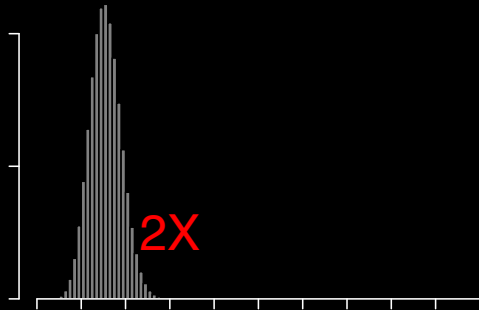


Summary

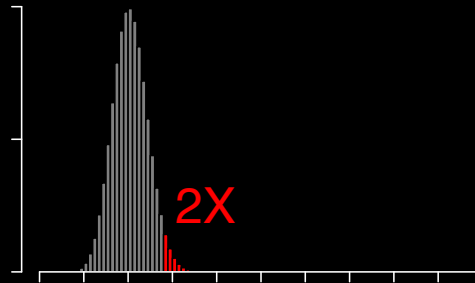
hypothetical
prevalence: 15 %

$p = 0.00123$



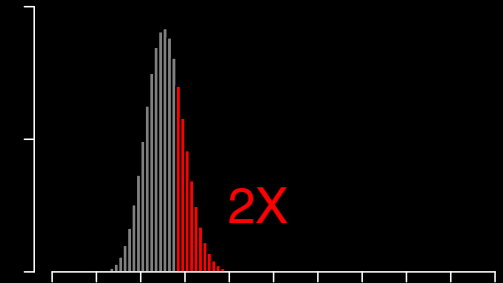
hypothetical
prevalence: 20 %

$p = 0.0683$



hypothetical
prevalence: 25 %

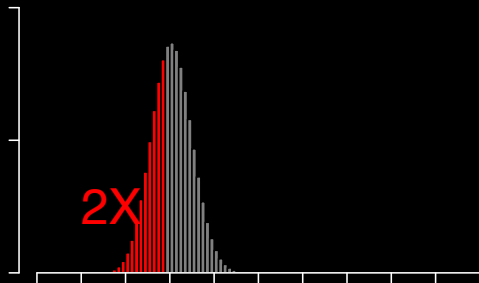
$p = 0.555$



probability

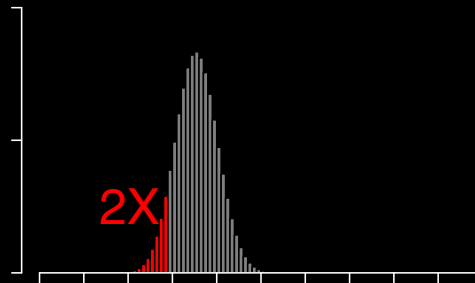
hypothetical
prevalence: 30 %

$p = 0.754$



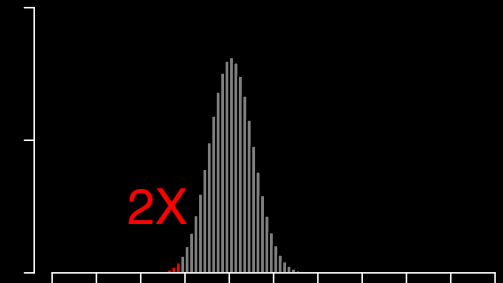
hypothetical
prevalence: 35 %

$p = 0.17$



hypothetical
prevalence: 40 %

$p = 0.0169$



number HIV+

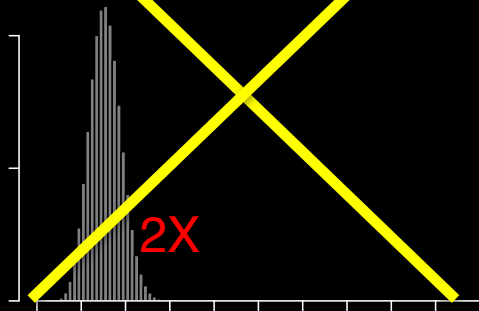


Which hypotheses do we reject?

