

Communicating CRP Performance Using Geovisualization Tools: Theoretical Discussion and Examples

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Purpose

- Theoretical Discussion and Examples
 - Geovisualization tools in communicating CRP performance

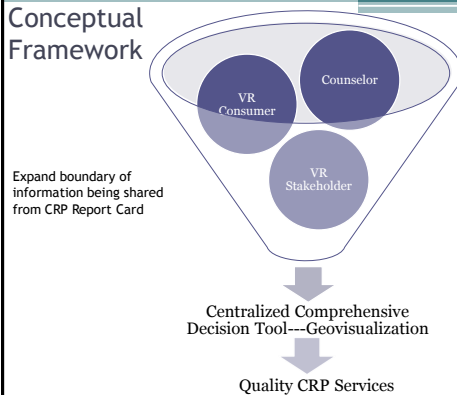
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Outline

- Introduction
 - Purpose
 - Conceptual Framework
 - Rehabilitation Act and Consumer Choice
- CRPs
- CRP Report Card
- Geovisualization
- Summary

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Conceptual Framework



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Rehab Act and Consumer Choice

- Throughout the Rehabilitation Act, value is placed on consumer choice and informed choice in each step of the VR process.
- VR agencies and counselors assist consumers in making informed choices through counseling and guidance and the exploration of options.
 - Selecting a vocational goal
 - Choosing service providers

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The Rehabilitation Act

VR Requirements

- Consumers must be active and full partners in the VR process, making meaningful and informed choices
- Provide or assist eligible individuals in acquiring information that enables informed choice throughout the VR process
- Evaluate and promote consumer satisfaction

Consumer Benefits

- Increased choice
- Self-determination
- Greater autonomy, empowerment
- Higher levels of satisfaction

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Community Rehabilitation Programs

- Community Rehabilitation Programs (CRPs) are programs throughout West Virginia that provide services that integrate individuals with disabilities into the local workforce. The West Virginia Division of Rehabilitation Services (WVDRS), as the state's federally authorized vocational rehabilitation provider, directs its clients to these independently operated CRPs.

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Acknowledgement Process for CRP Vendors

- Due to the rural nature of West Virginia, the Division would have to think outside of the box in order to expand services into local communities.
- So when a set of standards was being developed for CRP vendors, the Division knew it would need to be a realistic and feasible process that assured quality services.

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Development of Standards


- The Division set up statewide meetings to obtain feedback regarding how to improve current relationships with our CRP providers.
- The Division met with CRP staff and WVDRS staff from around the state.
- Determined that without a change in fee structure and process, the services could not be provided as the fees did not reimburse for actual costs.
- Changes were made to the fee structure, training was completed.
- Grant opportunities were provided via WVDRS and ARRA monies.
- During the first year of implementation of the new fees and process, information regarding CRP standards in various states was reviewed.
- WV needed to allow sole proprietor vendors.
- CARF Accreditation for all could not be an option.
- Standards have been developed and implementation to begin this coming FY.

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CRP Grant Creativity that Contributed to Expansion


- Formation of integrated employment sites.
 - Tile and Grout Cleaning
 - Window Cleaning
 - Food Service/Training
 - Fiberglass Packaging
 - Greenhouse
 - Window Assembly
 - Documentation Destruction
 - Document Microfilming
 - Engraving
- Student Transition to Employment Project (STEP)

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CRP Evaluation- Report Card


- Now that the fees/process has been updated, expansion of CRP services into the community and standards developed, the Division has been developing a more comprehensive process to evaluate the services being provided by each CRP vendor.

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WVDRS CRP Standards

- CRP Program Evaluation Requirements
 - WVDRS is committed to establishing quality and satisfaction assessments of CRPs to inform consumers, WVDRS staff, and other VR stakeholders.
 - WVDRS' Standards Manual for CRPs requires each CRP to have an ongoing self-evaluation system designed to assess the effectiveness of services provided to clients and also be consistent with WVDRS standards for CRPs.
 - The system measures outcomes against pre-established goals based on assessment and discussion with the client and referring VR counselor.

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CRP Program Evaluation

- The WVDRS CRP Standards Manual requires the following for Program Evaluation:
 - Program Goals- Statements of who the program serves, what services it offers, and what the program is designed to accomplish.
 - Service Objective- Objectives for each service stated in terms of measurable outcomes and consistent with the program goals.
 - Outcomes- The degree to which each service objective is achieved.
 - Measures- Measures stated in general terms and explaining how outcomes are to be achieved.
 - Client Satisfaction- Measures input from clients about benefits received from services. WVDRS will also implement a satisfaction survey for CRP staff and WVDRS staff to collect additional information regarding satisfaction with services.

