A Nonprofit Public Service

RAD-AID

Radiology serving the world

RAD-AID Brings Health Technology to Low-Resource Regions of the World

Part 1: Organizational Summary & IT Strategies for Global Health

Daniel J. Mollura, MD

President and CEO

Founder: 2008

RAD-AID Radiology Serving the World

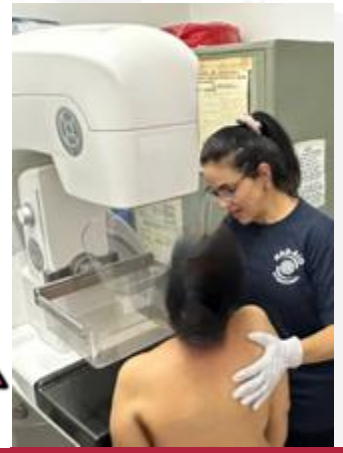
Radiology is Vital Imaging used for Health Care

Ultrasound

X-Ray

Interventional

Mammography



CT "CAT" Scan

MRI

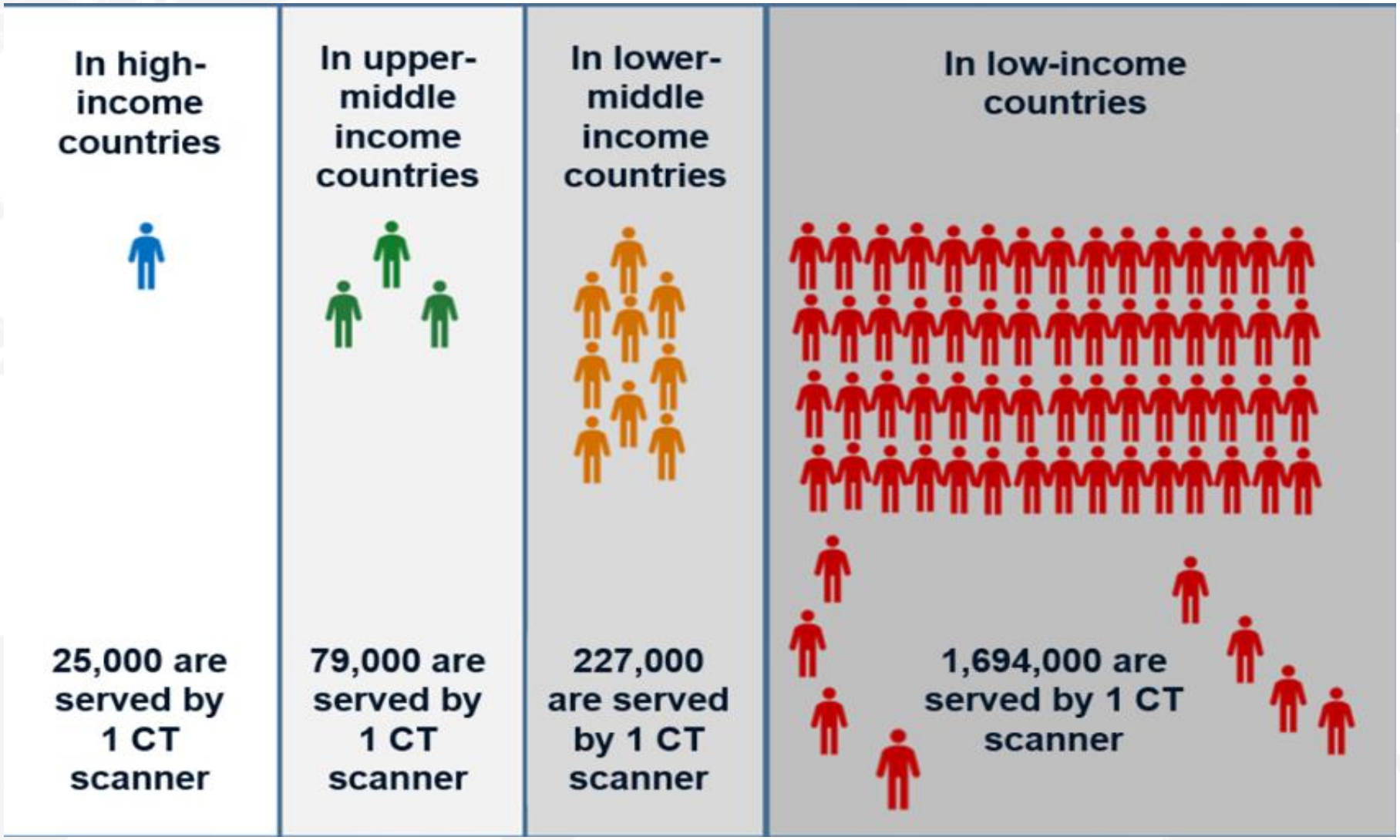
Over Half the World Lacks Radiology

World Health Organization

Source:
WHO compendium of innovative health technologies for low-resource settings 2016-17. Geneva: World Health Organization; 2018. License: CC BY-NC-SA 3.0 IGO

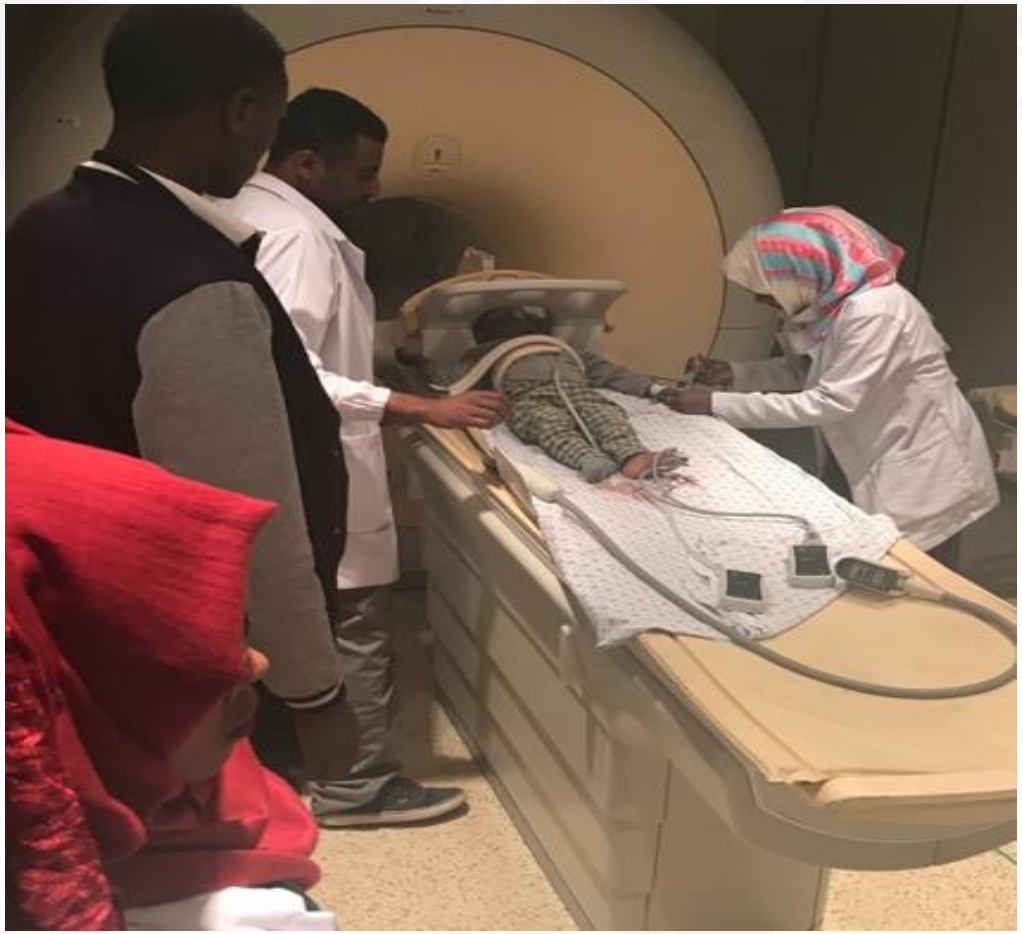
.

