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BRIEF REPORT

Patterns in rehabilitation service utilization over a 6-year period and their use in regional-level and local health planning

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Abstract

Purpose: Planning for the utilization of health services is often based on trends in pertinent data. Information about the utilization of selected rehabilitation services for a selected population over a 6-year period had not been presented. This brief report describes the number of encounters and number of unique Veterans who utilized the VA Healthcare system for selected rehabilitation services for fiscal years (FY) 2014 to 2019 and describes possible use in local health planning.

Methods : Secondary administrative data from a prior scientific poster were updated and used to examine patterns in data. Using aggregate, administrative data, the counts for the utilization of selected rehabilitation services by eligible, unique Veterans using the VHA system were reported in terms of number of encounters and number of unique Veterans between FY 2014 through FY 2019.

Results: The number of Veterans utilizing VHA selected rehabilitation services increased from FY 2014 to FY 2019, and more eligible Veterans used physical therapy and audiology services compared to the other rehabilitation services included in this report. Such a "picture" may be useful in helping VHA health systems administrators in health planning and related activities for the benefit of Veterans.

Discussion : Rehabilitation services are a type of tertiary prevention service. The nation-wide pattern of rehabilitation services utilization may suggest to local health system planners support efforts to enhance the availability of tertiary prevention for individuals needing rehabilitation services within a specific geographic area.

Key words: Rehabilitation service utilization; administrative data; secondary data analysis; health planning; Veterans

Introduction

On Veterans Day, 2019, the US Bureau of the Census issued a brief report using population data from the 2018 American Community Survey, which estimated that over 10% of the Virginia population was made up of Veterans; the survey estimated that the total, adult population of Virginia numbered 6.5 million [1]. Of the Veterans living in Virginia, 85.8% were male and 14.2% were female. Two-thirds of these Veterans served either in the Gulf War I or Gulf War II time-periods and most Virginia Veterans were recorded as belonging to the 35 to 54 age group. The survey estimates showed that those Veterans who were "White, only" numbered nearly 467,000, "Black" numbered 140,243 and "Hispanic" (any race) numbered 34,000.

This same survey, by contrast, estimated that the United States had 17.9 million Veterans in 2018 (or 7.1% of the US population), with 90.8% male and 9.2% female. Nation-wide, most of these Veterans were estimated to have served during the Vietnam era and, also, most of the US Veterans were recorded as belonging to the 65 to 74 age group. Veterans who were "White" numbered 13.7 million, followed by "Black" who numbered 2.1 million, and "Hispanic" (any race) numbered 1.3 million [1].

The Veterans outpatient medical clinical at Fort Belvoir, Virginia, is a clinic that provides primary care to eligible Veterans along with audiology, mental health, and specialty care services, for eligible Veterans. The availability of audiology services at this VHA clinic, prompted us to wonder about the nation-wide trends in selected VHA rehabilitation services (that included the utilization from VHA's facility in Northern Virginia). Audiology is considered a rehabilitation health service offered to eligible Veterans, and some Veterans choose to receive medical care and audiology rehabilitation services, at the outpatient clinic located at Fort Belvoir. This clinic is part of the Veterans Health Administration's (VHA) VA (US Department of Veterans Affairs) Medical Center in Washington, DC, that served 201,311 eligible Veterans in FY 2019 [2].

Rehabilitation services are a type of tertiary prevention service [3-5]. These services can help individuals keep, get back, or improve skills and functioning for daily living that have been

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lost or impaired because the person was sick, hurt, or disabled. More importantly, rehabilitation is essential to a health system addressing the needs of its population, and a valued resource for persons with disabilities, directly contributing to individual wellbeing [6]. VHA offers many rehabilitation services to Veterans who are eligible to receive these services, often as a result of a service-connected condition.

