

The Burden of Hospitalised Carcinoma Patients in Osijek-Baranja County, Croatia, 1998–2010

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ABSTRACT

The purpose of this paper was to determine the number and trend of hospitalisations caused by carcinoma in the Osijek-Baranja County, to determine the proportion of these hospitalizations compared to all other hospitalization, as well as to determine the burden put on the hospitals by external patients (those not residing in the Osijek-Baranja County area). There has been an average of 10.1% of hospitalisations caused by carcinoma in the Osijek-Baranja County from 1998 to 2010. In the aforementioned period there have been an average 15.9% days of hospitalisation caused by carcinoma. Patients hospitalised due to carcinoma stay in hospital 5.3 days longer than other patients. The number of hospitalisations as a whole, as well as those due to carcinoma, is rising, while the number of days of hospitalisation per patient is decreasing. The number of hospitalisations which refer to men is slightly higher than for women (51.2%:48.8%). Almost one third of patients hospitalised are not residents of the Osijek-Baranja County due to a gravitational hospitalisation instance. Residents of northern Bosnia and Herzegovina are the most common patients being treated in our county. This burden has to be taken in to account when planning our health care due to the geographically, economically and politically specific situation of Osijek-Baranja County. This data has to be taken in to account when further planning our health care, as to relieve the acute medical situation hospitals of some of their burden, as well as to provide adequate care to patients suffering chronically from carcinoma. It is especially important to stress out that our county does not have a palliative care facility, nor a hospice for the terminally ill.

Key words: hospitalisations, carcinoma, Osijek-Baranja County, health care

Introduction

Cancer is an enormous global health burden, touching every region and socioeconomic level. Today, cancer accounts for one in every eight deaths worldwide, – more than HIV/AIDS, tuberculosis, and malaria combined. In 2008, there were an estimated 12.7 million cases of cancer diagnosed and 7.6 million deaths from cancer around the world¹. By 2030, it is projected that there will be 26 million new cancer cases and 17 million cancer deaths per year². The prevalence of cancer is rising. The increasing incidence of cancer in general, the aging of the population and more effective treatment all contribute to this rapid increase³. In addition, cancer is changing from a life-threatening disease into a chronic condition⁴.

In the Osijek-Baranja County, as well as in the entire Republic of Croatia, the number of cancer patients is in-

creasing in last decades. Carcinomas are second only to cardiovascular diseases as the leading causes of death^{5,6}. Following advances in medicine, the possibilities of diagnosing and treating carcinoma are increasing, thus significantly influencing the life expectations and quality of life of carcinoma patients. This, however, also leads to more time being spent treating not only the primary illness, but it's complications as well. Our intention was, these indicators in mind, to assess the burden put on the hospitals as to evaluate and plan our capacities in the future.

Our goal was to assess the burden of stationary health care and to see the time difference hospitalizations by cancers in the Osijek-Baranja County from 1998 until 2010.

Material and Methods

The most common cancer hospitalizations are identified, and trends in the hospital days from 1998 until 2010 are displayed. The census of 2011 puts the population of the Osijek-Baranja County at 305,032 (146,891 men, and 158,141 women). There are two hospitals, Clinic hospital Centre Osijek and General Hospital Našice, in the County. Both are equipped for the care and treatment of acute medical situations. However, both hospitals take care of the population of neighbouring counties, as well as the northern parts of Bosnia and Herzegovina.

The County Institute of Public Health collected and created a database which allows us to analyse the hospitalisations caused by cancer. Characteristics of these stays are compared by type of cancer as well as compared with hospitalizations for all other conditions. The County Institute of Public Health collects data as forms and as electronic records from the County hospitals on a monthly basis. The Hospital statistical form is filled for each patient who was hospitalized, and the Hospital Onco form is filled for a person with a malignant disease. The County Institute of Public Health, in cooperation with the County registry office, uses data concerning deaths by getting filled monthly death reports from the County registry office in an electronic form. The encryption of causes of death according to the ICD X is performed by physician in The County Institute of Public Health. Until now the data about hospital morbidity and mortality in the County has been used for an annual publication. That information is stored in County Institute of Public Health in an electronic form, and forms are returned to the Registry office. The data was previously stored in different databases by source and time period. We decided to create a unique system which will better utilize this data. This database would be supplemented and analysed according to newly collected data.

Statistical analysis

Contingency tables were used in the analysis. All confidence intervals (CI) were calculated with 95% probability levels. The software SAS for Windows (version 8.2, SAS Institute Inc, Cary, NC) was used for the analysis⁷.

