

Stroke Code Communication Compliance: Practice Quality Improvement

Tabassum A. Kennedy MD¹, Nick Marinelli MD¹,
 Stephen Quinet MD¹, Sara Nace MD¹,
 Jane Maksimovic MD¹, Jason Huston DO²,
 Leslie Hartman MD¹, Richard Bruce MD¹

University Of Wisconsin Hospital and Clinics, Madison, WI¹
 Community Care Physicians PC, Albany, NY²



ID: 14011458



Purpose

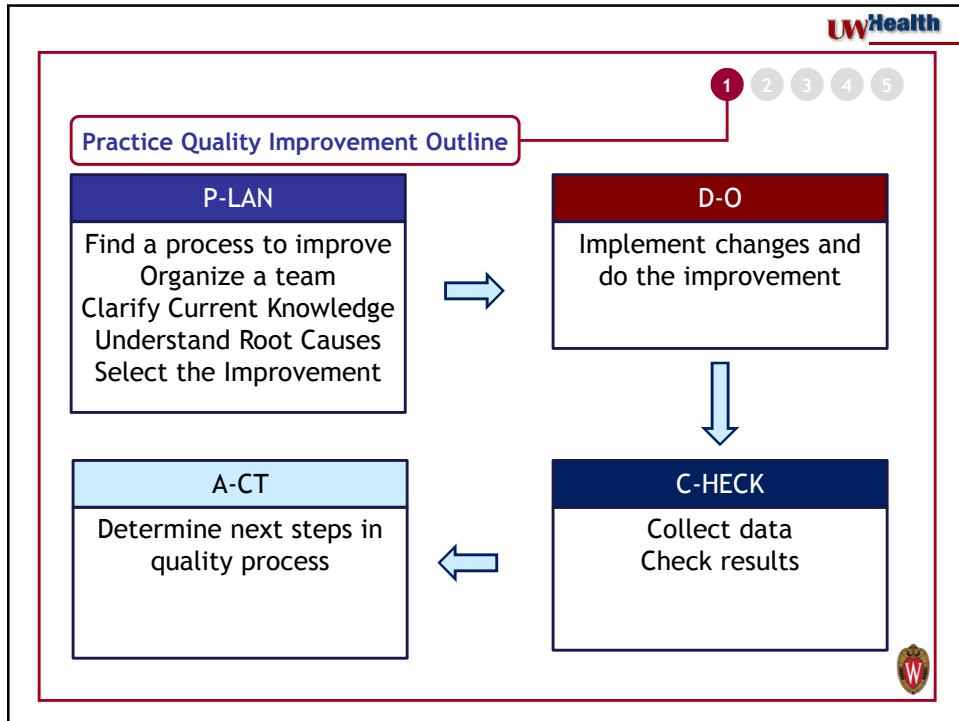
Why does this matter?

- Physicians taking care of patients presenting to the hospital with symptoms of acute stroke have a narrow time window for making treatment decisions.
- The earlier treatment can be initiated ultimately leads to reduced in-hospital mortality, reduced symptomatic intracranial hemorrhage, achievement of independent ambulation at discharge and increased discharge to home (1).
- Imaging plays a key role in triaging stroke patients to appropriate therapy.

Project Aim:

- Increase communication compliance between the Neuroradiology Division and clinical services regarding Head CT findings in patients presenting with acute stroke who are being considered for tPA (tissue plasminogen activator).






