

**THROUGH THE LENS OF A  
VOLUNTEER; TREATMENT PLANNING  
IN PRC**

Cory J Neill

**RECOGNIZING CONTRIBUTORS**

## RECOGNIZING CONTRIBUTORS, EXCEPT IN 2015

AAMD Award of Excellence

2007 Keith Moore  
2008 Matt Tobler  
2009 Robert Adams  
2010 Lon Marsh  
2011 Rudi Bertrand  
2012 Randall Merrill  
2013 Nishele Lenards  
2014 Anne Marie Vann  
2015  
2016 Mark Russell

<https://www.medicaldosimetry.org/membership/aamd-award-of-excellence/>

## VISION

“The decisions we make about “where we will work” for future medical dosimetrists may not be “in which state will I work,” but rather “in which country will I work”

-Adams, R. The future of medical dosimetry. *Med Dos.* **40**: 160; 2015.



Is this statement realistic?

I believe it is, let me show you why.

Yes, Dr. Adams gave me permission to use this image

4

## GLOBAL IMBALANCE OF RT RESOURCES

WHO estimates that by the year 2020, approximately 20 million new cancer cases will be reported annually with nearly 70% of those cases occurring low- and middle-income countries (LMICs)

LMICs countries <US \$12,615 GNI

139 countries are considered LMICs and of these 110 are member states of the IAEA

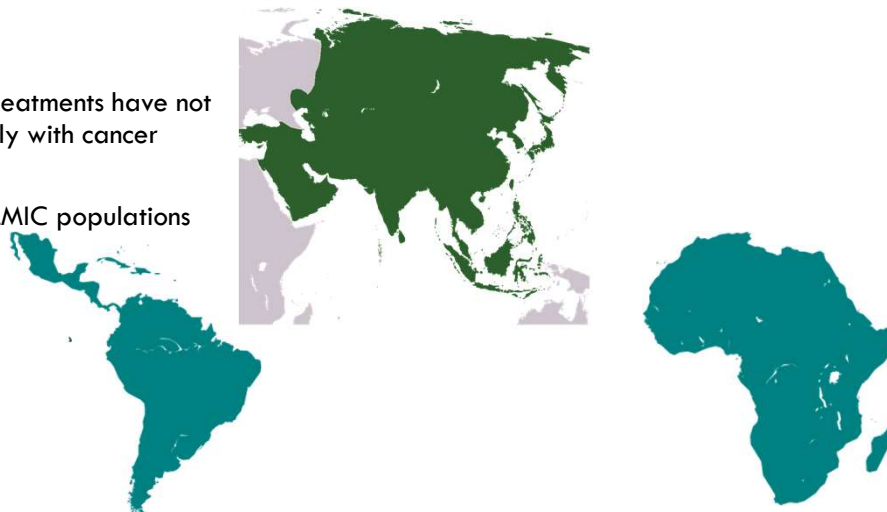


Welch, T. Global imbalances in radiation therapy resources. *Radiation Therapist*. 24:211-213; 2015.  
Datta, et. AL. Radiation Therapy Infrastructure and Human Resources in Low- and Middle-Income Countries: Present Status and Projections for 2020. *International Journal of Radiation Oncology*. 89:448-457; 2014.  
[https://en.wikipedia.org/wiki/Member\\_states\\_of\\_the\\_International\\_Atomic\\_Energy\\_Agency#Non-member\\_states](https://en.wikipedia.org/wiki/Member_states_of_the_International_Atomic_Energy_Agency#Non-member_states)

## GLOBAL IMBALANCE OF RT RESOURCES

Availability of RT treatments have not grown proportionally with cancer incidences

The most affected LMIC populations are located:



Latin America: By Heraldry (GFDL (<http://www.gnu.org/copyleft/fdl.html>) or CC-BY-SA-3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)), via Wikimedia Commons  
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Datta, et. AL. Radiation Therapy Infrastructure and Human Resources in Low- and Middle-Income Countries: Present Status and Projections for 2020. *International Journal of Radiation Oncology*. 89:448-457; 2014

## GLOBAL IMBALANCE OF RT RESOURCES

There are facilities in more developed areas but:

Nonfunctioning equipment

Malfunctioning equipment

Poorly trained personnel



Weld, T. Global imbalances in radiation therapy resources. *Radiation Therapist*. 24:211-213; 2015.

## GLOBAL IMBALANCE OF RT RESOURCES

As of 2017 13,719 teletherapy units are available worldwide

3,689 units are located in the US

3,689 units serve 4.4% of the worlds population

The remaining 10,030 units serve 96.4% of the world's population



Weld, T. Global imbalances in radiation therapy resources. *Radiation Therapist*. 24:211-213; 2015.  
<https://dtrac.iaea.org/Data/Country>



