FinalModeling
CHIS MLE_CURRENTASTHMA_FLAT
PROC SURVEYLOGISTIC - May 2, 2019

The SURVEYLOGISTIC Procedure

Model Information		
Data Set	CHIS.CHIS_DATA_BINOMIAL_ED2	
Response Variable	asthmaesc	ED/UC Asthma Visit
Number of Response Levels	2	
Weight Variable	fnwgt0	
Model	Generalized Logit	
Optimization Technique	Newton-Raphson	

Number of Observations Read	124521
Number of Observations Used	124521
Sum of Weights Read	28246634
Sum of Weights Used	28246634

Response Profile			
Ordered Value	asthmaesc	Total Frequency	Total Weight
1	1 Asthmatic Escalation	1095	237259
2	2 No Asthma Escalation	123426	28009375

Logits modeled use asthmaesc='2 No Asthma Escalation' as the reference category.

Variance Estimation	
Method	Jackknife
Replicate Weights	CHIS_DATA_BINOMIAL_ED2
Number of Replicates	160

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2740515.8	2632239.4
SC	2740531.0	2632330.4
-2 Log L	2740513.8	2632227.4

R-Square	0.0038	Max-rescaled R-Square	0.0414

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Testing Global Null Hypothesis: BETA=0				
Test	F Value	Num DF	Den DF	Pr > F
Likelihood Ratio	74.61	4.5205	723.28	<.0001
Score	13.87	5	160	<.0001
Wald	19.03	5	160	<.0001
NOTE: Second-order Rao-Scott design correction 0.1061 applied to the Likelihood Ratio test.				

Type 3 Analysis of Effects				
Effect	F Value	Num DF	Den DF	Pr > F
SRSEX	29.44	1	160	<.0001
CITIZEN2	9.76	1	160	0.0021
race	2.00	1	160	0.1593
pfpl	43.52	1	160	<.0001
INS	3.39	1	160	0.0676

Analysis of Maximum Likelihood Estimates						
Parameter	asthmaesc	Estimate	Standard Error	t Value	Pr > |t|	Standardized Estimate
Intercept	1 Asthmatic Escalation	-4.0011	0.4869	-8.22	<.0001	
SRSEX	1 Asthmatic Escalation	0.9409	0.1734	5.43	<.0001	3.9055
CITIZEN2	1 Asthmatic Escalation	-0.4520	0.1447	-3.12	0.0021	-2.8450
race	1 Asthmatic Escalation	-0.0423	0.0299	-1.41	0.1593	-0.8251
pfpl	1 Asthmatic Escalation	-0.2372	0.0360	-6.60	<.0001	-2.9365
INS	1 Asthmatic Escalation	-0.4783	0.2599	-1.84	0.0676	-1.3958
NOTE: The degrees of freedom for the t tests is 160.						

Odds Ratio Estimates				
Effect	asthmaesc	Point Estimate	95% Confidence Limits	
SRSEX	1 Asthmatic Escalation	2.562	1.819	3.609
CITIZEN2	1 Asthmatic Escalation	0.636	0.478	0.847
race	1 Asthmatic Escalation	0.959	0.904	1.017
pfpl	1 Asthmatic Escalation	0.789	0.735	0.847
INS	1 Asthmatic Escalation	0.620	0.371	1.036
NOTE: The degrees of freedom in computing the confidence limits is 160.				

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Association of Predicted Probabilities and Observed Responses			
Percent Concordant	0.4	Somers' D	0.002
Percent Discordant	0.2	Gamma	0.384
Percent Tied	99.4	Tau-a	0.002
Pairs	20101233902	c	0.501

Estimated Covariance Matrix						
Parameter	Intercept_1 Asthmatic Escalation	SRSEX_1 Asthmatic Escalation	CITIZEN2_1 Asthmatic Escalation	race_1 Asthmatic Escalation	pfpl_1 Asthmatic Escalation	INS_1 Asthmatic Escalation
Intercept_1 Asthmatic Escalation	0.237047	-0.05123	-0.03073	-0.00586	-0.00288	-0.06304
SRSEX_1 Asthmatic Escalation	-0.05123	0.030073	0.000114	0.000743	-0.00034	-0.00264
CITIZEN2_1 Asthmatic Escalation	-0.03073	0.000114	0.020934	0.000771	0.001264	-0.00391
race_1 Asthmatic Escalation	-0.00586	0.000743	0.000771	0.000894	-0.00038	0.000693
pfpl_1 Asthmatic Escalation	-0.00288	-0.00034	0.001264	-0.00038	0.001293	-0.00096
INS_1 Asthmatic Escalation	-0.06304	-0.00264	-0.00391	0.000693	-0.00096	0.067558

