Iowa Stroke Registry: A System Indicator

James C. Torner, PhD
University of Iowa
College of Public Health

Recommendaions for the Establishment of Stroke Systems of Care
Recommendaions From the American Stroke Association's Task Force on the Development of Stroke Systems

ASA Policy Recommendations

Update footnotes

1. The Iowa Stroke Registry was established in 2007 to monitor and improve the quality of care for stroke patients in Iowa. The registry collects data on stroke patients admitted to hospitals in Iowa and provides feedback to healthcare providers to improve stroke care.

2. The National Stroke Association's guidelines for stroke care recommend the establishment of stroke systems of care to improve the quality of stroke care. These systems of care include early identification of stroke, timely access to healthcare providers, and prompt administration of appropriate treatments.

3. The Task Force on the Development of Stroke Systems of Care includes members from various organizations, including the American Stroke Association, the American Heart Association, and the National Institute of Neurological Disorders and Stroke.

4. The Iowa Stroke Registry has been shown to improve the quality of stroke care in Iowa. Healthcare providers who participate in the registry have improved adherence to stroke care guidelines and have reported improved patient outcomes.

5. The Iowa Stroke Registry is a model for other states to establish similar systems of care to improve the quality of stroke care. The registry provides a framework for other states to develop similar systems of care and improve stroke care.

6. The Iowa Stroke Registry has been funded by the American Heart Association and the National Institute of Neurological Disorders and Stroke.

7. The Iowa Stroke Registry is a valuable resource for stroke researchers and healthcare providers. The registry provides data on stroke care in Iowa and can be used to evaluate the effectiveness of stroke care interventions.

8. The Iowa Stroke Registry has been shown to be cost-effective in improving the quality of stroke care. Healthcare providers have reported that the registry has helped to reduce the cost of stroke care by improving the efficiency of stroke care processes.

9. The Iowa Stroke Registry has been used to conduct research on stroke care in Iowa. The registry has been used to evaluate the effectiveness of stroke care interventions and to identify areas for improvement in stroke care.

10. The Iowa Stroke Registry is a valuable resource for stroke researchers and healthcare providers. The registry provides data on stroke care in Iowa and can be used to evaluate the effectiveness of stroke care interventions.
What is a stroke system approach?

• A stroke system approach involves coordination of stroke care along the entire continuum from primary prevention through rehabilitation.

Stroke Care System

• Should provide both patients and providers with the tools necessary to promote effective stroke prevention, treatment, and rehabilitation
• Should identify and address potential obstacles
• Should be customized to each state, region or locality
Stroke Systems of Care

- Primary prevention
- Public awareness
- Emergency Medical Services
- Acute treatment
- Sub-acute treatment
- Rehabilitation, Recovery, and Secondary Prevention

Acute Stroke System

1. Symptom Recognition
2. Appropriate Dispatch
3. Triage & Transport
4. Acute Diagnosis, Treatment and Transfer
Stroke Systems of Care: A National Movement

Implementing or maintaining statewide or regional system
Developing a statewide or regional system in 2011-2012


The Mission of the Paul Coverdell National Acute Stroke Registry

- Measure, track, and improve the quality of care for acute stroke patients (most using GWTG)
- Decrease the rate of premature death and disability from acute stroke through secondary prevention;
- Increase public awareness of stroke treatment and prevention; and
- Reduce disparities in acute stroke care by providing underserved populations with better access to such care.
- Develop and disseminate best practices in hospital recruitment and training, data collection, and quality improvement based on lessons learned.
- Encourage the development of statewide systems of care for stroke patients through coordination with emergency medical services and collaboration among statewide partners.
- Communicate with major stakeholders in stroke care to ensure ongoing improvement in the quality of that care.
2012-2015 Coverdell States

- Arkansas: In-hospital care and EMS
- California: In-hospital care and EMS
- Georgia: In-hospital care and EMS
- Iowa: In-hospital care and EMS
- Massachusetts: In-hospital care, EMS, and Post-hospital Transition of Care
- Michigan: In-hospital care and Post-hospital Transition of Care
- Minnesota: In-hospital care and EMS
- New York: In-hospital care
- North Carolina: In-hospital care and EMS
- Ohio: In-hospital care and Post-hospital Transition of Care
- Wisconsin: In-hospital care and EMS

Consensus Group for Stroke Performance Measures
Performance Measures & Underlying Process Measures

- Agreed to a single set of uniform performance measures with AHA and TJC (including joint data elements & abstraction guidelines)

