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## **Supplemental Material**

### **Time-Series Analysis of Heat Waves and Emergency Department**

#### **Visits in Atlanta, Georgia, 1993 to 2012**

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#### **Table of Contents**

**Table S1.** The concordance-discordance between heat wave metrics in Atlanta, 1993-2012.

**Table S2.** Relative risk estimates and 95% confidence intervals of associations of heat wave days compared to non-heat wave days for emergency department visits for all 17 health outcomes.

**Table S3.** Relative risk estimates and 95% confidence interval for emergency department visits in relation to the order of heat wave day defined using maximum or minimum temperature.

**Table S4.** Relative risk estimates and 95% confidence interval for emergency department visits in relation to the order of heat wave periods within a year defined using maximum or minimum temperature.

**Table S5.** Relative risk estimates and 95% confidence interval for emergency department visits associated with per 1°C increase in average temperature during heat waves.

**Figure S1.** Estimated relative risks and 95% confidence intervals for ED visits associated with lag 0 heat wave days compared to non-heat wave days, controlling for different continuous temperature metrics.

**Figure S2.** Estimated relative risks and 95% confidence intervals for ED visits associated with lag 0 and lag 1 heat wave days compared to non-heat wave days, controlling for different continuous dew-point temperature and relative humidity metrics.

**Table S1.** The concordance-discordance between heat wave metrics during May to September in Atlanta, 1993-2012. Heat waves are defined as periods of  $\geq 2$  consecutive days with temperature (T) or apparent temperature (AT) exceeding the 98<sup>th</sup> percentile using daily maximum (MAX), minimum (MIN), or average (AVG). The first day of the heat wave period is considered a non-heat day.

Heat Wave Definitions	MAXT	MINT	AVGT	MAXAT	MINAT	AVGAT
MAXT		256	133	122	150	143
MINT	67 (26%)		251	259	232	245
AVGT	81 (61%)	104 (41%)		141	154	147
MAXAT	78 (64%)	82 (32%)	91 (65%)		154	139
MINAT	37 (25%)	96 (41%)	65 (42%)	51 (33%)		139
AVGAT	66 (46%)	105 (43%)	94 (64%)	88 (63%)	75 (54%)	

The upper triangular elements give the number of days where heat wave occurred using either metrics (union days). The lower triangular elements give the number of days where heat waves occurred using both metrics (intersection days). The concordance percentages are calculated by dividing the number of intersection days by the number of union days.

**Table S2.** Relative risk (RR) estimates and 95% confidence intervals (CI) of associations of heat wave days compared to non-heat wave days for ED visits during May to September in Atlanta, 1993-2012. Heat waves were defined as periods of  $\geq 2$  consecutive days with temperature (T) or apparent temperature (AT) exceeding the 98<sup>th</sup> percentile using daily maximum (MAX), minimum (MIN), or average (AVG). The first day of the heat wave period is considered a non-heat day.

Outcome	Heat Wave	lag0	lag1	lag2	lag3
		R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)
All internal causes	MAXT	1.015 (1.000, 1.030)	1.020 (1.005, 1.035)	1.014 (0.999, 1.029)	1.006 (0.991, 1.021)
	MINT	1.008 (1.000, 1.017)	1.008 (0.999, 1.017)	1.009 (1.001, 1.018)	1.010 (1.001, 1.019)
	AVGT	1.007 (0.995, 1.020)	1.009 (0.997, 1.022)	1.004 (0.991, 1.016)	1.001 (0.989, 1.014)
	MAXAT	0.996 (0.981, 1.010)	0.994 (0.979, 1.009)	0.990 (0.976, 1.005)	0.989 (0.974, 1.003)
	MINAT	1.012 (0.999, 1.025)	1.012 (0.998, 1.025)	1.003 (0.989, 1.016)	1.004 (0.991, 1.017)
	AVGAT	1.004 (0.991, 1.017)	1.005 (0.992, 1.018)	0.995 (0.982, 1.008)	0.993 (0.980, 1.006)
Fluid and electrolyte imbalance	MAXT	1.060 (0.991, 1.134)	0.950 (0.887, 1.017)	1.036 (0.965, 1.112)	1.017 (0.946, 1.094)
	MINT	1.041 (0.998, 1.086)	1.008 (0.966, 1.052)	0.999 (0.956, 1.043)	0.982 (0.940, 1.027)
	AVGT	1.021 (0.964, 1.082)	0.972 (0.917, 1.031)	0.961 (0.904, 1.021)	0.946 (0.889, 1.007)
	MAXAT	1.008 (0.942, 1.078)	0.940 (0.878, 1.007)	0.920 (0.857, 0.988)	0.940 (0.874, 1.011)
	MINAT	0.978 (0.918, 1.042)	0.983 (0.922, 1.048)	0.996 (0.933, 1.063)	0.987 (0.924, 1.055)
	AVGAT	1.012 (0.952, 1.076)	0.961 (0.902, 1.023)	0.902 (0.845, 0.963)	0.918 (0.859, 0.980)
All renal disease	MAXT	1.044 (0.995, 1.095)	0.996 (0.949, 1.045)	1.028 (0.980, 1.079)	1.042 (0.992, 1.094)
	MINT	1.024 (0.995, 1.054)	1.026 (0.997, 1.056)	1.029 (1.000, 1.060)	1.020 (0.991, 1.051)
	AVGT	1.035 (0.994, 1.078)	1.035 (0.994, 1.078)	1.011 (0.971, 1.052)	1.010 (0.969, 1.052)
	MAXAT	1.044 (0.995, 1.095)	0.981 (0.935, 1.029)	1.002 (0.955, 1.051)	1.021 (0.973, 1.072)
	MINAT	1.025 (0.982, 1.070)	1.030 (0.987, 1.076)	0.999 (0.957, 1.044)	1.009 (0.966, 1.054)
	AVGAT	1.031 (0.988, 1.076)	1.038 (0.995, 1.083)	1.035 (0.991, 1.080)	1.011 (0.968, 1.056)
Nephritis and nephrotic syndrome	MAXT	1.035 (0.931, 1.150)	0.974 (0.879, 1.080)	1.078 (0.970, 1.197)	1.080 (0.969, 1.204)
	MINT	1.066 (1.000, 1.136)	1.035 (0.970, 1.104)	1.032 (0.967, 1.101)	1.036 (0.971, 1.106)
	AVGT	1.018 (0.933, 1.112)	0.951 (0.871, 1.039)	0.985 (0.901, 1.078)	1.025 (0.937, 1.122)
	MAXAT	1.086 (0.978, 1.206)	0.980 (0.881, 1.090)	1.038 (0.932, 1.156)	0.971 (0.870, 1.083)
	MINAT	1.037 (0.944, 1.140)	1.063 (0.968, 1.167)	1.012 (0.919, 1.114)	0.973 (0.883, 1.073)
	AVGAT	1.037 (0.946, 1.137)	1.058 (0.964, 1.160)	1.041 (0.947, 1.144)	0.927 (0.842, 1.021)
Acute renal failure	MAXT	1.058 (0.947, 1.182)	0.974 (0.873, 1.086)	1.079 (0.966, 1.206)	1.095 (0.976, 1.229)
	MINT	1.071 (1.001, 1.146)	1.035 (0.967, 1.108)	1.042 (0.973, 1.116)	1.053 (0.983, 1.129)
	AVGT	1.058 (0.965, 1.160)	0.963 (0.878, 1.056)	0.968 (0.880, 1.064)	1.030 (0.937, 1.133)
	MAXAT	1.154 (1.034, 1.288)	1.008 (0.901, 1.126)	1.016 (0.906, 1.138)	0.958 (0.853, 1.076)
	MINAT	1.044 (0.945, 1.153)	1.090 (0.988, 1.203)	1.037 (0.937, 1.147)	0.989 (0.893, 1.096)
	AVGAT	1.066 (0.968, 1.174)	1.096 (0.995, 1.207)	1.027 (0.930, 1.135)	0.918 (0.829, 1.016)