Source: Dominican Republic, Diana Dowdy, RAD-AID

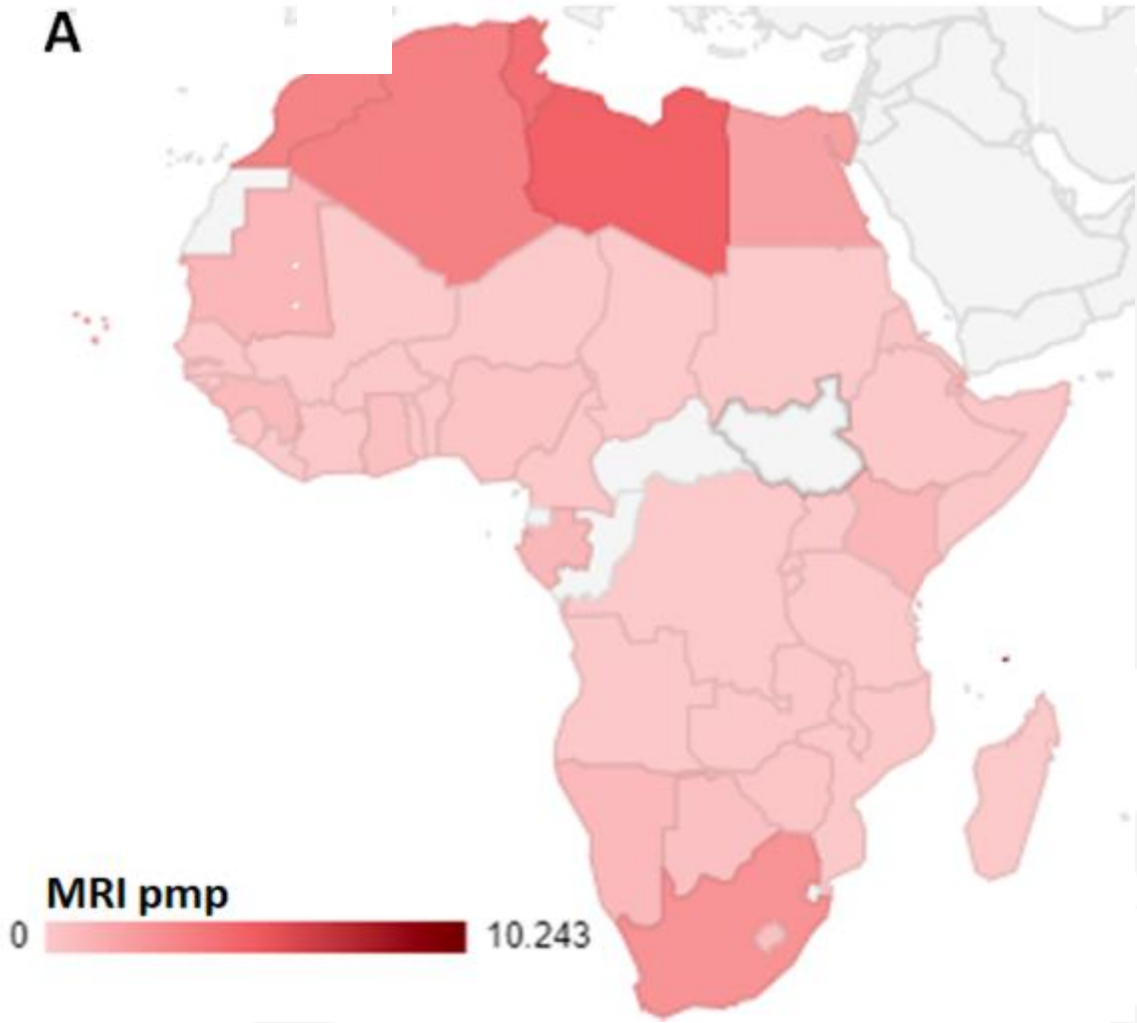


Source: Source: IAEA, 2019. Available at https://humanhealth.iaea.org/HHW/DBStatistics/IMAGINE.html

MRI Access



Source: Black Lion Hospital, Nigeria (RAD-AID Ethiopia, 2019



Source: NMR Biomed, March 2023. Anazodo, et al.

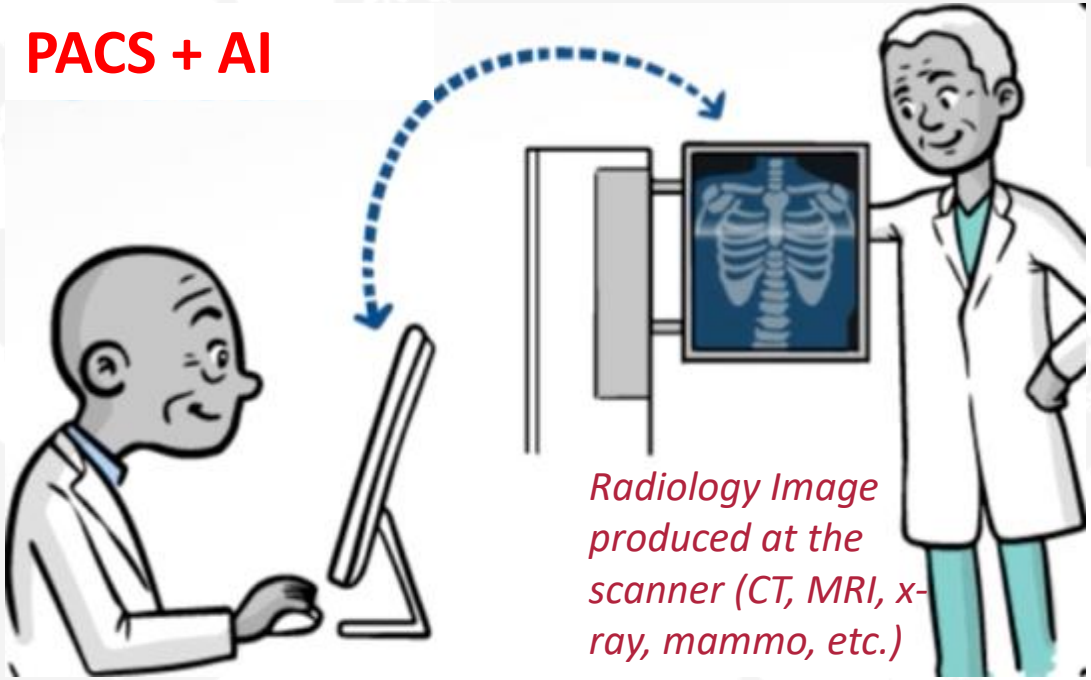
Radiology is Data Intensive

- Radiology Images are **Data-Rich** for driving Artificial Intelligence (AI) & Health Care
- **PROBLEM**: Low-Resource regions are left behind:
  - **Lack** IT Infrastructure
  - **Lack** Trained Personnel

Economist: published June 7, 2018

Picture Archiving & Communications System (PACS) + AI

- PACS is IT infrastructure sending digital radiology images between scanners, workstations, archive & cloud.
- PACS & AI can integrate
- Less than 10% of world has PACS
- Need PACS/AI in LMICs for:
  - Healthcare decision-making
  - Interpreting Radiology images
  - Hospital Record Keeping



PACS makes radiology images available for review & interpretation at the computer workstation

LMICs Lack Access to Health IT

RAD-AID Liberia, 2023

LMICs Lack Access to Health IT

Ghana, 37
Military Teaching Hospital, September 2023

Founded, 2008

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RAD-AID.org

Radiology serving the world

Mission: To increase and improve radiology for medically underserved and low-resource populations

