

**AAPM 2018** JUL 29–AUG 2



**BEYOND THE FUTURE!**

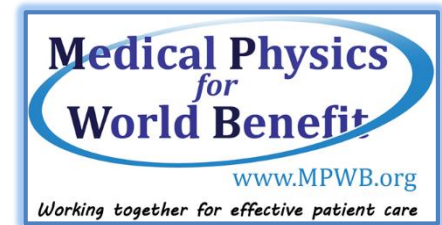
60<sup>TH</sup> ANNUAL MEETING & EXHIBITION | NASHVILLE, TN

Professional Symposium: Monday 30 July 2018  
Medical Physicists and the Global Health Challenge

# Medical Physics for World Benefit (MPWB)



Jacob (Jake) Van Dyk, Professor Emeritus  
Western University, London, Ontario, Canada  
and  
President, MPWB



# Disclosures

- License agreement Modus Medical Devices, Inc.



# Overview

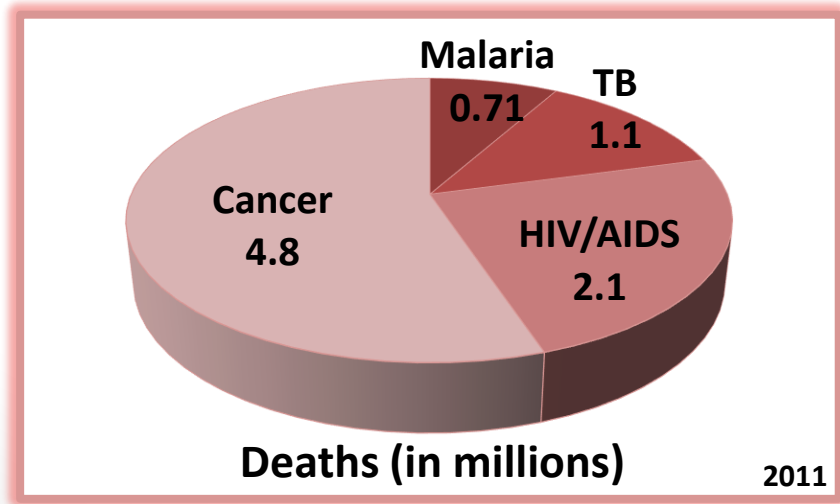


- What is the problem?
- Why another organization?
- What is Medical Physics for World Benefit (MPWB)?
  - Vision, Mission, Objectives, Values
- How does MPWB function?
- Example activities
- Uniqueness of MPWB
- Summary

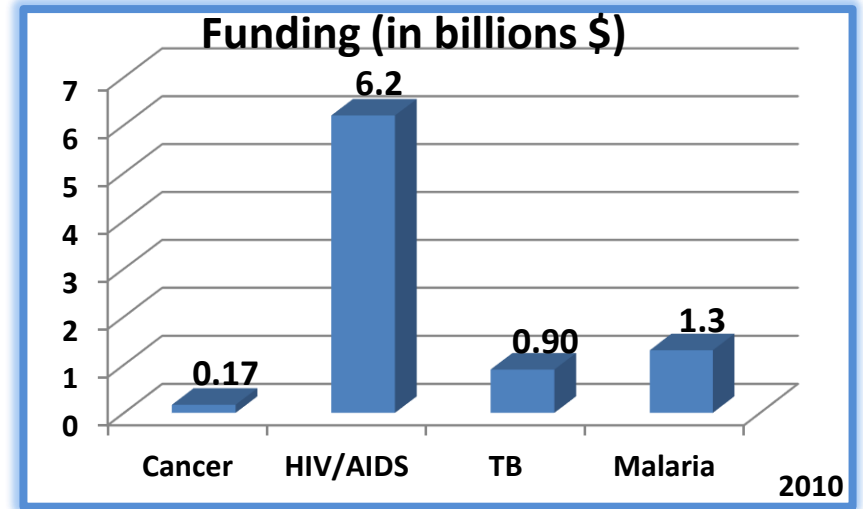
# The Problem

- Fast facts about cancer
  - Cancer causes 1 in 8 deaths worldwide
  - WHO ... the toll of cancer & other chronic diseases is greater in LMICs where they occur “at younger ages, suffer longer – often with preventable complications – and die sooner than those in HICs”.
  - More than 70% of all cancer deaths occur in LMICs

