



1200 N. Telegraph Road. Bldg. 36E, Pontiac, Michigan 48341  
 Telephone: 248 975-9704 Fax: 248 975-9723 Website: www.ocmca.org

**OCMCA Stroke Systems of Care Special Study  
 2019 - Year End Report**

January 15, 2019

Kathy Wahl, BS, MSN, RN  
 Director  
 Michigan Department of Health & Human Services (MDHHS)  
 Bureau of EMS, Trauma, & Preparedness (BETP)  
 Division of EMS and Trauma  
 P.O. Box 30207  
 Lansing, MI 48909-0207

Dear Ms. Wahl:

Please allow this letter to serve as the 2019-year end report of the Oakland County Medical Control Authority's (OCMCA) Stroke Systems of Care Special Study to the State QA Task Force and the Bureau of EMS, Trauma, & Preparedness.

**2019 – Year End Data:**

In 2019, there were a total of 43 reported stroke cases that were determined to have a differential diagnosis of stroke by the Bloomfield Township Fire Department. The OCMCA QI staff has reviewed the data. The tables below provide an overview of the 2019 study findings.

TOTAL REPORTED CASES		
<b>Total cases</b>	<b>43</b>	<b>100%</b>
LVO strokes	1	2%
Ischemic (non-LVO) strokes	22	51%
Hemorrhagic strokes	5	12%
Stroke mimics / False positives	15	35%

VERIFIED STROKE / FALSE POSITIVE RATE		
<b>Total cases</b>	<b>43</b>	<b>100%</b>
Stroke confirmed at ED	28	65%
Stroke mimic / False positive detected at ED	15	35%

VERIFIED STROKE / FALSE POSITIVE BREAKDOWN		
<b>Total stroke mimics / false positives</b>		<b>100%</b>
Seizure	2	13%
Dehydration	2	13%
Conversion/Somatoform disorder	2	13%
Acute kidney injury	2	13%
Infection & metabolic encephalopathy	2	13%
Bell's Palsy	1	7%
Altered mental status	1	7%
Subdural hematoma	1	7%
Syncope with dialysis	1	7%
Chest pain	1	7%

The information presented here is confidential professional/peer review Quality Assurance information of the OCMCA Board. It is protected from disclosure pursuant to the provisions of MCL 333.21518, MCL 333.20175, MCL 333.21515, MCL 331.531, MCL 331.533 and other state and federal laws. Unauthorized disclosure or duplication is absolutely prohibited.



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FAST-ED / NIHSS ASSESSMENT COMPARISON		
<b>Total number of cases that meet the following criteria:</b>		
<ul style="list-style-type: none"> <li>Confirmed stroke at ED</li> <li>FAST-ED score and form completed by EMS</li> <li>NIHSS score by physician at ED</li> </ul>	<b>25</b>	<b>100%</b>
FAST-ED assessment correlated with NIHSS	18	72%
FAST-ED assessment did <b>NOT</b> correlate with NIHSS	7	38%

FAST-ED SCORE $\geq 4$ / $< 4$		
<b>Total number of cases that meet the following criteria:</b>		
<ul style="list-style-type: none"> <li>EMS determined a differential diagnosis of stroke</li> <li>FAST-ED score and form completed by EMS</li> </ul> *One case, involving a stroke mimic, was not scored due to the patient being unresponsive.	<b>*42</b>	<b>100%</b>
FAST-ED score of $\geq 4$	11	26%
FAST-ED score of $< 4$	31	74%

<b>Total number of cases that meet the following criteria:</b>		
<ul style="list-style-type: none"> <li>EMS determined a differential diagnosis of stroke and a FAST-ED score of <math>\geq 4</math></li> </ul>	<b>11</b>	<b>100%</b>
Hemorrhagic strokes	3	27%
LVO strokes	1	9%
Non-LVO ischemic strokes	6	55%
Stroke mimic / false positive	1	9%

<b>Total number of cases that meet the following criteria:</b>		
<ul style="list-style-type: none"> <li>EMS determined a differential diagnosis of stroke and a FAST-ED score of <math>&lt; 4</math></li> </ul>	<b>31</b>	<b>100%</b>
Non-LVO ischemic strokes	16	52%
Stroke mimic / false positive	13	42%
LVO strokes	0	0%
Hemorrhagic strokes	2	6%

LVO / MECHANICAL THROMBECTOMY (MT) RATE		
<b>Total LVO strokes</b>	<b>1</b>	<b>100%</b>
Total LVO stroke patients that received MT	0	0
Total number of non-LVO stroke patients that received MT (Stroke classifications determined by reporting stroke center. "Multiple ischemic infarcts," FAST-ED score of 4 was assigned by LSA)	1	100%

ISCHEMIC STROKE tPA ADMINISTRATION RATE		
<b>Total ischemic strokes</b>	<b>23</b>	<b>100%</b>
Total ischemic stroke patients that received tPA	2	9%

PATIENT TRANSFER RATE		
<b>Total cases</b>	<b>43</b>	<b>100%</b>
Total number of patients transferred to another facility	0	0%



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**Sharing study findings:**

The OCMCA continues to make all related study findings available on its website at: <http://www.ocmca.org/stroke/>  
The study's design and all other related documents are available on this site.

**Study Expansion:**

As indicated in our previous report to the QA Task Force, the OCMCA is in the process of expanding our study to include six new life support agencies and their closely associated hospitals. This effort is being made to provide a greater volume of data to support stronger conclusions as a result of this study. All agencies and hospitals joining the study will complete the required FAST-ED training by April 1, 2020. Each agency's EMS Coordinator, and the Stroke and ED Coordinators at their associated hospitals will be trained on how to comply with the study's data submission requirements prior to April 1, 2020. At the end of the second quarter of 2020, the study will begin to produce a much greater volume of data. A summary of this data will be included in our second quarter 2020 report to the QATF.

Please contact the OCMCA with any questions.

Sincerely,

*Steve McGraw*

Steve McGraw, DO  
EMS Medical Director  
Oakland County Medical Control Authority



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## OCMCA Stroke Systems of Care Special Study: 2019 End of Year Summary: Report to PSRO

FAST-ED Score	Test +	Test -
≥ 4 (+)	5	6
< 4 (-)	2	29

**Sensitivity= 71%**

Sensitivity = TP/TP+FN (5/5+2=0.71)

**Selectivity= 83%**

Selectivity = TN/TN+FP (29/29+6=0.83)

### **Sensitivity and Selectivity of FAST-ED for patients who could benefit from advanced stroke resources.**

Patients who could benefit from advanced stroke resources were selected because one of the following conditions were present:

- Confirmed LVO
- Patient received MT
- Confirmed hemorrhagic stroke