"ION CHIRICUȚĂ" ONCOLOGY INSTITUTE
CLUJ-NAPOCA

REPORT
IN FACTS AND FIGURES

2009-2013
“PROF. DR. ION CHIRICUȚĂ”
ONCOLOGY INSTITUTE
CLUJ-NAPOCA

REPORT IN FACTS AND FIGURES

2009-2013

“Prof. Dr. Ion Chiricuță” Oncology Institute
85th Anniversary

Membru al Organizației Institutelor Europene de Cancer “OEIC”
Prof. Dr. Iuliu Moldovan

The Institute for Research and Prevention of Cancer (1929)

Membru al Organizației Institutelor Europene de Cancer “OECI”
::: GENERAL PRESENTATION :::

The “Prof. Dr. Ion Chiricuta” Institute of Oncology (IOCN) was established in 1929 by Prof. Dr. Iuliu Moldovan, under the name of “The Institute for Research and Prevention of Cancer”. It is one of the first cancer centres in Europe. Starting with 1965, the Institute went through a period of modernization, initiated by Professor Ion Chiricuta. This is the reason why ever since 10.08.1990, it has borne the name of “Ion Chiricuta” Oncology Institute.

During its 85 years of existence, the Oncology Institute has fulfilled a major role in the oncologic care of patients from the entire country, as well as in the conscience formation and cancer education of many generations of physicians of the most diverse specialties.

The Institute of Oncology is a comprehensive cancer centre of national public interest, with legal personality, subordinated to the Ministry of Public Health. At the same time, the Institute provides preventive, curative and palliative medical services in the oncology field and carries out education and research activities.

In 2007, IOCN was the first oncology centre in Romania to become a full member of the Organization of European Cancer Institutes (OECI).

**Mission**

Our mission is to contribute to the decrease of effects that cancer has in Romania. In this respect, we implement projects that deal with patient care, prevention and research, the continuous education of all professionals involved, as well as of the public.

**Vision**

Our vision for the future is to become the top cancer centre both at national and regional level. This is entirely possible, considering the quality of our organization, the excellence in patient care, the research quality, as well as the education provided.
Our values

- Respect for patients
- Continuous improvement of patient care quality
- Professionalism
- Confidentiality
- Team work
- Education, research, creativity, innovation

ISO Certification

::: MILESTONES ::: 

1929 – “Institute for Research and Prevention of Cancer”
1955 – Hospital-Based Cancer Registry
1958 – Prof. Ion Chiricuță is appointed Director of the Institute

The construction of the new building

1964 – The old Institute moves to the “new building”
1974 – Population-Based Cluj County Cancer Registry
2002 – Start of the Cervical Cancer Screening Program
2003 – Cluj Cancer Registry – a member of ENCR and IACR, August 2003 - International Course for Cancer Registries and CanReg 4 training - organized by ENCR in Cluj, for South-Eastern Cancer Registries
2007 – October: The Institute becomes a full member of OECI - Organization of European Cancer Institutes
2008 – Foundation of the N-W Regional Cancer Registry (6 counties, 3 million people), by MoH Order 2027/2007 – “Cancer registration and foundation of 8 regional cancer registries”


2010 – The Institute is accredited by the National Authority for Scientific Research, receiving 640 points, the highest score in the country


STAFF AND FACILITIES

Board of Directors
General Director
Patriciu Achimaș-Cadariu, MD-PhD, Assoc. Prof.

Medical Director
Anca Bojan, MD-PhD, Assoc. Prof.

Financial Accounting Director
Anca Meda Burcă

Research Director
Ioana Neagoe, Assist. Prof., PhD

Human resources Director
Carolina Popescu

Nursing Director
Lenuța Lucaci

Administrative Director
Cristian Nemeș

Medical Information Director
Marilena Cheptea

Legal Counselor
Casandra Coci

Employees 738
Medical staff 165 (73 residents)

Nurses 218
Physicists 12
Pharmacists 3
Research scientists 26
Linear accelerators 2
Cobalt Therapy unit 1
Brachytherapy sources 2
Operating rooms 8
Total number of cancer cases (2009-2013): 34,368 new cases / 33,545 patients (823 multiple primaries)  

vs  

Total number of new patients addressed to IOCN (2009-2013): 72,068  

Population served: 2,710,545 in Transylvania  

Preclinical/clinical research and Clinical Trial Centre  

Multidisciplinary teams – 9  

Collaboration in primary prevention: cervical, breast, colorectal cancer  

Screening program – Cervix

**Education**  

Annual number of students 480  
Annual number of doctors in training 75  
Annual number of PhD students 20  
Annual number of PhD theses 5  
Number of disciplines 4
::: RESEARCH :::

Directions

• promoting excellence in research
• building an infrastructure that can support research studies, as well as opportunities for partners, cooperating bodies and other interested Romanian and foreign users
• discovering new research domains in the fight against cancer, starting by understanding the human genome and the genetics of malignant cells and continuing by identifying new diagnostic methods or markers
• using high performance technologies in order to attain scientific quality
• strengthening the international cooperation
• educating professionals in the field of scientific research
• promoting and supporting a high-quality publication, dedicated to the national and international scientific community
• regular evaluation of scientific research results
Research

Clinical trial unit
Cancer epidemiology unit
Cancer research department
Research scientists 26
Ongoing clinical trials 52
Ongoing research projects 13

Outcomes of the last 4 years: 34 completed research projects, 221 ISI publications

Research projects

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of projects</th>
<th>Amount</th>
</tr>
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<tbody>
<tr>
<td>2009</td>
<td>7</td>
<td>1,000,000 Euro</td>
</tr>
<tr>
<td>2010</td>
<td>3</td>
<td>395,639 Euro</td>
</tr>
<tr>
<td>2011</td>
<td>3</td>
<td>378,557 Euro</td>
</tr>
<tr>
<td>2012</td>
<td>7</td>
<td>694,677 Euro</td>
</tr>
<tr>
<td>2013</td>
<td>7</td>
<td>468,014 Euro</td>
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Publications

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
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<tr>
<td>2009</td>
<td>28</td>
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<td>2010</td>
<td>54</td>
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<tr>
<td>2011</td>
<td>46</td>
</tr>
<tr>
<td>2012</td>
<td>46</td>
</tr>
<tr>
<td>2013</td>
<td>47</td>
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</table>
FUNCTIONAL STRUCTURE

Department of Oncologic Surgery
200 beds including the following medical wards:

<table>
<thead>
<tr>
<th>Ward</th>
<th>Personnel</th>
<th>Number of beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oncologic Surgery I</td>
<td>35</td>
<td>70</td>
</tr>
<tr>
<td>Oncologic Surgery II</td>
<td>34</td>
<td>78</td>
</tr>
<tr>
<td>ENT</td>
<td>13</td>
<td>20</td>
</tr>
<tr>
<td>Urology</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Intensive Care</td>
<td>43</td>
<td>20</td>
</tr>
<tr>
<td>Operating Block</td>
<td>49</td>
<td></td>
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</tbody>
</table>

Department of Medical Oncology:
160 beds (including the Palliative Care Unit – 8 beds)

<table>
<thead>
<tr>
<th>Ward</th>
<th>Personnel</th>
<th>Number of beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Oncology</td>
<td>29</td>
<td>64</td>
</tr>
<tr>
<td>Paediatric Oncology</td>
<td>25</td>
<td>40</td>
</tr>
<tr>
<td>Clinical Haematology</td>
<td>52</td>
<td>56</td>
</tr>
</tbody>
</table>

