

VitalPro™ User's Guide

Texas ICD-9 Underlying Cause Deaths

Expert Health Data Programming, Inc.

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Comments and suggestions: This user's guide has been carefully prepared, but is not guaranteed against errors or omissions. Please report any errors, omissions, or suggestions concerning the user's guide, using the contact system at the www.ehdp.com web site, or by calling us at 888-709-5319. Also, please send us suggestions for new capabilities you would like added to the software, or if you find any possible errors in the software.

For more information: The www.ehdp.com web site has current information on VitalPro software (desktop platform), VitalWeb software (browser platform), and other Vitalnet information.

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Chapter 1: Introduction

Nature of the software - Vitalnet is a health data warehouse / data analysis system. Vitalnet makes analyzing data faster, easier, and more reliable. This user's guide describes VitalPro, which runs directly on a PC or LAN.

Advice about user guide - We have made the software as self-explanatory as possible. You don't have to read this user's guide. If you pay attention to the menus, you can use the software. However, we recommend you read the user's guide. 1) Many users learn better from a written text. 2) It is helpful to have an overview of what the software can do, to know its capabilities, before using it. 3) The user's guide explains many concepts necessary for properly interpreting and using the data. Notes for Adobe Acrobat pdf version: The screenshots may look sharper or fuzzier at different magnifications. The screenshots will be sharp when printed.

Tutorial - This user's guide incorporates a tutorial, to help you get started using the software. Tutorial sections are highlighted as shown in this example:

Sample Tutorial Step - Press 'A' to add Texas as one area set.

Here's how this user's guide is organized:

- **Chapter 1: Introduction** - Describes general characteristics of Texas VitalPro.
- **Chapter 2: Understanding Results** - Shows and explains typical VitalPro tables.
- **Chapter 3: Using VitalPro Interface** - Describes and shows how to use VitalPro menus.
- **Chapter 4: Outlines of Submenus** - Lists program menus and capabilities.
- **Chapter 5: Table Variables** - Explains how table variables specify table layout.
- **Chapter 6: Data Variables** - Documents and explains variables such as race and age.
- **Chapter 7: Other Parameters** - Explains chart and other non-data parameters.
- **Checklist of Key Tasks** - Lists essential tasks and provides overview.
- **Glossary** - Defines terms related to underlying cause mortality data and VitalPro.

Citation for VitalPro - Expert Health Data Programming, Inc., Texas VitalPro User's Guide: Data Warehouse Software for Analyzing Texas ICD-9 Underlying Cause Deaths. Renton, Washington. 1998-2011. Browse www.ehdp.com for more information about the software or to contact EHDP.

Acknowledgements - We gratefully acknowledge the suggestions and ideas we have received from Texas Department of State Health Services staff and other users. Please contact us at 888-709-5319 or at www.ehdp.com if you have suggestions or requests.

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1-1: Advantages and Benefits

- **VitalPro makes it easy to analyze Texas underlying cause mortality data.**

Fast - You get results in seconds or minutes. Depending on the analysis, alternate methods could easily require hours or days to complete.

Reliable - VitalPro automates data analysis, and automatically incorporates needed complex algorithms and relationships. In contrast, analyses with SAS, SPSS, etc. are very tedious, error-prone, and labor-intensive.

Flexible - A wide variety of tables may be produced. You may set rows and columns however you want. Standard parameters may be selected and combined as needed. VitalPro provides many options. You do not need to set every option. All options are set to a reasonable default value.

Efficient - You can make a whole series of tables with one keystroke (multi-tables). Bar, pie, and line charts allow for quick scanning for trends.

Easy to use - Operations are menu-driven. Scrolling windows are used to select items from lists. You don't need to know any special codes such as FIPS codes.

Online help - If needed, context-sensitive help is also available from each menu. In addition, you may select from a list of on-line help topics, providing advice on topics related to VitalPro and data analysis. The on-line help complements the information in this user's guide. Useful on-line reference materials are also provided, such as tables of standard populations used for age-adjustment.

Output documentation - All output is fully documented, so there is no confusion or question about the exact analysis that was done, and so the analysis can be exactly replicated if needed.

Makes graphic charts - VitalPro automatically makes bar, line, and pie charts, when appropriate. The charts can be customized in a wide variety of ways, as explained later.

Integrates with other software - VitalPro automatically displays HTML output in your desktop browser. In addition, an extensive set of alternative formats is automatically made with each analysis: ASCII text format, delimited format (for importing into spreadsheets), and dBASE III format (for importing into statistical, GIS, mapping, graphing and other software).

What's missing - VitalWeb (internet version of Vitalnet) makes maps. However, maps are not currently made by VitalPro. If possible, we plan to add this capability in the future. Let us know if other capabilities you would like added.

1-2: Data Within the Program

· This program links and analyzes geographic, population, mortality, and ICD-9 data.

Geographic information - This program includes a database of Texas counties and regions, linked to the population and underlying cause mortality data sets.

Population data - The Center for Health Statistics at DSHS provides 1980-1999 Texas population data. The Texas State Data Center at Texas A&M provides Texas population data for 2000 and beyond. The Texas State Data Center periodically revises its estimates for years between censuses, but the changes are typically small. The population variables included within the program are age, county of residence, race, sex, and year. Population figures are used for calculating death rates. A separate Vitalnet interface, PopTrend, analyzes population data for demographic trends and to obtain denominators for analyzing other data sets.

Mortality data - The Center for Health Statistics at the Texas Department of State Health Services provides all Texas underlying cause mortality data. For an estimate on when the next data file will be loaded, contact the Bureau. Mortality variables within the program include age of deceased, cause of death, county of residence, race, sex, and year.

Place of residence - The program analyzes by place of residence of the deceased. For example, if a Dallas resident died in a motor vehicle collision in Houston, The program would classify the death under Dallas. Standard mortality reports usually use place of residence (the other system is "place of occurrence").

Underlying cause - The program analyzes by underlying cause (the cause which initiated the sequence of events leading to death). For example, if a death certificate lists rheumatoid arthritis, myocardial infarction (MI), and cardiac arrhythmia secondary to MI, the underlying cause is MI. A separate program (MultiCod) analyzes multiple cause mortality data.

ICD information - The ICD (International Classification of Diseases) is the standard system for classifying causes of injury, illness and death. A complete database of the ICD system is included for selecting and combining causes of death to analyze. For example, you can easily determine the leading causes of death or select any combination of ICD codes for analysis. The ICD-10 is used starting with 1999 mortality data. Mortality data for 1980 to 1998 use the ICD-9.

Data linking - Four data sets (geographic data, population data, mortality data, and ICD data) are linked with each other into the VitalPro data warehouse.

1-3: Accessing the Program

- **Access VitalPro on a standalone PC or via LAN.**

Local access (PC's and local area networks) - You may use Texas VitalPro on a stand-alone PC or laptop running any version of Windows. Texas VitalPro may also be run from a local area network. Generally, VitalPro runs faster from a standalone installation, since it does not have to send data over the network.

Execution speed - VitalPro is fast. The program has been tested to produce rapid results on any Windows PC, and simply runs faster on faster computers. Analyses that might otherwise take hours to days to set up and run are done in seconds or minutes.

The program execution speed depends on: 1) the type of PC you are using, 2) the characteristics of the network you are working on, 3) the specific analysis. It typically takes a second or two to generate output.

1-4: Confidentiality Policy

- **Texas VitalPro users must comply with confidentiality requirements.**

Confidentiality policy - Your use of Texas VitalPro indicates your agreement to the following conditions: You will not try to use Texas VitalPro results nor let anyone else use Texas VitalPro results to learn the identity of a reported death, or for any purpose other than statistical analysis. If you discover the identity of a reported death, you will advise the Director of the Center for Health Statistics at the Texas Department of State Health Services of the incident, will safeguard or delete the information that would identify the individual, will make no use of the knowledge, and will inform no one else of the discovered identity.

Cell suppression - If you so desire, Texas VitalPro can suppress cells that have fewer than a user-defined number of death. Cell suppression can increase the confidentiality of written reports in some cases. Cell suppression [is described more fully later](#).

Chapter 2: Understanding Results

What's in this chapter - Before jumping in and using the program (next chapter), it is advised to get a good understanding of the results of the program. This chapter explains the organization and content of the results you get from using VitalPro (VitalPro tables).

This chapter explains the four sections of a VitalPro table:

- **Header** - Basic analysis parameters.
- **Data section** - Numerical results.
- **Bar graphs** - Graphical results.
- **Footnotes** - Other analysis parameters.

In addition, this chapter shows examples of actual Texas VitalPro tables, to give you an idea of what is possible. You are given an opportunity to practice interpreting sample tables.

2-1: Typical VitalPro Table

• Each table has four parts: header, data section, tabular chart, footnotes.

```

Deaths
Tabulated by Age and Sex
Years: 1993
Place of Residence: Galveston, Harris
ICD 490-496: Chronic Obstructive Pulmonary Disease

Age          Male    Female   Total
-----
Birth-19      2       2        4
20-39         1       8        9
40-59         34      25       59
60-99+       320     298     618
-----
Total         357     333     690

Tabular Chart (X = 21.3 Deaths, x = 10.7):

Age          Male          Female
-----
Birth-19
20-39
40-59        Xx            X
60-99+      XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXX
-----

Analysis Footnotes:
Unique ID, for Keeping Track of Analyses: 405TSRQM
Output Produced: Thu Apr 05 11:39:08 2001, by Texas VitalNet
Deaths Classified By: ICD-9, Underlying Cause, Place of Residence
Mortality Data Source: TDH Bureau of Vital Statistics

```

Header: Documents the analysis. The table analyzes 1992 deaths for Galveston and Harris counties. Deaths from chronic obstructive pulmonary disease (ICD 490-496) are counted.

Data Section: Contains the results, organized into columns and rows. In this example, there is one column for each sex and one row for each of four age groups. Verify there were 25 deaths in women age 40-59, 357 deaths in males, and a total of 690 deaths. Each result, such as 25, 357, and 690, is called a "cell".

Tabular Chart: Represents the results in a simple graphical format. In this example, each 'X' (big X) symbol represents 21.3 deaths. The tabular charts are optional. The tabular chart clearly shows that the great majority of deaths from chronic obstructive lung disease in the two counties were in the 60-99+ age group.

Footnote: Documents less important aspects of the analysis, such as when the table was produced. Assigns a unique ID to the table for future reference.

2-2: Table #1 to Interpret

Here is a sample table (footnotes omitted) for you to practice on. Try interpreting the table by filling in the spaces below. Then, check your answers with those on the next page.

