CT/ED Turnaround Time Goals and Objectives

- Team comprised of Radiology and Emergency department physicians, management, and front line staff members to improve CT turnaround time through the use of LEAN methodology.
- Target Turnaround times identified as:
  - 124 mins for CT with contrast (oral and/or intravenous contrast media)
  - 60 mins for CT without contrast
- Turnaround time measured from order entry to results signed (ORE-RS)

Process Improvements

- CT oral contrast prep process changed:
  - Implemented Oral Omnipaque, prepared by CT Staff
  - Contrast refrigerator added to ED medication room
  - Per level established to decrease prep delivery time
  - Cost Savings: $6.80 per patient, 2008 annual savings: $47,750
  - Contrast waste ELIMINATED
  - PACS scanners on each CT computer to avoid bottlenecks
  - CT Assistant duties enhanced:
    - Obtain lab values
    - Complete medical history forms
    - Room preparation
    - Patient Transport
    - Patient positioning
  - Charge Tech assigned to manage workflow
  - CT Technologist staffing increased by 1.6 FTE’s January, 2009
  - Added dedicated phone line in CT for ED use
  - Room turnover time decreased from 15 mins to 9 mins.
  - Added instant messaging technology using Primordial, a dedicated tool for communication between Technologist and Radiologist.
  - PACS icons added to Amelior terminals.
  - ED Physicians able to view PACS images “in progress”.
  - QC Technologist designated as Radiology’s point of contact for patient flow issues.
  - Modified Nursing orders for CT prep task completion.
  - Radiology Contrast administration algorithm provided.
  - Non acute patients for imaging studies placed in central location.

ED/Radiology Improvement Team

- Team meets bi-weekly and consists of representatives from Radiology, Emergency Department, Information Systems, and Industrial Engineering.
- Team’s charter is to bring forth and address operational barriers to success.
- Members are assigned oversight of opportunities and report back to team with recommendations and solutions

Where are We Now?

- May 2009 - Rapid Improvement Team to decrease CT without contrast TAT to 60 mins by June 30, 2009
- Prioritized non contrast CTs to MX8000 and Duo scanners
- Negotiated with Lab to send patient to CT first
  - 1Q 2009: 86 Minutes
  - 2Q 2009: 77 Minutes
- With the work done by the RIT, the contrast CTs were positively affected. Target 124 mins
  - 1Q 2009: 155 Minutes
  - 2Q 2009: 144 Minutes

Summary

- Applying LEAN methodology and maintaining engagement of the staff yielded the following improvements:
  - ED CT with contrast, average TAT decreased 16 mins and volume increased 24% over 2007 baseline data
  - ED CT without contrast, average TAT decreased 6 mins and volume increased 23% over 2007 baseline data
  - CT staff productivity averaging 104% FYTD

- CT Associate overall job satisfaction improved 38%
- Improving staff and physician access to software applications improved communication, patient location, medical history, imaging, and results
- CT room turnover time decreased by 6 mins
- Annual cost savings for oral contrast $47,750.00 in 2008
- Radiologist staffing pattern adjusted to support increasing ED volume

CT/ED Patient Turnaround Time Improvement Project

Donna R. Morris, CRA, R.T. (R) (MR) Director, Radiology
Mary Washington Hospital, Fredericksburg, VA

Mary Washington Hospital Background

- 442 bed community hospital located in Fredericksburg, Virginia
- 50 bed Emergency Department treating over 100,000 patients annually
- Emergency Department using electronic charting software, Amelior.
- Received Trauma II designation September 2008

Imaging Services Background

- Full service Radiology department, providing Diagnostic X-ray, Nuclear Medicine, CT, MRI, Ultrasound and Interventional Radiology 24/7
- On site Radiologist providing real time interpretation 24/7 using Powerweb site to test recognition.
- Web based Philips iSite PACS accessible across organizational enterprise.
- Staffed with 183 FTE’s 24/7 to support over 190,000 procedures annually with 60,000 procedures originating from the ED.

Kaizen Event Overview

- A Kaizen Event is a team-based process improvement technique with the following characteristics:
  - Usually 3-4 full days in duration
  - Heavy focus towards change and action
  - Environment of trust, cooperation, transparency, and ownership
  - Uses a mix of very accessible techniques

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CT Department Overview

- Equipment Resources:
  - Philips 64 slice
  - Siemens Sensation 16 slice
  - Philips MX 8000 4 slice
  - Siemens Duo 2 slice with CT fluex (used primarily by Interventional Radiology)
- Staff Resources - Department staffed 24/7
  - CT Supervisor – 1.0 FTE
  - CT Technologists – 10.0 FTE’s
  - CT Assistants – 8 FTE’s

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Thank you to the staff and physicians members of the Mary Washington Hospital Radiology and Emergency Departments. These improvements could not have been made without the commitment of all involved.