Visualizing Health Care for Rural Veterans with GIS

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GeoSpatial Outcomes Division is located in Gainesville, FL, but responds to rural health-requests from across the country.

Main purpose is to use Geographic Information Systems (GIS) to examine access to care for rural Veterans.

Identify geographic health care access gaps.

Assist policy makers, program offices, and researchers with their special GIS needs/analyses.
• GIS made a breakthrough with first VA Health Care Atlas produced in 2003
• About 70 data tables and 100 maps featuring:
  — Veteran and enrollee population
  — VA hospitals
  — Discharges and visits
  — Disease specific (diabetes, stroke, substance abuse, et al.)
• Synthesized information from massive VA data sources
• Well received as a resource for VA researchers
EARLY MAP ATLASES PRODUCED IN THE VA

- Fiscal year 2014 and 2015 Rural Health Atlases
  - Funded by the VA Office of Rural Health
  - Focuses on rural Veterans
- Hundreds of maps and data tables featuring
  - Updated Veteran and enrollee population
  - Updated VA medical facilities
  - Updated disease specific (diabetes, stroke, substance abuse, et al.)
  - Outpatient encounters
  - Community health care access measures (County health rankings)
  - Wired broadband coverage
  - Hospital bed occupancy rates
EARLY MAP ATLASES PRODUCED IN THE VA

Number of VHA Rural, Highly Rural and Insular Island Enrollees by U.S. State/Territory, E0FY-2015

Rate of Primary Care Providers (PCPs)

0 - 2 (lower 25%)
26 - 47 (median)
48 - 60 (upper 25%)
61 - 500 (Upper 25%)

Veterans Choice Act (VACAA) Eligible VHA Facilities End of FY-2015 Region 4: West

Veterans Choice Act (VACAA) Facilities and Runtivity
- Health Care Center Urban
- Primary Care (OEOC, Rural)
- Multi Specialty (OEOC, Rural)
- Primary Care (OEOC, Rural)
- Mental Health Center Urban
- State Border

Rate of Rural and Highly Rural VHA Patients with Disabilities

Urban Areas "Shaded" Northeast U.S. region (VIEWS 1, 2, 3, 4, 5, 16)
EARLY MAP ATLASES PRODUCED IN THE VA

[Map of the United States showing broadband by VISN, with different colors indicating broadband speeds.]

Legend:
- Highly Rural
- Rural
- Urban
- VISN

Map created by GeoSpatial Outcomes Division, VA Office of Rural Health.
FEEDBACK AND SUBSEQUENT INFORMATION REQUESTS FROM ATLAS READERS

- VA Director of Telehealth Services
  - Mapping of rural Veterans and broadband service areas to support telehealth program expansion
  - Veterans who need remote care and rehabilitation
    - Provided knowledge of where the gaps were
      - ZIP codes with patient counts where no mobile (4G cellular) or feasible wired broadband coverage exists and that were more than 40 miles from a VA facility
    - Used this information to prioritize locations for VA connectivity hot spots/kiosks in secure areas, such as a post office where Vets can access their healthcare team using video, when needed without the need to travel significant distances outside their local communities

<table>
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VA National Program Director for Kidney Disease

Mapping patients with Chronic Kidney Disease (CKD) seen at VA (or community fee basis) on an outpatient basis

Examining geographic disparities for CKD

Provided spatial representation of areas outside of 40 miles from where nephrology services are available and tabular information on the number of patients residing outside (county level), both of which identify high volume patient counties that are 40 miles from service.
DEMONSTRATING ENHANCED ACCESS TO HEALTH CARE FOR RURAL VETERANS

- Ad hoc map/data requests from Office of Rural Health (ORH) and other VA health care program offices
- Enterprise-Wide Initiatives
  - ORH collaborates with other program offices
  - Create and implement national solutions to increase rural Veterans’ access to health care
- VA Geriatrics Scholars Program
  - Addresses shortage of geriatrics skills and knowledge in rural clinics
  - Infuses geriatrics in VA primary care
  - Scholars train clinicians
DEMONSTRATING ENHANCED ACCESS TO HEALTH CARE FOR RURAL VETERANS

- VA Geriatric Scholars Program map
  - 2008 - 2016
  - 412 sites
  - 819 scholars
  - Graduated circles represent locations of participating facilities and volume of scholars per facility
• **Feedback and Comments**
  
  – “We will be including it in our future orientation materials and will recommend adding it to the next updates on the ORH website listing for mentored implementation.”
  
  – “We should publish it in Geriatric Research Education and Clinical Center (GRECC) “Forum” newsletter’s next edition. The newsletter gets sent to The Hill and broadly disseminated in VA.”
  
  – “FANTASTIC!! Thanks for sharing. We need to share this far and wide—like print it up to display at the Special Interest Group (SIG) meeting at American Geriatrics Society (AGS), print it up to hang in the Geriatrics and Extended Care (GEC) and ORH offices in VA Central Office (VACO).”
  
  – “This is amazing. A picture really does speak a thousand words…and this one a whole lot more.”
DEMONSTRATING ENHANCED ACCESS TO HEALTH CARE FOR RURAL VETERANS

- Increasing Access to Clinical Pharmacy Specialist Providers for Rural Veterans
  - National program expanding access to rural Veterans
  - Rural access to medication and chronic disease management services
  - Clinical Pharmacy Specialists (CPS) bridge gaps to care
• Increasing Access to Clinical Pharmacy Specialist Providers for Rural Veterans - first map
  
  – Vertical bar chart symbology represents locations of participating facilities, and breakdown of each type of CPS provider
  
  – 60 sites
  
  – 203 full-time employment equivalent (FTEE) approved pharmacists
    • 45.5 mental Health
    • 121 PACT
    • 36.5 pain
Demonstrating Enhanced Access to Health Care for Rural Veterans

- Increasing Access to Clinical Pharmacy Specialist Providers for Rural Veterans - second map
  - Vertical bar chart symbology represents locations of participating facilities, and breakdown of FTEE's at inception versus expansion
  - 60 sites
  - 115 FTEE approved Pharmacists in FY 2017
  - 88 FTEE approved in FY 2017 expansion
RESULTS AND IMPACT IN VA HEALTH CARE

• Maps are so powerful in visualizing VA health care information
• Ongoing demand for GIS visualization products
• Maps aid in data driven decisions by policy makers, planners, and leadership
• Addressing gaps in health care access and helping Veterans find care closer to home
• Promoting the power of maps to make a difference
• Looking into interactive mapping capabilities
  – Portal for ArcGIS (products for internal customers, patient/HIPPA related data)
  – ArcGIS Online (products for public consumption)
  – Web map applications, Story Maps, etc.
THANK YOU

• For more information, please contact
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• Visit our GSOD Atlases
  – https://www.ruralhealth.va.gov/aboutus/ruralvets.asp