

Diagnostic Radiology in Nigeria

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Objectives:

- Participate in daily readouts
- Attend conferences
- Inquire about quality issues
- Patient population
- Is Imaging considered part of patient management?
- Medical insurance and payment
- Common cases that get imaging
- Imaging equipment: X-ray, ultrasound, CT scan, MRI, mammography
- Availability and accessibility; functionality and maintenance
- Issues like Picture Archiving Communication system (PACS) and voice recognition (VR)
- Radiology residency program

My Findings

Patient Population:

Majorly from within the area
Varies from acute emergencies to preventive imaging
HIV+ patients and routine screening
For Tuberculosis

Is Imaging Part of Patient Management?

| | No of Days/week | No of hours/day | Avg. no patients/week | Avg. no of patients/day |
|----------------------|-----------------|-----------------|-----------------------|-------------------------|
| OPD | 5 | 8 | 250 | 50 |
| *Central radiography | 7 | 24 | 100 | 15 |
| Ultrasound | 7 | 24 | 300 | 40 |
| MRI | 5 | 8 | 15-20 | 3-4 |
| CT (central) | 7 | 8 | 35 | 7 |
| CT (A&E) | 7 | 24 | 20 | 3 |
| *HSG | 2 | 8 | 12 | 6 |
| *IVU | 3 | 8 | 8 | 3 |
| *RUG | 2 | 8 | 10 | 5 |
| *MCUG | 2 | 8 | 10 | 5 |
| Mammo* | 2 | 8 | 14 | 7 |

Insurance:

NHIS (National Health Insurance Scheme)
Less than 20% of patient population
Most of hospital staff
Otherwise, self-paid system
Does not cover MRI, CT scan
Covers X-ray, ultrasound
Medications (generic drugs)
No insurance? Patient bears 100% of cost

Cost of Imaging:

X-rays: 1 view is #1,200 (chest x ray)
Ultrasound is about #4000 (abdomino-pelvic)
CT scan ranges from #20,000 to over #100,000 (\$135 to over \$650) depending on the number of and body segments being imaged
MRI is #55,000 (\$370)
*Children pay half of the adult cost

PACS and VR:

- No PACS and VR
- Patients' plain film images are kept in a film-jacket
- CT and MRI images can be copied on CD for patients as requested
- Film reports are handwritten on paper by residents, then typed by the typist, after which its vetted by residents for error
- Attendings review the reports and co-sign with the residents

Background on Residency Program:

After senior secondary school which is equivalent to high school in the US, students take a general exam called Unified Tertiary Matriculation Examination (UTME) and a post UTME for individual schools. UTME passing score varies depending on individual schools (universities)

100 levels: Math, English and basic science courses

200 levels: Departmental splitting (college of medicine). Students learn anatomy, embryology, histology, biochemistry and physiology

300 levels: Students continue 200 level courses and prepare for Medicinæ Baccalaureus et Medicinæ Chirurgiæ (MBBS) which is a mandatory exam before clinical posting (similar to USMLE step 1)

400 to 600 levels: Students do clinical posting

After 600 level students take a final MBBS before housemanship

Next is 1 year of housemanship (similar to a preliminary year)

Then students go through National Youth Service Corps (NYSC) for 1 year

Residents take primaries examination in radiology to check their eligibility. After successfully passing the exam, they apply to teaching hospitals and go for interviews

First 2 years in, residents start with dark room, next is learning how to properly position a patient followed by rotating through different units such as CT, MRI, Ultrasound etc, physics lectures are also incorporated weekly

Junior Residents then take either the National Post Graduate Medical College of Nigeria examination or West African College of Surgeon examination (part 1) which comprises of radiological anatomy, physics and clinical radiology

After passing Part 1 exam, Residents become senior registrar where they spend a minimum of 2 years, then residents take Part 2 which comprises of clinical radiology and complete a project. After passing Part 2 exam, residents can now be referred to as fellows.

Case Presentation 1



- Plain radiograph of the wrists
- Widened growth plate
- Fraying, splaying and cupping of the metaphysis
- Thin bony spur extending from the metaphysis to surround the uncalcified growth plate

Case Presentation 2



- Plain radiograph of the lower limbs
- Bowling of the femur (genu varum)
- Widened growth plate
- Fraying, splaying and cupping of the metaphysis
- Thin bony spur extending from the metaphysis to surround the uncalcified growth plate

Sample Chest Radiograph



8 year old male with productive cough, tympanic breath sound on exam. Rule out Pulmonary TB

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