UWHealth

1 2 3 4 5

Background (PLAN)

Stroke Code CT Communication Compliance Background

- American Stroke Association (ASA) practice guidelines state:
 - "For patients who are candidates for treatment with tPA, the goal is to complete the CT examination within 25 minutes of arrival at the ED, with the study interpreted within an additional 20 minutes (door-to-interpretation time of 45 minutes)."(2,3)



Background (PLAN)

Stroke Code CT Communication Compliance Background

- American Stroke Association (ASA) practice guidelines state:
 - "*For patients who are candidates for treatment with tPA*, the goal is to complete the CT examination within *25 minutes of arrival* at the ED, with the *study interpreted within an additional 20 minutes* (door-to-interpretation time of 45 minutes)." (1,2)



Background (PLAN)

Stroke Code CT Communication Compliance Background

- UHC (University Health System Consortium) based on Joint Commission Guidelines --practice guidelines for stroke care
 - "Acute ischemic stroke patients who arrive at this hospital within 2 hours of time last known well and for whom IV t-PA was initiated at this hospital within 3 hours of time last known well."
 - **Included Populations:** Discharges with an *ICD-9-CM Principal Diagnosis Code* for ischemic stroke as defined in Appendix A, Table 8.1



Background (PLAN)

Stroke Code CT Communication Compliance Background

- UHC (University Health System Consortium) based on Joint Commission Guidelines --practice guidelines for stroke care
 - "Acute ischemic stroke patients who arrive at this hospital within 2 hours of time last known well and for whom IV t-PA was initiated at this hospital within 3 hours of time last known well."
 - **Included Populations:** Discharges with an *ICD-9-CM Principal Diagnosis Code* for ischemic stroke as defined in Appendix A, Table 8.1
 - **Excluded Populations:**
 - *Time Last Known Well* to arrival in the emergency department greater than 2 hours
 - Patients with a documented *Reason For Not Initiating IV Thrombolytic*



Materials/Methods (DO)

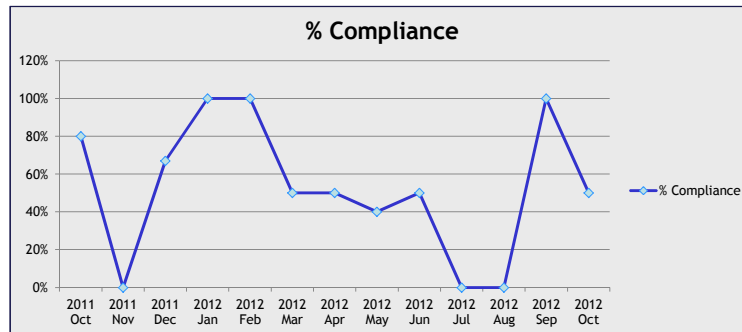
- We performed a group practice quality improvement project that included Neuroradiology faculty, clinical instructors, ACGME-accredited fellows and residents as well as administrative staff.
- The assessed metric was communication time in minutes, measured from the time of examination completion to the time of communication as dictated in the radiology report.
- Initial baseline communication compliance collected by the Radiology Department quality committee from one year prior to the initiation of this project was available as a baseline measurement.



Materials/Methods (DO)

Initial Data at the University of Wisconsin Hospital and Clinics:

- Based on random audit of patients with a **discharge diagnosis** of stroke
 - Initial auditing included all patients with stroke diagnosis regardless of time of presentation or whether patients were actually candidates for tPA (appropriate exclusion criteria had not been applied)
- Baseline Data: 20 min Communication Compliance 10/2011- 10/2012: **53%**



Materials/Methods (DO)