## GLOBAL IMBALANCE OF RT RESOURCES

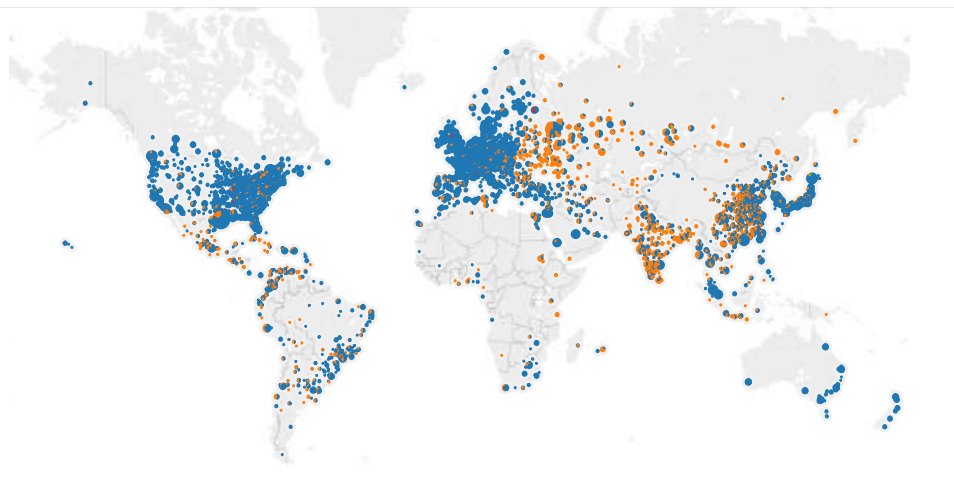
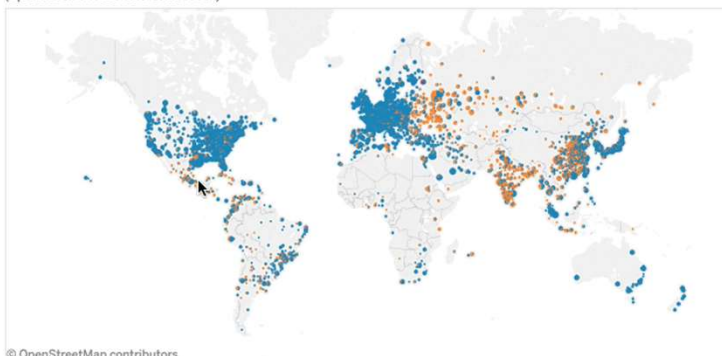


Image: <https://dirac.iaea.org/Query/Map2?mapId=2>  
 Datto, et. Al. Radiation Therapy Infrastructure and Human Resources in Low- and Middle-Income Countries: Present Status and Projections for 2020. International Journal of Radiation Oncology, 89:448-457; 2014.

## GLOBAL IMBALANCE OF RT RESOURCES

Radiation therapy centers  
 (Updated on : 1/30/2017 8:36:41 AM)



Equipment type  
 (Updated on : 1/30/2017 8:36:41 AM)

Clinical accelerator	2,237
Radionuclide teletherapy	75
Particle therapy	14
Circular accelerator	1

Income groups

High income (H)	2,237
Upper middle income (UM)	2,237
Lower middle income (LM)	75
Low income (L)	14
Temporarily unclassified (NC)	1

- Clinical accelerator
- Radionuclide teletherapy
- Circular accelerator
- Particle therapy

Countries	RT centers	Equipment	Linac	Radionuclide Therapy	Circular Accelerator	Particle Therapy
<b>139</b>	<b>7010</b>	<b>13946</b>	<b>11,620</b>	<b>2,237</b>	<b>14</b>	<b>75</b>

## GLOBAL IMBALANCE OF RT RESOURCES

LMICs 0.71 teletherapy units/million

High income 7.62 teletherapy  
units/million



Datta, et al. Radiation Therapy Infrastructure and Human Resources in Low- and Middle -Income Countries: Present Status and Projections for 2020. *IJRO*. 89:448-457;2014.  
Page et al. Cobalt, Linac, or Other: What is the Best Solution for Radiation Therapy in Developing Countries? *IJRO*. 89:476-480; 2014

## GLOBAL IMBALANCE OF RT RESOURCES

To better understand this imbalance let's  
look at some individual country's rad  
onc resources

Country Population

# Radiotherapy centers

# Radiation Oncologists

# High energy teletherapy machines



## UNITED STATES OF AMERICA

Population	324,743,220
# Radiotherapy centers	1981
# Radiation Oncologists	2,683
# High energy teletherapy machines (includes Co-60)	3689

World Health Organization – Cancer Country Profiles, 2014; <https://www.census.gov/popclock/>; IAEA DIRAC

## CANADA

Population	35,151,728
# Radiotherapy centers	58
# Radiation Oncologists	358
# High energy teletherapy machines (includes Co-60)	285

World Health Organization – Cancer Country Profiles, 2014; <http://www.cbc.ca/news/politics/grenier-2016-census-population-1.3970314>; IAEA DIRAC

## CHINA

Population	1,390,000,000
# Radiotherapy centers	1,086
# Radiation Oncologists	7,121
# High energy teletherapy machines (includes Co-60)	1,684

World Health Organization – Cancer Country Profiles, 2014  
Datta, et. Al. Radiation Therapy Infrastructure and Human Resources in Low- and Middle-Income Countries: Present Status and Projections for 2020. International Journal of Radiation Oncology. 89:448-457; 2014.

## NEPAL

Population	27,800,000
# Radiotherapy centers	6
# Radiation Oncologists	16
# High energy teletherapy machines (includes Co-60)	9

World Health Organization – Cancer Country Profiles, 2014; IAEA DIRAC

## HONDURAS

Population	7,936,000
# Radiotherapy centers	5
# Radiation Oncologists	4
# High energy teletherapy machines (includes Co-60)	7

World Health Organization – Cancer Country Profiles, 2014; IAEA DIRAC

## GUATEMALA

Population	15,083,000
# Radiotherapy centers	4
# Radiation Oncologists	10
# High energy teletherapy machines (includes Co-60)	11

World Health Organization – Cancer Country Profiles, 2014; IAEA DIRAC

## IRAQ

Population	32,778,000
# Radiotherapy centers	WHO 18 IAEA DIRAC 8
# Radiation Oncologists	27
# High energy teletherapy machines (includes Co-60)	13

