

SAS Modeling Output
Baseline Weighted Logistic Regression Model

Model Information	
Data Set	S.STAPH
Response Variable	hosp
Number of Response Levels	2
Stratum Variable	INVASIVE
Number of Strata	2
Weight Variable	WEIGHT
Model	Binary Logit
Optimization Technique	Newton-Raphson
Variance Adjustment	Degrees of Freedom (DF)

Variance Estimation	
Method	Taylor Series
Variance Adjustment	Degrees of Freedom (DF)

Number of Observations Read	1447
Number of Observations Used	1447
Sum of Weights Read	4363
Sum of Weights Used	4363

Response Profile			
Ordered Value	hosp	Total Frequency	Total Weight
1	No	735	2808.0000
2	Yes	712	1555.0000

Probability modeled is hosp=Yes'.

Class Level Information			
Class	Value	Design Variables	
mrsafinal	MRSA		1
	MSSA		0
kidney	No		0
	Yes		1
DIABETES	No		0
	Yes		1
SMOKER	No		0
	Yes		1
BSI	No		0
	Yes		1
WOUND	No		0
	Yes		1

Stratum Information		
Stratum Index	INVASIVE	N Obs
1	No	953
2	Yes	494

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

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	5685.439	4134.144
SC	5691.820	4185.191
-2 Log L	5683.439	4118.144

R-Square	0.3015	Max-rescaled R-Square	0.4140
----------	--------	-----------------------	--------

Testing Global Null Hypothesis: BETA=0				
Test	F Value	Num DF	Den DF	Pr > F
Likelihood Ratio	74.16	7.0000	10115	<.0001
Score	121.72	7	1439	<.0001
Wald	39.21	7	1439	<.0001
NOTE: Second-order Rao-Scott design correction 0.0000 applied to the Likelihood Ratio test.				

Type 3 Analysis of Effects				
Effect	F Value	Num DF	Den DF	Pr > F
SMOKER	22.54	1	1445	<.0001
mrsafinal	22.41	1	1445	<.0001
kidney	13.38	1	1445	0.0003

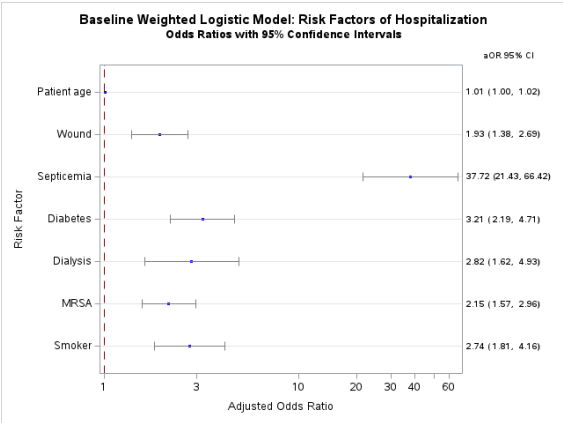
Type 3 Analysis of Effects				
Effect	F Value	Num DF	Den DF	Pr > F
DIABETES	35.62	1	1445	<.0001
BSI	158.48	1	1445	<.0001
WOUND	15.02	1	1445	0.0001
newage	9.69	1	1445	0.0019

Analysis of Maximum Likelihood Estimates				
Parameter		Estimate	Standard Error	t Value Pr > t
Intercept		-2.3264	0.1864	-12.48 <.0001
SMOKER	Yes	1.0095	0.2126	4.75 <.0001
mrsafinal	MRSA	0.7667	0.1620	4.73 <.0001
kidney	Yes	1.0379	0.2838	3.66 0.0003
DIABETES	Yes	1.1657	0.1953	5.97 <.0001
BSI	Yes	3.6303	0.2884	12.59 <.0001
WOUND	Yes	0.6579	0.1697	3.88 0.0001
newage		0.0108	0.00346	3.11 0.0019
NOTE: The degrees of freedom for the t tests is 1445.				

Odds Ratio Estimates			
Effect	Point Estimate	95% Confidence Limits	
SMOKER Yes vs No	2.744	1.808	4.164
mrsafinal MRSA vs MSSA	2.153	1.567	2.958
kidney Yes vs No	2.823	1.618	4.926
DIABETES Yes vs No	3.208	2.187	4.706
BSI Yes vs No	37.725	21.427	66.420
WOUND Yes vs No	1.931	1.384	2.894
newage	1.011	1.004	1.018
NOTE: The degrees of freedom in computing the confidence limits is 1445.			

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	86.4	Somers' D	0.731
Percent Discordant	13.4	Gamma	0.732
Percent Tied	0.2	Tau-a	0.366
Pairs	523320	c	0.865

Estimated Correlation Matrix									
Parameter	Intercept	SMOKERYes	mrsafinalMRSA	kidneyYes	DIABETESYes	BSIYes	WOUNDYes	newage	
Intercept	1.0000	-0.1785	-0.3593	0.0276	0.0005	-0.1332	-0.1622	-0.7818	
SMOKERYes	-0.1785	1.0000	-0.0766	0.0801	0.0194	0.0228	-0.0322	0.0285	
mrsafinalMRSA	-0.3593	-0.0766	1.0000	-0.0583	-0.0496	0.0480	0.0557	0.1120	
kidneyYes	0.0276	0.0801	-0.0583	1.0000	-0.1249	-0.0402	0.0667	-0.1625	
DIABETESYes	0.0005	0.0184	-0.0496	-0.1249	1.0000	0.1465	-0.0995	-0.1909	
BSIYes	-0.1332	0.0226	0.0480	-0.0402	0.1465	1.0000	0.1665	-0.0821	
WOUNDYes	-0.1622	-0.0322	0.0557	0.0667	-0.0995	0.1665	1.0000	-0.1344	
newage	-0.7818	0.0285	0.1120	-0.1625	-0.1909	-0.0821	-0.1344	1.0000	



Weighted Logistic Stratified: Community-onset model

The SURVEYLOGISTIC Procedure

Model Information	
Data Set	WORK.COMM
Response Variable	hosp
Number of Response Levels	2
Stratum Variable	INVASIVE
Number of Strata	2
Weight Variable	WEIGHT
Model	Binary Logit
Optimization Technique	Newton-Raphson
Variance Adjustment	Degrees of Freedom (DF)

Variance Estimation	
Method	Taylor Series
Variance Adjustment	Degrees of Freedom (DF)

Number of Observations Read	846
Number of Observations Used	846
Sum of Weights Read	2907
Sum of Weights Used	2907

Response Profile			
Ordered Value	hosp	Total Frequency	Total Weight
1	No	590	2285.0000
2	Yes	256	622.0000

Probability modeled is hosp=Yes'.

