PRELIMINARY RESULTS FOR BRAZIL COVID-19 DATASET

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1 Basic Analytics

	0
N	43906
N_Hosp	39959
N_Death	13558
Female	18604
Male	25295
Race	13838
Schooling	3073
Contracted At Hospital	1291
Contact Birds Pigs	387
Fever	33468
Cough	34597
Throat	9777
Dyspnea	30720
Respiratory Discomfort	25942
SpO2 less 95\%	24440
Diarrhea	6083
Vomiting	3448
Other Symptoms	13637
Postpartum	181
Cardiovascular Disease	13736
Hematologic Disease	433
Down Syndrome	101
Liver Chronic Disease	393
Asthma	1343
Diabetes	10241
Neurological Disease	1733
Another Chronic Pneumopathy	1752
Immunosuppression	1447
Renal Chronic Disease	1841
Obesity	1580
Other Risks	10590
Antiviral Use	16195
Hospitalization	39959
ICU	13848
Ventilator	8337
Xray Torax Result	1332
Result Final	0
Evolution	16435

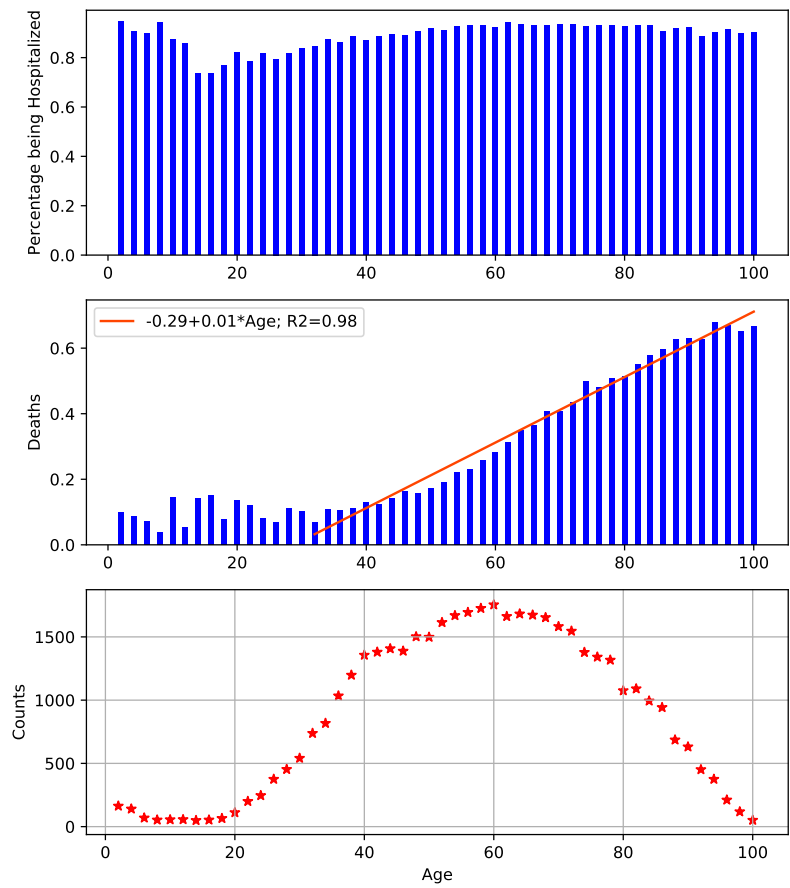**Table 1:** Number of observations with a specific observation

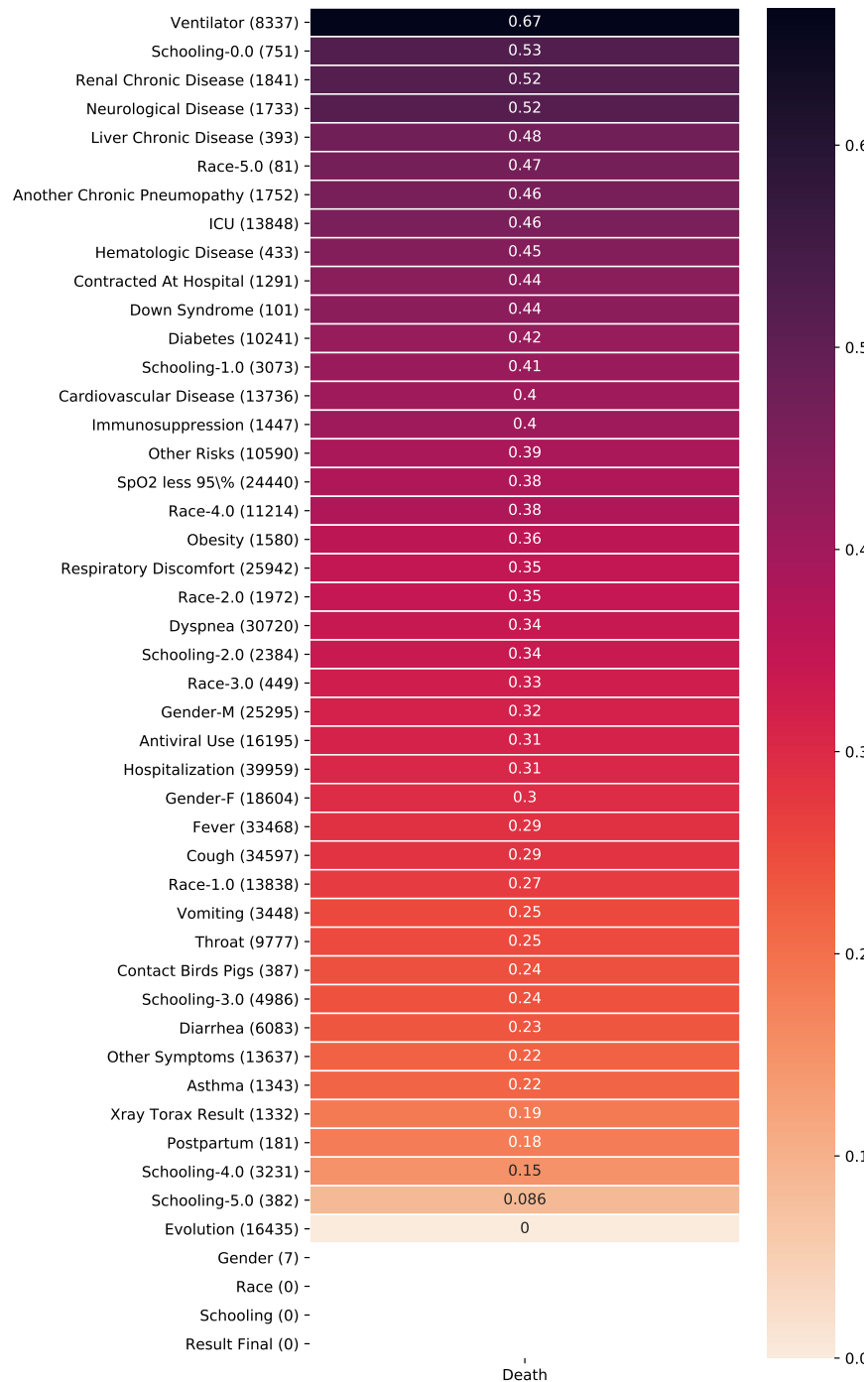**Figure 1:** Distribution of hospitalization and deaths by age group

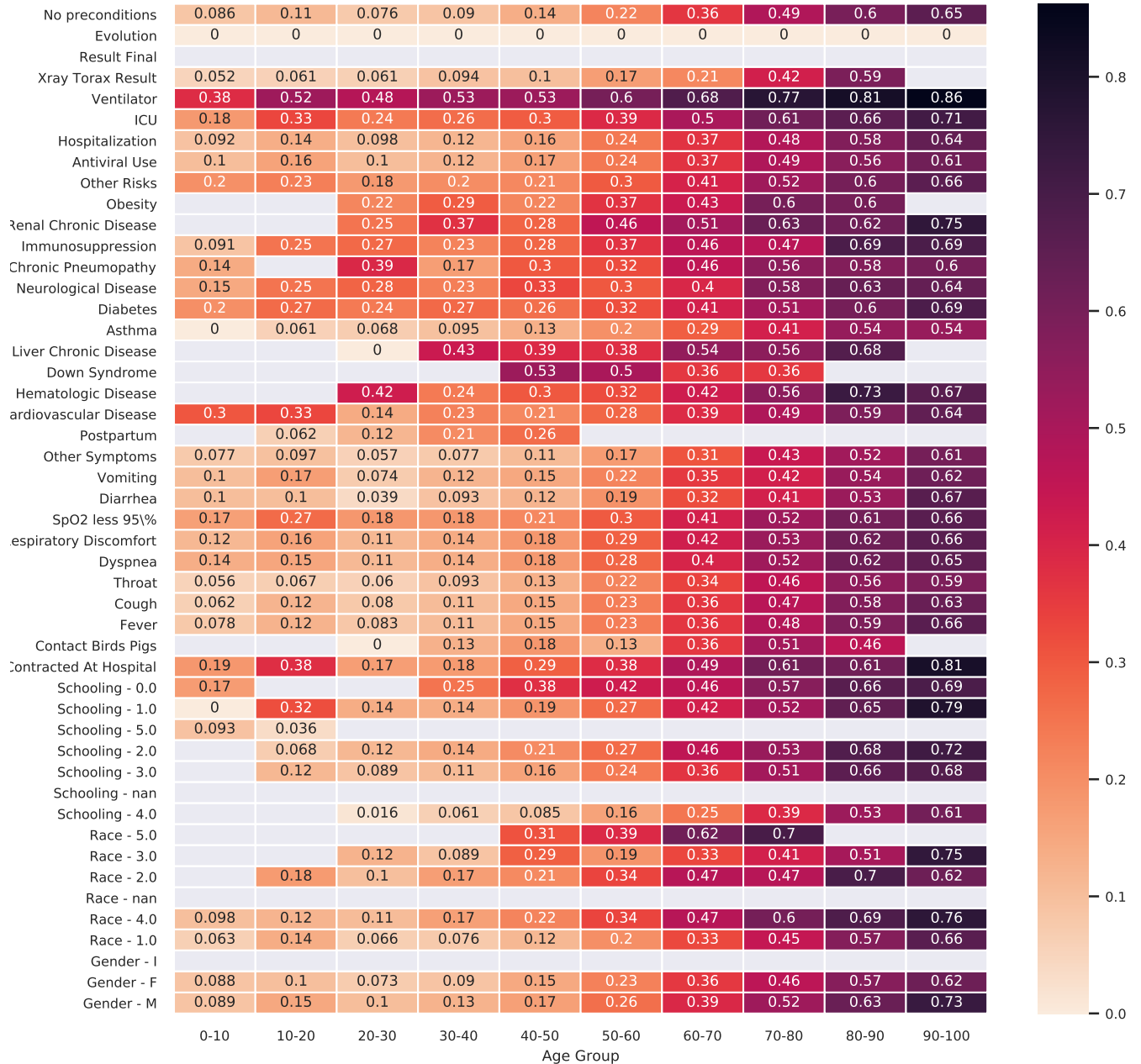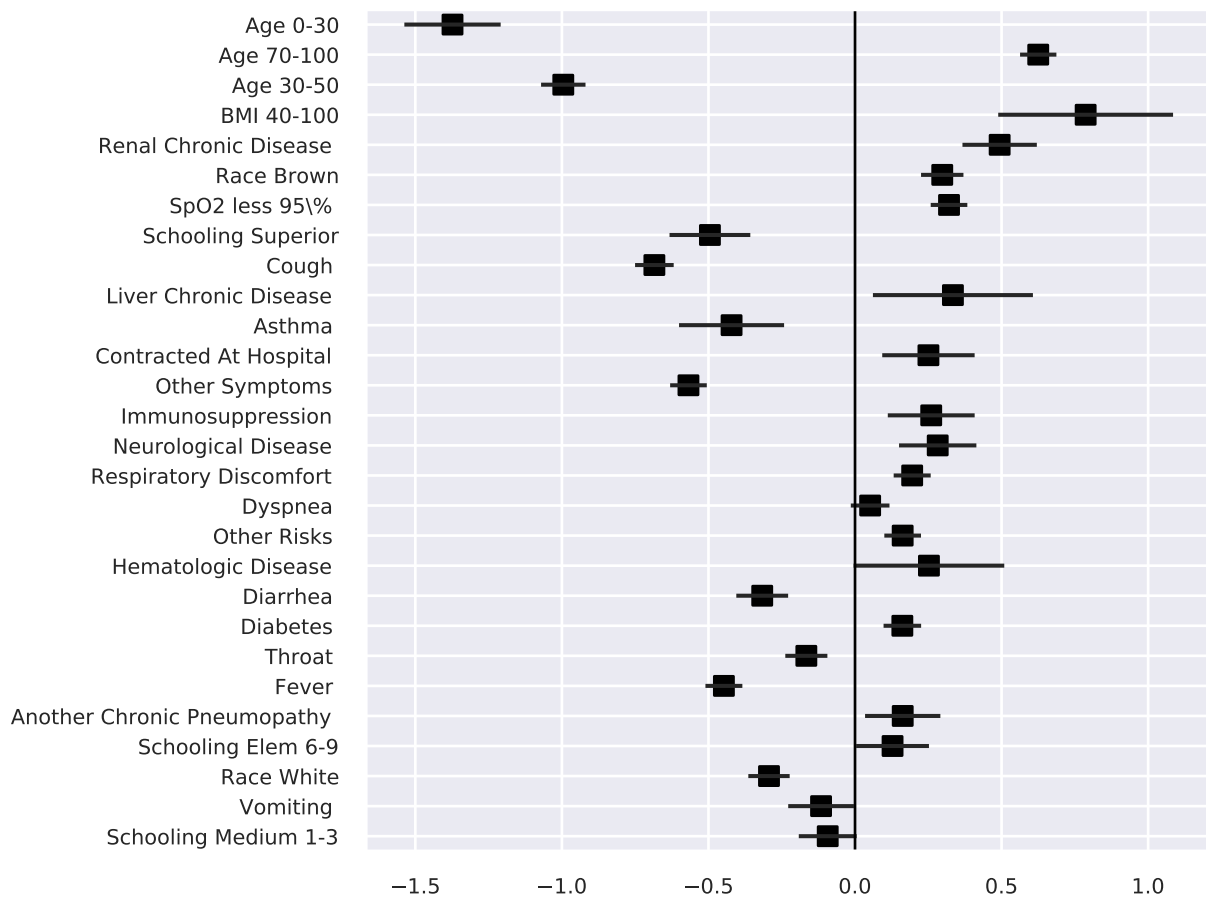**Figure 2:** Share of hospitalized and deaths patients given characteristics