# The Cancer Problem ... in LMICs



Cancer kills more than HIV/AIDS, TB, & malaria combined



Funding for prevention & treatment of cancer is 2% of total for other diseases

# The Problem

**SUSTAINABLE  
DEVELOPMENT**

**GOALS**

**3** **GOOD HEALTH  
AND WELL-BEING**

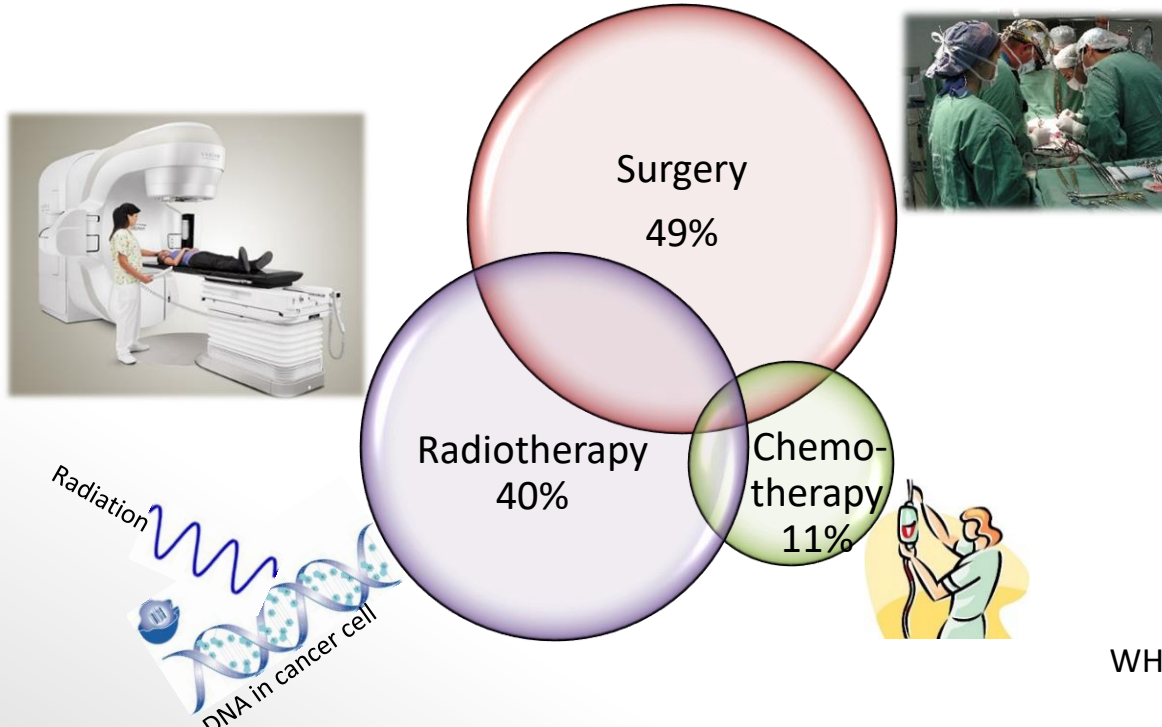
Reduction by  $\frac{1}{3}$  in  
premature mortality from  
non-communicable  
diseases, including cancer,  
by 2030

**17** **PARTNERSHIPS  
FOR THE GOALS**

Enhance international  
support for implementing  
effective and targeted  
capacity-building

