

# One-sample t-test

# Structure of a 1-sample t-test in R

Code to  
run test


```
> t.test(dat$temp,  
+         mu = normal.temp)
```

One Sample t-test

```
data:  dat$temp  
t = -5.4548, df = 129, p-value = 2.411e-07  
alternative hypothesis: true mean is not equal to 98.6  
95 percent confidence interval:  
 98.12200 98.37646  
sample estimates:  
mean of x  
 98.24923
```

# Structure of a 1-sample t-test in R

Null Hypothesized value for  
the true population mean ( $\mu$ )




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Type of test  One Sample t-test

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One Sample t-test

Degrees of Freedom  
For 1-sample t-test  
this is n-1

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P value

95% Confidence  
Interval around

sample mean  
y.bar

Sample  
mean  
(y.bar)

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mean of x  
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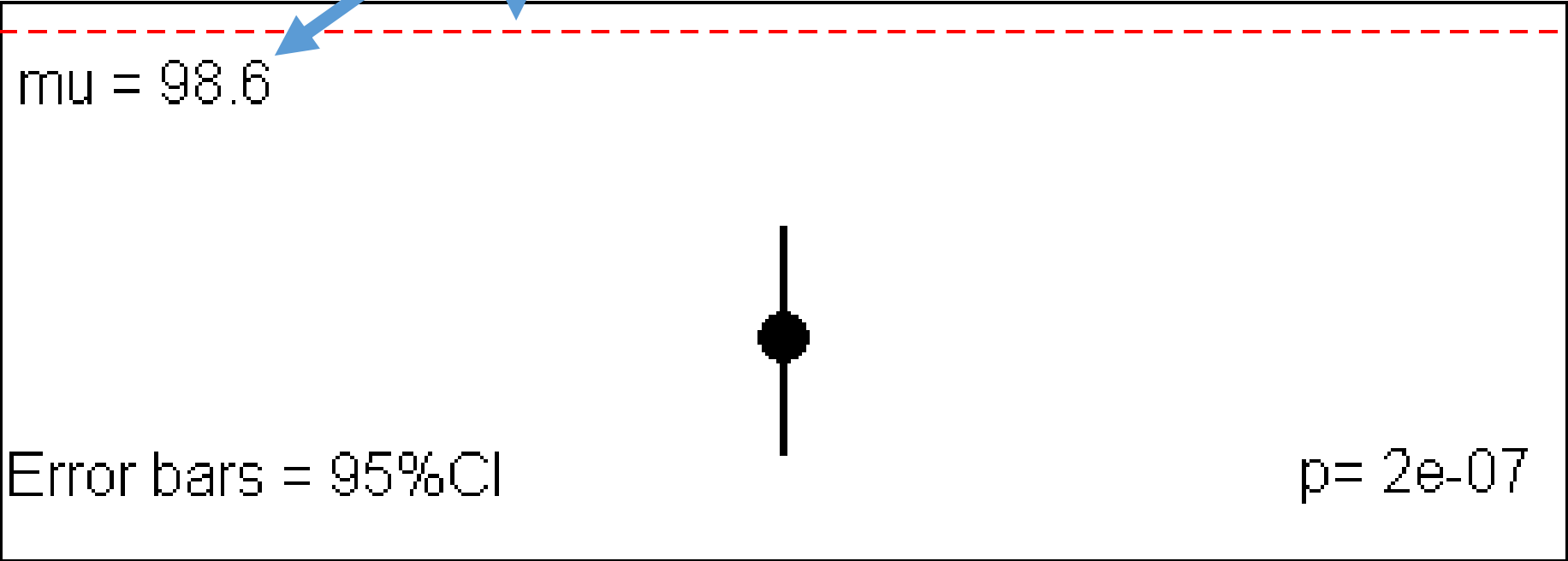
# Visualizing a one-sample t-test

Plotting the results  
of a 1-sample t-  
test

????

