Mid-Atlantic Telehealth Resource Center: Telehealth Innovation Award Nomination
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Name of Project:
Jefferson Neuroscience Network - Remote Research Program

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Many U.S. healthcare institutions are faced with resource shortages that separate critically ill and brain injured patients from clinical specialists and time-sensitive interventions, leading to high rates of failed, delayed, or less effective treatment processes. To reduce this healthcare-access gap, and examine the impact of available treatments on patient-based outcomes, the Jefferson Neuroscience Network (JNN) was established in 2009; it provides expeditious, remote delivery of time-sensitive treatment to underserved hospitals. The JNN reflects a growing trend toward the conception, development, and deployment of Telehealth applications across the U.S.; yet, the body of evidence supporting the use of such applications has been slow to evolve, ultimately impacting the speed with which Telehealth is adopted.[1] To overcome this issue, the JNN recently launched the Remote Research Program (JNN-RRP): an innovate effort to demonstrate the efficacy of robotic telepresence (RTP) technology as a tool for facilitating multisite research endeavors, toward the development of telemedicine. By remotely running multisite telemedicine-focused projects, from initiation to completion, the JNN-RRP aims to increase the rate at which evidence supporting the advancement of telemedicine is produced. Further advancing this goal, are individual lines of research generated by the RRP, which examine the value and efficacy of telemedicine applications in clinical care, education, and patient outcomes research.

The JNN-RRP is the first university-based, multisite telemedicine-research program designed to increase the speed and effectiveness of inter-site communication between primary investigators and research staff. Within just a year, the program initiated grant-funded research projects[i], educated ICU nurses, trained coordinators, conducted weekly meetings, and screened

[i] The following grant-funded studies are referenced above:

a) Assessing the Impact of Care in a Telemedicine-based Stroke Network Using Patient Centered Health Related Quality of Life Outcomes (NCT02447094). This project was supported by a grant from Genentech Inc.

over 1700 patients across hospitals in Pennsylvania and New Jersey. For example, the RRP recently initiated an ongoing study that endeavors to examine the impact of RTP-based care on stroke patients' quality-of-life outcomes. Operated remotely, this project allows staff from 6 geographically distant hospitals to coordinate study efforts on a daily basis, which positively impacts the speed at which telemedicine healthcare can be researched and developed.

In addition to creating a platform upon which to build research teams, the RRP's use of RTP technology allows staff from one site to monitor, obtain informed consent from, and follow-up with patients from other sites. Performing such tasks remotely, when underserved hospitals are unable to offer sufficient on-site coordinator time, results in subject recruitment opportunities that would otherwise be missed. Ultimately, this strategy enhances communication between patients and study personnel, resulting in fewer failed patient follow-ups (and related grant expenses), more frequent dialogue between caregivers and recipients, and a level of data quality concomitant with such consistent communication.

Also, each RRP-initiated study eliminates costs associated with physical site meetings, on-site educations sessions, employee travel expenses, and transportation costs for study participants. According to RRP coordinators at Roxborough Memorial Hospital and Mercy Philadelphia Hospital, the program allows their respective institutions to participate in research and professional development when the monetary and time costs of physical site meetings would otherwise make involvement impossible. For example, the RRP recently enabled two comprehensive stroke centers, in different states, to engage in research examining the use of Telehealth as a neuro-ICU nursing education tool. Without RTP technology, the time and travel costs for on-site research and critical care training sessions would have been too costly. However, as a result of the JNN-RRP, researchers and clinicians were able to validate and assess the impact and efficacy of tele-education to improve nursing knowledge. Furthermore, the project yielded 100 percent agreement among participating nurses that they would change their current bedside practice based on information from the education sessions, ultimately resulting in improved care for patients. In this manner, the RRP empowers underserved hospitals, and the unique populations they serve, to engage with telemedicine-focused research and to quicken the production of data supporting Telehealth.

Additional areas of applications for the JNN-RRP's model are numerous, including any healthcare and healthcare education domains where the products of efficient, cost-saving, multisite research are desirable. For instance, an ongoing RRP project examines the feasibility of using Telehealth applications to collect quality-of-life data from telemedicine patients. If the study's hypotheses are correct, the project could be expanded to other fields in which telemedicine is used, including critical care, primary care, dermatology, and others. Also, while the study is remotely operated across 6 hospitals, it could easily be scaled to reach investigators and participants from any of the 32 hospitals within the JNN. By facilitating telemedicine-based research collaborations within telemedicine networks, the RRP model can

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b) Using a Tele-Presence Platform as a Neuro-ICU Nursing Education Tool: Collaboration Between Two Comprehensive Stroke Centers. This project was supported by a grant from InTouch Health.

be adapted to expand the reach, and broaden the scope, of outcomes research in any telemedicine-enabled facility.

Costs related to the JNN-RRP include the building and maintenance of databases and telemedicine equipment, and the hiring of one, full-time research coordinator. However, with the exception of the coordinator, these costs are unavoidable for telemedicine networks, regardless of whether they participate in remote research. Accordingly, the JNN-RRP constitutes an innovative, practical, and versatile remote research model that is inexpensive and easy to replicate in Telehealth-equipped facilities (especially telemedicine networks).

References

[1] Dixon, BE, Hook JM, McGowan, JJ. *Using Telehealth to Improve Quality and Safety: Findings from the AHRQ Health IT Portfolio.* Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services. https://healthit.ahrq.gov/sites/default/files/docs/page/Telehealth_Issue_Paper_Final_0.pdf. Published December 2008. Accessed March 15, 2016