Imaging Under-utilization in Uganda: Another Opportunity for a Clinical Decision Support Tool

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Disclosures

- No relevant financial disclosures
Appropriateness Criteria and Clinical Decision Support

- ACR (American College of Radiology) appropriateness criteria are **evidence-based guidelines** to assist providers in making appropriate imaging decisions.

- CDS (Clinical Decision Support) tools incorporate such criteria, with a primary goal in the U.S. of **curbing inappropriate overutilization**.
Advanced Imaging in Uganda

- Mulago National Referral Hospital is the only government facility with a (mostly) functioning CT scanner- 16 slice
  - No MRI available in the government sector
  - Nuclear medicine is also essentially nonexistent
  - Radiology department with 3 year residency program- 3 residents per year

- Mengo Hospital is one of the few private facilities with a CT scanner
  - Has an MRI located across the street from the hospital, rarely used for inpatients
CT at Mengo Hospital

- CT scanner at Mengo Hospital is functional most of the time on most days
- Mengo Hospital is staffed by 2 Attending Radiologists
  - Radiology residents from Mulago rotate at Mengo
- Volume is **approximately 10 CTs per day**
  - About half are head CT, remainder are divided between chest, body, and MSK
Hypotheses for Low CT Volume

- Most attendings trained when there was no CT available
- Providers are unfamiliar with imaging and therefore do not consider imaging in their diagnostic or management work-up
- Unreliability of CT availability in the past forced providers to use other tools as adjuncts
- CT is not readily available outside of normal business hours
Purpose

- Assess willingness of providers at Mengo Hospital to adopt a Clinical Decision Support system for CT
- Educate providers about some of the indications for CT that can result in significant decreases in patient morbidity and mortality
**Methods**

- Providers (including internists, neurologists and orthopedic surgeons), medical students, nurses, and radiographers were invited to attend a 1-hour educational session.
- Survey of attendees was conducted to assess their strategy for ordering imaging tests.
- Computer-based audience response system (Turning Technologies) was used to collect responses both prior to and after the session.
CT ABDOMEN/PELVIS-TRAUMA

No specific guidelines for when to consider CT Abdomen/Pelvis

Evaluation is typically grouped in two categories:

- Hemodynamically unstable:
  - Will likely need to go directly to operating theatre, CT may waste valuable time
  - If patient is being adequately resuscitated without concern for imminent shock, CT may be valuable to direct surgeon, ex. may determine need to explore retroperitoneum

- Hemodynamically stable:
  - CT will evaluate sites and extent of injury
  - Can determine presence of vascular injury, active bleeding, perforation of bowel, solid organ injury
Survey Questions

- Which best describes you? (position in hospital)
  - Non-radiologist clinician / Student / Radiologist / Nurse / Sonographer

- How comfortable do you feel ordering the appropriate diagnostic imaging test?
  - Not comfortable at all / Not comfortable most of the time / Some of the time / Most of the time / All of the time

- When I don’t know which imaging test to order, I...
  - Call the radiologist / Call the sonographer / Search the internet / Consult a colleague / Refer to a book / Take a guess

- Would an online Clinical Decision Support tool be helpful to your practice?
  - Not at all helpful / Not very helpful / Helpful / Very helpful / Extremely helpful

- I would feel comfortable with having an “app” to help with clinical decision support.
  - Definitely no / Unlikely Maybe / Likely / Definitely yes

- Was the information presented today helpful for your practice?
  - Not at all helpful / Not very helpful / Helpful / Very helpful / Extremely helpful
Results - Demographics

PROFESSION IN ATTENDANCE

- Student: 41%
- Clinician, non-radiologist: 36%
- Nurse: 9%
- Radiologist: 9%
- Sonographer: 5%
QUESTION: HOW COMFORTABLE DO YOU FEEL ORDERING THE APPROPRIATE DIAGNOSTIC IMAGING TEST?

- Not comfortable at all: 0%
- Not comfortable most of the time: 15%
- Some of the time: 20%
- Most of the time: 50%
- All of the time: 15%
When I don't know which imaging test to order, I...

- Call the radiologist
- Call the sonographer
- Search the internet
- Consult a colleague
- Refer to a book
- Take a guess

Number of Responses

All of the time  Most of the time  Some of the time  Rarely  Never
Results

Would an online Clinical Decision Support tool be helpful to your practice?

- Not at all helpful
- Not very helpful
- Helpful
- Very helpful
- Extremely helpful

Number of Responses
I would feel comfortable with having an "app" to help with clinical decision support.
Conclusions

- Under-utilization of advanced imaging in low-resource countries occurs even when it is available.
- Reasons for under-utilization are multi-factorial.
- Clinical Decision Support may have a role in increasing utilization in such settings.
- Survey results that non-radiologist providers at Mengo Hospital in Kampala, Uganda would welcome a CDS tool.
References