Table S2-continued

Outcome	Heat Wave	lag0	lag1	lag2	lag3
		R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)
All circulatory system disease	MAXT	1.014 (0.998, 1.030)	1.005 (0.990, 1.021)	1.014 (0.998, 1.030)	0.996 (0.980, 1.012)
	MINT	1.011 (1.002, 1.021)	1.014 (1.005, 1.024)	1.004 (0.995, 1.013)	1.006 (0.996, 1.015)
	AVGT	1.007 (0.994, 1.020)	0.999 (0.986, 1.012)	1.002 (0.989, 1.015)	0.995 (0.982, 1.009)
	MAXAT	0.996 (0.981, 1.012)	1.007 (0.991, 1.023)	0.999 (0.983, 1.014)	0.989 (0.974, 1.004)
	MINAT	1.008 (0.994, 1.022)	1.003 (0.990, 1.017)	0.999 (0.986, 1.014)	1.006 (0.992, 1.020)
	AVGAT	1.007 (0.993, 1.020)	1.014 (1.001, 1.028)	0.996 (0.982, 1.010)	0.991 (0.977, 1.005)
Hypertension	MAXT	1.022 (1.005, 1.040)	1.008 (0.991, 1.026)	1.015 (0.998, 1.033)	0.997 (0.979, 1.014)
	MINT	1.008 (0.997, 1.018)	1.017 (1.006, 1.027)	1.003 (0.993, 1.014)	1.008 (0.997, 1.018)
	AVGT	1.005 (0.991, 1.020)	0.999 (0.984, 1.013)	1.003 (0.988, 1.017)	0.998 (0.984, 1.013)
	MAXAT	0.998 (0.981, 1.015)	1.008 (0.991, 1.026)	1.000 (0.983, 1.017)	0.987 (0.970, 1.004)
	MINAT	1.006 (0.991, 1.022)	1.006 (0.991, 1.022)	0.997 (0.982, 1.013)	1.008 (0.993, 1.024)
	AVGAT	1.003 (0.988, 1.019)	1.013 (0.998, 1.029)	0.990 (0.975, 1.005)	0.992 (0.977, 1.007)
Ischemic heart disease	MAXT	1.011 (0.980, 1.042)	0.994 (0.964, 1.025)	1.032 (1.001, 1.064)	0.963 (0.934, 0.994)
	MINT	1.018 (1.000, 1.037)	1.021 (1.003, 1.040)	0.998 (0.980, 1.016)	0.999 (0.981, 1.017)
	AVGT	1.015 (0.989, 1.041)	0.991 (0.966, 1.016)	1.011 (0.986, 1.037)	0.988 (0.963, 1.013)
	MAXAT	0.997 (0.967, 1.027)	0.986 (0.957, 1.017)	1.011 (0.981, 1.042)	0.963 (0.935, 0.993)
	MINAT	0.994 (0.968, 1.021)	0.994 (0.968, 1.022)	0.997 (0.971, 1.025)	1.005 (0.978, 1.033)
	AVGAT	1.002 (0.976, 1.029)	0.997 (0.970, 1.024)	0.998 (0.972, 1.025)	0.975 (0.950, 1.002)
Dysrhythmia	MAXT	0.997 (0.964, 1.031)	0.986 (0.954, 1.020)	1.014 (0.981, 1.049)	0.996 (0.962, 1.030)
	MINT	1.020 (1.000, 1.040)	1.008 (0.988, 1.028)	1.001 (0.981, 1.021)	0.999 (0.979, 1.019)
	AVGT	1.001 (0.973, 1.029)	0.980 (0.953, 1.007)	1.008 (0.980, 1.036)	0.993 (0.966, 1.022)
	MAXAT	0.971 (0.940, 1.004)	0.989 (0.957, 1.023)	0.995 (0.962, 1.028)	1.029 (0.995, 1.063)
	MINAT	1.007 (0.978, 1.037)	0.985 (0.956, 1.014)	0.984 (0.955, 1.014)	0.976 (0.948, 1.006)
	AVGAT	0.990 (0.961, 1.019)	1.016 (0.987, 1.046)	1.013 (0.984, 1.043)	1.003 (0.974, 1.033)
Congestive heart failure	MAXT	0.985 (0.948, 1.024)	0.977 (0.940, 1.015)	1.001 (0.963, 1.040)	0.931 (0.896, 0.968)
	MINT	1.010 (0.987, 1.033)	1.023 (1.000, 1.047)	0.998 (0.975, 1.021)	1.005 (0.983, 1.028)
	AVGT	0.968 (0.938, 1.000)	0.998 (0.966, 1.030)	1.013 (0.981, 1.046)	0.981 (0.950, 1.013)
	MAXAT	0.979 (0.943, 1.017)	1.005 (0.967, 1.044)	0.983 (0.946, 1.021)	0.946 (0.911, 0.982)
	MINAT	1.010 (0.977, 1.045)	0.987 (0.954, 1.021)	0.996 (0.962, 1.030)	1.022 (0.988, 1.058)
	AVGAT	1.006 (0.973, 1.040)	1.005 (0.971, 1.039)	0.991 (0.959, 1.025)	0.987 (0.955, 1.021)
Ischemic stroke	MAXT	1.095 (1.024, 1.172)	1.049 (0.981, 1.122)	1.028 (0.961, 1.100)	1.033 (0.965, 1.105)
	MINT	1.026 (0.986, 1.068)	1.004 (0.965, 1.045)	1.019 (0.979, 1.060)	0.992 (0.953, 1.033)
	AVGT	1.033 (0.977, 1.092)	1.017 (0.961, 1.075)	1.022 (0.966, 1.082)	0.997 (0.943, 1.055)
	MAXAT	1.063 (0.996, 1.136)	0.998 (0.933, 1.066)	0.939 (0.878, 1.005)	1.003 (0.939, 1.072)
	MINAT	1.023 (0.964, 1.085)	1.052 (0.992, 1.115)	1.006 (0.948, 1.068)	0.976 (0.919, 1.036)
	AVGAT	1.025 (0.967, 1.087)	1.024 (0.965, 1.086)	0.991 (0.933, 1.051)	0.987 (0.931, 1.048)

Table S2-continued

Outcome	Heat Wave	lag0	lag1	lag2	lag3
		R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)
All respiratory system disease	MAXT	1.022 (0.982, 1.063)	1.044 (1.003, 1.086)	1.017 (0.977, 1.058)	1.016 (0.976, 1.057)
	MINT	1.002 (0.978, 1.026)	1.002 (0.978, 1.026)	0.988 (0.965, 1.012)	0.990 (0.966, 1.013)
	AVGT	0.999 (0.966, 1.034)	1.006 (0.973, 1.041)	0.987 (0.955, 1.021)	0.990 (0.958, 1.024)
	MAXAT	0.963 (0.925, 1.003)	0.967 (0.929, 1.007)	0.963 (0.925, 1.002)	0.952 (0.915, 0.990)
	MINAT	1.009 (0.973, 1.045)	1.004 (0.969, 1.041)	0.984 (0.949, 1.019)	0.994 (0.959, 1.030)
	AVGAT	0.983 (0.948, 1.019)	0.982 (0.947, 1.018)	0.975 (0.941, 1.011)	0.975 (0.940, 1.010)
Pneumonia	MAXT	1.008 (0.940, 1.081)	0.972 (0.906, 1.042)	1.010 (0.942, 1.083)	1.048 (0.978, 1.123)
	MINT	0.997 (0.956, 1.039)	0.985 (0.945, 1.026)	0.990 (0.950, 1.032)	0.975 (0.936, 1.017)
	AVGT	0.965 (0.909, 1.023)	0.979 (0.923, 1.038)	0.942 (0.888, 0.999)	0.987 (0.931, 1.047)
	MAXAT	0.948 (0.883, 1.017)	0.949 (0.885, 1.017)	0.928 (0.866, 0.995)	0.970 (0.905, 1.039)
	MINAT	0.968 (0.909, 1.030)	1.028 (0.966, 1.094)	1.006 (0.946, 1.071)	0.981 (0.921, 1.044)
	AVGAT	0.966 (0.907, 1.029)	0.991 (0.931, 1.055)	0.984 (0.925, 1.048)	0.981 (0.922, 1.045)
Chronic obstructive pulmonary disease	MAXT	1.025 (0.986, 1.066)	1.009 (0.970, 1.049)	1.023 (0.984, 1.064)	0.978 (0.940, 1.018)
	MINT	1.022 (0.998, 1.045)	1.014 (0.990, 1.037)	0.996 (0.973, 1.019)	0.999 (0.976, 1.022)
	AVGT	1.018 (0.986, 1.051)	0.986 (0.955, 1.019)	0.989 (0.957, 1.021)	0.976 (0.945, 1.008)
	MAXAT	0.991 (0.954, 1.030)	0.984 (0.947, 1.023)	1.011 (0.973, 1.051)	0.948 (0.912, 0.985)
	MINAT	1.016 (0.982, 1.051)	1.009 (0.974, 1.044)	0.978 (0.945, 1.013)	1.022 (0.987, 1.058)
	AVGAT	0.982 (0.949, 1.016)	1.001 (0.967, 1.036)	0.995 (0.962, 1.030)	0.989 (0.956, 1.024)
Asthma/wheeze	MAXT	1.018 (0.954, 1.086)	1.038 (0.973, 1.108)	1.065 (0.999, 1.136)	1.012 (0.949, 1.079)
	MINT	0.971 (0.934, 1.010)	0.979 (0.942, 1.017)	0.989 (0.952, 1.028)	1.002 (0.965, 1.042)
	AVGT	0.921 (0.871, 0.974)	0.967 (0.915, 1.022)	0.997 (0.944, 1.053)	0.996 (0.943, 1.051)
	MAXAT	0.919 (0.860, 0.982)	0.926 (0.867, 0.989)	0.941 (0.882, 1.004)	0.924 (0.866, 0.985)
	MINAT	0.998 (0.942, 1.058)	0.964 (0.909, 1.022)	0.964 (0.909, 1.021)	0.993 (0.937, 1.051)
	AVGAT	0.970 (0.914, 1.028)	0.967 (0.912, 1.025)	0.960 (0.905, 1.018)	0.975 (0.920, 1.033)
Diabetes mellitus	MAXT	0.962 (0.901, 1.027)	1.020 (0.956, 1.088)	1.083 (1.015, 1.155)	1.002 (0.937, 1.071)
	MINT	0.973 (0.935, 1.011)	0.995 (0.957, 1.034)	1.020 (0.981, 1.061)	0.984 (0.947, 1.023)
	AVGT	0.985 (0.932, 1.040)	0.992 (0.939, 1.047)	1.025 (0.970, 1.082)	0.924 (0.874, 0.977)
	MAXAT	0.987 (0.926, 1.053)	1.033 (0.968, 1.102)	1.006 (0.943, 1.074)	0.946 (0.886, 1.010)
	MINAT	1.042 (0.983, 1.104)	0.999 (0.942, 1.058)	1.021 (0.962, 1.082)	0.961 (0.906, 1.019)
	AVGAT	1.010 (0.954, 1.070)	0.965 (0.911, 1.022)	1.055 (0.995, 1.118)	0.949 (0.895, 1.006)
Intestinal infection	MAXT	0.976 (0.876, 1.089)	1.051 (0.942, 1.173)	1.109 (0.994, 1.236)	1.030 (0.922, 1.150)
	MINT	1.081 (1.011, 1.156)	1.032 (0.965, 1.103)	1.007 (0.941, 1.077)	0.971 (0.907, 1.040)
	AVGT	1.020 (0.930, 1.120)	1.102 (1.005, 1.208)	1.040 (0.948, 1.140)	1.043 (0.950, 1.145)
	MAXAT	0.994 (0.889, 1.110)	1.004 (0.899, 1.121)	1.088 (0.975, 1.214)	1.064 (0.953, 1.187)
	MINAT	0.968 (0.876, 1.070)	1.053 (0.954, 1.162)	1.002 (0.909, 1.106)	0.991 (0.897, 1.095)
	AVGAT	1.027 (0.930, 1.134)	1.052 (0.954, 1.161)	1.038 (0.941, 1.145)	1.009 (0.914, 1.114)

**Table S3.** Relative risk (RR) estimates and 95% confidence interval (CI) for ED visits associated with different order of days within a heat wave period during May to September in Atlanta, 1993-2012. Heat waves are defined as periods of  $\geq 2$  consecutive days with temperature (T) or apparent temperature (AT) exceeding the 98<sup>th</sup> percentile using daily maximum (MAX), minimum (MIN), or average (AVG). The first day of the heat wave period is considered a non-heat day.

