Essentials for Healthy Homes Practitioners

National Healthy Homes Training Center and Network

Learning Objectives

Describe four housing conditions and their associated health problems.

Identify three populations at higher risk for housing related disease and injury.

Identify three types of codes used to enforce remediation of housing-related hazards.

Link Between Housing & Health

"The connection between health and the dwelling of the population is one of the most important that exists".

Florence Nightingale

Why Do We Care?

- **Housing impact on health:**
  - Physical, chemical, biological exposures
  - Psychological
- **Young children spend about 70% of the time in their home.**

Why Do We Care?

- Annual costs for environmentally attributable childhood diseases in the U.S: $54.9 billion.
  - $43.9 Billion from Lead Poisoning
  - $ 9.2 Billion from Neurobehavioral Disorders
  - $ 2.0 Billion from Asthma
  - $ 0.3 Billion from Childhood Cancer
- Additional costs (e.g., lost days of school/work).
- Asthma contributes 3% of total health care costs.

How Significant is the Problem?

American Housing Survey			
Occupied Housing Units	**Severe Physical Problems**	**Moderate Physical Problems**	**Total**
2007	1.8 million	4.0 million	5.8 million
2009	1.9 million	3.9 million	5.8 million

Maslow's Hierarchy of Need

Home is where the heart is.
Pliny

It may be frail; its roof may shake; the wind may blow through it; the storms may enter; the rain may enter – but the King of England cannot enter; all his forces dare not cross the threshold of the ruined tenement.
William Pitt

One of our deepest needs is to be at home.
Timothy Radcliffe

Where thou art, that is home.
Emily Dickinson

Home is the place where, when you have to go there, They have to take you in.
Robert Frost

The strength of a nation derives from the integrity of the home.
Confucius

There's no place like home.
Dorothy, Wizard of Oz

He is happiest, be he king or peasant, who finds peace in his home.
Johann Wolfgang von Goethe

INSTITUTE OF MEDICINE (2000)

Association Between Biological and Chemical Exposures in the Home and			
Development of Asthma in Sensitive Individuals		**Exacerbation of Asthma in Sensitive Individuals**	
Biological Agents	**Chemical Agents**	**Biological Agents**	**Chemical Agents**
Sufficient Evidence of a Causal Relationship			
• House dust mite	*No agents met this definition*	• Cat • Cockroach • House dust mite	• ETS (in preschool-aged children)
Sufficient Evidence of an Association			
No agents met this definition	• ETS (in preschool-aged children)	• Dog • Fungi or molds • Rhinovirus	• Nitrogen oxides (high-level exposures)[1]
Limited or Suggestive Evidence of an Association			
• Cockroach (in preschool-aged children) • Respiratory Syncytial Virus	*No agents met this definition*	• Domestic birds • *Chlamydia pneumoniae* • *Mycoplasma pneumoniae* • Respiratory Syncytial Virus	• ETS (in school aged and older children, & adults) • Formaldehyde • Fragrances
Inadequate or Insufficient Evidence to Determine Whether or Not an Association Exists			
• Cat, Dog, Domestic Birds • Rodents • Cockroaches (except for preschool-aged children) • Endotoxins • Fungi or molds • *Chlamydia pneumoniae* • *Mycoplasma pneumoniae* • *Chlamydia trachomatis* • Houseplants • Pollen	• Nitrogen oxides • Pesticides • Plasticizers • Volatile organic compounds (VOCs) • Formaldehyde • Fragrances • ETS (in older children and adults)	• Rodents (as pets or feral animals)[2] • *Chlamydia trachomatis* • Endotoxins • Houseplants • Pollen exposure in indoor environments • Insects other than Cockroaches	• Pesticides • Plasticizers • Volatile organic compounds (VOCs)
Limited or Suggestive Evidence of No Association			
• Rhinovirus (adults)	*No agents met this definition*	*No agents met this definition*	*No agents met this definition*

Source: ***National Academies Press, 2000****. Clearing the Air: Asthma and Indoor Air Exposures. Executive Summary Institute of Medicine. ISBN 0-309-06496-1 See www.nap.edu/books/0309064961/html/.*

[1] At concentrations that may occur only when gas appliances are used in poorly ventilated kitchens.