Mean body temp

98.5  
98.3  
98.1

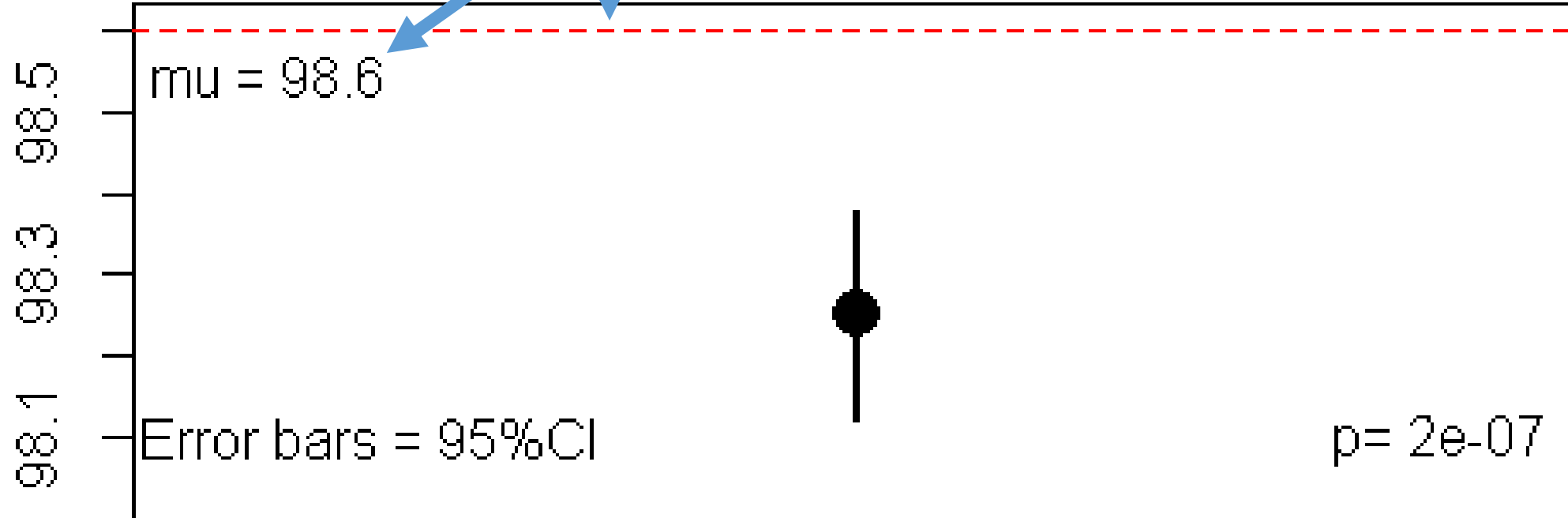




**Plotting the results  
of a 1-sample t-  
test**

Dashed Red line: the “conventional wisdom”  
The null hypothesis (H<sub>0</sub>) that population mean  $\mu = 98.6$

