

Improving Health by Improving Housing Codes: CDC's Role

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Core Public Health Functions

- **Assessment**

- Collection, analysis and dissemination of information on health of the community

- **Policy Development**

- Promote use of scientific knowledge base in decision making about public health and by leading in developing public health policy

- **Assurance**

- Assure high priority services are provided

Lessons from Lead

- **Assessment**

- CDC provided blood lead data that demonstrated the impact of removing lead from gasoline

- **Policy Development**

- This information was used to remove lead from multiple sources

- **Assurance**

- State and local childhood lead poisoning prevention programs
 - monitor blood lead levels
 - Partner with EPA and HUD
- CDC partners with HUD, EPA and other federal agencies and organizations

Assessment: Surveillance

- **Defining and tracking**
 - burden of adverse health effects
 - Housing conditions
 - Housing codes
- **Need for:**
 - expanded surveillance
 - Improved capacity to share information

Assessment: Studies

- **Identifying Links Between Health and Housing**
- **Examining housing codes - *State Healthy Housing Codes (2008)***
- **Impact of housing codes on EBLLs (Brown et al., 2001)**

Assessment: State Healthy Housing Codes

- ***Healthy Housing: State Healthy Housing Codes***
 - Prepared by National Conference of State Legislatures
 - Funding and Guidance from:
 - HUD, CDC, NCHH
- **Highlights 7 major categories:**
 - Housing and property maintenance codes
 - Health and sanitation codes
 - Product standards
 - Hazard management laws
 - Disclosure laws and other codes

Assessment: State Laws and BLLs

- **Brown et al. (2001) assessed the impact of laws and BLLs in 2 states**
- **Both states had**
 - well established lead poisoning-prevention programs.
 - laws to remediate a home for a child with an EBLL.
- **The addresses of houses where a child with a BLL 25 mg/dL lived between 1992 and 1993 were identified. A 5-year follow-up ascertained BLLs of children who subsequently lived at those addresses.**
- **Fourfold increased chance of a subsequent child tenant being identified with a BLL 10 mg/dL for a house in the state with limited laws and enforcement compared with a house in the state with strict laws and enforcement.**

Assessment: Interventions

- **CDC and NCHH convened Expert Panel to identify science-based effective interventions (Dec 2007)**
- **identified experts for five broad areas of healthy housing research.**
 - Interior Biological Agents (Toxins) Interventions
 - Interior Chemical Agents (Toxics) Interventions
 - External Exposures (Drinking water and sewage treatment)
 - Structural Deficiencies
 - Intersection Between Housing and Community

Assessment: Interventions Expert Panel 2007

- **Categorized interventions into one of four broad categories, based on the evidence in the literature:**
 - Sufficient evidence
 - Needs more field evaluation
 - Needs formative research
 - No evidence of effectiveness or shown to be ineffective

Assessment: Expert Panel 2007

Sufficient Evidence Interventions

Interior Biological Agents (Toxins)	Multi-faceted tailored asthma interventions Integrated Pest Management (allergen reduction) Moisture intrusion elimination
Interior Chemical Agents (Toxics)	Radon air mitigation through active subslab depressurization IPM (pesticide exposure reduction) Smoking bans Lead hazard control
External Exposures (Drinking water & waste treatment)	Voluntary drinking & wastewater treatment standards for small systems & private wells Training for small system personnel Guidelines for immuno-compromised individuals
Structural Deficiencies (Injury)	Installation of working smoke alarms Isolation 4-sided pool fencing Pre-set safe temperature hot water heaters Air conditioning during heat waves

Finding Common Ground Workshop, June 30-July 1, 2008

- **Goal: Reach a consensus on 3-5 key housing problems where interventions should improve health**
- **Invited health and housing leaders.**
- **Used “sufficient evidence interventions”**
- **Scope: existing housing stock, especially renter-occupied housing**

Workshop, June 30-July 1, 2008

- **No consensus on key interventions and strategies for implementation**
- **Discussions revealed differences in opinions regarding priorities**
- **The workshop has initiated dialogue between health and housing leaders regarding health-based codes**