Results

In the period from 1998 to 2010 an average of 45,786 hospitalisations annually was recorded in the Osijek-Baranja County, of which 4,647 (10.1%) were caused by carcinoma. An average of 426,465 days of hospitalisation was recorded annually, of which 67,866 were caused by carcinoma (15.9%) (Table 1).

An increasing trend in the number of hospitalisations is present, due to all causes ($y = 533.7x + 42,050$), as well as carcinoma ($y = 62.47x + 4,209$) (Figure 1.).

The number of days of hospitalisation due to all causes ($y = -4348.0x + 45,690$), as well as carcinoma ($y = -197.7x + 69,250$) is showing a decreasing trend (Figure 2).

TABLE 1
HOSPITALISATIONS (N) CAUSED BY CARCINOMAS AND BY ALL CAUSES, HOSPITAL DAYS FROM 1998 UNTIL 2010 IN OSIJEK-BARANJA COUNTY

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Summ '98-'10.	Average per year
No of hospitalisation	39,956	41,869	43,486	44,445	46,008	44,671	45,327	51,105	49,465	50,321	50,966	40,272	47,327	595,218	45,786
No of hospitalisation caused by carcinomas	4,377	4,433	4,412	4,280	4,775	4,591	4,492	4,294	4,551	5,132	4,871	5,067	5,136	60,411	4,647
% of all hospitalisation	11.0	10.6	10.1	9.6	10.4	10.3	9.9	8.4	9.2	10.2	9.6	12.6	10.9	10.1	10.1
No of hospital days – all	417,239	440,526	439,676	440,543	447,278	453,401	450,297	449,075	426,577	418,354	413,236	354,362	393,480	5,544,044	426,465
No of hospital days – caused by carcinomas	67,305	73,360	63,762	65,197	71,439	72,040	67,585	67,787	65,944	69,820	64,886	67,287	65,848	882,260	67,866
Average hospital days – all	10.4	10.5	10.1	9.9	9.7	10.1	9.9	8.8	8.6	8.3	8.1	8.8	8.3	9.3	9.3
Average hospital days – caused by carcinomas	15.4	16.5	14.5	15.2	15.0	15.7	15.0	15.8	14.5	13.6	13.3	13.3	12.8	14.6	14.6

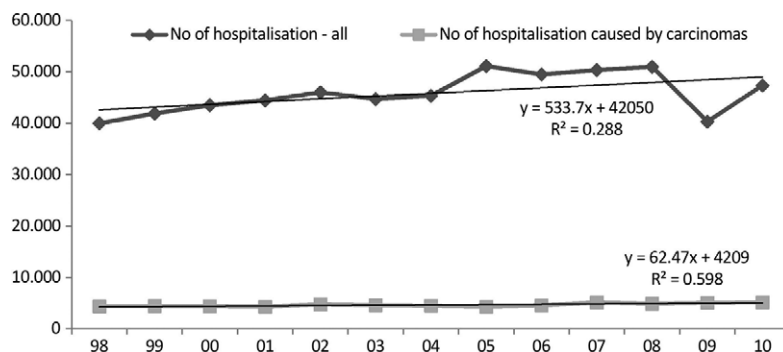


Fig. 1. All hospitalisations (N) and caused by carcinomas from 1998 until 2010 in Osijek-Baranja County.

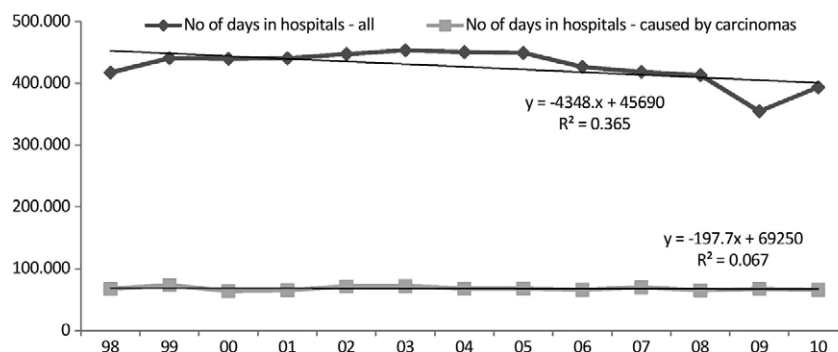


Fig. 2. Days in hospital (N) – all and caused by carcinomas from 1998 until 2010 in Osijek-Baranja County.

In the observed period more men than women were hospitalised (51.2% and 48.8% respectively). Most of the hospitalised people were in the age groups 44–64, and 65 and older, among both sexes (Tables 2 and 3).

Of the number of all hospitalisations in the 13 year period (N=60,411), as much as 29.1% of patients were not residents of the county (N=17,582) (Tables 4–6).

The average yearly hospitalisation rate among county residents is 949.7/100,000 for men (Table 7), and 848.1/100,000 for women (Table 8).