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CRP Report Card

- A standardized, systematic tool for VR consumers, counselors, and others to utilize when making informed choices about selecting service provider(s).

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CRP Report Card

- Elements
- Use
- Display
- Geovisualization

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CRP Report Card

Useful Content

- Vendor Profile
- Performance Data
- Consumer Satisfaction Levels
- Fiscal Data

Stakeholder Uses

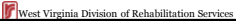
- Increased consumer choice
- CRP monitoring
- Resource allocation
- Improved service provision
- Increased accountability

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Vendor Profile

- Location and Contact Information
 - Can include map and/or picture of the building
- Services Provided
 - Use terms and phrases that the consumer will understand
- Transportation Availability
 - Accessibility using public transportation

O'Brien et al. (2003)



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Vendor Profile



CRP 1
123 Fake St.
Anytown, US

Contact: C. R. Peterson (123) 555-1234

Available Services:

- On the Job Training
- Job Placement
- Community Based Assessment



Transportation:

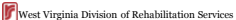
- Located 2 blocks (0.1 miles) from public transit (Line C, Fake St. Stop)
- Will provide transportation with VR agency approval, if appropriate



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Performance Data

- Number of consumers served/placed
- Types of jobs
- Average wage, benefits, hours/week
- Time from referral to placement
- Average months/years experience for staff

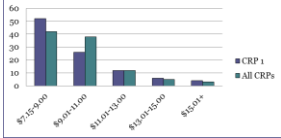


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Displaying CRP Performance Data

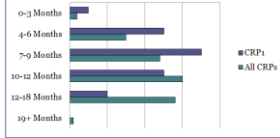
(hypothetical data)

Hourly Wage of Placed Consumers
(% of consumers)

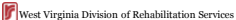


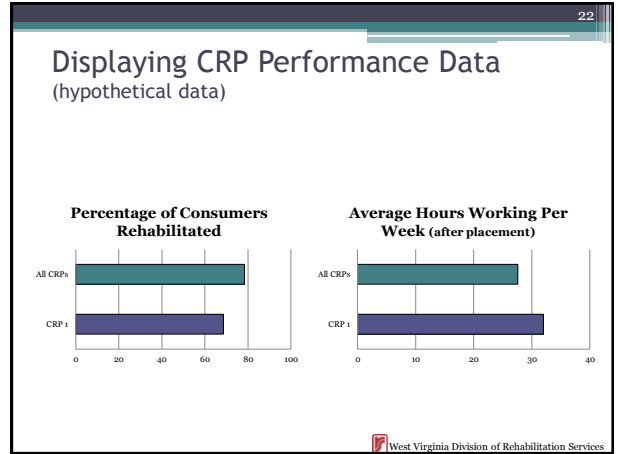
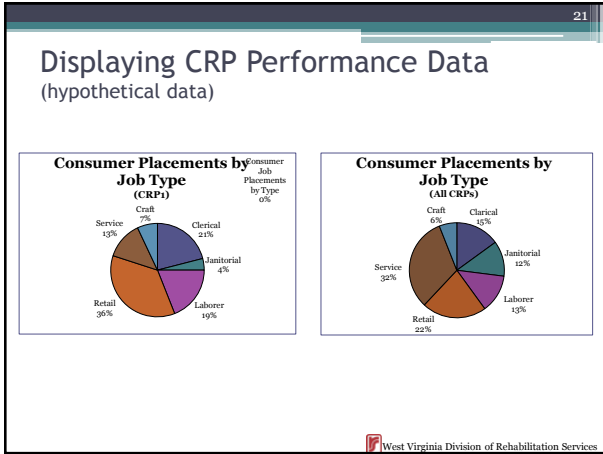
Wage Range	CRP 1 (%)	All CRPs (%)
\$7.75-\$9.00	50	45
\$9.01-\$10.00	35	40
\$10.01-\$11.00	15	10
\$11.01-\$12.00	5	5
\$12.01+	2	2

Time Until Job Placement
(% of consumers)

