CDC User Interface Style Guide

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

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Introduction to the CDC User Interface Style Guide

Overview

The Centers for Disease Control and Prevention (CDC) and its partners in public health are responsible, through ongoing surveillance activities, for controlling and preventing the spread of diseases of importance to public health. Historically, those activities have been organized to address specific diseases or categories of disease. At the federal level, this has been based on programmatic and budgetary authorities provided by Congress; at the state and local levels, priorities have been set by state legislatures.

For many years, CDC has designed and implemented information systems to support surveillance for specific diseases and adverse health conditions, and made these systems available for state and local use. The systems have served the programmatic needs of disease surveillance well, and have provided the links between the CDC and its partners. Until now thought, these systems have not been standardized. Each has its own user interface, its own scheme for coding and storing data, its own method for analyzing surveillance data, and its own method of reporting data to CDC. However, these systems are not used in isolation from one another. For example, an individual in a state health department may be responsible, on a daily basis, for entering and analyzing data on two or more of these systems. The lack of a standardized design increases both the time needed to train people to operate the systems and the likelihood of errors in entering or analyzing data.

In recent years, the CDC and its partners recognized the need to establish a coordinated approach to supporting surveillance activities. The CDC/ATSDR Steering Committee on Public Health Information and Surveillance System Development (also known as the Katz Committee) examined aspects of integrating CDC surveillance and information systems. They published a report in the spring of 1995 titled “Integrating Public Health Information and Surveillance Systems” that outlined three elements essential to the evolution of integrated health information systems: data standards; a communications infrastructure; and policy-level agreements on data access, sharing, and burden reduction. Based on the recommendation from this committee, the Health Information and Surveillance Systems Board (HISSB) was established in late 1995; its mission is to formulate and enact policy concerning the planning, development, maintenance, and use of integrated public health information and surveillance systems. HISSB sponsors

activities to develop and/or evaluate mechanisms for integrating CDC surveillance information systems. Its long-term goal is to develop an electronic information system framework that automatically gathers health data from a myriad of sources on a real-time basis, facilitates monitoring of the health of communities, performs ongoing analysis of trends and detection of emerging public health problems, and provides information for setting public health policy.

HISSB Integration Project

The HISSB Integration Project is designed to bring consistency to various surveillance systems developed by CDC for state and local health department use. The goal of the project is to develop a framework--built around common data definitions, software architectures, user interfaces, and electronic data interchange (EDI) standards--that will allow the Divisions/Programs/Offices (DPOs) throughout CDC to develop similar information systems that more easily share data and software tools (or components) with one another.

Integration is specifically ***not*** a single software system being developed centrally for use by all programs within CDC. It is a set of specifications that will allow for more efficient software development and, as appropriate to the disease or condition, the linking of registries and more efficient sharing of information. Divisions/programs/offices (DPOs) will still have the flexibility and responsibility to develop their own solutions. They will also be encouraged to purchase and use commercial off-the-shelf software, or, when needed, to develop tools that can be shared by other surveillance systems. Beyond this, project participants representing the various DPOs will collectively determine what additional levels of integration are and are not appropriate.

The Integration Project is supported through many activities and the efforts of several workgroups that were formed to address various aspects of the project. The mission of one of these groups, the User Interface Working Group, is to develop draft standards and guidelines to be used to develop a common user interface in CDC-developed Windows and web-based surveillance systems supporting public health activities. Other committees are working on standards in other areas such as system architectures, data standards, and EDI.

User Interface Working Group

The User Interface Working Group was established to identify, review, and evaluate various options for developing a consistent and usable user interface for CDC-developed Windows and web-based surveillance applications. . With the assistance of experts in the areas of Human Computer Interaction and User Interface Design, the Working Group identified the key areas for standardization, and suggested additional guidelines that will encourage the use of best practices in the design arena at CDC. As an outcome of this process, the group has constructed the CDC User Interface Style Guide, which consists of standards and guidelines that will promote usability and consistency across CDC Windows and web-based surveillance applications.