The five most common sites of carcinoma that led to hospitalisations are among men: malignant neoplasms of digestive organs (28.4%), respiratory and intrathoracic organs (25.0%), urinary tract (9.5%), lip, oral cavity and pharynx (8.4%) and male genital organs (7.9%) (Table 9).

Among women the most common causes of hospitalisations were: malignant neoplasms of digestive organs and breast with an equal share (20.6%), female genital organs (17.3%), malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue (8.0%) and thyroid and other endocrine glands (5.8%) (Table 10).

Discussion

The purpose of this paper was to determine the number and trend of hospitalisations caused by carcinoma in the Osijek-Baranja County, to determine the share these

hospitalisations have in all hospitalisations, as well as to determine the burden put on the hospitals by external patients (those not residing in the Osijek-Baranja County area). Carcinoma are the second highest cause morbidity and mortality after cardiovascular diseases. The Osijek-Baranja County, as well as the rest of Croatia, is in a phase of depopulation. In a ten year period between 2001 and 2011 there has been a decrease in the population of both the Republic of Croatia (4.6%), and in the Osijek-Baranja County (9.3%)⁸. This geographical difference can be explained by migration trends as consequences of war, and by a worse economic situation in the east of Croatia in relation to the entire Republic. Simultaneously, the share of the population older than 65 is growing. In 2001 this share was at 15.5% in the Republic of Croatia and 14.7% in the Osijek-Baranja County, while in 2011 it reached 17.7% in the Republic of Croatia and 16.9% in the Osijek-Baranja County. These demographical shifts are important for the planning of health care as the number of people suffering from cancer increases with age, as does the usage of health care. According to our results, around one half of all hospitalisations due to carcinoma can be attributed to people over the age 65.

Stationary health care in the Osijek-Baranja County is provided by General Hospital Našice and University Hospital Center Osijek, which is also the only clinical hospital in the east of Croatia. The University Hospital Center Osijek, thus, takes care not only of the population of the Osijek-Baranja County but of the population from

TABLE 2
HOSPITALISATIONS (N) CAUSED BY CARCINOMAS FROM 1998 UNTIL 2010 IN OSIJEK-BARANJA COUNTY – MEN, PER AGE GROUP

Age group	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Summ
<20	18	17	31	26	17	18	12	17	11	12	16	18	13	226
20–44	181	185	157	149	139	138	152	122	115	145	153	173	142	1,951
45–64	1,043	938	981	887	1,035	997	965	868	907	980	1,155	1,136	1,251	13,143
>65	943	1,116	1,033	1,025	1,179	1,205	1,260	1,239	1,350	1,417	1,179	1,354	1,322	15,622
all	2,185	2,256	2,202	2,087	2,370	2,358	2,389	2,246	2,383	2,554	2,503	2,681	2,728	30,942

TABLE 3
HOSPITALISATIONS (N) CAUSED BY CARCINOMAS FROM 1998 UNTIL 2010 IN OSIJEK-BARANJA COUNTY – WOMEN, PER AGE GROUP

Age group	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Summ
<20	16	26	12	6	29	v20	24	32	18	12	6	19	13	233
20–44	281	294	366	286	276	308	250	232	323	394	289	285	242	3,826
45–64	975	901	904	881	950	849	788	775	856	920	913	903	975	11,590
>65	920	956	928	1,020	1,150	1,056	1,041	1,009	971	1,252	1,160	1,179	1,178	13,820
all	2,192	2,177	2,210	2,193	2,405	2,233	2,103	2,048	2,168	2,578	2,368	2,386	2,408	29,469