Estimated Correlation Matrix						
Parameter	Intercept_1 Asthmatic Escalation	SRSEX_1 Asthmatic Escalation	CITIZEN2_1 Asthmatic Escalation	race_1 Asthmatic Escalation	pfpl_1 Asthmatic Escalation	INS_1 Asthmatic Escalation
Intercept_1 Asthmatic Escalation	1.0000	-0.6068	-0.4362	-0.4028	-0.1647	-0.4981
SRSEX_1 Asthmatic Escalation	-0.6068	1.0000	0.0046	0.1434	-0.0539	-0.0586
CITIZEN2_1 Asthmatic Escalation	-0.4362	0.0046	1.0000	0.1781	0.2430	-0.1039
race_1 Asthmatic Escalation	-0.4028	0.1434	0.1781	1.0000	-0.3492	0.0892
pfpl_1 Asthmatic Escalation	-0.1647	-0.0539	0.2430	-0.3492	1.0000	-0.1029
INS_1 Asthmatic Escalation	-0.4981	-0.0586	-0.1039	0.0892	-0.1029	1.0000

Classification Table									
	Correct		Incorrect		Percentages				
Prob Level	Event	Non-Event	Event	Non-Event	Correct	Sensi-tivity	Speci-ficity	Pos Pred	Neg Pred
0.000	1095	0	123E3	0	0.9	100.0	0.0	0.9	.
0.020	44	114E3	9272	1051	91.7	4.0	92.5	0.5	99.1
0.040	6	121E3	1978	1089	97.5	0.5	98.4	0.3	99.1
0.060	6	122E3	1139	1089	98.2	0.5	99.1	0.5	99.1
0.080	6	123E3	898	1089	98.4	0.5	99.3	0.7	99.1
0.100	6	123E3	762	1089	98.5	0.5	99.4	0.8	99.1
0.120	6	123E3	688	1089	98.6	0.5	99.4	0.9	99.1
0.140	6	123E3	622	1089	98.6	0.5	99.5	1.0	99.1

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Classification Table									
	Correct		Incorrect		Percentages				
Prob Level	Event	Non-Event	Event	Non-Event	Correct	Sensi-tivity	Speci-ficity	Pos Pred	Neg Pred
0.160	6	123E3	578	1089	98.7	0.5	99.5	1.0	99.1
0.180	6	123E3	546	1089	98.7	0.5	99.6	1.1	99.1
0.200	6	123E3	514	1089	98.7	0.5	99.6	1.2	99.1
0.220	6	123E3	488	1089	98.7	0.5	99.6	1.2	99.1
0.240	6	123E3	463	1089	98.8	0.5	99.6	1.3	99.1
0.260	6	123E3	447	1089	98.8	0.5	99.6	1.3	99.1
0.280	6	123E3	441	1089	98.8	0.5	99.6	1.3	99.1
0.300	6	123E3	430	1089	98.8	0.5	99.7	1.4	99.1
0.320	6	123E3	413	1089	98.8	0.5	99.7	1.4	99.1
0.340	6	123E3	404	1089	98.8	0.5	99.7	1.5	99.1
0.360	6	123E3	393	1089	98.8	0.5	99.7	1.5	99.1
0.380	6	123E3	387	1089	98.8	0.5	99.7	1.5	99.1
0.400	6	123E3	372	1089	98.8	0.5	99.7	1.6	99.1
0.420	6	123E3	363	1089	98.8	0.5	99.7	1.6	99.1
0.440	6	123E3	358	1089	98.8	0.5	99.7	1.6	99.1
0.460	6	123E3	346	1089	98.8	0.5	99.7	1.7	99.1
0.480	6	123E3	340	1089	98.9	0.5	99.7	1.7	99.1
0.500	6	123E3	338	1089	98.9	0.5	99.7	1.7	99.1
0.520	6	123E3	327	1089	98.9	0.5	99.7	1.8	99.1
0.540	6	123E3	322	1089	98.9	0.5	99.7	1.8	99.1
0.560	6	123E3	318	1089	98.9	0.5	99.7	1.9	99.1
0.580	6	123E3	309	1089	98.9	0.5	99.7	1.9	99.1
0.600	6	123E3	304	1089	98.9	0.5	99.8	1.9	99.1
0.620	6	123E3	300	1089	98.9	0.5	99.8	2.0	99.1
0.640	6	123E3	294	1089	98.9	0.5	99.8	2.0	99.1
0.660	6	123E3	290	1089	98.9	0.5	99.8	2.0	99.1
0.680	6	123E3	284	1089	98.9	0.5	99.8	2.1	99.1
0.700	6	123E3	276	1089	98.9	0.5	99.8	2.1	99.1
0.720	6	123E3	274	1089	98.9	0.5	99.8	2.1	99.1
0.740	6	123E3	267	1089	98.9	0.5	99.8	2.2	99.1
0.760	6	123E3	261	1089	98.9	0.5	99.8	2.2	99.1
0.780	6	123E3	258	1089	98.9	0.5	99.8	2.3	99.1
0.800	6	123E3	256	1089	98.9	0.5	99.8	2.3	99.1
0.820	6	123E3	251	1089	98.9	0.5	99.8	2.3	99.1
0.840	6	123E3	242	1089	98.9	0.5	99.8	2.4	99.1

