

INTRODUCTION

This edition has been prepared in the Institute of Oncology of Academy of Medical Sciences of Ukraine by the staff of central department of Ukrainian National Cancer Registry (UCR) in collaboration with oblast cancer registries (OCRs). All rates shown in this bulletin are grounded on new cancer cases and deaths from cancer within 01.01.1999 - 31.12.1999 in population of Ukraine. The rates have been calculated in the central registry of UCR on the basis of data provided with OCRs. Information about deaths from cancer has been obtained by comparing it with Medical Death Certificates in bureau ZAGS (State Statistics Bureau).

All cases (both topography and morphology) have been originally coded to the International Classification of Diseases for Oncology, 2nd edition (ICD-O) and automatically coded to the International Classification of Diseases, 10th revision (ICD-10).

This year, in comparison with the previous one, data from Kirovogradska and Poltavaska OCRs and regional CRs of Crimea Autonomous Republic and Sevastopol city have been added to the total database of UCR. Regretfully, data from Ternopilaska and Zaporizzka oblasts remained not included into the UCR yet.

Incidence and mortality rates have been calculated using the amount of population of oblasts where the unified computer technology of UCR was working in 1999. The share of this population is equal to 88,6 % of total population of Ukraine. This enables to consider the rates included to the edition to be very close to those calculated for Ukraine in total. This edition also includes prognostic estimates of cancer incidence and mortality in Ukraine for 2000, which are also grounded on the data of UCR and corresponding population data.

According the UCR data, during the last 5 year period in Ukraine 95,7% of new cancer cases were registered in the same year (probably due to the state system of cancer registration), essential part of remainder – during the following year after the year of cancer diagnosis, and some 1% of remainder – during the third year. In different oblasts the percentage of cases registered in the same year varies from 89,8% to 99,1%. Similarly, 96,7% of deaths from cancer were registered during the same year, 2,6 % - during the following year and less than 1% - during the third year. The least share of cases registered during the same year was observed in children (92,9%), but by the end of the following year near 100% of cases were registered. That is why the calculation of rates for 1999 is done in 2001 when it may be assumed that not less than 99% of information is already received.

We will appreciate your precatory words, constructive censorious remarks and proposals for co-operation.

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HIGHLIGHTS OF CANCER INCIDENCE AND MORTALITY IN UKRAINE, 1999

- ✓ **Crude rate** of total cancer incidence slightly increased in comparison with 1998; no increase of **age-standardised rates** (using both world and Ukrainian standards) has taken place. It indicates that demographic factor – namely, ageing of Ukrainian population - may cause this increase.
- ✓ The highest cancer incidence rates in **male population** is observed in lung, stomach, prostate, colon and rectum (non-melanoma cancer of skin are excluded).
- ✓ The highest cancer incidence rates in **female population** is observed in breast, as well as in stomach, corpus uteri, cervix uteri and colon (non-melanoma cancer of skin are excluded).
- ✓ In **children population** (age group **0-14**) both in males and females the highest cancer incidence is observed in leukaemia, brain and non-Hodgkin's lymphoma.
- ✓ Statistically reliable **decrease of incidence age-standardised rate**, in comparison with 1998, is observed in:
 - cancer of stomach (95% confidence interval is observed only in males and females together, but decrease of the rate in each gender group separately is unreliable);
 - cancer of cervix uteri (95% confidence interval);
 - cancer of corpus uteri (99% confidence interval);
 - cancer of thyroid in males (99% confidence interval);
 - Hodgkin's lymphoma in males (95% confidence interval);
 - cancer in children population (95% confidence interval is observed for all children population in total; 99% confidence interval is observed in girls group; in boys group reliable changes in the rate is not observed).
- ✓ Statistically reliable **increase of incidence rate**, in comparison with 1998, is observed in no nosology.
- ✓ Altogether 265400 potential years of able-bodied life have been lost due to cancer by population of Ukraine in 1999. In male population 18.2 % of these lost years have been caused with lung cancer, and in female population 20 % potential years of life have been lost due to breast cancer.
- ✓ Decrease of mortality during the first year of the disease is observed practically in all nosologies (in comparison with 1997-1998). Number of deaths during the first year has been calculated for all new cases of the preceding year, cases with post-mortem diagnoses, which also were considered as deaths during the first year, included. Considerable variety and subjectivity in interpreting the principles of post-mortem registration, which was revealed in some regions, caused this decision.