Death Rate (per 100,000)
 Tabulated by Area Set and Sex
 Age: 20-39 Years
 Years: 1991-1993
 Place of Residence: PHR 3, PHR 6, PHR 7, PHR 8
 ICD 042-044: Human Immunodeficiency Virus (HIV) Infection

Area Set	Male Rate, Deaths	Female Rate, Deaths	Total Rate, Deaths
PHR 3	54.2 1,290	2.9 67	28.8 1,357
PHR 6	68.6 1,490	6.8 142	38.3 1,632
PHR 7	41.6 427	2.9 27	23.1 454
PHR 8	37.0 323	1.0 9	18.8 332
Total	54.7 3,530	3.9 245	29.7 3,775

Tabular Chart (X = 4.6 Deaths / 100,000, x = 2.3):

Area Set	Male Rate	Female Rate	Total Rate
PHR 3	XXXXXXXXXXXX	x	XXXXXXx
PHR 6	XXXXXXXXXXXXXXXXXX	Xx	XXXXXXXXXXx
PHR 7	XXXXXXXXXX	x	XXXXXX
PHR 8	XXXXXXXXXX		XXXX
Total	XXXXXXXXXXXX	X	XXXXXXx

Header Outcome (main statistic): _____
 Years analyzed: _____
 Geographic areas analyzed: _____
 ICD groups analyzed: _____
 Age groups analyzed: _____

Data Section Rows variable: _____
 Columns variable: _____
 How many females died in PHR 6: _____
 Death rate for males in PHR 7: _____

Tabular Chart Death rate symbolized by big 'X': _____

2-3: Table #1, Interpreted

Here is the same table, and a suggested interpretation. If you had a problem, try reading through the answers again or ask a local data analyst for help.

Death Rate (per 100,000)
 Tabulated by Area Set and Sex
 Age: 20-39 Years
 Years: 1991-1993
 Place of Residence: PHR 3, PHR 6, PHR 7, PHR 8
 ICD 042-044: Human Immunodeficiency Virus (HIV) Infection

Area Set	Male Rate, Deaths	Female Rate, Deaths	Total Rate, Deaths
PHR 3	54.2 1,290	2.9 67	28.8 1,357
PHR 6	68.6 1,490	6.8 142	38.3 1,632
PHR 7	41.6 427	2.9 27	23.1 454
PHR 8	37.0 323	1.0 9	18.8 332
Total	54.7 3,530	3.9 245	29.7 3,775

Tabular Chart (X = 4.6 Deaths / 100,000, x = 2.3):

Area Set	Male Rate	Female Rate	Total Rate
PHR 3	XXXXXXXXXXXX	x	XXXXXXx
PHR 6	XXXXXXXXXXXXXXX	Xx	XXXXXXXXXx
PHR 7	XXXXXXXXXX	x	XXXXXX
PHR 8	XXXXXXXXXX		XXXX
Total	XXXXXXXXXXXX	X	XXXXXXx

Header	Outcome (main statistic):	Death rate (per 100,000)
	Years analyzed:	1991-1993
	Geographic areas analyzed:	Public Health Regions 3, 6-8
	ICD groups analyzed:	ICD 42-44 (HIV/AIDS)
	Age groups analyzed:	20-39
Data Section	Rows variable:	Row for each area set
	Columns variable:	Column for each sex
	How many females died in PHR 6:	142
	Death rate for males in PHR 7:	41.6 per 100,000
Tabular Chart	Death rate symbolized by big 'X':	4.6 per 100,000

2-4: Table #2 to Interpret

Here is another table. Fill in the spaces below. Then, check your answers on the next page.

Age-Adjusted Death Rate (per 100,000)
 Age Adjustment Standard Population: 2000 US
 Tabulated by Race-Ethnicity and Sex
 Years: 1997-1998
 Place of Residence: Texas
 ICD 162: Cancer Of Trachea, Bronchus, Or Lung

Race	Male Rate, Deaths	Female Rate, Deaths	Total Rate, Deaths
White	91.2 8,999	46.1 6,011	65.0 15,010
Black	131.9 1,517	44.5 754	79.3 2,271
Hispanic	47.6 1,043	16.7 498	29.6 1,541
Other	38.3 76	23.9 60	30.2 136
Total	86.2 11,635	40.4 7,323	59.6 18,958

Tabular Chart (X = 8.8 Deaths / 100,000, x = 4.4):

Race	Male Rate	Female Rate	Total Rate
White	XXXXXXXXXXx	XXXXXX	XXXXXXXXXX
Black	XXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXXXXXX
Hispanic	XXXXXXx	XX	XXXXx
Other	XXXXXx	XXx	XXXXx
Total	XXXXXXXXXX	XXXXXx	XXXXXXXX

Header Outcome (main statistic): _____

Years analyzed: _____

Geographic areas analyzed: _____

ICD groups analyzed: _____

Data Section Rows used in this example: _____

Columns used in this example: _____

How many Black males died: _____

Death rate for Hispanic females: _____

Overall death rate: _____

Tabular Chart Death rate symbolized by big 'X': _____

2-5: Table #2, Interpreted

Here is the second table again, and our interpretation of the results.

Age-Adjusted Death Rate (per 100,000)						
Age Adjustment Standard Population: 2000 US						
Tabulated by Race-Ethnicity and Sex						
Years: 1997-1998						
Place of Residence: Texas						
ICD 162: Cancer Of Trachea, Bronchus, Or Lung						
Race	Male		Female		Total	
	Rate,	Deaths	Rate,	Deaths	Rate,	Deaths
White	91.2	8,999	46.1	6,011	65.0	15,010
Black	131.9	1,517	44.5	754	79.3	2,271
Hispanic	47.6	1,043	16.7	498	29.6	1,541
Other	38.3	76	23.9	60	30.2	136
Total	86.2	11,635	40.4	7,323	59.6	18,958

Tabular Chart (X = 8.8 Deaths / 100,000, x = 4.4):

Race	Male	Female	Total
	Rate	Rate	Rate
White	XXXXXXXXXXx	XXXXXX	XXXXXXXXXx
Black	XXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXXXXXX
Hispanic	XXXXXXx	XX	XXXXx
Other	XXXXXx	XXx	XXXXx
Total	XXXXXXXXXX	XXXXXx	XXXXXXXX

Header	Outcome (main statistic):	Age-adjusted rate
	Years analyzed:	1997-1998
	Geographic areas analyzed:	Texas
	ICD groups analyzed:	ICD 162
Data Section	Rows used in this example:	Row for each race
	Columns used in this example:	Column for each sex
	How many Black males died:	1,517
	Death rate for Hispanic females:	16.7 per 100,000
	Overall death rate:	59.6 per 100,000
Tabular Chart	Death rate symbolized by big 'X':	8.8 per 100,000

Chapter 3: Using VitalPro Interface

What's in this chapter - Finally, you will get to use the program! This is probably what you have been waiting for! You will learn to navigate the interface, select parameters, and produce a few tables like those you learned about in the previous chapter.

Some advice about learning - As you use the program, we encourage you to explore and try things. Don't be shy. You cannot cause any damage by using the program. The program does a lot, and there are a lot of options, because analyzing data has lots of options. But running the program is pretty simple, once you know the basic way it works.

Open default browser - Your PC has a "default browser" set up. That's the browser that normally displays HTML files (web pages) for you. Before you start VitalPro, open the default browser. Eventually, when you make output from VitalPro, the output will display in the browser. Each browser is a little different, but any browser will work fine, including Chrome, Firefox, Internet Explorer, and Opera.

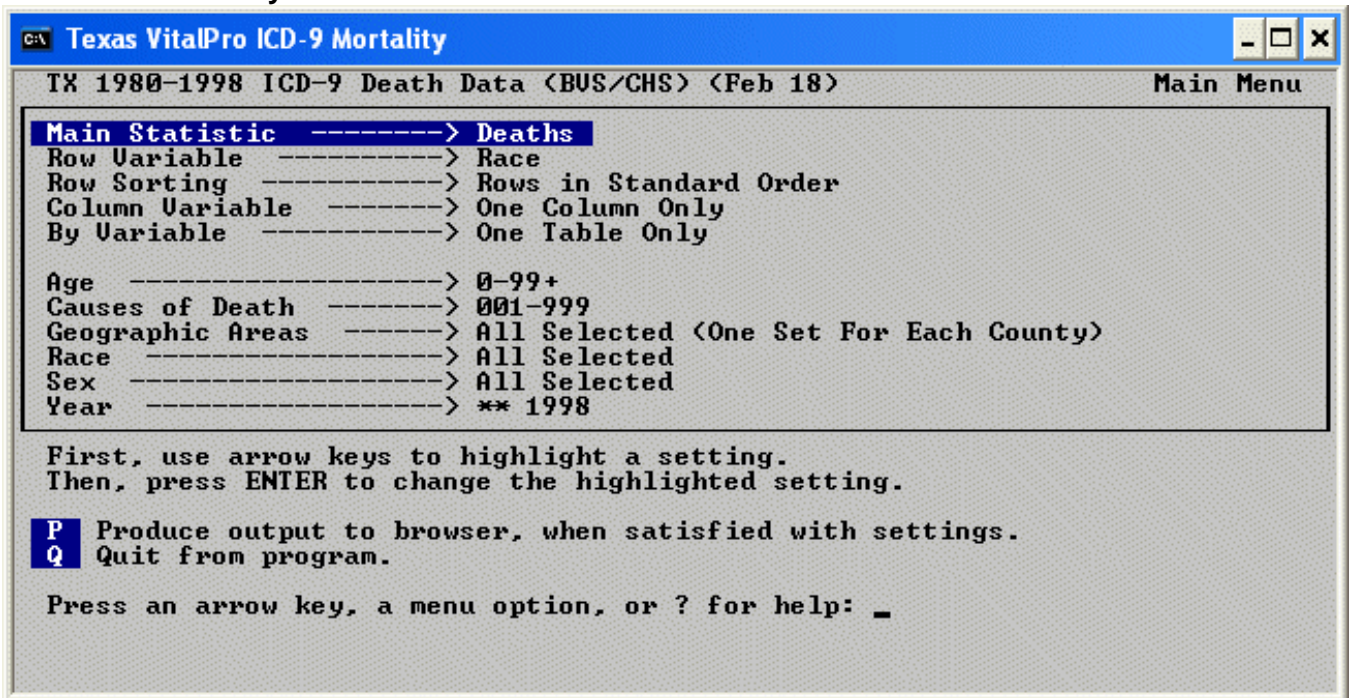
Access the program - A tutorial runs through this chapter. All procedures you are expected to do as part of the tutorial are highlighted in a different type style, as shown below. At this point, do the following:

Start Texas VitalPro by clicking on the icon.