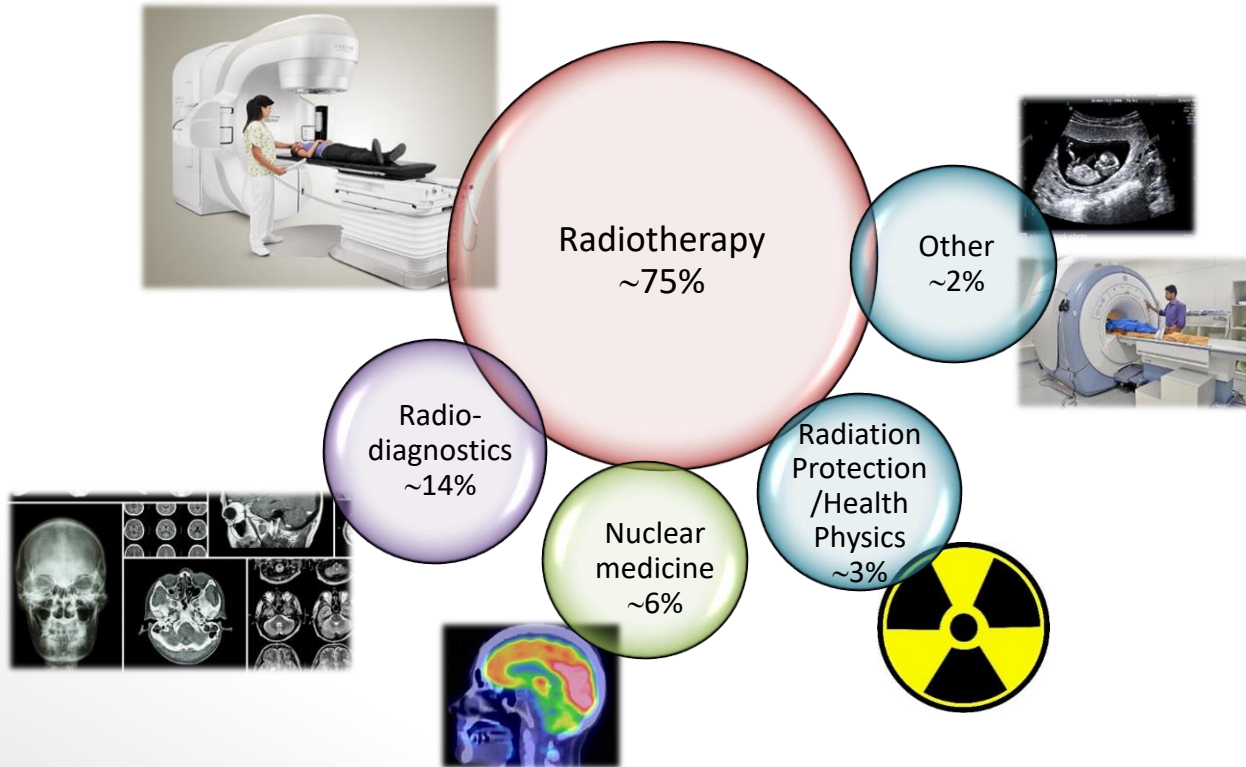
# Radiation Therapy ... a Key Element

- Main methods of cancer treatment



WHO 2016

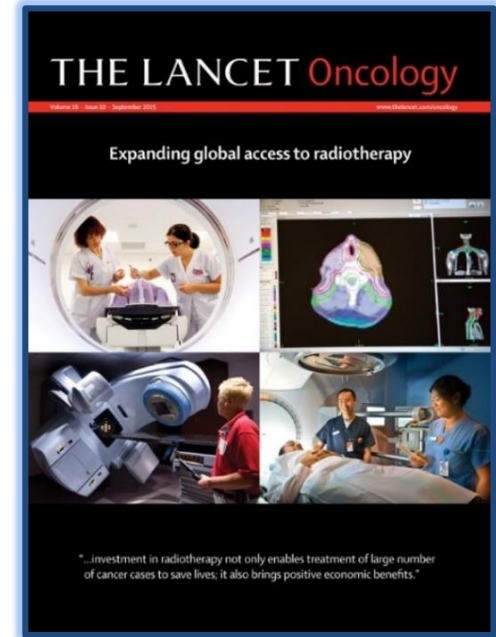
# Global Medical Physics Activities





# The Medical Physics Gap

- Lancet Oncology, Sept 2015
  - Projection ... by 2035 in LMICs for RT
    - **22,000 MPs needed**
  - Call for action ... by 2025 in LMICs
    - **6,000 MPs to be trained**
- This is for RT only ...
  - Add other MPs: **another ~25%**
    - **i.e., 7,500 MPs to be trained** by 2025