Outcome	Day	MAXT lag0 R.R. (95% C.I.)	MAXT lag1 R.R. (95% C.I.)	MINT lag 0 R.R. (95% C.I.)	MINT lag1 R.R. (95% C.I.)
All internal causes	2	1.00 (0.99, 1.02)	1.01 (0.99, 1.03)	1.01 (1.00, 1.02)	1.00 (0.99, 1.01)
	3	1.02 (0.99, 1.05)	1.01 (0.99, 1.03)	1.00 (0.98, 1.01)	1.01 (1.00, 1.03)
	4	1.03 (1.00, 1.06)	1.02 (0.99, 1.05)	1.01 (1.00, 1.03)	1.01 (1.00, 1.03)
	>4	1.02 (1.00, 1.05)	1.00 (0.98, 1.02)	1.01 (1.00, 1.03)	1.01 (1.00, 1.02)
Fluid and electrolyte imbalance	2	1.07 (0.98, 1.16)	0.96 (0.88, 1.04)	1.05 (0.99, 1.11)	1.04 (0.98, 1.09)
	3	0.95 (0.84, 1.08)	1.08 (0.97, 1.21)	1.07 (1.00, 1.14)	1.07 (1.00, 1.14)
	4	1.11 (0.96, 1.27)	1.11 (0.97, 1.28)	1.04 (0.95, 1.12)	1.06 (0.98, 1.15)
	>4	1.08 (0.97, 1.20)	1.05 (0.95, 1.16)	1.01 (0.95, 1.08)	0.99 (0.93, 1.04)
All renal diseases	2	1.05 (0.99, 1.11)	0.99 (0.94, 1.05)	1.01 (0.98, 1.06)	1.03 (1.00, 1.07)
	3	0.98 (0.90, 1.08)	0.98 (0.91, 1.07)	1.03 (0.98, 1.08)	1.03 (0.98, 1.07)
	4	1.02 (0.92, 1.13)	1.09 (0.99, 1.20)	1.01 (0.95, 1.07)	1.07 (1.02, 1.13)
	>4	1.08 (1.01, 1.16)	1.03 (0.96, 1.10)	1.04 (1.00, 1.08)	1.04 (1.00, 1.08)
Nephritis and nephrotic syndrome	2	1.01 (0.89, 1.16)	1.07 (0.95, 1.22)	1.05 (0.96, 1.15)	1.06 (0.98, 1.15)
	3	1.03 (0.84, 1.27)	1.05 (0.87, 1.27)	1.07 (0.97, 1.19)	1.03 (0.93, 1.14)
	4	0.95 (0.76, 1.19)	1.17 (0.95, 1.44)	1.10 (0.97, 1.24)	1.12 (1.00, 1.26)
	>4	1.11 (0.95, 1.30)	1.02 (0.88, 1.19)	1.07 (0.98, 1.17)	1.06 (0.98, 1.14)
Acute renal failure	2	1.03 (0.89, 1.18)	1.06 (0.93, 1.21)	1.06 (0.97, 1.16)	1.07 (0.98, 1.17)
	3	1.07 (0.86, 1.34)	1.13 (0.92, 1.38)	1.07 (0.95, 1.19)	1.03 (0.93, 1.15)
	4	1.03 (0.82, 1.29)	1.19 (0.96, 1.48)	1.10 (0.96, 1.25)	1.17 (1.04, 1.31)
	>4	1.13 (0.96, 1.33)	1.03 (0.88, 1.21)	1.08 (0.99, 1.19)	1.06 (0.97, 1.15)
All circulatory system disease	2	1.01 (0.99, 1.03)	0.99 (0.97, 1.01)	1.00 (0.99, 1.02)	1.01 (1.00, 1.02)
	3	1.01 (0.98, 1.04)	1.02 (0.99, 1.05)	1.01 (1.00, 1.03)	1.01 (1.00, 1.03)
	4	1.03 (1.00, 1.07)	1.02 (0.99, 1.05)	1.02 (1.00, 1.04)	1.02 (1.00, 1.03)
	>4	1.02 (0.99, 1.04)	1.00 (0.98, 1.03)	1.02 (1.01, 1.03)	1.01 (1.00, 1.02)
Hypertension	2	1.02 (1.00, 1.04)	0.99 (0.97, 1.02)	1.00 (0.99, 1.01)	1.01 (0.99, 1.02)
	3	1.02 (0.98, 1.05)	1.02 (0.99, 1.06)	1.01 (0.99, 1.02)	1.01 (1.00, 1.03)
	4	1.04 (1.00, 1.08)	1.01 (0.97, 1.05)	1.02 (1.00, 1.04)	1.02 (1.00, 1.04)
	>4	1.02 (1.00, 1.05)	1.01 (0.98, 1.03)	1.02 (1.00, 1.03)	1.01 (1.00, 1.03)
Ischemic heart disease	2	1.02 (0.98, 1.06)	0.98 (0.94, 1.02)	1.01 (0.98, 1.03)	1.03 (1.00, 1.05)
	3	0.98 (0.93, 1.04)	1.05 (0.99, 1.10)	1.04 (1.01, 1.07)	1.00 (0.97, 1.03)
	4	1.04 (0.97, 1.11)	1.01 (0.95, 1.08)	1.02 (0.98, 1.06)	1.02 (0.99, 1.06)
	>4	0.99 (0.94, 1.03)	0.99 (0.94, 1.04)	1.02 (0.99, 1.04)	1.01 (0.99, 1.03)

Table S3-continued

Outcome	Day	MAXT lag0	MAXT lag1	MINT lag 0	MINT lag1
		R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)
Dysrhythmia	2	1.00 (0.96, 1.05)	0.97 (0.93, 1.01)	1.02 (0.99, 1.05)	1.01 (0.98, 1.03)
	3	0.97 (0.90, 1.03)	1.04 (0.98, 1.10)	1.02 (0.99, 1.05)	1.01 (0.98, 1.04)
	4	1.02 (0.95, 1.10)	1.00 (0.94, 1.08)	1.03 (0.99, 1.07)	1.02 (0.98, 1.05)
	>4	0.99 (0.94, 1.05)	0.98 (0.94, 1.04)	1.02 (0.99, 1.05)	1.00 (0.98, 1.03)
Congestive heart failure	2	1.02 (0.94, 1.10)	0.94 (0.86, 1.02)	1.00 (0.97, 1.03)	1.01 (0.99, 1.04)
	3	0.98 (0.92, 1.04)	0.96 (0.90, 1.02)	1.02 (0.98, 1.06)	1.00 (0.97, 1.04)
	4	1.00 (0.97, 1.03)	1.01 (0.99, 1.04)	1.00 (0.96, 1.05)	1.02 (0.98, 1.07)
	>4	1.02 (0.94, 1.10)	0.94 (0.86, 1.02)	1.01 (0.98, 1.05)	1.01 (0.98, 1.04)
Ischemic stroke	2	1.07 (0.98, 1.16)	1.02 (0.94, 1.10)	1.04 (0.98, 1.09)	1.00 (0.95, 1.05)
	3	1.06 (0.93, 1.20)	1.03 (0.92, 1.16)	1.00 (0.94, 1.07)	1.04 (0.98, 1.11)
	4	1.16 (1.01, 1.34)	1.17 (1.02, 1.34)	1.10 (1.01, 1.18)	1.03 (0.96, 1.11)
	>4	1.13 (1.02, 1.26)	1.10 (0.99, 1.21)	1.01 (0.95, 1.06)	0.98 (0.93, 1.03)
All respiratory system disease	2	1.00 (0.95, 1.05)	1.02 (0.97, 1.07)	1.01 (0.98, 1.04)	1.00 (0.97, 1.03)
	3	1.01 (0.94, 1.09)	1.01 (0.94, 1.07)	0.99 (0.96, 1.03)	1.00 (0.97, 1.04)
	4	1.01 (0.92, 1.10)	1.03 (0.94, 1.12)	1.01 (0.97, 1.06)	1.00 (0.96, 1.05)
	>4	1.07 (1.01, 1.14)	1.07 (1.01, 1.13)	0.99 (0.96, 1.03)	1.00 (0.97, 1.03)
Pneumonia	2	1.01 (0.93, 1.11)	0.94 (0.86, 1.03)	1.03 (0.97, 1.09)	0.98 (0.93, 1.04)
	3	0.94 (0.83, 1.07)	1.02 (0.91, 1.14)	0.97 (0.90, 1.03)	1.04 (0.97, 1.10)
	4	1.06 (0.92, 1.23)	1.04 (0.90, 1.20)	0.99 (0.91, 1.07)	1.01 (0.93, 1.09)
	>4	1.01 (0.91, 1.12)	0.96 (0.87, 1.06)	0.98 (0.92, 1.04)	0.98 (0.93, 1.04)
Chronic obstructive pulmonary disease	2	1.02 (0.97, 1.07)	1.02 (0.97, 1.06)	1.01 (0.98, 1.04)	1.00 (0.97, 1.03)
	3	1.06 (0.98, 1.14)	1.01 (0.94, 1.08)	1.03 (0.99, 1.06)	1.03 (1.00, 1.07)
	4	1.02 (0.94, 1.11)	1.02 (0.93, 1.10)	1.04 (1.00, 1.09)	0.99 (0.94, 1.03)
	>4	1.01 (0.95, 1.08)	0.98 (0.92, 1.04)	1.02 (0.99, 1.06)	1.02 (0.99, 1.05)
Asthma/wheeze	2	0.96 (0.88, 1.05)	0.99 (0.91, 1.07)	0.98 (0.93, 1.03)	0.98 (0.93, 1.03)
	3	1.00 (0.89, 1.13)	0.98 (0.88, 1.08)	0.96 (0.90, 1.03)	0.99 (0.93, 1.05)
	4	1.01 (0.88, 1.16)	1.00 (0.88, 1.15)	0.98 (0.91, 1.06)	0.96 (0.89, 1.04)
	>4	1.10 (1.01, 1.21)	1.07 (0.99, 1.16)	0.96 (0.91, 1.02)	0.99 (0.95, 1.04)
Diabetes mellitus	2	0.92 (0.85, 1.01)	1.02 (0.94, 1.10)	0.97 (0.92, 1.02)	1.00 (0.95, 1.05)
	3	1.03 (0.92, 1.17)	1.07 (0.96, 1.20)	0.96 (0.90, 1.02)	0.99 (0.93, 1.05)
	4	1.05 (0.92, 1.20)	0.98 (0.85, 1.13)	0.97 (0.90, 1.05)	1.00 (0.93, 1.07)
	>4	0.94 (0.85, 1.05)	0.98 (0.89, 1.09)	0.99 (0.94, 1.05)	1.02 (0.97, 1.07)
Intestinal infection	2	0.95 (0.83, 1.10)	0.94 (0.81, 1.08)	1.05 (0.96, 1.15)	1.05 (0.96, 1.14)
	3	0.85 (0.69, 1.06)	1.02 (0.85, 1.23)	1.16 (1.04, 1.29)	1.07 (0.96, 1.18)
	4	0.93 (0.73, 1.17)	0.98 (0.78, 1.24)	1.15 (1.01, 1.31)	1.02 (0.90, 1.16)
	>4	1.09 (0.93, 1.27)	1.14 (0.99, 1.32)	1.05 (0.95, 1.15)	1.05 (0.97, 1.14)