INSTITUTE OF MEDICINE (2004)

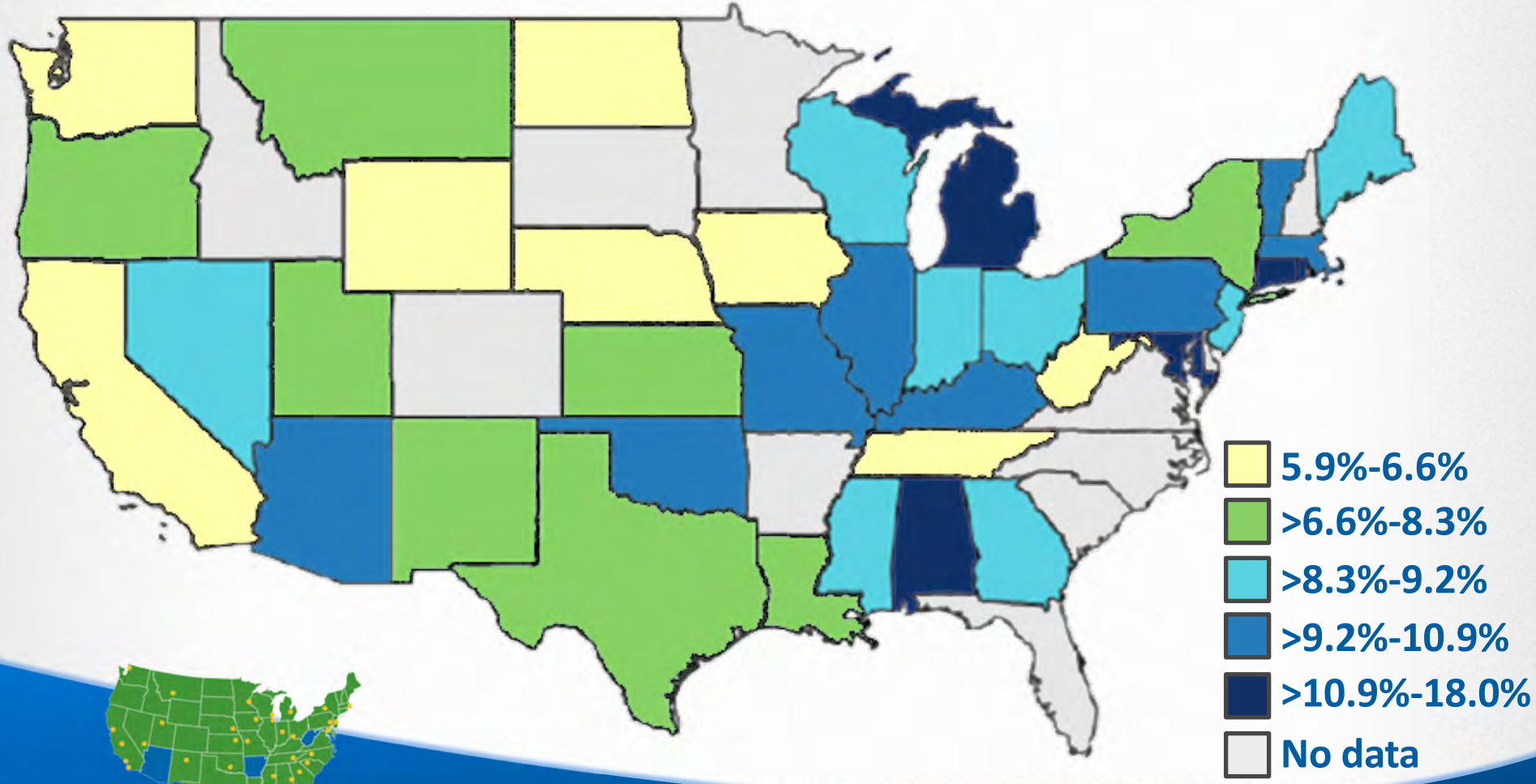
Summary of Findings Regarding Association Between Health Outcomes and	
Exposure to Damp Indoor Environments	**Presence of Mold or Other Agents in Damp Indoor Environments**
Sufficient Evidence of a Causal Relationship	
Sufficient Evidence of an Association	
• Upper respiratory (nasal and throat) tract symptoms • Cough • Wheeze • Asthma symptoms in sensitized persons	• Upper respiratory (nasal and throat) tract symptoms • Cough • Hypersensitivity pneumonitis in susceptible persons • Wheeze • Asthma symptoms in sensitized persons
Limited or Suggestive Evidence of an Association	
• Dyspnea (shortness of breath) • Lower respiratory illness in otherwise healthy children • Asthma development	• Lower respiratory illness in otherwise healthy children
Inadequate or Insufficient Evidence to Determine Whether or Not an Association Exists	
• Airflow obstruction (in otherwise healthy persons) • Skin symptoms • Mucous membrane irritation syndrome • Gastrointestinal tract problems • Chronic obstructive pulmonary disease • Fatigue • Inhalation fevers (nonoccupational exposures) • Neuropsychiatric symptoms • Lower respiratory illness in otherwise healthy adults • Cancer • Acute idiopathic pulmonary hemorrhage in infants • Reproductive effects • Rheumatologic and other immune diseases	• Dyspnea (shortness of breath) • Skin symptoms • Asthma development • Gastrointestinal tract problems • Airflow obstruction (in otherwise healthy persons) • Fatigue • Mucous membrane irritation syndrome • Neuropsychiatric symptoms • Chronic obstructive pulmonary disease • Cancer • Inhalation fevers (nonoccupational exposures) • Reproductive effects • Lower respiratory illness in otherwise healthy adults • Rheumatologic and other immune diseases • Acute idiopathic pulmonary hemorrhage in infants