Planning for the utilization of health services is often based on trends in pertinent data. Reports on the pattern or trend in the utilization of health services are useful in health services administration and managerial epidemiology for health care organizations [3, 7]. Understanding the internal environment of the health organization, indicated, in part, in health service utilization data, is vital to strategic thinking, planning, and implementation [8]. Reports have been published that examined health service and rehabilitation for service members and Veterans with a particular condition [9]. However, since 2017, no published reports were found to describe the utilization of rehabilitation services within the Veterans Health Administration (VHA) system from a nation-wide perspective.

A pilot study was conducted and presented as a scientific poster at the 2019 Association of Military Surgeons of the United States (AMSUS) Continuing Education Conference in December 2019. The poster showed aggregate data on the pattern of the utilization of selected, VHA rehabilitation services from FY 2014 to FY 2018 [10]. In this brief report, we expand upon our earlier report by including aggregate data from FY 2019. Our aim is to describe the utilization of selected rehabilitation services among eligible Veterans from FY 2014 through FY 2019. Additionally, we discuss how these trend data could be useful to health system administrators at a regional or sub-regional level for health planning.

Methods

In this secondary data analysis project, ecologic study methods were used to examine the trends or patterns in data [7]. These administrative data were previously reported at a scientific conference and were updated with the addition of FY 2019 data [10]. Using aggregate, administrative data, the counts for the utilization of selected rehabilitation services by eligible, unique Veterans receiving care in the VHA system were reported in terms of number of encounters and number of unique Veterans between FY 2014 through FY 2019.

The rehabilitation services included in this report included: audiology; blind rehabilitation; occupational therapy; physical therapy; and speech-language pathology. Descriptive methods were used to show patterns in utilization by number of encounters and unique patients and, then, graphically compare by categories of rehabilitation services. The ratio of encounters to number of unique Veterans were calculated in order to show the pattern in the number of unique Veteran patient encounters for the utilization of selected VHA rehabilitation services. The graphical representation of data can be useful in health planning activities. No personal identifiable information data were used in this report.

The VHA described these categories of rehabilitation services for eligible Veterans using the VHA system, included in this report, as follows [11]:

VHA description of rehabilitation services

Audiology: Comprehensive care services to eligible Veterans with hearing loss, tinnitus, and balance disorders. Auditory system disabilities (including hearing loss and tinnitus) are among the most common service-related disabilities in every period of service since WWII.

Blind rehabilitation: Blind and vision rehabilitation programs that target eligible Veterans and Servicemembers who are visually impaired with the aim to restore independence and quality of life for Veterans and Servicemembers with visual impairment, to assist them in adjustment and re-integration into home and community life, and to educate their crucial partners.

Occupational therapy (OT): OT services for eligible Veterans and Servicemembers include the therapeutic use of everyday life activities (occupations) with individuals or groups for the purpose of participation in roles and situations in home, school, workplace, community, and other settings. OT provides services that promote health and wellness to those Veterans who have, or are at risk for developing, an injury, illness, disease or condition.

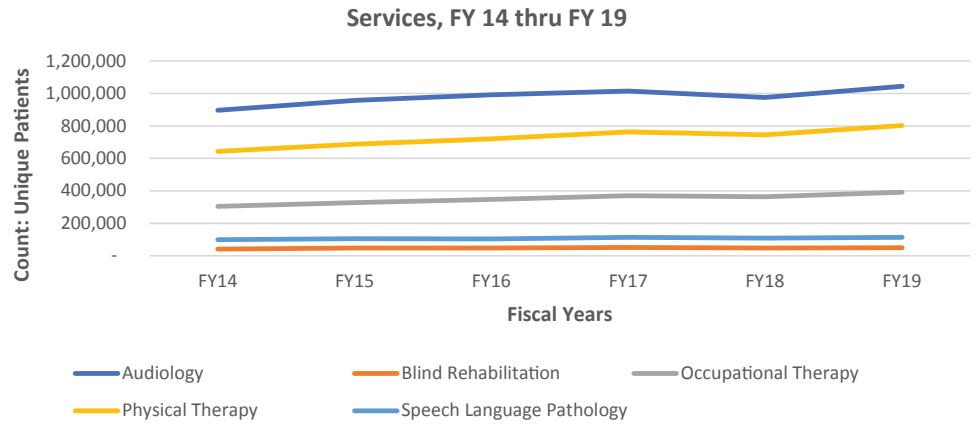
Physical therapy (PT): PT services include the diagnosis and treatment of eligible Veterans and Servicemembers with medical problems or other health-related conditions that limit their abilities to move and perform functional activities in their daily lives.