# Medical Physics Disparities

- Medical Physics growth more rapid in LMICs than HICs
  - Improved health care
  - Ageing populations
- Less available education/training programs in LMICs than HICs
  - Lack of experienced educators
  - Lack of equipment
  - Infrastructure takes time to be developed
- Concerns about education abroad
  - Different diseases
  - Different infrastructure
  - Different technologies
  - Potential for “brain drain”

# How to deal with disparities

## Expansion of cancer care and control in countries of low and middle income: a call to action

*Paul Farmer, Julio Frenk, Felicia M Knaul, Lawrence N Shulman, George Alleyne, Lance Armstrong, Rifat Atun, Douglas Blayney, Lincoln Chen, Richard Feachem, Mary Gospodarowicz, Julie Gralow, Sanjay Gupta, Ana Langer, Julian Lob-Levyt, Claire Neal, Anthony Mbewu, Dina Mired, Peter Piot, K Srinath Reddy, Jeffrey D Sachs, Mahmoud Sarhan, John R Seffrin*

A recalibrated global response could transform cancer care and control, but will need coordinated efforts and synergy among international organisations, such as WHO, the World Bank and regional development banks, bilateral donors, national research funding bodies, non-governmental agencies, governments, and local, regional, and global civil society organisations. New funding from private, bilateral, and multilateral donors

# How to deal with disparities

Expansion  
middle in

low and

**Coordination, collaboration,  
partnering ... Multiple  
organizations**

... Typical approaches  
suggested by multiple  
reports addressing the global  
cancer problem

and Mired,

and

as

ment bank

bodies, non-

governments, and local,

regi

civil society organisations. New

fun

... bilateral and multilateral donors

# What to do?

- Partnerships and collaborations
  - MPs in HICs and LMICs
    - Education programs
    - Training programs
      - Residency
      - Continuing education
    - Joint on the job mentoring support
      - Locally
      - Remotely
    - Development of user friendly on-line education and training materials



... only a partial solution

# Factors Impacting Training in LMICs

- In society
  - Weak/dysfunctional health systems
  - Corruption and lack of transparency
  - Lack of enabling infrastructure
- In education ... need ...
  - **Local desire** in LMICs for MP mobilization
  - **Basic infrastructure** allowing MP mobilization
  - **Resources** available for MP mobilization
  - **Local individuals**
    - Seeking MP expertise advancement
  - **Collaboration and partnering**
    - Through enriching organizations
  - **Clear understanding of local circumstances**
    - By mentors and collaborating organizations



# Multiple Enriching Organizations

- >35 RT enriching organizations<sup>1</sup>
  - Professional societies
  - Volunteer organizations
  - Government Organizations
  - NGOs
- Coordination is crucial!
  - ... but how?



Multiple world-wide partnering organizations

# Closing the MP Gap – How?

- **MPs at any career stage can provide partnering & mentoring support through enriching organizations**
  - Still working?
    - Short term ... vacation, summer breaks, time between jobs
    - Longer term ... sabbatical, unpaid leave
  - Retired?
    - Have more experience and time
    - More flexibility
  - Lasting sustainable change
    - On-going periodic visits
    - Regular contact
- **Employers should encourage this altruistic outreach**
  - Great benefits
    - To the individuals
    - To the institutions contributing support
    - To the institutions receiving support
- **Philosophical and real support by employers ...**
  - Would be a tremendous incentive
  - **Would go a long way to addressing the Medical Physics gap**
- **Those in HICs should encourage management to allocate a small percentage of time to this type of outreach**



# Medical Physics for World Benefit

- Young organization
- Grass roots support
  - Education
  - Training
  - Mentoring
  - Involvement in Medical Physics activities
  - Other support activities as appropriate



# MPWB Vision

- A world with access to effective and safe applications of physics and technology in medicine
  - Note:
    - Not just radiation therapy
    - Also other areas of Medical Physics

# MPWB Mission

- To support activities which will yield effective and safe use of physics and technologies in medicine through advising, training, demonstrating and/or participating in medical physics-related activities, especially in low-to-middle income countries.
  - Largely intellectual support through education, training, mentoring, collaborating
  - Not into equipment donations
    - But will support related training initiatives as appropriate

