Figure S1: Time-series distribution of daily SLE hospital admissions, $PM_{2.5}$, SO_2 and NO_2 in Bengbu, China, 2015-2017.
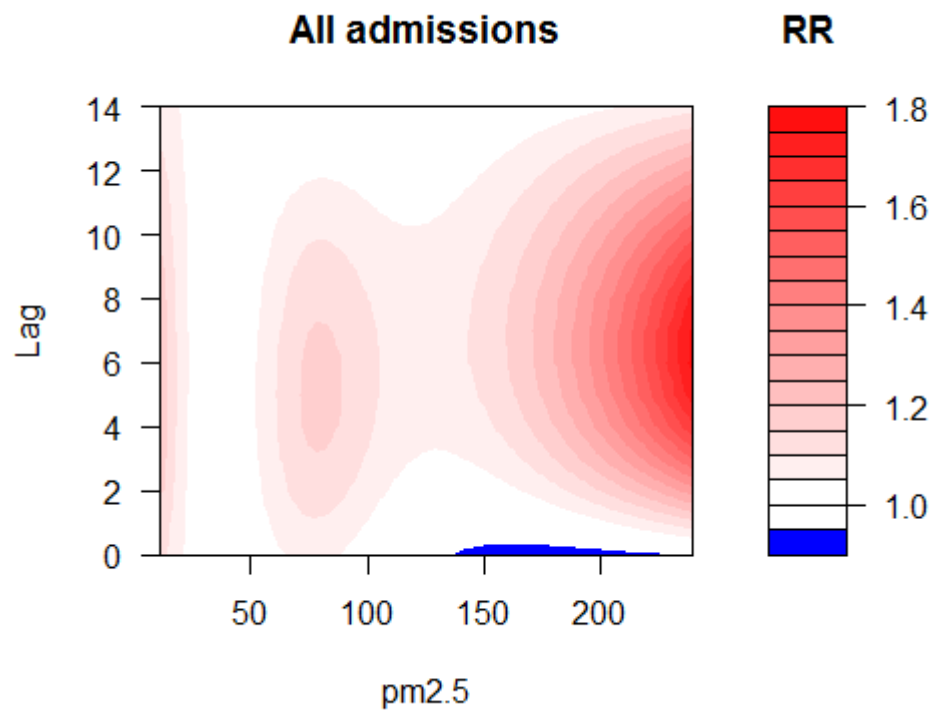
Figure S2: A contour plot of the relative risks (RR) of SLE total hospital admissions along $PM_{2.5}$ and lag periods.
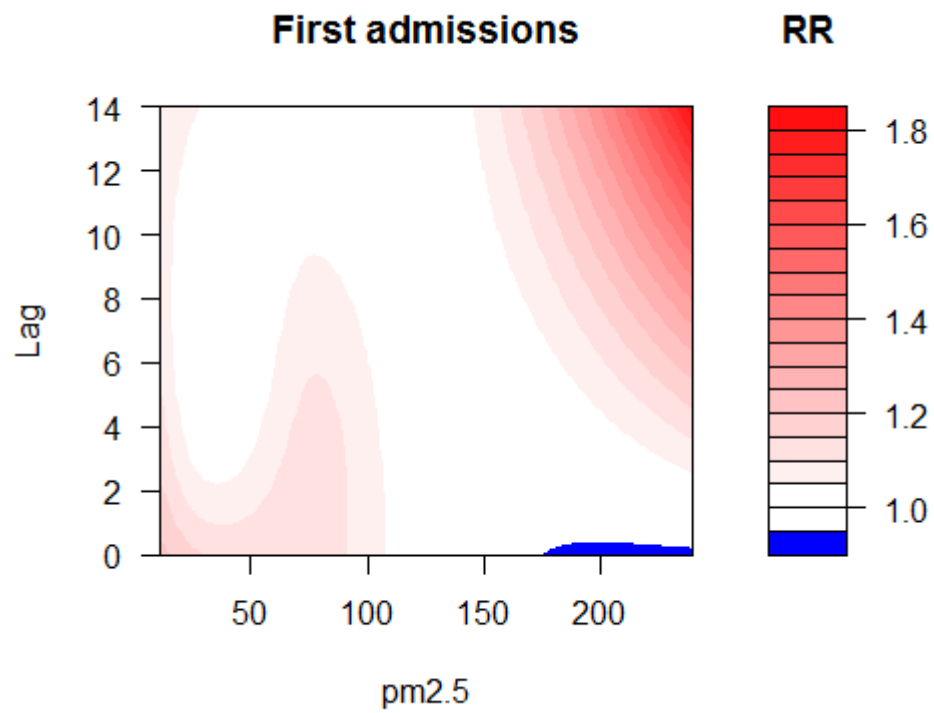
Figure S3: A contour plot of the relative risks (RR) of SLE first hospital admissions along $PM_{2.5}$ and lag periods.
