Overview of Cancer Screening in Kazakhstan

Dilyara Kaidarova

Active member of NAS RK, DSc
Kazakh Institute of Oncology and Radiology, Director
Cancer incidence and mortality in RK, 2016, per 100 thousand population, and their dynamics (1999-2016)

**Cancer Incidence**

- Breast: 26.1
- Lung: 20.4
- Colorectum: 17.7
- Stomach: 15.4
- Cervix uteri: 9.7
- Hemoblastosis: 8.9
- Prostate: 8.7
- Oesophagus: 7.2
- Corpus uteri: 6.6
- Kidney: 6.5

**Cancer Mortality**

- Lung: 14.0
- Stomach: 9.8
- Colorectum: 8.3
- Breast: 7.2
- Oesophagus: 4.9
- Pancreas: 4.3
- Hemoblastosis: 4.0
- Liver: 3.6
- Cervix uteri: 3.6
- Ovary: 2.9

**Incidence**

- 1999: 181.2
- 2000: 186.5
- 2016: 206.8

**Mortality**

- 1999: 60.0
- 2000: 80.0
- 2016: 84.9

27,047 cases

36,998 cases

15,303 cases

20,373 cases

Cancer screening program in the Republic of Kazakhstan

Cervical Cancer Screening from 01.2008
Pap test
30-70 years old
Interval 4 years

Breast Cancer Screening from 01.2008
Mammography
40-70 years old
Interval 2 years

Colorectal Cancer Screening from 06.2011
FIT (iFOBT)
50-70 years old
Interval 2 years
Cancer screening program in the Republic of Kazakhstan

- **Esophageal and Stomach Cancer Screening**
  - 2013-2017
  - Endoscopy
  - 50-60 years old
  - Interval 2 years

- **Prostate Cancer Screening**
  - 2013-2017
  - Definition of PSA and its isoforms
  - 50-66 years old
  - Interval 4 years

- **Liver Cancer Screening**
  - 2013-2017
  -AFP + ultrasound
  - Patients with cirrhosis of the liver
  - 2-4 times a year
Cytological screening

Stages

1. **2008-2011 – organizational**: normative base, purchase of equipment, informing the public, training of specialists, software

2. **2012-2017 – quality improvement**: inclusion in the screening of the age group 30 years, fluid cytology, Bethesda, national leadership

3. From 2018 – increasing accessibility and effectiveness: increase in target groups, outreach, improvement of software support, emphasis on the identification of precancer and its recovery

- **Equipment**: centralized laboratories of cytology with devices for liquid (18)
- **Financing**: biomaterial sampling stage (traditional and liquid), its interpretation – state budget (2.8 billion tenge or 8 million 575 thousand USD)
Cytological screening

Target screening group until 2018 – women 30, 35, 40, 45, 50, 55, 60 years old

Number of cervical cancer cases, total

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<tbody>
<tr>
<td>Cases</td>
<td>118</td>
<td>104</td>
<td>168</td>
<td>190</td>
<td>220</td>
<td>189</td>
<td>225</td>
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Cervical cancer detection rate, %

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<tbody>
<tr>
<td>Rate</td>
<td>0.02</td>
<td>0.03</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
<td>0.05</td>
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Stage I of cervical cancer, specific weight, %

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
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<tbody>
<tr>
<td>Weight</td>
<td>41.7</td>
<td>42.8</td>
<td>48.9</td>
<td>52.5</td>
<td>56.9</td>
<td>53.9</td>
<td>70.7</td>
</tr>
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Cervical pre-cancer detection rate, %

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
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<tbody>
<tr>
<td>Rate</td>
<td>0.06</td>
<td>0.13</td>
<td>0.20</td>
<td>0.23</td>
<td>0.30</td>
<td>0.33</td>
<td>0.47</td>
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</tbody>
</table>
Cervical cancer screening problems

- Poor-quality sampling and conservation of biomaterial
- Delayed delivery of consumables for screening
- Inadequate software for screening
- High level of cancer detection rate.
  Low level of pre-cancer detection rate
- High level of interval cervical cancer incidence
Mammographic screening

