in cleaning products, paints- ex- formaldehyde
- Radon
- Cooking and heating equipment



# Other aspects of housing

- Overcrowding
- Lead in water and paint
- Noise pollution
- Injury
- Fire

# Affordable Housing and Health

- Frees up resources for food and health care
- Reduce stress and related adverse health outcomes
- Home ownership can increase self- esteem
- Well constructed and managed housing can reduce poor health as related to poor indoor air quality
- Stable housing can improve health for seniors and those with disabilities
- Access to neighborhoods
- Alleviating crowding
- Alleviating stress

# ASTHMA TRIGGERS



Asthma Triggers slides: Courtesy of MCHD Environmental Health

# Asthma Trigger Reduction

- Allergens
- Irritants
- Other factors
- Environmental exposures
- Tobacco Smoke
- Viral Illnesses
- Food Additives

# Assess Environment

Identify & control triggers to:

- Prevent symptoms
- Prevent hospitalizations & ED visits
- Improve quality of life and self-management skills
- Reduce medications

**ASK:** Have you noticed anything in your home, work, or school that makes your asthma worse?

# Multiple Environments

- Home: kitchen, bathroom, basement, bedroom
- School, daycare, car, boy scouts, girl scouts
- Workplace
- Outdoors
  
- Two good reasons to focus on indoor triggers:
  - People spend up to 90% of their time indoors
  - Much easier to control indoor vs. outdoor

# Assess Home Triggers

Does the patient:

- keep a pet?
  - have signs of pest infestation in any part of home?
  - have visible mold in any part of home?
  - smoke or live with a smoker?
  - have a wood-burning stove or fireplace?
  - have unvented stoves or heaters?
- 
- NEETF Environmental History Form for Pediatric Asthma Patient
  - <http://www.neetf.org/health/asthma/astmahistoryform.htm>

# Common Triggers in the Home

- Animal Allergens
- Dust Mites
- Cockroach Allergens
- Indoor Fungi
- Tobacco Smoke



# Animal Allergens

All warm-blooded animals produce dander, urine, feces, and saliva that can cause allergic reactions

- 100 million cats & dogs
- 1 study of 111 children with asthma = 67% allergic to dogs, 62% cats
- Cat allergen, remarkably stable and small, penetrates very deep into the lung.



# Strategies to Reduce Animal Allergens

- Keep animals out of house- bedroom always!
- Wash hands and clothes after contact
- If possible, remove upholstered furniture and carpets from the home or isolate the pet
- Wash pet weekly
- Non-allergic cat or dog? – NO!

# Dust Mites

- Are relatives of spiders, and feed off of dead skin
- Require humidity and warmth to live
- Size? 3-4 end to end = 1 mm
- Reasonable evidence for only one causative factor for asthma in the indoor environment – this is it (J Adv Nurs 2005 Nov52(3):328-39)
- 50% - 75% of children with asthma allergic
- Sources: Bedroom, bedding, pillows, mattress, upholstered furniture, carpets, drapery.
- Same conditions that encourage mold growth



# Dust Mites - Control

- Encase the pillow and mattress in an allergen-impermeable cover
- Get mattress up off floor
- Wash all bedding in warm water weekly (the use of a clothes dryer is probably very important)
- Keep humidity below 50%
- Remove carpets from the bedroom
- Avoid sleeping or lying on upholstered furniture
- In children's beds, minimize the number of stuffed toys and wash the toys weekly in hot water



# Cockroaches

- Produce allergens that come from the saliva, feces, and dead body parts
- Children with asthma who are sensitive to cockroaches tend to get more severe asthma attacks compared to children who are not.
- Between 40% and 60% of asthmatic children are allergic to cockroaches.
- Homes with no sign of living cockroaches have measurable amounts of cockroach allergens.

# Preventing Cockroaches

- Fix plumbing leaks and other moisture problems; secure all foodstuffs
- Take piles of boxes, newspapers, and other items where cockroaches may hide out of your home
- Seal all entry points
- Make sure trash in your home is properly stored in containers with lids that close securely, and remove trash daily
- Try using poison baits, boric acid, or traps first *before using pesticide sprays*

# Other Common Home Triggers

- Molds: Basements, Bathrooms
- Smoke and Gases: Kerosene heaters, wood stoves, fireplaces
- Volatile Organic Compounds (VOCs) - Hairspray, cooking spray and odors, furniture polish, new carpets, perfumes
- Tobacco Smoke



# Mold

- Mold spores are everywhere!
- Mold growth in a home can affect your asthma in three ways:
  1. Allergen
  2. Mycotoxins (toxic mold) –VERY RARE
  3. VOCs can irritate the airways and worsen asthma symptoms.
- Grow everywhere: wood surfaces, insulation materials, beneath carpets, inside duct work, bathroom tiles.....



# A Mold Problem is a Moisture Problem



# Three Types of Moisture Problems

- Overall high humidity
- Cold walls
- Water infiltration

# Solution to Confined, Surface Contamination

- Add more ventilation
- Increase air circulation
- Avoid dead air spaces
- Add a good dehumidifier
- Change habits
- Clean it up



# Mold

- Moisture control = mold control, so - **ACT QUICKLY**. If wet or damp materials or areas are dried 24-48 hours after a leak or spill, in most cases mold will not grow.
- Scrub mold off hard surfaces with detergent and water; dry completely.
- Absorbent or porous materials, such as ceiling tiles and carpet, may have to be thrown away.



