

Supplementary Table 1. Results from univariable Poisson models of involuntary hospitalizations' frequency and meteorological parameters. Each meteorological parameter entered as current day value, lagged value (best lag model shown) or average of lagged values (± 1 , ± 2 , or ± 3 days around best lag value; shown only if better than best lag model). Meteorological parameters entered as natural cubic spline (3 knots). % relative change represents estimated change in frequency of involuntary hospitalizations for an increase of 1 interquartile range and assuming a linear effect on the log transformed frequency of involuntary hospitalizations. Ten lowest AIC (Akaike Information Criterion) values shown in bold and 10 highest absolute values of % relative change shown in bold/italic font.

Parameter	% relative change (95% CI)		AIC
Mean temperature (°C)	8.57	(3.59, 13.79)	13520.32
Mean temperature (°C) (lag 5)	8.40	(3.45, 13.59)	13517.11
Mean temperature (°C) (average of lag 4 to lag 6)	8.56	(3.55, 13.82)	13515.28
Max temperature (°C)	9.06	(4.14, 14.21)	13517.23
Max temperature (°C) (lag 6)	8.93	(4.10, 13.98)	13510.05
Min temperature (°C)	7.67	(2.81, 12.75)	13532.11
Min temperature (°C) (lag 4)	7.32	(2.40, 12.48)	13529.90
Mean apparent temperature (°C)	8.59	(3.22, 14.23)	13519.00
Mean apparent temperature (°C) (lag 6)	8.72	(3.35, 14.38)	13512.94
Max apparent temperature (°C)	7.83	(3.35, 12.50)	13521.29
Max apparent temperature (°C) (lag 6)	8.19	(3.61, 12.97)	13511.62
Min apparent temperature (°C)	8.46	(2.51, 14.76)	13500.92
Min apparent temperature (°C) (lag 7)	6.92	(1.16, 13.01)	13500.37
Min apparent temperature (°C) (average of lag 4 to lag 10)	7.42	(1.69, 13.48)	13499.73
Mean relative humidity (%)	-8.84	(-12.64, -4.88)	13557.17
Mean relative humidity (%) (lag 2)	-12.21	(-15.81, -8.46)	13524.13
Max relative humidity (%)	-7.49	(-11.07, -3.77)	13569.24
Max relative humidity (%) (lag 1)	-9.34	(-12.92, -5.62)	13546.08
Max relative humidity (%) (average of current day to lag 2)	-9.02	(-12.36, -5.54)	13544.57
Min relative humidity (%)	-8.79	(-12.70, -4.70)	13570.32

Min relative humidity (%) (lag 1)	-13.60	(-17.25, -9.79)	13531.62
Mean atmospheric pressure (hPa)	-0.55	(-4.14, 3.18)	13478.05
Mean atmospheric pressure (hPa) (lag 13)	2.47	(-1.00, 6.08)	13462.09
Mean atmospheric pressure (hPa) (average of lag 12 to lag 14)	2.04	(-1.67, 5.89)	13459.71
Max atmospheric pressure (hPa)	-0.36	(-4.14, 3.56)	13476.84
Max atmospheric pressure (hPa) (lag 13)	2.29	(-1.40, 6.11)	13460.90
Min atmospheric pressure (hPa)	-0.91	(-4.48, 2.79)	13481.09
Min atmospheric pressure (hPa) (lag 13)	2.75	(-0.68, 6.30)	13461.75
Min atmospheric pressure (hPa) (average of lag 12 to lag 14)	2.39	(-1.13, 6.03)	13459.42
Mean wind speed (Km/hr)	-3.46	(-6.73, -0.06)	13468.81
Mean wind speed (Km/hr) (lag 8)	-4.98	(-8.27, -1.58)	13454.42
Mean wind speed (Km/hr) (average of lag 5 to lag 11)	-5.00	(-8.59, -1.27)	13451.48
Wind gust (Km/hr)	-3.16	(-6.85, 0.67)	13569.56
Wind gust (Km/hr) (average of current day to lag 3)	-2.58	(-6.56, 1.57)	13568.37

Supplementary Table 2a. Distribution of meteorological parameters by day type of the cold period.

