



*To increase and improve radiology
in poor and developing countries*

2016-2017
ANNUAL REPORT

The Need for RAD-AID

Babies and mothers need **ultrasound** for safe delivery.

Cancer patients need **CT/MRI** for staging and treatment.

Trauma and infection victims need **x-ray, ultrasound and CT** to address injuries and outbreaks.

Heart and stroke victims need **CT, angiography, and ultrasound** for diagnosis and treatment.

OVER HALF THE WORLD LACKS RADIOLOGY

(Source: World Health Organization)



Countries



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Dear RAD-AID Friends and Supporters,

We are delighted to bring you this 2016 report on RAD-AID's progress. When RAD-AID began in 2008, we established one simple mission: to increase and improve radiology for poor and resource-limited countries and communities of the world. Starting off with just a few initial contributors and volunteers, we have grown to become an organization of over 6000 volunteers (versus 4000 last year), serving in more than 23 countries (adding 8 new country programs since 2015), affiliated with the United Nations and World Health Organization, and a network of 53 university-based academic medical center chapters (11 new chapters started in 2015). In 2016, RAD-AID recorded donations of over \$2 million and over 19,880 hours of volunteer work worldwide.

The growth has been thrilling and humbling, as we encounter more communities in need and more people we want to help. RAD-AID's growth has come from us staying focused on our singular mission and empowering the creative energies of radiology professionals around the world to improve global health. RAD-AID does not have all the answers for health care disparity, but we work hard to find innovative solutions for medical imaging and create a platform of resources and methods for our volunteers and partners to flexibly use in their service to the world.

We hope to continue the advancement of global health by bringing critical radiology services and imaging technologies to regions of great need. We approach the problem of radiology scarcity with a methodical strategy that emphasizes data driven analysis so that we can first identify the best way that radiology can positively impact the health and well-being of a community. That method becomes the core for how thousands of volunteers can then channel their own creativity and vision into making a difference in impoverished regions. We emphasize the power of education to build local health care capacity throughout the globe with sustainability as the underpinning goal.

We thank you for your interest in RAD-AID and for your support of our efforts. We invite you to join our international teams hard at work to bring vital radiology to poor and underserved communities.

Sincerely,



Daniel J. Mollura, MD
President and CEO
RAD-AID International

Officers and Management Team

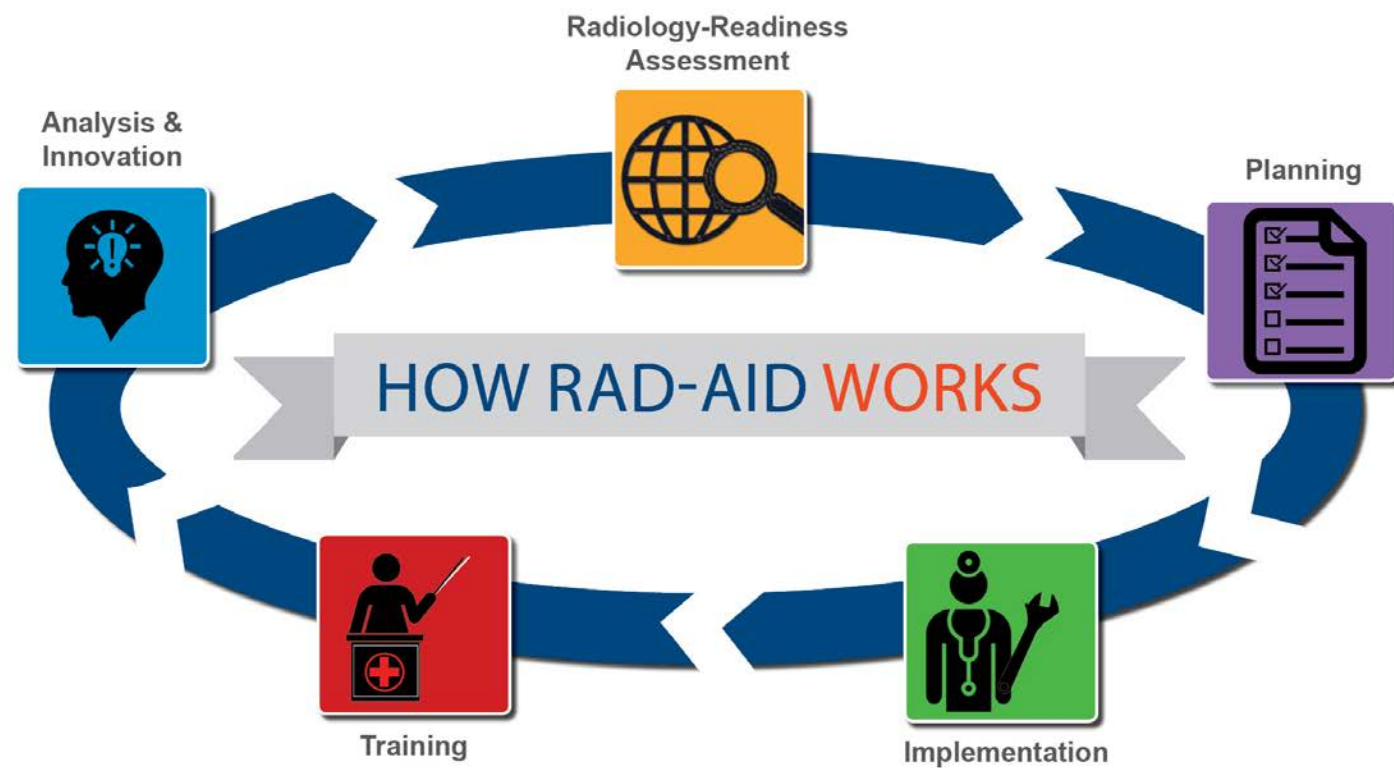
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Ryan Sydnor, Director, RAD-AID Haiti (2009-2016); Radiologist, Aurora Health
Liana Watson, Former Executive Vice President, American Society of Radiologic Technologists



RAD-AID uses a straightforward method for analyzing, planning and implementing projects. The first step is Radiology-Readiness, which is RAD-AID's trademarked data collection and analysis tool so that we can optimize every radiology project for the specific needs, infrastructure constraint, and health care system attributes of a region, community or facility.