# MPWB Objectives

To provide Medical  
Physics support

To advise/ support/  
guide/ train

To participate in  
activities related to  
MP technologies

To build database of  
QMPs in support of  
vision/mission/  
objectives of MPWB

To develop website  
for communications

To solicit funding to  
support MPWB  
Vision/Mission/  
Objectives

To maintain close  
communications  
with relevant/related  
organizations

# MPWB Values

Equal Access

Open  
Communication

Spirit of  
Collaboration

Mutual Respect

Evidence-Based

Integrity

Safety &  
Security

Skills &  
Knowledge  
Sharing

Public Relations

Financial  
Transparency

Confidentiality

# Partnering!



# Example Activities

- Have folders on 15 LMIC countries ... variety of activities/communications
- Communications link for recruitment
  - Ethiopia, Botswana, Tanzania
- Collaborating with AAPM/IOMP Equipment Donation Program ...
  - Dosimetry systems
    - Training of recipients of dosimetry systems
      - Continued communication/mentoring
- Open syllabus
  - Provide on-line links to IAEA Clinical Training programs
- Collaborator on CERN/STFC/ICEC initiative to develop low cost, robust RT technologies
- Requested to help with development of a Medical Physics Master's degree programs in Zimbabwe, Kenya, and Ethiopia
- Fundraising to perform above

# Uniqueness of MPWB

- Why does MPWB not work within IOMP or AAPM or ...?
  - MPWB has a unique, focussed mandate
    - Including education/training/mentoring support at the grass-roots level
  - Other organizations have a much broader scope
    - Multiple priorities
    - Generally at the regional or national level
    - International outreach is very small % of total activity/budget
  - MPWB is registered as a charitable organization
    - Allows fundraising for its objectives
      - Difficult to do within other organizations
        - Competing priorities
  - MPWB seeks to work in collaboration with other organizations
    - MoU with AAPM
    - Supported by COMP ... MoU under review
    - Working on becoming an Affiliate Organization of IOMP
    - Collaborating/communicating with IAEA
    - Collaborating with International Cancer Experts Corp (ICEC)





# Summary

... membership/visitors meeting on Tuesday 12:15  
in Omni Nashville Hotel Room: Music Row 6, Level 2  
... See AAPM Committee Schedule

- MPWB is:
  - A membership organization
    - Devoted to a world with access to effective and safe applications of physics and technology in medicine
  - Registered as a charitable organization
    - In US and Canada
- MPWB members ...
  - Have a passion
    - For reducing global health disparities
    - For supporting activities that will yield safe and effective use of technologies
    - For partnering with MPs in challenging environments
- For more information, go to [www.mpwb.org](http://www.mpwb.org)

## Medical Physics for World Benefit

### MPWB

MPWB is focused on partnerships between Medical Physicists in income-challenged contexts and those in better resourced environments to provide sustainable educational and mentoring support. Any Medical Physicist with a passion for organizational, mentoring and partnering support is encouraged to review the MPWB website, to become a member and to provide support in terms of time, talent and money.



## Medical Physics for World Benefit

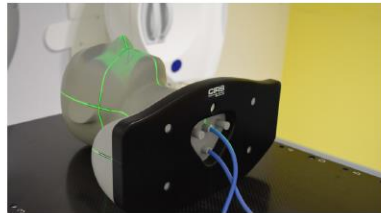
### Overview of MPWB Activities

#### WE ARE PARTNERING IN...

- Education and training
- QA/QC
- Technology commissioning
- Safety-related activities
- Technology acquisition
- Technology & facility design

Contact us! We would love to hear from you!

**E-mail:** [medphyswb@gmail.com](mailto:medphyswb@gmail.com)



## Medical Physics for World Benefit MPWB



### BETTER TOGETHER

Partnering for safe and effective use of physics in medicine.

# Info leaflet available

# Medical Physics *for* World Benefit

[www.MPWB.org](http://www.MPWB.org)

*Working together for effective patient care*

[www.facebook.com/medphyswb](http://www.facebook.com/medphyswb)



[@medphyswb](https://twitter.com/medphyswb)



*Search Medical Physics for World Benefit in "Groups"*



[medphyswb@gmail.com](mailto:medphyswb@gmail.com)

