Enhancing Your Skills in Stroke Quality Improvement & Data Analysis

Lynn Mallas-Serdynski RN, BSN
Director of Quality & Systems Improvement
American Heart Association & American Stroke Association
My Background

• Registered Nurse
• Quality Improvement Coordinator
• Stroke Program Coordinator
• Patient Education Coordinator
• QSI Director
What is Quality Improvement?

• “Quality improvement (QI) consists of systematic and continuous actions that lead to measurable improvement in health care services and the health status of targeted patient groups” (Health Resources & Services Administration, U.S. Dept Health & Human Services)

• Institute of Medicine defines quality in health care as “a direct correlation between the level of improved health services and the desired health outcomes of individuals and populations”
Stroke Care

• How do we get a sense of the quality of care?

• What’s the best way to care for stroke patients?

• Are there guidelines for care of stroke patients?
GUIDELINES are the basis for protocols for treating the Acute Stroke Patient. For example, BAC - [www.stroke-site.org/guidelines/guidelines.html](http://www.stroke-site.org/guidelines/guidelines.html)

- **Drive the quality care of stroke patients**

- **GWTG-Stroke** helps facilities ensure continuous improvement of stroke treatment by aligning clinical care with evidence-based guidelines

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What defines a successful QI program?

- QI work as **systems and processes**
- Focus on **patients**
- Focus on being part of the **team**
- Focus on use of the **data**
QI Work as Systems and Processes

- Embed the measures in your documentation tools (e.g. teaching handouts)
- Incorporate into Order sets (e.g. EMR use of hard stops and drop down options)
- Measure checklists or concurrent chart review for validation prior to discharge
- Develop/modify policies/protocols/algorithms
- Standardize caregiver education of QI performance measures
Focus On Patients

- Ease of patient navigation through the system (patient should not experience any negative effects due to process change)
- Performance Improvement Processes should promote patient satisfaction
- Evidence based care per clinical practice guidelines
- Patients as Partners in Safety
- Meet Patient and Family Individual Needs (health literacy/patient education, cultural awareness, economic status, customize care according to CPGs but modify plan of care when not appropriate)
- **Optimize Patient Outcome**
Focus on Being Part of a Team

- Each person brings a unique perspective and multiple ideas - Creativity & Practicality are key!
- No one person knows it all
- Process Involves more than one discipline/work area
- Reporting Structure/Forum of Communication
- Workload distribution
Data

• Quality measures or metrics apply to processes and aspects of care that are strongly supported by science.

   Each metric needs to be analyzed and evaluated:

   - Where does the information come from?
   - What is done with it?
   - Who is responsible for what?
   - How is it coordinated?

• Before you can Focus on the Use of the Data, you have to KNOW the MEASURES
Know the Measures

TJC/CMS Core Measures

www.qualitynet.org

STK 1-10 Measures

GWTG Measures

www.heart.org/quality

GWTG-S Coding Instructions

Measure Descriptions & Rationale

Standards/Performance Measures for Certification

www.jointcommission.org

Acute Stroke Ready

Primary Stroke Center

Comprehensive Stroke Center
CMS Reporting of Core Measures

• Effective January 1, 2013 hospitals are required to report 8 stroke quality measures to CMS through their Inpatient Quality Reporting (IQR) process to avoid a 2.0% penalty in the update for Medicare reimbursement payments in the ensuing fiscal year.

• If you are a Get With The Guidelines-Stroke™ participating hospital, you may choose to use Quintiles (CMS approved vendor) to submit the stroke core measures.
### STROKE NATIONAL HOSPITAL INPATIENT QUALITY MEASURES

<table>
<thead>
<tr>
<th>Set Measure ID #</th>
<th>Measure Short Name</th>
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<tbody>
<tr>
<td>STK-1</td>
<td>Venous Thromboembolism (VTE) Prophylaxis</td>
</tr>
<tr>
<td>STK-2</td>
<td>Discharged on Antithrombotic Therapy</td>
</tr>
<tr>
<td>STK-3</td>
<td>Anticoagulation Therapy for Atrial Fibrillation/Flutter</td>
</tr>
<tr>
<td>STK-4</td>
<td>Thrombolytic Therapy</td>
</tr>
<tr>
<td>STK-5</td>
<td>Antithrombotic Therapy By End of Hospital Day 2</td>
</tr>
<tr>
<td>STK-6</td>
<td>Discharged on Statin Medication</td>
</tr>
<tr>
<td>STK-8</td>
<td>Stroke Education</td>
</tr>
<tr>
<td>STK-10</td>
<td>Assessed for Rehabilitation</td>
</tr>
</tbody>
</table>
GWTG Measures-Achievement

- IV rt-PA arrive by 2 hour, treat by 3 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.

