



International
Cancer
Expert Corps

Partnering to transform global cancer care

Improving Access to Radiotherapy in LMICs

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Outline of presentation

- ICEC- systems approach to cancer care
- Defining the gaps
- Efforts to increase access to suitable, affordable, and sustainable enabling technologies
- Cancer care is integral part of a healthcare system: Flex-Competence
- Addressing global cancer care has a very broad global impact



International Cancer Expert Corps

ICEC is a recognized 501c3 non-profit organization based in the US

Mission:

- Reduce mortality and improve the quality of life for people with cancer in LMICs
- Address the needs of indigenous and geographically underserved populations in upper-income countries and regions worldwide
- ICEC accomplishes this through a global mentoring network of cancer professionals who work with local and regional in-country groups to develop and sustain expertise for better cancer care.



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Growing Global Cancer Crisis

- 2018 Globally - 18 million new cancer cases per year diagnosed and 9.6 million cancer deaths
- By 2040- projected number of cancer cases- 27.5M and deaths- 16.3M
- 70% of these deaths will occur in LMICs
- The complete spectrum of care needed: Prevention, screening, diagnosis, treatment, long-term follow-up
- More than 50% of all cancers can benefit from RT for cure or palliation
- Solution requires expertise and enabling technology.

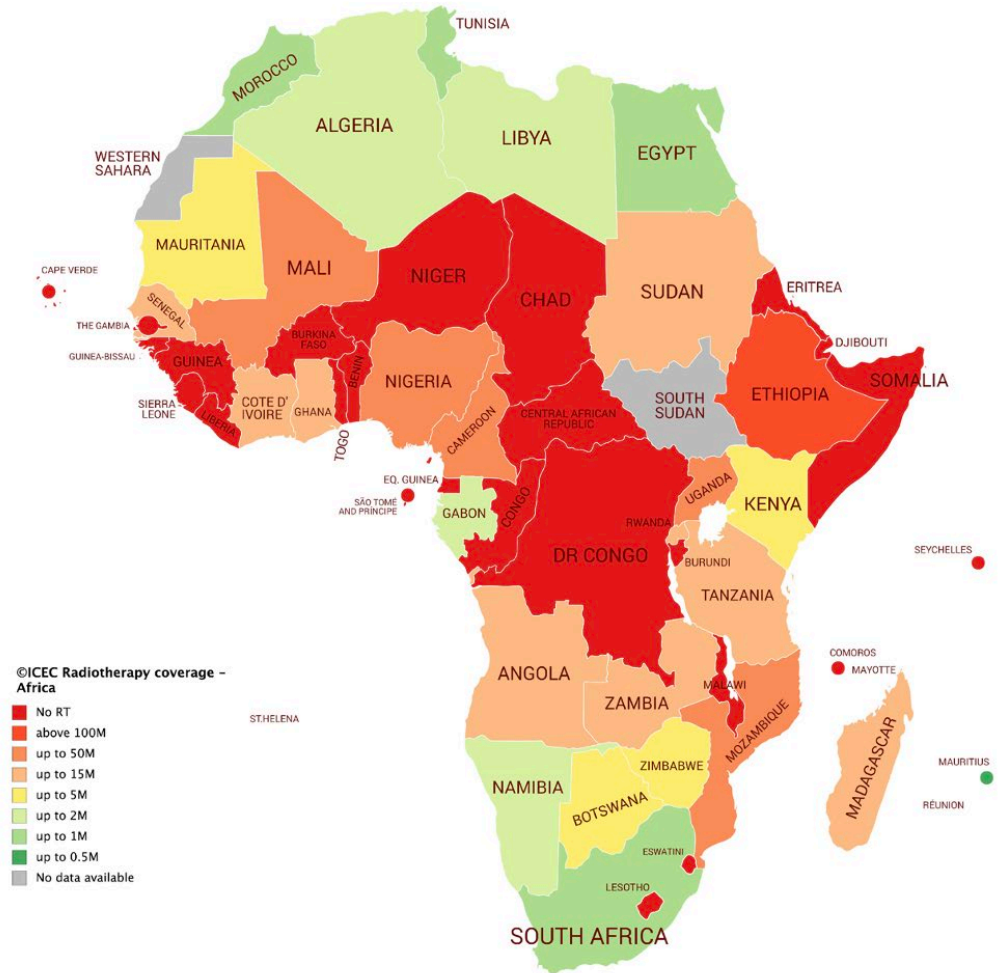


Access to radiation therapy, particularly LINACS is an excellent metric of the gap in comprehensive cancer care.

