

Table S1. Results of adjusted Generalized Additive Model about the effect of air pollutants on Multiple Sclerosis MS hospitalization in total, male, female and age groups

Lag 0				
	Pollutant	RR	95% CI	P-value
Total	O3	0.9880	0.9831 , 1.0511	0.521
	CO	1.3550	1.1884 , 2.3840	0.0001
	NO2	1.0111	1.0054 , 1.0160	0.0001
	SO2	1.0002	1.0129, 2.0157	0.0001
	PM10	0.9911	0.9850, 0.9937	0.0001
	PM2.5	0.9920	0.9912 , 0.9950	0.0001
Male	O3	0.9811	0.9787 , 1.0014	0.539
	CO	1.0789	0.9884 , 1.1776	0.089
	NO2	1.0050	0.9988, 1.0145	0.062
	SO2	1.0131	1.0100 , 1.0160	0.001
	PM10	0.9948	0.9935 , 0.9961	0.001
	PM2.5	0.9923	0.9881 , 0.9965	0.043
Female	O3	0.9841	0.9652 , 1.0045	0.991
	CO	1.4784	1.1884 , 1.8401	0.0001
	NO2	1.0121	1.0050 , 1.7080	0.0001
	SO2	0.9991	0.9938 , 1.9985	0.891
	PM10	0.9941	0.9811 , 1.0021	0.121
	PM2.5	0.9955	0.9938 , 0.9988	0.010
<30 years	O3	0.9851	0.9712 , 1.0013	0.894
	CO	1.5647	1.2610 , 1.7711	0.0001
	NO2	1.0065	1.0059 , 1.0186	0.023
	SO2	1.0059	1.0119 , 1.0187	0.001
	PM10	1.0009	0.9873 , 1.0022	0.189
	PM2.5	0.9924	0.9889 , 0.9959	0.02
30-50 years	O3	0.9889	0.9735 , 1.0025	0.714
	CO	1.1101	1.1085 , 1.1287	0.001
	NO2	1.0100	1.0053 , 1.0150	0.024
	SO2	0.9950	0.9942 , 1.0012	0.151
	PM10	0.9989	0.9942 , 1.0251	0.252
	PM2.5	0.9974	0.9974 , 1.0000	0.773
>50 years	O3	1.0019	0.9923 , 1.0158	0.527
	CO	1.2668	1.0082 , 1.8751	0.0001
	NO2	1.0117	0.9960 , 1.0277	0.528
	SO2	1.0021	0.9845 , 1.0258	0.147
	PM10	0.9890	0.9865 , 0.9915	0.001
	PM2.5	0.9891	0.9812 , 0.9971	0.047
Lag 1				
	Pollutant	RR	95% CI	P-value
Total	O3	1.0005	0.09812, 1.0119	0.420
	CO	1.0846	1.0732 , 1.1009	0.0001
	NO2	0.9976	0.9712 , 1.0247	0.171
	SO2	1.0139	1.0125 , 1.0153	0.0001

	PM10	0.9937	0.9930 , 0.9943	0.0001
	PM2.5	0.9927	0.9907 , 0.9947	0.0001
Male	O3	1.0022	0.9856, 1.0024	0.215
	CO	1.0113	1.0099 , 1.0123	0.0001
	NO2	0.9983	0.9908 , 1.0058	0.155
	SO2	1.0128	1.0099 , 1.0570	0.0001
	PM10	1.0001	0.9920 , 1.0037	0.157
	PM2.5	1.0001	0.9893 , 1.0056	0.185
Female	O3	1.0084	1.0051 , 1.0118	0.0001
	CO	1.0111	1.0045 , 1.0125	0.0001
	NO2	0.9979	0.9936 , 1.0023	0.100
	SO2	1.0135	1.0124, 1.0160	0.0001
	PM10	0.9933	0.9921 , 0.9988	0.0001
	PM2.5	0.9924	0.9902 , 0.9948	0.0001