probability

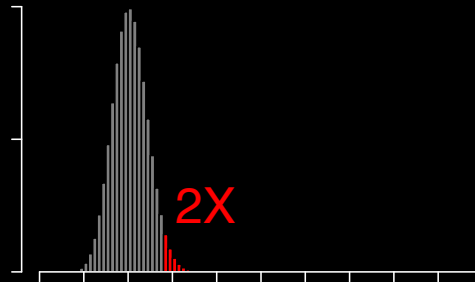
hypothetical prevalence: 15 %

$p = 0.00123$



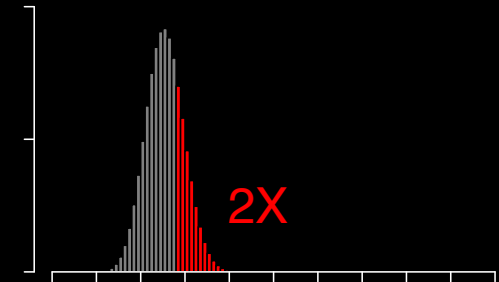
hypothetical prevalence: 20 %

$p = 0.0683$



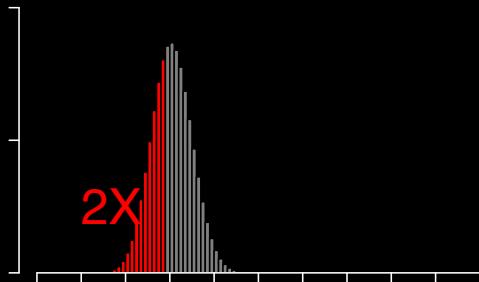
hypothetical prevalence: 25 %

$p = 0.555$



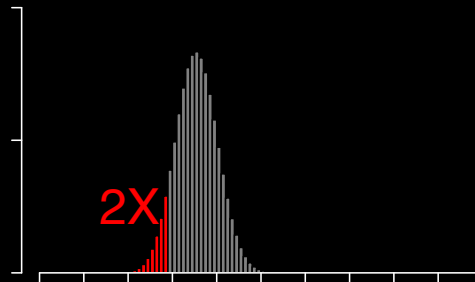
hypothetical prevalence: 30 %

$p = 0.754$



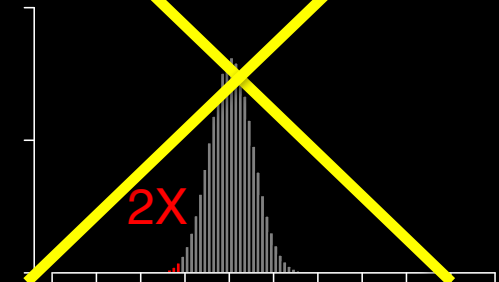
hypothetical prevalence: 35 %

$p = 0.17$



hypothetical prevalence: 40 %

$p = 0.0169$



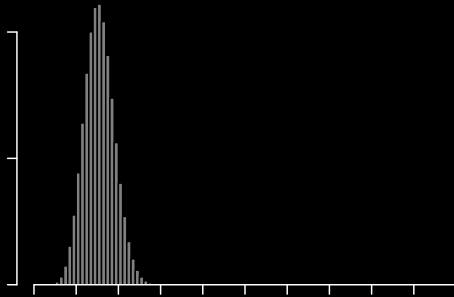
number HIV+



Which prevalence gives the greatest probability of observing **exactly** 28/100?