DONATE EQUIPMENT, TEACH HEALTH WORKERS, SUPPORT HOSPITALS

RAD-AID Radiology Serving the World

Our Model: Radiology-Readiness

What does a site HAVE

What are the site's GOALS

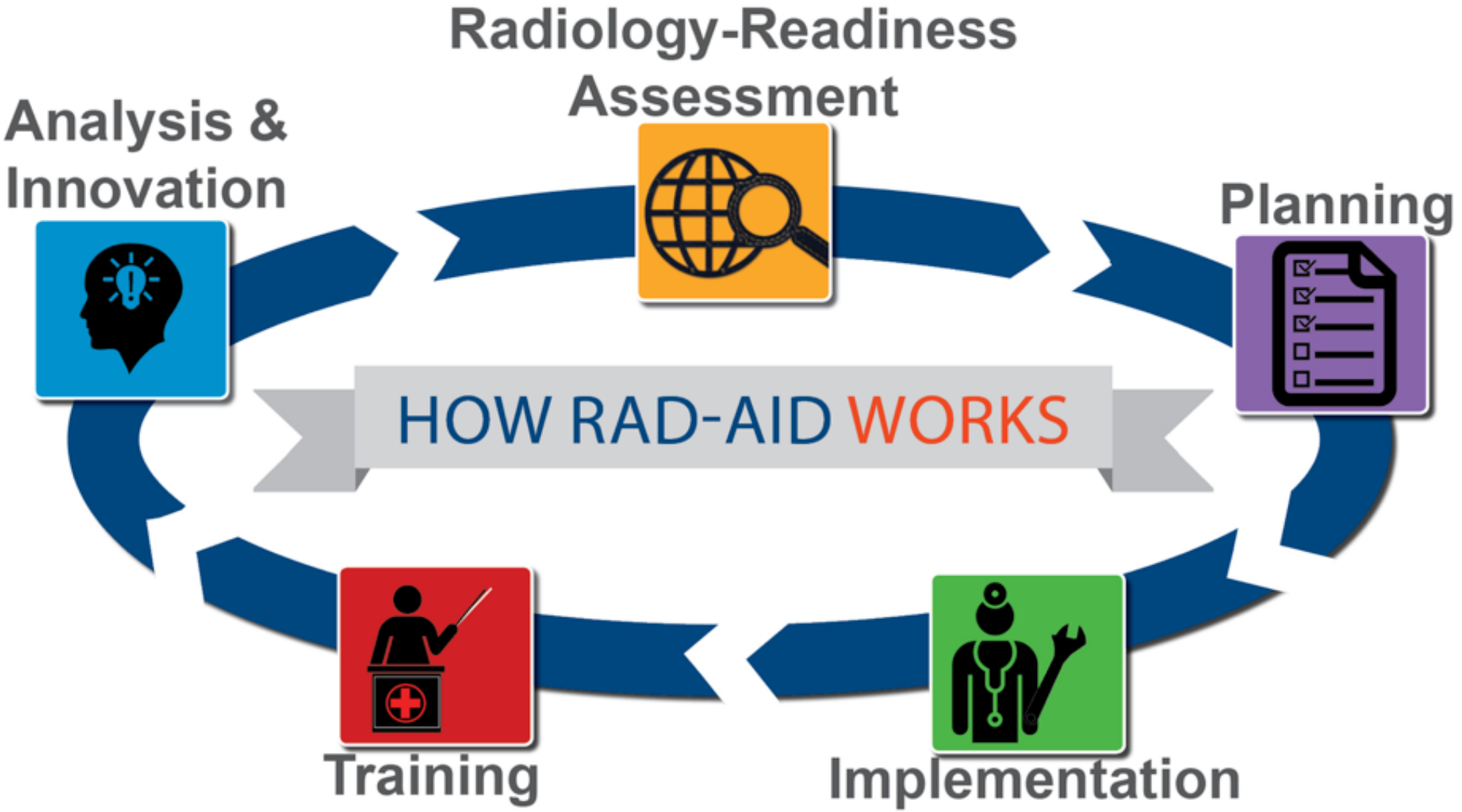
RAD-AID Fills Key Gaps

- What is a site **ready** for?
- **Highest Yield** Resources
- Solution Adapted to **Local Context**

RAD-AID's Radiology-Readiness Method

Sections

- Infrastructure
- Roads/Topography
- Human Resources
- Personnel Training
- Quality Control
- Equipment
- Finance/Insurance
- Radiation Safety
- Pharmaceuticals
- Infection Control
- Epidemiology
- Population Features
- IT networks
- PACS/EMR/RIS
- Clinical Tests
- Referral Networks
- Community Engagement
- Patient/MD Communications
- Interventional Radiology
- Nursing
- Breast Imaging
- Artificial Intelligence
- Radiation Oncology
- Medical Physics, QA/QC
- Consumables/Supply Chains
- Equipment Maintenance
- Procurement


Radiology-Readiness Assessment
Analysis & Innovation
Planning
HOW RAD-AID WORKS
Training
Implementation

It works – any context -- anywhere

Kenya

Morocco

Jordan: Zaatari Refugee Camp

India

USA

Malawi

And others…

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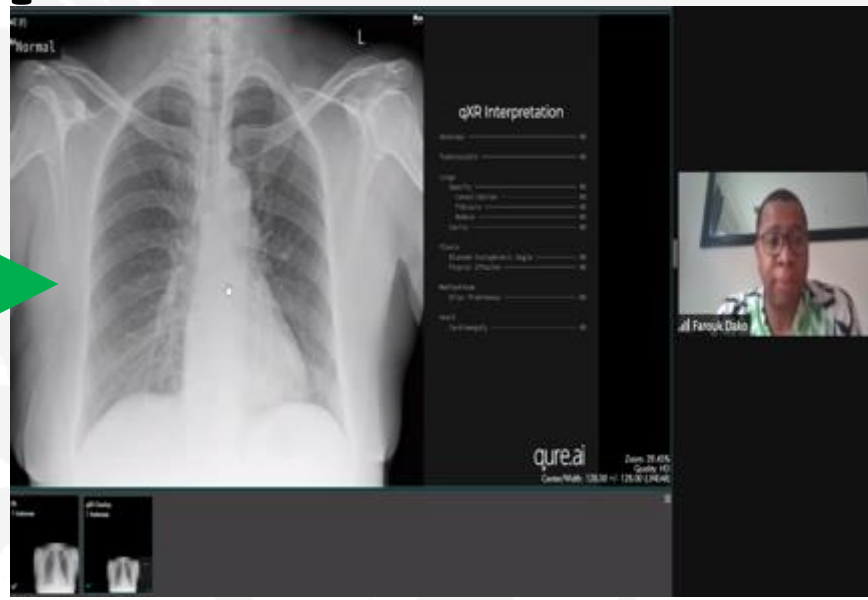
RAD-AID Ghana: Our Impact

Ghana 2012

Ghana 2022

Korle Bu Teaching Hospital
2012-present

RAD-AID Nigeria: Our Impact



2018

All film, no computers

2019

Computers + PACS

2021

Digital Imaging + AI

University College Hospital in Ibadan, Nigeria

RAD-AID Laos Impact

2017
No digital infrastructure

2022

Laos Friends Hospital for Children

Nepal: RAD-AID Impact

Donations/Installation of IT infrastructure at Tribhuvan University Teaching Hospital, Kathmandu, Nepal

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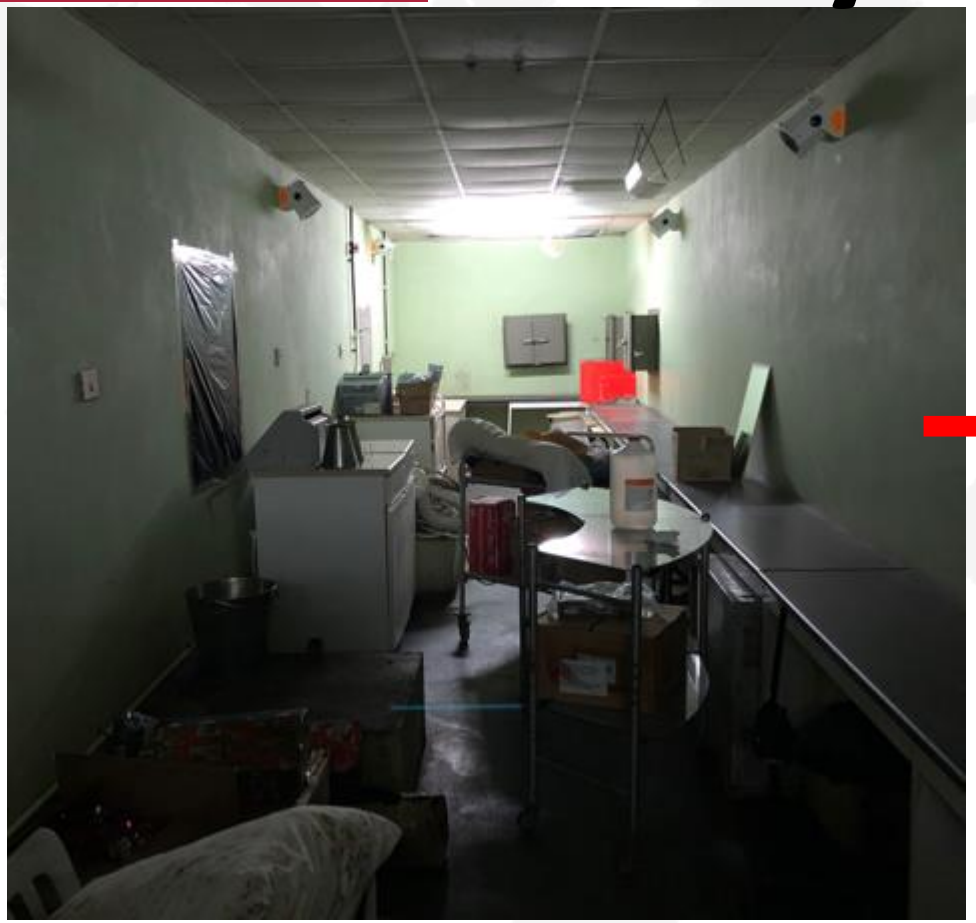
RAD-AID Guyana: Our Impact



