Prospective Study

The FREQ Procedure

Frequency Percent Row Pct Col Pct	Table of Exposure by Response		
	Response(Exam Status)		
Exposure	Pass	Fail	Total
Crane C.	2000 25.00 50.00 48.78	2000 25.00 50.00 51.28	4000 50.00
Eagle C.	2100 26.25 52.50 51.22	1900 23.75 47.50 48.72	4000 50.00
Total	4100 51.25	3900 48.75	8000 100.00

Statistics for Table of Exposure by Response

Statistic	DF	Value	Prob
Chi-Square	1	5.0031	0.0253
Likelihood Ratio Chi-Square	1	5.0036	0.0253
Continuity Adj. Chi-Square	1	4.9036	0.0268
Mantel-Haenszel Chi-Square	1	5.0025	0.0253
Phi Coefficient		-0.0250	
Contingency Coefficient		0.0250	
Cramer's V		-0.0250	

Pearson Chi-Square Test	
Chi-Square	5.0031
DF	1
Asymptotic Pr > ChiSq	0.0253
Exact Pr >= ChiSq	0.0268

Fisher's Exact Test	
Cell (1,1) Frequency (F)	2000
Left-sided Pr <= F	0.0134
Right-sided Pr >= F	0.9881

Table Probability (P)	0.0015
Two-sided Pr <= P	0.0268

Column 1 Risk Estimates						
	Risk	**ASE**	**95% Confidence Limits**		**Exact 95% Confidence Limits**	
Row 1	0.5000	0.0079	0.4845	0.5155	0.4844	0.5156
Row 2	0.5250	0.0079	0.5095	0.5405	0.5094	0.5406
Total	0.5125	0.0056	0.5015	0.5235	0.5015	0.5235
Difference	-0.0250	0.0112	-0.0469	-0.0031		
Difference is (Row 1 - Row 2)						

Risk Difference Test	
H0: P1 - P2 = 0 Wald Method	
Risk Difference	-0.0250
ASE (H0)	0.0112
Z	-2.2368
One-sided Pr < Z	0.0127
Two-sided Pr > |Z|	0.0253
Column 1 (Response = Pass)	

Column 2 Risk Estimates						
	Risk	**ASE**	**95% Confidence Limits**		**Exact 95% Confidence Limits**	
Row 1	0.5000	0.0079	0.4845	0.5155	0.4844	0.5156
Row 2	0.4750	0.0079	0.4595	0.4905	0.4594	0.4906
Total	0.4875	0.0056	0.4765	0.4985	0.4765	0.4985
Difference	0.0250	0.0112	0.0031	0.0469		
Difference is (Row 1 - Row 2)						

Odds Ratio and Relative Risks			
Statistic	**Value**	**95% Confidence Limits**	
Odds Ratio	0.9048	0.8288	0.9877
Relative Risk (Column 1)	0.9524	0.9125	0.9940
Relative Risk (Column 2)	1.0526	1.0063	1.1010

Odds Ratio	
Odds Ratio	0.9048
Asymptotic Conf Limits	
95% Lower Conf Limit	0.8288
95% Upper Conf Limit	0.9877
Exact Conf Limits	
95% Lower Conf Limit	0.8280
95% Upper Conf Limit	0.9887

Sample Size = 8000

Prospective Study

The FREQ Procedure

Frequency Percent Row Pct Col Pct	Table 1 of Exposure by Response Controlling for Subject=Math		
	Response(Exam Status)		
Exposure	Pass	Fail	Total
Crane C.	1200 22.22 66.67 37.50	600 11.11 33.33 27.27	1800 33.33
Eagle C.	2000 37.04 55.56 62.50	1600 29.63 44.44 72.73	3600 66.67
Total	3200 59.26	2200 40.74	5400 100.00

