Addressing the Cancer Challenge: International Cancer Expert Corps.

AAPM Symposium:
The Global Cancer Challenge: What Can We Do?

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(working to enhance efforts of NCI and NIH)



- No financial conflict of interest
- Views expressed are those of the presenter.
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 Government agencies has been given or inferred

The Global Cancer Challenge: What can we do? Challenges- and opportunities in moving toward alternative technologies

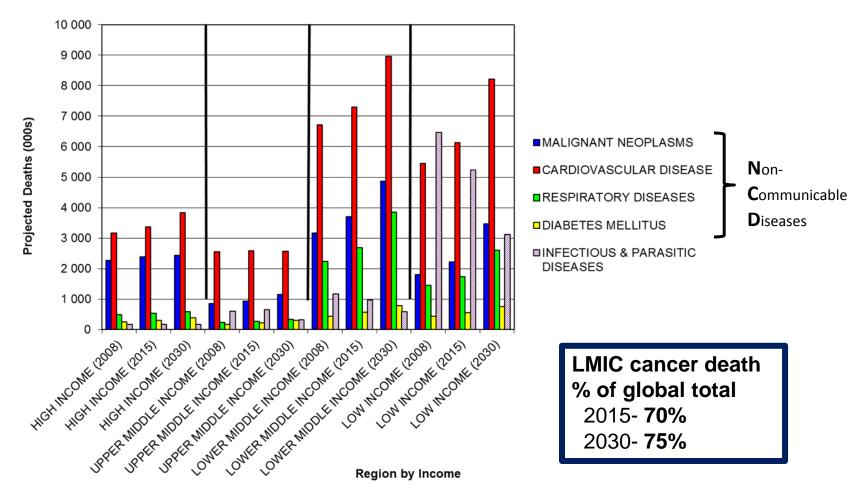
- Defining the aggregate problems that can be addressed.
 - 2. Unique confluence of issues and expertise- don't miss a great opportunity!
 - 3. Technology- what we have and alternative technologies for Rx and networking.
 - 4. Cancer care: achieving capacity, capability and credibility
 - 5. Qualified people- recruiting, retaining and sustaining

Defining the Problem:



WHO Global Burden of Disease

http://www.who.int/healthinfo/global_burden_disease/projections/en/index.html

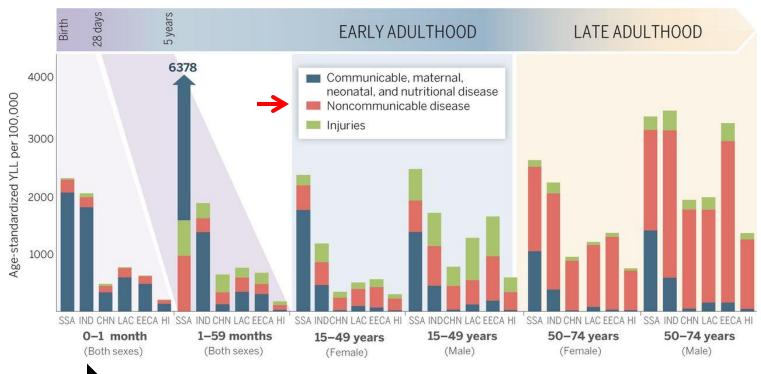


Defining the problem for example Radiotherapy is an essential part of the treatment of cancer **ACCESS TO RADIOTHERAPY:** Over 30 African and Asian countries There is a have no access to radiotherapy shortfall of over 5000 radiotherapy machines in the developing **Availability of treatment** world below 500 000 10-19.9 million 20 million and above 500 000-999 999 1-4.9 million no centre Copyright 2006 American Cancer Society, INC. / Map Reprinted with Permission 5-9,9 million no data

- 1. Defining the aggregate problems that can be addressed.
 - It is a public health and NCD problem with very little cancer care being available in LMICs
 - Shortage of radiation therapy equipment in LMICs;
 radiation therapy is needed for cure and palliation of many cancers
 - Securing sources and public safety necessary
- 2. Unique confluence of issues, expertise and interestdon't miss a great opportunity!
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The state of global health in 2014