The icon may look like a doctor's bag, or may be a different desktop icon. If you do not have an icon, ask your network manager to set things up to start VitalPro from an icon. If you can't start the program or have some other issue, get assistance from another Texas VitalPro user. Or, contact us. You will start at the Main Menu (shown on next page).

3-1: Start at Main Menu

- You will constantly return to the Main Menu.



After VitalPro starts, you are presented with the Main Menu, as shown above.

The Main Menu is the "command center" - You move to submenus to modify parameters, but return to the Main Menu to make a table. The Main Menu lists all parameters currently selected. The Main Menu provides an overview.

Highlighting a parameter - One of the parameters is always highlighted. In the example above, "Main Statistic" is highlighted. You move the highlight by pressing an arrow key. The parameter list scrolls as needed. Note that you do not use a mouse to run the program. Do the following:

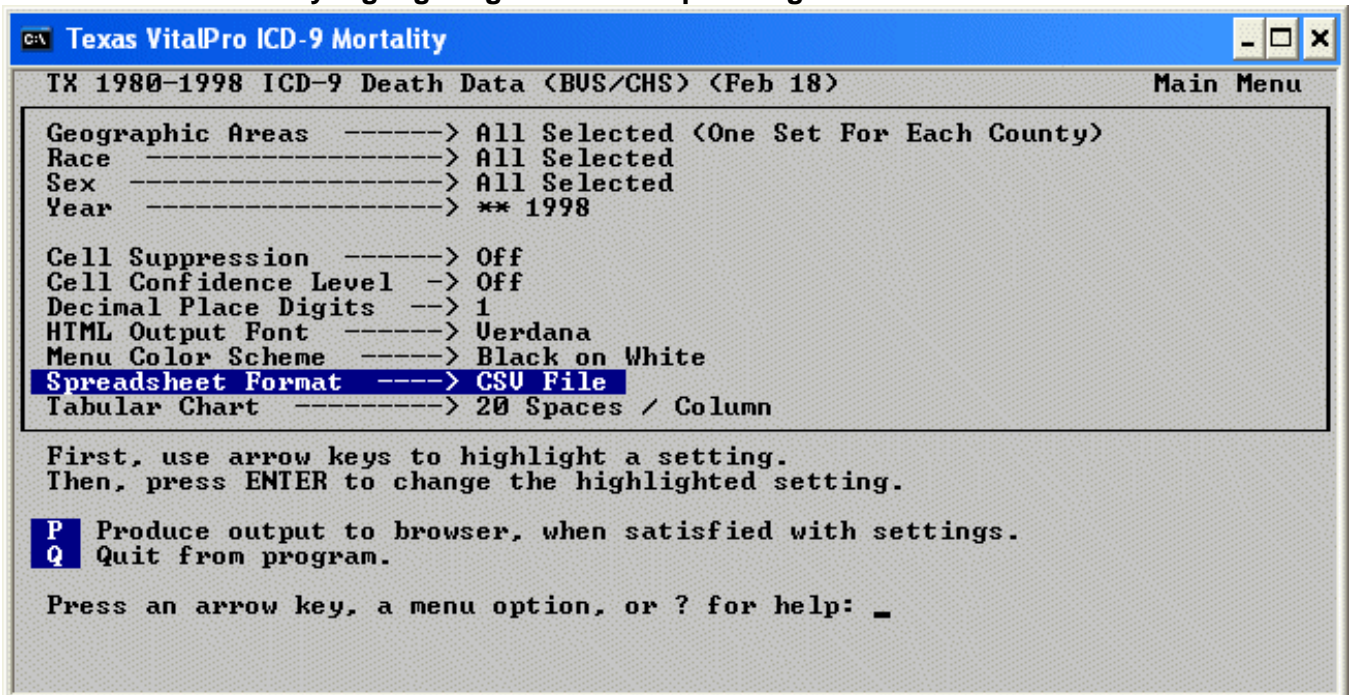
Press down arrow key to move the highlight down.
Keep pressing down arrow to scroll down.

The menu tells you what to do - The Main Menu (and every other VitalPro menu) has text at the bottom with guidance on what to do next. For example, the Main Menu text indicates you can press an arrow key (move highlight), the ENTER key (change highlighted setting), P (produce output), Q (quit), or '?' (help).

Changing window appearance - The font size for the command window running VitalPro may be changed from the command window toolbar, to suit your screen. The size "8 x 12", as shown, is a reasonable size. Also, the command window may be toggled to full screen (and back) by pressing ALT-ENTER (hold down ALT key and press ENTER key).

3-2: Use a Simple Submenu

- Access a submenu by highlighting an item and pressing ENTER.



Selecting parameter to change - To change a parameter, highlight the parameter (using the arrow keys) and press ENTER.

Quick changes - Some parameters have a very simple submenu. Try this:

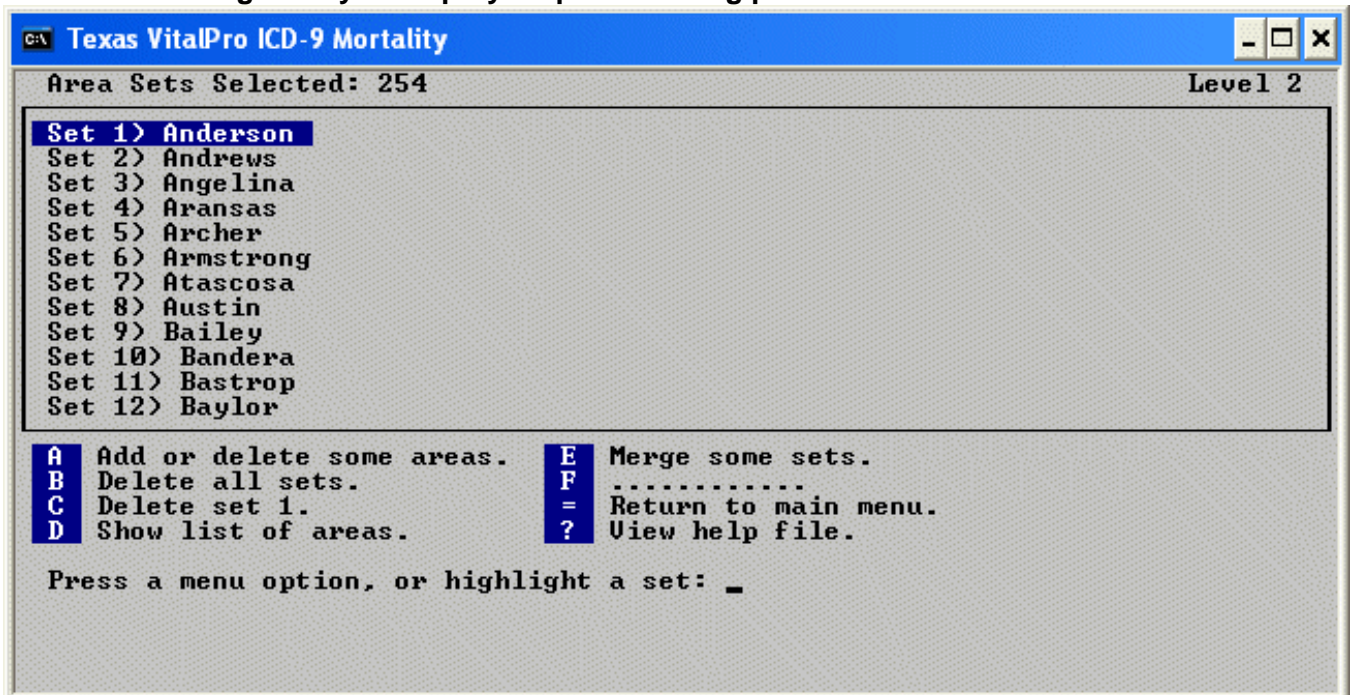
Highlight "Spreadsheet Format" by using arrow keys.
Press ENTER to access the submenu. Select TSV format.
Press ESCAPE (or '=') to return to the Main Menu.

More complex changes - For more complex parameters, a more complicated submenu will appear and help you change the parameter. For example, to change the geographic selection, you would highlight the parameter "Geographic Areas", and press ENTER. Do the following:

Use arrows keys to highlight "Geographic Areas".
Then, press ENTER to access the Area Sets submenu.

3-3: Use Geographic Submenu

- Each submenu guides you step-by-step in selecting parameters.



Submenu with scrolling window - This is a typical VitalPro submenu. It has a scrolling window with a list of items (area sets). One or more of the items may be highlighted by using the arrow keys.

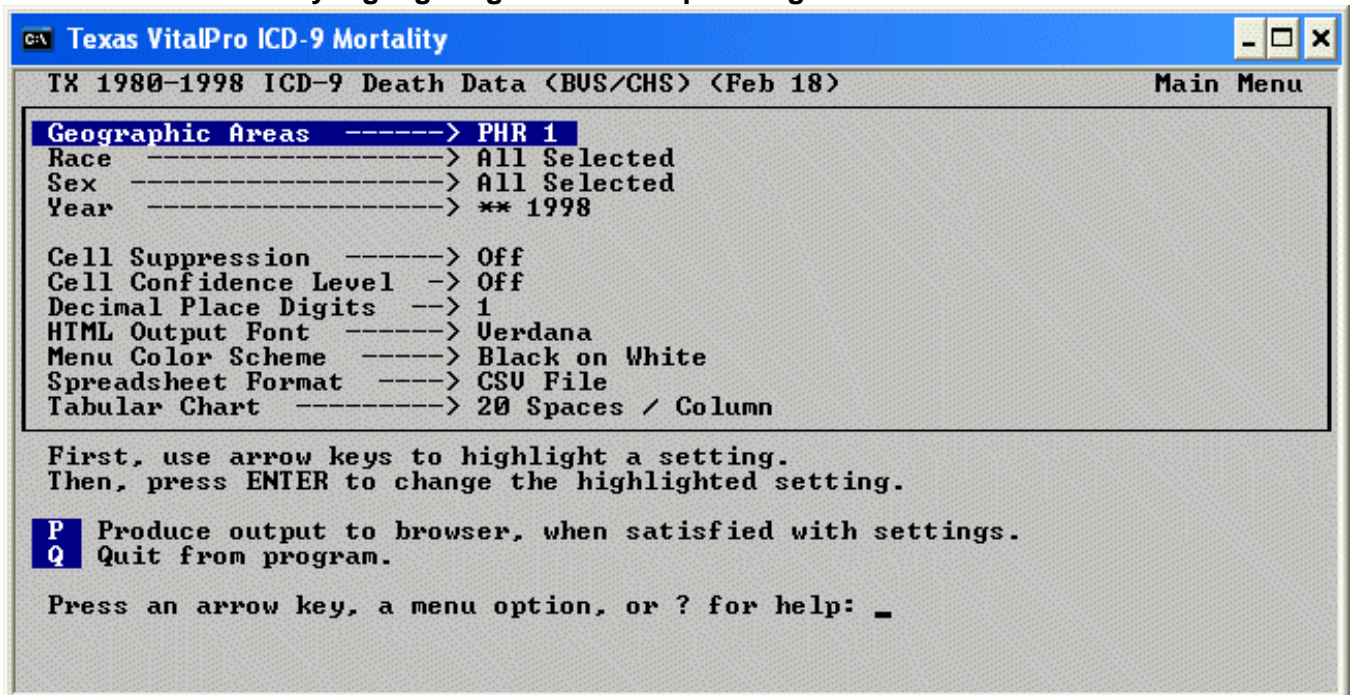
Letters are action items - This submenu has a list of actions, such as " B Delete all sets". Pressing the letter (such as 'B') carries out the action.