BEFORE

Donated PACS

AFTER

RAD-AID Ukraine

ДОГОВІР	CONTRACT
м. Київ 10 травня 2023 року	Kyiv May 10, 2023
КНП «Київська міська клінічна лікарня №6» назване в подальшому **«Одержувач»,** в особі директора Крижевського Вадима Віталійовича, який діє на підставі Статуту, з однієї сторони, та **ТОВАРИСТВО З ОБМЕЖЕНОЮ ВІДПОВІДАЛЬНІСТЮ «ПРОТЕК СОЛЮШНЗ УКРАЇНА»** назване в подальшому **«Постачальник»**, в особі директора Скрипка Андрія Анатолійовича, який діє на підставі Статуту, з другої сторони, та **Організація RAD-AID INTERNATIONAL, INC.,** надалі іменована «Платник», в особі Президента та Головного виконавчого директора Деніела Моллура, діючої як третя сторона, які разом іменуються надалі «Сторони», а кожна окремо «Сторона», уклали цю цей Договір (Угоду) наступне:	**KYIV CITY CLINICAL HOSPITAL NO. 6,** hereinafter referred to as **"Recipient",** represented by director Kryzhevskyi Vadym Vitaliyovych, acting on the basis of the Charter, on the one hand, and **PROTECH SOLUTIONS UKRAINE LLC** hereinafter referred to as **"Supplier"**, represented by director Andrii Anatoliyovych Skrypko, which acts on the basis of the Charter, on the other hand, and **RAD-AID INTERNATIONAL, INC.,** hereinafter referred to as the **"Grantor"**, represented by President and Chief Executive Officer Daniel Mollura, acting as a third party, which together are hereinafter referred to as the "Parties," and each individually as a "Party," concluded this Agreement on the following:
1. ПРЕДМЕТ ДОГОВОРУ	**1. SCOPE OF THE CONTRACT**

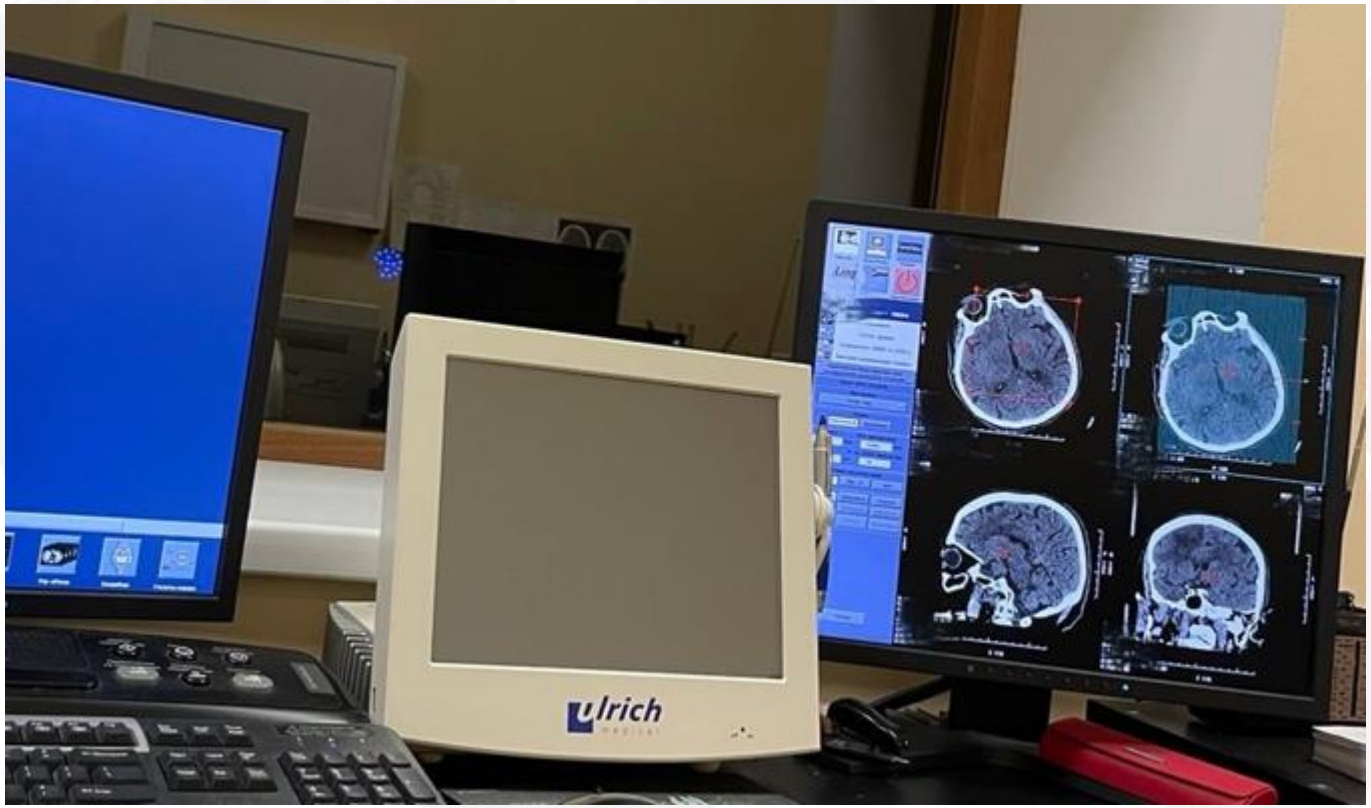
GRANTOR
RAD-AID International

RECIPIENT
Kyiv City Clinical Hospital #63
Liubomyra Huzara Avenue
Kyiv City
Ukraine
03126