**Table S4.** Relative risk (RR) estimates and 95% confidence interval (CI) for ED visits associated with different order of heat wave periods within a year during May to September in Atlanta, 1993-2012. Heat waves are defined as periods of  $\geq 2$  consecutive days with temperature (T) or apparent temperature (AT) exceeding the 98<sup>th</sup> percentile using daily maximum (MAX), minimum (MIN), or average (AVG). The first day of the heat wave period is considered a non-heat day.

Outcome	Sequence	MAXT lag0 R.R. (95% C.I.)	MAXT lag1 R.R. (95% C.I.)	MINT lag 0 R.R. (95% C.I.)	MINT lag1 R.R. (95% C.I.)
All internal causes	1	1.02 (1.00, 1.04)	1.01 (0.99, 1.03)	1.01 (1.00, 1.02)	1.00 (0.99, 1.01)
	2	1.00 (0.98, 1.02)	1.00 (0.98, 1.01)	1.03 (1.01, 1.04)	1.01 (1.00, 1.02)
	$\geq 3$	1.03 (1.01, 1.05)	1.02 (1.00, 1.04)	1.02 (1.01, 1.03)	1.01 (1.00, 1.02)
Fluid and electrolyte imbalance	1	1.04 (0.94, 1.14)	1.02 (0.93, 1.12)	1.12 (1.06, 1.19)	1.14 (1.08, 1.21)
	2	1.04 (0.96, 1.13)	1.05 (0.97, 1.13)	1.12 (1.05, 1.20)	1.08 (1.01, 1.15)
	$\geq 3$	1.09 (1.00, 1.19)	1.08 (0.99, 1.17)	1.02 (0.97, 1.07)	0.99 (0.95, 1.03)
All renal diseases	1	1.04 (0.97, 1.11)	1.03 (0.96, 1.09)	1.02 (0.98, 1.06)	1.02 (0.99, 1.07)
	2	1.03 (0.97, 1.09)	1.03 (0.97, 1.08)	1.04 (1.00, 1.10)	1.08 (1.03, 1.13)
	$\geq 3$	1.06 (1.00, 1.13)	1.03 (0.97, 1.10)	1.02 (0.99, 1.06)	1.03 (1.00, 1.06)
Nephritis and nephrotic syndrome	1	0.86 (0.74, 1.01)	1.07 (0.93, 1.23)	1.12 (1.02, 1.23)	1.12 (1.03, 1.22)
	2	1.00 (0.88, 1.13)	1.03 (0.91, 1.16)	1.07 (0.96, 1.19)	1.08 (0.98, 1.20)
	$\geq 3$	1.08 (0.95, 1.23)	1.08 (0.95, 1.22)	1.06 (0.99, 1.13)	1.05 (0.98, 1.12)
Acute renal failure	1	0.88 (0.74, 1.03)	1.06 (0.92, 1.23)	1.14 (1.04, 1.26)	1.14 (1.04, 1.25)
	2	1.02 (0.89, 1.16)	1.02 (0.90, 1.16)	1.09 (0.97, 1.22)	1.12 (1.01, 1.25)
	$\geq 3$	1.15 (1.01, 1.32)	1.12 (0.99, 1.28)	1.06 (0.99, 1.14)	1.05 (0.98, 1.12)
All circulatory system disease	1	1.00 (0.98, 1.03)	1.00 (0.98, 1.02)	1.02 (1.00, 1.03)	1.01 (1.00, 1.02)
	2	1.01 (0.99, 1.03)	1.01 (0.99, 1.02)	1.02 (1.00, 1.03)	1.01 (0.99, 1.02)
	$\geq 3$	1.02 (1.00, 1.04)	1.01 (0.99, 1.02)	1.01 (1.00, 1.02)	1.01 (1.00, 1.02)
Hypertension	1	1.01 (0.98, 1.03)	1.00 (0.98, 1.02)	1.02 (1.00, 1.03)	1.01 (0.99, 1.02)
	2	1.02 (1.00, 1.04)	1.02 (1.00, 1.04)	1.02 (1.00, 1.03)	1.01 (0.99, 1.02)
	$\geq 3$	1.02 (1.00, 1.04)	1.01 (0.99, 1.03)	1.01 (1.00, 1.02)	1.01 (1.00, 1.02)
Ischemic heart disease	1	1.00 (0.96, 1.04)	1.00 (0.96, 1.04)	1.03 (1.00, 1.06)	1.02 (1.00, 1.05)
	2	1.01 (0.98, 1.05)	1.02 (0.99, 1.06)	1.01 (0.98, 1.05)	1.01 (0.99, 1.04)
	$\geq 3$	0.99 (0.96, 1.03)	1.00 (0.96, 1.04)	1.00 (0.99, 1.02)	1.01 (0.99, 1.03)

Table S4-continued

Outcome	Sequence	MAXT lag0	MAXT lag1	MINT lag 0	MINT lag1
		R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)
Dysrhythmia	1	1.00 (0.96, 1.05)	1.00 (0.95, 1.04)	1.04 (1.01, 1.07)	1.02 (0.99, 1.05)
	2	1.01 (0.97, 1.05)	1.00 (0.96, 1.03)	1.03 (0.99, 1.06)	1.00 (0.97, 1.03)
	$\geq 3$	1.01 (0.97, 1.05)	0.99 (0.95, 1.03)	1.02 (1.00, 1.04)	1.01 (0.99, 1.03)
Congestive heart failure	1	0.98 (0.93, 1.04)	0.98 (0.93, 1.04)	1.02 (0.99, 1.06)	1.02 (0.99, 1.05)
	2	0.99 (0.94, 1.03)	0.96 (0.92, 1.00)	0.99 (0.95, 1.03)	0.99 (0.96, 1.03)
	$\geq 3$	1.03 (0.98, 1.08)	0.97 (0.93, 1.02)	1.00 (0.98, 1.03)	1.01 (0.99, 1.03)
Ischemic stroke	1	1.03 (0.94, 1.14)	1.00 (0.91, 1.09)	1.02 (0.96, 1.08)	1.01 (0.96, 1.07)
	2	1.13 (1.04, 1.22)	1.08 (1.00, 1.16)	1.04 (0.97, 1.11)	1.04 (0.98, 1.10)
	$\geq 3$	1.10 (1.01, 1.19)	1.11 (1.02, 1.20)	1.05 (1.00, 1.09)	1.01 (0.98, 1.05)
All respiratory system disease	1	1.02 (0.96, 1.08)	1.04 (0.99, 1.10)	1.01 (0.97, 1.04)	1.00 (0.97, 1.03)
	2	0.99 (0.94, 1.04)	1.00 (0.96, 1.04)	1.03 (0.99, 1.07)	1.02 (0.98, 1.06)
	$\geq 3$	1.02 (0.97, 1.08)	1.03 (0.99, 1.09)	1.01 (0.98, 1.03)	1.00 (0.98, 1.02)
Pneumonia	1	0.95 (0.87, 1.05)	0.96 (0.87, 1.05)	0.99 (0.94, 1.05)	1.02 (0.96, 1.07)
	2	1.04 (0.96, 1.13)	1.02 (0.95, 1.10)	1.07 (1.01, 1.15)	1.07 (1.01, 1.14)
	$\geq 3$	0.99 (0.91, 1.09)	0.96 (0.88, 1.05)	0.98 (0.93, 1.02)	0.99 (0.95, 1.03)
Chronic obstructive pulmonary disease	1	1.01 (0.96, 1.07)	0.99 (0.94, 1.04)	1.02 (0.98, 1.05)	1.01 (0.98, 1.05)
	2	1.07 (1.02, 1.12)	1.06 (1.01, 1.10)	1.01 (0.97, 1.05)	1.00 (0.97, 1.04)
	$\geq 3$	1.03 (0.98, 1.08)	0.97 (0.93, 1.02)	1.01 (0.98, 1.03)	1.01 (0.99, 1.03)
Asthma/wheeze	1	1.04 (0.94, 1.14)	1.02 (0.93, 1.11)	0.98 (0.93, 1.04)	0.98 (0.93, 1.03)
	2	0.96 (0.89, 1.04)	0.96 (0.89, 1.03)	1.02 (0.96, 1.08)	1.05 (0.99, 1.11)
	$\geq 3$	0.99 (0.91, 1.07)	1.01 (0.93, 1.08)	0.97 (0.93, 1.01)	0.96 (0.93, 1.00)
Diabetes mellitus	1	1.00 (0.92, 1.10)	0.97 (0.89, 1.06)	1.01 (0.95, 1.07)	1.01 (0.96, 1.06)
	2	0.96 (0.89, 1.04)	1.00 (0.93, 1.08)	1.00 (0.93, 1.06)	1.04 (0.98, 1.10)
	$\geq 3$	0.94 (0.87, 1.02)	0.96 (0.89, 1.04)	0.96 (0.92, 1.00)	0.98 (0.94, 1.01)
Intestinal infection	1	0.93 (0.80, 1.09)	0.96 (0.83, 1.11)	1.03 (0.93, 1.13)	1.08 (0.99, 1.18)
	2	1.01 (0.89, 1.15)	0.98 (0.87, 1.10)	1.01 (0.90, 1.14)	1.01 (0.91, 1.13)
	$\geq 3$	1.02 (0.89, 1.18)	1.07 (0.94, 1.23)	1.07 (0.99, 1.15)	1.05 (0.98, 1.12)

