10th Anniversary

2009-2019

Bonita Bobo, RN, HHS, KHDSP Program Manager

Kari Moore, MSN, AGACNP-BC, SEQIP Chair

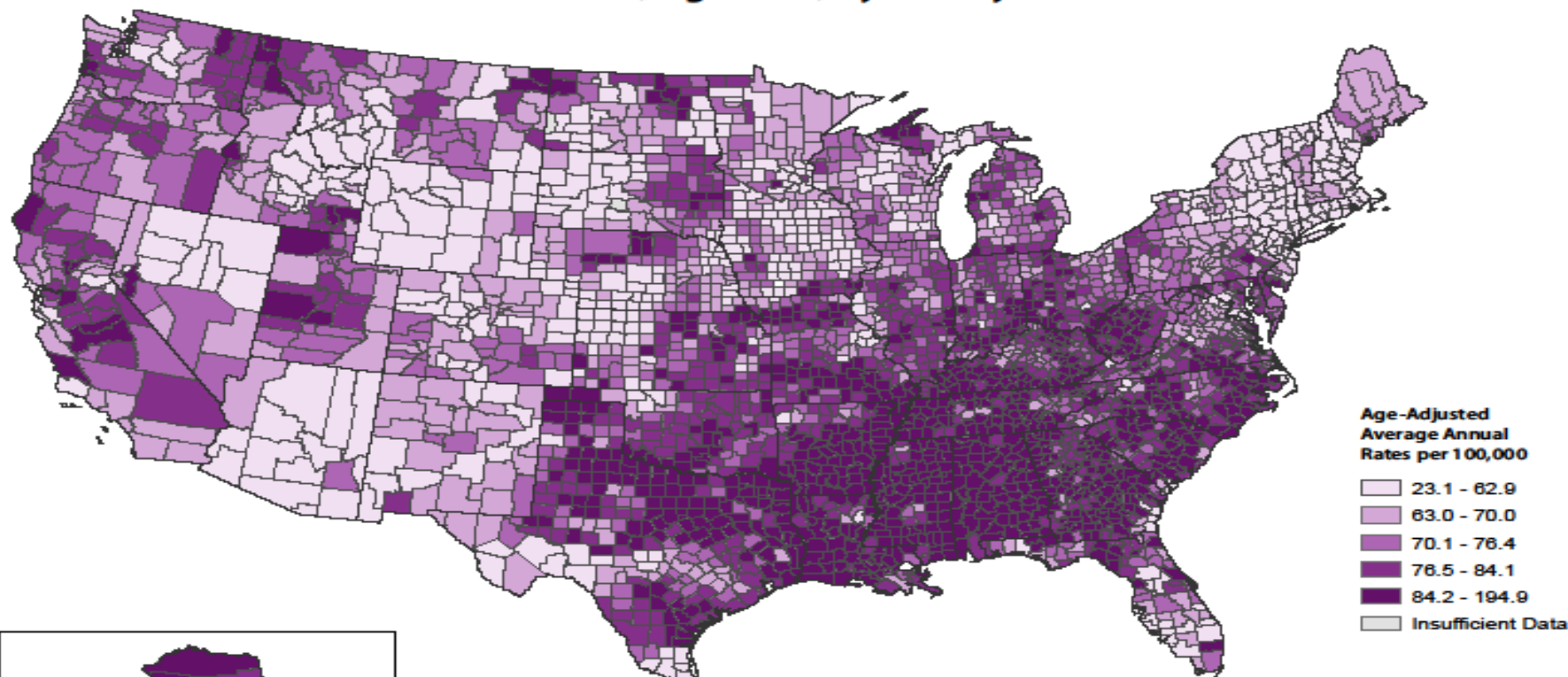Starr Block, MS, BSN, RN, The American Heart Association

Bonita Bobo

Kentucky is in the Stroke Belt

Stroke Death Rates, 2014 - 2016
Adults, Ages 35+, by County

Risk Factors: KY and the US

2017 Prevalence of Risk Factors

Risk Factor	US	KY
Eat Fruit one or more times a day	63.2%	57.3%
Eat Vegetables one or more times a day	81.9%	83.0%
Health Care Access/Coverage	89.5%	92.5%
Obesity	31.6%	34.3%
Diabetes	10.5%	12.9%
Tobacco Use (Current Smoker)	17.1%	24.6%
High Cholesterol	33.0%	38.1%
High Blood Pressure	32.3%	39.4%
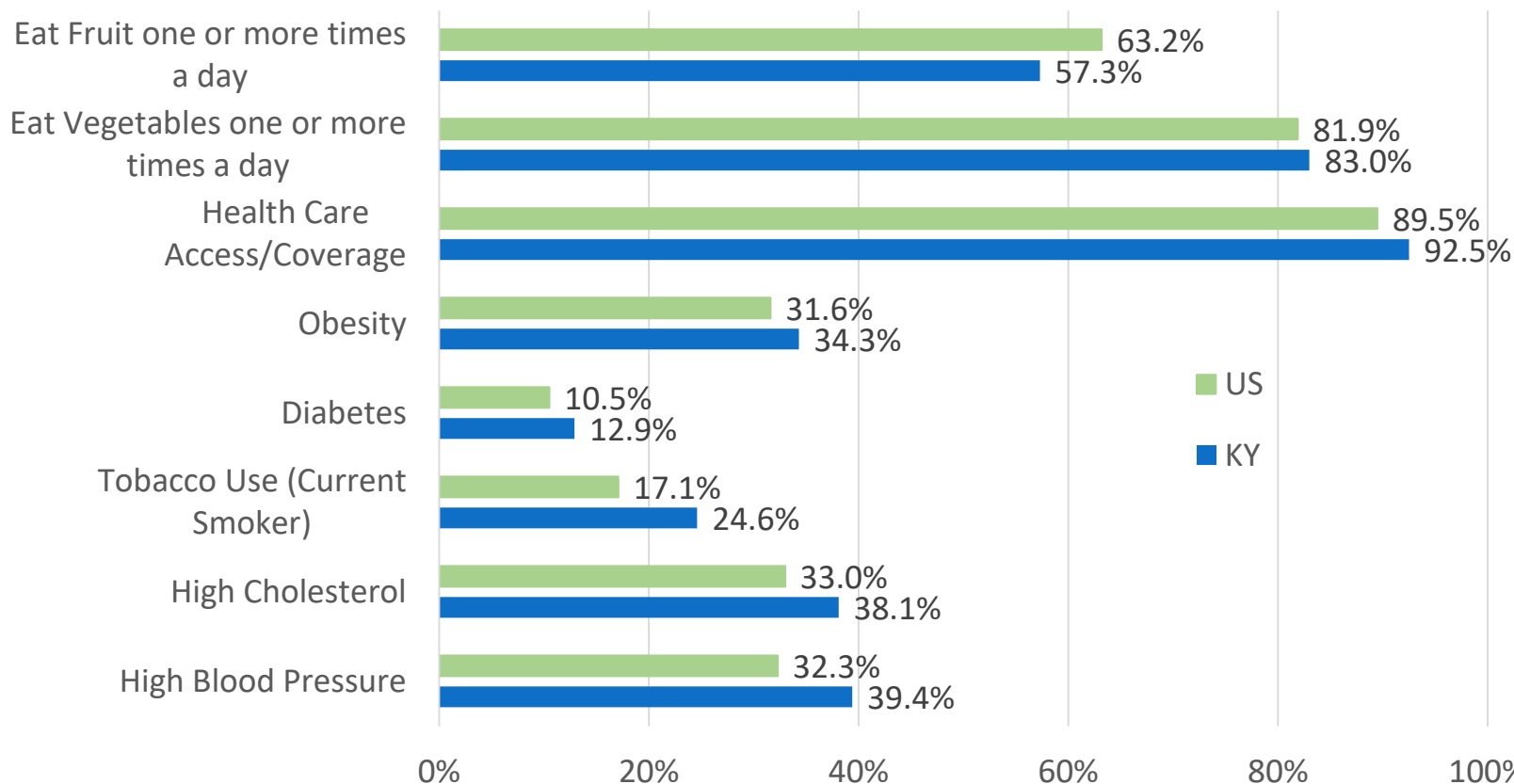
Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2015. [accessed May 20, 2019]. URL: https://www.cdc.gov/brfss/brfssprevalence/.

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Kentucky Heart Disease and Stroke Prevention Program (KHDSP)

- 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 self-monitoring 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.

Kentucky Heart Disease and Stroke Prevention Program (KHDSP)

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.
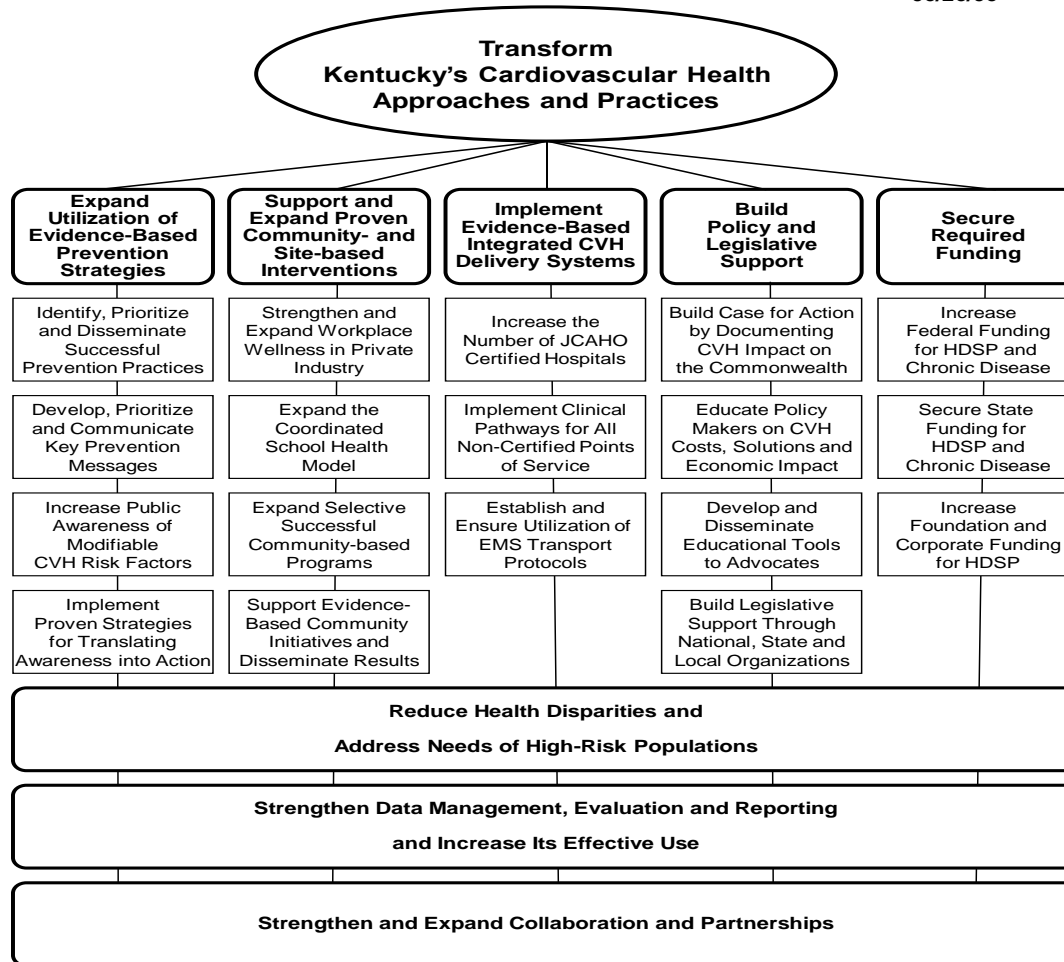

KENTUCKY
Heart Disease &
Stroke Prevention
Task Force

Strategic Map
and Plan
2017-2019

Kentucky Public Health

Heart Disease & Stroke Prevention
TASK FORCE
KENTUCKY

Strategic Map 2006-2009

Kentucky State Cardiovascular Health Plan
Strategic Map: 2006-2009

Draft
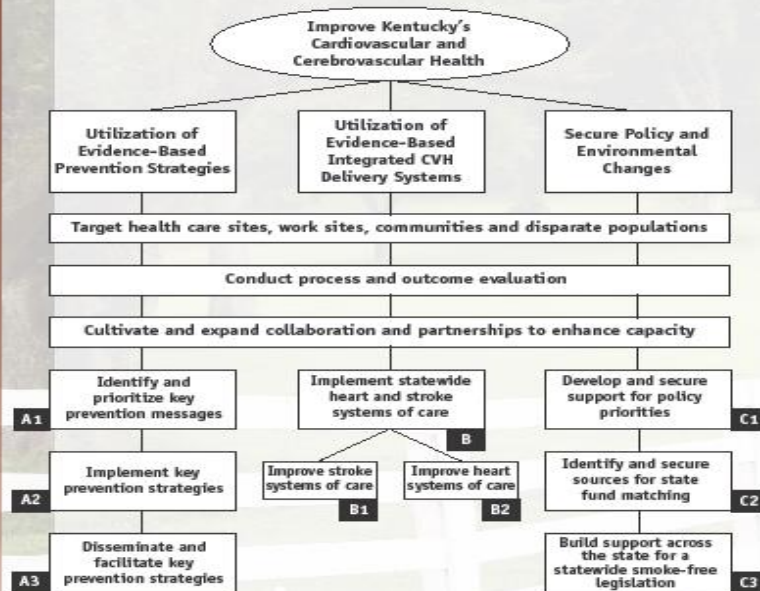**06/26/06**

Transform
Kentucky's Cardiovascular Health
Approaches and Practices

Expand Utilization of Evidence-Based Prevention Strategies	Support and Expand Proven Community- and Site-based Interventions	Implement Evidence-Based Integrated CVH Delivery Systems	Build Policy and Legislative Support	Secure Required Funding
Identify, Prioritize and Disseminate Successful Prevention Practices	Strengthen and Expand Workplace Wellness in Private Industry	Increase the Number of JCAHO Certified Hospitals	Build Case for Action by Documenting CVH Impact on the Commonwealth	Increase Federal Funding for HDSP and Chronic Disease
Develop, Prioritize and Communicate Key Prevention Messages	Expand the Coordinated School Health Model	Implement Clinical Pathways for All Non-Certified Points of Service	Educate Policy Makers on CVH Costs, Solutions and Economic Impact	Secure State Funding for HDSP and Chronic Disease
Increase Public Awareness of Modifiable CVH Risk Factors	Expand Selective Successful Community-based Programs	Establish and Ensure Utilization of EMS Transport Protocols	Develop and Disseminate Educational Tools to Advocates	Increase Foundation and Corporate Funding for HDSP
Implement Proven Strategies for Translating Awareness into Action	Support Evidence-Based Community Initiatives and Disseminate Results		Build Legislative Support Through National, State and Local Organizations	

Reduce Health Disparities and Address Needs of High-Risk Populations

Strengthen Data Management, Evaluation and Reporting and Increase Its Effective Use

Strengthen and Expand Collaboration and Partnerships

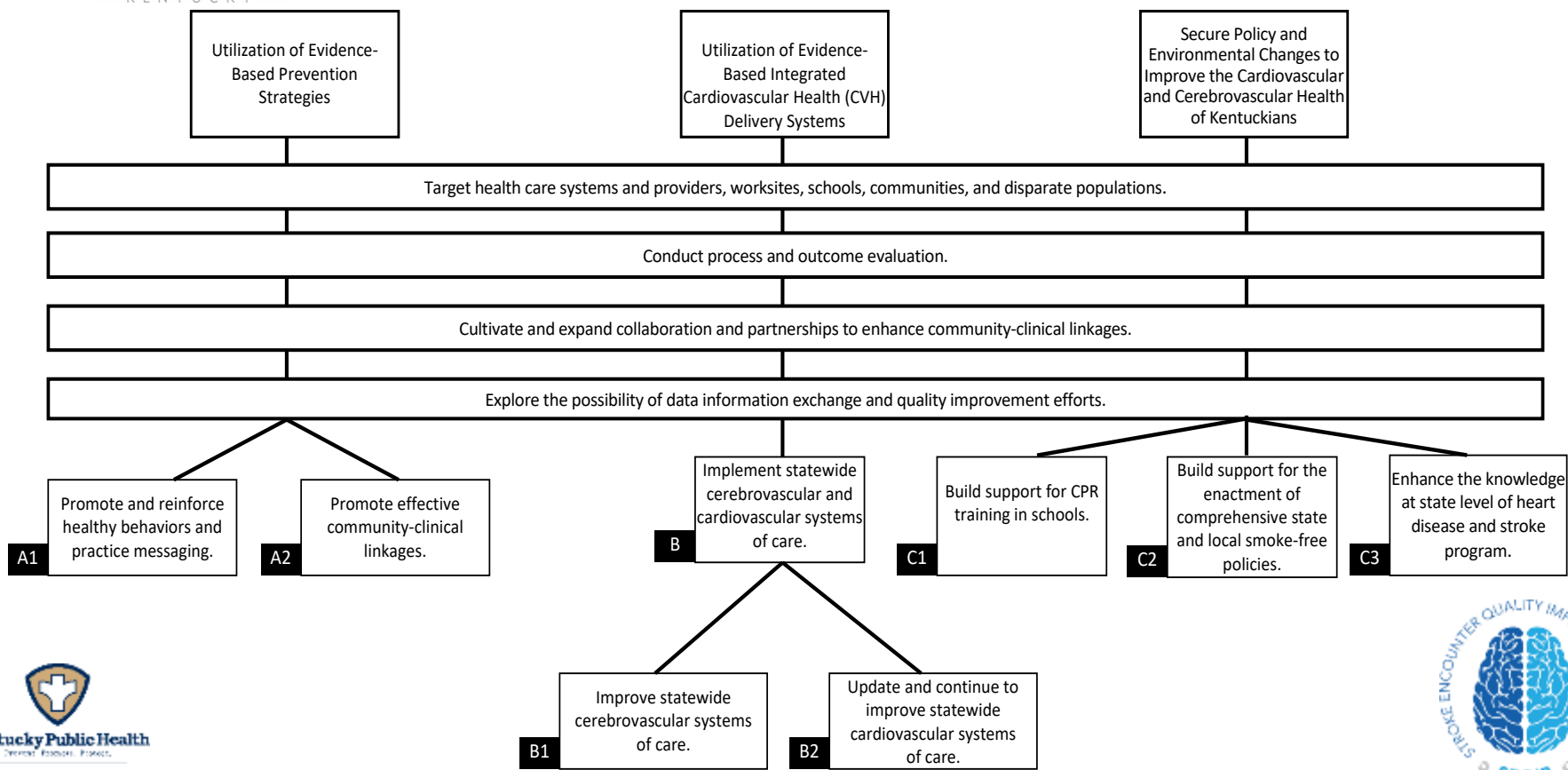Kentucky Public Health

SEQIP

Strategic Map 2011-2016

Strategic Map 2017-2019

**Kentucky Heart Disease and Stroke Prevention Task Force
Strategic Map: 2017-2019**

**Improve Cardiovascular
and Cerebrovascular
Health for All Kentuckians.**

Utilization of Evidence-Based Prevention Strategies

Utilization of Evidence-Based Integrated Cardiovascular Health (CVH) Delivery Systems

Secure Policy and Environmental Changes to Improve the Cardiovascular and Cerebrovascular Health of Kentuckians

Target health care systems and providers, worksites, schools, communities, and disparate populations.

