

Graphic Display for Confidence-Intervals, Power & Meaningful Clinical Benefit:  
Advice to Readers on How to Stop Worrying about Power and Start Using  
Confidence Intervals & Using Confidence Intervals to Evaluate Clinical Benefit  
of Statistically Significant Findings

*Delfini Group,™ LLC*

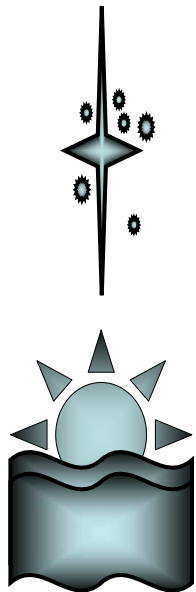


*Evidence- & Value-based Solutions For Health Care*

*Clinical Improvement Consults, Content, Seminars, Training & Tools*

*Michael Stuart, MD*  
*President*

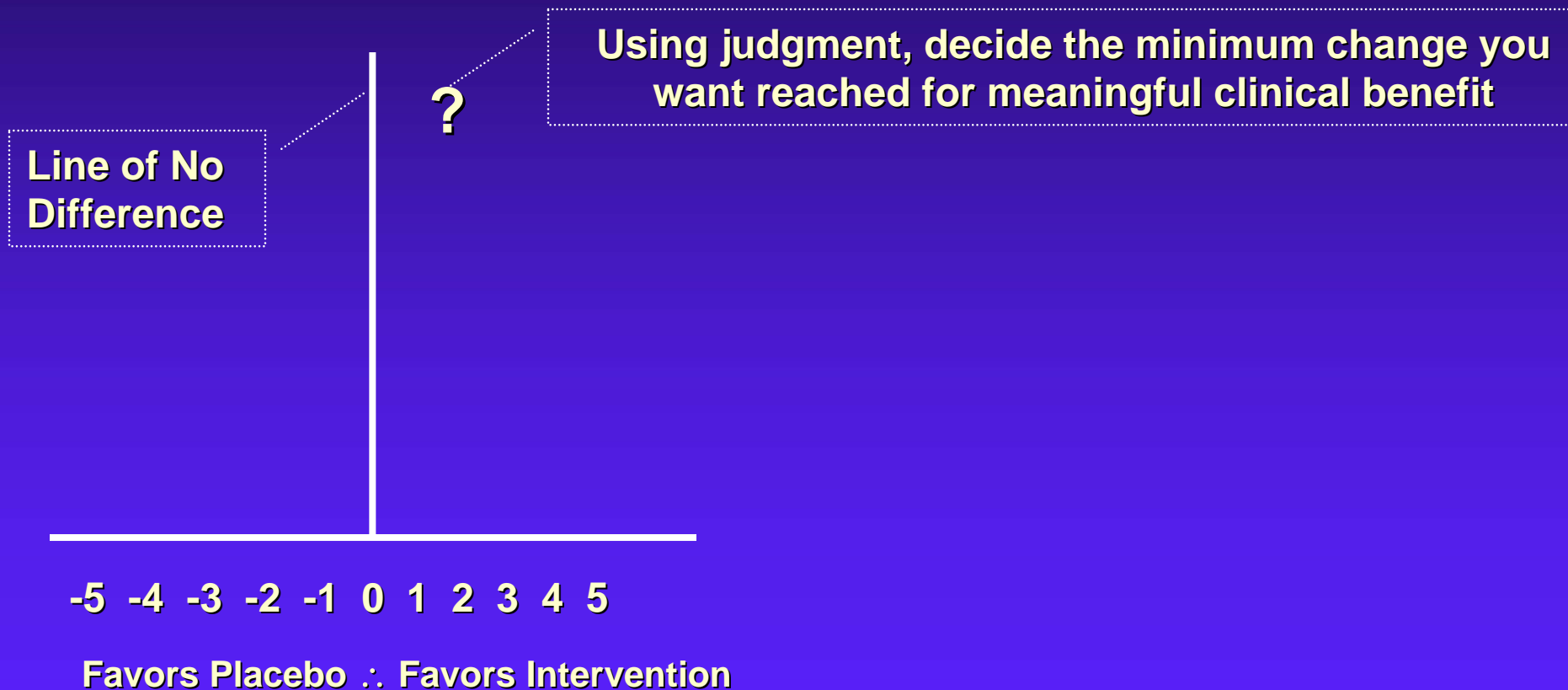
*Sheri Ann Strite*  
*Principal & Managing Partner*



