The Role of the Cost of Drugs in the Global Fight against Cancer

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President WOF and Scientific Committee ESO
Declaring War Against Cancer

☐ The signing of the National Cancer Act of 1971 by then U.S. President Richard Nixon is viewed as the beginning of the war on cancer.

President Richard Nixon signs the National Cancer Act, Dec. 23, 1971, launching a $1.6 billion federal crusade to conquer cancer. (AP)
Cancer kills more globally!

WHO (2003)
2012

Are we winning the war on cancer?

26-27 October 2012 • Lugano, Switzerland

ESO Founders: Laudomia Del Drago and Umberto Veronesi
ESO WOF Chair: Franco Cavalli

1 Question • 100 Experts • 1 Answer

Further information available at www.eso.net
1950-2007 UK cancer mortality attributed, or not, to smoking

Male (L); lung decreasing since 1970

Female (R); breast decreasing since 1990

*Mean of annual rates in the seven component 5–year age groups

Source: WHO mortality & UN population estimates
Main causes of trends in recent decades

35-year risk (%)

Lung: smoking

Colorectal: treatment

Stomach: Unknown
UK female cancer mortality trends at ages 35-69, 1950-2007: selected sites

35-year risk (%)

Main causes of trends in recent decades

Breast: treatment
Lung: cigarettes

Colorectal: treatment
Uterus: screening
Stomach: Unknown

*Mean of annual rates in the seven component 5-year age groups
Source: WHO mortality & UN population estimates
Estimated Cancer Burden in 2030

- **Cases**
  - 2000: Yellow
  - 2030 (Population growth): Light Yellow
  - 2030 (+1% annual increase of the risk): Orange
  - 2030 Annual percent change in Incidence (+1.3) and Mortality (-0.4) in France (1978-2000): Purple

- **Deaths**
  - 2000: Yellow
  - 2030 (Population growth): Light Yellow
  - 2030 (+1% annual increase of the risk): Orange
  - 2030 Annual percent change in Incidence (+1.3) and Mortality (-0.4) in France (1978-2000): Purple

Remontet et al., 2002
Cancer in developing countries

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage of Global Burden</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>15% of global burden</td>
</tr>
<tr>
<td>2008</td>
<td>56% of global burden</td>
</tr>
<tr>
<td>2030</td>
<td>ca. 70% of global burden</td>
</tr>
</tbody>
</table>
The looming disaster in developing countries

Sum of:

• mainly poverty-related tumors (cervical, oesophagus, liver)

• tumors linked to western style of life (breast, lung, prostate, colorectal)

• lack of primary and secondary prevention

• lack of resources for treatment

F. Cavalli. Nature Clinical Practice Oncology 2006; 11:582
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Low income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Gambia</td>
<td>12%</td>
<td>22%</td>
<td>57</td>
<td>330</td>
<td>22</td>
</tr>
<tr>
<td>Uganda</td>
<td>46%</td>
<td>13%</td>
<td>52</td>
<td>370</td>
<td>28</td>
</tr>
<tr>
<td>India</td>
<td>52%</td>
<td>46%</td>
<td>65</td>
<td>990</td>
<td>40</td>
</tr>
<tr>
<td>Lower-middle income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>47%</td>
<td>37%</td>
<td>74</td>
<td>1460</td>
<td>63</td>
</tr>
<tr>
<td>China</td>
<td>82%</td>
<td>67%</td>
<td>75</td>
<td>2490</td>
<td>108</td>
</tr>
<tr>
<td>Thailand</td>
<td>63%</td>
<td>61%</td>
<td>72</td>
<td>3240</td>
<td>136</td>
</tr>
<tr>
<td>Upper-middle income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costa Rica</td>
<td>70%</td>
<td>53%</td>
<td>81</td>
<td>5530</td>
<td>488</td>
</tr>
<tr>
<td>Turkey</td>
<td>77%</td>
<td>63%</td>
<td>74</td>
<td>8090</td>
<td>465</td>
</tr>
<tr>
<td>High income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Korea</td>
<td>79%</td>
<td>79%</td>
<td>83</td>
<td>21210</td>
<td>1362</td>
</tr>
<tr>
<td>Singapore</td>
<td>76%</td>
<td>66%</td>
<td>83</td>
<td>34640</td>
<td>1148</td>
</tr>
</tbody>
</table>

Health-care and economic data for ten countries by World Bank country income classification levels and 5-year survival for breast and cervical cancer.

B. Anderson et al., Lancet Oncology 2011; 12:387-98
Survival of children with cancer in economically developed countries and in low-income countries
Radiotherapy is an essential part of the treatment of cancer.

Over 30 African and Asian countries have no access to radiotherapy.

There is a shortfall of over 5000 radiotherapy machines in the developing world.

