1.A Poisson

The GENMOD Procedure

Model Information		
Data Set	WORK.A	
Distribution	Poisson	
Link Function	Log	
Dependent Variable	cases	Number of cases of CHD
Offset Variable	lpy	Log person-years

Number of Observations Read	16
Number of Observations Used	16

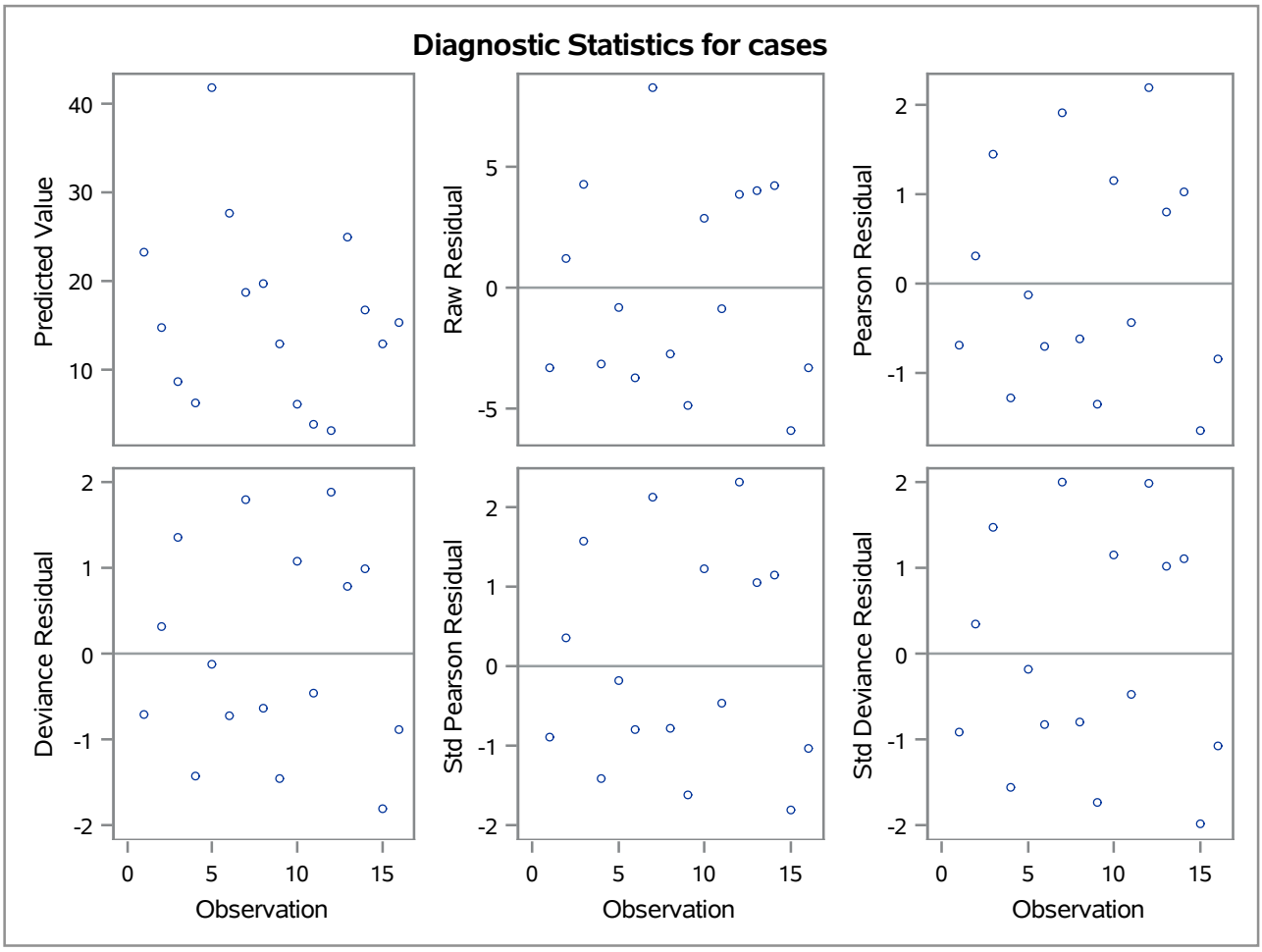
Criteria For Assessing Goodness Of Fit			
Criterion	**DF**	**Value**	**Value/DF**
Deviance	12	21.2397	1.7700
Scaled Deviance	12	21.2397	1.7700
Pearson Chi-Square	12	22.1455	1.8455
Scaled Pearson X2	12	22.1455	1.8455
Log Likelihood		497.3329	
Full Log Likelihood		-45.7730	
AIC (smaller is better)		99.5459	
AICC (smaller is better)		103.1823	
BIC (smaller is better)		102.6363	

Algorithm converged.