[www.delfini.org](http://www.delfini.org)

# Applying Confidence Intervals to Decide Meaningful Clinical Benefit

- ◆ Endpoint = Reduction in mortality



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This is now your *own* line of the minimum you want to see reached for meaningful clinical benefit

## Exercises:

1. ARR 2, 95 CI (1, 3)
2. ARR 2, 95 CI (.5, 3.5)
3. ARR 2, 95 CI (-1, 5)
4. ARR 0, CI (-.75, .75) 95

-5 -4 -3 -2 -1 0 1 2 3 4 5

Favors Placebo ∴ Favors Intervention

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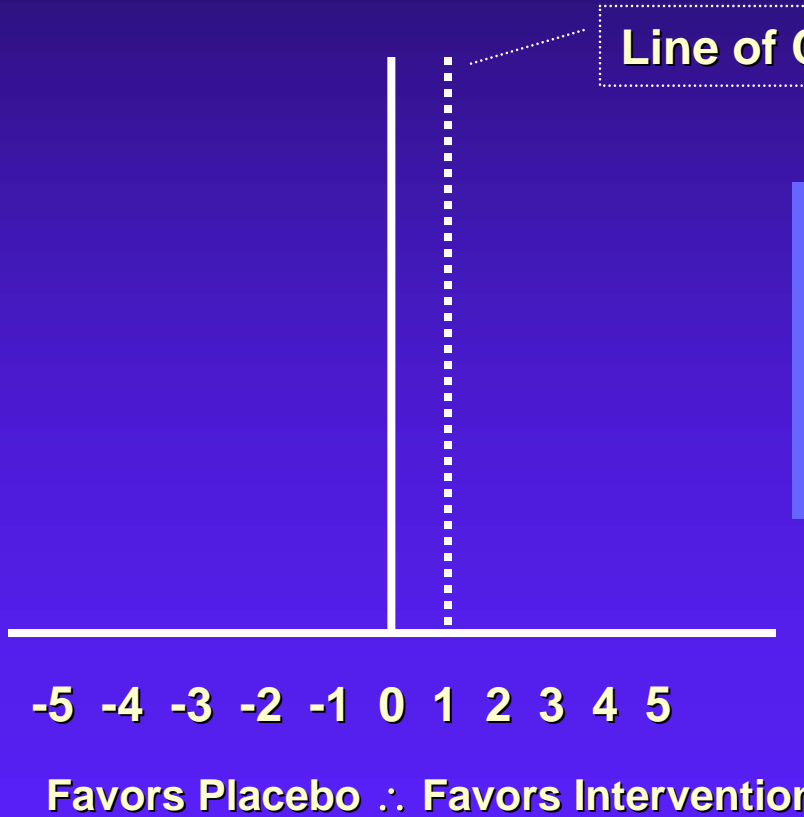
- ◆ Endpoint = Reduction in mortality

Line of Clinical Significance

## Exercise:

1. ARR 2, 95 CI (1, 3)

- Statistically significant or not?
- Clinically significant or not?