Conduct process and outcome evaluation.

Cultivate and expand collaboration and partnerships to enhance community-clinical linkages.

Explore the possibility of data information exchange and quality improvement efforts.

A1 Promote and reinforce healthy behaviors and practice messaging.

A2 Promote effective community-clinical linkages.

B Implement statewide cerebrovascular and cardiovascular systems of care.

C1 Build support for CPR training in schools.

C2 Build support for the enactment of comprehensive state and local smoke-free policies.

C3 Enhance the knowledge at state level of heart disease and stroke program.

B1 Improve statewide cerebrovascular systems of care.

B2 Update and continue to improve statewide cardiovascular systems of care.

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SEQIP

Strategic Map 2020-2023

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

What Is SEQIP?

- Stroke Encounter Quality Improvement Project (SEQIP)
  - Statewide Stroke Quality Improvement Initiative
  - Inspired by a stroke initiative in Colorado
  - Funded by converting unused CDC funds to launch the initiative (CDC approval was required)
  - Developed by the American Heart Association and HDSP, Kentucky Heart Disease and Stroke Prevention Taskforce
  - 3-year project to implement evidence-based stroke delivery systems and improve quality of care for stroke patients

Selection of Invited Hospitals

Hospitals were selected based on these characteristics:

- Geographic region assuring access to stroke care for <u>ALL</u> Kentuckians

- Hospitals with highest number of hospital stroke discharges in the state who can affect stroke care quickly

- Hospitals with an existing relationship with the AHA through the quality improvement program, Get With The Guidelines - Stroke

Top 25 Hospitals - Stroke Discharges (2008)

Inpatient Hospital Discharges for Stroke by Facility

Discharges from January 1, 2008 to December 31, 2008

Primary IDC-9 diagnosis Codes 430 - 43491 or 436 - 4389

Facility	Number of Hospitalizations	Average Length of Stay (days)	Total Charges	Average Charge per Hospitalization
Total	10,614	5.06	$295,684,940	$27,858
Baptist Regional Medical Center	112	5.38	$2,040,047	$18,215
St Elizabeth Florence	117	4.82	$3,783,443	$32,337
St Elizabeth Fort Thomas	133	4.44	$3,403,944	$25,594
Pikeville Medical Center	144	4.72	$5,403,536	$37,525
ARH Hazard Appalachian Regional Medical Center	145	5.61	$3,490,234	$24,071
Jennie Stuart Medical Center	170	4.92	$3,126,331	$18,390
Norton Suburban Hospital	184	4.23	$5,317,103	$28,897
Regional Medical Center	192	3.83	$3,374,390	$17,575
Norton Hospital	222	7.13	$15,795,183	$71,149
Lake Cumberland Regional Hospital	269	5.24	$8,413,394	$31,277
Norton Audubon Hospital	283	4.81	$9,122,016	$32,233
Lourdes	284	4.83	$5,566,628	$19,601
Western Baptist Hospital	309	4.81	$5,676,408	$18,370
Sts Mary & Elizabeth Hospital	332	5.30	$9,576,995	$28,846
Hardin Memorial Hospital	333	4.11	$5,046,979	$15,156
King's Daughters Medical Center	355	4.28	$8,244,347	$23,224
Owensboro Medical Health System Inc	357	4.32	$5,953,248	$16,676
The Medical Center Bowling Green	398	4.69	$9,945,656	$24,989
St Elizabeth Edgewood	417	4.53	$9,742,538	$23,363
University of Louisville Hospital	452	7.31	$31,685,439	$70,101
Saint Joseph Hospital	510	4.83	$11,366,283	$22,287
Jewish Hospital	519	5.63	$18,775,565	$36,176
Central Baptist Hospital	527	4.89	$15,439,865	$29,298
University of Kentucky Hospital	757	6.35	$37,205,167	$49,148
Baptist Hospital East	821	5.09	$19,867,812	$24,200

Hospitals in Red were already participating in GWTG-Stroke and became the founding SEQIP members

The 16 hospitals discharges equaled 59.7% of all stroke discharges in the state

Source of this data is the Kentucky Hospital Inpatient Claims, 2018; Kentucky Cabinet for Health and Family Services, Office of Health Data & Analytics
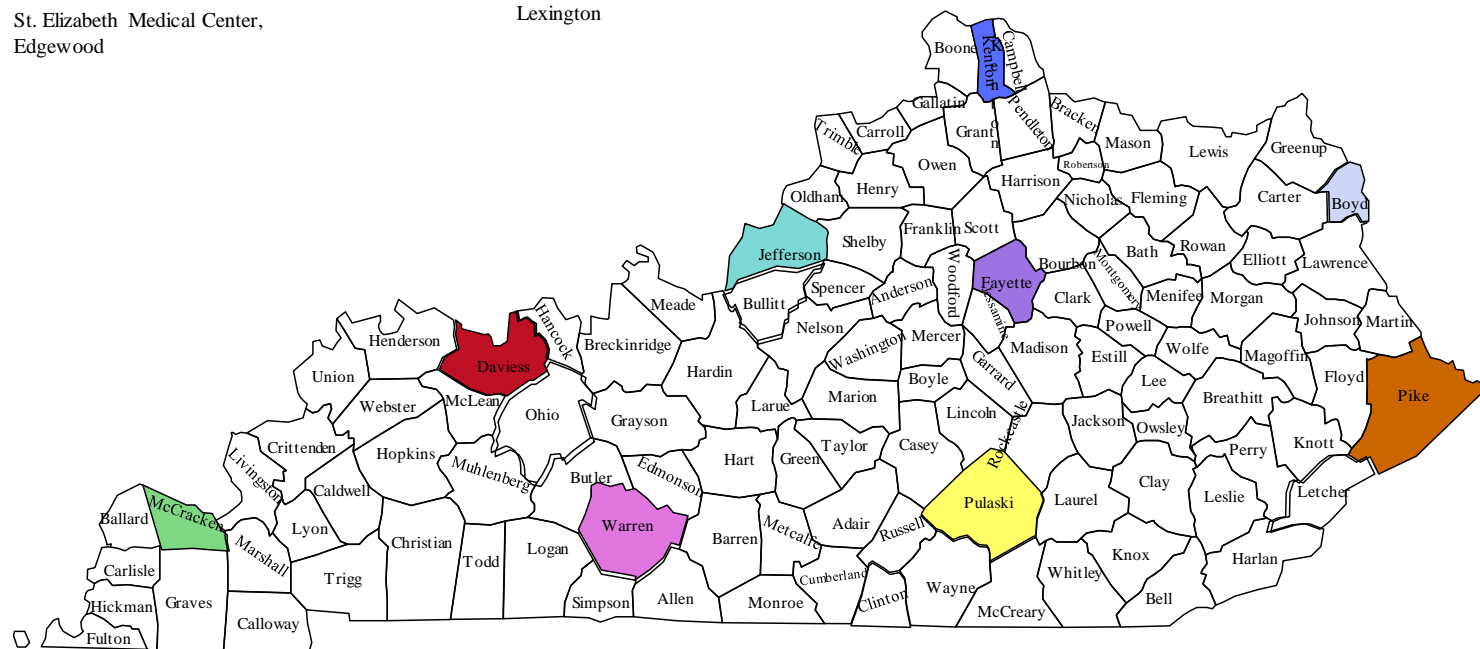
MF1

Legend:

- Western Baptist Hospital, Paducah
- Owensboro Medical Health Park, Owensboro
- The Medical Center, Bowling Green
- Lake Cumberland Regional Hospital, Somerset
- Pikeville Medical Center, Pikeville
- Kings Daughters Medical Center, Ashland
- St. Elizabeth Medical Center, Edgewood
- Baptist Hospital East, Louisville
  Jewish Hospital, Louisville
  Norton Audubon Hospital, Louisville
  Norton Hospital, Louisville
  Norton Suburban Hospital, Louisville
  Sts. Mary and Elizabeth Hospital, Louisville
  University of Louisville Hospital, Louisville
- Central Baptist Hospital, Lexington
  University of Kentucky Hospital, Lexington

SEQIP HOSPITALS Kentucky 2008-2009

Geographic Location of Founding SEQIP Hospitals (2009)

Kentucky Public Health

SEQIP Profile

- 16 Hospitals invited and recruited between June 2008 through April 2009

- 6 hospitals were certified as Joint Commission Primary Stroke Centers (PSC)

- 3 Hospitals were actively seeking PSC Certification

- 2,358 Patient Encounters from 7/1/08 to 4/3/09 entered into Get With The Guidelines-Stroke

Invitation to Participate

Dear;

Very exciting things are happening in Kentucky with regard to Stroke Care, and we would like your hospital to play an important role.

The partnership between the Kentucky Heart Disease and Stroke Prevention Program, American Stroke Association and the Cardiovascular Health Care Delivery Systems Subcommittee has developed the "Stroke Encounter Quality Improvement Project" (SEQIP). This is a three-year project to implement evidence-based integrated cardiovascular health delivery systems, and to support and advance the quality of care available to stroke patients in Kentucky through a hospital based stroke registry.

As a potential Get With The Guidelines[SM] Stroke hospital, you are invited to join this project. Only 16 hospitals in Kentucky will be offered this opportunity.

Because you're a participant in SEQIP, the Kentucky Heart Disease and Stroke Prevention Program will cover your standard annual cost ($1,155.00) of the Patient Management Tool over the three year project period. This will not cover any additional costs your hospital may have for also selecting to use the Joint Commission-enhanced version.

Your hospital will be involved in improving stroke care in Kentucky by collaborating with hospitals and key stakeholders to improve the quality of care given to stroke patients. As a collaborative, the group will be able to review data and focus on participating hospitals' quality improvement activities, to enhance performance. The group will engage in teleconferences and meetings to exchange best practices and drive performance improvement.

If your hospital is interested in joining our statewide initiative, please complete contact me as soon as possible at (bonitaA.bobo@ky.gov)

Sincerely,

Bonita Bobo, RN
Program Manager
Kentucky Department for Public Health
Heart Disease and Stroke Prevention Program

Letter to Hospitals

Kentucky Cabinet for Health and Family Services •
Heart Disease and Stroke Prevention Program
275 East Main Street • HS2WE • Frankfort, KY 40521
Program Manager, Bonita Bobo • (502) 564-7996 • BonitaA.Bobo@ky.gov

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Stroke Encounter Quality Improvement Project (SEQIP)
Kentucky

Background

In 2004, the Kentucky Chronic Disease Prevention and Control Branch published "Close to the Heart of Kentucky" a report on the status of cardiovascular disease in the Commonwealth. This burden document identifies stroke as the third leading cause of death in Kentucky. Over 2,500 people in Kentucky died from stroke in 2001, accounting for 6.5% of all deaths in the state. Kentucky's stroke death rate of 67.5 per 100,000 people places the state as the 12th highest in the nation.

What is the Stroke Registry?

The Kentucky Stroke Registry is a statewide quality improvement initiative of the Kentucky Heart Disease and Stroke Prevention Task Force, Cardiovascular Health (CVH) Delivery Systems Subcommittee. This subcommittee's focus is to implement evidence based integrated CVH delivery systems and to support and advance the quality of care available to heart and stroke patients in Kentucky.

One subcommittee's goals is to advance stroke care in Kentucky by implementing systems that ensure excellence in acute stroke treatment and ischemic stroke prevention. The Kentucky Stroke Registry provides the state with an opportunity to collect and evaluate valuable data and determine areas for improvement related to stroke interventions, acute management of stroke and secondary prevention.

By using *Get With The Guidelines*[SM] (GWTG), the premier hospital-based quality improvement program for the American Heart Association/American Stroke Association. Hospital healthcare provider teams will be empowered to consistently treat stroke patients according to the most up-to-date evidence based guidelines.

Hospital Participation

This initiative is designed to encourage collaboration between hospitals and stakeholders in Kentucky to improve the quality of care given to stroke patients. Randomly selected hospitals will be invited to participate to represent the state as a whole. Volunteer hospitals or current GWTG hospitals are welcomed to participate.

Fact Sheet

What type of data will be reported by the Kentucky Stroke Registry?

- The registry is part of the overall quality improvement initiative for stroke care in Kentucky.
- The purpose of data collection is to monitor the quality of stroke care delivered at hospitals in the state and guide quality improvement efforts.
- Data relating to stroke patient characteristics and care received during the hospital stay are collected by participating hospitals on patients admitted with an acute stroke or transient ischemic attack.
- Data are entered into the American Heart Association/ American Stroke Association's GWTG stroke patient management tool.

Quality and process improvement reports will be generated from aggregate data that is de-identified to protect the privacy of the hospitals and their patients. The CVH Delivery subcommittee will report aggregate findings back to the Kentucky Heart Disease and Stroke Prevention Task Force as well as the participating hospital sites.

Kentucky Cabinet for Health and Family Services •
Heart Disease and Stroke Prevention Program
275 East Main Street • HS2WE • Frankfort, KY 40521
Program Manager, Bonita Bobo • (502) 564-7996 •BonitaA.Bobo@ky.gov

Let's Get Started

SEQIP
Stroke Encounter Quality Improvement Project
Workshop
February 3, 2009

8:00 Stroke Systems Overview

Kari Moore, Director of Nursing,
Stroke Program, University of Louisville (UL)

9:00 Data Abstraction
      Data Definitions
      Data Reports
      Performance Measurements
      Best Practices

Michele Bolles, VP Quality Improvement, AHA
Kari Moore, Director of Nursing, Stroke Program, UL
Paula Gisler, Administrative Director-Research Center
and Neurosciences, Central Baptist Hospital

11:00 Performance Measurement Goal
       Next Steps

Kari Moore, Director of Nursing, Stroke Program, UL
Paula Gisler, Administrative Director-Research Center
and Neurosciences, Central Baptist Hospital

Starr Block, Senior Director, Quality Improvement
Initiatives, AHA

11:45 Teleconference Dates, 11am EST
       March 25
       May 27
       July 29
       September 30
       November 18

February 3, 2009
You're Invited!

American Heart | American Stroke
Association. | Association.
Learn and Live.

Kentucky Stroke Encounter Quality
Improvement Project (SEQIP) Meeting
8 a.m.—Noon

Kentucky Heart Disease and Stroke
Task Force Meeting
1 p.m.—5 p.m.

Tuesday, February 3, 2009
Masterson's
1830 S. Third St., Louisville

Lunch provided at Noon

Please RSVP at debra.eichenberger@heart.org or
502.371.6023 by Thursday, January 29th.

Kentucky Public Health

SEQIP Inaugural Meeting Agenda

- Discuss Stroke Measure Descriptions

- Share best practices and encourage collaboration

- Launch Kentucky's First "Statewide Stroke Registry"

SEQIP Meeting Outcome

- Shared best practices and encouraged unified collaboration
- Decided to chose one measure to improve over the next year as a state (Ranked Top 3)
- Developed an Action Plan with mechanisms to report successes to the group
- Plan Next Steps for sharing progress: Teleconferences, F2F Meetings
- Recruit Additional SEQIP Hospital Members

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 any food, fluids, or medication by mouth.

Time Period: 01/01/2008 - 12/31/2008; !