Variable	C1	C2	C3	C4	C5	C6
	n=217 (14.9%)	n=297 (20.4%)	n=157 (10.8%)	n=244 (16.7%)	n=339 (23.3%)	n=204 (14.0%)
Mean temperature (°C)	15.6 (2.7)	9.0 (2.5)	11.4 (3.3)	16.4 (2.7)	14.9 (2.7)	13.4 (3.2)
Max temperature (°C)	18.5 (2.8)	11.9 (3.2)	13.6 (3.6)	19.9 (3.3)	18.3 (2.8)	16.6 (3.6)
Min temperature (°C)	12.3 (3.0)	6.2 (2.3)	9.5 (3.3)	13.2 (2.6)	11.8 (2.8)	10.2 (3.0)
Temperature range (°C)	6.1 (1.6)	5.7 (2.5)	4.1 (1.9)	6.7 (2.3)	6.5 (1.9)	6.4 (1.6)
Mean relative humidity (%)	73.8 (6.2)	66.7 (6.7)	80.0 (5.5)	61.0 (7.8)	76.7 (5.3)	65.3 (6.9)
Max relative humidity (%)	85.4 (4.2)	78.4 (5.6)	88.2 (4.3)	74.3 (6.7)	87.2 (3.7)	80.5 (6.4)
Min relative humidity (%)	60.2 (9.2)	53.9 (9.3)	70.0 (7.3)	47.5 (9.4)	62.5 (8.2)	50.0 (8.4)
Mean atmospheric	1010.9 (5.0)	1023.1 (4.6)	1011.3 (5.6)	1018.9 (4.3)	1019.9 (4.8)	1010.1 (5.3)

pressure						
(hPa)						
Max	1013.6	1025.2	1014.5	1020.8	1021.6	1013.3
atmospheric	(4.5)	(4.5)	(5.4)	(4.3)	(4.7)	(5.2)
pressure						
(hPa)						
Min	1008.0	1021.0	1008.3	1016.9	1018.1	1007.2
atmospheric	(5.6)	(5.0)	(5.9)	(4.8)	(5.1)	(5.7)
pressure						
(hPa)						
Daily rainfall	1.8	0.2	10.2	0.1	1.2	0.9
(mm)	(4.2)	(0.9)	(11.7)	(0.5)	(3.4)	(2.1)
Wind speed	5.7	5.2	8.0	5.8	2.6	5.8
(Km/hr)	(3.9)	(3.5)	(4.8)	(3.9)	(2.0)	(2.6)
Wind gust	11.5	9.5	13.9	10.5	5.9	12.4
(Km/hr)	(6.3)	(4.7)	(6.4)	(5.5)	(3.5)	(4.1)
Dominant						
wind direction						
– N	3	66	56	80	33	1
	(1.4%)	(22.2%)	(35.7%)	(32.8%)	(9.7%)	(0.5%)
– NNE	1	81	38	68	25	0
	(0.5%)	(27.3%)	(24.2%)	(27.9%)	(7.4%)	(0.0%)
– NE	4	7	9	12	11	0
	(1.8%)	(2.4%)	(5.7%)	(4.9%)	(3.2%)	(0.0%)

