**Table SI. Frequency of Overlap between Work Moisture and Renovation Categories** a

|  |  |
| --- | --- |
|  | **Renovation** |
| **Moisture** | **No Renovation****(n=618)** | **Just Painting****(n=440)** | **Wall/Floor Renovation** **(n=972)** |
| **No Moisture****(n=1,302)** | 53341%86% | 30223%69% | 46736%48% |
| **Just Water Damage****(n=501)** | 6713%11% | 9820%22% | 33667%35% |
| **Mold Growth/Odor****(n=227)** | 187.9%2.9% | 4018%9.1% | 16974%17% |

a The row percentage is the upper of the two percentages in each cell, and the column percentage is the lower of the two.

**Table SII. Frequency of Overlap between Work and Home Moisture Categories** a

|  |  |
| --- | --- |
|  | **Home Moisture** |
| **Work Moisture** | **No Moisture****(n=1,492)** | **Just Water Damage****(n=276)** | **Mold Growth and/or Odor****(n=262)** |
| **No Moisture****(n=1,302)** | 1,00577%67% | 15012%54% | 14711%56% |
| **Just Water Damage****(n=501)** | 34469%23% | 8717%32% | 7014%27% |
| **Mold Growth and/or Odor****(n=227)** | 14363%9.6% | 3917%14% | 4520%17% |

a The row percentage is the upper of the two percentages in each cell, and the column percentage is the lower of the two.

**Table SIII. Frequency of 2,030 Workers by Workplace Locations in Healthcare Facilities**

|  |  |  |
| --- | --- | --- |
| **Location** | **n** | **%** |
| Central Supply | 34 | 1.7 |
| Dental | 34 | 1.7 |
| Emergency Room | 71 | 3.5 |
| Intensive Care | 91 | 4.5 |
| Labor and Delivery | 44 | 2.2 |
| Medical and Clinical Laboratories | 171 | 8.4 |
| Patient Care | 941 | 46 |
| Surgery | 122 | 6.0 |
| Dialysis, ENT, Endoscopy, Pulmonary | 52 | 2.6 |
| General Medicine, Outpatient Care, Pediatric Care | 237 | 12 |
| Administration, Education, Non-Patient Care, Psychiatric | 91 | 4.5 |
| Other/Multiple a | 134 | 6.6 |

a The “Other/Multiple” category consists of respondents who either responded with a location not listed or who responded with multiple locations.

**Table SIV. Frequency of Asthma-related Outcomes by Cross-classification of Work Moisture and Renovation Categories ab**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Asthma-related Outcomes** | **No Moisture/No Renovation (n=533)** | **Paint and/or Water Damage, and No Mold Growth/Odor or Wall/Floor Renovation (n=467)** | **Mold Growth and/or Odor and No Wall or Floor Renovation (n=58)** | **Wall and/or Floor Renovation and No Mold Growth or Odor (n=803)** | **Mold Growth and/or Odor and Wall and/or Floor Renovation (n=169)** |
| **Current asthma** | 275.1% | 316.6% | 916% | 8611% | 2012% |
| **BHR-related symptoms** | 9418% | 9320% | 2645% | 23429% | 7544% |
| **Asthma score (mean, SD)** | (0.22, 0.71) | (0.39, 0.88) | (0.78, 1.40) | (0.58, 1.10) | (0.97, 1.35) |
| **Wheezing or whistling in last 12 months** | 438.1% | 5311% | 1628% | 13216% | 4728% |
| **Asthma health clusters** |  |  |  |  |  |
| **HC-1: No symptoms** | 30257% | 22147% | 1526% | 31539% | 3219% |
| **HC-2: Winter cough/phlegm** | 15429% | 14631% | 2441% | 25131% | 6538% |
| **HC-3: Mild asthma symptoms** | 5911% | 7316% | 1119% | 16220% | 5231% |
| **HC-4: Undiagnosed or untreated asthma** | 50.9% | 163.4% | 11.7% | 313.9% | 105.9% |
| **HC-5: Asthma attacks/exacerbations** | 132.4% | 112.4% | 712% | 445.5% | 105.9% |

Abbreviations:

SD = standard deviation

a The listed percentage is that for the column.