Stages

1. 2008-2011 – **organizational**: normative base, purchase of equipment, informing the public, training specialists, software

2. 2012-2017 – **quality improvement**: double reading and archiving mammograms, BIRADS system, national leadership

3. from 2018 – **increasing accessibility and effectiveness**: increase in target group, coverage, improvement of program support, digitalization of screening

- **Equipment**: 235 stationary mammography rooms in policlinics, 26 mobile mammographs, 18 mammography departments (rooms) on the basis of oncological dispensaries (regional screening clinical diagnostic department)

- **Financing**: screening mammography – local budget, advanced diagnostic phase – state budget (200 million tenge or 620 thousand USD)
Mammographic screening

Target screening group until 2018 – women 50, 52, 54, 56, 58, 60 years old

Coverage of the target group, %

Number of breast cancer cases, total

Breast cancer detection rate, %

Stage I of breast cancer, specific weight, %
Breast cancer screening problems

- Obsolescence of mammography equipment
- Digitalization of mammographs has not been completed
- Inadequate software for screening
- Deficiency of radiologists, X-ray laboratory staff
- High incidence of breast cancer in other age groups
Colorectal cancer screening

Stages

1. 2011-2012 – *organizational*: normative base, purchase of equipment, informing the public, training specialists, software, national leadership

2. 2013-2017 – *increase in efficiency*: introduction of iFOBT (FIT), colonoscopy

3. from 2018 – *increasing accessibility and effectiveness*: increase in target group, coverage, improvement of program support, focus on ADR, enlargement of sedation during a colonoscopy

- **Equipment**: colonoscopes (143), washing machines (70)
- Regular workshops for endoscopists
- **Financing**: iFOB test + colonoscopy – state budget (1.1 billion tenge or 3 million 405 thousand USD)
Colorectal cancer screening

Target screening group until 2018 – men and women 50, 52, … 68, 70 years old

Coverage of the target group, %

- Colorectal cancer detection rate, %
- Colorectal pre cancer detection rate, %

Stage I of CRC, specific weight, %

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Colorectal cancer screening problems

- Low level of positive FIT rate. Poor quality sampling?
- High level of refusals from colonoscopy (up to 30-40%)
- Inadequate software for screening
- Pre cancer pathology: low level of adenoma detection rate
- Inadequate equipment by washing machines, surgical instruments, expendables for polypectomies
Cervical cancer, breast cancer and colorectal cancer incidence and mortality dynamics in Kazakhstan (2006-2016)
Age-specific incidence of cervical and breast cancer in Kazakhstan
ImPACT mission overview in Kazakhstan (2016)

ImPACT mission recommendations

**Cervical cancer screening**
- Strengthen monitoring for precancerous lesions. Consider to start HPV-based screening. Increase in coverage rate.

**Breast cancer screening**
- Extend the age of inclusion up to 69 years. Increase in coverage rate. Finish digitization of the equipment.

**Colorectal cancer screening**
- Strengthen monitoring for persons with identified precancerous lesions. Increase in coverage rate.

**Esophageal and stomach cancer, prostate cancer and liver cancer screenings**
- Replace current screening by screening of high risk individuals only. Evaluate the potential harms caused by the current PSA-based screening.

Breast cancer screening

- Colorectal cancer screening

Cervical cancer screening

- Esophageal and stomach cancer, prostate cancer and liver cancer screenings
## Implementation of WHO and ImPACT mission recommendations

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Details</th>
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<tbody>
<tr>
<td>Cervical cancer screening</td>
<td>Age groups and coverage rate are increased. Monitoring for precancer detection is strengthened. The pilot of HPV-based screening is planned</td>
</tr>
<tr>
<td>Breast cancer screening</td>
<td>Age groups are increased (40-70 years), increasing of coverage rate is planned. The completion of digitalization is scheduled</td>
</tr>
<tr>
<td>Colorectal cancer screening</td>
<td>Age groups are increased, increasing of coverage rate is planned. ADR indicator is introduced</td>
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<tr>
<td>Esophageal and stomach cancer, prostate cancer and liver cancer screenings</td>
<td>Canceled</td>
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Thank you for your attention!