

Supplemental Online Content

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This supplemental material has been provided by the authors to give readers additional information about their work.

eTable 1. Descriptive statistics for environmental conditions for the time periods included in analysis.

	2015-2016 ^a	2016-2017 ^a	2018-2019 ^a	Camp Fire ^b
PM_{2.5}				
Mean (SD)	8.2 (2.4)	8.2 (3.2)	17.4 (24.1)	82.9 (9.3)
Median	8.2	9	9.5	82.9
Range	3.8 - 12.4	2.5 - 12.6	5.4 - 89.5	76.3 - 89.5
Plume density score				
Mean (SD)	0 (0.1)	0 (0)	0.17 (0.52)	1.5 (0.7)
Median	0	0	0	1.5
Range	0 - 0.2	0 - 0.1	0 - 2	1.0 - 2
Temperature				
Mean (SD)	56.5 (6.0)	55.9 (5.4)	57.2 (4.0)	57.6 (2.1)
Median	55.7	53.9	56.4	57.6
Range	45.9 - 68.3	50.4 - 64.6	51.6 - 64.4	56.1 - 59.1
Relative Humidity				
Mean (SD)	74.1 (6.3)	73.2 (5.0)	70.9 (9.0)	60.3 (16.6)
Median	73.1	74.3	72.1	60.3
Range	62.1 - 86	62.1 - 81.4	48.6 - 83.9	48.6 - 72

^a Data for these time periods encompass 18 weeks from October of the first year to February of the second year. ^b Data in this column encompass the 2 weeks of the Camp Fire in November 2018.
Abbreviations: PM_{2.5}, particulate matter less than 2.5 microns in diameter; SD, standard deviation.

eTable 2. Racial composition of study participants across time periods. Values in the table represent the number and percentage of all patients within a specific time period. The time periods include the 2 weeks of the Camp Fire, the 4 weeks before, the 4 weeks after, and the corresponding 2 weeks of the Camp Fire period during the year 2016 (control year).

Race	Camp Fire weeks	4 weeks before	4 weeks after	2016 corresponding weeks
White	70 (37%)	137 (39%)	140 (41%)	58 (37%)
Asian	68 (36%)	123 (35%)	113 (33%)	55 (35%)
Hawaii/Pacific Islander	11 (6%)	21 (6%)	21 (6%)	11 (7%)
Black/African American	8 (4%)	11 (3%)	14 (4%)	6 (4%)
Other	32 (17%)	60 (17%)	55 (16%)	27 (17%)

eTable 3: Adjusted generalized Poisson regression results for all outcomes

according to exposure metric. Models compared data from 2018-2019 to previous years, included covariates, temperature, humidity, and patient age, an offset for total patient load, and an indicator variable for weeks with a holiday. Bold values represent results with $P < 0.05$. Abbreviations: CI = confidence interval; C = cumulative; AD = atopic dermatitis; PM_{2.5} = particulate matter less than 2.5 microns in diameter.

Outcomes	Exposures	Lags	Rate Ratio	95% CI Lower Bound	95% CI Upper Bound	P-value
Pediatric AD	Fire status	C0	1.488	1.069	2.072	0.019
		C1	1.425	1.055	1.924	0.021
		C2	1.302	1.011	1.678	0.041
		C3	1.411	1.126	1.768	0.003
		C4	1.390	1.117	1.731	0.003
Pediatric AD	PM _{2.5}	C0	1.051	1.008	1.097	0.020
		C1	1.030	1.006	1.055	0.013
		C2	1.025	1.003	1.047	0.025
		C3	1.025	1.007	1.044	0.006
		C4	1.025	1.009	1.042	0.003
Pediatric AD	Plume score	C0	1.272	0.996	1.625	0.054
		C1	1.165	1.041	1.305	0.008
		C2	1.145	1.032	1.271	0.011
		C3	1.121	1.029	1.221	0.009
		C4	1.137	1.052	1.228	0.001
Adult AD	Fire status	C0	1.147	1.016	1.295	0.027
		C1	1.121	1.003	1.252	0.044
		C2	1.092	0.993	1.201	0.070
		C3	1.046	0.959	1.140	0.309
		C4	1.016	0.935	1.103	0.714
Adult AD	PM _{2.5}	C0	1.016	1.001	1.032	0.049
		C1	1.007	0.998	1.016	0.138
		C2	1.006	0.998	1.014	0.158
		C3	1.004	0.997	1.011	0.325
		C4	1.001	0.994	1.007	0.826
Adult AD	Plume score	C0	1.124	1.036	1.224	0.007
		C1	1.046	1.001	1.092	0.043
		C2	1.038	0.997	1.079	0.067
		C3	1.022	0.989	1.057	0.198

