CANCER INTERVENTIONS TECHNICAL BRIEFING

List of interventions

<table>
<thead>
<tr>
<th>Number</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA1</td>
<td>Cervical cancer: Vaccination against human papillomavirus (1 to 2 doses) of 9 to 14 years old girls</td>
</tr>
<tr>
<td>CA2</td>
<td>Cervical cancer: HPV DNA screening, starting at the age of 30 years with regular screening every 5 to 10 years (using a screen-and-treat approach or screen, triage and treat approach)</td>
</tr>
<tr>
<td>CA3</td>
<td>Cervical cancer: early diagnosis programs linked with timely diagnostic work-up and comprehensive cancer treatment</td>
</tr>
<tr>
<td>CA5</td>
<td>Breast cancer: early diagnosis programs linked with timely diagnostic work-up and comprehensive cancer treatment</td>
</tr>
<tr>
<td>CA6</td>
<td>Breast cancer: screening with mammography (once every 2 years for women aged 50-69 years) linked with timely diagnostic work-up and comprehensive breast cancer treatment in the settings where mammographic screening program is recommended</td>
</tr>
<tr>
<td>CA7</td>
<td>Basic palliative care for cancer: home-based and hospital care with multi-disciplinary team and access to opiates and essential supportive medicines</td>
</tr>
<tr>
<td>CA8</td>
<td>Prevention of liver cancer through hepatitis B immunization¹</td>
</tr>
<tr>
<td>CA9</td>
<td>Oral cancer: early detection programme of oral cancer, including, as appropriate, targeted screening programme for high-risk groups in selected settings, according to disease burden and health system capacities, linked with comprehensive cancer management</td>
</tr>
<tr>
<td>CA10</td>
<td>Population-based colorectal cancer screening, including through a faecal occult blood test, as appropriate, at age &gt;50 years, linked with timely treatment</td>
</tr>
<tr>
<td>CA11</td>
<td>Childhood cancer: early diagnosis programs linked with timely diagnostic work-up and comprehensive cancer treatment, focusing on the 6 index cancers of WHO Global Initiative for Childhood Cancer</td>
</tr>
<tr>
<td>CA12</td>
<td>Head and neck cancers: early diagnosis programs linked with timely diagnostic work-up and comprehensive cancer treatment</td>
</tr>
<tr>
<td>CA13</td>
<td>Prostate cancer: early diagnosis programs linked with timely diagnostic work-up and comprehensive cancer treatment</td>
</tr>
</tbody>
</table>

¹ Cost effectiveness in prevention of liver cancer is optimal in countries with high hepatitis B prevalence and especially with vaccination in early childhood and at birth, taking into account the feasibility and cost of vaccination
| CA14 | Early detection and comprehensive treatment of cancer for those living with HIV |
Identification of interventions

The interventions considered for analysis are drawn from the Package of Essential Non-Communicable Disease Interventions in low- and middle-income settings [1], as well as the previous update of the Appendix 3 interventions with WHO-CHOICE analysis [2] and new WHO guidelines [3, 4]. Proposed interventions have also been recommended as part of WHO cancer initiatives in breast, cervical and childhood cancers [5, 6, 7].

Methodological assumptions

- The impact of interventions was estimated with the WHO-IARC Tool, that follows the OneHealth Tool model [2] and as previously described in the 2020 WHO Report on Cancer: Setting priorities, investing wisely and providing care for all [8]
- The country specific distribution of the population at risk, stratified according to age-group and cancer risk from WHO and IARC datasets [11]
- Country-specific risk-factor prevalence data required for the risk prediction is sourced from the WHO Global Health Observatory and international collaborative consortia [12]
- Screening and Immunization programmes information about type, coverage, and performance according to country were sourced from 2020 WHO cancer country profiles and WHO Global Cancer Initiatives.
- Disability weights for each health condition were drawn from the Global Burden of Disease 2019 disability weight study and retrieved from the Institute for Health Metrics and Evaluation (IHME) database. [10]
- Modelled interventions effect changes in: rates of incidence to invasive cancer (e.g. screening); rates of diagnosis of invasive cancer (e.g. screening); rates of mortality (e.g. surgery) as well as timeliness of diagnosis/stage distribution
Table 1: Modelling assumptions used in WHO-CHOICE analysis