Policy Development: Disaster Resilient Housing

- SE Disaster Resilient Housing workshop in Charleston, SC 9/9-9/10/08
- Hurricane Hugo, Category 5 storm, antebellum houses remained intact – newer construction suffered most destruction
- Mayor Riley wanted to build a stronger more resilient city
- Implemented a voluntary Superior Code Housing Program



Policy Development: Disaster Resilient Housing

- **Participants: Savannah River National Laboratory, North Carolina State University, Oak Ridge National Laboratory, Clemson University, Tuskegee University, American Institute of Architects, Institute for Business and Home Safety, National Ocean and Atmospheric Administration, United States Army Corp of Engineers, US EPA, FEMA, DHS and CDC.**
- **Discussions will continue with goal to make recommendations for housing that will better withstand disasters and protect health.**

Assurance

- Supporting state and local programs that promote safer and healthier housing



Assurance: Healthy Homes Partnerships

- HUD, EPA, USDA & other Federal Agencies
- State and Local Programs and other state agencies
- Policy-makers
- Organizations





CDC's Healthy Homes Website

www.cdc.gov/HealthyHomes

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BUILDING A FRAMEWORK FOR HEALTHY HOUSING

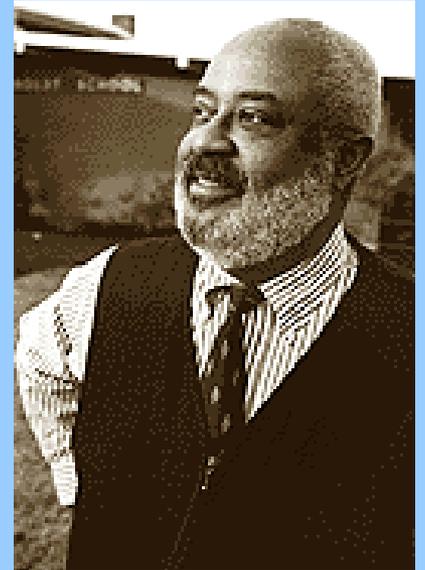
Approaches to Improve Housing Codes

**Erin McNally, Executive Director
Josiah Hill III Clinic**



Josiah Hill III Clinic

- Grassroots community-based organization (CBO)
- Protect children from environmental hazards & promote community action for healthy homes
- www.jhillclinic.org



Quality Rental Housing Workgroup (QRHW)

Background

“Tasks”

Framework

Initial Steps



QRHW Background

- Portland, Oregon
- Impetus
 - Issues health/housing were highlighted through a number of different processes- Multnomah County, CBOs, City, etc
- Inception
 - Sept 2007 - Single coordinated workgroup- convened by Commissioner Sten



QRHW “Tasks”

- **Explore the issues of substandard housing, housing habitability, and environmental hazards**
- **Suggest policy and program strategies to increase compliance with existing habitability laws and support the maintenance of quality rental housing**



QRHW Framework

- Original timeframe of 6 to 9 months
- Diverse stakeholder group
- Facilitated by consulting firm



QRHW Initial Steps

- Interviews and surveys with QRHW members
- Workgroup collaboration developed agreed upon
 - Decision processes
 - **Problem Statement**
 - Scope of Work



Problem Statement

(1 of 2)

- **Health and safety of some renters is compromised** by hazards in their housing units.
- **Lack of essential information.**
- Existing **support systems** designed to help landlords and tenants meet their rights and responsibilities are **inadequate.**



Problem Statement

(2 of 2)

- Problems with **current system of code enforcement**
- **Lack of simple, quick, affordable, & fair venue to resolve repair & habitability disputes.**
- **Data problems**
 - Numerous & varied
 - Partly attributed to **resource constraints** of landlords & tenants.



