Resource Availability for the Stroke Patient in Maryland

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Stroke

- Third leading cause of death
- Leading cause of serious, long-term disability
- Complexity of stroke care continues to evolve

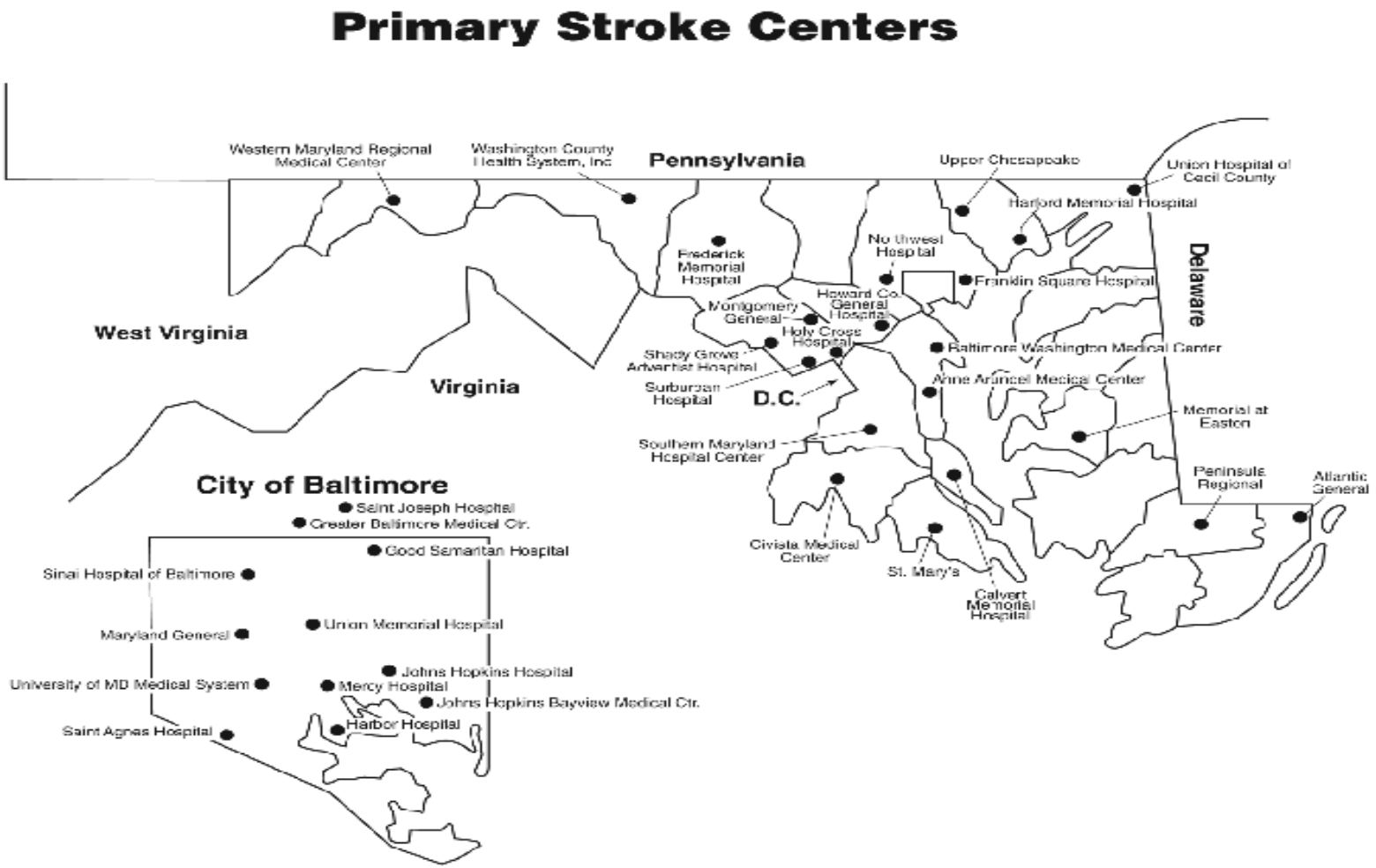
Stroke Resource Survey

- Purpose: determine the resource availability and location of resources for the stroke patient population. Having knowledge of one's "local" and another's "remote" resource availability is essential when providing care to the stroke patient.

