



When Time Matters: Pre-Hospital Stroke Care

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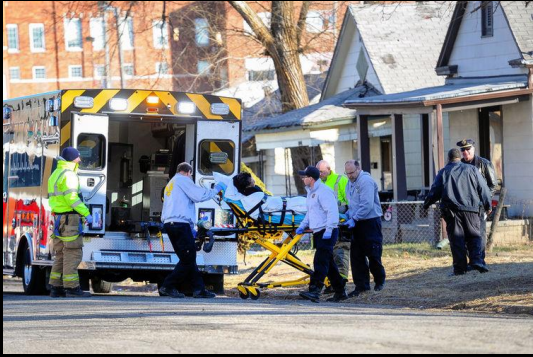
Paramedic

Education Coordinator

What happens when you call 911?

- Saint Joseph/ Buchanan County
 1. 911 call goes to Public Safety Access Point (PSAP) St. Joseph Police communications center.
 2. Medical Calls are transferred to Buchanan County EMS – Medical Dispatch





You Call 911



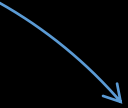
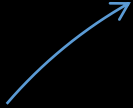
Arrival of EMS /
Fire / PD

St. Joseph Police
Communications
Center



Dispatch

Medical –
Buchanan
County EMS



ProQA – Medical Dispatching

- BCEMS uses ProQA dispatch software.
- ProQA is based on the Medical Priority Dispatch System (MPDS) and provides a standardized format for carrying out the practice of priority dispatching.
- It is an automated system which operates by evaluating incoming information according to logical rules built on expert medical knowledge.
- Our dispatchers have had the best available training with the MPDS system, they also have a firm understanding of our EMS system, and operate under a constant quality assurance and improvement environment.



:50

Entry

KQ

PDI/CEI

DLS

Summary

Case Entry

Additional Information

Location is: 2700 s 19th st

Phone number is: 816-271-4777

Okay, tell me exactly what happened. stroke symptoms

Obviously NOT BREATHING & Unconscious (non-traum)
 Verified Choking – COMPLETE obstruction
 Hanging
 Strangulation (no assailant involved)
 Suffocation
 Underwater (DOMESTIC rescue)
 Underwater (SPECIALIZED rescue)
 Sinking vehicle – Caller inside
 Vehicle in floodwater – Caller inside
 Person on fire

(Choking – verify) "Is s/he breathing or coughing at all? (You go check and tell me what you find.)" Then tell caller: "Do not slap her/him on the back."

For **NOT BREATHING** or **INEFFECTIVE/AGONAL BREATHING**, code as **ECHO** on Protocols **2, 6, 9, 11, 14, 15, 31 only**, dispatch, give PDIs, and **return** to question sequence.

Is he breathing?

Chief Complaint is:



1:52

28: Stroke (CVA) / Transient Ischemic Attack (TIA)



Entry KQ PDI/CEI DLS Summary



2. Is she **breathing normally**?

- Yes
- No
- Unknown

Question Answers Additional Information Problem Suffixes Determinants w/ Suffixes Det. Codes

1. **She is completely alert (responding appropriately).**

Abbreviations

Additional Info

Limitations Warning

Stroke Diagnostic Tool

We need to do a **quick test** on her for the medics **before** they arrive. I want you to get **close enough** to ask her to do **three things**.

Tell me when you're **ready**.

Ready

Answer Selected

Ask her to **smile**.

(Wait) Was the smile **equal** on **both sides** of her mouth?

- Normal smile
- Slight difference in smile (possible difference)
- Only one side of mouth or face shows a smile (obvious difference)
- Cannot complete request (to smile)

2

Ask her to **raise both arms above** her **head**.

(Wait) What was she **able** to **do**?

- Both arms raised equally
- One arm higher than other (both raised, but unequally)
- Only one arm raised
- Cannot complete request (to raise arms)

2

Ask her to **say**, "The early bird catches the worm."

(Wait) Was she able to **repeat** it **correctly**?

(Clarify) Was it **slurred**, **garbled**, or **not understandable**?

- Said correctly
- Slurred speech
- Garbled or not understandable speech
- Cannot complete request (to speak)

2

Calculate Evidence Level

Stroke Diagnostic Recommendation:

CLEAR evidence of stroke (2,2,2)

File View Spec Logs Options Go to Language Tabs Version About ProQA

3:51 28: Stroke (CVA) / Transient Ischemic Attack (TIA)

Entry KQ PDI/CEI DLS Summary

5. Exactly **what time** did these symptoms (problem) **start?**

Less than "T" hrs ago (enter exact time):
Greater than "T" hrs ago (enter exact time):
Unknown

Question Answers Additional Information Problem Suffixes Determinants w/ Suffixes Det. Codes

STROKE Symptoms
Select Protocol 28 for the conscious and breathing patient when the caller initially reports "stroke" or the sudden onset of one or more of the following symptoms:

- Sudden speech problems
- Sudden weakness or numbness in the face, arm, or leg on one side of the body
- Sudden loss of consciousness
- Sudden trouble seeing in one or both eyes
- Sudden, severe headache with no known cause

While symptoms of **STROKE** are present, they may be caused by many other problems. The "time of symptom onset" is the point in time when the symptoms "first happened" point.

