

the dying patient. With increasing numbers of patients with palliative care requirements, greater integration and expansion of medical undergraduate palliative care education is advocated.

## Epidemiology

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POSTER

### Childhood cancer mortality in the Belgrade population during the period 1980–1997

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**Purpose:** The aim of this investigation was to estimate cancer mortality in childhood in the Belgrade population during the period 1980–1997.

**Methods:** Mortality data of cancers in childhood in Belgrade were analyzed according to the death records for the period 1980–1997. Mortality rates were adjusted by direct method using world population as a standard. Fisher's test was used in estimation of the significance of the linear regression coefficient.

**Results:** In Belgrade, malignant tumors in the age up to 14 years had 0.49% in the mortality structure of all cancers during the period 1980–1997. The average standardized mortality rate of all cancers was 1.49 per 100,000 (95%CI 0.48–3.47) with a significantly decreasing tendency ( $p = 0.009$ ). Age-specific rates were the highest in the age group 5–9 years with average value of 5.08/100,000 (95%CI 1.65–11.84) (for boys 5.92/100,000 - 95%CI 1.92–13.79, and for girls 4.19/100,000 - 95%CI 1.36–9.76). Haematological malignancies (43.55%), brain tumours (25.81%) and soft tissue and bone tumors (10.08%) were the most frequent cancers in childhood in the Belgrade population, for the observed period. The average standardized mortality rates were 0.26/100,000 (95%CI 0.01–1.45) for leukemia, 0.34/100,000 (95%CI 0.1–1.89) for Hodgkin's disease, and 0.05/100,000 (95%CI 0.001–0.28) for non-Hodgkin's lymphomas. The elevated mortality trends were registered for leukemia ( $p = 0.678$ ) and non-Hodgkin's lymphomas ( $p = 0.342$ ), whereas a high significant decreasing trend was presented for Hodgkin's disease ( $p = 0.001$ ). For brain tumours ( $p = 0.954$ ), and soft tissue and bone tumors ( $p = 0.952$ ), a decreasing mortality trends were observed too.

**Conclusion:** According to observed mortality rates, the risk of death due to malignant tumors in childhood in the Belgrade population is low. These findings are in accordance with the better treatment results and longer survival of children with many types of cancer registered in recent years.

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POSTER

### Cancer morbidity in West Belarus

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**Purpose:** The territory of Belarus can be divided on two parts: 'dirty' territory (i. e. territory polluted after Chernobyl accident) and 'clean' territory. Grodno is situated in 'clean' territory of Belarus. We decided to compare the indices of cancer morbidity until and after Chernobyl accident in 'clean' zone.

**Methods:** All cases study of the patients with cancer (excluding oncogynecology data) has been noticed in the same city district during 1985, 1986 and 1995–2000. The index of cancer morbidity (ICM) on 100,000 of population was calculated.

**Results:** The all new revealed annually cases of cancer (from number of population about 50,000) are presented in the table below.

	Index Year							
	1985	1986	1995	1996	1997	1998	1999	2000
Male	104	90	82	99	105	108	93	70
Female	89	80	80	92	78	104	103	67
Totally	193	170	162	191	183	212	196	137
ICM	347.8	306.4	295.6	348.5	330.3	382.6	351.1	280.6

**Conclusion:** due to the data obtained in Grodno (West Belarus), we can observe not a substantial difference in ICM between years until and after Chernobyl accident. Also, in all years (in spite of female population prevalence) the male new revealed cases of cancer are prevalent.

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### Some epidemiological data of cancer in West Belarus

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**Purpose:** The territory of Belarus conditionally divides into two parts: 'dirty' territory (i. e. territory polluted after Chernobyl accident) and 'clean' territory. Grodno is situated in 'clean' territory of Belarus. We decided to compare frequency of the oncologic diseases before Chernobyl accident and after it.

**Methods:** All cases study of the patients with cancer (excluding oncogynecology data) has been noticed in the same city district during 1985, 1986 and 1995–2000 (from number of population about 50,000). The three most numerous kinds of cancer determined annually between 1) lung cancer (LC); 2) cancer of gastrointestinal tracts (CGT); 3) breast cancer (BM) and 4) hematologic malignancies (HM).

**Results:** The 3 major kinds of cancer are presented in the table below.

Cancer (%)	Year							
	85	86	95	96	97	98	99	00
LC	18	16	16	14	12	14	14	8
CGT	26	22	21	21	26	18	18	21
BM	11	10	11	11	—	14	14	9
HM	—	—	—	—	26	—	—	—

**Conclusion:** Due to the data obtained, in west Belarus ('clean' zone) we did not observe an increase of major groups of oncologic diseases after Chernobyl accident. The increase in HM, in 1997, is possibly explained by effect of low radiation dose accumulation. The higher levels of CGT group is due to the traditionally high consumption of animal fats and, conversely, low consumption of fruits and vegetables.