Once we conduct the Radiology-Readiness Assessment, we plan the project based on that data. Third, we implement the project based on the plan whether it means installing hardware, configuring workstations, organizing training, writing research, or designing a new technology. Fourth, education is a central part of everything we do, and we hold training sessions so that RAD-AID can train our in-country partners to use and maintain the implemented program. More importantly, we also receive training and education from our in-country partners so that we can learn from them about clinical and cultural factors that will influence the success of our collaborative program.

Lastly, we work with our in-country partners to analyze the results of the program, to find what worked and what did not work. In this way, we identify new challenges to face and find new resources to strengthening the program. Then, we return to step one and repeat our Radiology-Readiness assessment so that we can see how our project had positive impact and what gaps need to be addressed. This circular iteration of data, analysis, planning, self correction and new data collection keeps RAD-AID moving forward.

This approach is efficient and scalable because we apply it to all our programs. This approach is flexible because it adapts to local cultural and clinical conditions so that each program is uniquely suited to the country and specific health goals.



RAD-AID Ethiopia, providing pediatric radiology support, MRI training, and PACS installation.

Ghana

RAD-AID's program in Ghana began at Korle Bu Teaching Hospital in 2012, with a Radiology-Readiness assessment conducted by Seth Quansah of RAD-AID's management team. The assessment results prioritized the need for health information technologies and PACS at Korle Bu, to synchronize with advanced cross sectional imaging implemented by the hospital and Ministry of Health. RAD-AID implemented the first PACS at Korle Bu in 2013-2014, with a renewed and advanced commitment of PACS and health IT from Merge Healthcare in 2015-2016. Educational outreach in Ghana from RAD-AID teams focused on pediatrics, general radiology (MRI, CT, x-ray, and ultrasound), interventional radiology, image quality, safety, and workflow optimization.



RAD-AID Tanzania team teaching in Moshi (2017), developing partnered radiology training of radiology residents and medical imaging professionals in Arusha, Dar es Salaam, Mwanza, and Moshi.

Ethiopia

RAD-AID's program in Ethiopia was launched by the Weill-Cornell RAD-AID Chapter in NY in 2015. RAD-AID provided essential MRI training to Black Lion Hospital in Adda Abba (with support from ASRT Foundation) and supported the donation of (from Pitt Radiology) to help the hospital implement its first RAD-AID-supported PACS. RAD-AID works closely with Children's Hospital of Philadelphia (CHOP) for training efforts at Black Lion Hospital, and partnered with World Federation for Ultrasound in Medicine and Biology (WFUMB) in 2016-2018 to boost ultrasound training in Gondar, Ethiopia.



Pediatric radiology instruction at Korle Bu Teaching Hospital, Ghana.

Tanzania

As of 2015-2016, Tanzania has 20 radiologists for the country's population of 49 million people. RAD-AID's program in Tanzania began in 2015. RAD-AID's project sites in Tanzania are in Arusha, Moshi, Mwanza, and Dar es Salaam. RAD-AID is assisting the development of advanced cross sectional imaging with training of radiologists, sonographers, and radiologic technologists. RAD-AID has partnered with the Society of Nuclear Medicine and Molecular Imaging (SNMMI) for assisting Aga Khan Health Services. RAD-AID is supporting the development of cancer care capacity in Tanzania.



RAD-AID Tanzania team (2016) teaching in Arusha to build radiology capacity, patient safety protocols, personnel training modules, and health care referral networks (Source: NYU RAD-AID Chapter, 2016).

Kenya

As of 2015, Kenya has 1-2 advanced MRI and CT scanners per 1 million people, just a fraction of the 25-30 CT and MRI scanners per million people in Europe and the US. RAD-AID's program in Kenya began in 2013, with efforts to bolster the education system for radiology professionals, and uncovered large disparities in

cancer treatment. In 2016, RAD-AID launched a Cancer Imaging and Treatment initiative to link radiology with radiation oncology at Kenyatta Hospital. RAD-AID efforts also include starting interventional radiology training systems in Kenya.



RAD-AID Kenya team, teaching radiologic techniques for cancer treatment planning at Kenyatta Hospital, 2016.

Malawi

The RAD-AID Malawi program was launched by the RAD-AID Chapter at University of North Carolina, with our Radiology-Readiness assessment data showing a significant need for radiologic technologist education, including imaging techniques and radiation safety. Focused support has been provided for pediatric imaging. Medical Officers from Malawi received support from RAD-AID in 2015-2016 to receive training in Kenya and South Africa, which will help to build radiology-capacity in the country for the future.



