Cancer is responsible for a large share of deaths, worldwide as well as in Romania, and induces high costs (for individuals, health system and society), proved to be one of the most burdensome diseases.

Lately, problems induced by cancer in women are increasing, due to the raise in incidence, but mainly to the high mortality rate of cervix cancer. Hospitals having obstetrics-gynecology departments are the main medical units who provide specialized services for diagnosis, staging and treatment of cervix cancer; the most of cervix cancers cases are recorded in hospital care sector, and the analysis of hospital morbidity may offer a pretty fair picture of the phenomenon. The present paper presents some results of the analysis of the hospital morbidity trough cervix cancer, in hospitals who reported clinical data at patient level, during the first eight months of the year 2009.

Key words: geographic distribution of hospitalizations, the profile of hospitalization, surgical procedures for cervix cancer in hospital
Aim:
The general purpose of the present study was to provide evidence concerning the magnitude of the phenomenon caused by the cervical cancer, in Romanian hospital care sector, during the first eight months of the year 2009.

Objectives:
To accomplish this aim, we followed the research objectives:
- description of hospitalizations with a diagnosis of cervical cancer, according to the district, area of residence and insured status;
- identification of hospitalization pattern for cervical cancer cases.

Metodology
The present study is a transversal analysis regarding aspects of hospital activity, using secondary data, based on case mix data contained in DRG National database, for 2009.

Criteria for inclusion: any discharge having a principal or a secondary diagnosis like “Malignant tumor of cervix”, affecting:
- exocervix (code diagnosis ICD10 AM C53.0)
- exocervix (code diagnosis ICD10 AM C53.0)
- overlapping lesion of cervix uteri
- cervix uteri, unspecified

REZULTS. DISCUSSIONS
1. Description of cases after the district, residence and insured status
During the first eight months of 2009, in Romanian hospitals who had contracted hospital care services with District Insurance Houses and reported patient level clinical data, were recorded 14,639 hospitalization episodes (inpatient cases) having as principal diagnosis or secondary diagnosis cervical cancer.

These episodes were recorded for 8,347 patients, each of them having an average of 1.75 hospitalization episodes for cancer of cervix.

Distribution of cases with cervical cancer by district
The geographic distribution of cases reveals inequities from the point of view of their home district. There is a wide variety of the number of cases per district, the highest number being recorded for patients from Bucharest (1077 hospitalization episodes) and the lowest for Covasna (147 episodes).

Cartogram 1 highlights the districts and the color intensity is more pronounced as the number of hospitalization episodes is higher; so the districts are divided into four inter-
-quartile intervals after the number of episodes:
- over 440 episodes;
- between 440-345 episodes;
- between 345-250 episodes;
- under 250 episodes.

The 10 districts with over 440 episodes are different spread within the country; they are both border districts and districts in mountain areas, from all the 8 development regions (Bucharest, Brasov, Maramures, Botosani, Prahova, Dolj, Arges, Neamt, Hunedoara, Teleorman).

The fewest hospitalization episodes were recorded, as well, in border districts or in mountain areas (Satu Mare, Sibiu, Mehedinți, Bistrița-Năsăud, Vrancea, Harghita, Salaj, Ialomița, Tulcea, Ilfov, Covasna).

The geographic distribution shows a wide variability of districts and does not reveal zonal or regional aggregations, from this point of view.

Residence
From the total of 15,000 hospitalization episodes, about 58% were for patients living in urban areas, and 42% from rural areas (figure 1).

Insured status
Only 5 cases had private health insurance, while most of the cases (98%) had compulsory health insurance; only 2% from all cases had no medical insurance at all (figure 1).

2. The identification of hospitalization pattern for cases with cervical cancer

Type of admission
Over half of patients with cervical cancer (50.2%) were admitted based on a referral from the specialist physician in ambulatory care, and almost one third (29.9%) were admitted in emergency (figure 1).

These figures highlight the fact that in Romania the diagnosis and specialized treatment for cervical cancer is performed based on the prescription of a specialist physicians, as well as through emergency admissions; probably an important percentage of emergencies is represented by cases with advanced severity of disease.

Nevertheless, the supposition and diagnosis of cervical cancer is made even in the family doctor’s office, almost two tenths (about 19%) from admissions being based on the referral from the family doctor.
Type of department

The analysis of cases by the type of department was performed taking into account two aspects: the ability of the department to treat acute cases and the medical specialty of the department.

The specific of this disease justifies the admission and treatment of cases with cervical cancer on acute care departments, where exists necessary resources for diagnosis, staging and specific treatment. Only 2% from all cases episodes were hospitalized on chronic care departments (figure 2).