Mean body temp



## Plotting the results of a 1-sample t- test

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Mean body temp

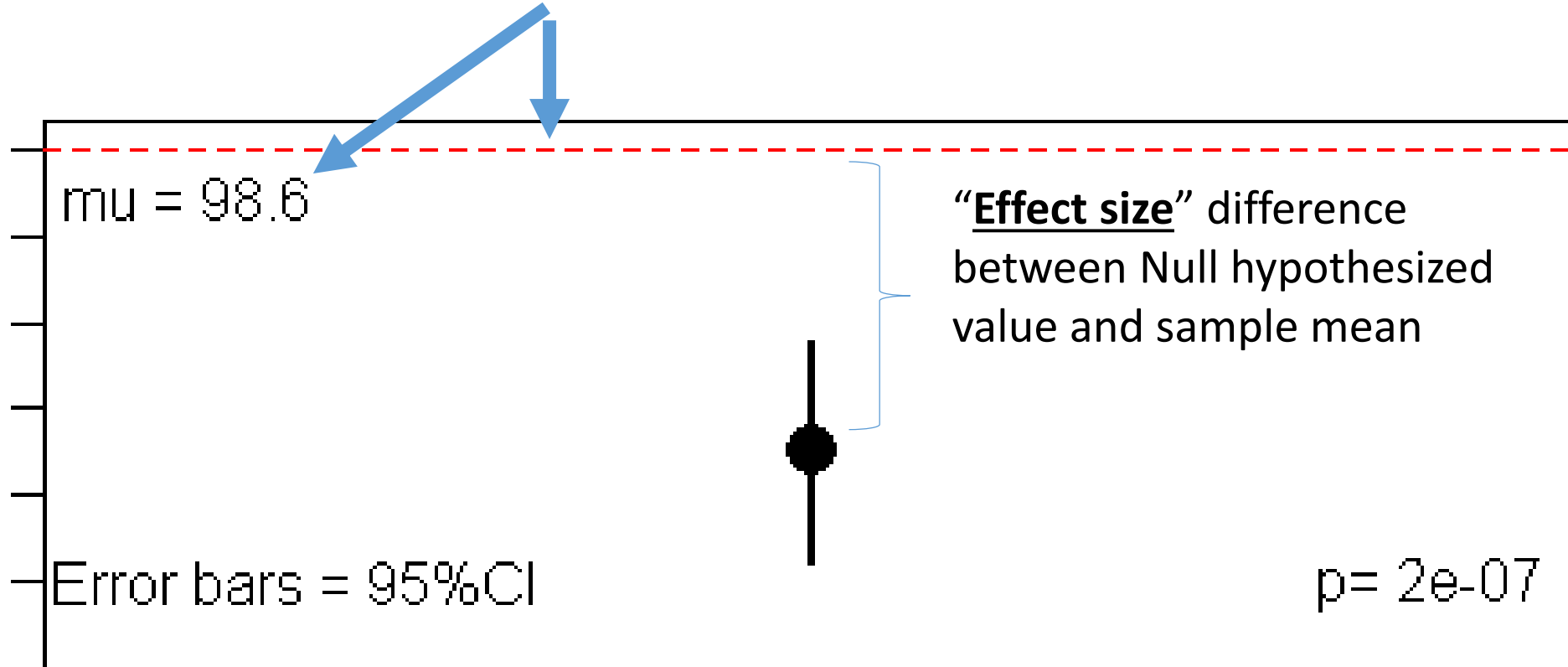
98.5  
98.3  
98.1

$\mu = 98.6$

Error bars = 95%CI

“Effect size” difference  
between Null hypothesized  
value and sample mean

$p = 2e-07$



## Plotting the results of a 1-sample t- test

Dashed Red line: the “conventional wisdom”

