

## Stepwise Variable Selection Entry and Stay Criteria: p < 0.05

### The LOGISTIC Procedure

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

<b>Number of Observations Read</b>	2126
<b>Number of Observations Used</b>	2126

<b>Response Profile</b>		
Ordered Value	abnormal	Total Frequency
1	1	471
2	0	1655

Probability modeled is abnormal=1.

### Stepwise Selection Procedure

#### Step 0. Intercept entered:

<b>Model Convergence Status</b>		
Convergence criterion (GCONV=1E-8) satisfied.		

-2 Log L = 2248.686

<b>Residual Chi-Square Test</b>		
Chi-Square	DF	Pr > ChiSq
782.9399	7	<.0001

#### Step 1. Effect accelerations entered:

<b>Model Convergence Status</b>		
Convergence criterion (GCONV=1E-8) satisfied.		

<b>Model Fit Statistics</b>		
Criterion	Intercept Only	Intercept and Covariates
AIC	2250.686	1676.390
SC	2256.348	1687.714
-2 Log L	2248.686	1672.390

<b>Testing Global Null Hypothesis: BETA=0</b>			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	576.2961	1	<.0001
Score	331.3060	1	<.0001
Wald	183.9940	1	<.0001

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Residual Chi-Square Test			
Chi-Square	DF	Pr > ChiSq	
434.5965	6	<.0001	

**Note:** No effects for the model in Step 1 are removed.

#### Step 2. Effect prolongued\_decelerat entered:

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

Model Fit Statistics			
Criterion	Intercept Only	Intercept and Covariates	
AIC	2250.686	1502.984	
SC	2256.348	1519.970	
-2 Log L	2248.686	1496.984	

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	751.7017	2	<.0001
Score	513.2246	2	<.0001
Wald	213.8804	2	<.0001

Residual Chi-Square Test			
Chi-Square	DF	Pr > ChiSq	
284.3348	5	<.0001	

**Note:** No effects for the model in Step 2 are removed.

#### Step 3. Effect uterine\_contractions entered:

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

Model Fit Statistics			
Criterion	Intercept Only	Intercept and Covariates	
AIC	2250.686	1324.852	
SC	2256.348	1347.500	
-2 Log L	2248.686	1316.852	

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	931.8337	3	<.0001
Score	652.9879	3	<.0001
Wald	313.2032	3	<.0001

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Residual Chi-Square Test			
Chi-Square	DF	Pr > ChiSq	
144.0755	4	<.0001	

**Note:** No effects for the model in Step 3 are removed.

#### Step 4. Effect baseline\_value entered:

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

Criterion	Model Fit Statistics	
	Intercept Only	Intercept and Covariates
AIC	2250.686	1201.518
SC	2256.348	1229.828
-2 Log L	2248.686	1191.518

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	1057.1681	4	<.0001
Score	760.4590	4	<.0001
Wald	355.4828	4	<.0001

Residual Chi-Square Test			
Chi-Square	DF	Pr > ChiSq	
30.0705	3	<.0001	

**Note:** No effects for the model in Step 4 are removed.

#### Step 5. Effect severe\_decelerations entered:

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

Criterion	Model Fit Statistics	
	Intercept Only	Intercept and Covariates
AIC	2250.686	1187.486
SC	2256.348	1221.458
-2 Log L	2248.686	1175.486

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	1073.1998	5	<.0001
Score	775.5771	5	<.0001
Wald	359.6904	5	<.0001

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Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
9.4499	2	0.0089

**Note:** No effects for the model in Step 5 are removed.

**Step 6. Effect light\_decelerations entered:**

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

Criterion	Model Fit Statistics	
	Intercept Only	Intercept and Covariates
AIC	2250.686	1179.634
SC	2256.348	1219.268
-2 Log L	2248.686	1165.634

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	1083.0518	6	<.0001
Score	781.9324	6	<.0001
Wald	358.8425	6	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
0.2266	1	0.6340

**Note:** No effects for the model in Step 6 are removed.

**Note:** No (additional) effects met the 0.05 significance level for entry into the model.

Summary of Stepwise Selection							
Step	Effect		DF	Number In	Score Chi-Square	Wald Chi-Square	Variable Label
	Entered	Removed					
1	accelerations		1	1	331.3060		<.0001 Number of Accelerations
2	prolongued_deceleration		1	2	168.3312		<.0001 Prolonged Decelerations
3	uterine_contractions		1	3	167.6458		<.0001 Uterine Contractions
4	baseline_value		1	4	120.5535		<.0001 Baseline Fetal Heart Rate
5	severe_decelerations		1	5	22.1173		<.0001 Severe Decelerations
6	light_decelerations		1	6	9.2204		0.0024 Light Decelerations

**Stepwise Variable Selection**  
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**The LOGISTIC Procedure**

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-10.7808	1.1115	94.0809	<.0001
baseline_value	1	0.0837	0.00811	106.4607	<.0001
accelerations	1	-848.7	73.2996	134.0623	<.0001
uterine_contractions	1	-294.3	28.1715	109.0992	<.0001
light_decelerations	1	-89.2789	29.7207	9.0236	0.0027
severe_decelerations	1	4192.5	1143.6	13.4397	0.0002
prolongued_decelerat	1	2384.5	194.0	151.0273	<.0001

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
baseline_value	1.087	1.070	1.105
accelerations	<0.001	<0.001	<0.001
uterine_contractions	<0.001	<0.001	<0.001
light_decelerations	<0.001	<0.001	<0.001
severe_decelerations	>999.999	>999.999	>999.999
prolongued_decelerat	>999.999	>999.999	>999.999

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	93.0	Somers' D	0.861
Percent Discordant	6.9	Gamma	0.861
Percent Tied	0.0	Tau-a	0.297
Pairs	779505	c	0.931

**Selected Variables - Parameter Estimates**

Variable	DF	Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Estimation Type
Intercept	1	-10.7808	1.1115	94.0809	<.0001	MLE
baseline_value	1	0.0837	0.00811	106.4607	<.0001	MLE
accelerations	1	-848.7	73.2996	134.0623	<.0001	MLE
uterine_contractions	1	-294.3	28.1715	109.0992	<.0001	MLE
light_decelerations	1	-89.2789	29.7207	9.0236	0.0027	MLE
severe_decelerations	1	4192.5	1143.6	13.4397	0.0002	MLE
prolongued_decelerat	1	2384.5	194.0	151.0273	<.0001	MLE

### Selected Variables - Odds Ratios

Effect	Odds Ratio Estimate	Lower 95% Confidence Limit for Odds Ratio	Upper 95% Confidence Limit for Odds Ratio
baseline_value	1.087	1.070	1.105
accelerations	<0.001	<0.001	<0.001
uterine_contractions	<0.001	<0.001	<0.001
light_decelerations	<0.001	<0.001	<0.001
severe_decelerations	>999.999	>999.999	>999.999
prolongued_decelerat	>999.999	>999.999	>999.999