Overview of Maryland Hospitals

- 45 Acute Care Hospitals in Maryland
- 43/45 Hospitals are Base Station Approved (required for designation as a Primary Stroke Center)
- 34/45 Hospitals are Designated as Primary Stroke Centers
- 9/45 Hospitals are Base Station approved but not designated as a Primary Stroke Center
- 2/45 Hospitals are not Base Station approved

Maryland's Primary Stroke Centers



Survey Questions

- Focused on 24/7/365 availability of resources.

*Dedicated Neuro Critical Care Beds (Neuro ICU)

*Availability Neurology/Neurosurgery/Vascular Neurology/ Interventional Neuroradiology/ and Neuro-intensivist

*Availability of Neuroimaging Tools

*Capability to manage various grades of subarachnoid hemorrhage

*Ability to treat patients via intraarterial thrombolysis and multi modality interventions

Survey Questions

* Percentage and length of time the Operating Room, Critical Care Unit or Interventional Radiology services are unavailable.
* Percentage and length of time the hospital is on Red/Yellow Alert or Re Route.

Overall Survey Response

- 39/45 hospitals responded (87%)
- Responses received:

  34/34 Primary Stroke Centers (100%)

  5/9 Base Station approved and Non Primary Stroke Center (56%)

  0/2 Not Base Station approved and Non Primary Stroke Center (0%)

Maryland Stroke Statistics

- CY 2009 419 patients received IV t-PA
- 24/419 patients from Primary Stroke Centers which “drip and ship”
- 18/419 patients from Non Primary Stroke Centers

Maryland Stroke Statistics

- CY 2009- 432 stroke patients (non t-PA patients) were transferred from community hospitals to tertiary facilities for higher level of care.

Stroke Resources in Maryland

- 4 hospitals have a dedicated Neuro ICU with a total of 58 beds available

Johns Hopkins	22 beds
University MD	12 beds
Holy Cross	16 beds
Johns Hopkins Bayview	8 beds

Availability & Accessibility of Neurologist

- All Primary Stroke Centers have 24/7/365 in house or on-call availability and accessibility of Neurologist.
- Non Primary Stroke Centers identified NO Neurology in house but have on-call availability 24/7/365.

Interventional Neuroradiology for Intra-arterial thrombolysis and multi modality interventions

- 6 hospitals have Interventional Neuroradiology capability
- 5 of the 6 hospitals have 24/7/365 capability
- 1 of the 5 hospitals have 24/7/365 capability sometimes

Availability of Neurological Imaging Tools & Clinicians 24/7/365

- Imaging tools defined as: CT/MRI/MRA/CerebralAngiography and Transcranial Doppler
- 8 hospitals identified having **all** tools available 24/7/365
- 14 hospitals identified having **only CT** available 24/7/365
- 6 hospitals identified having **all Imaging tools except** Transcranial Doppler and Cerebral Angiography available 24/7/365
- 11 hospitals identified having all imaging tools **sometimes** available 24/7/365

Availability Neurosurgeon 24/7/365

- 20 hospitals have Neurosurgery available 24/7/365 (either in-house or on-call)
- 6 hospitals **sometimes** have 24/7/365 coverage
- 9 Primary Stroke Center hospitals have **no** Neurosurgery coverage 24/7/365
- 3 non Primary Stroke Center hospitals have **no** Neurosurgery coverage
- 1 non Primary Stroke Center hospital has on-call Neurosurgery coverage Monday-Friday daytime only.

NeuroIntensivist Coverage

- 6 hospitals have Neurointensivist clinicians
- Johns Hopkins; Suburban; Sinai; University MD; Peninsula Regional Medical Center and Johns Hopkins Bayview

Availability of Vascular Neurology

- 6 hospitals have availability to Vascular Neurology
- Johns Hopkins; University MD; Sinai; Johns Hopkins Bayview; Peninsula Regional, and Suburban Hospital

Management of different grades of Subarachnoid Hemorrhage

- 6 hospitals have this ability
- Johns Hopkins; Suburban; Johns Hopkins Bayview, Peninsula Regional Medical Center, and University MD.