**Table S5.** Relative risk (RR) estimates and 95% confidence interval (CI) for ED visits associated with per °C increase in average temperature during heat waves during May to September in Atlanta, 1993-2012. Heat waves are defined as periods of  $\geq 2$  consecutive days with temperature (T) or apparent temperature (AT) exceeding the 98<sup>th</sup> percentile using daily maximum (MAX), minimum (MIN), or average (AVG). The first day of the heat wave period is considered a non-heat day.

Outcome	Heat Wave	lag0	lag1	lag2	lag3
		R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)
All internal causes	MAXT	1.0004 (1.0000, 1.0008)	1.0005 (1.0001, 1.0010)	1.0004 (1.0000, 1.0008)	1.0002 (0.9998, 1.0006)
	MINT	1.0003 (1.0000, 1.0007)	1.0003 (1.0000, 1.0007)	1.0004 (1.0000, 1.0008)	1.0004 (1.0000, 1.0008)
	AVGT	1.0002 (0.9998, 1.0006)	1.0003 (0.9999, 1.0007)	1.0001 (0.9997, 1.0005)	1.0000 (0.9996, 1.0005)
	MAXAT	0.9999 (0.9995, 1.0003)	0.9998 (0.9994, 1.0002)	0.9997 (0.9993, 1.0001)	0.9997 (0.9993, 1.0001)
	MINAT	1.0004 (1.0000, 1.0009)	1.0004 (0.9999, 1.0009)	1.0001 (0.9996, 1.0006)	1.0001 (0.9997, 1.0006)
	AVGAT	1.0001 (0.9997, 1.0005)	1.0002 (0.9997, 1.0006)	0.9998 (0.9994, 1.0003)	0.9998 (0.9993, 1.0002)
Fluid and electrolyte imbalance	MAXT	1.0016 (0.9997, 1.0035)	0.9986 (0.9967, 1.0005)	1.0011 (0.9991, 1.0031)	1.0006 (0.9986, 1.0026)
	MINT	1.0017 (0.9999, 1.0035)	1.0004 (0.9986, 1.0022)	1.0000 (0.9982, 1.0018)	0.9993 (0.9975, 1.0012)
	AVGT	1.0007 (0.9988, 1.0026)	0.9991 (0.9971, 1.0010)	0.9988 (0.9967, 1.0008)	0.9982 (0.9961, 1.0003)
	MAXAT	1.0002 (0.9984, 1.0021)	0.9983 (0.9965, 1.0002)	0.9978 (0.9958, 0.9997)	0.9985 (0.9965, 1.0004)
	MINAT	0.9992 (0.9969, 1.0016)	0.9994 (0.9970, 1.0018)	0.9999 (0.9975, 1.0023)	0.9996 (0.9972, 1.0020)
	AVGAT	1.0004 (0.9984, 1.0024)	0.9988 (0.9968, 1.0007)	0.9968 (0.9947, 0.9988)	0.9973 (0.9953, 0.9994)
All renal disease	MAXT	1.0012 (0.9998, 1.0025)	0.9998 (0.9985, 1.0012)	1.0008 (0.9994, 1.0021)	1.0011 (0.9998, 1.0025)
	MINT	1.0010 (0.9998, 1.0022)	1.0011 (0.9999, 1.0023)	1.0012 (1.0000, 1.0024)	1.0008 (0.9996, 1.0020)
	AVGT	1.0011 (0.9997, 1.0025)	1.0011 (0.9998, 1.0025)	1.0004 (0.9990, 1.0017)	1.0003 (0.9990, 1.0017)
	MAXAT	1.0011 (0.9998, 1.0025)	0.9994 (0.9981, 1.0007)	1.0000 (0.9987, 1.0014)	1.0006 (0.9992, 1.0019)
	MINAT	1.0009 (0.9993, 1.0025)	1.0011 (0.9995, 1.0027)	1.0000 (0.9984, 1.0016)	1.0003 (0.9987, 1.0019)
	AVGAT	1.0009 (0.9996, 1.0023)	1.0012 (0.9998, 1.0025)	1.0011 (0.9997, 1.0025)	1.0003 (0.9990, 1.0017)
Nephritis and nephrotic syndrome	MAXT	1.0009 (0.9980, 1.0038)	0.9993 (0.9964, 1.0022)	1.0021 (0.9992, 1.0051)	1.0021 (0.9991, 1.0052)
	MINT	1.0027 (1.0000, 1.0054)	1.0015 (0.9988, 1.0042)	1.0013 (0.9986, 1.0040)	1.0014 (0.9987, 1.0041)
	AVGT	1.0007 (0.9977, 1.0036)	0.9983 (0.9954, 1.0013)	0.9995 (0.9965, 1.0025)	1.0009 (0.9978, 1.0039)
	MAXAT	1.0023 (0.9994, 1.0052)	0.9995 (0.9966, 1.0024)	1.0010 (0.9981, 1.0040)	0.9991 (0.9962, 1.0021)
	MINAT	1.0013 (0.9978, 1.0048)	1.0022 (0.9988, 1.0057)	1.0005 (0.9970, 1.0041)	0.9990 (0.9954, 1.0026)
	AVGAT	1.0012 (0.9982, 1.0041)	1.0018 (0.9988, 1.0047)	1.0013 (0.9983, 1.0043)	0.9976 (0.9945, 1.0006)
Acute renal failure	MAXT	1.0015 (0.9984, 1.0046)	0.9993 (0.9963, 1.0023)	1.0022 (0.9991, 1.0053)	1.0025 (0.9993, 1.0057)
	MINT	1.0029 (1.0001, 1.0057)	1.0015 (0.9987, 1.0044)	1.0017 (0.9989, 1.0046)	1.0021 (0.9992, 1.0050)
	AVGT	1.0020 (0.9989, 1.0051)	0.9987 (0.9956, 1.0018)	0.9989 (0.9957, 1.0021)	1.0010 (0.9978, 1.0043)
	MAXAT	1.0040 (1.0009, 1.0070)	1.0002 (0.9972, 1.0033)	1.0004 (0.9973, 1.0036)	0.9988 (0.9956, 1.0020)
	MINAT	1.0015 (0.9979, 1.0052)	1.0031 (0.9995, 1.0068)	1.0014 (0.9977, 1.0051)	0.9996 (0.9958, 1.0034)
	AVGAT	1.0021 (0.9990, 1.0051)	1.0029 (0.9998, 1.0060)	1.0008 (0.9977, 1.0040)	0.9972 (0.9940, 1.0005)