<table>
<thead>
<tr>
<th></th>
<th>Population (P), effect size of interventions (E) and outcomes (O)</th>
<th>Comments on evidence and main changes to 2017 analysis</th>
</tr>
</thead>
</table>
| CA1 | **P**: Adolescent girls 9 to 14 years old vaccination with one dose-schedule.  
**E**: HPV vaccination efficacy approximately 90% against CIN 2+, in line with WHO SAGE HPV position paper [13].  
**O**: Healthy-life years gained (HLY) through reduction pre-invasive and invasive cervical cancer incidence | Updated analysis (wording changed) to reflect SAGE recommendations for one- to two-dose scheduling.  
Updated baseline data based on HPV vaccine coverage (%) by country [14, 15]  
Introduction of HPV vaccination programmes targeting young people (e.g. through school and adolescent health services). Reduction on incidence rate of both grade 3 cervical intraepithelial neoplasia and invasive cervical cancer. [13] |
| CA2 | **P**: Women 30-49 years.  
**E**: Sensitivity and specificity of high-performance HPV test are: 88% and 75%, respectively with frequency of testing at 35 years old and 45 years old for general target population. [3,16].  
**O**: Healthy-life years gained (HLY) through reduction pre-invasive and invasive cervical cancer incidence | Update analysis with focus on high-performance HPV test in line with WHO guidelines for screening and treatment of cervical pre-cancer lesions [3] and in line with previous WHO modelling efforts [16].  
Screen and treat with a high-performance HPV test in line with WHO Global Cervical Cancer Elimination Initiative targets to: at least 70% screening coverage with a high-performance test at least twice lifetime followed by at least 90% effective treatment for pre-invasive lesions. [6] |
| CA3 | **P**: Women with invasive cervical cancer receiving treatment for stage I-IV disease identified through symptomatic presentation  
**E**: Impact of treatment measured by mortality reduction by stage are: 100% (stage I), 83% (stage II), 89% (stage III) and 88% (stage IV) [18,19].  
**O**: Healthy-life years gained (HLY) through reduction invasive cervical cancer deaths and reduction in disability weight | Stage distribution with intervention [17].  
Diagnosis with imaging to stage disease and histopathology confirmation followed by stage-specific multi-modality therapy including palliative and supportive care with stage-specific case fatality rates  
DW retrieved and updated from Global Burden of Disease 2019, and adjusted according to the disease stage [10]. |
| CA4 | **P**: Women with invasive breast cancer receiving treatment for stage I-IV disease identified through symptomatic presentation  
**E**: Impact of treatment measured by mortality reduction by stage are: 93% (stage I), 94% (stage II), 78% (stage III) [20-22].  
**O**: Healthy-life years gained (HLY) through reduction invasive breast cancer deaths and reduction in disability weight | Update analysis based on reference of 60% stage I and II disease; stage shift impact on mortality from population-based analysis [23].  
Diagnosis to treatment interval impact size from a large retrospective cohort. [24]  
Population-level awareness campaigns, primary care providers performing clinical breast cancer assessment, refer to and completion of multi-modality therapy without abandonment with 60% stage I and II disease and >90% treatment completion. |
<table>
<thead>
<tr>
<th>CA5</th>