Adding an area - Carry out the following steps to add an area:

1. Press 'B' to delete all areas sets. Confirm if asked.
2. Then, press 'A' to add some areas.
3. Highlight "Public Health Region 1 (PHR 1)", and press ENTER to add.
4. Then, press ESCAPE (or '=') to return to area set menu.
5. Note that an item is added to the scrolling window.
6. Finally, press ESCAPE (or '=') to return to the Main Menu.

3-4: Back at Main Menu

- Access a submenu by highlighting an item and pressing ENTER.



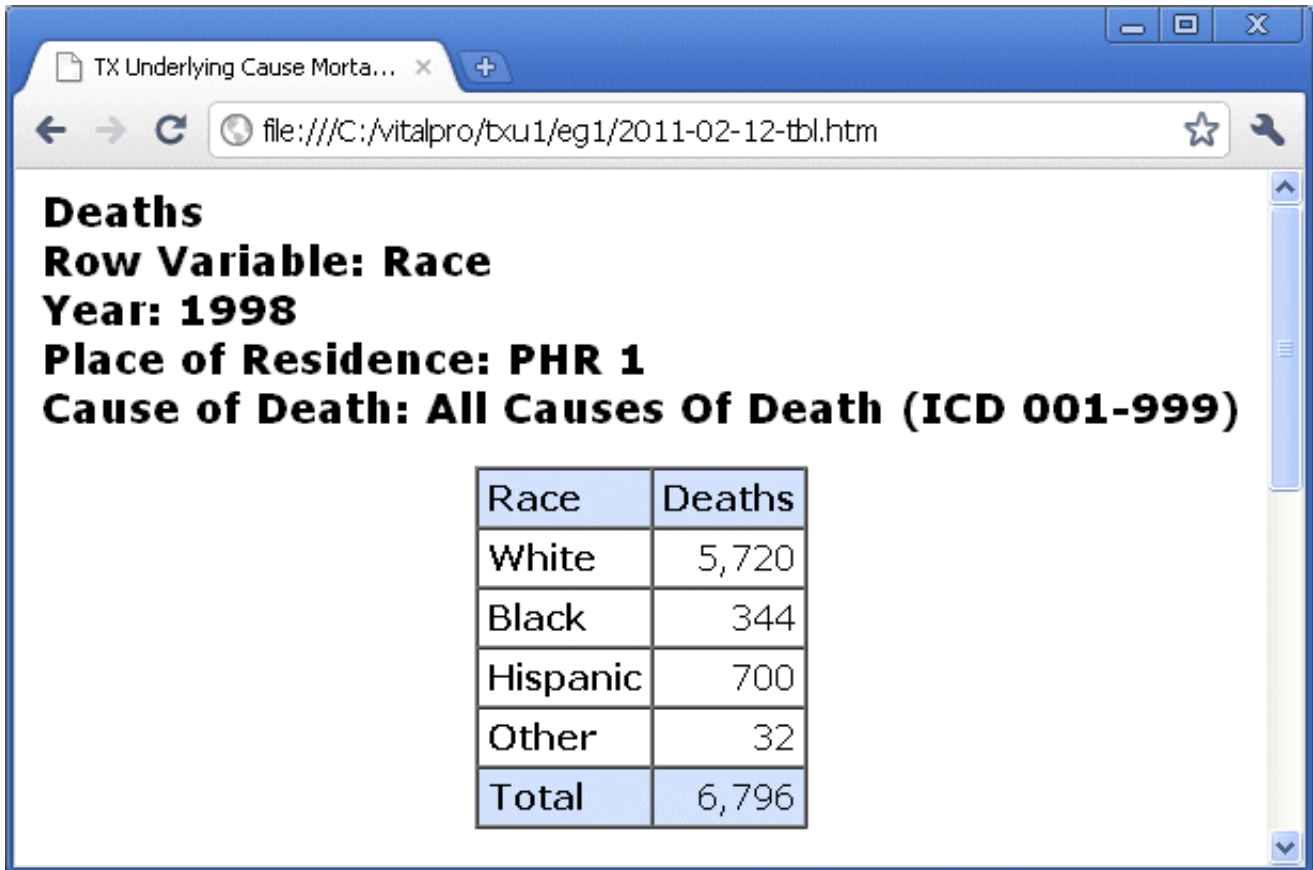
Make sure you're back - You should now be back at the Main Menu. Note that "Geographic Areas" has been modified (it is now set to Public Health Region 1). If you are not back at the Main Menu, get assistance from a co-worker familiar with using Texas VitalPro. Or (in almost all cases), simply press the ESCAPE key a few times.

3-5: Produce a Table

- Press 'P' at the Main Menu to make a table.

Check that you are at the Main Menu - You should now be back at the Main Menu. You have used the submenus to select a few parameters, and are now ready to produce your first table!

Press the letter 'P' to produce a table similar to the following (bottom of table not shown):



Time required - The amount of time required depends on which parameters are selected and what kind of computer you are using, but is typically a few seconds.

Examining the table - The output will automatically appear in your default desktop browser (which you previously had open). The bottom of the output (not shown above) contains links to spreadsheet, text, and dBASE III output. There may be links to bar, pie, or line chart output.

1. View (and print) the output in your browser.
2. Click on some of the links at the bottom of the output.
3. If desired, delete the browser window (CTL-W).
4. Click on the VitalPro Main Menu to return to the program.

3-6: Continue with Analyses

- VitalPro lets you quickly carry out a wide variety of analyses.

Explore the menus - Once you get the hang of it, using VitalPro is pretty easy. If you have gotten this far, you understand the basic program operation. Don't be afraid to experiment and try out different options. Once you have made a table, look it over. If it meets your needs, you're done. If the table is not quite right, look over the parameters on the Main Menu, highlight the parameter you want to change, and press ENTER. A submenu will lead you through the modification process. After setting all parameters as desired, return to the Main Menu and produce another table by pressing 'P'. Try it:

1. At the Main Menu, modify a parameter or two.
2. Then press 'P' to produce and view another output table.
3. Try some of the [sample analyses](#) shown later.

On-line help - Although VitalPro has been designed to be as self-explanatory as possible, it also includes extensive on-line help. To access on-line help from any menu, press '?'. A help screen will appear, with information related to the current menu. After viewing the help screen, a scrolling list of help topics may be viewed, for your selection. Try it:

At the Main Menu, press '?' and explore the help system.

Quitting VitalPro - The '=' or ESCAPE key always returns to the previous menu. Later, when you are done, you may press the 'Q' key from the Main Menu to quit VitalPro.

Hints for avoiding misinterpretation:

- Double-check table header and footer to verify it was the analysis you intended.
- Double-check ICD codes to make sure they are the causes of interest.
- Use age-adjusted rates to compare rates between different populations.
- Use fewer rows and columns for simpler presentation.
- Use more rows and columns if more comparisons and detail needed.
- Acknowledge limitations in accuracy of the cause of death.
- Acknowledge possible changes in coding practices by certifiers.
- Acknowledge the possibility of census miscounts.
- Acknowledge difficulty estimating population in years between censuses.
- Use confidence intervals to help decide if differences are statistically significant.
- If uncertainties remain, contact local data experts for advice.

3-7: More Practice Analyses

For additional practice, and to gain more understanding of how Texas VitalPro can speed and simplify data analysis, carry out the following sample analyses. Columns are by sex for each practice table, unless otherwise noted. Do the following:

For each analysis, select the parameters as shown below. Then, press 'P' from the Main Menu to produce output.

1. Leading causes of death for Texas:

ICD sets - NCHS rankable causes	Area sets - Texas	Statistic - Deaths
Row sort - Sorted high to low	Row for each - ICD set	Races - All
Table for each - One only	Years - Most recent year	

2. Current HIV age-specific death rates for one county:

Statistic - Death rate	ICD sets - 42-44	Year - Most recent
Row for each - Age group	Area sets - Travis	Races - All
Table for each - One only	Ages - 10-year groups	

3. 1994-95 lung cancer death rates ranked by area:

Statistic - Age-adjusted rate	Row for each - Area set	ICD sets - 162
Adjustment standard - 2000 US	Table for each - One only	Races - All
Row sort - Sorted high to low	Area sets - All counties	Years - 1994-95

4. Diabetes time trends, table for each race:

Statistic - Age-adjusted rate	Row for each - Year	ICD sets - 250
Adjustment standard - 2000 US	Table for each - Race	Races - All
Area sets - Texas	Years - All years	

Chapter 4: Outlines of Submenus

What other menus and options are available? - If you have done the examples in the previous chapter, you should have a good understanding of how to use VitalPro menus to select parameters. However, you have just scratched the surface of the capabilities and power of VitalPro. For your reference, the following pages list all of the Texas VitalPro menus. The purpose of the list of menus is to help you become aware of what is available so that you can take fullest advantage of the software. Do this:

Viewing the outlines on the next pages, explore VitalPro menus.

First, design table layout:

- [Statistic Menu](#)
- [Row Variable Menu](#)
- [Row Sorting Menu](#)
- [Column Variable Menu](#)
- [Multi-Tables Menu](#)

Next, modify data variables:

- [Age Groups Menu](#)
- [Area Sets Menu](#)
- [Cause of Death Menu](#)
- [Race Groups Menu](#)
- [Sex Menu](#)
- [Year Ranges Menu](#)
- [Other Settings from Main Menu](#)

When ready, carry out an action:

- Produce Table and Charts
- Exit VitalPro

4-1: Table Layout Submenus

- Using Texas VitalPro, explore menus for designing table layout.

Statistic Menu sets type of result:

- Deaths
- Death Rate
- Age-Adjusted Death Rate
- Mean Age of Death
- Standardized Mortality Ratio
- Years of Potential Life Lost
- Years of Life Lost Rate

Row Menu selects "Row Variable":

- Age
- Education
- Hispanic Origin
- Injury at Work
- Marital Status
- Place of Occurrence
- Place of Residence
- Race
- Sex
- Type of Place of Death
- Underlying Cause
- Year

Column Menu has same options.