- Early antithrombotics: Percent of patients with ischemic stroke or TIA who receive antithrombotic therapy by the end of hospital day two.

- VTE prophylaxis: Percent of patients with ischemic stroke, hemorrhagic stroke, or stroke not otherwise specified who receive VTE prophylaxis the day of or the day after hospital admission.

- Antithrombotics: Percent of patients with an ischemic stroke or TIA prescribed antithrombotic therapy at discharge.
GWTG Measures-Achievement

- **Anticoag for AFib/Aflutter**: Percent of patients with an ischemic stroke or TIA with atrial fibrillation/flutter discharged on anticoagulation therapy.

- **Smoking cessation**: Percent of patients with ischemic or hemorrhagic stroke, or TIA with a history of smoking cigarettes, who are, or whose caregivers are, given smoking cessation advice or counseling during hospital stay.

- **LDL 100 or ND - Statin**: Percent of ischemic stroke or TIA patients with LDL ≥ 100, or LDL not measured, or on cholesterol-reducer prior to admission who are discharged on statin medication.
GWTG Measures-Quality

- Dysphagia Screening
- Stroke Education
- Rehabilitation Considered
- Time to Intravenous Thrombolytic Therapy
- LDL Documented
- Intensive Statin Therapy
- IV rt-PA 3.5 Hour, Treat by 4.5 Hour
- NIHSS reported
• **Target: Stroke Honor Roll**: Time to thrombolytic therapy within 60 minutes in 50 percent or more of acute ischemic stroke patients treated with IV tPA (current criteria and same volume thresholds).

• **Target: Stroke Honor Roll-Elite**: Time to thrombolytic therapy within 60 minutes in 75 percent or more of acute ischemic stroke patients treated with IV tPA (current criteria and same volume thresholds).

• **Target: Stroke Honor Roll-Elite Plus**: Time to thrombolytic therapy within 60 minutes in 75 percent or more of acute ischemic stroke patients treated with IV tPA AND door-to-needle time within 45 minutes in 50 percent of acute ischemic stroke patients treated with IV tPA (current criteria and same volume thresholds).
Certified ASRH programs will be required to comply with Stage I requirements for performance measurement until standardized measures are developed.

Stage I will include submission of 4 performance measures:

- Door to IV thrombolytic time
- Head CT/Lab Times
- Code Stroke Response Times
- Complication rate s/p IV thrombolytic
- Time to telemedicine initiation
<table>
<thead>
<tr>
<th>Set Measure ID #</th>
<th>Measure Short Name</th>
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<tbody>
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<td>Thrombolytic Therapy</td>
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<tr>
<td>STK-6</td>
<td>Discharged on Statin Medication</td>
</tr>
<tr>
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<td>Stroke Education</td>
</tr>
<tr>
<td>STK-10</td>
<td>Assessed for Rehabilitation</td>
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</table>
## Comprehensive Stroke (CSTK)

### Set Measures

<table>
<thead>
<tr>
<th>Set Measure ID</th>
<th>Measure Short Name</th>
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<tbody>
<tr>
<td>CSTK-01</td>
<td>National Institutes of Health Stroke Scale (NIHSS Score Performed for Ischemic Stroke Patients)</td>
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<tr>
<td>CSTK-02</td>
<td>Modified Rankin Score (mRS at 90 Days)</td>
</tr>
<tr>
<td>CSTK-03</td>
<td>Severity Measurement Performed for SAH and ICH Patients (Overall Rate)</td>
</tr>
<tr>
<td>CSTK-04</td>
<td>Procoagulant Reversal Agent Initiation for Intracerebral Hemorrhage (ICH )</td>
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<tr>
<td>CSTK-05</td>
<td>Hemorrhagic Transformation (Overall Rate)</td>
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<tr>
<td>CSTK-06</td>
<td>Nimodipine Treatment Administered</td>
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<tr>
<td>CSTK-07</td>
<td>Median Time to Revascularization</td>
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<tr>
<td>CSTK-08</td>
<td>Thrombolysis in Cerebral Infarction (TICI Post-Treatment Reperfusion Grade)</td>
</tr>
</tbody>
</table>
Focus on **USE of the data**

