

# Global Access to Radiation Medicine: Key Findings of the Lancet Commission Report

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28-29 September 2016

2016 IAEA Scientific Forum

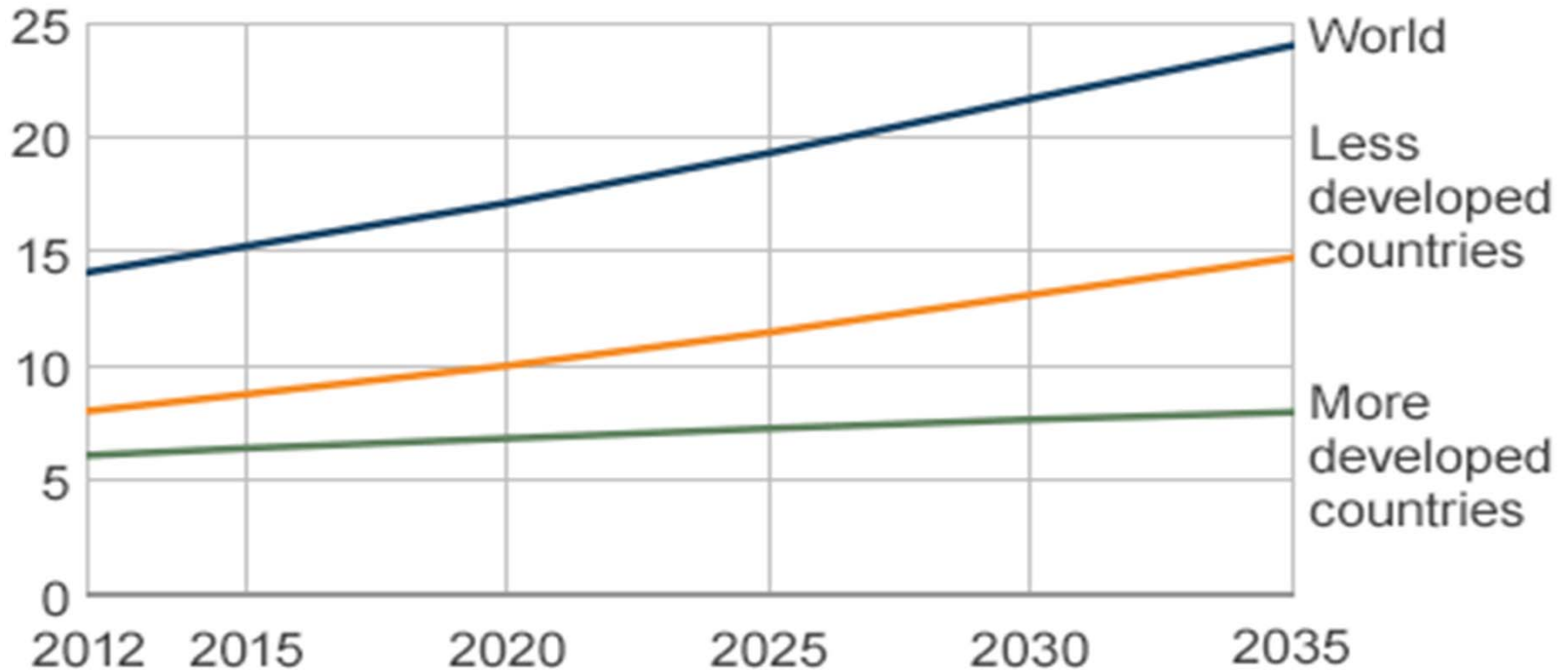
**Nuclear Technology for  
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# Predicted Global Cancer Cases



Cases (millions)