Source: ***National Academies Press, 2004****. Damp Indoor Spaces and Health. Tables ES-1 and ES-2 Institute of Medicine of the National Academies, ISBN 0-309-09246-9. See www.nap.edu/books/0309091934/html/.*

Childhood Asthma

Current prevalence, 2010 BRFSS data

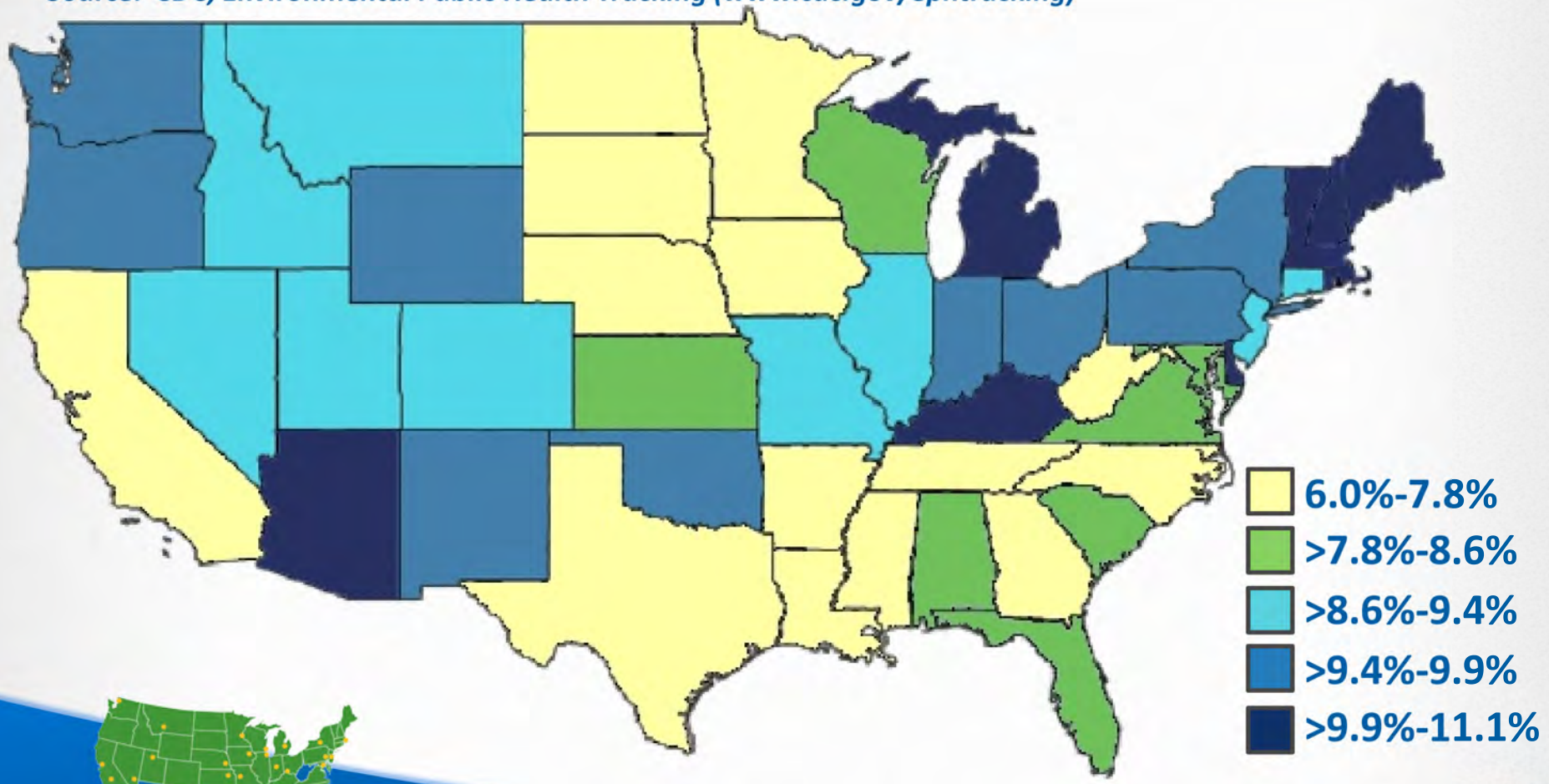
Source: CDC, Environmental Public Health Tracking (www.cdc.gov/ephtracking)



Adult Asthma

Current prevalence, 2010 BRFSS data

Source: CDC, Environmental Public Health Tracking (www.cdc.gov/ephtracking)



