Summary

- There are many statistical programs.
- Not all will yield the same result.
  - Programs are not validated
- Each program has its own quirks.
- They do not tell you which statistical method to use, at least not reliably.
- Get the advice of a biostatistician before and after doing an analysis.

Other brochures in this series

- Sound Principals for Simple Statistics.
- How Quantitative Health Sciences Can Satisfy Your Research Needs.
- A Good Database Doesn't Mean Good Data (in 3 parts)
  - Database Ownership (1 of 3)
  - Avoiding pitfalls that result in bad data (2 of 3).
  - Guidelines for detecting bad data (3 of 3).
- Working with Spreadsheets.
- Using REDcap for web based data collection.
- Markedly Good Data Using Remark.
- Don't Monkey Around Use Survey Monkey.

On-line Statistical Training

The Annenberg Foundation has an online video course that was originally on PBS.

"Against All Odds"

http://www.learner.org/resources/series65.html

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QHS
Quantitative
HEALTH SCIENCES

A Review of Statistical Analysis Software

Quantitative Health Sciences was established to provide help in the design and analysis of research studies

Statistical Analysis Software

SPSS/PASW

Strengths

- Very easy to use.
- Easy for data input.
- Good menu system.
- Publishable graphics.
- Same interface across different operating systems.

Weaknesses

- Slow to include new methods.
- Sometimes lacks flexibility.

Cost

- Has new rental policy through eacademy.
- $70 -$120/year for students for 3 modules.
- $250/year for faculty for 15 modules.
- Expensive for permanent licenses.

STATA

Strengths

- Flexible package with very extensive menus.
- Flexible command language.
- Same interface across different operating systems.
- Many methods available, especially for non-normal data.
- Easy graphics.

Weaknesses

- Graphics not as attractive as SPSS.

Cost

- Relatively inexpensive. $180 for a permanent license through MCW.
- Rental is $99/year.

Always examine your data graphically

Are values reasonable?

Are assumptions met?

SAS

Strengths

- Highly flexible software with the most advanced data manipulation capabilities of all the packages.
- Easy for data input.

Weaknesses

- Graphics limited without programming.
- High learning curve.
- A limited menuing system.

Cost

- About $220/year from MCW Biostatistics.
- No permanent licenses.

MINITAB

Strengths

- Easy to generate and edit graphics.
- Easy for data input.

Weaknesses

- Somewhat limited in methods.
- No Cox Proportional Hazards survival.
- Repeated measures ANOVA is very limited.

Cost

- $99 for a permanent version.

Not recommended!

EXCEL

- Free, but has no diagnostics and no help system.
- Easy to make mistakes.
- Unusual method for handling missing data.

R and S-Plus

Strengths

- Both have extensive data manipulation capabilities.
- No other package has as extensive spatial statistics library or genetic library.
- Excellent graphics.
- Same interface across different operating systems.

Weaknesses

- Different libraries have different degrees of validation and testing.
- High learning curve.
- R has a very limited menu system.

Cost

- R is free.
- S-Plus is expensive.

Sigma Stat/Sigma Plot

Strengths

- Features suitable for lab data.

Weaknesses

- Limited capabilities for appropriate analysis.
- Relatively expensive.

Cost

- $735 for commercial/government use.
- $485 for academic use.