OVERVIEW OF THE IOWA STROKE REGISTRY COVERDELL DATA

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National Initiatives

- 1996: FDA approved Tissue Plasminogen Activator (t-PA) a thrombolytic agent (clot-busting drug) used to treat ischemic strokes
- 1997: National Stroke Association (NSA), a Program with national expertise and leadership, published Stroke Center Recommendations.
- 1999: The American Heart Association (AHA) and American Stroke Association (ASA), national voluntary health agencies, launched Operation Stroke.
- 2000: American Academy of Neurology created the Stroke Practice Improvement Network (SPIN)
National Initiatives

- **2000**: The Brain Attack Coalition (BAC) published Primary Stroke Center Recommendations. The BAC is a group of professional, voluntary and governmental entities dedicated to reducing the occurrence, disabilities and death associated with stroke.

- **2001**: Congress appropriated 4.5 million to the Centers for Disease Control and Prevention (CDC) for the development of a national stroke registry and directed the registry to be named the Paul Coverdell Stroke Registry (after a U.S. Senator).

- **2001**: CDC convened a national multidisciplinary panel of experts to review and revise the initial list of stroke measures and develop the registry data elements and design test registry protocol.
National Initiatives

- 2001: AHA/ASA Get With The Guidelines (GWTG) Stroke Pilot was launched. A web-based program created to help hospitals improve the quality of care they provide to stroke patients.
- 2002: The Federal Legislation known as Stroke Treatment and Ongoing Prevention (STOP) Act was filed.
- 2003: Joint Commission on Accreditation of Healthcare Organizations (JCAHO) an independent, not-for-profit organization that evaluates and accredits programs and healthcare organization launched their Primary Stroke Certification.
- 2007: CDC’s Paul Coverdell National Stroke Registry, Joint Commission’s Primary Stroke Center Certification Program and AHA/ASA GWTG harmonized all three programs and reached a consensus for one set of performances measures.
- 2009: CDC funded IDPH for Stroke Registry Design Project
What is a stroke system approach?

- A stroke system approach involves coordination of stroke care along the entire continuum from primary prevention through rehabilitation.
Goals for the System

- The Public
  - Prevention
  - Recognizing and responding to acute stroke

- EMS
  - Recognition of stroke
  - Readiness for care

- Hospitals
  - Transferring
    - Recognition of stroke
    - Readiness for care
    - Initial care
  - Stroke centers
    - Optimal care
    - Prevention

- Rehabilitation
  - Optimizing recovery
  - Prevention
What is a Patient Registry?

A patient registry:
- Is an organized system that uses observational study methods to collect uniform data (clinical and other)
- Evaluates specified outcomes for a population defined by a particular disease, condition, or exposure, and that
- Serves a predetermined scientific, clinical, or policy purpose

Key Characteristics of Registries

- Data are collected in a naturalistic manner
- Registry is designed to fulfill specific purposes, and these purposes are defined in advance of collecting and analyzing the data
- Registry captures data elements with specific and consistent data definitions
- Data are collected in a uniform manner for every patient.
- Data collected derive from and are reflective of the clinical status of the patient (by history, examination, laboratory test, or patient reported)
- At least one element of registry data collection is active, meaning that some data are collected specifically for the purpose of the registry
The Mission of the Paul Coverdell National Acute Stroke Registry

The **mission** of the PCNASR is—
- Measure, track, and improve the quality of care and access to care for stroke patients from onset of stroke symptoms through rehabilitation and recovery.
- Decrease rate of premature death and disability from stroke.
- Eliminate disparities in care.
- Support development of stroke systems of care that emphasize quality of care.
- Improve access to rehabilitation and opportunities for recovery after stroke.
- Increase the workforce capacity and scientific knowledge of stroke care within stroke systems of care.

The **near-term goals** of the PCNASR are to—
- 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.

The **long-term goal** of this program
- To ensure that all Americans receive the highest quality of acute stroke care currently available and to reduce the number of untimely deaths attributable to stroke, prevent stroke-related disability, and prevent stroke patients from suffering recurrent strokes.
In 2001, Congress charged CDC with implementing state-based registries that measure and track acute stroke care and to use data from the registries in efforts to improve the quality of that care.