Adult asthma

Current prevalence over time

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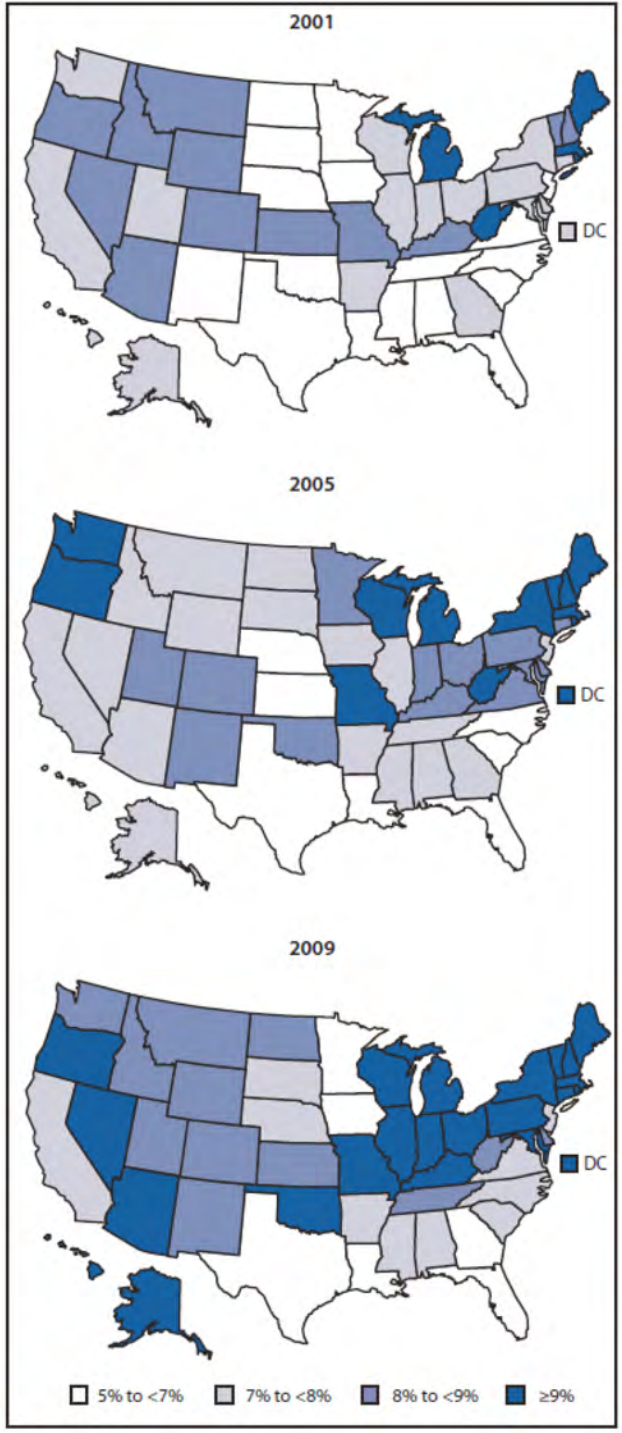
- Current asthma prevalence among adults varies across states, ranging from:
  - 5.3% to 9.5% in 2001
  - 6.3% to 11.1% in 2009
- Prevalence increased significantly from 2001-2009 in 22 states and the District of Columbia.

Current asthma prevalence among adults -Behavioral Risk Factor Surveillance System, United States, 2001, 2005, and 2009



EXERCISE #1

Health Impacts	Housing Hazards	Corrective Action	Resources

Holistic Approach

Integrated approach that considers:

- People living in the home
- The structure
- Potential health hazards

Moisture/water intrusion

Mold

Why a Holistic Approach?

Asthma exacerbation

Moisture/
water intrusion

Structural damage

Structural damage

Pests

Deteriorated lead paint/ lead poisoning

Fire

Injuries

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Pesticides

Pests

Asthma & allergy exacerbation

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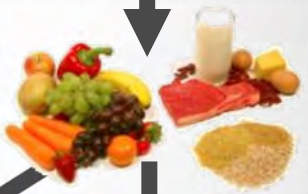
Pesticides


HOT SHOT
Roach & Ant


VALUE PACK
6 FOGGERS
Spectracide
BUG STOP
INDOOR FOGGER
Protects for up to 4 Weeks!



Different Approaches

HEALTH

- Primary Prevention
- Secondary Prevention
- Epidemiologic Triangle

HOUSING

- Well constructed
- Well maintained
- Comfortable
- Affordable
- Healthy

ENVIRONMENTAL HEALTH

Lead
Radon
Allergens/asthma
Combustion products
Unintentional Injuries
Insects & Rodents
Mold & Moisture
Pesticides
Asbestos

Healthy Homes Principles

1. Keep it DRY
2. Keep it CLEAN
3. Keep it PEST-FREE
4. Keep it VENTILATED
5. Keep it SAFE
6. Keep it CONTAMINANT-FREE
7. Keep it MAINTAINED

What is Healthy Housing?

Healthy Housing is:

- Designed,
- Constructed,
- Maintained, and
- Rehabilitated

in a manner that is conducive to good occupant health.