Map showing the number of people per functioning machine in countries in Africa

Country	LINACs	Population	People per LINAC
Ethiopia	1	115 M	115,000,000
Nigeria	7	206 M	29,000,000
Tanzania	5	59.7 M	11,900,000
Kenya	11	53.9 M	4,890,000
Morocco	42	36.9 M	880,000
South Africa	97	59 M	608,000
UK	348	67 M	187,000
Switzerland	72	86 M	102,000
US	3827	331 M	85,000

- 29 countries have LINAC-RT facilities
- 12 countries only one facility
- 27 no LINACs for RT
- ~400 RT-LINACs for > 1 billion people
- Nigeria has 85 radiation and clinical oncologists and only a few trained linear accelerator maintenance engineers for its nearly 200 million people





Radiation Oncology Workforce Projections

- Current numbers
 - 2018 estimate 664 practicing radiation oncologists in LMICs¹ .
- Based on projections
 - -2030 - **13,322** assuming there is **adequate investment in RT infrastructure**.
- Training the number of future radiation oncologists will be challenging
 - Lack of qualified teaching faculty
 - Demand for radiation oncologists also in HICs exists
 - Costs considerations
 - Emigration of skilled personnel (brain drain)
 - Does not represent shortages for all other RT related personnel (medical physicists, dosimetrists, radiation therapy technicians, oncology nurses, etc.)

¹ Elmore SNC, Prajogi GB, Rubio JAP, Zubizarreta E. The global radiation oncology workforce in 2030: Estimating physician training needs and proposing solutions to scale up capacity. *Appl Rad Oncol*. 2019;8(2):10-16.



ICEC Approach

Two tracks

1. Increase workforce capability and capacity

- ICEC Twinning programs -
 - Academic medical institutions in HICs
 - Private practices
 - Professional societies
 - Others
- Partnering with cancer hospitals and cancer professionals in LMICs for knowledge and skills transfer

2. Understanding technology gaps to increase access to Radiation Therapy

- Enabling technology for treatment and knowledge transfer
- Trusted partnerships
- Research & development
- Implementation





Understanding Technology Gaps to Increase Access to Radiation Therapy

- ICEC – leveraging trusted partnerships to identify gaps and develop solutions to increase access medical linacs for challenging environments
 - **Gather information** from African hospitals/facilities regarding challenges faced in providing radiotherapy in Africa ¹
 - **Identify** the challenges with those who work with them day-to-day
 - Must keep in mind that machines don't treat patients, **people do.**
 - **Educate, mentor, sustain expertise** through exponential growth.
 - **Metrics** to assess impact and guide growth

¹ Ige TA et al., Surveying the Challenges to Improve Linear Accelerator-based Radiation Therapy in Africa: a Unique Collaborative Platform of All 28 African Countries Offering Such Treatment, Clinical Oncology, <https://doi.org/10.1016/j.clon.2021.05.008>



Outreach and Engagement

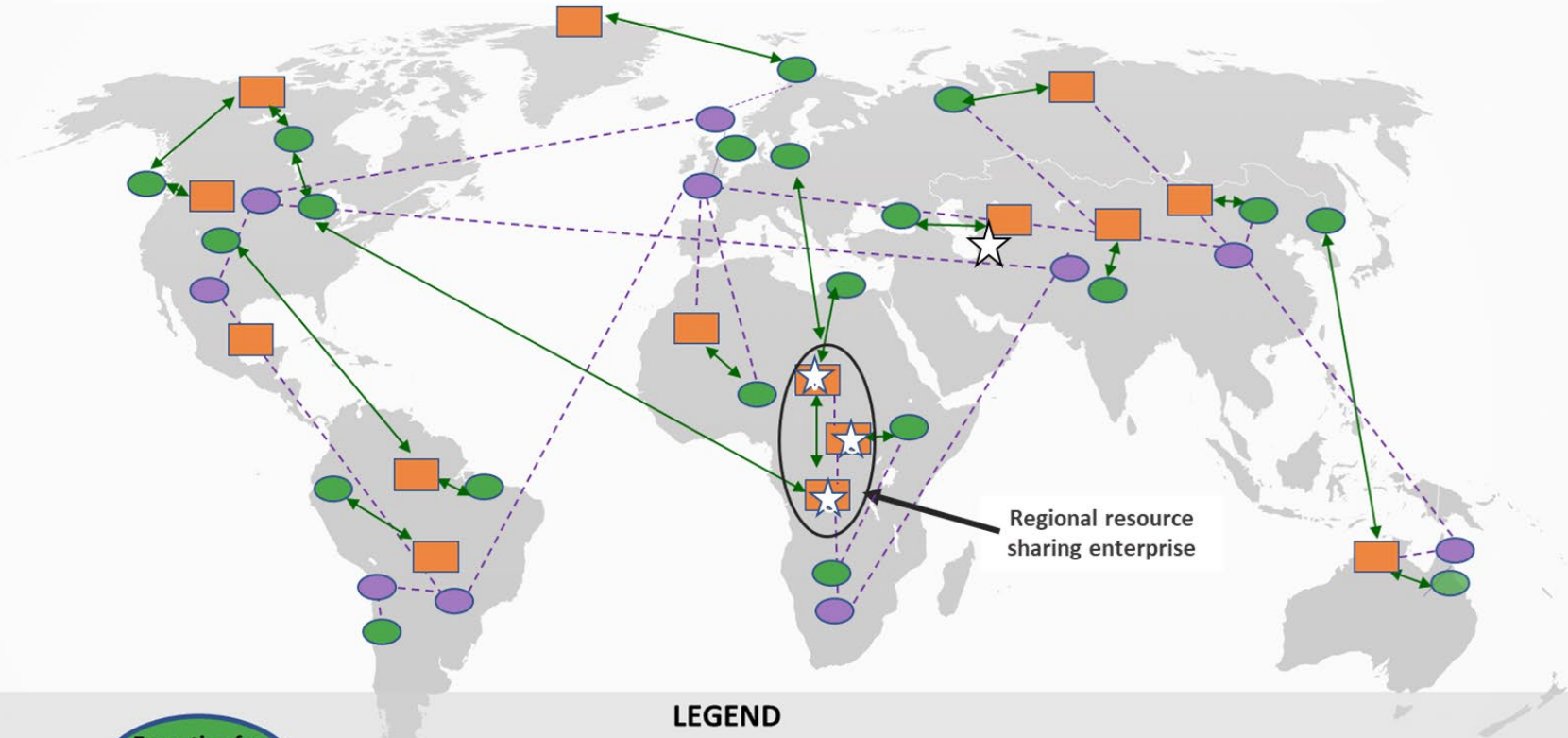
Leveraging and expanding relationships to increase access to RT