<30 years	O3	1.0032	0.9981 , 1.0075	0.361
	CO	1.0095	1.0070 , 1.0115	0.0001
	NO2	0.9911	0.9811 , 1.0039	0.081
	SO2	1.0112	1.0085 , 1.0185	0.0001
	PM10	0.9941	0.9926 , 0.9966	0.0001
	PM2.5	0.9911	0.9870 , 0.9989	0.0001
30-50 years	O3	1.0065	1.0026 , 1.0130	0.0001
	CO	1.0121	1.0051 , 1.0611	0.0001
	NO2	1.0000	0.9927 , 1.0023	0.118
	SO2	1.0130	1.0122 , 1.0158	0.0001
	PM10	0.9931	0.9911 , 0.9955	0.0001
	PM2.5	0.9934	0.9910 , 0.9962	0.0001
>50 years	O3	1.0022	0.9916, 1.0024	0.215
	CO	1.0111	1.005 , 1.0144	0.0001
	NO2	1.0010	0.9850 , 1.0158	0.51
	SO2	1.0103	1.0047 , 1.0250	0.0001
	PM10	0.9871	0.9824 , 0.9907	0.0001
	PM2.5	0.9878	0.9811 , 0.9955	0.0001
Lag 2				
	Pollutant	RR	95% CI	P-value
Total	O3	1.0031	1.0010 , 1.0101	0.0001
	CO	1.0010	1.0005, 1.0040	0.0001
	NO2	0.9911	0.9935 , 1.0007	0.316
	SO2	1.0100	1.0012 , 1.5382	0.0001
	PM10	0.9938	0.9820 , 0.9944	0.0001
	PM2.5	0.9916	0.9806 , 0.9946	0.0001
Male	O3	1.0041	1.0003 , 1.0115	0.013
	CO	1.0009	1.0008 , 1.0015	0.002
	NO2	1.0000	0.9915 , 1.0050	0.059
	SO2	1.0127	1.0099 , 1.0155	0.0001
	PM10	0.9943	0.9930 , 0.9957	0.0001
	PM2.5	0.9933	0.9893 , 0.9974	0.020

Female	O3	1.0081	1.0050 , 1.0113	0.0001
	CO	1.0011	1.0009 , 1.0020	0.0001
	NO2	0.9975	0.9934 , 1.0017	0.145
	SO2	1.0132	1.0124 , 1.0157	0.0001
	PM10	0.9934	0.9926 , 0.9941	0.0001
	PM2.5	0.9929	0.9906 , 0.9952	0.0001
<30 years	O3	0.9951	0.9898 , 1.0025	0.155
	CO	1.0088	1.0004 , 1.0181	0.0001
	NO2	0.9911	0.9798 , 1.0024	0.162
	SO2	1.0021	1.0058 , 1.0149	0.0001
	PM10	0.9845	0.9734 , 0.9956	0.0001
	PM2.5	0.9954	0.9910 , 0.9977	0.016
30-50 years	O3	0.9975	0.9934 , 1.0017	0.145
	CO	1.0084	1.0001 , 1.0301	0.0001
	NO2	0.9974	0.9928 , 1.0020	0.136
	SO2	1.0112	1.0090 , 1.0158	0.0001
	PM10	0.9939	0.9930 , 0.9947	0.0001
	PM2.5	0.9927	0.9901 , 0.9953	0.0001
>50 years	O3	0.9985	0.9734 , 1.0017	0.166
	CO	1.0005	1.0000 , 1.0120	0.002
	NO2	1.0000	0.9850 , 1.0174	0.054
	SO2	1.0121	1.0046 , 1.0378	0.0001
	PM10	0.9855	0.9811 , 0.9902	0.0001
	PM2.5	0.9901	0.9814 , 0.9982	0.015
Lag 3				
	Pollutant	RR	95% CI	P-value
Total	O3	0.9964	0.9822 , 1.0046	0.72
	CO	1.0001	0.9927 , 1.0020	0.18
	NO2	1.0115	1.0007 , 1.0858	0.001
	SO2	1.0137	1.0123 , 1.0151	0.0001