Class Level Information		
Class	Value	Design Variables
mrsafinal	MRSA	1
	MSSA	0
kidney	No	0
	Yes	1
DIABETES	No	0
	Yes	1
SMOKER	No	0
	Yes	1
BSI	No	0
	Yes	1
WOUND	No	0
	Yes	1

Stratum Information		
Stratum Index	INVASIVE	N Obs
1	No	679

Stratum Information		
Stratum Index	INVASIVE	N Obs
2	Yes	167

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

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	3020.422	2305.551
SC	3026.397	2353.350
-2 Log L	3018.422	2289.551

R-Square	0.2218	Max-rescaled R-Square	0.3433
----------	--------	-----------------------	--------

Testing Global Null Hypothesis: BETA=0				
Test	F Value	Num DF	Den DF	Pr > F
Likelihood Ratio	30.28	7.0000	5907.98	<.0001
Score	36.84	7	638	<.0001
Wald	24.99	7	638	<.0001

NOTE: Second-order Rao-Scott design correction 0.0000 applied to the Likelihood Ratio test.

Type 3 Analysis of Effects				
Effect	F Value	Num DF	Den DF	Pr > F
SMOKER	20.63	1	844	<.0001
mrsafinal	9.00	1	844	0.0028
kidney	2.37	1	844	0.1239
DIABETES	18.60	1	844	<.0001
BSI	123.15	1	844	<.0001
WOUND	8.27	1	844	0.0041
newage	0.65	1	844	0.4201

Analysis of Maximum Likelihood Estimates					
Parameter		Estimate	Standard Error	t Value	Pr > t
Intercept		-2.5522	0.2434	-10.49	<.0001
SMOKER	Yes	1.2164	0.2678	4.54	<.0001
mrsafinal	MRSA	0.6836	0.2279	3.00	0.0028
kidney	Yes	0.7472	0.4851	1.54	0.1239
DIABETES	Yes	1.2194	0.2628	4.31	<.0001
BSI	Yes	4.5960	0.4142	11.10	<.0001
WOUND	Yes	0.6934	0.2410	2.88	0.0041
newage		0.00406	0.00504	0.81	0.4201

NOTE: The degrees of freedom for the t tests is 844.

Odds Ratio Estimates			
Effect	Point Estimate	95% Confidence Limits	
SMOKER Yes vs No	3.375	1.995	5.709
mrsafinal MRSA vs MSSA	1.981	1.266	3.098
kidney Yes vs No	2.111	0.815	5.471
DIABETES Yes vs No	3.385	1.943	5.897
BSI Yes vs No	99.091	43.954	223.391
WOUND Yes vs No	2.000	1.246	3.211
newage	1.004	0.994	1.014

NOTE: The degrees of freedom in computing the confidence limits is 844.

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	83.3	Somers' D	0.674
Percent Discordant	15.9	Gamma	0.679
Percent Tied	0.8	Tau-a	0.285
Pairs	151040	c	0.837

Weighted Logistic Stratified: Hospital-associated model

The SURVEYLOGISTIC Procedure

Model Information	
Data Set	WORK.HOP
Response Variable	hosp
Number of Response Levels	2
Stratum Variable	INVASIVE
Number of Strata	2
Weight Variable	WEIGHT
Model	Binary Logit

Model Information		
Optimization Technique	Newton-Raphson	
Variance Adjustment	Degrees of Freedom (DF)	

Variance Estimation		
Method	Taylor Series	
Variance Adjustment	Degrees of Freedom (DF)	

Number of Observations Read	601
Number of Observations Used	601
Sum of Weights Read	1456
Sum of Weights Used	1456

Response Profile			
Ordered Value	hosp	Total Frequency	Total Weight
1	No	145	523.00000
2	Yes	456	933.00000

Probability modeled is hosp="Yes".

Class Level Information		
Class	Value	Design Variables
mrsafinal	MRSA	1
	MSSA	0
kidney	No	0
	Yes	1
DIABETES	No	0
	Yes	1
SMOKER	No	0
	Yes	1
BSI	No	0
	Yes	1
WOUND	No	0
	Yes	1

Stratum Information		
Stratum Index	INVASIVE	N Obs
1	No	274
2	Yes	327

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

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	1903.415	1544.926
SC	1908.698	1587.194
-2 Log L	1901.415	1528.926

R-Square	0.2257	Max-rescaled R-Square	0.3056
----------	--------	-----------------------	--------

Testing Global Null Hypothesis: BETA=0				
Test	F Value	Num DF	Den DF	Pr > F
Likelihood Ratio	21.95	6.9999	4192.96	<.0001
Score	40.62	7	593	<.0001
Wald	10.58	7	593	<.0001

NOTE: Second-order Rao-Scott design correction 0.0000 applied to the Likelihood Ratio test.

Type 3 Analysis of Effects				
Effect	F Value	Num DF	Den DF	Pr > F
SMOKER	4.50	1	599	0.0342
mrsafinal	7.76	1	599	0.0055
kidney	4.68	1	599	0.0309
DIABETES	12.32	1	599	0.0005
BSI	36.32	1	599	<.0001
WOUND	0.17	1	599	0.6819
newage	1.27	1	599	0.2608

Analysis of Maximum Likelihood Estimates					
Parameter		Estimate	Standard Error	t Value	Pr > t
Intercept		-0.9211	0.3420	-2.69	0.0073
SMOKER	Yes	0.7982	0.3761	2.12	0.0342
mrsafinal	MRSA	0.7257	0.2606	2.79	0.0055

NOTE: The degrees of freedom for the t tests is 599.

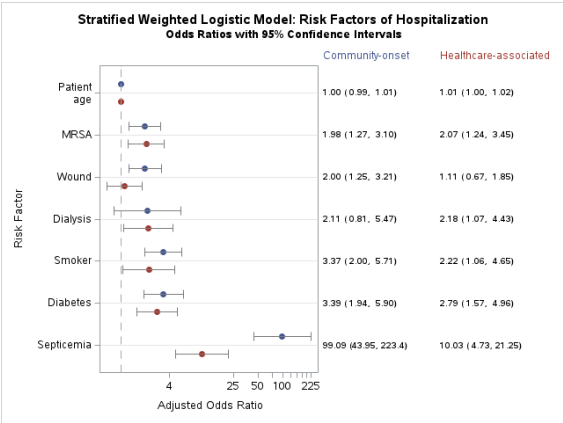
Analysis of Maximum Likelihood Estimates					
Parameter		Estimate	Standard Error	t Value	Pr > t
Kidney	Yes	0.7799	0.3605	2.16	0.0309
DIABETES		1.0265	0.2924	3.51	0.0005
BSI	Yes	2.3051	0.3825	6.03	<.0001
WOUND	Yes	0.1059	0.2583	0.41	0.6819
newage		0.00669	0.00594	1.13	0.2608

NOTE: The degrees of freedom for the t tests is 599.