Outcomes	Exposures	Lags	Rate Ratio	95% CI Lower Bound	95% CI Upper Bound	P-value
		C4	1.009	0.978	1.040	0.582
Pediatric itch	Fire status	C0	1.822	1.197	2.773	0.005
		C1	1.900	1.307	2.764	0.001
		C2	1.638	1.169	2.294	0.004
		C3	1.500	1.091	2.062	0.013
		C4	1.458	1.070	1.988	0.017
Pediatric itch	PM _{2.5}	C0	1.077	1.019	1.137	0.008
		C1	1.044	1.011	1.077	0.008
		C2	1.043	1.013	1.073	0.005
		C3	1.033	1.006	1.060	0.015
		C4	1.028	1.003	1.053	0.028
Pediatric itch	Plume score	C0	1.548	1.149	2.085	0.004
		C1	1.242	1.072	1.439	0.004
		C2	1.247	1.089	1.429	0.001
		C3	1.169	1.036	1.319	0.011
		C4	1.141	1.017	1.279	0.024
Adult itch	Fire status	C0	1.287	0.961	1.745	0.091
		C1	1.108	0.848	1.447	0.452
		C2	1.086	0.862	1.367	0.486
		C3	1.135	0.925	1.394	0.226
		C4	1.172	0.965	1.423	0.110
Adult itch	PM _{2.5}	C0	1.032	0.994	1.072	0.098
		C1	1.013	0.991	1.036	0.241
		C2	1.008	0.988	1.028	0.457
		C3	1.008	0.991	1.025	0.359
		C4	1.010	0.995	1.025	0.207
Adult itch	Plume score	C0	1.158	0.937	1.431	0.174
		C1	1.068	0.961	1.187	0.224
		C2	1.026	0.932	1.130	0.601
		C3	1.031	0.951	1.117	0.458
		C4	1.047	0.975	1.125	0.208
Systemic medications	Fire status	C0	1.450	1.026	2.050	0.035
		C1	1.433	1.046	1.964	0.025
		C2	1.325	1.009	1.740	0.043
		C3	1.273	0.989	1.639	0.061
		C4	1.089	0.851	1.393	0.497
Systemic medications	PM _{2.5}	C0	1.050	1.004	1.098	0.031
		C1	1.027	1.001	1.054	0.043
		C2	1.026	1.003	1.051	0.030

Outcomes	Exposures	Lags	Rate Ratio	95% CI Lower Bound	95% CI Upper Bound	P-value
		C3	1.021	1.001	1.041	0.045
		C4	1.011	0.992	1.031	0.238
Systemic medications	Plume score	C0	1.342	1.005	1.793	0.046
		C1	1.146	0.991	1.325	0.066
		C2	1.139	0.995	1.305	0.060
		C3	1.099	0.981	1.231	0.103
		C4	1.061	0.954	1.181	0.275
Topical medications	Fire status	C0	1.169	0.982	1.391	0.079
		C1	1.136	0.970	1.330	0.113
		C2	1.096	0.958	1.255	0.182
		C3	1.081	0.964	1.225	0.220
		C4	1.048	0.931	1.179	0.439
Topical medications	PM _{2.5}	C0	1.019	0.996	1.043	0.099
		C1	1.009	0.995	1.022	0.208
		C2	1.007	0.995	1.019	0.281
		C3	1.005	0.995	1.015	0.349
		C4	1.003	0.993	1.012	0.587
Topical medications	Plume score	C0	1.139	1.011	1.283	0.032
		C1	1.047	0.983	1.115	0.151
		C2	1.037	0.979	1.097	0.218
		C3	1.026	0.978	1.075	0.297
		C4	1.018	0.974	1.064	0.422

eTable 4: Unadjusted generalized Poisson regression results for all outcomes

according to exposure metric. Models compared data from 2018-2019 to previous years, included an offset for total patient load, and an indicator variable for weeks with a holiday. Bold values represent results with $P < 0.05$. Abbreviations: CI = confidence interval; C = cumulative; AD = atopic dermatitis; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter.