American Housing Survey

Conducted:

- Every two years since the 1980s
- Periodically for 46 Metropolitan Statistical Areas (MSA)
- Consistent set of homes
- Phone survey since 1997

EXERCISE #2

Write the number for each characteristic listed in the left-hand column on the line for closest number or percentage in the right-hand column. See example for rats. Some numbers or percentages are used more than once. See www.healthyhomestraining.org/AHS/AHS_National_2007_Full_12-30-08.pdf for answers.

1. # of homes with severe physical problems	_____ About 1,800 homes
2. # of homes with moderate physical problems	_____ About 4,000 homes
3. # of homes with either severe or moderate problems	_____ About 6,000 homes
4. % of homes with exterior physical problems	_____ About 10,000 homes
5. % of homes with exterior water leakage in past 12 months	_____ About 1,800,000 homes
6. % of homes with interior water leakage in past 12 months	_____ About 4,000,000 homes
7. % of homes with signs of rats in past 3 months	_____ About 6,000,000 homes
8. % of homes with signs of mice in past 3 months	_____ About 10,000,000 homes
9. % of rental homes built before 1980	_____ About 0.5 - 1.5% homes
10. % of homes with a septic tank, cesspool or chemical toilet	_____ About 5 - 6% of homes
11. % of homes with fuel-burning room heaters without a flue as main heating equipment	_____ About 7.5-12.5% of homes
12. % of homes with gas-fired warm-air furnaces	_____ About 17 - 25% of homes
13. % of homes with piped gas for water heating	_____ About 30 - 35% of homes
14. % of homes with piped gas for clothes dryer	_____ About 50 - 55% of homes
15. % of homes with residents with severe problems rating home 8, 9, or 10 with 10 as best	_____ About 60 - 70% of homes
16. % of homes with severe problems caused by plumbing	_____ About 80 - 85% of homes
	_____ About 90 - 92% of homes
	_____ About 95 - 97% of homes
	_____ About 99 -100% of homes

Checkmark the most common cause of each type of problem.

Exterior water leakage	Interior water leakage	Severe Physical Prob.	Moderate Physical Prob.
☐ Walls or window problems	☐ Leaking pipes	☐ Plumbing	☐ Plumbing
☐ Basement problems	☐ Broken fixtures	☐ Heating	☐ Heating
☐ Roof problems	☐ Broken water heater	☐ Electric	☐ Upkeep
☐ Other / Unknown	☐ Other / Unknown	☐ Upkeep	☐ Kitchen

AHS National (2009)

Demographics

- 119 million homes
- 32% rental
- 65% single-family detached homes
- 63% built pre-1980
- 31% basement

Exterior Problems

- 18.6% exterior physical problems
- 4.2% missing roofing material
- 9.8% exterior water leakage

AHS National (2009)

Interior Problems

- 7.9% interior water leakage
- 4.8% open cracks or holes
- 3.4% pipes leaked
- 5.5% mice
- 9.1% blown fuses or breakers

Safety Devices

- 5.6% no working smoke alarm
- 55% more than two-year old fire extinguisher
- 64% no carbon monoxide alarm

Heating

- 64% warm air furnace
- 1.0% room heater without flue
- 0.9% stove as main heating equipment
- 8.6% uncomfortably cold

(Note: Safety devices information was not available before 2007)

Your Community

Healthy Homes Profiles

- Comparison to similarly situated housing

Interior-Exterior Relationships

- Likely to be interior problems if exterior problem is present.

