Burden and trend of Cancer in Europe: First step towards Earlier Detection

International Agency for Research on Cancer
Lyon, France

Isabelle Soerjomataram

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Early Detection: Recommendation
Early Detection: Recommendation

- Analyse the cancer epidemiology in the country or region, including cancer morbidity and mortality.
- Identify and list the main cancer types in the country or region, reporting incidence, stage at presentation and number of deaths.
- Are there curable cancers among the most common cancer types?
  - yes
    - Are the majority of curable, common cancers advanced (stage III or IV) at presentation?
      - yes
        - Are there early diagnosis or screening activities for those cancer types?
          - yes
            - Develop a plan for early diagnosis of cancer.
          - no
            - Is the country or region a low-resource setting?
              - yes
                - Develop a plan for early diagnosis of screening (cervix, breast, colon).
              - no
                - Monitor ongoing early detection activities.
        - no
          - Ensure palliative care and see if the most common cancer types are amenable to primary prevention.
  - no
    - Develop a plan for early diagnosis of screening (cervix, breast, colon).
Burden of Cancer in Europe
Cancer incidence: European Regions

Source: GLOBOCAN 2018

**Northern Europe**
- Prostate 13.3%
- Colorectum 11.1%
- Lung 10.8%
- Melanoma of skin 4.6%
- Corpus uteri 2.5%
- Pancreas 2.7%
- Kidney 3%
- Bladder 3.3%
- Other cancers 33%

686,000 new cases

**Western Europe**
- Breast 12.4%
- Prostate 11.7%
- Colorectum 10.1%
- Lung 10.6%
- Leukaemia 2.3%
- Kidney 2.9%
- Non-Hodgkin lymphoma 3%
- Pancreas 3%
- Melanoma of skin 4.6%
- Bladder 4.9%
- Other cancers 34.4%

1,370,000 new cases

**Eastern Europe**
- Colorectum 13.3%
- Other cancers 30.9%
- Cervix uteri 2.8%
- Pancreas 3.5%
- Bladder 3.9%
- Kidney 4%
- Corpus uteri 4.4%
- Stomach 5.2%
- Breast 7.9%

1,240,000 new cases

**Southern Europe**
- Breast 12.8%
- Colorectum 12.9%
- Lung 12%
- Other cancers 31.8%
- Liver 2.7%
- Non-Hodgkin lymphoma 2.8%
- Kidney 2.9%
- Pancreas 3.1%
- Stomach 3.2%
- Bladder 6.3%
- Prostate 10.7%

933,000 new cases

Source: GLOBOCAN 2018
Cancer mortality: European Regions

Northern Europe
- Lung: 20.4%
- Colorectum: 11.9%
- Other cancers: 30.2%
- Leukaemia: 3%
- Non-Hodgkin lymphoma: 3%
- Bladder: 3.3%
- Liver: 3.7%
- Oesophagus: 4%
- Prostate: 7.7%
- Breast: 6.6%
- Pancreas: 6.3%

Western Europe
- Lung: 20.8%
- Colorectum: 11.2%
- Other cancers: 29.2%
- Kidney: 3.1%
- Stomach: 3.4%
- Leukaemia: 3.6%
- Bladder: 3.7%
- Liver: 4.1%
- Prostate: 5.8%
- Pancreas: 7.4%

Eastern Europe
- Lung: 18.8%
- Other cancers: 30.4%
- Leukaemia: 2.7%
- Brain, nervous system: 2.7%
- Kidney: 3%
- Liver: 3.3%
- Prostate: 4.8%
- Pancreas: 6.1%
- Breast: 7.1%
- Stomach: 7.6%

Southern Europe
- Lung: 20.5%
- Colorectum: 13.5%
- Other cancers: 27.6%
- Leukaemia: 3.5%
- Brain, nervous system: 3%
- Kidney: 3%
- Liver: 5.2%
- Prostate: 4.9%
- Pancreas: 6.5%
- Breast: 6.6%
- Stomach: 5.3%

274,000 new cases (Northern Europe)
548,000 new cases (Western Europe)
699,000 new cases (Eastern Europe)
422,000 new cases (Southern Europe)

Source: GLOBOCAN 2018
Melanoma of the Skin
Melanoma of skin

Source: ECIS
Incidence of Melanoma

Source: GLOBOCAN 2018
Mortality of Melanoma

Mortality ASR (World) per 100,000

- > 2.2
- 1.7 - 2.2
- 1.6 - 1.7
- 1.4 - 1.6
- < 1.4

Source: GLOBOCAN 2018
Incidence & Mortality Melanoma, E

Source: GLOBOCAN 2018
Trend incidence of Melanoma

Northern & Western Europe

Southern & Eastern Europe

* regional registries

Source: CI5plus
Trend mortality of Melanoma

Source: WHO mortality
Incidence & Mortality – by age

Source: CI5plus, WHO mortality
Success in Prevention of Melanoma

- SunSmart since 1980
- Secular changes
- ‘Population dilution’
- Mortality reduction
- Better treatment and follow-up
- Early detection

International Agency for Research on Cancer
World Health Organization
Oral Cavity Cancer
Incidence & Mortality from oral cavity cancer, world
Incidence of Oral Cavity cancer