Outcomes	Exposures	Lags	Rate Ratio	95% CI Lower Bound	95% CI Upper Bound	P-value
Pediatric AD	Fire status	C0	1.317	0.954	1.818	0.094
		C1	1.326	0.978	1.796	0.069
		C2	1.298	1.002	1.683	0.049
		C3	1.383	1.099	1.741	0.006
		C4	1.352	1.083	1.687	0.008
Pediatric AD	$PM_{2.5}$	C0	1.041	1.000	1.085	0.047
		C1	1.028	1.003	1.053	0.025
		C2	1.027	1.004	1.049	0.019
		C3	1.027	1.009	1.046	0.004
		C4	1.025	1.009	1.042	0.002
Pediatric AD	Plume score	C0	1.128	1.007	1.399	0.046
		C1	1.129	1.006	1.267	0.040
		C2	1.130	1.014	1.258	0.026
		C3	1.121	1.026	1.226	0.012
		C4	1.130	1.044	1.224	0.003
Adult AD	Fire status	C0	1.101	1.012	1.239	0.042
		C1	1.079	0.990	1.214	0.102
		C2	1.059	0.958	1.170	0.263
		C3	1.042	0.951	1.141	0.374
		C4	1.024	0.940	1.116	0.592
Adult AD	$PM_{2.5}$	C0	1.013	1.001	1.027	0.046
		C1	1.007	0.997	1.017	0.101
		C2	1.005	0.997	1.014	0.225
		C3	1.004	0.997	1.011	0.293
		C4	1.002	0.996	1.009	0.496
Adult AD	Plume score	C0	1.049	0.964	1.141	0.268
		C1	1.034	0.987	1.083	0.162
		C2	1.029	0.987	1.074	0.181
		C3	1.019	0.983	1.055	0.307
		C4	1.012	0.980	1.045	0.470
Pediatric itch	Fire status	C0	1.728	1.161	2.572	0.007
		C1	1.864	1.294	2.686	0.001
		C2	1.640	1.179	2.282	0.003
		C3	1.518	1.108	2.079	0.009
		C4	1.475	1.088	2.001	0.012
Pediatric itch	$PM_{2.5}$	C0	1.073	1.018	1.131	0.009

Outcomes	Exposures	Lags	Rate Ratio	95% CI Lower Bound	95% CI Upper Bound	P-value
		C1	1.045	1.013	1.078	0.006
		C2	1.044	1.015	1.074	0.003
		C3	1.034	1.008	1.060	0.010
		C4	1.028	1.004	1.051	0.021
Pediatric itch	Plume score	C0	1.407	1.089	1.820	0.009
		C1	1.237	1.070	1.431	0.004
		C2	1.249	1.091	1.430	0.001
		C3	1.175	1.043	1.324	0.008
		C4	1.145	1.023	1.281	0.018
Adult itch	Fire status	C0	1.214	0.914	1.613	0.181
		C1	1.097	0.839	1.435	0.497
		C2	1.067	0.847	1.344	0.581
		C3	1.131	0.920	1.390	0.242
		C4	1.179	0.974	1.428	0.092
Adult itch	PM _{2.5}	C0	1.026	0.988	1.064	0.181
		C1	1.013	0.991	1.036	0.254
		C2	1.007	0.987	1.028	0.480
		C3	1.007	0.991	1.024	0.390
		C4	1.009	0.995	1.024	0.201
Adult itch	Plume score	C0	1.095	0.904	1.326	0.354
		C1	1.061	0.954	1.180	0.277
		C2	1.026	0.931	1.130	0.607
		C3	1.029	0.949	1.115	0.487
		C4	1.049	0.977	1.127	0.187
Systemic medications	Fire status	C0	1.469	1.046	2.063	0.026
		C1	1.457	1.053	2.016	0.023
		C2	1.370	1.034	1.815	0.028
		C3	1.364	1.054	1.763	0.018
		C4	1.139	0.881	1.474	0.321
Systemic medications	PM _{2.5}	C0	1.054	1.008	1.101	0.021
		C1	1.028	1.000	1.056	0.046
		C2	1.028	1.003	1.054	0.029
		C3	1.025	1.004	1.047	0.018
		C4	1.016	0.996	1.035	0.112
Systemic medications	Plume score	C0	1.302	1.048	1.616	0.017
		C1	1.148	1.011	1.303	0.033
		C2	1.144	1.015	1.290	0.027
		C3	1.116	1.009	1.234	0.032
		C4	1.082	0.986	1.188	0.096
Topical medications	Fire status	C0	1.163	0.985	1.374	0.075
		C1	1.131	0.966	1.324	0.125

