SEQIP 2021 Orientation Slides



Kari Moore, MSN, APRN Chair, SEQIP 1-20-2021

Stroke Statistics

- 795,000 new or recurrent strokes annually
 - -610,000 New
 - -185,000 Recurrent
- Every 40 seconds someone in the US has a stroke
- ≈ 55,000 more females than males annually
- A leading cause of disability
- On average every 3 min 35 seconds someone dies of a stroke
- Ranks 5th for all causes of death
 - -1 of every 19 deaths in the US



Kentucky is in the Stroke Belt



Risk Factors: KY and the US

2017 Prevalence of Risk Factors





Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2015. [accessed May 20, 2019]. URL: https://www.cdc.gov/brfss/brfssprevalence/.



Kentucky: How are we doing? - Stroke



Centers for Disease Control and Prevention; 2018 Vital Signs



State of Stroke In Kentucky

Stroke is the 5th leading cause of death in Kentucky

Ischemic stroke Hospitalizations Age 65+ all races 2015-2017



Ischemic stroke expired before discharge Age 65+ all races 2015-2017



entage

Insufficient Data (22)

1.9 - 3.0 (21) 3.1 - 4.1 (21)

4.2 - 4.6 (17)

4.7 - 5.9 (22)

6.0 - 11.1 (17)

Ischemic stroke d/c home Age 65+ all races 2015-2017



BP medication nonadherence and Ischemic stroke Age 65+ all races 2015-2017







Kentucky Heart Disease and Stroke Prevention Program (HDSP)

- Funding primarily through a grant from the Centers for Disease Control and Prevention (CDC)
- The CDC focus strategies are:
 - to promote reporting of blood pressure and as able, initiate activities that promote clinical innovations, team-based care, and selfmonitoring of blood pressure;
 - to promote awareness of high blood pressure among patients;
 - to increase implementation of quality improvement processes in health systems;
 - to increase use of team-based care in health systems; and
 - to increase use of health-care extenders in the community in support of self-management of high blood pressure.
- The Kentucky Heart Disease and Stroke Prevention State Action Plan 2017-2019 outlines objectives and strategies built on the dedication and collaboration among communities and healthcare professionals to address heart disease and stroke in the Commonwealth.



KENTUCKY Heart Disease & **Stroke Prevention Task Force**

> Strategic Map and Plan 2017-2019

Strategic Map 2006-2009







Strategic Map 2011-2016







Strategic Map 2017-2019



Kentucky Heart Disease and Stroke Prevention Strategic Map and Plan: 2020-2023



What Is SEQIP

 Stroke Encounter Quality Improvement Project (SEQIP)

- Statewide Quality Improvement Initiative
- Developed by the HDSP, Kentucky Heart Disease and Stroke Prevention Taskforce, and AHA/ASA
- 3 year project to implement evidence-based stroke delivery systems and improve quality of care for stroke patients





Lets Get Started







February 2009

First Face to Face



SEQIP Meeting





- 16 Hospitals recruited June 2008 through April 2009
- 6 Joint Commission Primary Stroke Centers (PSC)
- Three Hospitals Actively Seeking PSC Certification
- 2,358 Patient Encounters 7/1/08-4/3/09











SEQIP Meeting Outcome

- Burden of Stoke in KY
- Discussed Core Measures and Abstraction
- Reviewed Historical Data
- Shared Best Practices/Encourage Hospital Collaboration
- Chose one Measure for Quality Improvement for Year One
- Development of Action Plan





Dysphagia Screening



Dysphagia Screen*

Percent of patients with ischemic, or hemorrhagic stroke who undergo screening for dysphagia with a simple valid bedside testing protocol before being given

Data For: Dysphagia Screen*					
Benchmark Group	Time Period	Numerator	Denominator	% of Patients	
All Hospitals	01/01/2008 - 12/31/2008	102250	148471	68.9%	
All KY Hospitals	01/01/2008 - 12/31/2008	1521	2549	59.7%	
East South Central Hospitals	01/01/2008 - 12/31/2008	5365	8594	62.4%	
Kentucky SEQIP	01/01/2008 - 12/31/2008	1141	2093	54.5%	





Action Plan

Kentucky SEQIP - Action Plan for Quality Improvement Dysphagia Screen (2009-2010)

February 3, 2009

After reviewing aggregate hospital performance data from SEQIP hospitals, the group will be implementing a statewide Quality Improvement Plan in an effort to improve the care of stroke patients with regard to Dysphagia Screening and Aspiration Pneumonia.

Action	Hospital Action	Resources Needed	2009 Completion Date
Establish Hospital Baseline and Identify Obstacles/Opportunities for Improvement	Review small sample size of your GWTG Dysphagia Data. Drill down the data to determine why patients may not have had a dysphagia screen or swallowing study. Create a spreadsheet of reasons why patients were not included in numerator (not screened)	GWTG Reports March 25 th SEOIP (11AM) Teleconference – Open Forum Discussion/ Dysphagia Help Session and short presentation on Dysphagia Screening by Nancy Swigert, SLP Central Baptist Hospital	Prior to March 25 th Teleconference
Assemble Key Hospital Personnel and Draft Ideal Policy ***If your hospital already has a screening tool and your data reflects compliance below 85%, consider the CQI process to evaluate gaps in your hospitals performance ***	Identify and recruit a team of professionals within your hospital who are key to improving dysphagia screening. i.e. Speech, OT, Nursing (ED and Unit). <u>Draft</u> the ideal policy specific to your facility which addresses how dysphagia screening should be integrated into your stroke care to include who, how and when it will be performed.	Sample policies and screening tools from other SEQIP hospitals. May 27 th SEQIP (11AM) Teleconference- Progress Reports by Hospitals and Open Forum Discussion/ Dysphagia Help Session	Between March 25 th and May 27th

TILAUD BARNON

SEQIP

EMENT PRO



Dysphagia Screening



Achievement Goal: 85%



At baseline, 37.8% of patients were screened for dysphagia before given any food, fluids, or medication by mouth. In 2017, 92.3% of patients were screened for dysphagia, a 54.5% increase.



