

CHAPTER VII

AVAILABLE TOOLS FOR PUBLIC HEALTH CORE DATA FUNCTIONS

This chapter includes background information and descriptions of the following tools FHOP has developed to assist local health jurisdictions in their planning activities:

- Guidelines for Statistical Analysis
- Data Templates
- Basic Trend Analysis
- Guidelines for the collection and reporting of race and ethnicity data
- Epi BC
- Epi HOSP
- FHOP website

GUIDELINES FOR STATISTICAL ANALYSIS OF PUBLIC HEALTH DATA WITH ATTENTION TO SMALL NUMBERS

Many consumers of public health data have a limited understanding of statistics and scientific methods. When these consumers are policy makers, they often are pressed to make decisions, usually without as much information as they would like. In such situations, the temptation to rely on weak data, rather than no data, is strong. One of the most common ways of pushing data beyond its limits is to draw conclusions from rates based on a small number of events. Relying on small numbers for analysis may be appropriate as long as the accompanying risks are recognized and alternative approaches are appreciated.

The FHOP Technical Work Group, an advisory body with representatives from health-related state and local agencies developed *Guidelines for Statistical Analysis of Public Health Data with Attention to Small Numbers*. The guidelines are designed to assist local health jurisdictions and health programs in applying clear and consistent approaches to the analysis and presentation of data on health status and outcomes, with particular attention to situations involving small numbers of cases or events. The simplified analytic techniques are intended for use by program and data managers who may not have had training in statistics and who may have limited access to epidemiologists and biostatisticians.

The basic document presents core information on standard measures used in public health and how they are compared; describes the meaning and use of confidence intervals; and offers standard formulas for the following: 1) Calculating confidence intervals for simple counts of cases or events, for proportions, and for rates; 2) Calculating confidence intervals for differences between proportions and between rates; and 3) In some situations, calculating confidence intervals for ratios of proportions and ratios of rates. Special attention is given to the problems of small numbers by description of methods for:

- Analyzing rates when dealing with small numbers
- Aggregating data across multiple years

- Aggregating data by geographic clustering
- Generating listing reports and conducting case studies

The table of contents from the guidelines and a summary page on recommended methods is included as Appendix VII-A. The guidelines are available for download at the FHOP web site at <http://www.ucsf.edu/fhop/fhoprep.html>.

DATA TEMPLATES: TOOLS FOR MONITORING CORE MCH INDICATORS AT THE LOCAL LEVEL

FHOP health monitoring tools include a set of automated “data templates” for recording data on the core MCH indicators. These templates are intended to standardize and simplify the reporting of maternal and child health data used for local and state MCH needs assessments and planning.

Using Excel spreadsheet software, the templates provide a standardized way of assembling, reporting and analyzing data for selected indicators (such as low birth weight). Each template has a specified reporting format (number, percent or rate), outcome measure (definition), population of interest, definition of numerator and denominator, and age category (where appropriate). When applicable, the templates provide benchmark targets from the Healthy People 2010 Objectives. The templates contain up to eleven years of statewide data (in some but not all indicators) for California. The user enters local numbers for the same years, and the templates generate rates or percents for comparison, along with confidence intervals. The current version of the templates allows for alternative calculations when numbers for the local area are too small for standard statistical methods. The templates automatically generate graphs comparing state and local trends over time. Data sources are specified and additional recommended tables are listed for each template. Accompanying instructions guide the data entry process, which is user-friendly.

Copies of the templates and much of the relevant data are available from FHOP’s website <http://www.ucsf.edu/fhop/> for the following MCH indicators:

- Crude Birth Rate
- Distribution of Births by Race/Ethnicity, Trends in Distribution
- Fertility Rates (women ages 15-44)
- Teen Births (ages <15, 15-17, 18-19)
- First Trimester Initiation of Prenatal Care, Prenatal Care Adequacy
- Low Birth Weight, Very Low Birth Weight
- Breastfeeding Intent at Hospital Discharge
- Infant, Neonatal, Post-Neonatal, Fetal Mortality
- Injury Hospitalizations of Children: Unintentional, Assault, Self-Inflicted
- Fatal Injuries of Children: Unintentional, Suicide, Homicide
- Fatal Injuries of Youth (ages 15-19): Suicide, Homicide
- Fatal Drownings of Children (age 1-4)
- Fatal Injuries of Children and Youth (ages 0-24): Unintentional, Suicide, Homicide
- Domestic Violence Calls for Assistance, Weapons Related Calls, Arrests,

Hospitalizations, Deaths

Appendix II-H provides an example of one of the data templates with sample local data.