KY SEQIP = 54.5%
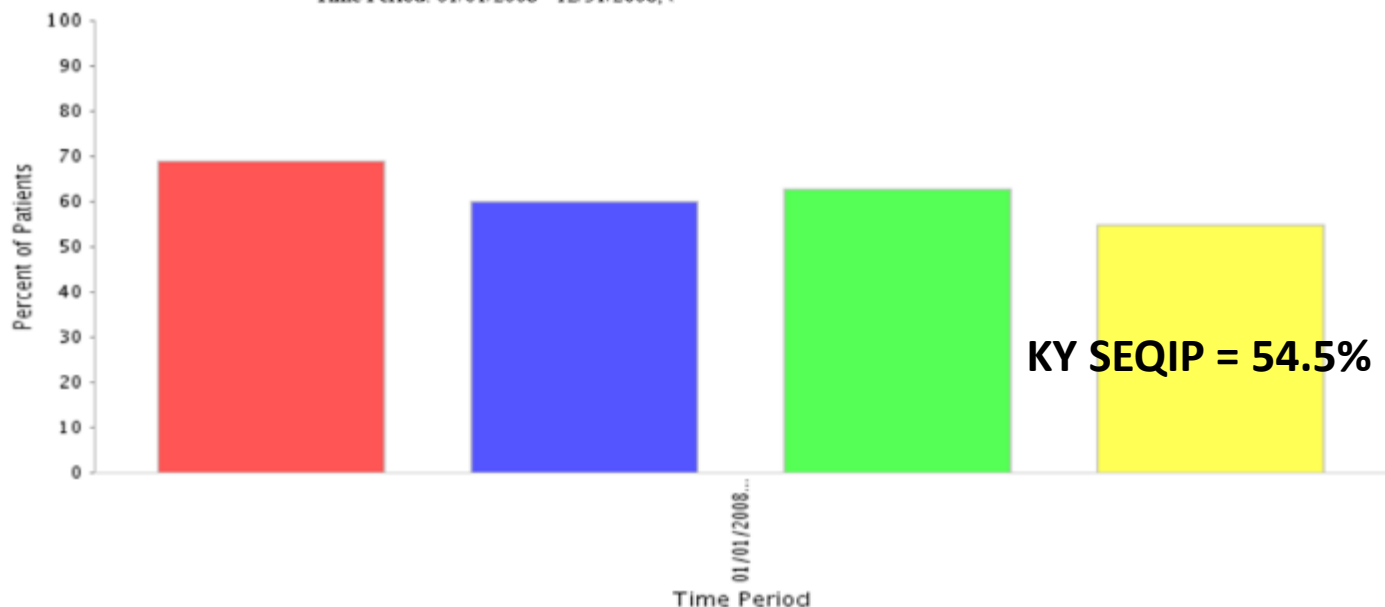
■ All Hospitals ■ All KY Hospitals ■ East South Central Hospitals ■ Kentucky SEQIP

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 25th SEQIP (11AM) Teleconference – Open Forum Discussion/ Dysphagia Help Session and short presentation on Dysphagia Screening by Nancy Swigert, SLP Central Baptist Hospital	Prior to March 25th 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). Draft 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 27th SEQIP (11AM) Teleconference- Progress Reports by Hospitals and Open Forum Discussion/ Dysphagia Help Session	Between March 25th and May 27th

Hospital Action	Resources Needed	2009 Completion Date
Policy formalized and integrated into medical structure. Educate, train and credential all stroke care staff (ED, Nursing, Physicians)	Dysphagia Screening Tool Completed Policy Speech Language Pathology staff July 29th SEQIP (11AM) Teleconference- Topic TBD	Between May 27 and July 29
Complete staff training Monitor staff performance	Staff competency checklist or credentialing GWTG Data September 30th SEQIP (11AM) Teleconference- Topic TBD OR FACE TO FACE IF WE HAVE TASK FORCE MEETING	Between July 29th and December 31st
SEQIP Members to begin discussing 2010 Plan – Patient Education Review Statewide SEQIP Data for Dysphagia Screen and Patient Education	SEQIP Members to draft report for CDC regarding first QI Project- Dysphagia Draft Plan to improve Patient Education Measure	November 18th SEQIP (11AM) Teleconference- Kari and Paula to determine / Begin discussions in September

Kentucky Public Health

SEQIP

Hospital Best Practices Presented

Two Innovative QI Plans:

- Hardin Memorial Hospital's **"Just Add Water"** Dysphagia Project

- Norton Hospital's **"NPO Until You Know"** Dysphagia Project

Accountability and "Report Out"

- Six Month Progress Reports received from All SEQIP Hospitals

- Sharing of Best Practices on quarterly teleconferences

- Shared what worked, discussed barriers and promoted new practice ideas

LAKE CUMBERLAND
Regional Hospital

Lake Cumberland Regional Hospital
is a 259-bed acute-care facility.

Dysphagia Screening

Dysphagia Screen*

Dysphagia Screening

- **Barriers**
  - No standard swallow screening process
  - No standardized screening tool available in house
  - No formal referral process for SLP for stroke patients
  - No orders sets developed
  - Inconsistent documentation
  - PO meds given in ED/Units
  - Lack of RN knowledge surrounding 'strict' NPO for stroke patients
  - Lack of knowledge of aspiration pneumonia risks

- Actions
  - Developed policy/order sets for bedside swallow testing in units – Qtr 3 2009
  - NPO in ED until screened
  - Developed Screening Process- Bedside Simple Water Test with SLP – Qtr 3 2009
  - Trained all nursing staff
  - Implemented policy and practice
  - Concurrent review of in-house stroke patients receiving screening
  - Review data bi-monthly at Core Measure Meetings

Owensboro Medical Health System

TOP 5% in the Nation for QUALITY

Owensboro Medical Health System

DSC/Stroke-07 Dysphagia Screening - OMHS

- Observed Variances
  - Discrepancy between paper copy and electronic copy
  - Confusion regarding NPO prior (PO status vs. NPO prior)
  - PO meds given in ED prior to SS
  - No defined process or expectation – other than the Neuro unit
  - Order sets - terminology inconsistent and confusing – dysphagia screening vs. swallow screen)
  - Lack of awareness of guideline and core measure

- Improvements Made
  - Revised paper tool to mirror electronic
  - Clarified 'NPO prior to screening'
  - Developed policy – defined process for who should screen (ex: Meds in ED verses no meds in ED)
  - Educated and trained nursing staff in Critical Care, ED – Neuro unit staff already trained
  - Developed a process for off service patients – trained admission nurses
  - Revised order set - called it what it is – swallow screen
  - Educated on guideline and core measure
  - Set as organizational success sharing goal for FY2011
  - Ongoing monthly review and feedback

% of Stroke Patients screened for Dysphagia
Owensboro Medical Health System

TOP 5% in the Nation for QUALITY

Owensboro Medical Health System

Slide 1

The Medical Center
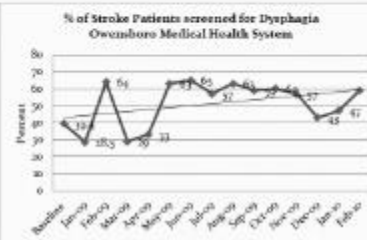
Dysphagia Screening

- Goals:
  - Translate evidence into practice
  - Ensure safe nutrition and hydration
  - Prevent complications / improve outcomes
  - Increase bedside dysphagia screen rates to $\geq$ 90%
- Barriers:
  - Identifying patients at risk – "non-classic" S & S
  - PO meds given in ED prior to screening
  - Inconsistent use of protocols / order sets
  - Admission to non-stroke units
  - Documentation issues
  - Retrospective review process → delayed feedback

Slide 2

The Medical Center

Dysphagia Screening

- Process Improvement Activities
  - ✓ Identified best practices via SEQIP partners
  - ✓ NPO in ED, screen upon admission
  - ✓ Standardize screening for all points of entry
  - ✓ Independent nursing function – don't need an order
  - ✓ Expanded diagnoses / S & S to widen the net
  - ✓ Concurrent review for screening compliance
  - ✓ 1:1 education for nursing outliers
  - ✓ Training, competency for new-hires
  - ✓ Annual CBL for ED / Stroke Units
  - ✓ Sharing performance data
  - ✓ NEW – Auto triggers in EMR nursing assessments

Slide 3

The Medical Center

Dysphagia Screening
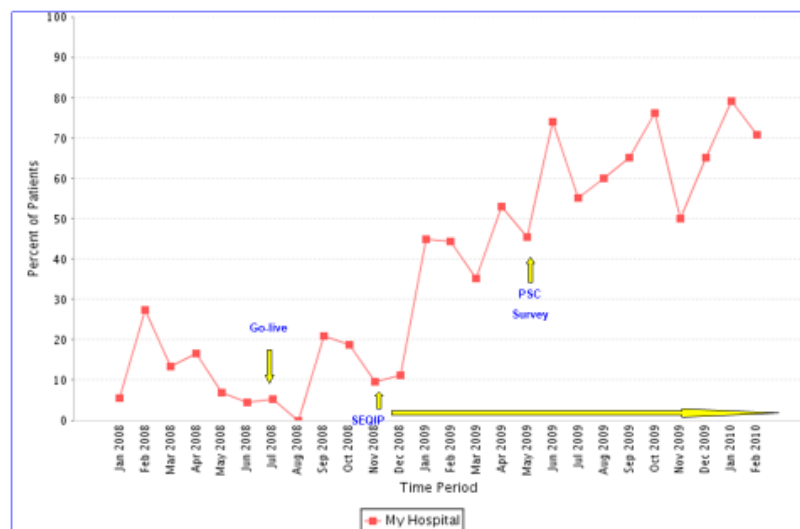
Results: Dysphagia Screening

Percent of Patients Screened for Dysphagia
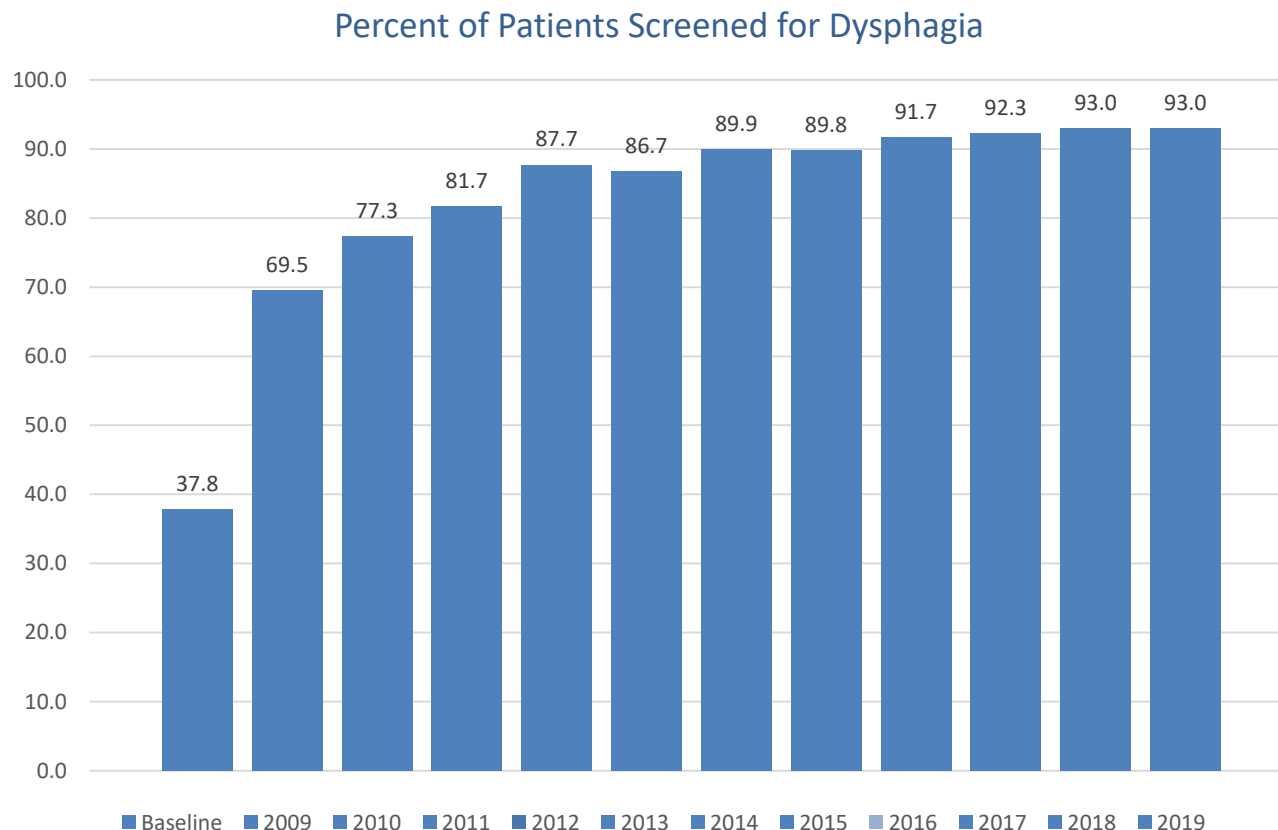
Achievement Goal: 85%

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.

SEQIP Inaugural Members - 2009

Success Leads to 2nd QI Initiative

- We can't stop here!
- Second quality improvement project launched by the group in January 2010
- IV Alteplase (t-PA) usage was another "opportunity" identified by our collective benchmark data

IV Alteplase Utilization

IV rt-PA 2 Hour*

Percent of acute ischemic stroke patients who arrive at the hospital within 120 minutes (2 hours) of time last known well and for whom IV t-PA was initiated at this hospital within 180 minutes (3 hours) of time last known well.

Time Period: 01/01/2008 - 12/31/2008;

KY SEQIP = 44.3%
54/122 patients
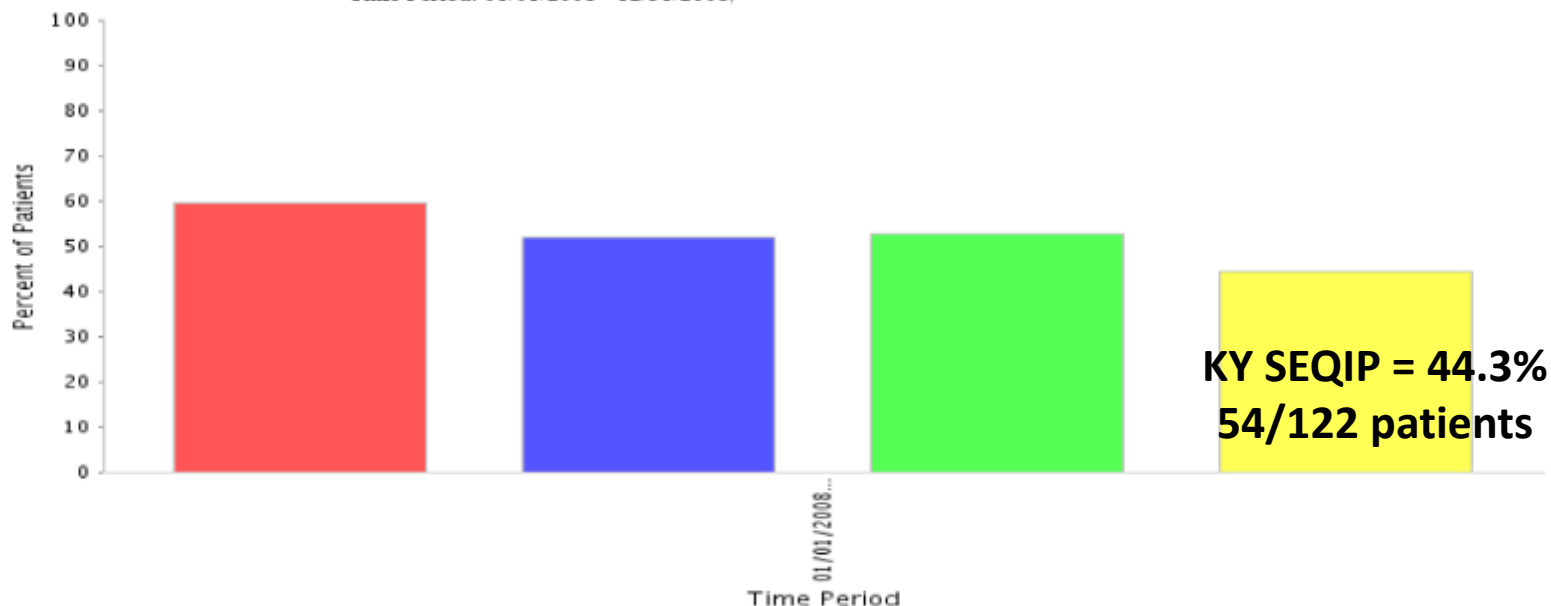
Legend: ■ All Hospitals ■ All KY Hospitals ■ East South Central Hospitals □ Kentucky SEQIP

Data For: IV rt-PA 2 Hour*				
Benchmark Group	Time Period	Numerator	Denominator	% of Patients
All Hospitals	01/01/2008 - 12/31/2008	6230	10472	59.5%
All KY Hospitals	01/01/2008 - 12/31/2008	74	143	51.7%
East South Central Hospitals	01/01/2008 - 12/31/2008	222	421	52.7%
Kentucky SEQIP	01/01/2008 - 12/31/2008	54	122	44.3%

Action Plan

Results: Increase Alteplase Use

Increasing the Use of IV Thrombolytic Administration

397/449 patients

Baseline
14/35
patients

Baseline	40.0
2009	59.6
2010	52.7
2011	50.4
2012	77.6
2013	83.7
2014	83.7
2015	89.9
2016	80.1
2017	92.7
2018	88.5
2019	88.4

