A Clinical Redesign Project to Improve the Efficiency and Appropriate Utilization of Echocardiography at a Community Hospital within a Health System.

John-Ross Clarke[1] MD; Anesta Williams; Dawn Blaszka[2]; Stuart Zarich[3] MD, FACC; Gilead Lancaster[3] MD, FACC

[1]Department of Internal Medicine, Yale New Haven Health/Bridgeport Hospital, CT, USA.
[2]Department of Echocardiography, Yale New Haven Health/Bridgeport Hospital, CT, USA.
[3]Department of Cardiology, Yale New Haven Health/Bridgeport Hospital, CT, USA.

BACKGROUND & RATIONALE

• Many physicians are unaware of the appropriate use criteria (AUC) for inpatient versus outpatient echocardiograms, particularly transthoracic echocardiograms (TTEs).

•The added volume of avoidable tests ordered decreases the efficiency of an imaging department.

OBJECTIVES

•We anticipated that through raising physician awareness of the AUC and the simplification of electronic medical record (EMR) nomenclature of order codes, we could achieve an estimated 10% reduction in in-patient TTEs ordered.

METHODS

• We implemented a 2-month AUC-based education intervention targeting the most frequent test ordering stakeholders.

•Our team generated a modified version of the ACCF AUC for TTE based on in-patient ordering practices at our institution.

•The contents of our program included:

(i) 'rarely appropriate' (rA) indications for in-patient TTEs (**Figure 2**)

(ii) appropriate indications for 'STAT' and portable studies

(iii) common appropriate indications for repeat TTEs.

• In addition, there was a health system-wide initiative to simplify the EMR echocardiogram test ordering nomenclature (with suggested common test indications) as well as implementation of best-practice alerts for repeat testing (within 6 months).

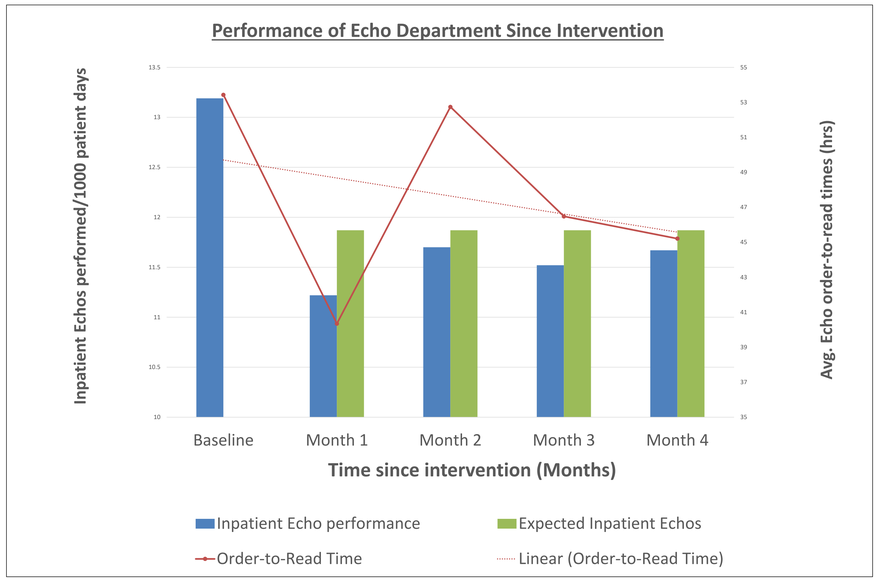


Figure 1. Trend in Echo Order-to-Read time with volume of Inpatient Echos performed/1000 patient days since intervention.

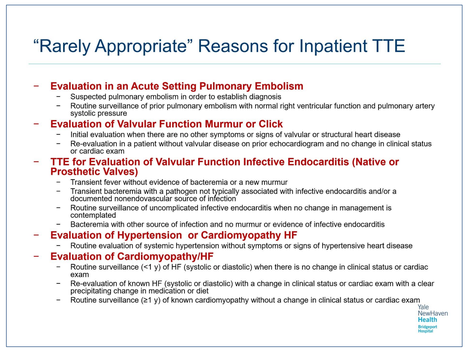
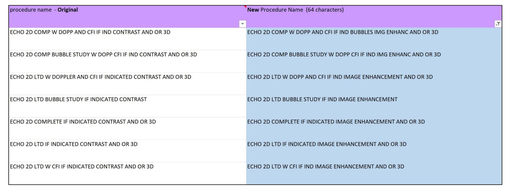


Figure 2. Screenshot of 'rA' indications for inpatient TTE's used in our education program.

A.



B.

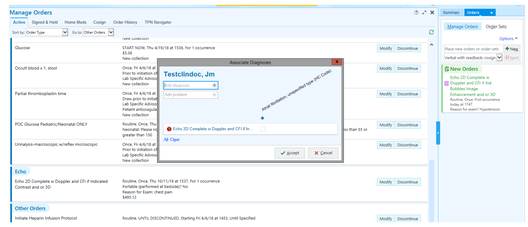


Figure 3. Part A- Simplification of echo order names.
Part B- Required diagnosis association for in-patient echos.

RESULTS

•Within 4 months of our intervention, we achieved the following outcomes:

1) the volume of in-patient echocardiograms performed (normalized to patient census per 1000 patient days) decreased by 11.1%. (**Figure 1**)

2)The volume of duplicate echos ordered also decreased by 32.1%. The average echo order-to-read time was reduced by 46.6%.

• Further analysis to stratify the data according to appropriate and rA indications is ongoing.

CONCLUSIONS

• Through simplification of the AUC with a focus on rA and highly frequent in-patient indications (both repeat and first-time testing), we anticipate sustained optimal use of echocardiography.

FUTURE IMPLICATIONS

• With the addition of: (i) simplification of web-based ordering nomenclature and (ii) required AUC diagnosis associations for in-patient studies, we anticipate continued increase in the efficiency of our echocardiography department. (**Figure 3**)

No Relevant Disclosures