**Table S1: Relative risk (RR, with 95% confidence interval [95% CI]) of daily hospital admissions for cardiorespiratory diseases per 1°C decrease in daily mean temperature during cold season (October-March) in the Helsinki metropolitan area, Finland, 2001-2017.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | RR (95% CI) per 1 °C decrease in daily mean temperature - without adjustment for cold spells | RR (95% CI) per 1 °C decrease in daily mean temperature - adjusted for cold spells (10th percentile) | RR (95% CI) per 1 °C decrease in daily mean temperature adjusted for cold spells (5th percentile) |
| Disease | All-ages  |  ≥75 years | All-ages  | Age ≥75 years | All-ages  | Age ≥75 years |
| **Cardiovascular** |  |  |  |  |  |  |
| All | 0.999 (0.993, 1.005) | 0.996 (0.989, 1.004) | 1.000 (0.991, 1.009) | 0.998 (0.986, 1.010) | 0.997 (0.989, 1.006) | 0.994 (0.983, 1.005) |
| MI\* | **1.017 (1.002, 1.032)** | 1.004 (0.982, 1.026) | 1.022 (0.998, 1.047) | 1.011 (0.975, 1.047) | 1.016 (0.995, 1.038) | 1.013 (0.981, 1.045) |
| IHD\* | 0.999 (0.988, 1.011) | 0.986 (0.970, 1.002) | 1.005 (0.988, 1.022) | 0.989 (0.964, 1.015) | 1.001 (0.986, 1.017) | 0.987 (0.964, 1.010) |
| Cerebrovascular | 0.996 (0.983, 1.009) | 1.003 (0.984, 1.022) | 1.004 (0.983, 1.025) | 1.020 (0.991, 1.050) | 1.002 (0.984, 1.021) | 1.012 (0.986, 1.039) |
| Arrhythmia | 0.999 (0.986, 1.013) | 1.009 (0.990, 1.028) | 0.997 (0.976, 1.018) | 0.996 (0.966, 1.026) | 0.997 (0.978, 1.017) | 0.997 (0.971, 1.025) |
| **Respiratory** |  |  |  |  |  |  |
| All | 1.001 (0.995,1.008) | **1.012 (1.002, 1.022)** | 0.996 (0.986, 1.007) | 1.012 (0.995, 1.029) | 0.998 (0.989, 1.007) | 1.011 (0.996, 1.026) |
| Asthma | 0.996 (0.975,1.018) | 0.962 (0.923, 1.003) | 0.974 (0.940, 1.010) | 0.955 (0.894, 1.020) | 0.972 (0.942, 1.004) | 0.974 (0.916, 1.035) |
| COPD\* | 1.012 (0.995,1.029) | **1.031 (1.006, 1.056)** | 1.014 (0.987, 1.041) | 1.027 (0.986, 1.069) | 1.014 (0.990, 1.039) | 1.031 (0.995, 1.068) |
| Pneumonia | 0.999 (0.989,1.009) | 1.004 (0.989, 1.019) | 0.997 (0.981, 1.014) | 1.009 (0.984, 1.034) | 0.989 (0.975, 1.004) | 0.998 (0.976, 1.020) |
| \*MI= Myocardial Infarction, IHD = Ischemic Heart Disease, COPD = Chronic Obstructive Pulmonary Disease |

**Table S2: Relative risk (RR, with 95% confidence interval [95% CI]) of daily hospital admissions for cardiorespiratory diseases associated with cold spell days (10th percentile) during the cold season (October-March) in the Helsinki metropolitan area, Finland, 2001-2017.**

|  |  |
| --- | --- |
| RR (95% CI) - cold spells (10th percentile) without adjustment for daily mean temperature | RR (95% CI) - cold spells (10th percentile) with adjustment for daily mean temperature |
| Disease | All-ages  | Age ≥75 years | All-ages  | Age ≥75  |
| **Cardiovascular** |  |  |  |  |
| All | 0.985 (0.886, 1.095) | 0.953 (0.828, 1.097) | 0.972 (0.824, 1.146) | 0.969 (0.777,1.208) |
| MI\* | 1.099 (0.831, 1.453) | 1.006 (0.677, 1.496) | 0.820 (0.528,1.272) | 0.863 (0.454,1.639) |
| IHD\* | 0.941 (0.769, 1.152) | 0.833 (0.625, 1.110) | 0.885 (0.647,1.212) | 0.927 (0.583,1.474) |
| Cerebrovascular | 0.873 (0.691, 1.103) | 0.868 (0.620, 1.215) | 0.825 (0.572,1.190) | 0.665 (0.392,1.128) |
| Arrhythmia | 1.013 (0.793,1.294) | 1.299 (0.925, 1.823) | 1.051 (0.715,1.545) | 0.999 (0.742,1.345) |
| **Respiratory** |  |  |  |  |
| All | 1.071 (0.961, 1.193) | 1.182 (0.987, 1.415) | 1.115 (0.928,1.340) | 0.999 (0.742,1.345) |
| Asthma | 1.135 (0.772, 1.668) | 0.702 (0.348, 1.414) | 1.627 (0.870,3.043) | 1.222 (0.391,3.816) |
| COPD\* | 1.164 (0.864, 1.569) | **1.569 (1.013, 2.432)** | 0.963 (0.591,1.568) | 1.087 (0.527,2.243) |
| Pneumonia | 0.996 (0.832, 1.192) | 1.012 (0.771, 1.327) | 1.035 (0.765,1.400) | 0.887 (0.564,1.397) |
| \*MI= Myocardial Infarction, IHD = Ischemic Heart Disease, COPD = Chronic Obstructive Pulmonary Disease |