Congress further directed that this project be named the Paul Coverdell National Acute Stroke Registry, after the late U.S. Senator Paul Coverdell of Georgia, who suffered a fatal stroke in 2000 while serving in Congress.

"Wave I" projects, funded in 2001, were located in Georgia, Massachusetts, Michigan, and Ohio.

"Wave II" projects, funded in 2002, were located in California, Illinois, North Carolina, and Oregon.

These prototype projects gathered data concerning each step of emergency and hospital care for stroke patients, from emergency response to the patients' eventual discharge from a hospital. At the end of the 3-year pilot period, the results showed that large gaps existed between generally recommended guidelines for treating stroke patients and actual hospital practices. Intensive quality improvement efforts are needed to close those gaps.
In June 2004, CDC provided funds to the state health departments of Georgia, Illinois, Massachusetts, and North Carolina to establish statewide Coverdell stroke registries for acute care hospitals in their states.

- The purpose of these registries was to develop and implement systems for collecting data on acute stroke care provided to patients, analyzing the collected data, and using the results of those analyses to guide quality improvement interventions at the hospital level through partnerships with hospital doctors, stroke-care teams, and administrators. All acute care hospitals serving the general population in participating states were eligible for the program.

In July 2007, CDC expanded funding to six state health departments in Georgia, Massachusetts, Michigan, Minnesota, Ohio, and North Carolina for the Paul Coverdell National Acute Stroke Registry for a new 5-year funding period.
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
State-Based Program

- Administered by state DPH
- Representative of state’s capacity to provide acute stroke care
  - Randomized hospital selection
  - Volunteer hospitals welcome
- Encourage policy & system change for improving stroke care at state level
CDC Oversight

- States given much latitude to design their own unique program
- CDC provides program metrics and goals for
  - Capacity building
  - Data collection
  - QI
- Communication and sharing of ideas
  - Leads to collaboration rather than competition
Data Collection

- Prospective case identification and concurrent data collection
- Between 5-10% of data is audited
- Each state DPH owns their data
- CDC receives quarterly data from states
- De-identified hospital stroke capacity
Data Collected in PCNASR

- Demographic Data
- Pre-hospital and EMS Data
- Hospital Arrival and Admission Data
- Imaging
- Signs & Symptom Onset
- Thrombolytic treatment
- Medical History
- In-hospital Treatment
- In-hospital Complications
- Discharge Data
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
In-Hospital Data Elements Collected by the PCNASR

PCNASR Hospital Metrics

- The PCNASR metrics are based on the final clinical diagnosis rather than the principle ICD-9-CM diagnosis code.

- **Venous Thromboembolism (VTE) Prophylaxis (NQF 0434)**
  Ischemic and hemorrhagic stroke patients and stroke not otherwise specified who received VTE prophylaxis or have documentation why no VTE prophylaxis was given the day of or the day after hospital admission.

- **Discharged on Antithrombotic Therapy (NQF 0435)**
  Ischemic stroke and TIA patients prescribed antithrombotic therapy at hospital discharge.

- **Anticoagulation Therapy for Atrial Fibrillation/Flutter (NQF 0436)**
  Ischemic stroke and TIA patients with atrial fibrillation/flutter who are prescribed anticoagulation therapy at hospital discharge.

- **Thrombolytic Therapy (NQF 0437)**
  Acute ischemic stroke patients who arrive at this hospital within 2 hours of time last known well and for whom IV t-PA was initiated at this hospital within 3 hours of time last known well.

- **Antithrombotic Therapy by End of Hospital Day 2 (NQF 0438)**
  Ischemic stroke and TIA patients administered antithrombotic therapy by the end of hospital day 2.
Discharged on Statin Medication (NQF 0439)
Ischemic stroke and TIA patients with LDL greater than or equal to 100 mg/dL, or LDL not measured, or who were on a lipid-lowering medication prior to hospital arrival are prescribed statin medication at hospital discharge.

Stroke Education (NQF 0440)
Ischemic or hemorrhagic stroke patients and stroke not otherwise specified and TIA patients or their caregivers who were given educational materials during the hospital stay addressing all of the following: activation of emergency medical system, need for follow-up after discharge, medications prescribed at discharge, risk factors for stroke, and warning signs and symptoms of stroke.