Source: WHO GloboCan

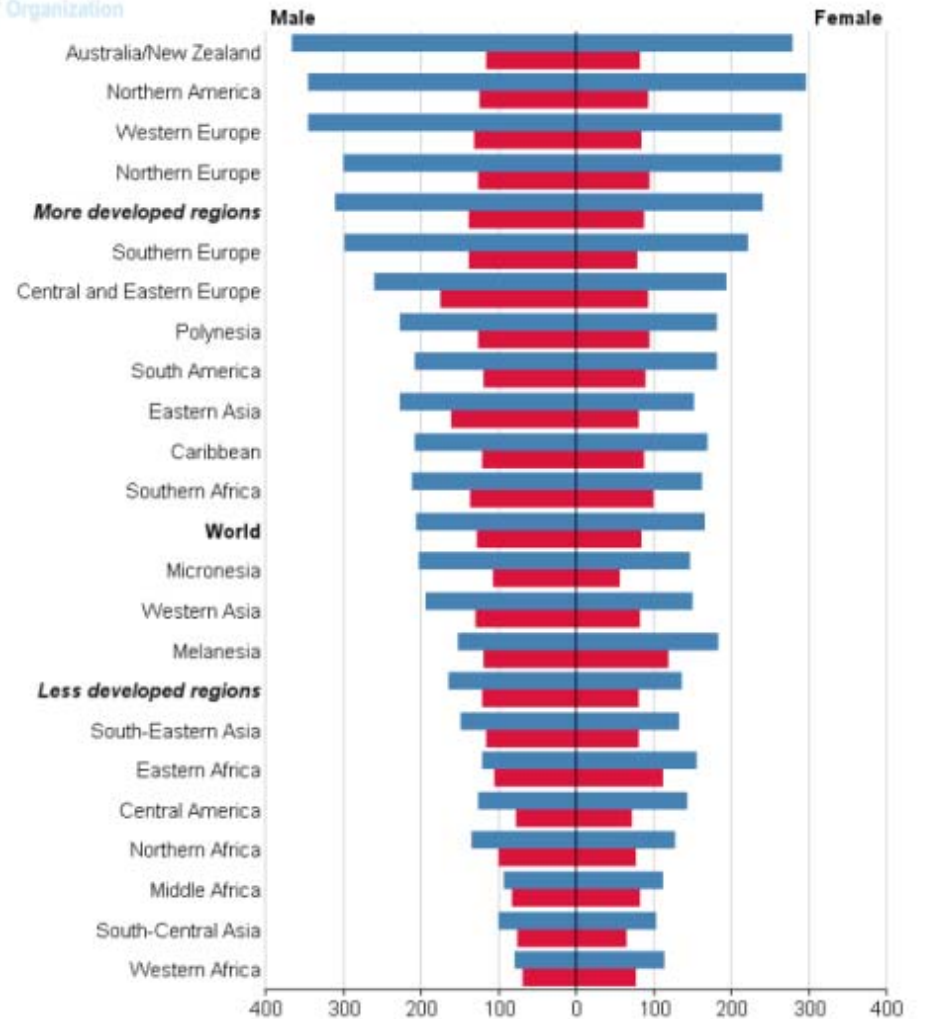
# The Equity Gap

- Availability of care
  - Affordability of care
  - Awareness - Education, stigma
- “Know – Do Gap”*

## Essential services for cancer

- Diagnostic services
  - Pathology, laboratory medicine
  - Imaging
- Surgery
- Radiotherapy
- Chemotherapy
- Palliative care

International Agency for Research on Cancer



GLOBOCAN 2012 (IARC)

Estimated age-standardised rates (World) per 100,000

■ Incidence  
■ Mortality

# GTRFCC - Secretariat



**Dr. Tabaré Vázquez**  
Honorary Chair:

Radiation oncologist and  
President of the Oriental  
Republic of Uruguay.

