



Assessing Home Environmental Hazards

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Assessing Home Environmental Hazards

Features of homes...

- ➔ Likely to affect the health of older and disabled residents
- ➔ Relevant for more effective service delivery
- ➔ Able to be incorporated into eligibility assessments for long term care services and supports



HUD: PAHHU0071-22

Assessing Home Environmental Hazards

No problems	1	704	76.61%
Pests (bugs, ants or mice)	2	70	7.62%
Mold	3	22	2.39%
Poor indoor air quality	4	10	1.09%
Lead paint or pipes	5	5	0.54%
Lack of hot water	6	4	0.44%
Lack of heat	7	3	0.33%
Lack of cooling (air conditioning)	8	21	2.29%
Oven or stove not working	9	4	0.44%
Refrigerator or freezer not working	10	6	0.65%
Smoke detectors missing or not working	11	22	2.39%
Water leaks	12	22	2.39%
None of the above	13	56	6.09%
Don't know / Refused	14	28	3.05%

Prevalence of Resident-Reported Home Health Hazards

Random-Digit Telephone Survey, PA, Sept 2023, n=900, unweighted

PA Master Plan effort

Assessing Home Environmental Hazards

Web-Based Survey, Environmental Health Hazards, Aug-Sept 2023

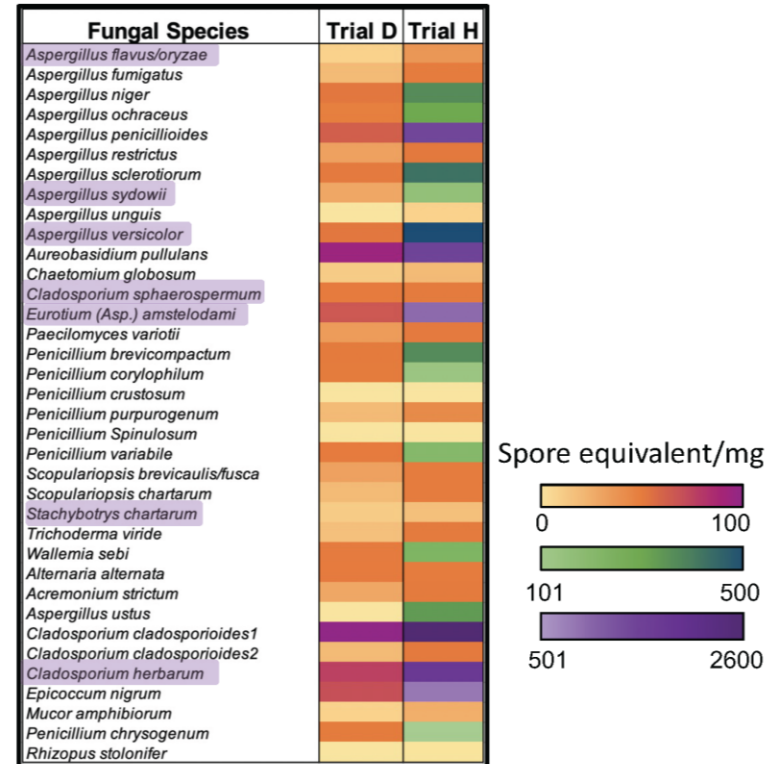
No problems	3368	65.31
Pests (bugs, ants or mice)	552	10.70
Mold	276	5.35
Poor indoor air quality	136	2.64
Lead paint or pipes	78	1.51
Lack of hot water	23	0.45
Lack of heat	45	0.87
Lack of cooling (air conditioning)	201	3.90
Oven or stove not working	63	1.22
Refrigerator or freezer not working	33	0.64
Smoke detectors missing or not working	146	2.83
Water leaks	236	4.58

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As expected, elevated humidity conditions yielded a significant surge in overall fungal concentrations

Trial A	Trial B	Trial C	Trial D	Trial E	Trial F	Trial G	Trial H
Med(50)			High(70)				
W.Close/ AC off	W. Open/ AC off	W.Close/ AC on	W.Close/ / AC off	W.Close/ AC off	W. Open/ AC off	W.Close/ AC on	W. Close/ AC off
B. Close	B. Open	B. Close	B. Open	B. Close	B. Open	B. Close	B. Open
P. Yes	P. Yes	P. Yes	P. Yes	P. Yes	P. Yes	P. Yes	P. Yes
R. Yes	R. Yes	R. Yes	R. Yes	R. Yes	R. Yes	R. Yes	R. Yes

- Trial D: ERMI Score - 15.2
- Trail H: ERMI Score - 22.7
- Fungal species highlighted in purple represent species that potentially produce toxins of concern or are associated with severe health concerns.
 - The methods used here cannot confirm if toxins are being produced



Assessing Home Environmental Hazards



- ➔ Integrate components of H-HAT into a pilot tool: survey questions, environmental observations, IAQ sensors, radon sensor, and mold-relevant sensor values (temperature, humidity, light).
- ➔ Implement the pilot tool in digital form using Redcap or Qualtrics for data collection by phone or laptop.
- ➔ Identify assessors from WHE and AAA (n=2-4) who will use H-HAT in households selected for the pilot.
- ➔ Bring these assessors into the Healthy Home Lab for training and demo of H-HAT in a controlled setting.

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- ➔ **AAA and WHE identify 20 households for pilot**
 - 15 from AAA, 5 from WHE?
 - Seek single-family homes, apartments, senior housing
 - Seek residents with variety of disability and medical conditions
- ➔ **Conduct pilot test of H-HAT in the 20 homes along with standard AAA/WHE assessment**
 - Assessor uses H-HAT digital tool.
 - Research assistant accompanies assessor and brings sensors
 - Sensors placed in home for duration of assessment
 - Usability/acceptability survey to resident and assessor.
- ➔ **Results from assessment reviewed in consensus conference for remediation recommendations, which will be relayed to resident via AAA/WHE**
 - Delivery of air purifier

