Assessing Future Needs of Students with Disabilities Utilizing State Department of Education Data

Power of Mapping Techniques

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Presentation Objectives

- Review the advantages of mapping
- Examine types of maps
- Explore Virginia’s application of mapping:
  - Location of offices for optimal service delivery as it relates to lease renewals.
  - Comprehensive statewide needs assessment
  - Use in planning for students with disabilities
- Examples of software and freeware available for mapping
- Demonstration of Epi Info mapping-freeware
Why Are Maps Helpful?

- Add space and time dimensions that can not be as easily be displayed in charts or graphs.
- Especially useful for large amount of data that need to be displayed and summarized.
Location of offices
  - Eastern Shore of Virginia (2 counties, 70 miles in length)
    - Issue of limited staff
    - Large geographic area to cover
Open Cases Eastern Shore of Virginia FFY19 by Zip Code-Graphing

Zip Codes Eastern Shore
Open Cases FFY19
Location of DARS Office-Eastern Shore of Virginia - Mapping
2\textsuperscript{nd} Demonstration of Space and Time Advantage of Mapping

- Lynchburg
  - Only office in a very rural area
Lynchburg Virginia Office Location
Points of Interest (Google Maps)
- Best restaurants near Holiday Inn By The Bay
Case Cluster Map
Displays quantity of case(s)/variable on a map based on geographic location. Example is Salmonella outbreaks due to chia powder. An example of use with VR would be number of clients in a county, zip, fip earning less than $10.00/hour.
Choropleth Map

is a thematic map in which areas are shaded or patterned in proportion to the measurement of the statistical variable being displayed on the map, such as population density or per capita income or in this case number of crashes involving moose in Maine.
Under WIOA VA DARS had to plan for serving students with disabilities. While we served a large percentage of students between the ages of 14-22 in the past (40% of all clients on average per year) we needed to serve in manner prescribed by WIOA with the new service categories (job exploration, workplace learning, workplace readiness, self advocacy training, counseling on post secondary education).

- Challenge of meeting the 15% expenditure required.
Strategy to Address Needs of Students with Disabilities in Virginia Under WIOA

What Did We Need to Know?

- How many clients have we served in the past/trends in both numbers of clients served and disability types?
- How many clients are we currently serving?
- What are the population estimates of clients to be served in future years?
- Where have we served clients?
Who Have We Served In Past-Eligibilities/Year?
40% of all clients determined eligible from FFY11-19 were 14-22 years of age

(Range of 1,617-3,583 with x = 7,537 eligibilities per year in this age group)
An average of 40% of all open cases were 14-22 years of age.
Data from the Virginia Department of Education on students with disabilities enrolled either in public, private or home schooled for the 2018-2019 school year were obtained.

Source:

Build a table

There were a total of 52,771 students grade 9 through 12 who were considered to have disabilities in the 2018-2019 school year.

Tip: Call your education agency as they may have data not published but willing to share or data in a different format.
The breakdown by grade level is shown below

- **Largest percentage were in 9th grade**
  - In past DARS typically served “transition clients” in the 11th or 12th grade due to resources.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th Grade</td>
<td>15,284</td>
<td>29%</td>
</tr>
<tr>
<td>10th Grade</td>
<td>12,927</td>
<td>24%</td>
</tr>
<tr>
<td>11th Grade</td>
<td>11,364</td>
<td>22%</td>
</tr>
<tr>
<td>12th Grade</td>
<td>13,196</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td>52,771</td>
<td>100%</td>
</tr>
</tbody>
</table>
DARS Serving Approximately 21.6% of Students with Disabilities In Grades 9-12 in VA

- DARS in ffy19 past had 11,415 open clients 14-22 years of age
- Dept of Education reported 52,771
- Reaching 21.6% of Dept. of Education population
- Note: Virginia has categories closed under Order of Selection and not all persons reported by the Dept. of Education may want or be eligible for our services.
Disabilities of Students (%) 9-12th Grade

Top 3:
- Specific Learning Disability 41% (n=21,695)
- Other Health Impairment 24% (n=12,805)
- Autism 13% (n=6,703)
# Type of Disability
Virginia Students 2018-2019 Academic Year

<table>
<thead>
<tr>
<th>Type of Disability</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autism</td>
<td>15284</td>
</tr>
<tr>
<td>Deaf-Blind</td>
<td>12927</td>
</tr>
<tr>
<td>Developmental Delay</td>
<td>11364</td>
</tr>
<tr>
<td>Emotional Disturbance</td>
<td>13196</td>
</tr>
<tr>
<td>Hearing Impairment</td>
<td>52771</td>
</tr>
<tr>
<td>Intellectual Disability</td>
<td>12,805</td>
</tr>
<tr>
<td>Multiple Disabilities</td>
<td>15927</td>
</tr>
<tr>
<td>Other Health Impairment</td>
<td>100.0%</td>
</tr>
<tr>
<td>Orthopedic Impairment</td>
<td>0.4%</td>
</tr>
<tr>
<td>Specific Learning Disabilities</td>
<td>0.4%</td>
</tr>
<tr>
<td>Speech or Language Impairment</td>
<td>0.4%</td>
</tr>
<tr>
<td>Traumatic Brain Injury</td>
<td>0.4%</td>
</tr>
<tr>
<td>Visual Impairment</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Sample size 21,695 specific learning disabilities
12,805 other health impairments
6,703 autism
Data may be missing if n is small with regard to variable or variables under study as saw with blank or zero values in some of the cells.