More Detailed Snapshot

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Characteristic	Outside Central City				Central City			
	Owner-Occupied		Rental		Owner-Occupied		Rental	
	Number/ Percent	National	Number/ Percent	National	Number/ Percent	National	Number/ Percent	National
Number of units	449,400	-	257,600	-	59,200	-	89,500	-
Percent of Area	63.6%	-	**36.4%**	12,765,700	39.8%	-	60.2%	-
Median year of construction	1968	-	1965	-	1944	-	1950	-
% Pre-1940	9.5%	-	13.5%	-	**43.1%**	25.5%	38.2%	-
% Post-1979	27.3%	-	**18.1%**	29.6%	15.0%	-	**5.3%**	17.7%
% Below poverty	8.1%	-	**3.7%**	18.0%	**13.5%**	9.6%	**8.3%**	25.6%
Basic Housing Quality		-		-		-		-
Severe physical problems	0.9%	-	**3.5%**	2.4%	**1.1%**	1.6%	**6.5%**	4.6%
Moderate physical problems	2.2%	-	6.8%	-	2.7%	-	9.7%	-
Interior Problems		-		-		-		-
Holes in floors	0.2%	0.6%	**1.9%**	1.4%	0.7%	-	3.0%	-
Open cracks or holes in walls	7.4%	3.5%	10.8%	6.2%	9.3%	5.0%	13.4%	-
Broken plaster/peeling paint	**2.2%**	1.6%	6.4%	3.4%	4.4%	2.5%	10.0%	5.7%
Signs of rats	1.8%	0.6%	1.8%	1.0%	3.2%	1.0%	**3.4%**	2.2%
Signs of mice	6.4%	-	**8.1%**	5.6%	**7.9%**	5.6%	10.1%	-
Water leaks from inside	**10.9%**	8.0%	**17.4%**	11.7%	10.1%	-	17.4%	-
Water leaks from outside	**17.7%**	12.8%	16.1%	9.4%	30.3%	14.3%	18.4%	10.6%
Water supply stoppage	5.0%	-	9.9%	5.3%	2.4%	-	5.5%	-
Flush toilet breakdown	**2.7%**	1.7%	**6.8%**	4.6%	1.9%	-	6.0%	-
Sewage disposal breakdown	**2.1%**	1.3%	3.8%	2.1%	2.3%	-	**3.8%**	2.5%
Lacking complete plumbing	1.5%	0.8%	1.9%	-	2.6%	1.2%	2.5%	-
Heating equip breakdown	**2.4%**	1.5%	4.4%	2.3%	**1.5%**	2.0%	**6.0%**	4.3%
Space heater w/o flues	0.9%	2.8%	1.9%	3.8%	0.7%	3.0%	4.8%	-
Exposed wiring in unit	0.2%	0.5%	1.0%	-	0.0%	0.5%	**1.3%**	0.8%
Rooms w/o working elect. outlet	0.9%	-	2.7%	-	2.2%	1.3%	5.4%	2.4%
Lacking kitchen facilities	0.9%	0.5%	4.0%	-	1.2%	0.6%	**6.6%**	4.8%
Exterior Problems		-		-		-		-
Roofing problems	8.3%	4.5%	**11.5%**	7.0%	11.1%	6.1%	12.9%	7.1%
Siding problems	3.8%	2.0%	8.3%	4.0%	6.1%	2.7%	9.9%	5.2%
Window problems	**4.0%**	2.9%	**7.4%**	4.8%	8.3%	4.5%	**11.7%**	7.1%
Foundation problems	**3.1%**	1.9%	**4.6%**	3.0%	5.4%	3.0%	**5.8%**	4.0%
Any Identified Problem	46.3%	-	56.5%	-	**57.4%**	39.7%	60.5%	-

No Place Like Home!

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Resident Overall Opinion of Structure, American Housing Survey – National 2009						
	Worst					Best
Type of resident	**1**	**2-4**	**5-7**	**8**	**9**	**10**
All	0.5%	1.9%	22.8%	27.4%	16.0%	27.6%
Renters	0.9%	3.8%	32.8%	27.2%	11.9%	19.6%
Below Poverty	1.5%	4.1%	28.0%	23.2%	10.9%	27.1%

Real World is Complex

- Current knowledge
- Economic factors
- Social and cultural
- Political and legal factors
- “Do No Harm”

Will Things Change?

Homes With "No Smoking" Rule

- 43% in 1992-1993
- 72% in 2003
- 82% in 2009-2010

Healthy Homes Interventions

- 2008 Expert Panel
- Convened by CDC and NCHH
- Categories
  - Effective
  - Needs More Field Evaluation
  - Needs Formative Research
  - No Evidence or Ineffective

Healthy Homes Interventions

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A. Controlling Asthma Symptoms and Reducing Asthma Morbidity:
Multi-faceted in-home interventions for asthma tailored to the individual that include:

1. Home environmental assessment;
2. Education;
3. Use of mattress and pillow covers;
4. Use of HEPA vacuums and HEPA air filters;
5. Smoking cessation and reduction in environmental tobacco smoke exposure;
6. Cockroach and rodent management;
7. Minor repairs; and
8. Intensive household cleaning.

But the following were found to be ineffective:
Bedding encasement, sheet washing and upholstery cleaning each by themselves in isolation from other interventions.

B. Reducing Asthma Triggers and Exposure to Asthma Triggers
When implemented together, eliminating moisture intrusion and leaks and removal of moldy items.

C. Reducing Exposure to Pests and Pesticides:
Cockroach control through Integrated Pest Management (IPM). IPM includes:

1. Household cleaning and tool dispensing;
2. Professional cleaning;
3. Education of residents,
4. Baits;
5. Structural repairs; and
6. When necessary, intensive application of low-toxicity, non-spray pesticides.

D. Reducing Exposure to Pesticide Residues:
Integrated pest management (IPM) which includes:

1. Professional cleaning;
2. Sealing of pest entry points;
3. Application of low-toxicity pesticides; and
4. Education.

Healthy Homes Interventions

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E. Reducing Exposure to Radon in Air to Less than 4 pCi/L:
Active sub-slab depressurization systems in high-risk areas.

F. Reducing Exposure to Environmental Tobacco Smoke
Elimination of environmental tobacco smoke.

But the following were found to be ineffective:
Portable air cleaning filtration systems are ineffective in controlling exposures to environmental tobacco smoke and also formaldehyde, although it is possible that there may be some modest decline in exposure.