TABLE 4
ALL HOSPITALISATIONS (N) CAUSED BY CARCINOMAS FROM 1998 UNTIL 2010 IN OSIJEK BARANJA COUNTY BY ICD-X GROUPS

ICD X	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Summ
C00-C14	206	239	223	220	208	205	208	186	221	269	259	241	273	2,958
C15-C26	961	967	968	1,106	1,201	1,248	1,128	1,050	1,083	1,153	1,292	1,329	1,359	14,845
C30-C39	823	825	901	698	774	728	632	633	628	652	601	644	720	9,259
C40-C41	38	24	20	19	30	31	26	27	14	8	13	35	20	305
C43-C44	138	177	129	166	142	151	186	193	191	261	246	251	227	2,458
C45-C49	28	40	35	42	60	47	39	54	42	31	30	45	42	535
C50	483	392	429	427	558	492	418	406	414	578	529	508	513	6,147
C51-C58	462	532	463	425	413	339	366	325	372	368	355	339	336	5,095
C60-C63	187	137	90	117	157	153	222	237	217	253	205	258	202	2,435
C64-C68	146	239	264	254	341	273	331	354	404	375	330	329	291	3,931
C69-C72	110	124	86	86	98	93	89	87	69	91	68	91	89	1,181
C73-C75	122	138	131	80	114	132	154	164	200	223	197	185	215	2,055
C76-C80	156	131	104	106	142	113	127	103	71	142	118	132	167	1,612
C81-C96	329	281	326	265	288	318	307	331	356	372	360	407	445	4,385
C97	0	0	1	0	0	1	0	0	0	0	0	0	0	2
D00-D09	68	62	139	173	147	160	145	74	156	203	129	130	109	1,695
D37-D48	120	125	103	96	102	107	114	70	113	153	139	143	128	1,513
All	4,377	4,433	4,412	4,280	4,775	4,591	4,492	4,294	4,551	5,132	4,871	5,067	5,136	60,411

TABLE 5
 PATIENTS OUT OF COUNTY WHO ARE HOSPITALIZED (N) CAUSED BY CARCINOMAS FROM 1998 UNTIL 2010 IN OSIJEK BARANJA COUNTY BY ICD-X GROUPS

ICD X	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Summ
C00-C14	75	106	87	76	80	83	89	68	94	113	126	90	100	1,187
C15-C26	219	282	285	358	378	462	337	362	277	297	363	398	498	4,516
C30-C39	218	258	305	203	239	214	153	158	156	173	167	186	235	2,665
C40-C41	1	3	7	9	14	12	7	11	3	2	4	4	1	78
C43-C44	39	47	36	36	30	32	43	24	20	37	41	31	37	453
C45-C49	5	7	7	13	19	24	8	13	20	16	7	11	17	167
C50	175	132	155	130	189	171	153	130	138	202	181	160	179	2,095
C51-C58	82	90	101	117	91	97	103	76	113	112	102	86	102	1,272
C60-C63	35	27	13	33	34	39	36	47	52	75	41	37	27	496
C64-C68	44	58	76	72	113	58	83	78	72	63	59	43	51	870
C69-C72	38	47	24	26	28	30	20	30	15	33	13	34	45	383
C73-C75	61	62	66	45	51	56	88	88	106	103	92	79	123	1,020
C76-C80	35	51	30	28	34	26	39	29	17	50	49	29	45	462
C81-C96	87	50	93	70	58	67	66	73	104	131	126	141	154	1,220
D00-D09	14	14	17	27	20	23	19	20	35	43	43	38	32	345
D37-D48	23	25	25	19	27	19	24	15	20	26	47	39	44	353
All	1,151	1,259	1,327	1,262	1,405	1,413	1,268	1,222	1,242	1,476	1,461	1,406	1,690	17,582

TABLE 6
 PERCENT OF PATIENTS OUT OF COUNTY WHO ARE HOSPITALIZED (%) CAUSED BY CARCINOMAS FROM 1998 UNTIL 2010 IN OSIJEK BARANJA COUNTY BY ICD-X GROUPS

ICD X	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Summ
C00-C14	36.4	44.4	39.0	34.5	38.5	40.5	42.8	36.6	42.5	42.0	48.6	37.3	36.6	40.1
C15-C26	22.8	29.2	29.4	32.4	31.5	37.0	29.9	34.5	25.6	25.8	28.1	29.9	36.6	30.4
C30-C39	26.5	31.3	33.9	29.1	30.9	29.4	24.2	25.0	24.8	26.5	27.8	28.9	32.6	28.8
C40-C41	2.6	12.5	35.0	47.4	46.7	38.7	26.9	40.7	21.4	25.0	30.8	11.4	5.0	25.6
C43-C44	28.3	26.6	27.9	21.7	21.1	21.2	23.1	12.4	10.5	14.2	16.7	12.4	16.3	18.4
C45-C49	17.9	17.5	20.0	31.0	31.7	51.1	20.5	24.1	47.6	51.6	23.3	24.4	40.5	31.2
C50	36.2	33.7	36.1	30.4	33.9	34.8	36.6	32.0	33.3	34.9	34.2	31.5	34.9	34.1
C51-C58	17.7	16.9	21.8	27.5	22.0	28.6	28.1	23.4	30.4	30.4	28.7	25.4	30.4	25.0
C60-C63	18.7	19.7	14.4	28.2	21.7	25.5	16.2	19.8	24.0	29.6	20.0	14.3	13.4	20.4
C64-C68	30.1	24.3	28.8	28.3	33.1	21.2	25.1	22.0	17.8	16.8	17.9	13.1	17.5	22.1
C69-C72	34.5	37.9	27.9	30.2	28.6	32.3	22.5	34.5	21.7	36.3	19.1	37.4	50.6	32.4
C73-C75	50.0	44.9	50.4	56.3	44.7	42.4	57.1	53.7	53.0	46.2	46.7	42.7	57.2	49.6
C76-C80	22.4	38.9	28.8	26.4	23.9	23.0	30.7	28.2	23.9	35.2	41.5	22.0	26.9	28.7
C81-C96	26.4	17.8	28.5	26.4	20.1	21.1	21.5	22.1	29.2	35.2	35.0	34.6	34.6	27.8
D00-D09	20.6	22.6	12.2	15.6	13.6	14.4	13.1	27.0	22.4	21.2	33.3	29.2	29.4	20.4
D37-D48	19.2	20.0	24.3	19.8	26.5	17.8	21.1	21.4	17.7	17.0	33.8	27.3	34.4	23.3
All	26.3	28.4	30.1	29.5	29.4	30.8	28.2	28.5	27.3	28.8	30.0	27.7	32.9	29.1

