



## Research Statement

Huanguang Charlie Jia\*

Department of Veterans Affairs, University of Florida, USA

### Editorial

Stroke is a leading cause of serious long-term disability and fifth leading cause of death in the U.S [1]. The Veteran Health Administration (VHA) of the U.S. Department of Veterans Affairs (VA) runs the country's largest integrated health care delivery system and provides healthcare services to over 9 Million veteran enrollees [2]. Each year, at least 5,000 Veterans are admitted to VHA medical centers for acute ischemic stroke care, costing an estimated \$274 million for acute and post-acute stroke care [3]. According to the American Stroke Association, 40% of stroke survivors live with moderate functional impairment and 15% to 30% with severe and moderate disability [1]. These patients need quality and appropriate rehabilitation therapy and restorative care to minimize their functional disability and enhance their recovery process [4].

### Access to Acute Stroke Care

Treatment of acute stroke patients in stroke medical centers increases the odds that patients receive Tissue Plasminogen Activator (tPA) and decreases complications and morbidity [5]. In a VHA-sponsored study project, Dr. Huanguang Jia's research team used Geographic Information System (GIS) software to calculate 60-minute ground transportation bands from national VHA enrollees' and stroke patients' residential ZIP codes to the closest VHA and private community stroke care facilities. They found that 73% of the enrollees and 52% of the stroke patients live beyond the 60-minute driving bands from a VA stroke center, and that with the addition of community stroke centers, the above rates would be reduced to 58% for the enrollees and 39% for the stroke patients. Such information assisted VHA strategic planners in selecting sites for new local VHA stroke centers and considering alternative service delivery strategies such as tele-acute stroke care and outsourcing to community stroke centers, thereby improving Veterans' access to acute stroke care and recovery.

### Acute and Post-Acute Stroke Care

The majority of VHA stroke patients are dually eligible for care covered by VHA and Medicare programs. The use of multiple-source care has important implications for measuring the quality of care, may result in a discontinuity of care, and can lead to an incomplete VA medical history for any care a Veteran receives outside the VA system. Dr. Huanguang Jia and his research team have been continuously engaged in studying the multiple sources of care and related outcomes in order to improve the care quality and functional recovery in VHA stroke survivors. Their research findings showed that among the VHA stroke patients, 70% of them are VHA-Medicare-Medicaid multiple-source users [6]. Furthermore, the multiple system (VHA-Medicaid, VHA-Medicare, and VHA-Medicaid-Medicare) users are significantly different from VHA only users demographically and clinically: they are more likely to be white and divorced; to receive post-stroke rehabilitation therapy; to be rehospitalized, and to have higher rate of mortality post-stroke [7-9]. These findings informed VHA policy makers that a care coordination program would help improve VHA stroke care quality and reduce patients' rehospitalization and VHA healthcare cost. The findings demonstrated to VHA clinicians the importance of acquiring all medical information from Veterans regarding any care received outside the VHA system; developing a complete VA medical history for the multiple-source users will result in better and more effective continuity of care, thereby enhancing the recovery process, minimizing functional disability, and preventing secondary stroke.

### Long-Term Care

VHA Community Living Centers (CLC) and private Community Nursing Homes (CNH) are two major sources of institutional long-term care for VHA stroke patients. In an early study, Dr. Jia's team compared the care quality indicators between VHA per-diem contracted CNHs and non-VA contracted facilities. They reported that the CNHs serving Veterans with stroke have, in general, poorer quality scores than the non-VHA contracted facilities, and that Veterans with

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#### \*Correspondence:

Huanguang Charlie Jia, Department of Veterans Affairs, University of Florida, USA,

E-mail: [Huanguang.Jia@va.gov](mailto:Huanguang.Jia@va.gov)

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stroke received less rehabilitation therapies than their counterparts who are not Veterans [10]. Building on the above findings, Dr. Jia's team has recently completed a study to investigate the geographical variations in quality and rehabilitation services received by VHA stroke residents in CLCs vs. VHA stroke residents in VHA-contracted CNHs. They reported that Veterans at VA CLCs (vs. Veterans at VHA-contracted CNHs) had fewer average rehabilitation therapy days (both unadjusted and adjusted), but they were significantly more likely to receive restorative nursing care with significant geographic variations both before and after risk adjustment [11]. More analyses on the quality of rehabilitation and restorative care are under way.

These research activities and findings by Dr. Huanguang Jia and his research teams projects reflect the research team's consistent pursuit of answers to complex issues related to healthcare access, utilization, and quality for Veterans diagnosed with stroke. Their research findings have added greatly to our understanding about VHA stroke care, and have led directly to pre-implementation and improvement projects that have resulted in better comprehensive stroke care within the VHA system.

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