CY 2009 Region I Percentage of times Emergency Department on Alert/Diversion

- No hours on Yellow Alert /Red Alert / Re Route
- Percentage of time ER “unavailable or on diversion” 0%

CY 2009 Region II Percentage of times Emergency Department on Alert/Diversion

Alert Status	Average number hours on alert per call	Total number of times on Alert/Diversion
Yellow Alert	7 hours	61
Red Alert	13 hours	28
Re Route	0 hours	0
% times on alert or on Diversion	10%	

CY 2009 Region III Percentage of times Emergency Department on Alert/Diversion

Alert Status	Average # hours on Alert per call	Total # times on Alert/Diversion
Yellow Alert	7.5 hours	2900
Red Alert	12 hours	533
Re Route	1.4 hours	890
% of times on Alert or on Diversion	15%	

CY 2009 Region IV Percentage of times Emergency Department on Alert/Diversion

Alert Status	Average # hours on Alert per call	Total # times on Alert/Diversion
Yellow Alert	5 hours	83
Red Alert	15 hours	8
Re Route	0.61 hours	2
% of time on Alert or on Diversion	16%	

CY 2009 Region V Percentage of time Emergency Department on Alert/Diversion

Alert Status	Average # hours on Alert per call	Total # times on Alert/Diversion
Yellow Alert	21 hours	806
Red Alert	35 hours	528
Re Route	2 hours	282
% of time on Alert or Diversion	3.5%	

Percentage of time Interventional Radiology unavailable

- The 6 hospitals which have Interventional Radiology 24/7/365 have identified zero times their Interventional Radiology services were unavailable.

Percentage of time Tertiary Facility Operating Room Unavailable

- Johns Hopkins Bayview identified 1-2 times per month when the Operating Room is unavailable for a period of 1 hour each time.
- Remaining tertiary facilities identified zero hours of unavailability.

Percentage of time Neuro Critical Care Unit at Capacity

- Average number of times per month at capacity is 46.
- Average length of time the beds are unavailable when at capacity is a maximum 1-2 hours at each occurrence.
- Protocol in place facilitating transferring of patients out of Neuro ICU to another ICU/units within the hospital

Resource Availability for the Stroke Patient in Washington DC

- Limited response to survey questions received
- 2 Tertiary facilities responded:

  Georgetown and Washington Hospital Center

Washington DC Stroke Statistics

- CY 2009:
- Georgetown administered 5 doses IV t-PA
- WHC administered 48 doses IV t-PA

CY 2009 Stroke Patient Transfers Received

- Georgetown received 393 transfers from community hospitals
- WHC received 100 transfers from community hospitals

Neuro ICU bed capacity

- Georgetown has a Neuro ICU with 19 beds
- WHC is opening a Neuro ICU which will have 14 beds

24/7/365 Availability & Accessibility

- Georgetown and WHC have 24/7/365 availability & accessibility to the following:
- Neurology
- Neurosurgery
- Vascular Neurology
- Interventional Neuroradiology
- All Neurological Imaging tools and clinicians

NeuroIntensivist Coverage

- Neither Georgetown or WHC has NeuroIntensivist Coverage

Resources Unavailable

- Both facilities have identified zero times their Interventional Radiology services or Operating Rooms were unavailable.

Percentage of time Neuro Critical Care Unit at Capacity

- Average number of times per month at capacity is 25
- Average length of time the beds are unavailable when at capacity is maximum 2 hours at each occurrence
- Protocol in place facilitating transferring of patients out of Neuro ICU to another ICU/units with the hospital

Conclusion

- Community and rural hospitals in Maryland have limited in house resources and neurocritical care bed availability to care for the more complicated stroke patient or in some cases the post t-PA patient.
- Limited number of tertiary facilities in Maryland with 24/7/365 resources and neurocritical care bed availability
- Development and implementation of inter-facility transfer guidelines and the use of telemedicine are a critical component in providing the gold standard of care for the stroke patient population as well as promote effective utilization of health care resources

Conclusion

- The goal simply put is to have the right patient, at the right place, at the right time.

Stroke Resource Availability

Questions?