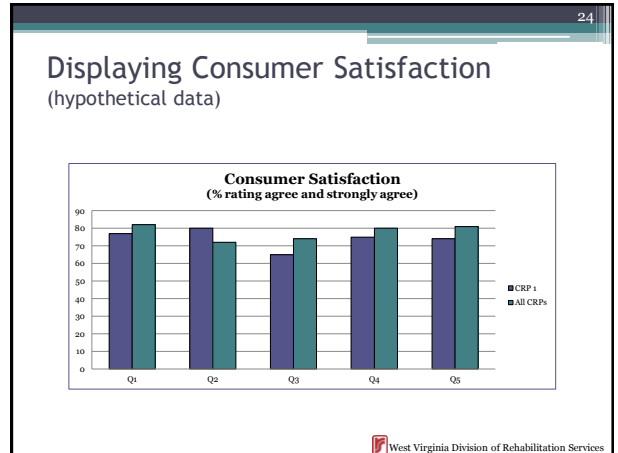


Time Range	CRP 1 (%)	All CRPs (%)
0-3 Months	5	5
4-6 Months	25	25
7-9 Months	35	35
10-12 Months	30	30
12-18 Months	15	15
19+ Months	10	10





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- ### Consumer Satisfaction Evaluation
- Would you recommend this service provider to someone who was in a situation similar to yours?
 - Are you satisfied with your job?
 - How closely does your job match your original plan goals?
 - Were services provided in a timely manner?
 - Do you find the staff to be caring, supportive, and flexible?
- O'Brien et al. (2003)
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Geovisualization

- Background
- Web Maps
- Examples of Web Maps

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What is Geovisualization?

- “short for *Geographic Visualization*, refers to a set of tools and techniques supporting geospatial data analysis through the use of interactive visualization..... Geovisualization represents a set of cartographic technologies and practices that take advantage of the ability of modern microprocessors to render changes to a map in real time, allowing users to adjust the mapped data on the fly.” (Wikipedia)

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Early Application of Geovisualization

Dr. John Snow 1854

- Performed geospatial analysis of cholera deaths
- Used map to illustrate cases
 - Identified source of outbreak
 - Found clusters around water pumps
 - Additional empirical evidence helped connect quality of the water source and cholera cases
- Convinced local council to disable the well

Map of Cholera Death, London



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Geographic Information Systems

Definition?

- A computer system designed for...
 - Capturing
 - Integrating
 - Storing
 - Manipulating
 - Analyzing
 - Displaying

Data Sources



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Why use GIS?

Benefits?

- Cost Savings and Increased Efficiency
- Better Decision Making
- Improved Communication

Example: Minority Outreach

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Who Uses GIS?

Who?

- Government Agencies
 - Federal
 - State
 - Local
- Real Estate
- Health Care
- Retail
- Information
- Others

What is it Used for?

Uses?

- Federal Government
 - Monitor predatory lending practices
- State Government
 - Maintain highways and roads
- Local Government
 - Establish evacuation routes
 - Track local crime patterns
- Real Estate
 - Track property values and tax information
- Health Care
 - Track spread of disease
- Retail
 - Find optimal location for new store
 - Trade Area
- Information
 - Planning of utility expansion

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Web Maps

- Definition:
 - “A map and related content presented in an online environment with an appropriate interface and optional functionality for queries and reports” (Buckley, 2012).

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The web map is a widespread communication tool

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Purpose of Web Maps

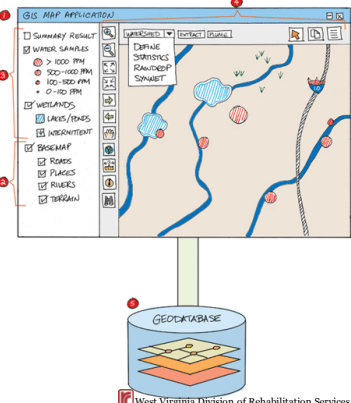
- First question to ask: *What is the purpose of this map?*
- Answer reveals:
 - Audience
 - How map will be used by audience
 - Content
- *Design web map according to abilities and requirements of intended user group*

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Essential Elements of Web Map Design

- 1). Web application
- 2). Basemaps
- 3). Operational layers
- 4). Tools
- 5). Geodatabase



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Compiling the Web Map

- Size
- Geographic extent
- Map scale
- Color
- Symbols
- Fonts
- Resolution
- Map marginalia

Source: Buckley, 2012

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Size

- Design for the primary delivery mode
 - Standard: 17- or 19-inch monitor
 - Others: Tables, smartphones, iPads

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Geographic Extent

- Ability to pan and zoom
- Restricting vs. Not restricting
 - Depends on purpose




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Map Scale

- Non restricted map extent
- Ability to zoom in and out
 - Separate map for each map scale
 - 1 inch = 1 mile
 - 1 inch = 0.5 miles
 - Seamless zooming experience

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Color Schemes for Displaying Data

- **Sequential** 
 - ordered data (low to high)
 - light colors for low data values to dark colors for high data values.
- **Diverging** 
 - most effective when the class break in the middle of the sequence is significant.
 - the center break or class to represent a critical value in the data: mean, median, or zero.
 - colors increase in darkness in both directions from this mid-range value in the data.
- **Qualitative** 
 - do not imply magnitude differences between legend classes
 - hues are used to create the primary visual differences between classes.
 - best suited to representing nominal or categorical data.