Odds Ratio Estimates			
Effect	Point Estimate	95% Confidence Limits	
SMOKER Yes vs No	2.222	1.061	4.650
mrsafinal MRSA vs MSSA	2.066	1.239	3.447
kidney Yes vs No	2.181	1.075	4.428
DIABETES Yes vs No	2.791	1.572	4.957
BSI Yes vs No	10.025	4.730	21.248
WOUND Yes vs No	1.112	0.669	1.846
newage	1.007	0.995	1.019

NOTE: The degrees of freedom in computing the confidence limits is 599.

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	81.3	Somers' D	0.630
Percent Discordant	18.3	Gamma	0.632
Percent Tied	0.4	Tau-a	0.231
Pairs	66120	c	0.815



Weighted Logistic Random-Intercept Model Conditional on Hospital Cluster

The GLIMMIX Procedure	
Model Information	
Data Set	S.STAPH
Response Variable	hosp
Response Distribution	Binary
Link Function	Logit
Variance Function	Default
Variance Matrix Blocked By	TXHOSP
Estimation Technique	Maximum Likelihood
Likelihood Approximation	Gauss-Hermite Quadrature
Degrees of Freedom Method	Between-Within
Fixed Effects SE Adjustment	Sandwich - MBN(df=r-1,d=2)

Class Level Information		
Class	Levels	Values
TXHOSP	35	GA002 GA003 GA004 GA006 GA008 GA009 GA010 GA011 GA013 GA015 GA016 GA018 GA020 GA021 GA024 GA026 GA027 GA029 GA030 GA032 GA034 GA040 GA046 GA048 GA050 GA056 GA059 GA065 GA066 GA069 GA070 GA071 GA308 GAMDO OSODC

Class Level Information		
Class	Levels	Values
mrsafinal	2	MRSA MSA
kidney	2	Yes No
DIABETES	2	Yes No
SMOKER	2	Yes No
WOUND	2	Yes No
BSI	2	Yes No

Number of Observations Read	1447
Number of Observations Used	1447

Response Profile		
Ordered Value	hosp	Total Frequency
1	No	735
2	Yes	712
The GLIMMIX procedure is modeling the probability that hosp="Yes".		

Dimensions	
G-side Cov. Parameters	1
Columns in X	14
Columns in Z per Subject	1
Subjects (Blocks in V)	35
Max Obs per Subject	447

Optimization Information	
Optimization Technique	Dual Quasi-Newton
Parameters in Optimization	9
Lower Boundaries	1
Upper Boundaries	0
Fixed Effects	Not Profiled
Starting From	GLM estimates
Quadrature Points	1

Iteration History					
Iteration	Restarts	Evaluations	Objective Function	Change	Max Gradient
0	0	4	2809.7671492	.	2776.37
1	0	6	2798.1628166	11.60433259	120.7446
2	0	4	2738.8833011	59.27951551	40.08431
3	0	2	2732.1785248	6.70477633	19.49736
4	0	4	2728.8319698	3.34655496	14.21317
5	0	2	2728.0560481	0.77592168	4.021616
6	0	3	2727.5457195	0.51032860	34.32043
7	0	2	2727.0471694	0.49855013	35.08955
8	0	2	2726.3982854	0.64888401	8.70023
9	0	3	2726.1195295	0.27875594	9.737444
10	0	3	2726.0684443	0.05108520	3.665075
11	0	3	2726.0633297	0.00511460	1.240708
12	0	3	2726.0609073	0.00242232	0.580288
13	0	3	2726.0600159	0.00089147	0.146745
14	0	3	2726.0600102	0.00000571	0.011663

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

Fit Statistics	
-2 Log Likelihood	2726.06
AIC (smaller is better)	2744.06
AICC (smaller is better)	2744.19
BIC (smaller is better)	2758.06
CAIC (smaller is better)	2767.06
HQIC (smaller is better)	2748.89

Fit Statistics for Conditional Distribution	
-2 log L(hosp r. effects)	2605.19
Pearson Chi-Square	1867.72
Pearson Chi-Square / DF	1.29

Covariance Parameter Estimates					
Cov Parm	Subject	Estimate	Standard Error	Z Value	Pr > Z
Intercept	TXHOSP	3.3699	2.2234	1.52	0.0648

Solutions for Fixed Effects										
Effect	mrsafinal	kidney	DIABETES	SMOKER	WOUND	BSI	Estimate	Standard Error	DF	t Value
Intercept							-2.2875	0.5930	34	-3.86
SMOKER				Yes			0.5006	0.3209	18	1.56
SMOKER				No			0	.	.	.
mrsafinal	MRSA						0.01493	0.2164	24	0.07
mrsafinal	MSA						0	.	.	.
kidney		Yes					1.2379	0.3360	22	3.68
kidney		No					0	.	.	.
DIABETES			Yes				0.7665	0.2814	22	2.72
DIABETES			No				0	.	.	.
WOUND					Yes		0.4193	0.2014	21	2.08
WOUND					No		0	.	.	.
BSI						Yes	2.7266	0.3766	24	7.24
BSI						No	0	.	.	.
newage							0.02178	0.005370	4321	4.06

Odds Ratio Estimates													
mrsafinal	kidney	DIABETES	SMOKER	WOUND	BSI	newage	_mrsafinal	_kidney	_DIABETES	_SMOKER	_WOUND	_BSI	_newage
			Yes			44.242				No			44.242
MRSA						44.242	MSSA						44.242
	Yes					44.242		No					44.242
		Yes				44.242			No				44.242
			Yes			44.242				No			44.242
				Yes		44.242					No		44.242
					Yes	44.242						No	44.242
						45.242							44.242
													44.242

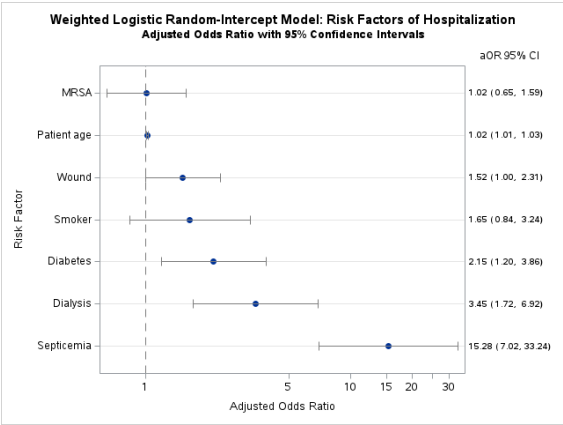
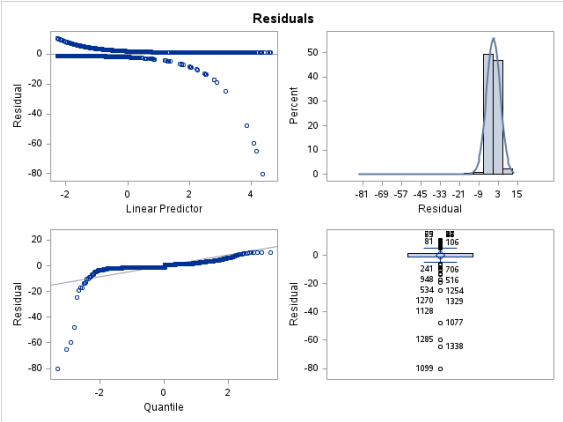
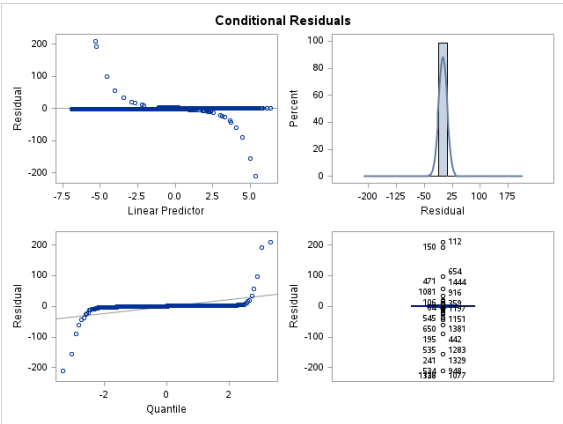
Effects of continuous variables are assessed as one unit offsets from the mean. The AT suboption modifies the reference value and the UNIT suboption modifies the offsets.