Percent of Patients

Baseline 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
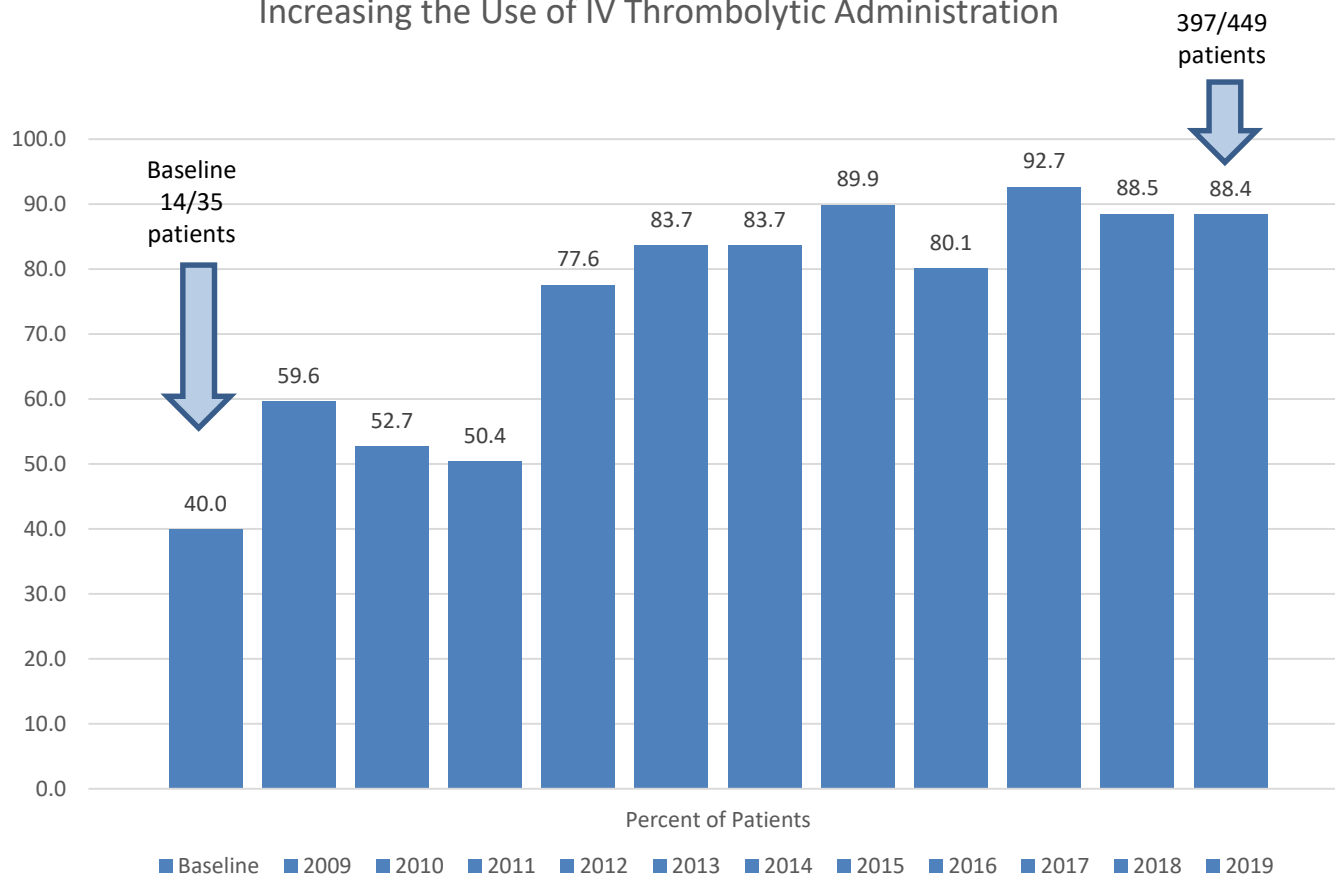
CDC Presentation

On May 11, 2010, all SEQIP hospitals presented their Quality Improvement initiatives highlighting their progress, for both the Dysphagia and t-PA (Alteplase) projects.

This was presented live before the CDC Project Officer's Kentucky Site Visit.

Continuing the Journey to Improving Stroke Care in Kentucky

Kari Moore

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 Public Health
Prevent. Promote. Protect.

STROKE ENCOUNTER QUALITY IMPROVEMENT PROJECT
SEQIP

Stroke Registry Legislation

House Bill 467

Require the Department for Public Health to establish and implement a plan to achieve continuous quality improvement in the quality of care provided under a statewide system for stroke response and treatment; require the Department for Public Health to maintain a statewide stroke database; require the database to align with nationally approved stroke consensus measures; require the Department for Public Health to utilize the "Get with the Guidelines-Stroke" quality improvement program

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

June 1, 2019

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*
Three Rivers Medical Center
UK Healthcare*
University of Louisville Hospital*

Legend

- St. Elizabeth, Covington
- St. Elizabeth, Edgewood
- St. Elizabeth, Florence
- St. Elizabeth, Ft. Thomas
- St. Elizabeth, Grant

- Baptist Health, Louisville
- Jewish Hospital, Louisville
- Norton Hospital, Louisville
- Norton Audubon Hospital, Louisville
- Norton Brownsboro Hospital, Louisville
- Norton Women's & Children's Hospital, Louisville
- Sts. Mary and Elizabeth Hospital, Louisville
- University of Louisville Hospital, Louisville

- Baptist Health, Lexington
- Saint Joseph Hospital, Lexington
- University of Kentucky Hospital, Lexington

- Baptist Health, LaGrange

- Baptist Health, Paducah

- Frankfort Regional Medical Center, Frankfort

- Hardin Memorial Health, Elizabethtown

- Harlan ARH Hospital, Harlan

- Highlands Regional Medical Center, Prestonsburg

- Jackson Purchase Medical Center, Mayfield

- King's Daughter's Medical Center, Ashland

- Lake Cumberland Regional Hospital, Somerset

- Middlesboro ARH Hospital, Middlesboro

- Owensboro Health, Owensboro

- Pikeville Medical Center, Pikeville

- The Medical Center, Bowling Green
- TriStar Greenview Regional Hospital, Bowling Green

- Three Rivers Medical Center, Louisa

- Whitesburg ARH Hospital, Whitesburg

OH − 8 ASR, 78 PSC and 10 CSC's

WV − 4 PSC's, and 1 CSC

IN − 2 ASR, 51 PSC's and 1 CSC

IL − 1 ASR, 52 PSC's and 10 CSC's

MO − 25 PSC and 4 CSC's

VA − 2 ASR, 30 PSC's, and 4 CSC

TN − 8 ASR, 25 PSC and 7 CSC's

The Joint Commission, HFAP and DNV Certified Primary Stroke Centers in Kentucky (20)

TJC Comprehensive Stroke Centers (4)   Acute Stroke Ready Hospitals (8)

REV May 2019

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 April 2016

STROKE ENCOUNTER QUALITY IMPROVEMENT PROJECT (SEQIP)

Mission, Membership, Policy, and Governing Structure

DRAFT 4.14.16

SEQIP Commissioned Committees

- 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

SEQIP KY Stroke Registry Volume
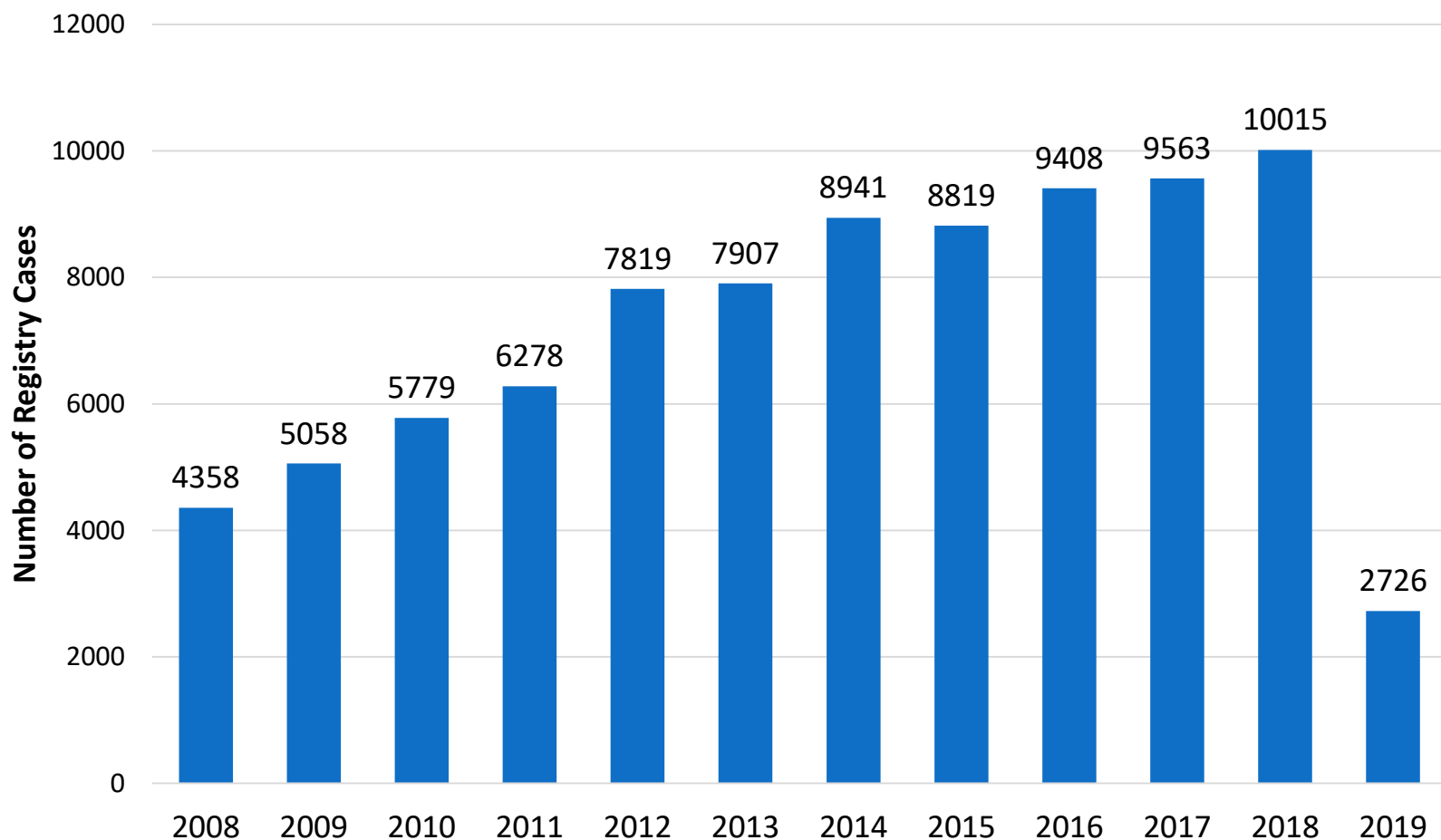
Stroke Pts Treated at SEQIP Hospitals

% of Kentucky Stroke Patients Discharged from a SEQIP (GWTG-S) Hospital
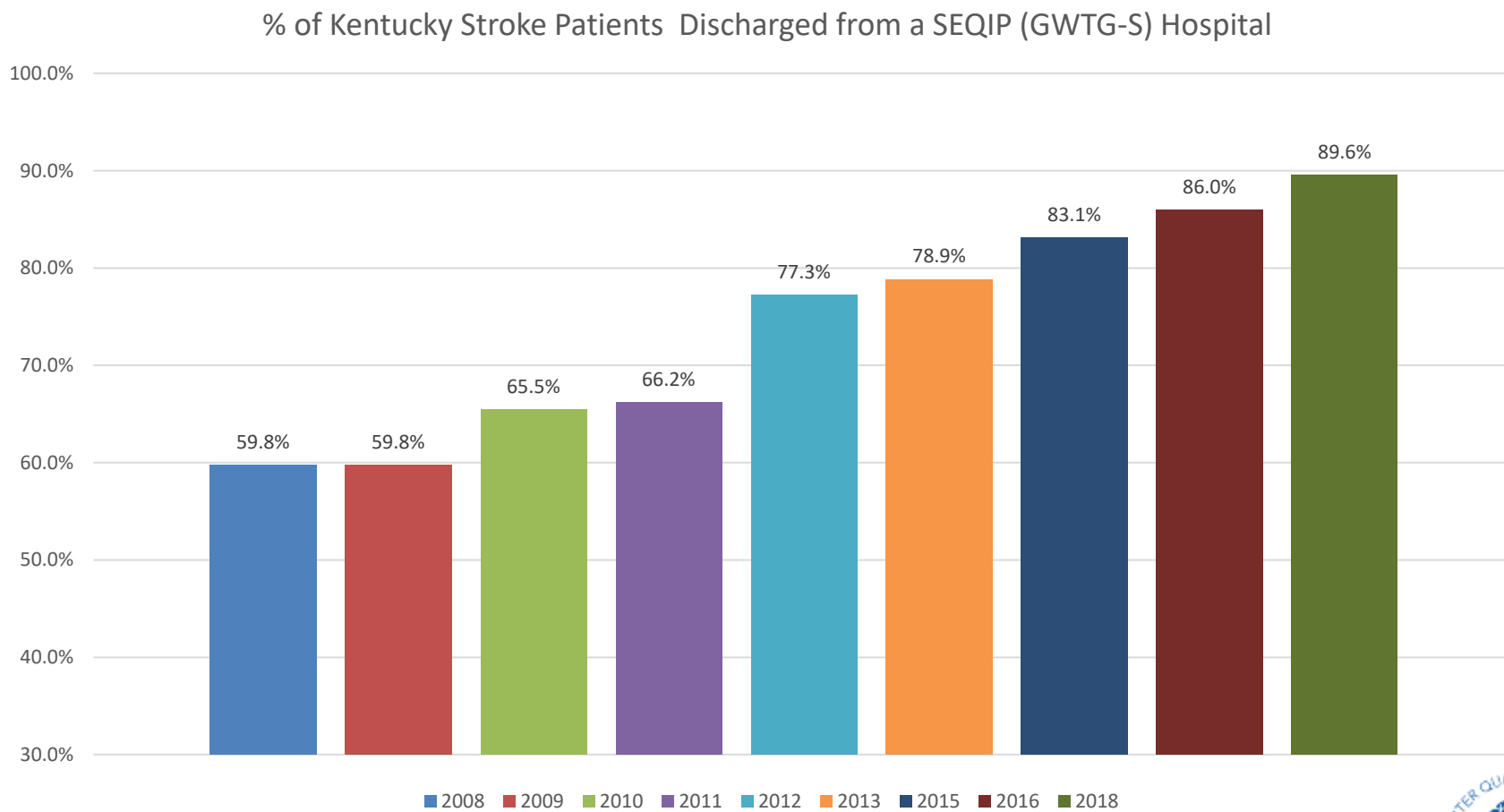
Data Source: Kentucky Hospital Inpatient Claims, 2018; Kentucky Cabinet for Health and Family Services, Office of Health Data & Analytics)

Stroke Types

Stroke Type pie chart:
- Ischemic stroke: 77.5%
- Transient ischemic attack (<24 hours): 9.0%
- Subarachnoid Hemorrhage: 3.0%
- Intracerebral Hemorrhage: 9.2%
- Elective Carotid Intervention only: 0.8%
- Other: 0.4%
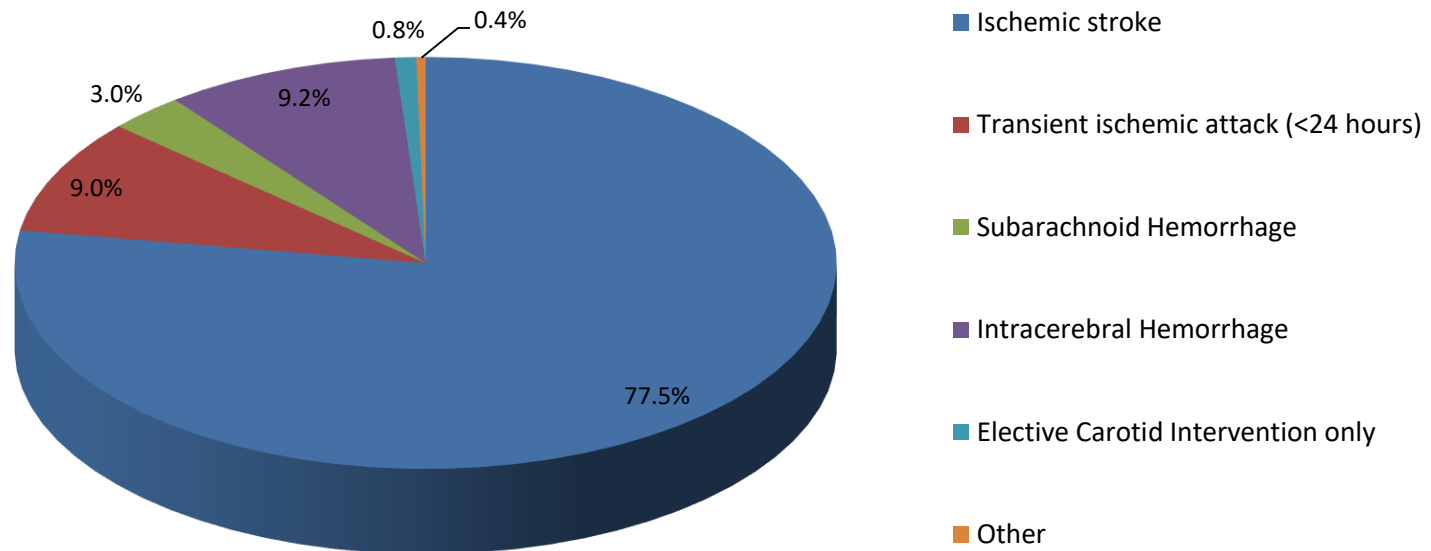
SEQIP Demographics - AGE

SEQIP 2008: Age

0.0%
6.7%
11.5%
32.8%
48.9%
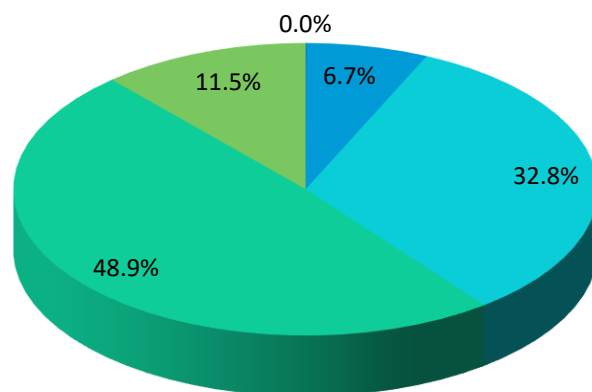
- <18
- 18 - 45 years
- 46 - 65 years
- 66 - 85 years
- >85 years

