Aim 1: Learning curve for simulation based training.

Aim 2: Long term outcome of simulation based training.

Aim 3: Degree of simulation based training transfer to actual clinical skill.

Comparison

n=52
Each fifth-year student perform at least 5 trials of thoracentesis on simulator to achieve senior resident's level

n=50
Each student perform the re-test trials of thoracentesis on simulator

n=32
Post graduate year 1 resident without simulation based training experience perform their first thoracentesis on real patient.

n=42
Sixth-year medical student perform their first thoracentesis on real patient.