<th><strong>P:</strong> Mammographic screening for asymptomatic women 50 to 69 years old, every 2 years, linked to timely referral, and treatment where screening program is recommended</th>
<th>Organized population-based mammographic screening programme with call-recall strategies, followed by referral to comprehensive treatment. Diagnosis with imaging to stage disease and histopathology confirmation followed by stage-specific multi-modality therapy including palliative and supportive care with stage-specific case fatality rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>E:</strong> Mammography sensitivity (76%), specificity (93%) [25, 26] performed every two years.</td>
<td>DW retrieved and updated from Global Burden of Disease 2019, and adjusted according to the disease stage [10].</td>
</tr>
<tr>
<td></td>
<td>Impact of treatment measured by mortality reduction by stage are: 93% (stage I), 94% (stage II), 78% (stage III) [20-22].</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>O:</strong> Healthy-life years gained (HLY) through reduction in breast cancer mortality and reduction in disability weight</td>
<td></td>
</tr>
<tr>
<td>CA6</td>
<td><strong>P:</strong> Individuals with colorectal cancer receiving treatment for stage I-IV disease, identified through symptomatic presentation</td>
<td>Stage distribution with intervention [17].</td>
</tr>
<tr>
<td></td>
<td><strong>E:</strong> Impact of treatment in mortality reduction by stage are: Stage I (88%), Stage II (90%), Stage III (96%), Stage IV (63%) [27-29].</td>
<td>Diagnosis with imaging to stage disease and histopathology confirmation followed by stage-specific multi-modality therapy (surgery, chemotherapy, radiotherapy) including palliative and supportive care with stage-specific case fatality rates</td>
</tr>
<tr>
<td></td>
<td><strong>O:</strong> Healthy-life years gained (HLY) through reduction on colon cancer mortality and reduction in disability weight</td>
<td>DW retrieved and updated from Global Burden of Disease 2019, and adjusted according to the disease stage [10].</td>
</tr>
<tr>
<td>CA7</td>
<td><strong>P:</strong> Individuals with stage IV breast, cervical and colorectal cancers receiving supportive care and without tumor-directed therapy</td>
<td>Supportive care therapies including pain relief, anti-nausea, bowel regiment, physical therapies and others [17]</td>
</tr>
<tr>
<td></td>
<td><strong>E:</strong> None</td>
<td>DW retrieved and updated from Global Burden of Disease 2019, and adjusted according to the disease stage [10].</td>
</tr>
<tr>
<td></td>
<td><strong>O:</strong> None</td>
<td></td>
</tr>
<tr>
<td>CA8</td>
<td><strong>P:</strong> General population eligible for birth-dose vaccination with hepatitis B vaccine</td>
<td>First analysis of existing intervention</td>
</tr>
<tr>
<td></td>
<td><strong>E:</strong> Impact of vaccine is incidence reduction of hepatocellular carcinoma by 60.1% [30]</td>
<td>Hepatitis B vaccine birth-dose, administered within 24 hours after birth.</td>
</tr>
<tr>
<td></td>
<td><strong>O:</strong> Healthy-life years gained (HLY) through reduction in liver cancer incidence by 60%.</td>
<td>Effect does not include mortality from other hepatitis-B associated causes such as fulminant hepatic failure and chronic liver diseases.</td>
</tr>
</tbody>
</table>
| CA9 | **P:** Individuals ≥ 35 years considered high-risk individuals - regular tobacco and/or alcohol consumption individuals.  