**Task Force  
Members from over  
35  
Countries**



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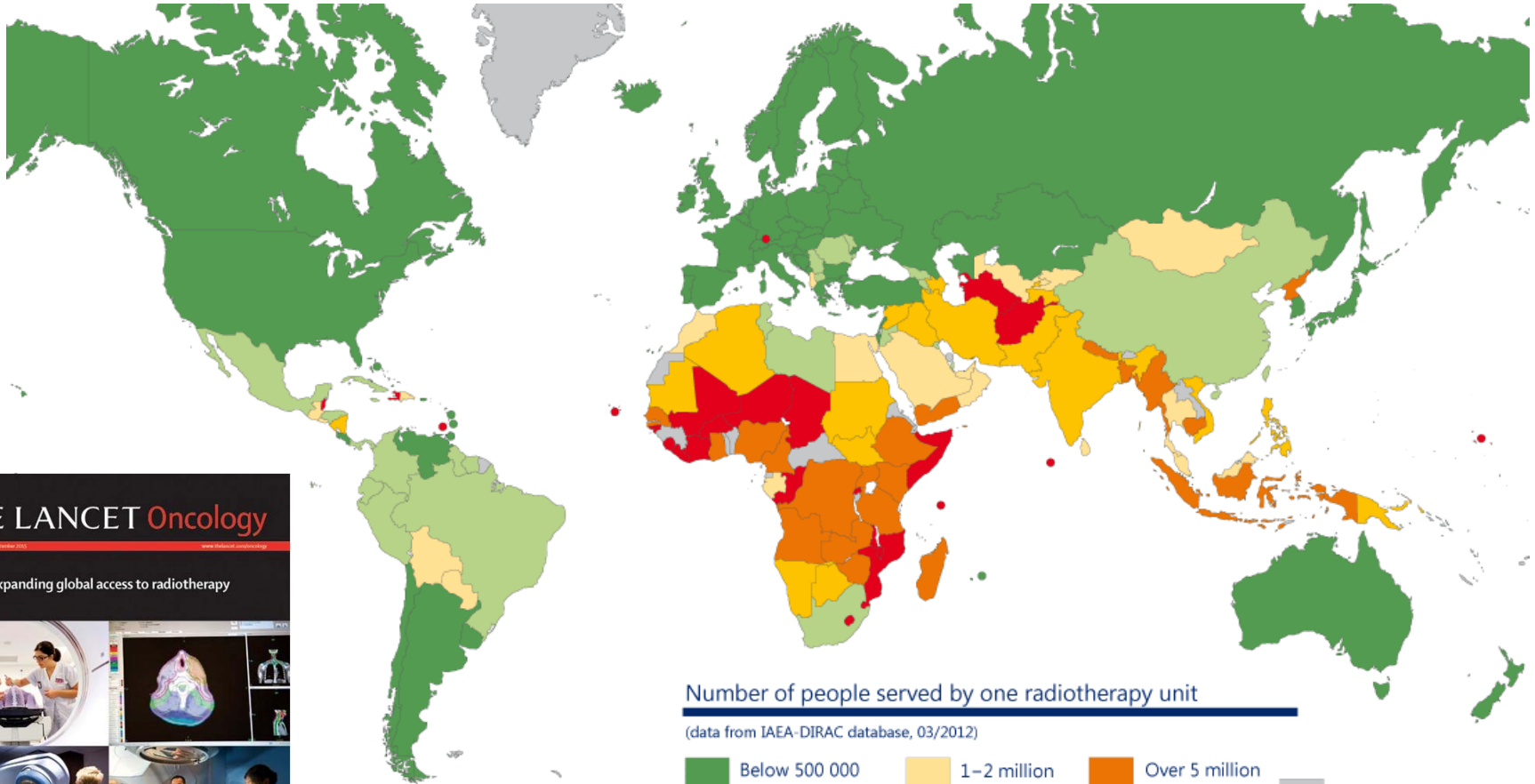


Julie Torode  
Deputy Chief Executive Officer  
UICC



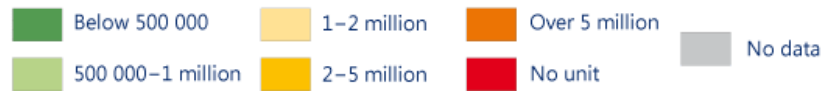
Jake Van Dyk  
Western University

# Global Access to Radiotherapy



Number of people served by one radiotherapy unit

(data from IAEA- DIRAC database, 03/2012)

