GIVEN: 8 CASES of INVASIVE CANCER AND A total years of employment of the 145 teachers, teachers' Aides, AND staff members. The # of person-years According to National Cancer Institute statistics suggests that 4.2 cases of cancer could have been expected to occur among the teachers and staff, rather than the 8 actually reported

Assumptions: (1) 145 employees dev (or not) cancer independently (2) Chances of CANCER θ is the same for each employee. Therefor n, the # of cancers among the 145 employees, has a binomial distribution

$$p(n/\theta) = \binom{145}{n} \theta^{n} (1-\theta)^{145-n}$$ in which

$\left(\frac{145}{n}\right)$ is the combination of 145 things taken n at a time

Assume uniform distribution $[0,1]$

$f(\theta) = 1.0$ for $0 \leq \theta \leq 1$

Uses bayes rule to update the prior distrib to a posterior distribution $f(\theta / n = 8)$ based on 8 observed cases