**E:** Impact of intervention [31, 32]:  
38% reduction in incidence  
20% reduction in late-stage disease  
24% reduction in mortality  

Impact of treatment in mortality reduction by stage are:  
Stage I (24%), Stage II (24%), Stage III (26%), Stage IV (24%) [33-36].  

**O:** Healthy-life years gained (HLY) through reduction in oral cancer incidence and mortality and reduction in disability weight.  

| First analysis of existing intervention  

Results from clustered-cohort randomized and prospective study and in line with consensus from IARC and WHO in line with planned IARC handbook on oral cancer.  

Stage distribution with intervention: [33-36].  

Organized population-based oral cancer screening programme, using oral visual examination, with call-recall strategies, followed by cytopathology and/or histopathology of identified lesion and, as appropriate, referral to comprehensive treatment. Screening strategy is one oral cavity examination every 3 years, totally 4 rounds over 10-20 years, performed by trained health professionals. Diagnosis with imaging to stage disease and histopathology confirmation followed by stage-specific multimodality therapy including palliative and supportive care with stage-specific case fatality rates  

DW retrieved and updated from Global Burden of Disease 2019, and adjusted according to the disease stage [10]. |
| --- | --- |
| CA10 | **P:** All individuals, ≥ 50 to 75 years, who do not have contra-indication to colorectal cancer screening, linked to timely referral, and treatment for screen-detected and non-screen detected cancers using screening modality according to health system complexity [37]  

**E:** Impact of intervention [37, 38]:  
5% reduction in colorectal cancer incidence  
20% reduction in late-stage disease  

Impact of treatment in mortality reduction by stage are:  
Stage I (94%), Stage II (94%), Stage III (91%), Stage IV (37%) [27-29]  

**O:** Healthy-life years gained (HLY) through reduction in colorectal cancer incidence and mortality and reduction in disability weight  

| First analysis of existing intervention  

Sensitivity and specificity of high-sensitivity FOBT are: 88% and 75% [37]  

Stage distribution with intervention: [17].  

Yearly screening with high-sensitivity fecal occult blood test (FOBT) or endoscopy according to health system complexity [38-40]. Diagnostic examination that includes endoscopy and, as appropriate, histopathology confirmation. Diagnosis with imaging to stage disease and histopathology confirmation followed by stage-specific multimodality therapy including palliative and supportive care with stage-specific case fatality rates  

DW retrieved and updated from Global Burden of Disease 2019, and adjusted according to the disease stage [10]. |
| CA11 | **P:** Children (0 – 19 years old) with invasive cancer receiving treatment identified through symptomatic presentation  
**E:** Average impact of treatment in mortality reduction by stage across the 6 index cancers is: Stage I (72%), Stage II (84%), Stage III (96%) [5, 41, 42].  
**O:** Healthy-life years gained (HLY) through reduction in childhood cancer mortality and reduction in disability weight | **New analysis**  
Diagnosis with imaging to stage disease and histopathology confirmation followed by stage-specific multi-modality therapy (surgery, chemotherapy, radiotherapy) including palliative and supportive care with stage-specific case fatality rates  
DW retrieved and updated from Global Burden of Disease 2019, and adjusted according to the disease stage [10]. |
| --- | --- | --- |
| CA12 | **P:** Individuals with invasive head and neck cancer receiving treatment for stage I-IV disease identified through symptomatic presentation, focusing on oral cancer as proxy for head and neck cancers  
**E:** Impact of treatment in mortality reduction by stage are: Stage I (24%), Stage II (24%), Stage III (26%), Stage IV (24%) [32-36].  
**O:** Healthy-life years gained (HLY) through reduction in head and neck (oral) cancer mortality and reduction in disability weight | **New analysis**  
Stage distribution with intervention: [31].  
Diagnosis with imaging to stage disease and histopathology confirmation followed by stage-specific multi-modality therapy (surgery, chemotherapy, radiotherapy) including palliative and supportive care with stage-specific case fatality rates  
DW retrieved and updated from Global Burden of Disease 2019, and adjusted according to the disease stage [10]. |
| CA13 | **P:** Men with invasive prostate cancer receiving treatment for stage I-IV disease identified through symptomatic presentation  
**E:** Impact of treatment in mortality reduction by stage are: Stage I (94%), Stage II (94%), Stage III (97%), Stage IV (93%) [43, 44].  
**O:** Healthy-life years gained (HLY) through reduction prostate cancer mortality and reduction in disability weight | **New analysis**  
Stage distribution with intervention: [45].  
Diagnosis with imaging to stage disease and histopathology confirmation followed by stage-specific multi-modality therapy (surgery, chemotherapy, radiotherapy) including palliative and supportive care with stage-specific case fatality rates  
DW retrieved and updated from Global Burden of Disease 2019 and adjusted according to the disease stage [10]. |
| CA14 | **P:** People living with HIV who are diagnosed with HIV-defining cancer (particularly, cervical cancer and Kaposi’s sarcoma) receiving treatment for stage I-IV disease identified through symptomatic presentation  
**E:** Impact of treatment in mortality reduction for Kaposi’s sarcoma by stage are: Stage I (93%), Stage II (89%), Stage III (68%), Stage IV (82%) [46, 47].  
Cervical cancer treatment impact measured by mortality reduction by stage are: 78% (stage I), 68% (stage II), 65% (stage III) and 55% (stage IV) [17-19]. | **New analysis**  
Comments on evidence for cervical cancer summarized in CA3  
Kaposi’s stage distribution [48].  
Diagnosis with imaging to stage disease and histopathology confirmation followed by stage-specific HIV-HAART Highly Active Antiretroviral Therapy and cancer-directed, multi-modality therapy (surgery, chemotherapy, radiotherapy) including |
O: Healthy-life years gained (HLY) through reduction in HIV-associated cancers mortality and reduction in disability weight