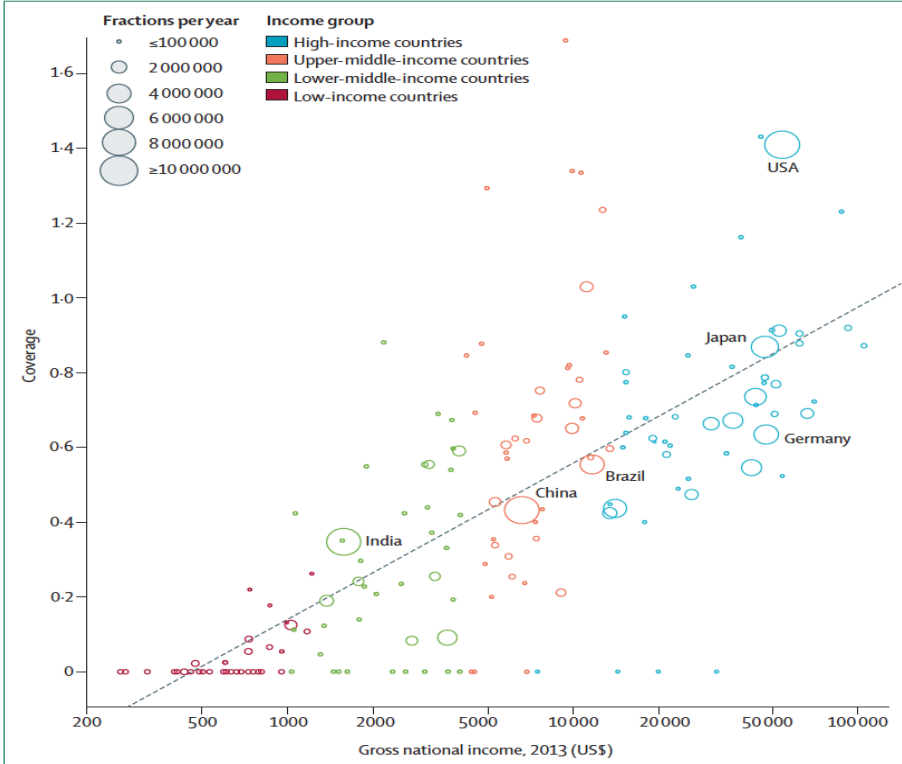
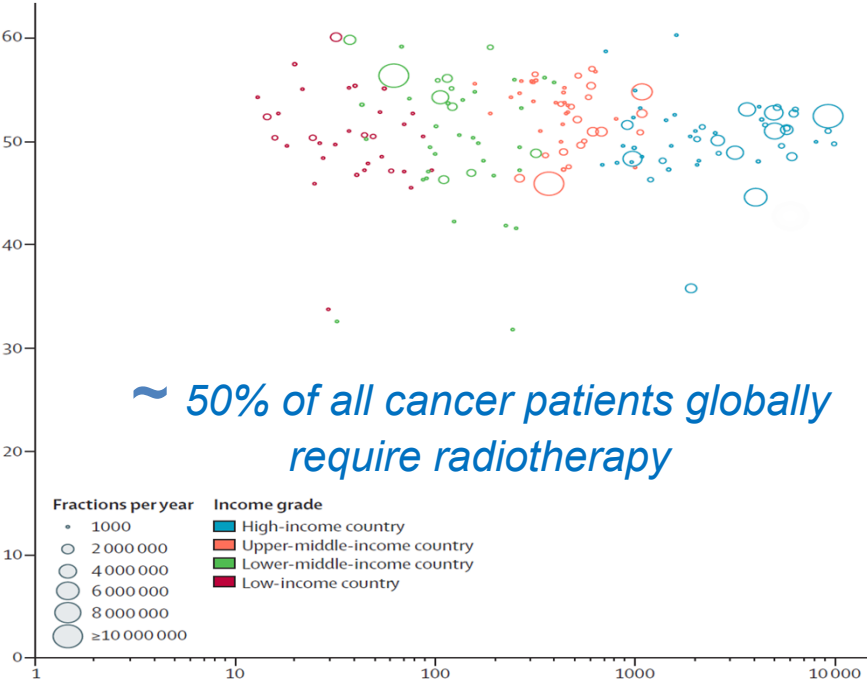


**THE LANCET Oncology**  
Volume 378, Issue 9711, September 2012  
www.thelancet.com/oncology

Expanding global access to radiotherapy

"...investment in radiotherapy not only enables treatment of large number of cancer cases to save lives; it also brings positive economic benefits."