SEQIP 2018: Age

0.0%
6.5%
11.7%
33.6%
48.1%
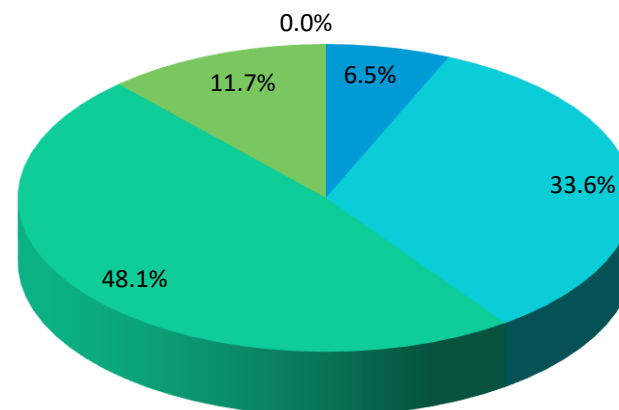
- <18
- 18 - 45 years
- 46 - 65 years
- 66 - 85 years
- >85 years

SEQIP Demographics - Gender

SEQIP 2008: Gender

54.9% 45.1%
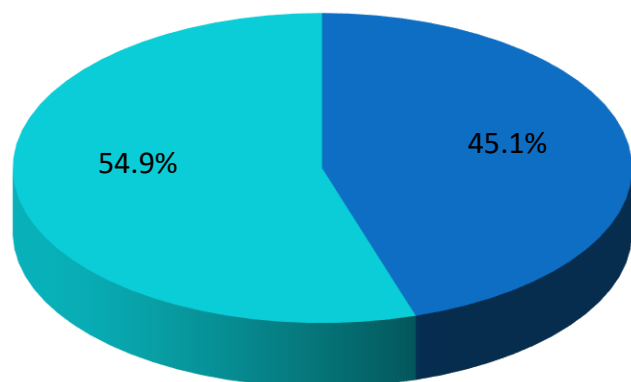
■ Male ■ Female

SEQIP 2018: Gender

50.7% 49.3%
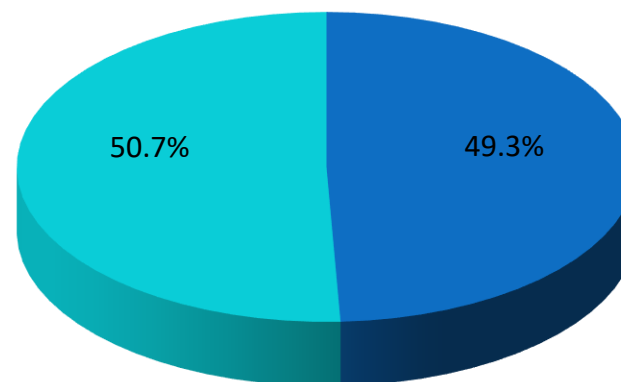
■ Male ■ Female

SEQIP Demographics - RACE

SEQIP 2008: Race
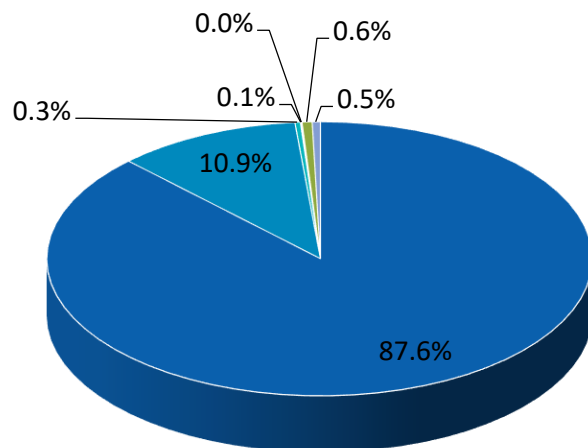
- 0.0%
- 0.6%
- 0.3%
- 0.1%
- 0.5%
- 10.9%
- 87.6%

Legend:
- White
- Black or African American
- Asian
- American Indian or Alaska Native
- Native Hawaiian or Pacific Islander
- Unknown
- Hispanic

SEQIP 2018: Race
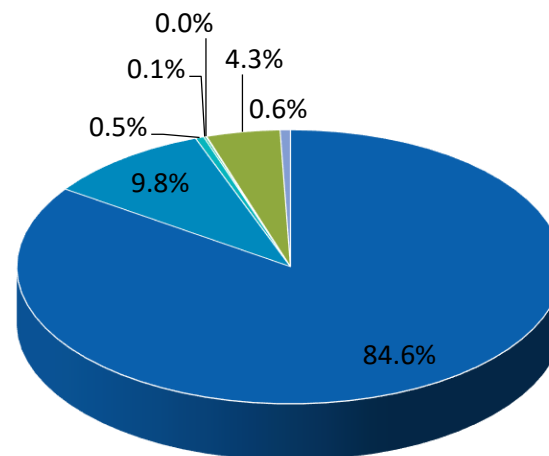
- 0.0%
- 4.3%
- 0.1%
- 0.6%
- 0.5%
- 9.8%
- 84.6%

Legend:
- White
- Black or African American
- Asian
- American Indian or Alaska Native
- Native Hawaiian or Pacific Islander
- Unknown
- Hispanic

Stroke Chain of Survival

Acute Stroke, ACLS

SEQIP Initiatives

- Standardized Community Messaging
- EMS
- Thrombolytic therapy
- Stroke Core Measures - Hospitals
- Post Discharge Care

Standardized Community Messaging

- Signs and Symptoms of Stroke
  - Calling 911 for suspected stroke symptoms
- Vascular Risk Factors
  - Nutrition
  - Sodium
  - ETOH
  - Physical Activity
  - Smoking
  - Diabetes
  - Cholesterol
  - Hypertension
- Home Blood Pressure Self Monitoring

- Resources will be available on HDSP Task Force Website
  - Will be able to customize with organization logo

EMS

- Kentucky Board of EMS Stroke and Cardiac Subcommittee
- Recommended Field Transport Protocols
- Interfacility drip and ship transfer forms
- Pre-notification algorithm
- Dispatch Education
- First KBEMS annual report 2017
- EMS/Hospital Data Sharing Pilot

KBEMS Cardiac & Stroke Subcommittee

- Kentucky Board of EMS 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

- KBEMS Cardiac and Stroke Subcommittee
  - Created 2013 and meets quarterly
  - 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 – pending approval
  - Funding for hospital access to run sheets through Kstars ended September 2018

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,
  - 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
- 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:
  - 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

- Large bore 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 eyes 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, 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=4738sid=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)

STROKE ALERT
EMS STROKE PRE-NOTIFICATION PROTOCOL

Perform KBEMS Severity -Based Stroke Triage Algorithm for EMS

Determine appropriate stroke center destination based upon assessment.

Communicate with receiving facility (Dispatch Center/ Charge Nurse) immediately upon destination decision determined.

Communicate Essential Patient Information to Receiving Facility during initial report:

1.) Patient Name, DOB, Gender

2.) Last Know Normal Time

3.) Cincinnati Stroke Scale

4.) C-STAT Score

5.) Airway Status (Intubation, Oxygen Therapy)

6.) Blood Glucose

7.) Hemodynamic Status (HR, BP, ETCO2)

The above protocol for "Stroke Alert" should trigger a "Stroke Alert" activation at the receiving facility.

EMS Prenotification
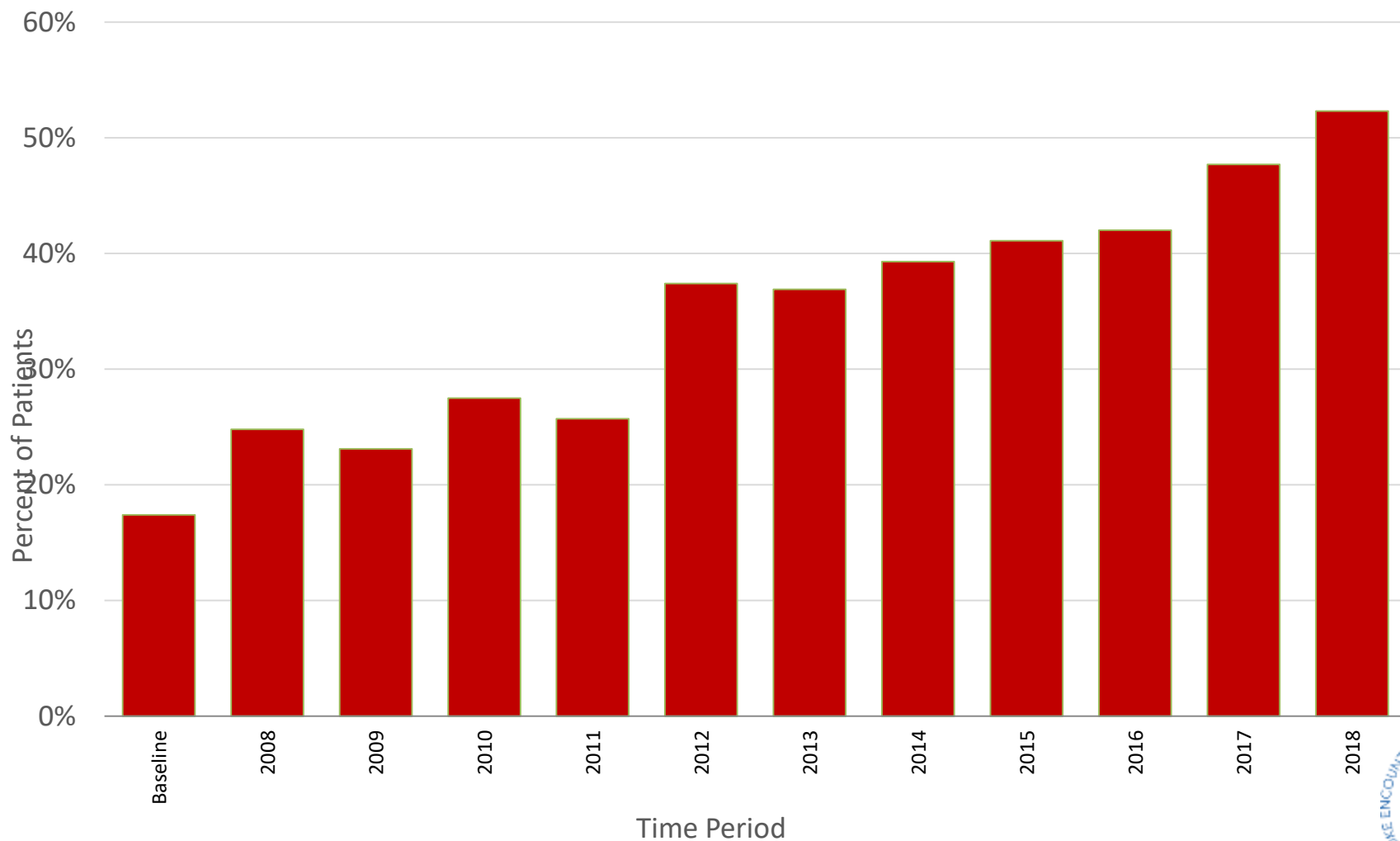
Inter-facility rt-PA transfer protocol

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 patient 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: _____

> 10% 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***

1. Perform and document **Vital Signs and Neurological Exam:**
   (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 SpO2 >94%

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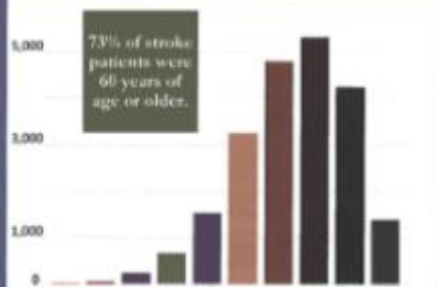   ☐ **FIRST stop IV tPA** - then call receiving facility.

SEQIP

KBEMS 2017 Report

Thrombolytic Therapy

SEQIP DECREASING DOOR TO NEEDLE TIME STATEWIDE QUALITY PLAN

Begin Date: February 2011

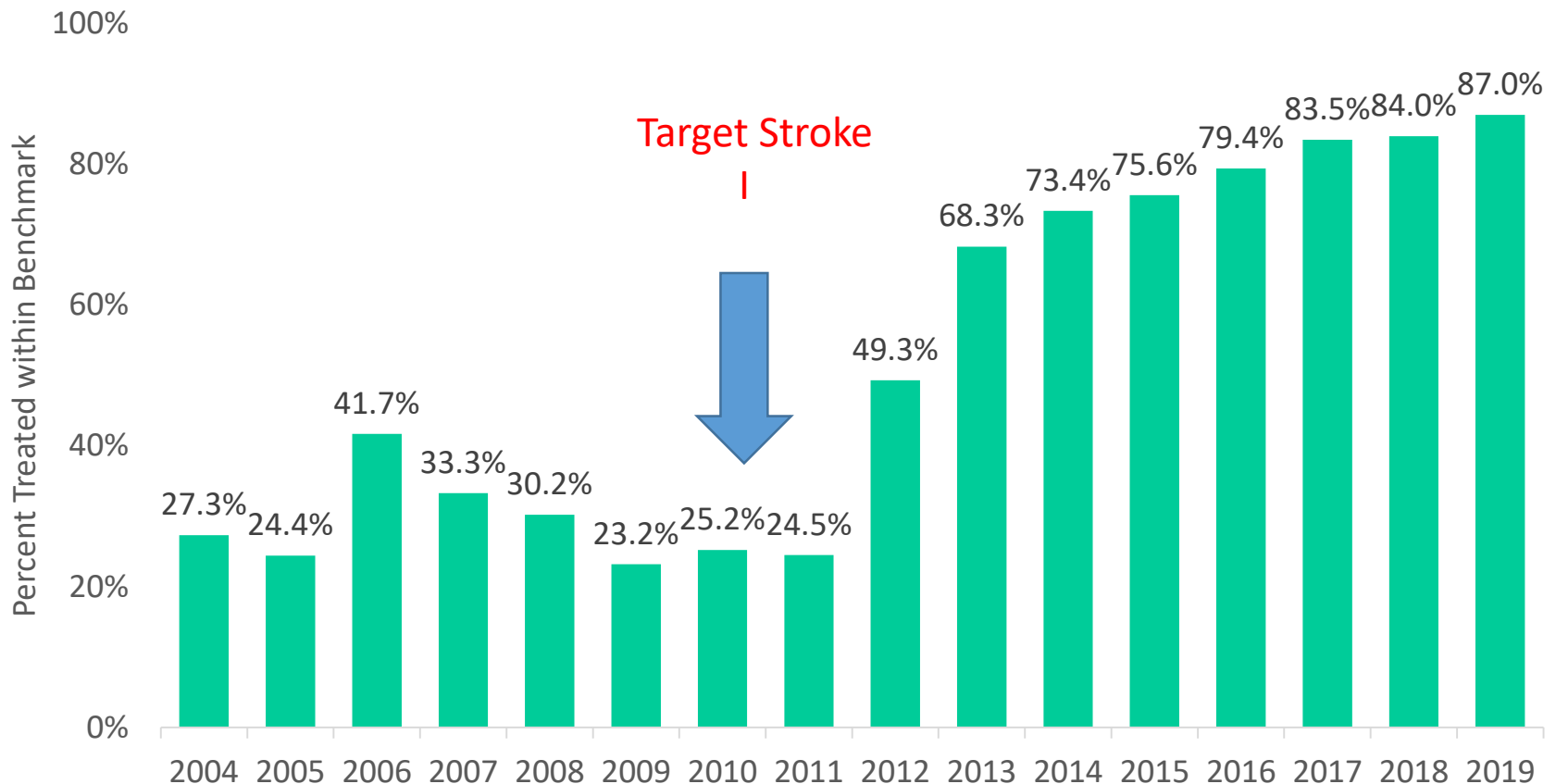TARGET:STROKE℠

1 MINUTE OF BRAIN ISCHEMIA CAN KILL 2 MILLION NERVE CELLS AND 14 BILLION SYNAPSES.
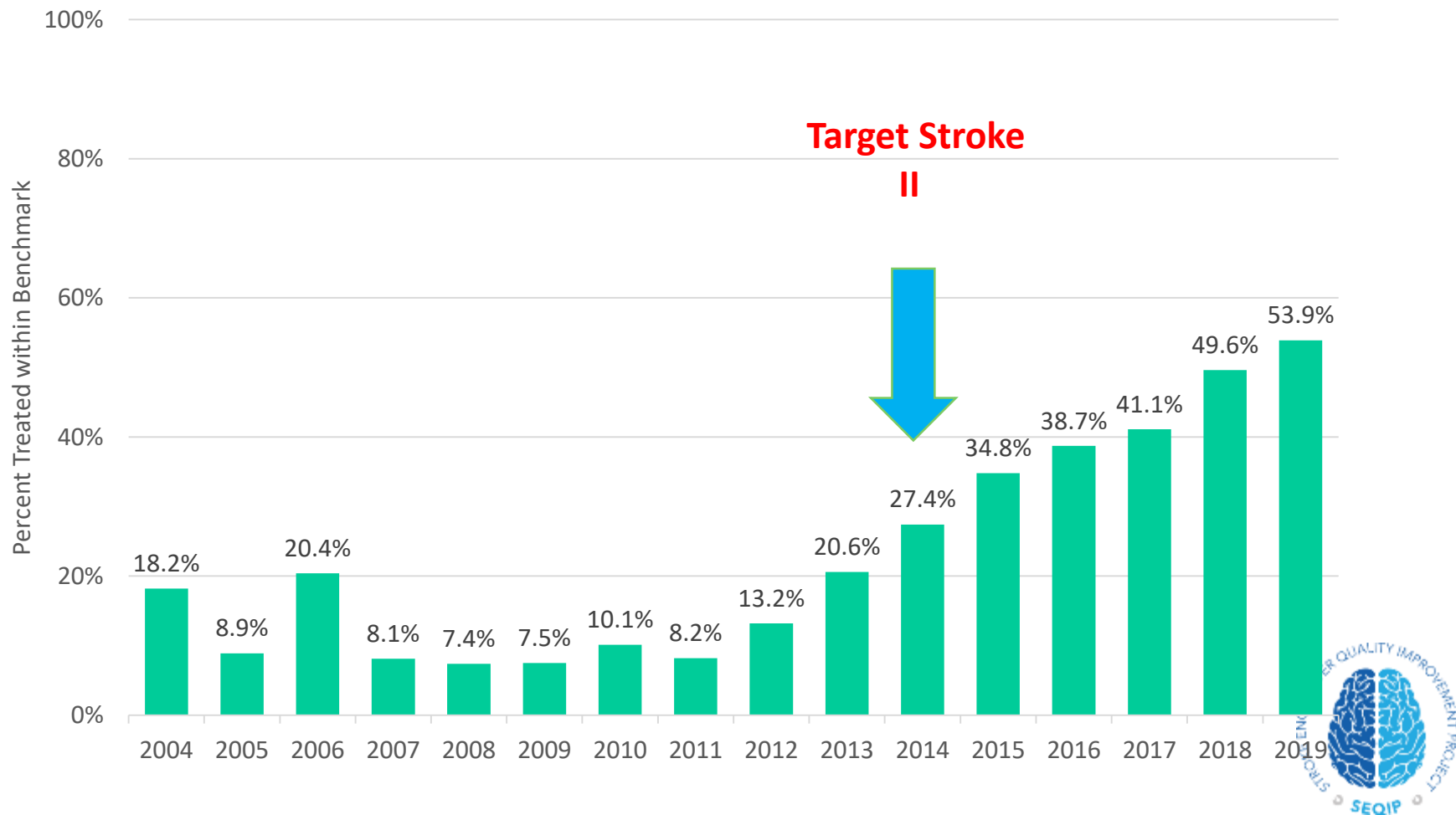
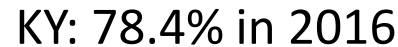# IV alteplase in Ischemic Stroke Door to Needle Within 45 Minutes or Less