palliative and supportive care with stage-specific case fatality rates

DW retrieved and updated from Global Burden of Disease 2019, and adjusted according to the disease stage [10].

Table 2: Costing assumptions used in WHO-CHOICE analysis

- Data on quantities obtained from PEN protocol, literature and expert opinion [1].
- Data on prices obtained from UNICEF and MSH price indicator (median seller price) [49-50]
- Activity costs include management of treatment-related complications and toxicities such as surgical infection, radiotherapy-associated mucositis, neutropenic fevers, and malnutrition

<table>
<thead>
<tr>
<th>Major costing assumptions</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA1 Visits:</td>
<td></td>
</tr>
<tr>
<td>• Introduction of HPV vaccination programmes targeting young people (e.g. through school and adolescent health services). One outpatient visit</td>
<td></td>
</tr>
<tr>
<td>Medicines:</td>
<td></td>
</tr>
<tr>
<td>• Vaccine (1 dose)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Data on vaccine price and programme costs from GAVI/UNICEF and from WHO PRIME model [52-53].</td>
</tr>
<tr>
<td>CA2 Visits:</td>
<td></td>
</tr>
<tr>
<td>• Outpatient visit: two visits for LMIC and UMIC; one visit for screen-and-treat approach for LIC</td>
<td></td>
</tr>
<tr>
<td>Medicines and supplies required per patient:</td>
<td></td>
</tr>
<tr>
<td>• High-performance HPV test (every 5-10 years), at least two in a lifetime</td>
<td></td>
</tr>
<tr>
<td>Equipment, supply and laboratory tests:</td>
<td></td>
</tr>
<tr>
<td>• Cryotherapy: for those with positive findings on HPV test (and/or those with positive triage test). Cryosurgical system, mechanical; N₂O gas</td>
<td></td>
</tr>
<tr>
<td>• Thermal ablation: for those with positive findings on HPV test (and/or those with positive triage test)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HPV test and programme costs from WHO cervical cancer investment cases [6, 16, 54]</td>
</tr>
<tr>
<td></td>
<td>Thermal ablation costs from WHO cervical cancer investment case [54]</td>
</tr>
<tr>
<td></td>
<td>Programme monitoring and evaluation, call and recall mechanism [55]</td>
</tr>
<tr>
<td>CA3 Visits:</td>
<td></td>
</tr>
<tr>
<td>• Inpatient visits: 6 visits for stage I; 2 visits for stage II</td>
<td></td>
</tr>
<tr>
<td>• Outpatient visits: 6 visits for stage I; 30 visits for stage II</td>
<td></td>
</tr>
<tr>
<td>• Additional 20 visits (twice/year) for surveillance</td>
<td></td>
</tr>
<tr>
<td>Medicines required per patient:</td>
<td>Data on radiotherapy costs from existing publication [17, 56-58]</td>
</tr>
</tbody>
</table>
- Concurrent cisplatin with radiotherapy 6 cycles/dosis of chemotherapy (weekly based regimen)
- Management of chemotherapy-associated nausea with ondansetron, or equivalent

