

**Tracking Grantee Portal Standards and Recommendations  
April 2009**

**Standards and Recommendations Table**

<b>Tracking Network</b>	
	<b>Standards</b>
	Provide both public and secure grantee portals.
	Provide a link to the Tracking Network’s National Portal from individual state portals.
	Maintain visual consistency among pages on a grantee’s portal.
	Organize contents of pages to facilitate the identification of detailed information.
	Provide a structured flow that links related information and data sources.
	Comply with Section 508 standards in both secure and public portals.
	Provide for the ability to search metadata in both secure and public portals.
	<b>Recommendations</b>
	Provide data results and information on grantee public portals within three clicks of the search initiation.
	Provide a path to return easily to previous screens.
<b>Analysis, Visualization, and Reporting</b>	
	<b>Standards</b>
	Support the means to generate, in both secure and public portals, visual displays of data, including maps, charts, tables, and graphs.
	Provide the ability, in both secure and public portals, to display both count and rates on a map.
	Use in both secure and public portals standard color pallets from proven scientific research for color sections.
	Provide, in both secure and public portals, the capability to combine multiple appropriate data sources in a single graph, table, or chart.
	Ensure that in both secure and public portals analysis functionality provides for “minimally aggregated” data, as

<b>Tracking Network</b>	
	in counts and rates.
	Provide the ability to disseminate information in various ways depending on user data access, including standardized reports and Web-based query results.
	<b>Recommendations</b>
	Provide users the ability to interact with data tools and displays.
	Provide users the ability to see alternate views of the information.
<b>Data Content and Discovery</b>	
	<b>Standards</b>
	Provide the capability to execute queries to obtain data in both secure and public portals.
	Provide for various levels of data access depending on the user's role.
	Provide both secure and public portal access to environmental, exposure, and health effect data. Specifically all data listed as core EPHT data/measures, and those subsequently adopted for inclusion in the network.
	Establish a public portal and a secure, restricted-use portal.
	Allow for export of appropriate data to a common format, such as comma delimited based on the user's role.
	Provide the capability to combine and to display multiple data query results.
	<b>Recommendations</b>
	Establish clear categories to facilitate data browsing and discovery.
	Provide clear labeling for categorical information.
	Break information into easily digestible subcategories.
<b>Documentation</b>	
	<b>Standards</b>
	Provide in both secure and public portals a set of Frequently Asked Questions (FAQ).
	Provide in both secure and public portals clear definitions of terms.

<b>Tracking Network</b>	
	Provide in both secure and public portals on-line documentation.
	<b>Recommendations</b>
	Provide a phone number or email address that users may use to get additional information or clarification.
<b>Metadata</b>	
	<b>Standards</b>
	Allow for the discovery of data by searchable metadata using the Tracking Metadata template for all data available on the grantee's portal.
	In both secure and public portals, allow for metadata search and discovery.
<b>Secure Access</b>	
	<b>Standards</b>
	In both secure and public portals, provide data security and protection.
	Provide a secure login where users will be authenticated and will be authorized access to data and services.
	Provide access to varying levels of data based on a user's role.

## **Document Purpose**

The Environmental Public Health Tracking Network (Tracking) consists of local, state, and national portals that will provide access to environmental and health data. A portal is the Web interface that allows access and navigation to Tracking Network resources such as data, metadata, tools, and other information. The Tracking Network has both public and secure user portals.

Identifying best practices and establishing guidelines is essential to maintaining a strong and well organized multiple-partner network. Furthermore, as the Tracking Network grows to include new partners, these practices and guidelines will provide a valuable tool for new partners. This document outlines requirements developed in collaboration with multiple states and local health departments, and national stakeholders currently contributing to the National Network

## **Standards and Recommendations**

### **Tracking Network**

The Tracking Network consists of local, state, and national portals. While we understand that each agency will have style guidelines that their portal will have to follow, certain requirements need to be in place to provide consistency across the network. This document breaks down requirements based on functional areas. In addition to functional areas, some general requirements do exist that need to be implemented across the network.

#### **Standards:**

- Provide both public and secure grantee portals.
- Provide a link to the Tracking Network's National Portal from individual state portals.
- Maintain visual consistency among pages on a grantee's portal.
- Organize page contents of pages to facilitate the identification of detailed information.
- Provide a structured flow that links related information and data sources.
- Comply with Section 508 standards in both secure and public portals.
- Provide for the ability to search metadata in both secure and public portals.

