PROCESS ANALYSIS DURING INITIAL MOBILE STROKE UNIT IMPLEMENTATION

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ABSTRACT

Advanced and rapid primary stroke diagnosis and treatment for some programs now includes use of a Mobile Stroke Unit (MSU). The MSU is conceptually an acute stroke ready hospital on wheels. To date, few centers in the US employ an MSU. The MSU at Capital Health System is the first in New Jersey and only the second on the east coast.

OBJECTIVE

Objective — Identify and track changes in our systems, processes and work force management needed to support implementation of the Mobile Stroke Unit.

DESIGN/METHODS

Programmatic Analysis — Detailed examination of every aspect of the Mobile Stroke Unit to ascertain its requirements to identify supporting resources.

Cause and Effect Analysis — Aimed at discovering possible or probable casual factors and their outcomes to prevent and anticipate problems.

Group Discussions — A steering committee and subgroups exchanged ideas, information, and identified needs.

Concurrent Analysis — Continually analyze processes during implementation, using both team experience and lessons learned, to address potential issues and lead to success.

RESULTS

Solutions for SYSTEM, PROCESS and WORKFORCE challenges were developed based on design methods.

System Changes:

- System slowdowns and shutdowns [Computer Tomography transmission failures]. Rewiring of the truck to increase the speed of transmission
- Internet connection interruptions to the hub stroke center [Capital Health Regional Medical Center] attenuated with use of AirCard®
- Picture Archiving and Communication System (PACS) upgrade to ensure imaging could be routed simultaneously to different destinations/providers

Process Changes:

- EMS Algorithm modifications made to address real time drill results
- Communication among the MSU team supplemented with 3 way conference between MSU Critical Care Registered Nurse, Emergency Department and Teleneurology Physicians for better decision communication
- Use Calculated Weight[1] due to inability to have weight stretcher
- Tissue plasminogen activator (tPA, Alteplase) mixing and administration delegated to RN for off-site administration

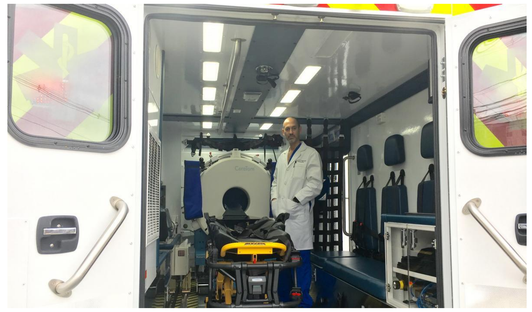
Workforce Development:

- Staff Training to clearly identify roles using both designated Emergency Medical Services team and hospital team
- MSU Algorithm mock drills to ensure seamless patient care
- Addition of MSU Critical Care Registered Nurse, experienced Computed Tomography (CT) Technician.

CONCEPT TO MOBILIZATION IN 9 MONTHS

May 2016	Mobile Stroke Unit – Conceptualization
June 2016	Decision to Purchase Mobile Stroke Unit
July 2016	Steering Committee and Project Managers Assigned
September 2016	Review and Assessment of timeline
November 2016	NJ DOH Office of Emergency Medical Services ambulance waivers received
December 2016	Education: Capital Health, External Hospitals, Teleneurology "ZOOM" Drills. NJ DOH licensure issued
January 2017	NJ Hospital Association Policy and Procedure Meeting, EMS twice daily drills for 2 weeks
January 2017	1st EMS Mobile Stroke Unit Dispatch

MOBILE STROKE UNIT



CONCLUSIONS

- Implementation of an MSU requires a continuous real-time analysis, as each program's capabilities may vary and needs to be assessed.
- Creation and subsequent awareness for the existence of a Mobile Stroke Unit at a regional medical center designed to deliver state-of-the-art neuro-care in Central NJ.

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REFERENCE

1. Lorenz, M.W., Graf, M., Henke, C., Hermans, M., Ziemann, U. Sitzer, M. & Foerch, C. Anthropometric Approximation of Body Weight in Unresponsive Stroke Patients. J Neurol Neurosurg Psychiatry. 2007 December; 78(12): 1331–1336.