**b** Most of those who reported mold growth and/or odor also reported water damage at work (197/227 = 87%), and most who reported floor and/or wall renovations also reported painting at work (886/972 = 91%)

**Table SV. Effect Estimates for Asthma-related Outcomes by Combinations of Work Moisture and Renovation Categories** ab

|  |  |  |
| --- | --- | --- |
|  | **Work Moisture and Renovation Categories** | **S Index for additive interaction** |
| **Asthma-related Outcomes** | **Paint and/or Water Damage, and No Mold Growth/ Odor or Wall/Floor Renovation** | **Mold Growth and/or Odor and No Wall or Floor Renovation** | **Wall and/or Floor Renovation and No Mold Growth or Odor** | **Mold Growth and/or Odor and Wall and/or Floor Renovation**  | **S Index** **(95% CI) c** | **P value** |
| **Current asthma** | 1.13(0.64, 2.00) | 2.32(0.98, 5.47) | **1.77****(1.09, 2.88)** | 1.52(0.79, 2.91) | 0.25(0.04, 1.38) | 0.11 |
| **BHR-related symptoms** | 1.00(0.70, 1.43) | **2.92****(1.53, 5.58)** | **1.65****(1.22, 2.25)** | **2.51****(1.61, 3.91)** | 0.59(0.24, 1.44) | 0.24 |
| **Asthma score** | **1.56****(1.16, 2.10)** | **2.43****(1.43, 4.13)** | **2.24****(1.73, 2.91)** | **3.42****(2.39, 4.89)** | 0.91(0.50, 1.64) | 0.75 |
| **Wheezing or whistling in last 12 months** | 1.32(0.84, 2.07) | **2.72****(1.36, 5.43)** | **1.80****(1.22, 2.66)** | **3.13****(1.87, 5.24)** | 0.85(0.35, 2.04) | 0.71 |
| **Asthma health clusters d** |  |  |  |  |  |  |
| **HC-1: No symptoms (reference)** | 1.0 | 1.0 | 1.0 | 1.0 | NA | NA |
| **HC-2: Winter cough/phlegm** | 1.15(0.84, 1.56) | **2.85****(1.31, 6.21)** | 1.32(0.99, 1.74) | **3.27****(1.94, 5.51)** | 1.05(0.32, 3.47) | 0.94 |
| **HC-3: Mild asthma symptoms** | **1.54****(1.01, 2.33)** | **3.31****(1.28, 8.57)** | **2.30****(1.58, 3.36)** | **6.29****(3.47, 11.39)** | 1.46(0.52, 4.10) | 0.47 |
| **HC-4: Undiagnosed or untreated asthma** | **3.06****(1.04, 9.05)** | NR dn=1 | **4.07****(1.46, 11.33)** | **12.14****(3.73, 39.47)** | NR d | NR d |
| **HC-5: Asthma attacks/exacerbations** | 0.72(0.29, 1.78) | **6.02****(1.88, 19.33)** | **2.20****(1.09, 4.45)** | **4.20****(1.51, 11.64)** | 0.51(0.12, 2.13) | 0.36 |

Abbreviations:

NA=not applicable, n=number of participants with asthma-related outcome

**Highlighted results** indicate p<0.05

a No moisture/no renovation at work used as reference.

b One regression model containing all moisture and renovation covariates was created for each asthma-related outcome. Each model included additional covariates for IEQ factors at home (just water damage, mold growth and/or odor with or without water damage, renovations), and other covariates to adjust for age, gender, race, smoking status, and history of allergies. Results for current asthma, BHR-related symptoms, and wheezing are expressed as OR (95% CI) from logistic regression models. For asthma score, results are expressed as ratio mean score (95% CI) from a negative binomial regression model. For the asthma health clusters, results are expressed as OR (95% CI) from a polytomous logistic regression model.

Most of those who reported mold growth and /or odor also reported water damage at work (197/227 = 87%), and most who reported floor and/or wall renovation also reported painting at work (886/972 = 91%).

**c** Calculation of the S Index and confidence intervals are described in Rothman 1986 and Knol and VanderWeele 2012, respectively.

**d** Results not reported because cell has < 5 participants with the outcome, or one of the cells tested for additive interaction has <5 participants with the outcome.

**Table SVI. Frequencies of Asthma-related Outcomes by Cross-classification of Work and Home Moisture Categories a**

|  |  |  |  |
| --- | --- | --- | --- |
| **Asthma-related Outcomes** | **No Moisture at Work or Home****(n=1,005)** | **Just Water Damage at Work and/or Home****(n=581)** | **MG and/or MO b** |
| **Only at Work****(n=182)** | **Only at Home****(n=217)** | **At Both Work and Home (n=45)** |
| **Current asthma** | 636.3% | 569.6% | 2112% | 2512% | 818% |
| **BHR-related symptoms** | 18318% | 16228% | 7139% | 7635% | 3067% |
| **Asthma score (mean, SD)** | (0.30, 0.79) | (0.58, 1.07) | (0.75, 1.27) | (0.63, 1.18) | (1.60, 1.51) |
| **Wheezing or whistling in last 12 months** | 979.7% | 9216% | 4525% | 3918% | 1840% |
| **Asthma health clusters** |  |  |  |  |  |
| **HC-1: No symptoms** | 54754% | 21938% | 4223% | 7233% | 511% |
| **HC-2: Winter cough/phlegm** | 27928% | 19333% | 7943% | 7936% | 1022% |
| **HC-3: Mild asthma symptoms** | 13113% | 12121% | 4324% | 4219% | 2044% |
| **HC-4: Undiagnosed or untreated asthma** | 181.8% | 254.3% | 63.3% | 94.2% | 511% |
| **HC-5: Asthma attacks/exacerbations** | 303.0% | 234.0% | 126.6% | 156.9 | 511% |