The Tracking Program has a mandate to provide data to both the general public and to expert users. These two types of users have different levels of understanding on health and environmental issues. Because of this difference, grantees will provide both public and secure portals. The Tracking Program defines a portal as a web site that functions as

the interface for accessing information on the Tracking Network. Portals at the national, state, and local levels will allow for public access to unrestricted data and role-based/use-based access to restricted data. The public portal will make appropriate data available to a general user. While public portals may have static web pages and reports, these portals are expected to offer additional features such as ad hoc queries. The secure portal makes more detailed information available only to specialized internal and external users. Grantee portals are an important part of the Tracking Network. While the fact that grantee portals will have to meet the Tracking Network's unique style and format guidelines is understood, certain other functionality will be required as part of the overall Tracking Network. For example, each state portal needs to provide on the state's main page a hyperlink to the National Portal. That grantee organizations may require a particular header and style is also understood. Nevertheless, the hyperlink to the National Portal should be in a manner consistent with the grantee's style guidelines. Each portal should employ a consistent, structured flow and should maintain visual consistency. The flow and visual make-up of a portal may be dictated by the grantee organization, but should still be applied consistently throughout the portal. In addition, page contents should be organized to promote easy identification of information. Grantee portals were developed using federal funding and should comply with the Americans with Disability Act. To accomplish this, grantees comply with the Section 508 standards (<http://www.ada.gov/stdspdf.htm>). This includes color patterns, font size, and mouse-over functionality. Grantee portals should provide for the ability to search Tracking Metadata that is specific to that grantee. This feature will aid the user in locating appropriate data that may be specific to each grantee's jurisdiction.

**Recommendations:**

- Provide data results and information on grantee public portals within three clicks of the search initiation.
- Provide a path to return easily to previous screens.

CDC contracted with to conduct usability testing to guide National Portal development. Interviews with users helped identify usability issues on the public portal. User response showed that interest was best maintained if users could get results within three pages of request initiation. If a request took more than three pages to get results, users grew frustrated and lost interest. This work also showed that users wanted to be able to get back easily to a previous screen.

***Analysis, Visualization, and Reporting***

Analysis, Visualization, and Reporting (AVR) tools allow users to read, interpret, and understand the data available in a system. This RFA, and did previous ones, requires grantees implement standard AVR formats. Thus the Tracking Network will use tools and resources that provide for the analysis and interpretation of data on environmental hazards, human exposure, and health effects. In that regard, the network will use AVR tools that provide for analysis and display of information.

**Standards:**

- Support in both secure and public portals the means to generate visual displays of data, including maps, charts, tables, and graphs.
- Provide in both secure and public portals the ability to display on a map both count and rates.
- Use in both secure and public portals standard color pallets from proven scientific research for color sections.
- Provide in both secure and public portals the capability to combine multiple appropriate data sources in a single graph, table, or chart.
- Provide in both secure and public portals analysis functionality for minimally aggregated data, such as counts and rates.
- Provide the ability to disseminate information in various ways depending on the user data access, including standardized reports and Web-based query results.

To maintain consistency across the network, state portals will need to implement AVR formats and tools consistent with the National Tracking Portal. CDC has shared with funded the results of usability testing for the National Portal. State/local portals should capitalize on this work and maintain similar formats, tools, and interfaces—at least as long as such formats conform to their organizations’ required style guidelines.

Data visualization helps users understand information and is a core component of the Tracking Network. Grantee portals will provide a means to generate visual displays of data, including maps, charts, tables, and graphs. At a minimum, query results should be represented in a table, and data must be presentable in basic graph, charts, and static maps. Maps must be able to display both counts and rates, provided no confidentiality conflict results. Visualization tools across the network will, for color sections, use standard color pallets from proven scientific research. Color pallets should take into account Section 508 requirements as well as additional visualization guidelines.

One of the Tracking Programs core objectives is to environmental monitoring and health data. To accomplish this, AVR tools must provide the capability to combine appropriate multiple data sources into a single graph, table, chart, or map. Analysis functionality should provide for minimally aggregated data, as in counts and rates.

In addition to various visualization tools, grantee portals should allow dissemination of information in various ways, depending on user data. In addition to Web-based query results, this functionality includes standardized reports available on the public portal.

**Recommendations:**

- Provide users the ability to interact with data tools and with displays.
- Provide users the ability to see alternate visualizations of information.

Research has shown that users appreciate the ability to interact with data tools and displays. This includes the ability to drill down in maps and to switch axes on charts. Users also appreciate the ability to see alternate visualization of information. For example, this feature would allow users looking at a map to view easily the same data in a chart. Grantees should consider this functionality and, when appropriate, include it in their portals.