2016 ISC Poster Presentation







Kentucky Legislation

216B.0425 Certification designations for stroke care for acute care hospitals

Primary stroke center certification, acute stroke ready certification and comprehensive stroke center certification mean certification for acute care hospitals issued by the Joint Commission, the American Heart Association or another cabinet approved nationally recognized organization that provides disease-specific certification for stroke care.

Cabinet shall maintain a list of certified stroke centers by level and post the list on its Web site and provide periodic updates to the Kentucky Board of Emergency Medical Services (KBEMS).

KBEMS shall share the list with each EMS provider at least annually, and as new centers are designated.

Effective: June 24, 2015

History: Amended 2015 Ky. Acts ch. 9, sec. 1, effective June 24, 2015 – Created 2010 Ky. Acts ch. 67, sec. 1, effective July 15, 2010.





Kentucky Legislation

211.575 Statewide system for stroke response and treatment

- Department of Public Health shall establish and implement a plan for achieving continuous QI in the quality of care provided under a statewide system for stroke response and treatment.
 - Includes database aligned with stroke consensus metrics
 - Utilization of GWTG or another nationally recognized program
 - Require PSCs to report to the database each stroke case
- Coordination among voluntary organizations to avoid redundancy, sharing of information among HCPs
- Application of evidence based treatment guidelines
- Data oversight statewide process for PI
- Provide report to Governor annually

Effective: July 12, 2012

History: Created 2012 KY. Acts ch. 106, sec. 1, effective July 12, 2012





Annual report to Kentucky Governor

- Burden of CV disease in KY
- SEQIP overview
- Executive summary with demographics to include types of stroke and performance measure results
- Full graphical data to include performance measure results for most current available data
- Recommendations for the task force to continue to improve cerebrovascular systems of care

Kentucky Stroke Encounter Quality Improvement Project (SEQIP)



Kentucky Heart Disease and Stroke Prevention Task Force

SEQIP Registry 2017 Data Summary

2019 Annual Report





SEQIP Participating Hospitals

(Founding Members*)

Baptist Health Floyd Baptist Health Louisville* Baptist Health LaGrange Baptist Health Lexington* Baptist Health Paducah* Cardinal Hill Rehab Hospital Ephraim McDowell Regional Medical Center Fleming County Hospital Frankfort Regional Medical Center **Georgetown Community Hospital Greenview Regional Hospital** Hardin Memorial Health Harlan ARH **Highlands Regional Medical Center** Jackson Purchase Medical Center Jewish Hospital* King's Daughters Medical Center* Lake Cumberland Regional Hospital* Morgan County ARH

Norton Audubon Hospital* Norton Brownsboro Hospital Norton Hospital* Norton Women's and Children's Hospital* Our Lady of Bellefonte Hospital Owensboro Health Regional Hospital* Pikeville Medical Center* Saint Joseph Hospital St. Elizabeth Edgewood* St. Elizabeth Florence St. Elizabeth Ft. Thomas Sts. Mary and Elizabeth Hospital* The Medical Center-Bowling Green* TJ Samson Community Hospital IAOKE ENCOUL Three Rivers Medical Center **UK Healthcare*** University of Louisville Hospital*





The Joint Commission, HFAP and DNV Certified Stroke Centers in KY:

Comprehensive Stroke Centers (4) Primary Stroke Centers in Kentucky (19) Acute Stroke Ready Hospitals (13)

REV December 2020

SEQIP Mission

- The mission of Stroke **Encounter Quality Improvement Project** is to advance acute stroke care management and reduce stroke disparities in Kentucky.
- Charter Created October 2017

STROKE ENCOUNTER QUALITY IMPROVEMENT PROJECT (SEQIP)

Mission, Membership, Policy, and Governing Structure





SEQIP Organizational Structure

- SEQIP Chair
- Steering Committee oversight
- Subcommittees with chairs
 - EMS Outreach and Education
 - Disease Specific Care Certification Initiatives
 - Data Analysis and Performance Improvement
 - Navigating the Stroke Continuum of Care
 - Community and Public Health Education and Outreach
 - Door In Door Out DiDo
 - Inpatient Stroke Response



Stroke Chain of Survival





Current SEQIP Initiatives

- Standardized Community Messaging
- EMS
- Hospital Stroke Core Measures
- IV Thrombolytic Therapy
- Post Discharge Care
- Door In Door Out (DiDo)
- In House Stroke Response
- Mechanical Thrombectomy
 - Direct Arriving
 - Transfers



Standardized Community Messaging

- Signs and Symptoms of Stroke
 - Calling 911 for suspected stroke symptoms
- Vascular Risk Factors
 - Nutrition
 - Sodium
 - ETOH

RECOGNIZE SYMPTOMS &

ACTIVATE EMS

- Physical Activity
- Smoking
- Diabetes
- Cholesterol
- Hypertension
- Home Blood Pressure Self Monitoring
- Resources available on HDSP Task Force Website
 - Will be able to customize with organization logo





Kentucky Board of EMS (KBEMS)

- KBEMS provides oversight and recommended transport protocols
 - Local agencies can fully adopt, partially adopt, or create their own protocols that must be approved by KBEMS Medical Director
- Kentucky Board of EMS Stroke and Cardiac Subcommittee
 - Created 2013 and meets quarterly

IMELY EMS

RESPONSE

- Revised Recommended Stroke Transport Protocol September 2017 to include severity scale – C-STAT based on survey feedback from first responders
- Interfacility transfer guideline post alteplase added to protocol February 2018
- First KBEMS Annual Report 2017
- Algorithm for Stroke Prenotification created September 2018
- Working to standardize data collection points for reporting



STROKE



KENTUCKY BOARD OF EMERGENCY MEDICAL SERVICES

EMT-Basic EMT-Advanced EMT-Paramedic



Patient Care Protocols



SUSPECTED STROKE PROTOCOL

This protocol is for patients who have an acute episode of neurological deficit without any evidence of trauma. Signs consistent with acute Stroke:

- · Sudden onset of weakness or numbness in the face, arm, or leg, especially on one side of the body
- Sudden onset of trouble seeing in one or both eyes
- Sudden onset of trouble walking, dizziness, loss of balance or coordination
- Sudden onset of confusion, trouble speaking or understanding
- Sudden onset of severe headache with no known cause
- Consider other causes of altered mental status, i.e., hypoxia, hypoperfusion, hypoglycemia, trauma,
 o or overdose