Incidence ASR (World) per 100,000

- > 4.9
- 4.3 - 4.9
- 3.8 - 4.3
- 2.8 - 3.8
- < 2.8

Source: GLOBOCAN 2018, incl. lip
Mortality of Oral Cavity cancer

Source: GLOBOCAN 2018, incl. lip
Incidence & Mortality from oral cavity cancer

Source: GLOBOCAN 2018, incl lip
Survival from Oral cavity Cancer

Source: ECIS
Lip, oral cavity and pharynx

* regional registries

Source: CI5plus
Lip, oral cavity

Source: WHO mortality
Prevention - Oral Cavity

- Separate w Lip Cancer!
- Primary prevention
- Screening – visual & physical examination for Oral Potential Malignant disorders
- Early detection – GP and dentists
  - Smokers & alcohol drinkers
Breast Cancer
Breast cancer screening: status
Incidence, Mortality of Breast cancer

Source: GLOBOCAN 2018
Survival from Breast cancer

<table>
<thead>
<tr>
<th>Country</th>
<th>5-Year Survival Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>86.1</td>
</tr>
<tr>
<td>Italy</td>
<td>85.5</td>
</tr>
<tr>
<td>Norway</td>
<td>84.7</td>
</tr>
<tr>
<td>Netherlands</td>
<td>84.5</td>
</tr>
<tr>
<td>Spain</td>
<td>82.8</td>
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<tr>
<td>Malta</td>
<td>80.8</td>
</tr>
<tr>
<td>UK, England</td>
<td>79.3</td>
</tr>
<tr>
<td>Croatia</td>
<td>76.3</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>71.7</td>
</tr>
<tr>
<td>Poland</td>
<td>71.6</td>
</tr>
</tbody>
</table>

Source: ECIS
Incidence of Breast cancer

Source: GLOBOCAN 2018
Mortality of Breast cancer

Mortality ASR (World) per 100,000

- > 17.2
- 15.9 - 17.2
- 14.5 - 15.9
- 12.6 - 14.5
- < 12.6

Source: GLOBOCAN 2018
Incidence, mortality of Breast cancer

Source: GLOBOCAN 2018
Trend incidence of Breast cancer

Northern & Western Europe

Southern & Eastern Europe

* regional registries

Source: CI5plus
Trend mortality of Breast cancer

Source: WHO mortality
Trend incidence – by age

Source: CI5plus, WHO mortality
Breast Cancer Prevention

- Primary prevention
- Screening
- Early detection
  - Clinical Breast Examination – sufficient evidence for stage shift but not mortality reduction
  - Self Breast Examination – inadequate evidence to reduce mortality even if done correctly
Colorectal cancer
Incidence, mortality of CRC

Source: GLOBOCAN 2018
Incidence of Colorectum cancer

Incidence ASR (World) per 100,000

- > 35.6
- 31.9 - 35.6
- 28.3 - 31.9
- 26.2 - 28.3
- < 26.2

Source: GLOBOCAN 2018
Mortality of Colorectum cancer

Mortality ASR (World) per 100,000

- > 14.9
- 12.8 - 14.9
- 11.6 - 12.8
- 10.1 - 11.6
- < 10.1

Source: GLOBOCAN 2018

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.
I & M of Colorectum Cancer

Source: GLOBOCAN 2018
Survival from Colorectal Cancer

Men
- Italy: 56.4%
- Malta: 58.9%
- Norway: 59.7%
- Netherlands: 58.2%
- France: 57.8%
- Spain: 56.4%
- UK, England: 51.3%
- Croatia: 48.0%
- Poland: 44.9%
- Bulgaria: 41.5%

Age-standardised relative survival at 5-year (%)

Women
- Norway: 62.5%
- France: 60.7%
- Italy: 60.5%
- Netherlands: 59.3%
- Spain: 57.6%
- Malta: 54.2%
- UK, England: 53.1%
- Croatia: 50.5%
- Poland: 46.5%
- Bulgaria: 43.1%

Age-standardised relative survival at 5-year (%)

Source: ECIS
Trend incidence of Colorectum cancer

Northern & Western Europe

Southern & Eastern Europe

* regional registries

Source: CI5plus
Trend mortality of Colorectum cancer

Source: WHO mortality
Increasing rates in young adults

Araghi et al 2019
Colorectal cancer screening: status
Colorectal Cancer Prevention

- Primary prevention
- Better screening (implementation & quality control)
- Early detection?
Conclusion

- Great variation in Europe
- Examples based on best practice
- Early detection
  - Determine burden
  - Scope for early detection
  - Implementation
  - Quality assurance
Acknowledgement

- Cancer registries – Cancer incidence
- Jerome Vignat
- Organisers
Prostate cancer
Prostate Cancer Incidence

Source: GLOBOCAN 2018
Prostate cancer mortality

Source: GLOBOCAN 2018
Incidence, mortality - global

Source: GLOBOCAN 2018
Incidence, mortality – Europe

Source: GLOBOCAN 2018
Trend incidence: Prostate cancer

[Graph showing incidence rates in Northern & Western Europe and Southern & Eastern Europe with data from CI5plus.]
Trend Mortality: Prostate cancer

Source: WHO mortality
Prostate cancer trend – by age

Source: CI5plus, WHO mortality
Survival from Prostate cancer

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<thead>
<tr>
<th>Country</th>
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<tr>
<td>France</td>
<td>88.8</td>
</tr>
<tr>
<td>Italy</td>
<td>88.4</td>
</tr>
<tr>
<td>Malta</td>
<td>85</td>
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<tr>
<td>Spain</td>
<td>84.6</td>
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<td>Norway</td>
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<td>Croatia</td>
<td>71.2</td>
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<td>Poland</td>
<td>66.6</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>50.5</td>
</tr>
</tbody>
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Source: ECIS