Speech-language pathology: Comprehensive care services to eligible Veterans and Servicemembers include the early identification or screening, evaluation, and treatment for speech, swallowing, language, voice and cognitive-communication disorders.

Results

Graph 1 depicts the number of eligible Veteran patients using selected VHA rehabilitation services from FY 14 through FY 2019. The number of unique Veteran patients needing VHA audiology services and VHA physical therapy services was much higher compared to the number of unique Veterans needing blind rehabilitation services and speech-language pathology services over the same time period. From FY 14 through FY 19, many eligible Veterans, also, needed occupational therapy services.

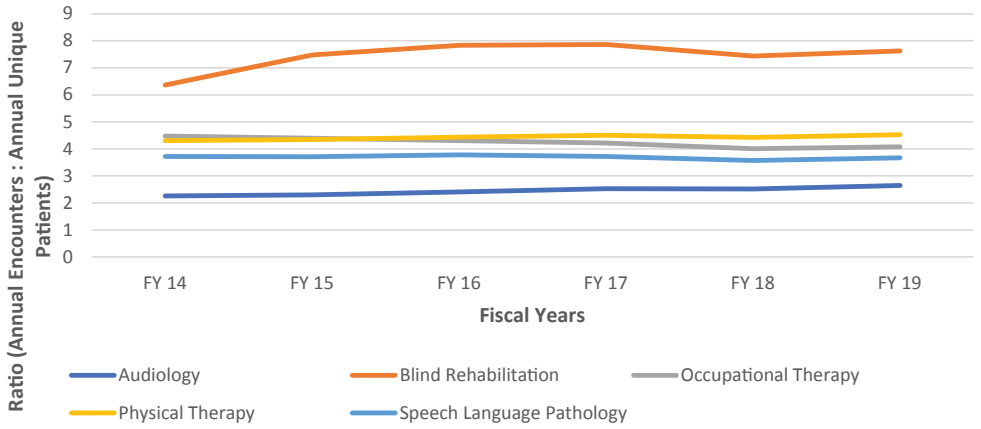
In Figure 1a and 1b, the use of selected VHA rehabilitation services is shown for FY 19 and FY 14 (intervening years-not shown). For the selected rehabilitation services, the annual data reports show, in aggregate, the total number of encounters in the "bar" for each category of service and the plot of the number of unique patients for each category of service. The number of unique Veteran patients using audiology services increased by about 12% from FY 14 to FY 19. The number of unique Veteran patients using VHA physical therapy services increased by almost 25% during the same time period.



Graph 1: Depicts the number of eligible Veteran patients using selected VHA rehabilitation services from FY 14 through FY 2019

Figure 1a and 1b: the use of selected VHA rehabilitation services is shown for FY 19 and FY 14

Finally, in Graph 2, the ratio of the annual number of specialty encounters to unique Veteran patients utilizing selected VHA rehabilitation services is shown. The ratio of total service encounters to the number of eligible, unique Veterans utilizing each, selected rehabilitation service was at least 2 encounters for each year within the VHA system from FY 2014 to FY 2019. The pattern in the ratio of encounters to unique Veteran patients was highest for blind rehabilitation services (i.e., between 6 to 8 encounters) for every year in this report. By contrast, the ratio was between 2 and 3 encounters for unique Veteran patients needing audiology services during the same time period.