ABSOLUTE CONTRAINDICATIONS FOR FIBRINOLYTIC THERAPY:

- Intracranial hemorrhage on CT

- History of Intracranial hemorrhage

- Systolic B/P >185mm Hg or Diastolic B/P >110 mm Hg

Serious Head Trauma or Stroke within three (3) months.
 Thrombocytopenia and Coagulopathy

Inrombocytopenia and Coaguiopathy
 Blood Glucose <50mg/dl or >400mg/dl

Basic Standing Orders:

- Routine Patient Care.
- Obtain glucose reading via glucometer.
- Administer oxygen to keep SPO2 > 94%, suction as necessary, and be prepared to assist ventilation.
- Perform Cincinnati Pre-hospital Stroke Scale.
- If positive, determine time of onset of symptoms. Time of onset of stroke is critical:
 - o To patient: When was the last time you were normal?
- To family or bystander: When was the last time you saw the patient normal?
- Obtain mobile phone contact of an informant, encourage transportation of family member.
- Maintain normal body temperature.
- Obtain 12-lead EKG during transport.
- Protect any paralyzed or partially paralyzed extremity.
- Early notification of the emergency department is critical.
- Consider Paramedic intercept / air medical transport.
- Perform a stroke severity scale for large-vessel involvement such as the CSTAT.

Advanced Standing Orders:

- Do not delay transport for ALS procedures
- Largebore IV access with 0.9% Normal Saline 100 ml per hour, unless contraindicated.
 Avoid dextrose in the absence of hypoglycemia.

Paramedic Standing Orders:

Do not delay transport for ALS procedures

- Treat blood pressure elevation of > 220/120 with 1 single dose of IV Beta Blocker or Calcium Channel Blocker (NOT NTG) if still elevated in 15 minutes contact medical control.
- Manage compromised airway.
- Continuously reassess.



Appendix: Stroke Assessment Resources

Is this a stroke?

Cincinnati Pre-Hospital Stroke Scale

This scale evaluates for facial palsy, arm weakness, and speech abnormalities. Items are scored as either normal or abnormal.



Facial Droop The patient shows teeth or smiles.

Normal Both sides of face move equally Abnormal One side of face does not move as well as the other.



Arm Drift The patient closes their eves and extends both arms straight out for 10 seconds.

Normal Both arms move the same, or both arms do not move at all. Abnormal One arm either does not move, or one arm drifts down compared to the other.



Speech The patient repeats "You can't teach an old dog new tricks," or some other simple, farr saying.

 Normal
 The patient says correct words with no slurring of words.

 Abnormal
 The patient slurs words, says the wrong words, or is unable to speak

http://www.metrohealth.org/?id=473&sid=1

How severe is this stroke? C-STAT

The Cincinnati Prehospital Stroke Severity Scale's individual items and scoring.

Cincinnati Prehospital Stroke Severity Scale

2 points: Conjugate gaze deviation (≥ 1 on NIHSS item for Gaze)

1 point: Incorrectly answers at least one of two level of consciousness

questions on NIHSS (age or current month) and does not follow at least one

of two commands (close eyes, open and close hand) (≥ 1 on the NIHSS item

for Level of Consciousness 1b and 1c)

1 point: Cannot hold arm (either right, left or both) up for 10 seconds

before arm(s) falls to bed (≥ 2 on the NIHSS item for Motor Arm)



Inter-facility rt-PA transfer protocol

SUSPECTED STROKE PROTOCOL

Inter-facility Transfer Protocol

Inter-facility Transfer Guideline for Stroke Patient Receiving IV tPA All patients need to be sent by ALS Ambulance Service ONLY Or if ALS Ambulance Service is unavailable - can transport with a critical care RN

Sending facility must be able to maintain systolic blood pressure below 180 mmHg and diastolic blood pressure below 105 mmHg prior to transport

Prior to transport sending facility to:

- Ensure peripheral IV access is patent
- (Two large-bore IV's one in right antecubital space in case endovascular procedure is required)
- Prepare document for EMS and receiving facility
- Imaging- hard copy must be sent with EMS
- Copy of visit record- faxed to receiving facility and/or hard copy with EMS
- Onset information, assessment including exam and NIH Stroke Scale Results, orders, test results, vital signs, etc.
- tPA information including exact dose, bolus start time and infusion end time if applicable
- If tPA will be infusing during transportation assure IV pump can go with the patient. Pump education and return demonstration is required Document patient status, including vital signs and NIH Stroke Scale just prior to transport

tPA Considerations

- When mixing IV tPA waste excess where only the calculated dose remains in the bottle Standard dosing is as follows: 0.9 mg/kg, with 10% given as a one minute IV push bolus, and the remainder is infused over one hour. The maximum dose is 90 mg.
- Label the bottle with the exact dose that the patient is to receive/what is in the bottle
- 50 ml of normal saline must be infused at the same rate as the tPA infusion, after the tPA ends, clear the IV tubing
- of remaining tPA. (Process assures complete infusion of calculated dose.)

HAND-OFF COMMUNICATION

- Sending facility to provide the following to EMS and receiving facility:
- Family/caregiver contact information, including phone number
- Contact number of sending and receiving physicians
- Time natient last known normal
- Time patient arrived at sending facility for treatment
- Time the EMS was called for transport
- All information about tPA dose and administration times
- Last assessment results, including vital signs and NIH Stroke Scale

EMS - INTER-FACILITY TRANSFER PROTOCOL: Stroke Patient During or After IV t-PA

ALS Transport Required

***Sending facility must be able to maintain systolic blood pressure below 180 mmHg and diastolic blood pressure below 105 mmHg prior to transport and if t-PA still infusing IV pump must go with the patient**

Transferring Hospital:

Family/Caregiver or Emergency contact number:

Contact number for receiving physician:

0% of IV t-PA dose is administered via a one minute IV push, then the rest drips in over one hour. This must be followed by 50 mg normal saline - infused at the same rate to clear the t-PA from the IV tubing and ensure maximum dose infused. No other medications through t-PA infusion line. ***It is important to note the start and end time of IV t-PA***

Perform and document Vital Signs and Neurological Exam: 1.