World Health Organization – Cancer Country Profiles, 2014; IAEA DIRAC

## IRAN

Population	76,424,000
# Radiotherapy centers	37
# Radiation Oncologists	147
# High energy teletherapy machines (includes Co-60)	67

World Health Organization – Cancer Country Profiles, 2014; IAEA DIRAC

## ZIMBABWE

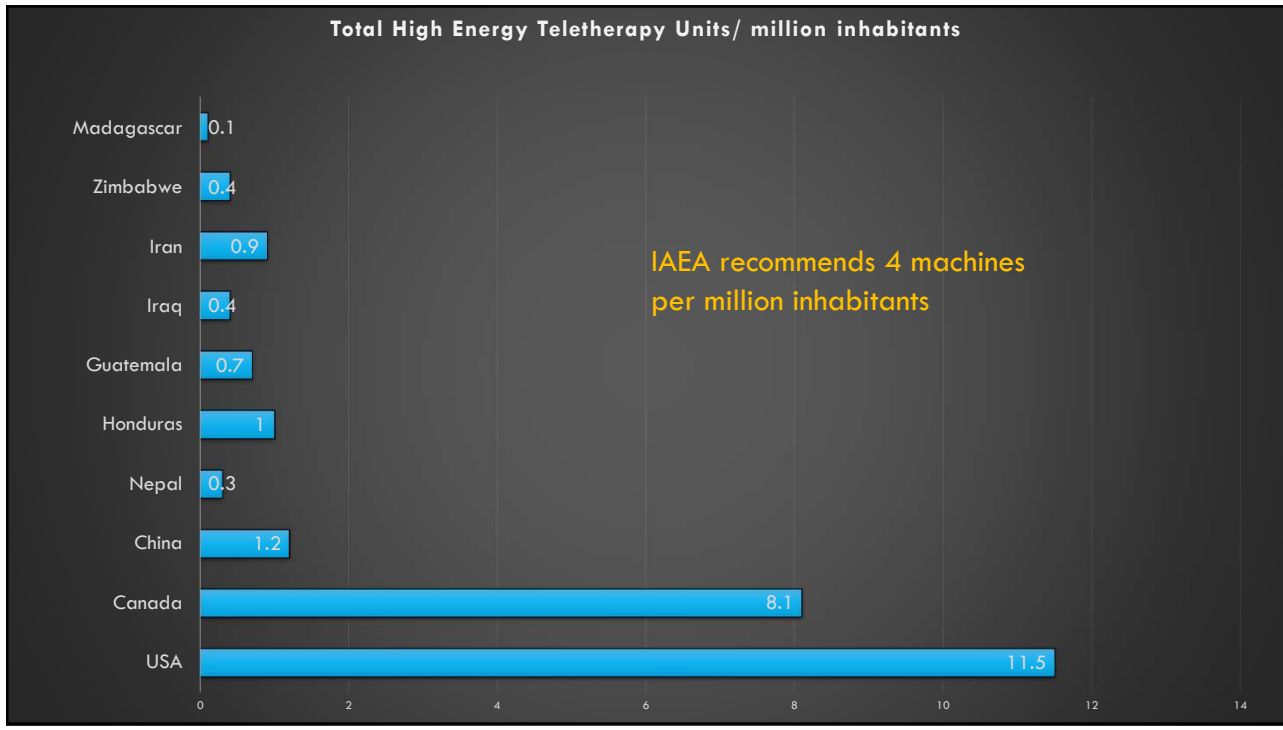
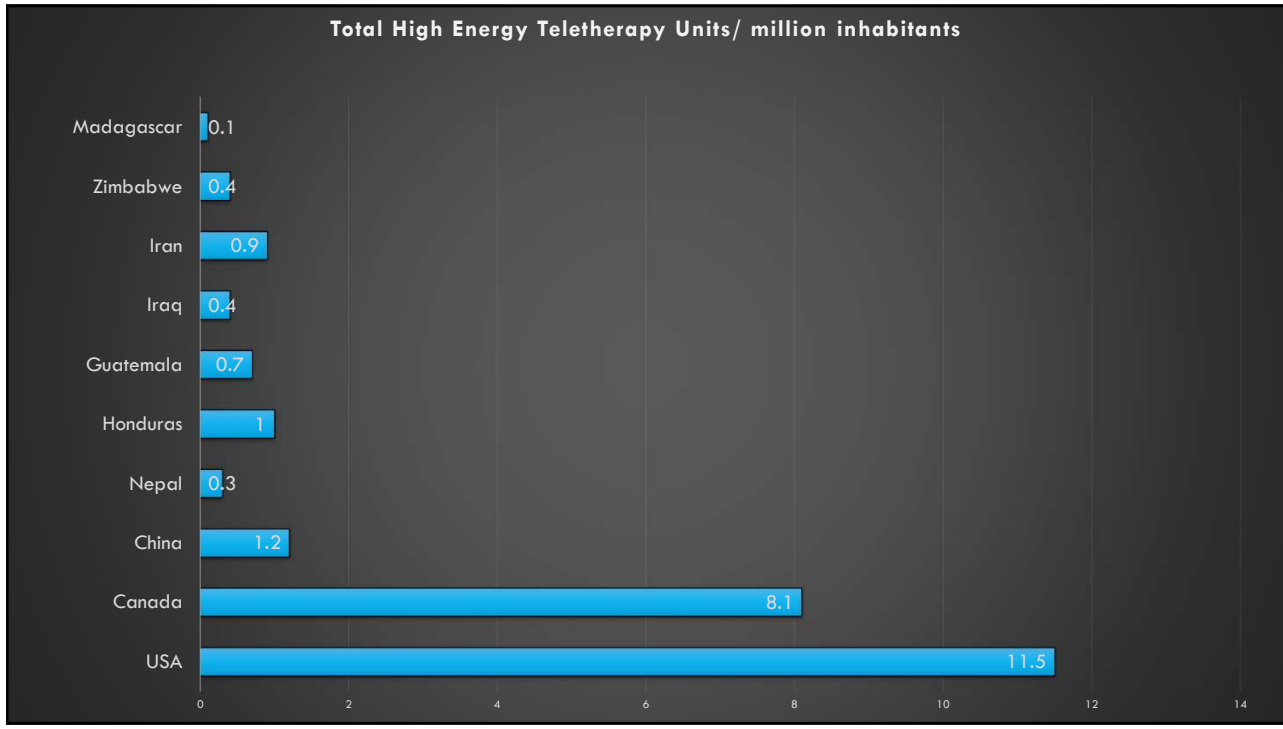
Population	13,724,000
# Radiotherapy centers	2
# Radiation Oncologists	6
# High energy teletherapy machines (includes Co-60)	5

