Stroke Readmission Prevention Model: A case study

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Faculty Disclosure Information Elements

1. Patrick Kitzman
2. Stroke Readmission Prevention Model: A Case study
3. Kentucky Care Coordination for Community Transitions (KC3T)
4. I am a Co-Director of KC3T
Kentucky Health Issues

- According to the United Health Foundation the overall rankings for health indicators for Kentucky are:
  - 38th for diabetes
  - 47th for high blood pressure
  - 46th for obesity
  - 49th for poor physical health days
  - 49th for high cholesterol
  - 48th for heart disease
  - 32nd for high school graduates
  - 45th for median income
  - 50th for preventable hospital readmissions

Stroke in Kentucky

- In 2013 Kentucky had almost 24,600 non-fatal hospital visits, and approximately 6,826 non-fatal emergency department (ED) visits were attributed to stroke (Kentucky Traumatic Brain Surveillance Project, 2014).

- In 2013 overall government payers were billed over $950 million and commercial payers over $225 million for stroke-related care in Kentucky.
  - Kentucky is in the center of the “Stroke Belt”
Stroke Readmissions

- Thirty-day readmission rates following stroke have been shown to be anywhere between 6.4-12.7% and 33% at one year post discharge (Olson et. al., 2013; Nahab et. al., 2012).

- According to Medicare.gov, in 2016 the 30-day readmission rate for stroke nationally is 12.7% and in Kentucky the rate is between 12.4-15.3%.

Current Standard Practice

- Currently, the standard of care for rural individuals post-stroke who are not receiving follow-up rehabilitation typically involves:
  - 1-2 phone calls from a social worker or case manager at an urban acute care facility several hours away
  - Educational handouts explaining follow-up care
Need for Access to Resources

- Community care transition navigation is needed to access essential resources to support implementation of follow-up care.
  - Insurance
  - Medications
  - Durable medical equipment
  - Home modifications
  - Follow-up appointments
  - Specialized Care
  - Accessible medical facilities

(Danzl et. al., 2015; Kitzman et. al., 2016)

Need for Follow-Up Education

- Additional common themes included a lack of follow-up education about health maintenance and prevention of secondary conditions or reoccurrences of a second stroke.

- Need for a different model for education delivery
Need for Follow-Up Education

- Caregivers of stroke patients consistently indicate that they are inadequately assessed and/or trained for this role (Brereton, 1997; Brereton and Nolan 2000; Smith 2004)
- Stroke caregivers have identified information needs in three categories:
  - clinical information about stroke
  - daily care of patients (e.g. bathing, toileting, and skin care)
  - follow-up care and community resources. (Wiles et. al., 1998)
- However, it has been shown that upon discharge home to the rural community, when caregiver needs were greatest, they are the least addressed (Danzl et al., 2015)

Need for Community Care Transitions

- Studies conducted with people who have had a stroke and their caregivers in Appalachian Kentucky show the difficulty of transition from an urban hospital back to their rural communities (Danzl et. al., 2013, 2015)
- Preliminary data from our PCORI grant focused on establishing relevant health and healthcare issues faced by individuals with stroke, SCI, TBI and caregivers.
  - Care transition support is a top priority
  - Individuals with stroke who were participating in KC3T did not have this issue.
Community Transitions Navigator

- Recent studies indicate the use of allied health professionals (physical therapists, occupational therapists, or nurses) can be effective in supporting access to services in urban settings (Dewan et. al., 2014; Poston et. al., 2014).
- Egan et. al., (2010) examined use of OT for stroke navigation for individuals with had there stroke on average 4.5 years prior.
  - Small improvement in community reintegration for stroke survivor but not caregiver.
- Major issue with the use of healthcare professionals as navigators:
  - Healthcare professionals are expensive
  - Lack of availability in under-resourced rural areas.
  - A large portion of navigation needs do not require healthcare providers skill set

Use of CHWs for Care Transitions

- Community health workers (CHW) fill a much-needed gap in health care delivery, in that they can be recruited and trained within rural communities and provide greater availability and affordability in underserved areas
- CHWs are able to establish trust within their communities
- A recent study demonstrated that the use of a specially trained CHW to support care transitions led to a significant reduction in ED visits and 30-day readmission (Kitzman et.al. 2016)
Kentucky Care Coordination for Community Transition Program (KC³T)

