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Standard analysis 1-1

The purpose of this note is to present a standard analysis of one sample continuous data from the normal distribution, here analyzed on the log-scale. The data on triglyceride measurement was used in Exercise 1-2 and 1-4.

Statistical methods

Median value and prediction intervals were obtained using a normal model for the logarithm of the triglyceride measurement. The assumption of normality was accessed using QQ-plots (quantile-quantile plots).

Results and conclusion

The median triglyceride is 0.46 (95% CI: 0.44 ;0.48). A 95% prediction interval for the triglyceride measurement is (0.21;0.99), which means that 95% of the triglyceride measurements is between 0.21 and 0.99.

Do file

```
*******************************************************************
* Standard1-1.do
* Task: a standard analysis of describing one sample of normal data
*      when applying the logarithmic transformation. The data were
*      used in Exercise 1-2 and 1-4.
* Erik Parner: 15-1-2016.
*******************************************************************

graph drop _all

cd "D:\Teaching\BasicBiostat\Exercises"

capture log close
log using Standard1-1.log , text replace

* Read the data.
use trigly.dta, clear
generate lntri=log(trigly)

* The option name(p1) names the graph window p1.
qnorm tri, name(p1)
qnorm lntri,name(p2)
* The command "graph combine p1 p2" combines the graphs p1 p2 into
* a common graph.
graph combine p1 p2
graph export Figure1.png,replace
graph drop _all
```

* Conclusion: the log-triglyceride follows approximately a normal distribution.

* The median of triglyceride.
* In Stata 14 the syntax is: ci mean lntri.
ci lntri
* We can either transform the values using copy-paste from the output:
disp "Median: " exp(-.7727219) " (95% CI:" exp(-.809973) ";" exp(-.7354708) ")"
* Alternatively, after running a command Stata will save many of the
* results shown in the output. They can be shown by running the command
* "return list". After the above ci command we can obtain the mean
* and confidence limits as: r(mean), r(lb), r(ub).
* These are transformed back to the triglyceride scale using the exponential
* function.
return list
disp "Median: " exp(r(mean)) "(95% CI: " exp(r(lb)) " ;" exp(r(ub)) ")"

* The prediction interval.
centile lntri , c(2.5 97.5) meansd
return list
* The 2.5 and 97.5 percentile are stored in the return list as r(c_1) and r(c_2).
disp "PI: (" exp(r(c_1)) " ;" exp(r(c_2)) ")"

log close