

# Improving Documentation of Arterial Pulse Exams: An EMR Intervention

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# Financial Disclosures

- The authors do not have any financial relationship with commercial organizations that may have a direct or indirect interest in the content.



# Background and Purpose

- ***Interventional radiologists (IRs) perform procedures requiring arterial access on a daily basis***
  - The peripheral pulse exam is a critical part of the patient evaluation, for access and in case of complications
  - However, the pulse exam is not always done or documented
- **Study Purpose:** To employ tools from our hospital's new electronic medical record (EMR) that prompt clinicians to perform and efficiently document the pulse exam



# Materials and Methods

- ***Intervention: We deployed a smart-phrase that when typed, immediately inserts a dedicated fill-in-the-blank peripheral pulse exam***

- “.PULSES”

Skin: Intact, warm, no lesions, no rashes, no cyanosis, no ulcers

**Right pulses:** radial \*\*\*, femoral \*\*\*, DP \*\*\*, PT \*\*\*

**Left pulses:** radial \*\*\*, femoral \*\*\*, DP \*\*\*, PT \*\*\*

Laboratory:

@LASTCOAGS@

- Additionally, IR department-wide templates were updated to automatically embed the new smart-phrase, e.g.
  - “.IRCONSULT”
  - “.IRINPATIENTPROGRESSNOTE”



# Materials and Methods

- **Patient population:** New patients to the multidisciplinary hepatobiliary IR clinic being evaluated for a procedure that requires arterial access
- **Study period:** April 2016 (the “go live” date of the hospital’s new EMR) to December 2016
- **Intervention date:** An email was sent September 2016 notifying all IR clinicians of the new tools
- **Analysis:** Single-institution, IRB-exempt study
  - Documentation rates, specific peripheral pulses documented, and clinician type were compared before and after the intervention
  - Data were compared and analyzed using the N-1 chi-squared test