(EMS Neurological Exam = Cincinnati Pre-Hospital Stroke Scale and Glasgow Coma Scale with pupil exam) From start of IV t-PA: every 15 minutes x 2 hours, then every 30 minutes x 6 hours, or until arrival at destination hospital

PRN for SBP >180 or DBP >105 mmHg:	PRN for SBP <120 mmHg:	
□ Consider IV Labetalol 10 mg IV over 2 minutes	HOB flat	
□ Recheck in 5 minutes, may repeat one time	Discontinue antihypertensive medications	
2. Continuous cardiac monitoring	PRN for SBP <90 mmHg; NO DEXTROSE 1 liter Normal Saline – wide open rate Notify receiving hospital	

3. Continuous pulse oximetry monitoring

□ Apply oxygen by nasal cannula or mask to maintain Sp02 >94%

- 4. Monitor for acute worsening conditions and decline in neurologic status (new headache or nausea, vomiting, signs of bleeding, or angioedema):
 - FIRST stop IV tPA then call receiving facility.



EMS Prenotification




KBEMS 2017 Report

15,096

1,979

7,603

14%

23%

1,305

1,496

5,075

5,939

5,040

3,194







Top 12 Facility Destinations

943	Baptist Health Louisville	413
797	Med Center Emergency Department	379
629	Baptist Health Lexington	373
563	Floyd Memorial Hospital	332
509	Hardin Memorial Hospital	322
423	St. Elizabeth Edgewood	309
	943 797 629 563 509 423	943 Baptist Health Louisville 797 Med Center Emergency Department 629 Baptist Health Lexington 563 Floyd Memorial Hospital 509 Hardin Memorial Hospital 423 St. Elizabeth Edgewood



State Polices Vary Widely. Check Your State to See if Action is Needed.





Stroke Severity Based Triage



KBEMS has adopted this algorithm as part of their stroke protocol



Adeoye, et al., Stroke. 2019;50.





EMS Pilot

GUIDELINE BASED STROKE CARE

HDSP State Plan

- Certified Hospitals in Louisville
- EMS agencies Louisville Metro

Hospital Representatives from each facility partner with EMS educator to educate EMS staff on:

- KBEMS stroke field triage protocol/local agency approved protocol
- Information needed from the field, prenotification
- Stroke screening and severity scale -LVO (C-STAT or local agency protocol)
- Emergent Stroke Treatment Options alteplase and mechanical thrombectomy
- Individual hospital stroke triage protocols
- Standard Feedback form on alteplase and mechanical thrombectomy cases
- Partner with EMS to educate community on signs and symptoms of stroke and activation of 911.
- Provide data back to EMS

EMS Responsibilities

- Assist with access to Run Sheets
- Partner with hospitals to provide ongoing stroke education and orientation to new hires
- Partner with hospitals to educate the community on signs and symptoms of stroke and activation of 911



EMS Data Metrics

- Stroke Volumes: AIS, ICH, SAH
- EMS Agency
- Prenotification
- Times:
- EMS unit notified by Dispatch
- EMS unit arrived on scene
- EMS arrived at patient
- EMS unit left scene
- Last Known Well as documented by EMS
- Indicate the stroke screen tool used
- Stroke screen outcome
- Indicate the severity scale used
 - Positive for LVO?
- If severity scale assessment completed, enter total score.
- How was destination decision made?
 - If severity scale used, did result alter hospital destination?
- Alteplase Utilization and Mechanical Thrombectomy
- Door to Needle times
- Door to Device times



Data Review

Stroke Measures

GUIDELINE BASED STROKE CARE



SEQIP Registry Volume





Stroke Types





SEQIP Demographics - AGE







SEQIP Demographics - RACE





Black or African American

Black or African American

White



SEQIP Demographics - Gender





SEQIP STROKE CORE MEASURES

Stroke Measure	2009	2018	OR (CI)	p-value
IV tPA arrive by 2 hours, treat by 3 hours	59.60%	88.50%	5.219 (3.555, 7.702)	<0.000001
IV tPA Arrived by 3.5 hours Treat by 4.5 hours	27.90%	66.00%	5.008 (3.964, 6.347)	<0.000001
Dysphagia Screening	72.30%	93.00%	5.073 (4.522, 5.691)	<0.000001
Stroke Education	65.00%	96.90%	16.79 (13.97, 20.29)	<0.000001
Anticoagulation for Afib/Aflutter	92.00%	98.30%	5.006 (2.950, 8.723)	<0.000001
LDL Documented	82.10%	95.10%	4.26 (3.701, 4.911)	<0.000001
Rehabilitation Considered	93.50%	99.10%	7.569 (5.749, 10.06)	<0.000001
Early Antithrombotic	94.80%	97.50%	2.153 (1.713, 2.707)	<0.000001
Antithrombotic at Discharge	98.50%	99.60%	3.565 (2.290, 5.631)	<0.000001
Smoking Cessation	98.50%	99.70%	4.841 (1.912, 13.620)	0.0003273
In Hospital Mortality	8.02%	5.39%	0.6528 (0.5712, 0.7460)	<0.000001
Discharge Home Disposition	44.68%	49.80%	1.228 (1.148, 1.314)	<0.000001



IV Alteplase Arrive by 2 Hour Treat by 3 Hour





IV Alteplase Arrive by 2 Hour Treat by 3 Hour





National Target Stroke Maps





ISC Oral Presentation - 2016



Stroke Nursing Symposium: February 16 ISC Pre-Conference Symposia: February 16 International Stroke Conference: February 17-19 Los Angeles, California



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Control/Tracking Number: 16-ISC-A-4522-AHA Activity: Abstract ISC Current Date/Time: 8/11/2015 4:00:50 PM

Kentucky SEQIP Statewide Collaboration Improves TPA Administration Rates and Decreases Door to Needle Times

Author Block: Kari D Moore, Univ d Louisville, Louisville, KY; Bonta Bobo, Kentucky Dept for Public Health, Frankfort, KY; Lisa Bellamy, Univ of Kentucky Healthcare, Lexington, KY; Cathy Hollander, Baptist Health Louisville, Louisville, KY; Lynn Hundley, Norton Healthcare, Louisville, KY; Peter Rock, Kentucky Dept for Public Health, Frankfort, KY; Starr Block, American Heart Association/American Stroke Association, Louisville, KY

Abstract:

Background and Issues- Despite consistent evidence that functional outcome and quality of life are improved with early administration of IV rt-PA. Kentucky continued to struggle with achieving door-to-needle (D2N) times within 60 minutes of hospital arrival. The Kentucky Stroke Encounter Quality Improvement Project (SEQIP) hospital group voluntarily collaborated to increase treatment rates for rt-PA and decrease D2N times through sharing of data, best practice and adoption of the Target. Stroke 10 Key Best Practice Strategies.