The structure of cases by the medical specialty of the department (figure 2) highlights the high percentage (76%) of cases on departments specialized for cervical cancer care, like: oncology (40%), radiotherapy (20%) and obstetrics-gynecology (16%).

Almost one third (32%) from all cases were diagnosed and/or treated in departments specialized in medical oncology; on surgical oncology departments and gyneco-oncology-departments were solved 6%, and 2% from all episodes. Other cases were reported by general surgery (7%), internal medicine (5%), urology (4%) departments etc.

One explanation for cases reported in other departments than oncology, radiotherapy or obstetrics-gynecology is that many of these cases were admitted as emergency; other explanation could be that these patients had another principal diagnosis than cervical cancer responsible for the episode of hospital care.

Table 1. Number and percentage of cases according to the type of separation (discharge), Romania, first eight months of 2009

<table>
<thead>
<tr>
<th>TYPE OF DISCHARGE</th>
<th>No. of cases</th>
<th>% from all cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharged</td>
<td>14081</td>
<td>96.2</td>
</tr>
<tr>
<td>Discharged at request</td>
<td>232</td>
<td>1.6</td>
</tr>
<tr>
<td>Death</td>
<td>224</td>
<td>1.5</td>
</tr>
<tr>
<td>Transfer between hospitals</td>
<td>102</td>
<td>0.7</td>
</tr>
<tr>
<td>Total</td>
<td>14639</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: DRG National Data base 2009

Figure 2. The proportion of hospitalization for cervix cancer, by department, first eight months of 2009

Type of surgical procedure

The treatment of cervical cancer is based on surgery and radiotherapy; cases with metastasis could benefit on different chemotherapy schemes with satisfactory results and after the evaluation of individual situation.

According to the stage of the disease, the surgical treatment in cervical cancer contains both conservative and radical approaches.

During the year 2009, for all 14,639 episodes of hospital care were performed 3,197 surgical procedures (for 22% of cases); the high percentage (78%) of non surgical cases is due to the fact that many patients had multiple episodes of hospital care.
care during the year, one specific episode corresponding to a different stage in the management of the disease: diagnosis, staging, radiotherapy, chemotherapy and so on. More than half of these interventions were represented by three main procedures (table 3):

- abdominal radical hysterectomy with radical excision of pelvic lymphatic nodes (22.5%);
- biopsy of cervix (17%) and
- abdominal hysterectomy with bilateral salpingo-oophorectomy (11.5%).

It is to be noticed that the most common surgical procedure is a highly radical one and this could show that patients access hospital care in a late stage of the disease. Also, should be emphasized the low percentage (0.7%) of the “cone biopsy of cervix”; although this procedure is used both for diagnosis and
treatment of the disease in selected situations like:
- high grade cervical
- recurrent cervical dysplasia;
- likelihood of cervical cancer.

Type of discharge (table 1)
The analysis of the episodes by the type of discharge reveals the fact that “discharge at request” and “transfer between hospitals” represent rare modes of separation for patients with cervical cancer. Also it can be noticed the low specific mortality rate of patients with cervical cancer, 1-2 out of 100 hospitalization episodes ending with the death of the patient.

Table 3. Number and percentage of cases according to the surgical procedure, Romania, first eight months of 2009