Department photo (2013) at Malawi College of Health Science (Source: University of North Carolina RAD-AID Chapter)

Cape Verde

The RAD-AID Cape Verde Program began in 2013. Cape Verde is a nation of 10 islands having 500,000 people off the coast of West Africa. Having little or no local educational infrastructure for radiology professionals, RAD-AID teams focus on ultrasound and radiography at imaging and primary care centers. Robin Sobolewski, former US Peace Corp volunteer and RAD-AID Cape Verde Program Director, manages the program with long term sustainability in mind, and strong in-country partnerships as the foundation. Efforts in 2017-2018 include PACS, support for the two CT scanners in Cape Verde, ultrasound training, and evaluation of existing mammography equipment.



Reviewing x-ray radiographic image interpretation, RAD-AID Cape Verde.



RAD-AID Nigeria team at Lagos University Teaching Hospital in Lagos, Nigeria (2016)

Nigeria

Nigeria has 50 CT scanners for 174 million people, manifesting significant shortages of radiology services throughout the country. Much of the available radiology infrastructure is outsourced abroad. RAD-AID Nigeria program, under Farouk Dako's leadership from the Temple University RAD-AID Chapter, initiated assessments and ultrasound-guided biopsy education at Lagos University Teaching Hospital (LUTH) in Lagos, Nigeria (photo). Plans are underway to support digital imaging informatics, to accelerate the advancement of Nigerian radiology.

RAD-AID began in 2008 to answer this need for more radiology and imaging technology in the resource-limited regions and communities of the world.



RAD-AID's team in Liberia teaching x-ray imaging techniques. Work in Liberia included assessments and teaching at JFK, Redemption, Phebe, and JFD-Tappita Hospitals. (Source: Columbia University RAD-AID chapter, 2017)



RAD-AID Liberia team, teaching ultrasound at Phebe Hospital (Source: Columbia University RAD-AID chapter, 2017)

Liberia

The RAD-AID Liberia program started in 2009 at JFK Memorial Hospital, and expanded activities at JFK, Redemption, Phebe, and JFD-Tappita Hospitals in January 2017, energized by efforts from the Columbia RAD-AID chapter. In partnership with Mount Sinai in

NY, RAD-AID is receiving World Bank support to build radiology capacity and training resources for in-country personnel for 2017-2018.



RAD-AID South Africa team conducting interviews and assessments for planning radiology capacity building and educational initiatives. (Source: RAD-AID University of Maryland Chapter, 2016)

South Africa

RAD-AID's program in South Africa launched in 2016 in conducting Radiology-Readiness Assessments at multiple health institutions, including urban and rural settings, via strong collaboration between

Dr. Farhad Ebrahim and the University of Maryland RAD-AID Chapter. Ongoing efforts include radiology training, information technologies and mobile health outreach strategies.

RAD-AID Asia Program

Bhutan

The RAD-AID Bhutan program began in 2014 in collaboration with faculty from George Washington University Medical Center and the World Health Organization. Bhutan has 1 CT scanner serving a population of 750,000 scattered by large distances of mountainous terrain. RAD-AID sponsored a Radiology-Readiness assessments in Bhutan in 2015 and 2016, showing large gaps in imaging technology and substantial needs for CT, ultrasound and radiography education. Ongoing efforts in Bhutan are focused on educational efforts and modernization of imaging infrastructure.

Bhutan has just one CT Scanner for 750,000 people.



RAD-AID Bhutan Program, 2015.



RAD-AID China Cancer Care Initiative, with radiation oncology and therapists, in collaboration with ASRT Foundation; Yinchuan, China in 2015.

China

RAD-AID's China program began in 2010 with Radiology-Readiness assessments in east and west China. Modernized infrastructure in China gave opportunity for educational collaborations, mainly located in western regions of China, covering image quality, diagnostic techniques, and radiologic safety. In 2014, with support from ASRT Foundation, the RAD-AID China program intensified its focus on large populations of cancer patients needing interdisciplinary care, such as radiation therapy,

nursing, and oncology. In 2016, the ASRT and RAD-AID strengthened the China Cancer Care Initiative at Tumor Hospital in Yinchuan, China, by carrying out an inter-institutional regional training program for radiation therapy and oncology specialists. In 2016-2017, RAD-AID is improving the integration between diagnostic imaging, radiologic cancer staging and radiation oncology planning.



Patients waiting for PGIMER Chandigarh RAD-AID mobile women's health clinic, Asha Jyoti ("Ray of Hope") in Northern India.

India

RAD-AID's work in India began in 2010 with the establishment of Asha Jyoti ("Ray of Hope" in local Punjabi language) in the innovation of a specially designed mobile women's health clinic for osteoporosis, breast cancer and cervical cancer screening of marginalized women in Northern India. Surpassing the targets set by RAD-AID and the partner hospital (PGIMER Chandigarh), Asha Jyoti has now delivered care to more than

16,000 women, and has established a model for mobile screening and treatment referral in India. Philips Healthcare has provided generous support for Asha Jyoti. The RAD-AID India program has won awards from the Clinton Global Initiative in 2012 and FriendsWithout a Border Healing Asia Award in 2017.



Line of patients outside PGIMER Chandigarh RAD-AID mobile women's health clinic, Asha Jyoti ("Ray of Hope").



