Example: Disagreement among the Exact CI for the difference in proportions and Fisher's Exact Test

Treatment	Event	No Event	Total
A	10	990	1,000
B	1	999	1,000

Such data could occur in clinical trials that compare a new treatment to a control treatment for a rare serious adverse event or for vaccine trials where small numbers of patients have an occurrence of the disease to be prevented.

```
proc freq order=data;
   weight count;
   tables treat*event/chisq riskdiff(cl=(newcombe) correct);
   exact or riskdiff;
run;
```

Exact and Newcombe Corrected 95% CI for Difference in Proportion

```
  Confidence Limits for the Proportion (Risk) Difference
                  Column 1 (event = 1)
            Proportion Difference = 0.0900


  Type                                95% Confidence Limits


  Exact                               -0.0353           0.0533
  Newcombe Score (Corrected)           0.0017           0.0180
```

Fisher's Exact Test

```
                  Fisher's Exact Test
  _____
        Cell (1,1) Frequency (F)          10
        Left-sided Pr <= F            0.9995
        Right-sided Pr >= F           0.0058

        Table Probability (P)         0.0053
        Two-sided Pr <= P             0.0115
```

• The Exact 95% CI provides a conclusion which conflicts with both Fisher's Exact Test and the Newcombe continuity-corrected 95% CI.

• Fisher's Exact Test provides a p-value below 0.05 and the Newcombe continuity-corrected 95% CI does not contain zero, yet the Exact 95% CI does include 0.

Exact Odds Ratio

```
        Odds Ratio (Case-Control Study)
─────────────────────────────────────────────

Odds Ratio                          10.0909

Asymptotic Conf Limits
95% Lower Conf Limit                 1.2893
95% Upper Conf Limit                78.9757

Exact Conf Limits
95% Lower Conf Limit                 1.4296
95% Upper Conf Limit               438.3505
```

- Note that the 95% exact CI for the odds ratio does not include 1, even though the exact CI for the difference in proportion did include 0. This result is more consistent with that which we obtained from Fisher's Exact Test and the Newcombe continuity-corrected 95% CI.

- Additionally, because the proportion of the sample having the event is so small, the odds ratio approximates the risk ratio. Thus, we can interpret this exact odds ratio confidence interval for the risk ratio as well.