Multi-Table Menu has same options.

Row Sorting Menu options:

- Rows unsorted
- Rows sorted by total data, high to low
- Rows sorted by total data, low to high

4-2: Data Variable Submenus

- Using Texas VitalPro, explore menus for modifying variables.

Race Menu / Sex Menu:

- Select categories as sets
- Delete one / all sets
- Merge sets into new set
- Split previously merged set

Year Ranges Menu:

- Use standard grouping, eg 2-year
- Extend upper / lower end of range
- Split range into individual years
- Delete a year range

Age Groups Menu:

- Use standard grouping, such as 10-year
- Extend upper / lower end of group
- Split group into separate groups
- Delete an age group

Area Sets Menu:

- Add some areas (submenu)
- Delete one / all area sets
- Merge area sets into new set
- Split area set into sub-areas
- Show and print list of areas

Other Main Menu Settings:

- Age-Adjust Standard
- SMR Standard
- YPLL Age Limit
- HTML Output Font
- Menu Color Scheme
- Spreadsheet Format
- Tabular Chart
- Unique ID
- Cell Confidence Level
- Cell Suppression
- Decimal Place Digits
- Table Percents
- OTH_Title_Not_QTD_____OTH_Trend_Confidence_Lev____
- Bar, line, and pie chart settings
- Output directory
- Output file prefix

Cause of Death (ICD) Menu:

- Add from list menu (common causes)
- Add from tree menu (all ICD codes)
- Add single ICD range (all ICD codes)
- Show (to browser) list of ICD codes
- Delete one / all ICD sets
- Merge ICD sets into new set
- Split ICD set into ICD groups

Chapter 5: Table Variables

What's in this chapter - This chapter explains what we call "table variables". Table variables are the basic variables that determine the layout of an output table. VitalPro allows great flexibility in designing your table. Critically, VitalPro prevents incompatibilities from occurring.

Table variables are: Main Statistic, Row Variable, Row Sorting, Column Variable, and Multi-Tables.

5-1: Main Statistic [Outcome]

- **The Main Statistic is the basic type of number in a table.**

What is a Main Statistic? - Every table has a Main Statistic. The Main Statistic (or outcome) is the basic type of data generated in an output table. Each statistic is defined in the glossary, and on-line help files give calculation methods.

Reliability Indicator		Main Statistic
Number of Deaths	Confidence Interval	
--	Yes	Deaths
Yes	Yes	Death Rate
Yes	Yes	Age-Adjusted Death Rate
Yes	Yes	Mean Age of Death
Yes	Yes	Standardized Mortality Ratio
Yes	Yes	Years of Potential Life Lost
Yes	Yes	Years of Life Lost Rate

Reliability indicator - As shown in the table above, a reliability indicator (either number of deaths or confidence interval) is displayed along with most statistics. The **number of deaths** is normally displayed along with each rate and YPLL. Optionally, you may request that **confidence intervals** be displayed as the reliability indicator.

5-2: Rows and Columns, Row Sorting

• **Table rows and columns may be set however you want.**

Rows and columns - Rows are horizontal lines in a data table. Columns go up and down.

Every table has a row variable and a column variable. Rows and columns may be set to any of the following:

- Only one row / column (not set to a variable)
- One row / column per selected age group
- One row / column per selected area set
- One row / column per selected sex
- One row / column per selected ICD set
- One row / column per selected race set
- One row / column per selected year set

Sorted rows - Any table may be sorted as follows:

- Rows sorted from high to low, by total data
- Rows sorted from low to high, by total data

Unsorted rows - Examples of rows in standard order (unsorted rows) include:

- Area sets in alphabetical order, such as Bexar before El Paso.
- ICD sets in numerical order, such as ICD 162 before ICD 410.

5-3: By Variable (Multi-Tables)

- You may automatically produce a series of tables.

```
Deaths
Tabulated by Race-Ethnicity and Sex
Years: 1995
Place of Residence: Anderson
ICD 001-999: All Causes Of Death
```

Race	Male	Female	Total
White	212	190	402
Black	38	51	89
Hispanic	2	2	4
Other	1	1	2
Total	253	244	497

```
*** Tables omitted to save space ***
```

```
Deaths
Tabulated by Race-Ethnicity and Sex
Years: 1995
Place of Residence: Zavala
ICD 001-999: All Causes Of Death
```

Race	Male	Female	Total
White	12	8	20
Black	0	0	0
Hispanic	48	23	71
Other	0	0	0
Total	60	31	91

Purpose of multi-tables - Suppose you want to make a separate table for each county. It would be tedious to select the first county, make a table, select the second county, make a table, etc. Multi-tables automates the production of such a series of tables into one operation. The multi-table setting may be one of the following:

- Only one table (the default)
- One table per selected age group
- One table per selected area set
- One table per selected ICD set
- One table per selected race set
- One table per selected year set

Chapter 6: Data Variables

What's in this chapter - This chapter lists and explains data variables you may modify using the Texas VitalPro interface. VitalPro allows great flexibility in selecting and modifying data variables. You may select variables into ranges and "sets" just about any way needed.

Here are the data variables covered in this chapter:

- Age groups
- Race
- Sex
- Years

- Causes of death (ICD sets)
- Geographic selection (area sets)

6-1: Geo Selection [Area Sets]

• **Every table has a geographic specification.**

Geographical Areas - Texas VitalPro analyzes data to the county level. Texas has 254 counties, organized into regions (a group of several counties), as follows:

- 11 Public Health Regions (PHR's) (Effective 3/1/93)
- 24 Councils of Government (COG's)

You may select any combination of areas - VitalPro makes it easy to compare results between different groupings ("sets") of geographic areas (Counties and County groupings), or limit analysis to specific geographic areas. One or more geographic areas may be combined into an area set, and compared with other sets.

Selection is quick and easy - All geographic operations are grouped together on one submenu, to allow quick and easy selection of any combination of areas desired. [A previous interface snapshot](#) shows the main geographic menu.

6-2: Range and Categorical Variables

Race Groups

You may select any combination of race groups to analyze. Races may be combined into "sets" as needed. A separate submenu allows easy selection. Keep in mind that differences in health status between races may be due to socio-economic differences.

For 2004 and previous years, each death is classified as White, Black, Hispanic, or Other, as follows: 1) If race is reported as Black, the category is "Black". 2) Of the remainder, if race is reported as Chinese, Japanese, Hawaiian, Filipino, Asian Indian, Korean, Samoan, Vietnamese, or Guamanian, the category is "Other". 3) Of the remainder, those said to be of Hispanic origin are counted as "Hispanic". 4) If race is reported as Black, the category is "Black". 5) All remaining are classified as "Other". ([DSHS Definition](#))

For 2005 and later years, each death is classified as White, Black, Hispanic, or Other, as follows: 1) Those said to be of Hispanic origin are counted as "Hispanic". 2) Of the remainder, if race is reported as Black, the category is "Black". 3) Of the remainder, if race reported as White, the category is "White". 4) All remaining are classified as "Other". ([DSHS Definition](#))

Age Groups

VitalPro lets you combine and analyze age groups in just about any way needed. You may select any contiguous combination of age groups to analyze, such as 22-34. Or, you may select a set of ranges, such as birth-19, 20-39, 40-64, 65-99+.

The program will let you know which age groups are available for use. Standard age groupings, such as 5-year, 10-year, and 20-year age groups are easily selected. Age groups may be combined in just about any way desired.

Up to age 21, 1-year ages are used (for example, 3 or 11-17). For 22 and over, an age group may use any combination of 5-year groups (for example, 40-44 or 30-49). The highest group is currently 75-99+ (75 and over).

Sex

You may select Male, Female, or both sexes combined.

Years

You may select any continuous range of one or more years to analyze, such as 1980-1983. In addition, you may select a set of year ranges for comparing, such as 1990-1991, 1992-1993, 1994-1995. The program will let you know which years are available for use. Standard groupings, such as 1-year, 2-year, and 3-year groups are easily selected. Year groups may be combined in just about any way desired.

Multi-year death rates are calculated by adding all of the deaths over the time period, and dividing by the sum of the populations over that same period.

6-3: Causes of Death [ICD Sets]

· Mortality tables always include causes of death.

ICD codes - VitalPro classifies causes of death with ICD codes. The "International Classification of Diseases" is the standard system for classifying causes of death. Each disease or condition has a separate 3-digit or 4-digit ICD code. For example, 250 for diabetes mellitus, 005.1 for botulism. 1980 to 1998 death data use the 9th ICD revision (ICD-9). As of 1999, death data use ICD-10.

ICD groups and sets - An ICD group is one or more consecutive ICD codes (for example, 410-414 for ischemic heart disease). An ICD set is one or more ICD groups combined. For example, ICD 174 for breast cancer and ICD 180 for cervical cancer may be combined into an ICD set.

At the broadest level, the ICD-9 system has 17 major disease categories. At the most detailed level, there are about 5,000 four-digit codes. For codes 800-999 (injury and poisoning), VitalPro uses external cause codes (E-codes), standard for mortality analysis.

Selecting ICD groups - VitalPro allows you to easily select and combine ICD groups to meet your analysis needs. You may select ICD sets by entering the range (for example, enter 162 for lung cancer, or 42-44 for HIV/AIDS). Or, you may select from ICD selection menus, organized to allow you to narrow your focus without having to know the specific code. Or, you may select one of several standard ICD lists. For example, for easily calculating leading causes of death, select the NCHS list of 38 leading causes.

Texas VitalPro automatically formats leading cause reports, to save you the trouble of converting ICD codes such as "ICD 250" and set numbers such as "Set #18" to descriptive terms such as "Diabetes" and "Heart Disease".

Chapter 7: Other Parameters

What's in this chapter - This chapter explains various other key parameters, that are not table variables and are not data variables.

Here are the other parameters covered in this chapter:

- Cell Suppression
- Cell Confidence Level
- Decimal Place Digits
- Trend Confidence Level

- Bar Charts
- Line Charts
- Pie Charts

7-1: Confidence Intervals

Statistical reliability - Results that are based on a smaller number of events are less reliable than those based on a larger number. Confidence intervals allow you to estimate the statistical reliability of your results.

Confidence interval definition - A confidence interval (also known as confidence limits) is the range of values within which the true value of a variable is thought to occur, with a specified confidence level (95%, 90%, 80%, etc.). A higher confidence level (for example, 99%) implies greater confidence that the true value is included, so results in a larger interval than a lower confidence level (for example, 80%). Use the 95% confidence level unless you have a reason to do otherwise.