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Symbols

- Visible (fonts 7 points or larger)
- Contrast (distinguishable from background)

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Fonts

- Designed for the web

WIDE LETTER SPACING

Good font TALL X-HEIGHT

WIDE PUNCH WIDTH

- Improves legibility

- Most popular
 - Arial
 - Verdana
 - Georgia
 - Trebuchet
 - Century Gothic

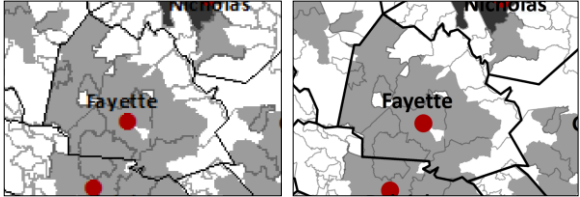
Source: Hume, 2005

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Resolution

- Pixel Density



100 dpi

1,000 dpi

Choose resolution that will be supported by the type of computer most likely used by target audience

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Map Marginalia

- Map surround: additional information displayed in the margins outside the map
- Options
 - Title
 - Scale bar
 - Legend
 - North Arrow
 - Author(s)
 - Date

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Examples of Web Maps

- Geovisualization methods
 - Linked micromaps
 - Dynamically linked windows

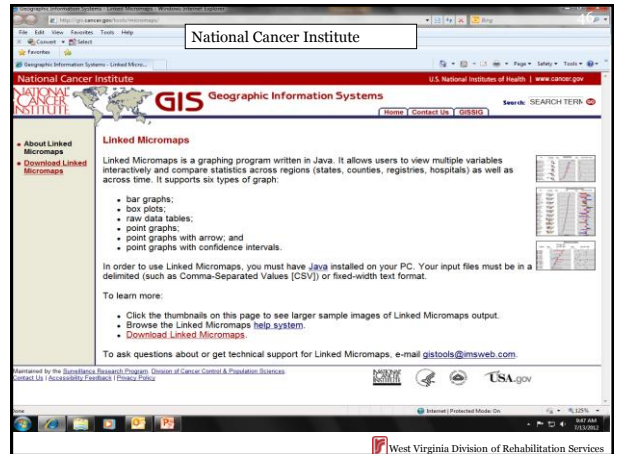
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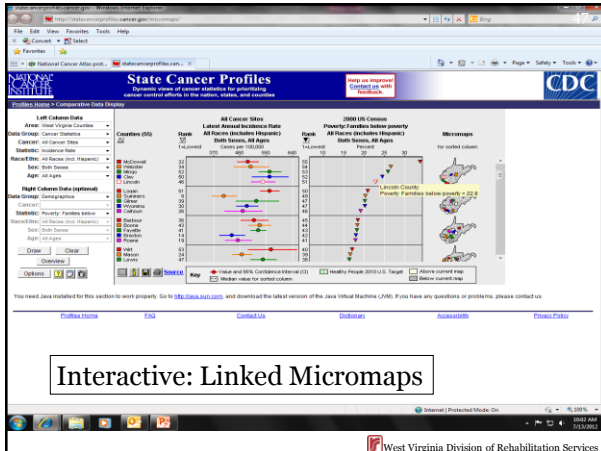
Linked Micromaps

- National Cancer Institute
 - <http://gis.cancer.gov/tools/micromaps/>
- Interactive Version
 - <http://statecancerprofiles.cancer.gov/micromaps/>

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Interactive: Linked Micromaps

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Dynamically Linked Windows

- GeoVISTA Center Penn State U
 - United States Atlas of Cancer
 - <http://www.geovista.psu.edu/granis/CDC/national.html>
- GeoWise Ltd.
 - InstantAtlas Data Presentation Software
 - <http://www.instantatlas.com/index.xhtml>
 - Examples
 - Arizona Dept. of Health Services
 - <http://www.azdhs.gov/phs/azchaa/>
 - University of Texas
 - <http://hhs2010.sph.uth.tmc.edu/SingleMapReport/>
 - Pan American Health Organization
 - http://www2.paho.org/HQ/images/Atlas_IHR/CholeraHispaniola/atlas.html

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