**Who? What? When? Why?**

- Need a systematic data collection process- only collect what is required/is useful organization
- Use patient specific, care related data
- 100% retrospective, random sampling, or concurrent abstraction
- Stroke Database or Registry (e.g. GWTG®)
- Validation process & reliability studies
- Specific metrics and targets reviewed on a regular basis
- Ability to externally benchmark (GWTG benchmarks)
- Use your GWTG reports (demographics for TJC surveys, understand your tPA volume/contraindications, bar graphs, excel spreadsheets, download feature)
Use of the Data

• Know Your Patient Population (demographics, LOS, risk factors)
• Design your program/interventions around the patients you are seeing
• Opening Conference for Certification
• Patient Education
Know Your Population

![Bar Chart: Race]

- Percent of Patients
- Time Period

<table>
<thead>
<tr>
<th>Race</th>
<th>Percent of Patients</th>
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<td>White</td>
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<tr>
<td>Black or African American</td>
<td>25%</td>
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<td>Asian</td>
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<td>Native Hawaiian or Pacific Islander</td>
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<tr>
<td>UTD</td>
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<td>Hispanic Ethnicity: Yes</td>
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- **My Hospital – 2014**

<table>
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<tr>
<th>Benchmark Group</th>
<th>Time Period</th>
<th>White</th>
<th>Black or African American</th>
<th>Asian</th>
<th>American Indian or Alaska Native</th>
<th>Native Hawaiian or Pacific Islander</th>
<th>UTD</th>
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<td>4 (50%)</td>
<td>1 (12.5%)</td>
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<td>2 (25%)</td>
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<td>1 (12.5%)</td>
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Know Your Population

Medical History

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<thead>
<tr>
<th>Condition</th>
<th>Percent of Patients</th>
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<tr>
<td>None</td>
<td>30%</td>
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<tr>
<td>Arrhythmia/Fibrillation</td>
<td>40%</td>
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<tr>
<td>CAD/Phor MI</td>
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</tr>
<tr>
<td>Cardiovascular Disease</td>
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<tr>
<td>Pregnancy (up to 6 weeks)</td>
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<tr>
<td>Diabetes</td>
<td>3%</td>
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<tr>
<td>Renal Failure</td>
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</tr>
<tr>
<td>Stroke</td>
<td>1%</td>
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<tr>
<td>Hypertension</td>
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</tr>
<tr>
<td>Migraine</td>
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<tr>
<td>Obesity/Overweight</td>
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<td>Previous TIA</td>
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<tr>
<td>Prosthetic Heart Valve</td>
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</tr>
<tr>
<td>Heart Valve</td>
<td>0%</td>
</tr>
<tr>
<td>Renal Failure</td>
<td>0%</td>
</tr>
<tr>
<td>Diabetes, Renal Failure</td>
<td>0%</td>
</tr>
<tr>
<td>Stroke, Hypertension</td>
<td>0%</td>
</tr>
<tr>
<td>Migraine, Obesity/Overweight</td>
<td>0%</td>
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<tr>
<td>Previous TIA, Prosthetic Heart</td>
<td>0%</td>
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<tr>
<td>Heart Valve, Renal Failure</td>
<td>0%</td>
</tr>
<tr>
<td>Diabetes, Renal Failure, Stroke</td>
<td>0%</td>
</tr>
<tr>
<td>Hypertension, Migraine, Obesity</td>
<td>0%</td>
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</tbody>
</table>

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Know Your Population - LOS

The bar chart shows the average LOS (days) for different diagnoses:

- **All Patients**: 4.2 days
- **Ischemic Stroke**: 4.1 days
- **Transient Ischemic Attack (<24 h)**: 4.1 days
- **Subarachnoid Hemorrhage**: 4.2 days
- **Intracerebral Hemorrhage**: 5.0 days
- **Stroke of Uncertain Type**: 4.2 days
- **No Stroke Related Diagnosis**: 4.2 days
- **Elective Carotid Intervention Only**: 4.2 days

The chart indicates that the highest LOS is for **Intracerebral Hemorrhage** at 5.0 days, followed by **All Patients**, **Ischemic Stroke**, and **Subarachnoid Hemorrhage** with 4.2 days each.