Purpose- The aim of this project was to utilize and share evidence based practice models among certified stroke centers and those pursuing certification in Kentucky to improve rt-PA utilization and D2N times throughout the Commonwealth.

Methods- A statewide quality improvement plan (OI) was developed and targeted toward improvement of stroke patient care with regard to rt-PA administration. Each facility committed to examine data and recruit teams to identify barriers and implement best practice strategies within the confines of available resources. Accountability was achieved with expected sharing of barrier solutions, best practices and ongoing Get With The Guidelines data tracking at face to face meetings.

Results - SEQIP's participating hospitals achieved improvement compared to 2009 baseline data. Between 2009 and 2014, SEQIP achieved a 25.2% increase in proportion of patients eligible to receive nt-PA (Arrive by 2, Treat by 3 Hours) (n=1387) from 80.4% to 85.7%. Additionally, SEQIP hospitals increased the proportion of eligible patients receiving rt-PA (D2N <80 minutes) from 22.3% to 75.5%, an increase of 53.2%. This resulted in a decrease in median door to needle time of 24 minutes (from 75 to 51 minutes). Statistically significant (p<0.001) improvements occurred in years 2012-2014 compared to baseline in both rt-PA administration and D2N. Conclusions- With deployment of a strategically targeted action plan and expected accountability, competing hospitals can collaborate on a statewide level. Sharing of best practice across organizations can empower stroke teams to implement the strategies that can be effective within the confines of their resources to achieve their goals.



IV Alteplase Arrive by 3.5 Hour Treat by 4.5 Hour





IV Alteplase Arrive by 3.5 Hour Treat by 4.5 Hour





IV Alteplase DTN ≤ 60 Minutes





IV Alteplase DTN ≤ 60 Minutes





IV Alteplase DTN ≤ 45 Minutes





IV Alteplase DTN ≤ 45 Minutes





IV Alteplase DTN \leq 30 Minutes





IV Alteplase DTN \leq 30 Minutes

	All Hospitals	Kentucky SEQIP			
100%					
90%					
80%					
70%					
60%					
50%					
40%	Disrogard value				20 5%
30%					12 8%14.5% 18.7%
20%	18.2%	7.4% 3.6% 3.1% 4.8%		7.8% 6.7%	
10%			4.7% 1.9% $3.8%$		1 70/12 00/1/ 80/17.8%
0%	2.8% 2.8% Z	.1% 2.7% 5.2% 5.4%	5.0% 5.1% 5.5% 4	.8% 0.7% 9.5% 1	1.17013.97014.070
	2004 2005 2	2006 2007 2008 2009	2010 2011 2012	2013 2014 2015	2016 2017 2018 2019



Decreasing DTN Times with TS

Time Frame	Median DTN (minutes)	DTN Range (minutes)	Average DTN (minutes)
Pre Target Stroke	73	0-5343	108.8
Phase I	64.5	0-697	71.9
Phase II	46	0-2821	51.9

From Pre TS to Phase 2, the mean decreased by 56.9 minutes (95% CI: 40 42, 73.3754) with a significance level of p<0.0001



SEQIP Alteplase Use

- Alteplase use in eligible patients arriving by 2 hours and treated by 3 hours: 56.2% pre TS vs 80.7% post TS intervention (p <0.0001)
- Alteplase use in eligible patients arriving by 3.5 hours and treated by 4.5 hours: 24.9% pre TS vs 55.1% post TS intervention (p <0.0001)
- Alteplase use among all acute ischemic stroke patients: 4.8% pre TS vs 7.8% post TS intervention (p <0.0001)



Outcomes Pre Target Stroke vs Phase I and Phase II

	Pre-Target	Target Stroke	Target Stroke						
	Stroke	Phase I	Phase II						
	2004-2009	2010-2013	2014-2018	OR (95% CI) Pre TS		OR (95% CI) Pre		OR (95% CI) Phase I vs Phase	
	n=14944	n=23489	n=41085	vs <mark>Phase I</mark>	p-value	TS vs <mark>Phase II</mark>	p-value	I	p-value
In Hospital Mortality	9.74%	7.45%	7.04%	1.94 (1.80, 2.08)	<0.0001	1.13 (1.06, 1.21)	0.0002	0.94 (0.89, 1.00)	0.0571
Discharge Home	37.04%	44.61%	47.42%	1.37 (1.31, 1.43)	<0.0001	1.5 (1.48, 1.59)	<0.0001	1.12 (1.08, 1.16)	<0.0001
EMS Prenotification	9.84%	8.13%	16.38%	0.81 (0.75 <i>,</i> 0.87)	<0.0001	1.79 (1.69, 1.91)	<0.0001	2.21 (2.10, 2.34)	<0.0001
Ambulatory Status Independent	38.04%	24.62%	38.06%	0.53 (0.51, 0.56)	<0.0001	1.00 (0.96, 1.04)	0.039	1.88 (1.82, 2.00)	<0.0001
Arrive by EMS	49.76%	25.10%	37.42%	0.34 (0.32, 0.35)	<0.0001	0.60 (0.58, 0.62)	<0.0001	1.77 (1.71, 1.84)	<0.0001



Alteplase Complication Rates





Discharge Disposition







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Can Stroke Systems Of Care Improve Measure Compliance And Outcomes Through Statewide Hospital Collaboration?