Methods for confidence intervals - VitalPro uses the Poisson distribution to calculate most confidence intervals, using the method described in "Scientific Tables", Diem and Lentner (ed), Geigy, 1970 (equations 802a and 802b on page 189). Confidence intervals for standardized mortality ratios are calculated using the method of Rothman and Boice described in "Research Methods in Occupational Epidemiology", Checkoway, Pearce, and Crawford-Brown, Oxford University Press, 1989, (equations 5.7 and 5.8 on page 127). Confidence intervals for trend analysis are calculating using Student's t-distribution.

7-2: Decimal Places

VitalPro allows specification of the number of decimal places in your results. For example, the number 64.29 has two decimal places. The number 64 has zero decimal places.

7-3: Cell Suppression

- You may suppress cells with low numbers of deaths.

How cell suppression works - Cells with low numbers of deaths may be blanked out with an asterisk (*). You set the level at which results will be suppressed. Bar graphs are not included if any cells are suppressed, because the graphs would not be accurate.

Suppression of row / column totals - A row total will be **suppressed** if there is exactly one suppressed cell in the row, or if the row total is low. A row total will be **displayed** if there is more than one suppressed cell in the row, unless the row total is low. The same rules apply to columns.

Use of cell suppression - Cell suppression may be used for certain data tables to be released to the public where there is a concern that low numbers should not be published due to potential confidentiality issues. Concerns about reliability of small numbers may possibly be better addressed by using confidence intervals, or by including the number of deaths as a reliability indicator.

Cell suppression in dBASE III files - A suppressed result is indicated as "-1".

```
Deaths
Tabulated by Age and Sex
Years: 1995
Place of Residence: Travis
ICD 042-044: Human Immunodeficiency Virus (HIV) Infection
```

Age	Male	Female	Total
Birth-4	*	*	*
5-14	*	*	*
15-24	*	*	*
25-34	75	10	85
35-44	83	11	94
45-54	27	4	31
55-64	6	*	*
65-74	*	*	*
75-99+	*	*	*
Total	194	29	223

```
=====  
Analysis Footnotes:  
Unique ID, for Keeping Track of Analyses: 405SSEZA  
Output Produced: Thu Apr 05 21:38:26 2001, by Texas VitalNet  
Deaths Classified By: ICD-9, Underlying Cause, Place of Residence  
Suppress Cell [*]: If 3 or Fewer Deaths In Cell  
Suppress Row/Column Total [*]: If Exactly One Suppressed Cell in Row/Column  
Mortality Data Source: TDH Bureau of Vital Statistics
```

Table with Suppressed Cells

7-4: Trend Analysis

- VitalPro automatically carries out trend analyses.

Purpose of trend analysis - When analyzing data with a year for each row, you usually want to know: Is there a trend up or down? Is the rate increasing or decreasing? Statistical analysis is helpful in quantifying the answer.

Least-squares line shows the trend - VitalPro automatically carries out a "least-squares" analysis for a time series. This finds the best straight line to describe the data for each data column. The line is defined by the value for the first year ("y-intercept"), and the amount of change per year ("slope").

Confidence intervals show if significant trend - VitalPro calculates a confidence interval for the slope. If the confidence interval doesn't include 0, there is a significant trend.

Simplified presentation - VitalPro allows the user to substitute a simplified presentation (not shown) that only says whether the trend is significantly up or down for each column.

```
Death Rate (per 100,000)
Tabulated by Year and Sex
Age: Birth-11m Years
Place of Residence: Texas
ICD 001-999: All Causes Of Death
```

```
Tabular Chart (X = 64.6 Deaths / 100,000, x = 32.3):
```

Year	Male Rate	Female Rate	Total Rate
1990	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXx	XXXXXXXXXXXXXXXXx
1991	XXXXXXXXXXXXXXXXx	XXXXXXXXXXXXXx	XXXXXXXXXXXXXXXX
1992	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
1993	XXXXXXXXXXXXXXXXx	XXXXXXXXXXXXXx	XXXXXXXXXXXXXXXXx
1994	XXXXXXXXXXXXXXXXx	XXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
1995	XXXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX
Total	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXx	XXXXXXXXXXXXXXXXx

```
Detailed Least-Squares Analysis, to Detect Linear Trend:
```

Column	1990 Y-intercept	Slope	95% CI (4 df, t=2.7764)
Male	941.1	-41.76	-59.37 to -24.16 **
Female	742.9	-29.64	-44.32 to -14.96 **
Total	844.1	-35.81	-50.58 to -21.05 **

```
Y-intercept and slope may be used to draw least-squares line.
If confidence interval (CI) does not include 0, trend is significant [**].
```

Significant Downward Trends for Death Rate Under One

7-5: CSV and DBF Output

- Results may be saved to a spreadsheet, DBF, or text file.

Saving to a second format - The output in your desktop browser always includes (at the bottom of the output) links to spreadsheet (csv, tsv, or dif), text (txt), and dBASE III (dbf) output. To view or download one of the second formats, simply click on one of the links.

CSV file (comma-separated-value) (for spreadsheets) - CSV output has a comma between each output item, and each text item is surrounded by "double quotes", as shown below. CSV format is ideal for importing into spreadsheet software. TSV (tab-separated-value) format is similar, but uses tabs instead of commas between items.

Browser differences - Internet Explorer automatically displays CSV output in Excel (if installed). Other browsers may be configured to automatically display CSV output in a spreadsheet program.

```
"Deaths"
"Tabulated by Race-Ethnicity and Sex"
"Years: 1990"
"Place of Residence: PHR 1"
"Causes of Death (ICD-9): 001-999: All Causes Of Death"

"Race", "Male", "Female", "Total"
"-----"
"White", 2797,2627,5424
"Black", 185,143,328
"Hispanic", 348,207,555
"Other", 6,8,14
"-----"
"Total", 3336,2985,6321

"====="

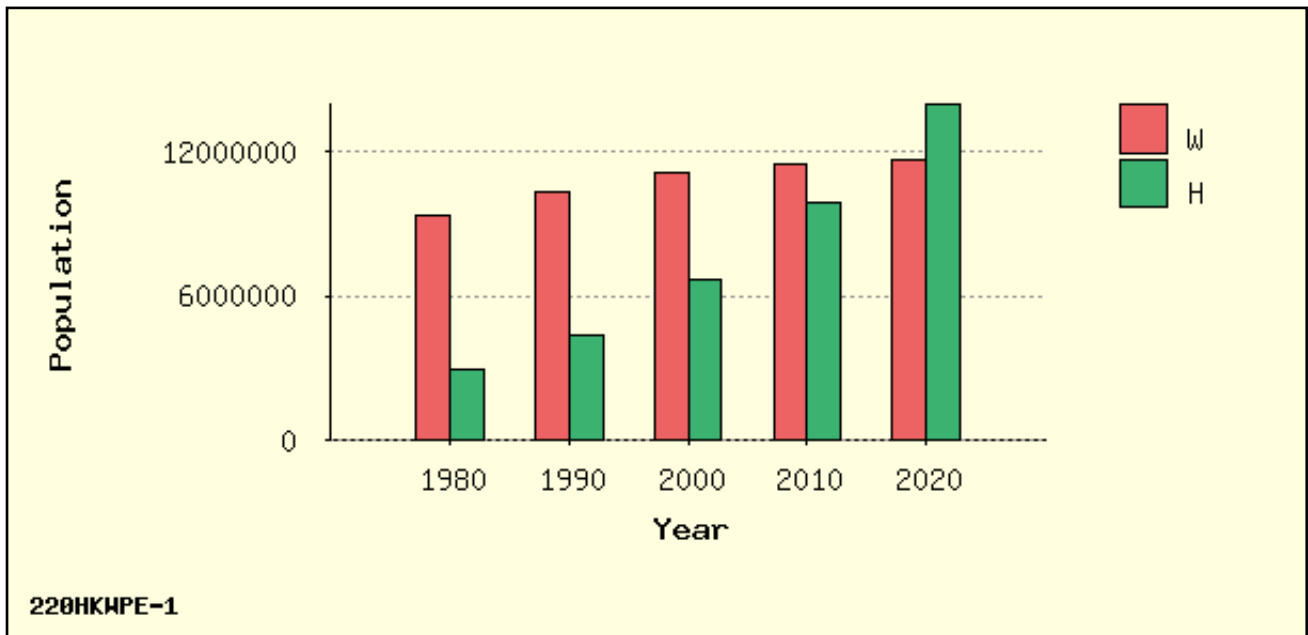
"Analysis Footnotes:"
"Unique ID, for Keeping Track of Analyses: 405MFAQB"
"Output Produced: Thu Apr 05 21:28:10 2001, by Texas VitalNet"
"Deaths Classified By: ICD-9, Underlying Cause, Place of Residence"
"Mortality Data Source: TDH Bureau of Vital Statistics"
```

Example of CSV Output

DBF file (useful for many other applications) - Results may also be saved to a dBASE III database file (dbf extension). Database files are excellent for importing into almost any data analysis, graphics, spreadsheet, mapping or other presentation software. Field names are automatically imported along with the data. Suppressed cells are represented by the number "-1".

DBF file limitations - 1) Header and footer information listing analysis parameters is not included in database files. To help out, you may want to make the name of the dBASE file the same as the table ID, such as "405MFAQB.DBF" so you can refer to the table later. 2) Only 128 columns may be saved to a dBASE III file. This rarely presents a problem, because unlimited rows are allowed.

7-6: Bar Charts



Bar charts compare amounts of different things.

Ways to customize Vitalnet bar charts:

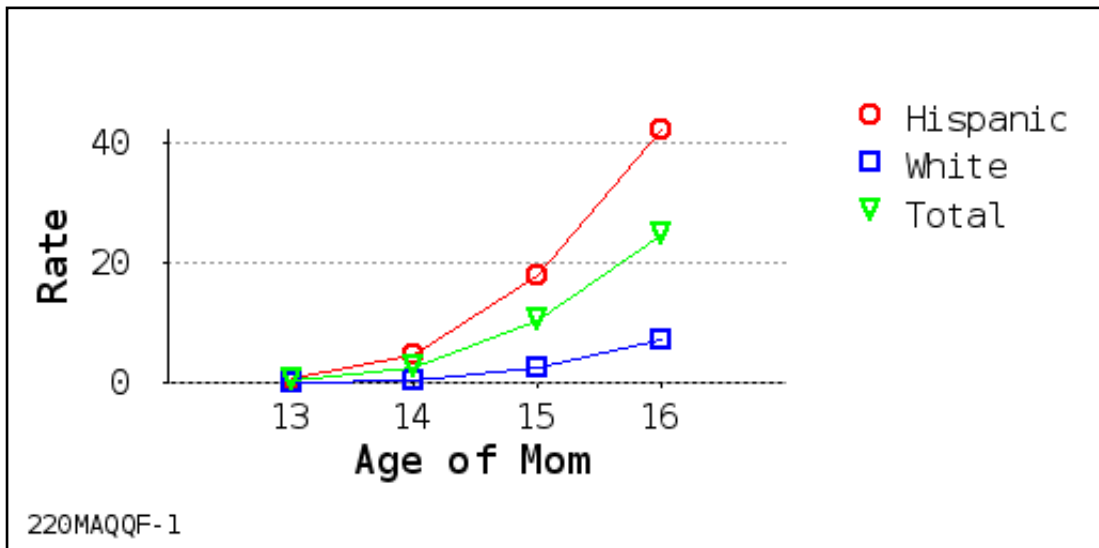
- **Background** - Background color for bar chart.
- **Bar Colors** - Color palette to use for bars.
- **Bar Height** - Height of tallest bar (cm).
- **Bar Width** - Width of each bar (cm).
- **First Color** - Color to use for first bar.
- **Grid Lines** - Dashed grid lines on bar chart.
- **Orientation** - Horizontal or vertical bar chart.
- **Text Size** - Font size for bar chart text (points).

