

POPULATION HEALTH MANAGEMENT (PHM) FOR REFRACTORY EPILEPSY AND PSYCHIATRIC CO-MORBIDITIES: DEPLOYING A PHM DELIVERY MODEL FOR AMPLIFYING PATIENT OUTREACH

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1. SPECIFIC AIMS

The Telehealth Rural Ambulatory Care Coordination (TRACC) initiative is a novel patient-centered population health management (PHM) outreach delivery model for delivering subspecialty care for refractory chronic epilepsy and co-morbid mood disorders in Northeastern Illinois (FIGURE 1).

An independent community-based PHM coordination hub has been established in McHenry County, IL to facilitate access to community social service resources, telemedicine-linked subspecialty expertise and 'on-demand' internet-based patient education.

Such a community-based health information technology (IT) bridge for managing refractory epilepsy is critical for accommodating a markedly increased patient throughput upon implementation of the Affordable Care Act.

This initiative aims to improve the co-morbidity patterns and the healthcare use-behavior of the majority of the individuals in the rural under served community with refractory epilepsy and co-morbid psychiatric illness.

The clinical implementation and replication of this strategy in other communities hinges on the scalability of an efficient networking approach. Such an approach must coordinate near real-time matching of community psychosocial services with geographically distant specialized neurological needs of a large portion of individual patients residing in the community.

2. METHODS

The methodology combines the following four innovative components:

(1) a HIPAA-compliant portable video-conferencing communication protocol and technology for remote access of specialists at Rush University Medical Center (RUMC) with patients and community-based healthcare providers (FIGURE 2, A&B).

(2) a custom-designed web-based networking technology employing a relational database for accessing and tracking allocation of all community-based resources and providers.

(3) computer-intensive production, archiving and on-demand streaming of an animated education series targeting epilepsy and mental health to accommodate closed virtual classrooms (FIGURE 3).

(4) an independent community-based PHM coordination hub facilitating the above innovative components.

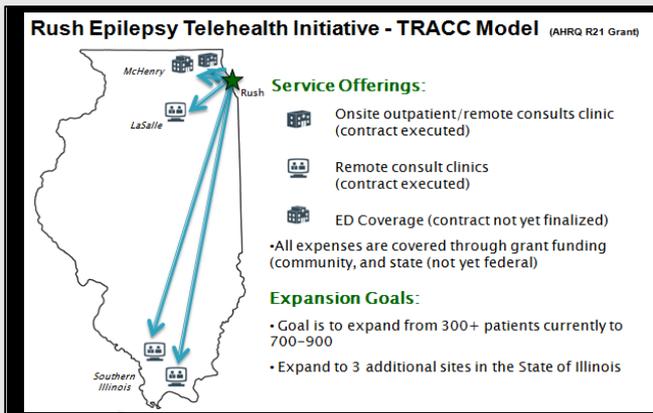


FIGURE 1. A lack of coordination between geographically distant community resources and providers in underserved areas contributes to inefficiencies in patient care. Independent community-based coordination centers outfitted with telehealth IT become more effective liaisons linking efficient access to specialized care for increased numbers of patients, while improving patient outcomes.



FIGURE 2. Examples of telehealth IT are shown (A) interfacing with the vagal nerve stimulator, (B) reviewing neuroimaging information with the patient & family, and (C) real-time remote monitoring of patient body movements using mobile communication technology for markedly augmenting long-distance clinical subspecialty care.



FIGURE 3. Telehealth IT further defined: An on-going web-based animation-intensive video library is currently under development as a means for educating patients and caregivers living with epilepsy.

3. RESULTS

• Preliminary data demonstrate a 262% increase in patient throughput (489 patients) evaluated since 2010.

• A four-fold increase is observed in successful epilepsy specialist referrals at the distant tertiary care center (RUMC) of children and adults evaluated in the non-affiliated rural emergency department with a diagnosis of seizures.

• 'On-demand' community psychosocial resources have been matched with all patients using our networking provider database.

• Individual-level predictors included insurance status, age, ethnicity, and co-morbidities.

4. CONCLUSIONS

This telehealth IT-intensive PHM-based outreach delivery model overcomes barriers preventing such coordinated care from being implemented.

The model significantly expands the geographic reach of a distant tertiary care medical center to an underserved region. Preliminary data suggest that an independent community-based coordination hub can efficiently maximize patient access to community psychosocial resources, medical expertise, and customized patient education.

Progress of the TRACC model can be followed at: <http://www.synapticom.net>

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