# Radiotherapy Demand vs. Coverage

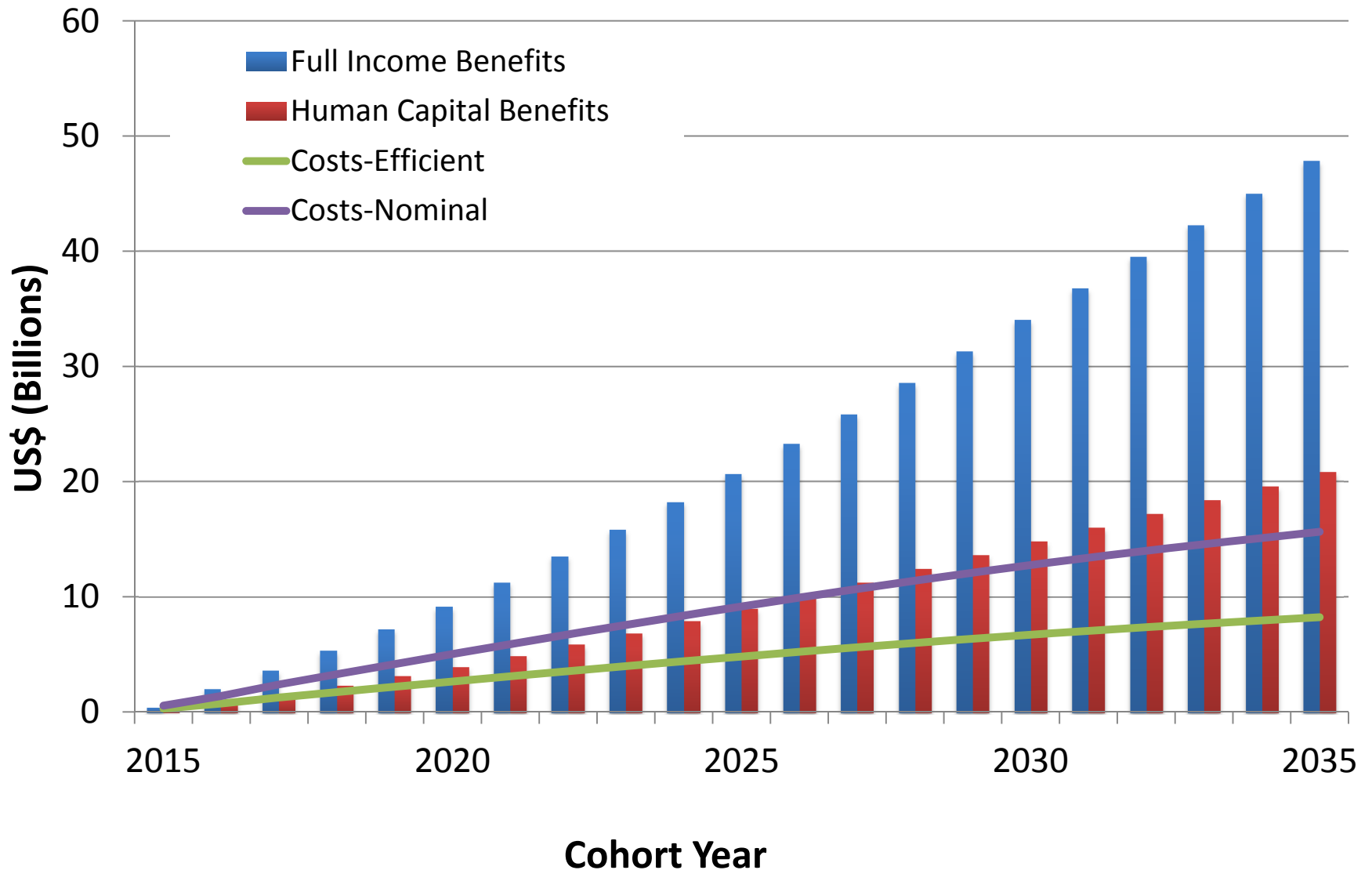


# Benefits of Radiotherapy vs. Costs

|                     | Health benefits in life years saved (2015-2035; discounted) |
|---------------------|---|
| Low income          | 6.3 million   |
| Lower-middle income | 9.9 million   |
| Upper-middle income | 10.7 million  |
| Total               | 26.9 million  |

|                     | Nominal Model | Efficiency model |
|---------------------|---------------|------------------|
| Low income          | \$26.6 Bn     | \$14.1 Bn        |
| Lower-middle income | \$62.6 Bn     | \$33.3 Bn        |
| Upper-middle income | \$94.8 Bn     | \$49.4 Bn        |
| Total               | \$184.0 Bn    | \$96.8 Bn        |

