

## Binary Logistic Regression: Abnormal vs Normal Full Model with 5 Predictors

### The LOGISTIC Procedure

Model Information		
Data Set	WORK.FETAL_CLEAN	
Response Variable	abnormal	Abnormal (Suspect or Pathological)
Number of Response Levels	2	
Model	binary logit	
Optimization Technique	Fisher's scoring	

Number of Observations Read	2126
Number of Observations Used	2126

Response Profile		
Ordered Value	abnormal	Total Frequency
1	1	471
2	0	1655

Probability modeled is abnormal=1.

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

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2250.686	1473.492
SC	2256.348	1507.464
-2 Log L	2248.686	1461.492

R-Square	0.3095	Max-rescaled R-Square	0.4741
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Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	787.1936	5	<.0001
Score	546.3310	5	<.0001
Wald	317.9188	5	<.0001

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-7.5005	0.9419	63.4076	<.0001
baseline_value	1	0.0586	0.00687	72.7609	<.0001
accelerations	1	-754.7	59.0005	163.6055	<.0001
fetal_movement	1	6.3548	1.3716	21.4656	<.0001
uterine_contractions	1	-192.6	22.7666	71.5338	<.0001
severe_decelerations	1	3285.3	1132.0	8.4232	0.0037

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Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
baseline_value	1.060	1.046	1.075
accelerations	<0.001	<0.001	<0.001
fetal_movement	575.238	39.114	>999.999
uterine_contractions	<0.001	<0.001	<0.001
severe_decelerations	>999.999	>999.999	>999.999

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	88.1	Somers' D	0.762
Percent Discordant	11.9	Gamma	0.762
Percent Tied	0.0	Tau-a	0.263
Pairs	779505	c	0.881

Partition for the Hosmer and Lemeshow Test					
Group	Total	abnormal = 1		abnormal = 0	
		Observed	Expected	Observed	Expected
1	213	0	0.04	213	212.96
2	213	1	0.35	212	212.65
3	213	4	1.74	209	211.26
4	213	9	6.55	204	206.45
5	213	21	18.52	192	194.48
6	215	36	38.18	179	176.82
7	213	54	56.51	159	156.49
8	213	75	81.37	138	131.63
9	214	106	116.12	108	97.88
10	206	165	151.61	41	54.39

Hosmer and Lemeshow Goodness-of-Fit Test		
Chi-Square	DF	Pr > ChiSq
13.0190	8	0.1112

**Parameter Estimates - Binary Model**

<b>Variable</b>	<b>DF</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>Wald Chi-Square</b>	<b>Pr &gt; Chi-Square</b>	<b>Estimation Type</b>
Intercept	1	-7.5005	0.9419	63.4076	<.0001	MLE
baseline_value	1	0.0586	0.00687	72.7609	<.0001	MLE
accelerations	1	-754.7	59.0005	163.6055	<.0001	MLE
fetal_movement	1	6.3548	1.3716	21.4656	<.0001	MLE
uterine_contractions	1	-192.6	22.7666	71.5338	<.0001	MLE
severe_decelerations	1	3285.3	1132.0	8.4232	0.0037	MLE

**Odds Ratios with 95% Confidence Intervals**

<b>Effect</b>	<b>Odds Ratio Estimate</b>	<b>Lower 95% Confidence Limit for Odds Ratio</b>	<b>Upper 95% Confidence Limit for Odds Ratio</b>
baseline_value	1.060	1.046	1.075
accelerations	<0.001	<0.001	<0.001
fetal_movement	575.238	39.114	>999.999
uterine_contractions	<0.001	<0.001	<0.001
severe_decelerations	>999.999	>999.999	>999.999

**Association Statistics (AUC)**

Label1	cValue1	nValue1	Label2	cValue2	nValue2
Percent Concordant	88.1	88.078332	Somers' D	0.762	0.761885
Percent Discordant	11.9	11.889853	Gamma	0.762	0.762127
Percent Tied	0.0	0.031815	Tau-a	0.263	0.262915
Pairs	779505	779505	c	0.881	0.880942