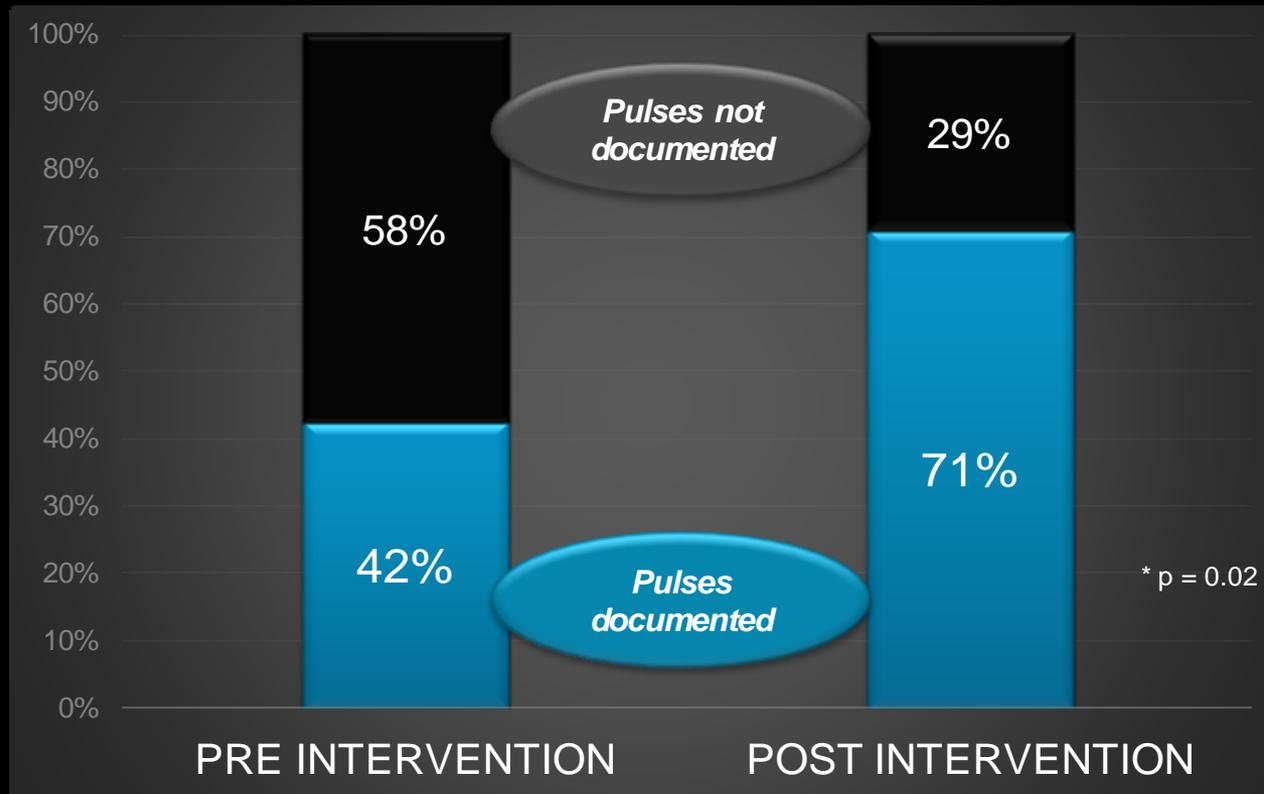


# Results

- 64 new outpatients (33 pre-implementation, 31 post) were evaluated for a procedure requiring arterial access
- Performed arterial procedures included: transarterial chemoembolization (TACE) (42%), selective internal radiotherapy (SIRT) (34%), uterine artery embolization (UAE), peripheral angiography, and selective embolization of visceral arteries (remainder <10%)
- ***Findings: Rate of documentation went from 42% (14 of 33) to 71% (22 of 31) (p=0.02)***



# Results



**Documentation rates of peripheral pulses rose significantly after implementation of the new smart-phrases and templates**



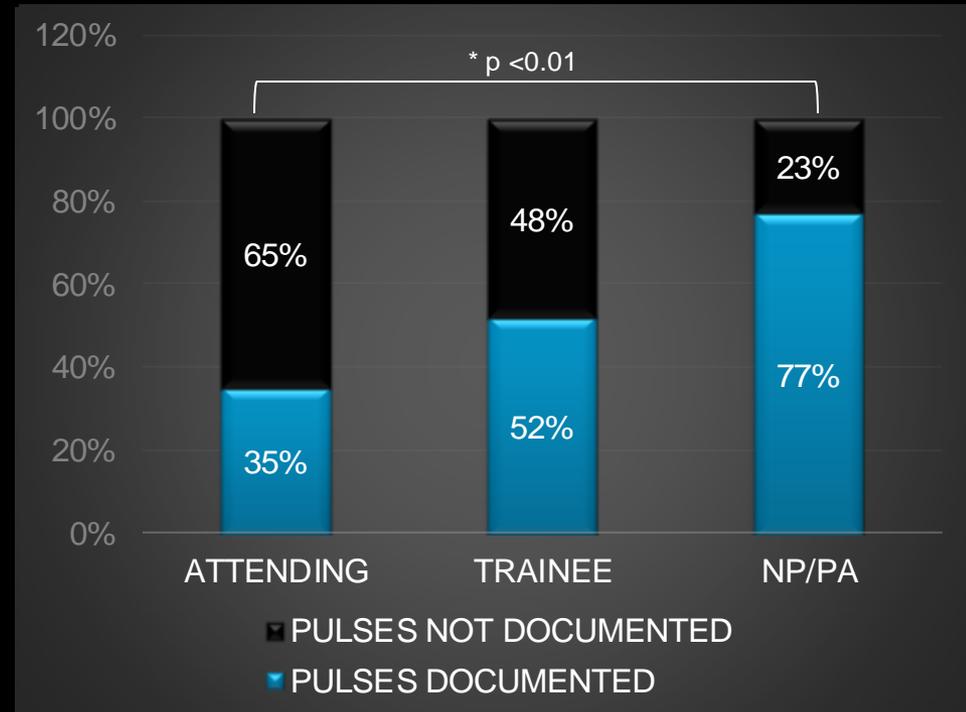
# Results

The radial pulse exam was least frequently performed compared to the lower extremity pulses.

Of cases where any pulse was documented



FEM = femoral, DP = dorsalis pedis, PT = posterior tibialis



Midlevel practitioners had the best rate of documentation overall, followed by fellows/residents and then attendings.

# Discussion

- **Templates and smart-phrases** appear to be helpful reminders to document (and perhaps perform) critical peripheral arterial pulse examinations in IR clinic
  - Simple interventions may be useful in **modifying other behaviors** of IRs in clinic (e.g. assessing cardiovascular risk factors)
- Additional analysis may be conducted to characterize:
  - **Longer-term impact** of the intervention
  - Impact of documentation on inpatients and/or the perioperative setting



# Conclusion

- **Transarterial procedures** are a core part of interventional radiology
- **Proper documentation of peripheral pulses** are a small but essential component of good clinical practice
- This QI initiative suggests that a straightforward intervention using **simple tools from the EMR can significantly improve documentation** and perhaps performance of this exam



# Thank you

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