Chief Executive Officer
Daniel Mollura

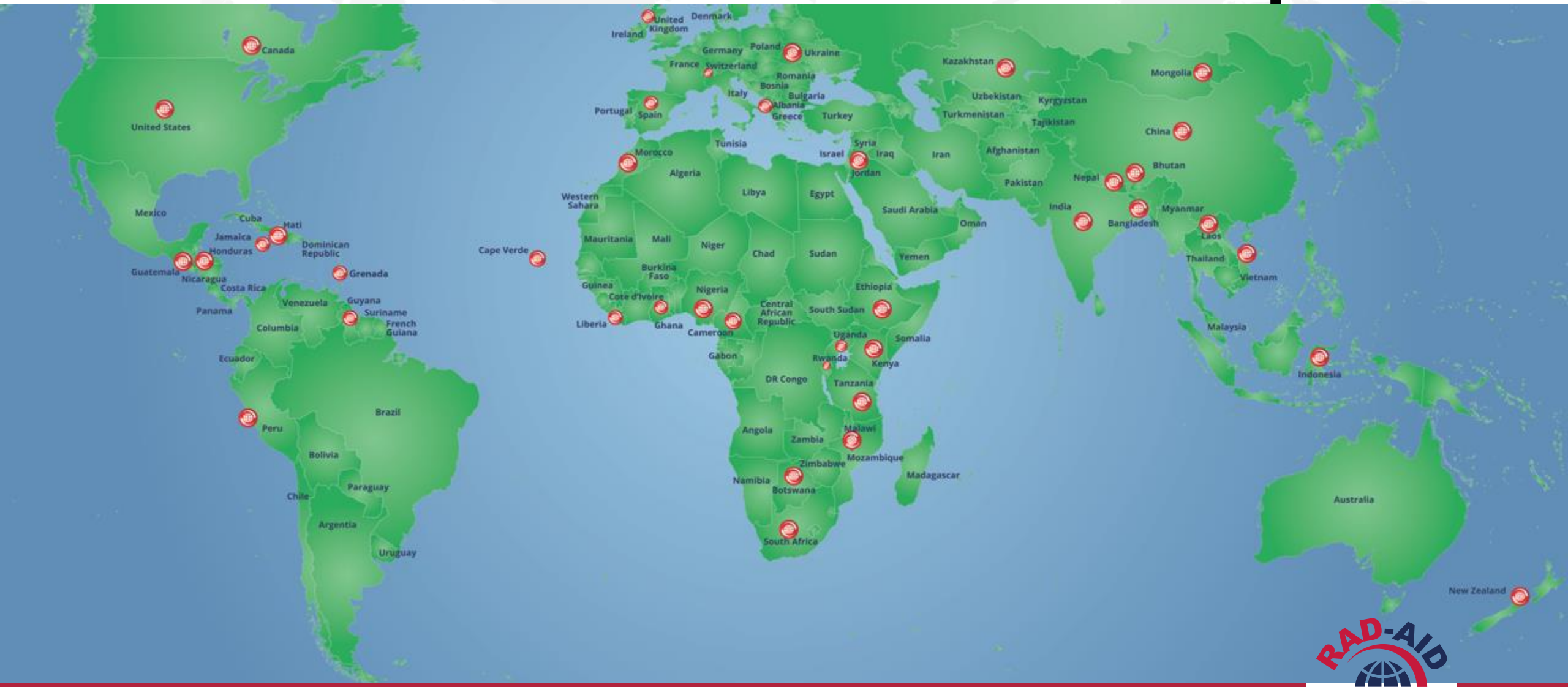
Director:
Vadym Kryzhevskyi

RAD-AID Ukraine: our Impact



RAD-AID and Kyiv Clinical Hospital #6 repaired CT scanner (2023) and plans to donate PACS in 2024

RAD-AID in 44 Countries & 96 Hospitals



Daniel J. Mollura, MD

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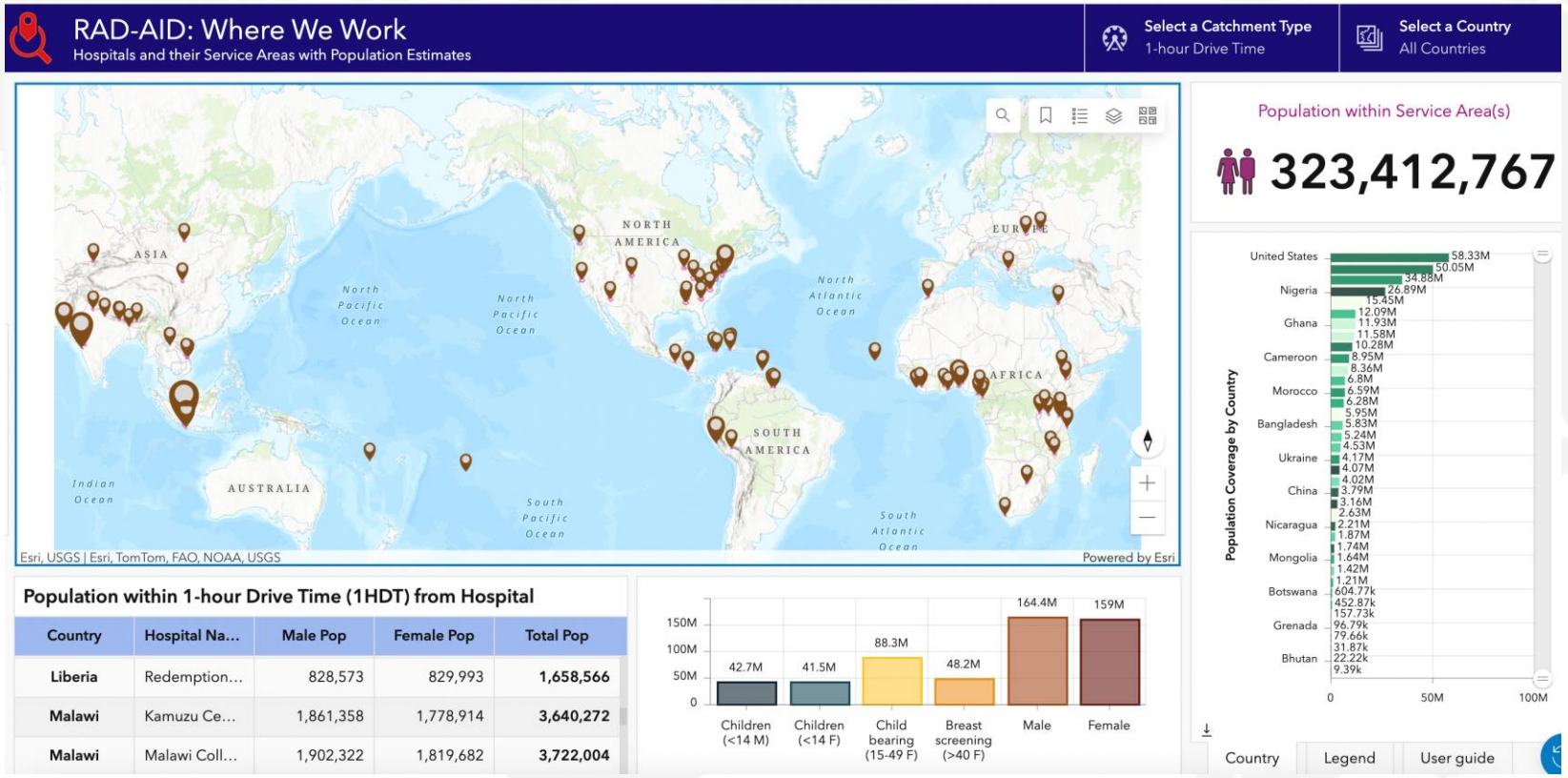
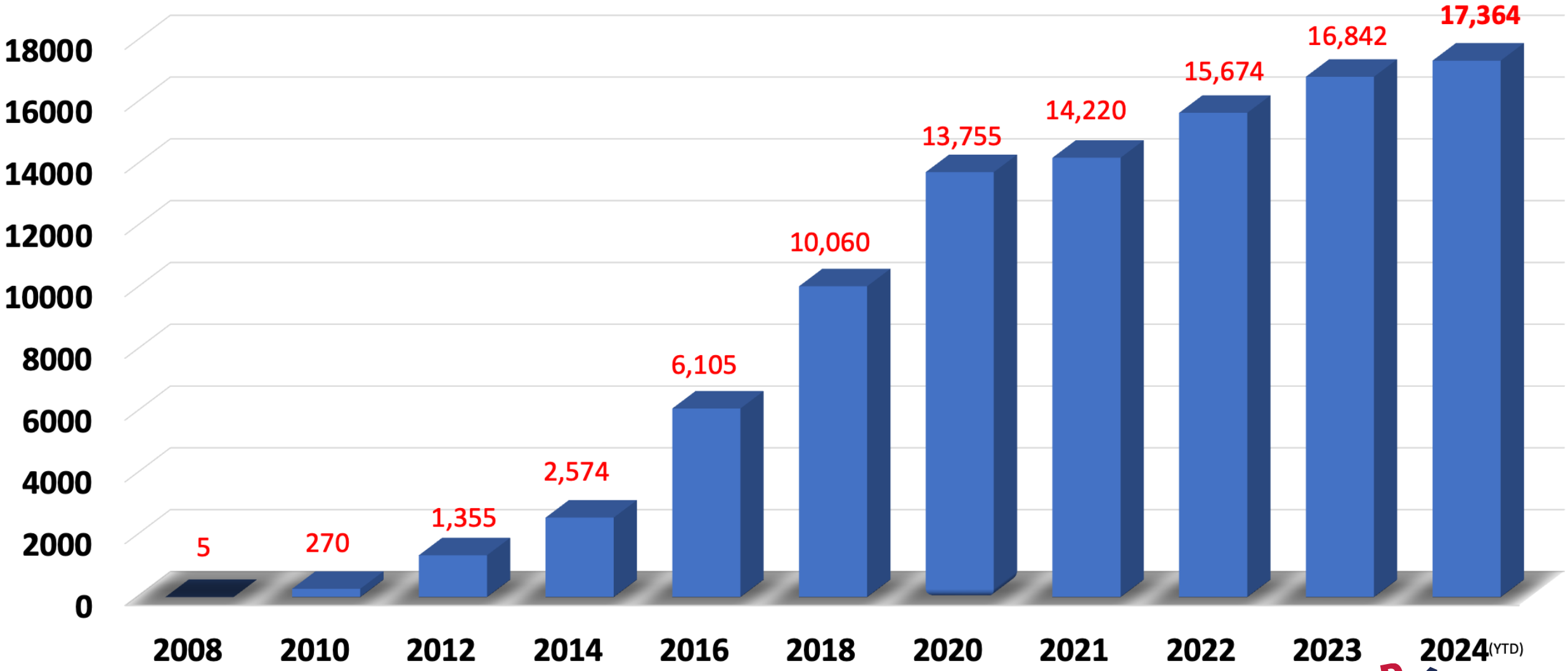
RAD-AID Program Site Map: Interactive



http://bit.ly/rad-aid-interactive-map

RAD-AID Volunteers and Supporters



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Multidisciplinary
RAD-AID Volunteers:

- 27% Radiologists
- 64% Technologists
- 21 % Sonographers
- 8 % IT Specialists
- 3% Nurses
- 4% Residents/Fellows
- 2% Physicists

Source: RAD-AID Zanzibar, 2023

Recognition

Winner of AI for Global Goals Grant

RAD-AID is one of 15 winners from 800 applicants

Google.org

Meet the organizations we're supporting through AI for the Global Goals

Since we began funding AI projects for social impact in 2018, we have supported efforts ranging from low-cost air quality sensors mounted on motorcycle taxis in Uganda to AI-powered apps that help farmers mitigate pests and increase their crop yields in India. We've also funded ambitious global projects like AI-powered satellite monitoring to track greenhouse gas emissions across the world.

With the help of AI, our recipients report that they are meeting their goals in a third of the time, at half of the cost.

Emboldened by this momentum, we committed an additional $25M for projects specifically aimed at using AI to accelerate progress on one or more of the UN's Global Goals. Meet the newest cohort of Google.org recipients.

INDIA

Rocket Learning Foundation

GLOBAL

RAD-AID

GUATEMALA

Wuqu' Kawoq | Maya Health Allia

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Canadian Partnerships

RAD-AID

Radiology serving the world

CANADIAN TECHNOLOGISTS

Announcement CAMRT/RAD-AID Partnership, 2016

CAMRT/RAD-AID Since 2016

- Funded projects for CAMRT members in RAD-AID teams; over **14** recipients for Tanzania, Guyana, Ethiopia & Kenya

nova scotia health authority

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Giving Back: NSHA radiation technologist, sonographer Phoebe Mandry volunteers time and skills to teach staff at Tanzanian hospital with RadAid International

Monday, August 12, 2019 - 04:24PM

By Margaret Angus

Phoebe Mandry returned to Halifax recently after four weeks of volunteering in Tanzania with RadAid International, which "brings radiology to low-resource areas by delivering education, equipment, infrastructure, and support."

Mandry, who normally as a radiation technologist and sonographer in the QEII Health Science Centre's diagnostic imaging department, was in the east African country to teach ultrasound and bone density testing to sonographers, technologists and residents at the Aga Khan Hospital in Dar es Salaam.