World Health Organization – Cancer Country Profiles, 2014; IAEA DIRAC

## MADAGASCAR

Population	22,294,000
# Radiotherapy centers	2
# Radiation Oncologists	3
# High energy teletherapy machines (includes Co-60)	3

World Health Organization – Cancer Country Profiles, 2014; IAEA DIRAC





## MAJOR OBSTACLES LIMITING RT IN LMICS

- Lack of accessibility
- Affordability
- Trained personnel
- Offense/High expectations
- Maintaining Equipment
- Cultural factors



Weidt, T. Global imbalances in radiation therapy resources. *Radiation Therapist*. 24:211-213; 2015  
Grover et al. A Systematic Review of Radiotherapy Capacity in low- and middle-income Countries. *Frontiers in Oncology* 380; 1-11; 2015  
Datta et al. Radiation Therapy Infrastructure and Human Resources in Low- and Middle-Income Countries: Present Status and Projections for 2020. *International Journal of Radiation Oncology*. 89:448-457; 2014

## COST OF A RADIOTHERAPY CENTER IN AN LMIC

Very basic RT facilities cost 3-5 million  
Equipment accounts for about 1/2

Building is \$0.7-1M

Includes:

- TX vault
- Simulation room
- HDR vault
- Planning room
- Pt. waiting areas
- Nurses station,
- Reception

IAEA. Setting up a Radiotherapy Programme: Clinical, Medical Physics, Radiation Protection, and Safety Aspects. 2008

## COST OF A RADIOTHERAPY CENTER IN AN LMIC

External Beam Equipment: 1.5-2M

Includes:

Single Energy linac

CT Simulator

TPS

Immobilization devices

Beam measurement & QA devices

IAEA. Setting up a Radiotherapy Programme: Clinical, Medical Physics, Radiation Protection, and Safety Aspects. 2008

## COST EFFECTIVE ACCELERATORS



<http://www.papapostolou.gr/clientfiles/image/Products/main/Varian/Unique.jpg>  
<https://www.elekta.com/radiotherapy/treatment-delivery-systems/elekta-compact.html>

## Co-60 UNIT ALTERNATIVE



- Advantages:
- Dependability
  - Simplicity of repair
  - Less sophisticated to manage safely
  - Maintenance cost 6x less than a linac
  - Easier to learn

<http://www.theratronics.ca/index.html>  
Page et al. Cobalt, Linac, or Other: What is the Best Solution for Radiation Therapy in Developing Countries? IJRO. 89:476-480; 2014

## COST OF A RADIOTHERAPY CENTER IN AN LMIC

- Brachy Equipment, HDR or LDR: 0.3-0.5 M
- Includes:
- Afterloaders
  - X-ray C-arm
  - TPS
  - Applicators
  - QA Equipment

IAEA. Setting up a Radiotherapy Programme: Clinical, Medical Physics, Radiation Protection, and Safety Aspects. 2008  
Grover et al. A Systematic Review of Radiotherapy Capacity in low- and middle-income Countries. Frontiers in Oncology 380; 1-11; 2015

## COST OF A RADIOTHERAPY CENTER IN AN LMIC

Personnel: 0.5-1M

Includes:

- 2-3 Rad Oncs
- 2-3 Medical Physics Staff
- RTT's
- Oncology Nurse
- Maintenance Techs

IAEA. Setting up a Radiotherapy Programme: Clinical, Medical Physics, Radiation Protection, and Safety Aspects. 2008

## OPPORTUNITY?



Who's responsible for getting assistance to these underserved countries?

Non-profit Organizations offering opportunities to medical radiation workers



IAEA. Setting up a Radiotherapy Programme: Clinical, Medical Physics, Radiation Protection, and Safety Aspects. 2008

## IAEA PACT

Established in 2004

Designed to assist low-middle-income IAEA countries in radiation therapy

Affiliated with 13 other organizations

Seek to deliver:

Greater access to care

Build skills & knowledge

Raise funds for cancer services

PACT Overview Flyer, [http://cancer.iaea.org/documents/PACT\\_overview\\_flyer\\_web\\_en.pdf](http://cancer.iaea.org/documents/PACT_overview_flyer_web_en.pdf)

## IAEA PACT SERVICES

imPACT Reviews (Integrated Missions of PACT)

- Assessment of a country's cancer control capacity & needs

VUCCnet (Virtual University for Cancer Control)

- Online eLearning platform

AGaRT (Advisory Group on Increasing Access to Radiotherapy Technology)

- Explores innovative ways to provide affordable, effective, and quality radiotherapy solutions