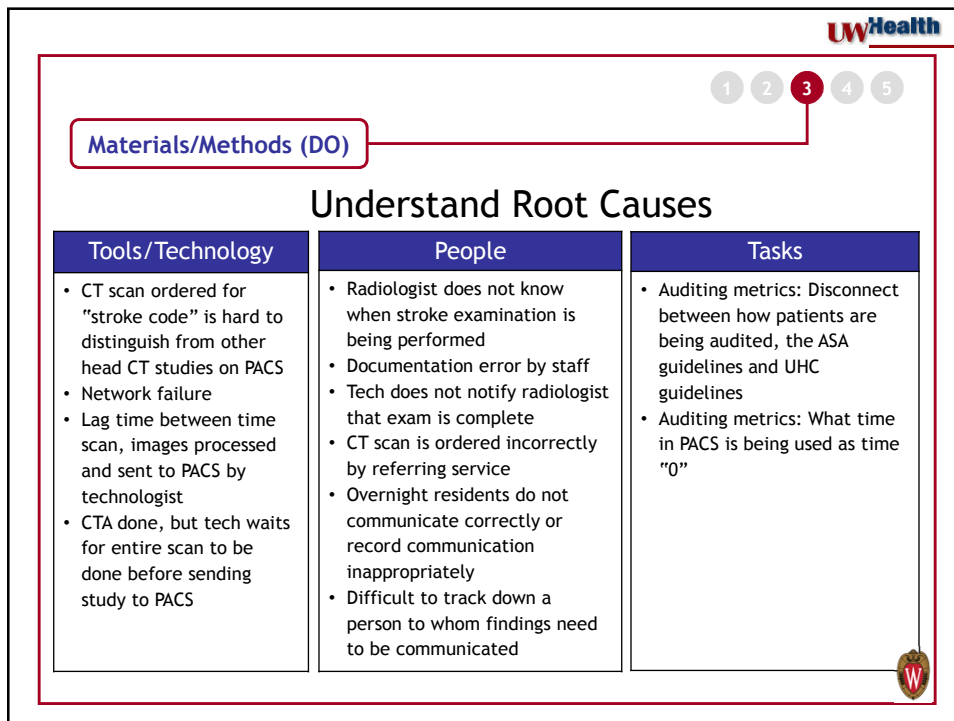
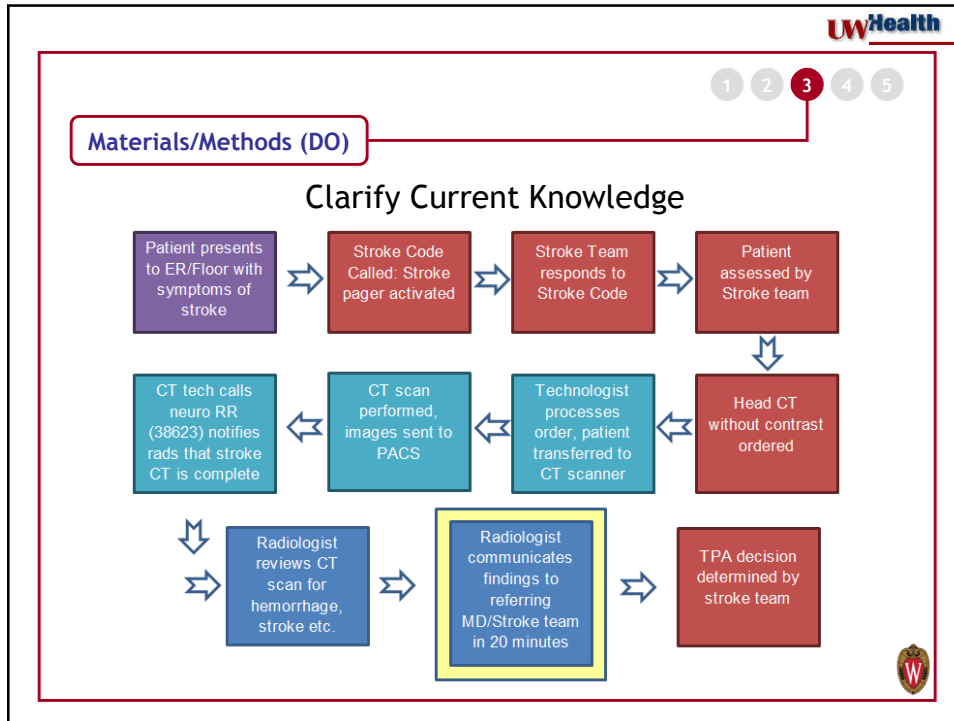
Initial Data at the University of Wisconsin Hospital and Clinics:

- Based on random audit of patients with a **discharge diagnosis** of stroke
 - Initial auditing included all patients with stroke diagnosis regardless of time of presentation or whether patients were actually candidates for tPA (appropriate exclusion criteria had not been applied)
- Baseline Data: 20 min Communication Compliance 10/2011- 10/2012: **53%**

Goal

- Our goal was to increase compliance to greater than 90% by December 2013.