**Table S3: Relative risk of daily hospital admissions for cardiorespiratory diseases associated with cold spell days (5th percentile) during cold season (October-March) in the Helsinki metropolitan area, Finland, 2001-2017.**

|  |  |
| --- | --- |
| Cold Spells (5th percentile) without adjustment for daily mean temperature | Cold Spells (5th percentile) with adjustment for daily mean temperature |
| Disease | All-ages  | ≥75  | All-ages  | ≥75  |
| **Cardiovascular** |  |  |  |  |
| All | 1.059 (0.910, 1.232) | 1.054 (0.863, 1.287) | 1.048 (0.843, 1.304) | 1.096 (0.817, 1.469) |
| MI\* | 1.266 (0.850, 1.886) | 0.842 (0.468, 1.518) | 1.007 (0.568, 1.787) | 0.722 (0.309, 1.688) |
| IHD\* | 0.967 (0.725, 1.291) | 0.745 (0.487,1.140)  | 0.929 (0.615, 1.402) | 0.939 (0.509, 1.734) |
| Cerebrovascular | 0.860 (0.615, 1.203) | 0.929 (0.575, 1.501) | 0.783 (0.481,1.274) | 0.718 (0.357, 1.447) |
| Arrhythmia | 1.115 (0.787, 1.580) | 1.548 (0.950, 2.522) | 1.095 (0.658, 1.821) | 1.505 (0.737, 3.073) |
| **Respiratory** |  |  |  |  |
| All | 1.127 (0.960, 1.324) | 1.288 (0.984, 1.685) | 1.137 (0.895, 1.444) | 1.025 (0.691, 1.521) |
| Asthma | 1.438 (0.823, 2.513) | 0.458 (0.163, 1.285) | **2.348 (1.026, 5.372)** | 0.632 (0.138, 2.898) |
| COPD\* | 1.177 (0.754, 1.837) | 1.731 (0.904, 3.316) | 0.915 (0.480, 1.746) | 0.988 (0.382, 2.560) |
| Pneumonia | 1.168 (0.895, 1.523) | 1.209 (0.809, 1.806) | 1.407 (0.943, 2.099) | 1.247 (0.685, 2.720) |
| \*MI= Myocardial Infarction, IHD = Ischemic Heart Disease, COPD = Chronic Obstructive Pulmonary Disease |

**Table S4: Relative risk (RR, with 95% confidence interval [95% CI]) of daily hospital admissions for cardiorespiratory diseases per 1°C decrease in daily mean temperature (Lag 0-14) during cold season (October-March) in the Helsinki metropolitan area, Finland, 2001-2017.**

|  |  |
| --- | --- |
|  | RR (95% CI) per 1 °C decrease in daily mean temperature (Lag 0-14) |
| Disease | All-ages  |  ≥75 years |
| **Cardiovascular** |  |  |
| All | 0.993(0.985, 1.002) | 0.985(0.974, 0.997) |
| MI\* | 0.994(0.972, 1.016) | 0.967(0.936, 1.000) |
| IHD\* | 0.988(0.973, 1.004) | 0.962(0.940, 0.985) |
| Cerebrovascular | 0.990(0.972, 1.008) | 0.995(0.970, 1.022) |
| Arrhythmia | 1.004(0.984, 1.024) | 1.016(0.989, 1.045) |
| **Respiratory** |  |  |
| All | 1.003(0.994, 1.013) | 1.013(0.998, 1.029) |
| Asthma | 1.011(0.978, 1.045) | 0.966(0.910, 1.026) |
| COPD\* | 1.010(0.985, 1.036) | 1.041(1.004, 1.080) |
| Pneumonia | 1.001(0.986, 1.016) | 1.011(0.989, 1.034) |
| \*MI= Myocardial Infarction, IHD = Ischemic Heart Disease, COPD = Chronic Obstructive Pulmonary Disease |

|  |  |
| --- | --- |
|  | RR (95% CI) per 1 °C decrease in daily mean temperature (Lag 0-28) |
| Disease | All-ages  |  ≥75 years |
| **Cardiovascular** |  |  |
| All | 1.002(0.997, 1.007) | 0.999 (0.994, 1.005) |
| MI\* | 1.021(1.010, 1.031) | 1.015(0.999, 1.031) |
| IHD\* | 1.011(1.003, 1.019) | 1.002(0.991, 1.014) |
| Cerebrovascular | 1.007(0.997, 1.016) | 1.009(0.996, 1.023) |
| Arrhythmia | 0.998(0.988, 1.008) | 1.008(0.994, 1.022) |
| **Respiratory** |  |  |
| All | 1.000(0.996, 1.005) | 1.004(0.996, 1.011) |
| Asthma | 0.995(0.979, 1.011) | 0.985(0.955, 1.015) |
| COPD\* | 1.009(0.997, 1.021) | 1.017(1.000, 1.036) |
| Pneumonia | 0.996(0.989, 1.004) | 0.999(0.988, 1.010) |
| \*MI= Myocardial Infarction, IHD = Ischemic Heart Disease, COPD = Chronic Obstructive Pulmonary Disease |

**Table S5: Relative risk (RR, with 95% confidence interval [95% CI]) of daily hospital admissions for cardiorespiratory diseases per 1°C decrease in daily mean temperature (Lag 0-28) during cold season (October-March) in the Helsinki metropolitan area, Finland, 2001-2017.**