Quality Rental Housing Workgroup

Subcommittees & Recommendations



QRHW Subcommittee - Responsibilities

- Develop recommendations around code, procedures, etc.
- Financial impact
 - budgetary impact
- Present information to Workgroup for feedback/vote



QRHW Subcommittees

- Health
- Education
- Dispute Resolution
- Enforcement



Health Subcommittee

- **GOAL:**
 - Use objective evidence-based ways to identify and address hazards



Reviewed Other Models

- National Center for Healthy Housing - Tom Neltner
- Marion County, Indiana - Karla Johnson
- LA County Health Department, California - Maurice Pantoja
- Clifton NJ



Example-Health-Mold

- The recommendations directed the Neighborhood Inspections Team to utilize a mold inspection protocol to **better identify moisture sources** when mold is found in inspections.
- The Neighborhood Inspections Team will use **instruments** to test moisture levels.
- The recommendations will result in **better definition in the code** as it pertains to excessive moisture in rental housing.
- The recommendations give the inspectors the **ability to require mechanical ventilation (fans)** when units are unable to handle moisture created by normal tenant activities.



Example-Health-Lead

- The recommendations include code changes giving the City the ability to **cite lead hazards as a code violation** when they are identified by a **lead detecting instrument**.
- Identified lead-based paint hazards, dust-lead hazards, and soil-lead hazards shall be **remediated, or interim controlled**.
- Enforce remediation of Title 29.30.260 as a Fire, Life, Safety citation
- **Develop a pilot project** to identify lead hazards during inspections when other hazards are also present.



Quality Rental Housing Workgroup

THE BUDGET



Show Me the Money

- **Increased Penalties:** Increased penalties and cost recovery fees will result in increased income to the Neighborhood Inspections Team.
- **Per-Unit Fee:** The QRHW is recommending a per unit fee be assessed on rental housing (roughly \$10 per unit). Revenue from these fees will support new activities and added capacity recommended the QRHW.
- **General Fund:** The City must commit stable general fund dollars to the system to match the commitment made by rental housing industry to support the system through a per unit fee. The QRHW is recommending that the City eliminate the exemption from Portland's Business License Fee for landlords with 9 or fewer units. This will increase general fund revenue.



Example of Penalties/Fee

# of Units	Current monthly fee	Recommended monthly fee for 1 st unit out of compliance	Recommended monthly fee for each additional unit out of compliance
1-2	\$95	\$300	\$150
3-10	\$200	\$400	\$200
11-19	\$315	\$500	\$250
20+	\$500	\$500	\$250



Property Owners Involvement

- Property Owners/Property Managers helped develop per unit fee structure
- 3-year sunset clause
- Restricted use of funds



Quality Rental Housing Workgroup

“Aha” Moments & Lessons Learned



Consultants as Facilitators

- Provides “neutral” voice/facilitation
- Keep on task - ensures someone is responsible to move along process



Timeframe & Resources

- 6-8 months actually was 14-16 months
- Leverage resources to support efforts
 - collaborative grants and/or write in support for partners



4th Leg of the Stool: The Neighborhood Inspections Team

- Property Owners, Tenant Advocates, Health...and
- Training of staff for standardized identification and use of instruments
- Impact on work-load and work-flow
- Buy-in from Director



Community Voice

- Tenants at table
- Appropriate time for effective outreach to all stakeholders once recommendations have been drafted
- Organizing along the way throughout process



Push Decision Makers to Seize this Moment!

- Advocate
- Personalize the issues
- Explain why this is a critical moment



Advisory/Implementation Committee

- Now what? Think Ahead...
- Once recommendations are passed/code is updated make sure implementation and enforcement occurs so there is healthier housing, not just new language



Keep on Keepin On!

“The difference between try and triumph is just a little umph!”

~Marvin Phillips



THANK YOU!



