

Security of global nuclear material requires addressing the unacceptable lack of cancer care.

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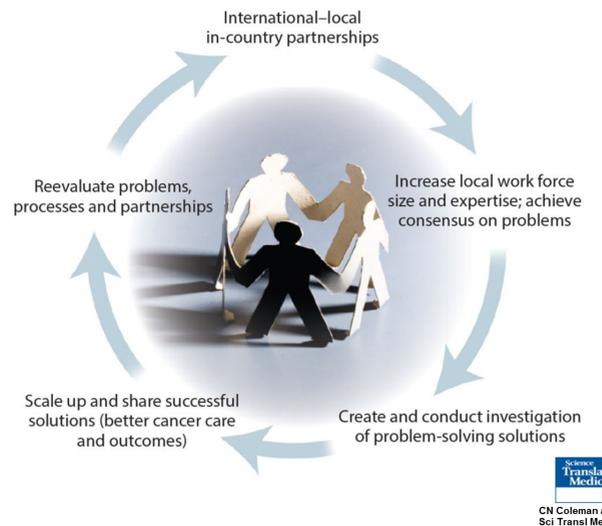
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Abstract

Programs to increase the security of nuclear material have a profound challenge when addressing the use of Cobalt-60 teletherapy for cancer care. The IAEA has estimated a global shortage of at least 5000 treatment machines. The Co-60 units are often located in underserved areas, including Low- and Middle Income Countries (LMICs), some of which also have political instability. Securing such sources can be a challenge and removing them without replacing capable cancer care will add to the burden of suffering and likely also to geopolitical instability. Radiation therapy is very effective for treating many of the locally advanced cancers encountered and analysis by the Global Task Force for Radiation for Cancer Control of the Union for International Cancer Care indicates it saves lives and is cost effective.

This provides **opportunities for innovation** in linear accelerator technology, new technology for medical care useable in low resource and remote environments, and education, training and sustainable mentorship to address both the “brain drain” and the challenge to sustain a global health career by those so interested. **Not only would nuclear security and cancer care be improved but global partnerships among resource-rich and -poor countries can help bring collaboration to replace conflict. Transformational and visionary leadership, partnerships and models are necessary.**

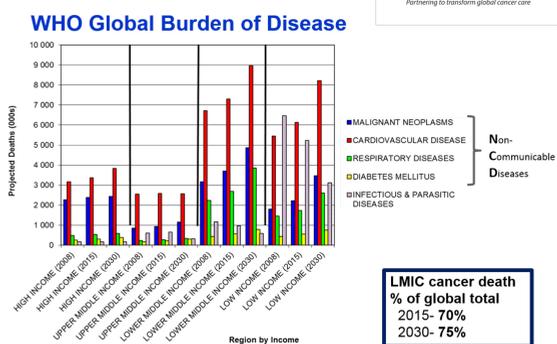
The Vision: Think globally, mentor locally



What to DO!!!

1. The Problem

Defining the Problem:

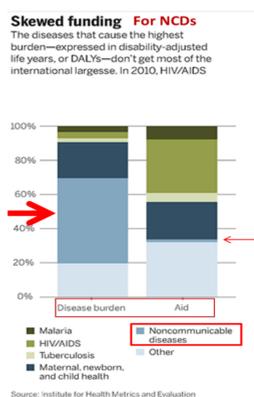


1. Big and growing LMIC burden of cancer →

Defining the problem for example



2. Huge gap in care, including essential radiotherapy →



3. Fix inadequate investment in NCDs

1. Build capacity and capability through →

2. Sustainable mentorship →

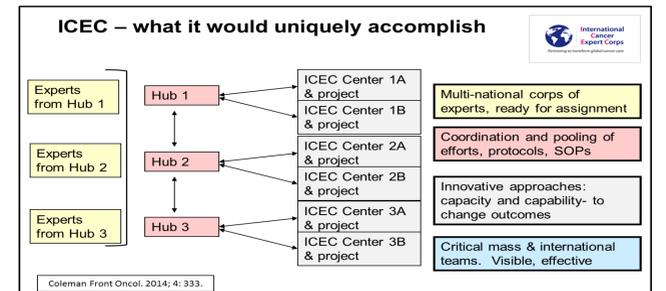
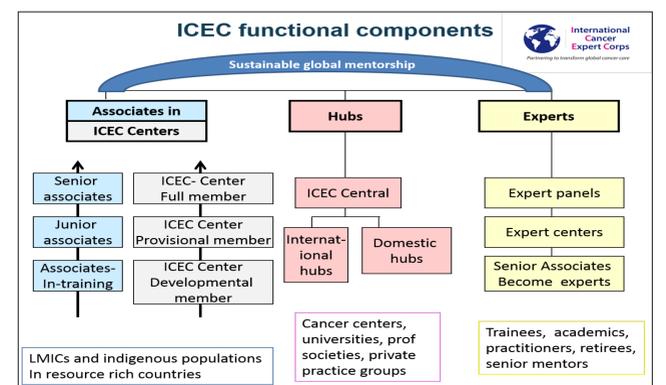
3. Become regional center of excellence and expand ICEC reach

4. Broad expertise

2. A proposed solution

Sustainable mentorship model

Career path essential; *breadth of expertise* for cancer care



ICEC Expert Panels: Broad spectrum of expertise for complex systems solution

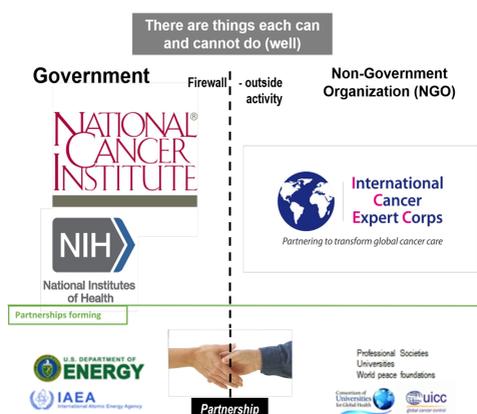
Medical	Science, non-MD	Support
<ul style="list-style-type: none"> Radiation oncologists Medical oncologists Pediatric oncologists Surgical oncologists Nurses Pathologists Radiologists Surgeons - general Surgical subspecialists Pharmacologists Psychologists Public health 	<ul style="list-style-type: none"> Prevention and screening Epidemiologists Medical physicists Technologists Basic & translational scientists Treatment guidelines Statisticians Social scientists Regulatory Affairs specialists Pharmacists 	<ul style="list-style-type: none"> Educational tools Finance Clinic administration International policy Patient advocacy Economists Social workers Cancer survivors Communications Information tech (IT) Data-management Legal

3. The Bottom Line

Multisector opportunities

Sector	Goals	The health care system	Tools and methods	Accomplishments
Expertise (Resource-poor (LMICs) and resource-rich)	Capability capacity; sustainable "in-country" cancer program	Underserved community; Mentor corps	Mentorship; New career path; Tap into wisdom of retirees	Transform health care value system; Catalytic innovation
Implementation science	Effective use of knowledge; New systems-solutions to hard problems	New health care models	Quality data bases; Appropriate metrics; Shared learning	Improvements are data driven; Shared solutions; New economic models
Technology	Best use of personnel; Remote outreach and improved access to care	At cancer center; Outreach, remote sites; Regional hospital as needed	Novel IT technology; Cell phone for remote outreach	Better health; New jobs; New markets
Research	Understand diseases; Targeted therapeutics and prevention	Research and continual improvement	Clinical epidemiology; Translational and basic mechanistic research	New knowledge; Better prevention and treatment agents and strategies
Cancer and health (applicable to NCDs)	Expandable; Exportable models; Shared resources	Ultimate goal: Reduced cancer burden	Shared knowledge; Economic models that support more investment	Common ground; Diplomacy; Shared accomplishments

Public-private-global partnerships



Accomplish a range of agendas

1. Reduced burden of cancer
2. Build capacity equal to the size of the problem. Recruit and retain requires first-rate setting.
3. New knowledge- disease, treatment and implementation science.
4. Innovative social and business models
5. Improved security of medical radionuclides
6. Effective place to attract investment across a range of sectors
7. Career path for individuals – trainees, mid-career, retirees/mentors
8. Sustainable program in long-term
9. World peace!