

Student Worksheet: Calculating Vaccine Efficacy | Answer Key

Vaccine 1

Group	% of Trial Participants	
	Got Disease	Stayed Healthy
Got Vaccine 1	20	80
Got Placebo	40	60

$$\frac{40\% - 20\%}{40\%} = \frac{20\%}{40\%} = 0.5 \quad \text{Vaccine 1 has 50\% efficacy}$$

Vaccine 2

Group	% of Trial Participants	
	Got Disease	Stayed Healthy
Got Vaccine 2	10	90
Got Placebo	30	70

$$\frac{30\% - 10\%}{30\%} = \frac{20\%}{30\%} = 0.67 \quad \text{Vaccine 2 has 67\% efficacy}$$

Vaccine 3

Group	% of Trial Participants	
	Got Disease	Stayed Healthy
Got Vaccine 3	23	77
Got Placebo	25	75

$$\frac{25\% - 23\%}{25\%} = \frac{2\%}{25\%} = .08$$

Vaccine 3 has 8% efficacy; it would be useful to test larger numbers of people with this vaccine to see if it worked. Since the numbers are so close, the improvement may not be statistically significant.

Vaccine 4

Group	% of Trial Participants	
	Got Disease	Stayed Healthy
Got Vaccine 4	3	97
Got Placebo	60	40

$$\frac{60\% - 3\%}{60\%} = \frac{57\%}{60\%} = 0.95 \quad \text{Vaccine 4 has 95\% efficacy}$$