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BUILDING A FRAMEWORK
FOR HEALTHY HOUSING



BUILDING A FRAMEWORK FOR HEALTHY HOUSING

APPROCHES TO IMPROVE HOUSING CODES:

A State Perspective

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**Director of Environmental
Health Coordination Program
Maryland Department of
Health and Mental Hygiene**

September 16, 2008

Goals

- Discuss a personal/medical perspective on codes and enforcement
- Discuss the evolution of housing codes from the state's perspective
- Talk about how states can be involved in development of a health-based model code and where that fits into the state's healthy homes strategy



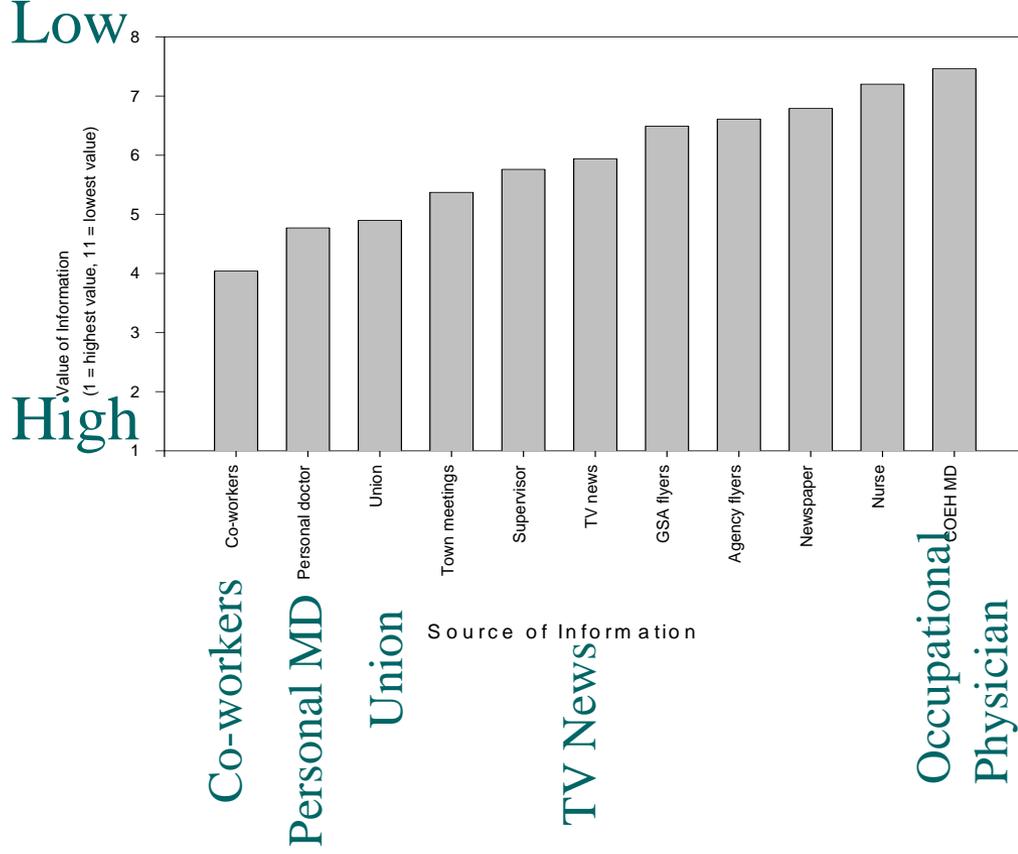
A Personal Perspective

- Early clinical experiences with indoor air quality
- Sick schools
- Advances in understanding of human-environment interactions in buildings
- Effectiveness of interventions



Relative Value of Different Sources of Information in a Building with Indoor Air Problems