G. Reducing Children's Blood Lead Levels, Deteriorated Lead-Based Paint and Dust Lead
Residential lead hazard control.

But the following were found to be ineffective:
Single professional cleaning regimens have been shown to be ineffective in controlling long-term exposures to lead contaminated dust

H. Reducing Death and Injuries from Residential Fires:
Installed, working smoke alarms.

But the following were found to be less effective:
Community programs that give away smoke alarms without taking steps to make sure they are actually installed are less effective than programs that actually install alarms, and have not been proven to reduce injuries

I. Preventing Drowning:
Isolation 4-sided pool fencing

But the following were found to be ineffective:
Use of three-sided pool fences instead of complete four-sided pool fencing is not effective and may actually increase risk because care-givers may believe the incomplete fencing is adequate.

J. Reducing Scald Burns:
Pre-set safe temperature hot water heaters

The following were also found to be ineffective:

- Portable air cleaning filtration systems are ineffective in controlling exposures to environmental tobacco smoke and also formaldehyde, although it is possible that there may be some modest decline in exposure.
- "Air cleaners" that produce large amounts of ozone should not be used, because they result in increased exposure to ozone, which mimics the health effects of radiation exposure and is a known respiratory toxicant.

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Until effective standards for the domestic environment are devised, it is likely that children will continue to be employed as biological indicators of substandard housing.

Codes Benefiting Healthy Homes

- Health / Sanitation Codes
- Housing / Property Maintenance Codes
- Landlord-Tenant Laws
- Product Standards
- Hazard Management Laws

Housing v. Building v. Zoning Codes

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Does this violate the IPMC?

Key Provisions of Codes

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- Structural Integrity
- Weatherproof
- Maintenance
- Cracks & Holes
- Loose or Rotting Materials
- Dampness & Deterioration
- Peeling Paint
- Ventilation / Windows
- Infestation
- Sanitation & Trash
- Cleanability
- Clothes Dryer
- Space Heater

Model Codes for Housing

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Model Codes for Housing	
Building Construction	Internat'l Building Code
Residential Construction	Internat'l Residential Code
Rehab	Internat'l Existing Building Code
Electrical	ICC Electrical Code
Fire	Internat'l Fire Code and National Fire Protection Association
Ventilation	Internat'l Mechanical Code
Plumbing	Internat'l Plumbing Code
Sewage	Internat'l Private Sewage Disposal Code
ALL BUILDINGS	**Internat'l Property Maintenance Code**

Int'l Property Maintenance Code

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- **Adopted in:**
  - More than 550 communities
  - Two states – New York & Virginia
  - Several states including Georgia & Oklahoma recommend it as a model for locals codes
- **Applicability**
  - Existing Buildings
  - Rental and Owner Occupied Homes
  - Local Variations
- **Code Official Enforces**

Landlord-Tenant Laws

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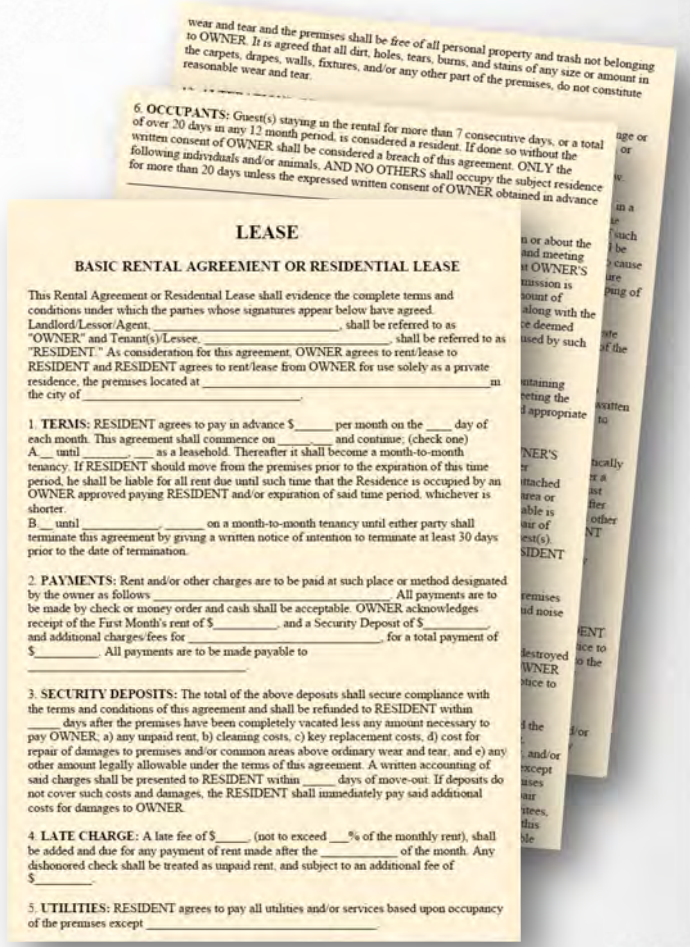
Rights and Responsibilities

Common Requirements

- **Certificate of Occupancy**
- **Duty to Pay Rent**
- **Withholding Rent to Make Repairs**
- **Retaliation**

Eviction and Enforcement



wear and tear and the premises shall be free of all personal property and trash not belonging to OWNER. It is agreed that all dirt, holes, tears, burns, and stains of any size or amount in the carpets, drapes, walls, fixtures, and/or any other part of the premises, do not constitute reasonable wear and tear.