**Laboratory tests per patient:**
- Pre-treatment tests and staging studies when indicated including x-ray and ultrasound

**Equipment:**
- Pre-treatment diagnostic studies when indicated including cross-sectional imaging (eg, CT scan) and ultrasound.
- Surgical equipment: hysterectomy set; cone biopsy including biopsy forceps
- Radiotherapy including brachytherapy: machine and supports/boards

<table>
<thead>
<tr>
<th>CA4</th>
<th>Visits:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inpatient visits: 2 visits</td>
</tr>
<tr>
<td></td>
<td>Outpatient visits: 6 visits for Stage I and 10 visits for Stage II during the treatment + additional 5 visits for surveillance</td>
</tr>
</tbody>
</table>

**Medicines required per patient:**
- Adjuvant systemic therapy including doxorubicin, cyclophosphamide and paclitaxel per 4 cycles or equivalent regimen
- Hormone therapy with tamoxifen and aromatase inhibitor, or equivalent
- Management of neutropenia and chemotherapy-associated nausea including filgrastim, ondansetron and dexamethasone, and antibiotics according to protocol

**Equipment, supply and laboratory tests:**
- Diagnostic imaging including bilateral mammogram and/or ultrasound as appropriate
- Biopsy equipment, specimen fixative and staining,
- Pre-treatment tests and staging studies when indicated including x-ray and ultrasound.
- Surgical equipment: hysterectomy set; cone biopsy including biopsy forceps

<table>
<thead>
<tr>
<th>CA5</th>
<th>Visits:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inpatient visits: 9 days</td>
</tr>
</tbody>
</table>

Data on radiotherapy costs from existing publication [17, 56-58]

Programme monitoring and evaluation, call and recall mechanism [55]
- Outpatient visits: 10 visits (lifetime screening period); 8-10 visits (depending on stage of diagnosis); additional 5 visits for surveillance

**Medicines required per patient:**
- Adjuvant systemic therapy including doxorubicin, cyclophosphamide and paclitaxel per four cycles or equivalent regimen
- Hormone therapy with tamoxifen and aromatase inhibitor, or equivalent for five years
- Management of neutropenia and chemotherapy-associated nausea including filgrastim, ondansetron and dexamethasone, and antibiotics according to protocol

**Equipment, supply and laboratory tests:**
- Diagnostic imaging: bilateral mammogram
- Biopsy equipment: specimen fixative and staining
- Pre-treatment tests and staging studies when indicated including x-ray and ultrasound.
- Chemotherapy equipment: Infusion giving set, sterile, single use; Baxter elastomeric pump
- Surgical equipment: modified radical mastectomy and/or lumpectomy (select), as appropriate

<table>
<thead>
<tr>
<th>CA6</th>
<th>Visits:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inpatient visits: 7 days</td>
</tr>
<tr>
<td></td>
<td>Outpatient visits: 8-30 visits (depending on stage of diagnosis); additional 4 visits per year for 5 years for surveillance</td>
</tr>
</tbody>
</table>

**Medicines required per patient:**
- Adjuvant systemic therapy for colon cancer: capecitabine and oxaliplatin for select patients with Stage II colon cancer (high-risk), 12 cycles, or equivalent regimen
- Neoadjuvant systemic therapy for rectal cancer: capecitabine and radiotherapy for high-risk selected patients with Stage II rectal cancer, 06 cycles, or equivalent regimen
- Adjuvant chemotherapy for Stage II rectal cancer for high-risk selected patients: 5-FU, oxaliplatin and leucovorin for 06 cycles, or equivalent regimen
- Management of complications and toxicities including surgical infection, and chemotherapy-associated nausea that includes antibiotics, and ondansetron

**Equipment, supply and laboratory tests:**
- Diagnostic imaging: cross-sectional imaging with CT scan
- Diagnostic pathology: Biopsy equipment, specimen fixative and staining
- Chemotherapy equipment: Infusion giving set, sterile, single use; Baxter elastomeric pump

Data on radiotherapy costs from existing publication [17, 56-58]
<table>
<thead>
<tr>
<th>CA7</th>
<th>Visits:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Outpatient visits: 4 visits</td>
</tr>
</tbody>
</table>

Medicines required per patient:
- Medicines for symptoms management (including pain, relief, anti-nausea, bowel regimen, physical therapies and others), according to the WHO 22nd EML 2021 and WHO Guidelines [59-61].