– ENE	10	6	1	0	9	0
	(4.6%)	(2.0%)	(0.6%)	(0.0%)	(2.7%)	(0.0%)
– E	6	1	3	3	7	0
	(2.8%)	(0.3%)	(1.9%)	(1.2%)	(2.1%)	(0.0%)
– ESE	12	1	1	1	3	0
	(5.5%)	(0.3%)	(0.6%)	(0.4%)	(0.9%)	(0.0%)
– SE	17	0	1	0	7	0
	(7.8%)	(0.0%)	(0.6%)	(0.0%)	(2.1%)	(0.0%)
– SSE	42	0	4	1	9	0
	(19.4%)	(0.0%)	(2.5%)	(0.4%)	(2.7%)	(0.0%)
– S	71	1	3	5	16	0
	(32.7%)	(0.3%)	(1.9%)	(2.0%)	(4.7%)	(0.0%)
– SSW	43	2	3	4	27	3
	(19.8%)	(0.7%)	(1.9%)	(1.6%)	(8.0%)	(1.5%)
– SW	4	3	2	5	36	30
	(1.8%)	(1.0%)	(1.3%)	(2.0%)	(10.6%)	(14.7%)
– WSW	1	9	0	4	33	44
	(0.5%)	(3.0%)	(0.0%)	(1.6%)	(9.7%)	(21.6%)
– W	1	10	1	4	30	48
	(0.5%)	(3.4%)	(0.6%)	(1.6%)	(8.8%)	(23.5%)
– WNW	1	12	4	7	34	36
	(0.5%)	(4.0%)	(2.5%)	(2.9%)	(10.0%)	(17.6%)
– NW	0	35	8	10	26	28
	(0.0%)	(11.8%)	(5.1%)	(4.1%)	(7.7%)	(13.7%)

– NNW	1	63	23	40	33	14
	(0.5%)	(21.2%)	(14.6%)	(16.4%)	(9.7%)	(6.9%)

*Cold period: 16/10 to 15/4.

**All figures are mean (SD) or N (%).

Supplementary Table 2b. Distribution of meteorological parameters by day type of the warm period.

Variable	H1	H2	H3	H4	H5	H6
	n=192	n=390	n=389	n=298	n=67	n=128
	(13.1%)	(26.6%)	(26.6%)	(20.4%)	(4.6%)	(8.7%)
Mean	19.8	28.1	27.4	21.5	21.2	23.0
temperature	(3.3)	(2.3)	(2.5)	(2.6)	(3.4)	(3.7)
(°C)						
Max	23.2	31.7	31.6	25.4	24.4	27.0
temperature	(3.6)	(2.5)	(2.9)	(2.9)	(4.2)	(3.9)
(°C)						
Min	16.5	24.7	23.4	17.8	18.6	19.4
temperature	(3.2)	(2.2)	(2.3)	(2.6)	(3.0)	(3.6)
(°C)						
Temperature	6.7	7.0	8.2	7.6	5.8	7.7
range (°C)	(1.8)	(1.4)	(1.5)	(1.7)	(1.7)	(1.3)
Mean relative	60.1	45.4	55.3	60.8	73.7	54.3
humidity (%)	(9.5)	(6.2)	(8.1)	(7.8)	(6.8)	(6.9)

Max relative	74.3	58.3	70.2	75.2	85.8	70.8
humidity (%)	(8.6)	(6.9)	(8.0)	(7.1)	(4.3)	(7.9)
Min relative	46.5	34.7	40.3	45.9	59.8	38.0
humidity (%)	(10.1)	(6.1)	(8.1)	(8.5)	(9.6)	(7.2)
Mean	1011.8	1012.3	1010.1	1016.8	1010.5	1008.6
atmospheric	(3.9)	(2.4)	(2.6)	(3.1)	(4.2)	(3.1)
pressure						
(hPa)						
Max	1013.6	1013.4	1011.4	1018.1	1012.3	1010.5
atmospheric	(3.8)	(2.5)	(2.5)	(3.2)	(3.6)	(3.1)
pressure						
(hPa)						
Min	1009.8	1011.0	1008.7	1015.2	1008.7	1006.8
atmospheric	(4.1)	(2.4)	(2.7)	(3.1)	(4.9)	(3.3)
pressure						
(hPa)						
Wind speed	5.5	8.6	2.6	3.6	4.8	6.1
(Km/hr)	(3.7)	(2.8)	(1.6)	(2.4)	(3.1)	(2.3)
Wind gust	10.4	14.8	6.0	7.4	9.8	12.2
(Km/hr)	(5.5)	(3.6)	(3.6)	(3.8)	(4.9)	(3.5)
Daily rainfall	0.3	0.0	0.1	0.2	7.9	0.2
(mm)	(0.8)	(0.1)	(0.4)	(0.6)	(5.4)	(0.8)
Dominant						
wind direction						