STROKE Treatment Time Window
The time of symptom onset is determined in Key Questions. Hospital and/or responder notification of this finding plays an important part in preparing the patient's therapy. The suffix codes for **STROKE** include a locally defined treatment time window: Less than "T" hrs, Greater than "T" hrs, and Unknown.

"T" = Time window set by local Medical Control

STROKE
Disruption of blood flow to the brain or part of the brain due to a blood clot or hemorrhage. Hemorrhage causes increased pressure within the skull and is more likely to cause a decreased level of consciousness (alertness), unconsciousness, or death.

TRANSIENT ISCHEMIC ATTACK (TIA)
A temporary interruption of blood supply to an area of the brain, sometimes called a "mini-stroke." It is usually caused by a small blood clot and results in a sudden, brief decrease in brain function and **STROKE-like symptoms**. These symptoms usually last 1 or 2 hours, but no more than 24 hours.



4:35

28: Stroke (CVA) / Transient Ischemic Attack (TIA)



Entry KQ PDI/CEI DLS Summary



Send: 28-C-3J

KQ Answers

1. She is completely alert (responding appropriately).
2. She is breathing normally.
3. She is having sudden speech problems.
4. The stroke diagnostic results indicate CLEAR evidence of stroke.
5. These symptoms started within the approved treatment window at: 1215
6. It is not known if she has had a STROKE before.

Determinants Responses (user-defined)

A	1 Breathing normally < 35	J:
C	0 Override	J:
	1 Not alert	J:
	2 Abnormal breathing	J:
	3 Sudden speech problems	J: Charlie
	4 Sudden weakness or numbness (one side)	J:
	5 Sudden paralysis or facial droop (one side)	J:
	6 Sudden loss of balance or coordination	J:
	7 Sudden vision problems	J:
	8 Sudden onset of severe headache	J:
	9 STROKE history	J:
	10 TIA (mini-stroke) history	J:
	11 Breathing normally ≥ 35	J: Charlie
	12 Unknown status/Other codes not applicable	J:



5:08 4:59

28: Stroke (CVA) / Transient Ischemic Attack (TIA)



28-C-3J

Entry KQ PDI/CEI DLS Summary

X1 - Second Party Caller

(Reassure her that help is on the way.)

From now on, don't let her have anything to eat or drink. It might make her sick or cause further problems.

Just let her rest in the most comfortable position and wait for help to arrive.

* The "nothing to eat or drink" instruction above should be omitted for the alert diabetic.

Main Additional Info Special Information

	Stable – Routine Disconnect	Unstable
	Stable but Stay on Line	Not Alert

ky24128
MPDS 13.0.864 11/23/2015
170600057:1

O: NAE
C: NAE
P: STD

55-year-old, Female, Conscious, Breathing. Code: 28-C-3-J:
Sudden speech problems (CLEAR evidence of stroke (< T hours))

2700 s 19th st, 816-271-4777

I want you to **watch** her very closely.

If she becomes **less awake** and **vomits**, quickly turn her on her **side**.

(Appropriate)

Before the responders arrive, please:

- Put **away** any **pets**.
- **Gather** her **medications**.
- **Unlock** the **door**.
- **Turn on** the outside **lights** or vehicle **hazard lights**.
- Have someone **flag/wave** down the **paramedics**.

(Disconnect) If she gets **worse** in any way (**or has another seizure**), call us back **immediately** for further instructions.

First responders, depending on location...

- **Saint Joseph Fire Department** (EMS on scene in less than 8 mins)
 - Career Fire Department
 - Staffed 24/7
- **4 Buchanan County Rural Fire Departments** (EMS on scene in average of 15 mins)
 - Volunteer Fire Departments
- **LifeNet – Air Methods**
 - Occasionally used in the county due to transport time to Stroke center. May transport to Kansas City depending on patient status.

First responder arrival.....

- The Fire Departments will start treatment prior to ambulance arriving.
- Applying oxygen and providing basic life support measures when needed.
- Fire department personnel may also assist during transport to ER.

Buchanan County EMS – Stroke/CVA, TIA, Cerebral Aneurysm Protocol

- General Scene Assessment
 - Scene Safety
- Adult Assessment
- Brief history
 - Onset of symptoms
 - Last known well
 - Diabetic?
 - History of Stroke/TIA
 - Surgeries
 - Blood Thinners
 - Overall health assessment prior to onset of symptoms

- Ambulance personnel will assess for Cincinnati Pre-Hospital Stroke Scale findings.
- As of July 1, 2018
 - If CPSS is positive, a R.A.C.E stroke scale assessment is also done.
- Transport to Mosaic Life Care, unless in the southern part of the county near or within Platte County.