Characteristic	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No preconditions	0.086	0.11	0.076	0.09	0.14	0.22	0.36	0.49	0.6	0.65
Evolution	0	0	0	0	0	0	0	0	0	0
Result Final										
Xray Torax Result	0.052	0.061	0.061	0.094	0.1	0.17	0.21	0.42	0.59	
Ventilator	0.38	0.52	0.48	0.53	0.53	0.6	0.68	0.77	0.81	0.86
ICU	0.18	0.33	0.24	0.26	0.3	0.39	0.5	0.61	0.66	0.71
Hospitalization	0.092	0.14	0.098	0.12	0.16	0.24	0.37	0.48	0.58	0.64
Antiviral Use	0.1	0.16	0.1	0.12	0.17	0.24	0.37	0.49	0.56	0.61
Other Risks	0.2	0.23	0.18	0.2	0.21	0.3	0.41	0.52	0.6	0.66
Obesity			0.22	0.29	0.22	0.37	0.43	0.6	0.6	
Renal Chronic Disease			0.25	0.37	0.28	0.46	0.51	0.63	0.62	0.75
Immunosuppression	0.091	0.25	0.27	0.23	0.28	0.37	0.46	0.47	0.69	0.69
Chronic Pneumopathy	0.14		0.39	0.17	0.3	0.32	0.46	0.56	0.58	0.6
Neurological Disease	0.15	0.25	0.28	0.23	0.33	0.3	0.4	0.58	0.63	0.64
Diabetes	0.2	0.27	0.24	0.27	0.26	0.32	0.41	0.51	0.6	0.69
Asthma	0	0.061	0.068	0.095	0.13	0.2	0.29	0.41	0.54	0.54
Liver Chronic Disease			0	0.43	0.39	0.38	0.54	0.56	0.68	
Down Syndrome					0.53	0.5	0.36	0.36		
Hematologic Disease			0.42	0.24	0.3	0.32	0.42	0.56	0.73	0.67
Cardiovascular Disease	0.3	0.33	0.14	0.23	0.21	0.28	0.39	0.49	0.59	0.64
Postpartum		0.062	0.12	0.21	0.26					
Other Symptoms	0.077	0.097	0.057	0.077	0.11	0.17	0.31	0.43	0.52	0.61
Vomiting	0.1	0.17	0.074	0.12	0.15	0.22	0.35	0.42	0.54	0.62
Diarrhea	0.1	0.1	0.039	0.093	0.12	0.19	0.32	0.41	0.53	0.67
SpO2 less 95\%	0.17	0.27	0.18	0.18	0.21	0.3	0.41	0.52	0.61	0.66
Respiratory Discomfort	0.12	0.16	0.11	0.14	0.18	0.29	0.42	0.53	0.62	0.66
Dyspnea	0.14	0.15	0.11	0.14	0.18	0.28	0.4	0.52	0.62	0.65
Throat	0.056	0.067	0.06	0.093	0.13	0.22	0.34	0.46	0.56	0.59
Cough	0.062	0.12	0.08	0.11	0.15	0.23	0.36	0.47	0.58	0.63
Fever	0.078	0.12	0.083	0.11	0.15	0.23	0.36	0.48	0.59	0.66
Contact Birds Pigs			0	0.13	0.18	0.13	0.36	0.51	0.46	
Contracted At Hospital	0.19	0.38	0.17	0.18	0.29	0.38	0.49	0.61	0.61	0.81
Schooling - 0.0	0.17			0.25	0.38	0.42	0.46	0.57	0.66	0.69
Schooling - 1.0	0	0.32	0.14	0.14	0.19	0.27	0.42	0.52	0.65	0.79
Schooling - 5.0	0.093	0.036								
Schooling - 2.0		0.068	0.12	0.14	0.21	0.27	0.46	0.53	0.68	0.72
Schooling - 3.0		0.12	0.089	0.11	0.16	0.24	0.36	0.51	0.66	0.68
Schooling - nan										
Schooling - 4.0			0.016	0.061	0.085	0.16	0.25	0.39	0.53	0.61
Race - 5.0					0.31	0.39	0.62	0.7		
Race - 3.0			0.12	0.089	0.29	0.19	0.33	0.41	0.51	0.75
Race - 2.0		0.18	0.1	0.17	0.21	0.34	0.47	0.47	0.7	0.62
Race - nan										
Race - 4.0	0.098	0.12	0.11	0.17	0.22	0.34	0.47	0.6	0.69	0.76
Race - 1.0	0.063	0.14	0.066	0.076	0.12	0.2	0.33	0.45	0.57	0.66
Gender - I										
Gender - F	0.088	0.1	0.073	0.09	0.15	0.23	0.36	0.46	0.57	0.62
Gender - M	0.089	0.15	0.1	0.13	0.17	0.26	0.39	0.52	0.63	0.73

Age Group

Figure 3: Share of hospitalized and deaths patients given characteristics and age group

2 Results

2.1 Mortality (previous)

	Coef	2.5	97.5	Odds Ratio	2.5	97.5	Avg-0	Avg-1	KS-pv	pvalue
Age 0-30	-1.373	-1.537	-1.209	0.253	0.215	0.299	0.320	0.101	0.000	0.000
Age 30-50	-0.995	-1.071	-0.919	0.370	0.343	0.399	0.375	0.140	0.000	0.000
BMI 40-100	0.787	0.489	1.085	2.196	1.630	2.959	0.306	0.412	0.012	0.000
Cough	-0.684	-0.750	-0.619	0.504	0.472	0.539	0.389	0.286	0.000	0.000
Age 70-100	0.625	0.563	0.687	1.868	1.756	1.988	0.221	0.524	0.000	0.000
Other Symptoms	-0.568	-0.631	-0.506	0.567	0.532	0.603	0.341	0.229	0.000	0.000
Schooling Superior	-0.495	-0.633	-0.357	0.610	0.531	0.700	0.317	0.165	0.000	0.000
Renal Chronic Disease	0.493	0.367	0.620	1.638	1.443	1.859	0.297	0.524	0.000	0.000
Fever	-0.447	-0.510	-0.384	0.639	0.600	0.681	0.375	0.287	0.000	0.000
Asthma	-0.421	-0.600	-0.242	0.656	0.549	0.785	0.310	0.212	0.000	0.000
Liver Chronic Disease	0.334	0.061	0.607	1.397	1.063	1.835	0.305	0.447	0.000	0.016
SpO2 less 95\%	0.321	0.258	0.383	1.378	1.295	1.467	0.212	0.373	0.000	0.000
Diarrhea	-0.317	-0.405	-0.228	0.729	0.667	0.796	0.318	0.237	0.000	0.000
Race Brown	0.298	0.225	0.370	1.347	1.253	1.448	0.284	0.373	0.000	0.000
Race White	-0.293	-0.364	-0.223	0.746	0.695	0.800	0.321	0.275	0.000	0.000
Neurological Disease	0.282	0.150	0.414	1.326	1.162	1.513	0.298	0.511	0.000	0.000
Immunosuppression	0.260	0.112	0.408	1.297	1.118	1.504	0.302	0.430	0.000	0.001
Hematologic Disease	0.252	-0.005	0.509	1.287	0.995	1.664	0.305	0.452	0.000	0.054
Contracted At Hospital	0.250	0.093	0.408	1.285	1.097	1.504	0.301	0.475	0.000	0.002
Respiratory Discomfort	0.195	0.132	0.258	1.215	1.141	1.295	0.242	0.348	0.000	0.000
Throat	-0.166	-0.238	-0.094	0.847	0.788	0.910	0.319	0.262	0.000	0.000
Another Chronic Pneumopathy	0.163	0.034	0.291	1.177	1.035	1.338	0.300	0.458	0.000	0.013
Other Risks	0.163	0.100	0.225	1.177	1.105	1.252	0.282	0.380	0.000	0.000
Diabetes	0.161	0.097	0.226	1.175	1.102	1.253	0.272	0.413	0.000	0.000
Schooling Elem 6-9	0.128	0.004	0.252	1.137	1.004	1.287	0.304	0.345	0.020	0.043
Vomiting	-0.116	-0.228	-0.004	0.891	0.796	0.996	0.312	0.251	0.000	0.043
Schooling Medium 1-3	-0.093	-0.192	0.006	0.911	0.825	1.006	0.314	0.249	0.000	0.064
Race Black	0.091	-0.046	0.228	1.095	0.955	1.256	0.305	0.351	0.012	0.195
Dyspnea	0.052	-0.014	0.118	1.053	0.986	1.125	0.234	0.334	0.000	0.125
Schooling Elem 1-5	0.013	-0.094	0.120	1.013	0.910	1.127	0.300	0.394	0.000	0.816
Cardiovascular Disease	-0.001	-0.063	0.060	0.999	0.939	1.062	0.262	0.398	0.000	0.966

Recursive Feature Elimination:

Coefficients:

	SVM-l1	LR-l1
Age 70-100	1.000	0.783
BMI 40-100	0.709	0.669
Renal Chronic Disease	0.614	0.506
Race Brown	0.455	0.429
SpO2 less 95\%	0.399	0.403
Liver Chronic Disease	0.418	0.361
Contracted At Hospital	0.418	0.359
Immunosuppression	0.333	0.307
Neurological Disease	0.354	0.291
Respiratory Discomfort	0.288	0.272
Race Black	0.278	0.264
Dyspnea	0.270	0.262
Other Risks	0.275	0.262
Hematologic Disease	0.299	0.261
Diabetes	0.246	0.219
Another Chronic Pneumopathy	0.206	0.166
Schooling Elem 6-9	0.138	0.131
Cardiovascular Disease	0.087	0.087
Schooling Elem 1-5	0.021	0.015
Schooling Medium 1-3	-0.071	-0.063
Vomiting	-0.087	-0.074
Race White	-0.116	-0.120
Fever	-0.204	-0.176
Throat	-0.175	-0.178
Diarrhea	-0.254	-0.259
Other Symptoms	-0.352	-0.357
Asthma	-0.344	-0.359
Cough	-0.407	-0.377
Schooling Superior	-0.333	-0.394
Age 30-50	-0.608	-0.703
Age 0-30	-0.794	-1.000

Performance:

	SVM-l1	LR-l1	RF	XGBoost
Accuracy	0.692	0.692	0.669	0.693
F1w	0.671	0.670	0.568	0.671
AUC	0.722	0.722	0.708	0.725
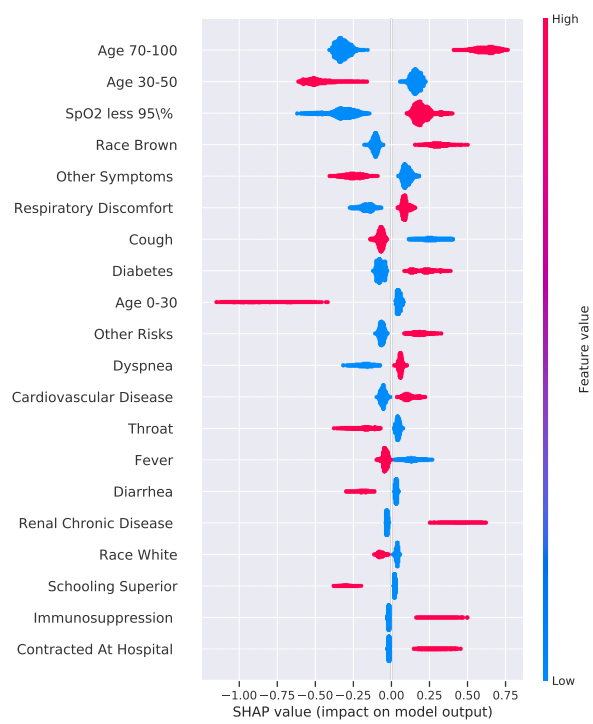
2.2 Mortality (previous) small