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Know Your Population-Arrival Mode

![Bar Chart](image-url)

- **EMS from home/scene**: 80%
- **Private transport/taxi/other home/scene**: 10%
- **Transfer from other hospital**: 5%
- **ND or Unknown**: 5%
- **Blank or Missing Arrivial Information**: 5%

**Time Period**

**Percent of Patients**

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Know Your Population

Last Known Well To Arrival Times

Percent of Patients

0-30 min. 31-60 min. 61-90 min. 91-120 min. 121-150 min. 151-180 min. 181-210 min. 211-240 min. 241-270 min. 271-300 min. 301-330 min. 331-360 min. 361-540 min. >540 min. Time of LKW or Arr.Unk. Day 0-1 Time of LKW or Arr.Unk. >1 Day or Unknown

Time Period

My Hospital-2014
Use of the Data

• Track performance
• Identify trends
• Monitor progress (baseline vs current)
• Design PI plans
• Report to key players & front line caregivers
• Communicate results
• Benchmark
Track Performance

**GWGT Target Stroke Set**

**Achievement**
- IV r-tPA Arrive by 2 Hour, Treat by 3 Hour
- Early Antithrombotics
- VTE Prophylaxis
- Antithrombotics
- Anticoag for AFib/AFlutter
- Smoking Cessation
- LDL 100 or ND - Statin

**Quality**
- Dysphagia Screen
- Stroke Education
- Rehabilitation Considered
- Time to Intravenous Thrombolytic Therapy - 60 min
- LDL Documented
- Intensive Statin Therapy
- IV r-tPA Arrive by 3.5 Hour, Treat by 4.5 Hour
- NIHSS Reported

**Reporting**
- % No IV tPA 3 Hour (Contra/Warning)
- % No IV tPA 4.5 Hour (Contra/Warning)
- Antihypertensive
- Antithrombotic Medication(s) at Discharge
- Arrival Mode
- Complication Types
- Diabetes Teaching
- Diabetes Treatment
- Diabetic Medications
- Discharge Disposition
- Door To CT <3 Hour

Add Another Report

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Track Performance

Rate Measures

Percent of Patients

Time Period

- IV rt-PA Arrive by 2 Hour, Treat by 3 Hour: My Hospital
- Early Antithrombotics: My Hospital
- VTE Prophylaxis: My Hospital
- Antithrombotics: My Hospital
- Anticoag for AFib/AFlutter: My Hospital
- LDL 100 or ND – Statin: My Hospital
### Track Performance

This report shows all records: 10 of 10

<table>
<thead>
<tr>
<th>Patient ID</th>
<th>Included in Raters?</th>
<th>In Narrative?</th>
<th>Age</th>
<th>Patient location when stroke symptoms discovered</th>
<th>Final clinical diagnosis related to stroke</th>
<th>IV-PA at an outside hospital?</th>
<th>IV-PA arrived at this hospital?</th>
<th>When was the patient last known to be well?</th>
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<td>56</td>
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Track Performance - Stroke Education

Time Period

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent of Patients</th>
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<tr>
<td>2014</td>
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</tbody>
</table>

My Hospital
Track Your Performance

Time to Intravenous Thrombolytic Therapy Times

- Percent of Patients
- Time Period
  - 0-10 min.
  - 11-20 min.
  - 21-30 min.
  - 31-40 min.
  - 41-50 min.
  - 51-60 min.
  - 61-70 min.
  - 71-80 min.
  - 81-90 min.
  - 91-100 min.
  - 101-110 min.
  - 111-120 min.
  - 121-130 min.
  - 131-140 min.
  - 141-150 min.
  - >150 min.

- My Hospital - 2014
Track Your Performance

Reasons for no IV rt-PA (Contra/Warning)

Percent of Patients

Time Period

©2013, American Heart Association
Benchmark-Baseline Time to tPA 60 min

- Baseline
- 2014

Percent of Patients

- My Hospital
<table>
<thead>
<tr>
<th>Patient ID</th>
<th>Stroke Type</th>
<th>ICD-9</th>
<th>Arrival date/Time</th>
<th>DC Disposition</th>
<th>Arrival Mode</th>
<th>Pre-hospital Notification</th>
<th>LKW</th>
<th>CT Completion Date/Time</th>
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<td>2/1/2014 1:15</td>
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<td>Ischemic Stroke</td>
<td>434.91</td>
<td>3/6/2014 14:00</td>
<td>1 Home</td>
<td>Private transport/taxi/</td>
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Benefits of QI- Why is it important?

- Improved Patient Outcomes-reduce death and disability
- Medicare reimbursement/penalties
- Value Based Purchasing
Benefits of QI- Why is it important?

• Hospital Compare/public reporting

• Building a Team Culture

• Recognitions/Certifications
Conclusion

“When an organization implements an effective QI program, the result can be a balance of quality, efficiency, and profitability in its achievement of organizational goals” (Health Resources & Services Administration, U.S. Dept Health & Human Services)