

- A clinical psychologist wants to test hypothesis (H1) that people who seek treatment have higher IQs than general population. She wants to use IQs of 25 randomly sample patients and is interested in a difference of 5 points between the mean of the general population and the mean of her client population.

So, $\mu_0 = 100$, $\mu_1 = 105$, $\sigma = 15$

$$d = \frac{105-100}{15} = 0.33$$

$$\delta = 0.33 \sqrt{25} = 0.33 (5) = 1.65$$

Power as a function of δ for $\alpha=0.05$

δ	$\alpha = 0.05$
1.4	0.29
1.5	0.32
1.6	0.36
1.7	0.4
1.8	0.44
1.9	0.48
2	0.52
2.1	0.56

So, for $\delta=1.65$, power is about 0.38