Value of Information Source



Management and Prevention of Mold in Buildings

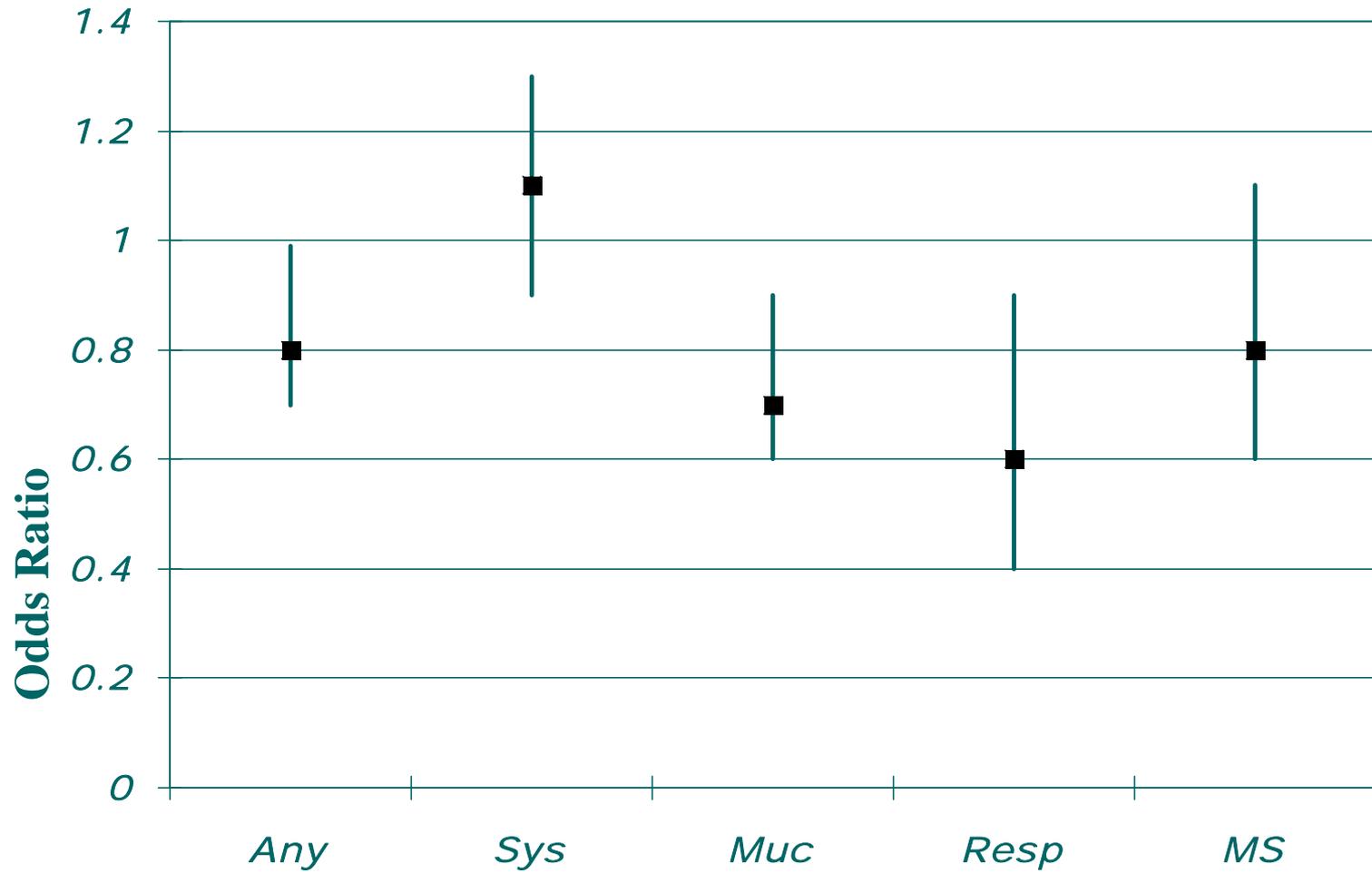
- Clinician's Expert Panel convened Dec. 2003 at Hopkins
- Assist clinicians seeing patients with concerns about mold-related health problems
- Assist others to understand clinical issues involved, for better prevention/management of mold-related problems
- Findings: Need research on exposure assessment, prevention efficacy, management of specific health effects of concern



Intervention Studies

- Studies in buildings challenging because of multiple exposures, cross-contamination of population, need for sophisticated random-effects modeling
- Menzies: study of ultra-violet irradiation of HVAC units
 - UVGI decreases coil microbial load and occupant symptoms without actual coil cleaning