	Coef	2.5	97.5	Odds Ratio	2.5	97.5	Avg-0	Avg-1	KS-pv	pvalue
Age 0-30	-1.478	-1.640	-1.317	0.228	0.194	0.268	0.321	0.106	0.000	0.0
Age 30-50	-1.116	-1.188	-1.043	0.328	0.305	0.352	0.376	0.142	0.000	0.0
Cough	-0.911	-0.962	-0.859	0.402	0.382	0.424	0.388	0.288	0.000	0.0
BMI 35-40	0.756	0.496	1.015	2.129	1.642	2.759	0.307	0.401	0.013	0.0
Schooling Superior	-0.626	-0.756	-0.496	0.535	0.470	0.609	0.318	0.169	0.000	0.0
Other Symptoms	-0.612	-0.672	-0.552	0.542	0.511	0.576	0.343	0.230	0.000	0.0
Age 70-100	0.595	0.537	0.652	1.812	1.711	1.920	0.224	0.521	0.000	0.0
Liver Chronic Disease	0.567	0.297	0.837	1.763	1.346	2.310	0.307	0.488	0.000	0.0
Renal Chronic Disease	0.529	0.404	0.654	1.698	1.498	1.924	0.299	0.519	0.000	0.0
Race Brown	0.362	0.301	0.423	1.436	1.351	1.527	0.287	0.373	0.000	0.0
SpO2 less 95\%	0.311	0.259	0.363	1.365	1.295	1.438	0.214	0.374	0.000	0.0
Contracted At Hospital	0.297	0.141	0.454	1.346	1.151	1.575	0.304	0.460	0.000	0.0

Recursive Feature Elimination:

Number of features selected
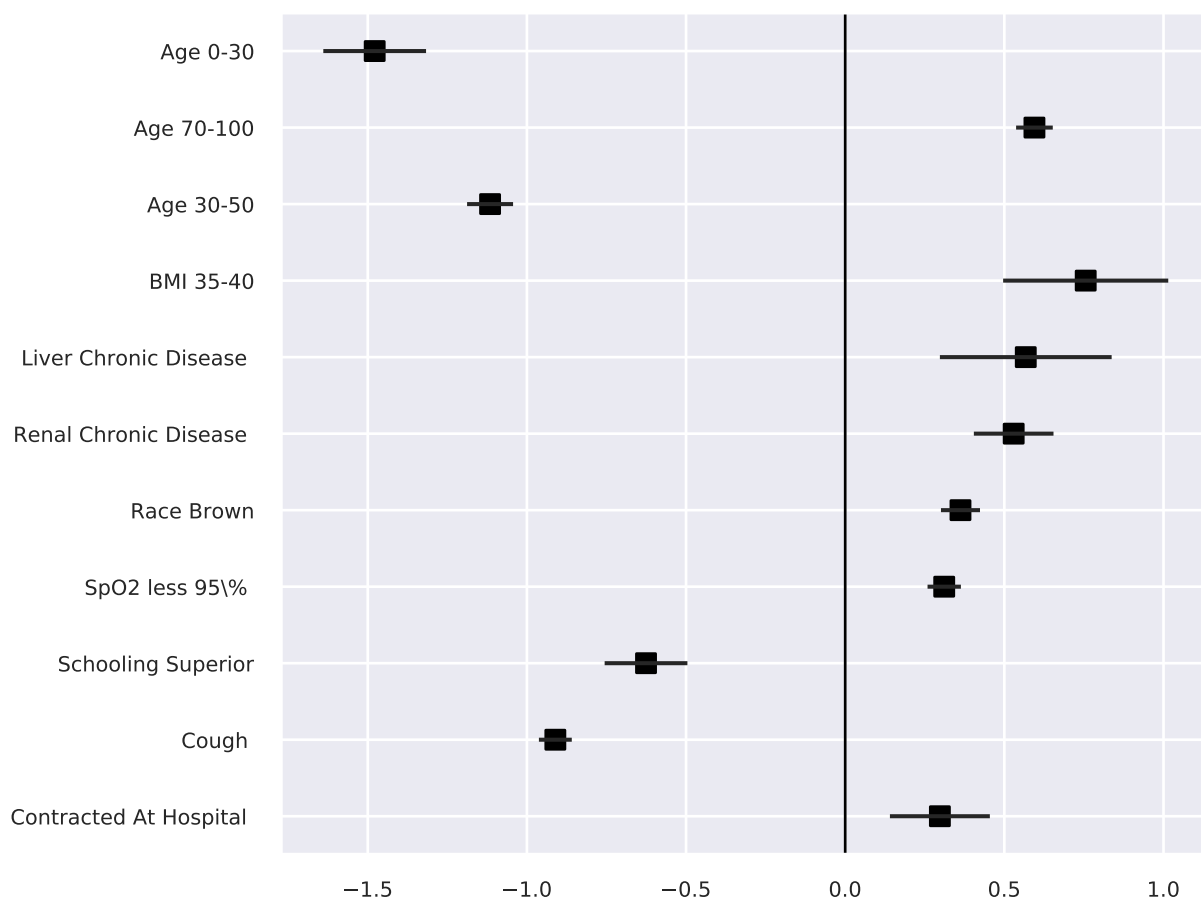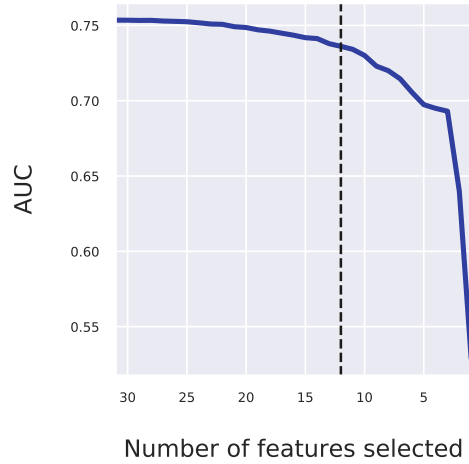
Performance:

	SVM-l1	LR-l1	RF	XGBoost
Accuracy	0.689	0.690	0.684	0.689
F1w	0.672	0.668	0.616	0.671
AUC	0.717	0.717	0.711	0.717
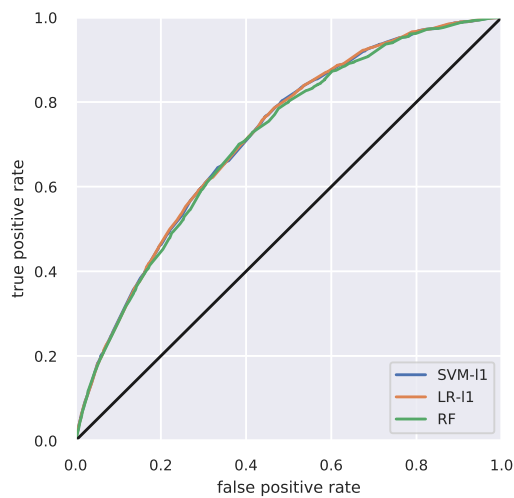
Coefficients:

	SVM-l1	LR-l1
Age 70-100	1.000	0.735
BMI 35-40	0.695	0.631
Liver Chronic Disease	0.690	0.550
Renal Chronic Disease	0.695	0.547
SpO2 less 95\%	0.533	0.504
Race Brown	0.457	0.410
Contracted At Hospital	0.495	0.407
Other Symptoms	-0.355	-0.344
Cough	-0.439	-0.388
Schooling Superior	-0.386	-0.418
Age 30-50	-0.683	-0.735
Age 0-30	-0.863	-1.000

13
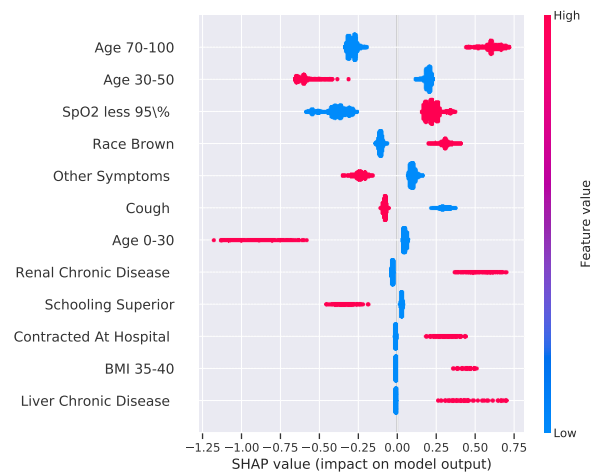
2.3   Mortality (advanced)

Include variables: Antiviral, ICU, Ventilator

	Coef	2.5	97.5	Odds Ratio	2.5	97.5	Avg-0	Avg-1	KS-pv	pvalue
Ventilator Invasive	1.673	1.593	1.753	5.328	4.920	5.769	0.215	0.662	0.000	0.000
Age 0-30	-1.658	-1.833	-1.483	0.190	0.160	0.227	0.321	0.101	0.000	0.000
Age 30-50	-1.223	-1.300	-1.146	0.294	0.273	0.318	0.377	0.139	0.000	0.000
Cough	-0.605	-0.675	-0.536	0.546	0.509	0.585	0.392	0.287	0.000	0.000
Other Symptoms	-0.579	-0.645	-0.514	0.560	0.524	0.598	0.341	0.232	0.000	0.000
Neurological Disease	0.570	0.437	0.702	1.768	1.548	2.019	0.298	0.521	0.000	0.000
Schooling Superior	-0.518	-0.662	-0.374	0.596	0.516	0.688	0.317	0.170	0.000	0.000
Fever	-0.457	-0.523	-0.391	0.633	0.592	0.677	0.375	0.288	0.000	0.000
Liver Chronic Disease	0.417	0.125	0.709	1.518	1.133	2.032	0.306	0.482	0.000	0.005
Renal Chronic Disease	0.385	0.251	0.519	1.470	1.286	1.680	0.298	0.518	0.000	0.000
Race Brown	0.324	0.251	0.397	1.383	1.285	1.488	0.285	0.374	0.000	0.000
Asthma	-0.299	-0.484	-0.114	0.742	0.616	0.893	0.310	0.229	0.000	0.002
Race White	-0.281	-0.352	-0.210	0.755	0.703	0.810	0.323	0.275	0.000	0.000
Diarrhea	-0.233	-0.325	-0.141	0.792	0.722	0.868	0.319	0.239	0.000	0.000
SpO2 less 95\%	0.231	0.165	0.297	1.260	1.179	1.346	0.210	0.375	0.000	0.000
Immunosuppression	0.211	0.054	0.368	1.235	1.056	1.445	0.304	0.416	0.000	0.008
Hematologic Disease	0.182	-0.096	0.460	1.200	0.909	1.584	0.306	0.439	0.000	0.199
Postpartum	-0.181	-0.703	0.342	0.835	0.495	1.408	0.308	0.185	0.049	0.498
Schooling Elem 1-5	0.179	0.070	0.288	1.196	1.073	1.334	0.300	0.400	0.000	0.001
Antiviral Use	-0.163	-0.224	-0.102	0.850	0.800	0.903	0.300	0.318	0.022	0.000
ICU	0.143	0.074	0.212	1.154	1.077	1.236	0.228	0.458	0.000	0.000
Another Chronic Pneumopathy	0.138	0.001	0.275	1.148	1.001	1.317	0.301	0.458	0.000	0.048
Diabetes	0.106	0.038	0.173	1.111	1.039	1.189	0.274	0.412	0.000	0.002
Other Risks	0.102	0.036	0.167	1.107	1.037	1.182	0.283	0.381	0.000	0.002
Vomiting	-0.098	-0.216	0.020	0.907	0.806	1.020	0.313	0.246	0.000	0.103
Schooling Medium 1-3	-0.086	-0.188	0.017	0.918	0.829	1.017	0.315	0.246	0.000	0.101
Throat	-0.079	-0.154	-0.003	0.924	0.857	0.997	0.321	0.259	0.000	0.040
Contracted At Hospital	0.073	-0.097	0.244	1.076	0.907	1.276	0.303	0.454	0.000	0.399
Cardiovascular Disease	0.059	-0.004	0.123	1.061	0.996	1.130	0.262	0.400	0.000	0.068
Respiratory Discomfort	0.023	-0.044	0.089	1.023	0.957	1.093	0.249	0.344	0.000	0.504
Dyspnea	-0.009	-0.078	0.060	0.991	0.925	1.062	0.228	0.337	0.000	0.796

Recursive Feature Elimination:

Number of features selected
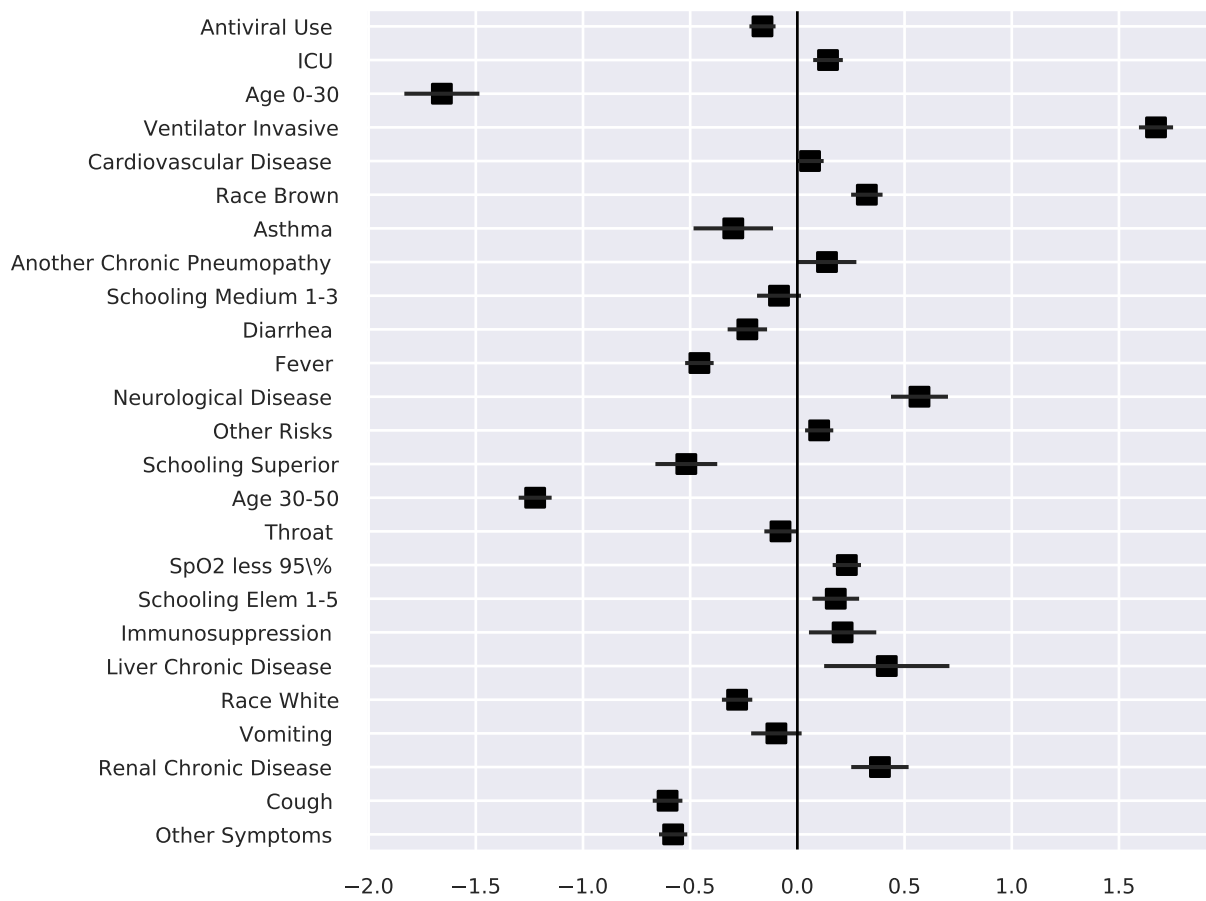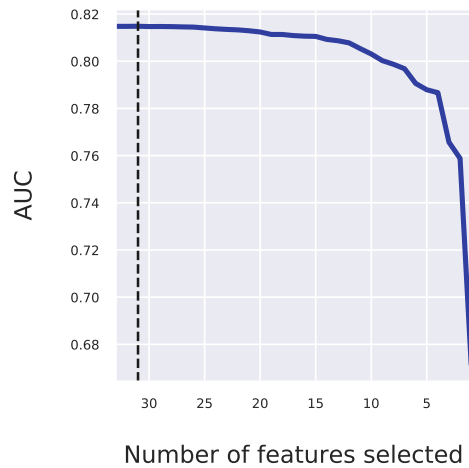
Performance:

	SVM-l1	LR-l1	RF	XGBoost
Accuracy	0.745	0.743	0.739	0.744
F1w	0.728	0.726	0.714	0.730
AUC	0.790	0.788	0.773	0.792
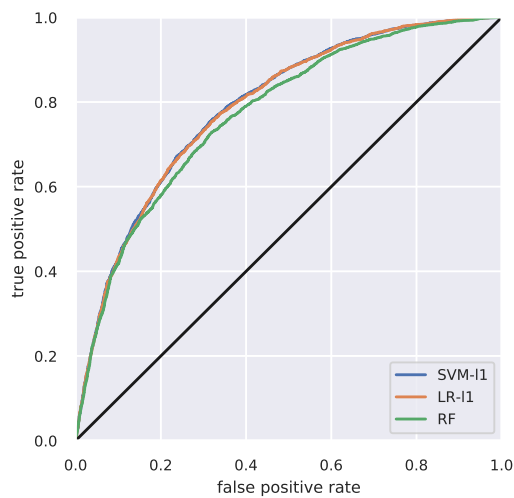
Coefficients:

	SVM-l1	LR-l1
Ventilator Invasive	1.000	1.000
Neurological Disease	0.372	0.398
Race Brown	0.229	0.281
Liver Chronic Disease	0.252	0.277
Renal Chronic Disease	0.242	0.263
SpO2 less 95\%	0.148	0.200
ICU	0.127	0.162
Immunosuppression	0.125	0.162
Contracted At Hospital	0.117	0.133
Schooling Elem 1-5	0.112	0.130
Other Risks	0.102	0.129
Dyspnea	0.099	0.123
Hematologic Disease	0.110	0.120
Cardiovascular Disease	0.085	0.103
Another Chronic Pneumopathy	0.094	0.101
Diabetes	0.086	0.100
Respiratory Discomfort	0.059	0.069
Vomiting	-0.033	-0.034
Schooling Medium 1-3	-0.039	-0.046
Postpartum	-0.071	-0.057
Throat	-0.045	-0.058
Antiviral Use	-0.069	-0.081
Race White	-0.065	-0.085
Diarrhea	-0.091	-0.119
Fever	-0.117	-0.137
Asthma	-0.134	-0.172
Cough	-0.173	-0.204
Other Symptoms	-0.197	-0.256
Schooling Superior	-0.200	-0.292
Age 30-50	-0.473	-0.665
Age 0-30	-0.601	-0.899
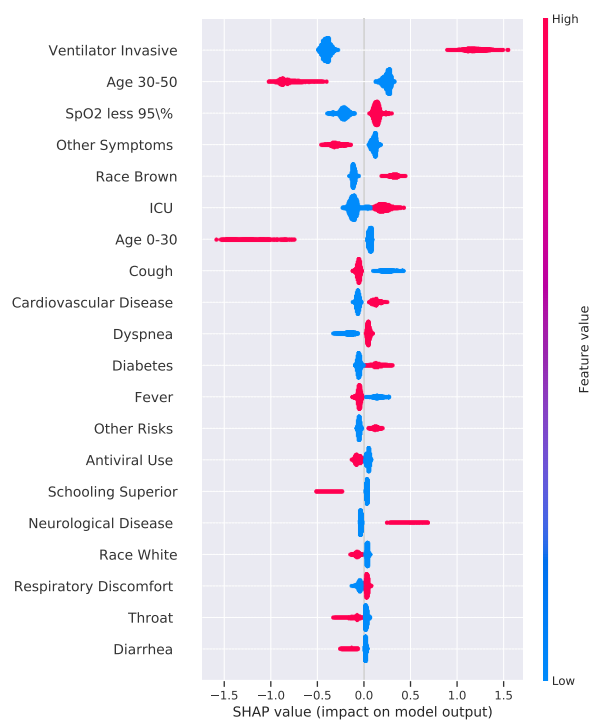
2.4 Mortality (advanced) small

Include variables: Antiviral, ICU, Ventilator

	Coef	2.5	97.5	Odds Ratio	2.5	97.5	Avg-0	Avg-1	KS-pv	pvalue
Age 0-30	-2.010	-2.177	-1.843	0.134	0.113	0.158	0.319	0.097	0.0	0.00
Ventilator Invasive	1.663	1.585	1.741	5.275	4.880	5.702	0.213	0.664	0.0	0.00
Schooling Superior	-1.410	-1.540	-1.279	0.244	0.214	0.278	0.315	0.161	0.0	0.00
Diarrhea	-0.868	-0.950	-0.787	0.420	0.387	0.455	0.316	0.235	0.0	0.00
Schooling Medium 1-3	-0.851	-0.941	-0.761	0.427	0.390	0.467	0.312	0.246	0.0	0.00
Asthma	-0.766	-0.941	-0.591	0.465	0.390	0.554	0.308	0.225	0.0	0.00
Neurological Disease	0.424	0.296	0.552	1.528	1.344	1.736	0.296	0.506	0.0	0.00
ICU	-0.409	-0.471	-0.346	0.665	0.624	0.708	0.227	0.455	0.0	0.00
Cardiovascular Disease	-0.346	-0.398	-0.295	0.707	0.672	0.745	0.259	0.400	0.0	0.00
Other Risks	-0.299	-0.358	-0.241	0.741	0.699	0.786	0.281	0.378	0.0	0.00
Race Brown	-0.233	-0.291	-0.176	0.792	0.748	0.838	0.282	0.374	0.0	0.00
Another Chronic Pneumopathy	0.102	-0.027	0.231	1.108	0.974	1.260	0.298	0.465	0.0	0.12
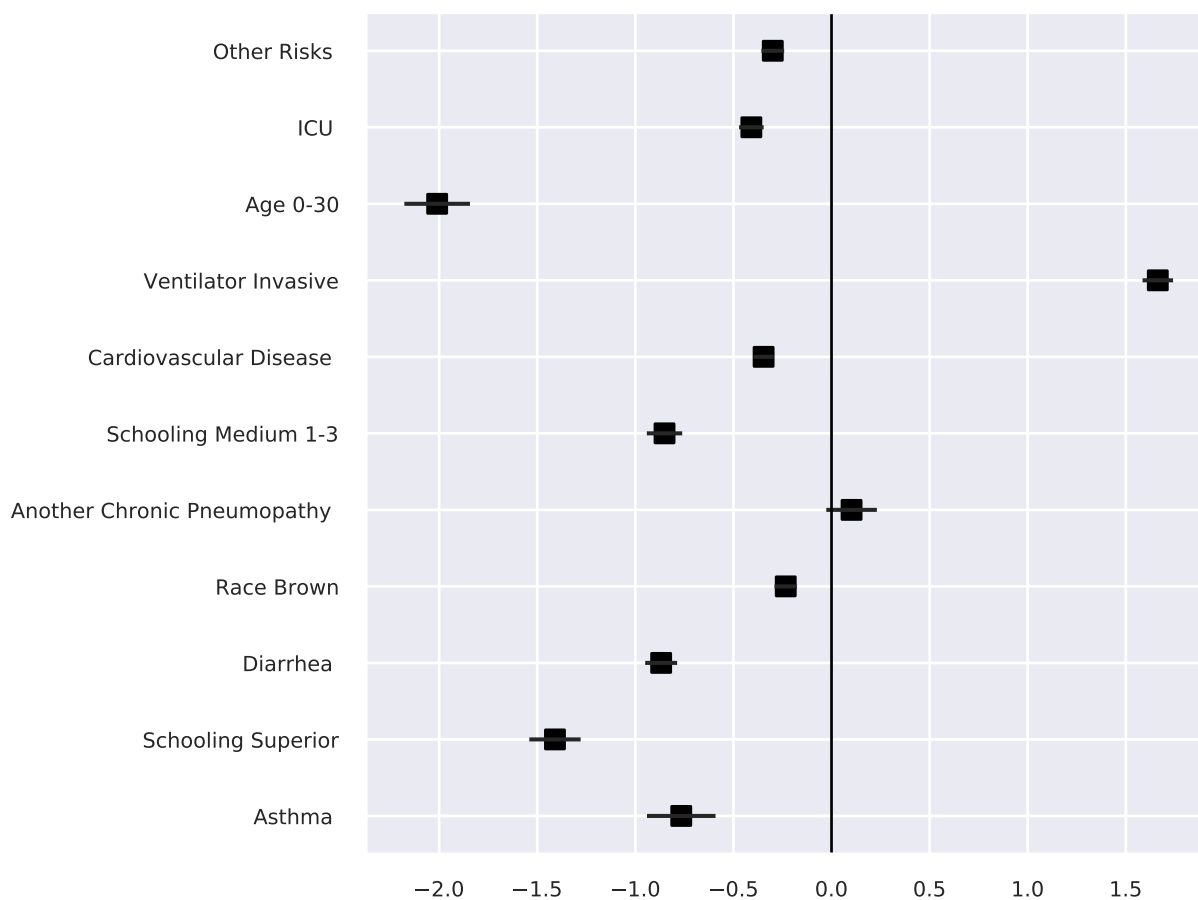
Recursive Feature Elimination:
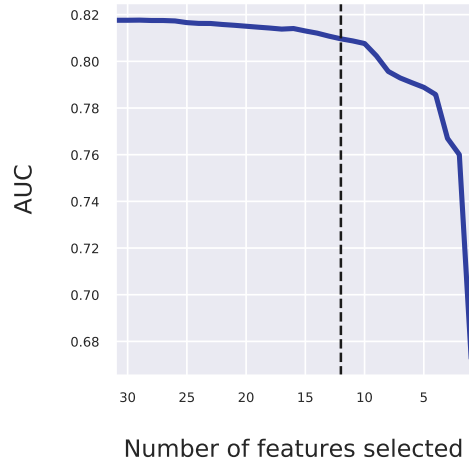
Performance:

	SVM-l1	LR-l1	RF	XGBoost
Accuracy	0.734	0.734	0.733	0.734
F1w	0.717	0.717	0.716	0.717
AUC	0.746	0.745	0.739	0.748
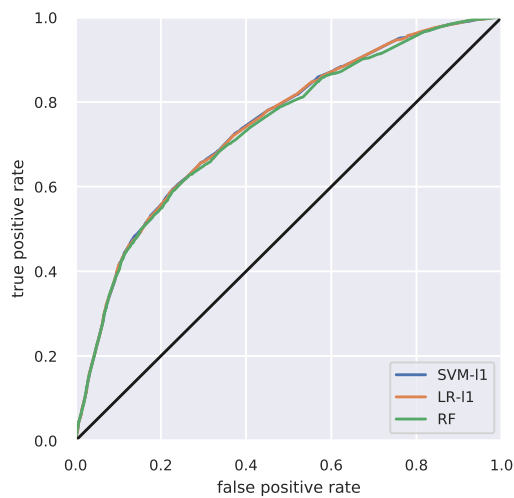
Coefficients:

	SVM-l1	LR-l1
Ventilator Invasive	1.000	1.000
Neurological Disease	0.421	0.472
Race Brown	0.243	0.302
Cardiovascular Disease	0.210	0.254
Another Chronic Pneumopathy	0.206	0.236
Other Risks	0.148	0.186
ICU	0.124	0.156
Schooling Medium 1-3	-0.125	-0.167
Diarrhea	-0.124	-0.168
Asthma	-0.150	-0.201
Schooling Superior	-0.306	-0.461
Age 0-30	-0.417	-0.735
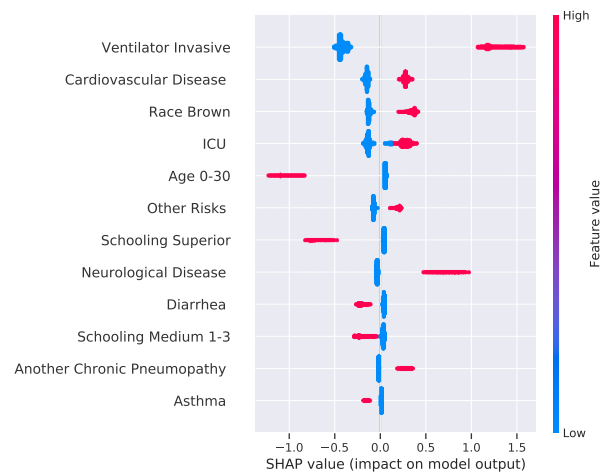
2.5 ICU

	Coef	2.5	97.5	Odds Ratio	2.5	97.5	Avg-0	Avg-1	KS-pv	pvalue
Postpartum	0.921	0.507	1.335	2.512	1.661	3.800	0.341	0.485	0.030	0.000
BMI 30-35	-0.761	-0.880	-0.642	0.467	0.415	0.526	0.479	0.339	0.000	0.000
Schooling Elem 1-5	-0.625	-0.737	-0.513	0.535	0.479	0.599	0.349	0.248	0.000	0.000
SpO2 less 95\%	0.500	0.442	0.558	1.649	1.555	1.748	0.261	0.398	0.000	0.000
Xray Torax Result Consolidation	0.429	0.297	0.561	1.536	1.346	1.753	0.337	0.456	0.000	0.000
Cough	-0.399	-0.465	-0.334	0.671	0.628	0.716	0.419	0.323	0.000	0.000
Renal Chronic Disease	0.384	0.260	0.507	1.467	1.297	1.660	0.335	0.487	0.000	0.000
Throat	-0.371	-0.438	-0.303	0.690	0.645	0.739	0.363	0.264	0.000	0.000
Other Risks	0.320	0.261	0.379	1.377	1.298	1.461	0.317	0.415	0.000	0.000
Contracted At Hospital	0.311	0.160	0.462	1.365	1.173	1.588	0.338	0.456	0.000	0.000
Race Brown	-0.310	-0.379	-0.241	0.733	0.685	0.786	0.359	0.287	0.000	0.000
Schooling Elem 6-9	-0.293	-0.413	-0.173	0.746	0.661	0.841	0.344	0.291	0.001	0.000
Vomiting	-0.276	-0.381	-0.171	0.759	0.683	0.843	0.348	0.262	0.000	0.000
Liver Chronic Disease	0.276	0.012	0.540	1.318	1.012	1.715	0.341	0.429	0.039	0.040
Antiviral Use	0.248	0.195	0.301	1.282	1.215	1.352	0.315	0.382	0.000	0.000
Immunosuppression	0.248	0.109	0.387	1.282	1.115	1.473	0.338	0.445	0.000	0.000
Another Chronic Pneumopathy	0.242	0.119	0.365	1.274	1.126	1.441	0.336	0.458	0.000	0.000
Dyspnea	0.209	0.146	0.272	1.232	1.157	1.312	0.287	0.362	0.000	0.000
Age 30-50	-0.205	-0.318	-0.092	0.815	0.728	0.912	0.369	0.275	0.000	0.000
Diarrhea	-0.180	-0.259	-0.100	0.836	0.771	0.905	0.351	0.284	0.000	0.000
Cardiovascular Disease	0.174	0.116	0.233	1.190	1.123	1.262	0.311	0.404	0.000	0.000
Gender F	-0.155	-0.208	-0.102	0.856	0.812	0.903	0.351	0.328	0.002	0.000
Diabetes	0.149	0.088	0.211	1.161	1.092	1.235	0.321	0.405	0.000	0.000
Hematologic Disease	0.146	-0.104	0.396	1.157	0.901	1.486	0.341	0.428	0.027	0.252
Age 0-30	-0.123	-0.274	0.027	0.884	0.761	1.028	0.346	0.274	0.000	0.108
Schooling Medium 1-3	-0.112	-0.200	-0.024	0.894	0.819	0.976	0.346	0.301	0.000	0.013
Age 70-100	0.085	-0.032	0.202	1.089	0.968	1.224	0.315	0.408	0.000	0.156
Fever	-0.079	-0.143	-0.016	0.924	0.867	0.984	0.378	0.331	0.000	0.014
Respiratory Discomfort	0.070	0.011	0.128	1.072	1.011	1.136	0.312	0.360	0.000	0.019
Race White	-0.044	-0.105	0.018	0.957	0.900	1.018	0.336	0.354	0.035	0.164
Age 50-70	-0.016	-0.126	0.094	0.984	0.882	1.099	0.333	0.354	0.007	0.778
Neurological Disease	-0.008	-0.136	0.120	0.992	0.873	1.128	0.338	0.417	0.000	0.907

Recursive Feature Elimination:

Coefficients:

	SVM-l1	LR-l1
Postpartum	1.000	1.000
SpO2 less 95\%	0.529	0.572
Xray Torax Result Consolidation	0.484	0.483
Renal Chronic Disease	0.446	0.435
Other Risks	0.358	0.368
Contracted At Hospital	0.358	0.353
Liver Chronic Disease	0.295	0.295
Antiviral Use	0.262	0.282
Immunosuppression	0.282	0.280
Another Chronic Pneumopathy	0.282	0.270
Dyspnea	0.224	0.248
Age 70-100	0.209	0.217
Cardiovascular Disease	0.199	0.204
Diabetes	0.166	0.173
Hematologic Disease	0.166	0.156
Age 50-70	0.091	0.104
Respiratory Discomfort	0.086	0.082
Neurological Disease	-0.000	0.000
Age 0-30	-0.003	-0.007
Race White	-0.035	-0.038
Fever	-0.073	-0.072
Age 30-50	-0.088	-0.102
Schooling Medium 1-3	-0.111	-0.121
Gender F	-0.154	-0.164
Diarrhea	-0.176	-0.198
Vomiting	-0.264	-0.305
Schooling Elem 6-9	-0.300	-0.326
Race Brown	-0.310	-0.341
Throat	-0.365	-0.419
Cough	-0.421	-0.431
BMI 30-35	-0.627	-0.620
Schooling Elem 1-5	-0.635	-0.701

Performance:

	SVM-l1	LR-l1	RF	XGBoost
Accuracy	0.643	0.644	0.618	0.642
F1w	0.592	0.594	0.473	0.583
AUC	0.640	0.641	0.634	0.646
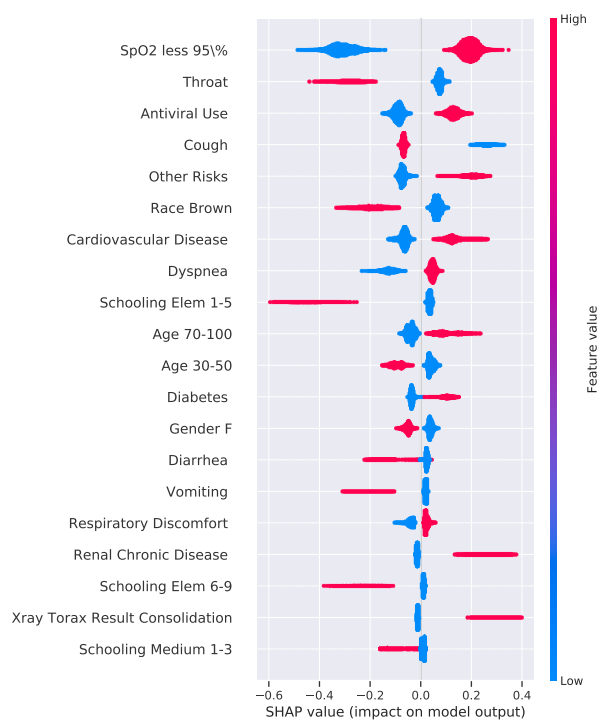
2.6   ICU small

	Coef	2.5	97.5	Odds Ratio	2.5	97.5	Avg-0	Avg-1	KS-pv	pvalue
BMI 30-35	-0.807	-0.875	-0.738	0.446	0.417	0.478	0.498	0.342	0.00	0.0
SpO2 less 95\%	0.568	0.513	0.622	1.764	1.671	1.863	0.267	0.400	0.00	0.0
Renal Chronic Disease	0.549	0.430	0.668	1.731	1.537	1.951	0.339	0.493	0.00	0.0
Xray Torax Result Consolidation	0.478	0.346	0.610	1.612	1.413	1.840	0.341	0.470	0.00	0.0
Schooling Elem 1-5	-0.433	-0.540	-0.326	0.649	0.582	0.722	0.351	0.267	0.00	0.0
Cough	-0.418	-0.480	-0.357	0.658	0.619	0.700	0.423	0.326	0.00	0.0
Contracted At Hospital	0.398	0.250	0.545	1.488	1.284	1.725	0.342	0.472	0.00	0.0
Throat	-0.382	-0.448	-0.317	0.682	0.639	0.729	0.366	0.269	0.00	0.0
Race Black	-0.371	-0.502	-0.239	0.690	0.605	0.787	0.347	0.299	0.01	0.0
Other Risks	0.370	0.313	0.428	1.448	1.367	1.534	0.320	0.421	0.00	0.0
Vomiting	-0.342	-0.441	-0.244	0.710	0.644	0.783	0.352	0.272	0.00	0.0
Race Brown	-0.330	-0.392	-0.269	0.719	0.676	0.764	0.362	0.294	0.00	0.0
Dyspnea	0.289	0.229	0.350	1.336	1.257	1.419	0.287	0.367	0.00	0.0

Recursive Feature Elimination:

Number of features selected

Coefficients:

	SVM-l1	LR-l1
SpO2 less 95\%	0.914	1.000
Renal Chronic Disease	0.948	0.953
Xray Torax Result Consolidation	0.817	0.832
Contracted At Hospital	0.683	0.692
Other Risks	0.623	0.653
Dyspnea	0.470	0.525
Race Brown	-0.507	-0.563
Vomiting	-0.500	-0.575
Race Black	-0.567	-0.620
Throat	-0.578	-0.659
Cough	-0.657	-0.686
Schooling Elem 1-5	-0.649	-0.744
BMI 30-35	-1.000	-0.997
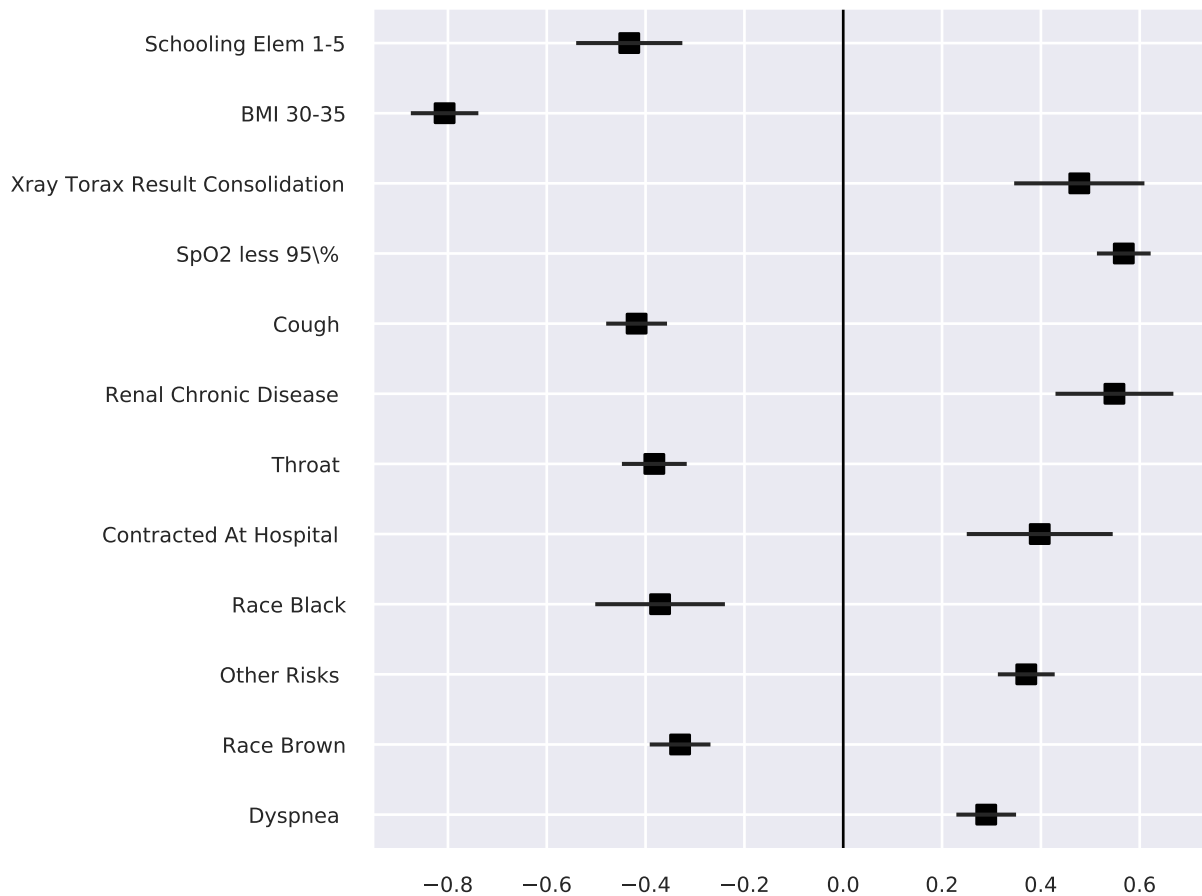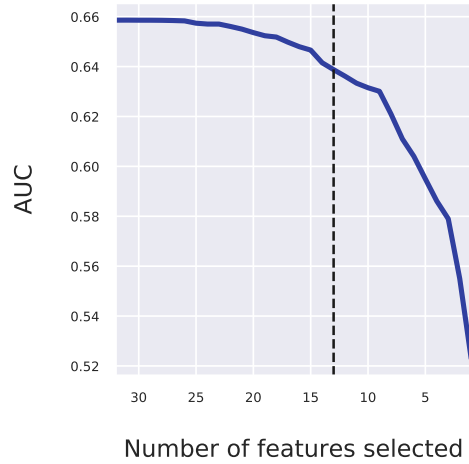
Performance:

	SVM-l1	LR-l1	RF	XGBoost
Accuracy	0.645	0.645	0.635	0.645
F1w	0.587	0.602	0.502	0.567
AUC	0.626	0.627	0.623	0.628
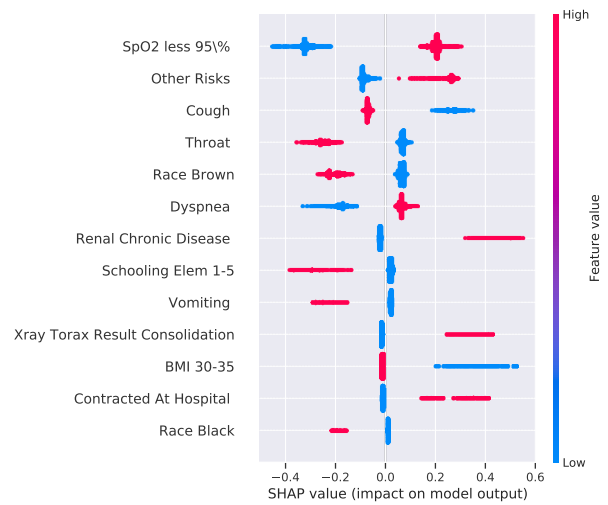
2.7   Ventilator

	Coef	2.5	97.5	Odds Ratio	2.5	97.5	Avg-0	Avg-1	KS-pv	pvalue
BMI 30-35	-1.681	-1.849	-1.513	0.186	0.157	0.220	0.307	0.202	0.000	0.000
BMI 40-100	-0.775	-1.103	-0.446	0.461	0.332	0.640	0.203	0.352	0.000	0.000
Age 30-50	-0.703	-0.860	-0.546	0.495	0.423	0.579	0.236	0.129	0.000	0.000
SpO2 less 95\%	0.664	0.591	0.736	1.942	1.806	2.088	0.114	0.268	0.000	0.000
Age 0-30	-0.622	-0.828	-0.417	0.537	0.437	0.659	0.210	0.126	0.000	0.000
Cough	-0.520	-0.596	-0.444	0.594	0.551	0.641	0.258	0.191	0.000	0.000
Dyspnea	0.478	0.396	0.559	1.612	1.486	1.749	0.118	0.237	0.000	0.000
BMI 35-40	-0.425	-0.716	-0.133	0.654	0.489	0.875	0.203	0.344	0.000	0.004
Renal Chronic Disease	0.399	0.266	0.531	1.490	1.305	1.701	0.199	0.335	0.000	0.000
Respiratory Discomfort	0.383	0.311	0.455	1.466	1.364	1.576	0.138	0.247	0.000	0.000
Throat	-0.369	-0.451	-0.288	0.691	0.637	0.750	0.216	0.162	0.000	0.000
Contracted At Hospital	0.296	0.129	0.464	1.345	1.137	1.590	0.202	0.294	0.000	0.001
Age 50-70	-0.278	-0.427	-0.128	0.758	0.652	0.880	0.191	0.224	0.000	0.000
Other Risks	0.277	0.208	0.345	1.319	1.232	1.412	0.186	0.261	0.000	0.000
Xray Torax Result Consolidation	0.275	0.121	0.430	1.317	1.129	1.537	0.202	0.273	0.000	0.000
Vomiting	-0.270	-0.399	-0.141	0.763	0.671	0.868	0.209	0.151	0.000	0.000
Diarrhea	-0.255	-0.354	-0.156	0.775	0.702	0.856	0.212	0.157	0.000	0.000
Another Chronic Pneumopathy	0.253	0.117	0.389	1.287	1.124	1.475	0.200	0.319	0.000	0.000
Antiviral Use	0.252	0.190	0.314	1.287	1.209	1.370	0.180	0.241	0.000	0.000
Diabetes	0.230	0.160	0.300	1.258	1.173	1.350	0.182	0.274	0.000	0.000
Schooling Medium 1-3	-0.195	-0.302	-0.087	0.823	0.739	0.917	0.210	0.163	0.000	0.000
Gender F	-0.194	-0.256	-0.131	0.824	0.774	0.877	0.212	0.194	0.015	0.000
Immunosuppression	0.192	0.035	0.350	1.212	1.035	1.418	0.202	0.277	0.000	0.017
Neurological Disease	-0.147	-0.291	-0.003	0.863	0.747	0.997	0.203	0.247	0.022	0.046
Schooling Superior	-0.128	-0.264	0.007	0.880	0.768	1.007	0.208	0.155	0.000	0.064
Age 70-100	-0.128	-0.283	0.027	0.880	0.754	1.027	0.178	0.273	0.000	0.105
Race Brown	0.113	0.043	0.183	1.120	1.044	1.201	0.199	0.222	0.005	0.001
Other Symptoms	-0.105	-0.175	-0.035	0.901	0.840	0.966	0.216	0.178	0.000	0.003
Fever	-0.101	-0.176	-0.027	0.904	0.839	0.974	0.228	0.198	0.000	0.008
Cardiovascular Disease	0.090	0.022	0.158	1.095	1.023	1.172	0.179	0.258	0.000	0.009

Recursive Feature Elimination:

Number of features selected
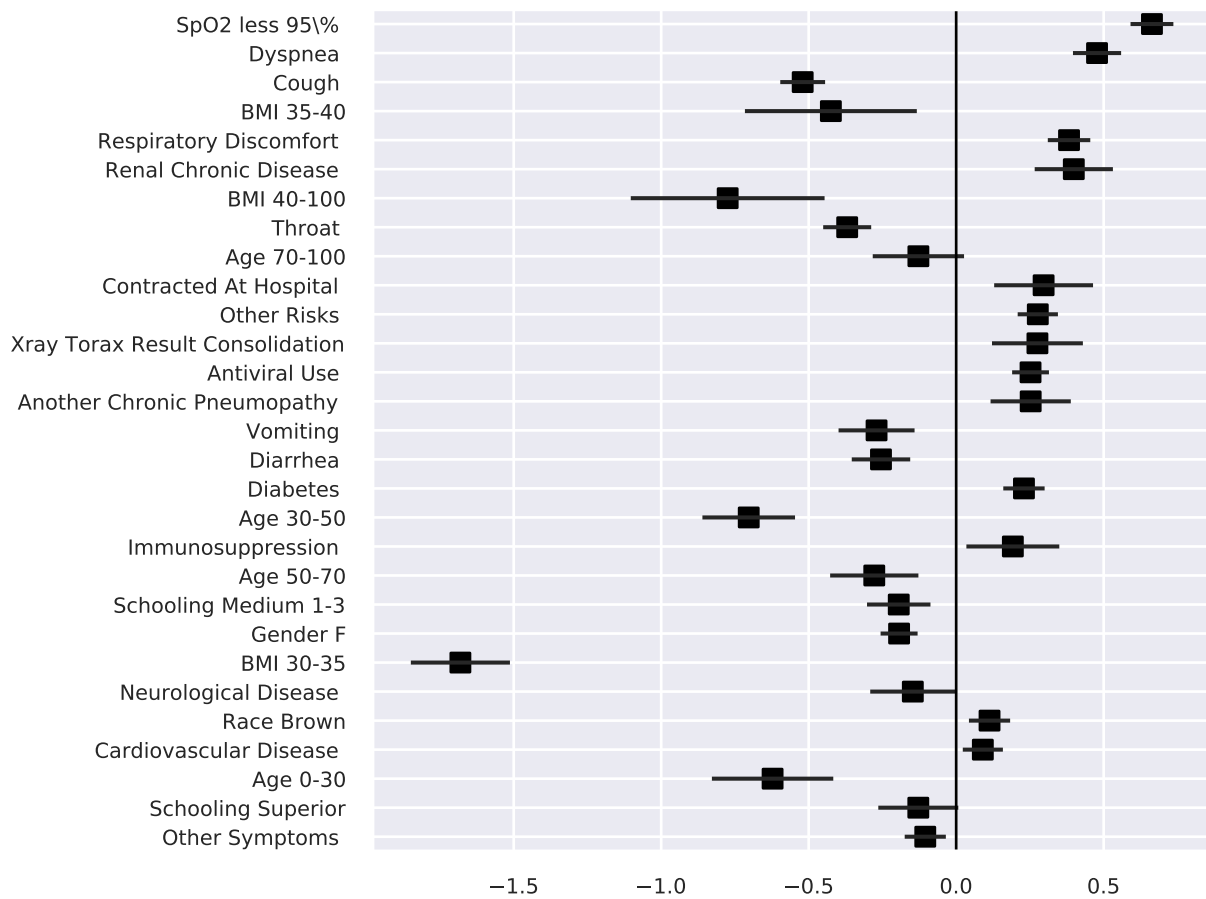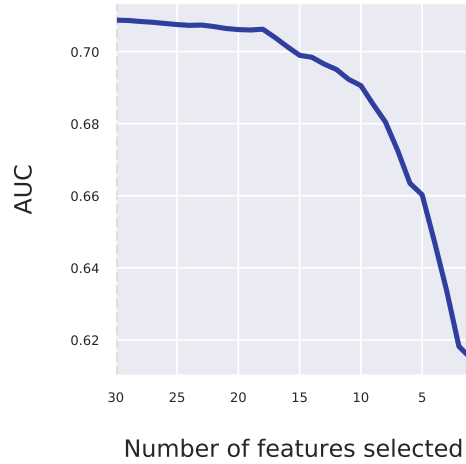
Performance:

	SVM-l1	LR-l1	RF	XGBoost
Accuracy	0.762	0.762	0.766	0.765
F1w	0.686	0.684	0.664	0.680
AUC	0.686	0.687	0.671	0.686
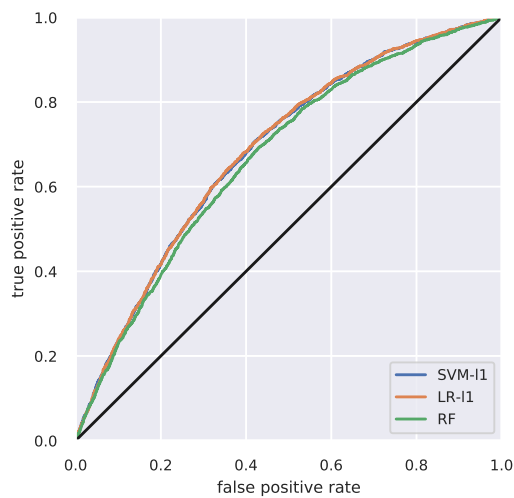
Coefficients:

	SVM-l1	LR-l1
SpO2 less 95\%	1.000	1.000
Dyspnea	0.747	0.773
BMI 35-40	0.843	0.622
Respiratory Discomfort	0.636	0.581
Renal Chronic Disease	0.788	0.576
BMI 40-100	0.788	0.569
Age 70-100	0.591	0.496
Contracted At Hospital	0.576	0.455
Other Risks	0.505	0.438
Xray Torax Result Consolidation	0.495	0.407
Antiviral Use	0.404	0.378
Another Chronic Pneumopathy	0.525	0.364
Diabetes	0.419	0.352
Immunosuppression	0.348	0.282
Age 50-70	0.318	0.281
Race Brown	0.187	0.174
Cardiovascular Disease	0.182	0.161
Fever	-0.101	-0.064
Other Symptoms	-0.086	-0.091
Schooling Superior	-0.121	-0.138
Age 0-30	-0.051	-0.148
Neurological Disease	-0.232	-0.174
BMI 30-35	-0.258	-0.228
Gender F	-0.242	-0.231
Schooling Medium 1-3	-0.263	-0.245
Age 30-50	-0.217	-0.300
Diarrhea	-0.364	-0.358
Vomiting	-0.384	-0.359
Throat	-0.551	-0.526
Cough	-0.768	-0.665

