Evaluation of State Health Department Web-based Data Query Systems and Interactive Quality Reporting Sites

National Association of Health Data Organizations Webinar

21 May 2009

Daniel J. Friedman, Ph.D.

R. Gibson Parrish, M.D.

Acknowledgments

- ☐ Robert Wood Johnson Foundation

- ☐ Assessment Initiative, National Center for Public Health Informatics, Centers for Disease Control and Prevention

- ☐ National Association for Public Health Statistics and Information Systems

Topics

- ☐ Definitions and perspective
- ☐ Current status
  - ■ State health department WDQS
  - ■ WDQS evaluation
- ☐ Necessary next steps

Definitions and perspectives

Definition–WDQS

A *Web-based Data Query System* (WDQS) provides user access on the World Wide Web through a dynamic interface to data pertaining to population health and the determinants of population health held on a WDQS Web server. Characteristics of a WDQS include:

- User formulation of queries (we refer to this characteristic as making the interface dynamic) within a prescribed set of functionalities (that is, those functionalities available in the WDQS)
- Accessibility through a standard World Wide Web browser
- Production of numeric tabulations in response to a user's query
- Generation of statistical computations (such as adjusted rates, confidence limits)

Definition–evaluation

Evaluation refers to any aspect of the needs analysis, testing, or assessment of a WDQS.

Dimensions of evaluation

When: Stage of WDQS development (before, during, or after development)

What: Target of the assessment, testing, or evaluation (user, community, or organizational impact; WDQS performance)

How and who: Method(s) used to evaluate WDQS (survey, focus group, expert review; internal or external evaluator)

Why evaluate?

WDQS and quality reporting sites (QRS) do not justify themselves

- General
  - Are explicit and implicit goals of WDQS and QRS being met?
  - Can goals be met more efficiently and more economically through other means?
- Business cases and needs analysis
  - Can initial development expenditures be justified?
- Testing
  - Are accurate data and statistics produced?
- Impact evaluations
  - How are WDQS and QRS being used by their intended users?
  - Are users satisfied and are their needs being met?
  - How are WDQS and QRS affecting community policies, priorities, and resource allocations?
  - How are WDQS and QRS affecting health department management and staff, costs, and data?

Current status

WDQS major functionalities

- ☐ Query design
- ☐ Geographic levels
- ☐ Statistics
- ☐ Tables
- ☐ Graphs
- ☐ Maps and interactive GIS
- ☐ Benchmark and time trend data

- ☐ Custom grouping of data
- ☐ Documentation for individual custom queries
- ☐ On-line meta-data and help tools
- ☐ Export to file

Types of data sets in well-established WDQS

- ☐ Administrative
- ☐ Chronic disease
- ☐ Communicable disease
- ☐ Environmental
- ☐ Health care resources
- ☐ Infant and child
- ☐ Injury

- ☐ Population counts, estimates, and projections
- ☐ Population-based surveys
- ☐ Programmatic
- ☐ Vital events
- ☐ Linked analytic files

Review of state WDQS, 2005

Number of states with WDQS

☐ 27 states with one or more WDQS

   ■ 19 with one WDQS

   ■ 8 with more than one

☐ 25 state WDQS used Web browser

WDQS data sets

☐ Median of 5 data sets per WDQS

☐ Two WDQS had more than 15 data sets

☐ Most commonly available: deaths, births, cancer incidence, hospital discharges, population counts

Daniel J. Friedman, Ph.D.
R. Gibson Parrish, M.D.