Advocacy and resource mobilization

- Supports member IAEA states in mobilizing resources and raising awareness of the increasing cancer burden

PACT Overview Flyer, [http://cancer.iaea.org/documents/PACT\\_overview\\_flyer\\_web\\_en.pdf](http://cancer.iaea.org/documents/PACT_overview_flyer_web_en.pdf)

## PROJECT HOPE (HEALTH OPPORTUNITIES FOR PEOPLE EVERYWHERE)

Established in 1958

International Health Care Organization

Goal is to establish sustainable health care throughout the world

& provide humanitarian assistance

In a 2015 annual report:

Nearly 1 million people reached

23,700 health care workers trained

46,711 hours of care provided by volunteers

\$206M of donated medical supplies delivered

<http://www.projecthope.org/assets/documents/PH-Annual-Report-2015-FINAL1.pdf>

## RADIATING HOPE

100% volunteer-run

Non-profit group seeking to improve cancer care around the world

Provide radiation equipment and treatment to the people of developing countries

Placed radiation machines in 15 different countries



<http://www.projecthope.org/assets/documents/PH-Annual-Report-2015-FINAL1.pdf>  
Photo: Shilpa Patel

<http://www.foxnews.com/health/2017/03/28/climbing-mt-kilimanjaro-to-help-fight-cancer.html>

## RAD-AID INTERNATIONAL

Created in 2008 by a group of radiologists trained at Johns Hopkins Hospital

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

Includes both diagnostic and therapeutic

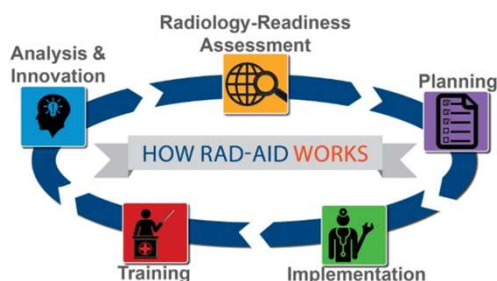
They have a long-term commitment to the region they are serving

This commitment includes: Sustained dialogue, education, resources, and collaboration



<https://www.rad-aid.org>  
Melissa Culp

## RAD-AID INTERNATIONAL

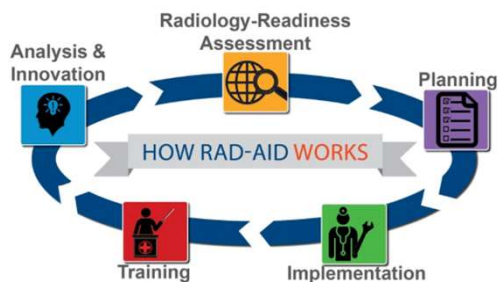


Trademarked analysis tool for analyzing, planning, and implementing projects

Process uses data collection & analysis so RAD-AID can optimize every project

<https://www.rad-aid.org/countries/how-we-work/>

## RAD-AID INTERNATIONAL



<https://www.rad-aid.org/countries/how-we-work/>

The Radiology-Readiness Assessment begins with an 81 page survey

This document seeks to

- Understand the healthcare benefit and impact your facility is delivering to the local community
- Identify the potential wider benefit that your institution could provide with radiology services,
- Understand the infrastructural, epidemiological, educational, administrative, logistical, financial and clinical features of the institution in order to optimize radiology service delivery to patients

## RAD-AID INTERNATIONAL

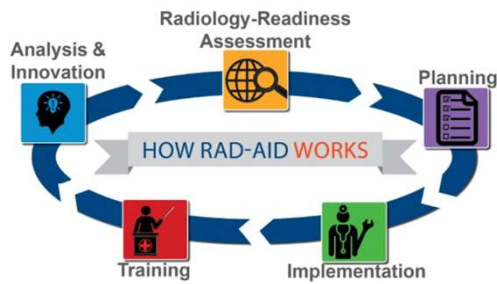


<https://www.rad-aid.org/countries/how-we-work/>

The planning stage looks at the viability of the project



# RAD-AID INTERNATIONAL

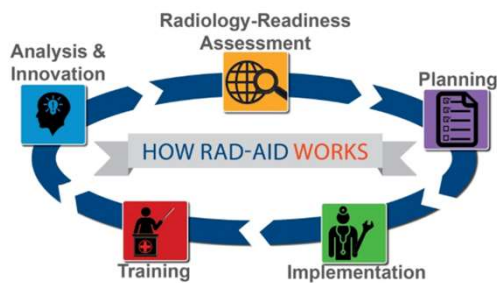


## Implementation

Install hardware, configure workstations, organize training

<https://www.rad-aid.org/countries/how-we-work/>

# RAD-AID INTERNATIONAL

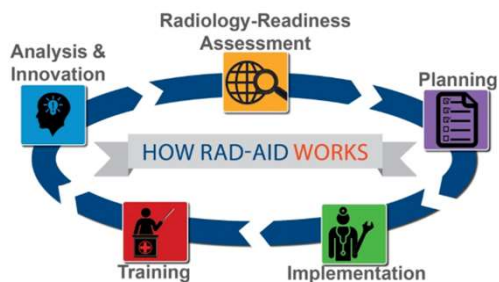


## Training

To use and maintain the implemented program, from host country to learn about factors that will influence the success of the program

<https://www.rad-aid.org/countries/how-we-work/>

## RAD-AID INTERNATIONAL



<https://www.rad-aid.org/countries/how-we-work/>

### Analysis and Innovation

Analyze results of program

- Identify new challenges
- Find new resources to strengthen the program

## RAD-AID IN PRC



[https://media.aamt.org/pdf/publications/RTT14\\_Vol23\\_No2.pdf](https://media.aamt.org/pdf/publications/RTT14_Vol23_No2.pdf); <https://www.rad-aid.org/countries/global-outreach/asia/china/>  
Melissa Culp