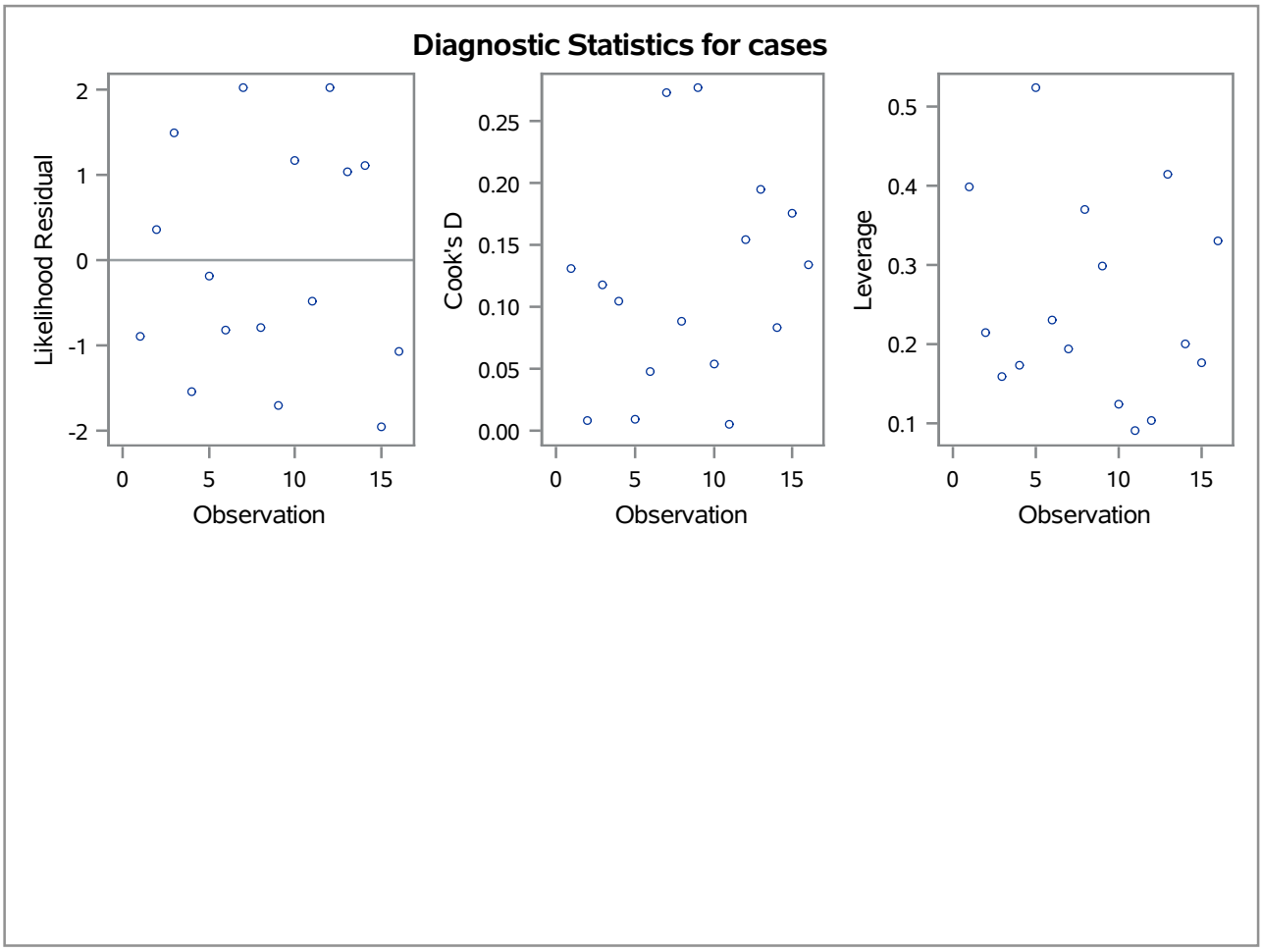
Analysis Of Maximum Likelihood Parameter Estimates							
Parameter	**DF**	**Estimate**	**Standard Error**	**Wald 95% Confidence Limits**		**Wald Chi-Square**	**Pr > ChiSq**
Intercept	1	-5.4202	0.1308	-5.6765	-5.1638	1716.79	<.0001
smoking	1	0.0273	0.0056	0.0163	0.0383	23.72	<.0001
personality	1	0.7526	0.1362	0.4856	1.0195	30.53	<.0001
bp	1	0.7534	0.1292	0.5001	1.0067	33.98	<.0001
Scale	0	1.0000	0.0000	1.0000	1.0000		

Note: The scale parameter was held fixed.