"A Brief Guide to Mold and Moisture in Your Home"

EPA Publication #402-K-02-003

# Smoke & Gases

- Appliances that burn gas, oil or wood such as furnaces, stoves, kerosene lamps, and space heaters
- NO<sub>2</sub> the worst! - lung irritant *and* can increase your sensitivity to other asthma triggers

# Smoke & Gases- minimize production

- Have the heating system inspected annually.
- Inspect and keep clear the chimney clean-out opening
- Do not use un-vented space heaters
- Do not use stoves for heating
- Do not use wood burning fireplaces
- Use kitchen exhaust fans
- Do not let the car idle in the garage

# Volatile Organic Compounds (VOCs)

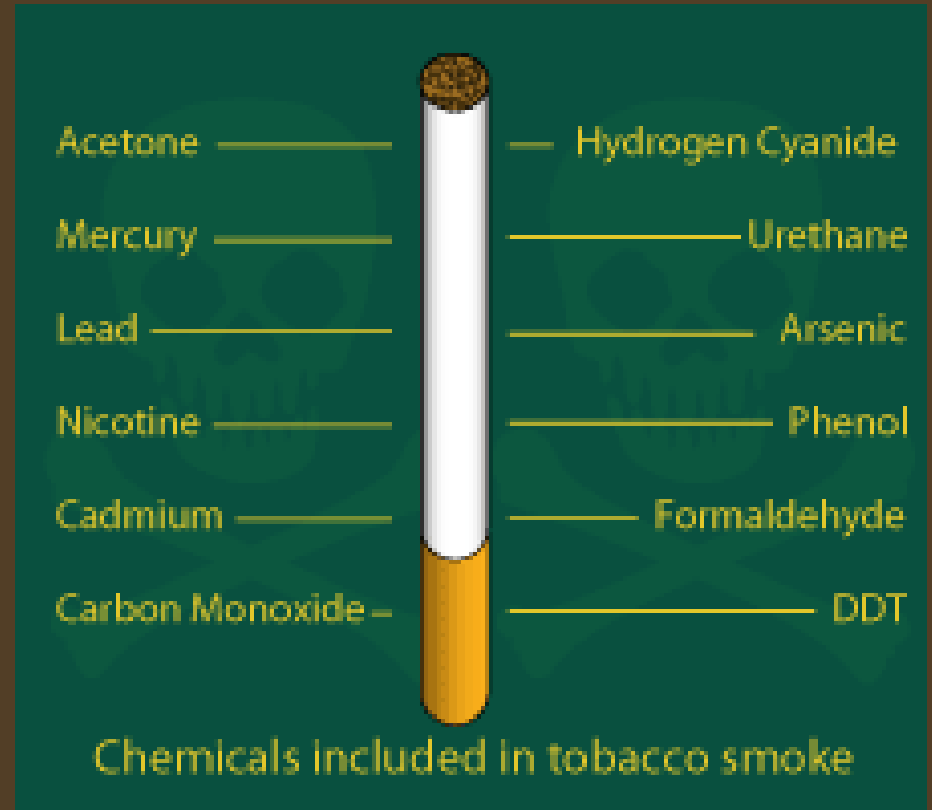
- Group of chemicals with similar properties
- # of common sources in most homes
- Off-gassing from pressed wood and dry cleaning
- Strategies – limit use and store properly



# Tobacco Smoke

- Most dangerous irritant!
- Research showing causative links to asthma (especially in pregnancy)
- Estimated 46.5 M adults in the US smoke = 23.25 M deaths
- 440,000 deaths each year, 1:5 die

Source: ALA "Trends in Tobacco Use"



# Techniques That May Modify Indoor Air

- Vacuuming 1-2 times/week
- Damp Mopping
- Air conditioning during warm weather is recommended for asthma patients
- Dehumidifiers will reduce house-dust mite levels in high-humidity areas
- HEPA filters can reduce airborne cat dander mold spores and particulate tobacco smoke – not a substitute for more effective measures

# LeadLine

503-988-4000 or 1-800-368-5060

- Anyone can call
  - Physicians for recommendations
  - Patients/community members
  - Can give you a free water testing kit
- Concern is with houses built before 1978
- Peeling paint
  - Painting over does not help
- Windows and doors → lead dust
  - Clean with damp cloth weekly

# Complicated Solutions

- Acknowledge that where we live impacts health
- Environment consists of:
  - Community
  - Social
  - Physical
  - Economic
- Housing policy is health policy
- Neighborhood improvement policies are health policies

# Policy Efforts to Improve Substandard Rental Housing

- Gresham Rental Inspection Program: regular inspection and complaint driven inspections
- Avoids problem of 30-day no fault evictions
- Based on EPA's *Mold Remediation, in Schools, and Commercial Buildings*
- Portland: Quality Rental Housing Workgroup (QRHW) about to issue recommendations to link health and housing
- Unincorporated Multnomah County developing rental housing inspection program
- High Point Seattle (Unnatural causes)

# Contact Information

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