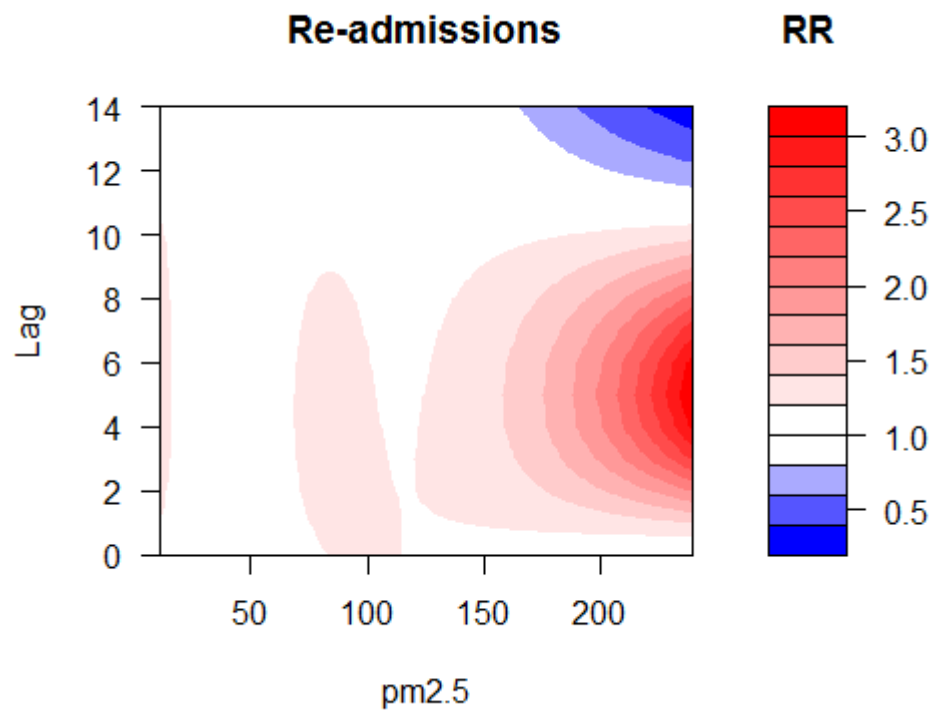
Figure S4: A contour plot of the relative risks (RR) of SLE re-admissions along $PM_{2.5}$ and lag periods.
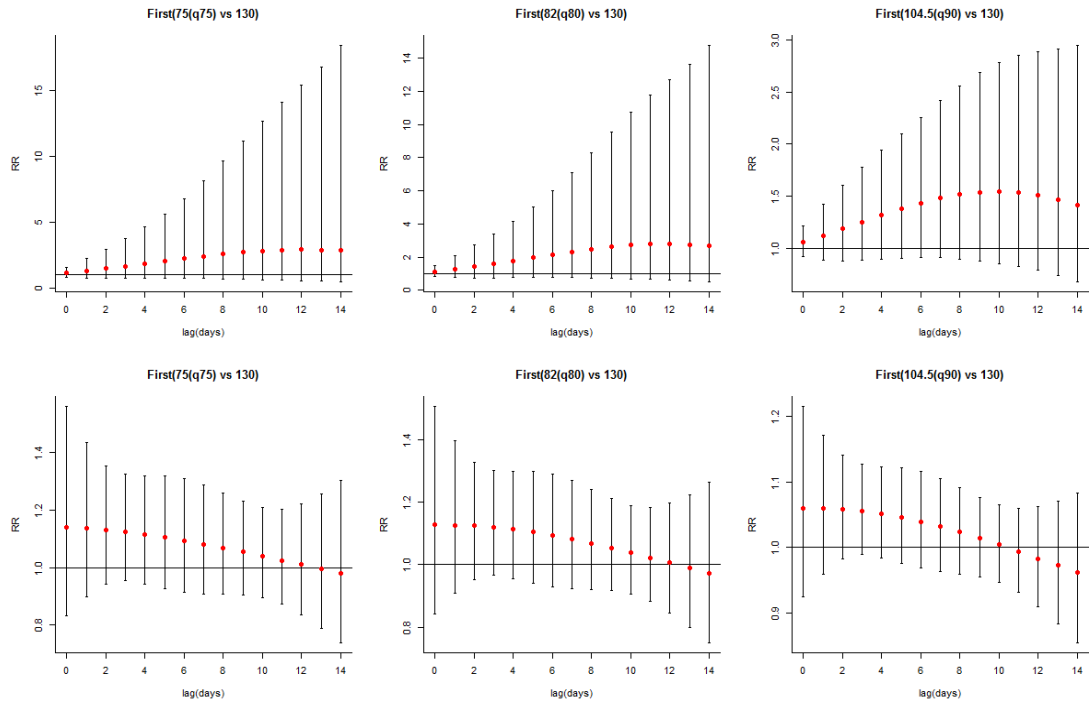
Figure S5: Lag-effects of specific PM$_{2.5}$ (75th, 75; 80th, 82; 90th, 104.5) on SLE first hospital admissions with