***Data Content and Discovery***

Information systems provide their users access to data and information. The Tracking Network's goal is to promote access to environmental health data and to drive public health action. The Tracking Network will provide access to certain health and environmental data and, as the system matures, the Tracking Network expects to grow into a rich health and environmental data repository. Using standard methods and functionality will allow for a consistent flow of information throughout the Tracking Network.

**Standards:**

- Provide the capability to execute queries to obtain data in both secure and public portals.
- Provide for various levels of data access depending on the user's role.
- Provide access to environmental, exposure, and health effect data in both secure and public portals. Specifically all data listed as core EPHT data/measures, and those subsequently adopted for inclusion in the network.
- Establish a public portal and a secure, restricted-use portal.
- Allow for appropriate data to be exported to a common format, such as comma delimited, based on the user's role.
- Provide the capability to combine and to display multiple data query results.

The Tracking Network provides its users a means to access information about the environment and the environment's impact on health. Providing access to information is a core function of the Tracking Network. Recognizing this function, the RFA states that to obtain data on the environment, exposure, and health effects in both secure and public portals, grantees must provide a query-execution capability. Since it is obvious that users will have differing degrees of access, the network provides for access based on a user's defined role. At a minimum, grantee portals must have a public role and a secure role. A reasonable expectation is that some secure users will only have read-access to data, while

other users will have administrative functionality, such as write and edit. We strongly suggest that to address this differing functionality, users create a minimum of two secure roles.

Grantee portals should provide access to environmental, exposure, and health effect data. This includes the Nationally Consistent Data and Measures which represent Tracking standards for core measures for asthma, myocardial infarction, hospitalization, PM 2.5, ozone, water, vital statistics, childhood blood lead, cancer, birth defects, and carbon monoxide poisoning. These standards for core measures were developed by the Content Workgroup and adopted by CDC.

Grantee portals should facilitate data discovery and analysis. Once data are discovered, users may want to export them for further analysis or contact the data owner for additional assistance. Thus grantee portals must provide for exportation of their data into common formats, such as comma delimited or XML.

Grantee portals also have the ability to combine appropriate datasets. This can be complicated by the requirement to ensure that appropriate data fields are used to combine data. While we expect that the richness of combined data will grow as the network matures, we also expect that upon initial release, the grantee portals will need to combine some data. For example, the ability to combine population data with health incidence data is a critical component to calculating rates.

**Recommendations:**

- Establish clear categories to facilitate data browsing and discovery.
- Provide clear labeling for categorical information.
- Break information into easily digestible subcategories.

When disseminating information, portal organization plays a vital role. Grantee portals should establish clear categories to facilitate data browsing and discovery and to provide categorical labels across the portal. Information should be broken into easily digested subcategories, which assist the user in reading and understanding the information.

***Documentation***

Documentation is a tool that provides valuable assistance to users. To assist in navigation, an information system should provide strong documentation. Such documentation can include instructional use on navigating the portal, explanatory text on data interpretation, and public health implications. Documentation can vary depending on user expertise; thus the challenge is to provide technical documentation to assist the expert user while at the same time providing general documentation to help non-expert and general public users.

**Standards:**

- Provide a set of Frequently Asked Questions (FAQ) in both secure and public portals.
- Provide clear definitions or terms in both secure and public portals.

- Provide on-line documentation in both secure and public portals.

Common questions can arise across any system. Developing a set of Frequently Asked Questions (FAQ) will help reduce the burden of answering most of these common questions. As new questions are identified, the FAQ should be updated. A glossary of commonly used and clearly defined terms should complement the FAQ, and definitions should be included in the online documentation. Additional details may also be included in the online documentation.

#### **Recommendations:**

- Provide a phone number or email address with which users may get additional information or clarification.

Users may have questions not addressed in any documentation. When possible, additional information will help clarify issues and answer user questions. Grantee portals should provide a mechanism for users to ask questions and request clarification. This mechanism may be in the form of an email address or phone number.

#### ***Metadata***

Metadata provide descriptive information about peripheral or supplemental data contained on the Network. Metadata facilitate the understanding, use, and management of data. Metadata are an essential component of the Tracking Network; they provide the user with the ability to navigate through data tables and locate appropriate data. Metadata provide user information about the data and insure that like data are compared across data sources. Grantee portals utilize the Tracking Metadata standard and to create metadata that support grantee data. Metadata are the backbone of the Tracking Network, and strong metadata are critical in driving data discovery.

