

CODE FAST Door-to-Needle (DTN) Improvement Initiative¹

Indication

Activase® (alteplase) is indicated for the treatment of acute ischemic stroke (AIS). Exclude intracranial hemorrhage as the primary cause of stroke signs and symptoms prior to initiation of treatment. Initiate treatment as soon as possible but within 3 hours after symptom onset.

Important Safety Information

Contraindications

Do not administer Activase to treat acute ischemic stroke in the following situations in which the risk of bleeding is greater than the potential benefit: current intracranial hemorrhage (ICH); subarachnoid hemorrhage; active internal bleeding; recent (within 3 months) intracranial or intraspinal surgery or serious head trauma; presence of intracranial conditions that may increase the risk of bleeding; bleeding diathesis; and current severe uncontrolled hypertension.

Please see additional Important Safety Information on end page and full [Prescribing Information](#).

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Overview

As it implemented the infrastructure for a comprehensive stroke center, the Kennestone Hospital of Marietta, Georgia evaluated its process for delivering Activase[®] (alteplase). Given the importance of timely delivery of Activase to patients with acute ischemic stroke (AIS), the hospital aimed to implement a quality improvement project, CODE FAST, in order to reduce DTN times.

Prior Approach: the Serial Stroke Process

The approach employed prior to CODE FAST was serial, each task being accomplished in a stepwise manner, including:

- Patients were brought in to the emergency room (ER) by emergency medical services (EMS) without prenotification
- The ER physician evaluated the patient, obtained a CT scan, and contacted the on call neurologist

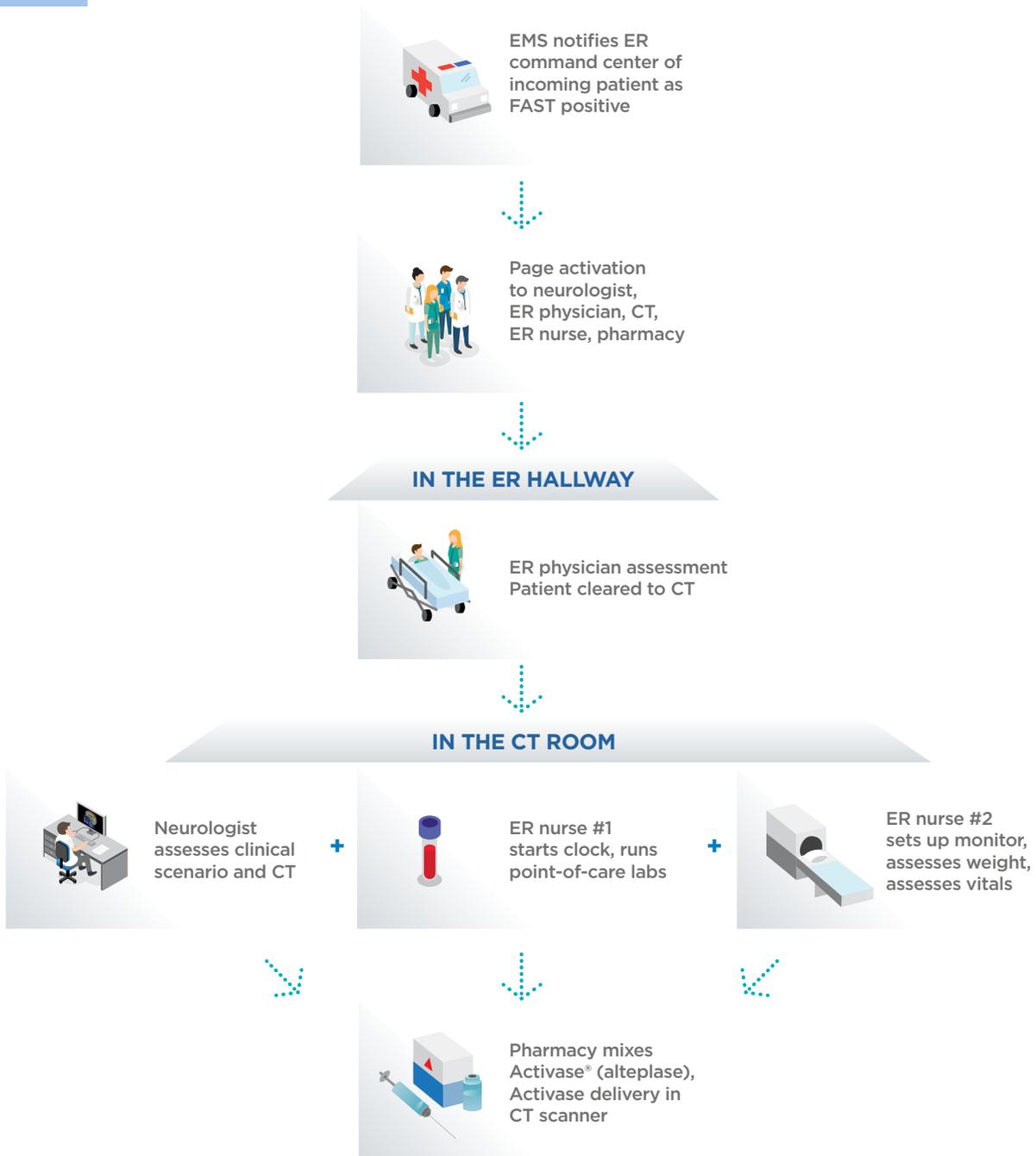
New Approach: the Parallel Path Process

Working together, EMS, the ER nursing staff and physicians, emergency department command center technicians, stroke neurohospitalists, pharmacy and radiology staff, as well as neurocritical care, developed a new initiative, CODE FAST. CODE FAST employs a parallel path for its stroke process, where several steps were standardized and occur concurrently (Figure 1). Under this initiative, EMS are trained to perform a **F**acial drooping, **A**rm weakness, **S**peech difficulties, and **T**ime (**FAST**) examination.

