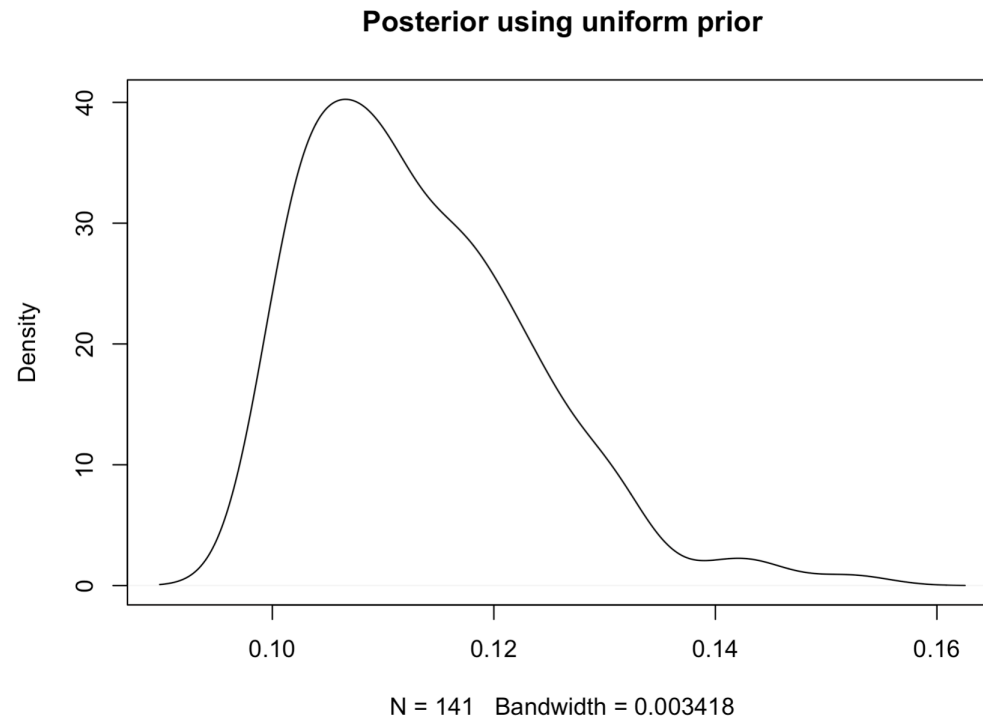


Assignment 3 – Brief solution

- Question 1 – Posterior distribution for θ
- Answer 1 – Non-standard distribution, can be obtained by simulation



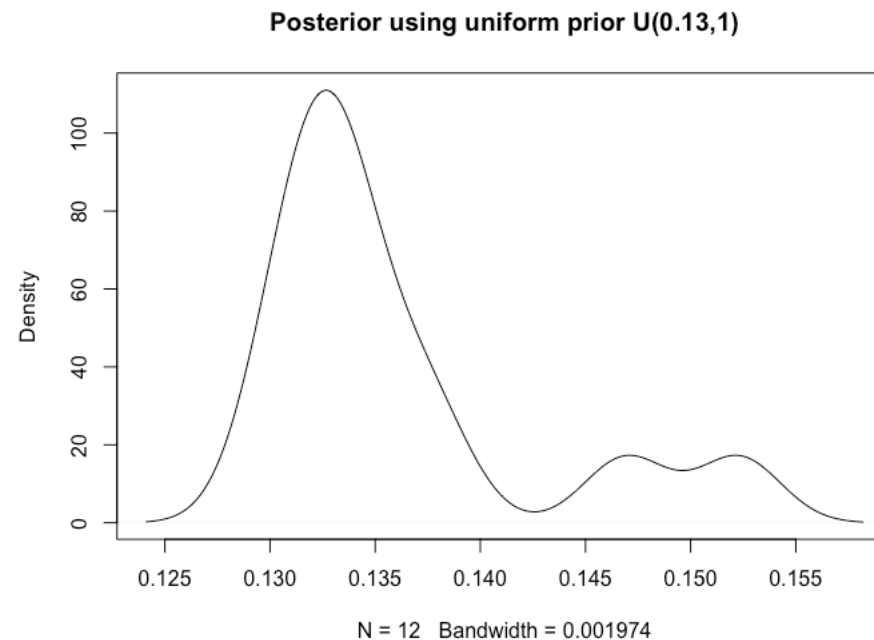
Questions and answers

- Question 2 – Estimate and 95% CI
- Answer 2 – Estimate = 11.3%, 95% CI = 10.0–13.7% (approximately)

*Answers might trivially differ.

Questions and answers

- Question 3 – Posterior distribution for θ , $0.13 < \theta < 1$
- Answer 3 – Non-standard distribution, can be obtained by simulation



Questions and answers

- Question 4 – Estimate and 95% CI
- Answer 4– Estimate = 13.6%, 95% CI = 13.0–15.1% (approximately)

Questions and answers

- Question 5 – $0.2 < \theta < 1$
- Answer 5 – If the uniform prior for asthma incidence is set between 0.2 and 1, based on the observed 60/568 cases, the posterior distribution for θ cannot be obtained. Prior is inconsistent with data. And an estimate for θ cannot be obtained.

Questions and answers

- Question 6 – Conclusion on selecting priors
- Answer 6 – Priors which are less consistent with data (e.g. Question 5) will have a larger impact on the posterior distribution and the final estimates.