Department of Radiotherapy: 175 beds

<table>
<thead>
<tr>
<th>Ward</th>
<th>Personnel</th>
<th>Number of beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiotherapy I</td>
<td>30</td>
<td>63</td>
</tr>
<tr>
<td>Radiotherapy II</td>
<td>16</td>
<td>34</td>
</tr>
<tr>
<td>Radiotherapy III</td>
<td>32</td>
<td>78</td>
</tr>
<tr>
<td>Laboratory of Radiotherapy</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Laboratory of Radiology and Medical Imaging</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Nuclear Medicine Laboratory</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Pathology Laboratory</td>
<td>32</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL Personnel | Number of beds |
----------------|----------------|
465            | 597 (62 daycare hospital)
Other units:

- **Daycare hospital**: personnel 10
- **Outpatient clinics**: personnel 8
  - Oncologic Surgery
  - ENT
  - Oncologic Gynaecology
  - Urology
  - Radiotherapy
  - Haematology
  - Small surgery unit
  - Psychology
  - Endocrinology starting with 2014
- **Pharmacy**: personnel 19
- **Prevention and control of nosocomial infections unit**: 2
- **Medical record keeping and information processing unit**: 34
- **Research Department**: personnel 31
- **Administrative Department**: personnel 93
- **Residents**: 73
<table>
<thead>
<tr>
<th>YEAR</th>
<th>REVENUES / YEAR</th>
<th>EUR</th>
<th>2009</th>
<th>Value 20.476.624</th>
<th>Percentage 100%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9.479.351</td>
<td>46%</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>6.077.740</td>
<td>30%</td>
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<tr>
<td>REVENUES / YEAR</td>
<td>EUR</td>
<td>2010</td>
<td>Value 18.147.272</td>
<td>Percentage 100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.176.188</td>
<td>62%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.177.695</td>
<td>30%</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>5.177.695</td>
<td>30%</td>
</tr>
<tr>
<td>REVENUES / YEAR</td>
<td>EUR</td>
<td>2011</td>
<td>Value 24.819.001</td>
<td>Percentage 100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.698.919</td>
<td>42%</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.506.466</td>
<td>42%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.315.000</td>
<td>5%</td>
</tr>
<tr>
<td>REVENUES / YEAR</td>
<td>EUR</td>
<td>2012</td>
<td>Value 34.341.313</td>
<td>Percentage 100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.637.973</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18.935.171</td>
<td>55%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.855.511</td>
<td>2%</td>
</tr>
<tr>
<td>REVENUES / YEAR</td>
<td>EUR</td>
<td>2013</td>
<td>Value 43.117.611</td>
<td>Percentage 100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14.753.446</td>
<td>34%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>26.570.241</td>
<td>62%</td>
</tr>
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<td></td>
<td>1.984.000</td>
<td>0%</td>
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<tr>
<td>BUDGET OF REVENUES 2009 - 2013</td>
<td>EUR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenses / Year</td>
<td>Total</td>
<td>Personnel</td>
<td>Medicine</td>
<td>Sanitary Supplies</td>
<td>Investments - Equipments</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
<td>-----------</td>
<td>------------</td>
<td>-------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>2009 Value</td>
<td>21,235,121</td>
<td>6,291,036</td>
<td>7,073,925</td>
<td>459,616</td>
<td>3,064,661</td>
</tr>
<tr>
<td>Percentage</td>
<td>100%</td>
<td>30%</td>
<td>33%</td>
<td>2%</td>
<td>14%</td>
</tr>
<tr>
<td>2010 Value</td>
<td>18,670,127</td>
<td>6,056,997</td>
<td>7,399,589</td>
<td>775,210</td>
<td>340,044</td>
</tr>
<tr>
<td>Percentage</td>
<td>100%</td>
<td>32%</td>
<td>40%</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>2011 Value</td>
<td>25,065,405</td>
<td>5,290,958</td>
<td>12,441,621</td>
<td>997,667</td>
<td>971,132</td>
</tr>
<tr>
<td>Percentage</td>
<td>100%</td>
<td>21%</td>
<td>50%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>2012 Value</td>
<td>34,676,546</td>
<td>5,591,968</td>
<td>20,454,307</td>
<td>733,427</td>
<td>2,356,877</td>
</tr>
<tr>
<td>Percentage</td>
<td>100%</td>
<td>16%</td>
<td>50%</td>
<td>2%</td>
<td>7%</td>
</tr>
<tr>
<td>2013 Value</td>
<td>43,639,670</td>
<td>6,364,370</td>
<td>28,276,498</td>
<td>727,812</td>
<td>1,545,693</td>
</tr>
<tr>
<td>Percentage</td>
<td>100%</td>
<td>15%</td>
<td>65%</td>
<td>2%</td>
<td>4%</td>
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</tbody>
</table>
### CLINICAL ACTIVITY IN FIGURES

#### Number of new patients

<table>
<thead>
<tr>
<th>Year</th>
<th>Cluj County</th>
<th>Year</th>
<th>Cluj County</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>16,146</td>
<td>2010</td>
<td>14,641</td>
</tr>
<tr>
<td></td>
<td>3,902 (24.17%)</td>
<td></td>
<td>3,330 (22.74%)</td>
</tr>
<tr>
<td>2011</td>
<td>14,021</td>
<td>2012</td>
<td>13,809</td>
</tr>
<tr>
<td></td>
<td>3,113 (22.21%)</td>
<td></td>
<td>3,248 (23.52%)</td>
</tr>
<tr>
<td>2013</td>
<td>13,450</td>
<td></td>
<td>3,221 (23.94%)</td>
</tr>
</tbody>
</table>

#### Number of consultations

<table>
<thead>
<tr>
<th>Speciality</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery</td>
<td>18,631</td>
<td>19,080</td>
<td>16,584</td>
<td>16,081</td>
<td>17,559</td>
</tr>
<tr>
<td>ENT</td>
<td>2,845</td>
<td>2,563</td>
<td>2,411</td>
<td>2,078</td>
<td>1,960</td>
</tr>
<tr>
<td>Urology</td>
<td>1,245</td>
<td>1,979</td>
<td>2,594</td>
<td>2,677</td>
<td>2,199</td>
</tr>
<tr>
<td>Radiotherapy I</td>
<td>38,627</td>
<td>41,700</td>
<td>33,555</td>
<td>40,065</td>
<td>13,134</td>
</tr>
<tr>
<td>Radiotherapy II</td>
<td>8,014</td>
<td>8,097</td>
<td>9,475</td>
<td>10,809</td>
<td>17,781</td>
</tr>
<tr>
<td>Radiotherapy III</td>
<td>7,625</td>
<td>7,258</td>
<td>9,222</td>
<td>8,151</td>
<td>1,807</td>
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<tr>
<td>Medical oncology</td>
<td>12,469</td>
<td>12,665</td>
<td>19,555</td>
<td>18,333</td>
<td>42,269</td>
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<tr>
<td>Paediatrics</td>
<td>2,247</td>
<td>8,330</td>
<td>1,769</td>
<td>1,851</td>
<td>8,072</td>
</tr>
<tr>
<td>Haematology</td>
<td>6,440</td>
<td>2,111</td>
<td>9,904</td>
<td>11,459</td>
<td>9,307</td>
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</table>
Number of transfusions and events regarding the administration of blood

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of transfusions</td>
<td>12,504</td>
<td>12,578</td>
<td>14,534</td>
<td>14,522</td>
<td>13,660</td>
</tr>
<tr>
<td>No. of patients</td>
<td>2,609</td>
<td>1,982</td>
<td>1,958</td>
<td>2,131</td>
<td>2,484</td>
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</table>
Distribution of malignant cases according to pathology