Assessed for Rehabilitation (NQF 0441)
Patients assessed for rehabilitation services after experiencing an ischemic or hemorrhagic stroke or stroke not otherwise specified.

Smoking Cessation Counseling
Ischemic or hemorrhagic stroke patients or stroke not otherwise specified and TIA patients who are current smokers who receive or refuse smoking cessation counseling.

Dysphagia Screening (NQF 0243)
Patients aged 18 years and older with a diagnosis of ischemic stroke or hemorrhagic stroke or stroke not otherwise specified who receive any food, fluids, or medication by mouth (PO) for whom a dysphagia screening was performed prior to PO intake in accordance with a dysphagia screening tool approved by the institution in which the patient is receiving care.
- **Recording of NIH Stroke Scale Score (NQF 1955—not endorsed)**
  Patients aged 18 and older with ischemic stroke, or stroke not otherwise specified, with an initial NIH Stroke Scale recorded. Patients with acute ischemic stroke who receive intravenous tissue plasminogen activator (tPA) who have an NIH stroke scale score recorded.

- **Time to intravenous thrombolytic therapy (NQF 1952)**
  Acute ischemic stroke patients aged 18 years and older receiving intravenous tPA therapy during the hospital stay and having a time from hospital arrival to initiation of thrombolytic therapy administration (door-to-needle time) of 60 minutes or less. Median time from hospital arrival to administration of intravenous tissue plasminogen activator (tPA) therapy in acute ischemic stroke patients aged 18 years and older.

- **Door to brain imaging time (NQF 0661)**
  Head CT Scan Interpretation within 45 minutes of arrival for acute ischemic stroke or hemorrhagic stroke patients who arrive within 2 hours of time last known well who received head CT. (Alternatively, head CT scan completed within 25 minutes of arrival for acute ischemic stroke or hemorrhagic stroke patients who arrive within 2 hours of time last known well.)
QI Activities

- States choose which performance measures they focus on, and in what order
- Encouraged to use CQI within their Coverdell logic model
- Encouraged to track baseline capabilities, improvements, barriers to implementation of QI at all hospitals
PCNASR Benefits

- Provides organized QI assistance to hospitals
- Creates environment for sharing ideas and discussing barriers between hospitals and states
- Fosters collaboration between hospitals and states
- Provides expertise for data collection
## 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>
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<tbody>
<tr>
<td><strong>Performance measure</strong></td>
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<tr>
<td>Screening for dysphagia*</td>
<td>3,546 (55)</td>
<td>9,329 (57)</td>
<td>8,959 (57)</td>
<td>16,221 (66)</td>
<td>22,392 (73)</td>
<td>33</td>
<td>6.6</td>
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<tr>
<td>Education on stroke†</td>
<td>4,378 (54)</td>
<td>11,818 (57)</td>
<td>12,552 (63)</td>
<td>17,767 (55)</td>
<td>27,354 (70)</td>
<td>30</td>
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<tr>
<td>Counseling on smoking cessation*</td>
<td>965 (66)</td>
<td>2,836 (76)</td>
<td>3,215 (86)</td>
<td>5,592 (92)</td>
<td>7,487 (96)</td>
<td>46</td>
<td>9.2</td>
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<td>Lipid testing and/or treatment*</td>
<td>4,473 (64)</td>
<td>12,815 (69)</td>
<td>13,677 (73)</td>
<td>15,814 (75)</td>
<td>12,981 (88)</td>
<td>38</td>
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<td>DVT/VTE prophylaxis*</td>
<td>3,249 (81)</td>
<td>9,323 (85)</td>
<td>9,137 (88)</td>
<td>12,631 (91)</td>
<td>15,653 (93)</td>
<td>15</td>
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<td>Antithrombotic at discharge‡</td>
<td>6,017 (98)</td>
<td>15,875 (97)</td>
<td>15,929 (98)</td>
<td>26,018 (97)</td>
<td>32,221 (98)</td>
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<td>0.0</td>
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<td>Antithrombotic at 48 hrs‡</td>
<td>4,745 (92)</td>
<td>12,842 (95)</td>
<td>12,882 (95)</td>
<td>22,108 (96)</td>
<td>26,552 (96)</td>
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<tr>
<td>Anticoagulation for atrial fibrillation‡</td>
<td>514 (82)</td>
<td>1,460 (80)</td>
<td>1,496 (85)</td>
<td>3,766 (89)</td>
<td>4,140 (87)</td>
<td>7</td>
<td>1.4</td>
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<td>Assessment for rehabilitation‡</td>
<td>5,437 (88)</td>
<td>14,191 (90)</td>
<td>13,664 (92)</td>
<td>23,025 (94)</td>
<td>29,057 (97)</td>
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<tr>
<td>IV tPA‡</td>
<td>161 (37)</td>
<td>485 (39)</td>
<td>489 (45)</td>
<td>842 (57)</td>
<td>1,166 (57)</td>
<td>55</td>
<td>11.0</td>
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<td><strong>Defect-free care</strong></td>
<td></td>
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<td></td>
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<tr>
<td>Ischemic in-patient*</td>
<td>1,803 (37)</td>
<td>5,615 (42)</td>
<td>5,937 (44)</td>
<td>11,733 (55)</td>
<td>18,516 (69)</td>
<td>85</td>
<td>17.0</td>
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<tr>
<td>Ischemic discharge*</td>
<td>2,485 (51)</td>
<td>7,339 (55)</td>
<td>8,502 (64)</td>
<td>12,370 (58)</td>
<td>19,314 (72)</td>
<td>41</td>
<td>8.0</td>
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<tr>
<td>Hemorrhagic stroke*</td>
<td>405 (31)</td>
<td>1,225 (39)</td>
<td>1,193 (47)</td>
<td>1,761 (46)</td>
<td>2,716 (57)</td>
<td>85</td>
<td>17.0</td>
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<tr>
<td>Transient ischemic attack*</td>
<td>565 (28)</td>
<td>1,785 (35)</td>
<td>2,209 (43)</td>
<td>3,258 (40)</td>
<td>5,325 (57)</td>
<td>105</td>
<td>21.0</td>
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</tbody>
</table>