Statistics for Table 1 of Exposure by Response Controlling for Subject=Math

Statistic	DF	Value	Prob
Chi-Square	1	61.3636	<.0001
Likelihood Ratio Chi-Square	1	62.1568	<.0001
Continuity Adj. Chi-Square	1	60.9043	<.0001
Mantel-Haenszel Chi-Square	1	61.3523	<.0001
Phi Coefficient		0.1066	
Contingency Coefficient		0.1060	
Cramer's V		0.1066	

Pearson Chi-Square Test	
Chi-Square	61.3636
DF	1
Asymptotic Pr > ChiSq	<.0001
Exact Pr >= ChiSq	<.0001

Fisher's Exact Test	
Cell (1,1) Frequency (F)	1200

Left-sided Pr <= F	1.0000
Right-sided Pr >= F	<.0001
Table Probability (P)	<.0001
Two-sided Pr <= P	<.0001

Column 1 Risk Estimates						
	Risk	ASE	95% Confidence Limits		Exact 95% Confidence Limits	
Row 1	0.6667	0.0111	0.6449	0.6884	0.6444	0.6884
Row 2	0.5556	0.0083	0.5393	0.5718	0.5391	0.5719
Total	0.5926	0.0067	0.5795	0.6057	0.5793	0.6057
Difference	0.1111	0.0139	0.0839	0.1383		
Difference is (Row 1 - Row 2)						

Risk Difference Test	
H0: P1 - P2 = 0 Wald Method	
Risk Difference	0.1111
ASE (H0)	0.0142
Z	7.8335
One-sided Pr > Z	<.0001
Two-sided Pr > |Z|	<.0001
Column 1 (Response = Pass)	

Column 2 Risk Estimates						
	Risk	ASE	95% Confidence Limits		Exact 95% Confidence Limits	
Row 1	0.3333	0.0111	0.3116	0.3551	0.3116	0.3556
Row 2	0.4444	0.0083	0.4282	0.4607	0.4281	0.4609
Total	0.4074	0.0067	0.3943	0.4205	0.3943	0.4207
Difference	-0.1111	0.0139	-0.1383	-0.0839		
Difference is (Row 1 - Row 2)						

Odds Ratio and Relative Risks			
Statistic	Value	95% Confidence Limits	
Odds Ratio	1.6000	1.4219	1.8004
Relative Risk (Column 1)	1.2000	1.1485	1.2538

Relative Risk (Column 2)	0.7500	0.6959	0.8083

Odds Ratio	
Odds Ratio	1.6000
Asymptotic Conf Limits	
95% Lower Conf Limit	1.4219
95% Upper Conf Limit	1.8004
Exact Conf Limits	
95% Lower Conf Limit	1.4196
95% Upper Conf Limit	1.8040

Sample Size = 5400

Frequency **Percent** **Row Pct** **Col Pct**	**Table 2 of Exposure by Response** **Controlling for Subject=Physics**		
	Response(Exam Status)		
Exposure	**Pass**	**Fail**	**Total**
Crane C.	800 30.77 36.36 88.89	1400 53.85 63.64 82.35	2200 84.62
Eagle C.	100 3.85 25.00 11.11	300 11.54 75.00 17.65	400 15.38
Total	900 34.62	1700 65.38	2600 100.00

Statistics for Table 2 of Exposure by Response
Controlling for Subject=Physics

Statistic	**DF**	**Value**	**Prob**
Chi-Square	1	19.3108	<.0001
Likelihood Ratio Chi-Square	1	20.1845	<.0001
Continuity Adj. Chi-Square	1	18.8119	<.0001
Mantel-Haenszel Chi-Square	1	19.3033	<.0001

Phi Coefficient		0.0862	
Contingency Coefficient		0.0859	
Cramer's V		0.0862	

Pearson Chi-Square Test	
Chi-Square	19.3108
DF	1
Asymptotic Pr > ChiSq	<.0001
Exact Pr >= ChiSq	<.0001