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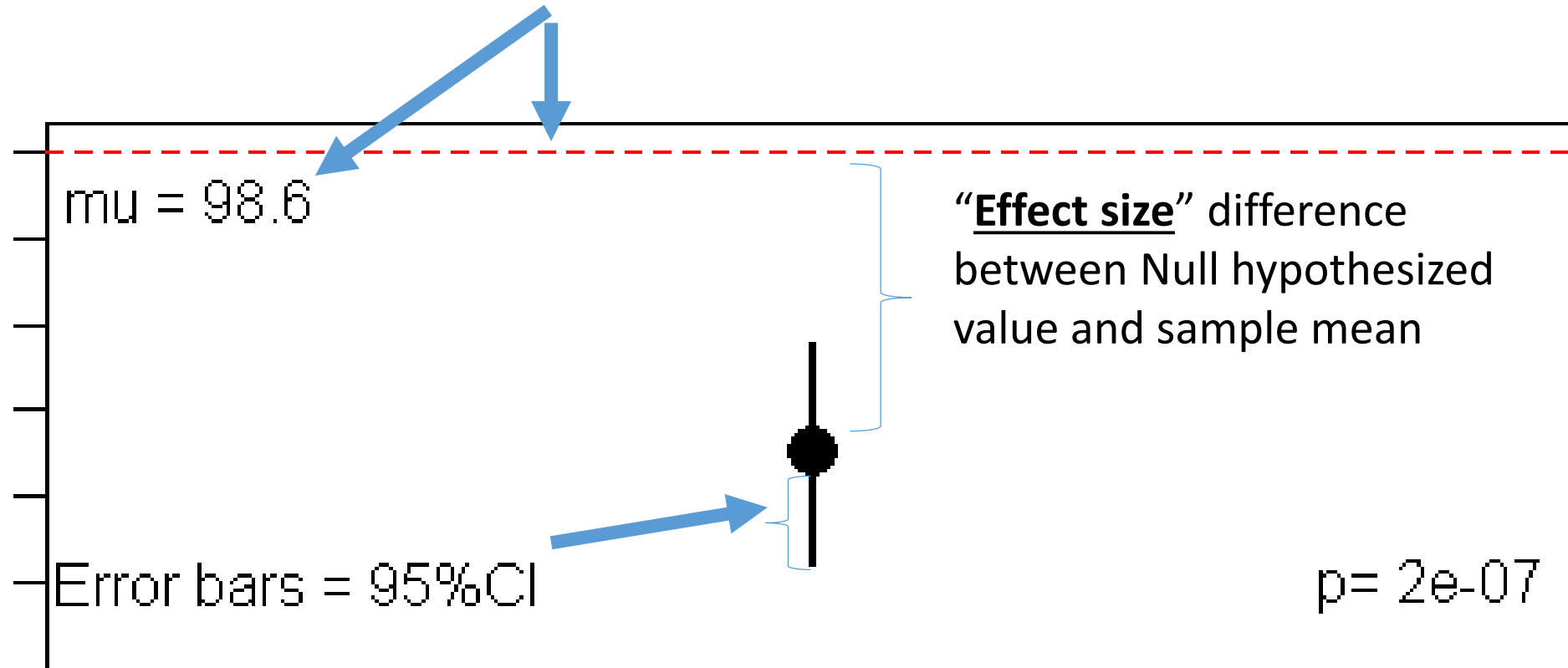
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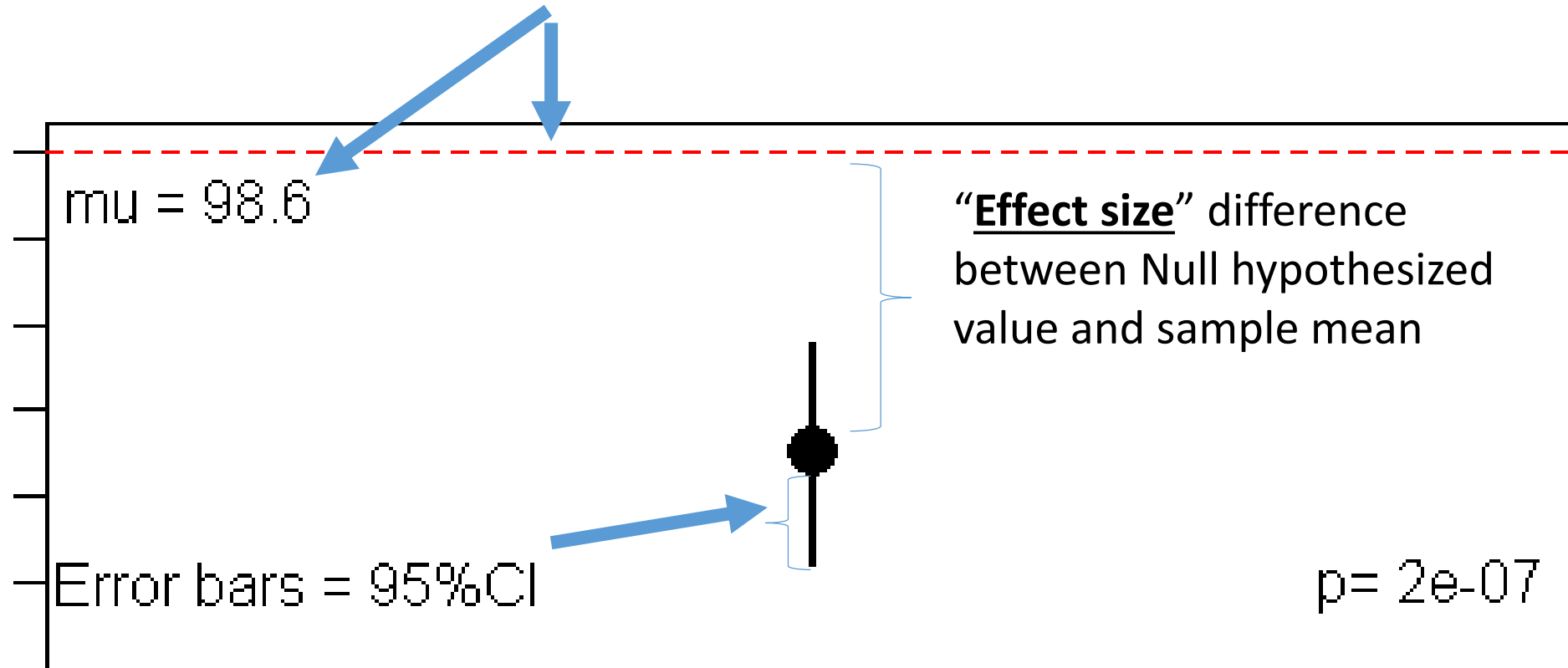