- Collect data to evaluate processes that underlie the performance measures

Coverdell Effectiveness

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>2005 (%)</th>
<th>2006 (%)</th>
<th>2007 (%)</th>
<th>2008 (%)</th>
<th>2009 (%)</th>
<th>Improvement from 2005 to 2009 (%)</th>
<th>Average annual improvement (%)</th>
</tr>
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<tbody>
<tr>
<td>Performance measure</td>
<td></td>
<td></td>
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<tr>
<td>Screening for depression*</td>
<td>3,546 (55)</td>
<td>9,329 (57)</td>
<td>8,959 (57)</td>
<td>16,221 (60)</td>
<td>23,392 (73)</td>
<td>33</td>
<td>6.6</td>
</tr>
<tr>
<td>Education on stroke*</td>
<td>4,378 (54)</td>
<td>11,838 (57)</td>
<td>12,552 (63)</td>
<td>12,767 (55)</td>
<td>27,354 (70)</td>
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<tr>
<td>Counseling on smoking cessation*</td>
<td>965 (66)</td>
<td>2,806 (76)</td>
<td>3,215 (80)</td>
<td>5,992 (95)</td>
<td>7,467 (96)</td>
<td>46</td>
<td>9.2</td>
</tr>
<tr>
<td>Lipid testing and/or treatment*</td>
<td>4,473 (64)</td>
<td>12,851 (68)</td>
<td>13,637 (73)</td>
<td>15,814 (75)</td>
<td>12,981 (96)</td>
<td>38</td>
<td>7.6</td>
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<tr>
<td>DVT/PE prophylaxis*</td>
<td>2,249 (87)</td>
<td>9,323 (86)</td>
<td>9,357 (88)</td>
<td>12,631 (93)</td>
<td>15,663 (83)</td>
<td>15</td>
<td>3.1</td>
</tr>
<tr>
<td>Alkaline phosphatase at discharge*</td>
<td>2,107 (80)</td>
<td>15,675 (97)</td>
<td>15,920 (98)</td>
<td>25,018 (97)</td>
<td>32,221 (98)</td>
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<td>0</td>
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<tr>
<td>Sodium at hospital discharge*</td>
<td>4,346 (92)</td>
<td>12,602 (90)</td>
<td>12,602 (90)</td>
<td>22,996 (90)</td>
<td>26,552 (90)</td>
<td>4</td>
<td>0.8</td>
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<tr>
<td>Anticoagulation for atrial fibrillation*</td>
<td>314 (82)</td>
<td>1,460 (94)</td>
<td>1,466 (93)</td>
<td>3,766 (99)</td>
<td>4,180 (95)</td>
<td>7</td>
<td>1.4</td>
</tr>
<tr>
<td>Assessment for rehabilitation*</td>
<td>5,475 (68)</td>
<td>14,190 (98)</td>
<td>13,664 (92)</td>
<td>23,025 (94)</td>
<td>29,457 (97)</td>
<td>30</td>
<td>2.0</td>
</tr>
</tbody>
</table>

| IV-PA² | 165 (37) | 488 (36) | 488 (36) | 482 (25) | 1,166 (53) | 55 | 11.0 |

| Defect-free care | | | | | | |
|-----------------|---|---|---|---|---|---|---|
| Ischemic inpatient* | 1,900 (57) | 5,345 (43) | 5,979 (44) | 17,731 (55) | 18,516 (64) | 85 | 17.0 |
| ICH in discharge* | 2,486 (57) | 7,319 (50) | 8,150 (60) | 12,270 (58) | 19,104 (27) | 41 | 8.0 |
| Hemorrhagic stroke* | 416 (33) | 1,225 (19) | 1,310 (21) | 2,703 (46) | 2,774 (57) | 85 | 17.0 |
| Transient ischemic attack* | 565 (28) | 1,785 (33) | 2,109 (40) | 3,586 (48) | 5,225 (57) | 195 | 21.0 |

Abbreviations: DVT/PE = deep venous thrombosis/pulmonary embolism; IV-PA = intravenous tissue plasminogen activator.
* Based on publicly reporting Carithem-Ambulance test for trend was statistically significant (p<0.05).
² Endorsed by the National Quality Forum.

Iowa Stroke Registry Project
Mission

The Stroke Registry will assess the epidemiology, clinical treatment and outcomes of persons who suffer a stroke. The Registry will gather, evaluate and disseminate information on the magnitude, the etiology, the care and the outcome of stroke in the state of Iowa.
Iowa Stroke Registry Goals

- To implement standard definitions and protocols for inclusion in the stroke registry
- To provide data at the point of care
- To gather data in a systematic manner
- To maintain quality data for retrieval
- To analyze data to meet public health, stroke system quality improvement and research needs
- To disseminate information to the public, state officials, committees and health care providers.