TABLE 7
MAN COUNTY RESIDENTS WHO ARE HOSPITALIZED (RATE PER 100,000) CAUSED BY CARCINOMAS FROM 1998 UNTIL 2010 IN OSIJEK BARANJA COUNTY BY ICD-X GROUPS

ICD X	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
C00-C14	59.8	60.9	66.5	89.2	74.9	74.9	74.9	72.8	77.6	93.9	78.3	93.3	106.2
C15-C26	223.2	232.8	212.0	259.4	333.6	326.1	309.1	279.1	332.2	334.9	378.5	389.4	356.0
C30-C39	284.1	275.1	284.1	273.0	294.1	279.8	284.6	266.2	258.7	265.5	241.0	251.9	266.9
C40-C41	16.3	6.2	3.9	3.4	6.1	6.1	8.2	4.1	3.4	1.4	4.1	16.3	11.6
C43-C44	28.7	30.4	22.5	47.0	37.4	41.5	53.1	61.3	63.3	78.3	68.8	69.4	57.9
C45-C49	3.9	7.3	10.7	8.9	7.5	8.2	8.2	5.4	7.5	4.1	12.9	15.0	10.9
C50	4.5	1.7	1.7	0.7	4.1	0.7	0.7	3.4	2.7	2.0	1.4	2.0	2.0
C51-C58	1.1	0.0	0.6	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0
C60-C63	85.7	61.4	43.4	57.2	83.7	77.6	126.6	129.3	112.3	121.2	111.6	150.5	119.1
C64-C68	46.2	81.7	82.9	94.6	115.7	103.5	121.9	134.1	175.0	157.9	138.9	155.2	119.8
C69-C72	18.0	19.7	15.2	17.0	25.9	21.8	24.5	11.6	19.1	25.9	24.5	26.6	9.5
C73-C75	8.5	10.1	7.3	4.8	7.5	10.9	6.1	5.4	8.2	12.3	12.9	12.9	8.9
C76-C80	40.0	27.6	25.4	26.6	39.5	32.0	42.2	29.3	19.7	36.1	21.8	36.8	55.1
C81-C96	60.9	57.5	68.8	56.5	59.2	85.1	81.7	85.8	74.2	64.7	70.8	74.9	104.8
1D00-D09	2.3	3.4	2.3	2.0	3.4	4.8	4.1	6.1	4.8	8.2	4.1	4.1	4.1
D37-D48	25.9	24.2	19.2	23.1	23.8	23.1	26.6	22.5	33.4	34.0	30.0	30.0	19.7
All	909.3	900.3	866.4	963.3	1,116.5	1,096.1	1,173.7	1,116.5	1,192.0	1,240.4	1,199.5	1,328.2	1,252.6

TABLE 8
WOMEN COUNTY RESIDENTS WHO ARE HOSPITALIZED (RATE PER 100,000) CAUSED BY CARCINOMAS FROM 1998 UNTIL 2010 IN OSIJEK BARANJA COUNTY BY ICD-X GROUPS