Note: Black and white chart uses hatch and gray-scale patterns.

Bar charts are only made if the following conditions are met:

- 1 to 20 rows (groups of bars).
- 1 to 10 columns (bars per group).
- No suppressed results (for stacked bar chart).

7-7: Line Charts



Line charts show movement or change.

Ways to customize Vitalnet line charts:

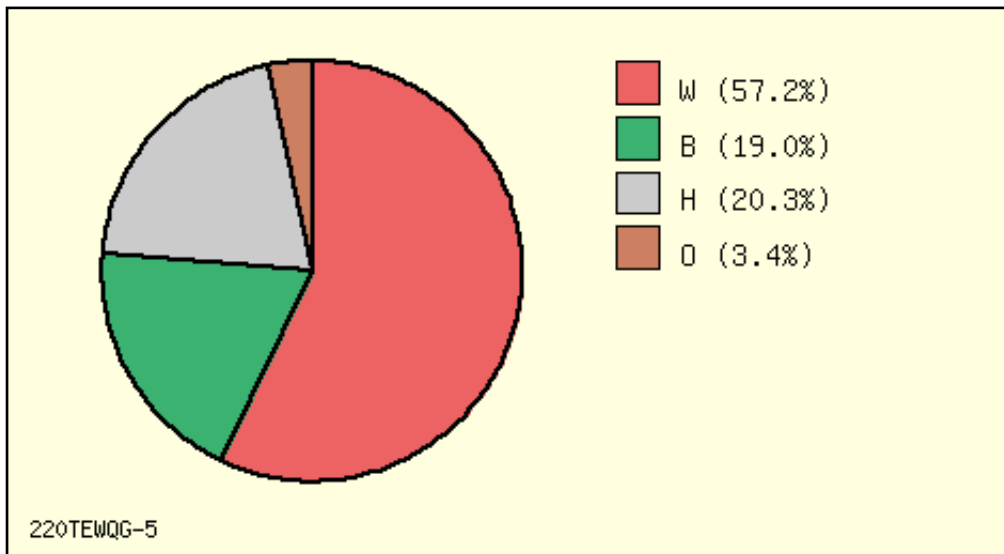
- **Background** - Background color for chart.
- **Grid Lines** - Grid lines on line chart.
- **Height** - Line chart height (cm).
- **Line Colors** - Colors to use for lines.
- **Line Width** - Width to use for lines.
- **Symbol Size** - Symbol radius (mm) (if symbols used).
- **Symbols** - Symbols at line chart data points.
- **Text Size** - Font size for line chart text (points).

Note: Black and white lines are rendered as dot and dash patterns.

Line charts are only made if the following conditions are met:

- Range rows (such as age or year).
- Ranges are continuous (not 2000, 2002).
- Rows not sorted. No suppressed results.
- No more than 10 lines (10 columns).

7-8: Pie Charts



Using pie charts:

- Shows parts of a whole.
- Can be difficult to prevent label overlap.
- Not good for giving detailed information.
- Not good for showing trends.
- Gives quick overall comparison of a few items.

Ways to customize Vitalnet pie charts:

- **Background** - Background color for chart.
- **Colors** - Colors to use for pie chart slices.
- **First Color** - Color to use for first slice.
- **First Slice** - Clock position for first slice.
- **Label Mode** - How to label pie chart slices.
- **Percents** - How to display pie chart percents.
- **Radius** - Radius of pie chart (cm).
- **Text Size** - Font size for chart text (points).

Pie charts are only made if the following conditions are met:

- Cumulative data (counts, some rates).
- One set of numbers (one row or column).
- 2 to 9 pie slices. No suppressed results.

Checklist of Key Tasks

This checklist gives an overview of the main capabilities of the software, and the tasks you would normally do to analyze the data.

Table layout:

- Select outcome (main statistic)
- Select row variable and sorting
- Select column variable
- Select multi-tables (table series)

Age groups:

- Select grouping (eg 5-year groups)
- Split a group (eg, 10-11 --> 10 + 11)
- Delete a group

For low end of a group:

- Decrease (eg, 11-13 --> 10-13)
- Increase (eg, 11-13 --> 12-13)

For high end of a group:

- Decrease (eg, 10-12 --> 10-11)
- Increase (eg, 10-12 --> 10-13)

Other tasks:

- Produce output from main menu
- View HTML output in browser
- View text output in browser
- View pie / bar / line charts
- View CSV / TSV in spreadsheet
- Change output directory
- Change output prefix
- Use help system

Race sets:

- Select some race sets
- Delete a race set
- Merge some sets
- Split a race set

Area sets:

- Select some area sets
- Delete an area set
- Merge some sets
- Split an area set

ICD sets:

- Select some ICD sets
- Delete an ICD set
- Merge some sets
- Split an ICD set

Chart settings:

- Modify bar chart settings
- Modify line chart settings
- Modify pie chart settings

Other settings:

- Change decimal places
- Turn on cell suppression
- Turn on confidence intervals
- Turn on row percents
- Turn on column percents

Glossary

Age-adjusted death rate - Deaths per 100,000 population, adjusted to a standard population (such as US 1940 or US 2000), by the direct method. Age-adjusted rates are often better for making comparisons than unadjusted rates, because they adjust for differences in age distribution between populations. An age-adjusted rate is a summary measure. Besides calculating overall age-adjusted rates, it is also recommended to compare age-specific rates.

Age-adjustment standard - A standard population for calculating an age-adjusted death rate. The 1940 and 2000 US Census population are the most common standards.

Apgar score - A summary measure of the condition of the infant based on heart rate, respiratory effort, muscle tone, reflex irritability, and color. Each factor is given a score of 0, 1, or 2; the sum of these five values is the Apgar score, ranging from 0 to 10.

Area set - One or more areas combined.

ASCII file - A text file, with only alphabetical, numerical, and punctuation characters, like you would see in normal text. Vitalnet can produce output in ASCII format.

Tabular chart - A section of a Vitalnet table. Gives a scaleable graphical representation of the data. May be omitted from the output table.

Birth rate - Births per 1,000 female or total population.

Birth weight - The weight of an infant at delivery, expressed in grams.

Cause of death - Any condition which leads to or contributes to death and is classifiable according to the International Classification of Diseases (ICD) system.

CDC - Centers for Disease Control and Prevention. US federal health agency.

Cell - A space for a single numerical result in a table, at a row-column intersection.

Cell suppression - An asterisk "*" is placed in cells with fewer deaths than a limit set by the user. Row / column totals with exactly one suppressed cell in the row / column are also suppressed. If more than one cell in the row / column is suppressed, the row / column total is displayed.

Cesarean rate - Number of cesareans / number of births.

Cesarean rate - primary - $FC / (FC + FV)$. Numerator is number of first-time cesarean deliveries (FC). Denominator is number of first-time cesarean deliveries (FC) plus number of first-time vaginal deliveries (FV).

Cesarean rate - repeat - $RC / (RC + VA)$. Numerator is number of repeat cesarean deliveries (RC). Denominator is number of repeat cesarean deliveries (RC) plus number of vaginal deliveries after previous cesarean (VA).

CNM - Certified Nurse Midwife (birth attendant category)

Columns - Vertical groupings of data in a Vitalnet table, such as a column for each race group.

Confidence interval (confidence limits) - A range of values within which the true value of a variable is thought to lie, with a specified level of confidence. For a result of 23.5, a confidence interval might be (23.1-23.9). The smaller the interval, the more reliable the result. If the 95% confidence intervals do not overlap, there is probably a statistically significant difference. Vitalnet uses several methods to calculate confidence intervals. The output table documents which method was used.

Confidence level - The likelihood that the true value of a variable is within a confidence interval. For example, for confidence intervals at the 95% level, we are statistically 95% certain that the actual value of the variable is within the interval.

CSV format - Comma-separated-value format. CSV files are readily imported into spreadsheet software. Each output item is separated by a comma from surrounding items, and each output text item is surrounded by "double quotes". A comma-separated-value file has "csv" extension. Similar to TSV format.

Cursor key - Arrow key, PgDn, or PgUp key. Used to navigate a web page or computer program.

Data mining - Finding unexpected relationships in a data set. Similar to exploratory data analysis.

Vitalnet is excellent at data mining. Of course, keep in mind that the more you look, the more unusual events you will find, just by chance.

Data warehouse - Software system, such as Vitalnet, making large complex databases readily available for querying and analysis.

dBASE III format - A widely used file format derived from the database software of the same name. Files in this format may be readily imported into almost any data analysis, graphing, mapping, or other presentation software. Has dbf extension. Suppressed cells are represented as the number "-1".

Death rate - Deaths per 100,000 population. May be used to compare the burden of disease between different groups. Also called crude death rate.

DIF format - Data interchange format. DIF files are readily imported into spreadsheet software. The DIF format is too complex to explain in this glossary. Has "dif" extension.

DO - Doctor of Osteopathy (birth attendant category)

Denominator - The number on the bottom of a fraction. Population data are often referred to as "denominator data", as they are used as denominators to calculate population-based rates.

E codes - "External" causes of death such as injuries and poisonings. ICD-9 E codes range from 800-999.

ENTER key - A key on your keyboard. Sometimes called RETURN key. Often used to select an item or complete an operation.

ESCAPE key - A key on your keyboard, often on the upper left. Tells Vitalnet to return to a higher-level (previous) menu. Pressing 'Z' usually does the same thing.

Export - Produce output that can be read into other computer programs. Vitalnet produces ASCII text (txt), comma-separated-value (csv), HTML (htm), and dBASE III (dbf) files for export.

Fetal death - A fetus showing no evidence of life after a complete birth.