ESTIMATED INCIDENCE AND MORTALITY IN UKRAINE, 2000

According the state statistics (on-line figures), 156567 new cancer cases and 94334 deaths from cancer occurred in Ukraine in 2000. It is necessary to note that these figures are inexact because state statistics reports were produced in January-February, 2001 and some portion of information did not manage to come in time into oblast oncological dispensaries. Therefore UCR calculated prospective figures of cancer incidence and mortality for 2000 on the basis of on-line figures and the dynamics of coming the information about these events. These estimated figures might be regarded as more close to real level of incidence and mortality.

- ✓ As estimated, **160 124** new cases and **97 064** deaths from cancer occurred in Ukraine in 2000: new cases in males **80 690** (50.4 %) and **79 434** (49.6 %) in females, **54 918** (56.6 %) deaths from cancer in male population and **42 146** (43.4 %) ones in female population.
- ✓ The largest number of cases in Ukraine in 2000 is estimated for Donetska (16775 -10.5 %) and Dnipropetrovska (12414 - 7.8 %) oblasts and for Kyiv city (9066 - 5.7 %).
- ✓ The largest number of deaths is estimated for Donetska (5938 - 10.8%), Dnipropetrovska (4237 - 7.7%) and Louganska (3150 - 5.7 %) oblasts.

DEMOGRAPHY



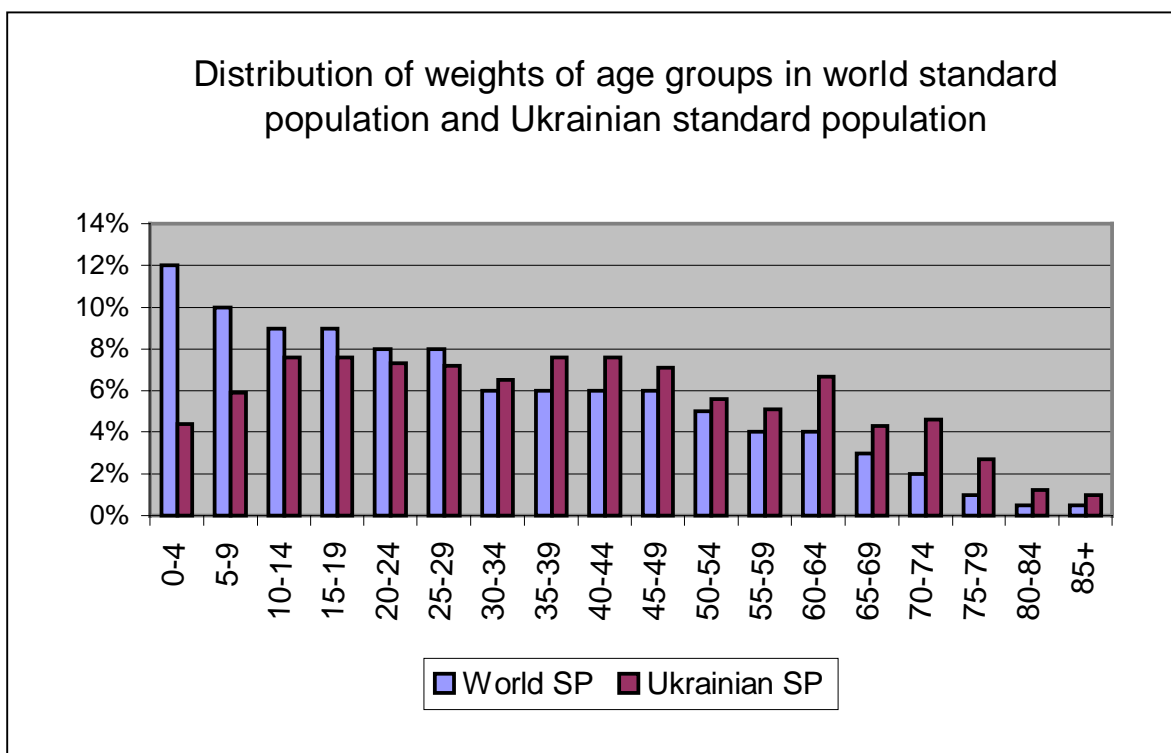
The age-sex distribution of population of Ukraine is illustrated in the population pyramid. Its features need to be considered while interpreting the age-standardised rates.

