Improving First-Time Quality of NeuroCT Exam Protocols in the Emergency Department and Hospital Setting

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Background

Traditionally, CT imaging orders during on call hours, weekends, and holidays were handwritten on printed order sheets.

- Single paper document
- Handwritten order
- Ambiguous documentation
- Exams fall through the cracks
Background

• Essential elements of a complete order
  • Specification for IV contrast
  • Examination protocol
  • Patient disposition
  • Radiologist signature and time stamp

  Critical-to-quality (CTQ) elements

Goal Statement

Improve first-time quality of NeuroCT orders from 24% to 95% within one month
Results

• Of the orders reviewed:
  • 24 (24%) had all the necessary elements
  • 69 (69%) were missing the patient disposition
  • 32 (32%) were missing the signature/time stamp
  • 15 (15%) were missing the contrast order
  • 1 (1%) was missing the exam protocol

Interventions

• Investigation and affirmation of CTQ items
• Education on protocol process, structure and goals
• Implementation of an abridged electronic pick-list
Post-intervention Results

- 100 orders reviewed
- 73 (73%) had all four CTQ elements
- 27 (27%) missing at least one CTQ element
  - 21 cases were missing a contrast order
  - 2 cases missing the time stamp
  - 1 case missing the disposition
  - 3 cases missing contrast order, time stamp and disposition

Summary of change in FTQ

![Bar chart showing pre and post intervention results for all CTQ elements and 3 or fewer CTQ elements.](image)
Control Phase

• Stretch goal of >95%
• Modify electronic pick list:
  • Build “NO IV CONTRAST” into routine non-contrast studies
  • Text to include “WITHOUT IV CONTRAST UNLESS OTHERWISE NOTED”
• Encourage use of abridged dictionary
• Educational modules

Conclusion

Team-based process improvement resulted in increased FTQ of NeuroCT protocling from 24% to 73% in the hospital and ED non-regular hours setting