Fisher's Exact Test	
Cell (1,1) Frequency (F)	800
Left-sided Pr <= F	1.0000
Right-sided Pr >= F	<.0001
Table Probability (P)	<.0001
Two-sided Pr <= P	<.0001

Column 1 Risk Estimates						
	Risk	ASE	95% Confidence Limits		Exact 95% Confidence Limits	
Row 1	0.3636	0.0103	0.3435	0.3837	0.3435	0.3841
Row 2	0.2500	0.0217	0.2076	0.2924	0.2083	0.2954
Total	0.3462	0.0093	0.3279	0.3644	0.3279	0.3648
Difference	0.1136	0.0240	0.0667	0.1606		
Difference is (Row 1 - Row 2)						

Risk Difference Test	
H0: P1 - P2 = 0 Wald Method	
Risk Difference	0.1136
ASE (H0)	0.0259
Z	4.3944
One-sided Pr > Z	<.0001
Two-sided Pr > |Z|	<.0001
Column 1 (Response = Pass)	

Column 2 Risk Estimates				

	Risk	ASE	95% Confidence Limits		Exact 95% Confidence Limits	
Row 1	0.6364	0.0103	0.6163	0.6565	0.6159	0.6565
Row 2	0.7500	0.0217	0.7076	0.7924	0.7046	0.7917
Total	0.6538	0.0093	0.6356	0.6721	0.6352	0.6721
Difference	-0.1136	0.0240	-0.1606	-0.0667		
Difference is (Row 1 - Row 2)						

Odds Ratio and Relative Risks			
Statistic	Value	95% Confidence Limits	
Odds Ratio	1.7143	1.3453	2.1846
Relative Risk (Column 1)	1.4545	1.2167	1.7388
Relative Risk (Column 2)	0.8485	0.7952	0.9053

Odds Ratio	
Odds Ratio	1.7143
Asymptotic Conf Limits	
95% Lower Conf Limit	1.3453
95% Upper Conf Limit	2.1846
Exact Conf Limits	
95% Lower Conf Limit	1.3389
95% Upper Conf Limit	2.2076