To make a correct comparison of regional age-standardised rates within Ukraine the «Ukrainian standard population» has been calculated on the basis of demographic structure of Ukrainian population in 2000.

It is necessary to note that the real Ukrainian population pyramid is asymmetric. The elder age groups of female population significantly exceed the male ones. Therefore even age-standardisation using «Ukrainian standard population» caused some increase in male rates and decrease in female ones in comparison with crude rate.

Age-standardisation using «world standard population» (Parkin *et al.*, 1992) have also been used.

The difference in age weights of «Ukrainian standard population» and «world standard population» is shown on the figure.



PRESENTATION OF DATA

Charts **Leading sites in cancer incidence (mortality) in Ukraine, 1999** illustrate the relative frequency of 10 most frequent cancer sites in males and females. The charts show the share of new cancer cases (or deaths) of each site in all new cancer cases (or deaths) in the appropriate gender group. *Non-melanoma cancer of skin has been excluded.*

Charts **Leading sites in cancer incidence (mortality) by age in Ukraine, 1999** illustrate the leading most frequent 5 cancer sites in age groups 0-14, 15-29, 30-54, 55-74, 75+ for male and female population. The charts show the share of new cancer cases (or deaths) of each site in all new cancer cases (or deaths) in respective age and gender group. *Non-melanoma cancer of skin has been excluded.*

Further information is arranged by **rubrics**. Each rubric illustrates some nosologic item (according to the ICD-10 codes indicated) or a group of patients (e.g. children).

The first page of **each rubric** accommodates general survey of primary indices of the disease chosen. The rates have been calculated using the data from those oblast cancer registries (OCRs) of Ukraine, which provided the personified databases for 1999. *They were all regions of Ukraine with the exception of Crimea Autonomous Republic, Sevastopol city, Ternopil'ska and Zaporiz'zka oblasts.* The unified computerised technology started in Crimea Autonomous Republic and Sevastopol city in 2000. That is why the data of these regions are shown in those tables that are calculated using the on-line information of cases of 2000.

Charts 1, 2 illustrate cancer incidence and mortality rates for 1999 by age in males and females.

Chart 3 shows the distribution of risk to die from cancer during the first year of disease by months according to the stage of the disease (estimated on the new cases of 1999). Some nosologic items do not include some curves because of insufficient size of corresponding group of cases (e.g. cases of stage IV). For lymphoma and leukaemia it shows the distribution for all cases in total.

Chart 4 shows the distribution of new cases of 1999 by stage (according to the TNM indices). The stages have been determined automatically, according to the tables of staging in TNM Classification (the 4th edition), for the cases with indicated TNM indices and only for the nosologic items, which are presented in TNM Classification. In the absence of TNM indices the stages inputted were ignored and indicated as «not specified». Lymphomas are distributed according to Ann-Arbour stages.

Chart 5 illustrates the grouping of cancer cases according to their morphology. In most rubrics grouping proposed by Berg (1994) for the general purposes has been used. Some rubrics (brain, thyroid, and leukaemia) have been grouped using the histologic groups for comparative studies (Parkin *et al.*, 1998). The nosologic items which histological grouping is not informative the grouping by primary site has been used.

Table 1 – General rates, 1999 includes characteristic rates for 1999 for males, females and all persons. Incidence and mortality rates have been calculated for the amount and age and gender structure of the population in the regions, which use the unified technology of Ukrainian Cancer Registry (indicated above). «World standard population» and «Ukrainian standard population - 2000» (estimated in Ukrainian Cancer Registry) were used as standards. Rates for children group were calculated for the amount and structure of the children population of these regions.