J. Sepulveda and C. Murray, Sci 345:1275, 2014



YLL and DAH

YLL- years of life lost DAH- Development assistance for health	Low income		Lower middle income		Upper middle income	
	YLL	DAH	YLL	DAH	YLL	DAH
HIV/AIDS	7.6%	41.6%	3.7%	32.0%	4.8%	41.1%
Malaria	11.2%	14.3%	4.8%	9.6%	0.0%	2.2%
Tuberculosis	3.1%	3.3%	3.5%	6.6%	1.0%	7.0%
Maternal, newborn, and child health	37.8%	17.1%	32.1%	23.7%	8.1%	7.0%
Noncommunicable diseases	20.7%	0.2%	34.0%	1.0%	65.3%	2.9%
Other	19.7%	23.5%	21.9%	27.1%	20.8%	39.8%

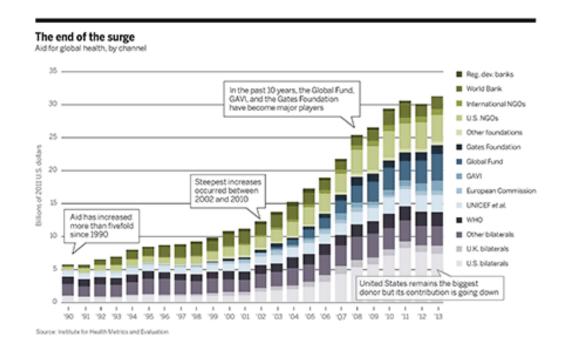


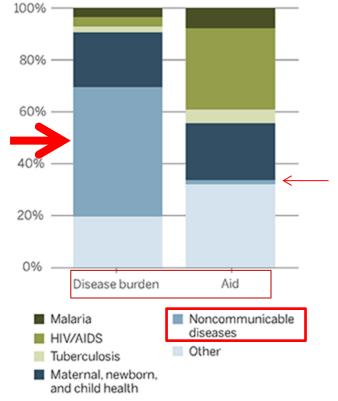
After the windfall:

Plateauing budgets for global health sharpen the focus on what really works
M. Enserink, Science 354:1258, 2014

Skewed funding For NCDs

The diseases that cause the highest burden—expressed in disability-adjusted life years, or DALYs—don't get most of the international largesse. In 2010, HIV/AIDS





Source: Institute for Health Metrics and Evaluation

The generic challenges in moving to just health care: "Public Health Oncology"*



- Weak underlying health systems
- Financing- for infrastructure and staff
- Transparency
- Governance (selecting right people)
- Workforce (manpower)- capacity and capability
- Incomplete knowledge about diseases, patient/host factors and cost-effective interventions
- Sustainability
- "Brain-drain" from resource-poor to resource-rich
- Top-down approaches from developed nations often not applicable to the local situation

*Love, R. Ann Oncol 23:3040-2012

- Defining the aggregate problems that can be addressed.
- 2. Unique confluence of issues, expertise and interestdon't miss a great opportunity!
 - Investment in NCDs must increase globally
 - Evidence-based projects
 - Health care issues are part of a larger set of problems.
 - But there are multiple sectors who now can be involved
 - 3. Technology- what we have and alternative technologies for Rx and networking.
 - 4. Cancer care: achieving capacity, capability and credibility
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GLOBAL HEALTH

Cobalt, Linac, or Other: What Is the Best Solution for Radiation Therapy in Developing Countries?

Brandi R. Page, MD,* Alana D. Hudson, MSc,† Derek W. Brown, PhD,† Adam C. Shulman, MS,‡ May Abdel-Wahab, MD,§ Brandon J. Fisher, DO, ,¶,¶ and Shilpen Patel, MD#