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Classification Table									
	Correct		Incorrect		Percentages				
Prob Level	Event	Non-Event	Event	Non-Event	Correct	Sensi-tivity	Speci-ficity	Pos Pred	Neg Pred
0.860	6	123E3	236	1089	98.9	0.5	99.8	2.5	99.1
0.880	6	123E3	225	1089	98.9	0.5	99.8	2.6	99.1
0.900	6	123E3	213	1089	99.0	0.5	99.8	2.7	99.1
0.920	6	123E3	209	1089	99.0	0.5	99.8	2.8	99.1
0.940	6	123E3	202	1089	99.0	0.5	99.8	2.9	99.1
0.960	6	123E3	186	1089	99.0	0.5	99.8	3.1	99.1
0.980	6	123E3	169	1089	99.0	0.5	99.9	3.4	99.1
1.000	0	123E3	0	1095	99.1	0.0	100.0	.	99.1

FinalModeling
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The SURVEYLOGISTIC Procedure

Domain Analysis for domain analyzeData=1

Model Information		
Data Set	CHIS.CHIS_DATA_BINOMIAL_ED2	
Response Variable	asthmaesc	ED/UC Asthma Visit
Number of Response Levels	2	
Weight Variable	fnwgt0	
Model	Generalized Logit	
Optimization Technique	Newton-Raphson	

Number of Observations Read	124521
Number of Observations Used	124521
Sum of Weights Read	2765889
Sum of Weights Used	2765889

Response Profile			
Ordered Value	asthmaesc	Total Frequency	Total Weight
1	1 Asthmatic Escalation	1095	237258.9
2	2 No Asthma Escalation	12495	2528630.5

Logits modeled use asthmaesc='2 No Asthma Escalation' as the reference category.

Domain Summary	
Number of Observations	124521
Number of Observations in Domain	13590
Number of Observations not in Domain	110931
Sum of Weights in Domain	2765889.4

Variance Estimation	
Method	Jackknife
Replicate Weights	CHIS_DATA_BINOMIAL_ED2
Number of Replicates	160

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

FinalModeling
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Domain Analysis for domain analyzeData=1

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	1618958.7	1572238.7
SC	1618971.5	1572315.7
-2 Log L	1618956.7	1572226.7

R-Square	0.0168	Max-rescaled R-Square	0.0378

Testing Global Null Hypothesis: BETA=0				
Test	F Value	Num DF	Den DF	Pr > F
Likelihood Ratio	36.53	4.5071	721.13	<.0001
Score	7.85	5	160	<.0001
Wald	10.75	5	160	<.0001
NOTE: Second-order Rao-Scott design correction 0.1094 applied to the Likelihood Ratio test.				