Outcomes	Exposures	Lags	Rate Ratio	95% CI Lower Bound	95% CI Upper Bound	P-value
		C2	1.100	0.962	1.259	0.163
		C3	1.072	0.948	1.213	0.269
		C4	1.042	0.927	1.171	0.490
Topical medications	PM _{2.5}	C0	1.020	0.997	1.042	0.084
		C1	1.009	0.996	1.023	0.183
		C2	1.007	0.995	1.019	0.248
		C3	1.005	0.995	1.015	0.351
		C4	1.002	0.993	1.011	0.632
Topical medications	Plume score	C0	1.118	1.004	1.245	0.042
		C1	1.047	0.984	1.115	0.149
		C2	1.036	0.978	1.098	0.227
		C3	1.026	0.978	1.076	0.302
		C4	1.015	0.972	1.060	0.496

eTable 5: Sensitivity analyses for simple exposure lags and 2-week exposure lags for fire status exposure using generalized Poisson regression. Models compared data

from 2018-2019 to previous year, included covariates, temperature, humidity, and patient age, an offset for total patient load, and an indicator variable for weeks with a holiday. Bold values represent results with $P < 0.05$. Abbreviations: CI = confidence interval; S = simple; AD = atopic dermatitis; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; tw = 2-week exposure lag.

Outcomes	Exposures	Lags	Rate Ratio	95% CI Lower Bound	95% CI Upper Bound	P-value
Pediatric AD	Fire status	S0	1.488	1.067	2.072	0.019
		S1	1.543	1.112	2.142	0.009
		S2	1.088	0.753	1.572	0.654
		S3	1.260	0.941	1.687	0.121
		S4	1.297	0.946	1.778	0.107
		S0 tw	1.580	1.136	2.198	0.007
		S2 tw	1.181	0.826	1.688	0.362
Pediatric AD	$PM_{2.5}$	S4 tw	1.410	1.030	1.930	0.032
		S0	1.051	1.008	1.097	0.020
		S1	1.057	1.008	1.109	0.023
		S2	1.004	0.958	1.052	0.863
Pediatric AD	Plume score	S3	1.035	0.995	1.076	0.085
		S4	1.029	0.986	1.073	0.195
		S0	1.272	1.003	1.645	0.044
		S1	1.271	1.070	1.509	0.006
		S2	1.073	0.807	1.426	0.629
Adult AD	Fire status	S3	1.108	0.927	1.325	0.261
		S4	1.200	0.991	1.451	0.061
		S0	1.147	1.016	1.295	0.027
		S1	1.063	0.929	1.215	0.374
		S2	1.015	0.886	1.163	0.829
		S3	0.967	0.862	1.084	0.561
		S4	0.909	0.808	1.021	0.108
		S0 tw	1.141	1.013	1.287	0.029
Adult AD	$PM_{2.5}$	S2 tw	1.011	0.887	1.152	0.869
		S4 tw	0.915	0.817	1.026	0.130
		S0	1.016	1.000	1.032	0.056
		S1	1.008	0.988	1.027	0.442
		S2	1.002	0.985	1.019	0.832
Adult AD	Plume score	S3	0.997	0.982	1.012	0.697
		S4	0.987	0.971	1.002	0.098
		S0	1.124	1.033	1.224	0.007
		S1	1.041	0.968	1.119	0.275