SEQIP: IV tPA Door to Needle within 45 Minutes

National Target Stroke Maps

GOAL 50%

DTN in 60 minutes or less

Eligible Get With The Guidelines-Stroke/Target: Stroke acute ischemic stroke patients January 2012 to December 2012

KY: 44.5% in 2012

GOAL 75%

Target: Stroke Phase II aims to achieve Door-to-Needle Times within 60 minutes in 75% or more of acute ischemic stroke patients treated with Alteplase.*

*Eligible Get With The Guidelines-Stroke/Target: Stroke acute ischemic stroke patients treated between January 2016 to December 2016

KY: 78.4% in 2016

ISC Oral Presentation - 2016

INTERNATIONAL **STROKE** 2016 CONFERENCE

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

American Heart Association | American Stroke Association. | **Together** to End Stroke™

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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 of Louisville, Louisville, KY; Bonita 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 (QI) 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 rt-PA (Arrive by 2, Treat by 3 Hours) (n=1387) from 60.4% to 85.7%. Additionally, SEQIP hospitals increased the proportion of eligible patients receiving rt-PA (D2N <60 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.

ISC Presentation - 2016

Upcoming ISC Oral Presentation - 2020

2/8/2019

sOASIS- The Online Abstract Submission System

American Stroke Association.
International Stroke Conference

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Activity: Abstract ISC
Current Date/Time: 8/8/2019 9:29:43 AM

Kentucky Stroke Encounter Quality Improvement Project Statewide Collaboration To Improve Alteplase Utilization, Decrease Door To Needle Times, And Impact Outcomes: A 10 Year Review

Author Block: Lynn Hundley, Norton Healthcare, Louisville, KY; Polly Hurt, King's Daughters Medical Ctr - Ashland, Ashland, KY; Bill Singletary, The Medical Ctr Bowling Green, Bowling Green, KY, Bonita Bobo, Allison Merritt, Kentucky Dept for Public Health, Frankfort, KY; Amy Graham, American Heart Association, Louisville, KY; Starr Block, American Heart Association, Dallas, KY; **Karl D Moore**, UNIVERSITY LOUISVILLE HOSPITAL, Louisville, KY, SEQIP Hospitals

Abstract:
Background – Evidence shows systems change interventions improve care and outcomes for stroke patients. Geopolitics. boundaries have been a barrier to improving regional systems of care. Despite efforts nationally, regionally. and locally alteplase (tPA) 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 tPA 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 8.60% in 2018 (OR=2.0, p <0.0001). A teplase 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 3.5 hours to 4.5 hours increased from 24.9% to 55.1% (OR= 5.0, p <0.0001). Median DTN times 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, decreased to 3.8% (p=0.00016). In 2009, 28.4% of tPA patients were discharged home and by 2018, that had increased to 47.9% (p <0.00001). In 2009, 28.4% of tPA patients were discharged home and by 2018, that had increased to 47.9% (p <0.00001).
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.

Category (Complete): Emergency Care/Systems
Keyword (Complete): Stroke Quality and Outcomes ; Stroke Emergency Cerebrovascular care , Quality improvement ; Tissue plasminogen activator (tPA)
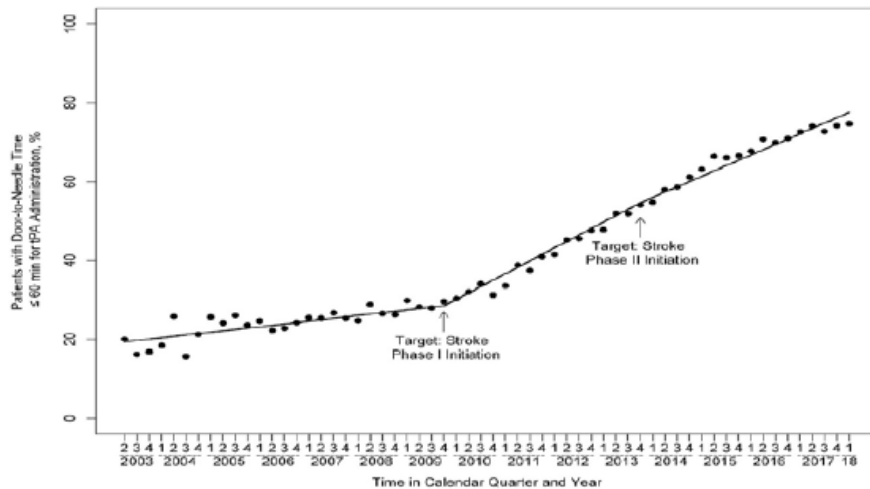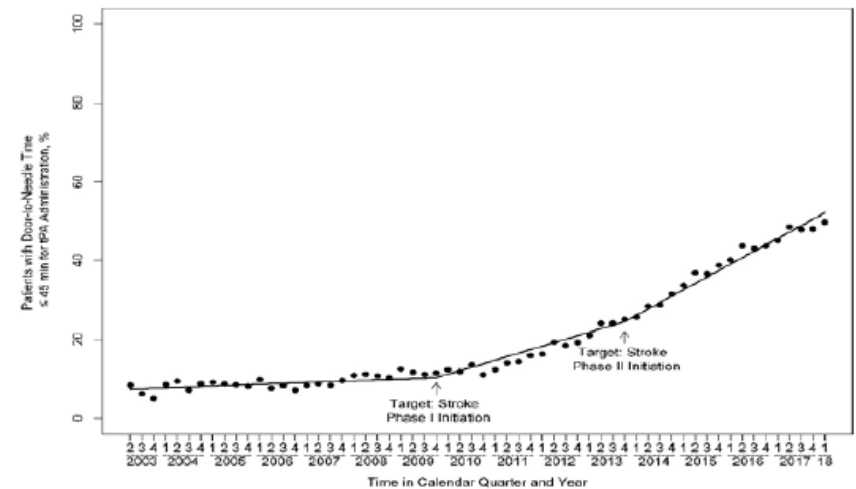
National GWTG-S Data

Time Trend in DTN Times within 60 and 45 Minutes Pre-Target: Stroke, Target Stroke Phase I, and Target: Stroke Phase II
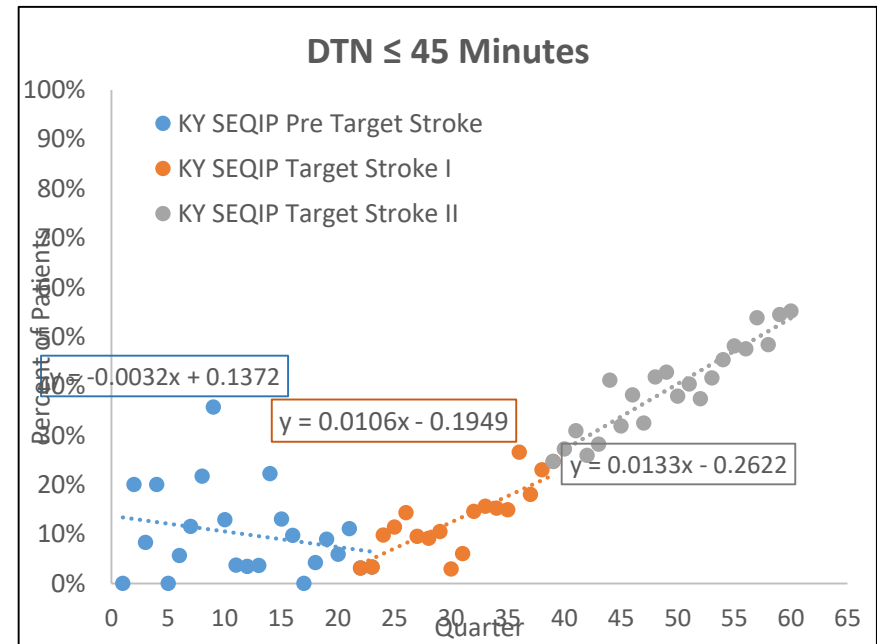
Time Trend in DTN Times within 60 and 45 Minutes Pre-TS, TS Phase I and TS Phase II
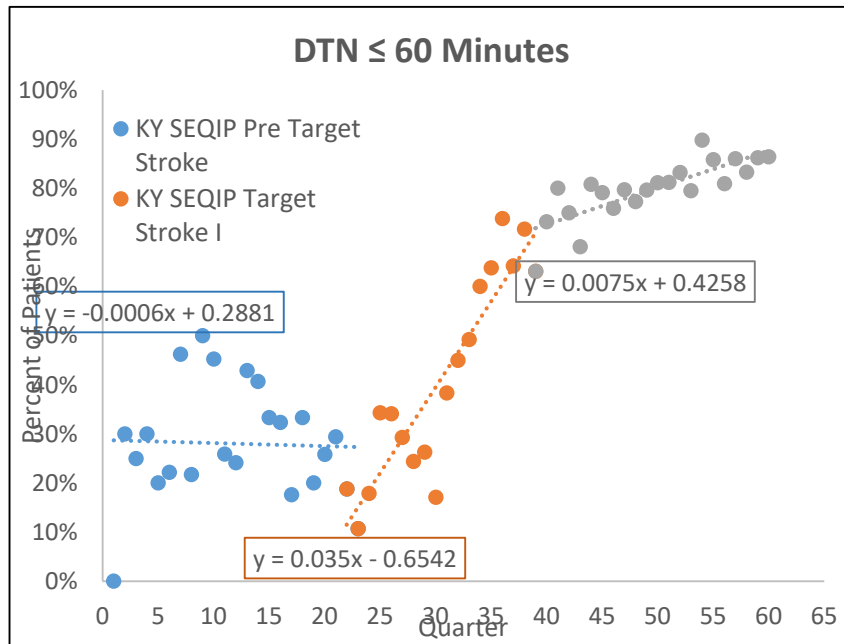
SEQIP Target Stroke Results: Alteplase Use

- 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)

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 $p<0.0001$

Outcomes Pre Target Stroke vs Phase I and Phase II

	Pre-Target Stroke 2004-2009 n=14944	Target Stroke Phase I 2010-2013 n=23489	Target Stroke Phase II 2014-2018 n=41085	OR (95% CI) Pre TS vs Phase I	p-value	OR (95% CI) Pre TS vs Phase II	p-value	OR (95% CI) Phase I vs Phase II	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, 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

SEQIP · STROKE ENCOUNTER QUALITY IMPROVEMENT PROJECT

EMS Pilot

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 Pilot Potential Data Points

- Prenotification (onset < 6 hours, wake up strokes, LVO by stroke severity scale, Hemodynamically unstable)
- Dispatch unit on scene arrival
- First Medical Contact on Scene
- On Scene Departure
- Last Known Well Documented by EMS
- Stroke Screening tool used
- Stroke Severity Scale used
- Door to ED physician evaluation
- Door to stroke team evaluation
- Door to CT
- Door to Drug – goal < 45 or 60 minutes
- Door to Groin Puncture
- Door to recanalization
- NIHSS and mRS at Discharge
- Discharge Disposition

Future/Current - EMS/Alteplase utilization and systems of care evaluation

• Partner with Genentech and AHA/ASA on evaluating impact of local Overreact Campaign

- Louisville 1 of 4 US cities with the campaign
- Data pre and post ad campaign
    - Arrival mode to hospital
    - Alteplase utilization
    - Zip code analysis
    - Outcomes

Number of GWTG-S Ischemic Stroke Recieved tPA by Patient County (n=4,667)

GWTG-S Ischemic Stroke Recieved tPA
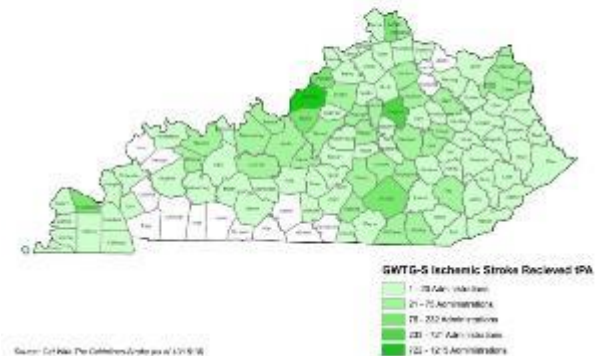
- GIS Mapping GWTG-S data to evaluate, develop, and implement targeted stroke messaging to the community, referral facilities, and EMS
    - Abstract presented AHA QCOR April 2019

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
1. Identify STK-OP-1 Population 2. Identify STK-OP-1 Data Elements 3. Identify STK-OP-1 Data Registry	1. 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) **2. REPORT _MEDIAN_ 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 eligible** -- **No IV-tPA prior to transfer but LVO and not MER eligible** -- **No IV-tPA prior to transfer and no LVO**	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/releases/TJC2018B1/	1 & 2. Completed 11/8/18 (links sent to committee members)
	3. Beginning with Jan 1, 2019 discharges (or sooner if possible) SEQIP PSCs need to have a way to enter	3. AHA's GWTG-STK is planning an "overlay" to the	**3. Open**

DiDo Feedback
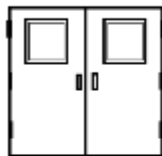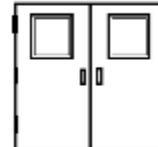
Stroke Core Measures
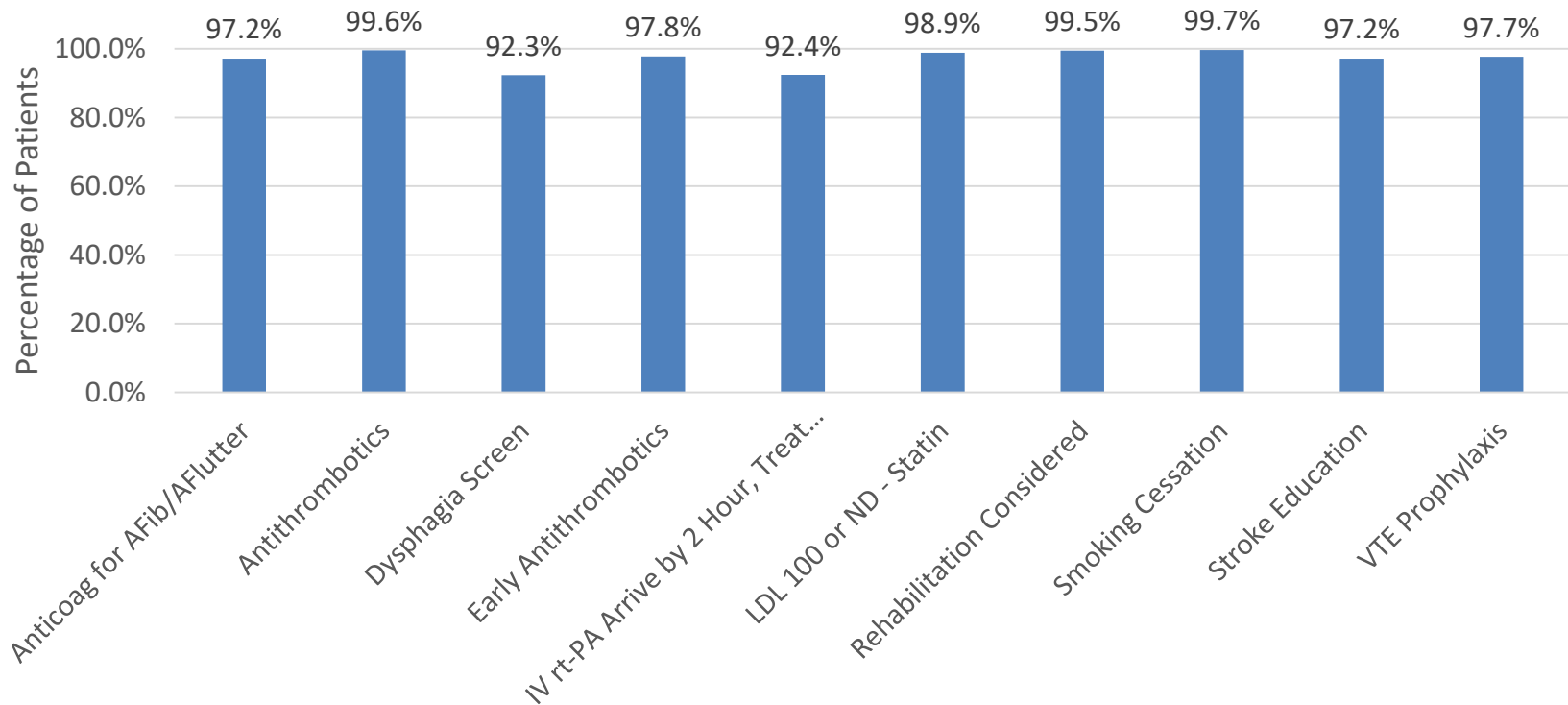
IV rt-PA Arrive by 2 Hour Treat by 3 Hour