Table S5 continued

Outcome	Heat Wave	lag0	lag1	lag2	lag3
		R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)
All circulatory system disease	MAXT	1.0004 (0.9999, 1.0008)	1.0001 (0.9997, 1.0006)	1.0004 (0.9999, 1.0008)	0.9999 (0.9995, 1.0003)
	MINT	1.0005 (1.0001, 1.0008)	1.0006 (1.0002, 1.0010)	1.0002 (0.9998, 1.0006)	1.0002 (0.9999, 1.0006)
	AVGT	1.0002 (0.9998, 1.0007)	0.9999 (0.9995, 1.0004)	1.0001 (0.9996, 1.0005)	0.9998 (0.9994, 1.0003)
	MAXAT	0.9999 (0.9995, 1.0003)	1.0002 (0.9998, 1.0006)	0.9999 (0.9995, 1.0004)	0.9997 (0.9993, 1.0001)
	MINAT	1.0003 (0.9998, 1.0008)	1.0001 (0.9996, 1.0006)	1.0000 (0.9995, 1.0005)	1.0002 (0.9997, 1.0007)
	AVGAT	1.0002 (0.9998, 1.0006)	1.0005 (1.0000, 1.0009)	0.9999 (0.9994, 1.0003)	0.9997 (0.9993, 1.0001)
Hypertension	MAXT	1.0006 (1.0001, 1.0011)	1.0002 (0.9997, 1.0007)	1.0004 (0.9999, 1.0009)	0.9999 (0.9994, 1.0004)
	MINT	1.0003 (0.9999, 1.0007)	1.0007 (1.0003, 1.0011)	1.0001 (0.9997, 1.0006)	1.0003 (0.9999, 1.0007)
	AVGT	1.0002 (0.9997, 1.0007)	0.9999 (0.9995, 1.0004)	1.0001 (0.9996, 1.0006)	0.9999 (0.9994, 1.0004)
	MAXAT	0.9999 (0.9995, 1.0004)	1.0002 (0.9997, 1.0007)	1.0000 (0.9995, 1.0005)	0.9996 (0.9991, 1.0001)
	MINAT	1.0002 (0.9997, 1.0008)	1.0002 (0.9997, 1.0008)	0.9999 (0.9993, 1.0005)	1.0003 (0.9998, 1.0009)
	AVGAT	1.0001 (0.9996, 1.0006)	1.0004 (0.9999, 1.0009)	0.9997 (0.9992, 1.0002)	0.9997 (0.9993, 1.0002)
Ischemic heart disease	MAXT	1.0003 (0.9994, 1.0011)	0.9998 (0.9990, 1.0007)	1.0009 (1.0000, 1.0017)	0.9990 (0.9981, 0.9998)
	MINT	1.0008 (1.0000, 1.0015)	1.0009 (1.0001, 1.0016)	0.9999 (0.9992, 1.0007)	0.9999 (0.9992, 1.0007)
	AVGT	1.0005 (0.9996, 1.0013)	0.9997 (0.9988, 1.0005)	1.0003 (0.9995, 1.0012)	0.9996 (0.9987, 1.0004)
	MAXAT	0.9999 (0.9991, 1.0007)	0.9996 (0.9988, 1.0005)	1.0003 (0.9995, 1.0011)	0.9990 (0.9981, 0.9998)
	MINAT	0.9998 (0.9988, 1.0008)	0.9998 (0.9988, 1.0008)	0.9999 (0.9989, 1.0009)	1.0002 (0.9992, 1.0012)
	AVGAT	1.0001 (0.9992, 1.0009)	0.9999 (0.9991, 1.0008)	0.9999 (0.9991, 1.0008)	0.9992 (0.9984, 1.0001)
Dysrhythmia	MAXT	0.9999 (0.9990, 1.0008)	0.9996 (0.9987, 1.0005)	1.0004 (0.9995, 1.0013)	0.9999 (0.9989, 1.0008)
	MINT	1.0008 (1.0000, 1.0016)	1.0003 (0.9995, 1.0011)	1.0000 (0.9992, 1.0009)	0.9999 (0.9991, 1.0008)
	AVGT	1.0000 (0.9991, 1.0010)	0.9993 (0.9984, 1.0002)	1.0003 (0.9993, 1.0012)	0.9998 (0.9988, 1.0007)
	MAXAT	0.9992 (0.9983, 1.0001)	0.9997 (0.9988, 1.0006)	0.9998 (0.9989, 1.0008)	1.0008 (0.9999, 1.0017)
	MINAT	1.0002 (0.9991, 1.0013)	0.9994 (0.9983, 1.0005)	0.9994 (0.9983, 1.0005)	0.9991 (0.9980, 1.0002)
	AVGAT	0.9996 (0.9987, 1.0006)	1.0005 (0.9996, 1.0015)	1.0004 (0.9995, 1.0013)	1.0001 (0.9992, 1.0010)
Congestive heart failure	MAXT	0.9996 (0.9985, 1.0007)	0.9994 (0.9983, 1.0004)	1.0000 (0.9989, 1.0011)	0.9980 (0.9970, 0.9991)
	MINT	1.0004 (0.9994, 1.0013)	1.0009 (1.0000, 1.0019)	0.9999 (0.9990, 1.0008)	1.0002 (0.9993, 1.0012)
	AVGT	0.9989 (0.9978, 1.0000)	0.9999 (0.9988, 1.0010)	1.0004 (0.9994, 1.0015)	0.9993 (0.9983, 1.0004)
	MAXAT	0.9994 (0.9984, 1.0005)	1.0001 (0.9991, 1.0012)	0.9995 (0.9985, 1.0005)	0.9985 (0.9974, 0.9995)
	MINAT	1.0003 (0.9991, 1.0016)	0.9995 (0.9982, 1.0007)	0.9998 (0.9986, 1.0011)	1.0008 (0.9996, 1.0021)
	AVGAT	1.0002 (0.9991, 1.0012)	1.0001 (0.9991, 1.0012)	0.9997 (0.9986, 1.0008)	0.9996 (0.9985, 1.0007)
Ischemic stroke	MAXT	1.0025 (1.0007, 1.0044)	1.0013 (0.9994, 1.0031)	1.0008 (0.9989, 1.0027)	1.0009 (0.9990, 1.0028)
	MINT	1.0011 (0.9994, 1.0027)	1.0002 (0.9985, 1.0019)	1.0008 (0.9991, 1.0025)	0.9997 (0.9980, 1.0014)
	AVGT	1.0011 (0.9992, 1.0030)	1.0006 (0.9987, 1.0024)	1.0008 (0.9989, 1.0027)	0.9999 (0.9980, 1.0018)
	MAXAT	1.0017 (0.9999, 1.0035)	0.9999 (0.9981, 1.0017)	0.9983 (0.9965, 1.0001)	1.0001 (0.9983, 1.0019)
	MINAT	1.0008 (0.9987, 1.0030)	1.0019 (0.9997, 1.0041)	1.0003 (0.9981, 1.0025)	0.9991 (0.9969, 1.0013)
	AVGAT	1.0008 (0.9989, 1.0026)	1.0007 (0.9989, 1.0026)	0.9997 (0.9979, 1.0016)	0.9997 (0.9978, 1.0015)

Table S5 continued

Outcome	Heat Wave	lag0	lag1	lag2	lag3
		R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)	R.R. (95% C.I.)
All respiratory system disease	MAXT	1.0006 (0.9995, 1.0017)	1.0012 (1.0001, 1.0023)	1.0005 (0.9994, 1.0016)	1.0005 (0.9994, 1.0016)
	MINT	1.0001 (0.9991, 1.0011)	1.0001 (0.9991, 1.0011)	0.9995 (0.9985, 1.0005)	0.9996 (0.9986, 1.0006)
	AVGT	1.0000 (0.9989, 1.0011)	1.0002 (0.9991, 1.0014)	0.9996 (0.9985, 1.0007)	0.9997 (0.9986, 1.0008)
	MAXAT	0.9990 (0.9979, 1.0001)	0.9991 (0.9980, 1.0002)	0.9990 (0.9979, 1.0001)	0.9987 (0.9976, 0.9997)
	MINAT	1.0003 (0.9990, 1.0016)	1.0002 (0.9988, 1.0015)	0.9994 (0.9981, 1.0007)	0.9998 (0.9985, 1.0011)
	AVGAT	0.9994 (0.9983, 1.0006)	0.9994 (0.9983, 1.0006)	0.9992 (0.9980, 1.0003)	0.9992 (0.9980, 1.0003)
Pneumonia	MAXT	1.0002 (0.9983, 1.0021)	0.9992 (0.9973, 1.0011)	1.0003 (0.9984, 1.0022)	1.0013 (0.9994, 1.0033)
	MINT	0.9998 (0.9981, 1.0015)	0.9994 (0.9977, 1.0011)	0.9996 (0.9978, 1.0013)	0.9989 (0.9972, 1.0007)
	AVGT	0.9987 (0.9968, 1.0007)	0.9993 (0.9973, 1.0013)	0.9980 (0.9961, 1.0000)	0.9996 (0.9976, 1.0015)
	MAXAT	0.9985 (0.9966, 1.0005)	0.9985 (0.9966, 1.0004)	0.9979 (0.9961, 0.9998)	0.9992 (0.9973, 1.0010)
	MINAT	0.9988 (0.9965, 1.0011)	1.0010 (0.9987, 1.0033)	1.0002 (0.9979, 1.0025)	0.9993 (0.9970, 1.0016)
	AVGAT	0.9989 (0.9969, 1.0009)	0.9997 (0.9977, 1.0017)	0.9995 (0.9975, 1.0015)	0.9994 (0.9974, 1.0013)
Chronic obstructive pulmonary disease	MAXT	1.0007 (0.9996, 1.0018)	1.0002 (0.9992, 1.0013)	1.0007 (0.9996, 1.0017)	0.9994 (0.9983, 1.0005)
	MINT	1.0009 (0.9999, 1.0019)	1.0006 (0.9996, 1.0016)	0.9999 (0.9989, 1.0008)	1.0000 (0.9990, 1.0009)
	AVGT	1.0006 (0.9995, 1.0017)	0.9995 (0.9984, 1.0006)	0.9996 (0.9985, 1.0007)	0.9992 (0.9981, 1.0002)
	MAXAT	0.9997 (0.9987, 1.0008)	0.9996 (0.9985, 1.0006)	1.0003 (0.9992, 1.0014)	0.9985 (0.9975, 0.9996)
	MINAT	1.0006 (0.9993, 1.0018)	1.0003 (0.9991, 1.0016)	0.9992 (0.9979, 1.0005)	1.0008 (0.9995, 1.0021)
	AVGAT	0.9994 (0.9983, 1.0005)	1.0000 (0.9989, 1.0011)	0.9999 (0.9988, 1.0010)	0.9997 (0.9986, 1.0008)
Asthma/wheeze	MAXT	1.0005 (0.9988, 1.0023)	1.0011 (0.9993, 1.0029)	1.0018 (1.0000, 1.0036)	1.0003 (0.9986, 1.0021)
	MINT	0.9988 (0.9972, 1.0004)	0.9992 (0.9976, 1.0008)	0.9996 (0.9980, 1.0012)	1.0001 (0.9985, 1.0017)
	AVGT	0.9973 (0.9955, 0.9992)	0.9990 (0.9971, 1.0008)	1.0000 (0.9981, 1.0018)	1.0000 (0.9981, 1.0018)
	MAXAT	0.9978 (0.9960, 0.9996)	0.9980 (0.9962, 0.9998)	0.9984 (0.9966, 1.0002)	0.9979 (0.9961, 0.9996)
	MINAT	0.9999 (0.9978, 1.0021)	0.9987 (0.9966, 1.0008)	0.9987 (0.9965, 1.0008)	0.9997 (0.9976, 1.0019)
	AVGAT	0.9991 (0.9972, 1.0009)	0.9990 (0.9971, 1.0008)	0.9987 (0.9969, 1.0006)	0.9992 (0.9974, 1.0010)
Diabetes mellitus	MAXT	0.9989 (0.9971, 1.0008)	1.0006 (0.9988, 1.0024)	1.0022 (1.0004, 1.0040)	1.0001 (0.9982, 1.0019)
	MINT	0.9989 (0.9973, 1.0005)	0.9998 (0.9982, 1.0014)	1.0008 (0.9992, 1.0025)	0.9993 (0.9977, 1.0010)
	AVGT	0.9995 (0.9977, 1.0014)	0.9997 (0.9979, 1.0016)	1.0008 (0.9990, 1.0027)	0.9973 (0.9955, 0.9992)
	MAXAT	0.9997 (0.9979, 1.0015)	1.0009 (0.9991, 1.0027)	1.0002 (0.9984, 1.0020)	0.9985 (0.9967, 1.0003)
	MINAT	1.0016 (0.9994, 1.0037)	1.0000 (0.9978, 1.0021)	1.0007 (0.9986, 1.0029)	0.9985 (0.9964, 1.0007)
	AVGAT	1.0004 (0.9986, 1.0022)	0.9989 (0.9970, 1.0007)	1.0017 (0.9998, 1.0035)	0.9984 (0.9965, 1.0002)
Intestinal infection	MAXT	0.9992 (0.9962, 1.0023)	1.0014 (0.9983, 1.0044)	1.0029 (0.9999, 1.0060)	1.0008 (0.9978, 1.0039)
	MINT	1.0032 (1.0004, 1.0060)	1.0013 (0.9985, 1.0041)	1.0002 (0.9974, 1.0031)	0.9987 (0.9959, 1.0016)
	AVGT	1.0006 (0.9975, 1.0038)	1.0033 (1.0002, 1.0064)	1.0013 (0.9982, 1.0044)	1.0013 (0.9982, 1.0045)
	MAXAT	0.9998 (0.9967, 1.0028)	1.0001 (0.9971, 1.0031)	1.0024 (0.9994, 1.0054)	1.0017 (0.9987, 1.0047)
	MINAT	0.9988 (0.9951, 1.0025)	1.0019 (0.9983, 1.0056)	1.0001 (0.9965, 1.0037)	0.9996 (0.9960, 1.0033)
	AVGAT	1.0009 (0.9977, 1.0040)	1.0017 (0.9986, 1.0048)	1.0012 (0.9981, 1.0044)	1.0003 (0.9972, 1.0035)

