Reducing Waste and Improving Compliance with Regulatory Standards in the Ordering Process for Ultrasound Examinations from the Emergency Department
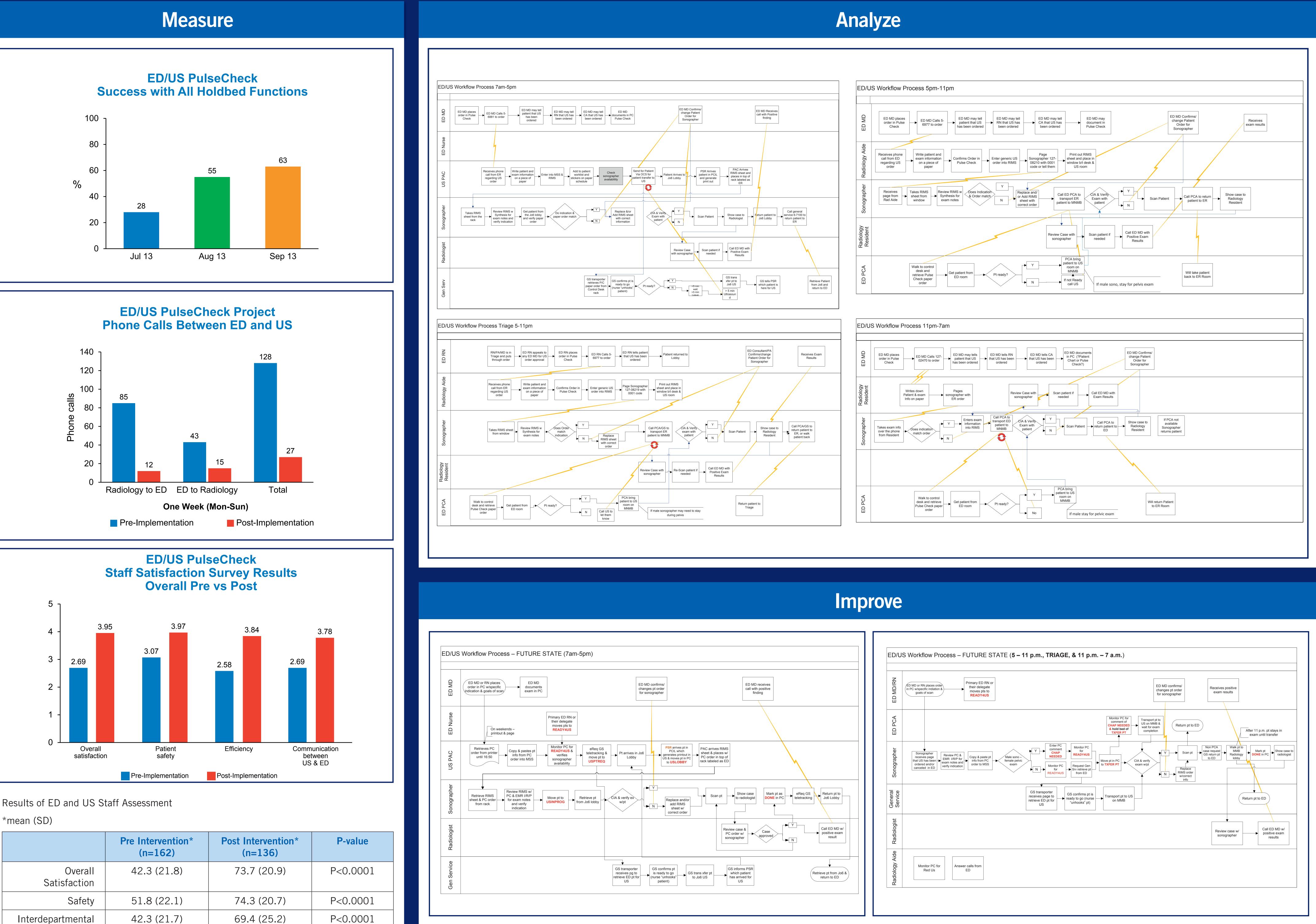
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Background

This project was a collaborative effort between the Departments of Radiology and Emergency Medicine that used a Define-Measure-Analyze-Improve-Control (DMAIC) framework to improve the order cycle process for ultrasound examinations from the Emergency Department (ED) without negatively affecting throughput. The primary objectives were to:

1. Reduce variability in the ordering and execution process
2. Eliminate gaps and redundancy in communication
3. Reduce waste by leveraging technology and practice standardization to improve efficiency and staff satisfaction
4. Design an infrastructure that facilitated ongoing monitoring of the process and detect opportunities for further improvement

Define

Mayo Clinic Project Charter

Project Name:
Ultrasound (US) & Emergency Department (ED) Orders Project
Brief Project Description *(What will this project do?) (255 characters):*
The project's main goal is to improve communication and efficiency between the Emergency Department (ED) and Ultrasound in the Department of Radiology. Our aim is to reduce or eliminate waste in the ordering process and execution processes for Ultrasound particularly as it pertains to the Emergency Department.

Business Need *(Problem or Opportunity Statement / Background of Need)*
Current issues and gaps in quality related to ordering US exams in the Emergency Department:
1. The use of a paper copy of the order which can/has been misplaced.
2. ED physicians calling US with demographic information for entering into RIMS and can/has been inconsistent with the paper order.
3. Multiple interruptions, both in ED and US, verifying the correct exam/patient
4. Inability to accurately measure time from order to exam completion
5. Ineffective communication of patient's availability and location of the patient

As a result of these items we have wasted staff work hours, delays in patient care with the potential for patient harm, and ineffective resource management overall.