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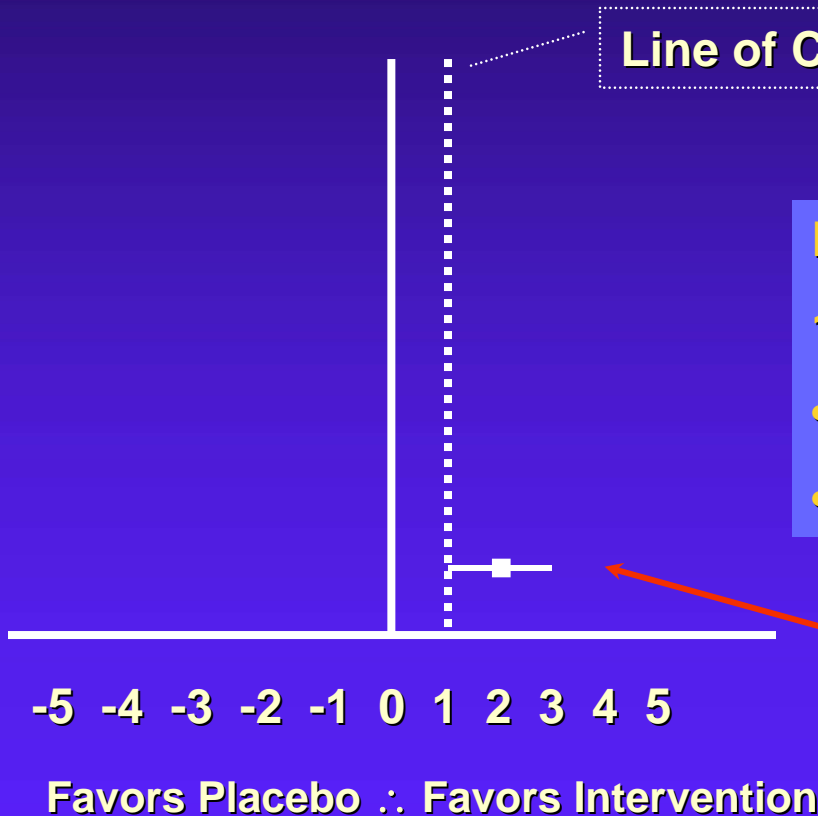
- ◆ Endpoint = Reduction in mortality

Line of Clinical Significance

## Exercise:

1. ARR 2, 95 CI (1, 3)

- Statistically significant - yes
- Clinically significant - yes



All statistically plausibly true results, within 95% confidence, are above your line of clinical significance

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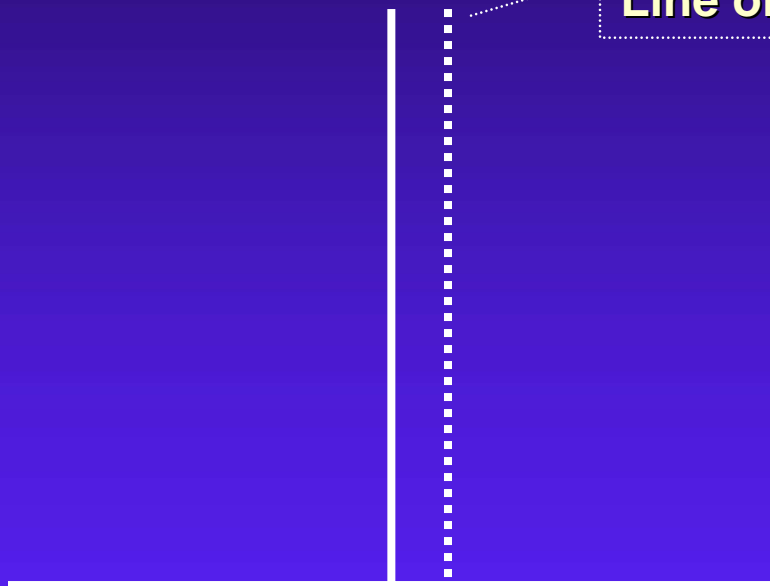
- ◆ Endpoint = Reduction in mortality

Line of Clinical Significance

**Exercise:**

2. ARR 2, 95 CI (.5, 3.5)

- Statistically significant or not?
- Clinically significant or not?



-5 -4 -3 -2 -1 0 1 2 3 4 5

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Line of Clinical Significance

### Exercise:

2. ARR 2, 95 CI (.5, 3.5)

- Statistically significant - yes
- Clinically significant – inconclusive

It is possible that the true value does not reach the boundary for your minimally acceptable clinical significance



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Line of Clinical Significance

Exercise:

3. ARR 2, 95 CI (-1, 5)

- Statistically significant or not?