Materials/Methods (DO)

Understand Root Causes

Tools/Technology	People	Tasks
<ul style="list-style-type: none"> CT scan ordered for "stroke code" is hard to distinguish from other head CT studies on PACS Network failure Lag time between time scan, images processed and sent to PACS by technologist CTA done, but tech waits for entire scan to be done before sending study to PACS 	<ul style="list-style-type: none"> Radiologist does not know when stroke examination is being performed Documentation error by staff Tech does not notify radiologist that exam is complete CT scan is ordered incorrectly by referring service Overnight residents do not communicate correctly or record communication inappropriately Difficult to track down a person to whom findings need to be communicated 	<ul style="list-style-type: none"> Auditing metrics: Disconnect between how patients are being audited, the ASA guidelines and UHC guidelines Auditing metrics: What time in PACS is being used as time "0"



Changes Implemented (DO)

Problem

Radiologists do not know when stroke patients are being scanned

How Problem Was Addressed

- New exam order created called a "Stroke Code CT-Head" which should be ordered only on patients who are candidates for tPA (implemented 11/2012)
- Stroke pager in RR (11/12)
- CT tech to call RR when "stroke code CT's" are scanned



UWHealth

1 2 **3** 4 5

Changes Implemented (DO)


M.	Procedure Types
CT	CT SCAN OF MAXI-FACE, ...
MR	MRI HEAD W & W/ O CON...
MR	MRA HEAD W & W/ O CO...
CT	CT ANGIO HEAD, NECK W...
MR	MRI HEAD W & W/ O CON...
CT	CT HEAD W/ O IV CONTR...
CT	CT CERVICAL SPINE W/ O...
CT	CT HEAD W/ O IV CONTR...
CT	CT ANGIO HEAD W PERF...
CT	CT CERVICAL SPINE W/ O...
CT	CT HEAD W/ O IV CONTR...
MR	MRI HEAD W & W/ O CON...
MR	MRI HEAD W & W/ O CON...
MR	MRI TOTAL SPINE W & W/...
MR	MRI & MRA HEAD W & W/...
CT	STROKE CODE-CT HEAD ...
MR	MRI HEAD W & W/ O CON...
MR	MRI CERVICAL SPINE W/...
CT	CT HEAD W/ O IV CONTR...

PACS Study list

How Problem Was Addressed

- New exam order created called a "Stroke Code-CT Head" which should be ordered only on patients who are candidates for tPA (implemented 11/2012)
- Stroke pager in RR (11/12)
- CT tech to call RR when "stroke code CT's" are scanned

"Stroke Code-CT Head" labelled as separate procedure type helps to distinguish exam from other head CT studies on non-stroke patients



UWHealth

1 2 **3** 4 5

Changes Implemented (DO)

Problem


Inconsistent communication statement

Auditing Metric

- Currently all patients with d/c dx of stroke are being audited to meet the 20 minute communication benchmark

How Problem Was Addressed

- "Stroke Code" powerscribe Macro with standard communication statement
- Resident Education: emphasize priority of stroke studies and importance of documentation
- Patients being audited should only include those patients who are candidates for tPA. Need to apply appropriate exclusion criteria according to UHC guidelines when auditing these patients.