<table>
<thead>
<tr>
<th>Pathology</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female genital</td>
<td>1,638</td>
<td>1,704</td>
<td>1,708</td>
<td>1,773</td>
<td>1,535</td>
<td>22.68</td>
</tr>
<tr>
<td>Breast</td>
<td>1,450</td>
<td>1,456</td>
<td>1,554</td>
<td>1,501</td>
<td>1,446</td>
<td>21.37</td>
</tr>
<tr>
<td>Digestive</td>
<td>903</td>
<td>832</td>
<td>849</td>
<td>752</td>
<td>755</td>
<td>11.15</td>
</tr>
<tr>
<td>Respiratory</td>
<td>653</td>
<td>546</td>
<td>552</td>
<td>520</td>
<td>516</td>
<td>7.62</td>
</tr>
<tr>
<td>Endocrine</td>
<td>466</td>
<td>473</td>
<td>509</td>
<td>537</td>
<td>577</td>
<td>8.52</td>
</tr>
<tr>
<td>Haematology</td>
<td>425</td>
<td>538</td>
<td>394</td>
<td>407</td>
<td>349</td>
<td>5.15</td>
</tr>
<tr>
<td>Skin</td>
<td>372</td>
<td>359</td>
<td>343</td>
<td>386</td>
<td>349</td>
<td>5.15</td>
</tr>
<tr>
<td>Male genital</td>
<td>331</td>
<td>352</td>
<td>319</td>
<td>338</td>
<td>279</td>
<td>4.12</td>
</tr>
<tr>
<td>ENT</td>
<td>325</td>
<td>226</td>
<td>123</td>
<td>126</td>
<td>125</td>
<td>1.84</td>
</tr>
<tr>
<td>Urinary</td>
<td>194</td>
<td>118</td>
<td>103</td>
<td>98</td>
<td>97</td>
<td>1.43</td>
</tr>
<tr>
<td>Locomotion system</td>
<td>92</td>
<td>96</td>
<td>118</td>
<td>104</td>
<td>72</td>
<td>1.06</td>
</tr>
<tr>
<td>Nervous system</td>
<td>88</td>
<td>102</td>
<td>98</td>
<td>108</td>
<td>107</td>
<td>1.58</td>
</tr>
<tr>
<td>Eyes</td>
<td>11</td>
<td>14</td>
<td>11</td>
<td>10</td>
<td>8</td>
<td>0.11</td>
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</table>

Distribution according to pathology

<table>
<thead>
<tr>
<th>YEAR</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREAST</td>
<td>1,469</td>
<td>1,446</td>
<td>1,538</td>
<td>1,484</td>
<td>1,412</td>
</tr>
<tr>
<td>CERVIX UTERI</td>
<td>1,024</td>
<td>1,041</td>
<td>1,021</td>
<td>1,121</td>
<td>866</td>
</tr>
<tr>
<td>CORPUS UTERI</td>
<td>314</td>
<td>348</td>
<td>368</td>
<td>357</td>
<td>328</td>
</tr>
<tr>
<td>OVARY</td>
<td>255</td>
<td>240</td>
<td>259</td>
<td>235</td>
<td>264</td>
</tr>
<tr>
<td>COLON</td>
<td>111</td>
<td>128</td>
<td>112</td>
<td>123</td>
<td>98</td>
</tr>
<tr>
<td>LUNG TRACHEA</td>
<td>123</td>
<td>114</td>
<td>116</td>
<td>94</td>
<td>91</td>
</tr>
<tr>
<td>YEAR</td>
<td>2009</td>
<td>2010</td>
<td>2011</td>
<td>2012</td>
<td>2013</td>
</tr>
<tr>
<td>LUNG TRACHEA</td>
<td>419</td>
<td>346</td>
<td>353</td>
<td>343</td>
<td>348</td>
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<tr>
<td>PROSTATE</td>
<td>265</td>
<td>276</td>
<td>270</td>
<td>265</td>
<td>207</td>
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<tr>
<td>STOMACH</td>
<td>118</td>
<td>127</td>
<td>149</td>
<td>99</td>
<td>97</td>
</tr>
<tr>
<td>COLON</td>
<td>109</td>
<td>130</td>
<td>132</td>
<td>103</td>
<td>118</td>
</tr>
<tr>
<td>RECTUM</td>
<td>175</td>
<td>169</td>
<td>204</td>
<td>187</td>
<td>196</td>
</tr>
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</table>
### Dynamics of hospitalizations

**“continuous” vs “daycare”**

### Distribution of the number of medical services

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of medical services in continuous hospitalization</td>
<td>22,113</td>
<td>21,018</td>
<td>20,548</td>
<td>19,520</td>
<td>20,185</td>
</tr>
<tr>
<td></td>
<td>60.26%</td>
<td>38.24%</td>
<td>31.36%</td>
<td>20.41%</td>
<td>20.37%</td>
</tr>
<tr>
<td>No. of medical services in daycare hospitalization</td>
<td>14,584</td>
<td>33,948</td>
<td>44,995</td>
<td>76,505</td>
<td>78,965</td>
</tr>
<tr>
<td></td>
<td>39.74%</td>
<td>61.76%</td>
<td>68.64%</td>
<td>79.59%</td>
<td>79.63%</td>
</tr>
</tbody>
</table>

**Graphic representation**

[Bar chart showing the number of cases for continuous and daycare hospitalization from 2009 to 2013.]
::: CLINICAL DEPARTMENTS :::

SURGICAL ONCOLOGY DEPARTMENT

- **Mission**
  - the modern and multidisciplinary surgical treatment of malignancies and benign tumours, integrated in contemporary multidisciplinary protocols
  - implementation of modern minimally invasive techniques for surgical oncology treatment.

- **Development perspectives**
  - establishing a digestive endoscopy service
  - equipping the surgical wards with ultrasound machines for post-operative follow-up
  - increasing the number of non-invasive surgical interventions
  - extending the surgical domains of interest by overspecialization and specific training (liver surgery, modern surgical techniques, etc.)
  - implementing innovative three-dimensional technologies in uro-oncologic laparoscopy
  - applying focal therapy techniques in urologic malignancies.

- **Education and research activity**
  - courses and practical training – 3rd, 4th, 5th, 6th year students, Romanian, English and French
  - specialization training programs for residents of several specialties: general surgery, gynaecology, oral and maxillofacial surgery, ENT.
  - multidisciplinary conferences covering different localizations of cancer
  - coordinating graduation theses for students
  - counselling and supervision for students and residents in conducting clinical research studies/publishing scientific articles
- 2 research projects studying prediction tools for the evolution of patients with bladder and prostate tumours, collaboration with the University of Medicine, Technical University in Cluj and private partners
- haemofiltration for oncology patients in sepsis
- characteristics in the approach of critical patients with haematological disease

- Surgery I WARD -
  - **Head of ward:** Cosmin LIENECU, MD-PhD, Assist. Prof.
  - **Staff:**
    - physicians: 8
    - nurses: 14
    - psychologist: 1
  - **Clinical activity:**
    - surgery
    - pre- and post-operative patient care
    - medical and psychological counselling of patients

- Surgery II WARD -
  - **Head of ward:** Alin RANCEA, MD-PhD, Assoc. Prof.
  - **Staff:**
    - physicians: 7
    - nurses: 14
  - **Clinical activity:**
    - surgery
    - pre- and post-operative patient care
    - medical and psychological counselling of patients

- ICU -
  - **Head of ward:** Dorel BLAG, MD
  - **Staff:**
    - physicians: 5
    - nurses: 23
  - **Clinical activity:**
    - anaesthesia in abdominal, gynaecological, urological, ENT, endocrine, soft tissue surgery
    - post-operative intensive care
    - intensive care of critical cancer patients
    - acute and chronic pain therapy
- ENT -