In 2010 a Radiology Readiness Assessment was performed by Mark Lessne MD and Janet Walker RTT

Collaborated with Project Hope

They traveled to: Yinchuan, Shanghai, and Zhengzhou

The initial assessment discovered:

- Pediatric radiology
- Cancer imaging and treatment

## RAD-AID IN THE PRC

In 2011 RAD-AID & Project Hope held an International Radiology Faculty Lecture Program

- Sponsored by Philips

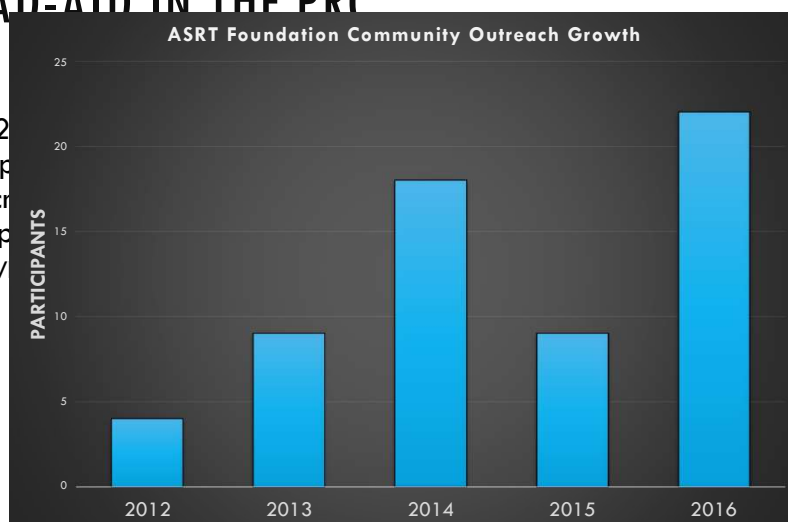
Program was based on the Radiology Readiness Assessment

[https://media.asrt.org/pdf/publications/RT114\\_Vol23\\_No2.pdf](https://media.asrt.org/pdf/publications/RT114_Vol23_No2.pdf); <https://www.rad-aid.org/countries/global-outreach/asia/china/>

## RAD-AID IN THE PRC

In 2011 RAD-AID & Project Hope held an International Radiology Faculty Lecture Program

- Sponsored by Philips



Participants have outreach projects in 16

Personal communication with Keith Greer 2016

## RAD-AID IN THE PRC

In 2014 RAD-AID and the ASRT foundation began collaborating to offer funded opportunities to support radiation therapists interested in serving in China.

The 1<sup>st</sup> delegation for rad onc was sent to Yinchuan Tumour Hospital

The site was chosen because:

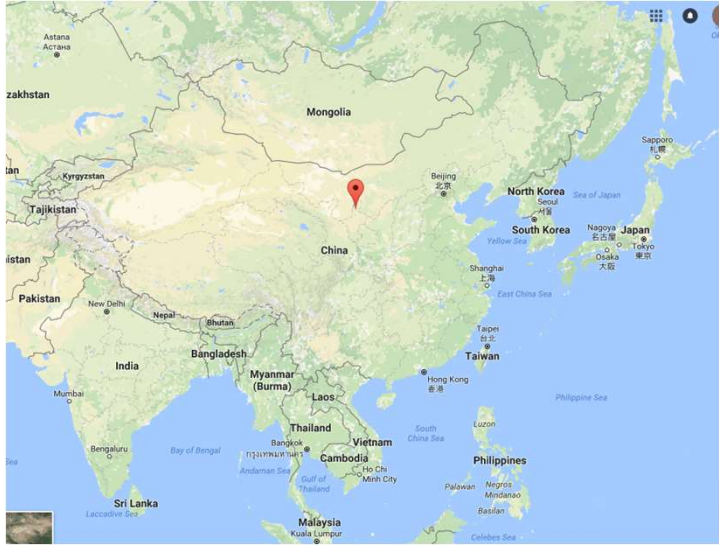
- Hospital had viable technology
- Staff had basic training in radiation therapy
- The staff desired collaboration with RAD-AID

Walker, J. A Radiation Therapist's RAD-AID Experience in China. *Radiation Therapist*. 23:197-200; 2014.

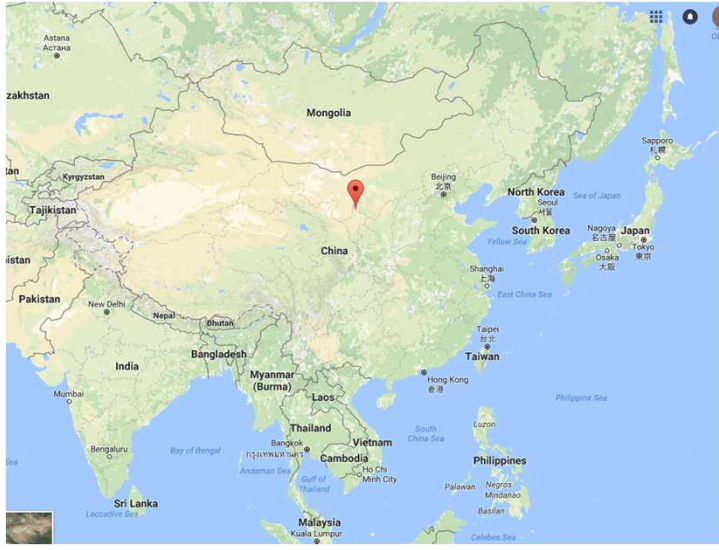
## YINCHUAN



# YINCHUAN



# YINCHUAN



## RAD-AID IN THE PRC

In November 2014 Taeko Yoshizaki CMD, and Kate Ryan RTT visited Yinchuan

Kate and Taeko worked tirelessly to establish a relationship with staff and fact find.