Type 3 Analysis of Effects				
Effect	F Value	Num DF	Den DF	Pr > F
SRSEX	9.44	1	160	0.0025
CITIZEN2	0.09	1	160	0.7619
race	7.58	1	160	0.0066
pfpl	20.48	1	160	<.0001
INS	0.46	1	160	0.4971

Analysis of Maximum Likelihood Estimates						
Parameter	asthmaesc	Estimate	Standard Error	t Value	Pr > |t|	Standardized Estimate
Intercept	1 Asthmatic Escalation	-2.1557	0.5125	-4.21	<.0001	
SRSEX	1 Asthmatic Escalation	0.5459	0.1777	3.07	0.0025	0.6873
CITIZEN2	1 Asthmatic Escalation	0.0440	0.1449	0.30	0.7619	0.0678
race	1 Asthmatic Escalation	-0.0790	0.0287	-2.75	0.0066	-0.4760
pfpl	1 Asthmatic Escalation	-0.1606	0.0355	-4.53	<.0001	-0.6557
INS	1 Asthmatic Escalation	-0.1892	0.2780	-0.68	0.4971	-0.1433
NOTE: The degrees of freedom for the t tests is 160.						

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Domain Analysis for domain analyzeData=1

Odds Ratio Estimates				
Effect	asthmaesc	Point Estimate	95% Confidence Limits	
SRSEX	1 Asthmatic Escalation	1.726	1.215	2.452
CITIZEN2	1 Asthmatic Escalation	1.045	0.785	1.391
race	1 Asthmatic Escalation	0.924	0.873	0.978
pfpl	1 Asthmatic Escalation	0.852	0.794	0.913
INS	1 Asthmatic Escalation	0.828	0.478	1.433
NOTE: The degrees of freedom in computing the confidence limits is 160.				

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	55.2	Somers' D	0.224
Percent Discordant	32.8	Gamma	0.254
Percent Tied	12.0	Tau-a	0.033
Pairs	13682025	c	0.612

Estimated Covariance Matrix						
Parameter	Intercept_1 Asthmatic Escalation	SRSEX_1 Asthmatic Escalation	CITIZEN2_1 Asthmatic Escalation	race_1 Asthmatic Escalation	pfpl_1 Asthmatic Escalation	INS_1 Asthmatic Escalation
Intercept_1 Asthmatic Escalation	0.262626	-0.05404	-0.03054	-0.00643	-0.00348	-0.0773
SRSEX_1 Asthmatic Escalation	-0.05404	0.031577	-0.00085	0.000687	-0.00025	-0.00138
CITIZEN2_1 Asthmatic Escalation	-0.03054	-0.00085	0.021001	0.001006	0.001073	-0.0029
race_1 Asthmatic Escalation	-0.00643	0.000687	0.001006	0.000824	-0.0002	0.000652
pfpl_1 Asthmatic Escalation	-0.00348	-0.00025	0.001073	-0.0002	0.001259	-0.00095
INS_1 Asthmatic Escalation	-0.0773	-0.00138	-0.0029	0.000652	-0.00095	0.077297

Estimated Correlation Matrix						
Parameter	Intercept_1 Asthmatic Escalation	SRSEX_1 Asthmatic Escalation	CITIZEN2_1 Asthmatic Escalation	race_1 Asthmatic Escalation	pfpl_1 Asthmatic Escalation	INS_1 Asthmatic Escalation
Intercept_1 Asthmatic Escalation	1.0000	-0.5934	-0.4112	-0.4372	-0.1912	-0.5425
SRSEX_1 Asthmatic Escalation	-0.5934	1.0000	-0.0330	0.1347	-0.0393	-0.0280
CITIZEN2_1 Asthmatic Escalation	-0.4112	-0.0330	1.0000	0.2418	0.2088	-0.0719
race_1 Asthmatic Escalation	-0.4372	0.1347	0.2418	1.0000	-0.2002	0.0817
pfpl_1 Asthmatic Escalation	-0.1912	-0.0393	0.2088	-0.2002	1.0000	-0.0962
INS_1 Asthmatic Escalation	-0.5425	-0.0280	-0.0719	0.0817	-0.0962	1.0000

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Domain Analysis for domain analyzeData=1