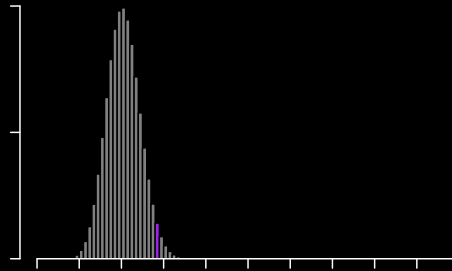
hypothetical prevalence: 15 %

0.000353



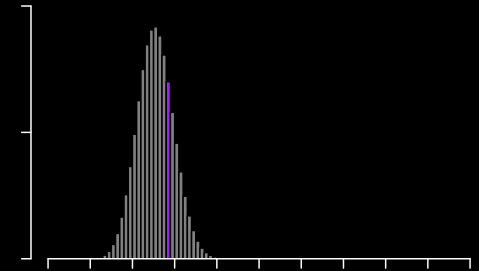
hypothetical prevalence: 20 %

0.0141



hypothetical prevalence: 25 %

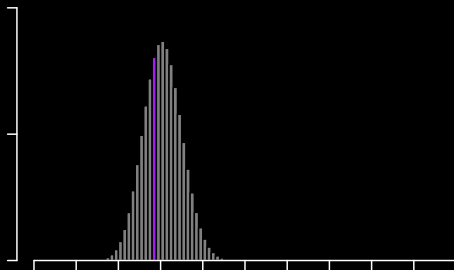
0.0701



probability

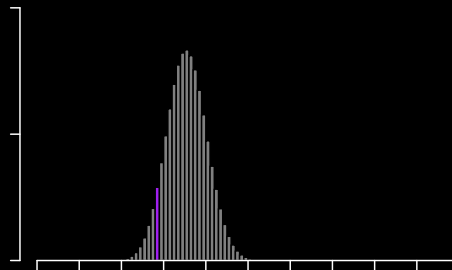
hypothetical prevalence: 30 %

0.0804



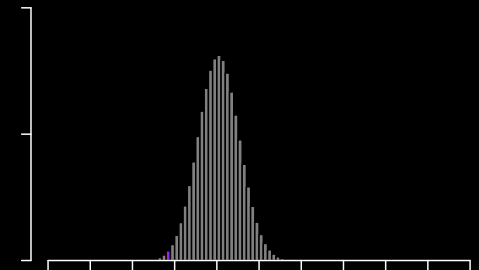
hypothetical prevalence: 35 %

0.029



hypothetical prevalence: 40 %

0.00383



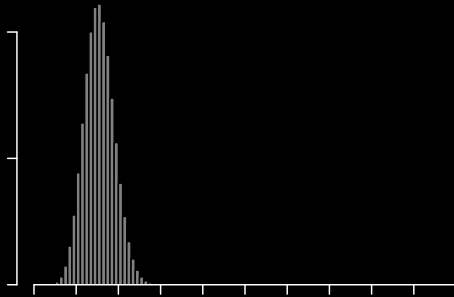
number HIV+



Which of these prevalence values is most likely given our data?

