Group	Test / Model	When to Use	Medical Example
Comparision of Proportions	**Z-test for one proportion**	Compare one sample proportion to a known value	Proportion of vaccinated individuals vs. national target
	Binomial test	Same as above, but with small samples	Testing if 3 out of 5 patients show improvement is statistically significant
	Z-test for two proportions	Compare two independent proportions	Compare infection rates in vaccinated vs. unvaccinated groups
	Fisher's Exact Test	Compare proportions in small samples	Compare side effect incidence between two drugs with n<30
	Chi-square test	Compare proportions across ≥2 groups	Compare smoking status (yes/no) across 3 different regions
	McNemar's test	Compare paired proportions	Change in diagnostic test result (positive/negative) before vs. after treatment
Comparision of Means	**One-sample t-test**	Compare sample mean to a known value	Compare average blood glucose to 100 mg/dL
	One-sample Wilcoxon signed-rank	Same as above, nonparametric	Compare median recovery time to known benchmark
	Independent t-test	Compare means of two independent groups	Compare systolic BP between males and females
	Mann–Whitney U test	Same as above, nonparametric	Compare pain scores between two treatments
	Paired t-test	Compare means in paired samples	Compare pre- and post-intervention cholesterol levels
	Wilcoxon signed-rank test	Same as above, nonparametric	Compare before-after anxiety scores
	One-way ANOVA	Compare means across ≥3 independent groups	Compare BMI across 3 dietary groups
	Kruskal–Wallis test	Same as above, nonparametric	Compare median recovery time in 3 clinics
	Repeated-measures ANOVA	Compare means across ≥3 related groups	Track hemoglobin across 3 follow-ups in same patients
	Friedman test	Same as above, nonparametric	Compare median heart rate at 3 time points in same patients