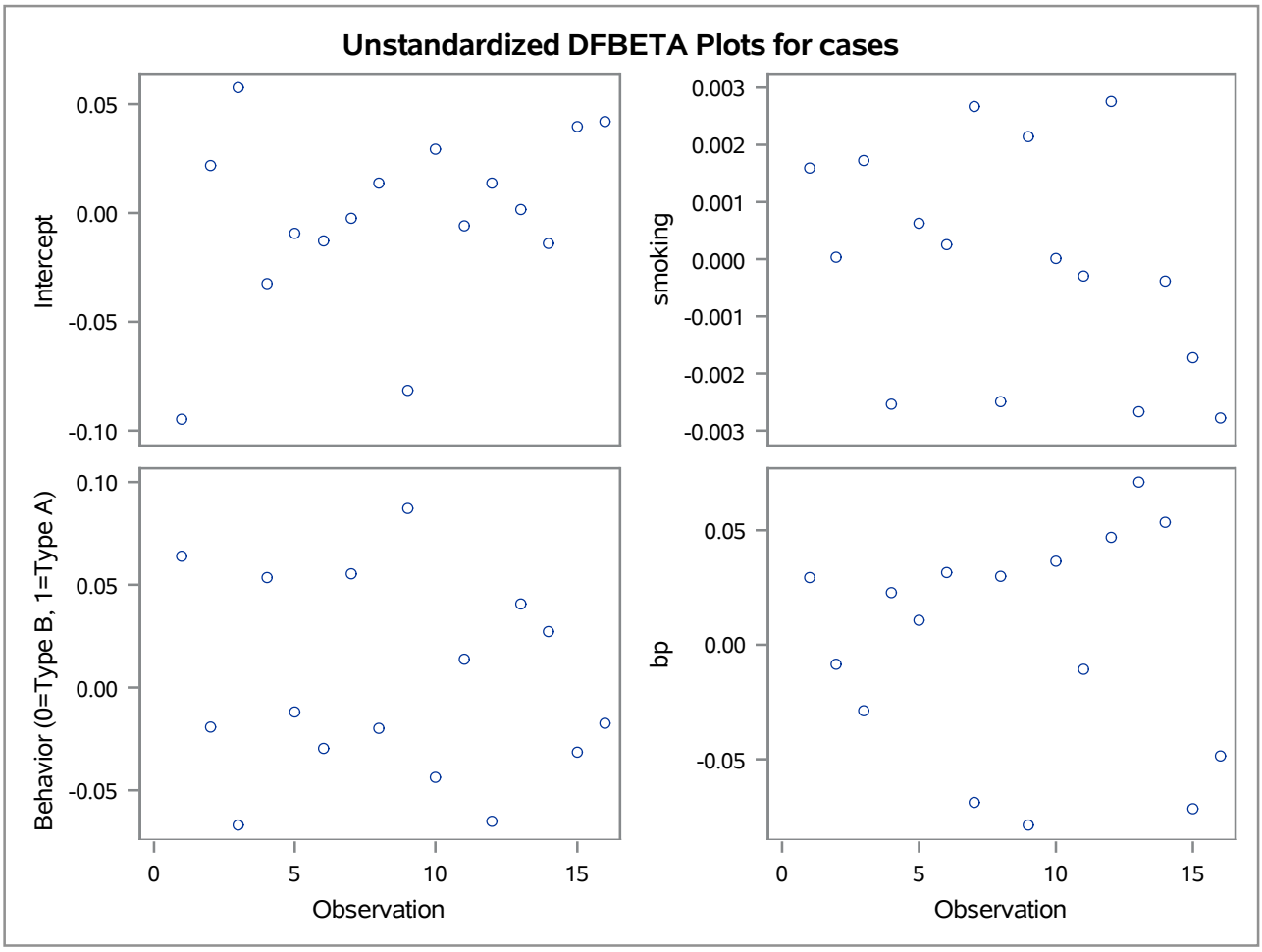
The GENMOD Procedure



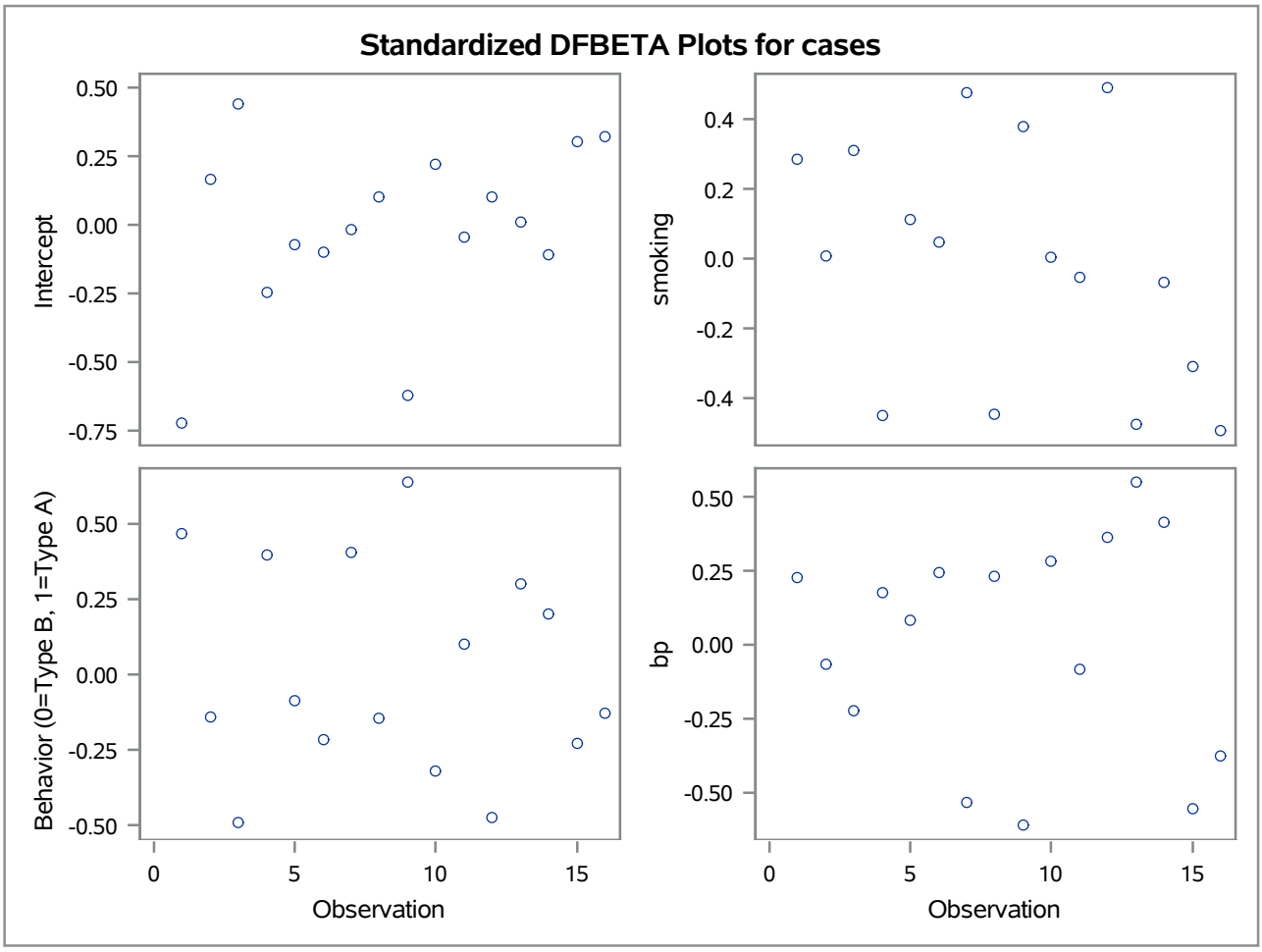
The GENMOD Procedure



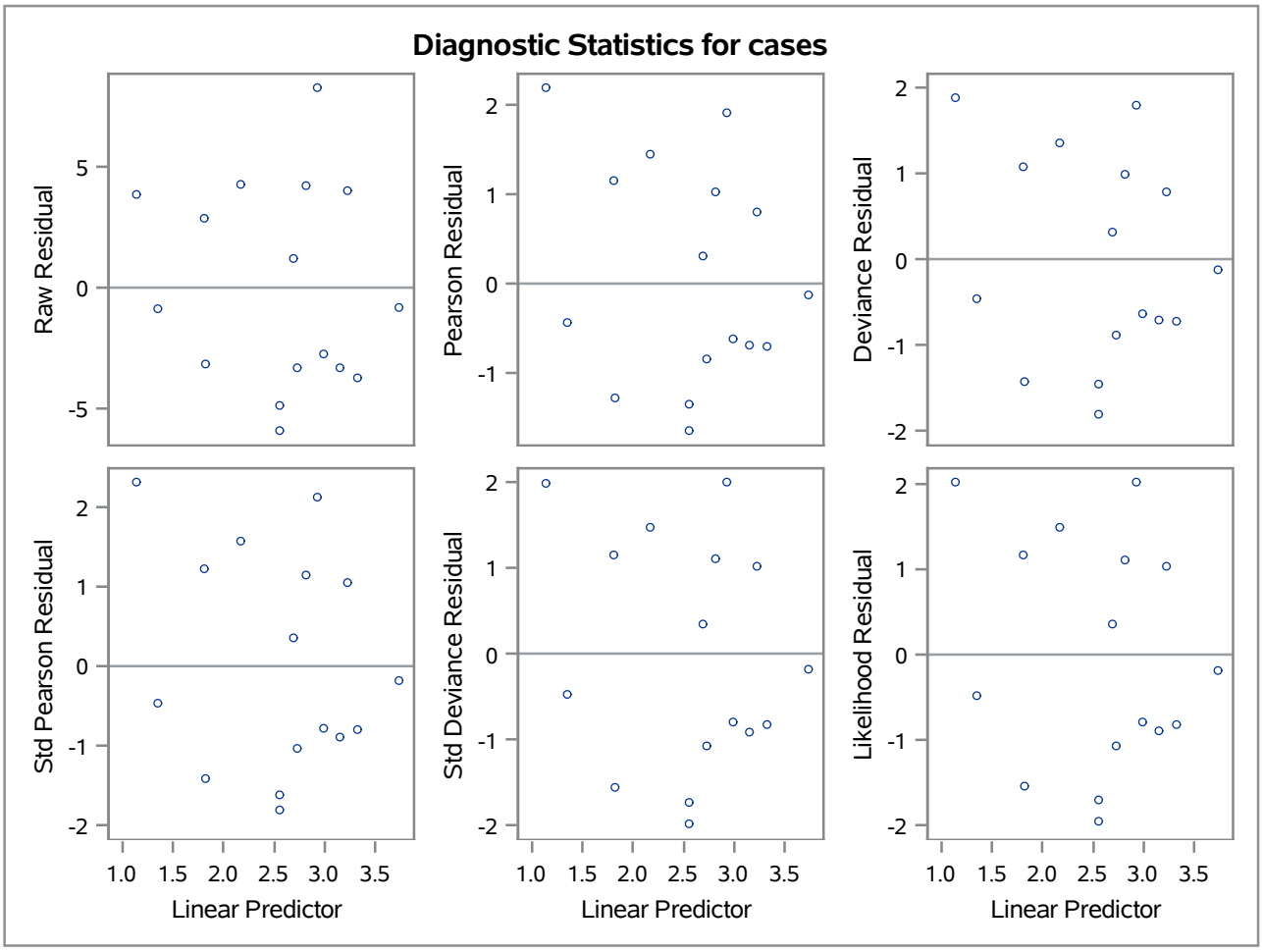
The GENMOD Procedure



The GENMOD Procedure



The GENMOD Procedure



1.A Poisson

Obs	smoking	bp	personality	py	cases	fitted	resraw	reschi	stdreschi
1	0	0	0	5268.2	20	23.320	-3.31952	-0.68741	-0.88674
2	10	0	0	2542.0	16	14.791	1.20937	0.31446	0.35475
3	20	0	0	1140.7	13	8.724	4.27558	1.44753	1.57795
4	30	0	0	614.6	3	6.179	-3.17890	-1.27886	-1.40705
5	0	0	1	4451.1	41	41.817	-0.81722	-0.12637	-0.18316
6	10	0	1	2243.5	24	27.706	-3.70561	-0.70400	-0.80217
7	20	0	1	1153.6	27	18.726	8.27375	1.91195	2.12970
8	30	0	1	925.0	17	19.737	-2.73745	-0.61617	-0.77614
9	0	1	0	1366.8	8	12.851	-4.85138	-1.35329	-1.61528
10	10	1	0	497.0	9	6.143	2.85736	1.15289	1.23174
11	20	1	0	238.1	3	3.868	-0.86822	-0.44144	-0.46295
12	30	1	0	146.3	7	3.124	3.87572	2.19269	2.31549
13	0	1	1	1251.9	29	24.983	4.01699	0.80367	1.04966
14	10	1	1	640.0	21	16.788	4.21162	1.02788	1.14946
15	20	1	1	374.5	7	12.913	-5.91322	-1.64553	-1.81248
16	30	1	1	338.2	12	15.329	-3.32887	-0.85024	-1.03945
				23191.5	**257**	**257.000**	**-0.00000**		

1.A Poisson

Obs	smoking	bp	personality	rate	lo95	up95	p0	p1	pa1
1	0	0	0	0.004426	0.003425	0.005720	0.99558	0.004407	.000009768
2	10	0	0	0.005819	0.004596	0.007367	0.99420	0.005785	.000016862
3	20	0	0	0.007648	0.005873	0.009961	0.99238	0.007590	.000029100
4	30	0	0	0.010054	0.007236	0.013968	0.99000	0.009953	.000050199