Legend: ■ Kentucky SEQIP ■ All Hospitals

Year	Kentucky SEQIP	All Hospitals
2009	59.6%	74.2%
2010	52.7%	76.9%
2011	50.4%	79.1%
2012	77.6%	82.6%
2013	83.7%	86.6%
2014	83.7%	88.6%
2015	89.9%	89.4%
2016	80.1%	88.3%
2017	92.7%	90.3%
2018	88.5%	91.0%
2019	81.7%	86.7%
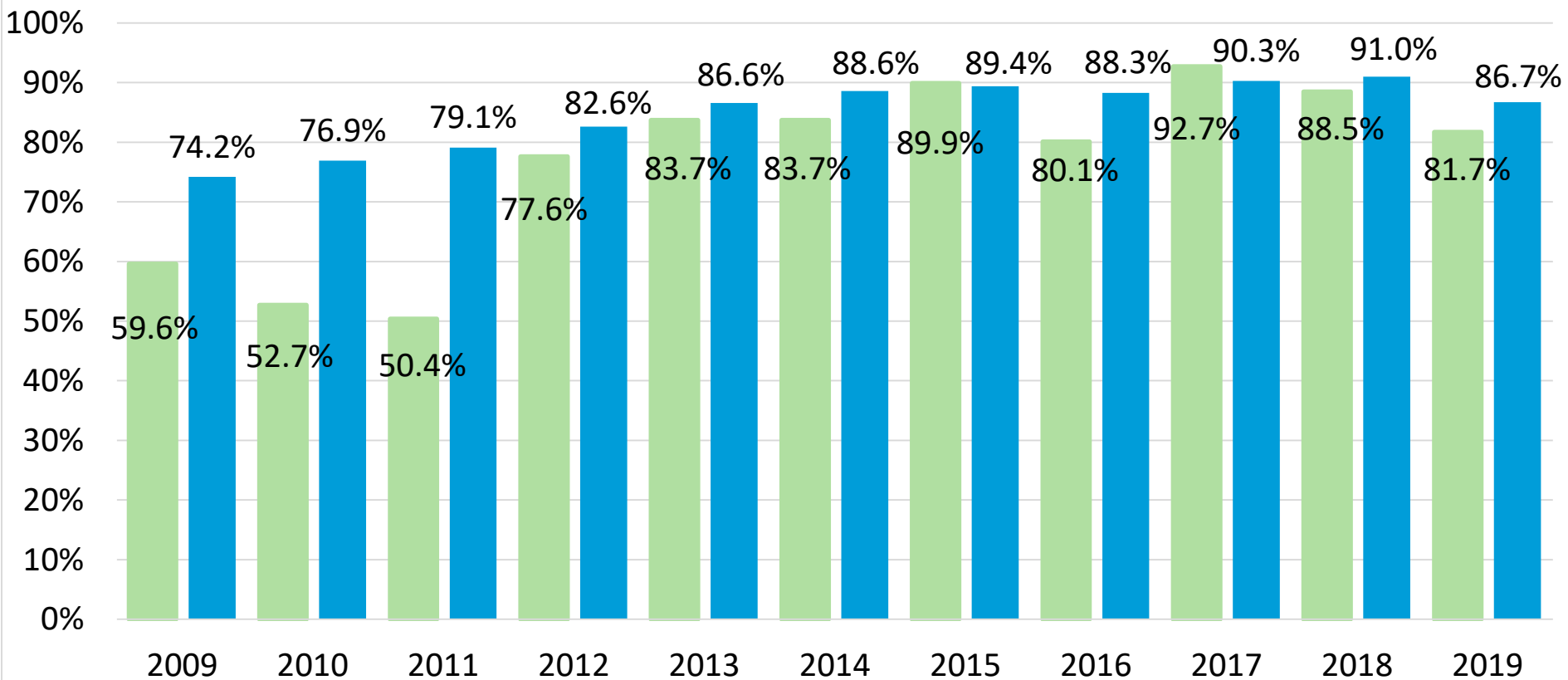
IV rt-PA Arrive by 3.5 Hour Treat by 4.5 Hour

IV tPA Arrive by Hour 3.5 Treat by Hour 4.5
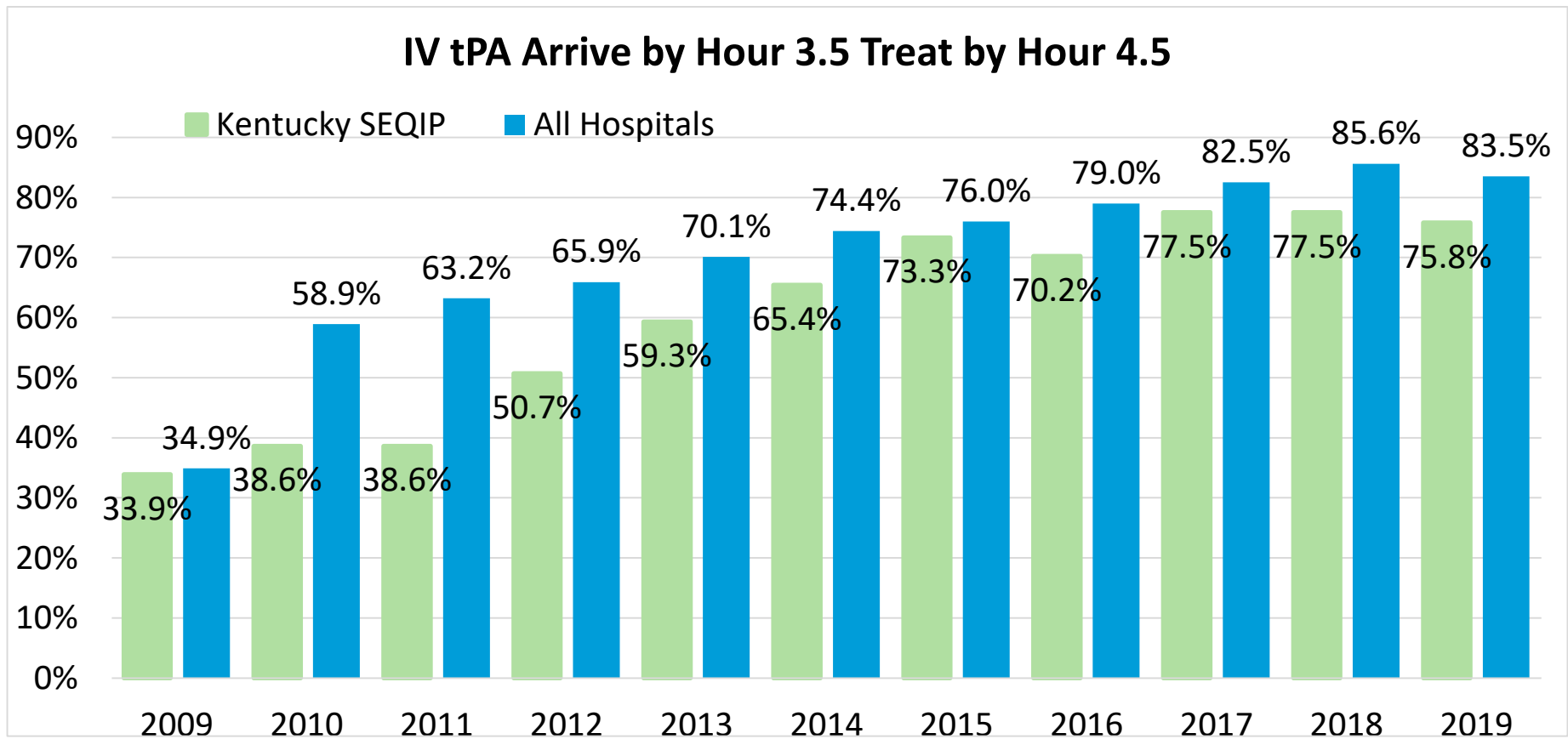
IV rt-PA Complication Rate

Discharge Disposition

- **60-70% of pts d/c to home or ARF**
- **< 10% mortality**
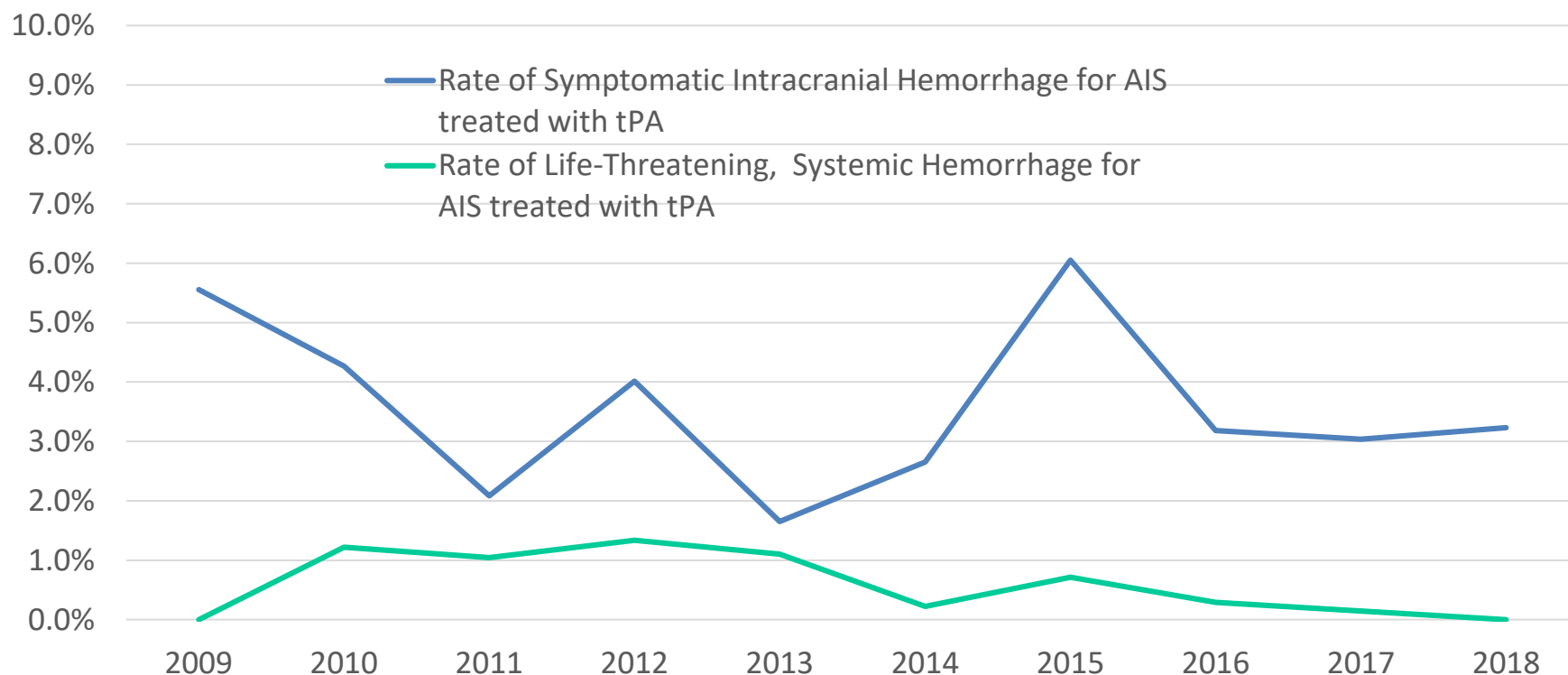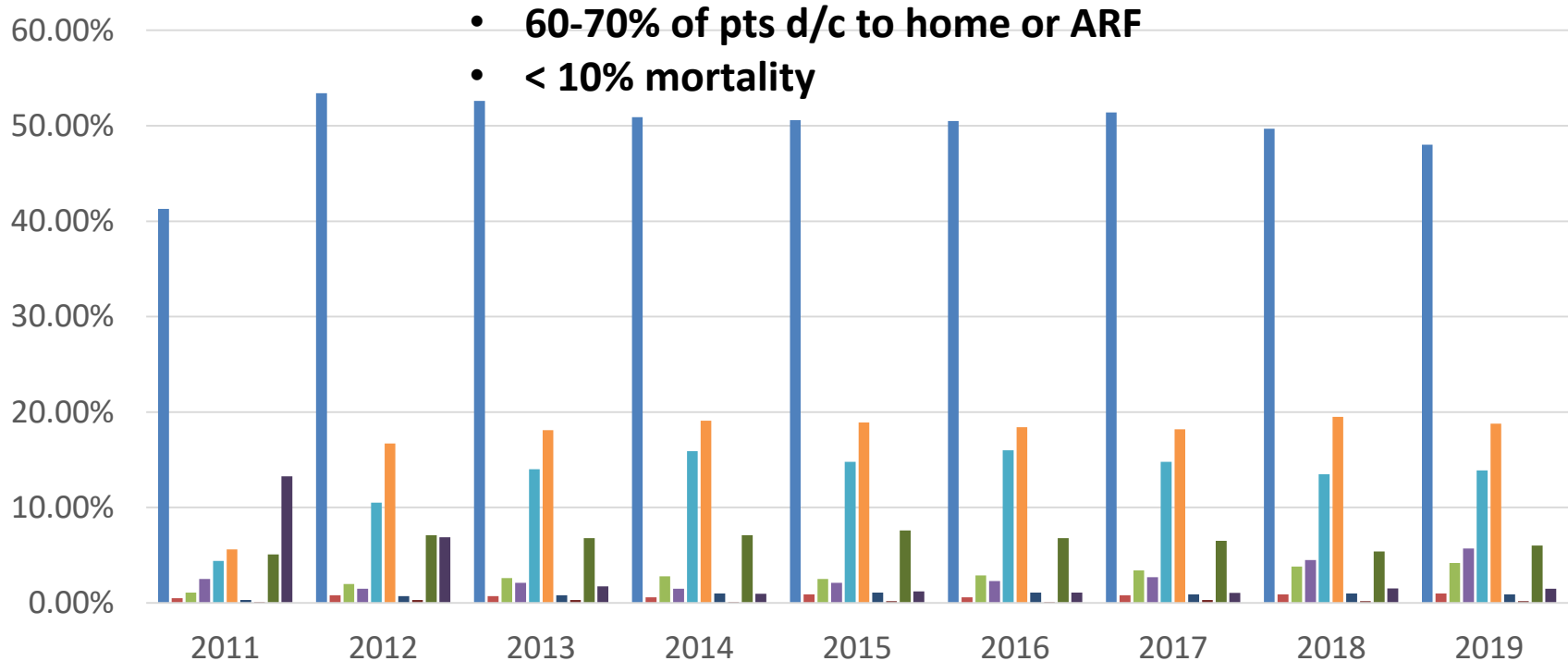
Legend:
- Home
- Hospice - Home
- Hospice - Health Care Facility
- Acute Care Facility
- Skilled Nursing Facility (SNF)
- Inpatient Rehabilitation Facility (IRF)
- Long Term Care Hospital (LTCH)
- Intermediate Care facility (ICF)
- Expired
- Other

KHA Partnership: Annual Webinars

Webinars opened to AHA/ASA Five State Territory of the GRA 2018

SEQIP & Kentucky Hospital Association Collaboration Project

Kentucky Hospital Association

Home About Us Contact Us

Advocacy | Patient Safety & Quality | Center for Health Care Professions | Data & Information | KHA Solutions Group | Members

Kentucky's hospitals welcome more than 54,000 babies into the world each year.

Find a Hospital

Online Resources

- Quality & Pricing Information
- Emergency Preparedness
- Health Care Links
- Allied Societies
- Education and Publications
- Kentucky Trauma Care System
- E-Health
- Recall Alerts
- Small and Rural Hospitals
- KHA Sponsorship Opportunities

Stroke Resources

For the last four years, the Kentucky Department of Health – Cardiovascular Division, has partnered with all of the Joint Commission-Certified Stroke Centers in the state and the American Heart Association to develop the KY Stroke Encounter Quality Improvement Project-Stroke Registry – otherwise known as "SEQIP."

This year, the Kentucky Hospital Association provided a grant for SEQIP to develop a portfolio of stroke care resources for use by all the critical access hospitals in Kentucky. You will find these resources on the following links. Feel free to customize these resources for your

---

Ischemic Stroke Order Sets Tools

- Acute Ischemic Stroke t-PA Orders
- Ischemic Stroke Guidelines from the American Stroke Association
- NIH Stroke Scale
- Nursing Guidelines from the American Stroke Association
- Stroke Transfer Sheet
- Supplies Needed for Administering Alteplase (t-PA) for Stroke Patients
- Suspected Stroke Algorithm
- Swallow Assessment
- Validation of a Dysphagia Screening Tool in Acute Stroke Patients

Stroke Education for MDs

Stroke Education for Nurses

Target Stroke Videos

Author Acknowledgements

SEQIP Contacts

Stroke Continuum of Care

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

SEQIP Presents:
Navigating the Stroke Continuum of Care
Webinar Series

SAVE THE DATE(S)

Stroke Transitions of Care: Assessments

Wednesday 10/17/2018
11-12 CT/12-1 ET

Speaker: Bill Singletary, RN, BA, MAOM, BSN
Upon completion of this activity, participants will be able to:
1. Define Transitions of Care (ToC)
2. Identify regulatory standards related to ToC
3. Describe elements of effective ToC
4. Apply knowledge-based assessments to optimize ToC

Preparing the Stroke Patient for Acute Care Discharge

Wednesday 11/07/2018
11-12 CT/12-1 ET

Speaker: Lisa M. Bellamy, RN, BHS, CPHQ, Stroke Care Network
Upon completion of this activity, participants will be able to:
1. Describe key components to assess and address prior to discharge.
2. Apply a comprehensive approach to optimize community reintegration of the stroke patient after discharge.