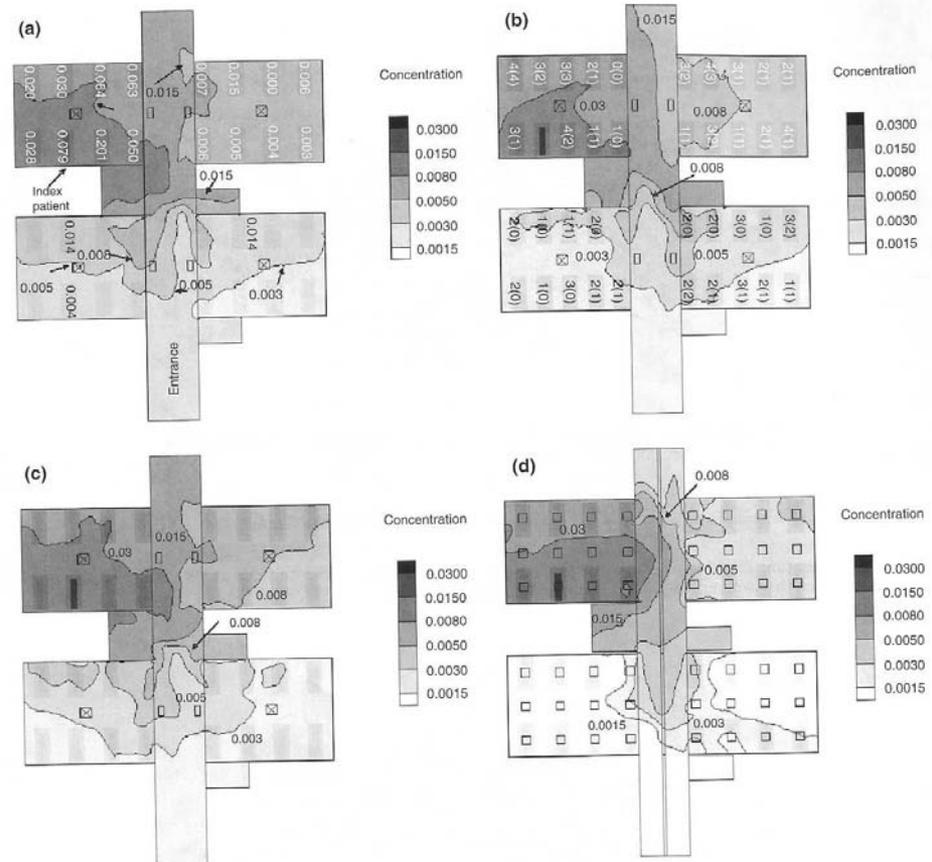


Odds of reporting symptoms, UV on versus UV off.

Adapted from Menzies 2003.

Infectious Disease and Preparedness

Li et al.



Source: Li et al., *Indoor Air* 2005; 15:92.



BUILDING A FRAMEWORK
FOR HEALTHY HOUSING



**Surgeon General's Workshop
On
Healthy Indoor Environment**

Preliminary Agenda

January 12 and 13, 2005

**Natcher Conference Center
National Institutes of Health
Bethesda, Maryland**



**BUILDING A FRAMEWORK
FOR HEALTHY HOUSING**

Exposure/Outcomes and Risk Management Pathway for Building-Related Health Effects

Sources

- Building design
- Building envelope and materials
- Building mechanical systems (HVAC, elevator shafts, plumbing, etc)
- Furnishings (carpets, desks, paints, computers, cleaning products, etc)
- Used products
- Human occupants
- External Sources

Moderating Factors

- Temperature
- Humidity

Potential Hazards

Particulate

- Asbestos
- Fiberglass
- Man-made mineral fibers

Chemical

- Volatile, semi-volatile organic compounds
- Combustion products
- Microbial VOCs

Biological

- Pesticides
- Viruses
- Bacteria
- Fungi, mold

Physical

- Ergonomic
- Noise

Psychologic

- Work Organization

Exposure/Dose

Occupant

Characteristics

- Genetic susceptibility
- Health history (sicca syndrome, atopy)