5	0	0	1	0.009395	0.007544	0.011700	0.99065	0.009307	.000043856
6	10	0	1	0.012349	0.010331	0.014763	0.98773	0.012198	.000075627
7	20	0	1	0.016233	0.013297	0.019817	0.98390	0.015971	.000130336
8	30	0	1	0.021338	0.016317	0.027903	0.97889	0.020887	.000224438
9	0	1	0	0.009403	0.006976	0.012673	0.99064	0.009315	.000043928
10	10	1	0	0.012359	0.009356	0.016327	0.98772	0.012208	.000075751
11	20	1	0	0.016246	0.012033	0.021935	0.98389	0.015984	.000130549
12	30	1	0	0.021355	0.014954	0.030497	0.97887	0.020904	.000224804
13	0	1	1	0.019956	0.015507	0.025682	0.98024	0.019562	.000196493
14	10	1	1	0.026232	0.021176	0.032495	0.97411	0.025553	.000338097
15	20	1	1	0.034481	0.027434	0.043339	0.96611	0.033313	.000580987
16	30	1	1	0.045325	0.033984	0.060451	0.95569	0.043316	.000996655

The GENMOD Procedure

Model Information		
Data Set	WORK.A	
Distribution	Poisson	
Link Function	Log	
Dependent Variable	cases	Number of cases of CHD
Offset Variable	lpy	Log person-years

Number of Observations Read	16
Number of Observations Used	16

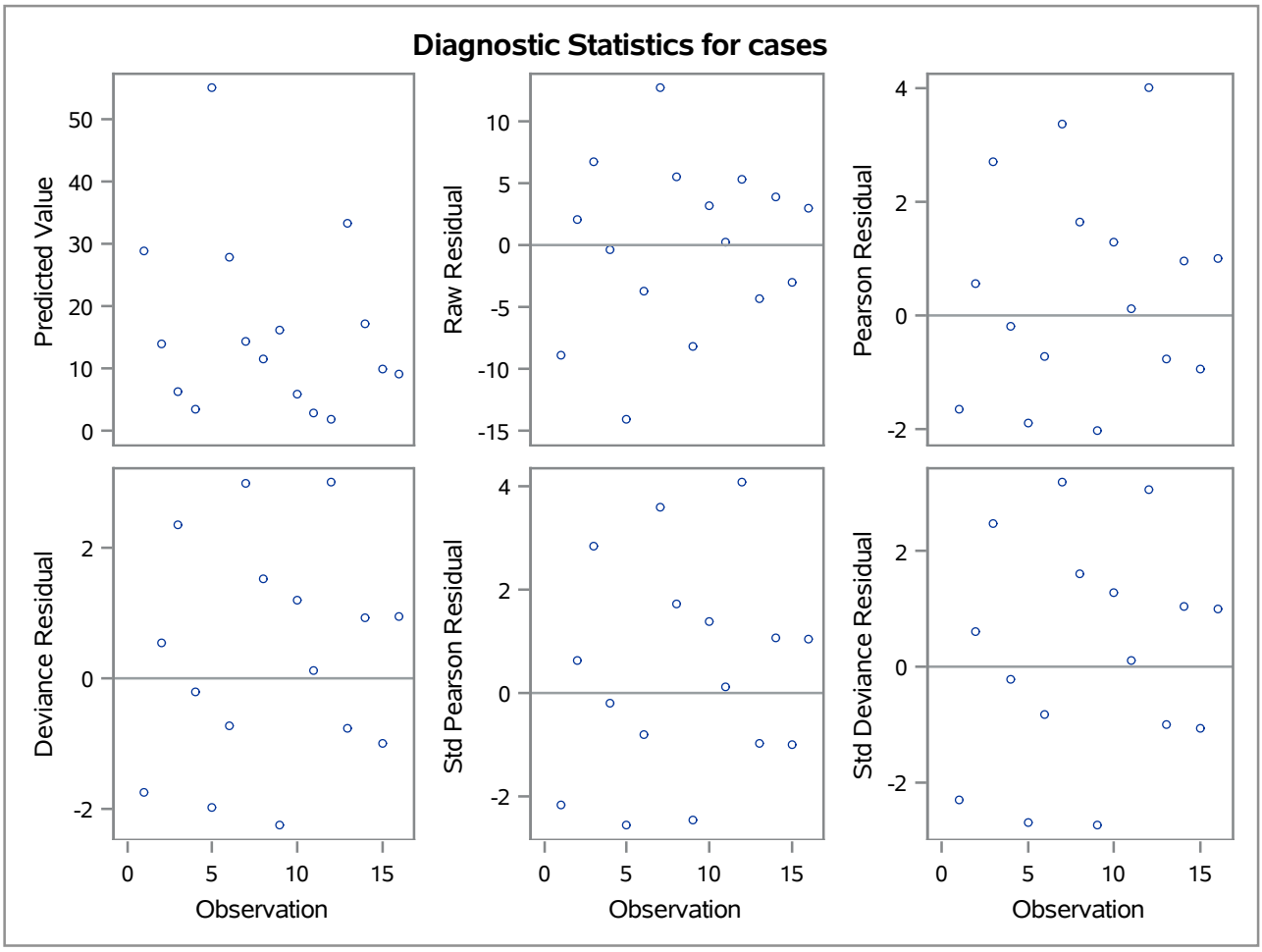
Criteria For Assessing Goodness Of Fit			
Criterion	**DF**	**Value**	**Value/DF**
Deviance	13	43.6021	3.3540
Scaled Deviance	13	43.6021	3.3540
Pearson Chi-Square	13	53.7350	4.1335
Scaled Pearson X2	13	53.7350	4.1335
Log Likelihood		486.1517	
Full Log Likelihood		-56.9541	
AIC (smaller is better)		119.9083	
AICC (smaller is better)		121.9083	
BIC (smaller is better)		122.2260	