International Journal of Radiation Oncology biology • physics

www.redjournal.org

Their comparison and ⇒ mine

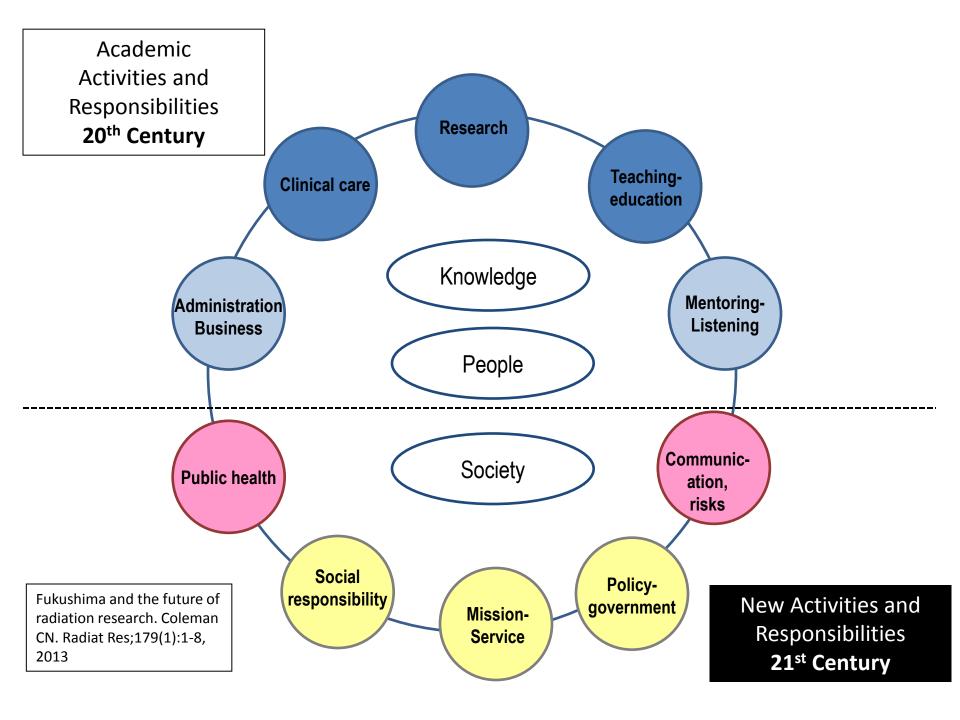
Advantages of linac

- Better quality dosimetry
- Security concerns for an active source
- Radiation safety
- Sophisticated treatment
- Hypofractionation
- Continuity with advances learned during training
- ➤ Issue of new, refurbished and transition from lower to higher tech

Advantages of cobalt

- Dependability
- Simplicity of repair
- Less sophisticated to manage safely
- Cost (not include replacement and costs for security)
- Easier to learn
- Potential (IMRT)
- Consider mix of equipment and phase in complexity

- 1. Defining the aggregate problems that can be addressed.
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- 3. Technology- what we have and alternative technologies for Rx and networking.
 - There are technical pros and cons of cobalt and linac
 - Advanced Rx planning and telecommunications may improve Rx in general & enhance collaboration
 - Highly trained personnel may need equipment capable of advanced treatment approaches to remain enthusiastic (staff retention)?
- 4. Cancer care: achieving capacity, capability and credibility
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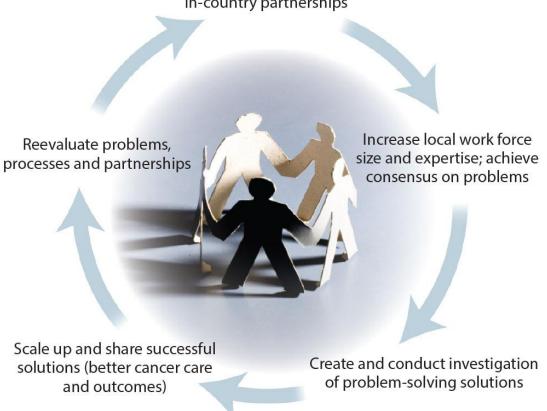
CANCER HEALTH DISPARITIES Transforming Science, Service, and Society



Think globally, mentor locally.

International-local in-country partnerships



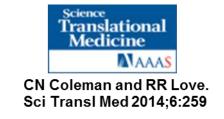




Translating intention into action.

Capacity, capability, credibility- sustainable system

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 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



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 - Spectrum of healthcare responsibilities is changing.
 - Issues require broad range of expertise
 - Effective and innovative integration among sectors
 - Built from the ground-up and inside-out (local ideas/people)
- 5. Qualified people- recruiting, retaining and sustaining

Government

There are things each can and cannot do (well)

Non-Government Organization (NGO)

Firewall

 outside activity







Partnering to transform global cancer care





Partnership

- A US based, NGO
- Global from outset
- Associate Member: Union International for Cancer Control (UICC)
- Partner: Consortium of Universities for Global Health (CUGH)

www.iceccancer.org

Goals (1)



- Build capacity and capability to reduce the burden of cancer through mentoring local champions so they can conduct stage- and region-appropriate protocols.
- Mentoring some on-site visiting, mostly through weekly teleconferencing using carefully crafted "bottom up/top-down" multi-year plans so Centers in LMICs could join the international community of clinical and translational research.