– N	29	197	30	47	13	0
	(15.1%)	(50.5%)	(7.7%)	(15.8%)	(19.4%)	(0.0%)
– NNE	60	76	37	43	9	0
	(31.3%)	(19.5%)	(9.5%)	(14.4%)	(13.4%)	(0.0%)
– NE	12	0	28	16	5	0
	(6.3%)	(0.0%)	(7.2%)	(5.4%)	(7.5%)	(0.0%)
– ENE	8	0	19	9	2	0
	(4.2%)	(0.0%)	(4.9%)	(3.0%)	(3.0%)	(0.0%)
– E	5	0	11	1	1	0
	(2.6%)	(0.0%)	(2.8%)	(0.3%)	(1.5%)	(0.0%)
– ESE	4	0	19	7	0	0
	(2.1%)	(0.0%)	(4.9%)	(2.3%)	(0.0%)	(0.0%)
– SE	5	0	33	5	1	0
	(2.6%)	(0.0%)	(8.5%)	(1.7%)	(1.5%)	(0.0%)
– SSE	17	0	49	16	2	0
	(8.9%)	(0.0%)	(12.6%)	(5.4%)	(3.0%)	(0.0%)
– S	14	0	55	24	3	0
	(7.3%)	(0.0%)	(14.1%)	(8.1%)	(4.5%)	(0.0%)
– SSW	8	0	38	22	2	2
	(4.2%)	(0.0%)	(9.8%)	(7.4%)	(3.0%)	(1.6%)
– SW	1	0	11	16	0	16
	(0.5%)	(0.0%)	(2.8%)	(5.4%)	(0.0%)	(12.5%)
– WSW	2	0	12	14	2	33
	(1.0%)	(0.0%)	(3.1%)	(4.7%)	(3.0%)	(25.8%)

– W	2	0	5	10	4	62
	(1.0%)	(0.0%)	(1.3%)	(3.4%)	(6.0%)	(48.4%)
– WNW	2	0	10	16	2	12
	(1.0%)	(0.0%)	(2.6%)	(5.4%)	(3.0%)	(9.4%)
– NW	3	5	15	14	3	3
	(1.6%)	(1.3%)	(3.9%)	(4.7%)	(4.5%)	(2.3%)
– NNW	20	112	17	38	18	0
	(10.4%)	(28.7%)	(4.4%)	(12.8%)	(26.9%)	(0.0%)

*Warm period:16/4 to 15/10.

**All figures are mean (SD) or N (%).

Supplementary Table 3. Results from a negative binomial regression model for the daily number of involuntary hospitalizations by type of day (most prevalent day type during the previous 5 days).

Covariate	Incidence Rate		
	Ratio	95% C.I.	p-value
Most prevalent day type (lag 1 to lag 5)			
– C2 (ref.)			
– C1	1.14	(0.98, 1.33)	0.092
– C3	1.01	(0.85, 1.19)	0.912
– C4	1.21	(1.05, 1.39)	0.008
– C5	1.21	(1.06, 1.37)	0.004
– C6	1.19	(1.01, 1.40)	0.041
– H1	1.15	(0.99, 1.35)	0.074

- H2	1.20	(1.06, 1.36)	0.004
- H3	1.19	(1.05, 1.35)	0.006
- H4	1.27	(1.11, 1.45)	<0.001
- H5	1.39	(1.17, 1.66)	<0.001
- H6	1.26	(1.03, 1.53)	0.022

*Day types C1 to C6 refer to the cold period (16/10 to 15/4) and H1 to H6 to the warm period (16/4 to 15/10).