<table>
<thead>
<tr>
<th>SURGICAL PROCEDURE (SP)</th>
<th>No.</th>
<th>%</th>
<th>% valid</th>
<th>% cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>abdominal radical hysterectomy with radical excision of pelvic lymphatic nodes</td>
<td>719</td>
<td>4.9</td>
<td>22.5</td>
<td>22.5</td>
</tr>
<tr>
<td>biopsy of cervix</td>
<td>543</td>
<td>3.7</td>
<td>17.0</td>
<td>39.5</td>
</tr>
<tr>
<td>abdominal hysterectomy with bilateral salpingo-oophorectomy</td>
<td>368</td>
<td>2.5</td>
<td>11.5</td>
<td>51.0</td>
</tr>
<tr>
<td>abdominal hysterectomy with radical excision of pelvic lymphatic nodes</td>
<td>130</td>
<td>0.9</td>
<td>4.1</td>
<td>55.1</td>
</tr>
<tr>
<td>percutaneous nephrostomy</td>
<td>120</td>
<td>0.8</td>
<td>3.8</td>
<td>58.8</td>
</tr>
<tr>
<td>Endoscopic replacement of ureteric stent</td>
<td>82</td>
<td>0.6</td>
<td>2.6</td>
<td>61.4</td>
</tr>
<tr>
<td>Exploratory laparotomy</td>
<td>74</td>
<td>0.5</td>
<td>2.3</td>
<td>63.7</td>
</tr>
<tr>
<td>Dilation &amp; curettage of uterus [D&amp;C]</td>
<td>72</td>
<td>0.5</td>
<td>2.3</td>
<td>65.9</td>
</tr>
<tr>
<td>Endoscopic insertion of ureteric stent</td>
<td>59</td>
<td>0.4</td>
<td>1.8</td>
<td>67.8</td>
</tr>
<tr>
<td>Cystoscopy</td>
<td>58</td>
<td>0.4</td>
<td>1.8</td>
<td>69.6</td>
</tr>
<tr>
<td>Total abdominal hysterectomy</td>
<td>45</td>
<td>0.3</td>
<td>1.4</td>
<td>71.0</td>
</tr>
<tr>
<td>Biopsy of endometrium</td>
<td>34</td>
<td>0.2</td>
<td>1.1</td>
<td>72.1</td>
</tr>
<tr>
<td>Nephrostomy</td>
<td>30</td>
<td>0.2</td>
<td>0.9</td>
<td>73.0</td>
</tr>
<tr>
<td>Control of postoperative hemorrhage, not elsewhere classified</td>
<td>25</td>
<td>0.2</td>
<td>0.8</td>
<td>73.8</td>
</tr>
<tr>
<td>Subtotal abdominal hysterectomy</td>
<td>25</td>
<td>0.2</td>
<td>0.8</td>
<td>74.6</td>
</tr>
<tr>
<td>Removal of pyelostomy or nephrostomy tube</td>
<td>23</td>
<td>0.2</td>
<td>0.7</td>
<td>75.3</td>
</tr>
<tr>
<td>Cone biopsy of cervix</td>
<td>22</td>
<td>0.2</td>
<td>0.7</td>
<td>76.0</td>
</tr>
<tr>
<td>Radical excision of pelvic lymph nodes for gynecological malignancy</td>
<td>22</td>
<td>0.2</td>
<td>0.7</td>
<td>76.7</td>
</tr>
<tr>
<td>Repair of incisional hernia</td>
<td>21</td>
<td>0.1</td>
<td>0.7</td>
<td>77.3</td>
</tr>
<tr>
<td>Radical abdominal hysterectomy</td>
<td>20</td>
<td>0.1</td>
<td>0.6</td>
<td>77.9</td>
</tr>
<tr>
<td>Other SP</td>
<td>705</td>
<td>4.8</td>
<td>22.1</td>
<td>100.0</td>
</tr>
<tr>
<td>No SP</td>
<td>11442</td>
<td>78.2</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

TOTAL NUMBER OF CASES 14639 100.0 100.0

Source: DRG National Data base 2009
or resulted in a worst condition or nothing have changed in the health status (table 2).

Hospital mortality rate with values over 1.5% for cervical cancer cases was recorded in Harghita (6.7), Sibiu (5.5), Satu Mare (4.9), Hunedoara (4.4), Buzau (4.2), Alba (3.4), Calarasi (3.0) (see cartogram 2). In geographic profile, the most hospital deaths were recorded in districts like: Bucharest (57), Maramures (14), Cluj (14), Sibiu (12), Hunedoara (11), Timis (10) (see cartogram 2).

### CONCLUSIONS

In Romania, hospitalizations for diagnosis “Malignant tumor of cervix uteri” represent a small part of the total volume of hospital activity (14,639 episodes, representing only 3.6% from all 4,047,900 discharges in first eight months of 2009). The profile of cases, designed as result of this analysis, can be drawn as follows: patients both from urban and rural areas (U/R=1.4) without any geographic aggregation; most of the cases (98%) had medical insurance and have been hospitalized in acute care departments, based on a referral from the specialist physician or as emergency; hospital care for these cases is provided in specialized departments like: oncology, radiotherapy, obstetrics-gynecology, and for a large part of these cases the health status is improved or even healing occurred (66% of cases).

From the patients with surgical treatments, more than half had one of the following three most common procedures: abdominal radical hysterectomy with radical excision of pelvic lymphatic nodes, biopsy of cervix and abdominal hysterectomy with bilateral salpingo-oophorectomy.

As one can notice, the hospital solves in high degree the cases with cervical cancer; for the global assessment of issues related to cervical cancer, it still needs to be stressed that these numbers represent only the hospital care from the total management of the disease.

An important role is owned by the family medicine and secondary ambulatory care, mainly for patient’s screening (suspect, diagnose) for referral to hospital.

But, most certain, the most important for an efficient and efficacy management of this disease is the preventive medicine.

European models for efficient management, like integrated networks for healthcare could be a solution for this moment and preventive strategies must be the cornerstone for health policies in Romania for this disease, but not only.

### References

2. Romanian Ministry of Health, Regulations for implementing the Health Program for Cervix Cancer, 2009