**Figure S1.** Estimated relative risks and 95% confidence intervals for ED visits associated with lag 0 heat wave days compared to non-heat wave days, controlling for different continuous temperature metrics. Heat waves were defined as periods of  $\geq 2$  consecutive days with daily maximum (MAX) or minimum (MIN) ambient temperature (T) or apparent temperature (AT) exceeding the 98<sup>th</sup> percentile. The first day of each heat wave period was considered a non-heat wave day. Estimates for heat wave and continuous temperature defined using the same metric (i.e. primary health model) are shown in blue.

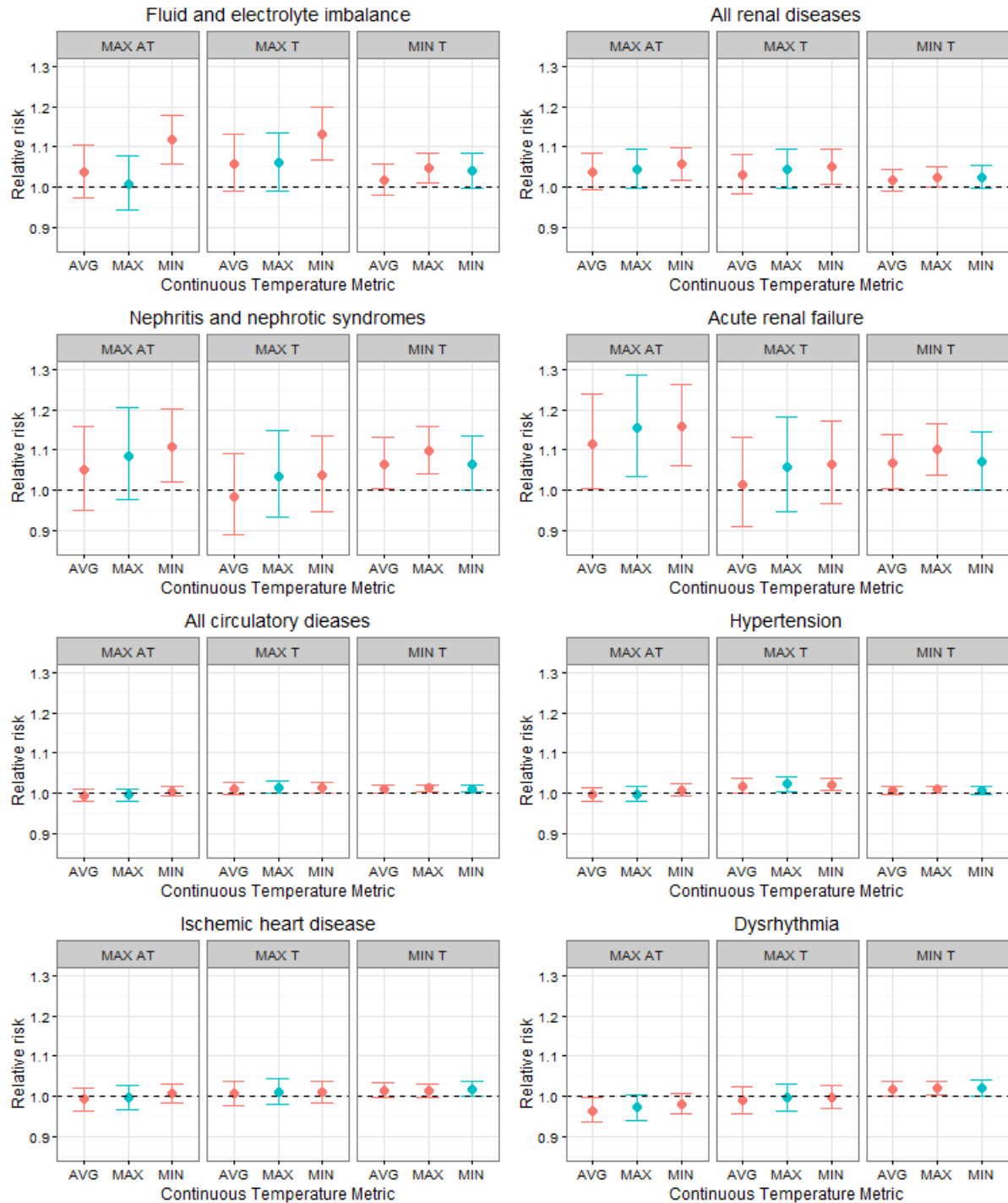
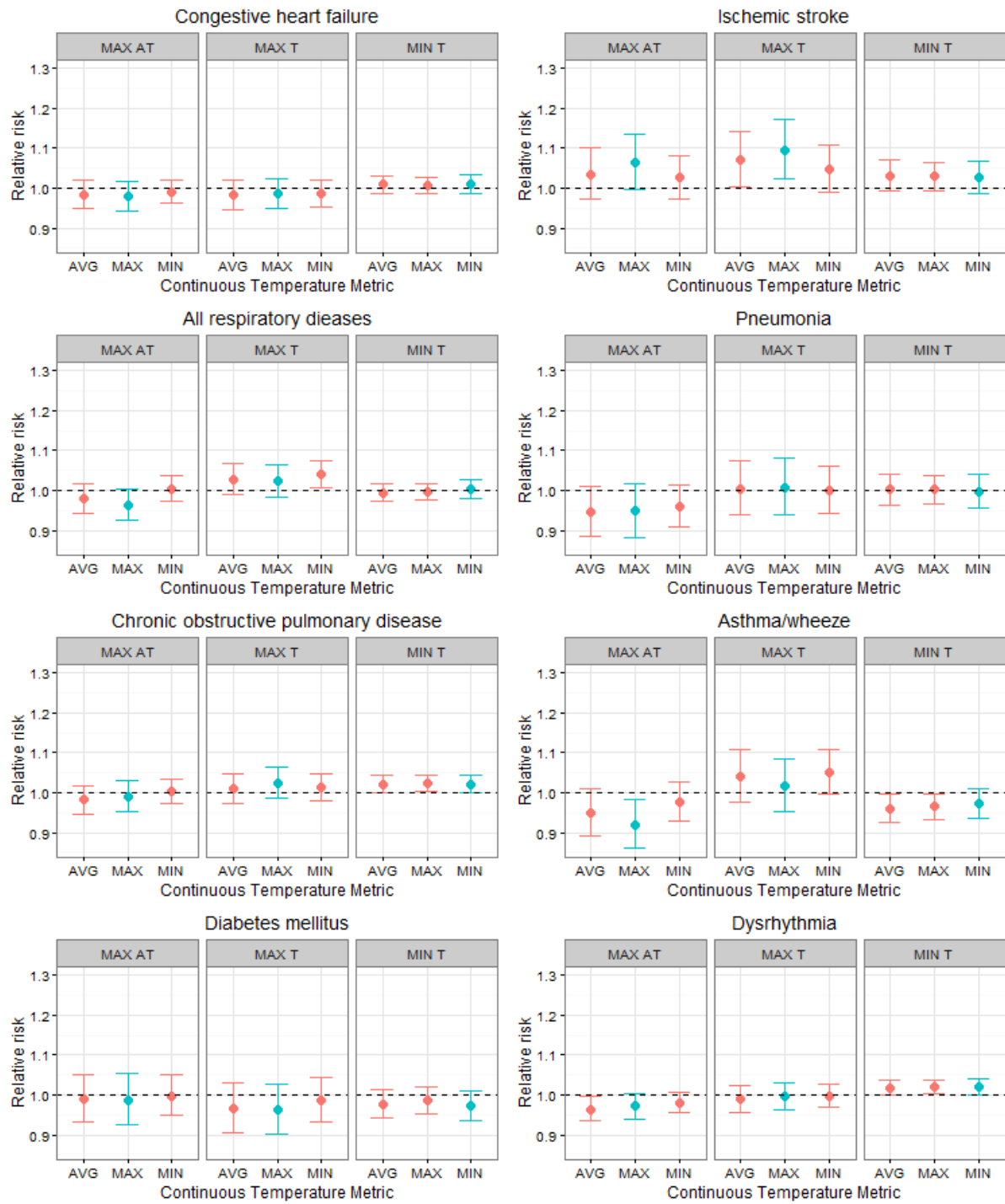