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CANADIAN SONOGRAPHERS

Announcement Sonography Canada/RAD-AID Partnership, 2018

Sonography Canada RAD-AID

- Funded projects for Sonography Canada members in RAD-AID teams

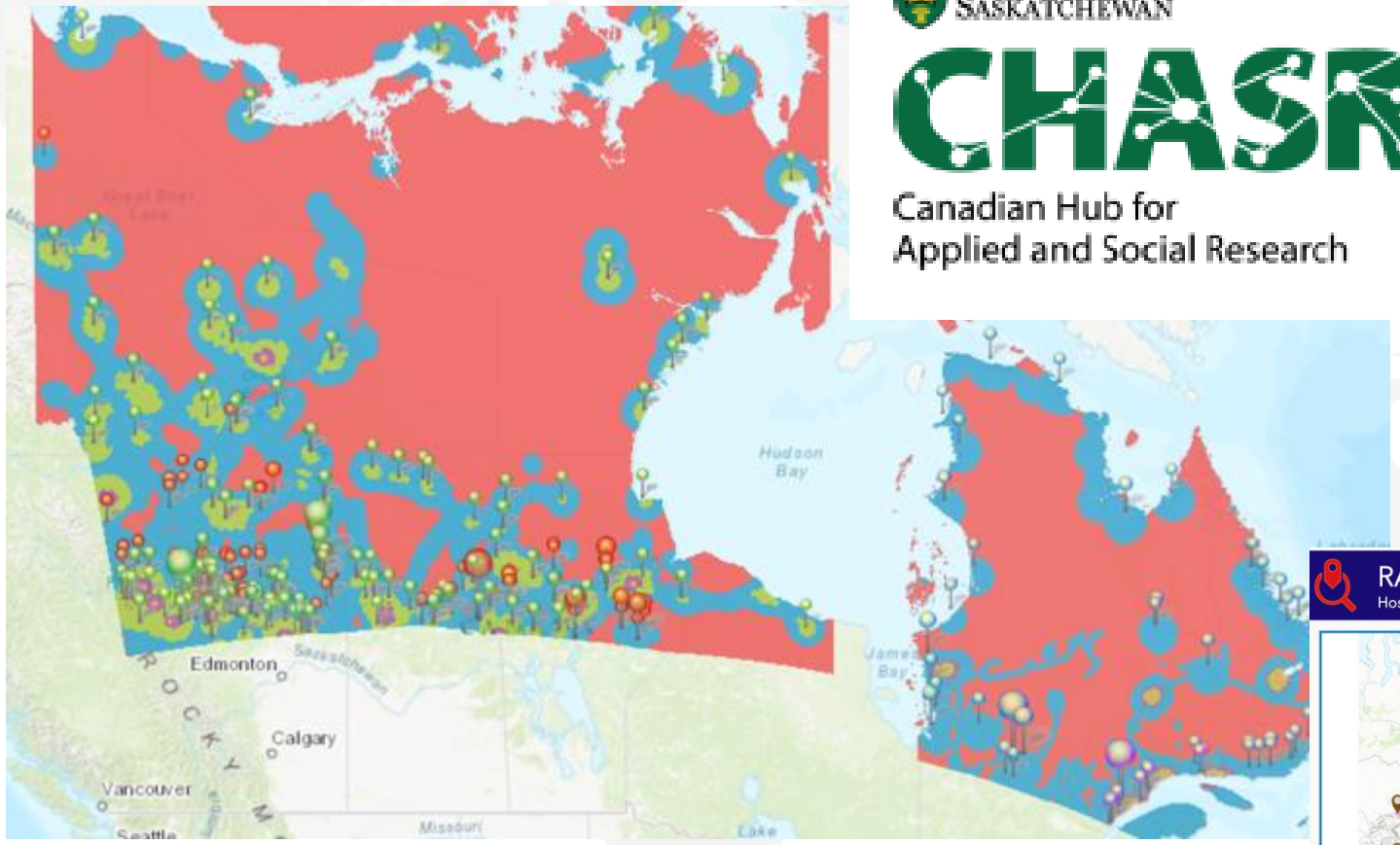
Sonography Canada / Échographie® Canada

CANADIAN PARTNERSHIPS

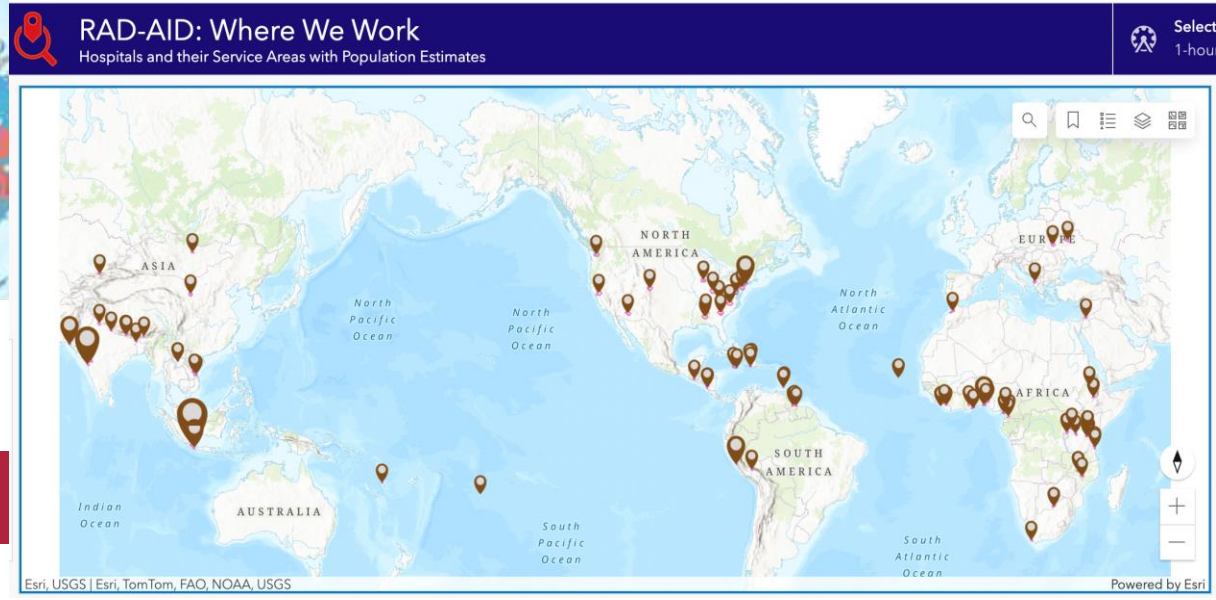
University of Saskatchewan

CHASR

Canadian Hub for Applied and Social Research



- Geographic Information Systems Research (GIS)
- Quantifying Health Access
- Impact-Measurement Maps



RAD-AID partnership with CHASR on health access GIS research: GIS combines topography, epidemiology and health infrastructure to target solutions with Radiology-Readiness

Daniel J. Mollura, MD

RAD-AID Chapters

US/Canada Chapters

- Grants to Chapters
- Project Support
  - Dalhousie
  - McGill
  - University of Ottawa
- Inter-institutional sharing
- Match Chapter members to projects/teams
- Longitudinal global health training

Summary

- Radiology is a **Data-intensive** part of healthcare
- Health IT is a **widening gap** in global health disparities
- RAD-AID's radiology capacity building efforts integrate AI, PACS, EMR and other platforms into **helping LMICs**.
- RAD-AID supports **IT and AI infrastructure** and workflows
- RAD-AID helps local healthcare providers using the IT infrastructure for improving patient care.

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Radiology serving the world

RAD-AID Brings Health Technology to Low-Resource Regions of the World

Part 2: Operations Strategies for Informatics in Global Health Outreach

Ameena Elahi (she/her) CIIP, RT®, MPA

Operations Director, RAD-AID Informatics

Disclosures

RAD-AID International Director of Informatics Operations

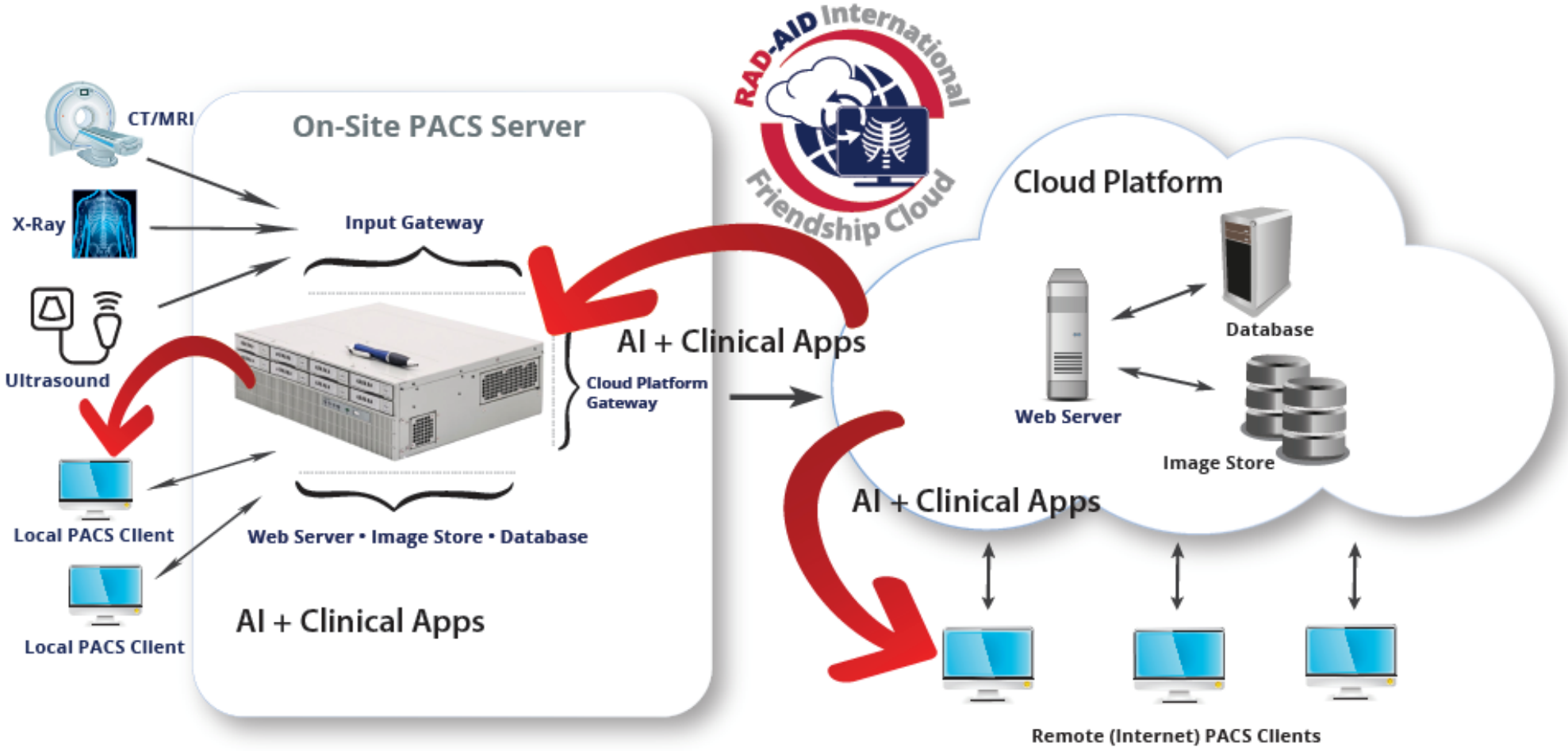
SIIM Board of Directors

SIIM Membership Committee Co-Chair

ABII 10-Year Review Committee

ABII Item Writer

RAD-AID IT Infrastructure Program



Picture Archiving & Communication System (“PACS”)

Operating system for sending images from radioklogy scanners to archive

AI Workflow

Sublicense Model

- Developer licenses to RAD-AID
- RAD-AID authorized to sublicense to hospitals
- RAD-AID provides infrastructure, education, and support to recipient hospital
- RAD-AID and Site share feedback & visibility to developer on AI validation, performance, and workflows

Nigeria 2019: UCH PACS Implementation

Ameena Elahi

RAD-AID
Radiology Serving the World

Nigeria : UCH PACS Implementation

Ameena Elahi

Nigeria: UCH PACS Implementation

Ameena Elahi

RAD-AID PACS+AI

Radiology
REVIEWS AND COMMENTARY · REVIEW

Artificial Intelligence in Low- and Middle-Income Countries: Innovating Global Health Radiology

Daniel J. Mollura, MD • Melissa P. Culp, MEd, RT(R)(MR) • Erica Pollack, MD • Gillian Battiste, MD • John R. Scheel, MD, PhD, MPH • Victoria L. Mango, MD • Ameena Elahi, MPA, ER(R), CIIP • Alan Schweitzer, MEE • Farouk Dako, MD, MPH

RAD-AID International Artificial Intelligence

TEACH

Clinical Radiology Education

- Image Interpretation & Procedures
- How to Appraise AI Outputs
- How to Supervise AI Implementation
- How to Perform Local AI Validation

TRY

Infrastructure Implementation

- Radiology Hardware (Modalities)
- Servers/Networks, IT personnel
- PACS/RIS/EMR, medical software
- Cloud