Sample Size = 2600

Prospective Study

The FREQ Procedure

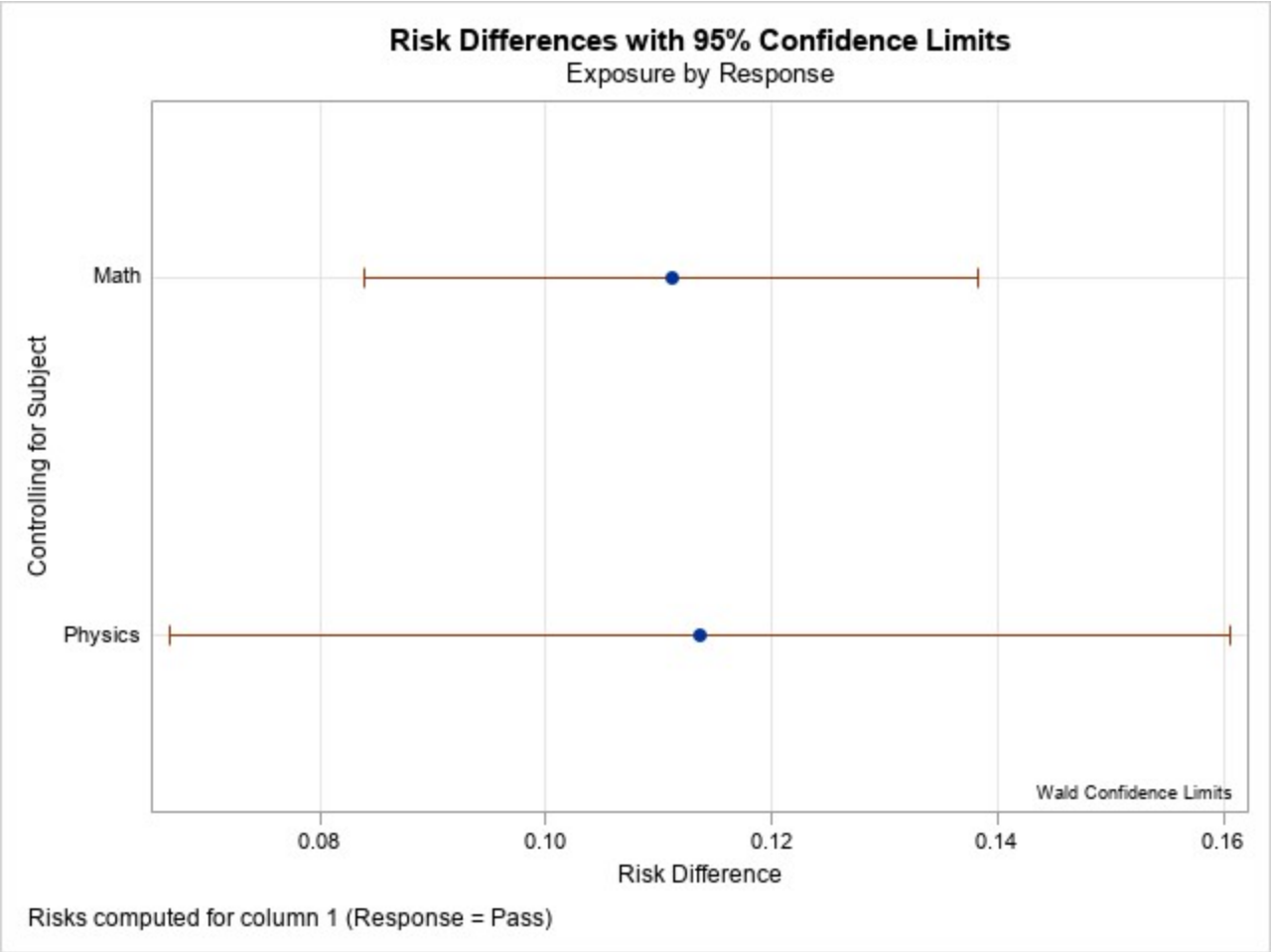
Summary Statistics for Exposure by Response Controlling for Subject