Algorithm converged.

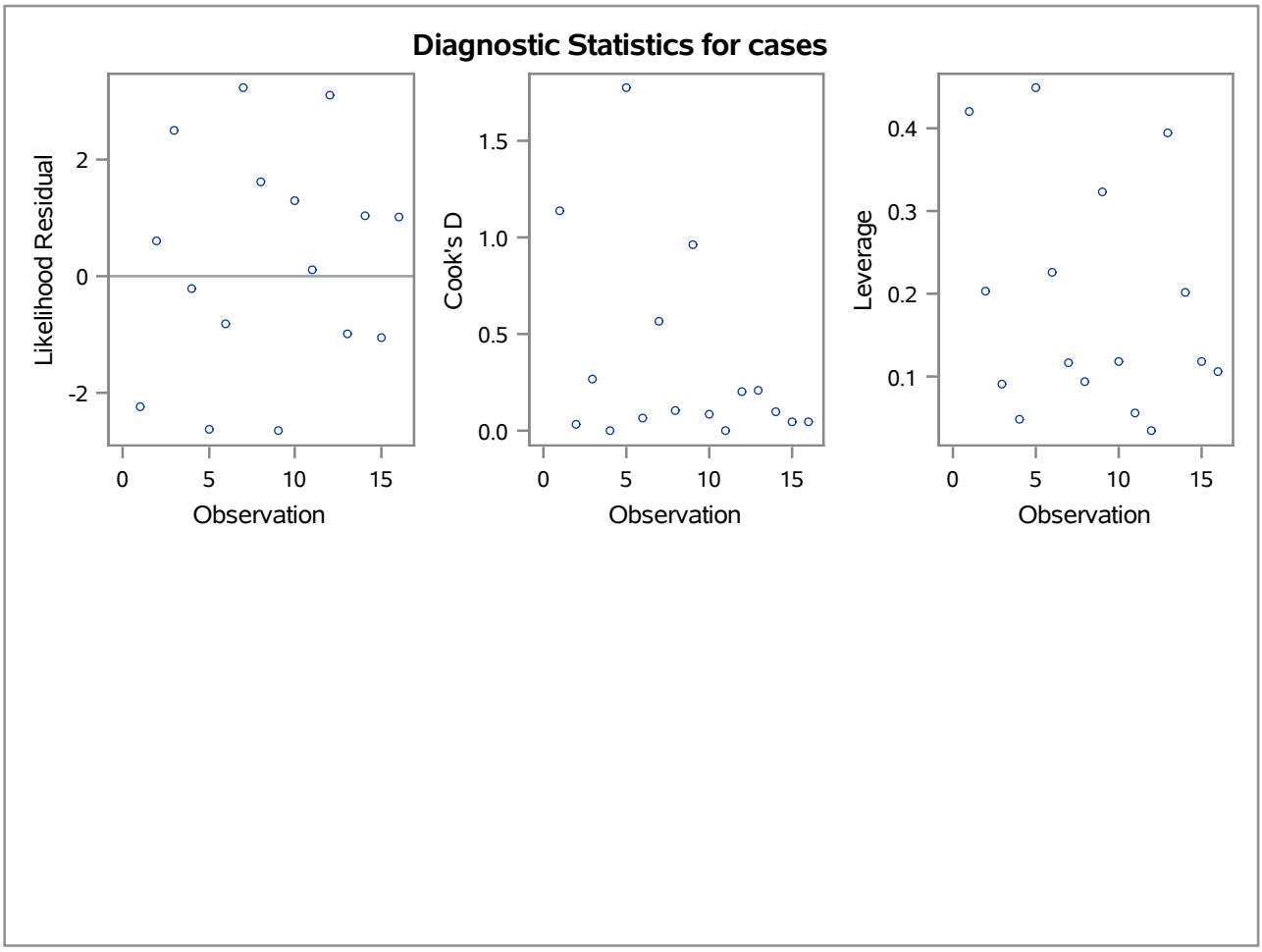
Analysis Of Maximum Likelihood Parameter Estimates							
Parameter	**DF**	**Estimate**	**Standard Error**	**Wald 95% Confidence Limits**		**Wald Chi-Square**	**Pr > ChiSq**
Intercept	1	-5.2062	0.1206	-5.4426	-4.9698	1863.83	<.0001
personality	1	0.8140	0.1354	0.5487	1.0793	36.16	<.0001
bp	1	0.7676	0.1291	0.5146	1.0207	35.34	<.0001
Scale	0	1.0000	0.0000	1.0000	1.0000		

Note: The scale parameter was held fixed.