RAD-AID Kazakhstan, assessment and program planning visits in 2016

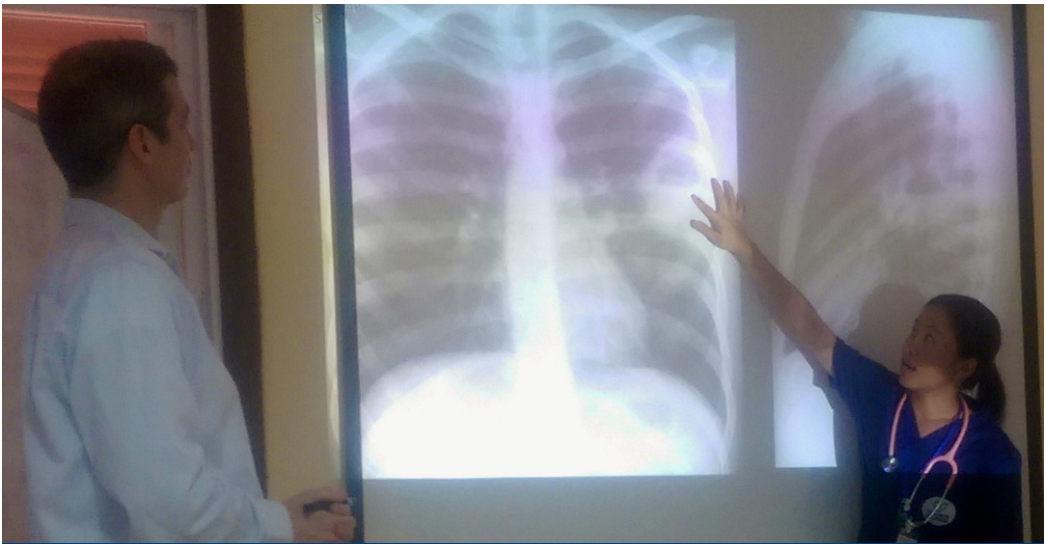
According to the World Health Organization (WHO), approximately 3-4 billion people are at risk for widespread losses and deaths that can be avoided or treated, if radiology were available.

Kazakhstan

RAD-AID launched a program in Kazakhstan in 2016 at Kazakh Research Institute of Oncology & Radiology (KRIOR) in Almaty, Kazakhstan. RAD-AID efforts in Kazakhstan are focusing on transitioning from post-Soviet training models for radiology residents, and increasing educational resources for CT, MRI, x-ray radiography. Technologist education is also an essential component of RAD-AID efforts to assist Kazakhstan's radiology development, including image techniques and medical physics.



RAD-AID Kazakhstan team doing case review and teaching at Kazakh Research Institute of Oncology & Radiology (KRIOR) in 2016.



RAD-AID Laos team delivering medical training and radiology education at Lao Friends Hospital for Children (2015-2016).

Laos

The RAD-AID Laos program assists the development of new radiology for Lao Friends Hospital for Children (LFHC), which began in 2015. RAD-AID sends regular teams to train and support the radiology department in the hospital, particularly for ultrasound and x-ray radiography services that never existed before in the hospital. In October 2015, RAD-AID implemented the first PACS

system in the country at LFHC, providing digital imaging and radiology exam storage for the hospital. RAD-AID donated a new ultrasound unit for LFHC and advanced the radiology protocols and ordering systems for the hospital. For these accomplishments, RAD-AID won the Healing Asia Award from LFHC's NY-based foundation, Friends Without A Border in April 2017.



RAD-AID Laos team delivering ultrasound training to Lao Friends Hospital for Children staff (2015-2016).

Nepal

The RAD-AID Nepal program began in 2014 at Tribhuvan University Teaching Hospital in Kathmandu, and expanded via RAD-AID's Disaster Response team in the aftermath of Nepal's earthquake in 2015. In 2016, RAD-AID donated and implemented PACS at three

institutions (with support from Merge Healthcare) with supportive radiology education running in parallel. Current efforts include strengthening links between urban centers and rural periphery.



Babies born in Kathmandu, Nepal during RAD-AID visit of 2014

RAD-AID has grown to include more than 6500 volunteers from 100 countries, 45,000 web visitors per year, 55 university-based chapter organizations, on-site programs in 25 countries, and an annual conference on global health radiology.



RAD-AID Central America/Caribbean Programs

Haiti

RAD-AID has been hard at work in Haiti since the earthquake in 2010. Our teams have supported University Hospital of Haiti in Port-au-Prince to improve educational resources available for radiology residents as the future medical imaging workforce of the country.

In 2016, RAD-AID donated 2 CT scanners to Haiti in Caracol and Gonaïves with training and implementation underway in 2017, with support from Philips Foundation. This effort is nearly doubling CT capacity in Haiti.



Haiti team giving teaching session and case rounds on plain film radiographs at University Hospital of Haiti in Port-au-Prince in 2015 (Source: University of Pittsburgh RAD-AID Chapter)

Nicaragua

The RAD-AID Nicaragua program brings vital radiology support and training to rural and urban regions of the country, including general ultrasound, women's health, and pediatrics. RAD-AID implemented Picture Archiving Communications Systems (PACS) for digital imaging and storage at four Nicaraguan hospitals in 2016 with support from Merge Healthcare. This means improving health care for hospitals serving 3 million people and enabling the first-ever computer-based medical systems in that country.



Ultrasound education in Nicaragua, with participation from Georgetown, Henry Ford Hospital, and University of Wisconsin RAD-AID Chapters.



Ultrasound outreach and radiology education support for Nicaragua.



RAD-AID Guatemala team at INCAN (led by Mallinckrodt RAD-AID Chapter) in Guatemala City, 2016, assisting radiology training and health information technology development for cancer diagnostics and treatment.

