2013 Michigan Stroke Network Update & Michigan Stroke Network 2.0

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Clinical Director Neuroscience Services

September 21, 2013
Crystal Mountain Resort and Spa
The focus of this presentation is to discuss the Michigan Stroke Networks past, present and future, “MSN version 2.0”
St. Joseph Mercy Oakland

- 443 bed community hospital
- Located on Woodward Avenue Pontiac MI since 1927

Trinity Health System
Catholic Health East

4th largest Catholic Health Care System in the United States
- From 47 hospitals to 82
- From 10 states to 21 in the US
New Patient Tower

New tower opening Spring 2014

- 208 private rooms, 8 stories
- Technology to allow caregivers to spend more time at the bedside
- Smart rooms for optimal patient safety
- 6th floor Neuroscience Unit (29 to 36 beds)

Reflective garden and new Chapel
St. Joseph Mercy Oakland

- First in Michigan and 9th in the United States
- Ethos Stroke Registry (old)
  - Current Get With the Guidelines
- 3-4 county stroke service area
- Combined ortho/neuro (old)
  - 2007 Dedicated neuroscience unit
Primary Stroke Certification
Foundation for the Michigan Stroke Network

Complex Stroke Capability

- Neuroendovascular Services
- Vascular neurology
- General neurology
- Neurosurgical services
- CT perfusion, TCD

- Combined neuro/cardiovascular lab w biplane (old)
  - current, dedicated neurointerventional lab
- 64 slice CT scan (old)
  - current, 320-slice CT scan
- Open-bore 32 channel MRI (detailed angiographies)
Mission:

to improve treatment of stroke patients across neuroscience underserved areas of Michigan.

“The role of the MSN isn’t to take patients away but to help partner hospitals maintain academic level protocols in rural areas based on the extension of expertise”.

Jack Weiner, President & CEO
St. Joseph Mercy Oakland
First Telestroke Pilot Hospital
St. Joseph Mercy Livingston Hospital – Howell
• 59 operative bed capacity (136 licensed)

34 telestroke calls 2008
(ER visits 33,352)

32 telestroke calls 2013 (6 months)
(ER visits 46,764)
18 months post network

- 18 counties

Michigan Stroke Network
Consults vs Active Member Sites

Month

- MSN Calls

26

18 months post network
- 18 counties

MSN – Origin of Patients
11/1/06 – 6/30/08
32 months post network

- 33 counties
- 31 partner hospitals
PARTNER SITES

Brighton Emergency Department
Cheboygan Memorial
Chelsea Community Hospital
Crittenton Hospital and Medical Center
Deckerville Community Hospital
Garden City Hospital
Harbor Beach Community Hospital
Hills & Dales General Hospital
Huron Medical Center
Kalkaska Memorial Health Center
Mecosta County Medical Center
Mckenzie
Mercy Health Partners- Lakeshore Mercy
Mercy Health Partners – Muskegon
Mercy Hospital – Cadillac
Mercy Hospital – Grayling
Mid Michigan Medical Center-Clare
Mid Michigan Medical Center-Gladwin
Mid Michigan Medical Center - Gratiot
Mid Michigan Medical Center-Midland
Munson Medical Center
Paul Oliver Memorial Hospital
POH Regional Medical Center
St. Joseph Mercy Ann Arbor
St. Joseph Mercy Livingston
St. Joseph Mercy Oakland
St. Joseph Mercy Port Huron
St. Joseph Mercy Saline
St. Mary Mercy Livonia
Saint Mary’s Health Care
West Branch Regional Medical Center
Wayne State University Physician Group