<table>
<thead>
<tr>
<th>CA8</th>
<th>Visits:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Outpatient visits: 3 visits</td>
</tr>
</tbody>
</table>

Medicines required per patient:
- Birth dose hepatitis B vaccine: 3 doses

Vaccines costs per dose retrieved from UNICEF database [62]

<table>
<thead>
<tr>
<th>CA9</th>
<th>Visits:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inpatients visits: 8 visits</td>
</tr>
<tr>
<td></td>
<td>Outpatient visits: 35 visits</td>
</tr>
</tbody>
</table>

Medicines required per patient:
- Adjuvant systemic therapy concurrent with radiotherapy: Cisplatin 3 cycles, or equivalent (for selected high relapse risk, positive margins, extra-nodal extension, or irresectable oral cancers as definitive treatment) [63]

Equipment, supply and laboratory tests: [63]
- Screening tests: light-based clinical examination with biopsy as indicated
- Diagnostic imaging: cross-sectional imaging with CT scan
- Diagnostic pathology: formalin, H&E staining
- Surgical equipment: instruments for glossectomy/hemi-maxillectomy, mandibulectomy, or other wide local excision
- Neo- or adjuvant radiotherapy (for margin positive resections)
- Enteral nutrition support: including solution of 4 bottles/day (4 days) and/or nasogastric tube (1 unit)

<table>
<thead>
<tr>
<th>CA10</th>
<th>Visits:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inpatient visits: 7 day</td>
</tr>
<tr>
<td></td>
<td>Outpatient visits: 8-30 visits (depending on stage of diagnosis); additional 4 visits per year for 5 years for surveillance</td>
</tr>
</tbody>
</table>

Programme monitoring and evaluation, call and recall mechanism [55]
Medicines required per patient:

- Adjuvant systemic therapy for colon cancer with capecitabine and oxaliplatin for select patients with Stage II colon cancer (high-risk), 12 cycles, or equivalent
- Neoadjuvant systemic therapy for rectal cancer such as capecitabine and radiotherapy for select patients with Stage II rectal cancer, 6 cycles, or equivalent
- Adjuvant chemotherapy with 5-FU, oxaliplatin and leucovorin for 6 cycles – for select patients with Stage II rectal cancer, or equivalent
- Management of complications and toxicities including surgical infection, neutropenia and chemotherapy-associated nausea that includes antibiotics, filgrastim and ondansetron

Equipment, supply and laboratory tests: [63]

- Screening tests: high-performance using fecal occult blood test [39]
- Diagnostic imaging and endoscopy: diagnostic endoscopy including colonoscopy and/or flexible sigmoidoscopy. Imaging with cross-sectional imaging with CT scan
- Diagnostic pathology: formalin, H&E staining
- Surgical equipment: instruments for hemicolectomy
- Adjuvant radiotherapy (for select rectal cancer): cost inputs include machine and supports/boards
- Enteral nutrition support: including solution of 4 bottles/day (4 days) or nasogastric tube (1 unit): post-surgery and during radiotherapy, according to nutritional evaluation demand

CA11 Visits:

- Inpatient visits: 7 visits
- Outpatient visits: 8-60 visits (depending on stage of diagnosis and cancer site); additional 4 visits per year for 3 years for surveillance, and after once a year until 5 years

Medicines required per patient:

- Childhood cancer medicines required for six index cancers as specified in the WHO Global Initiative for Childhood Cancer

Equipment, supply and Laboratory Tests: [63]