Type III Tests of Fixed Effects						
Effect	Num DF	Den DF	Chi-Square	F Value	Pr > ChiSq	Pr > F
SMOKER	1	18	2.43	2.43	0.1188	0.1362
mrsafinal	1	24	0.00	0.00	0.9450	0.9456
kidney	1	22	13.57	13.57	0.0002	0.0013
DIABETES	1	22	7.42	7.42	0.0065	0.0124
WOUND	1	21	4.33	4.33	0.0374	0.0498
BSI	1	24	52.43	52.43	<.0001	<.0001
newage	1	4321	16.45	16.45	<.0001	<.0001

Solution for Random Effects									
Effect	Subject	Estimate	Std Err	Pred	DF	t Value	Pr > t	Alpha	Lower
Intercept	TXHOSP GA002	1.0334	0.8120	4355	1.27	0.2032	0.05	-0.5585	2.6253
Intercept	TXHOSP GA003	0.1329	0.6562	4355	0.20	0.8395	0.05	-1.1536	1.4194
Intercept	TXHOSP GA004	1.5172	0.5979	4355	2.54	0.0112	0.05	0.3450	2.6894
Intercept	TXHOSP GA006	0.1466	0.9143	4355	0.16	0.8726	0.05	-1.6460	1.9391
Intercept	TXHOSP GA008	-0.9284	0.6812	4355	-1.36	0.1730	0.05	-2.2638	0.4071
Intercept	TXHOSP GA009	1.6056	0.6720	4355	2.39	0.0169	0.05	0.2882	2.9230
Intercept	TXHOSP GA010	1.1908	0.6076	4355	1.96	0.0501	0.05	-0.00038	2.3820
Intercept	TXHOSP GA011	1.3265	0.5764	4355	2.30	0.0214	0.05	0.1964	2.4566
Intercept	TXHOSP GA013	1.1744	0.7535	4355	1.56	0.1192	0.05	-0.3028	2.6516
Intercept	TXHOSP GA015	1.8955	0.6849	4355	2.77	0.0057	0.05	0.5527	3.2382
Intercept	TXHOSP GA016	0.7896	1.4907	4355	0.53	0.5963	0.05	-2.1328	3.7121
Intercept	TXHOSP GA018	0.5921	0.6871	4355	0.86	0.3889	0.05	-0.7550	1.9392
Intercept	TXHOSP GA020	1.0831	0.5938	4355	1.82	0.0682	0.05	-0.08112	2.2473
Intercept	TXHOSP GA021	1.0662	0.6055	4355	1.76	0.0783	0.05	-0.1208	2.2533
Intercept	TXHOSP GA024	0.7462	0.5985	4355	1.25	0.2126	0.05	-0.4273	1.9196
Intercept	TXHOSP GA026	1.3636	0.6238	4355	2.19	0.0289	0.05	0.1407	2.5865
Intercept	TXHOSP GA027	1.5192	0.6421	4355	2.37	0.0180	0.05	0.2803	2.7781
Intercept	TXHOSP GA029	-0.3851	1.5919	4355	-0.24	0.8089	0.05	-3.5060	2.7358
Intercept	TXHOSP GA030	-1.7577	1.1774	4355	-1.49	0.1356	0.05	-4.0660	0.5506
Intercept	TXHOSP GA032	1.7465	0.6516	4355	2.68	0.0074	0.05	0.4691	3.0239
Intercept	TXHOSP GA034	-0.4074	0.8659	4355	-0.61	0.5407	0.05	-1.7130	0.8981
Intercept	TXHOSP GA040	-4.6288	0.8987	4355	-5.15	<.0001	0.05	-6.3908	-2.8668
Intercept	TXHOSP GA046	0.2668	0.7549	4355	0.35	0.7238	0.05	-1.2133	1.7468
Intercept	TXHOSP GA048	-0.03924	1.0758	4355	-0.04	0.9709	0.05	-2.1483	2.0698
Intercept	TXHOSP GA050	-1.7129	1.4468	4355	-1.18	0.2365	0.05	-4.5494	1.1236
Intercept	TXHOSP GA056	0.3922	1.6040	4355	0.24	0.8068	0.05	-2.7524	3.5368
Intercept	TXHOSP GA059	0.4726	0.6188	4355	0.76	0.4451	0.05	-0.7406	1.6859
Intercept	TXHOSP GA065	-3.4060	1.3883	4355	-2.45	0.0142	0.05	-6.1277	-0.6842
Intercept	TXHOSP GA066	-0.8944	1.3783	4355	-0.65	0.5164	0.05	-3.5965	1.8077
Intercept	TXHOSP GA069	1.4220	1.4749	4355	0.96	0.3350	0.05	-1.4694	4.3135
Intercept	TXHOSP GA070	0.8376	0.6511	4355	1.29	0.1984	0.05	-0.4390	2.1141
Intercept	TXHOSP GA071	-0.1330	0.6855	4355	-0.19	0.8462	0.05	-1.4769	1.2110
Intercept	TXHOSP GA038	-2.3440	1.3530	4355	-1.73	0.0833	0.05	-4.9966	0.3086
Intercept	TXHOSP GA0M0	-3.2892	0.5959	4355	-5.52	<.0001	0.05	-4.4574	-2.1210

Solution for Random Effects										
Effect	Subject	Estimate	Std Err	Pred	DF	t Value	Pr > t	Alpha	Lower	Upper
Intercept	TXHOSP OSODC	-1.8421	1.4661	4355		-1.26	0.2090	0.05	-4.7164	1.0322