Classification Table									
	Correct		Incorrect		Percentages				
Prob Level	Event	Non-Event	Event	Non-Event	Correct	Sensi-tivity	Speci-ficity	Pos Pred	Neg Pred
0.000	1095	0	123E3	0	0.9	100.0	0.0	0.9	.
0.020	658	1080	122E3	437	1.4	60.1	0.9	0.5	71.2
0.040	519	3911	12E4	576	3.6	47.4	3.2	0.4	87.2
0.060	365	38293	85133	730	31.0	33.3	31.0	0.4	98.1
0.080	251	82305	41121	844	66.3	22.9	66.7	0.6	99.0
0.100	213	97886	25540	882	78.8	19.5	79.3	0.8	99.1
0.120	189	11E4	13567	906	88.4	17.3	89.0	1.4	99.2
0.140	167	114E3	9344	928	91.8	15.3	92.4	1.8	99.2
0.160	161	115E3	7927	934	92.9	14.7	93.6	2.0	99.2
0.180	157	118E3	5284	938	95.0	14.3	95.7	2.9	99.2
0.200	154	12E4	3015	941	96.8	14.1	97.6	4.9	99.2
0.220	154	122E3	1204	941	98.3	14.1	99.0	11.3	99.2
0.240	154	122E3	1091	941	98.4	14.1	99.1	12.4	99.2
0.260	154	122E3	1005	941	98.4	14.1	99.2	13.3	99.2
0.280	154	122E3	942	941	98.5	14.1	99.2	14.1	99.2
0.300	154	123E3	874	941	98.5	14.1	99.3	15.0	99.2
0.320	154	123E3	819	941	98.6	14.1	99.3	15.8	99.2
0.340	154	123E3	778	941	98.6	14.1	99.4	16.5	99.2
0.360	154	123E3	747	941	98.6	14.1	99.4	17.1	99.2
0.380	154	123E3	724	941	98.7	14.1	99.4	17.5	99.2
0.400	154	123E3	686	941	98.7	14.1	99.4	18.3	99.2
0.420	154	123E3	665	941	98.7	14.1	99.5	18.8	99.2
0.440	154	123E3	638	941	98.7	14.1	99.5	19.4	99.2
0.460	154	123E3	618	941	98.7	14.1	99.5	19.9	99.2
0.480	154	123E3	593	941	98.8	14.1	99.5	20.6	99.2
0.500	154	123E3	571	941	98.8	14.1	99.5	21.2	99.2
0.520	154	123E3	557	941	98.8	14.1	99.5	21.7	99.2
0.540	154	123E3	541	941	98.8	14.1	99.6	22.2	99.2
0.560	154	123E3	528	941	98.8	14.1	99.6	22.6	99.2
0.580	154	123E3	512	941	98.8	14.1	99.6	23.1	99.2
0.600	154	123E3	500	941	98.8	14.1	99.6	23.5	99.2
0.620	154	123E3	486	941	98.9	14.1	99.6	24.1	99.2
0.640	154	123E3	474	941	98.9	14.1	99.6	24.5	99.2
0.660	154	123E3	459	941	98.9	14.1	99.6	25.1	99.2

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Domain Analysis for domain analyzeData=1

Classification Table									
	Correct		Incorrect		Percentages				
Prob Level	Event	Non-Event	Event	Non-Event	Correct	Sensi-tivity	Speci-ficity	Pos Pred	Neg Pred
0.680	154	123E3	443	941	98.9	14.1	99.6	25.8	99.2
0.700	154	123E3	432	941	98.9	14.1	99.6	26.3	99.2
0.720	154	123E3	418	941	98.9	14.1	99.7	26.9	99.2
0.740	154	123E3	409	941	98.9	14.1	99.7	27.4	99.2
0.760	154	123E3	395	941	98.9	14.1	99.7	28.1	99.2
0.780	154	123E3	381	941	98.9	14.1	99.7	28.8	99.2
0.800	154	123E3	373	941	98.9	14.1	99.7	29.2	99.2
0.820	154	123E3	361	941	99.0	14.1	99.7	29.9	99.2
0.840	154	123E3	350	941	99.0	14.1	99.7	30.6	99.2
0.860	154	123E3	338	941	99.0	14.1	99.7	31.3	99.2
0.880	154	123E3	319	941	99.0	14.1	99.7	32.6	99.2
0.900	154	123E3	301	941	99.0	14.1	99.8	33.8	99.2
0.920	154	123E3	283	941	99.0	14.1	99.8	35.2	99.2
0.940	154	123E3	259	941	99.0	14.1	99.8	37.3	99.2
0.960	154	123E3	235	941	99.1	14.1	99.8	39.6	99.2
0.980	153	123E3	202	942	99.1	14.0	99.8	43.1	99.2
1.000	0	123E3	0	1095	99.1	0.0	100.0	.	99.1