Purpose of the CDC User Interface Style Guide

The CDC User Interface Style Guide has been developed to respond to a number of needs among the CDC surveillance systems development community. One of the primary goals of this document is to provide a consistent user interface look and feel to all CDC developed Windows and web-based surveillance applications. An equally important and second goal of this

document is to provide specifications that will improve the usability of CDC surveillance applications for those persons that interact with them on a daily and weekly basis. This document, which has been developed with the intent of balancing interface usability with consistency, contains the following 15 sections:

- Human Computer Interaction
- User Centered Design
- User Interface Design
- Fonts
- Windows
- Controls
- Menus and Toolbars
- User Feedback
- Color
- Writing for Online Reading
- Metaphors and Navigation
- Help
- Graphics
- Accessibility
- Glossary

While the CDC User Interface Style Guide covers a wide variety of subjects that will encourage easy-to-use interfaces with a common look and feel, it is not meant to duplicate the extensive reference and educational materials on these subjects available on-line, in bookstores, or through external standards development organizations. Rather, this Style Guide will serve as a source for the most basic information on designing user-friendly applications, with extensive references available through on-line links and hardcopy reference material. In addition, the Style Guide will provide guidance on those user interface topic areas where more specification was viewed as necessary to achieve the level of consistency and usability across CDC-developed surveillance applications. All CDC surveillance applications will use the standards and guidelines outlined here to support their development activities.

The CDC User Interface Style Guide is expected to be a key resource for CDC developers. It is not meant, however to stifle creativity in designing new interfaces, nor to outline rigid standards and guidelines that do not meet program business and technical needs. The CDC User Interface Style Guide, and its contents specifically relating to standards, are evolving and changing to keep up with new research in the area of human/computer interaction and rapidly advancing technology. External standards development activities will further drive this evolutionary process. This document will only remain useful if it is in use by its intended audience.

Intended Audience

The CDC User Interface Style Guide has been written to inform both the technical and layperson of standards and guidelines related to the development of CDC Windows and web-based surveillance applications. In particular, this guide is intended to serve as the primary reference for systems developers and programmers responsible for the development of CDC surveillance

systems to support public health surveillance activities. In addition, this guide may be of use to persons within CDC partner organizations, such as state and local health departments, which are also in the process of designing and developing integrated public health systems.

Scope of the CDC User Interface Style Guide

The document will be used in development efforts of all new and existing CDC Windows and web-based surveillance applications. Where CDC program area business requirements are at variance with the standards presented in this Guide, business and technical justifications must be reviewed to consider whether a variance is appropriate through a review process. This review process will be further outlined in subsequent iterations of this document. Where the scope of the document does not address a key issue under review, developers can reference external resources or other members of the CDC development community to identify existing approaches. Developers that note such omissions should submit modifications to enhance the Style Guide where appropriate.

Conventions of the CDC User Interface Style Guide Document

This document is divided into sections that cover key areas of user interface design. In each of the sections, a table of contents and a general overview that introduces the topics to be covered are provided. Following this introduction, a brief overview of terminology specific to the topics is presented to aid the reader in understanding the standards and guidelines. General standards and guidelines are then outlined for all Windows-based surveillance applications. Selected standards and guidelines can also be applied to web-based CDC surveillance applications unless otherwise noted. If appropriate, a section on standards and guidelines for web-based applications using HTML will follow the general guidelines and standards section. Finally, each of the section may contain additional information on the topic, selected recommended readings for more in-depth review and learning, and a list of helpful web sites for use by the reader.

In addition to the convention of each section, it is also helpful to highlight the differences between “Standards” and “Guidelines” as outlined in the document.

Standards

Standards are identifiable by the icon:

The text describing the standard can be found to the right of the standards icon with a short rational for the standard appears below. Standards” are intended to be guidance with which all program areas will comply. As previously noted, where CDC program area business requirements are at variance with the standards presented in this Guide, business and technical justifications must be reviewed to consider whether a variance is appropriate through a review process. This review process will be further outlined in subsequent iterations of this document.

Guidelines

"Guidelines", or best practices, have also been provided in the CDC User Interface Style Guide. There is no icon associated with the "Guideline", however the text stating the guideline also outlines a brief explanation of its reason for use. Program areas should adopt those guidelines that are relevant to their applications in order to promote a more consistent and usable interface.