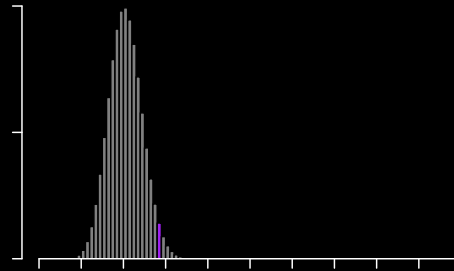
hypothetical prevalence: 15 %

0.000353



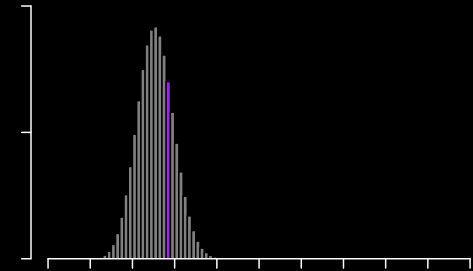
hypothetical prevalence: 20 %

0.0141



hypothetical prevalence: 25 %

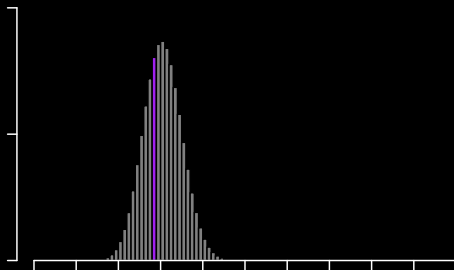
0.0701



probability

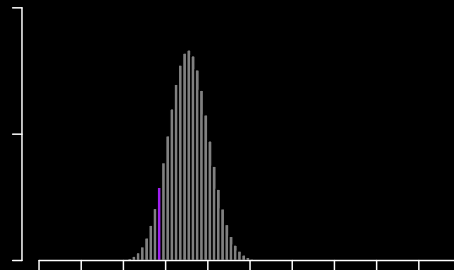
hypothetical prevalence: 30 %

0.0804



