Insight from Industry

How **NOT** to promote the Safe & Effective Adoption of Radiotherapy in LMICs

Cleverson Lopes
Marketing Manager,
Varian Oncology Systems
How **NOT** to promote the Safe & Effective Adoption of Radiotherapy in LMICs?

**Cancer burden**

Ignoring the cancer problem!

1 of every two males

and

1 of every three females

will have cancer at some point in their lives*

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Cancer burden

Ignoring the cancer problem!

1 of every two males and 1 of every three females will have cancer at some point in their lives*  

Cancer burden HDI

2018

- **High and Upper Middle Income countries**
  - 14.4 million cases
  - 7.1 million deaths

- **Low and Medium Low Income countries**
  - 3.6 million cases
  - 2.4 million deaths

Cancer burden HDI

2018

High and Upper Middle Income countries

- 14.4 million cases
- 7.1 million deaths

Low and Medium Low Income countries

- 3.6 million cases
- 2.4 million deaths

Cancer burden can’t be ignored

*Latin America only

**Relative to most developed countries**

**49%** Chile’s mortality-to-incidence ratio

**Double mortality rate**

**Up to 1.0M Deaths**

**By 2030**

People will develop cancer

**1.7M**

**67% Increase in Cancer incidence**

**By 2030**

Half of patients

Doesn’t have access to radiotherapy

**US$1.98**

**$18,80 for US**

**RT Cost per capita**

**50% machine’s**

Are becoming obsolete

**by 2021***


Human capital
Don’t ignore the investment in human

<table>
<thead>
<tr>
<th>What is Needed</th>
<th>2015</th>
<th>GAP</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiation Oncology Centers</td>
<td>7,700</td>
<td>3,200</td>
<td>10,900</td>
</tr>
<tr>
<td>Linear Accelerators</td>
<td>13,100</td>
<td>21,800*</td>
<td>21,800</td>
</tr>
<tr>
<td>Radiation Oncologists</td>
<td>23,200</td>
<td>22,300</td>
<td>45,500</td>
</tr>
<tr>
<td>Medical Physicists</td>
<td>10,000</td>
<td>29,300</td>
<td>39,300</td>
</tr>
<tr>
<td>Radiation Technologists</td>
<td>33,300</td>
<td>96,900</td>
<td>130,200</td>
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People, AI and data are key to closing the gap

✓ Quality
✓ Simplicity
✓ Efficiency
✓ Automation

Source: Expanding global access to radiotherapy. Lancet Oncol. Vol 16, Sept. 2015
* 8,700 new machines + 13,100 replacements = 21,800 machines needed
The information presented here represents only the ideas of the author.

Source: Expanding global access to radiotherapy. The Lancet Oncology Commission.
Language
Software, GUI, message displays, training and manuals

Product design
Easy to operate, integrated, rich messages and reliable

Staff Training and support
Clinical and technical

Maintenance and Logistics
Proper parts and labor

Don't value technology investments
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Maintenance and Logistics
- Proper parts and labor
Industry role
## Challenges for rt adoption

**LMICS**

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<th>Country costs and Financial limitation</th>
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Industry role in LMICs

**High-quality**
Advanced treatment on entry level equipment’s, better image quality and scripted AI, contouring, planning & monitoring

**Patient Centered**
Improve patient comfort, personalization, reduce planning and treatment time

**Safety**
Solutions with Intuitive design, appropriate language and adequate services – Market

**Cost & Effective**
Develop technologies that attend the urgent needs of today

**Timely – High availability**
Fast installation, adequate training, well defined QA, pre-commissioned machines, remote service monitoring

**Collaboration**
Create a network of partners. Customers, governments, patients and professional associations
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Collaboration
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Innovation driving increasing overall cancer survival
A world without fear of cancer is on our horizon

Sources:
Survival Data: (1) National Cancer Institute’s SEER*Stat 8.3.4 databases, (2) Genomic Health Clinical Validation Trials, (3) Roche IMpassion 130 trial, additional on file

*Forecasted survival rate based on increases in treatment efficacy (Phase 2/3 data) and liquid biopsy availability. Artificial lungs, livers, and pancreas are under development but are not expected to be commercialized by 2027.

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>1977</th>
<th>1987</th>
<th>1997</th>
<th>2007</th>
<th>Today</th>
<th>2027</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>570K cases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>99.9%</td>
</tr>
<tr>
<td>Breast</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>99%</td>
</tr>
<tr>
<td>868K cases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colorectal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>91%</td>
</tr>
<tr>
<td>704K cases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lung</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>38%</td>
<td></td>
</tr>
<tr>
<td>948K cases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Liver</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>403K cases</td>
<td></td>
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<tr>
<td>Pancreatic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17%</td>
<td></td>
</tr>
<tr>
<td>176K cases</td>
<td></td>
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5 year overall survival

0%  20%  40%  60%  80%  100%

99.9%  99%  91%  38%  29%  17%