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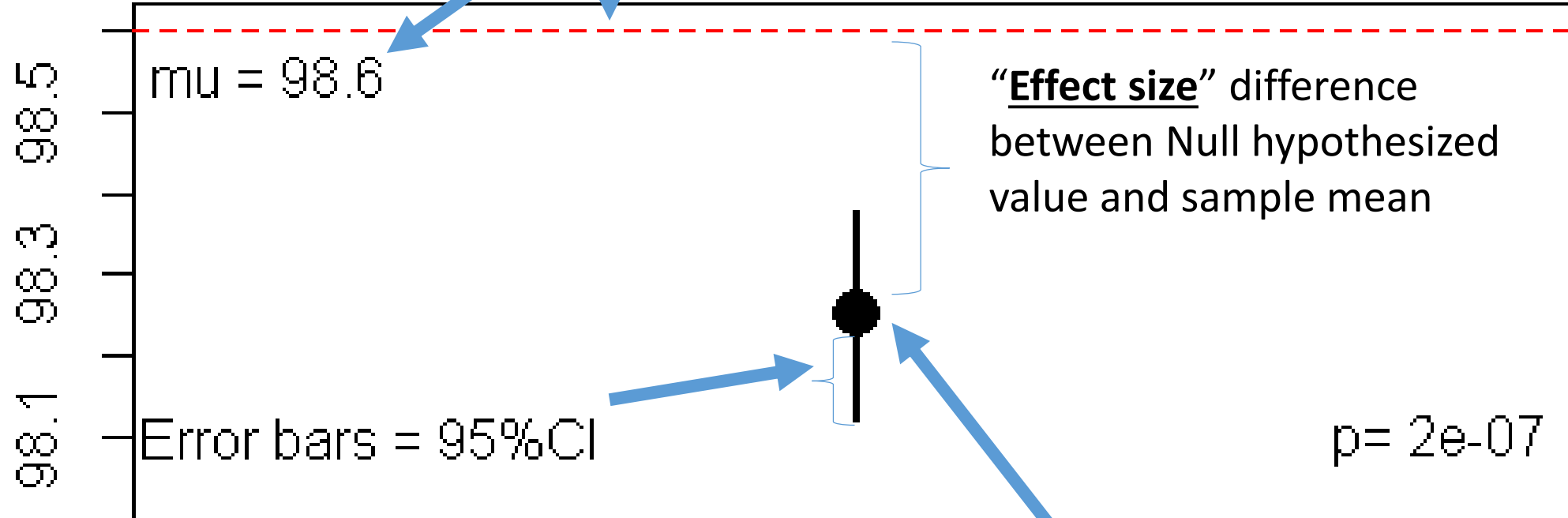
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Sample mean  
(y.bar) from the n=  
130 samples