Guatemala

RAD-AID Guatemala launched activities in 2016 at INCAN (insert full name), under the leadership of the RAD-AID Mallinckrodt Chapter. Our Radiology-Readiness assessment highlighted the need for ultrasound optimization for cancer patients in Guatemala and implementation of health information technologies and PACS for CT and ultrasound. In partnership with Merge Healthcare (an IBM company), RAD-AID donated and implemented PACS at INCAN in

October 2016, enabling us to spearhead the adoption of digital health capabilities in Guatemala. Plans for 2017-2018 included partnership with World Federation for Ultrasound in Medicine and Biology (WFUMB) to hold a regional ultrasound education conference at WFUMB followed by RAD-AID's on-site teams in Guatemala for hand-on ultrasound support at INCAN.



RAD-AID Guatemala team, November 2016, working at Instituto de Cancerología (INCAN) in Guatemala City.

In the United States, a patient with breast cancer has a 90% chance of survival, but a cancer patient in a developing country has a less-than 50% chance of survival.

Jamaica

RAD-AID Jamaica launched activities in 2016 at University of the West Indies in Kingston and St. Andrew, as well as Kingston Public Hospital. The program was launched by members of the Yale RAD-AID chapter. Project activities include a multi-institutional Radiology-Readiness Assessment, information technologies assessment, and educational training for radiology residents, and local health personnel.

RAD-AID's mission is to increase and improve radiology resources in the developing and impoverished countries of the world.



Ultrasound education at University of the West Indies in Kingston and St. Andrew, Jamaica (Source: RAD-AID Yale Chapter, 2016)



Kingston Public Hospital, site of RAD-AID Jamaica team visit for Radiology-Readiness assessment, teaching and equipment support (Source: Yale RAD-AID Chapter)



Ceremony for RAD-AID donation of ultrasound, with Guyana's Ministry of Health, with support from Hofstra Northwell RAD-AID Chapter.



RAD-AID and Philips' donation of CT scanner at New Amsterdam Hospital in Guyana for RAD-AID's CT and radiology residency training initiative (2016-2017)

Peru

RAD-AID is working in CerviCusco, after having completed a Radiology-Readiness Assessment in mid-2016. Plans are underway for evaluating how radiology can best support and advance cancer screening, diagnosis and treatment in Peru.








Guyana

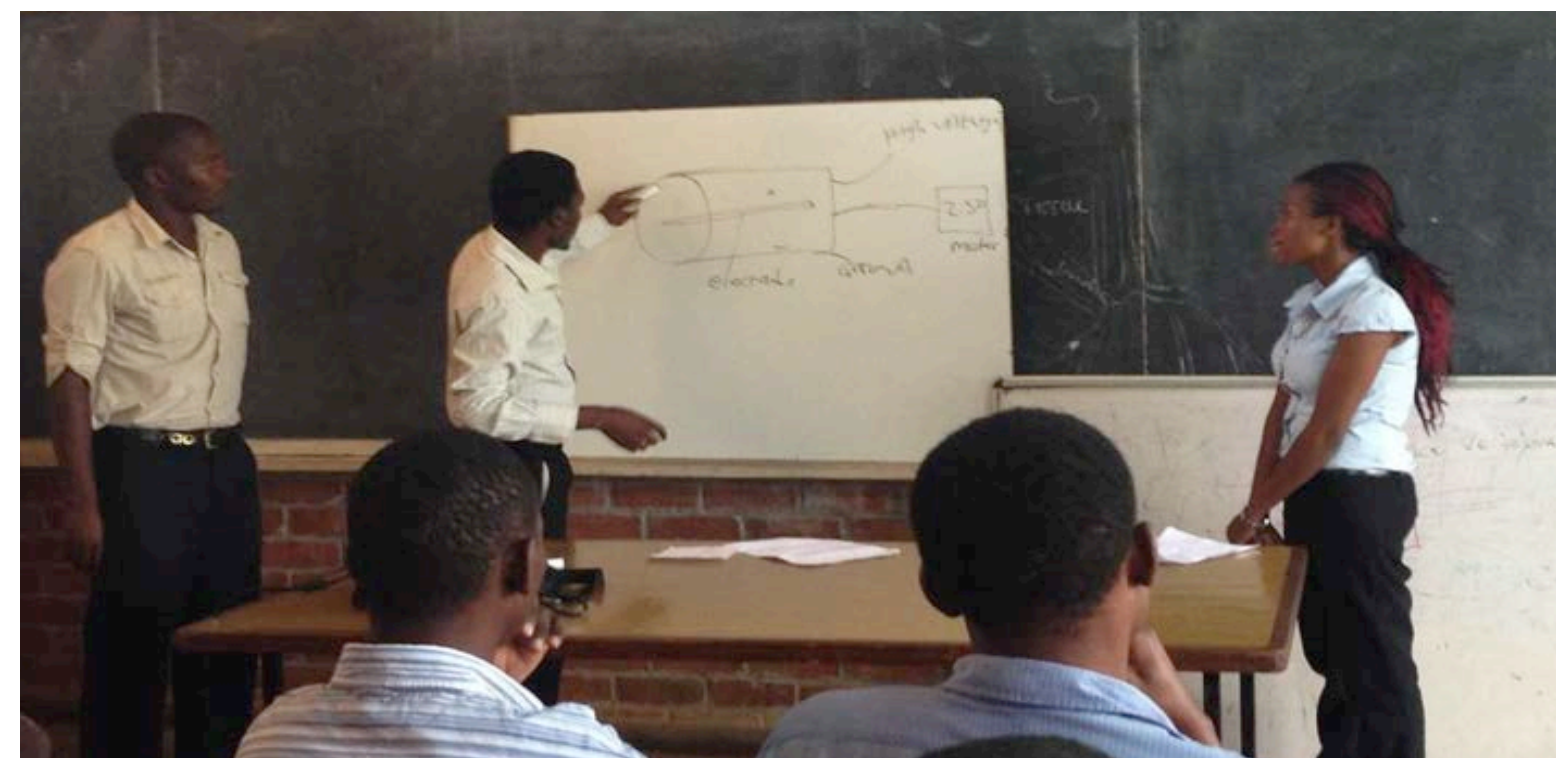
The RAD-AID Guyana Program began in 2013 in partnership with the World Health Organization's Pan American Health Organization (WHO/PAHO). In 2016, RAD-AID donated 2 CT scanners to Guyana at Bartica and New Amsterdam Hospitals, with support from Philips Foundation, and partnered with Northwell Hofstra School of Medicine's RAD-AID Chapter to establish the first radiology residency in Guyana's Georgetown Public Hospital.