Author Block: Kari Moore, Univ of Louisville, Louisville, KY; Lynn Hundley, Norton Healthcare, Louisville, KY; Polly Hunt, King's Daughter's Medical Ctr, Ashland, KY; Bill Singletary, The Medical Ctr, Bowling Green, KY; Bonita Bobo, Allison Merritt, Kentucky Dept for Public Health, Frankfort, KY; Amy Graham, Starr Block, American Heart Association, Louisville, KY

Abstract:

Background: The Stroke Encounter Quality Improvement Project (SEQIP) launched in 2009 as a statewide voluntary initiative and collaboration between the American Heart Association, the Kentucky Department for Public Health and 16 acute care hospitals interested in improving stroke care in their communities. The mission is to advance acute stroke care and reduce disparities in Kentucky by: establishing a network that encourages and supports collaboration; increases access to stroke care by targeting underserved areas; provides opportunities to share resources related to program development and proficiency across the continuum of care; and promotes quality outcomes and standardization of care through collegiality and use of evidence-based guidelines and research collaboration. Purpose: The goal of this unfunded initiative (now in its tenth year) has been to increase adherence to evidence-based guidelines for stroke patients by implementing a unified statewide effort. Methods: Get With The Guidelines-Stroke data were reviewed with the founding 16 SEQIP hospitals and adherence to evidence-based guidelines was measured and analyzed over a 10-year period. Results: SEQIP has grown to a network of 35 hospitals with 23 submitting data; patient records increased from 4358 (2008) to 10015 (2018); hospitals achieving Gold GWTG award status increased from 4 to 16; certified stroke centers grew from 4 to 32. decreasing geographic barriers to the nearest certified center; and, SEQIP hospitals achieved statistically significant improvement in all stroke measures. Conclusions: With deployment of strategically targeted action plans and expected accountability, competing hospitals can collaborate on a statewide level. Sharing of best practices across organizations can empower stroke teams to implement effective strategies within the confines of their resources to achieve collective goals.

Stroke Measure	2009	2018	ON (CI)	p-walue
IV tPA arrive by 2 hours, treat by 3 hours	59.60%	88.50%	5.219 (8.555, 7.302)	<0.0000001
IV 6PA Arrived by 3.5 hours Treat by 4.5 hours.	27.90%	66.00%	5.008 (3.964, 6.347)	<0.00000011
Dysphagia Screening	72.30%	93.00%	5.073 (4.522, 5.091)	<0.00000011
Stroke Education	65.00%	56.50%	16.79 (13.97, 20.29)	+0.00000011
Articogulation for Alth/Whatter	92.00%	98.30%	5.006 (2.950, 8.723)	<0.0000001
LDL Documented	82.30%	95.10%	4.26 (3.701, 4.911)	<0.00000011
Rehabilitation Considered	53.50%	55.10%	7.569 (5.749, 10.06)	+0.00000011
Early Antithronibatic	\$4.80%	97.50%	2.153 (1.713, 2.307)	<0.00000011
Antithrombolic at Discharge	98.50%	99.60%	3.565 (2.290, 5.631)	<0.00000011
Smoking Cessation	58.50%	55.70%	4.841 (1.912, 13.620)	0.0003273
in Hospital Mortality	8.02%	5.39%	0.6528 (0.5712, 0.3460)	<0.0000001
Discharge Home Disposition	44.68%	49.00%	1.228 (1.148, 1.314)	<0.00000001





ISC Oral Abstract February 2020

Authors: Lynn Hundley, Polly Hunt, Bill Singletary, Bonita Bobo, Allison Merritt, Starr Block, Amy Graham, and Kari Moore for SEQIP hospitals

Title: Kentucky SEQIP Statewide collaboration to improve alteplase utilization, decrease door to needle times, and impact outcomes: A 10 year review



Background – Evidence shows systems change interventions improve care and outcomes for stroke patients. Geopolitical boundaries have been a barrier to improving regional systems of care. Despite efforts nationally, regionally, and locally alteplase use for ischemic stroke has remained low and door to needle (DTN) times exceeded 60 minutes. Kentucky created the Stroke Encounter Quality Improvement Project (SEQIP) in 2009 to share best practices and improve stroke systems of care across the Commonwealth.

Purpose – The aim was to utilize and share best practice models among 23 SEQIP hospitals in KY to improve alteplase utilization, decrease DTN times, and improve outcomes.

Methods – Hospitals implemented a statewide quality improvement plan focused on identifying barriers, removing barriers, and implementing best practice strategies regarding thrombolytic therapy. Accountability was achieved with ongoing GWTG data tracking, teleconferences, and face to face meetings from January 2009 through December 2018 sharing strategies and solutions for best practice.

Results – SEQIP's participating hospitals achieved significant improvement in thrombolytic administration over 10 years. The percent of all AIS patients receiving tPA increased from 4.61% in 2009 to 8.80% in 2018 (OR=2.0, p < 0.0001). Alteplase use in eligible patients arriving by 2 hours and treated by 3 hours improved from 59.6% to 88.5% (OR=5.2, p < 0.0001). Alteplase use in eligible patients arriving by 2.6 hours to 4.5 hours increased from 24.9% to 55.1% (OR=5.0, p < 0.0001). Median DTN time decreased from 74 minutes to 49 minutes (p < 0.0001). Complication rates of symptomatic hemorrhage were consistent with NINDS data and < 6% from 2009-2018. The tPA in-hospital mortality rate in 2009 was 11.7% and by 2018, in-hospital mortality decreased to 3.6% (p = 0.00016). In 2009, 32.1% of tPA patients were able to walk independently at d/c and by 2018 had increased to 43.6% (p = 0.00359).

Conclusions – Geopolitical boundaries can be overcome and collaboration can be sustained among competing hospitals through sharing of best practices to safely increase utilization of tPA in eligible patients, decrease DTN times, and improve outcomes.



ISC Poster Presentation February 2020



Can Stroke Systems of Care Improve Measure Compliance and Outcomes Through Statewide Hospital Collaboration?