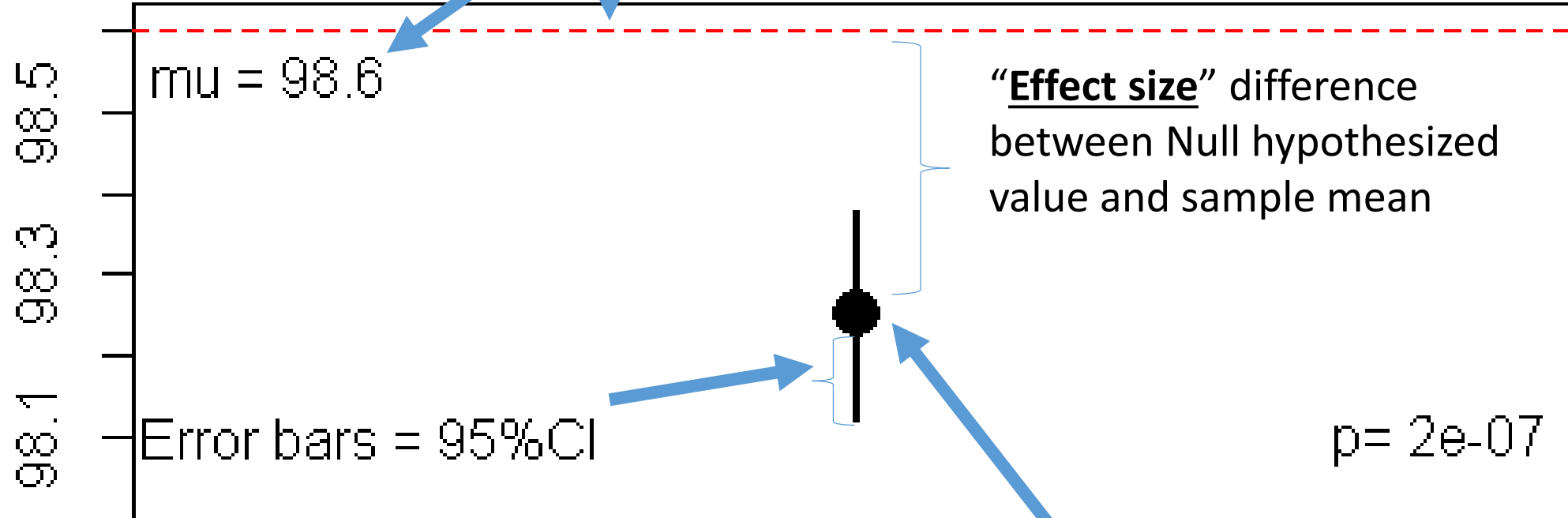




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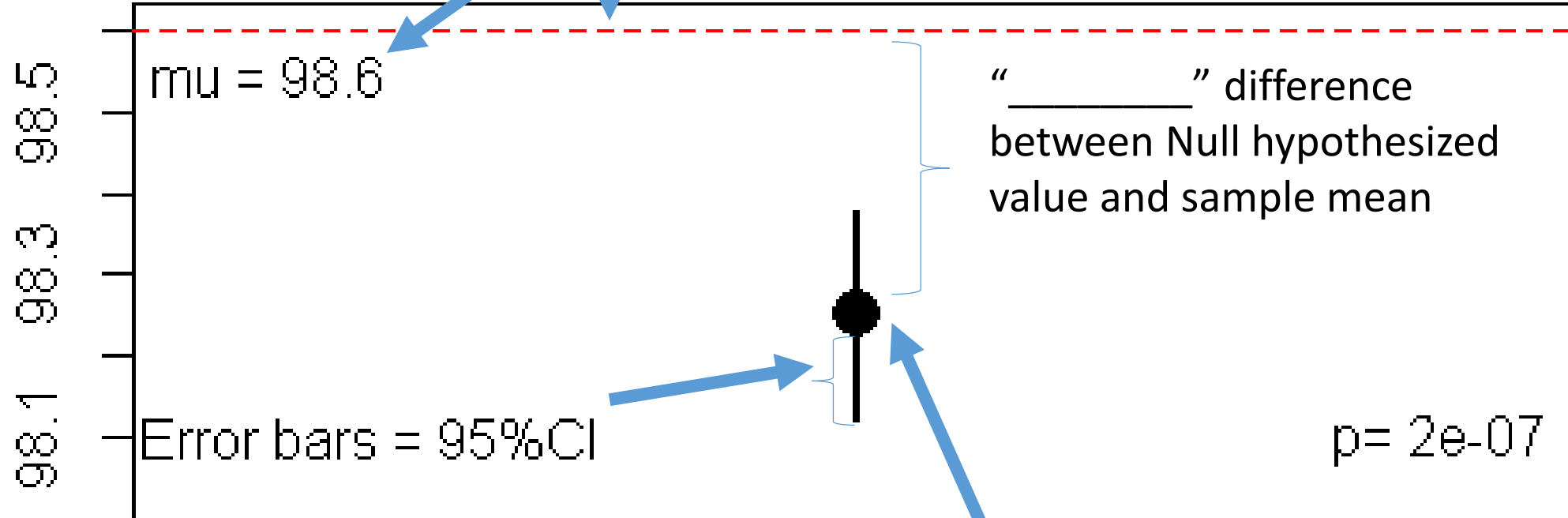
Sample mean  
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Dashed Red line: the “conventional wisdom”  
The \_\_\_\_\_ (\_\_\_\_) that \_\_\_\_\_  $\mu = 98.6$

Mean body temp



How does the p-value  
compare to the confidence  
interval?

\_\_\_\_\_ from the n =  
130 samples

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P value

95% Confidence  
Interval around  
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Sample  
mean  
(\_\_\_\_)