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Figure 1.

CODE FAST WORKFLOW



CT, computed tomography; EMS, emergency medical services; ER, emergency room; FAST, facial drooping, arm weakness, speech difficulties, and time.

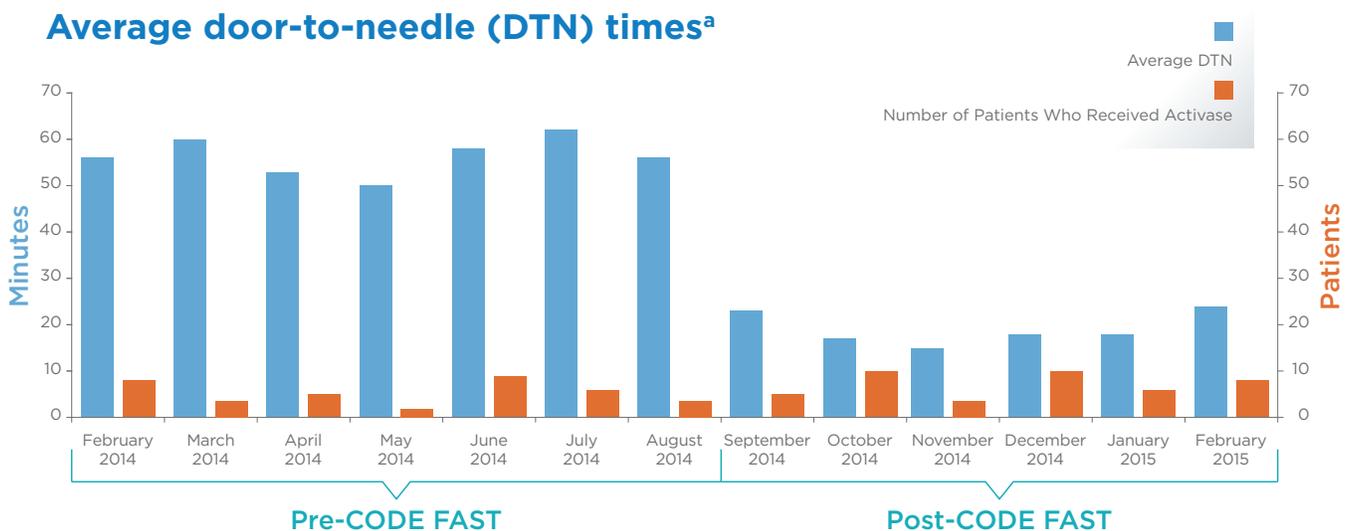
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Outcomes

As a result of CODE FAST, the authors noted a sharp decline in DTN times and an increase in the number of patients receiving Activase® (alteplase) (Figure 2). Comparing before (02/01/2014–09/08/2014) to after (09/09/2014–02/28/2015) CODE FAST implementation:

- The number of patients receiving Activase increased from 41 (of 414 total AIS admissions) to 52 (of 397 total AIS admissions)
- There was a sharp decline in DTN times
 - There was a statistically significant reduction in median DTN from 62 to 25 min ($P < 0.0001$)
 - There was a statistically significant reduction in median door-to-imaging time from 16 to 8 min ($P < 0.0001$)

Figure 2.



^a Please note that parallel path process results may vary between hospitals. Reproduced from *J Neurointerv Surg*, Busby L, Owada K, Dhungana S, et al, volume 8 (7), page 661-664, copyright notice 2016 with permission from BMJ Publishing Group Ltd.

Important Safety Information (cont'd)

Warnings and Precautions

Bleeding

Activase can cause significant, sometimes fatal, internal or external bleeding, especially at arterial and venous puncture sites. Avoid intramuscular injections and trauma to the patient. Fatal cases of hemorrhage associated with traumatic intubation in patients administered Activase have been reported. Heparin, aspirin, or Activase may cause bleeding complications; therefore carefully monitor for bleeding. If serious bleeding occurs, terminate the Activase infusion.

Orolingual Angioedema

Monitor patients during and for several hours after infusion for orolingual angioedema. If angioedema develops, discontinue the Activase infusion and promptly institute appropriate therapy.

Cholesterol Embolization

Cholesterol embolism, sometimes fatal, has been reported rarely in patients treated with thrombolytic agents.

Coagulation Tests May be Unreliable during Activase Therapy

Coagulation tests and/or measures of fibrinolytic activity may be unreliable during Activase therapy.

Adverse Reactions

The most frequent adverse reaction associated with Activase AIS therapy is bleeding.

Allergic-type reactions, e.g., anaphylactoid reaction, laryngeal edema, orolingual angioedema, rash, and urticaria have been reported.

Please see full [Prescribing Information](#) for additional Important Safety Information.

Reference: 1. Busby L, Owada K, Dhungana S, et al. CODE FAST: a quality improvement initiative to reduce door-to-needle times. *J Neurointerv Surg.* 2016;8(7):661-664.