- Head of ward: Dănuț GHEORGHIU, MD-PhD
- Staff: - physicians: 2
  - nurses: 6
- Clinical activity:
  - ENT surgery
  - pre- and post-operative patient care
  - medical and psychological counselling of patients

- Urology WARD -

- Head of ward: Sorin POPESCU, MD-PhD
- Staff: - physicians: 2
  - nurses: 2

Clinical activity: - traditional and non-invasive surgical treatment (endoscopy and laparoscopy) of the urinary tract and male genital tumours: radical nephrectomy with inferior vena cava thrombectomy, laparoscopic and open radical nephrectomy, laparoscopic and open partial nephrectomy, laparoscopic and open nephroureterectomy, laparoscopic and open radical cystectomy, laparoscopic and open radical prostatectomy, pelvic and retroperitoneal lymph node dissection.
### Number of surgical interventions

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients in <em>continuous hospitalization</em></td>
<td>8,963</td>
<td>7,127</td>
<td>6,814</td>
<td>6,573</td>
<td>6,760</td>
</tr>
<tr>
<td>Patients in <em>daycare hospitalization</em></td>
<td>1,673</td>
<td>2,298</td>
<td>1,892</td>
<td>1,604</td>
<td>1,266</td>
</tr>
</tbody>
</table>

### The most frequent surgical interventions (continuous hospitalization)

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREAST</td>
<td>2,048</td>
<td>2,548</td>
<td>2,108</td>
<td>1,970</td>
<td>1,929</td>
</tr>
<tr>
<td>GYNAECOLOGY</td>
<td>1,312</td>
<td>1,812</td>
<td>1,867</td>
<td>1,793</td>
<td>1,637</td>
</tr>
<tr>
<td>THYROID</td>
<td>500</td>
<td>630</td>
<td>577</td>
<td>532</td>
<td>958</td>
</tr>
<tr>
<td>URO-GENITAL</td>
<td>350</td>
<td>490</td>
<td>507</td>
<td>569</td>
<td>574</td>
</tr>
<tr>
<td>DIGESTIVE</td>
<td>240</td>
<td>397</td>
<td>473</td>
<td>377</td>
<td>7</td>
</tr>
<tr>
<td>ABDOMEN, PERITONEUM</td>
<td>350</td>
<td>436</td>
<td>408</td>
<td>379</td>
<td>233</td>
</tr>
<tr>
<td>EXCISIONS of SUBCUTANEOUS LESIONS</td>
<td>290</td>
<td>331</td>
<td>345</td>
<td>451</td>
<td>336</td>
</tr>
<tr>
<td>HEAD and NECK, LIMBS, GENITALS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOPSIES (without breast)– LYMPH NODE EXCISIONS – CERVICAL-AXILLARY-INGUINAL</td>
<td>270</td>
<td>336</td>
<td>264</td>
<td>222</td>
<td>159</td>
</tr>
<tr>
<td>ENT</td>
<td>160</td>
<td>228</td>
<td>170</td>
<td>156</td>
<td>177</td>
</tr>
<tr>
<td>BONE - SOFT TISSUE</td>
<td>65</td>
<td>83</td>
<td>95</td>
<td>14</td>
<td>101</td>
</tr>
<tr>
<td>LAPAROSCOPY</td>
<td>0</td>
<td>21</td>
<td>45</td>
<td>48</td>
<td>42</td>
</tr>
</tbody>
</table>
MEDICAL ONCOLOGY DEPARTMENT

• **Mission**
  - diagnosis and multidisciplinary treatment (chemotherapy, hormone therapy and biological treatment) of incipient, locally advanced and metastatic tumours, both solid and hematologic, in adults and children.
  - treatment of the side effects of chemotherapy treatments
  - palliative care

• **Development perspectives**
  - development of a specialization platform for physicians, students and nurses
  - development and improvement of molecular, cytogenetic and flow cytometry diagnostic methods for malignant haemopathies
  - development and improvement of methods for the determination of minimal residual disease and of evaluation methods for the response to treatment of patients with malignant haemopathies
  - extension of therapeutic possibilities for haematology patients by creating the conditions for autologous and allogeneic peripheral stem cell transplant

• **Education and research activity**
  - active participation in specific scientific meetings
  - participation in national and international multicentre trials
  - training programs for medical oncology residents
  - training courses for family physicians regarding the early diagnosis of cancer in children
  - courses and practical training for 5th year students, Romanian, English, French sections
  - coordination of students’ graduation theses
- Chemotherapy WARD -

- **Head of ward:** Doris PELAU, MD-PhD
- **Staff:**
  - physicians: 7
  - nurses: 11
- **Clinical activity:**
  - diagnosis and treatment of all types of solid tumours: breast, gynaecological, lung tumours, sarcomas and melanomas, rare tumours, etc.
  - treatment of chemotherapy side effects
  - palliative care

- Haematology WARD -

- **Head of ward:** Anca VASILACHE, MD
- **Staff:**
  - physicians: 12
  - nurses: 21
  - psychologist: 1
- **Clinical activity:**
  - diagnosis of malignant haemopathies and benign haemopathies
  - multimodal treatment of malignant haemopathies according to therapeutic protocols
  - treatment of patients with benign haematologic disease
  - treatment of side effects of chemotherapy and adjuvant treatment (blood and blood product transfusions)
  - palliative care
  - psychological support for patients (psychology, support groups).

- Paediatric Oncology WARD -

- **Head of ward:** Rodica COSNAROVICI, MD-PhD
- **Staff:**
  - physicians: 3
  - nurses: 10
  - psychologist: 1
Clinical activity:
- diagnosis of malignant solid tumours and of malignant haemopathologies in paediatric patients
- multimodal treatment of malignant solid tumours and of malignant haemopathologies in children at international standards
- palliative and terminal palliative care
- professional psychological support for patients and their families: psychologist, support groups.

<table>
<thead>
<tr>
<th>Year</th>
<th>Continuous Hospitalization</th>
<th>Daycare Hospitalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>9,197</td>
<td>7,629</td>
</tr>
<tr>
<td>2010</td>
<td>11,503</td>
<td>18,227</td>
</tr>
<tr>
<td>2011</td>
<td>11,718</td>
<td>19,247</td>
</tr>
<tr>
<td>2012</td>
<td>9,434</td>
<td>21,422</td>
</tr>
<tr>
<td>2013</td>
<td>6,802</td>
<td>24,622</td>
</tr>
</tbody>
</table>
RADIOTHERAPY DEPARTMENT

- **Mission**
  - diagnosis, evaluation, treatment and monitoring of patients with complex oncologic pathology at international standards
  - treatment of patients with radio-chemotherapy of diverse tumours at modern standards
  - training of young specialists in the field – students, residents in medical oncology and radiotherapy
  - diagnosis and treatment of endocrine-oncologic diseases by using radiopharmaceuticals and specific nuclear medicine methods (nuclear imaging and metabolic radioisotope therapies).
  - providing our patients with a high-quality pathological diagnosis, based on the most modern techniques available worldwide, considering that an exact diagnosis is the *sine qua non* condition for therapeutic success.

