A regional hospital is considering the expansion of the ER to accommodate an expected increase in patient loads. Fixed (up-front) costs are equally likely to be any value between 1 and 1.5 million $. For the first year of the project, average variable cost per visit and revenue per visit are expected to be $55 and $165 respectively. The chief financial officer estimates that variable costs will increase between 5 and 6 percent per year due to inflation (inflation rate can change each year to a value between 5 and 6 percent. All values within this range are equally likely). However, because of growing regulatory pressure and managed care contracting, average revenue per visit is not expected to increase for the next five years.

Using a forecasting model to study the trend in demand for the ER, the hospital estimates that the mean volume of visits to the ER will increase by 2,000 visits per year during the next 5 years. This increase will have to be absorbed by the ER expansion, so **the mean** of the predicted volume for the expansion during the first year of operations is 2,000 visits; in year two it's 4,000 visits, and so on. They also estimate that these annual number of visits are normally distributed with a standard deviation of 250 visits. You may assume that a particular year's volume is independent of other years' number of visits. The hospital discounts future cash flows at 10 percent per year.

Analyze this problem using @RISK with 5,000 replications and answer the following questions:

a) What is the probability that the ER expansion generates positive net discounted profits at the end of the third year of operations?

b) Produce a graph showing the distribution of net discounted profits at the end of the fifth year of operations.

c) Give a 95% confidence interval for the net discounted profits at the end of the fifth year of operations.