Empirical Correlation Matrix for Fixed Effects																					
Effect	mrsafinal	kidney	DIABETES	SMOKER	WOUND	BSI	Row	Col1	Col2	Col3	Col4	Col5	Col6	Col7	Col8	Col9	Col10	Col11	Col12	Col13	Col14
Intercept							1	1.0000	-0.08803		-0.2056		-0.06619		-0.04415		-0.1236		-0.07947		-0.1829
SMOKER				Yes			2	-0.08803	1.0000		0.08159		0.03500		0.2710		0.3643		0.1116		-0.07769
SMOKER				No			3			1.0000											
mrsafinal	MRSA						4	-0.2056	0.08159		1.0000		0.1599		0.1505		0.2547		0.1467		-0.3066
mrsafinal	MSSA						5					1.0000									
kidney		Yes					6	-0.06619	0.03500		0.1599		1.0000		-0.2076		-0.2413		0.02663		-0.3054
kidney		No					7							1.0000							
DIABETES			Yes				8	-0.04415	0.2710		0.1505		-0.2076		1.0000		0.07682		-0.05413		-0.1068
DIABETES			No				9									1.0000					
WOUND					Yes		10	-0.1236	0.3643		0.2547		-0.2413		0.07682		1.0000		0.2771		0.03849
WOUND					No		11											1.0000			
BSI						Yes	12	-0.07947	0.1116		0.1467		0.02663		-0.05413		0.2771		1.0000		-0.04147
BSI						No	13													1.0000	
newage							14	-0.1829	-0.07769		-0.3066		-0.3054		-0.1068		0.03849		-0.04147		1.0000



Weighted Logistic Random-Intercept Stratified Model: Community-Onset

Model Information	
Data Set	WORK.COMM
Response Variable	hosp
Response Distribution	Binary
Link Function	Logit
Variance Function	Default
Variance Matrix Blocked By	TXHOSP
Estimation Technique	Maximum Likelihood
Likelihood Approximation	Gauss-Hermite Quadrature
Degrees of Freedom Method	Between-Within
Fixed Effects SE Adjustment	Sandwich - MBN(df=r1,d=2)

Class Level Information		
Class	Levels	Values
TXHOSP	30	GA002 GA003 GA004 GA006 GA008 GA009 GA010 GA011 GA013 GA015 GA016 GA018 GA020 GA021 GA024 GA026 GA027 GA030 GA032 GA034 GA040 GA046 GA048 GA050 GA059 GA066 GA069 GA070 GA071 GAMDO
mrsafinal	2	MRSA MSSA
kidney	2	Yes No
DIABETES	2	Yes No
SMOKER	2	Yes No
WOUND	2	Yes No
BSI	2	Yes No

Number of Observations Read	848
Number of Observations Used	846

Response Profile		
Ordered Value	hosp	Total Frequency
1	No	590
2	Yes	256
The GLIMMIX procedure is modeling the probability that hosp="Yes".		

Dimensions	
G-side Cov. Parameters	1
Columns in X	14
Columns in Z per Subject	1
Subjects (Blocks in V)	30
Max Obs per Subject	380

Optimization Information	
Optimization Technique	Dual Quasi-Newton
Parameters in Optimization	9
Lower Boundaries	1
Upper Boundaries	0
Fixed Effects	Not Profiled

Optimization Information		
Starting From	GLM estimates	
Quadrature Points	1	

Iteration History					
Iteration	Restarts	Evaluations	Objective Function	Change	Max Gradient
0	0	4	1501.0917107		2753.628
1	0	6	1480.828851	20.26285972	79.96838
2	0	2	1446.3052458	34.52300519	25.9747
3	0	2	1438.6102748	7.69497099	25.24847
4	0	4	1434.7206514	3.88962333	47.57425
5	0	4	1431.4966568	3.22399465	12.60808
6	0	3	1431.0666799	0.43097691	13.71226
7	0	4	1430.0803129	0.98536704	5.962923
8	0	3	1429.733555	0.34675782	14.80668
9	0	3	1429.6672263	0.06632873	2.606062
10	0	3	1429.6524119	0.01481443	1.815746
11	0	2	1429.638936	0.01851827	2.527292
12	0	3	1429.6301493	0.00374429	0.276731
13	0	3	1429.6300976	0.00005169	0.184168
14	0	3	1429.6300848	0.00001285	0.016909

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

Fit Statistics	
-2 Log Likelihood	1429.63
AIC (smaller is better)	1447.63
AICC (smaller is better)	1447.85
BIC (smaller is better)	1460.24
CAIC (smaller is better)	1469.24
HQIC (smaller is better)	1451.66

Fit Statistics for Conditional Distribution	
-2 log L(hosp r. effects)	1329.79
Pearson Chi-Square	1214.52
Pearson Chi-Square / DF	1.44

Covariance Parameter Estimates				
Cov Parm	Subject	Estimate	Standard Error	Pr > Z
Intercept	TXHOSP	4.1805	2.3097	1.81 0.0351

Solutions for Fixed Effects										
Effect	mrsafinal	kidney	DIABETES	SMOKER	WOUND	BSI	Estimate	Standard Error	DF	Pr > t
Intercept							-2.5290	0.6961	29	-3.63 0.0011
SMOKER				Yes			0.6718	0.4220	17	1.59 0.1298
SMOKER				No			0	-	-	-
mrsafinal	MRSA						-0.1810	0.2851	22	-0.64 0.5320
mrsafinal	MSSA						0	-	-	-
kidney		Yes					1.6130	0.6778	10	2.38 0.0386
kidney		No					0	-	-	-
DIABETES			Yes				1.1581	0.4643	17	2.49 0.0232
DIABETES			No				0	-	-	-
WOUND					Yes		0.5562	0.3572	16	1.56 0.1391
WOUND					No		0	-	-	-
BSI						Yes	4.0945	0.7998	19	5.12 <.0001
BSI						No	0	-	-	-
newage							0.02049	0.007379	2870	2.78 0.0055

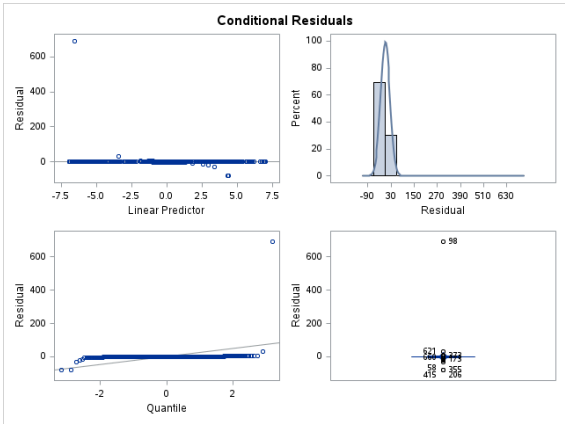
Odds Ratio Estimates														
mrsafinal	kidney	DIABETES	SMOKER	WOUND	BSI	newage	_mrsafinal	_kidney	_DIABETES	_SMOKER	_WOUND	_BSI	_newage	Estimate
			Yes				39.545			No			39.545	1.958 17 0.804 4.768
MRSA							39.545	MSSA					39.545	0.834 22 0.462 1.507
	Yes						39.545		No				39.545	5.018 10 1.108 22.721
		Yes					39.545		No				39.545	3.184 17 1.196 8.480
			Yes				39.545			No			39.545	1.744 16 0.818 3.719
				Yes			39.545				No		39.545	60.007 19 11.262 320.033
					Yes		40.545						39.545	1.021 2870 1.006 1.036