- **Treatments**

- Secure Airway as appropriate.
- Rapid Glucose (must be done prior to STROKE alert being called from the field).
- Cardiac monitoring including 12 Lead ECG with transmission to ER for patient information and admission.
- Vascular Access – 18 GA in the AC if possible.
- Stroke Alert – To ER Resource Nurse.
- Transport while assessing vital signs every 5 mins.
- Patient possibly taken directly to CT scanner after brief assessment by ER physician.

R.A.C.E Stroke Scale (Rapid Arterial oCclusion Evaluation Scale)

- RACE is based on an abbreviated version of the National Institutes of Health Stroke Scale (NIHSS), the “gold standard”.
- Viewed as a snapshot of the NIHSS for the hospital.
- RACE is ***quantitative*** and determines the severity and identifies large vessel occlusions.
- This allows our ER to assess the possibility of a sooner transfer to Kansas City.

Item	Instruction		RACE score	NIHSS score equivalence
Facial palsy	Ask the patient to show teeth	Absent (symmetrical movement)	0	0
		Mild (slightly asymmetrical)	1	1
		Moderate to severe (completely asymmetrical)	2	2-3
Arm motor function	Extending the arm of the patient 90 degrees (if sitting) or 45 degrees (if supine)	Normal to mild (limb upheld more than 10 seconds)	0	0-1
		Moderate (limb upheld less than 10 seconds)	1	2
		Severe (patient do not rise the arm against gravity)	2	3-4
Leg motor function	Extending the leg of the patient 30 degrees (in supine)	Normal to mild (limb upheld more than 5 seconds)	0	0-1
		Moderate (limb upheld less than 5 seconds)	1	2
		Severe (patient do not rise the leg against gravity)	2	3-4
Head and gaze deviation	Observe eyes and cephalic deviation to one side	Absent (eye movements to both sides were possible and no cephalic deviation was observed)	0	0
		Present (eyes and cephalic deviation to one side was observed)	1	1-2
Aphasia (if right hemiparesis)	Ask the patient two verbal orders - "close your eyes" - "make a fist"	Normal (performs both tasks correctly)	0	0
		Moderate (performs one task correctly)	1	1
		Severe (performs neither tasks)	2	2
Agnosia (if left hemiparesis)	Asking: - "Who is this arm" while showing him/her the paretic arm (asomatognosia) - "Can you move well this arm?" (anosognosia)	Normal (no asomatognosia nor anosognosia)	0	0
		Moderate (asomatognosia or anosognosia)	1	1
		Severe (both of them)	2	2
RACE Score total			0-9	

Hospital to hospital transfers

(1-4)

- The sooner we know about a transfer, the better.
- There is a minimum of 55 minute transport time by ground.
- If weather doesn't allow for Flight there may also be a delay in ground transport due to safety.

Hospital to hospital transfers

(2-4)

- **Hospital caregiver must call our dispatch center.**
 - **Our obligation is emergency calls within our district, but any transfer from the ER/ICU will also be treated as an emergency.**
 - **Clinics or other facilities must call 911.**
 - **Non-hospital patient locations will be transported to ER for evaluation.**
- **5 Ambulances on duty during the day and 4 at night.**
 - **We are in the process of adding one more day and night ambulance.**
- **Typically, only one ambulance out of town at one time but the ER doctor may designate this patient as a life threat emergency therefore allowing us to send another ambulance out of town.**

Hospital to hospital transfers

(3-4)

- **Nurse report to EMS crew.**
- **EMS will get the same report as the receiving facility.**
- **This is because many times the nurse you give report to is not the nurse taking the patient and the EMS crew has to give the whole report to them.**

Hospital to hospital transfers

(4-4)

- **Depending on the location of the ambulance, If the patient becomes unstable during transport, Medical Control may be contacted (Usually, Mosaic Life Care ER Provider).**
- **Receiving hospital may also be contacted.**
- **State requires us to transport to the appropriate level of care depending on patient condition.**
- **Transfers are attended by one paramedic in the back.**

BCEMS Critical Care Transport

Buchanan County EMS is currently in the initial phases of creating our Critical Care Transport Ambulance Program.

We are anticipating a 3-4 month time frame before this will be in service.

Crews will consist of either 2 CC paramedics or a CC nurse and a CC paramedic.

LifeNet 2-2 Saint Joseph



Our dispatchers may suggest LifeNet if our system status will not allow for a timely transport.

We have also used LifeNet flight crews in our ambulances for transport when weather does not permit them to fly.

After our critical care program is in service this will no longer be needed.

Questions?

For more information is needed please feel free to contact the following:

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Cell: 816-261-6731

Special thank you to Jace Drake, EMT-P