Number of states providing each of 48 WDQS functionalities by level of functionality, United States, 2005
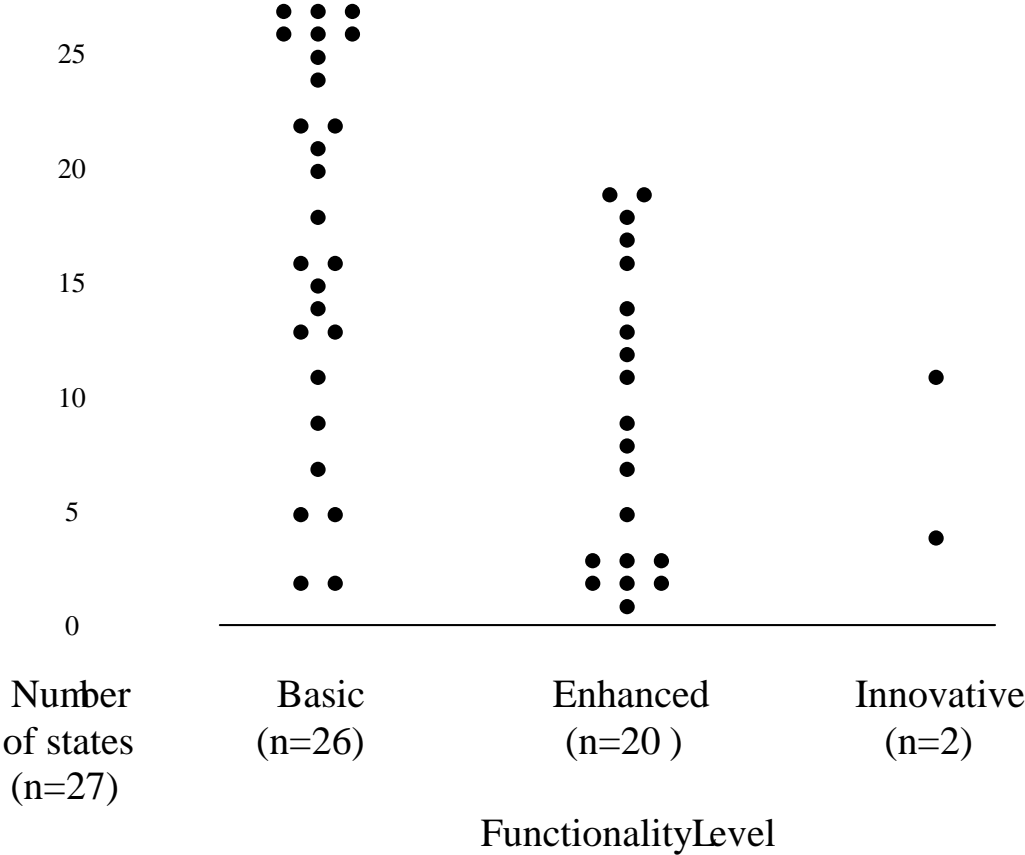
Daniel J. Friedman, Ph.D.
R. Gibson Parrish, M.D.

Functionalities of state WDQS

26 *basic* specific functionalities:

    17 provided by at least half of 27 WDQS

    4 provided by 5 or fewer WDQS

20 *enhanced* specific functionalities:

    6 provided by more than half of 27 WDQS

    8 provided by 5 or fewer WDQS

2 *innovative* specific functionalities:

    1 provided by 11 WDQS

    1 provided by 4 WDQS

Daniel J. Friedman, Ph.D.
R. Gibson Parrish, M.D.

Monitoring number of users, 2007

☐ Sixteen (59%) WDQS "count" the number of users

☐ Method used to count

    ■ IP address   10

    ■ Log-in   5

    ■ Registration   3

    ■ Survey   2

    ■ Other   3

Monitoring types of uses, 2007

- ☐ Types of uses "counted"
  - Data sets 15
  - Indicators 4
  - Pre-tabulated reports 7
  - Statistics 6
  - Type of output 6
- ☐ Method used to count
  - Hits on specific pages 7
  - Hits on entry page 5
  - Survey 3
  - Log-in 2
  - Registration 1
  - Other 4

Assessment, Testing & Evaluation, 2007

- ☐ Nineteen (70%) states *formally or informally* assessed user or agency needs prior to development of their WDQS

- ☐ Twenty-four (89%) states *formally or informally* tested their WDQS during development

- ☐ Eight (30%) states have *formally or informally* evaluated their WDQS since its release to determine whether it is meeting user needs

- ☐ Two of 4 states that planned an evaluation during WDQS development have conducted one

Assessment, Testing & Evaluation, 2007

☐ Evaluation methods included
- user-based surveys (7)
- advisory committees (5)
- reviewing use logs (4)
- focus groups (3)
- various informal methods (7)

Key points—WDQS evaluation, 2007

- ☐ About 60% of WDQS managers are able to monitor the users and uses of their WDQS

- ☐ A third of managers keep a "log" of WDQS-related complaints or suggestions

- ☐ BUT, not all of these managers review or use their monitoring data or logs to improve their WDQS

Key points–WDQS evaluation, 2007

- ☐ Many states conducted some type of formal or informal needs assessment prior to developing their WDQS

- ☐ Far more states test their WDQS for data errors than evaluate whether it is meeting its users' needs

- ☐ Several states periodically modify their WDQS based on informal–but regular–user feedback

Key points—WDQS evaluation, 2007

- ☐ Few states plan to evaluate their WDQS within the next year

- ☐ Even fewer have a budget for evaluation

- ☐ Nevertheless, a third of WDQS managers plan to replace their current WDQS

Needed next steps

Organized collaborations among states:
- ☐ Testing evaluation instruments and Web-based resource repository
- ☐ Planning and coordinating evaluation pilots
- ☐ Developing an evaluation handbook

Needed next steps

Activities for individual states:
- ☐ Monitoring
  - ■ Use
  - ■ Uses
  - ■ Users
- ☐ Evaluating
  - ■ Usability
  - ■ User satisfaction
  - ■ User needs

Contact information

Daniel J. Friedman, Ph.D.

Population and Public Health Information Services

danieljfriedman@verizon.net

617.797.6710

R. Gibson Parrish, M.D.

Dartmouth Medical School

gib.parrish@gmail.com

802.592.3358