reference of 130μg/m^3. The first line is the cumulative effect, the second line is the single-day effect
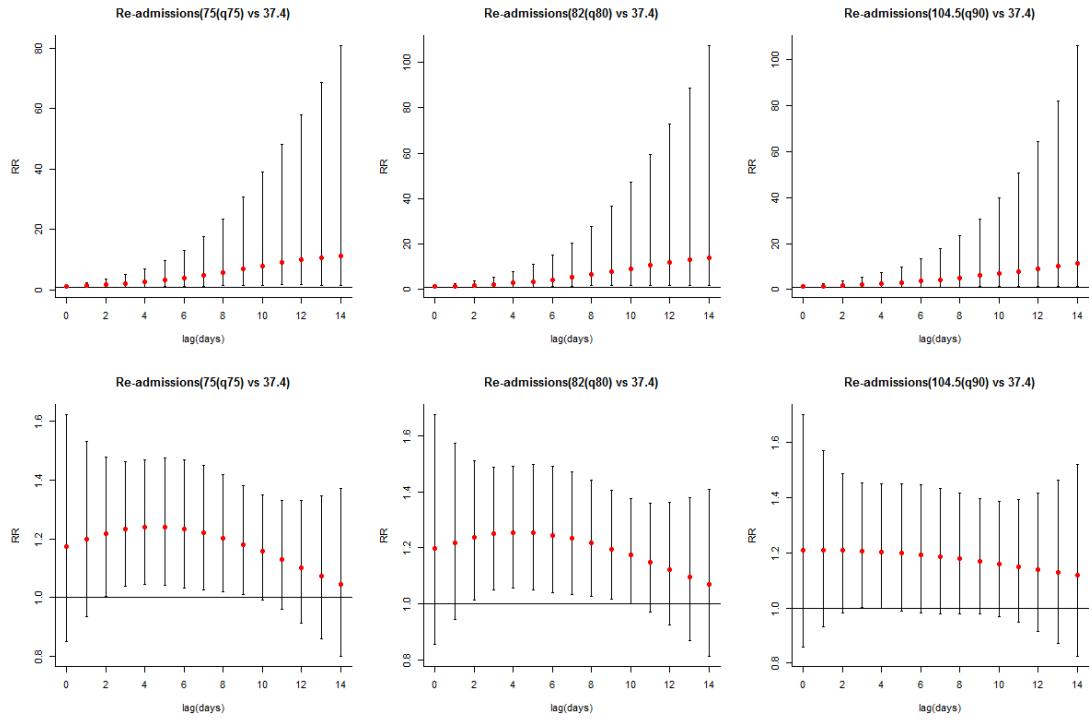
Figure S6: Lag-effects of specific $PM_{2.5}$ (75th, 75; 80th, 82; 90th, 104.5) on SLE re-admissions with reference of 37.4μg/m³. The first line is the