**Abbreviations:** DVT/VTE = deep venous thrombosis/venous thromboembolism; IV tPA = intravenous tissue plasminogen activator.

* Trend on yearly result using Cochran-Armitage test for trend was statistically significant (p<0.001).

† Endorsed by the National Quality Forum.
Healthy Iowans 2010

- Chapter 9–2 Goal Statement: Reduce by 16% stroke deaths among all Iowans.
  - By 2010, increase from 19.7% to 30% the proportion of people over age 16 that are aware of the early warning signs and symptoms of a stroke and the necessity of accessing rapid emergency care by calling 911.
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Iowa State Stroke Task Force

- **Mission:**
  - Exists to assure all Iowans of standardized, timely, and appropriate stroke prevention, treatment, and rehabilitation, regardless of location within the state, through provision of education and policy development.
Iowa State Stroke Task Force

- 2005: first meeting
- 2005: baseline stroke systems of care assessment completed
- 2006: completed EMS statewide survey to assess current stroke practices
- 2007: reassessment of stroke systems of care
- 2007: Acute Stroke Care survey completed
- 2007: Acute stroke protocols disseminated
- 2008: Stroke Toolkit developed for the Iowa Healthcare Collaborative
Iowa State Stroke Task Force

- 2008: Develop and pilot EMS train the trainer stroke curriculum
- 2009: Acute Stroke Hospital survey
- 2009: Stroke Rehabilitation Survey
- 2009: Iowa Stroke Coordinators workgroup established
- 2009: Iowa Stroke Registry proposed
- 2010: Stroke legislation proposed
- 2010: Iowa Stroke Resource Guide for Rehabilitation completed
Iowa Comprehensive Heart Disease and Stroke Plan, 2010-2014

Goals, Objectives and Strategies related to HF 2402

- **Goal 1: Control High Blood Pressure**
- **Goal 2: Control High Blood Cholesterol**
- **Goal 3: Improve Emergency Response**
  - **Objective 3-1:** By 2014, develop a statewide, time-sensitive system for cardiovascular events, focusing on assessment and transport to a facility that provides definitive care. Ensure every Iowan has access to evidence-based cardiovascular intervention, regardless of geographic location.
  - **Objective 3-3:** By 2014, standardize an evidence-based hospital treatment plan/protocol for time-sensitive stroke events.
Goal 4: Improve the Quality of Care