ICD X	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
C00-C14	13.2	13.2	9.5	8.2	11.4	7.6	5.7	7.0	8.2	11.4	11.4	8.9	10.7
C15-C26	182.3	143.3	161.7	232.1	210.6	194.1	213.1	175.8	201.1	230.2	235.9	227.0	213.7
C30-C39	53.2	41.6	48.5	59.4	65.1	65.1	38.6	53.1	58.2	56.3	50.6	55.6	58.8
C40-C41	4.2	5.3	3.2	3.2	4.4	6.3	4.4	6.3	3.8	2.5	1.9	4.4	1.3
C43-C44	25.3	40.0	27.9	38.6	36.0	36.7	41.1	50.0	49.3	68.9	65.8	74.6	66.4
C45-C49	8.4	10.5	4.7	10.1	19.0	7.0	12.0	20.9	7.0	5.7	2.5	7.6	5.7
C50	158.1	135.4	142.8	187.2	229.5	202.4	166.9	171.4	172.0	235.9	218.8	218.2	209.3
C51-C58	199.2	232.9	190.2	194.8	203.6	153.0	165.0	157.5	163.8	161.9	160.0	160.0	148.0
C60-C63	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C64-C68	10.5	19.0	21.6	27.2	36.7	39.8	43.6	50.0	47.4	50.6	42.4	36.7	40.5
C69-C72	21.1	22.1	18.4	22.1	20.2	19.6	20.9	25.3	16.4	12.6	12.0	11.4	19.0
C73-C75	24.2	30.6	27.4	17.7	32.9	37.9	36.0	43.0	51.9	64.5	54.4	55.0	50.0
C76-C80	26.3	16.3	15.3	24.7	31.6	25.3	16.4	19.6	15.8	24.7	23.4	31.0	25.9
C81-C96	70.6	68.0	58.5	70.8	90.4	79.7	76.5	83.5	90.4	92.3	82.2	98.6	86.6
C97	0.0	0.0	0.5	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D00-D09	26.3	22.1	62.2	90.4	77.1	82.2	75.9	28.5	72.1	93.6	50.6	54.4	44.9
D37-D48	26.9	30.0	23.2	27.2	25.3	34.1	32.2	13.9	27.8	48.7	30.4	37.9	34.8
All	849.8	830.9	815.6	1,013.7	1,094.0	991.5	948.5	905.5	985.2	1,159.7	1,042.1	1,081.3	1,015.5

TABLE 9
HOSPITALISATIONS (N) CAUSED BY CARCINOMAS IN MEN FROM 1998 UNTIL 2010 IN OSIJEK BARANJA COUNTY BY ICD-X GROUPS

Rang	ICD X		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Summ
4	C00-C14	Malignant neoplasms of lip, oral cavity and pharynx	174	203	195	192	178	171	184	166	200	246	221	214	247	2,591
1	C15-C26	Malignant neoplasms of digestive organs	517	566	510	604	709	771	689	604	667	672	788	831	859	8,787
2	C30-C39	Malignant neoplasms of respiratory and intrathoracic organs	701	699	776	592	643	597	546	524	509	540	496	522	583	7,728
	C40-C41	Malignant neoplasms of bone and articular cartilage	29	13	14	11	11	15	18	14	8	4	8	25	17	187
	C43-C44	Melanoma and other malignant neoplasms of skin	69	77	62	88	64	71	107	99	101	130	119	114	107	1,208
	C45-C49	Malignant neoplasms of mesothelial and soft tissue	8	19	25	26	30	28	16	14	22	15	22	27	23	275
	C50	Malignant neoplasm of breast	9	5	4	2	7	4	1	6	5	9	3	5	3	63
	C51-C58	Malignant neoplasms of female genital organs	2	0	1	0	0	0	2	0	0	1	0	0	1	7
5	C60-C63	Malignant neoplasms of male genital organs	187	134	90	117	157	153	222	237	217	253	205	258	202	2,432
3	C64-C68	Malignant neoplasms of urinary tract	111	188	192	192	260	194	234	256	312	282	249	255	212	2,937
	C69-C72	Malignant neoplasms of eye, brain and other parts of central nervous system	60	65	43	39	47	44	46	32	37	58	44	59	30	604
	C73-C75	Malignant neoplasms of thyroid and other endocrine glands	21	26	24	17	18	24	21	18	33	36	37	40	41	356
	C76-C80	Malignant neoplasms of ill-defined, secondary and unspecified sites	91	78	68	57	84	70	92	67	44	80	73	69	108	981
	C81-C96	Malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue	145	125	150	112	117	161	154	155	164	154	167	190	240	2,034
	D00-D09	In situ neoplasms	6	7	5	3	5	7	7	12	7	13	7	8	6	93
	D37-D48	Neoplasms of uncertain or unknown behaviour	55	51	43	35	40	48	50	42	57	61	64	64	49	659
All			2,185	2,256	2,202	2,087	2,370	2,358	2,389	2,246	2,383	2,554	2,503	2,681	2,728	30,942

TABLE 10
HOSPITALISATIONS (N) CAUSED BY CARCINOMAS IN WOMEN FROM 1998 UNTIL 2010 IN OSIJEK BARANJA COUNTY BY ICD-X GROUPS