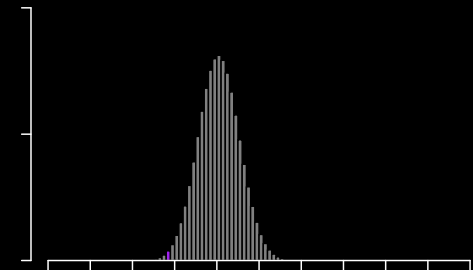
hypothetical prevalence: 35 %

0.029



hypothetical prevalence: 40 %

0.00383

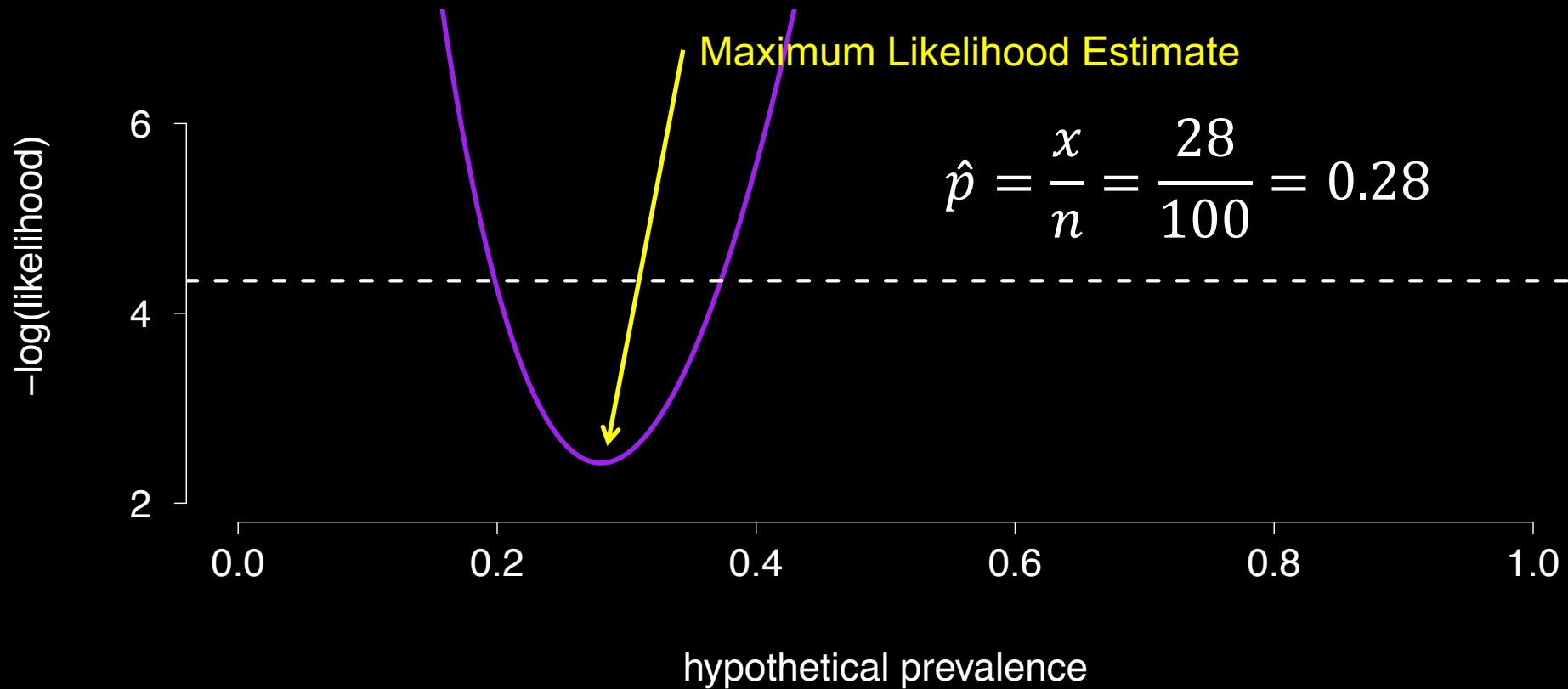


number HIV+



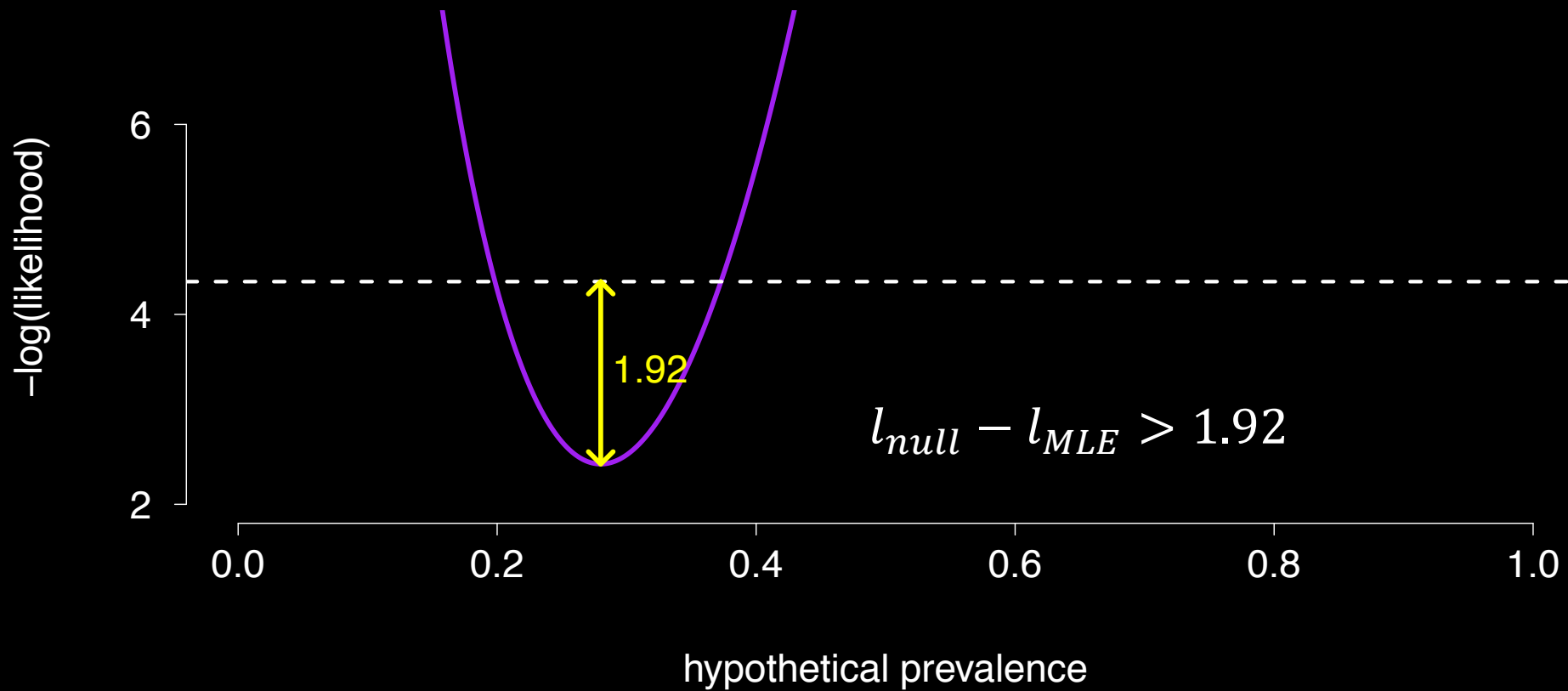
Building Confidence Intervals

Likelihood Ratio Test



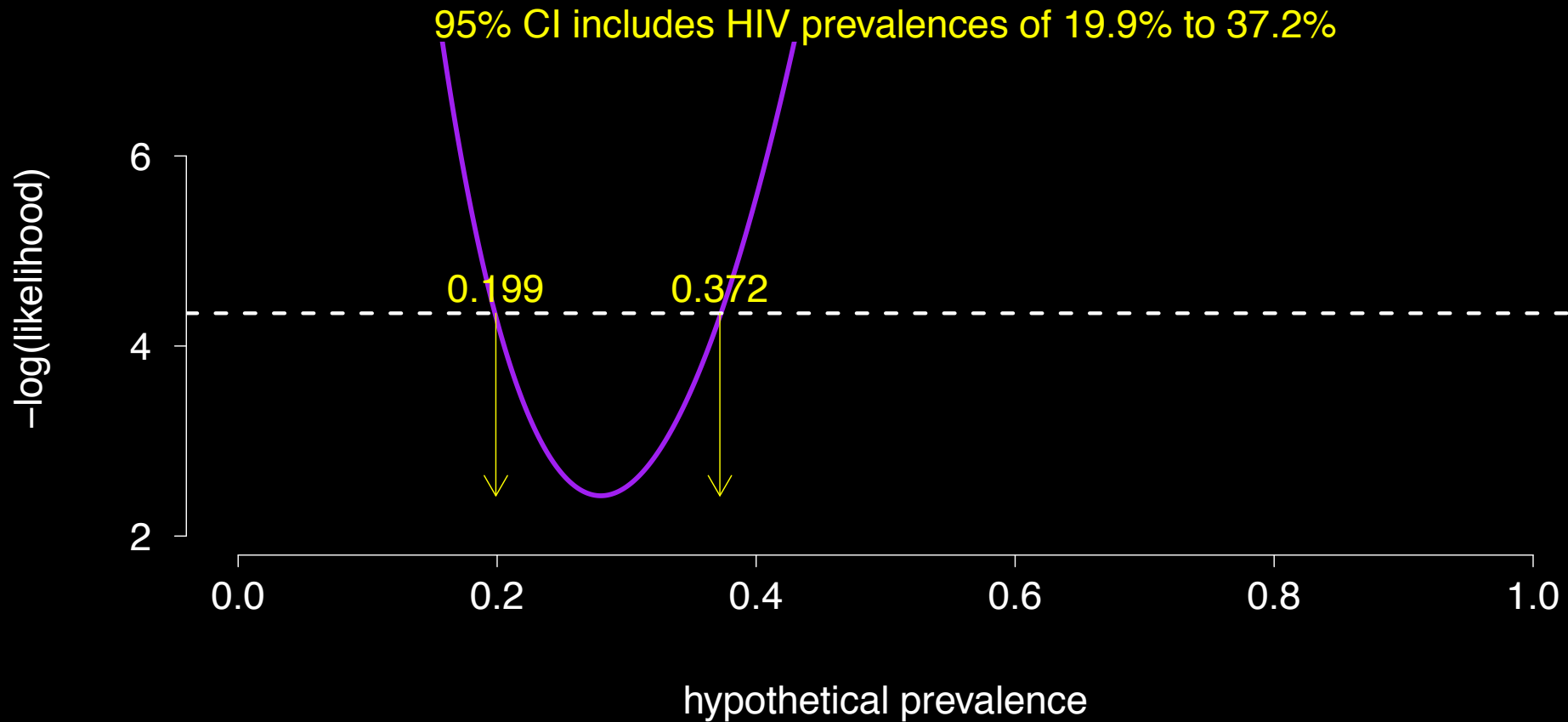
Building Confidence Intervals

Likelihood Ratio Test



Building Confidence Intervals

Likelihood Ratio Test



Summary

- P-values use cumulative probabilities from PDFs
-
- Likelihood is conditional on data, looking at probabilities from different PDFs, with varying parameters
- Confidence intervals are the collection of non-rejectable null hypotheses
- MLE methods use Likelihood Ratio Tests to create confidence intervals

