

Final Model - goodness of fit and predictive ability

The LOGISTIC Procedure

Model Information

Data Set	WORK.TIMESINCEVAX	
Response Variable	breakthrough	breakthrough
Number of Response Levels	2	
Model	binary logit	
Optimization Technique	Fisher's scoring	

Number of Observations Read	3084648
Number of Observations Used	3084648

Response Profile

Ordered Value	breakthrough	Total Frequency
1	1	29677
2	0	3054971

Probability modeled is breakthrough=1.

Model Convergence Status

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

Deviance and Pearson Goodness-of-Fit Statistics

Criterion	Value	DF	Value/DF	Pr > ChiSq
Deviance	5223.1546	13E3	0.4028	1.0000
Pearson	21757370.2	13E3	1677.774	<.0001

Number of unique profiles: 12972

Model Fit Statistics

Criterion		Intercept Only	Intercept and Covariates
AIC		334698.88	6777.410
SC		334711.82	6829.178
-2 Log L		334696.88	6769.410
R-Square	0.1009	Max-rescaled R-Square	0.9808

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Testing Global Null Hypothesis: BETA=0

Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	327927.473	3	<.0001
Score	1684101.70	3	<.0001
Wald	2449.0487	3	<.0001

Analysis of Maximum Likelihood Estimates

Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-20.2299	0.9437	459.5197	<.0001
followup_time	1	-6.3642	0.1295	2413.4153	<.0001
time_since_vax	1	201.5	4.0771	2443.3263	<.0001
followup_*time_since	1	-0.0320	0.00124	665.6590	<.0001

Association of Predicted Probabilities and Observed Responses

Percent Concordant	99.7	Somers' D	0.993
Percent Discordant	0.3	Gamma	0.993
Percent Tied	0.0	Tau-a	0.019
Pairs	90662374367	c	0.997

Partition for the Hosmer and Lemeshow Test

Group	Total	breakthrough = 1		breakthrough = 0	
		Observed	Expected	Observed	Expected
1	796008	26	0.80	795982	796007.2
2	299762	65	1.41	299697	299760.6
3	323073	25	3.96	323048	323069.0
4	312747	18	6.12	312729	312740.9

5	437172	12	10.29	437160	437161.7
6	309298	15	8.42	309283	309289.6
7	305860	15	65.64	305845	305794.4
8	300728	29501	29580.40	271227	271147.6

Hosmer and Lemeshow Goodness-of-Fit Test

Chi-Square	DF	Pr > ChiSq
3836.1040	6	<.0001