Takeko Yoshizaki & Kate Ryan RAD-AID Field Notes

No physician from RAD-AID was present

- 21 rad oncs
- 5 medical physicists
- 15 RTT's

Utilization of Pinnacle and Eclipse TPS

- 2 Pinnacle & 1 Eclipse

## RAD-AID IN THE PRC

Findings that may be of interest

- TX planning CT is often the very first diagnostic scan the patient receives
- Patients receive custom immobilization devices made out of thermoplastic & receive contrast
- Tattoos are not given
- All contours except for optimization structures are contoured by the physicians
- Each physician has access to Pinnacle TPS in their office and completes contours in 2-3 days
- Physicians work 8-10 hours a day
- TX plans are assigned by the lead planning physicist



Takeko Yoshizaki & Kate Ryan RAD-AID Field Notes



## RAD-AID IN THE PRC

### Findings that may be of interest

- 6-7 plans generated per day among 4 physicists
- IMRT QA Plans done 2x a week.
- Each physicist rotates for monthly QA responsibilities
- Therapists: responsible for scheduling own patients, clinic open for 12 hours, enable 120 pts per day to be treated
- 30-40 simulations per week
- CBCT taken weekly/bi-weekly for H&N & VMAT plan
- RTT's not responsible for making shifts on patients or interpreting images



Takeko Yoshizaki & Kate Ryan RAD-AID Field Notes

## RAD-AID IN THE PRC

### Yinchuan's Wish List

- OAR contouring on H&N TX sites
- Learning RTOG guidelines on Target /OAR structures and dose constraints
- Increase the # of TPS licenses
- Rad Onc nurse for next visit
- Development of simplified educational materials
- Pinnacle IMRT H&N and conformal demonstrations

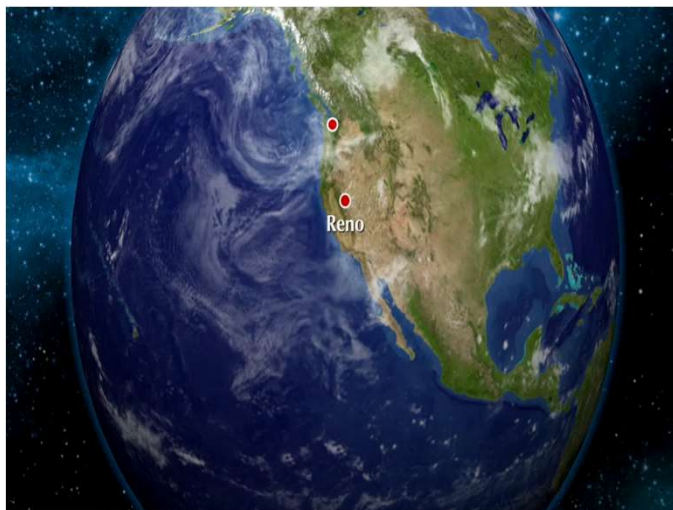


Takeko Yoshizaki & Kate Ryan RAD-AID Field Notes

## DAY 0

June 2015

RAD-AID's  
3<sup>rd</sup> visit to Yinchuan



## DAY 1; WHAT DAY IS IT?

A rest day?

- The hospital staff didn't want to meet with us until the rad onc was present





# DAY 1; WHAT DAY IS IT?

We did what any good  
volunteer would do;  
go to the museum!



# DAY 1; WHAT DAY IS IT?



## DAY 1; WHAT DAY IS IT?

Next, I need to shop, of course!



## DAY 2; YINCHUAN TUMOUR HOSPITAL



Yinchuan Hospital: xiaoweil19890522; Reno Arch: [https://en.wikipedia.org/wiki/Reno\\_Arch](https://en.wikipedia.org/wiki/Reno_Arch)

## DAY 2; YINCHUAN TUMOUR HOSPITAL

Just in case you were wondering?

- \$5000 CYN = \$727.36 USD



No Spitting: xiaowei19890522

## DAY 2; YINCHUAN TUMOUR HOSPITAL

Regional Lung Symposium

Speakers from across  
China

Dr. Patel spoke for 1 hr  
Myself 45 min  
Kim 25 min





## DAY 2; YINCHUAN TUMOUR HOSPITAL

Topics centered on Lung  
CA

Presented 3D conformal  
planning



## DAY 2; YINCHUAN TUMOUR HOSPITAL

After the symposium  
Obligatory pictures

Faculty lunch that lasted for  
hours



## DAY 2; YINCHUAN TUMOUR HOSPITAL

Return to hospital for tour of  
Linacs, Physics room, & pt. floors

Followed by banquet that included  
Communist party leaders  
Local dignitaries  
Hospital administration



## NIGHT 2; SHILPEN'S HOTEL ROOM

Patient's stay as inpatients  
3 floors are dedicated to  
rad onc  
44-60 beds per floor  
Inpatient rounds every am  
Elekta Precise  
Varian 21 ix  
Thermotherapy machine