DO WE HAVE A TREND? A BEGINNERS GUIDE TO ANALYSIS OF TRENDS IN COMMUNITY HEALTH INDICATORS

As detailed in previous sections, FHOP has developed sets of guidelines for the statistical analysis of data, as well as templates for examining changes in key MCH indicators. These resources, however, do not discuss approaches to trend analysis. Few public health managers have the analytic expertise to determine whether a trend may be occurring and, if so, whether it is statistically significant. This document was developed to assist local health jurisdictions in making such determinations. We advise that it be used in concurrence with the previously described Excel Data Templates and the *Guidelines for Statistical Analysis of Public Health Data with Attention to Small Numbers*. *Do We Have a Trend?* describes some alternative ways of identifying and analyzing trends, and provides references for trend analysis methods.

Do We Have a Trend? begins by discussing approaches to trend analysis. Subsequent sections include definitions of technical terms, examples of simple and complex trends and instructions on how to distinguish between and interpret them. The document's Appendices include instructions for using the Data Templates to calculate trends as well as other statistical information.

Do We Have a Trend? is available for download from the FHOP website.

GUIDELINES ON RACE/ETHNICITY DATA COLLECTION, CODING, AND REPORTING

California has experienced tremendous demographic change in recent decades due primarily to the surge of immigrants from around the world. Since the early 1990's nearly half of the births in California have been to foreign-born women. An increasing number of cultures with differing health needs and beliefs demands more detailed data collection to help meet the health challenges of each community in a culturally sensitive and competent way. In addition, the federal government significantly revised methods for collecting and reporting data on race, as reflected in the 2000 Census. The most significant of these revisions was the inclusion of multi-racial identifications. This change alters not only data collection, but presents analytic issues as well.

To address the needs posed by California's diverse population and the changes in government data collection and reporting methodology, FHOP and its Technical Work Group have developed the *Guidelines on Race/Ethnicity Data Collection, Coding, and Reporting*. The *Guidelines* are intended to assist programs in bringing their race data collection in line with the 2000 Census and with the requirements of the Federal Office of Management and Budget (OMB). The *Guidelines* also help to establish standards for the classification and reporting of race and

ethnicity in all publications of data from the California Department of Health Services.

The *Guidelines* consist of several major sections:

- Introduction
- Proposed Race/Ethnicity Guidelines – Basic Policy Summary
- Data Collection – Detailed Recommendations
- Data Coding
- Data Reporting/Tabulation
- Attachments and Appendices

These sections stress appropriate data collection methodologies and definitions of “minimum” categories of race and Hispanic origin that comply with State law and Federal standards. Beyond these standards, the *Guidelines* suggest additional data detail that may be used to address their unique needs.

The latest version of the *Guidelines* will be presented to the California Department of Health Services (CDHS) Executive staff for implementation in all CDHS programs. The revised *Guidelines* are available for download at the FHOP website.

EPI BC 2002: PUBLIC DOMAIN SOFTWARE FOR ANALYSIS OF BIRTH CERTIFICATE DATA

Local maternal and child health directors are not always able to use their birth data in a timely manner, either because they cannot access birth record data sets or because they lack easy-to-use analytic tools. FHOP developed Epi BC to improve access to and utilization of birth certificate data in a standard format for comparisons within and across local health jurisdictions and comparisons to the state. Epi BC 2002 is a user-friendly software program, based on the Centers for Disease Control and Prevention (CDC) public domain software, Epi 2002, for importing, reviewing, reporting, graphing, and mapping data collected from birth certificates. The program allows local MCH Directors to analyze their own birth data for needs assessment purposes.

The first version of Epi BC (originally named Epi MCH/BC) was created in mid-1994 and was well received by local health jurisdictions in California. CDC subsequently released Epi2000 and then Epi2002, Windows version of Epi INFO. This allowed FHOP to update Epi BC to a Windows environment. The latest version, Epi BC 2002, is free to local health jurisdictions. Advantages include:

- An Import format that allows any state or local health jurisdiction to import its data
- Variable names that are consistent with those used by the National Center for Health Statistics (NCHS)
- Much improved graphics comparable to Excel
- A scaled down version of Arc View for easy mapping of data

The updated version of Epi BC is a powerful tool for analysis of birth certificate data. We hope that it will become an integral part of local needs assessment and program planning activities.