	PM10	0.9940	0.9926 , 0.9989	0.0001
	PM2.5	0.9901	0.9844 , 0.9939	0.0001
Male	O3	1.0110	1.0051 , 1.0171	0.001
	CO	1.0000	0.9801 , 1.1535	0.32
	NO2	1.0020	1.0000 , 1.0025	0.004
	SO2	1.0125	1.0096 , 1.0153	0.0001
	PM10	0.9950	0.9937 , 0.9963	0.0001
	PM2.5	0.9923	0.9881 , 0.9965	0.0001
Female	O3	1.0101	1.0061 , 1.0122	0.0001
	CO	1.0115	1.0014 , 1.0456	0.0001
	NO2	0.9954	0.9832 , 1.0016	0.161
	SO2	1.0004	0.9932 , 1.0025	0.251
	PM10	0.9988	0.9818 , 0.9997	0.001
	PM2.5	0.9890	0.9787 , 0.9934	0.0001
<30 years	O3	1.0062	1.0014 , 1.0119	0.003
	CO	1.0010	1.0009 , 1.0020	0.011
	NO2	0.9984	0.9922 , 1.0046	0.62

	SO2	1.0019	1.0006 , 1.0153	0.0001
	PM10	0.9943	0.9932 , 0.9954	0.0001
	PM2.5	0.9931	0.9896 , 0.9965	0.0001
30-50 years	O3	1.0082	1.0047 , 1.0127	0.0001
	CO	1.0011	1.0009 , 1.0028	0.0001
	NO2	0.9920	0.9904 , 0.9997	0.008
	SO2	1.0011	1.0100 , 1.0174	0.0001
	PM10	0.9922	0.9911 , 0.9945	0.0001
	PM2.5	0.9901	0.9876 , 0.9931	0.0001
>50 years	O3	1.0131	1.0001 , 1.0222	0.011
	CO	1.0011	1.0045, 1.0090	0.0001
	NO2	0.9998	0.9850 , 1.0147	0.57
	SO2	1.0005	1.0001 , 1.0270	0.0001
	PM10	0.9828	0.9801 , 0.9854	0.0001
	PM2.5	0.9922	0.9820 , 1.0022	0.233
Lag 4				
	Pollutant	RR	95% CI	P-value
Total	O3	1.0071	1.0022 , 1.0520	0.0001
	CO	1.0010	1.0009 , 1.0020	0.0001
	NO2	1.0000	0.9939 , 1.0011	0.165
	SO2	1.0023	1.0003 , 1.0151	0.0001
	PM10	0.9926	0.9930 , 0.9950	0.0001
	PM2.5	0.9910	0.9880 , 0.9921	0.0001
Male	O3	1.0070	1.0012 , 1.0128	0.043
	CO	1.0011	1.0009 , 1.0025	0.0001
	NO2	0.9960	0.9921 , 1.0059	0.057
	SO2	1.0112	1.0100 , 1.0350	0.0001
	PM10	0.9949	0.9936 , 0.9962	0.0001
	PM2.5	0.9927	0.9887 , 0.9968	0.0001
Female	O3	0.9971	0.9931 , 1.0017	0.421
	CO	1.0015	1.0009 , 1.0035	0.0001
	NO2	0.9974	0.9933 , 1.0016	0.156
	SO2	1.0130	1.0124 , 1.0155	0.0001
	PM10	0.9932	0.9924 , 0.9949	0.0001
	PM2.5	0.9900	0.9877 , 0.9924	0.0001
<30 years	O3	1.0062	1.0011 , 1.0113	0.001
	CO	1.0016	1.0009 , 1.0032	0.0001
	NO2	0.9980	0.9935 , 1.0059	0.059
	SO2	1.0120	1.0097 , 1.0144	0.0001
	PM10	0.9949	0.9938 , 0.9960	0.0001
	PM2.5	0.9910	0.9876 , 0.9944	0.0001
30-50 years	O3	1.0076	1.0041 , 1.0112	0.0001
	CO	1.0010	1.0009 , 1.0020	0.0001
	NO2	1.0000	0.9949 , 1.0043	0.317