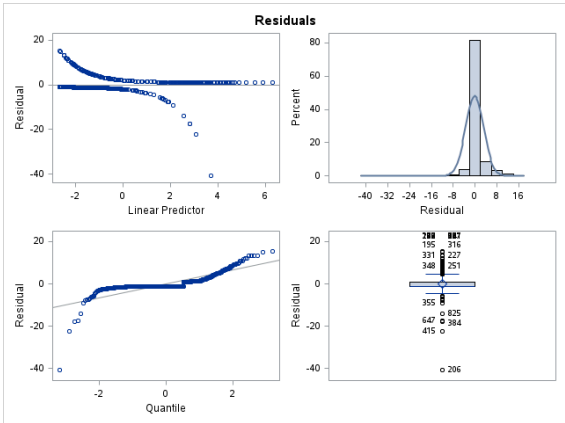
Effects of continuous variables are assessed as one unit offsets from the mean. The AT suboption modifies the reference value and the UNIT suboption modifies the offsets.

Type III Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
SMOKER	1	17	2.53	0.1298

Type III Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
mrsafinal	1	22	0.40	0.5320
kidney	1	10	5.66	0.0386
DIABETES	1	17	6.22	0.0232
WOUND	1	16	2.42	0.1391
BSI	1	19	26.21	<.0001
newage	1	2870	7.71	0.0055

Solution for Random Effects								
Effect	Subject	Estimate	Std Err	Pred	DF	t Value	Pr > t	Alpha
Intercept	TXHOSP GA002	-1.3852	1.0465	2899	-1.32	0.1857	0.05	-3.4372 0.6668
Intercept	TXHOSP GA003	-0.6542	0.8484	2899	-0.77	0.4407	0.05	-2.3177 1.0093
Intercept	TXHOSP GA004	0.7617	0.6833	2899	1.11	0.2651	0.05	-0.5781 2.1015
Intercept	TXHOSP GA006	-1.3408	1.4341	2899	-0.93	0.3499	0.05	-4.1527 1.4712
Intercept	TXHOSP GA008	-1.6991	0.9333	2899	-1.82	0.0688	0.05	-3.5291 0.1309
Intercept	TXHOSP GA009	1.3989	0.8269	2899	1.69	0.0908	0.05	-0.2224 3.0202
Intercept	TXHOSP GA010	1.2832	0.6953	2899	1.85	0.0651	0.05	-0.08013 2.6465
Intercept	TXHOSP GA011	1.2810	0.6697	2899	1.91	0.0599	0.05	-0.03207 2.5941
Intercept	TXHOSP GA013	2.4816	0.6878	2899	2.80	0.0052	0.05	0.7413 4.2219
Intercept	TXHOSP GA015	2.3732	0.8225	2899	2.89	0.0039	0.05	0.7605 3.9880
Intercept	TXHOSP GA016	0.5821	1.6877	2899	0.34	0.7302	0.05	-2.7270 3.8912
Intercept	TXHOSP GA018	1.0116	0.8259	2899	1.22	0.2207	0.05	-0.6077 2.6310
Intercept	TXHOSP GA020	0.9734	0.6947	2899	1.40	0.1613	0.05	-0.3887 2.3355
Intercept	TXHOSP GA021	0.6896	0.7048	2899	0.98	0.3279	0.05	-0.6923 2.0715
Intercept	TXHOSP GA024	-0.09621	0.7157	2899	-0.13	0.8931	0.05	-1.4995 1.3071
Intercept	TXHOSP GA026	1.4177	0.7398	2899	1.92	0.0554	0.05	-0.03294 2.8683
Intercept	TXHOSP GA027	1.7194	0.7319	2899	2.35	0.0189	0.05	0.2842 3.1545
Intercept	TXHOSP GA030	-1.7086	1.3302	2899	-1.28	0.1991	0.05	-4.3168 0.8996
Intercept	TXHOSP GA032	1.5642	0.7456	2899	2.10	0.0360	0.05	1.0222 3.0262
Intercept	TXHOSP GA034	-1.4768	0.8780	2899	-1.68	0.0927	0.05	-3.1083 0.2447
Intercept	TXHOSP GA040	-4.0165	1.0574	2899	-3.80	0.0001	0.05	-6.0899 -1.9432
Intercept	TXHOSP GA046	2.8069	1.3843	2899	2.03	0.0427	0.05	0.09259 5.5212
Intercept	TXHOSP GA048	-0.7364	1.5905	2899	-0.46	0.6434	0.05	-3.8551 2.3823
Intercept	TXHOSP GA050	-2.4485	1.6212	2899	-1.51	0.1311	0.05	-5.6272 0.7302
Intercept	TXHOSP GA059	0.8361	0.7259	2899	1.15	0.2495	0.05	-0.5872 2.2595
Intercept	TXHOSP GA066	-0.7882	1.5712	2899	-0.50	0.6160	0.05	-3.8690 2.2927
Intercept	TXHOSP GA069	0.3367	1.8053	2899	0.19	0.8520	0.05	-3.2030 3.8764
Intercept	TXHOSP GA070	1.3729	0.8034	2899	1.71	0.0876	0.05	-0.2024 2.9483
Intercept	TXHOSP GA071	-1.0502	0.8703	2899	-1.21	0.2276	0.05	-2.7566 0.6561
Intercept	TXHOSP GAMD0	-4.2320	0.7083	2899	-5.97	<.0001	0.05	-5.6209 -2.8431





Optimization Information	
Fixed Effects	Not Profiled
Starting From	GLM estimates
Quadrature Points	5

Iteration History					
Iteration	Restarts	Evaluations	Objective Function	Change	Max Gradient
0	0	4	1146.8534811		326.408
1	0	5	1146.5142917	0.33918935	22.92349
2	0	4	1135.1806641	11.33362762	8.293453
3	0	2	1132.1465315	3.03413262	9.172207
4	0	4	1130.8451183	1.30141320	15.36075
5	0	4	1129.7493425	1.09577577	2.771987
6	0	2	1129.3311559	0.41818661	59.56893
7	0	2	1128.638522	0.69263391	3.230332
8	0	3	1128.3265204	0.31200159	26.83417
9	0	2	1128.1767489	0.14977150	41.32122
10	0	2	1128.127342	0.04940697	49.8322
11	0	2	1128.0514506	0.07589132	19.01861
12	0	3	1128.0280862	0.02336444	5.386648
13	0	3	1128.0140478	0.01403844	0.498978
14	0	3	1128.0139151	0.00013265	0.16206
15	0	3	1128.0139063	0.00000880	0.149955