- **Mission**: Provide access to medical, social, and environmental services for individuals who have had a stroke and their caregivers living in the Commonwealth of Kentucky

- **Goals:**
  - Decrease barriers to accessing healthcare and community resources
  - Decrease preventable readmissions
  - Decrease avoidable healthcare gaps
  - Increase community integration of individuals with stroke
  - Improve the Quality of Life (QOL) for individuals with stroke and their caregivers

Support Provided

- Assist with health care enrollment and claims
- Assist with accessing medications
- Assist with obtaining follow-up care (e.g. rehabilitation and primary care) visits.
- Assist with accessing community resources (medical equipment, transportation, etc.)
- Provide follow-up education on chronic disease management (e.g. diabetes, HTN, obesity)
- Support communication with healthcare system
- Support individual discharge plan and track compliance
- Stroke and Caregiver Support Group
KC³T Navigator

- Navigator is a lay community health worker (CHW) from SE Kentucky.
  - A key difference from other navigator programs

- Initially received comprehensive training through the Kentucky Homeplace program

- Additional training including:
  - The Chronic Disease Self-Management Program - Stanford,
  - Youth Mental Health First Aid Certification through the USA Youth Mental Health First Aid
  - Diabetes Self-Management Program (DSMP) training through Stanford University

Follow-up

- Subjects enrolled prior from discharge from acute care.
  Work closely with d/c team and not in isolation

- Calculate a LACE index score: Length of stay, Acuity of admission, Comorbidities, ED visits

- First visit always in the home

- Person followed:
  - Min of 2 contacts per week for first 3 months
  - Min of 1 contact per week for months 4-6
Outcomes Tracked

**Data collection included:**
- Incidence of co-morbidities
  - 13 comorbidities/risk factors were tracked (e.g. diabetes, hypertension, smoking, obesity, etc.)
- Access to:
  - healthcare
  - insurance
  - medical equipment (DME)
  - medications
- Type of follow-up education provided
- Number and reason for 30-day and 60-day re-hospitalizations
- Number and reason for ED visits
- Compliance rates

2016 Outcomes

- 70 individuals (34 females and 36 males), mean age 62 (range 1-91)
- The co-morbidities with the highest incidences were: high cholesterol (91%), high blood pressure (86%), diabetes (49%), arthritis (39%), and depression (37%).

![Number of Co-Morbidities Seen in KC3T Participants](chart.png)

Figure 1: Demonstrates the high level of co-morbidities borne by the stroke population in southeastern Kentucky. Forty-one of the KC3T participants (59%) had 5 or more co-morbidities.
2016 Outcomes

- The KC³T navigator performed 512 encounters with 1,006 services provided including 285 related services and 721 reviews of educational literature
- 50% of participants needed assistance obtaining DME (Project CARAT)
- 71% of participants needed assistance obtaining essential medications
- 35% of participants needed assistance obtaining health insurance

Figure 2: Demonstrates the overall type of education provided to the KC³T participants as well as their family and/or caregivers.

Results

![Comparison of Groups that Did and Did Not Participate in KC³T](chart)

- **KC³T**
  - ER: $3,933
- **Non-KC³T**
  - IP/Observation: $596,247
  - ER: $25,842
  - Total: $622,089

Figure 3:

No KC³T hospital readmissions for KC³T within 30 days of discharge (compared to 19% of non-participants readmitted).

The KC³T group had one 30-day ED visit (not stroke or chronic disease-related), 8.1% of non-KC³T participants had an ED visit within 30 days of discharge (of these, 86% had two or more visits).
Stroke Support Group

- Started in June 2015
- Meets monthly in Hazard
  - The last Wednesday of each month
- Continues to grow
- Provides a forum for additional education to be provided by healthcare providers.

- This is the reason we do what we do!

KC³T Funding

- KC³T is housed at the Center of Excellence in Rural Health in Hazard KY.
- Collaboration among Appalachian Regional Healthcare, the UK Center of Excellence in Rural Health, and the UK College of Health Sciences; it serves seven counties in Southeast Kentucky.

- Initial study recently published in Journal of Community Health