- **Development perspectives**
  - implementation of a strategy to amplify the collaboration between the medical staff of different specialties and specialists from other oncology centres
  - implementation of individualized targeted treatments, based on tumour biomarkers
  - development of a specialization platform for physicians, students and nurses
  - implementation of a picture archiving and communication system (PACS) to allow a highly accurate comparative evaluation of radiology examinations
  - purchase of state-of-the-art magnetic resonance equipment
  - development of a PET/CT centre and use of new radiopharmaceutical agents for the diagnosis and treatment of tumours
  - implementation of IMRT techniques
- increase of the efficiency of treatments by using radiosensitizers, modified fractions, adjuvant/neoadjuvant therapies
- acquisition of brachytherapy equipment and implementation of 3D brachytherapy techniques
- diversification of immunohistochemical tests covering larger areas of tumour pathology, as well as in situ hybrid techniques, focused on providing new genetic markers using the FISH technique
- improvement of the biobank activity by increasing the number of tumour samples stored at the highest European and international standards, including by participating in the European Biobank network (OEI, BBMRI).
- substantial improvement of the quality of the biological material analysed by standardising to the fullest the pre-analysis stage of the diagnosis process, upgrading the cooling line and drastically shortening the transportation time of samples from the OR by an automated system of vacuum tubes.
- improvement of accommodation conditions

- Education and research activity
- participation in research grants (PNII – 2011 – 30753 Early detection of post-therapeutic relapse in colorectal adenocarcinoma by monitoring several tumour and blood immunological markers)
- testing the radiosensitivity of several tumour localizations and applying the results in the treatments used (cervical cancer, colorectal cancer)
- use of prognostic/predictive factors in the individualisation of radio- and chemotherapy treatments
- identifying new tumour markers with prognostic and predictive value, with a direct impact on clinical activity. For example, new isolation and analysis techniques are developed for circulating tumour cells in solid cancers, as well as exosomes, microRNAs and other circulating markers.
- participation in national and international multicentre trials
- studies published in ISI publications with an impact factor
- practical training for residents in medical oncology and radiotherapy, internal medicine, gastroenterology, pneumology and family medicine
- oncology training for medical students
- coordination and collaboration for graduation and master’s theses
- courses and practical training for 2nd year students of the Imaging College in Cluj
- PhD theses mentorship within the PhD school of the University of Medicine and Pharmacy
- organization of postgraduation courses, round tables, workshops for specialists in medical oncology and radiotherapy, oncology nurses, radiotherapy technicians.

- Radiotherapy I WARD -
  - **Head of ward:** Radu TĂNĂSESCU, MD
  - **Staff:**
    - physicians: 10
    - nurses: 13
  - **Clinical activity:**
    - radiotherapy of gynaecological tumours, particularly breast tumours;
    - palliative radiotherapy;
    - hyperthermia in breast tumours;
    - administration of chemotherapy (ENT, urology, lung cancers and gastroenterology), hormone therapy, biological treatments, symptomatic and supportive treatment, blood transfusions in complex cases.

- Radiotherapy II WARD -
  - **Head of ward:** Sorin GAVERIȘ, MD-PhD
  - **Staff:**
    - physicians: 4
    - nurses: 7
- Clinical activity:
  - external radiotherapy and brachytherapy for curative/palliative reasons
  - neoadjuvant chemotherapy treatments, and adjuvant or accompanying radiotherapy, hormone therapy
  - haematological supportive care in the impairment of the haematopoietic function
  - supportive care for patients with low digestive tolerance
  - monitoring of vital signs, monitoring of biological samples, monitoring of response to treatment

- Radiotherapy III WARD -

- Head of ward: Viorica NAGY, MD-PhD, Prof.
- Staff: - physicians: 6
  - nurses: 12

- Clinical activity:
  - radio-chemotherapy treatment of patients with several types of tumours: ENT tumours, sarcomas of the bone and soft tissues, malignant lymphomas, tumours of the nervous system, tumours in children and adolescents, bronchial-pulmonary tumours, thoracic tumours, digestive tumours, female genital tumours.

- Laboratory of External Radiotherapy and Brachytherapy -

- Coordinator: Ovidiu COZA, MD-PhD, Assist. Prof.
- Staff: - physicians: 2
  - medical physicists: 6
  - nurses: 11
  - technicians: 13

- Activity:
  - data acquisition for the external radiotherapy and brachytherapy treatment plan
- external radiotherapy for curative and palliative reasons: conventional 2D radiotherapy with cobalt Th1000 equipment and a Siemens Primus linear accelerator, 3D conformational radiotherapy with a Varian Clinac, cutaneous and total body radiation techniques for over 31 primaries
- endocavitary and interstitial brachytherapy: conventional 2D brachytherapy for gynaecological tumours
- contact hyperthermia (superficial) as a single therapeutic method or associated with external radiotherapy in diverse oncological pathologies

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013*</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of radio-therapy services in continuous hospitalization</td>
<td>2,373 including 227 brachytherapy</td>
<td>2,548 including 249 brachytherapy</td>
<td>2,733 including 289 brachytherapy</td>
<td>2,863 including 326 brachytherapy</td>
<td>4,037 including 109 brachytherapy</td>
</tr>
<tr>
<td></td>
<td>2,146 cobalt-2D-3D</td>
<td>2,299 cobalt-2D-3D</td>
<td>2,444 cobalt-2D-3D</td>
<td>2,537 cobalt-2D-3D</td>
<td>3,928 cobalt-2D-3D</td>
</tr>
<tr>
<td>No. of radio-therapy services in daycare hospitalization</td>
<td>12,713 including 2,320 brachytherapy</td>
<td>11,044 including 2,174 brachytherapy</td>
<td>19,834 including 2,355 brachytherapy</td>
<td>23,732 including 2,534 brachytherapy</td>
<td>23,990 including 1,086 brachytherapy</td>
</tr>
<tr>
<td></td>
<td>10,393 cobalt-2D-3D</td>
<td>8,870 cobalt-2D-3D</td>
<td>17,499 cobalt-2D-3D</td>
<td>21,198 cobalt-2D-3D</td>
<td>22,904 cobalt-2D-3D</td>
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</tbody>
</table>

* Non-functional equipment
### Number of hyperthermia services

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of hyperthermia</td>
<td></td>
<td></td>
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<tr>
<td>services in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>continuous</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hospitalization</td>
<td>98</td>
<td>84</td>
<td>121</td>
<td>70</td>
<td>116</td>
</tr>
<tr>
<td>No. of hyperthermia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>services in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>daycare hospitalization</td>
<td>237</td>
<td>155</td>
<td>206</td>
<td>224</td>
<td>217</td>
</tr>
</tbody>
</table>
- Radiology and Imaging Laboratory -

- Coordinator: Vasile POPIŢA, MD
- Staff: - physicians: 6
  - nurses: 7
  - technicians: 5
- Activity:
  - radiological and imagistic examination, early diagnosis and post-therapeutic monitoring of oncological patients using specific equipment: ultrasound, CAT, radiography and digital fluoroscopy, digital mammography
  - several clinical trials regarding different tumour sites
- Nuclear Medicine Laboratory -

- **Coordinator:** Doina PICIU, MD-PhD, Assoc. Prof.
- **Staff:**
  - physicians: 1
  - nurses: 1
  - physicists: 2
  - technicians: 2

- **Clinical activity:**
  - the main clinical activity concerns oncological endocrine pathologies, using nuclear imaging as well as metabolic radioisotope therapies.
  - use of 4 different radioisotopes: Tc-99m, I-131, In-11 AND Sr-89, in patients with oncological thyroid and parathyroid pathology and neuroendocrine tumours.
  - routine practice of the following diagnostic procedures: DEXA osteodensitometry, thyroid ultrasound, bone scintigraphy, I-31 or In-11 whole body scan, lymphoscintigraphy for sentinel lymph node.
  - radioiodootherapy of benign and malignant thyroid pathology
  - palliative care of bone pain caused by metastasis.