Our aim is to improve gaps in quality between departments by implementing PulseCheck for US orders from the ED by June 29, 2013.

Project Value– Quantitative and Qualitative Metrics of Success

Objective	Metrics/Measurements
Eliminate/reduce number of phone calls	# of phone calls to/from ED

Communication Plan: ED/US PulseCheck Project

Message	Purpose / Objective	Vehicle/Media	Sender	Responsible	Audience	Frequency	Date
Goals of the project Timeline Updates	Inform Seek input Update	SMH US Lead Meeting	Nora Harer	Nora Harer	SMH US Management Team	Monthly	1/15/13 2/19/13 3/19/13 5/21/13 6/18/13
Goals of the project Timeline Updates	Inform Seek input Update	Ultrasound Staff Meeting	Nora Harer/ Tracey Adams	Nora Harer/ Tracey Adams	Sonographers	Monthly	4/5/13 5/3/13 6/7/13 7/11/13 8/2/13
Goals of the project Timeline Updates	Inform Seek input Update	Email	Tracey Adams	Nora Harer Tracey Adams	ER Staff	As Needed	7/25/13 Pulse Check follow-up for Sonographers.docx 9/10/13 Pulse Check US Tip Card.pub
Goals of the project Timeline Updates	Inform Seek input Update	Email	Tara Green Kelly Dean	PAC Group	PAC's	As Needed	6/11/13 Pulse_Check_Email_for PAC's.docx 7/26/13 Pulse_Check_Follow-up Info for PAC's.docx
Goals of the project Timeline Updates	Inform Seek input Update	US Nursing Meeting	Nora Harer	Nora Harer	Sonographers Nurses Provincial Assistants PAC's PSR's	Monthly	6/20/13
Goals of the project Timeline Updates	Inform Seek input Update	Email	Cindy Seigie	Nora Harer	Radiology Aides	As Needed	4/18/13 Pulse Check Email for Radiology Aides.docx

Mayo Clinic Enterprise Project Management Standard Stakeholder's Analysis Template

Stakeholders (can be Individuals / Groups / Departments)	ARCIVD Role	Key Interests & Issues	Assessment of Impact (H,M,L)	Current Status (advocate, supporter, neutral, critic, blocker)	Key Communication Points
ED providers/ED Practice	I, C, D	Reduced order duplication, reduce interruptions for demographics, all studies ordered are performed in a timely manner	H	A	Thru CPC, Venk, Consultant, resident, Pas, email
ED nurses/ED CNS	R, C, I, D	Coordination between ancillary services (barriers clear), know the pts location status outside of ED, gender chaperone, improved workflow, communication	M	S	Nursing Practice for initial rollout, Steve & Karen
US Inpt Schedulers	R, C, I, D	More efficient comm; eliminate phone calls; ability to verify the order real time Safer & more efficient workflow, less interruptions, correct information the first time, reduce multiple visits in delay in care, know when the patient is...	H	A	Bi-monthly meetings; put it in the minutes

(partial snapshots)

Measure

ED/US PulseCheck Success with All Holdbed Functions

Jul 13	Aug 13	Sep 13
28	55	63

(%)

ED/US PulseCheck Project Phone Calls Between ED and US

One Week (Mon-Sun)

	Radiology to ED	ED to Radiology	Total
Pre-Implementation	85	43	128
Post-Implementation	12	15	27

(Phone calls)

ED/US PulseCheck Staff Satisfaction Survey Results Overall Pre vs Post

	Overall satisfaction	Patient safety	Efficiency	Communication between US & ED
Pre-Implementation	2.69	3.07	2.58	2.69
Post-Implementation	3.95	3.97	3.84	3.78

Results of ED and US Staff Assessment
*mean (SD)

	Pre Intervention* (n=162)	Post Intervention* (n=136)	P-value
Overall Satisfaction	42.3 (21.8)	73.7 (20.9)	P<0.0001
Safety	51.8 (22.1)	74.3 (20.7)	P<0.0001
Interdepartmental Communication	42.3 (21.7)	69.4 (25.2)	P<0.0001
Perceived Efficiency	39.6 (23.0)	70.9 (22.7)	P<0.0001

Analyze

ED/US Workflow Process 7am-5pm

ED/US Workflow Process 5pm-11pm

ED/US Workflow Process Triage 5-11pm

ED/US Workflow Process 11pm-7am

Improve

ED/US Workflow Process – FUTURE STATE (7am-5pm)

ED/US Workflow Process – FUTURE STATE (5 – 11 p.m., TRIAGE, & 11 p.m. – 7 a.m.)

⚡ = Phone Call

Control

Project Closure Report

Project Name: ED/US PulseCheck Project
Departments: Emergency and Radiology
Product/Process: Electronic US orders from the Emergency Department

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(partial snapshot)

Lessons Learned

- Organizing a team of engaged stakeholders early in the process was critical to our success, as it allowed the team to identify and collaboratively overcome barriers
- Education and diffusion were critical. Engaging motivated proponents of the project in each area allowed for grass-roots education regarding the process and its benefits
- Active participation by the ED physician and resident was vital to the project's success
- Uncovering rogue practices/workarounds and moving from individualized thinking to group consensus were prerequisites to developing standards
- Including one additional overnight shift representative on the workgroup would have been beneficial

For questions, scan here to contact us.