6. **OCCUPANTS:** Guest(s) staying in the rental for more than 7 consecutive days, or a total of over 20 days in any 12 month period, is considered a resident. If done so without the written consent of OWNER shall be considered a breach of this agreement. ONLY the following individuals and/or animals, AND NO OTHERS shall occupy the subject residence for more than 20 days unless the expressed written consent of OWNER obtained in advance

LEASE

BASIC RENTAL AGREEMENT OR RESIDENTIAL LEASE

This Rental Agreement or Residential Lease shall evidence the complete terms and conditions under which the parties whose signatures appear below have agreed. Landlord/Lessor/Agent, _____, shall be referred to as "OWNER" and Tenant(s)/Lessee, _____, shall be referred to as "RESIDENT." As consideration for this agreement, OWNER agrees to rent/lease to RESIDENT and RESIDENT agrees to rent/lease from OWNER for use solely as a private residence, the premises located at _____ in the city of _____.

1. **TERMS:** RESIDENT agrees to pay in advance $_____ per month on the ____ day of each month. This agreement shall commence on _____ and continue; (check one)
A.__ until _____ as a leasehold. Thereafter it shall become a month-to-month tenancy. If RESIDENT should move from the premises prior to the expiration of this time period, he shall be liable for all rent due until such time that the Residence is occupied by an OWNER approved paying RESIDENT and/or expiration of said time period, whichever is shorter.
B.__ until _____, _____ on a month-to-month tenancy until either party shall terminate this agreement by giving a written notice of intention to terminate at least 30 days prior to the date of termination.

2. **PAYMENTS:** Rent and/or other charges are to be paid at such place or method designated by the owner as follows _____. All payments are to be made by check or money order and cash shall be acceptable. OWNER acknowledges receipt of the First Month's rent of $_____, and a Security Deposit of $_____, and additional charges/fees for _____, for a total payment of $_____. All payments are to be made payable to _____.

3. **SECURITY DEPOSITS:** The total of the above deposits shall secure compliance with the terms and conditions of this agreement and shall be refunded to RESIDENT within _____ days after the premises have been completely vacated less any amount necessary to pay OWNER, a) any unpaid rent, b) cleaning costs, c) key replacement costs, d) cost for repair of damages to premises and/or common areas above ordinary wear and tear, and e) any other amount legally allowable under the terms of this agreement. A written accounting of said charges shall be presented to RESIDENT within _____ days of move-out. If deposits do not cover such costs and damages, the RESIDENT shall immediately pay said additional costs for damages to OWNER.

4. **LATE CHARGE:** A late fee of $_____ (not to exceed ___% of the monthly rent), shall be added and due for any payment of rent made after the _____ of the month. Any dishonored check shall be treated as unpaid rent, and subject to an additional fee of $_____.

5. **UTILITIES:** RESIDENT agrees to pay all utilities and/or services based upon occupancy of the premises except _____

Federal Health Priorities

Healthy People 2020 Objectives

- ↓ blood lead levels in children
- ↓ pesticide exposures
- ↓ indoor allergen levels
- ↑ homes with operating radon mitigation system
- ↑ new single family homes with radon-reducing features
- ↓ lead-based paint or related hazards in homes
- ↓ units with moderate or severe physical problems

Green Building Priorities

- NCHH Comparison – February 2009
- Major National Programs
  - Green Communities
  - Leadership in Energy and Environmental Design for Homes (LEED for Homes)
  - National Green Building Standard
  - Energy Star with Indoor Air Package

National Healthy Homes Training Center & Network

- Brings together public health and housing practitioners
- Forum for exchanging information on new research and best practices.

Funded through a contract with the U.S. Department of Housing & Urban Development , and with support from the U.S. Environmental Protection Agency and the U.S. Centers for Disease Control & Prevention

Purpose of the Course

- Training on housing related health hazards
- Cross training of practitioners.
- Exchange of practical guidance about healthy housing
- Mechanism for introduction of new research findings
- Opportunity for networking, collaboration and partnerships.

Course Outline

- Overview
- Start with People
- House as a System
- **Keep It:**
  - Dry
  - Clean
  - Pest-Free
  - Ventilated
  - Safe
  - Contaminant-Free
  - Maintained
- Making It Work

Key Messages

- Link between housing and health
- Vulnerable groups
- Basic public health and housing principles
- Holistic approach
- Codes and regulations

Learning Objectives

Describe four housing conditions and their associated health problems.

Identify three populations at higher risk for housing related disease and injury.

Identify three types of codes used to enforce remediation of housing-related hazards.