### Imaging and nuclear medicine services

<table>
<thead>
<tr>
<th>Service</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-rays</td>
<td>12,045</td>
<td>12,045</td>
<td>12,578</td>
<td>11,102</td>
<td>9,383</td>
</tr>
<tr>
<td>Mammography</td>
<td>6,856</td>
<td>5,034</td>
<td>4,856</td>
<td>5,100</td>
<td>4,820</td>
</tr>
<tr>
<td>Ultrasound</td>
<td>9,451</td>
<td>8,385</td>
<td>8,198</td>
<td>6,737</td>
<td>4,907</td>
</tr>
<tr>
<td>CAT scan</td>
<td>4,993</td>
<td>4,714</td>
<td>5,019</td>
<td>4,156</td>
<td>2,969</td>
</tr>
<tr>
<td>Scintigraphy</td>
<td>2,147</td>
<td>3,035</td>
<td>3,421</td>
<td>2,325</td>
<td>2,015</td>
</tr>
<tr>
<td>Radioiodine therapy</td>
<td>505</td>
<td>580</td>
<td>1,020</td>
<td>809</td>
<td>766</td>
</tr>
</tbody>
</table>
- Pathology Laboratory -

- Coordinator: Rareş BUIGA, MD-PhD
- Staff: - physicians: 10
  - nurses: 6
  - technicians: 9
- Activity:
  - pathological diagnosis activity, meaning more than 10,000 cases/year, including more than 80,000 paraffin blocks, 80,200 histology slides and over 22,300 immunohistochemistry tests, using the equipment of the laboratory (histopathology laboratory, cytology laboratory, immunohistochemistry laboratory and in situ hybrid techniques, cytogenetics laboratory, biobank for tumour tissue and a prosector service).
Major fields of interest

Hospital-Based Cancer Registry – monitoring the diagnosis and treatment of oncology patients referred to IOCN

North-West Regional Cancer Registry – for the North-West Region – 6 counties (Cluj, Bihor, Bistrița-Năsăud, Maramureș, Satu-Mare, Sălaj)

Regional Cervical Cancer Screening Program – Cluj county women aged 25-65, starting in 2002

Organization of a new pilot cancer screening program (breast, colorectal cancer) in Cluj county

IOCN CANCER REGISTRY

Database

1955 – first records of cancer cases (archive)
Total number of registered cancer cases (1955-2011): 170,015
Total number of manually registered cancer cases (1955-1994): 71,914
Total number of cancer cases in the electronic database (1996-2013): 98,101 / 94,762 (3,339 multiple primaries), yearly average 5,770
Total number of new patients addressed (1996-2013): 273,498, yearly average 16,088
Source of information: medical records, pathological reports, death certificates

Cancer Registry of the North-West Region

- Region capital – Cluj-Napoca
- Location of NW-RCR – “Ion Chiricuță” Oncology Institute Cluj-Napoca
- Start date – 1st January 2008
- Covered area: 34,159 km² (14.32% of the country’s surface area)
- 6 counties, 42 cities, 398 communes, 1,823 villages
- 2,710,545 people covered (12.7% of the national population)
- Population density: 83.74% inhabitants/km²
Major areas of interest

- The Regional Cancer Control Program
- The Cancer Registry
  - Institutional - monitoring the diagnosis and treatment of patients of the Institute
  - Populational - the North-Western Regional Cancer Registry - for the North-Western Region - 6 counties (Cluj, Bihor, Bistrița-Năsăud, Maramureș, Satu-Mare, Sălaj)
- The Regional Cervical Cancer Screening Program – including women aged between 25 and 64 years
- The regional unit for the management of the cervical cancer screening program
- The implementation of screening programs (breast, colorectal cancer)
- Involvement in national and international research projects

THE CANCER REGISTRY

- An active member of ENCR (European Network of Cancer Registries) and IACR (The International Association of Cancer Registries)
- A combination of institutional and regional register, with populational support
- It allows the follow-up of registered patients (late treatment side effects, second cancer, disease progress, death registration, analysis of survival)
- It allows the deployment of epidemiological studies
- It helps the evaluation of cervical cancer
- It benefits from the scientific support of oncologic professional societies

Hospital-Based Cancer Registry

The Hospital-Based Cancer Registry of IOCN, which registers the new malignant cases according to WHO recommendations (over 170,000 malignant neoplasms), set up in the mid '50s, was...
internationally recognized under the coordination of Gheorghe Bolba, who included the statistical data in the WHO Monograph *Cancer Incidence in Five Continents* - volumes IV, V, VI. According to Order 871/2002 - an important source for all regional registries in the country, the hospital-based Cancer Registry in Cluj was the main case data provider (new cancer cases) of the Territorial Cancer Registry until the end of 2007. In the following years, the new cancer cases diagnosed / treated in the Oncology Institute constantly multiplied – over the past 20 years, the cases have increased 2.6 times (7,184 cancer cases in 2013 – 2,754 cancer cases in 1993); the cancer registry contributes to medical assistance by providing accessible information about cancer patients, tumour characteristics, treatment and post-therapy results. The Hospital-Based Cancer Registry registers all cancer cases that come to IOCN for diagnosis and/or treatment.

The records of cancer patients who come to IOCN for diagnosis and/or treatment are found in the Institute’s archive, the first registers with recorded nominal cancer cases date back to the ‘50s.

![Graph showing new cancer cases in IOCN, 1955-2012](image)
The distribution of malignant cases diagnosed and/or treated in the Oncology Institute between 2009-2013, based on the residence of patients

The North-Western Regional Cancer Registry

The North-Western Regional Cancer Registry (NWRCR) is an important part of the infrastructure of oncology healthcare services in our region. It is an instrument that evaluates the efficiency of primary and secondary prophylactic measures against cancer, the efficiency of treatment, and helps in planning new therapeutic solutions. The only way to succeed in cancer prophylaxis and control and to enhance the medical care delivered to cancer patients in the North-Western Region is by having a thorough, complete and quality data collection and final analysis.
General facts and activities, 2003-2013

Region capital – Cluj-Napoca

Location of NWRCR –
The “Ion Chiricuţă” Oncology Institute Cluj-Napoca

Start date – 1st January 2008

Covered aria 34,159 km² (14.32% of Romania’s surface area)

Covered population 2,710,545 (12.7% of the Romanian population)

Population density 83.74% inhabitants/km²

- Covered area: 6 counties (Bihor, Bistriţa-Năsăud, Cluj, Maramureş, Sălaj, Satu-Mare), 34,159 km² (14.32% of Romania’s surface area), 42 cities, 398 communes, 1,823 villages
- Covered population 2,710,545 - 1st July 2010 – 12.7% of the Romanian population

The affiliation of the Cluj Cancer Registry to international organizations such as IACR (International Association of Cancer Registries) and ENCR (European Network of Cancer Registries) in 2003 shows the concern for adopting international standards in the cancer registration activity. For the same purpose, between 25-29 August 2003, cancer data from Cluj county for 1998-2008 were sent to IARC/ENCR in order to be included in the WHO monograph Cancer Incidence in Five Continents, volumes IX and X; they were accepted for use in the world database GLOBOCAN 2008, 2012 and the European database EUCAN.
Regional Cervical Cancer Screening Program
The involvement of the Oncology Institute in secondary
cancer prophylaxis activities in the North-Western Region

The prophylactic activities focused on the organization and
deployment of a cervical cancer screening program, with the help of
a cytological examination, in the counties from the North-Western
Region. Between 1981-1992, the Oncology Institute was the
methodological authority and coordinated the screening activities for
13 counties in Transylvania, with a target population of 2.5 million
women and over 1,200,000 cytologies.