WSUPG Affiliation 2010

- Six board certified vascular neurologists
- Two board certified neuro critical care neurologists
- Three board certified neuroendovascular neurologists
- Two Neuroendovascular fellows
- Two Neuro hospitalist fellows
<table>
<thead>
<tr>
<th>Current Partner Hospitals</th>
<th>Mid-Michigan – Clare</th>
<th>Mid-Michigan - Gladwin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brighton Health Center - Emergency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Crittenton Hospital and Med Center</td>
<td>Mid-Michigan - Gratiot</td>
<td></td>
</tr>
<tr>
<td>Deckerville Community</td>
<td>Mid-Michigan - Midland</td>
<td></td>
</tr>
<tr>
<td>Garden City Hospital</td>
<td>Munson Medical Center</td>
<td></td>
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<tr>
<td>Harbor Beach Community</td>
<td>Paul Oliver Memorial Hospital</td>
<td></td>
</tr>
<tr>
<td>Hills &amp; Dales General Hospital</td>
<td>St Joseph Mercy Port Huron</td>
<td></td>
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<tr>
<td>Huron Medical Center</td>
<td>St Mary Mercy Hospital Livonia</td>
<td></td>
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<tr>
<td>Kalkaska Memorial Health Center</td>
<td>St Joseph Mercy Livingston</td>
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<tr>
<td>Mecosta Medical Center</td>
<td>St Joseph Mercy Oakland</td>
<td></td>
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<tr>
<td>McLaren Oakland (formerly POH)</td>
<td>West Branch Regional Med. Center</td>
<td></td>
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<tr>
<td>Mercy Hospital Cadillac</td>
<td></td>
<td></td>
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<tr>
<td>Mercy Hospital Grayling</td>
<td>*Transfer agreement</td>
<td></td>
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</table>
Stroke discharges past 18 months

- Covering 44 counties
- 6 out of state discharges

Origin of Stroke Patients
44 counties

4 - Florida
1 - Illinois
1 - Ohio
1 - N. Carolina
1 - Alabama
1 - California
Telestroke calls and Transfers

Michigan Stroke Network
Calls and Transfers FY 2008 - FY 2013

Fiscal Years 2008-2013
MSN IV TPA Administration

Overall 5.5 years
12% IV TPA treatment of total calls

<table>
<thead>
<tr>
<th>Calendar Years</th>
<th>TPA Volume</th>
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<tbody>
<tr>
<td>2008</td>
<td>13%</td>
</tr>
<tr>
<td>2009</td>
<td>14%</td>
</tr>
<tr>
<td>2010</td>
<td>13%</td>
</tr>
<tr>
<td>2011</td>
<td>13%</td>
</tr>
<tr>
<td>2012</td>
<td>12%</td>
</tr>
<tr>
<td>2013 (July)</td>
<td>9%</td>
</tr>
</tbody>
</table>
# Network Quality Metrics

<table>
<thead>
<tr>
<th>Metric</th>
<th>Average</th>
<th>2008</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptom onset to MSN call</td>
<td></td>
<td>2.35</td>
<td>2.33</td>
</tr>
<tr>
<td>Remote hospital door to needle</td>
<td></td>
<td>122 minutes</td>
<td>48 minutes</td>
</tr>
<tr>
<td>Remote call received to time MSN physician returns call to SJMO operator</td>
<td></td>
<td>6 minutes</td>
<td>3 minutes</td>
</tr>
<tr>
<td>MSN physician notification to robot connection</td>
<td></td>
<td>15 minutes</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Average consult duration time</td>
<td></td>
<td>14 minutes</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Initial NIHSS (transfer pts)</td>
<td></td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Discharge NIHSS (transfer pts)</td>
<td></td>
<td>2</td>
<td>6</td>
</tr>
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Research and Education

• **National Recognition**
  - American Academy of Neurology and International Stroke Conference
  - Nursing & physician abstracts, posters & presentations

• **Clinical Trials**
  - TREVO 2 Thrombectomy REvascularization of large Vessel Occlusions in acute ischemic stroke
  - Vitesse Intracranial Stent Study for Ischemic Therapy
  - SWIFT PRIME Solitaire™ FR With the Intention For Thrombectomy as Primary Endovascular Treatment
Grants

• **HRSA – Telehealth Grant**
  *Michigan Specialist Project, general neurology, mental health, professional and community education*