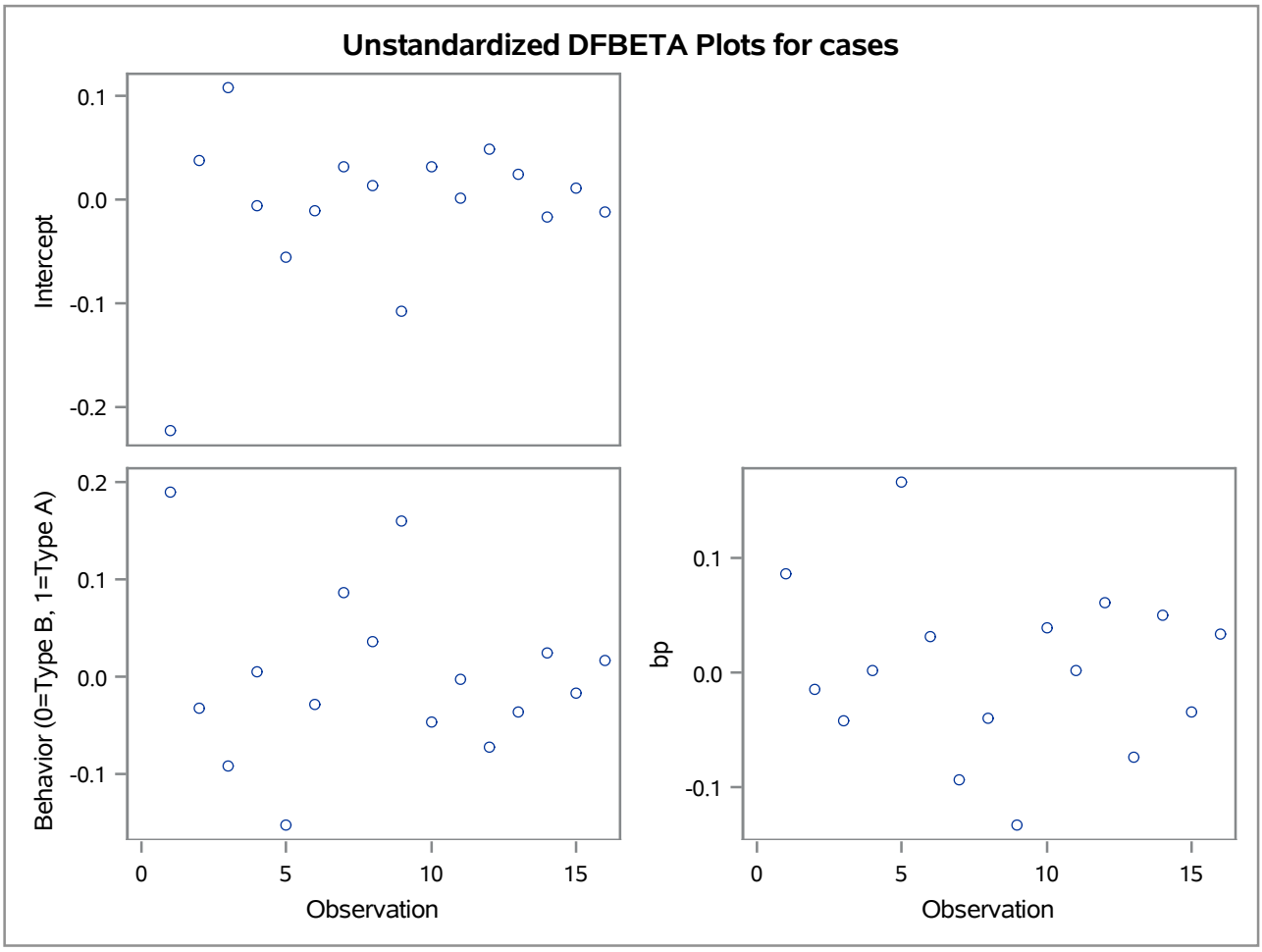
The GENMOD Procedure



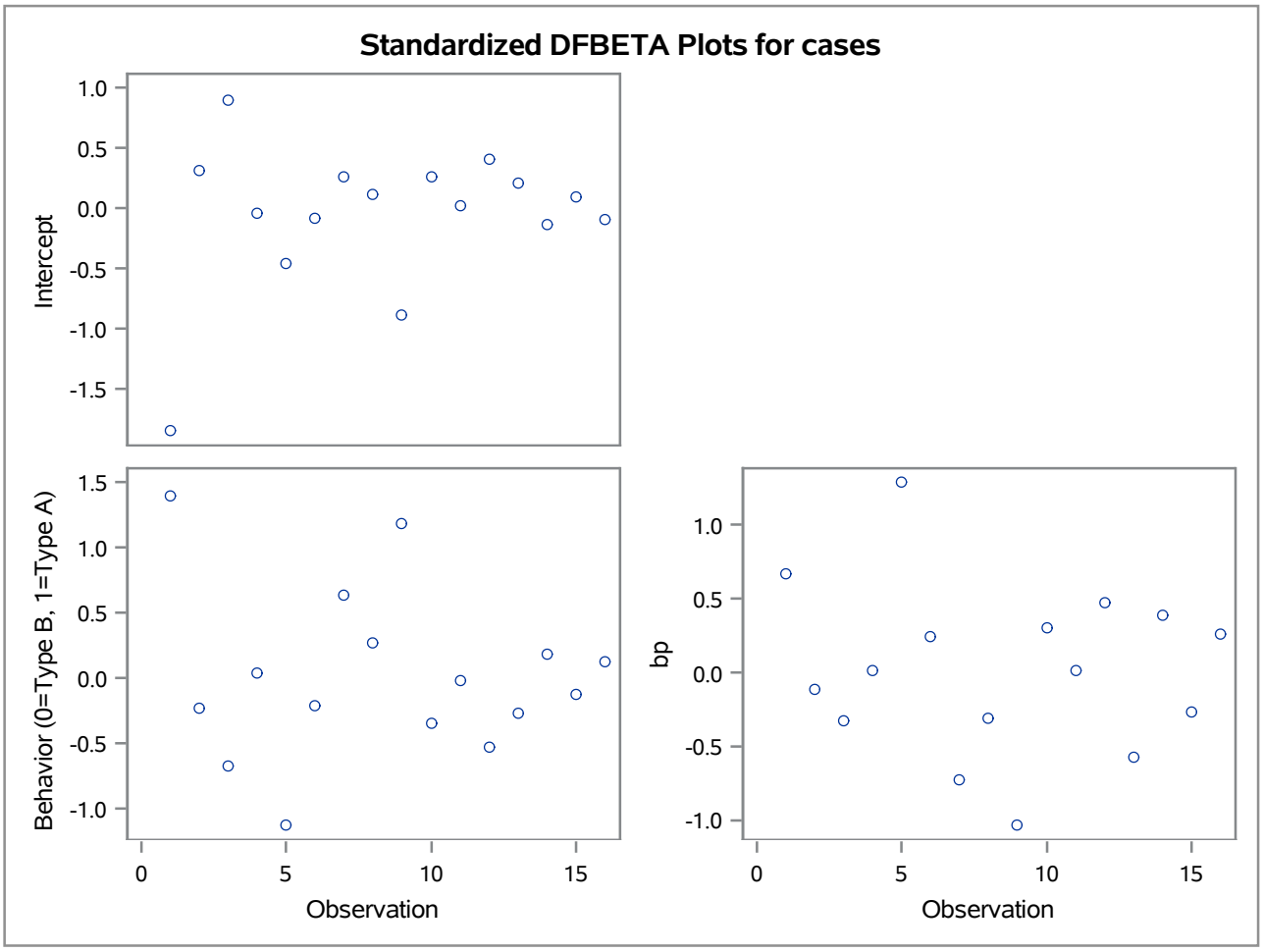
The GENMOD Procedure



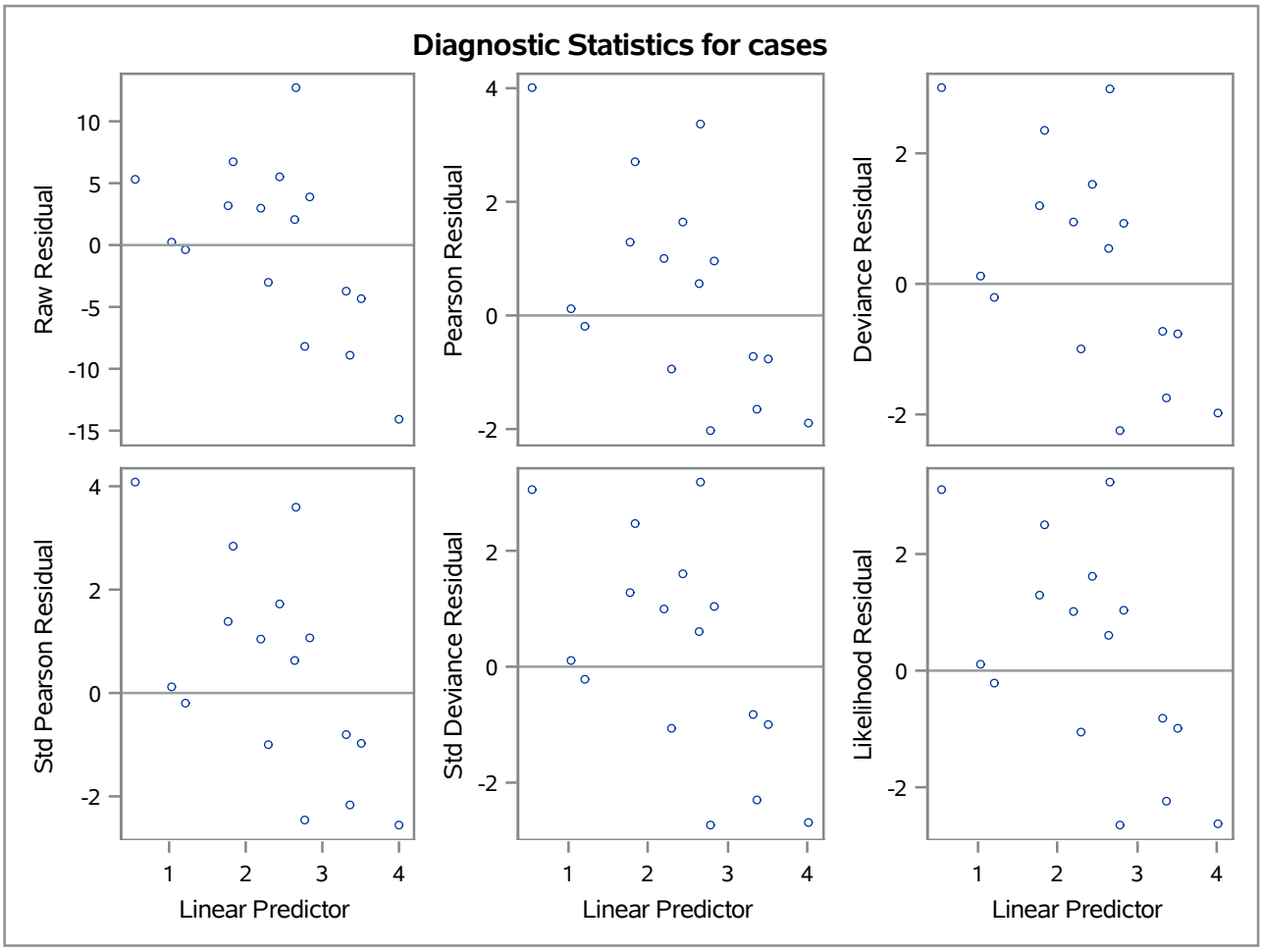
The GENMOD Procedure



The GENMOD Procedure



The GENMOD Procedure



The GENMOD Procedure

Model Information		
Data Set	WORK.A	
Distribution	Poisson	
Link Function	Log	
Dependent Variable	cases	Number of cases of CHD
Offset Variable	lpy	Log person-years

Number of Observations Read	16
Number of Observations Used	16

Criteria For Assessing Goodness Of Fit			
Criterion	**DF**	**Value**	**Value/DF**
Deviance	12	21.2397	1.7700
Scaled Deviance	12	11.5092	0.9591
Pearson Chi-Square	12	22.1455	1.8455
Scaled Pearson X2	12	12.0000	1.0000
Log Likelihood		269.4905	
Full Log Likelihood		-45.7730	
AIC (smaller is better)		99.5459	
AICC (smaller is better)		103.1823	
BIC (smaller is better)		102.6363	

Algorithm converged.

Analysis Of Maximum Likelihood Parameter Estimates							
Parameter	**DF**	**Estimate**	**Standard Error**	**Wald 95% Confidence Limits**		**Wald Chi-Square**	**Pr > ChiSq**