IAEA has initiated PACT to comprehensively address this urgent problem, and is moving its radiotherapy programmes to a public health model.
Cancer Drugs versus Cancer

Anti-Cancer Drug Sales
- USA: 60%
- Japan: 18%
- Rest of World: 17%
- Europe: 5%

Cancer
- USA: 61%
- Europe: 16%
- Rest of World: 18%
Structure and efficiency of health care system, together with universal health coverage

KEY for the fight against cancer
Structural adjustments and fiscal crises are undermining health care systems in many African, Asian and Latin-American countries.
Explosion of cost of systemic treatment, even for old drugs (e.g. Thalidomide, Thiotepa, etc.)

*(US price is determining world price)*

Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) has “exacerbated the problem with no gain for developing countries

Question: Are we winning the war on cancer 40 years on?

Answer: Uncertain. Although we have won some battles, we have not won the war, and could even lose it.
On this World Cancer Day 2013, participants of the World Oncology Forum raise the alarm about the increasing devastation caused by cancer across the world.

Cancer is not only one of the biggest global killers but also one of the fastest growing causes of death. The annual number of new cases is expected by double over 25 years, to reach 22 million by 2030. The greatest burden will be felt in emerging countries. Acting now will save untold human suffering.

Every year cancer drains around $900 billion from the world economy through lost output and the cost of care – 1.5% of global GDP.

At the 2013 World Health Assembly governments unanimously agreed to reduce preventable deaths from non-communicable diseases by 25% by 2025. For cancer, this would mean saving at least 1.5 million lives every year. Current strategies cannot come close to achieving this goal. A new and determined set of actions to foster research, modify lifestyles and environments, redesign health systems and reform health policy is urgently required.

Governments, policy makers and everyone who can help stop unnecessary deaths from cancer must take action to:

Prevent preventable cancers:
1. Wage war on tobacco by far the biggest cause of cancer death across the globe. Extend to all countries the anti-tobacco measures already found to be effective and tax the profits made from tobacco.
2. Give people the knowledge they need to understand which cancers threaten them most and how to reduce their risk. Develop and implement scientifically sound strategies, including vaccines, to protect against cancers caused by infections.

Treat treatable cancers:
3. Develop early detection programmes tailored to local needs and resources, which target cancers that are the most detectable, treatable and have the greatest social impact.
4. Ensure that every cancer patient has access to a package of effective, diagnostic and curative and palliative care that has been shown to get the best possible results within the local setting and delivered by trained health professionals.

Support all those who are living with cancer:
5. Give all patients access to optimal pain control by changing attitudes and removing bureaucratic, legal and logistical barriers to the medical use of medicines.
6. Involve patients as partners in decisions about their own care and give them a voice in decision making about policies that affect them.

Accelerate finding cures for cancers that are not yet curable:
7. Replace the current broken business model for developing new therapies with more efficient, forms of public-private collaboration, geared to accelerating delivery of affordable therapies that are of real benefit to patients across the world.

To achieve all the above:
8. Educate policy makers and the public to counter the entrenched, fatalistic myths and misconceptions that undermine efforts to mobilize forces against cancer and deter people who suspect they may have cancer from seeking early medical advice.
9. Promote and strengthen sustainable and universally accessible health systems that are supported by innovative financing mechanisms, and are driven by evidence about cost-effective ways to deliver the best results and not by vested economic interests.
10. Ensure that all countries have a clear cancer control strategy that evolves in the light of needs and experience, and is built on creative ideas, backed by solid evidence, in order to turn back the tide on cancer.

Further information available at: www.worldoncologyforum.org
Stop cancer now! (WOF)

1. Inform people about risk factors
2. War on tobacco
3. Avoid infections (vaccines)
4. Improve early detection according to resources
5. Provide essential treatment package
6. Destroy barriers for opioids
7. Develop cost-effective treatments
8. Dispell myths
9. Give voice to patients
10. Force governments to act (e.g. national cancer plan, international cooperation)
7. Replace the current broken business model for developing new therapies with more efficient forms of public-private collaboration, geared to accelerating delivery of affordable therapies that are of real benefit to patients across the world.
Progress towards developing cancer treatments that are effective and affordable is being seriously undermined by reliance on a unsuitable business models, which reward low-risk, high-cost, incremental benefit approaches to drug discovery and development, and discourage true innovation and collaboration.
Improving the way new cancer therapies are evaluated ... (II)

• Invest substantial public funds in the public/not-for-profit sector to carry out drug discovery and early development work

• Move to a system of setting prices through negotiation, at national, regional (eg EU-wide) or even international level (eg following the GAVI model for vaccinations)
Key drivers of costs in developing countries

- Management of advanced cases and expensive end of life care
- Expensive medical imaging
- Expensive chemotherapy, especially with branded drugs
- Targeted drugs, novel treatments with exorbitant prices with minimal benefits
Changes of rules

• abandon principle of patents

• compensate industry for discovery

• most of research ( F I → III) to be financed by public resources.
WHO includes 16 new cancer drugs on the list of essential medicines

See 19th WHO Model List of Essential Medicines:


On March 31, 2016 the GSK CEO announced:

- GSK will not file patents in 50 Least Developed Countries (LDCs) and Low Income Countries (LICs), giving way to generics
- GSK will file patents in 35 Lower Middle Income Countries (LMICs) but will offer licences to generics
- Any GSK medicines on the WHO’s list of EM will be included
Furthermore...

