Policy Briefing:

Ionizing Radiation Use in Medical Imaging in Cameroon

Overview:

This policy briefing synthesizes key insights from the 59th edition of the Cameroon Town Hall for Healthcare Professionals, held on September 24, 2022, focusing on the theme 'Ionizing Radiation Use in Medical Imaging in Cameroon: How Concerned Should We Be?', presented by Dr. Joshua Tambe, radiologist and head of medical imaging at Regional Hospital Limbe.

Context:

Access to CT and X-ray equipment is growing in Cameroon, often through second hand machines. Medical imaging now rivals natural sources as a source of radiation exposure, and radiation induced cancers have no safe threshold. Many facilities lack proper shielding, trained staff and dosimetry, requests are not vetted by radiologists, and the National Radiation Protection Agency has limited reach.

Key Issues:

1. **Unnecessary and inappropriate imaging:** Requests are made without clinical justification, often for financial reasons, self referral or unfamiliarity with guidelines, and patients pay before radiologists see the request.
2. **Equipment and facility standards:** Second hand equipment without quality control and rooms without proper shielding expose patients, staff and neighbours.
3. **Staff training and protection:** Many radiographers are trained only on the job, and many staff work without personal dosimeters.
4. **Weak regulation:** The National Radiation Protection Agency includes no radiologists, cannot sanction public facilities, and its fees and penalties discourage registration.
5. **Vulnerable groups:** Pregnant women, women of reproductive age and children face higher risk from avoidable exposures.

Discussion Highlights:

- Radiologists should vet and, where needed, change requests before CT and special X-rays.

- Appropriateness guidelines exist (ACR, Royal College of Radiologists, iRefer) and can be adapted locally.
- Dosimetry exists in some facilities (Mbingo) but is unaffordable or unavailable in others (Limbe, Bamenda).
- Accreditation is desirable but hard to enforce where the only scanner is old.
- Disposal of radioactive sources and dead machines is an open question.

Recommendations:

- **Introduce radiologist vetting of high dose requests:** MINSANTE and hospital managers should require radiologist approval of CT, fluoroscopy and special X-ray requests before payment, starting in regional and referral hospitals, and require clinical history on every request form.
- **Adopt national imaging referral guidelines:** The Cameroonian Society of Radiology and Radiation Oncology, with MINSANTE, should adapt international appropriateness criteria (ACR, iRefer) into national referral guidelines and teach them in medical and nursing schools.
- **Make staff dosimetry affordable:** The National Radiation Protection Agency should revise its contracts to remove punitive penalties, set affordable fees, and ensure every imaging worker has a dosimeter read regularly; radiologists should sit on the agency's technical bodies.
- **Set and inspect facility standards:** The agency and MINSANTE should register all imaging facilities, inspect shielding and equipment quality, and require quality control and maintenance plans for imported second hand equipment.
- **Train imaging staff in radiation protection:** Training schools and hospitals should provide formal radiation protection training for radiographers and require continuing professional development for imaging staff.
- **Plan for radioactive waste:** The agency should publish procedures for disposal of radiopharmaceuticals, radioactive sources and decommissioned equipment.

Next Steps: The moderators planned a future session on radiopharmaceuticals and nuclear medicine. Participants agreed to continue the discussion on the agency's dosimetry contracts in the parking lot.

Conclusion: Imaging saves lives, and for most studies the risk is small, but it is never zero and it adds up across a population. Vetting requests, using guidelines, protecting staff and enforcing standards would let Cameroon gain the benefits of new imaging equipment while limiting avoidable harm.

Prepared by the Co-Moderators, Cameroon Townhall for Healthcare Professionals, from the session of September 24, 2022. Recording: https://www.youtube.com/watch?v=MRR0_XCTc2Q