RAD-AID visiting CerviCusco in Peru for cancer outreach, nursing and radiology support, 2017)

Education and training are the cornerstone of RAD-AID's effort to build in-country radiology capacity for health care in the developing world. RAD-AID has several key interlocking, synergistic and complementary forms of education that form a well-rounded approach:

-  In-Country on site RAD-AID teams with hands-on work with local personnel
-  Online learning via the RAD-AID Learning Center and learning management system to provide pro bono internet-based didactic educational content
-  Tele-lecture case conferences held in real-time between RAD-AID chapters and RAD-AID's international partner institutions, such as in Tanzania and Kenya
-  RAD-AID textbook, "Radiology in Global Health," published in 2014, now in production of its second edition which is due for publication in 2018.
-  Global Health Radiology Certificate of Proficiency is a successful program launched by RAD-AID in 2015 providing semester based courses led by RAD-AID's Chief Operating Officer, including lectures, discussions and project mentorship. The course results in a certificate of proficiency from RAD-AID in global health radiology disciplines
-  Medical Student Clerkship elective in Global Health Radiology – beginning in 2017 is the new medical student clerkship elective. Medical students with an interest in global health radiology can do a joint elective managed by RAD-AID and partner medical schools (first launched from Columbia College of Physicians and Surgeons).
-  RAD-AID Chapters Network, now consisting of 55 US-based academic radiology institutions, receives project support, funding, and educational webinars from RAD-AID in support of radiology residents, faculty, students, and technologists to boost global health training at medical institutions.



RAD-AID Malawi team teaching radiographic techniques in Lilongwe, Malawi (Source: University of North Carolina RAD-AID chapter)



RAD-AID Haiti team teaching radiographic imaging techniques and protocols at University Hospital of Haiti, Port-au-Prince, 2015







RAD-AID team, teaching ultrasound, Port-au-Prince, Haiti.



RAD-AID Nicaragua team implementing PACS and health information technologies in 2015 after RAD-AID's Radiology-Readiness and PACS-Readiness assessments.

RAD-AID's data driven model requires robust attention on data collection, analysis, and planning. This model includes:

-  Radiology-Readiness Assessments for optimizing radiology at the facility-level in planning RAD-AID programs
-  Country Reports for analyzing general national health care needs and systemic features in developing countries.
-  RAD-AID Conference – a unique international radiology forum (annual since 2009 and now in its 9th year, co-sponsored by the World Health Organization in Washington DC).
-  PACS-Readiness: RAD-AID assessment tool dedicated to pre-assessing resources at institutions before RAD-AID installations of PACS such as existing connectivity, software licenses, servers, workstations, electrical power, and scanner compatibility.

RAD-AID builds an organizational culture that inspires creativity, drives innovation, and rewards perseverance. Always persevere.



Annual RAD-AID Conference in main hall at World Health Organization, Pan American Health Organization (WHO/PAHO) regional headquarters in Washington DC.

Despite the numerous conferences on medical imaging and radiology for radiology professionals held throughout the year, there was never one dedicated forum for global outreach and international radiology development. To answer this need, the RAD-AID Conference was formed at Johns Hopkins in 2009 and was run on an annual basis every year since. The 2016 RAD-AID Conference increased the meeting's attendance by about 500% since the founding, attended by ~280 participants and co-sponsored by the World Health Organization.

The conference is essential for RAD-AID as a central insight and vision formation event that sets the plans in motion for the following year. The Conference is routinely scheduled for the first Saturday in November, and coincides with the International Day of Radiology (IDoR) in early November.

RAD-AID's management team consists of three key components to bring the best talent, experience and expertise to the development of RAD-AID programs: Operational, Regional and In-Country Leaders.

Informatics & Health IT

RAD-AID installed digital radiology, health IT and PACS to over 9 hospitals in Laos, Nepal, Ghana, & Nicaragua.

Nursing

RAD-AID Nursing program sponsored International Nurses Day at the United Nations in NY, and formulated nursing programs in Guyana, India, Peru, China, and Tanzania.

Radiation Oncology

RAD-AID Radiation Oncology teams supported education and equipment assessment in Kenya, Tanzania, and China.

Pediatrics

One Billion children in the world lack radiology. RAD-AID has pediatric radiology programs in Laos, Malawi, Ghana, Haiti, Nicaragua, Cape Verde, Bhutan, Nepal, Vietnam and Ethiopia.



RAD-AID Cape Verde educational and children's outreach project.