In 1999, The Oncology Institute in association with The Society of
General Medicine/Family Medicine Cluj-Napoca and the Cancer
Society in Cluj initiated a pilot cervical cancer screening program in
Cluj county, financed by The Foundation for an Open Society. The
pilot program in Cluj was the first in Romania that met the necessary
conditions for an organized cervical cancer screening program:
training the personnel; establishing a screening strategy according to
European standards, but adapted to the local situation; identifying
the target population; inviting women for testing; infrastructure
organized for sample taking, analysis and communication of results,
diagnosis and treatment possibilities for women with dysplasia,
establishing criteria and standards for monitoring and evaluating the
program. The major advantage of this pilot program consisted of the
initiation of an organized screening program, integrated in primary
health care, in the existing medical structures, with the implication of
the family physician considered to be the best placed health service
provider to offer preventive assistance. The experience acquired in
the pilot program was applied when the screening program was
extended to the whole region, in a program financed by the
Romanian Ministry of Health in 2002.

Since January 2002, a group of specialists (cytologists,
gynaecologists, oncological gynaecologists, epidemiologists, family
physicians) has organized and implemented a screening network in
Cluj county; the sampling of smears took place with the help of
trained volunteer family physicians and gynaecologists. The network included 6 cytology laboratories, with a cytology registry at the Oncology Institute, containing data about each tested woman, gathered with the help of a unique form. The program adopted a testing strategy according to European standards, which implies testing women between 25 and 64 years old, once every 3 years. The cytology registry was connected to the Institutional Cancer Registry, in order to enable the recovery of data about cancer cases discovered by screening. The women were invited to participate in the screening program by invitation letters sent from The Oncology Institute with the help of family physicians, and in 2003 with the help of a mobile unit, which ran an intense promotion campaign of the screening program in rural areas; the gynaecologists of the mobile unit performed the smear sampling in women in these areas, including the women belonging to ethnic minorities (Roma). By using the mobile unit, the rate of participation in the screening program increased, thus we obtained a higher rate of participation especially in rural areas, where we supposed to have a greater percentage of vulnerable women. The network allowed to cover a target population of 195,000 women aged between 25-65 years, in Cluj county. The mobile unit helped extend the screening program to the counties methodologically assigned to Cluj county: Sălaj, Bistriţa-Năsăud, Satu-Mare, Maramureş.

The cervical cancer screening program in Cluj county represents a secondary prophylaxis program successfully implemented by The Oncology Institute. The ongoing program was associated with a favourable change of the screening program performance indicators monitored in the short term - the transition of new cervical cancer cases towards less advanced stages.

We managed to test 86,000 women in the 5 mentioned counties, between 2002-2006. Out of this total number, 36,400 women were from the eligible population of Cluj county, representing 18% of the target population of the county. The preliminary evaluation results of the regional program were communicated in the EUROGIN conferences in Paris in 2003 and 2006.
Since 2006, the program has been connected to the European network EUNICE (European Network information on Cancer), which standardizes data collection from the cervical cancer screening programs in Europe. The results of the screening program evaluation in Cluj were published in the European Journal of Cancer, together with the results of other European countries with a much broader experience in organizing cervical cancer screenings.

In June 2008, the Oncology Institute was the host of a work meeting of international experts in oncological screening, represented by editors and authors of European Guides for quality assurance of cervical and breast cancer screening, and Romanian experts in oncological screening; the guests recognized the experience and the special competences of the Oncology Institute in coordinating oncological screening actions, and made important recommendations for the national implementation of oncological screening, in conformity with the European Council’s recommendations from 2003.
This department has been part of the structure of the Institute since 2008, and it was established by the Order of the Ministry of Health. Its existence and functioning is a quality criterion of the activity of the Institute and is essential in the accreditation process taking place this year. Currently, 1 primary epidemiologist and 1 nurse work in this department.

Nosocomial infections are a public health issue, with epidemiological, clinical and economic importance. These infections incur an excess of morbidity, mortality and financial expenses.

Components of the Surveillance and Control System of Nosocomial Infections within IOCN

1. Surveillance of nosocomial infections
2. Surveillance of infections through the microbiology laboratory
3. Surveillance of antibiotics usage
4. Personnel and hospital environment hygiene
5. Epidemic control
6. Isolation measures
7. Personnel education
8. Evaluation of the surveillance and control system efficiency
1. Cumulated incidence of NI in 2009-2013

<table>
<thead>
<tr>
<th>Ward</th>
<th>YEAR</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU</td>
<td></td>
<td>-</td>
<td>1.53%</td>
<td>3.86%</td>
<td>2.55%</td>
<td>2.62%</td>
</tr>
<tr>
<td>Surgery I</td>
<td></td>
<td>0.29%</td>
<td>0.29%</td>
<td>0.62%</td>
<td>0.72%</td>
<td>0.84%</td>
</tr>
<tr>
<td>Surgery II</td>
<td></td>
<td>0.15%</td>
<td>0.18%</td>
<td>0.53%</td>
<td>0.46%</td>
<td>0.47%</td>
</tr>
<tr>
<td>Radiotherapy I</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Radiotherapy II</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Radiotherapy III</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Medical oncology</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Haematology</td>
<td></td>
<td>-</td>
<td>0.09%</td>
<td>0.30%</td>
<td>0.05%</td>
<td>0.19%</td>
</tr>
<tr>
<td>Paediatrics</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IOCN</td>
<td></td>
<td>0.07%</td>
<td>0.19%</td>
<td>0.46%</td>
<td>0.35%</td>
<td>0.41%</td>
</tr>
</tbody>
</table>

2. NI categories registered in IOCN in 2009-2013

<table>
<thead>
<tr>
<th>Ward</th>
<th>Postoperative infections</th>
<th>Urinary infections</th>
<th>Respiratory infections</th>
<th>Blood infections</th>
<th>Digestive infections</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU</td>
<td>108</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td>1</td>
<td>134</td>
</tr>
<tr>
<td>Surgery I</td>
<td>69</td>
<td>17</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>86</td>
</tr>
<tr>
<td>Surgery II</td>
<td>61</td>
<td>9</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>70</td>
</tr>
<tr>
<td>Haematology</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>TOTAL</td>
<td>238</td>
<td>31</td>
<td>15</td>
<td>15</td>
<td>4</td>
<td>303</td>
</tr>
</tbody>
</table>

(percentage in parentheses)
### 3. NI Aetiology 2009-2013

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Digestive infections</td>
<td>103 (28.8%)</td>
<td>70 (19.6%)</td>
<td>65 (18.2%)</td>
<td>28 (7.8%)</td>
<td>22 (6.2%)</td>
<td>14 (3.9%)</td>
<td>7 (2.0%)</td>
<td>3 (0.8%)</td>
<td>2 (0.6%)</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood infections</td>
<td>12</td>
<td>14</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory infections</td>
<td>88</td>
<td>53</td>
<td>50</td>
<td>23</td>
<td>18</td>
<td>15</td>
<td>8</td>
<td>10</td>
<td>7</td>
<td>358</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urinary infections</td>
<td>12</td>
<td>14</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postoperative infections</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Legend:**
- ESBL* – extended spectrum beta-lactamase
- MRSA** – Methicillin-resistant *Staphylococcus aureus*
- MRSE*** – Methicillin-resistant *Staphylococcus epidermidis*
::: PHARMACY :::

- **Head of Unit:** Senior pharmacist Doina VERZEA

- **Staff:**
  - pharmacists - 3
  - technicians - 2
  - nurses - 10

- **Mission**
  - delivery and management of medicines,
  - preparation of medicines,
  - preparation of cytotoxic medicines ready to be administered (in specially designed laminar flow clean rooms that ensure the sterility of the process), according to well established procedures,
  - offering information regarding the medicine provided,
  - educational activities,
  - pharmacovigilance,
  - participation in clinical trials.