SHAP value (impact on model output)
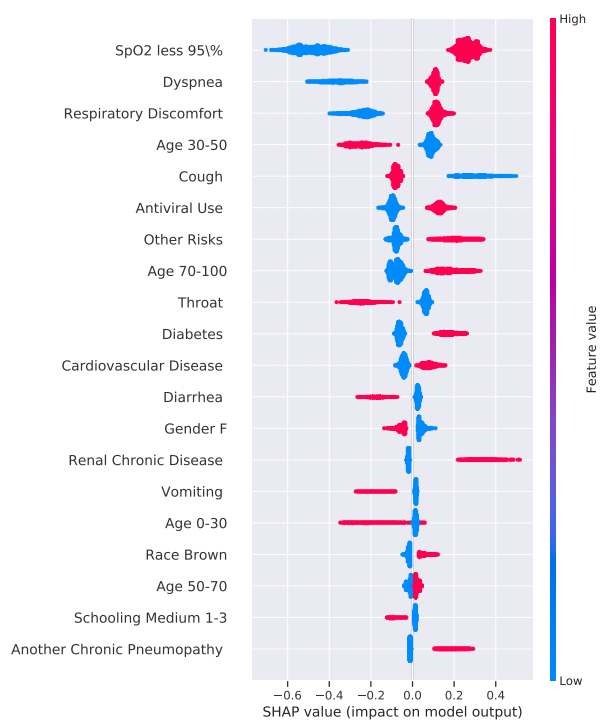
2.8 Ventilator small

	Coef	2.5	97.5	Odds Ratio	2.5	97.5	Avg-0	Avg-1	KS-pv	pvalue
Cough	-1.214	-1.273	-1.155	0.297	0.280	0.315	0.259	0.189	0.0	0.000
Age 0-30	-1.114	-1.268	-0.959	0.328	0.281	0.383	0.209	0.115	0.0	0.000
Age 30-50	-0.970	-1.043	-0.897	0.379	0.352	0.408	0.234	0.127	0.0	0.000
BMI 35-40	0.935	0.683	1.188	2.548	1.980	3.280	0.201	0.376	0.0	0.000
Diarrhea	-0.628	-0.725	-0.531	0.534	0.484	0.588	0.212	0.146	0.0	0.000
SpO2 less 95\%	0.341	0.276	0.405	1.406	1.318	1.500	0.111	0.267	0.0	0.000
Throat	-0.339	-0.417	-0.260	0.713	0.659	0.771	0.214	0.163	0.0	0.000
Renal Chronic Disease	0.231	0.101	0.361	1.260	1.106	1.435	0.197	0.334	0.0	0.001
Dyspnea	-0.149	-0.214	-0.083	0.862	0.807	0.920	0.120	0.233	0.0	0.000
Respiratory Discomfort	0.119	0.054	0.184	1.126	1.055	1.202	0.136	0.245	0.0	0.000
Contracted At Hospital	-0.047	-0.213	0.120	0.955	0.808	1.127	0.200	0.300	0.0	0.583
Other Risks	-0.038	-0.103	0.026	0.962	0.902	1.026	0.183	0.262	0.0	0.241

Recursive Feature Elimination:

Number of features selected

Coefficients:

	SVM-l1	LR-l1
BMI 35-40	1.000	1.000
SpO2 less 95\%	0.686	0.913
Dyspnea	0.459	0.624
Renal Chronic Disease	0.585	0.577
Respiratory Discomfort	0.415	0.507
Contracted At Hospital	0.406	0.412
Other Risks	0.358	0.408
Throat	-0.311	-0.387
Diarrhea	-0.374	-0.485
Cough	-0.484	-0.545
Age 30-50	-0.497	-0.671
Age 0-30	-0.484	-0.689
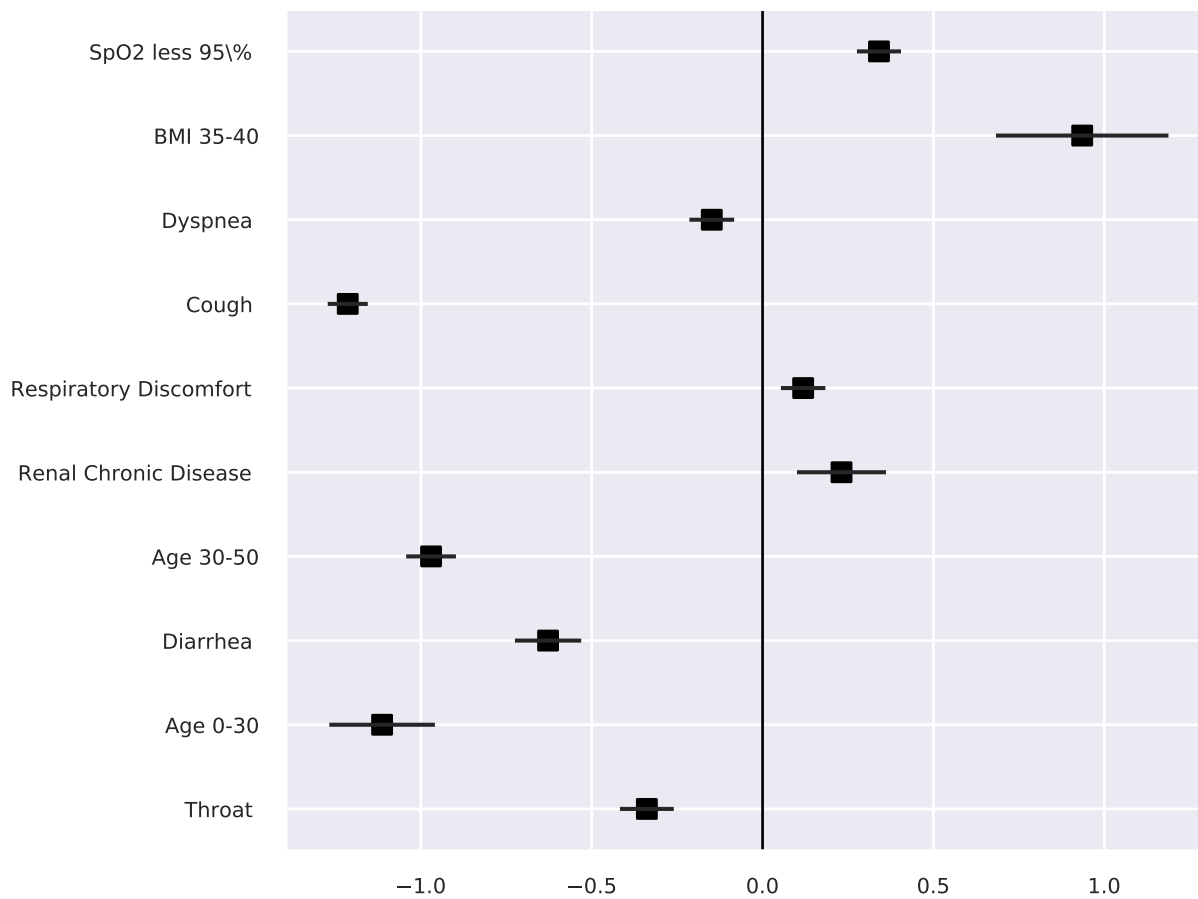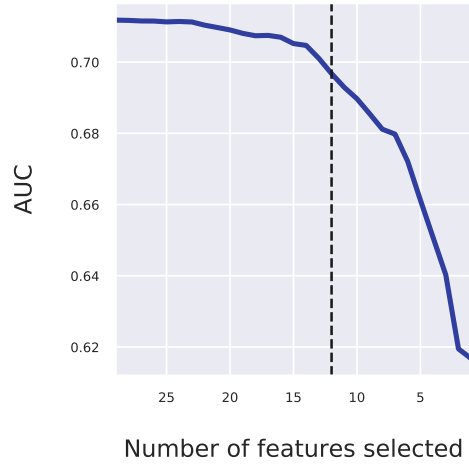
Performance:

	SVM-l1	LR-l1	RF	XGBoost
Accuracy	0.754	0.754	0.756	0.758
F1w	0.678	0.676	0.651	0.660
AUC	0.665	0.666	0.662	0.668
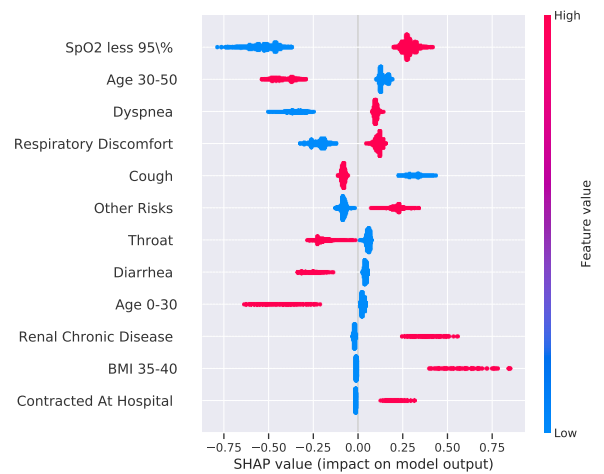
2.9   Ventilator with ICU

	Coef	2.5	97.5	Odds Ratio	2.5	97.5	Avg-0	Avg-1	KS-pv	pvalue
ICU	2.568	2.492	2.644	13.042	12.091	14.068	0.058	0.483	0.000	0.000
BMI 30-35	-1.955	-2.122	-1.787	0.142	0.120	0.167	0.315	0.201	0.000	0.000
Age 30-50	-1.568	-1.743	-1.393	0.208	0.175	0.248	0.235	0.127	0.000	0.000
Age 0-30	-1.509	-1.740	-1.277	0.221	0.176	0.279	0.208	0.125	0.000	0.000
Age 50-70	-1.095	-1.263	-0.928	0.334	0.283	0.396	0.192	0.220	0.000	0.000
Age 70-100	-0.964	-1.137	-0.790	0.382	0.321	0.454	0.175	0.275	0.000	0.000
SpO2 less 95\%	0.474	0.393	0.555	1.606	1.481	1.743	0.114	0.266	0.000	0.000
Race Brown	0.461	0.380	0.542	1.586	1.462	1.720	0.195	0.228	0.000	0.000
Schooling Superior	-0.450	-0.601	-0.299	0.638	0.548	0.742	0.207	0.153	0.000	0.000
Cough	-0.431	-0.518	-0.344	0.650	0.596	0.709	0.253	0.191	0.000	0.000
Respiratory Discomfort	0.402	0.321	0.483	1.495	1.379	1.621	0.136	0.246	0.000	0.000
Dyspnea	0.328	0.238	0.418	1.388	1.269	1.519	0.119	0.235	0.000	0.000
Contracted At Hospital	0.263	0.074	0.451	1.300	1.077	1.570	0.200	0.322	0.000	0.006
Renal Chronic Disease	0.254	0.101	0.407	1.289	1.106	1.502	0.197	0.347	0.000	0.001
Schooling Medium 1-3	-0.247	-0.368	-0.126	0.781	0.692	0.882	0.208	0.168	0.000	0.000
Diarrhea	-0.246	-0.359	-0.133	0.782	0.698	0.875	0.211	0.153	0.000	0.000
Other Symptoms	-0.234	-0.313	-0.155	0.791	0.731	0.857	0.217	0.173	0.000	0.000
Neurological Disease	-0.219	-0.382	-0.056	0.803	0.682	0.946	0.201	0.250	0.011	0.009
Antiviral Use	0.178	0.107	0.250	1.195	1.113	1.283	0.178	0.241	0.000	0.000
Vomiting	-0.178	-0.325	-0.030	0.837	0.723	0.970	0.208	0.149	0.000	0.018
Fever	-0.141	-0.226	-0.057	0.868	0.798	0.945	0.228	0.196	0.000	0.001
Immunosuppression	0.136	-0.043	0.314	1.145	0.958	1.369	0.200	0.282	0.000	0.136
Throat	-0.132	-0.224	-0.039	0.877	0.799	0.961	0.214	0.166	0.000	0.005
Diabetes	0.128	0.048	0.208	1.137	1.049	1.232	0.181	0.270	0.000	0.002
Another Chronic Pneumopathy	0.124	-0.033	0.280	1.132	0.968	1.323	0.199	0.308	0.000	0.121
Xray Torax Result Consolidation	0.104	-0.070	0.277	1.109	0.933	1.320	0.200	0.282	0.000	0.241
Other Risks	0.081	0.003	0.159	1.084	1.003	1.172	0.184	0.259	0.000	0.041
Cardiovascular Disease	0.001	-0.077	0.079	1.001	0.926	1.082	0.176	0.260	0.000	0.981

Recursive Feature Elimination:

Number of features selected
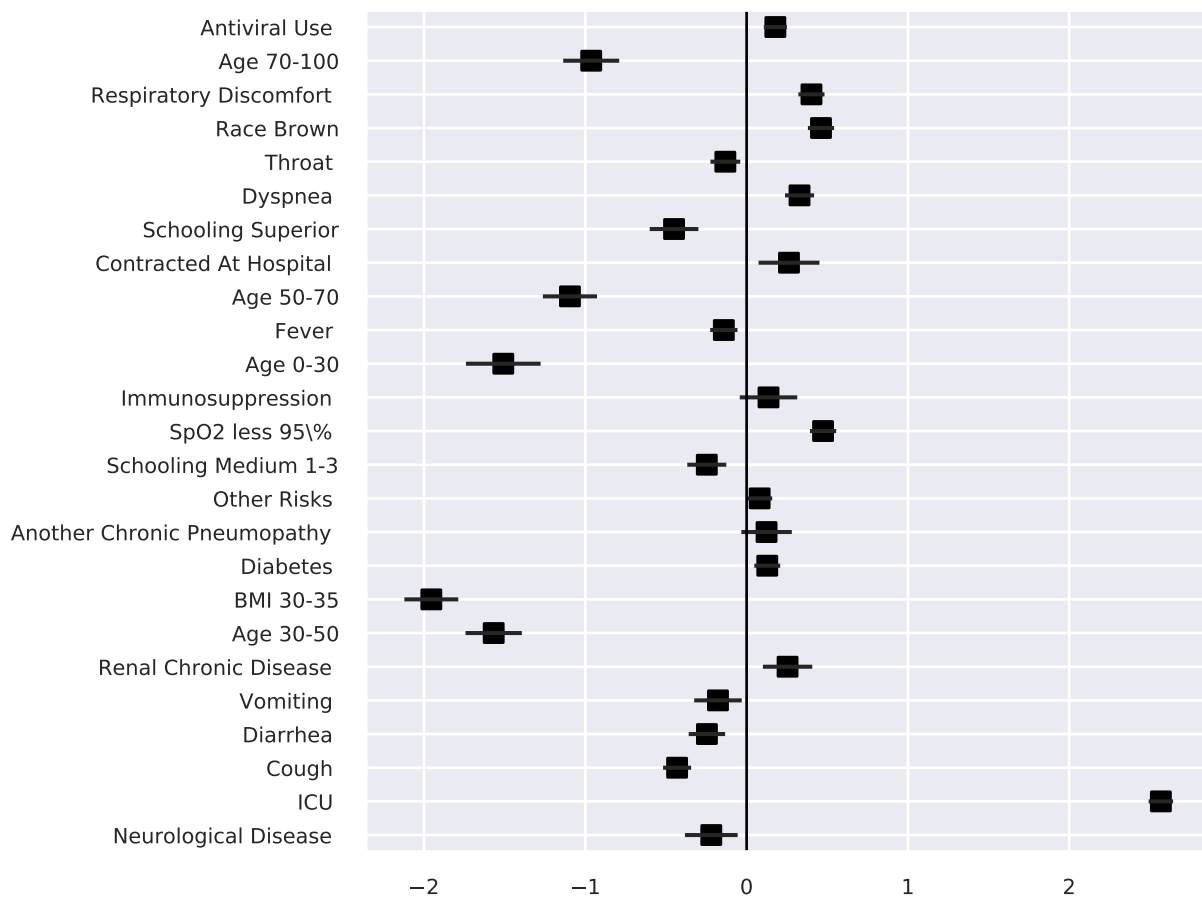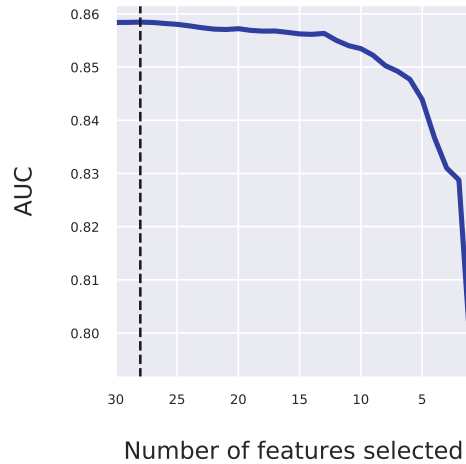
Performance:

	SVM-l1	LR-l1	RF	XGBoost
Accuracy	0.793	0.792	0.766	0.794
F1w	0.785	0.784	0.664	0.785
AUC	0.822	0.823	0.818	0.825
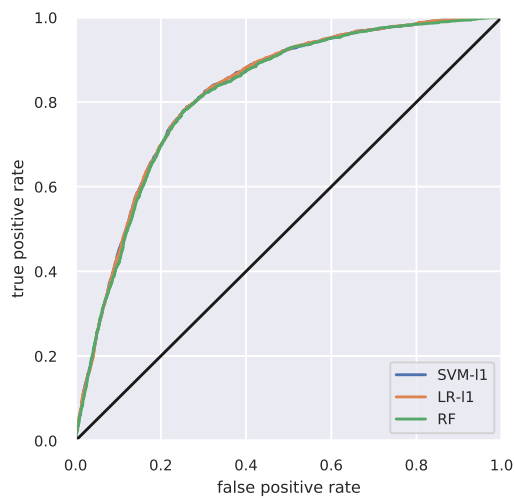
Coefficients:

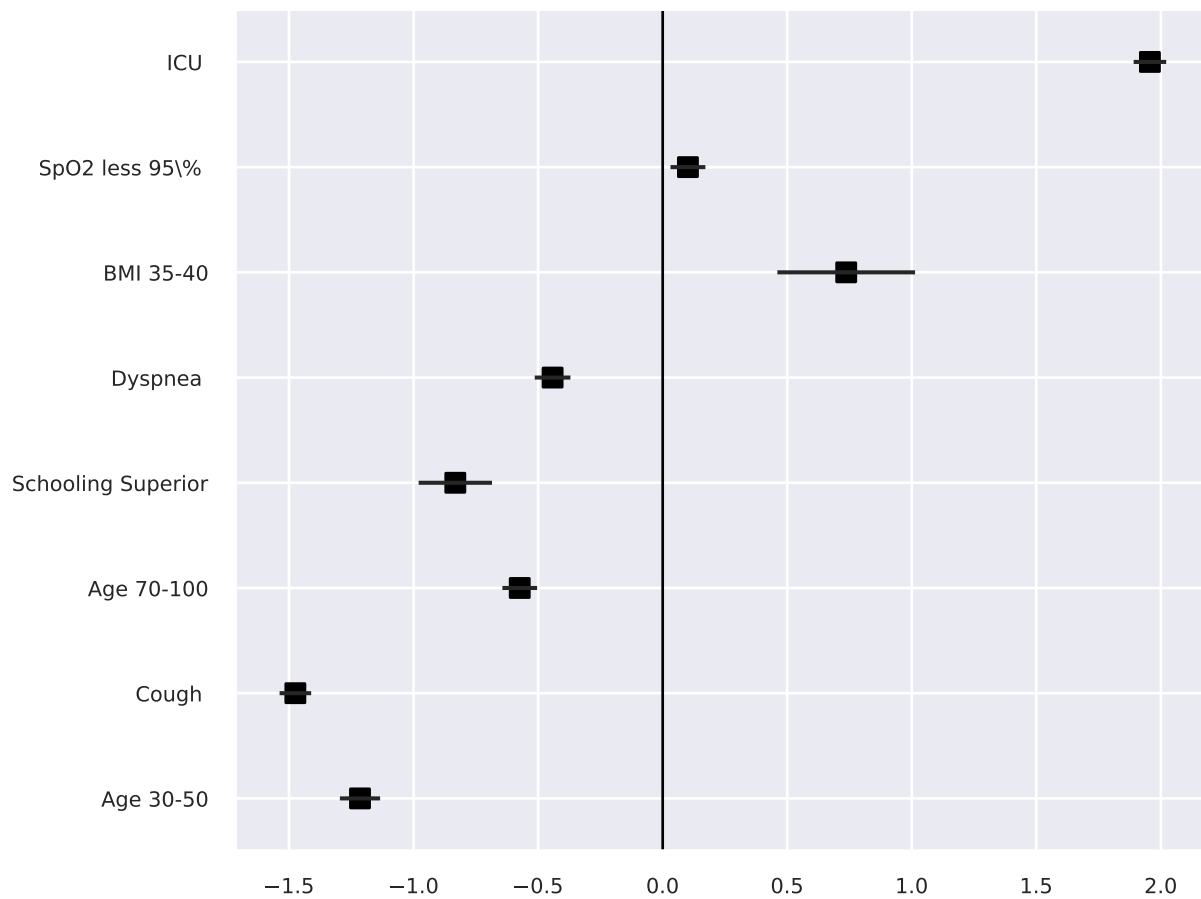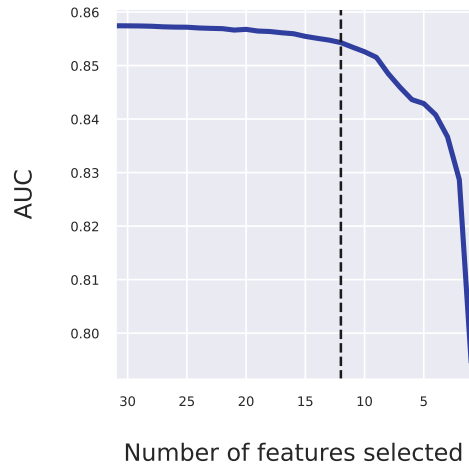|	SVM-l1	LR-l1
ICU	1.000	1.000
SpO2 less 95\%	0.184	0.206
Race Brown	0.164	0.186
Dyspnea	0.180	0.181
Respiratory Discomfort	0.173	0.176
Contracted At Hospital	0.150	0.122
Age 70-100	0.101	0.109
Renal Chronic Disease	0.119	0.101
Antiviral Use	0.079	0.078
Diabetes	0.061	0.063
Immunosuppression	0.067	0.063
Age 50-70	0.056	0.056
Other Risks	0.055	0.054
Xray Torax Result Consolidation	0.058	0.047
Another Chronic Pneumopathy	0.056	0.043
Cardiovascular Disease	0.026	0.024
Fever	-0.011	-0.008
Throat	-0.049	-0.051
Other Symptoms	-0.052	-0.052
Vomiting	-0.049	-0.053
Neurological Disease	-0.079	-0.062
Age 0-30	-0.052	-0.073
Schooling Medium 1-3	-0.063	-0.080
Diarrhea	-0.079	-0.086
Age 30-50	-0.087	-0.103
Cough	-0.112	-0.106
BMI 30-35	-0.135	-0.116
Schooling Superior	-0.163	-0.151

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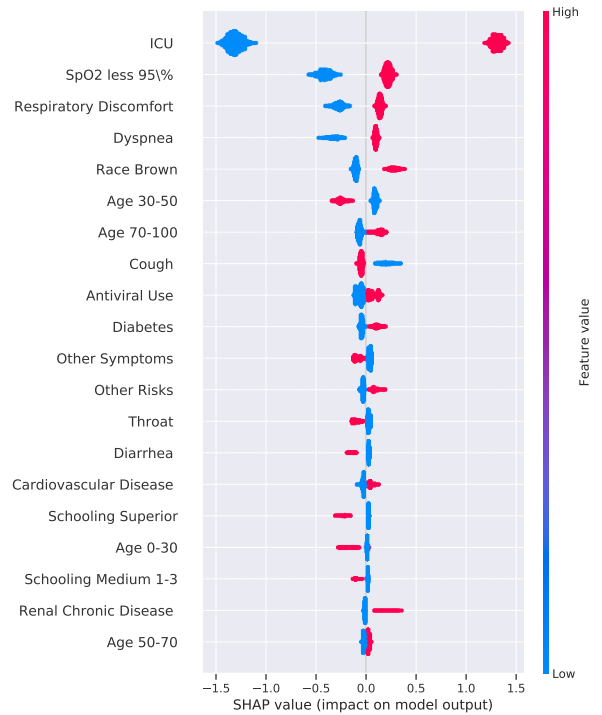
2.10 Ventilator with ICU small

	Coef	2.5	97.5	Odds Ratio	2.5	97.5	Avg-0	Avg-1	KS-pv	pvalue
ICU	1.956	1.891	2.021	7.072	6.625	7.549	0.059	0.484	0.000	0.000
Cough	-1.475	-1.538	-1.411	0.229	0.215	0.244	0.258	0.192	0.000	0.000
Age 30-50	-1.215	-1.296	-1.134	0.297	0.274	0.322	0.235	0.130	0.000	0.000
Schooling Superior	-0.833	-0.980	-0.685	0.435	0.375	0.504	0.209	0.152	0.000	0.000
BMI 35-40	0.737	0.461	1.013	2.089	1.585	2.755	0.203	0.366	0.000	0.000
Diarrhea	-0.667	-0.770	-0.563	0.513	0.463	0.569	0.213	0.152	0.000	0.000
Age 70-100	-0.574	-0.644	-0.504	0.563	0.525	0.604	0.176	0.277	0.000	0.000
Dyspnea	-0.442	-0.514	-0.370	0.643	0.598	0.691	0.119	0.236	0.000	0.000
SpO2 less 95\%	0.101	0.031	0.171	1.107	1.032	1.187	0.115	0.268	0.000	0.005
Renal Chronic Disease	0.093	-0.050	0.235	1.097	0.951	1.265	0.198	0.347	0.000	0.202
Race Brown	-0.034	-0.108	0.040	0.966	0.898	1.040	0.198	0.225	0.001	0.364
Respiratory Discomfort	-0.029	-0.098	0.041	0.972	0.906	1.042	0.138	0.246	0.000	0.420

Recursive Feature Elimination:

Number of features selected

Coefficients:

	SVM-l1	LR-l1
ICU	1.000	1.000
SpO2 less 95\%	0.199	0.226
BMI 35-40	0.235	0.217
Dyspnea	0.184	0.190
Respiratory Discomfort	0.158	0.162
Race Brown	0.139	0.160
Renal Chronic Disease	0.160	0.141
Age 70-100	0.073	0.083
Cough	-0.112	-0.105
Diarrhea	-0.106	-0.114
Schooling Superior	-0.167	-0.152
Age 30-50	-0.150	-0.165

Performance:

	SVM-l1	LR-l1	RF	XGBoost
Accuracy	0.798	0.798	0.780	0.799
F1w	0.788	0.788	0.711	0.786
AUC	0.826	0.826	0.823	0.826