GSK CEO said the firm is considering submitting patents on future cancer drugs to the UN-backed Medicines Patent Pool (MPP), which negotiates large-scale licensing agreements between drug developers and generic manufacturers in 127 developing countries, but so far only for HIV/Tbc/ Malaria
The most important US organisations of manufacturers/commerce warned sternly on 18.Feb. 2016 against “advocating for developing countries to disregard TRIPS through compulsory licences for essential medicines” and against UN-High-Level-Panel on access to medicines.
Adoption of new treatments or the revision of the previous benefit package for cancer control

Data for cost-effectiveness and the effect on health care budget on introduction of new cancer treatments are considered before deciding to introduce these in Thai health services.
<table>
<thead>
<tr>
<th>Intervention</th>
<th>Low-income</th>
<th>Lower-middle-income</th>
<th>Upper-middle-income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensive tobacco control measures</td>
<td>0.05</td>
<td>0.07</td>
<td>1.06</td>
</tr>
<tr>
<td>Palliative care and pain control</td>
<td>0.05</td>
<td>0.06</td>
<td>0.06</td>
</tr>
<tr>
<td>HBV vaccination</td>
<td>0.08</td>
<td>0.04</td>
<td>0.04</td>
</tr>
<tr>
<td>Promote early diagnosis and treat early-stage breast cancer</td>
<td>0.43</td>
<td>0.43</td>
<td>1.29</td>
</tr>
<tr>
<td>HPV vaccination</td>
<td>0.23</td>
<td>0.23</td>
<td>0.40</td>
</tr>
<tr>
<td>Screen and treat precancerous lesions and early-stage cervical cancer</td>
<td>0.26</td>
<td>0.29</td>
<td>0.87</td>
</tr>
<tr>
<td>Treat selected childhood cancers</td>
<td>0.03</td>
<td>0.03</td>
<td>0.09</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>1.13</strong></td>
<td><strong>1.15</strong></td>
<td><strong>3.81</strong></td>
</tr>
<tr>
<td>Ancillary services (50% of subtotal)</td>
<td><strong>0.57</strong></td>
<td><strong>0.58</strong></td>
<td><strong>1.91</strong></td>
</tr>
<tr>
<td><strong>TOTAL COSTS</strong></td>
<td><strong>1.70</strong></td>
<td><strong>1.73</strong></td>
<td><strong>5.72</strong></td>
</tr>
</tbody>
</table>

*Disease Control Priorities, Volume 3, Cancer, 2015, World Bank*
## Resources Requirements for the Essential Cancer Intervention Package for LMICs

<table>
<thead>
<tr>
<th>Expenditures</th>
<th>Low-income</th>
<th>Lower-middle income</th>
<th>Upper-middle income</th>
<th>Total LMICs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public spending on health as % GDP, 2013</td>
<td>2.0</td>
<td>1.8</td>
<td>3.1</td>
<td>3.0</td>
</tr>
<tr>
<td>Total public spending on health in 2013 (US$ billions)</td>
<td>11</td>
<td>89</td>
<td>534</td>
<td>634</td>
</tr>
<tr>
<td>Required amount for cancer in 2013 (US$ billions)</td>
<td>1.4</td>
<td>4.4</td>
<td>13.8</td>
<td>19.6</td>
</tr>
<tr>
<td>Cancer package as % of total public spending on health in 2013</td>
<td>13.0</td>
<td>4.9</td>
<td>2.6</td>
<td>3.1</td>
</tr>
</tbody>
</table>

*Disease Control Priorities, Volume 3, Cancer, 2015, World Bank*
"Global Fund for Cancer"

Priorities: - Cancer Registries
- Cervical Cancer
- Pediatric Oncology
- Breast Cancer
- Radiotherapy equipments

10 billion/year???

Cancer Pathway to a Cure – What are the breakthroughs in cancer prevention and therapy?
Interactive Dinner Session
Public Session
Friday 23 January, 20.00

Globalization of NCDs – Workstudio
Public Session
Saturday 24 January 09.00
The solution must be rather sought at the political level. UNASUR conference as a first step?
THANK YOU!