- Diagnostic imaging: cross-sectional imaging with X-Ray, Ultrasound.
- Diagnostic pathology: formalin, H&E staining
- Bone marrow aspiration, Lumbar puncture
- Cytology and flow cytometer analysis, and specific staining, If resources appropriate and might guide treatment and more accurately define prognosis
- Radiotherapy (for select cancers, according to risk): cost inputs include machine and supports/boards, and sedation

CA12 Visits:

- Inpatients visits: 8 visits
• Outpatient visits: 35 visits

Medicines required per patient:
• Adjuvant systemic therapy concurrent with radiotherapy: Cisplatin 3 cycles, or equivalent (for selected high relapse risk, positive margins, extra-nodal extension, or irresectable oral cancers as definitive treatment)

Equipment, supply and laboratory tests: [63]
• Diagnostic imaging: cross-sectional imaging with CT scan
• Diagnostic pathology: formalin, H&E staining
• Surgical equipment: Glossectomy/ Hemi-maxillectomy/ Mandibulectomy/ Other wide local excision of oral/ Neck dissection or equivalent (100%)
• Adjuvant Radiotherapy (for margin positive - 21% Stage I, 36% Stage II); radiotherapy including machine and supports/boards
• Enteral nutrition support: including solution of 4 bottles/day (4 days) or nasogastric tube (1 unit): post-surgery and during radiotherapy, according to nutritional evaluation demand

CA13 Visits:
• Inpatients visits: 2-4 visits depending on stage of diagnosis
• Outpatient visits: 6-32 visits depending on stage of diagnosis
• Medicines required per patient:
• Adjuvant: Hormone Therapy (LHRH analogue for 6 to 12 months, according to risk stratification)

Equipment, supply and laboratory tests: [63]
• Diagnostic imaging and endoscopy: cross-sectional imaging with ultrasound; diagnostic endoscopy including colonoscopy and/or flexible sigmoidoscopy. Imaging with cross-sectional imaging with CT scan
• Diagnostic pathology: formalin, H&E staining
• Surgical equipment: instruments for prostatectomy (open or laparoscopic).
• Adjuvant radiotherapy (according to relapse risk)

CA14 Kaposi Sarcoma

Visits:
• Inpatients visits: 2-4 visits depending on stage of diagnosis
• Outpatient visits: 6-32 visits depending on stage of diagnosis

Medicines required per patient:

Costs associated with HIV care included [2, 63]
- HAART (Highly active antiretroviral therapy) according to appropriate HIV guidelines and patients with symptomatic/visceral disease
- Systemic chemotherapy with Bleomycin, Doxorubicin, Vincristine, or equivalent, for selected patients symptomatic/visceral disease patients

**Equipment, supply and laboratory tests:**
- Diagnostic imaging and endoscopy: diagnostic endoscopy including colonoscopy and/or flexible sigmoidoscopy for gastrointestinal bleeding patients. Imaging with cross-sectional imaging with CT scan

**Cervical Cancer**

**Visits:**
- Inpatient visits: 6 visits for stage I; 2 visits for stage II
- Outpatient visits: 6 visits for stage I; 30 visits for stage II
- Additional 20 visits (twice/year) for surveillance

**Medicines required per patient:**
- Concurrent cisplatin with radiotherapy 6 cycles/dosis of chemotherapy (weekly based regimen)
- Management of chemotherapy-associated nausea with ondansetron, or equivalent

**Laboratory tests per patient:**
- Pre-treatment tests and staging studies when indicated including x-ray and ultrasound

**Equipment:**
- Pre-treatment diagnostic studies when indicated including cross-sectional imaging (eg, CT scan) and ultrasound.
- Surgical equipment: hysterectomy set; cone biopsy including biopsy forceps
- Radiotherapy including brachytherapy: machine and supports/boards
References


[2] OneHealth Tool. Supporting integrated strategic health planning, costing and health impact analysis. Available at: https://www.who.int/tools/onehealth