	SO2	1.0133	1.0116 , 1.0151	0.0001
	PM10	0.9936	0.9927 , 0.9944	0.0001
	PM2.5	0.9911	0.9885 , 0.9938	0.0001

>50 years	O3	1.0151	1.0060 , 1.0256	0.021
	CO	1.0111	1.0005 , 1.0660	0.0001
	NO2	0.9979	0.9839 , 1.0121	0.58
	SO2	1.0104	1.0004 , 1.0260	0.0001
	PM10	0.9889	0.9863 , 0.9915	0.0001
	PM2.5	0.9919	0.9842 , 0.9996	0.008
Lag 5				
	Pollutant	RR	95% CI	P-value
Total	O3	1.0005	1.000 , 1.0090	0.001
	CO	1.0015	0.9944 , 1.0088	0.55
	NO2	1.0100	1.0005 , 1.0188	0.002
	SO2	0.9995	0.9944 , 1.0088	0.55
	PM10	0.9945	0.9932 , 0.9954	0.0001
	PM2.5	0.9928	0.9905 , 0.9947	0.0001
Male	O3	1.0041	0.9984 , 1.0097	0.243
	CO	1.0008	1.0006 , 1.0010	0.0001
	NO2	1.0015	1.0004 , 1.0088	0.001
	SO2	1.0135	1.0106 , 1.0163	0.0001
	PM10	0.9946	0.9933 , 0.9959	0.0001
	PM2.5	0.9925	0.9884 , 0.9946	0.0001
Female	O3	0.9911	0.9856 , 1.0022	0.231
	CO	1.0011	1.0009 , 1.0020	0.0001
	NO2	1.0000	0.9890 , 1.0021	0.127
	SO2	1.0134	1.0121 , 1.0153	0.0001
	PM10	0.9943	0.9935 , 0.9950	0.0001
	PM2.5	0.9922	0.9898 , 0.9946	0.0001
<30 years	O3	1.0009	0.9950 , 1.0061	0.052
	CO	1.0008	1.0005 , 1.0010	0.004
	NO2	0.9968	0.9904 , 1.0033	0.106
	SO2	1.0115	1.0091 , 1.0139	0.0001
	PM10	0.9957	0.9946 , 0.9968	0.0001
	PM2.5	0.9961	0.9928 , 0.9996	0.045
30-50 years	O3	1.0046	0.9985 , 1.0083	0.065
	CO	1.0015	1.0010 , 1.0022	0.0001
	NO2	1.0000	0.9892 , 1.0020	0.058
	SO2	1.0132	1.0114 , 1.0150	0.0001
	PM10	0.9945	0.9937 , 0.9954	0.0001
	PM2.5	0.9930	0.9903 , 0.9957	0.0001
>50 years	O3	1.0161	1.0024 , 1.0281	0.031
	CO	1.0945	1.0930 , 1.0960	0.0001
	NO2	0.9911	0.9717 , 1.0075	0.110
	SO2	1.0252	1.0183 , 1.0291	0.0001
	PM10	0.9866	0.9838 , 0.9893	0.0001
	PM2.5	0.9832	0.9751 , 0.9913	0.0001
Lag 6				
	Pollutant	RR	95% CI	P-value
Total	O3	1.0021	1.0018 , 1.0075	0.011

	CO	1.0011	1.0009 , 1.0020	0.0001
	NO2	0.9990	0.9954 , 1.0025	0.062
	SO2	1.0140	1.0126 , 1.0154	0.0001
	PM10	0.9939	0.9932 , 0.9945	0.0001
	PM2.5	0.9936	0.9916 , 0.9956	0.0001
Male	O3	1.0050	0.9989 , 1.0111	0.359
	CO	1.0010	1.0009 , 1.0020	0.001
	NO2	1.0038	0.9968 , 1.0107	0.130
	SO2	1.0128	1.0099 , 1.0156	0.001
	PM10	0.9945	0.9932 , 0.9958	0.001
	PM2.5	0.9939	0.9899 , 0.9979	0.002
Female	O3	0.9974	0.9932 , 1.0016	0.125