#### **Standards:**

- Allow for the discovery of data by searchable metadata using the Tracking Metadata template for all data available on the grantee's portal.
- Allow for the search and discovery of metadata in both secure and public portals.

The Tracking Program has spent significant time establishing a metadata standard for the network—thus grantee portals are expected to use the Tracking Network's Metadata Standard. In addition to using the metadata standard, grantee portals should allow for the search and discovery of metadata.

Searching metadata throughout the network from a single portal will be a complex task. Grantees will, however, register their data in the National Metadata Repository, and this process will provide a centralized location for searching of all metadata across the Network.

#### ***Secure Access***

A key network requirement is the capability of portals to support controlled user access and general public access. Grantee portals will provide both public and secure data access. The public interface will allow summary information and use the appropriate AVR tools to provide information to the general public. State portals will also offer secure access to restricted data. Through the secure portal, users may, based on their established roles, gain access to restricted data.

**Standards:**

- Provide data security and protection in both secure and public portals.
- Provide a secure login where users will be authenticated and authorized to use data and services.
- Provide access to varying levels of data based on a user's role.

To access the Network, the public and secure portals allow for two distinct user groups. The public portal provides general users appropriate information, provides some analysis and interpretation, and provides the ability to explore aggregate levels of data. This portal allows the network to address confidentiality concerns while disseminating information to the public.

The secure portal provides role-based access to restricted data. Secure grantee portals require a secure login that authenticates the user and allows authorized access to appropriate data and services.

The user's access to data will vary based on the user's role. At a minimum, grantee portals must have a public role and a secure role. The grantee's public portal will have one defined role: public. Because only a public role is defined, users accessing this portal will be assigned this public role by default. The grantee's secure portal may, on the other hand, have more than one role. A reasonable expectation is that some secure users will only have read-access to data, while other users will have administrative functionality such as write and edit. To address this differing functionality, we strongly suggest creating a minimum of two secure roles. Grantee secure portals are not limited in the number of roles they define, but grantees will have to maintain all roles they create.

## Appendix I

### Frequently Asked Questions

**Q: Do grantees have to provide for searching metadata at the state level, or at the state and national level simultaneously?**

**A:** Searching metadata throughout the network from a single portal will be a complex task. Grantees will register their data in the National Metadata Repository. This process will provide for the searching of all metadata across the Network in a centralized location. Therefore, grantees can search the metadata repository for information specific to their state or local area or for information at the national level.

**Q: What is meant by “grantee portals must provide a link to the national portal”?**

**A:** Grantee portals are an important part of the Tracking Network. While we understand that grantee portals will have to meet their unique style and format guidelines, certain functionality will need to be included as part of the overall Tracking Network. Each state portal needs to provide a hyperlink to the National Portal on the state’s main page. We also understand that grantee organizations may require a particular header and style. In these cases, the hyperlink format to the National Portal should be consistent with the grantee’s style guidelines.

**Q: What are the minimum requirements for data visualization that need to be accomplished by grantees?**

**A:** Grantee portals will provide a means to generate visual displays of data, including maps, charts, tables, and graphs. At a minimum, data resulting from query results should be represented in a table, and that information must be presentable in basic graphs, charts, and maps. This includes the ability to see data used to create any indicator reports.

**Q: What is the minimum requirement for the capability to combine and display multiple EPHT data sets?**

**A:** Grantee portals need to combine appropriate datasets when necessary. This can be complicated by the need to ensure that appropriate data fields are used to combine data. While we expect that the richness of combined data will grow as the network matures, we also expect that on initial release, the grantee portals will need to combine some data. For example, the ability to combine population data with health incidence data is a critical component to calculating rates.

**Q: What can states do when they have local health departments that do not have adequate information technology hardware or support for downloading data?**

**A:** The Tracking Program assumes that, at a minimum, users will be able to connect to the Internet—probably with a high-speed connection—and have basic tools to open common delimited text, such as *Microsoft Excel*®.

**Q: What is the minimum requirement for roles on a grantee portal?**

**A:** The user’s access to data will vary based on the user’s role. At a minimum, grantee portals must have a public role and a secure role. The grantee’s public portal will have one defined role: public. Because only a public role is defined, users accessing this portal will be assigned this role by default. The grantee’s secure portal may have more than one role. We expect that some secure users will only have read access to data, while other

users will have administrative functionality such as write and edit. To address this differing functionality we strongly suggest creation of a minimum of two secure roles. Grantee secure portals are not limited in the number of roles they define, but grantees will have to maintain all roles they create.