-5 -4 -3 -2 -1 0 1 2 3 4 5

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# Applying Confidence Intervals to Decide Meaningful Clinical Benefit

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Line of Clinical Significance

**Exercise:**

**3. ARR 2, 95 CI (-1, 5)**

- Not statistically significant
- When findings are not statistically significant, what should our next question be?

-5 -4 -3 -2 -1 0 1 2 3 4 5

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Line of Clinical Significance



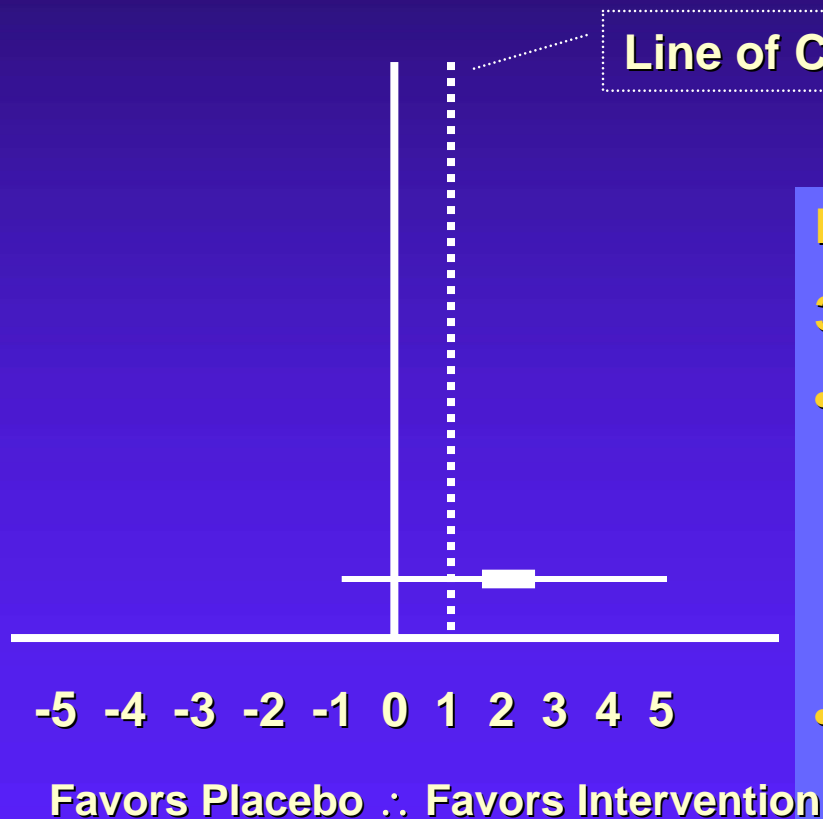
### Exercise:

#### 3. ARR 2, 95 CI (-1, 5)

- Not statistically significant
- When findings are not statistically significant, what should our next question be?
  - Is it true there is no difference?
  - Or did they not have enough people to show one?

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Line of Clinical Significance

### Exercise:

#### 3. ARR 2, 95 CI (-1, 5)

- Not statistically significant
  - Is it true there is no difference?
  - Or did they not have enough people to show one?
- Inconclusive that there is no difference **since** it is possible there could be benefit meeting your criteria

# Applying Confidence Intervals to Decide Meaningful Clinical Benefit

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Line of Clinical Significance

## Exercise:

4. ARR 0, CI (-.75, .75) 95

- Not statistically significant
- When findings are not statistically significant, what should our next question be?

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Favors Placebo ∴ Favors Intervention

# Applying Confidence Intervals to Decide Meaningful Clinical Benefit

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Line of Clinical Significance



### Exercise:

#### 4. ARR 0, CI (-.75, .75) 95

- Not statistically significant
- When findings are not statistically significant, what should our next question be?
  - Is it true there is no difference?
  - Or did they not have enough people to show one?