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

Fit Statistics	
-2 Log Likelihood	1128.01
AIC (smaller is better)	1146.01
AICC (smaller is better)	1146.32
BIC (smaller is better)	1158.92
CAIC (smaller is better)	1167.92
HQIC (smaller is better)	1150.22

Fit Statistics for Conditional Distribution	
-2 log L(hosp r. effects)	1034.77
Pearson Chi-Square	596.07
Pearson Chi-Square / DF	0.99

Covariance Parameter Estimates					
Cov Parm	Subject	Estimate	Standard Error	Z Value	Pr > Z
Intercept	TXHOSP	4.0459	3.0019	1.35	0.0889

Solutions for Fixed Effects										
Effect	mrsafinal	kidney	DIABETES	SMOKER	WOUND	BSI	Estimate	Standard Error	DF	Pr > t
Intercept							-0.4119	0.7588	30	<0.0001
SMOKER				Yes			0.4916	0.7281	16	0.68
SMOKER				No			0	-	-	-
mrsafinal	MRSA						0.2375	0.4195	22	0.57
mrsafinal	MSSA						0	-	-	-
kidney		Yes					0.8999	0.4452	19	2.02
kidney		No					0	-	-	-
DIABETES			Yes				0.6596	0.3741	19	1.76
DIABETES			No				0	-	-	-
WOUND					Yes		-0.1607	0.3984	19	<0.0001
WOUND					No		0	-	-	-
BSI						Yes	1.6658	0.5673	21	2.94
BSI						No	0	-	-	-
newage							0.005249	0.007670	1418	0.67

Odds Ratio Estimates														
mrsafinal	kidney	DIABETES	SMOKER	WOUND	BSI	newage	_mrsafinal	_kidney	_DIABETES	_SMOKER	_WOUND	_BSI	_newage	Estimate
			Yes			53.62				No				53.62
MRSA						53.62	MSSA							53.62
	Yes					53.62		No						53.62
		Yes				53.62			No					53.62
			Yes			53.62				No				53.62
				Yes		53.62					No			53.62
					Yes	54.62						No		53.62
														53.62
Effects of continuous variables are assessed as one unit offsets from the mean. The AT suboption modifies the reference value and the UNIT suboption modifies the offsets.														

Weighted Logistic Random-Intercept Stratified Model: Hospital-Associated

The GLIMMIX Procedure

Model Information	
Data Set	WORK.HOP
Response Variable	hosp
Response Distribution	Binary
Link Function	Logit
Variance Function	Default
Variance Matrix Blocked By	TXHOSP
Estimation Technique	Maximum Likelihood
Likelihood Approximation	Gauss-Hermite Quadrature
Degrees of Freedom Method	Between-Within
Fixed Effects SE Adjustment	Sandwich - MBN(df,r=1,d=2)

Class Level Information

Class	Levels	Values
TXHOSP	31	GA002 GA003 GA004 GA006 GA008 GA009 GA010 GA011 GA013 GA015 GA018 GA020 GA021 GA024 GA026 GA027 GA029 GA032 GA034 GA040 GA046 GA048 GA056 GA059 GA065 GA069 GA070 GA071 GA038 GAMDO OSODC
mrsafinal	2	MRSA MSSA
kidney	2	Yes No
DIABETES	2	Yes No
SMOKER	2	Yes No
WOUND	2	Yes No
BSI	2	Yes No

Number of Observations Read	601
Number of Observations Used	601

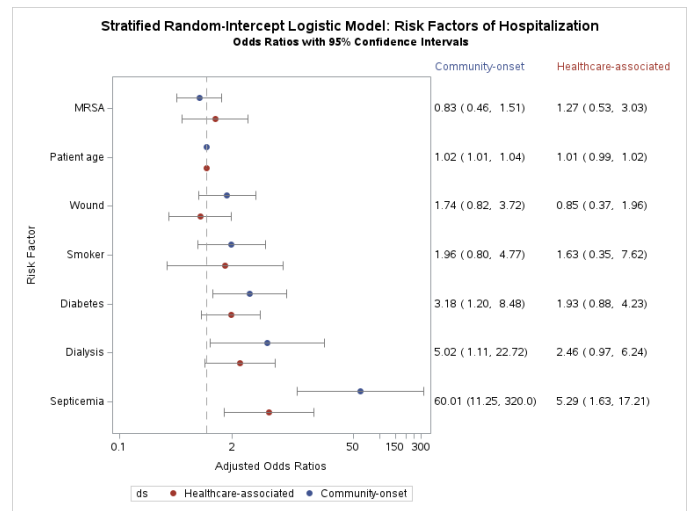
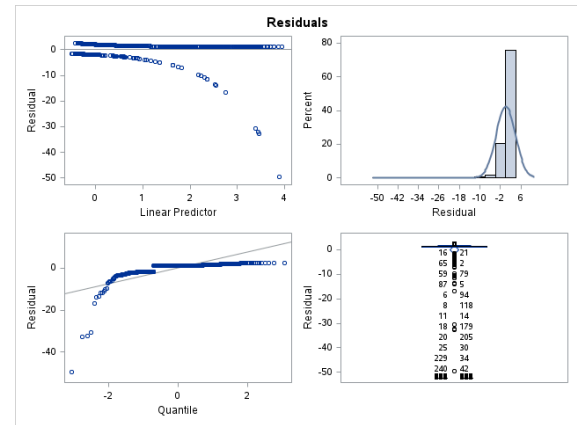
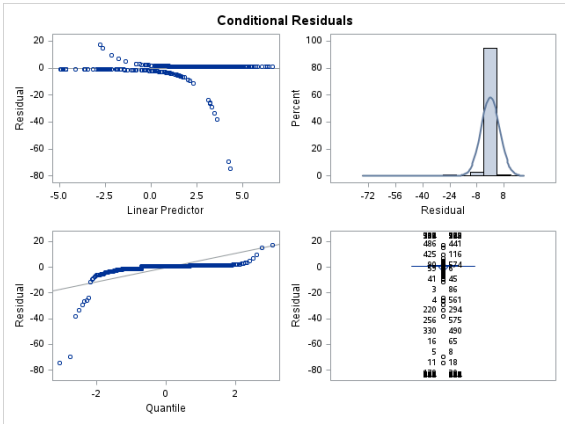
Response Profile		
Ordered Value	hosp	Total Frequency
1	No	145
2	Yes	456
The GLIMMIX procedure is modeling the probability that hosp="Yes".		