Outcomes	Exposures	Lags	Rate Ratio	95% CI Lower Bound	95% CI Upper Bound	P-value
		S2	1.012	0.914	1.122	0.814
		S3	0.988	0.921	1.060	0.735
		S4	0.947	0.880	1.019	0.145
Pediatric itch	Fire status	S0	1.822	1.197	2.773	0.005
		S1	1.775	1.121	2.810	0.014
		S2	1.277	0.766	2.130	0.348
		S3	0.984	0.614	1.579	0.948
		S4	0.985	0.604	1.606	0.951
		S0 tw	1.884	1.236	2.874	0.003
		S2 tw	1.398	0.845	2.314	0.192
		S4 tw	1.087	0.679	1.740	0.728
Pediatric itch	PM _{2.5}	S0	1.077	1.019	1.137	0.008
		S1	1.081	1.010	1.156	0.024
		S2	1.029	1.002	1.051	0.043
		S3	1.003	0.942	1.068	0.925
		S4	1.001	0.937	1.069	0.977
Pediatric itch	Plume score	S0	1.548	1.149	2.085	0.004
		S1	1.317	1.029	1.685	0.029
		S2	1.311	0.886	1.940	0.176
		S3	0.986	0.739	1.317	0.925
		S4	0.974	0.717	1.324	0.867
Adult itch	Fire status	S0	1.287	0.961	1.725	0.091
		S1	1.080	0.782	1.491	0.640
		S2	0.884	0.631	1.238	0.473
		S3	1.120	0.855	1.465	0.411
		S4	1.223	0.928	1.611	0.152
		S0 tw	1.317	0.986	1.759	0.062
		S2 tw	0.931	0.670	1.293	0.668
		S4 tw	1.246	0.948	1.637	0.115
Adult itch	PM _{2.5}	S0	1.032	0.994	1.072	0.098
		S1	1.011	0.966	1.057	0.648
		S2	0.988	0.946	1.032	0.590
		S3	1.011	0.975	1.049	0.541
		S4	1.021	0.983	1.060	0.279
Adult itch	Plume score	S0	1.080	0.907	1.286	0.389
		S1	1.080	0.907	1.286	0.389
		S2	0.859	0.678	1.088	0.207
		S3	1.049	0.887	1.242	0.575
		S4	1.122	0.948	1.327	0.181
Systemic medications	Fire status	S0	1.450	1.026	2.050	0.035

Outcomes	Exposures	Lags	Rate Ratio	95% CI Lower Bound	95% CI Upper Bound	P-value
		S1	1.346	0.915	1.980	0.132
		S2	1.121	0.753	1.670	0.573
		S3	1.039	0.734	1.472	0.828
		S4	0.714	0.474	1.077	0.109
		S0 tw	1.416	0.998	2.009	0.051
		S2 tw	1.080	0.720	1.621	0.709
		S4 tw	0.827	0.564	1.214	0.332
Systemic medications	PM _{2.5}	S0	1.050	1.004	1.098	0.031
		S1	1.045	0.989	1.104	0.118
		S2	1.018	0.968	1.070	0.490
		S3	1.010	0.963	1.059	0.679
		S4	0.954	0.901	1.009	0.100
Systemic medications	Plume score	S0	1.331	1.046	1.695	0.020
		S1	1.174	0.957	1.438	0.123
		S2	1.147	0.838	1.571	0.391
		S3	1.026	0.834	1.263	0.808
		S4	0.875	0.682	1.121	0.290
Topical medications	Fire status	S0	1.169	0.982	1.391	0.079
		S1	1.060	0.873	1.288	0.556
		S2	1.004	0.828	1.217	0.966
		S3	1.002	0.846	1.186	0.985
		S4	0.953	0.798	1.138	0.594
		S0 tw	1.166	0.978	1.390	0.086
		S2 tw	0.999	0.882	1.215	0.995
		S4 tw	0.950	0.799	1.130	0.562
Topical medications	PM _{2.5}	S0	1.019	0.996	1.043	0.099
		S1	1.009	0.981	1.037	0.541
		S2	0.999	0.975	1.024	0.967
		S3	1.001	0.978	1.024	0.943
		S4	0.991	0.967	1.015	0.438
Topical medications	Plume score	S0	1.139	1.011	1.283	0.032
		S1	1.030	0.926	1.145	0.590
		S2	0.996	0.861	1.152	0.958
		S3	0.998	0.902	1.105	0.974
		S4	0.978	0.874	1.096	0.706