Application of PDSA cycle for auditing preprocedure documentation of image-guided Procedures

QI project to improve efficiency and patient safety at a community hospital

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Disclosures

- None of the authors declare any potential conflict of interest.
Introduction

American College of Radiology and Society of Interventional Radiologists published practice guidelines in 2009

(Available at http://www.acr.org/guidelines)

- Detailed recommendation for pre-procedure documentation in regard to image-guided procedures (e.g. biopsy, paracentesis, abscess drainage) by radiologists
  - The plan for each procedure to be performed
  - Indication for procedure and brief history
  - Findings of targeted physical examination
  - Relevant laboratory and other diagnostic findings
  - Risk stratification, such as the American Society of Anesthesiologists Physical Status Classification
  - Documentation of informed consent
Results of 1st audit

- Audit of pre-procedure documentation of 29 ultrasound-guided procedures performed within the Department of Radiology during a 4-week period in August 2013
  - Poor quality of documentation, with overall adherence rate to the ACR/SIR guidelines of 8%
  - Reasons for poor results: too busy, lack of awareness about the guidelines

Example: 8/16/13 9:00 am

The patient is admitted to MedEase for ultrasound-guided liver biopsy for evaluation of a liver mass. PLT 298, INR 1.03 on 8/14/13. Patient not on any anti-coag medications. Informed consent obtained.

*Resident Name and signature*
Objectives

- To improve the quality of pre-procedure documentation by two means
  
  1. By improving the efficiency of the work flow for residents
  2. By creating a proforma (in which most clinical information is auto-fed) within the EPIC (our electronic medical record system) for the pre-procedure documentation that collects all necessary items listed in the guidelines
Methods

Topic: Pre-procedure documentation
Standard: ACR/SIR practice guidelines

Initial audit: August 2013
Data analysis: November 2013
Re-audit and data analysis: March 2014
Use of the proforma in practice
Creation of an EPIC proforma
Methods

- Using 10 randomly selected procedures as ‘simulated requests’, we measured time taken to complete pre-procedure documentation, without and with the use of proforma:
  - Five radiology residents performed ‘simulated clinical information collection’ and ‘simulated pre-procedure documentation’, both without and with using the new proforma
  - **Inter-observer variability assessment**
    - To prevent residents entering information by memory, the first session (without proforma) and the second session (with proforma) were held with 4 weeks time interval
  - Two residents repeated the whole process, with 12 weeks time interval between sessions:
    - **Intra-observer variability assessment**
Without proforma:

- Open the patient’s medical record in EPIC (Electronic Medical Record)
- Manually search the necessary information
- Manually fill out paper ‘pre-procedure checklist’
- Discuss the action with the attending
- Type pre-procedure notes in free form in EPIC

With proforma:

- Open the patient’s medical record in EPIC
- Launch the smartphrase
  - Information is mostly auto-fed
  - Complete the remaining necessary empty fields (e.g. consent, NPO, issues with coagulation, ASA status, sedation)
- ‘Pend’ the document and discuss the action plan with the attending
- After obtaining approval, fill out the action plan and sign the document
Methods

Re-audit:
- Pre-procedure documentation of 33 ultrasound-guided procedures in a 4-week period in March 2014
- Pre-procedure documentation entered using the proforma
- Re-assessment of the adherence rate to the ACR/SIR guidelines
Results

- Median time taken for information collection and preprocedure documentation per case was reduced in all residents, ranging from 52% (from 7 min 46 sec to 2 min 56 sec: resident E) to 69% (from 8 min 38 sec to 2 min 40 sec: resident A) reduction.

- Repeated measurements by two residents showed similar results.

- Adherence to ACR/SIR guidelines improved from 8% to 100%.
Results

Reduction of median time taken for information collection and preprocedure documentation by using the proforma

- Resident A: ↓69%
- Resident B: ↓65%
- Resident C: ↓59%
- Resident D: ↓52%
- Resident E: ↓62%

(minutes of time taken)

(YaleNewHavenBridgeport Hospital Health)
Results

Improvement of adherence to ACR/SIR preprocedure documentation guidelines

↑92%

Rate

Without proforma

With proforma
Adverse Events

Without proforma:
- Delayed discharge due to post-liver biopsy pain (1 case)
- Delayed discharge due to continued leak of ascitic fluid post-paracentesis (1 case)

With proforma:
- Due to miscommunication among staff, one case was about to be performed without the patient signing the written informed consent
  - Thanks to the proforma, a resident realized a lack of it and prevented an incident
- None post-procedure
Discussion

- Use of the new proforma improved both efficiency of work flow and quality of preprocedure documentation.
- Improvements are a result of a completion of an audit process.
- EPR has been time consuming for physicians due to extensive need for documentation, but this type of tool might streamline workflow, leaving more time for bedside patient care.
- Adverse events that occurred before the use of proforma could not have been prevented even if the proforma was available.
- The proforma did prevent one potential incident.
Conclusion

Our QI project using PDSA cycle showed that the effective use of a proforma with autofeeding feature from EPR can improve efficiency and quality of documentation in line with ACR/SIR guidelines, and thus improve patient safety.