

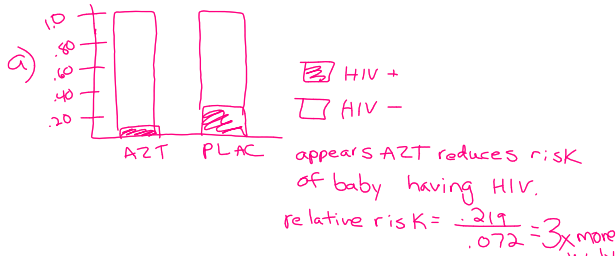
21-13

	AZT	PLAC	
HIV	13	40	53
NOT			
	180	183	363

$$\hat{p}_{AZT} = \frac{13}{180} = .072$$

$$\hat{p}_{PLAC} = \frac{40}{183} = .219$$

$$\hat{p}_c = \frac{53}{363} = .146$$



b) women were randomly assigned to the AZT and placebo groups.

$$180(.146) \geq 5$$

$$180(1-.146) \geq 5$$

$$183(.146) \geq 5$$

$$183(1-.146) \geq 5$$

c) p_{AZT} = prop. of babies born w/ HIV to all possible women w/ HIV who could take AZT.

p_{PLAC} = " " " " " " take placebo.

$H_0: p_{AZT} = p_{PLAC}$ (AZT is not effective)

$H_a: p_{AZT} < p_{PLAC}$ (AZT reduces prop. of HIV+ babies)

$$z = \frac{.072 - .219}{\sqrt{.146(1-.146)\left(\frac{1}{180} + \frac{1}{183}\right)}} = -3.94$$

$P(z < -3.94) \approx 0$

With a p-value of ≈ 0 , this is sign. at $\alpha = .01$. There's enough evidence to reject H_0 . It appears AZT is more effective than a placebo at reducing mother-to-infant transmission of HIV.

$$d) \underset{-.147}{(.072 - .219)} \pm 2.576 \sqrt{\frac{.072(1-.072)}{180} + \frac{.219(1-.219)}{183}}$$

$$(-.24, -.05)$$

I'm 99% confident the prop. of babies born HIV+ to potential AZT takers is between .05 -.24 less than potential placebo takers.

e) AZT is (based on this exp.) working:

- rejected H_0 that the prop. of HIV+ babies is = for AZT + plac.
- 0 is not in the 99% conf. int., indicating there probably is a difference \rightarrow both endpoints. negative, so AZT lowers prop.