Best Practices for Patient/Caregiver Education in Stroke

Wednesday 12/05/2018
11-12 CT/12-1 ET

Speaker: Margie Campbell RN, BSN, Stroke Program Coordinator, UKHC
Upon completion of this activity, participants will be able to:
1. Describe key components of effective patient/caregiver education
2. Participant will be able to describe different types of modes of patient education

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

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

Stroke
Follow-up Appointment Information

UofL Hospital
Comprehensive Stroke Center

UofLHospital.org | 502-562-8009

Items to bring:
- List of medications/supplements
- Insurance cards
- Driver's license
- Pharmacy information
- Primary care doctor information
- Specialist doctor information
- Hospital discharge instructions (if needed)
- Recent test results from home or previous appointments
- List of allergies

What to tell your providers:
- How have I been feeling?
- Any new medical issues or symptoms?
- Any issues with pain?
- How have I been sleeping?
- What has improved since last visit/ hospitalization?

Questions to ask your providers:
- What is a stroke?
- What caused my stroke?
- What type of stroke did I have?
- What are my risk factors?
- What are the signs/symptoms of stroke?
- What are my medications for?
- What are the side effects from my medications?
- Do I have any physical limitations such as driving or working out?
- What kind of exercise could I be doing?
- What are my lab results? (Bring BP/blood glucose results)
- What is the best diet for my stroke?
- Can you share my studies with me and the results?
- Can I get a copy of my test results?
- What should I expect from my recovery?
- What can I do to prevent another stroke?

AD-3071

DECLINES HAVE

Continued

Slowed

Reversed

CONTINUED = death rates continued to decrease steady from 2000-2015 in adults 35 years and older

SLOWED = the decrease in death rates slowed down over time

REVERSED = the death rates reversed from decreasing to increasing

Centers for Disease Control and Prevention; 2018 Vital Signs

Stroke Mortality 2007-2009

Rate per 100,000

- ☐ Insufficient Data (0)
- ☐ 61.4 - 84.2 (24)
- ☐ 84.3 - 91.0 (26)
- ☐ 91.1 - 97.5 (22)
- ☐ 97.6 - 111.1 (24)
- ☐ 111.2 - 143.3 (24)
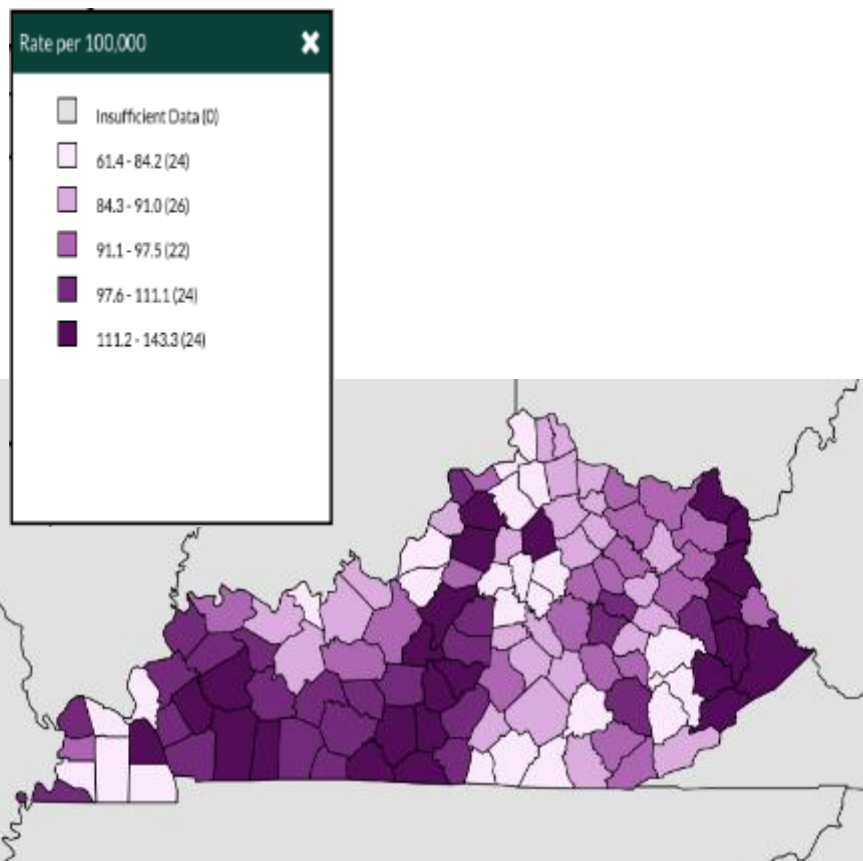
Stroke Mortality 2014-2016

Rate per 100,000

- ☐ Insufficient Data (0)
- ☐ 63.4 - 75.0 (24)
- ☐ 75.1 - 81.7 (24)
- ☐ 81.8 - 87.1 (24)
- ☐ 87.2 - 96.5 (24)
- ☐ 96.6 - 130.7 (24)
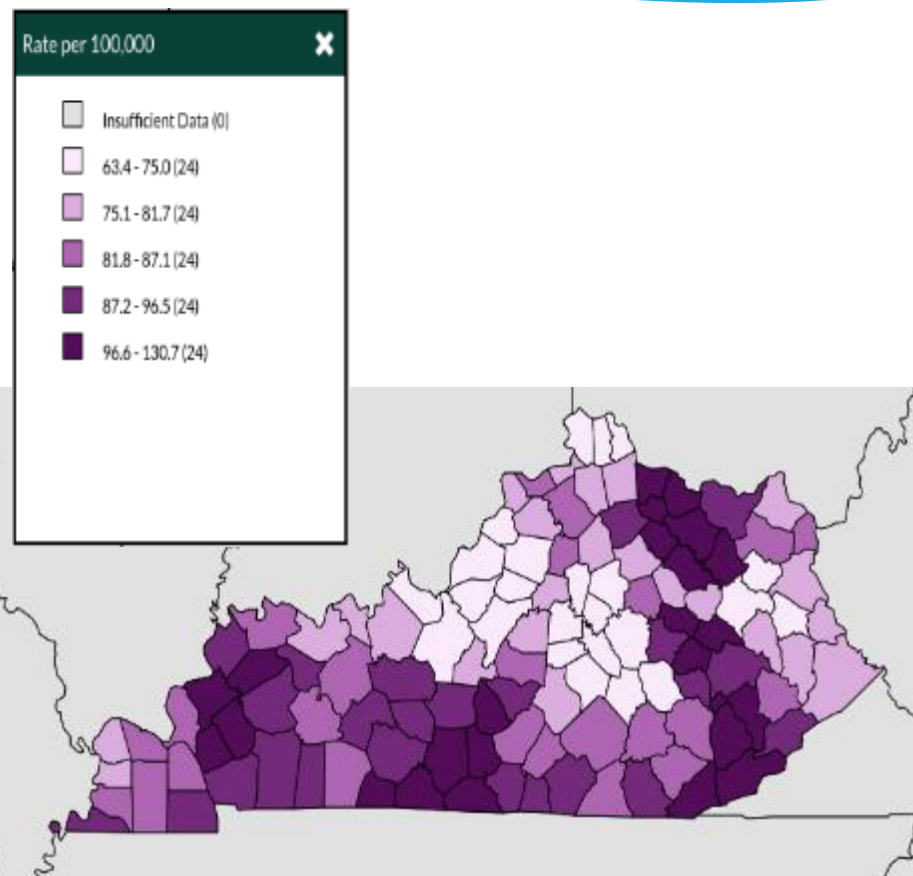
Sneak Peek – ISC Poster Abstract

American Stroke Association.
International Stroke Conference

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

Author Block: Kari Moore, Univ of Louisville, Louisville, KY; Lynn Hundley, Norton Healthcare, Lo[...] Hunt, King's Daughter's Medical Ctr, Ashland, KY; Bill Singletary, The Medical Ctr, Bowling Green, [...] Allison Merritt, Kentucky Dept for Public Health, Frankfort, KY; Amy Graham, Starr Block, America[...] 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	OR (CI)	p-value
IV tPA arrive by 2 hours, treat by 3 hours	59.60%	88.50%	5.219 (3.555, 7.702)	<0.0000001
IV tPA Arrived by 3.5 hours Treat by 4.5 hours	27.90%	66.00%	5.008 (3.964, 6.347)	<0.0000001
Dysphagia Screening	72.30%	93.00%	5.073 (4.522, 5.691)	<0.0000001
Stroke Education	65.00%	96.90%	16.79 (13.97, 20.29)	<0.0000001
Anticoagulation for Afib/Aflutter	92.00%	98.30%	5.006 (2.950, 8.723)	<0.0000001
LDL Documented	82.10%	95.10%	4.26 (3.701, 4.911)	<0.0000001
Rehabilitation Considered	93.50%	99.10%	7.569 (5.749, 10.06)	<0.0000001
Early Antithrombotic	94.80%	97.50%	2.153 (1.713, 2.707)	<0.0000001
Antithrombotic at Discharge	98.50%	99.60%	3.565 (2.290, 5.631)	<0.0000001
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)	<0.0000001
Discharge Home Disposition	44.68%	49.80%	1.228 (1.148, 1.314)	<0.0000001

SEQIP
STROKE ENCOUNTER QUALITY IMPROVEMENT PROJECT

Kentucky SEQIP Accomplishments

2008 - 2014

2008

2008: Creation of SEQIP (Stroke Encounter Quality Improvement Project) a collaboration between the American Heart /Stroke Association and the Kentucky Heart Disease and Stroke Program (KDHDSP). A voluntary group of hospitals dedicated to improving stroke care in KY including working toward designation of primary stroke centers.

2009

2009: Inaugural SEQIP Meeting and launch of first state-based Quality Improvement Plan #1, Dysphagia Screen. SEQIP achieved a 28.9% increase in proportion of eligible patients (n=27616) receiving screening (from 62.87% to 91.81%).

2010

2010: Passage of Senate Bill 1: Defining Primary Stroke Center Certification

State based QI Plan #2: Between 2009 and 2014, SEQIP achieved a 25.2% ↑ in patients eligible to receive rt-PA from 60.4% to 85.7%. Also increased the proportion of eligible patients receiving rt-PA (D2N <60 minutes) from 22.3% to 75.5%, an ↑of 53.2%. And a ↓ in median door to needle time of 24 minutes (from 75 to 51 minutes).

2011

2011: State based Quality Improvement Plan #3, Target: Stroke. Improving Door to Needle times for IV-tPA administration in eligible patients. Decreased D2N time in minutes to tPA administration from 75 to 51 minutes over three years.

2011

2011: Systems of Care Delivery: Rural and Critical Care Access hospitals. Develop Stroke Education and resources for Physicians and Nurses these hospitals., a partnership with KY Hospital Association.

2012

2012: Passage of House Bill 467: Continuous quality improvement in the care provided under a statewide system for stroke response and treatment., including stroke registry for certified primary stroke centers.

2013

2013: Systems of Care Delivery: EMS. SEQIP members join KBEMS Cardiac and Stroke Sub-committee. Begin discussion of updating EMS Transport Protocols.
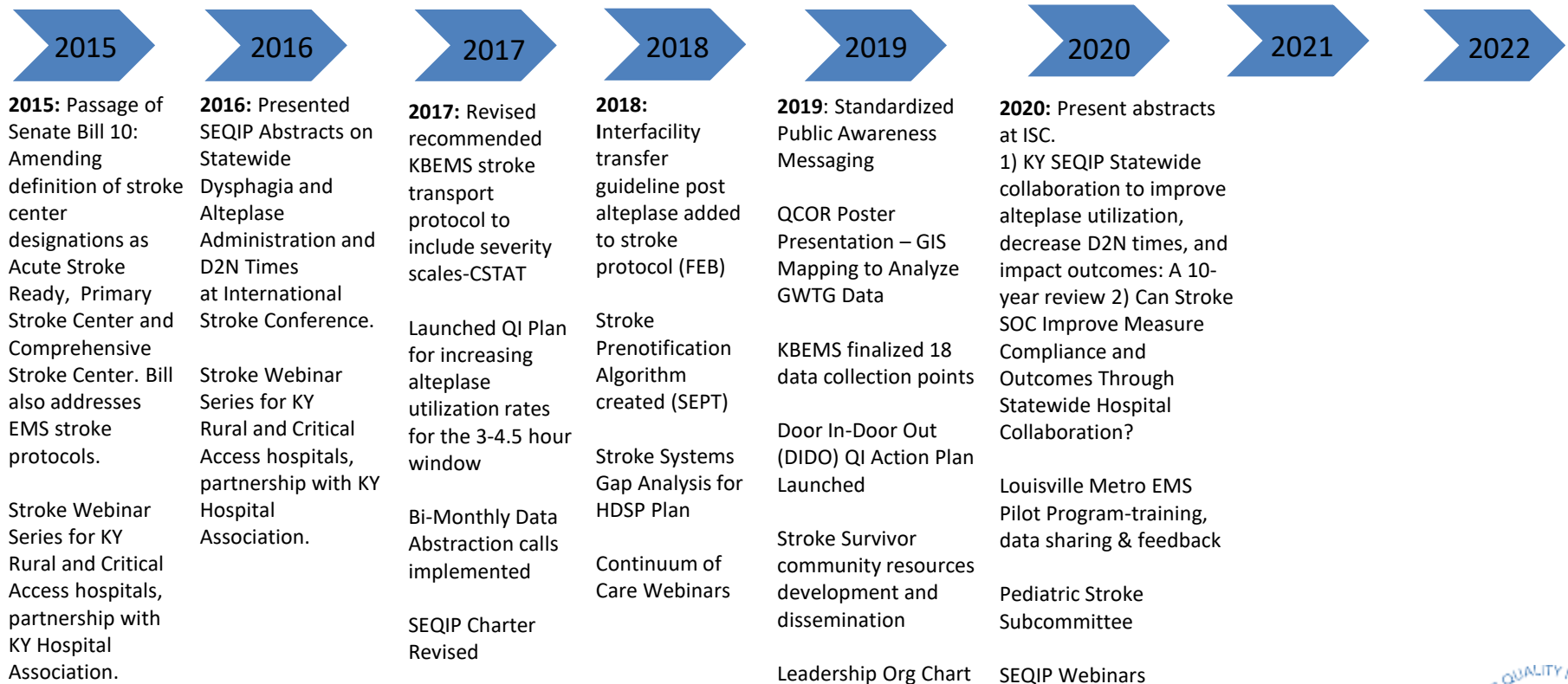
2014

2014: Systems of Care Delivery: EMS. Introduce to KBEMS Hospital Inter-facility Transport Protocol. Begin discussion of EMS and Dispatch Education Plan including Survey for Dispatchers.

Prepared by Starr Block, MS, BSN, RN

Kentucky SEQIP Accomplishments

2015 - 2020

2015 | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022**

2015: Passage of Senate Bill 10: Amending definition of stroke center designations as Acute Stroke Ready, Primary Stroke Center and Comprehensive Stroke Center. Bill also addresses EMS stroke protocols.

Stroke Webinar Series for KY Rural and Critical Access hospitals, partnership with KY Hospital Association.

2016: Presented SEQIP Abstracts on Statewide Dysphagia and Alteplase Administration and D2N Times at International Stroke Conference.

Stroke Webinar Series for KY Rural and Critical Access hospitals, partnership with KY Hospital Association.

2017: Revised recommended KBEMS stroke transport protocol to include severity scales-CSTAT

Launched QI Plan for increasing alteplase utilization rates for the 3-4.5 hour window

Bi-Monthly Data Abstraction calls implemented

SEQIP Charter Revised

2018: Interfacility transfer guideline post alteplase added to stroke protocol (FEB)

Stroke Prenotification Algorithm created (SEPT)

Stroke Systems Gap Analysis for HDSP Plan

Continuum of Care Webinars

2019: Standardized Public Awareness Messaging

QCOR Poster Presentation – GIS Mapping to Analyze GWTG Data

KBEMS finalized 18 data collection points

Door In-Door Out (DIDO) QI Action Plan Launched

Stroke Survivor community resources development and dissemination

Leadership Org Chart

2020: Present abstracts at ISC.
1) KY SEQIP Statewide collaboration to improve alteplase utilization, decrease D2N times, and impact outcomes: A 10-year review 2) Can Stroke SOC Improve Measure Compliance and Outcomes Through Statewide Hospital Collaboration?

Louisville Metro EMS Pilot Program-training, data sharing & feedback

Pediatric Stroke Subcommittee

SEQIP Webinars

STROKE ENCOUNTER QUALITY IMPROVEMENT PROJECT • SEQIP •

Summary

- SEQIP created to improve cerebrovascular Stroke Systems of care

- Increased membership from 16 to 35 hospitals

- Certified stroke centers increased from 6 to 32

- 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

- Next steps - take a deeper dive into outcomes and publish findings

SEQIP FALL MEETING
OCTOBER 2013

SEQIP FALL MEETING
OCTOBER 2014

SEQIP FALL MEETING
OCTOBER 2016

SEQIP FALL MEETIG
OCTOBER 2018