Rang	ICD X		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Summ
	C00-C14	Malignant neoplasms of lip, oral cavity and pharynx	32	36	28	28	30	34	24	20	21	23	38	27	26	367
2	C15-C26	Malignant neoplasms of digestive organs	444	401	458	502	492	477	439	446	416	481	504	498	500	6,058
	C30-C39	Malignant neoplasms of respiratory and intrathoracic organs	122	126	125	106	131	131	86	109	119	112	105	122	137	1,531
	C40-C41	Malignant neoplasms of bone and articular cartilage	9	11	6	8	19	16	8	13	6	4	5	10	3	118
	C43-C44	Melanoma and other malignant neoplasms of skin	69	100	67	78	78	80	79	94	90	131	127	137	120	1,250
	C45-C49	Malignant neoplasms of mesothelial and soft tissue	20	21	10	16	30	19	23	40	20	16	8	18	19	260
1	C50	Malignant neoplasm of breast	474	387	425	425	551	488	417	400	409	569	526	503	510	6,084
3	C51-C58	Malignant neoplasms of female genital organs	460	532	462	425	413	339	364	325	372	367	355	339	335	5,088
	C60-C63	Malignant neoplasms of male genital organs	0	3	0	0	0	0	0	0	0	0	0	0	0	3
	C64-C68	Malignant neoplasms of urinary tract	35	51	72	62	81	79	97	98	92	93	81	74	79	994
	C69-C72	Malignant neoplasms of eye, brain and other parts of central nervous system	50	59	43	47	51	49	43	55	32	33	24	32	59	577
5	C73-C75	Malignant neoplasms of thyroid and other endocrine glands	101	112	107	63	96	108	133	146	167	187	160	145	174	1,699
	C76-C80	Malignant neoplasms of ill-defined, secondary and unspecified sites	65	53	36	49	58	43	35	36	27	62	45	63	59	631
4	C81-C96	Malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue	184	156	176	153	171	157	153	176	192	218	193	217	205	2,351
	C97	Malignant neoplasms of independent (primary) multiple sites	0	0	1	0	0	1	0	0	0	0	0	0	0	2
	D00-D09	In situ neoplasms	62	55	134	170	142	153	138	62	149	190	122	122	103	1,602
	D37-D48	Neoplasms of uncertain or unknown behaviour	65	74	60	61	62	59	64	28	56	92	75	79	79	854
All				2,177	2,210	2,193	2,405	2,233	2,103	2,048	2,168	2,578	2,368	2,386	2,408	29,469

surrounding areas, such as neighbouring counties and northern Bosnia and Herzegovina. There has been an average of 10.1% of hospitalisations caused by carcinoma in the Osijek-Baranja County from 1998 to 2010. In the aforementioned period there have been an average 15.9% days of hospitalisation caused by carcinoma. The average length of stay in hospitals has fallen from 10.4 in 1998 to 8.3 (15.4 to 12.8 for carcinomas) which is still more than in OECD countries⁹ or in US¹⁰. Patients hospitalised due to carcinoma stay in hospital 5.3 days longer than other patients. Although a decreasing trend in hospitalisation days can be seen in the observed period, a comparison with other countries in the region reveals we have the longest hospitalisation length for patients suffering from carcinoma; for instance Slovenia had 8 days in 2010, Italy 9.2 in 2009, Hungary 5.1 in 2009¹¹.

As the risk of carcinoma morbidity rises with age^{12–14}, it can be expected that among both sexes the most people hospitalised belong to the age groups 44–64, and 65 and older.

There were no papers describing the problematic of the hospitalisation of all carcinoma when searching data bases. Research shows that there is an increase in incidence of certain carcinoma sites¹³, as well as the number and cost of the hospitalisation of these patients¹⁴.

Of the entire number of hospitalisations in the 13 year period 29.1% hospitalisations is for patients who were not county residents. The average yearly rate of hospitalisations for county residents is 949.7/100,000 for men, and 848.1/100,000 for women.

REFERENCES

1. GLOBAL CANCER FACTS & FIGURES (American Cancer Society, Atlanta, GA, 2011), accessed 04.04.2013. Available from: URL: <http://www.cancer.org/acs/groups/content/epidemiologysurveillance/documents/document/acspc-027766.pdf>. — 2. WORLD CANCER REPORT 2008 (IARC Press, Lyon, 2008), accessed 04.04.2013. Available from: URL: http://www.iarc.fr/en/publications/pdfs-online/wcr/2008/wcr_2008.pdf. — 3. KANKER IN NEDERLAND. Trends, prognoses en implicaties voor zorgvraag (KWF Kankerbestrijding, 2004), accessed 04.04.2013. Available from: URL: <http://www.marijnoot.nl/Portfolio/Desk%20Research/Statistieken.pdf>. — 4. GANZ PA, Eur J Cancer, 39 (2003) 2136. — 5. Podaci o zdravstvenom stanju stanovništva i radu zdravstvene djelatnosti u Osječko-baranjskoj županiji u 2011. godini (Zavod za javno zdravstvo Osječko-baranjske županije, Osijek, 2012). — 6. CROATIAN HEALTH SERVICE YEAR-BOOK 2011 (Croatian National Institute of Public Health, Zagreb, 2012). — 7. SAS INSTITUTE INC, SAS Procedure Guide, Version 8 (SAS Insti-