RAD-AID providing clinical training in women's health for nursing students from National Institute of Nursing Education, in Chandigarh, India (2017)



RAD-AID conducted multidisciplinary cancer outreach at health fair in Garhshankar, India (2017)

RAD-AID is about the wholistic picture of radiology. Not just the equipment but also the people and all of the other resources that go into making it effective.

PARTNERSHIPS

Partnerships are critical in RAD-AID to form well-rounded approaches to international health. Partnerships include a vast system of contract and Memorandum of Understanding (MOU)-based relations with international hospitals and academic centers. Partnerships are also in place with professional societies and nonprofit organizations to implement collaborative outreach goals, such as American College of Radiology (ACR), Radiological Society of North America (RSNA), and International Society of Radiology (ISR).

One key area of partnership is the Radiologic Technologist community, which comprises 35% of RAD-AID's volunteers. RAD-AID formed robust partnerships with ASRT Foundation (US-based technologists), Society and College of Radiographers (SCoR, UK-based technologists) and the Canadian Association of Medical Radiation Technologists (CAMRT). These partnerships give outreach opportunities to radiology professionals seeking to help developing countries. Moreover, by bridging these organizations through RAD-AID teams, we foster an international team spirit and mix of skills necessary for being impactful in the developing world.

In 2016, RAD-AID launched a MOU-based partnership with Society of Nuclear Medicine and Molecular Imaging (SNMMI) to support the Hyman-Ghesani RAD-AID SNMMI Global Health Scholarship, to add nuclear medicine radiology capacity to Tanzania by sending residents and faculty to teach and work at Aga Khan Health Services in Tanzania.

Project HOPE supported RAD-AID in 2016 via sponsorship of the RAD-AID Conference. RAD-AID has a longstanding partnership with Aperian Global, to particularly use the GlobeSmart platform for educating RAD-AID volunteers in cross-cultural etiquette. Bayer launched a new partnership with RAD-AID in 2016 to assist with radiology pharmaceuticals (such as contrast media for MRI and CT) as well as global health awareness and volunteer recruitment at the 2016 RSNA. RAD-AID partnered with Pink Ribbon Red Ribbon in 2017 to launch global health efforts for cancer screening, diagnosis and treatment.

In international information technologies and health infrastructure, RAD-AID has a partnership with Merge Healthcare (now an IBM Company) to bring PACS and digital imaging platforms to resource-poor countries. That program has improved the health care of nearly 70 million people by implementing the first PACS (digital images on computer work stations from radiology scanners), including Nepal, Ghana, Nicaragua, and Laos, with plans for Ethiopia, Vietnam and Tanzania.

RAD-AID also received the IBM Health Corps grant award to build and develop data architectures for radiology in developing countries in 2017. RAD-AID also initiated partnerships with Society for Imaging Informatics in Medicine (SIIM) to send information technology and PACS specialists on RAD-AID teams to our hospital partner sites in



Francois announcing partnership at RAD-AID Conference

developing countries, starting with Laos and Nicaragua in the pilot phase of mid-2017.

In Mobile Health, RAD-AID launched a new partnership with Straightline Aviation to design and build the world's first hybrid medical airship with Lockheed Martin (see Innovations section for details). RAD-AID expanded this partnership in 2016 to include key medical vendors in the airship medical collaboration, such as Philips Healthcare, Quest Diagnostics, Bayer Pharmaceuticals, IBM Health Corps, and Merge (an IBM company).

Partnerships between nonprofit organizations, the private sector, government agencies, technology companies, and health institutions constitute the cornerstone of RAD-AID's strategy to bring resources to developing countries.

RAD-AID CHAPTERS

The RAD-AID Chapters Network launched in 2012 and gives US and Canadian academic medical centers the ability to form RAD-AID chapters approved by the Chairs of the respective radiology departments. This grass-roots horizontal approach gives residents, faculty, staff, nurses, and technologists at these centers the ability to organize their own projects and strategies while benefitting from scale, efficiencies, and funding from RAD-AID's global organization. The RAD-AID Chapters Network grew to 7 institutions in 2013, 25 chapters in 2014, and 53 institutions by year-end 2016. Some chapters have formed new RAD-AID programs, such as Cornell in Ethiopia, University of Virginia in Uganda, University of Maryland in South Africa, University of Wisconsin (UW) in Nicaragua and University of North Carolina in Malawi. Other chapters have provided key

support to broad RAD-AID programs with rotating volunteers, such as Tufts, University of Pittsburgh, and UC Davis in RAD-AID Haiti; SUNY Downstate in RAD-AID Informatics and Ghana; UNC and UW in Nepal; University of Pennsylvania RAD-AID in Tanzania, and Columbia's chapter actively supporting the RAD-AID India Women's Health program. The RAD-AID Chapters Network has the yearly Chapters Roundtable Meeting immediately following the RAD-AID Conference, as a governance forum to discuss ways to improve chapter activities and expand opportunities for project development.