Kari Moore, Univ of Louisville, Louisville, KY; Lynn Hundley, Norton Healthcare, Louisville, KY; Polly Hunt, King's Daughter's Medical Ctr, Ashland, KY; Bill Singletary, The Medical Ctr, Bowling Green, KY; Bonita Bobo, Allison Merritt, Kentucky Dept for Public Health, Frankfort, KY; Amy Graham and Starr Block, American Heart Association, Louisville, KY



SEQIP Hospital Location by County

The Stroke Encounter Quality Improvement Project (SEQIP) launched in 2009 as a statewide voluntary initiative and collaboration between the American Heart Association, the Kentucky Department for Public Health and 16 acute care hospitals interested in improving stroke care in their communities with the mission to advance acute stroke care and reduce disparities in Kentucky by:

- Establishing a network that encourages and supports collaboration
- Increasing access to stroke care by targeting underserved areas
- Providing opportunities to share resources related to program development and proficiency across the continuum of care
- Promoting quality outcomes and standardization of care through collegiality and use of evidence-based guidelines and research collaboration

Objective

The goal of this unfunded initiative (now in its tenth year) has been to increase adherence to evidence-based guidelines for stroke patients by implementing a unified statewide effort.



Outcomes

STROKE MEASURES	2009	2018	OR (CI)	p-value
IV tPA arrive by 2 hours, treat by 3 hours	59.60%	88.50%	5.219 (3.555,	<0.000000
IV tPA Arrived by 3.5 hours Treat by 4.5 hours	27.90%	66.00%	5.008 (3.964,	<0.000000
Dysphagia Screening	72.30%	93.00%	5.073 (4.522,	<0.000000
Stroke Education	65.00%	96.90%	16.79 (13.97, 20.29)	<0.000000
Anticoagulation for Afib/Aflutter	92.00%	98.30%	5.006 (2.950, 8.723)	<0.000000
LDL Documented	82.10%	95.10%	4.26 (3.701, 4.911)	<0.000000
Rehabilitation Considered	93.50%	99.10%	7.569 (5.749, 10.06)	<0.000000
Early Antithrombotic	94.80%	97.50%	2.153 (1.713, 2.707)	<0.000000
Antithrombotic at Discharge	98.50%	99.60%	3.565 (2.290, 5.631)	<0.000000
Smoking Cessation	98.50%	99.70%	4.841 (1.912,	0.000327
In Hospital Mortality	8.02%	5.39%	0.6528 (0.5712,	<0.000000
Discharge Home Disposition	44.68%	49.80%	1.228 (1.148,	<0.000000

Methods

Get With The Guidelines-Stroke data was reviewed with the founding SEQIP hospitals and adherence to evidencebased guidelines was measured and analyzed over a 10year period.

American Heart

Results

SEQIP has grown to a network of 35 hospitals with 23 submitting data; patient records increased from 4358 (2008) to 10026 (2018); hospitals achieving Gold GWTG award status increased from 4 to 16; certified stroke centers grew from 4 to 32 decreasing geographic barriers to the nearest certified center; And, SEQIP hospitals achieved statistically significant improvement in all core stroke measures.

Conclusions

With deployment of strategically targeted action plans and expected accountability, competing hospitals can collaborate on a statewide level. Sharing of best practices across organizations can empower stroke teams to implement effective strategies within the confines of their resources to achieve collective goals.

This work represents the authors' independent analysis of local or multicenter data gathered using the AHA Get With The Guidelines® (GTWTG) Patient Management Tool but is not an analysis of the national dataset and does not represent findings from the AHA GWTG National Program.

QCOR Poster Presentation April 2019



Using Geographic Information Systems (GIS) to Analyze Statewide Get With The Guidelines-Stroke (GWTGS) Data A Feasibility Project from the Kentucky Stroke Encounter Quality Improvement Project (SEQIP)

Kari Moore, Louisville, KY; Allison Merritt, Frankfort, KY; Alexander Kuhn, Columbus, OH, Amy Graham, Louisville, KY for SEQIP

Background

The Stroke Encounter Quality Improvement Project is a collaboration between certified stroke centers in Kentucky, the American Heart Association/American Stroke Association and the Kentucky Department of Public Health to implement statewide quality initiatives to improve the care of stroke patients. Since 2008, 23 hospitals participating in SEQIP have entered 56,513 ischemic stroke patient records into

Purpose

Geographic information systems (GIS) tools can expand our understanding of care and outcomes based on patient location. The purpose of this project was (1) to demonstrate the methods of linking a disease management registry with GIS mapping and analysis program, (2) to understand challenges when performing this link, and (3) to derive meaningful insight on stroke care and outcomes based by zip codes.

Methods

Registry data was derived from GWTGS and downloaded by the KDPH. The information was converted to a database file for use in ArcGIS. Geocoding was performed and after excluding those who had missing or incomplete zip codes, records were geocoded annually from 2013-October 2018. The data were then matched to one of 945 zip codes in Kentucky. Data was summarized by zip code and calendar year for:

- Number ischemic strokes
- · Number ischemic strokes that received IV alteplase administration
- · Rate ischemic strokes receiving IV alteplase
- · Number of ischemic stroke patients transferred

Results

After excluding patients with missing or incorrectly formatted zip codes, data from 29,350 GWTGS patients records were joined and

Conclusions

This feasibility project provides an example of a useful application of GIS analyses with a data registry. Using GIS mapping and methodology can assist hospital stroke coordinators and public health officials in developing and implementing interventions to improve systems of care and outcomes by targeted messaging to the community, referral facilities, and EMS. Further analysis is planned including hospital and EMS locations, socioeconomic, demographic and marketing/consumer preference data is planned to better understand variations by zip codes.



Kentucky SEQIP - Action Plan for Quality Improvement Door-In-Door-Out "DiDo" Kentucky PSC Hospitals 2019

Updated: January 30, 2019

After reviewing aggregate hospital performance data from SEQIP hospitals, the group will be implementing a statewide Quality Improvement Plan in an effort to improve the care of stroke patients with regard to decreasing inter-facility transfer times for thrombectomy and hemorrhagic stroke patients requiring higher level of care.