Conclusions

The number of hospitalisations as a whole, as well as those due to carcinoma, is rising, while the number of days of hospitalisation per patient is decreasing. This is in line with the efforts to shorten the hospitalisation duration in order to avoid complications that arise, as well as to improve the patient's life quality. The number of hospitalisations which refer to men is slightly higher than for women (51.2% : 48.8%). Almost one third of hospitalisation is patients who are not residents of the Osijek-Baranja County due to a gravitational hospitalisation instance. Residents of northern Bosnia and Herzegovina are the most common patients being treated in our county. This burden has to be taken in to account when planning our health care due to the geographically, economically and politically specific situation of our county.

The average hospital stay is much longer for carcinoma than for all other reasons (14.6:9.3), which is a big burden on the health system that has to be taken account for. This data has to be taken in to account when further planning our health care, as to relieve the acute medical situation hospitals of some of their burden, as well as to provide adequate care to patients suffering chronically from malignant diseases. It is especially important to stress out that our county does not have a palliative care facility, nor a hospice for the terminally ill.

8. Available from: URL: <http://www.dzs.hr/>. — 9. AVERAGE LENGTH OF STAY IN HOSPITALS. In Health at a Glance 2011: OECD Indicators (OECD Publishing, 2011), accessed 04.04.2013. Available from: URL: http://dx.doi.org/10.1787/health_glance-2011-33-en. — 10. Available from: URL: <http://www.cdc.gov/nchs/fastats/cancer.htm>. — 11. Available from: URL: <http://stats.oecd.org/> data extracted on 03 Jan 2013 07:18 UTC (GMT) from OECD.Stat. — 10. ERSHLER WB, LONGO DL, J Natl Cancer Inst, 89 (1997) 1489. — 11. SASIENI PD, SHELTON J, ORMISTON-SMITH N, THOMSON CS, SILCOCKS PB, Br J Cancer, 105 (2011) 460. DOI: 10.1038/bjc.2011.250. — 12. KEMPAINEN M, RÁIHÄ I, RAJALA T, SOURANDER L, Gerontology, 39 (1993) 222. — 13. NEUTEL CI, GAO RN, WAI E, GAUDETTE LA, Cancer Causes Control, 16 (2005) 1261. — 14. KIM WR, GORES GJ, BENSON JT, THERNEAU TM, MELTON LJ 3RD, Gastroenterology, 129 (2005) 486.

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BREME HOSPITALIZACIJA UZROKOVANIH KARCINOMIMA U OSJEČKO-BARANJSKOJ ŽUPANIJI OD 1998. DO 2010.

S A Ž E T A K

Cilj ovog rada je prikazati hospitalizacije uzrokovane karcinomima u Osječko-baranjskoj županiji od 1998 do 2010. godine, njihov udio u svim hospitalizacijama, te opterećenost stacionarne zdravstvene zaštite pacijentima koji gravitiraju našoj županiji, a nisu njeni stanovnici. U promatranom razdoblju 10,1% svih hospitalizacija, odnosno 15,9% bolničkih dana je uzrokovano karcinomima. Pacijenti oboljeli od karcinoma prosječno leže 5,3 dana dulje u bolnici od pacijenata s drugim dijagnozama. Ukupan broj hospitalizacija, kao i broj hospitalizacija uzrokovanih karcinomima raste, a duljina boravka u bolnici se skraćuje. Muškarci su češće od žena hospitalizirani zbog karcinoma (51,2% : 48,8%). Gotovo trećina svih hospitaliziranih pacijenata zbog karcinoma nisu stanovnici Osječko-baranjske županije. Osim pacijenata iz susjednih županija, značajan je i broj pacijenata iz susjedne Bosne i Hercegovine koji su hospitalizirani u bolnicama Osječko-baranjske županije. Ove podatke je potrebno uzeti u obzir prilikom planiranja kapaciteta stacionarne zdravstvene zaštite, kako bi se smanjilo opterećenje akutnih bolnica, te omogućilo adekvatno liječenje pacijentima koji boluju od malignih bolesti. Potrebno je uzeti u obzir da na našem području ne postoje ustanove palijativne skrbi ili hospiciji.