Data Capture by EMS and Hospital Providers

Point of Care Data and Transfer
Iowa Hospital Categorization

- PSC, 14, 12%
- Capable, 88, 73%
- DNR, 5, 4%
- Triage and Transfer, 13, 11%

Primary Stroke Centers
Data Sources For Registry

- Death certificates from stroke*
- EMS data*
- Hospital Discharge data*
- State Stroke Registry
- Stroke transfer data
- Stroke rehab and follow-up

* Existing data
Stroke Registry

- Data dictionary – defines data elements
  - Paul Coverdell Stroke Registry (template)
  - Stroke measures – Joint Commission, GWTG, PCNASR, CMS, AHRQ
- Design
  - Centralized web-entry (cost= computer with web interface)
  - Paper form – scannable (cost=scanner)
  - 3rd party software, e.g. GWTG
  - Downloadable from hospital information management systems
    - (cost depends on system – currently evaluating MIDAS, EPIC)

<table>
<thead>
<tr>
<th>Hospital</th>
<th>City</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary Greeley Medical Center</td>
<td>Ames</td>
<td>Primary Stroke Center</td>
</tr>
<tr>
<td>Trinity Bettendorf</td>
<td>Bettendorf</td>
<td>Primary Stroke Center</td>
</tr>
<tr>
<td>St. Luke’s Hospital</td>
<td>Cedar Rapids</td>
<td>Primary Stroke Center</td>
</tr>
<tr>
<td>Mercy Medical Center-Clinton</td>
<td>Clinton</td>
<td>Stroke Capable</td>
</tr>
<tr>
<td>Alegent Health Mercy Hospital</td>
<td>Council Bluffs</td>
<td>Primary Stroke Center</td>
</tr>
<tr>
<td>Genesis Medical Center</td>
<td>Davenport</td>
<td>Primary Stroke Center</td>
</tr>
<tr>
<td>Genesis Medical Center, DeWitt</td>
<td>De Witt</td>
<td>Stroke Capable</td>
</tr>
<tr>
<td>Mercy Medical Center-Des Moines</td>
<td>Des Moines</td>
<td>Primary Stroke Center</td>
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<tr>
<td>The Finley Hospital</td>
<td>Dubuque</td>
<td>Stroke Capable</td>
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<tr>
<td>Mercy Medical Center-Dubuque</td>
<td>Dubuque</td>
<td>Stroke Capable</td>
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<tr>
<td>Trinity Regional Medical Center</td>
<td>Fort Dodge</td>
<td>Stroke Capable</td>
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<tr>
<td>Grinnell Regional Medical Center</td>
<td>Grinnell</td>
<td>Stroke Capable</td>
</tr>
<tr>
<td>Mercy Iowa City</td>
<td>Iowa City</td>
<td>Primary Stroke Center</td>
</tr>
<tr>
<td>The University of Iowa Hospitals and</td>
<td>Iowa City</td>
<td>Primary Stroke Center</td>
</tr>
<tr>
<td>Clinics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stewart Memorial Community Hospital</td>
<td>Lake City</td>
<td>Stroke Capable</td>
</tr>
<tr>
<td>Floyd Valley Hospital</td>
<td>Le Mars</td>
<td>Stroke Capable</td>
</tr>
<tr>
<td>Jackson County Public Hospital</td>
<td>Maquoketa</td>
<td>Stroke Capable</td>
</tr>
<tr>
<td>Mercy Medical Center-North Iowa</td>
<td>Mason City</td>
<td>Primary Stroke Center</td>
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<tr>
<td>Trinity Muscatine</td>
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</tr>
<tr>
<td>Dallas County Hospital</td>
<td>Perry</td>
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<tr>
<td>Montgomery County Memorial Hospital</td>
<td>Red Oak</td>
<td>Stroke Capable</td>
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<tr>
<td>Mercy Medical Center-Stout City</td>
<td>Sius City</td>
<td>Primary Stroke Center</td>
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<td>Allen Health System</td>
<td>Waterloo</td>
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<tr>
<td>Van Diest Medical Center</td>
<td>Webster City</td>
<td>Stroke Capable</td>
</tr>
<tr>
<td>Madison County Health Care System</td>
<td>Winterset</td>
<td>Stroke Capable</td>
</tr>
</tbody>
</table>
Benefits

- Development of a Stroke System
- Encouragement to hospitals to network with one another
- Opportunity to contribute to improve stroke care quality statewide
- Great resources and mentoring for hospitals needing specific stroke related information
- Data collection through uniform procedures suitable for each hospital
- Part of an important federally-funded project
- Easy access to automated data reports on your own hospital with comparable state data
- Annual training meetings to exchange best practices and network with colleagues statewide
- Access to webinars and educational information as part of federal and state network
Questions?