**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)** | 533  41%  86% | 302  23%  69% | 467  36%  48% |
| **Just Water Damage**  **(n=501)** | 67  13%  11% | 98  20%  22% | 336  67%  35% |
| **Mold Growth/Odor**  **(n=227)** | 18  7.9%  2.9% | 40  18%  9.1% | 169  74%  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)** | 1,005  77%  67% | 150  12%  54% | 147  11%  56% |
| **Just Water Damage**  **(n=501)** | 344  69%  23% | 87  17%  32% | 70  14%  27% |
| **Mold Growth and/or Odor**  **(n=227)** | 143  63%  9.6% | 39  17%  14% | 45  20%  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** | 27  5.1% | 31  6.6% | 9  16% | 86  11% | 20  12% |
| **BHR-related symptoms** | 94  18% | 93  20% | 26  45% | 234  29% | 75  44% |
| **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** | 43  8.1% | 53  11% | 16  28% | 132  16% | 47  28% |
| **Asthma health clusters** |  |  |  |  |  |
| **HC-1: No symptoms** | 302  57% | 221  47% | 15  26% | 315  39% | 32  19% |
| **HC-2: Winter cough/phlegm** | 154  29% | 146  31% | 24  41% | 251  31% | 65  38% |
| **HC-3: Mild asthma symptoms** | 59  11% | 73  16% | 11  19% | 162  20% | 52  31% |
| **HC-4: Undiagnosed or untreated asthma** | 5  0.9% | 16  3.4% | 1  1.7% | 31  3.9% | 10  5.9% |
| **HC-5: Asthma attacks/exacerbations** | 13  2.4% | 11  2.4% | 7  12% | 44  5.5% | 10  5.9% |

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 d  n=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** | 63  6.3% | 56  9.6% | 21  12% | 25  12% | 8  18% |
| **BHR-related symptoms** | 183  18% | 162  28% | 71  39% | 76  35% | 30  67% |
| **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** | 97  9.7% | 92  16% | 45  25% | 39  18% | 18  40% |
| **Asthma health clusters** |  |  |  |  |  |
| **HC-1: No symptoms** | 547  54% | 219  38% | 42  23% | 72  33% | 5  11% |
| **HC-2: Winter cough/phlegm** | 279  28% | 193  33% | 79  43% | 79  36% | 10  22% |
| **HC-3: Mild asthma symptoms** | 131  13% | 121  21% | 43  24% | 42  19% | 20  44% |
| **HC-4: Undiagnosed or untreated asthma** | 18  1.8% | 25  4.3% | 6  3.3% | 9  4.2% | 5  11% |
| **HC-5: Asthma attacks/exacerbations** | 30  3.0% | 23  4.0% | 12  6.6% | 15  6.9 | 5  11% |

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.