	CO	1.0017	1.0009 , 1.0030	0.0001
	NO2	1.0000	0.9937 , 1.0020	0.112
	SO2	1.0130	1.0124 , 1.0156	0.0001
	PM10	0.9937	0.9930 , 0.9945	0.0001
	PM2.5	0.9985	0.9927 , 0.9993	0.0002
<30 years	O3	1.0006	0.9955 , 1.0057	0.810
	CO	1.0008	1.0005 , 1.0010	0.0001
	NO2	1.0010	0.9955 , 1.0081	0.551
	SO2	1.0118	1.0094 , 1.0142	0.0001
	PM10	0.9955	0.9944 , 0.9966	0.0001
	PM2.5	0.9968	0.9934 , 1.0002	0.067
30-50 years	O3	1.0075	1.0036 , 1.0113	0.0001
	CO	1.0010	1.0009 , 1.0020	0.0001
	NO2	0.9964	0.9919 , 1.0010	0.272
	SO2	1.0140	1.0122 , 1.0159	0.0001
	PM10	0.9931	0.9922 , 0.9940	0.001
	PM2.5	0.9917	0.9891 , 0.9943	0.0001
>50 years	O3	1.0125	1.0026 , 1.0242	0.0001
	CO	1.0011	1.0009 , 1.0020	0.0001
	NO2	1.0087	0.9964 , 1.0211	0.223
	SO2	1.0220	1.0167 , 1.0273	0.0001
	PM10	0.9906	0.9881 , 0.9931	0.0001
	PM2.5	0.9917	0.9849 , 0.9985	0.047
Lag 7				
	Pollutant	RR	95% CI	P-value
Total	O3	1.0022	1.0001 , 1.0056	0.007
	CO	1.0013	1.0009 , 1.0020	0.0001
	NO2	1.0000	0.9956 , 1.0030	0.511
	SO2	1.0140	1.0126 , 1.0154	0.0001
	PM10	0.9946	0.9940 , 0.9953	0.0001
	PM2.5	0.9963	0.9943 , 0.9982	0.0001
Male	O3	0.9997	0.9937 , 1.0058	0.522
	CO	1.0010	1.0009 , 1.0020	0.0001
	NO2	1.0041	0.9967 , 1.0115	0.132
	SO2	1.0118	1.0090 , 1.0146	0.0001

	PM10	0.9950	0.9936 , 0.9963	0.0001
	PM2.5	0.9982	0.9944 , 1.0021	0.941
Female	O3	1.0043	1.0009 , 1.0077	0.019
	CO	1.0018	1.0010 , 1.0030	0.0001
	NO2	0.9986	0.9944 , 1.0029	0.671
	SO2	1.0126	1.0110 , 1.0162	0.0001
	PM10	0.9944	0.9937 , 0.9952	0.0001
	PM2.5	0.9954	0.9931 , 0.9977	0.009
<30 years	O3	0.9981	0.9931 , 1.0032	0.475
	CO	1.0010	1.0009 , 1.0020	0.0001
	NO2	1.0047	0.9985 , 1.0110	0.275
	SO2	1.0125	1.0101 , 1.0149	0.0001
	PM10	0.9957	0.9946 , 0.9968	0.0001
	PM2.5	0.9964	0.9931 , 0.9998	0.040
30-50 years	O3	1.0062	1.0025 , 1.0109	0.0001
	CO	1.0018	1.0010 , 1.0030	0.0001
	NO2	0.9965	0.9918 , 1.0012	0.242
	SO2	1.0135	1.0120 , 1.0156	0.0001
	PM10	0.9940	0.9931 , 0.9948	0.0001
	PM2.5	0.9952	0.9926 , 0.9978	0.0001
>50 years	O3	1.0084	1.0000 , 1.0194	0.250
	CO	1.0511	1.0450 , 1.0600	0.0001
	NO2	0.9965	0.9808 , 1.0125	0.541
	SO2	1.0229	1.0176 , 1.0283	0.0001
	PM10	0.9906	0.9882 , 0.9930	0.0001
	PM2.5	0.9904	0.9834 , 0.9973	0.0001