cumulative effect, the second line is the single-day effect
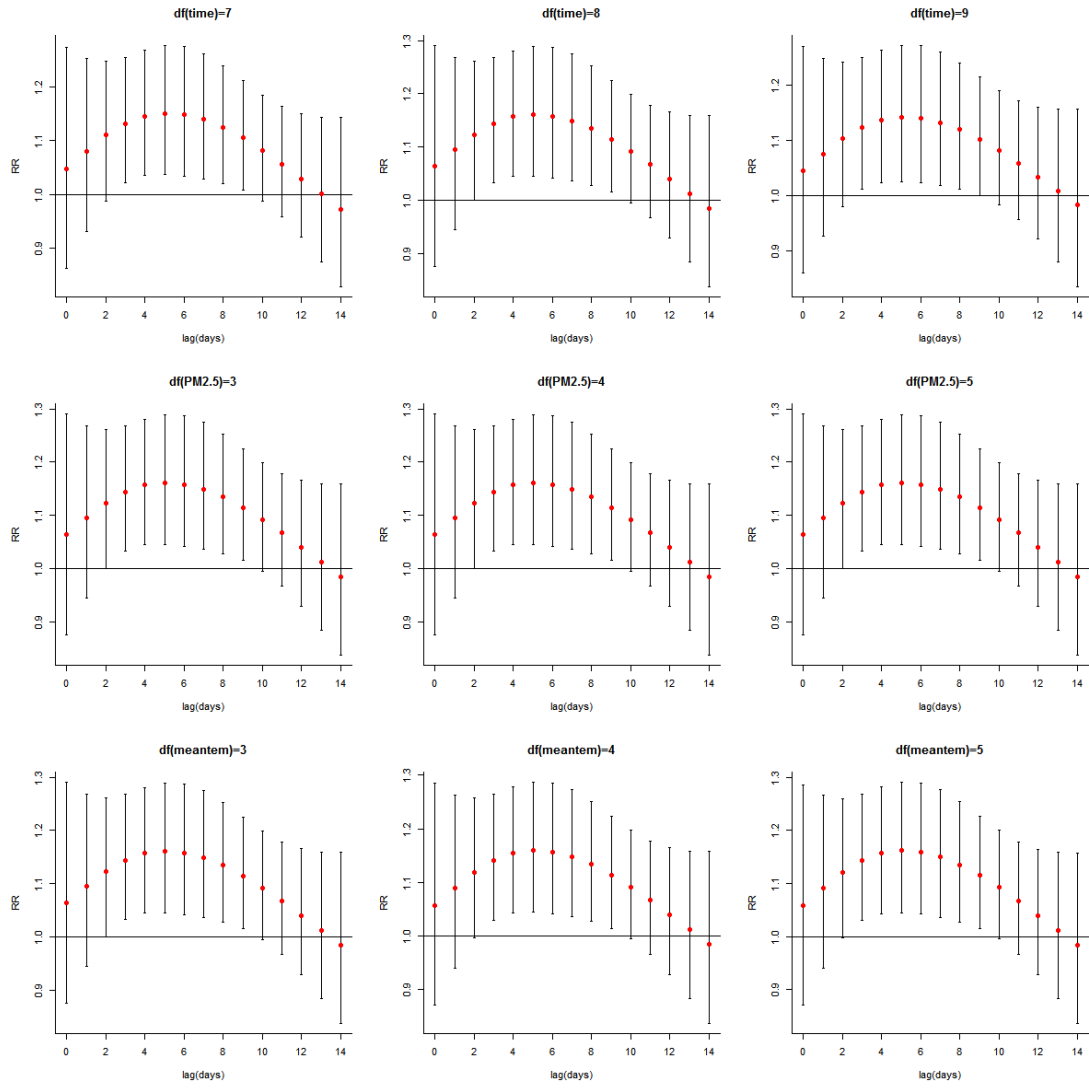
Figure S7: The single-day effect of specific PM$_{2.5}$ (75th, 75μg/m^3) on SLE when varying the *df* (7-9 *df*/year) for time, the *df* (3-5 *df*) for PM$_{2.5}$ and the *df* (3-5 *df*) for mean temperature.