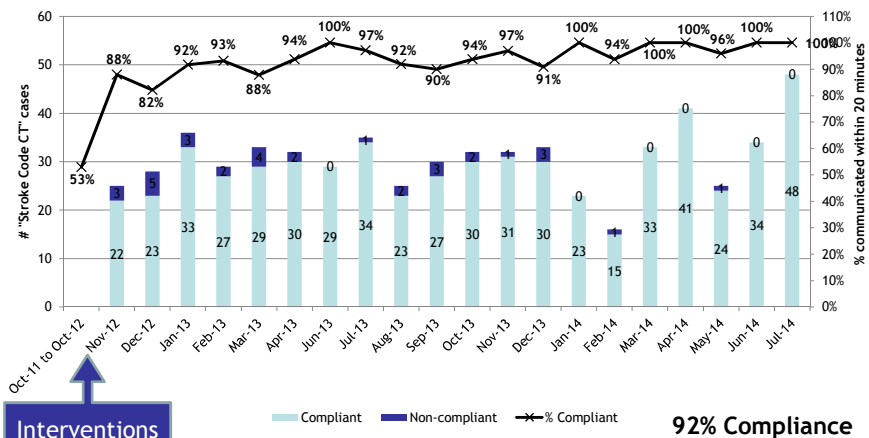
Materials/Methods (DO)

- We measured the communication compliance in all patients who underwent a "Stroke Code Head CT" from November 2012 - July 2014.
- Studies were designated as compliant if:
 - a communication statement was included in the report that was within 20 minutes of the examination
- Studies were designated as non compliant if:
 - a communication statement was not included in the report
 - the communication exceeded 20 minutes



Results (CHECK)

Stroke Code CT Communication



Interventions

Total Number of studies 619

586 Compliant

33 Non compliant

92% Compliance



Results (CHECK)

- Initial Compliance: 53%
- After interventions (11/12-7/14): 92%
 - "Stroke Code CT" designation
 - Stroke Code Pager in reading room
 - CT technologist to call reading room when study is complete
 - Communication Macro in Powerscribe
 - Resident Education

**Lessons Learned/Next Steps (ACT)**

- Presented data to Radiology Quality and Safety Committee and to Hospital Quality and Safety Committee
- No longer auditing all patients with a discharge diagnosis of stroke, now applying appropriate inclusion and exclusion criteria based on UHC guidelines
- Now all patients who have a "Stroke Code CT" scan are audited for communication compliance
- Ongoing: provide compliance feedback to faculty and trainees on communication
- Next Steps: work with referring clinicians on appropriate ordering of "Stroke Code CT" exam



Conclusion

- This practice quality improvement project streamlined the ordering and interpretation of head CT examinations in patients presenting to our hospital system with acute stroke, leading to greater compliance with ASA door-to-interpretation time guidelines and contributing to more expeditious delivery of care in patients who need it most.



References

1. Saver JL, Fonarow GC, Smith EE, Reeves MJ, Grau-Sepulveda MV, Pan W, Olson DM, Hernandez AF, Peterson ED, Schwamm LH. Time to treatment with intravenous tissue plasminogen activator and outcome from acute ischemic stroke. *JAMA*. 2013 Jun 19;309(23):2480-8.
2. Adams HP, Jr., del Zoppo G, Alberts MJ, et al. Guidelines for the early management of adults with ischemic stroke: a guideline from the American Heart Association/American Stroke Association Stroke Council, Clinical Cardiology Council, Cardiovascular Radiology and Intervention Council, and the Atherosclerotic Peripheral Vascular Disease and Quality of Care Outcomes in Research Interdisciplinary Working Groups: the American Academy of Neurology affirms the value of this guideline as an educational tool for neurologists. *Stroke; a journal of cerebral circulation*. May 2007;38(5):1655-1711.
3. Jauch EC, Saver JL, Adams HP, Jr., et al. Guidelines for the early management of patients with acute ischemic stroke: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke; a journal of cerebral circulation*. Mar 2013;44(3):870-947.



Stroke Code Communication Compliance: Practice Quality Improvement

Tabassum A. Kennedy MD¹, Nick Marinelli MD¹,
Stephen Quinet MD¹, Sara Nace MD¹,
Jane Maksimovic MD¹, Jason Huston DO²,
Leslie Hartman MD¹, Richard Bruce MD¹

University Of Wisconsin Hospital and Clinics, Madison, WI¹
Community Care Physicians PC, Albany, NY²



ID: 14011458