OVERUTILIZATION OF RADIOLOGY IN THE ED AND INPATIENT SETTING: ARE CLINICIANS SOLELY TO BLAME?
AUTHORS AND DISCLOSURES

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BACKGROUND

- Pennsylvania Hospital
  - Founded in 1751 – Nation’s First Hospital
  - 500+ bed tertiary care hospital affiliated with the University of Pennsylvania
  - Located in the heart of Philadelphia
  - Approximately 25,000 patients served annually.
BACKGROUND

- Department of Radiology
  - 5 Body radiologists and 4 Thoracic radiologists in addition to Neuroradiology and MSK radiology
  - >750,000 reports generated annually by the department
BACKGROUND

• Anecdotally, there seemed to be many cases in which radiograph was performed soon before or after CT of the same body part.

• We sought to evaluate the frequency of this occurrence, understand the underlying causes for concurrent ordering studies, and determine how this can be avoided or minimized in future.
PURPOSE

• To examine the frequency of concurrent orders for radiographs and computed tomography (CT) studies of the same body part in ED and inpatients.

• To examine the frequency of concurrent performance of these ordered radiographs and CTs

• Determine ways to diminish unnecessary studies.
MATERIALS AND METHODS

• Electronic records (EPIC) queried for patients with concurrently ordered and performed chest or abdomen same body part radiographs in ED and inpatients were evaluated over an 18 month period between July 2015 and December 2016.

• For studies to qualify as "concurrent", they must have been ordered/performed within 30 minutes of each other.

• Queried data included body part, ordering department, and calculated time interval between when the studies were performed.
RESULTS – CONCURRENTLY ORDERED STUDIES

- 310 patients with at least one radiograph and CT of the same body part concurrently ordered (median 4 min) during this time period.
- 629 total studies concurrently ordered (469 chest and 160 abdomen).
RESULTS – CONCURRENTLY ORDERED STUDIES

- The hospital services that concurrently ordered studies were Emergency Medicine (206 studies), Surgery (40), Medicine (38), and Obstetrics/Gynecology (4).
RESULTS – CONCURRENTLY ORDERED STUDIES

• The median time (average, range) between performance of concurrently ordered examinations was **108.5 min (121 min, 11-596 min)** for abdominal imaging and **88 min (162 min, 3-2568 min)** for chest imaging. The vast majority of radiographs were performed prior to the CT (93%).
RESULTS – CONCURRENTLY ORDERED STUDIES

• Of the 629 studies, only 75 studies (61 chest and 14 body) were performed concurrently (i.e. within 30 minutes of each other)
CONCLUSIONS

- Overutilization of radiology services is a significant source of waste in our healthcare system.
- Concurrent studies of the same body part may prove superfluous in many situations and present yet another source of wasted healthcare dollars.
- Identifying factors which lead to unnecessary studies may also decrease patient radiation dose.
CONCLUSIONS

• Traditionally, we have held ordering clinicians accountable for this phenomenon.
• However, our study demonstrates that only a minority of concurrently ordered studies are performed within 30 minutes.
CONCLUSIONS

• We propose that the practice of concurrently ordering studies may have systemic/institutional causes.

• Anecdotally, these may include:
  • Availability of patient transport
  • CT prep time protocols
  • Imaging resource/technologist availability

• Worthwhile to identify these factors and barriers to decrease the incidence of concurrent ordering of studies.