The software and manual are available online from FHOP at <http://www.ucsf.edu/fhop/>. FHOP provides telephone and email support and training for users associated with MCH programs in California local health departments.

EPI HOSP: PUBLIC DOMAIN SOFTWARE FOR ANALYSIS OF HOSPITAL DISCHARGE DATA

There are few population-based data sources for monitoring child health morbidity. Hospital discharge data are now collected by the majority of states and submitted to a federal agency in a consistent format. The data sets are rich sources of information on childhood morbidity and are useful for:

- Monitoring health status and outcomes
- Monitoring and evaluating the impacts of changes in health care delivery
- Injury surveillance
- Identifying patterns and trends in pregnancy related and ambulatory care sensitive conditions

Epi HOSP is a software package for reviewing, analyzing, reporting, graphing, and mapping key variables from the hospital discharge data for children less than 20 years of age. The software tool enables local MCH staff to analyze their jurisdictions' hospitalization data. Epi HOSP is based upon the DOS version of Epi INFO, public domain software designed by the Centers for Disease Control and Prevention. It uses Epi MAP to allow mapping of hospital discharge variables.

To facilitate the importing of hospital discharge files into Epi HOSP, FHOP preprocesses hospital discharge data for local health jurisdictions in California. A programmer's manual is available to assist others in preprocessing data from other states. With Epi HOSP, age groups are defined; ambulatory care sensitive diagnoses and intentional or unintentional injuries are flagged; new variables are created for grouped ICD-9-CM codes; charges are rounded and sources of admissions are grouped together. Preprocessed hospital discharge data files for children ages 28 days through 19 years are available for years 1992-99.

The software is available online from FHOP at <http://www.ucsf.edu/fhop/>. FHOP provides telephone and email support and training for users associated with MCH programs in California local health departments.

In 2003, FHOP will release the windows version of Epi HOSP 2002, using CDC's Epi 2002.

THE FHOP WEBSITE

The goals of the FHOP web site are to provide in readily usable format:

1. Easy access to all of FHOP products including monographs, analytic guidelines, and software products
2. Current information on FHOP trainings, including schedules and content materials

3. An extensive listing of data and information resources including electronic links where possible
4. Data tables and links to tables containing county and sub-county and city data on key MCH indicators

It is important to our constituency to be able to locate current, reliable information in a timely manner. Daily demands require that MCH staff have access to a broad range of health information. There are no shortages of data and information resources on the web. However, feedback from the MCH community indicates that use of the Internet resources falls short when considering the abundance of information available. Based on our experiences and the experiences of others, we have concluded that finding and sorting through the different sources is a barrier to access.

The FHOP website provides a resource that acts as a clearinghouse for MCH data sources. In its current state, the website provides a simple and broad listing of sites and specific data available for immediate use by the public. Examples of data on this listing include perinatal and injury hotspot spreadsheets, data templates, STD indicators for California, criminal justice data, childhood morbidity data, and economic indicators. In the near future, the MCH Data Resources will evolve into a tool that will accommodate multiple search approaches, including browsing, alphabetical searches, and possibly keyword searches, as well as a more comprehensive listing of resources.

For more information on obtaining any of these FHOP tools, contact:

Family Health Outcomes Project
University of California, San Francisco
3333 California Street, Suite 365 ♦ San Francisco, CA 94118
Phone: (415) 476-5283 ♦ Fax: (415) 502-0848
E-mail: fhop@itsa.ucsf.edu ♦ Web: <http://www.ucsf.edu/fhop>

REFERENCES

- ⁹ The Personal Responsibility and Work Opportunity Reconciliation Act (PL 104-193).
- ¹⁰ Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (PL 104-208).
- ¹¹ Family Health Outcomes Project. *Health Status/Outcome Indicators for Maternal, Child and Adolescent Health*. San Francisco, CA: University of California, San Francisco; 1995.
- ¹² Health Plan Employer Data and Information Set (Version 3.0) National Committee for Quality Assurance. July, 1996.