- **Development perspectives**
  - improvement and expansion actions for work and storage spaces in the pharmacy, and an increase of the level of education of the specialized personnel through continuous medical education.

- **Educational activity**
  - practical activities for Romanian and foreign pharmacy students; residents in clinical pharmacy (in 2013, 12 Erasmus students from French universities and 5 students from Cluj).
Head of the Research Department:
Ioana (Berindan) Neagoe, Ph.D. Assist.Prof.

The activity of The Research Department of The Oncology Institute “Prof. Dr. Ion Chiricuta” is focused mainly in identifying specific biomarkers for diagnosis and therapy for different cancer pathologies, molecular profiling of solid tumors and haematological malignancies as well as the response and resistance to therapy. Immunological implications in cancer surveillance and cancer evolution control as well as the study of radiotherapy effects at molecular level represents also major research interest for The Research Department.
DEPARTMENT OF FUNCTIONAL GENOMICS, PROTEOMICS
AND EXPERIMENTAL PATHOLOGY:

- **Coordinator:** Balacescu Ovidiu, Ph.D.
- **Staff:**
  - 5 senior researchers
  - 2 junior researchers
  - 1 lab technician

- **Research activity**
  
The main research activity is focussed on the identification of new molecules involved in diagnosis, treatment prediction and drug resistance. The main pathologies studied in our department are prostate, breast, cervical and colon cancers. The funds for our functional genomics projects are mainly obtained through national competitions organized by the Ministry of Education and Research. During 2009-2013 we coordinated more than ten projects in the cancer field including genomics analysis.

  As a Functional Genomics Department we are interested in molecular profiling of malignant tumors and the study of the response to therapy due to the resistance developed during treatment.

  A special focus is accorded to breast cancer triple negative molecular profiling in comparison with double positive breast cancer due to the lack of response to standardized therapy.

  Molecular profiling of cervical cancer before and after the treatment is a major issue considering the highly aggressive tumors and their limitation to response to treatment. Studies involving pretherapy/ post therapy molecular profiling are developed to establish biomarkers related to predictive behavior of cervical cancer.

  Identification of the role of angiogenic molecules in colorectal cancer evolution represents also an important domain for research of our team.

  Some major invasion and metastasis molecular mechanisms are studied in our department: apoptosis and angiogenesis represents important steps in validation of the malignant phenotype. We study the use of siRNA in cancer therapy as possible
modulators for restoration of apoptosis and inhibition of angiogenesis. Several studies were developed during these years for p53siRNA, VEGF siRNA, TNF-alpha siRNA and the modulator role of some natural compounds like EGCG (epigalocathechingallate, caffeic acid).

Another study is focused in environment relashionship with malignant phenotype validation looking to arsenic role in cancer.

The Infrastructure of our department include has six laboratories for functional genomics, bioinformatics, molecular biology and experimental pathology as well as a laboratory for cell culture.

- Our facilities consist of: a complete Agilent microarray platform (Whole Human Genome) for genomics analysis (mRNA, miRNA, CGH); two real-time PCR devices (Roche LC480 and LC2.0) used for qRT-PCR and PCR array analysis; Lab-on-a-chip technologies: Bioanalyzer 2100 (Agilent) and Spectrophotometer Nanodrop ND-1000 used to determine the QC for nucleic acids and proteins; infrastructure for protein assays: Mini-PROTEAN 3 unit for Electrophoresis and Western blot; Complete lab facilities for biological samples (tissue, blood, urine) processing: set of centrifuges; laminar flow hoods, bio-blocks, refrigerators, pipets, automatic thermo-adjustable water bath, etc; cell culture facilities; internal bio bank including ultra freezers (-80°C) and liquid nitrogen locators.

Research activity in publications:
- ISI indexed scientific publications (2009-2013): 51
- Scientific projects (2009-2013): 14
- Deposition of 5 national patents (OSIM) during 2010-2013: 5

- International collaborations:
  - MD Anderson Cancer Center (Texas USA), (Department of Experimental Therapeutics) (George A Calin,MD Ph.D.), PhD program

- **Istituto Tumori “Giovanni Paolo II” di Bari** – Prof. Angelo Paradiso, M.D. Ph.D. – *Special Issue Cancer Biomarkers* – in preparation – 11 scientific articles

**DEPARTMENT OF RADIOBIOLOGY AND TUMOR BIOLOGY**

- **Coordinator**: Piroska VIRAG, Ph.D
- **Staff**:
  - research scientists: 7
  - 1 lab technician
- **Principal research domains**:

1. Radiobiology:
   - cytogenetic tests for the prediction of radiosensitivity of the normal and tumor tissues in patients subjected to radiotherapy;
   - identification of biologic markers of radiosensitivity with predictive value for the treatment of different types of cancer;
   - study of DNA lesions and chromosomal aberrations, induced by ionizing radiations in normal and tumor cells;
   - modulation of the response to radiotherapy with biologic compounds;
   - study of the carcinogenic effects of UV radiations on normal skin cells;
   - the use of visible light in cancer therapy – photodynamic therapy.
2. Testing the effects of various compounds on normal and tumor cells:
   - evaluation of the pre-therapeutic chemosensitivity of the primary tumor cells;
   - study of the mechanisms of drug resistance;
   - identification of predictive molecular and cellular markers for the response to chemotherapy;
   - testing the cytotoxicity of diverse compounds (cytotoxic drugs, synthetic compounds, natural products, biocomposites etc.);
   - study of the DNA lesions (strand-breaks, cross-links etc) induced by various compounds (cytotoxic drugs, synthetic compounds, natural products, biocomposites etc) in normal and tumor cells;
   - study of the antioxidant effects of natural products; synergistic effects in combined treatment with antitumor agents;
   - tumor angiogenesis.
3. Stem cells research:
   - Normal stem-cells: isolation, characterization and applicability of mouse embryonic and adult stem cells - alternative source for tissue therapy and regeneration;
   - Tumor stem cells: identification, characterization, response to therapy and modulation of the response to the therapy.

4. Immunology:
   - The effects of low-doses of ionizing radiations on the immune system;
   - Immunophenotyping of the cells of the immune system;
   - Study of the immune responses in human tumor and inflammatory pathologies;
   - The effects of various compounds (cytostatic drugs, synthetic compounds etc.) on different cell populations of the immune system.

ISI indexed scientific publications (2009-2013): 62
Scientific projects (2009-2013): 12

Inter-institutional collaborations:
   - Semmelweis University of Medicine, Budapest, Hungary – Prof. Dr. Andras Falus;
   - Joliot Curie National Institute for Radiobiology and Radiohygiene, Budapest, Hungary – Dr. Katalin Lumniczky;
   - Immatics Biotechnologies GmbH, Tubingen, Germany – Dr. Juha Lindner;
   - Comenius University - Pharmacy Faculty, Bratislava, Slovakia, Prof. Dr. Ferdinand Devinsky;
   - University of Athens, School of Pharmacy, Athens, Greece – Dr. Michail Rallis;
   - University Juan Carlos, Inorganic and Analytical Chemistry Department, Madrid, Spain - Prof. Dr. Santiago Gomez Ruiz.
Stained glass from the Old Building of the Institute
Impreuna redam speranta!

Membru al Organizatiei Institutelor Europene de Cancer "OEIC"