Graph 2: The ratio of the annual number of specialty encounters to unique Veteran patients utilizing selected VHA rehabilitation services is shown

Discussion

The examination of health service utilization data trends provides some insights into the accessibility of health services that is used to develop and refine health system plans for populations. Administrative data have an important role in monitoring roll-out and in generating service-wide indicators of service effectiveness, cost-effectiveness and equity [12]. From FY 2014 to FY 2019, this report showed a general increasing pattern of utilization. Additionally, more eligible Veterans used physical therapy and audiology services compared to blind rehabilitation, occupational, and speech language therapy services. The ratio of total service encounters to the number of eligible unique Veterans utilizing each selected rehabilitation service increased within the VHA system from FY 2014 to FY 2019. The nation-wide pattern of rehabilitation services utilization may suggest to local VHA health system planners support efforts to enhance the availability of tertiary prevention for eligible Veterans served within a specific geographic area. Planning for these services may permit local VHA and community providers to mobilize and coordinate tertiary-rehabilitation services in a geographic area to better meet the needs of local Veterans.

System-level information for use in regional and local health planning

In a broader way, health administrators take an evidence-based approach to health-service planning, performance monitoring and evaluation, using various data sources [12]. These various data sources can include vital statistics, health surveys, disease registries, and administrative databases [15]. There are various ways in which health care systems use administrative data. The system-level data patterns for rehabilitation services can be used to guide local actions from the regional level (or district level). Regional health system networks manage the day-to-day functions of medical centers and provide administrative and clinical oversight of medical centers [14]. Planning at the regional level is from a macro-level perspective with emphasis on managing facilities within that catchment area.

In general, from a regional or local, medical center perspective, the information provided in the line graph over time can be used to plan the budget for local rehabilitation services, or plan for a specific population group. By using this data to identify a pattern the number of unique patients and health service encounters, the health system administrators can identify increased patient load and plan for changes in staffing needs or services that can be provided in a traditional patient-provider interaction in a clinical setting or via telehealth. National and regional data trends can be included in health planning to focus resources on geographical catchment areas of health care facilities within the region or focus attention on specific hospital quality initiatives. Additionally, trend data can be used to engage with private partners for local programming initiatives.

In what ways can aggregate, trend health data inform health system planning, both regional and global?

Overall, health service planning has an important relationship to legislation, policy, and other types of health planning activities [13]. For example, enterprise-wide initiative for telerehabilitation services expands an integrated network of providers specifically trained to deliver physical and rehabilitative therapy to rural patients using telehealth technology [16]. The use of system-level or regional-level, aggregate, administrative data could help local health system administrators align health system resources (e.g., health planning, budgeting, etc.) to support policies and programs for medical rehabilitation. These aggregate data may be used to guide resource allocation and health program planning that could promote the ability of individuals living with disabilities to improve their functioning and quality of life.

Furthermore, using data for policy decisions and health planning can be extended beyond regional and local level planning to global health planning in support of global health strategies to translate and disseminate evidence-based research and data, global health guidance, policy, and programs [17]. These aggregate data trends when combined with professional

curiosity and epidemiological thinking from a regional or local level perspective could be useful in designing and managing the health care of populations to support health promotion, disease prevention, and health policy needs of a specified population in a specific area.

Conclusion

The results of this rehabilitation service utilization report have significant implications for health system administrators. First, the nation-wide pattern of rehabilitation services utilization may suggest to local health system planners support efforts to enhance the availability of tertiary prevention for patients living within a specific geographic area. Second, aggregate, administrative data could help health system administrators align health system resources (e.g., health planning activities) to support policies and programs for medical rehabilitation to promote the ability of those living with disabilities to improve their functioning and quality of life. Finally, using administrative data for health system planning can be advantageous for health system administrators from aligning health system resources (e.g., health planning, budgeting, etc.) to supporting policies and programs for medical rehabilitation from a national, regional or local level. From the perspective of health administration, an awareness of the trends in rehabilitation services utilization might be beneficial for developing innovative ways to bring these tertiary services to those living at a distance from a medical rehabilitation center.

Disclaimer

The views in this brief paper are those of the authors and do not represent the official position of the U.S. Government or VA.

Author contributions

TJ: Planning manuscript; writing manuscript, especially related to health planning; led editing and proofreading; GF: Planned original project; collected administrative data; described data; wrote elements of manuscript; participated in editing and proofreading.

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