- Objective 4-1: *By 2011, develop and deploy a hospital-specific, statewide cardiovascular data measure set.*
- Objective 4-2: *By 2014, promote improved transitions of care from acute care to the community setting.*
- Objective 4.5: *Establish a statewide database and reporting mechanism*

Goal 5: Increase Awareness of Signs and Symptoms of Heart Attack and Stroke and the Need to Call 911

- Objective 5-3: *By 2014, increase public awareness of the five signs and symptoms of stroke and the need to call 911 from 41.3% to 50%.*

Goal 6: Eliminate Disparities
January, 2011

An Implementation Plan for an Iowa Stroke Triage System and Stroke Registry to Iowa Legislature
2012 Iowa Hospital Stroke Triage Designation

Level 1: Primary Stroke Center (PSC)
- Must be certified as a Primary Stroke Center:

Level 2: Stroke Capable Hospital
- Required to have all of the following attributes:
  - Clot dissolving medicine, tissue plasminogen activator (rt-PA) available 24/7 for administration
  - Staff trained in rt-PA administration
  - CT scan of head, available for use and analysis within 60 minutes of patient arrival, 24/7
  - Laboratory, and electrocardiogram (EKG) available for reading within 60 minutes of ordering, available 24/7
  - Agreement(s) and processes are in place for transporting patients to a PSC
  - Written stroke policies, procedures, standing acute stroke orders and protocol, and educational requirements are in place that follow the American Stroke Association guidelines
  - Emergency physician or provider (physician assistant (PA) or nurse practitioner (NP) is available 24/7)

Level 3: Triage and Transport (Non-Stroke Capable) Hospital
- Expected to have:
  - Written policies, procedures, standing orders, protocols, and appropriate educational requirements that follow the American Stroke Association guidelines for stabilization and transport
  - Hospital assesses, stabilizes (if necessary), transfers stroke patients as soon as possible, and does not provide treatment. Hospital has necessary transport agreements with EMS

http://www.ihconline.org/UserDocs/Pages/Iowa_Hospital_Stroke_Triage_System.pdf
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 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
Iowa Hospital Categorization

- Capable: 71%
- PSC: 14%
- Triage and Transfer: 11%
- DNR: 4%
Data Capture by EMS and Hospital Providers

Point of Care Data and Transfer
IDPH

CDC

Funding Agency

Paul Coverdell Registry Grant

EMS, Discharge, Death data

Subcontract for Stroke Registry

UI College of Public Health Stroke Registry

GWTG Outcome Science

Direct Entry Stroke Registry Software

Data Transfer

Participating Hospitals
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)
Welcome to the Iowa Stroke Registry

Use of a Registry to Improve Acute Stroke Care

Paul Coverdell National Acute Stroke Registry Surveillance

Million Hearts: Strategies to Reduce the Prevalence of Leading Cardiovascular Disease Risk Factors - United States, 2011

Prevalence of Stroke - United States - 2006-2010

Stroke - Educational Materials for Professionals

Informational Slide Shows
  - Coverdell Registry
  - Iowa Stroke Registry
  - Registry Data - July 2012

For questions or comments about this site, please contact webmaster.
REGISTRY DATA
Iowa Stroke Registry Data Collection

- 84.3% Primary Stroke Center
- 15.4% Stroke Capable
- 0.2% Stroke Triage
- 0.2% Other

April, 2013
Iowa Stroke Registry
Current Data

Acute 0%
Other 1%
SAH 1%
Other ICH 0%
Occlusion Precerebral 7%
Occlusion Cerebral 74%
TIA 12%
ICH 5%
Age

- Mean = 72.5 years
- Range = 0-103 years

April, 2013
Iowa Stroke Registry

- Males =2303 (49.7%)
- Mean Age = 72.4 years
- Mean Height = 168.7 cm
- Mean Weight = 81.7 kg

Ethnicity
- White =4152 (88%)
- Black = 118
- Native Americans = 26
- Other = 17
- Hispanic =62