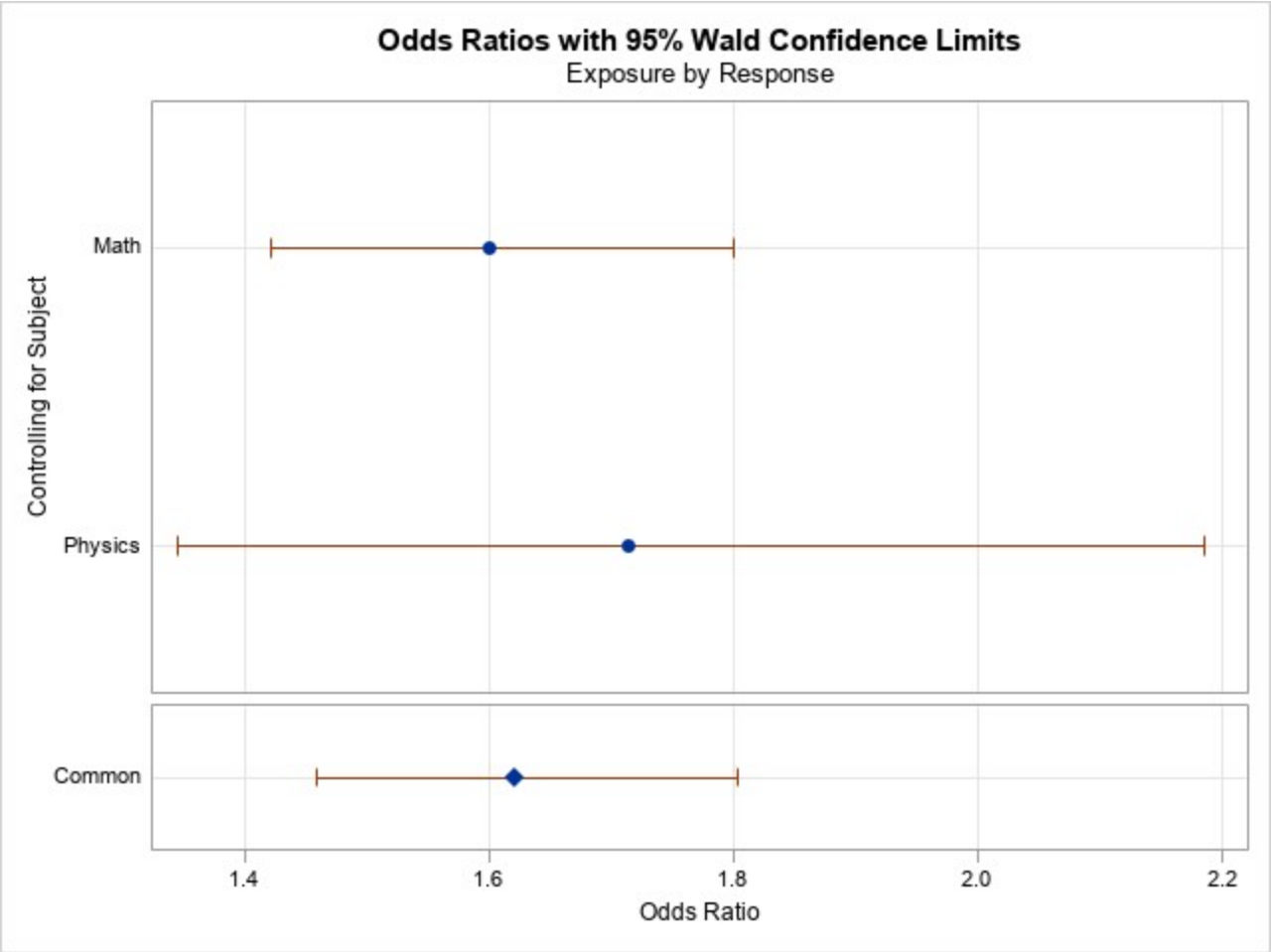
Cochran-Mantel-Haenszel Statistics (Based on Table Scores)				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	80.5500	<.0001
2	Row Mean Scores Differ	1	80.5500	<.0001
3	General Association	1	80.5500	<.0001