- External/other exposures

- Habits (work style)

Environmental Factors

- Building operations and maintenance

Potential Confounders/ Effect Modifiers

- Genetic
- Gender
- Health history
- Medication
- Behavioral/Psychological
- Social

Health Effects

- Acute injury/illness
- Allergic disorders/ Asthma
- Infection
- Hypersensitivity pneumonitis
- Inhalation fevers
- Mucosal irritation
- Central nervous system effects
- Psychologic effects (depression, anxiety)
- Dermatitis
- Other

Research Needs

- Research Questions
 - Better understanding of critical factors in building design, operation, and maintenance as they relate to specific health outcomes
 - Relative value of incremental changes in design, operation and maintenance
 - Nature of indoor exposures
 - Chemical and biological
 - Biological nature and relevance of exposures
 - Interaction of multiple exposures
 - Intervention studies
- Understanding of Susceptible/Special Populations
 - Children
 - Immunocompromised
 - Other at-risk populations



Implication of Health-Based Standards for Indoor Environments

- We are far away from health-based standards for home environments based on traditional dose-response modeling (lead the exception proving the rule?)



State Activities on Indoor Environments

- Environmental Law Institute review of current state laws:
 - Most IAQ laws deal with radon (~38 states)
 - More recent laws on mold (~28 states)
 - More recent laws deal with schools (~30 states)



Maryland State Task Force on Indoor Air Quality, 2002

- Policy Recommendations
 - Problems are preventable
 - Key is moisture control/integrity, building maintenance, hygiene
 - Need a bureaucratic solution – no government agency/office currently responsible for indoor air in Maryland (or nationally)



The Maryland Solution

- Performance standard for operations and maintenance (based on ASHRAE O&M guideline)



ASTHO State Environmental Health Directors

- Interested in IEQ issues
- Same challenge in many states
- Opportunity – Code represents several potential advantages
 - Administrative -- local vs. state
 - One point of intervention (code-setting body) vs. each state
 - More personnel for enforcement



Questions Raised by the State EH Directors

- What is the science/knowledge base related to indoor environments?
- What are the hazards/exposures of interest?
- What are the endpoints of interest for this discussion?
- What are the process(es) for standard-setting?
- What should the research agenda be?



Setting Standards

- *Sources*
 - Have information about source generation for building materials, furnishings
- *Hazard Exposures*
 - Background information from BASE, state surveys on individual pollutant exposures
- *Dose Response*
 - Know something about dose-response about a few individual pollutants/hazards
 - Acute hazards (CO, safety)
 - Chronic hazards (asbestos, lead, radon)
- Don't know anything about mixtures (some early work going on)



Could We Set a Standard

- Performance standard – “white glove” test not as good as numerical criteria for lead
- Visual inspection for mold?
- What about rules for clearance/cleanup?
- Some rules already for building materials and furnishings (green building rules, codes) but not for occupant behavior (what about performance/maintenance std.?)



Other Questions

- If you pick one thing to peg a standard to, would it have collateral benefits
 - If you clean to the lead standard, do you clean to a beneficial std for other contaminants in dust
- What about risk communication?



“Model Code?”

- Most complaints and problems for:
 - Safety/injury
 - Mold/moisture
 - Combustion sources
 - Inadequate ventilation/housekeeping/ maintenance
 - Some specific hazards (radon, asbestos, lead, mercury, pesticides)
- Compare with the 7 factors
 - Dry
 - Clean
 - Pest-free
 - Ventilated
 - Safe
 - Contaminant-free
 - Maintained



Practical Challenges for Code Enforcement

- Health departments *versus* housing departments for enforcement (re-think paradigm)
- Is it a core mission?
- Workforce considerations



Finding Common Ground

- What interventions do we know that work?
- What do we think works, even if the data aren't complete
- What about non-code-based, non-regulatory strategies?



