

1. Perform the following calculations:

- a. Based on the data set provided, calculate the average percentage of patients with uncontrolled diabetes (HbA1c>7) both pre-implementation and post-implementation.

Pre-intervention:

$$\frac{9}{10} = 90\%$$

Post-intervention

$$\frac{5}{10} = 50\%$$

- b. Next, calculate the mean pre-implementation and post-implementation HbA1c values for patients involved in this practice change project.

Pre-intervention:

$$\frac{\sum \text{Pre intervention Outcomes}}{n}$$

$$\frac{7.4 + 7.8 + 7.1 + 6.8 + 7.4 + 7.8 + 7.8 + 8.2 + 7.5 + 11.8}{10}$$

$$\frac{79.6}{10} = 7.96$$

Mean is 7.96

Post-intervention

$$\frac{\sum \text{Post intervention Outcomes}}{n}$$

$$\frac{6.4 + 6.7 + 6.7 + 6.8 + 6.9 + 7.1 + 7.4 + 7.7 + 8 + 11.3}{10}$$

$$\frac{75}{10} = 7.5$$

Mean is 7.5

- c. Now calculate the pre-implementation and post-implementation median score of HbA1c levels.

Pre-implementation:

6.8, 7.1, 7.4, 7.4, 7.5, 7.8, 7.8, 8.2, 11.8

$$\text{Median} = \frac{7.5 + 7.8}{2} = 7.65$$

Median is 7.65

Post-implementation:

6.4, 6.7, 6.7, 6.8, 6.9, 7.1, 7.4, 7.7, 8, 11.3

$$\text{Median} = \frac{6.9 + 7.1}{2} = 7$$

Median is 7

- d. Next, calculate the pre-implementation and post-implementation standard deviation of HbA1c levels of patients involved in the practice change project. The standard deviation will determine the spread of increase or decrease in HbA1c levels.

Pre-implementation

$$s^2 = \sum_{i=1}^n (x_i - \bar{x})^2$$