Abbreviations:

SD = standard deviation

a The percentage is for the column. No moisture at work or home used as the reference.

b MG and/or MO = mold growth and/or mold odor. Most of those who reported MG and/or MO also reported water damage: 87% (197/227) at work and 72% (188/262) at home.

**Table SVII. Effect Estimates for Asthma-related Outcomes by Combinations of Work and Home Moisture Categories****, and S Index to Test for Additive Interaction a**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Just Water Damage at Work and/or Home** | **MG and/or MO b** | **S Index for additive interaction** |
| **Asthma-related outcome** | **Only at Work** | **Only at Home** | **At Both Work and Home** | **S Index** **(95% CI) c** | **P value** |
| **Current asthma** | 1.49(0.97, 2.27) | 1.27(0.71, 2.27) | 1.55(0.91, 2.65) | 1.82(0.75, 4.43) | 1.01(0.12, 8.68) | 0.99 |
| **BHR-related symptoms** | **1.46****(1.10, 1.95)** | **1.96****(1.29, 2.97)** | **1.81****(1.26, 2.61)** | **5.54****(2.73, 11.24)** | 2.57(0.97, 6.80) | 0.058 |
| **Asthma score** | **1.56****(1.25, 1.95)** | **1.84****(1.34, 2.53)** | **1.59****(1.18, 2.15)** | **3.24****(1.97, 5.32)** | 1.56(0.69, 3.52) | 0.28 |
| **Wheezing or whistling in last 12 months** | **1.43****(1.01, 2.03)** | **2.04****(1.29, 3.23)** | 1.46(0.92, 2.32) | **3.77****(1.76, 8.07)** | 1.84(0.58, 5.88) | 0.30 |
| **Asthma health cluster** |  |  |  |  |  |  |
| **HC-1: No symptoms (reference)** | 1.0 | 1.0 | 1.0 | 1.0 | NA | NA |
| **HC-2: Winter cough/phlegm** | **1.42****(1.09, 1.86)** | **3.28****(2.08, 5.17)** | **1.58****(1.08, 2.33)** | 2.12(0.63, 7.08) | 0.39(0.04, 3.93) | 0.43 |
| **HC-3: Mild asthma symptoms** | **1.83****(1.30, 2.58)** | **3.11****(1.81, 5.32)** | **1.70****(1.05 2.73)** | **7.67****(2.29, 25.63)** | 2.38(0.54, 10.44) | 0.25 |
| **HC-4: Undiagnosed or untreated asthma** | 1.99(0.95, 4.15) | 2.30(0.79, 6.69) | 1.97(0.73, 5.32) | **11.18****(2.30, 54.40)** | 4.50(0.60, 33.84) | 0.14 |
| **HC-5: Asthma attacks/exacerbations** | 1.54(0.79, 3.00) | **3.22****(1.35, 7.67)** | **2.15****(1.05, 4.39)** | **7.51****(1.62, 34.79)** | 1.94(0.31, 12.06) | 0.48 |

Abbreviations:

NA = not applicable

**Highlighted results** indicate p<0.05

a One regression model containing all mold growth and odor covariates was created for each asthma-related outcome. Each model included additional covariates for other IEQ factors at work (just painting, floor and/or wall renovations with or without painting) and home (renovations), and other covariates to adjust for age, gender, race, smoking status, and history of allergies. Results for current asthma, BHR-related symptoms, and wheezing are expressed as OR (95% CI) from logistic regression models. For asthma score, results are expressed as ratio mean score (95% CI) from a negative binomial regression model. For the asthma health clusters, results are expressed as OR (95% CI) from a polytomous logistic regression model.

b MG and/or MO = mold growth and/or mold odor. Most of those who reported MG and/or MO also reported water damage: 87% (197/227) at work and 72% (188/262) at home.

**c** Calculation of the S Index and confidence intervals are described in Rothman 1986 and Knol and VanderWeele 2012, respectively.