# Radiotherapy – Return on Investment





# How many resources will we need in 20 years from now?

|                                       | High-income countries | Upper-middle-income countries | Lower-middle-income countries | Low-income countries |
|---------------------------------------|-----------------------|-------------------------------|-------------------------------|----------------------|
| Fractions                             | 76 424 000            | 77 014 000                    | 40 974 000                    | 13 268 000           |
| Radiotherapy departments              | 4600                  | 3700                          | 2000                          | 600                  |
| Megavoltage machines                  | 9200                  | 7400                          | 3900                          | 1300                 |
| CT scanners                           | 4600                  | 3700                          | 2000                          | 600                  |
| Radiation oncologists to be trained   | 15 500                | 16 800                        | 9900                          | 3300                 |
| Medical physicists to be trained      | 17 200                | 12 500                        | 7200                          | 2400                 |
| Radiation technologists to be trained | 51 900                | 45 300                        | 24 900                        | 8100                 |

### **Action 1: population-based cancer control plans**

Radiotherapy must be incorporated into population-based comprehensive cancer plans in all countries with explicit targets for scaling up radiotherapy capacity to expand coverage.

Target: by 2020, 80% of the countries should have cancer plans that include radiotherapy.

### **Action 2: expansion of access to radiotherapy**

We urge immediate action to establish additional radiotherapy capacity by creating at least one cancer centre in each low-income and middle-income country by 2020. In addition to providing treatments, these new centres should be used to train the radiotherapy workforce to enable further expansion of radiotherapy coverage.

Target: an increase of 25% in the 2015 radiotherapy treatment capacity by 2025.

### **Action 3: human resources for radiotherapy**

We call for new approaches to train radiotherapy professionals globally, with the creation of new core curriculums, innovative learning methods, and international credentialing to expand the radiotherapy workforce. Training should become part of the mandate of each national radiotherapy centre to self-propagate the required skills, enabling national expansion of cancer therapies and providing the ability to replace staff as they leave or are recruited out of country.

Target: 7500 radiation oncologists, 20 000 radiation technologists, and 6000 medical physicists to be trained in low-income and middle-income countries by 2025.

### **Action 4: sustainable financing to expand access to radiotherapy**

Domestic and international financing will be needed to expand radiotherapy capacity with substantial upfront investment. International development banks and the private sector should work in partnerships with countries to finance investments in infrastructure and radiotherapy services.

Target: \$46 billion of investment by 2025 to establish radiotherapy infrastructure and training in low-income and middle-income countries.

### **Action 5: align radiotherapy access with universal health coverage**

We call for inclusion of radiotherapy coverage in each country's universal health coverage plans to prevent catastrophic out-of-pocket expenditures and treatment abandonment.

Target: 80% of low-income and middle-income countries to include radiotherapy services as part of their universal health coverage by 2020.

# Conclusions

- The cancer epidemic will lead to a substantial increase in **radiotherapy indications** from 7 to 12 million by 2035
- Radiotherapy is a critical and inseparable component of comprehensive cancer treatment. It is an **effective treatment** modality providing 2.5 million local controls and saving 1 million life years each year.
- Yet, in planning and building capacity for cancer, it is frequently the last resource to be considered. Therefore, worldwide access to radiotherapy is unacceptably low and there are important **inequalities in access** to radiotherapy.
- **Investing** in capital and human resources is needed

# Fresh Thinking Required

- Our results provide compelling evidence that investment in radiotherapy not only enables treatment of large numbers of cancer cases to save lives, but also brings positive economic benefits
- Therefore we need fresh approaches:
  - Innovation in the technology - efficiency, adaptability
  - Investment to respond to the scale of the need
  - Regulation for quality and safety
  - Financing
  - Sustainability of investment
  - Education and training

# Acknowledgements

- Members of the Global Task Force for Cancer Control
- Authors of the Lancet Oncology Commission for Global Radiotherapy - R Atun, DA Jaffray, MB Barton, F Bray, M Baumann, B Vikram, TP Hanna, FM Knaul, Y Lievens, T Lui, M Milosevic, B O'Sullivan, DL Rodin, E Rosenblatt, J Van Dyk, ML Yap, E Zubizarreta, M Gospodarowicz.



# Thank you!

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