European Society for Radiotherapy & Oncology
What is the average life expectancy at birth in the world today?

A  □  50 years

B  □  60 years

C  □  70 years
What is the average life expectancy at birth in the world today?

- **A** 50 years
- **B** 60 years
- **C** 70 years

There has been a 10-year rise in life expectancy over the past five decades, thanks to great advances in healthcare across the world.

Source: http://esa.un.org/unpd/wpp/unpp/panel_indicators.htm
What percentage of cancer patients requires radiotherapy across the globe?

A  □  30 %
B  □  50 %
C  □  70 %
What percentage of cancer patients requires radiotherapy across the globe?

A □ 30 %  
B □ 50 %  
C □ 70 %

Of all patients diagnosed with cancer, roughly 50% have an indication for external beam radiotherapy at least once, at some time, during the course of their illness.
2012 → 2035

cancer incidence: 14 → 24 million

cancer deaths: 8 → 14.5 million
in Europe, only 7 out of 10 patients receive the radiotherapy they need
available resources vs. resources needed

Atun et al, Lancet Oncology 2015
Expanding global access to radiotherapy

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Radiotherapy is a critical and inseparable component of comprehensive cancer treatment and care. For many of the most common cancers in low-income and middle-income countries, radiotherapy is essential for effective treatment. In high-income countries, radiotherapy is used in more than half of all cases of cancer to cure localised disease, palliate symptoms, and control disease in incurable cancers. Yet, in planning and building treatment capacity for cancer, radiotherapy is frequently the last resource to be considered. Consequently, worldwide access to radiotherapy is unacceptably low. We present a new body of evidence that quantifies the worldwide coverage of radiotherapy services by country. We show the shortfall in access to radiotherapy by country and globally for 2015–35 based on current and projected need, and show substantial health and economic benefits to investing in radiotherapy. The cost of scaling up radiotherapy in the nominal model in 2015–35 is US$26·6 billion in low-income countries, $62·6 billion in lower-middle-income countries, and $94·8 billion in upper-middle-income countries, which amounts to $184·0 billion across all low-income and middle-income countries. In the efficiency model the costs were lower: $14·1 billion in low-income, $33·3 billion in lower-middle-income, and $49·4 billion in upper-middle-income countries—a total of $96·8 billion. Scale-up of radiotherapy capacity in 2015–35 from current levels could lead to saving of 26·9 million life-years in low-income and middle-income countries over the lifetime of the patients who received treatment. The economic benefits of investment in radiotherapy are very substantial. Using the nominal cost model could produce a net benefit of $278·1 billion in 2015–35 ($265·2 million in low-income countries, $38·5 million in lower-middle-income countries, and $239·3 million in upper-middle-income countries). Investment in the efficiency model would produce in the same period an even greater total benefit of $365·4 billion ($12·8 billion in low-income countries, $67·7 billion in lower-middle-income countries, and $284·7 billion in upper-middle-income countries). The returns, by the human-capital approach, are projected to be less with the nominal cost model, amounting to $16·9 billion in 2015–35 (−$14·9 billion in low-income countries: −$18·7 billion in lower-middle-income countries, and $50·5 billion in upper-middle-income countries). The returns with the efficiency model were projected to be greater, however, amounting to $184·2 billion (−$2·4 billion in low-income countries, $10·7 billion in lower-middle-income countries, and $95·9 billion in upper-middle-income countries). 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.

Introduction

In 2012, 14·1 million new cases of cancer were reported worldwide (figure 1A), and this number is projected to lacking access to radiotherapy. ‘The growing burden of cancer will place increased demand on the already-scarce radiotherapy services worldwide.

- 40-60% of eligible patients (12M) have access to RT
- Total number of new patients per year: raising from 15 to 22 M in 2022
- 1 Million lives can be saved per year by 2035. Over 230k in Europe, today.
The diagram illustrates the process of implementing evidence-based clinical policies, highlighting the gaps in the process:

1. **Implementation Gap**
   - The patient's circumstances
   - The evidence
   - The patient's wishes
   - Making clinical decisions

2. **Knowledge Gap**
   - Generating evidence from research

3. **Research Gap**
   - Synthesizing the evidence
   - Developing evidence-based clinical policies

66,540 publications worldwide 2000-15
2,617 clinical trials (4%)
29% Phase 1
40% Phase 2
30% Phase 3
0.15% Phase 4

effectiveness data is almost lacking

Aggarwal et al, IJROBP 2018
Scientific developments have spurred unprecedented ‘delivery of innovations’ for new medicines and medical devices, but ‘innovation in delivery’ has faltered. “
Value-Based Health Care

Health outcomes that matter to **patients**

Value = \frac{Costs of delivering these outcomes}{optimal treatment}
Lievens et al, Radiotherapy & Oncology, 2019

Radiation Oncology. Optimal Health Together. FOR ALL,
- ESTRO VISION 2030 -