- IAEA – Human Health, PACT
- CERN, European Organization for Nuclear Research
- US DOE NNSA ORS
- STFC Research and surveys – understanding barriers to access to radiation therapy
 - SEEIST, Africa Survey 28 Countries with LINACS, Ongoing Eastern Europe Survey
- Professional societies
 - ABS, ASTRO, ESTRO, AAPM, MPWB, etc.
- International organization and NGOs
 - VCDNP, WHO, UICC, United Nations -Economic and Social Council (ECOSOC), CoNGO, WINS, Wilton Park, Geneva Health Forum



ICEC's Healthcare solution: Global network

Response to crisis – Expandable network of expertise & resources



LEGEND

Expertise for mentoring, smart technology

Industry partners and government agencies

Global expertise network; Committed healthcare organizations

Global supply lines with surge capacity

Regional clusters

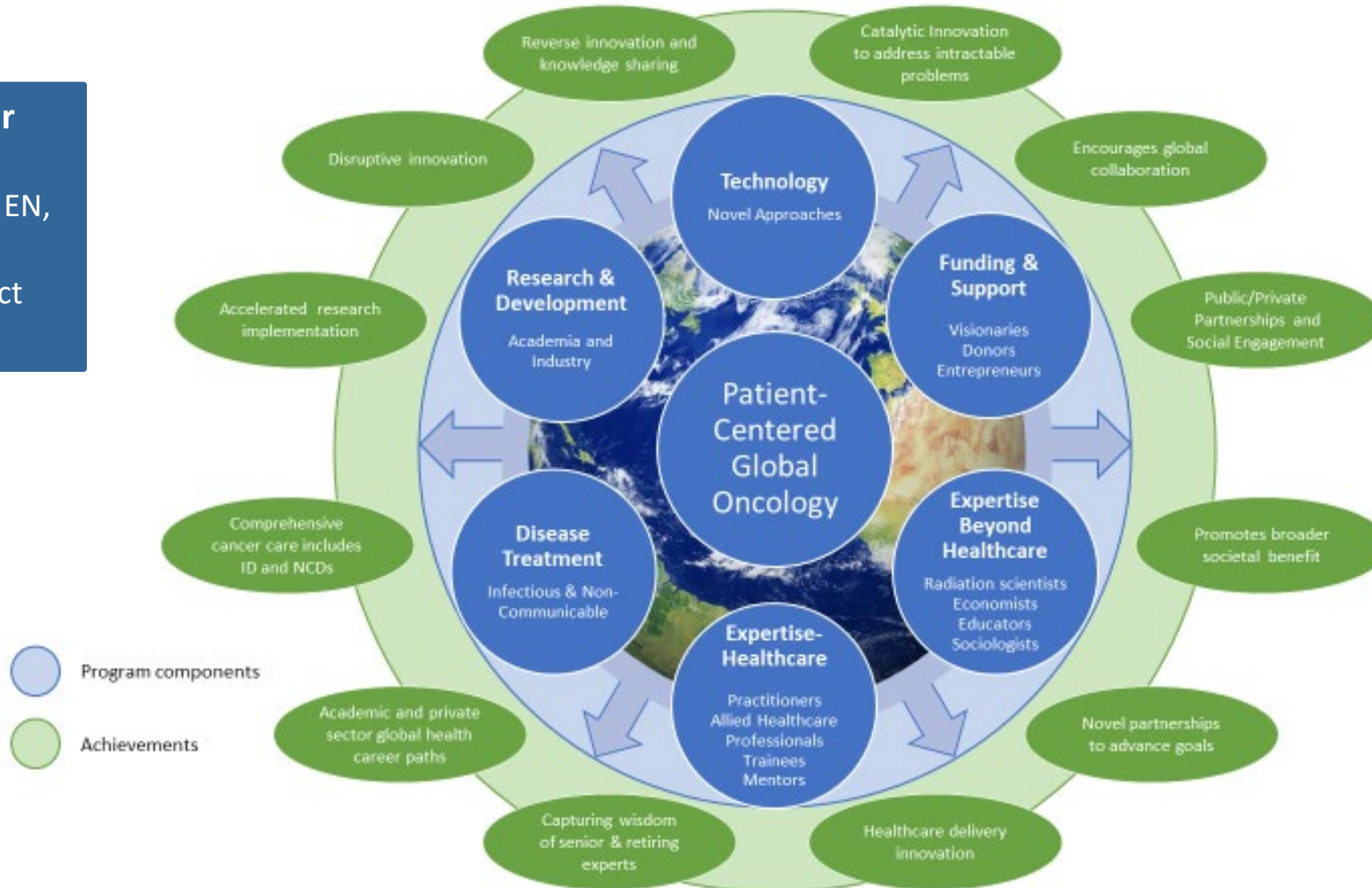
Mentee Training Center

LMIC Centers

Satellite and Remote Clinics

Global Oncology = Broad Global Impact

**A Broad Impact for
Global Oncology.**
Coleman CN, Wendling EN,
Pistenmaa DA.
JAMA Oncol. 2019 Oct
1;5(10):1397-1398.





Resources

- Elmore SNC, Prajogi GB, Rubio JAP, Zubizarreta E. The global radiation oncology workforce in 2030: Estimating physician training needs and proposing solutions to scale up capacity. *Appl Rad Oncol*. 2019;8(2):10-16.