Dimensions	
G-side Cov. Parameters	1
Columns in X	14
Columns in Z per Subject	1
Subjects (Blocks in V)	31
Max Obs per Subject	120

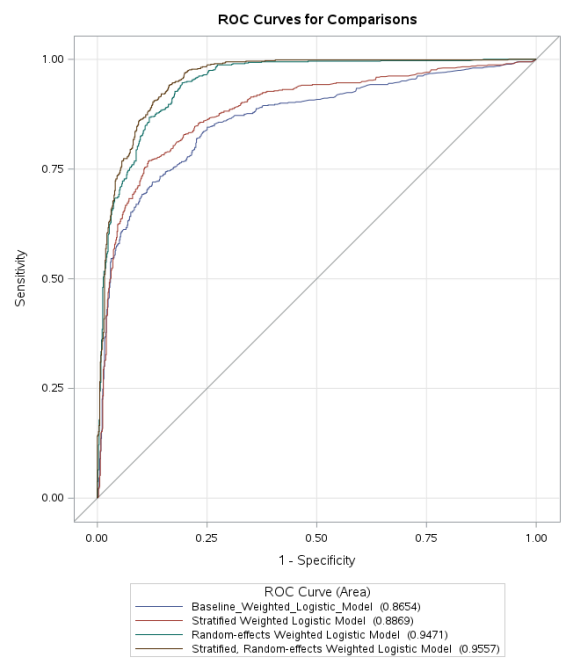
Optimization Information	
Optimization Technique	Dual Quasi-Newton
Parameters in Optimization	9
Lower Boundaries	1
Upper Boundaries	0

Type III Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
SMOKER	1	16	0.46	0.5081
mrsafinal	1	22	0.32	0.5770
kidney	1	19	4.09	0.0576
DIABETES	1	19	3.11	0.0940
WOUND	1	19	0.16	0.6912
BSI	1	21	8.62	0.0079
newage	1	1418	0.44	0.5049

Solution for Random Effects									
Effect	Subject	Estimate	Std Err	DF	t Value	Pr > t	Alpha	Lower	Upper
Intercept	TXHOSP GA002	2.6027	1.3808	1448	1.88	0.0596	0.05	-0.1059	5.3113
Intercept	TXHOSP GA003	0.5977	0.8245	1448	0.72	0.4686	0.05	-1.0196	2.2150
Intercept	TXHOSP GA004	1.8489	0.7062	1448	2.62	0.0089	0.05	0.4637	3.2342
Intercept	TXHOSP GA006	1.3323	1.5733	1448	0.85	0.3972	0.05	-1.7539	4.4186
Intercept	TXHOSP GA008	-0.9807	0.8354	1448	-1.17	0.2406	0.05	-2.6195	0.6580
Intercept	TXHOSP GA009	1.0063	0.7729	1448	1.30	0.1932	0.05	-0.5099	2.5224
Intercept	TXHOSP GA010	0.8390	0.7960	1448	1.10	0.2736	0.05	-0.6636	2.3417
Intercept	TXHOSP GA011	0.8599	0.6431	1448	1.34	0.1814	0.05	-0.4016	2.1213
Intercept	TXHOSP GA013	-2.0640	1.1511	1448	-1.79	0.0732	0.05	-4.3219	0.1940
Intercept	TXHOSP GA015	-0.1339	0.8388	1448	-0.16	0.8732	0.05	-1.7793	1.5115
Intercept	TXHOSP GA018	0.1910	0.8579	1448	0.22	0.8238	0.05	-1.4918	1.8738
Intercept	TXHOSP GA020	1.6896	0.7831	1448	2.16	0.0311	0.05	0.1534	3.2258
Intercept	TXHOSP GA021	1.0536	0.6838	1448	1.54	0.1236	0.05	-0.2877	2.3949
Intercept	TXHOSP GA024	0.5776	0.6655	1448	0.87	0.3856	0.05	-0.7279	1.8831
Intercept	TXHOSP GA026	0.9917	0.7209	1448	1.38	0.1691	0.05	-0.4224	2.4058
Intercept	TXHOSP GA027	0.02234	0.8926	1448	0.03	0.9800	0.05	-1.7286	1.7733
Intercept	TXHOSP GA029	-1.0374	1.5837	1448	-0.66	0.5126	0.05	-4.1440	2.0692
Intercept	TXHOSP GA032	2.9202	1.3270	1448	2.20	0.0279	0.05	0.3170	5.5233
Intercept	TXHOSP GA034	-0.3605	0.7015	1448	-0.51	0.6074	0.05	-1.7366	1.0156
Intercept	TXHOSP GA040	-4.5150	1.1279	1448	-4.00	<.0001	0.05	-6.7275	-2.3025
Intercept	TXHOSP GA046	-1.2222	0.8768	1448	-1.39	0.1634	0.05	-2.9417	0.4972
Intercept	TXHOSP GA048	0.7424	1.6589	1448	0.45	0.6546	0.05	-2.5117	3.9965
Intercept	TXHOSP GA056	0.5880	1.6793	1448	0.35	0.7263	0.05	-2.7061	3.8821
Intercept	TXHOSP GA059	-0.07575	0.7352	1448	-0.10	0.9190	0.05	-1.5179	1.3664
Intercept	TXHOSP GA065	-3.3498	1.5351	1448	-2.18	0.0293	0.05	-6.3611	-0.3385
Intercept	TXHOSP GA069	1.0688	1.6253	1448	0.66	0.5109	0.05	-2.1194	4.2571
Intercept	TXHOSP GA070	0.1242	0.7144	1448	0.17	0.8620	0.05	-1.2772	1.5255
Intercept	TXHOSP GA071	0.3750	0.9252	1448	0.41	0.6853	0.05	-1.4400	2.1900
Intercept	TXHOSP GA308	-2.6334	1.4665	1448	-1.80	0.0727	0.05	-5.5100	0.2432
Intercept	TXHOSP GAMDO	-2.4710	0.6609	1448	-3.74	0.0002	0.05	-3.7674	-1.1746
Intercept	TXHOSP OSODC	-1.8292	1.5960	1448	-1.15	0.2519	0.05	-4.9600	1.3016



The LOGISTIC Procedure



ROC Association Statistics						
ROC Model	Mann-Whitney			Somers' D	Gamma	Tau-a
	Area	Standard Error	95% Wald Confidence Limits			
Baseline_Weighted_Logistic_Model	0.8654	0.00980	0.8462 0.8846	0.7309	0.7314	0.3656
Stratified Weighted Logistic Model	0.8869	0.00900	0.8693 0.9046	0.7739	0.7742	0.3871
Random-effects Weighted Logistic Model	0.9471	0.00553	0.9362 0.9579	0.8942	0.8942	0.4473
Stratified, Random-effects Weighted Logistic Model	0.9557	0.00502	0.9459 0.9656	0.9115	0.9115	0.4559

