### 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

# **OHS** Section

Pippa M. Simpson, PhD Director

Raymond G. Hoffmann, PhD Associate Director

> Shun-Hwa Li, PhD Senior Biostatistician

> Ke Yan, PhD Senior Biostatistician

> Mahua Dasgupta, MS Biostatistician

Melodee Nugent, MA Biostatistician

Chris Cronk, ScD Senior Epidemiologist

JoAnn Gray-Murray, PHD Qualitative Researcher

### **Database Support**

Kathy Divine, MS Database Administrator

Haydee Zimmerman, BA Database Analyst II

> Kim Gajewski, BA Database Analyst II

Robert Thielke, PhD Manager IS II



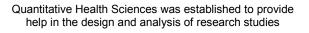
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# A Review of Statistical Analysis Software



# **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 nonnormal 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.