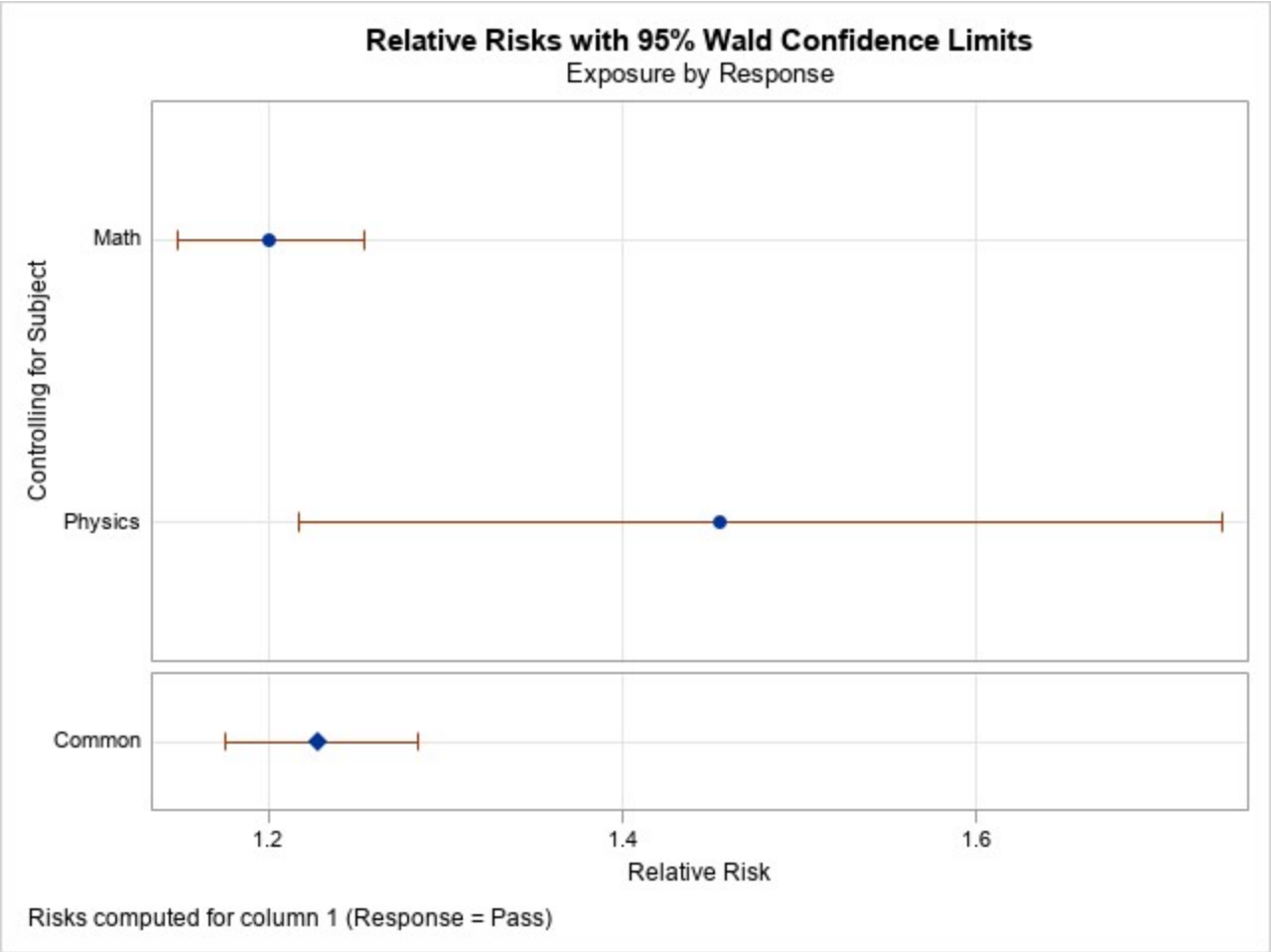
Common Odds Ratio and Relative Risks				
Statistic	Method	Value	95% Confidence Limits	
Odds Ratio	Mantel-Haenszel	1.6223	1.4590	1.8038
	Logit	1.6213	1.4581	1.8028
Relative Risk (Column 1)	Mantel-Haenszel	1.2287	1.1755	1.2842
	Logit	1.2132	1.1626	1.2659
Relative Risk (Column 2)	Mantel-Haenszel	0.7818	0.7405	0.8253
	Logit	0.8048	0.7663	0.8452

Breslow-Day Test for Homogeneity of Odds Ratios	
Chi-Square	0.2517
DF	1
Pr > ChiSq	0.6159

Total Sample Size = 8000


Risk Differences with 95% Confidence Limits
Exposure by Response
Math
Physics
Controlling for Subject
Wald Confidence Limits
0.08
0.10
0.12
0.14
0.16
Risk Difference
Risks computed for column 1 (Response = Pass)


Odds Ratios with 95% Wald Confidence Limits
Exposure by Response
Controlling for Subject
Math
Physics
Common
1.4
1.6
1.8
2.0
2.2
Odds Ratio


Relative Risks with 95% Wald Confidence Limits
Exposure by Response
Controlling for Subject
Math
Physics
Common
1.2
1.4
1.6
Relative Risk
Risks computed for column 1 (Response = Pass)