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### Epidemiology of thyroid gland carcinoma (TGC) in West Belarus

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**Purpose:** Thyroid gland is one of the target organs for the radioactive isotopes after radioactive pollution. We decided to compare the indices of TGC morbidity during 12 years after Chernobyl accident in area free from radioactive pollution.

**Methods:** All cases study of the patients with primary TGC has been noticed in the same city district of city Grodno (from average number of population 50,250) during 1989–2000.

**Results:** The all new revealed annually cases of TGC (usually stage I–II) are presented in the table below.

	Year											
	1989	90	91	92	93	94	95	96	97	98	99	00
Cases of TGC	1	—	1	4	3	2	1	—	—	3	1	2

The average age of the patients ( $n = 18$ ) was 41.5. Follicular carcinoma was presented in 80% of TGC. The treatment of TGC was surgical in all cases and (in 27.8%) radiation therapy too. Two patients (11.1%) had relapses of carcinoma after 1 year and 7 years after the treatment.

**Conclusion:** due to the data obtained, we can observe a) extraordinary high level of namely of follicular carcinoma between all cases of TGC and b) the level of TGC was maximal 6 years after Chernobyl accident. In our opinion the first fact probably is connected both with low doses of radiation accumulation after Chernobyl accident (1986) and with the endemic goiter area in which territory of Belarus is situated. The last conclusion supports the assumption of low dose radiation influence on TGC.

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POSTER

### Incidence of childhood cancer in Belarus, 1994–1998

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This report provides results of the analysis of trends in childhood cancer incidence in Belarus in 1994–1998. For the 5-year period a total of 1645 cancer cases have been registered in Belarus Childhood Cancer-subregistry (data-base of epidemiological department of Belorussian Center for Pediatric Oncology and Hematology, Minsk) in children under 15 years of

age. All cases were histologically confirmed. The overall crude rate was 14.89 and the age-standardized incidence rate (world standard) was 14.61 per 100 000. The incidence rates varied by ICCO group and age group. Age - standardized incidence rate for Leukemia was 3.87, for thyroid cancer - 2.66, for CNS group was 2.59. In the structure of childhood cancer the leading places belong to the Leukemia - 23.71%, Thyroid cancer - 22.61%, CNS tumors - 17.69%, Lymphomas - 13.37%, Soft-tissue sarcomas group - 5.29%, renal tumors - 4.98%, Bone tumors - 3.04%.

The highest incidence rate of childhood cancer we observed in Gomel region (20.17).

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POSTER

### Geographical clustering of adenocarcinoma of the lung and possible determinants

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The annual mortality rates of lung cancer in Japan in 1999 were 49.8 per 100,000 for men and 13.4 for women, which had been increasing for the last few decades. Among the causes of death from cancer, lung cancer is currently the highest for men and the third for women. The discrepancy between mortality and incidence rates of lung cancer are still small in Japan. We analyzed most recent data of mortality and incidence from lung cancer.

In our prefecture, cancer registry started in 1992. Using the incidence data, we analyzed geographical distribution of cancers. As the result, we detected geographical clustering of lung cancer. The standardized incidence ratios (SIRs) of lung cancer for both genders in areas along two main rivers running through the prefecture were significantly higher than those in the rest of the prefecture (the standard population).

On the other hand, when we analyzed mortality data, the standardized mortality ratios (SMRs) of lung cancer were also significantly higher in the same areas along the rivers for both men and women. In addition, the SMR of adenocarcinoma of the lung for males in areas along one of the two rivers was significantly high. For females, the SMR of adenocarcinoma was significantly high in areas near the outlet of the same river.

What are then the determinants of the observed geographical clustering of lung cancer, particularly adenocarcinoma?

Genetic background of the population in the prefecture is homogenous. No geographical difference has been reported in social status and life styles in the prefecture. Tobacco smoking has been recognized to be as the strongest risk factor of all. In the prefecture we examined, smoking rates are very similar from area to area. Adenocarcinoma, of which mortality showed geographical clustering, is known to relate to smoking least of all the histological types of lung cancer. We hence suspect that environmental determinants specific to the areas of interest are the most plausible candidates.