Incidence rate of 1999 in comparison with 1998 is shown for the regions that have complete databases for these years. Negative value indicates the decrease of rate in 1999, positive value indicate the increase. Statistically reliable variation with 95% confidence interval is marked with ↑ or ↓. Statistically reliable variation with 99% confidence interval is marked with ↑↑ or ↓↓. Statistically uncertain variation is marked with ~ and indicates that the difference observed can be caused by any stochastic processes.

Estimated incidence (mortality) rate for 2000 is calculated by projection of predicted level of cancer incidence (mortality) based on data corrected. Age-standardised rate according the Ukrainian standard population-2000 is shown.

Relative 5-year survival rate and median of relative survival are based on data sample including all new cases from 10 OCRs which databases are complete for continuous not less than 5-year period within 1989-1995.

Deaths during the first year of the disease is calculated for all new cancer cases of 1999 regardless of whether they were diagnosed alive or post mortem.

Probability of developing cancer at the age of ... (cumulative risk) shows the probability for a person to develop cancer during the corresponding interval of life (0-39, 40-59, 60+) or during the whole life (up to age 90 - in this case) calculated on the basis of incidence data of 1999.

Table 2 - Incidence 1999 includes incidence rates by regions calculated on the ground of the databases of regional cancer registries. The rates are shown for males, females and all persons both crude rates and age-standardised ones (using the Ukrainian standard population-2000). *Cumulative risk of developing cancer at the age up to 75* is calculated on the basis of incidence data of 1999. *Estimated number of new cancer cases for 2000* is calculated on the ground of on-line data (newly registered cases of 2000) adjusted for delay in receiving the information about cases of 2000 during the subsequent years.

Table 3 - Mortality 1999 includes mortality rates by regions on the ground of databases of regional cancer registries. The rates are shown for males, females and all persons both crude rates and age-standardised ones (using the Ukrainian standard population-2000). *Potential years of life lost by able-bodied persons* are calculated on the basis of information about deaths from cancer in 1999 for male population aged up to 60 and for female population aged up to 55. *Estimated number of new cancer cases for 2000* is calculated on the ground of on-line data (newly registered deaths from cancer in 2000) adjusted for delay in receiving the information about deaths of 2000 during the subsequent years.

Table 4 – Delay in registration shows the dynamics of receiving the information about new cancer cases (deaths) by cancer registry. It illustrates the shares of new cases (deaths) which were registered during the subsequent years. On the ground of these data the dynamics of registration of new cases and deaths in 2000 has been predicted and estimated incidence and mortality rates for 2000 has been calculated (**Tables 2, 3**).

Table 5 – Data quality indicators illustrates the quality of data stored in the databases of regional cancer registries. *Primary site is not specified in details within an organ or a body system* shows proportion of new cases where the details of primary site are not sufficient for coding the cases with 4-digit code of ICD-O and ICD-10. *Unspecified morphology* shows proportion of cases with «cancer» (or even nothing – in 1998) indicated in the relevant field of diagnosis irrespective of basis of the diagnosis. *Ill-defined or not defined TNM indices* shows proportion of new cases with TNM indices, which do not conform to those, indicated in TNM Classification of the 4th edition (e.g. T3 for osteosarcoma). *Incomplete date of birth* indicate percentage of cases with not defined day or/and month of birth.

Table 6 – Deaths during the first year and post mortem cases is devoted to the patients who live less than one full year since the diagnosis. Among the new cases of 1999 the shares of those who died during the first one, 3 or 6 months of the disease are shown. The rubrics in which such cases or post mortem cases (as well as without autopsy) are rare, illustrate only absolute number of these cases. But table cells for *Ukraine* as a whole shows proportion of such cases.

Table 7 – Activities of oncological services. *Proportion of patients underwent treatment among the new cases* includes the patients who received treatment during the first year since the diagnosis regardless of whether it was in the same calendar year. Therefore some increase (2-3%) of this rate at the expense of new cases which will receive treatment in 2001 can be expected.

Table **Cancer incidence (mortality) rates by site, age and gender** shows age-standardised rates according the «world standard population» (ASR) and standard errors (SE).