CHAIR: BILL SINGLETARY

CO-LEADERS: Margie Campbell, Jason Stiles, Betty McGee, Betsy Jackson, Amy Porter

TEAM MEMBERS: Polly Hunt, Lynn Hundley, Cassy Couey, Shelby Robinson, Kathy Carr, Marlene Luellen, Sasha-Fae Lopez, Ashley Stewart

Action	Hospital Action Items	Progress / Updates Resources Needed	Completion Date
A. Define STK-OP-1 measure, data elements and population:	A. Stratified "Door-in-Door-Out" (DiDo) Times for stroke patients transferred from ED of a <u>PSC</u> to a higher-level acute stroke center	A. TJC Perspectives: - July 2018 - Dec 2018	A. Completed 11/7/18
 Identify STK-OP-1 Population Identify STK-OP-1 Data Elements Identify STK-OP-1 Data Registry 	 Outpatients (ED) for PSCs are not included in Inpatient STK measure population. New STK-OP initial patient population algorithm has been added to 2019 National Specs Manual (see link) REPORT <u>MEDIAN</u> TIMES in minutes: -Hemorrhagic Stroke Patients -Ischemic Stroke Patients -"Drip & Ship" IV-tPA prior to transfer - No IV-tPA prior to transfer but LVO and MER 	1 & 2. 2019 Specs Manual for Joint Commission NQM (v(2018B1) S:\4WSSW9\JC Specs Manual\Stroke Outpatient (STK- OP) (v2018B1).htm OR https://manual.jointcommission.org	1 & 2. Completed 11/8/18 (links sent to committee members)
	eligible No IV-tPA prior to transfer but LVO and not MER eligible No IV-tPA prior to transfer and no LVO 3. Beginning with Jan 1, 2019 discharges (or sooner if possible) SEQIP PSCs need to have a way to enter	/releases/TJC2018B1/ 3. AHA's GWTG-STK is planning an "overlay" to the	3. Open

DiDo Feedback



Dissemination of Knowledge Throughout the Commonwealth



Who should attend: Rural hospital emergency department staff and other nurses and physicians involved in the care of potential stroke patients.

Webinars opened to AHA/ASA GRA 2018

OUNLITY MARCH MINIT PROJECTION	SEQIP Presents: Hot Topics in Stroke Care Webinar Series
Tuesday 1/07/2020 8-9am CT/9-10am ET	Reading Stroke: Rapid Interpretation of Stroke Studies Speaker: Dr. Justin Fraser, MD, FAANS, FAHA, Associate Professor with Tenure, Special Titles Series, Department of Neurological Surgery, University of Kentucky College of Medicine, UK HealthCare Upon completion of this activity, participants will be able to: 1. Interpret basic radiologic findings for significant stroke pathologies 2. Recognize when to order particular radiologic tests, and how to interpret findings with regard to stroke
Wednesday 2/12/2020 8-9am CT/9-10am ET	Cryptogenic Stroke Speaker: Martha Powers, APRN, MSN, RN, SCRN, Retired, West Virginia University Upon completion of this activity, participants will be able to: 1. Discuss definition of Cryptogenic Stroke 2. Identify potential etiologies of Cryptogenic Stroke 3. Outline evaluation of Cryptogenic Stroke
Tuesday 3/04/2020 8-9am CT/9-10am ET	Stroke Abstraction 101 Basics Speaker: Sasha Lopez, MSN, RN, Quality Outcomes Data Analyst, Norton Healthcare Upon completion of this activity, participants will be able to: 1. Identify the current stroke performance measures for outpatient and inpatient 2. Describe how to begin appropriately abstracting stroke measures
Wednesday 4/08/2020 8-9am CT/9-10am ET	Pediatric Stroke: Basics of Management Speaker: Dr. Arpita Lakhotia, MD, MBBS, Director, Neurofibromatosis Clinic, Department of Neurology University of Louisville Norton Children's Hospital Upcoming completion of this activity, participants will be able to: 1. Review initial assessment of pediatric ischemic and hemorrhagic stroke 2. Overview of hyperacute and acute management of pediatric ischemic and hemorrhagic stroke
Wednesday 5/13/2020 8-9am CT/9-10am ET *No CEU available for this webinar*	Meeting Door to Transfer: The Need for Speed Speaker: Lynn Hundley APRN, CCNS, CNRN, ANVP-BC, FAHA, CE Director-Stroke Care, Norton Healthcare Upon completion of this activity, participants will be able to: 1. Discuss the evidence supporting the need for rapid transfer of acute stroke patients 2. Identify at least 2 tips for success to a rapid door in-door out process


Stroke Continuum of Care

- Kentucky Stroke Support Groups and Services
- Stroke Survivor and Caregiver Community Resource List



QUALITY

POST-STROKE CARE

> For more information please contact Amy Graham at <u>amy.graham@heart.org</u> Or Meighan Hodgson at <u>meighan.hodgson@heart.org</u>

Accreditation Pending: These lectures will be accredited for nurses and social workers







 Geopolitical Boundaries can be overcome and collaboration can be sustained among competing hospitals through sharing of best practices

Next Steps

- Achieve same results with DTN < 30 minutes
- Review data for disparities
- Enhance data collection and ensure data integrity
- Continue our work with GIS Mapping and utilization of GWTG-S to determine use with targeted community messaging
- Evaluate Genentech Overreact Campaign utilizing SEQIP registry data
- Evaluate DiDo time goals
- Continue to collaborate and share best practices to reduce stroke disparate care in Kentucky



Summary

- SEQIP created to improve cerebrovascular Stroke Systems of care
- Increased membership from 16 to 35 hospitals
- Certified stroke centers increased from 6 to 36
- SEQIP sustained with no funding
- Significantly increased alteplase utilization and decreased DTN times c/w national data
- Ongoing collaboration with EMS, hospitals, and community partners
- Ongoing advocacy and sharing of best practices to drive policy



Contact:

Bonita Bobo, BSN, RN, HHS Heart Disease and Stroke Prevention Program Manager Kentucky Department for Public Health <u>BonitaA.Bobo@KY.gov</u>

Kari Moore, MSN, APRN, AGACNP-BC

Director of Outreach & Community Scholarly Engagement University of Louisville Comprehensive Stroke Center Department of Neurology Chair, SEQIP kdmoor02@Louisville.edu

Abby Loechler, MPH Senior Quality Manager, Quality Improvement Quality, Outcomes Research & Analytics American Heart Association Abby.loechler@heart.org