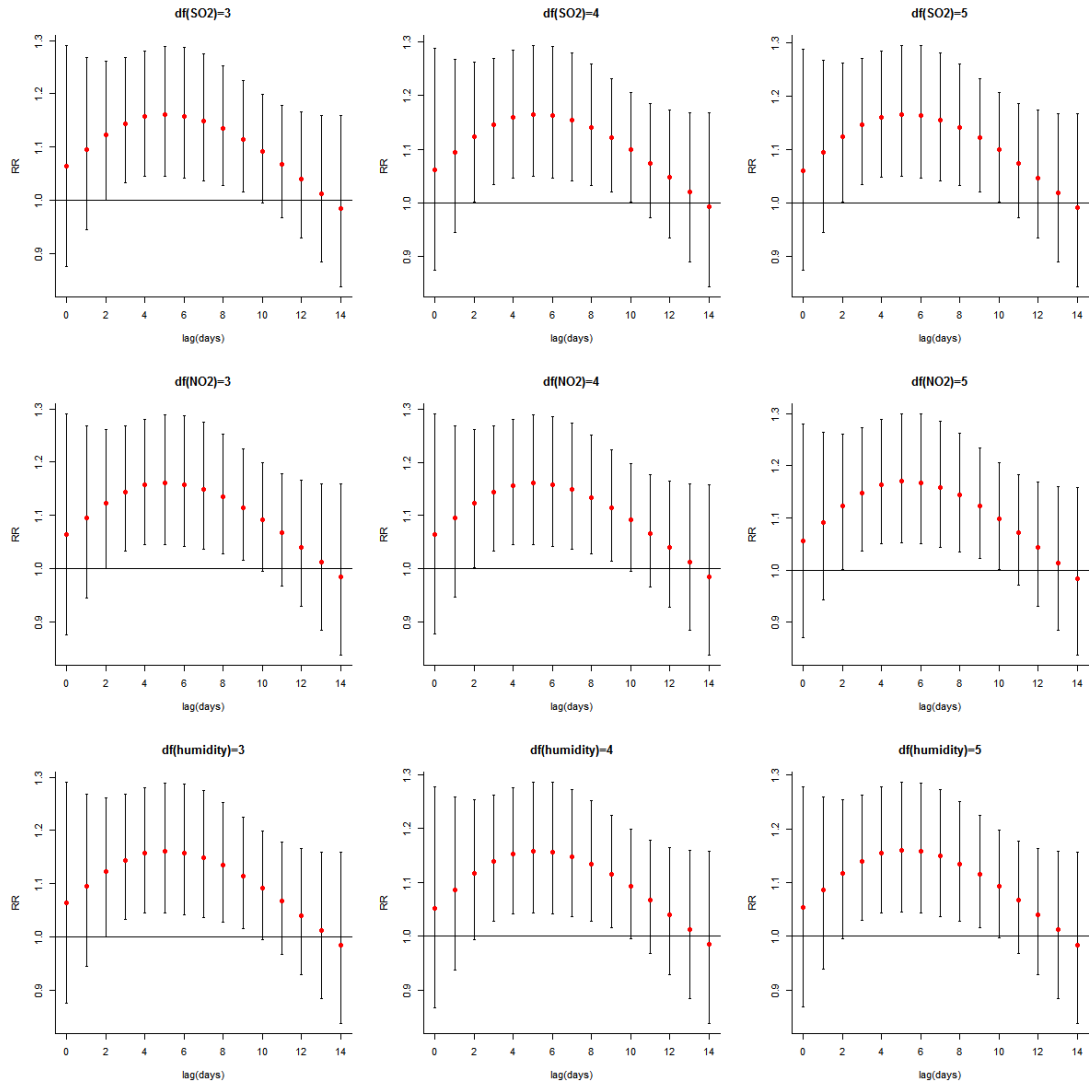
Figure S8: The single-day effect of specific PM$_{2.5}$ (75th, 75µg/m^3) on SLE when varying the *df* (3-5 *df*) for SO$_2$, the *df* (3-5 *df*) for NO$_2$ and the *df* (3-5 *df*) for humidity.

Table S1 The AIC values of models for various lag period from lag1 to lag30.

Lag day(s)	1	2	3	4	5	6
AIC	123.6596	123.3496	122.9547	122.1504	122.828	122.3185
Lag day(s)	7	8	9	10	11	12
AIC	123.0622	123.417	123.1556	122.9114	123.026	123.1058
Lag day(s)	13	14	15	16	17	18
AIC	123.1573	123.0606	123.2883	123.379	123.7485	123.3159
Lag day(s)	19	20	21	22	23	24
AIC	123.6085	123.5558	123.7392	123.8075	123.9491	124.0357
Lag day(s)	25	26	27	28	29	30
AIC	123.4872	123.797	123.819	124.2743	124.2097	124.454

AIC, Akaike Information Criterion.