Intercept	1	-5.4202	0.1777	-5.7685	-5.0719	930.28	<.0001
smoking	1	0.0273	0.0076	0.0124	0.0423	12.85	0.0003
personality	1	0.7526	0.1850	0.3899	1.1152	16.54	<.0001
bp	1	0.7534	0.1756	0.4093	1.0975	18.41	<.0001
Scale	0	1.3585	0.0000	1.3585	1.3585		

Note: The scale parameter was estimated by the square root of Pearson's Chi-Square/DOF.

The GENMOD Procedure

Model Information		
Data Set	WORK.A	
Distribution	Negative Binomial	
Link Function	Log	
Dependent Variable	cases	Number of cases of CHD
Offset Variable	lpy	Log person-years

Number of Observations Read	16
Number of Observations Used	16

Criteria For Assessing Goodness Of Fit			
Criterion	**DF**	**Value**	**Value/DF**
Deviance	12	21.0695	1.7558
Scaled Deviance	12	21.0695	1.7558
Pearson Chi-Square	12	21.9672	1.8306
Scaled Pearson X2	12	21.9672	1.8306
Log Likelihood		497.3332	
Full Log Likelihood		-45.7727	
AIC (smaller is better)		101.5454	
AICC (smaller is better)		107.5454	
BIC (smaller is better)		105.4083	

Algorithm converged.