https://studentprivacy.ed.gov/frequently-asked-questions
Pipeline of Students In Future
Source: Virginia Dept of Education
Additional 131,125 in Pre School-8th
Average of 13,112 per year

For school year 2018-2019 there were an additional 131,124 disabled students with an average of 13,112 per grade

<table>
<thead>
<tr>
<th>2018-2019 Year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre School</td>
<td>12,244</td>
</tr>
<tr>
<td>Kindergarten</td>
<td>11,100</td>
</tr>
<tr>
<td>1st Grade</td>
<td>11,420</td>
</tr>
<tr>
<td>2nd Grade</td>
<td>12,581</td>
</tr>
<tr>
<td>3rd Grade</td>
<td>13,765</td>
</tr>
<tr>
<td>4th Grade</td>
<td>14,606</td>
</tr>
<tr>
<td>5th Grad</td>
<td>14,487</td>
</tr>
<tr>
<td>6th Grade</td>
<td>13,866</td>
</tr>
<tr>
<td>7th Grade</td>
<td>13,820</td>
</tr>
<tr>
<td>8th Grade</td>
<td>13,235</td>
</tr>
<tr>
<td>Total</td>
<td>131,124</td>
</tr>
<tr>
<td>Average</td>
<td>13,112</td>
</tr>
</tbody>
</table>

Largest increase 2nd to 3rd grade

See slight increase in # as age increases: Average age of dx of autism is 4 years of age while average age for learning disabilities is 8 years.
Currently we are reaching only 22% of students with disabilities in Virginia

Dept. of Education is predicting another 13,000 per year or 2,000 over DARS current eligibilities per year of 11,000.

Due to WIOA requirements for new services (5 required) and 15% expenditure we had to reconsider our service delivery and used mapping to assist with decision making including:

- Converting general caseload positions to student caseloads
- Moved counselors to areas of need.
Location of DARS Students 14-22 in Virginia 2019
Northern Virginia, Richmond, Tidewater have highest numbers of students with disabilities.
We Examined Distribution of Clients in All 5 DARS Districts
DARS Central District Example

Dept. of Education Data

Areas of potential underserved clients west of Richmond

DARS Service Data
Southwestern Virginia District

Area of potential need

Potential Shift in Resources

Dept. of Education

DARS Service Area
VA DARS can expect a large number of students with disabilities in coming years.

We have reallocated resources, but do we need to do more?

We need to monitor changes in the population over time.

Do we need disability specific specialists in Autism or other disability types and how many and where do we need them geographically placed.

Additionally, how do we handle our serving our adult population?
Tools for Mapping

- Tableau (Approximately $120/month/individual)
  - Tableau (Several Components) Creator: $70/month/individual
  - Tableau Explorer: $35/month/individual
  - Tableau Viewer: $12/month/individual
- Power BI Desktop (Free Versions)
  - Need latitude and longitude
  - Requires connection to sequel server
- MapLine
  - $60/month per individual
  - Need latitude and longitude
  - Requires connection to sequel server
Epi Info from the CDC - freeware

- [https://www.cdc.gov/epiinfo/](https://www.cdc.gov/epiinfo/)
  - Windows version
  - Available on Mac’s but need special adaptation
  - Mobile version (download at apple store or google play)
    - Useful where IT infrastructure lacking
  - Cloud based version (used for large amounts of data)
Epi Info™

Epi Info™ is a public domain suite of interoperable software tools designed for the global community of public health practitioners and researchers. It provides for easy data entry form and database construction, a customized data entry experience, and data analyses with epidemiologic statistics, maps, and graphs for public health professionals who may lack an information technology background. Epi Info™ is used for outbreak investigations; for developing small to mid-sized disease surveillance systems; as analysis, visualization, and reporting (AVR) components of larger systems; and in the continuing education in the science of epidemiology and public health analytic methods at schools of public health around the world.
Mobile Version
Limited and Does Not Have Mapping Function

ENTER DATA
Enter data, browse records, and search the database.

ANALYZE DATA
Visualize analytic results with gadgets, tables, and SQL tools.

STATCALC
Statistical calculators for sample size, power, and more.

This app is a companion to Epi Info for Windows. For a tutorial on using this app, click here. (Opens in Web Browser)
You must download the application to your pc or mobile device. (In Virginia we had to get approval from the Virginia Information Technology Agency.)

Note: Epi Info is also useful for form creation, dashboards and statistical calculators.
Blank Canvas
Add base layer
Add maps from own sources, and map servers such as census
Browse for VA Shape file (*.shp)
Add Data Layer: Allows you to choose type of map you wish to create, data can be from EXCEL, ACCESS, CSV.
Add Data by Browsing for EXCEL, etc.
Many Epi Info Resources

- CDC site has tutorials
  https://www.cdc.gov/epiinfo/support/tutorials.html

- Many good YouTube videos
Conclusions-Use of Mapping

- Mapping has been helpful to Virginia DARS in several projects.
  - Office Locations
  - Needs Assessments
    - Location of unserved/underserved populations
    - Compared census/etc. population estimates and characteristics of individuals with disabilities in Virginia to DARS population
    - Change in populations over time
  - Relocation of Staff Resources

- If budgetary constraints in place consider free ware for mapping.
Questions?

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