Chapters





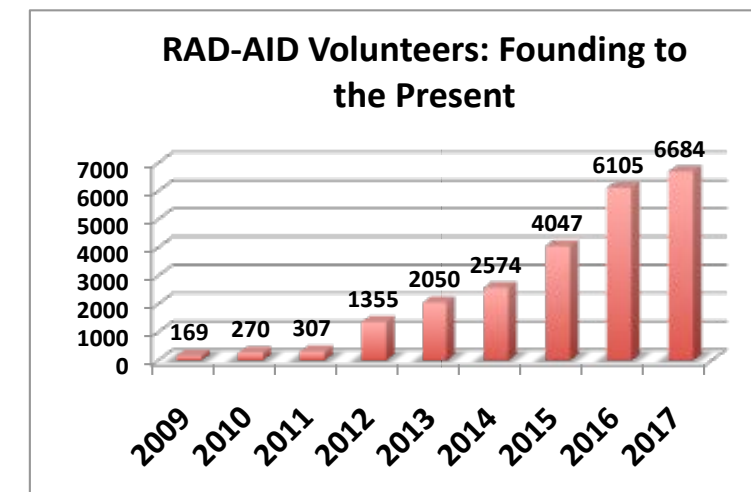
The World Bank reports that over 900 million people lack transportation infrastructure. The World Health Organization reports that 3-4 billion people lack radiology and vital health technologies. RAD-AID and Straightline Aviation (SLA) are teamed up to design and launch the first medical hybrid airship in the world, built by Lockheed Martin, to bring mobile healthcare and humanitarian aid to underserved populations.

The RAD-AID Straightline Medical Airship Program will deliver advanced radiology health services, diagnostic medical imaging equipment, medical assistance in disaster-relief efforts, and poverty remediation to populations that are medically underserved, remote, or limited by poor access to conventional transportation infrastructure. The memorandum of understanding (MOU) unites aircraft innovation with global health technology innovation for a new approach to global health outreach.

Radiology equipment is heavy and delicate with advanced electronics and hardware that are difficult to safely transport to remote regions or those suffering in the aftermath of natural disasters. The Lockheed hybrid airship is a game changing aircraft that is optimally suited to fulfill this role with heavy lift capability, and vibration free, land-anywhere (i.e. sand, snow, and water) flight characteristics.

We welcome you to become part of RAD-AID as a growing global organization of advocates for medical technology in poor and developing countries.

RAD-AID is committed to financial transparency and has maintained a Gold Star rating from Guidestar since 2015. All financial data from RAD-AID is reported with downloadable PDFs on the RAD-AID web site, covering 2009 to the present. We show some highlights of RAD-AID finances in 2014 and 2015 below.



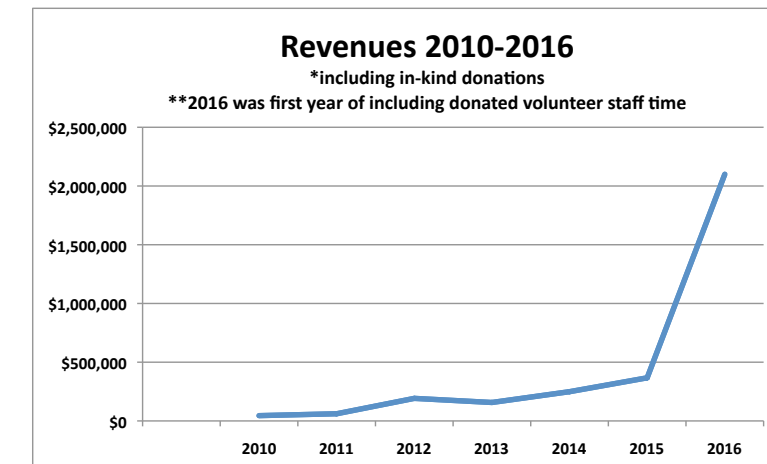
In 2016, RAD-AID's volunteers donated 19,880 hours of pro bono work for radiology capacity building in the developing world, valued at close to \$1 million of in-kind labor support.

Our administrative portions of expenses remain under 5% of revenues, reaching the best standard for nonprofit resource allocations. The composition of RAD-AID's volunteers has been stable, approximately 50% physicians, 35% technologists, and 15% from nursing, business, engineering, and nonprofit management backgrounds. The organization remains entirely run by volunteers with no paid staff in the management team and no employees.



RAD-AID INTERNATIONAL
is a GuideStar Exchange Gold Participant

In 2014 and 2015, RAD-AID's volunteer base rose from ~2500 to 4000 contributors spanning 120 countries. By year-end 2016, RAD-AID's volunteer base exceeded 5400 radiology professionals, exceeding 6500 by the end of the first quarter in 2017.





CONCLUSION

Thank you!

We hope this 2016-2017 report from RAD-AID has been informative as an overview of our progress and efforts to help radiology across the world. 4 billion people have little or no access to. This means RAD-AID has a lot of work to do, and we are inspired by the contributions from our volunteers and supporters. Having begun as a handful of people, the organization has grown in scale while staying true to our fundamental mission and core strategy that interlocks data analysis, systematic program development, education, and on-site team presence. This approach yields a long term sustainability that always emphasizes the building of in-country local radiology capacity. More importantly, our strategy is founded on a spirit of hope and charity to improve the world.

We thank you for taking the time to learn about our programs. This review only scratches the surface of the complex and inspiring challenge of bringing advanced radiology imaging to resource-limited and poor countries of the world. Radiology is fundamental for all aspects of medicine, including surgical planning, trauma, cancer staging and care, obstetric prenatal services, pneumonia/TB diagnosis, and cardiovascular management. Without radiology, health care systems across the developing world have numerous holes that crack the chains of effective health care delivery. RAD-AID answers this call to meet those needs and serve the world.

Please visit us at www.rad-aid.org to learn more.

**Be a part of RAD-AID.
Volunteer to become part of the
RAD-AID Team!**



RAD-AID setting up x-ray radiography equipment for training and clinical services in Jamaica.



RAD-AID Haiti teaching session for radiology residents and staff.



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