Figure S1 (Continued)



**Figure S2.** Estimated relative risks and 95% confidence intervals for ED visits associated with lag 0 and lag 1 heat wave days compared to non-heat wave days, controlling for different continuous dew-point temperature (DT) and relative humidity metrics (RH). Heat waves were defined as periods of  $\geq 2$  consecutive days with daily maximum (MAX) or minimum (MIN) ambient temperature (T) exceeding the 98<sup>th</sup> percentile. The first day of each heat wave period was considered a non-heat wave day. Estimates for heat wave and maximum dew-point temperature (i.e. primary health model) are shown in blue.

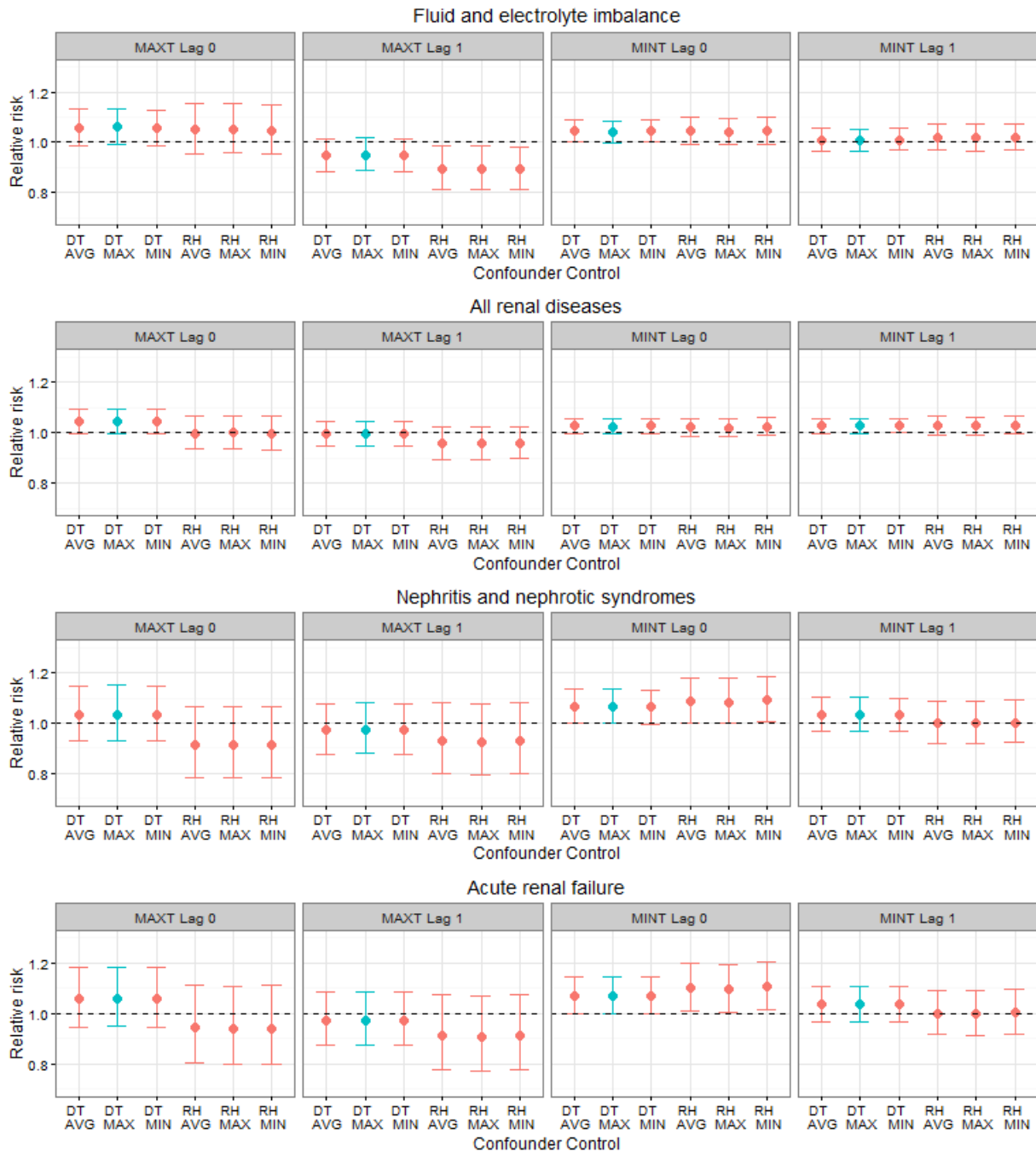
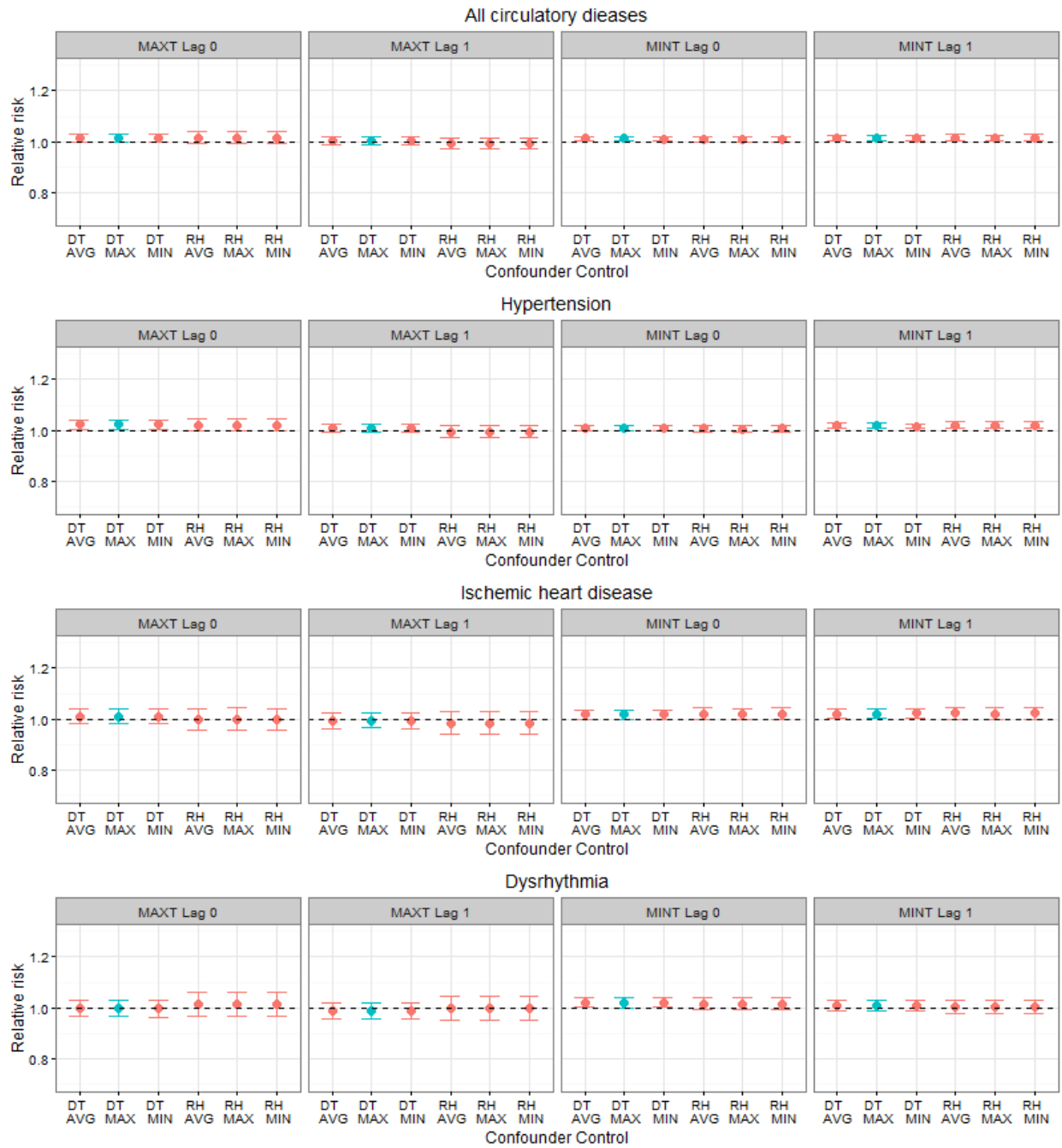




Figure S2 (Continued)





Figures S2 (Continued)