## DAY 3; TOURIST/TEAM BUILDING

Sunday clinic closed

Invited 2 physicians and nurse

Visited Sand Lake  
Sand sledding & sand carting

Spent extensive time speaking about  
Patient care, planning, nursing

The opportunity to recreate together  
had the biggest impact



## DAY 3; TOURIST/TEAM BUILDING





## DAY 4; THE CLINIC

Each team member split off with own group

Presented on IMRT H&N Pinnacle  
No Interpreter  
Limited interaction

Physicists understood written English better than spoken



## DAY 4; THE CLINIC

Remainder of the day observing TX planning

Quickly executed  
Scripting heavily utilized

4 Physicists on 2 boxes

Physicists receive datasets with all OARs and target structures



## DAY 4; THE CLINIC

Scripting to create optimization structures

No cleaning or smoothing of structures

Optimization structures not trimmed from external contour

No metrics we used to evaluate target coverage  
only used for OARs

Target coverage evaluated by observing isodose clouds on cross section slices

HS value and location not evaluated



## DAY 4; DEBRIEFING (PHYSICS)

Here are a few observations:

- Physician checks plans via remote connection
- Plans are checked by another physicist (peer review)
- Additional modality registration 10% of cases
- Plans are physically printed
- Monthly QA done by 5 physicists on Sat & Sun
- IMRT QA done by 3 physicists on Tues & Thurs
- Physicists are desirable of educational materials
- Physicists service machines (2-3 days to get parts)
- Claimed to be only be down 4-5 times a year
- Pre-treatment imaging underutilized (time?)
- Very minimal observable communication between therapists, physicians, and physicists
- Almost every plan delivered was IMRT
  - When asked why
  - Physicist: "good plan, makes low dose to critical structure"
  - Physician "reimbursement is higher"



## DAY 4; DEBRIEFING (NURSING)

Here are a few observations:

- Limited support care
- Skin care was not common
- Kim demonstrated interaction w/  
patients
- Pain medication use is rare
- Nursing education websites blocked
- Nutrition not observed
- Patient's don't decline treatment

## DAY 4; DEBRIEFING (NURSING)

Here are a few observations:

- Limited support care
- Skin care was not common
- Kim demonstrated interaction w/  
patients
- Pain medication use is rare
- Nursing education websites blocked
- Nutrition not observed
- Patient's don't decline treatment

## DAY 5; CLINIC OBSERVATION & DISCUSSION

Supposed to give another presentation on esophageal planning but noticed interest was lacking

Therapists had a lot of questions regarding; set-up, pt care, & nursing strategies



## DAY 5;

Wish list: Physicians

1 Week

Exchange program

Same Rad Onc team to visit

Research collaboration

How to put a port in



## DAY 5;

- Wish list: Physicists
- Physicists who have same linacs
- Increase time working together
- Online training materials
- Research collaboration



## DAY 5;

- Wish list: Therapists / Nursing
- Aria
- Online modules
- More time!



# SUCCESS?

04 要闻

**用中国理论回答中国问题**

李克强出席博鳌亚洲论坛并发表主旨演讲

**科技创新既要“顶天”又要“立地”**

李克强在博鳌亚洲论坛发表主旨演讲时指出，中国将坚持创新驱动发展战略，推动科技创新与实体经济深度融合，既要“顶天”也要“立地”，既要追求原始创新，也要注重应用创新，既要发挥市场在资源配置中的决定性作用，也要更好发挥政府作用，推动经济高质量发展。

**湖北发现日文版侵华日军细菌战**

近日，在湖北省武汉市江夏区发现一批侵华日军细菌战相关档案，包括日军细菌战部队活动记录、细菌战实验报告等，进一步证实了侵华日军在战争期间进行细菌战的事实。

**博鳌召开跨境电信诈骗峰会**

博鳌亚洲论坛日前在海南博鳌召开跨境电信诈骗峰会，来自全球各地的专家学者齐聚一堂，共同探讨跨境电信诈骗的成因、危害及治理对策。

**中美医生宁夏交流**

7月28日，世界健康基金会与宁夏医科大学总医院在银川举办肿瘤放射治疗国际学术交流周，美国华盛顿大学医学中心、圣地亚哥穆尔肿瘤中心等医疗机构的医学专家前来交流，因为美国护理师在了解病人情况。

**“搞一元”公益项目第八年启动**

“搞一元”公益项目第八年启动，旨在通过小额捐赠支持公益事业，传递社会正能量。

**高科技引领起新疆现代农业**

新疆现代农业在高科技引领下蓬勃发展，通过引进先进农业技术和设备，提高农业生产效率和农产品品质。

## 首家县级行政审批局挂牌

本报电（黄伟伟）由中央编办和国务院法制办确定的相对集中行政许可改革国家级试点，全国首家县级行政审批局日前在江苏省盱眙县挂牌成立。

据介绍，新组建的行政审批局将分两批接收23个部门管理的203项审批事项，实现全县范围内“一枚印章管审批”。目前，首批13个部门的115项审批事项已划转到位。

## 中美医生宁夏交流



7月28日，世界健康基金会与宁夏医科大学总医院在银川举办肿瘤放射治疗国际学术交流周，美国华盛顿大学医学中心、圣地亚哥穆尔肿瘤中心等医疗机构的医学专家前来交流，因为美国护理师在了解病人情况。

新华社记者 王鹏摄

# THE FUTURE OF RAD-AID IN PRC

Where does this leave RAD-AID & other volunteers?

- In 2016 2 RTT's and 1 Radiologist
- They broadened the support for diagnosis, monitoring, and treatment
- In 2017 a much more extensive trip is planned with a rad onc and diagnostic radiology team
  - Rad Onc & radiologist speak Mandarin
  - 2 RTTs

## ACKNOWLEDGEMENTS

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