- A Broad Impact for Global Oncology. Coleman CN, Wendling EN, Pistenmaa DA. *JAMA Oncol*. 2019 Oct 1;5(10):1397-1398.
- Coleman CN, Mansoura MK, Marinissen MJ, Grover S, et al. Achieving flexible competence: bridging the investment dichotomy between infectious diseases and cancer. *BMJ Glob Health*. 2020 Dec;5(12):e003252. doi: 10.1136/bmjgh-2020-003252. PMID: 33303514; PMCID: PMC7733114.
- Coleman CN, Wong JE, Wendling E, et al. Capturing acquired wisdom, enabling healthful aging, and building multinational partnerships through senior global health mentorship. *Glob Health Sci Pract*. 2020;8(4).
- Pistenmaa DA et al. Changing the global radiation therapy paradigm. *Radiother Oncol* (2018), <https://doi.org/10.1016/j>.
- Dosanjh M et al., Developing Innovative, Robust and Affordable Medical Linear Accelerators for Challenging Environments, *Clinical Oncology*, <https://doi.org/10.1016/j.clon.2019.02.002>

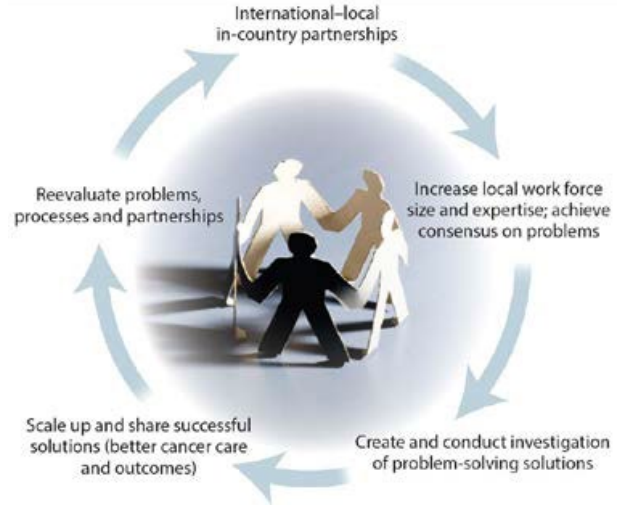


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Think globally, mentor locally.



Thank you!
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