Philosophical Question with Codes

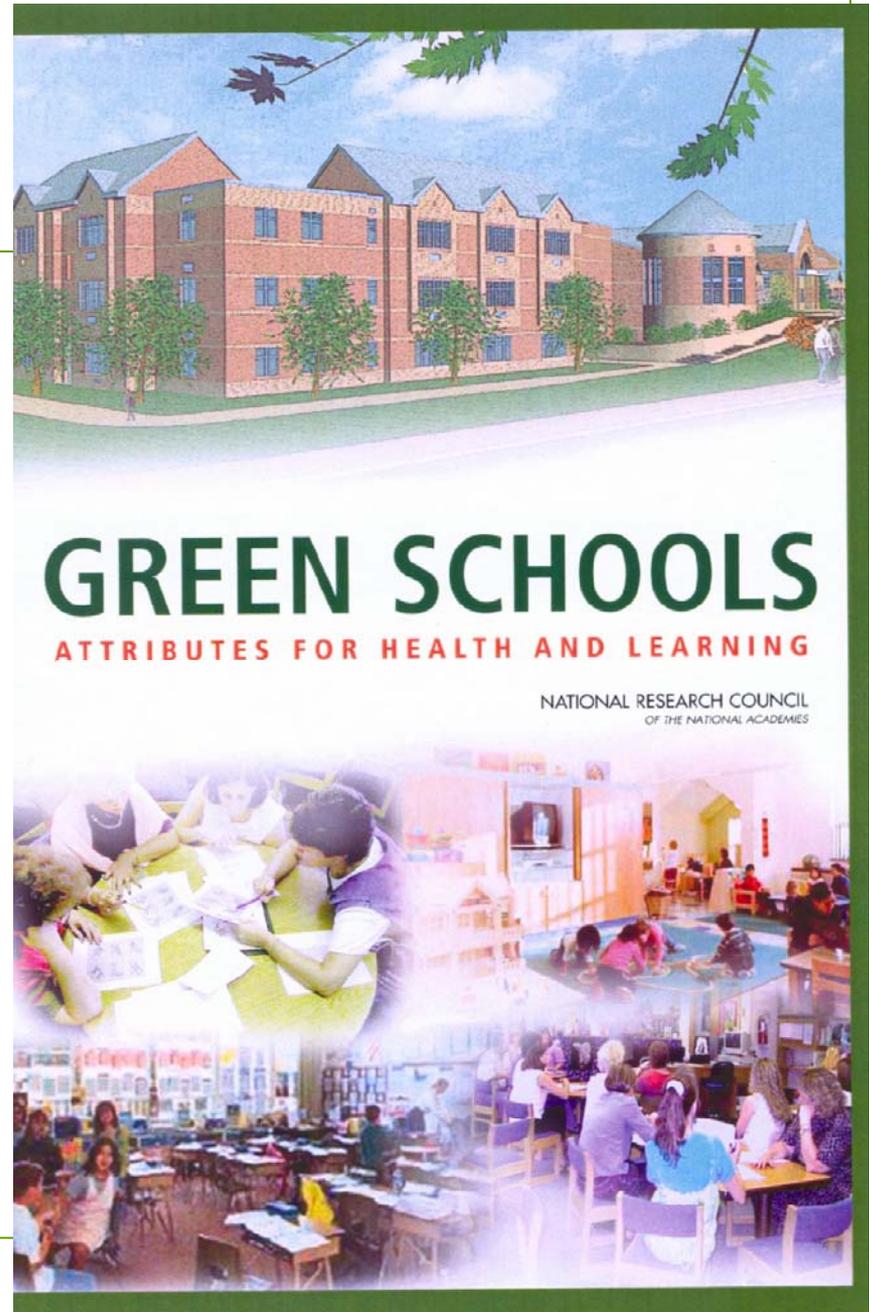
- Avoiding ill health/damage *versus* promoting positive health change



Green Schools

NRC, 2006

*Full Text Available
At www.nap.edu*



**BUILDING A FRAMEWORK
FOR HEALTHY HOUSING**

References

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