Fetus - Term applied to the unborn offspring from the date of conception until the completion of pregnancy.

Filter variable - A variable solely used to filter which records are included in the output. For example, for a single table with race rows and sex columns, age is a filter variable.

Footer - Last part of a Vitalnet table. Lists required but less important details of the analysis, such as the date and time produced, and data sources. The footer contains a unique ID to assist in keeping track of analyses.

General fertility rate - Total live births (to all women) per 1,000 women age 15-44 in a given year.

Gestational age - Number of completed weeks elapsed between the first day of the last normal menstrual period and the date of delivery. Gestational age is expressed in completed weeks.

Gestational age - Number of completed weeks elapsed between the first day of the last normal menstrual period and the pregnancy outcome. Gestational age is expressed in completed weeks.

General fertility rate - Live births per 1,000 women age 15-44 in a given year.

Header - First part of a Vitalnet table. Lists key analysis parameters, such as years analyzed.

Hepatitis case rate - Number of cases per 100,000 people at risk. For example, if Smith County has 40 cases, and 200,000 people, the hepatitis case rate is 20 per 100,000.

Hepatitis death rate - Number of deaths per 100,000 people at risk. For example, if Smith County has 4 deaths, and 200,000 people, the hepatitis death rate is 2 per 100,000.

High birth weight - A birth weight 4,000 grams or greater.

High birth weight percent - Percent of births with birth weight 4,000 grams or greater.

ICD - International Classification of Diseases. A widely used system of classifying diseases and injuries. Each disease or set of diseases has an ICD code or ICD group assigned to it. Vitalnet uses the ICD-9 system, which has been in use since 1979, and the ICD-10 system, which started with 1999 mortality data.

ICD-9 code - A single ICD number representing a single disease or injury (for example, ICD 250 for diabetes). Note - ICD codes for HIV / AIDS first came into use in 1987.

ICD-9 group - A range of continuous ICD-9 codes (for example, ICD 10-18 for tuberculosis).

ICD-9 set - One or more ICD-9 groups or codes combined, for example ICD 174 (female breast cancer) and ICD 180 (cervical cancer).

Import - Read information into a computer program. ASCII text, CSV, TSV, DIF, HTML, and dBASE III files from Vitalnet are easily imported into word processing, spreadsheet, data analysis, mapping,

graphing, and other presentation software programs.

Infant - An individual less than one year of age.

Infant death - Death of a liveborn infant from the moment of birth to the end of the first year of life.

Intrauterine growth retardation - Birth weight in the lowest decile of birth weight for gestational age. An alternative definition is birth weight less than 2,500 grams (low birth weight) in a full-term infant (born at or after 37 weeks gestation).

Jackknife Method - A method for calculating variances and confidence intervals. Jackknife is accurate for complex survey designs, such as BRFSS. Jackknife will work with any statistic, such as percent, mean, or median. The jackknife method repeatedly calculate a replicate statistic. For each replicate, it leaves out one observation (or group of observations), and reweights the observations left in. The variance of the replicates is the same as that of the original data. It is called "jackknife" because it is so generally useful.

Kessner adequate percent - Numerator is number of births with adequate Kessner index. Denominator is number of births with known Kessner index (unknown Kessner scores are not included in denominator). This is a measure of the adequacy of prenatal care. A higher Kessner adequate percent for a population indicates better prenatal care.

Kessner index - Method of categorizing adequacy of prenatal care, based on month of pregnancy care started, number of visits, and length of gestation. This takes both amount and start of prenatal care into account, and adjusts for the fact that women with short gestations have less time in which to make prenatal care visits.

Leading causes for ICD-9 - The ten causes of death with the highest number of deaths, out of a standard NCHS list of 38 rankable causes. Vitalnet makes it easy to select and rank the 38 cause list.

Least-squares - A standard method for fitting the best straight line to a set of points. Produces a Y-intercept and a slope defining the least-squares line.

Light bar - A highlighted area on the computer screen that you can move by pressing an arrow key or other cursor keys. The light bar highlights an item that you may select, add or delete.

Live birth order - Live birth order is the number of children born alive to a mother, including the current baby. If the mother has three previous live births, the live birth order for the next birth is four. Another example: If the mother has one previous live birth, and has twins this time, the live birth order for the first twin is two, and is three for the second twin.

Local area network (LAN) - A computer networking product, such as Novell Netware or Windows NT. Vitalnet may be accessed from a local area network.

Log file - A computer file for saving Vitalnet tables, and other Vitalnet output.

Low birth weight - A birth weight less than 2,500 grams (5 pounds, 9 ounces).

Low birth weight percent - Percent of births with birth weight less than 2,500 grams (5 pounds, 9 ounces).

Main Menu - The top level Vitalnet menu. All parameters are summarized on the Main Menu, and you will always return to the Main Menu before producing a table.

Marriage rate - Number of marriages per 1,000 population. For example, if Smith County has 4,000 marriages, and 200,000 people, the marriage rate is 4 per 1,000. Due to data limitations, does not take into account the current marital status of the population.

MD - Doctor of Medicine (Physician) (birth attendant category)

Mean age of death - If the ages were 50, 51, and 58, the mean age of death is $(50 + 51 + 58) / 3 = 53$

Multiple age groups - One age group for each table row (or column). Example: 0-19, 20-59, 60-99+.

Multiple cause mortality data - Data which include all causes of death listed on the death certificate. Contrast with underlying cause mortality data.

Multiple causes of death - All diseases or injuries which led directly to death, or all circumstances of the accident or violence which produced the fatal injury.

Multi-tables - Vitalnet option to automatically produce a series of tables. For example, there may be one table for each selected race.

NCHS - National Center for Health Statistics. US health statistics agency. Part of the CDC.

Neonatal death - Death of a liveborn infant within the first 27 days, 23 hours, and 59 minutes of life.

Neonatal death rate - Numerator = neonatal deaths x 1000. Denominator = number of liveborn infants.

Neonatal period - Period from birth through the first 27 days, 23 hours, and 59 minutes of life.

Neonate - A newborn infant during the first 27 days, 23 hours, and 59 minutes of life.

Perinatal period - Period from the 20th completed week of gestation (140 days) through the first 27 days, 23 hours, and 59 minutes of life.

Place of occurrence mortality data - Data compiled by the location the death occurred, without regard to the place of residence of the deceased. Vitalnet does not currently analyze for place of occurrence.

Place of residence mortality data - Data compiled by the place of residence of the deceased, without regard to the location where the death occurred. Vitalnet analyzes mortality data by place of residence.

Place of occurrence - The geographic location where a birth occurred.

Place of occurrence birth data - Data compiled by the location where the birth occurred, without regard to the place of residence of the mother.

Place of residence - The geographic location where a birth occurred.

Plurality - Number in a birth, such as twins or triplets.

Population - The number of people living in an area.

Postneonatal - Period between 28 days and one year of age.

Post term birth - Birth after the 41st week of gestation. Birth during or after the 42nd week of gestation.

Pregnancy outcome - A birth, fetal death, or abortion.

Pregnancy rate - The number of pregnancies per 1,000 total or female population.

Preterm birth - Birth occurring before the 38th week of gestation. Birth occurring during or before the 37th week of gestation.

Rows - Horizontal lines in a Vitalnet table, such as a row for each race group.

Row sort settings - Vitalnet rows may be sorted in ascending or descending order.

Set - A combination of one or more things. For example, several areas may be combined into an area set.

Single age group - Only one age group (30-49, for example) is selected. A single age group is used for tables that do not have age columns or age rows.

Standardized mortality ratio (SMR) - The ratio of the expected number of deaths in a population to the observed number of deaths. The expected number of deaths is derived from applying a standard set of rates (usually state or national rates) to the population. SMRs are useful for assessing whether the mortality in a population is higher than expected.

Stand-alone PC - A desktop or laptop computer running off its own local hard disk. Vitalnet may be run from a stand-alone PC.

Statistic (Main Statistic) - The basic type of numerical result displayed in a table, chart, or map. For example, birth rate. divorce rate. death rate. hepatitis case rate. hepatitis death rate. marriage rate. pregnancy rate.

Submenu - A menu accessed from a higher level menu. A submenu helps select or modify a parameter listed on the higher level menu.

Table - A set of results produced by Vitalnet. A table has several parts:

1. Header - lists basic analysis settings
2. Data section - numerical results
3. Horizontal bar graphs - graphical representation of the data
4. Footer - lists other analysis settings

Term birth - Birth during the four week period after the 37th week of gestation and before the 42nd week of gestation. Birth during the 38th through 41st week of gestation.

TSV format - Tab-separated-value format. TSV files are readily imported into spreadsheet software. Each output item is separated by a tab from surrounding items, and each output text item is surrounded by "double quotes". A tsv-separated-value file has "tsv" extension. Similar to CSV format.

Underlying cause - The disease or injury that initiated the train of events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury. A single underlying cause

is assigned to each death.

Underlying cause mortality data - Data which include only the underlying cause of death listed on the death certificate. Contrast with multiple cause mortality data.

Unix - A popular set of computer operating systems. Vitalnet can run on Unix.

Unknown Values - Unknowns are automatically inserted into a Vitalnet table. For example, a separate row (or column) for unknown race. The rate is assigned as zero for an unknown category, since there is no population denominator to use. Some fields, such as sex for certain data sets, are never unknown, so unknowns are left off the table. When, such as for age-adjusted rates, the unknown variable (age) is different from the rows or columns, the number of unknowns for age is shown below the table.

Very low birth weight - A birth weight less than 1,500 grams (3 pounds, 5 ounces).

Very low birth weight percent - Percent of births with birth weight less than 1,500 grams (3 pounds, 5 ounces).

Windows - A widely used set of PC operating systems. Vitalnet runs under any version of Windows.

Wizard - An interactive utility that guides the user through a potentially complex task. Wizards are often implemented as a sequence of dialog boxes which the user can move forwards and backwards through, filling in the details required. The implication is that the expertise of a human wizard is encapsulated in the software wizard, allowing the average user to perform expertly.

World Wide Web (WWW) - A widely used part of the internet that may be easily accessed with a web browser. Vitalnet runs on the WWW.

Years of potential life lost (YPLL) - Sum of the years of life lost by persons who die "early". Early death is usually defined as death occurring before the age of 65 (the YPLL age limit). For example, death at age 40 (40.5) results in 24.5 YPLL to age 65. YPLL is a widely used measure of premature mortality.

YPLL age limit - The age used for calculating YPLL. The most common YPLL age limit is 65.

YPLL rate - YPLL per 100,000 population in the appropriate age category. The YPLL rate up to age 65 is calculated as follows: (YPLL up to age 65) / (population for age group 0-64). YPLL rate is not commonly used.