• **Genentech Grant –**
  *Automated Data Mining tool HealthcaresmartgridTM*
  - promote and compare evidence based stroke care
  - concurrent compliance with performance measures
  - assist hospitals achieve Primary Stroke Center Certification
  - automated concurrent feedback letters
Outcome and follow-up

Dictated Consults to all Partner Sites

- Select sites receiving dictations within 24 hours (present)

Outcome Letters

Referring physician
EMS
Referring emergency department staff
Family physician

April 10, 2011
St. Joseph's Hospital
320 Byron Road

Dear Dr. [Name] and Emergency Room Staff,

It was a pleasure coordinating in the care of Joseph O'esko. We hope that you found the Stroke Network services beneficial. As a follow-up, outlined below is the medical care received between our facilities.

Dr. [Name], thank you for the referral and placing your patient in the Michigan Stroke Network and to the St. Joseph's Emergency Room team. We look forward to sustaining a relationship to positively impact future patients in your community.

Mr. O'esko, a 62 year old male, presented on March 6th, 2011 with a history of hypertension and diabetes. He was found collapsed at 12:00 PM. The CT scan showed evidence of a large left hemisphere stroke (LHA) involving the middle cerebral artery (MCA) and not defined. The patient was transported to our hospital on January 14th, 2011 at 2:00 PM to St. Joseph's Hospital. Upon admission, the CT scan showed evidence of a large left hemisphere stroke and was taken to the interventional angiography suite. The MCA was successfully achieved using stent placement and lytic therapy.

Mr. O'esko was discharged on February 2nd, 2011 with a discharge NIH Stroke Scale (T) and a Rankin score of 0. The patient on NIH Stroke scale was 2.

For further information regarding the Michigan Stroke Network or interest in stroke educational offerings, please contact Sue [Name] at [Phone Number].

Sincerely,

[Name]

Concierge, Medical/MSN, CNM
Clinical Director, Michigan Stroke Network
St. Joseph's Hospital / St. Joseph's Hospital and St. Mary's Hospital
Office [Phone Number]

CC
Michigan Stroke Network 2.0

**Improve Transition of Care**

- Logistics/transfer center staffed by RN case managers (future)
  - Hospital operators triaging transfers (present)

- Improve the transfer and handoff process

- Remote PACs system reading capabilities
Strengthen current and new partnerships:

- Stroke grand rounds utilizing telemedicine equipment or video conferencing
- Educational presentations posted on MSN web site (CME)
- Facilitate annual stroke conference 2014

Mecosta County Medical Center
  - Remote Stroke
  - Remote NIHSS

Garden City Hospital
  - Live presentations
Community Education

Deckerville Womans Auxiliary
Livonia Camp 911
Port Huron new employee orientation
Fire Department EMS Day
Harbor Beach robot naming contest
Stroke Fairs
Expansion of Telemedicine Services

Current Use of Existing Equipment

• The existing telemedicine technology currently available to our partner hospitals is under-utilized

Potential for Expanding the Use of Current Equipment

• The use of the existing telemedicine hardware can be used to provide access to many other specialty services

Benefits of Expanded Use

• Necessary equipment already in place
• Specialty services offered to patients in their own community without the need to travel significant distances
• Convenience of access improves medical compliance and therefore, the overall health and well-being of patients
Expansion of Telemedicine Services

**Telemedicine Specialty Services**

- Cardiology
- Dermatology
- Endocrinology
- Infectious Disease
- Nephrology
- Neurology
- Nutrition
- Ophthalmology
- Orthopedics
- Psychology – Behavioral Health
- Urology
- Rheumatology
Transition

• The program will begin expanding the use of existing telemedicine technology and equipment beyond stroke care

• The “Michigan Stroke Network” will therefore partner and ultimately transition to the “Michigan Specialty Network”
Knowing Who To Call May Save Precious Time and Precious Life

Questions?

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Andrew Xavier, MD
http://www.michiganstrokenetwork.com

For Partner Hospital Information

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