



UCLA CENTER FOR HEALTH POLICY RESEARCH

**Technical Assistance Series  
Article #2: Using Computer Software to  
Compile and Analyze Data  
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There are several computer programs available that can help you organize and analyze data. These include spreadsheet software, database software, and statistical software.

**1. Spreadsheet Software**

**What Is a Spreadsheet?**

A spreadsheet consists of a **grid of rows and columns**. Each box in this grid is called a **cell**.

	"Column" A	B	C	D	E	F	G
"Row" 1	"Cell"						
2							
3							
4							

In computer software programs, the spreadsheet columns are labeled with letters (A, B, C...) and the rows are numbered (1, 2, 3...). Any box or cell in this grid can be referred to in terms of its column and row label, for example A1 or C3.

**What Is the Best Use of Spreadsheet Software?**

Spreadsheet software is a good way to organize a large amount of collected data. Data in a spreadsheet program is easily accessible and can be analyzed in different ways. Spreadsheet software can also save time, since it allows you to use formulas to relate the numbers in one cell to others in the spreadsheet. For example, if "5" is entered in cell B12, and "6" is entered in cell D15, and the formula "B12+D15" is entered in cell F20, then cell F20 will display the value "11."

You can also use spreadsheet software to create tables and charts for presenting your data. Spreadsheet software packages include "wizards" that guide you –step by step– to select rows and columns of data in your spreadsheet to create different kinds of tables and graphs. You have different formatting options for graph titles, fonts, and colors.

### **What Spreadsheet Software Programs Are Available?**

The most common spreadsheet software package is Microsoft Excel™. It is compatible with Microsoft Word™ and PowerPoint™, and allows you to copy and paste text, graphs, and charts between a document, a spreadsheet, and a slide presentation. It is widely available, and is often installed on computers accessible for free use in local libraries or computer resource centers.

Other spreadsheet software includes:

- IBM's Lotus 1-2-3™
- Mariner Calc™
- Zim FastFeedback™

## **2. Database Software**

### **What Is a Database?**

A database is a collection of data or information that is related—such as the name, address, and phone number of a respondent. Databases are often called “relational databases” or “relational database management systems.” The relationships between the information make databases different from spreadsheets. Although data is entered on a screen that looks just like a spreadsheet, the data is organized and stored in a way that can be easily sorted and retrieved in many different forms. You may already encounter database software every day in your work, as databases are often used for management purposes, such as billing, medical records, and client tracking.

### **What Is the Best Use of Database Software?**

Database software can be used to enter and store both quantitative and qualitative data. Database software can be customized, so that you enter only the types of data (“fields”) you need. Once data is entered into a database, you can run “queries.” Queries are specific data retrievals that give you only the data you need. For example, you could request the data for all community members who reported smoking more than a pack of cigarettes a day. Since queries are customizable, you can retrieve any data in any format you want.

Summary reports show data from multiple records at once. Since these reports are also customizable, you can select to see any data in any format (such as tables, charts, or summary statistics). Looking at your data in different ways and in different report formats helps you to see relationships and analyze your data. Printing out reports on a regular basis also allows you to see if you are collecting the type of information you need. It also helps you create and submit reports to the community, stakeholders, and target audiences.

### **What Database Software Programs Are Available?**

The most common database software is Microsoft Access™. The benefit of using Access is that it allows you to easily import data and text from Microsoft Word™ and Excel™, and to export tables into Word™, Excel™, and PowerPoint™.

Other database software includes:

- Claris Filemaker Pro™
- Microsoft FoxPro™

### **3. Statistical Analysis Software**

#### **What Is Statistical Analysis Software?**

Statistical analysis software is used for the statistical analyses that spreadsheet and database software cannot perform. As a result, most statistical analysis software programs are compatible with standard spreadsheet and database programs. After importing data from these programs into a statistical analysis program, you have more options for performing higher-level statistical analyses.

#### **What Is the Best Use of Statistical Analysis Software?**

Statistical analysis software can be used to perform data analyses, from basic descriptive tables (such as the number of clinic users by gender) to advanced statistics (such as regression analysis). In addition, these software programs allow you to calculate means, percentages, frequencies and sums without having to create formulas or tables by hand.

These programs can also be used to create report tables and charts for representing statistical analysis results. Some programs are used to create output and reports for direct import into word processing and web-based programs, allowing for easier distribution of your results.

#### **What Statistical Analysis Software Programs Are Available?**

One popular program is EpiInfo, a free, public domain software package designed by the U.S. Centers for Disease Control and Prevention (CDC) for the global community of public health practitioners and researchers. It is available for free download (<http://www.cdc.gov/epiinfo/>). It allows easy database construction, data entry, and analysis with epidemiological statistics, maps and graphs—so that all of the data collection, data entry, data management, data analysis, and data reporting functions are contained within one software package.

Other statistical analysis software includes:

- SAS™, SPSS™, Stata™, and XLStat™ (for analyzing quantitative data)
- ATLASi™, Ethnograph™, and QSR NUDIST™ (for analyzing qualitative data)

As you decide whether spreadsheet software, database software, or statistical analysis software is best for your needs, keep in mind the advantages and disadvantages of each.

### Advantages and Disadvantages of Computer Software to Compile and Analyze Data

Advantages	Disadvantages
<p>Spreadsheet Software:</p> <ul style="list-style-type: none"> <li>• Simple to use</li> <li>• Allows you to make formulas to relate cells</li> <li>• Allows you to make professional-looking tables and graphs</li> </ul> <p>Database Software:</p> <ul style="list-style-type: none"> <li>• You can retrieve any selection of data</li> <li>• You can view the results in a variety of formats</li> <li>• Easy to create summary reports.</li> </ul> <p>Statistical Analysis Software:</p> <ul style="list-style-type: none"> <li>• Allows you to calculate more advanced statistics than spreadsheet or database software</li> </ul>	<p>Spreadsheet Software:</p> <ul style="list-style-type: none"> <li>• Need to check to make sure your formula is correct and the results are meaningful</li> <li>• Difficult to fit data in the form of long anecdotes or discussions into spreadsheet</li> </ul> <p>Database Software:</p> <ul style="list-style-type: none"> <li>• Learning to use database software can be time consuming</li> </ul> <p>Statistical Analysis Software:</p> <ul style="list-style-type: none"> <li>• Often very expensive</li> <li>• Requires solid knowledge of statistics in order to use software and interpret results</li> </ul>