Analysis Of Maximum Likelihood Parameter Estimates							
Parameter	**DF**	**Estimate**	**Standard Error**	**Wald 95% Confidence Limits**		**Wald Chi-Square**	**Pr > ChiSq**
Intercept	1	-5.4195	0.1348	-5.6837	-5.1553	1616.82	<.0001
smoking	1	0.0274	0.0057	0.0162	0.0385	23.27	<.0001
personality	1	0.7519	0.1402	0.4771	1.0267	28.76	<.0001
bp	1	0.7530	0.1308	0.4966	1.0095	33.13	<.0001
Dispersion	1	0.0007	0.0290	0.0000	8.405E33		

Note: The negative binomial dispersion parameter was estimated by maximum likelihood.

The NLMIXED Procedure

Specifications	
Data Set	WORK.A
Dependent Variable	cases
Distribution for Dependent Variable	Poisson
Random Effects	e
Distribution for Random Effects	Normal
Subject Variable	id
Optimization Technique	Dual Quasi-Newton
Integration Method	Adaptive Gaussian Quadrature

Dimensions	
Observations Used	16
Observations Not Used	0
Total Observations	16
Subjects	16
Max Obs per Subject	1
Parameters	5
Quadrature Points	5

Initial Parameters					
b_1	**b_smoking**	**b_personality**	**b_bp**	**logsigma**	**Negative Log Likelihood**
-5.42	0.027	0.75	0.75	0	57.3156913

Iteration History					
Iteration	**Calls**	**Negative Log Likelihood**	**Difference**	**Maximum Gradient**	**Slope**
1	6	57.2507815	0.06491	12.9749	-108.696
2	8	47.3824334	9.868348	19.1706	-147.055
3	11	47.1884218	0.194012	3.46099	-2.72149
4	13	46.6654469	0.522975	41.1311	-7.69464
5	15	46.2937667	0.37168	14.1203	-3.05642
6	18	46.1845467	0.10922	79.5334	-2.26756
7	22	45.9023225	0.282224	20.8730	-0.75448
8	26	45.8867781	0.015544	2.92795	-0.25687
9	30	45.8397366	0.047041	2.77789	-0.07503
10	32	45.8069979	0.032739	8.85486	-0.07334

The NLMIXED Procedure

Iteration History					
Iteration	Calls	Negative Log Likelihood	Difference	Maximum Gradient	Slope
11	35	45.7849208	0.022077	3.35076	-0.03855
12	38	45.7772920	0.007629	11.8549	-0.00513
13	41	45.7738402	0.003452	1.21010	-0.00590
14	44	45.7729216	0.000919	2.04018	-0.00047
15	47	45.7727015	0.00022	0.23668	-0.00043
16	50	45.7726777	0.000024	0.65208	-0.00002
17	53	45.7726662	0.000012	0.095348	-0.00002
18	56	45.7726652	9.822E-7	0.012697	-1.52E-6
19	59	45.7726651	6.789E-8	0.001170	-1.31E-7

NOTE: GCONV convergence criterion satisfied.

Fit Statistics	
-2 Log Likelihood	91.5
AIC (smaller is better)	101.5
AICC (smaller is better)	107.5
BIC (smaller is better)	105.4

Parameter Estimates								
Parameter	Estimate	Standard Error	DF	t Value	Pr > |t|	95% Confidence Limits		Gradient
b_1	-5.4198	0.1326	15	-40.87	<.0001	-5.7025	-5.1371	0.000276
b_smoking	0.02735	0.005674	15	4.82	0.0002	0.01526	0.03945	0.001170
b_personality	0.7518	0.1405	15	5.35	<.0001	0.4524	1.0513	0.000325
b_bp	0.7530	0.1310	15	5.75	<.0001	0.4738	1.0322	0.000099
logsigma	-3.6148	20.8152	15	-0.17	0.8645	-47.9815	40.7518	1.279E-6

The NLMIXED Procedure

Specifications	
Data Set	WORK.A
Dependent Variable	cases
Distribution for Dependent Variable	Poisson
Random Effects	e
Distribution for Random Effects	Normal
Subject Variable	id
Optimization Technique	Dual Quasi-Newton
Integration Method	Adaptive Gaussian Quadrature

Dimensions	
Observations Used	16
Observations Not Used	0
Total Observations	16
Subjects	16
Max Obs per Subject	1
Parameters	5
Quadrature Points	5

Initial Parameters					
b_1	**b_smoking**	**b_personality**	**b_bp**	**logsigma**	**Negative Log Likelihood**
-5.42	0.027	0.75	0.75	0	57.3156913

Iteration History					
Iteration	**Calls**	**Negative Log Likelihood**	**Difference**	**Maximum Gradient**	**Slope**
1	6	57.2507815	0.06491	12.9749	-108.696
2	8	47.3824334	9.868348	19.1706	-147.055
3	11	47.1884218	0.194012	3.46099	-2.72149
4	13	46.6654469	0.522975	41.1311	-7.69464
5	15	46.2937667	0.37168	14.1203	-3.05642
6	18	46.1845467	0.10922	79.5334	-2.26756
7	22	45.9023225	0.282224	20.8730	-0.75448
8	26	45.8867781	0.015544	2.92795	-0.25687
9	30	45.8397366	0.047041	2.77789	-0.07503
10	32	45.8069979	0.032739	8.85486	-0.07334

The NLMIXED Procedure

Iteration History					
Iteration	Calls	Negative Log Likelihood	Difference	Maximum Gradient	Slope
11	35	45.7849208	0.022077	3.35076	-0.03855
12	38	45.7772920	0.007629	11.8549	-0.00513
13	41	45.7738402	0.003452	1.21010	-0.00590
14	44	45.7729216	0.000919	2.04018	-0.00047
15	47	45.7727015	0.00022	0.23668	-0.00043
16	50	45.7726777	0.000024	0.65208	-0.00002
17	53	45.7726662	0.000012	0.095348	-0.00002
18	56	45.7726652	9.822E-7	0.012697	-1.52E-6
19	59	45.7726651	6.789E-8	0.001170	-1.31E-7

NOTE: GCONV convergence criterion satisfied.

Fit Statistics	
-2 Log Likelihood	91.5
AIC (smaller is better)	101.5
AICC (smaller is better)	107.5
BIC (smaller is better)	105.4

Parameter Estimates								
Parameter	Estimate	Standard Error	DF	t Value	Pr > |t|	95% Confidence Limits		Gradient
b_1	-5.4198	0.1196	15	-45.30	<.0001	-5.6748	-5.1648	0.000276
b_smoking	0.02735	0.005798	15	4.72	0.0003	0.01500	0.03971	0.001170
b_personality	0.7518	0.1486	15	5.06	0.0001	0.4352	1.0685	0.000325
b_bp	0.7530	0.1504	15	5.01	0.0002	0.4325	1.0736	0.000099
logsigma	-3.6148	24.2415	15	-0.15	0.8834	-55.2844	48.0548	1.279E-6