We previously reported geographical distribution of heavy metals in the prefecture and its relation to mortality of some types of cancer. In the case of lung cancer, we also suspect the roles of heavy metals, because there are old mines along the river. In addition to metals, we have to take into consideration chemicals that possess endocrine disrupting effects, especially dioxins. Lung cancer is listed as one of adverse health effects of dioxins on humans. We have recently measured concentration of dioxins in sediment in the areas dating back to circa 1960. It was revealed that pollution by dioxins began in early 1950s and that the peak of concentration lasted during 1970 -1990. This fact satisfies temporal sequence of the relationship between lung cancer and exposure to dioxins. The source of dioxins was mostly agricultural agents for rice production as the results of principle component analyses of isomers. Rice-producing districts mostly belong to the areas along the rivers. However, it is known that dioxins play a role in carcinogenicity as not initiators but promoters. We have to thus consider determinants of adenocarcinoma of the lung in light of combination of initiators and promoters. Further studies are needed for clarifying the determinants of clustering of lung cancer, particularly adenocarcinoma.

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POSTER

### Cohort analysis of colorectal cancer mortality in the Republic of Serbia, during the period 1971-1996

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In Serbia, the colorectal cancer mortality in 1971 ranged 5th in females, and 4th in males; it became the second leading malignancy in 1982 in females (after breast cancer), and in 1992 in males (after lung cancer).

The objective of this descriptive-epidemiological study was to investigate the colorectal cancer mortality in Serbian population, particularly the effect of cohort variations on death rates in defined age groups, during the period 1971-1996.

In the study period (1971-1996), a share of all digestive tumours in the cancer mortality has decreased, from 42.0% to 32.3%. However, the mortality risk of colorectal cancer and its share in cancer mortality have increased.

The average colorectal cancer age-adjusted death rates (1971-1996) were 11.2 per 100,000 men (95%CI: 10.1-12.3), and 8.3 per 100,000 women (95%CI: 7.7-8.9). The secular linear mortality trends showed significant increase both in males ( $y=11.2+0.2x$ ;  $p=0.000$ ), and females ( $y=8.3+0.1x$ ;  $p=0.000$ ).

The highest rise in age-specific death rates, according to the linear mortality trends, was observed in males over 65 years (7.6% annually), and females between 60 and 69 years (5.9% annually).

In the cohort analysis of age-specific rates in males, younger birth cohorts were compared with older ones. The increasing colorectal cancer mortality risk has been observed for the ages over 40, with statistical significance in the age groups over 45. In the age between 45 and 59, and over 60, the youngest birth cohorts were at 2 and 2.5-fold higher cancer mortality risk than birth cohorts of the oldest generations. In the cohort analysis of age-specific rates in females, changes in the age under 50 were not so expressive. In all age groups over 50, women of younger generations were at 2-fold higher cancer mortality risk than the oldest ones. According to the present mortality trends, the further increase in colorectal cancer death rates, especially in the ages over 40, should be expected in future generations. Consistent increase in mortality risk in all younger birth cohorts of older ages, as well as in successive five-year age groups of the observed generations, could reflect the continuous increase in colorectal cancer incidence attributed to predominantly environmental exposures.

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POSTER

### Human papillomavirus and cervical cancer in Taiwan: an overlooked area of IARC

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**Purpose:** The overwhelming etiological role of HPV in pre-invasive and invasive cervical neoplasia has lead a way to the complete, primary prevention of cervical cancer. Before a preventive and therapeutic strategy targeting HPV can be realized, a comprehensive understanding of the prevalence and natural history of different HPV genotypes in a geographically specific way is of fundamental importance.

**Methods:** This report summarized three nationwide, cross-section studies of general population and patients with abnormal Pap smear, one hospital-based study of cervical cancer and one multi-center longitudinal follow-up studies of LSIL in Taiwan. The prevalence, genotypes and viral load of HPV were studied by Hybrid Capture II, degenerative PCR/reverse blot (Strip test) and/or PCR-RFLP, and quantitative PCR.

**Results:** The following results were observed: (1) The prevalence of HPV was 13% in general population with a higher prevalence as well as viral load in the old age. (2) The prevalence of HPV infection in patients with LSIL, HSIL and invasive cervical cancer was 82%, 91% and 100%, respectively. (3) Remission of HPV in LSIL cases typically took place within one year of follow up. (4) The natural history of LSIL related significantly with both the presence and load of HPV in cervical swabs on enrollment. (5) HPV 52 is the most prevalent HPV type in general population and women with mild abnormal Pap smear, followed by HPV 16 and HPV 58. (6) In patients with invasive cervical cancer, HPV 16 is the most prevalent type, followed by HPV 58, whereas HPV 52 is rarely found in this patient group.