Insurance:
- Private = 2155 (45.7%)
- Medicare = 3202 (67.9%)
- Medicaid = 269 (5.7%)
- Self Pay = 178 (3.8%)
Iowa Stroke Registry: Overall Strokes

- Discharge Status
  - Home – 51.7%
  - Home hospice - 0.7%
  - Hospice in health care – 4.9%
  - Acute care – 4.6%
  - Other health care facility – 34.6%
  - Dead – 3.5%

April, 2013
Iowa Stroke Registry
Ischemic Strokes – 2012

- Males = 626 (48.9%)
- Mean Age = 72.5 years
- Mean Height = 169 cm
- Mean Weight = 72.5 kg

- Ethnicity
  - White = 1099 (86%)
  - Black = 37
  - Native Americans = 7
  - Other = 9
  - Hispanic = 18

- Insurance:
  - Medicare 875 (68%)
  - Private 566 (44%)
  - Medicaid 78 (6%)
  - Self Pay 39 (3%)

April, 2013
Iowa Stroke Registry – 2012
Ischemic Stroke

Place of occurrence
Not in healthcare 84%
Chronic care facility 9%
Other acute care 3%
Outpatient care facility 1%
Iowa Stroke Registry – 2012
Ischemic Stroke

Arrival

- **Mode**
  - EMS: 475 (43%)
  - Private vehicle: 440 (40%)
  - Transfer: 157 (14%)
  - ND: 26 (2%)

April, 2013
Iowa Stroke Registry – 2012
Ischemic Stroke

Presentation
- Altered Consciousness 206 16%
- Aphasia 344 27%
- Circulation 61 5%
- Speech 79 6%
- Visual Changes 29 2%
- Weakness 698 54%
- Ambulation difficulty 92 7%

April, 2013
Iowa Stroke Registry – 2012

Ischemic Stroke

- TPA initiated – 8.7% (105/1197)
- TPA outside hospital – 23/105 (22%)

- Symptomatic ICH – 1/105
- Asymptomatic ICH – 1
- Serious hemorrhage – 0
- Allergic Reaction – 0
- Angioedema - 0
- Vessel rupture - 1

April, 2013
Iowa Stroke Registry – 2012
Ischemic Stroke

Reasons No TPA

- **Contraindication** – 67
- High blood pressure – 16
- Seizure – 5
- Recent Surgery – 12
- Recent Head Trauma – 12
- Brain History – 5
- Bleeding History – 5
- Coagulation – 18

- Suspected Hemorrhage – 3
- CT Findings – 33
- **Mild Stroke** – 103
- **Rapid Improvement** – 114
- Stroke Severity – 6
- Advanced Age – 37
- Life Expectancy – 4
- Family Refused – 15
- **Arrival Delay** – 403
- Unable to Diagnose – 42
- Other - 60

April, 2013
Iowa Stroke Registry – 2012
Ischemic Stroke

- Comfort measures
  - Day of arrival or 1st day – 4.6%
  - 2nd day -5.2%
  - Timing unclear 0.4%
- LDL 94.4 (19-255) (n=967)
- Statin at discharge - 87% (819/944)*
  - Contra-indication - 151
- Antihypertensive – 90% (722/805)*
- Antithrombotic 87% (1105/1265)*
- Anticoagulant 39% (188/486)*
- Smoking cessation 77% (193/252)

*Denominator = those completing variable
Iowa Stroke Registry: 2012
Ischemic Stroke

- Discharge Status
  - Home – 48%
  - Home hospice - .6%
  - Hospice in health care – 4.8%
  - Acute care – 2.5%
  - Other health care facility – 40.5%
  - Dead – 3.3%

- Ambulation
  - Independently 51.9%

April, 2013
Use

- System performance
- Component performance
- Comparison to state and national performance
- Quality Improvement
  - System Organization
  - System Process
  - Education
    - Tool kits
    - Lean
Value

- Focused on patient care and outcome
- Up-to-date evaluation of performance
  - Last patient entered
  - Impact on next patient
- Linking across continuum of care
- Can provide timely information for care
- Stroke network of providers
Net 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
Benefits for the Patient

- Recognition and diagnosis
- Provide optimal treatment
- Promote recovery
- Decrease death and disability
- Prevent re-hospitalization
- Prevent recurrence
Questions?