USE

Phased AI-introduction

- Try AI (Pilot introduction)
- Public/Patient Awareness of AI
- Pilot AI: Patient Cases
- Pilot AI: Population Health

RAD-AID Radiology Serving the World

Nigeria: UCH

Nigeria: St. Domonic

Ameena Elahi

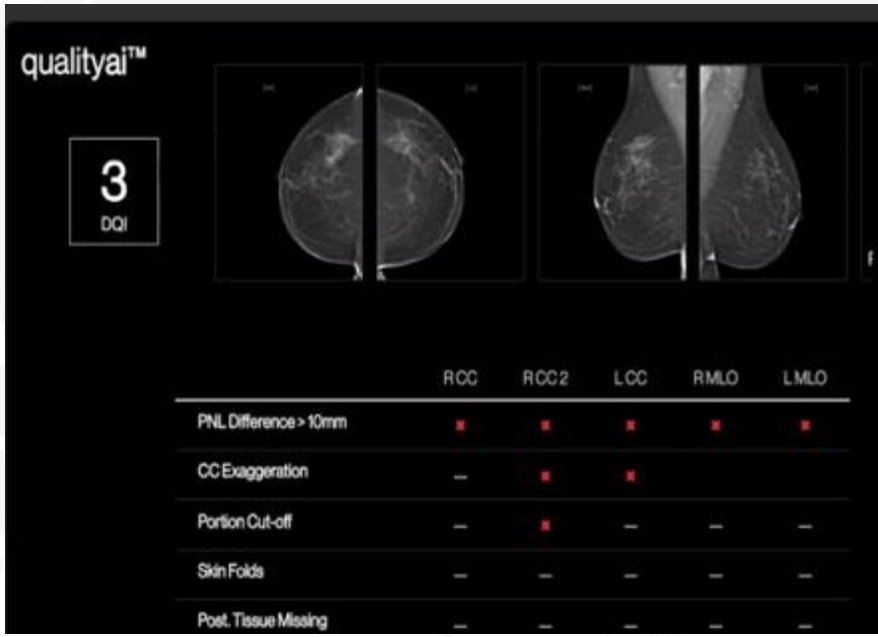
Ghana : Advancing Breast Informatics

Ameena Elahi

AI for Breast Cancer Imaging AI

Interpretation Teaching

Mammo Suite Tech Training



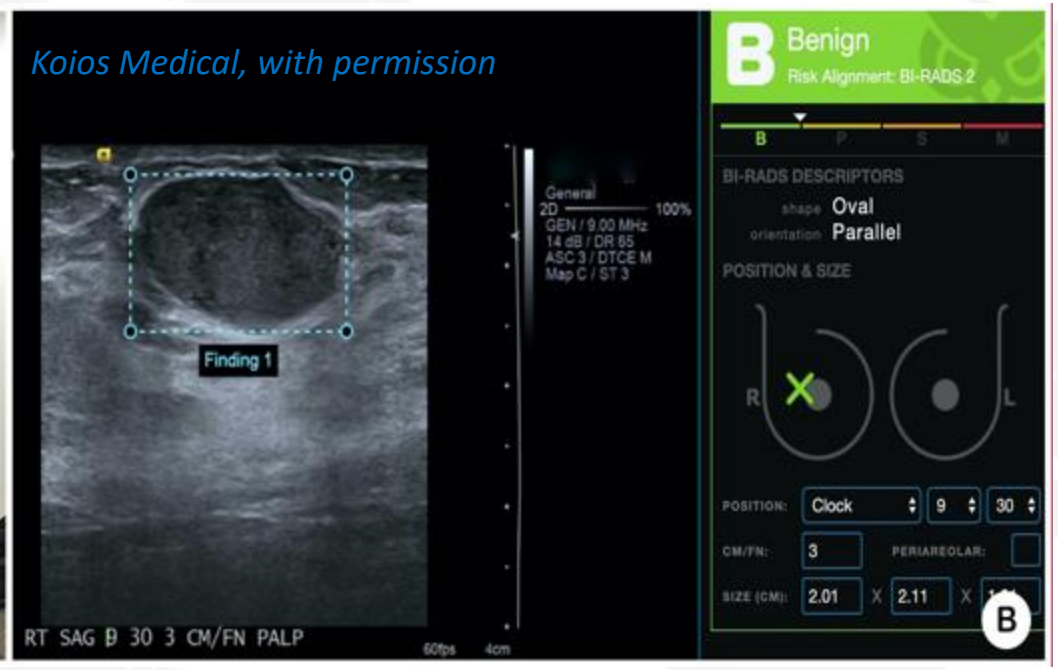
AI Implementation

RAD-AID Radiology Serving the World

RAD-AID Breast Cancer Ultrasound AI

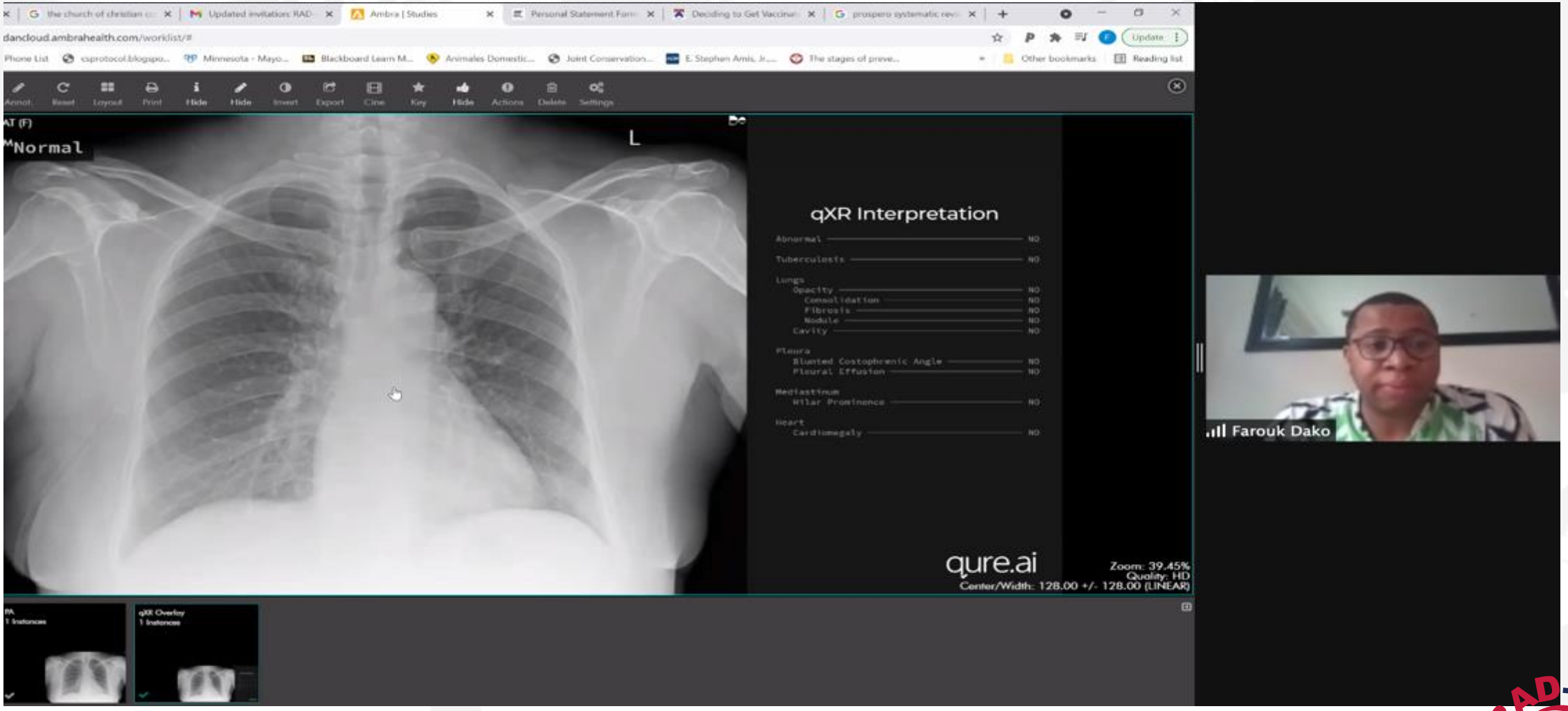
Peru

Koios Medical, with permission



Kenya

AI for Chest Imaging



2021: University College Hospital, Ibadan

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