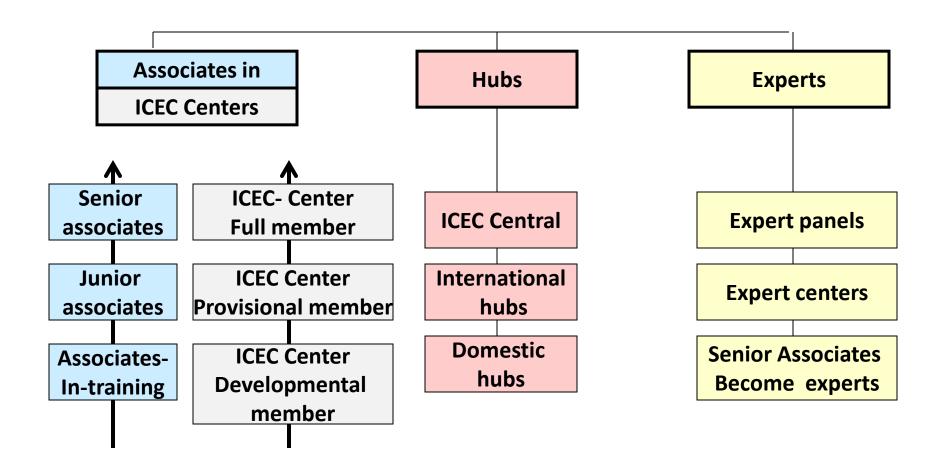
Goals (2)



- Implementation science: Innovative approaches to cancer health disparities built on person-to-person sustainable mentoring and shared among projects.
- Cultural change, big vision and sustainable accomplishments: Multi-national partnership would create a *critical mass and spectrum of experts*, increase the likelihood of success, allow rapid response to opportunities and demonstrate the value of altruistic service.

ICEC functional components





ICEC – what it would uniquely accomplish



Multi-national corps of experts, ready for assignment

Coordination and pooling of efforts, protocols, SOPs

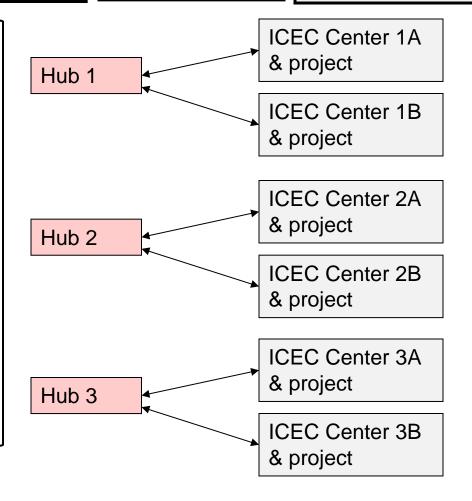
Innovative approaches: capacity and capability-to change outcomes

Critical mass & international teams. Visible, effective

Experts from Hub 1

Experts from Hub 2

Experts from Hub 3



- Reduced burden of cancer
- Shared results and approaches
- Bona fide academic accomplishment
- Innovative social and business models
- Effective place to attract investment
- Career path for individuals
- Sustainable overall program in long-term



ICEC Expert Panels:

Broad spectrum of expertise for complex systems solution

Medical

- Radiation oncologists
- Medical oncologists
- Pediatric oncologists
- Surgical oncologists
- Nurses
- Pathologists
- Radiologists
- Surgeons general
- Surgical subspecialists
- Pharmacologists
- Psychologists
- Public health

Science, non-MD

- Prevention and screening
- Epidemiologists
- Medical physicists
- Technologists
- Basic & translational scientists
- Treatment guidelines
- Statisticians
- Social scientists
- Regulatory Affairs specialists
- Pharmacists

Support

- Educational tools
- Finance
- Clinic administration
- International policy
- Patient advocacy
- Economists
- Social workers
- Communications
- Cancer survivors
- Information tech (IT)
- Data-management
- Legal

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 - Need new approaches building from various ongoing efforts
 - International collaboration and exchange of ideas, cultures and science
 - Local investment part of community NCD effort
 - Altruistic service must be recognized, valued and rewarded



So, what to consider from a radiation oncologist perspective: (personal opinion)

- 1. Paradigm shift- *mission of improving global care* is not second rate use of professional time
 - major social/medical healthcare issue
- 2. Sustainable partnerships
 - Person-to-person relationships
 - Single course or periodic visit not sufficient
- 3. Training, education, research,
 - joint projects; not top-down solutions
- 4. Creative solutions to a complex set of problems
 - Implementation science





"It always seems impossible until it's done."

Nelson Mandela

Want further yakking?







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ICEC Website (in evolution)
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