

GLOSSARY

Crude incidence (mortality) rate (CR) - number of new cancer cases (or cases of death from cancer) occurring in a population during a year divided by the average number of this population in the same year, expressed per 100,000. It describes the frequency of new cases in a population of a region and used for the analysis of epidemiological situation in a region.

Age-standardized incidence (mortality) rate (ASR) – incidence (mortality) rate in a defined population calculated applied to the age distribution of a "standard population", expressed per 100,000. The World Standard Population is generally used for comparison between countries (with use of ASR(W)). The Ukrainian Standard Population was calculated in the Ukrainian National Cancer Registry based on the age distribution of Ukrainian population in 2000. ASR(U) with Ukrainian Standard Population is advisable for comparing cancer incidence or mortality levels between the regions of Ukraine or for the time analysis in a region.

Standard error (SE) presents a measure of precision of the estimated age-standardized rate; it is necessary for estimation of its 95% confidence interval ($ASR \pm 1.96 \times SE$) and is used when comparing rates to determine the significance of difference between them.

Prevalence rate is a proportion of cancer patients in a defined population, expressed per 100,000. The **complete prevalence rate** is calculated as a total number of persons with cancer divided by the number of this population at the end of a year. The **5-year prevalence** is calculated for a number of persons with cancer diagnosed within the previous five years.

DESCRIPTION OF TABLES AND RATES

All information in the Bulletin is calculated based on the personified data of regional cancer registries, which are the component parts of the [National Cancer Registry of Ukraine](#) (NCR).

The information is given by articles that represent selected cancers by ICD-10 codes. A separate article contains information about all children cancers (0-17 years old). Children cancer incidence and mortality rates by nosologic forms are included into the corresponding articles.

Please note that NCR did not receive the databases of AR Krym, Sevastopol city, Donetska oblast and some parts of Luhanska oblast of 2021. That is why numbers of cancer patients, cancer cases and deaths from cancer in Ukraine as a whole, if provided, do not cover the cases occurred in these regions. All rates for Ukraine as a whole for 2021 are calculated with the exception of data of the oblasts mentioned above; rates for Luhanska oblast are not calculated.

Table 1 of each article includes rates for 2021 calculated using the adjusted data registered until the end of 2022. All rates are given for total, male and female population. Age-standardized rates are given for World Standard Population (ASR(W)) and Ukrainian Standard Population (ASR(U)). Children rates are calculated for the number of children population aged 0-17 years.

Change of the incidence rate 2021 is shown compared to the one of 2020. A negative value indicates decrease of the ASR(U) in 2021; a positive value indicates its increase. If the change of the rate is statistically significant for a significance level $p \leq 0.05$ then it is marked by \uparrow or \downarrow . If the change is statistically significant for a significance level $p \leq 0.01$ then it is marked by $\uparrow\uparrow$ or $\downarrow\downarrow$. Statistically insignificant difference is marked $\sim\sim$ and suggests that it could be due to random fluctuations.

Rate "**Lived less than 1 year since the diagnosis in 2021**" is calculated with respect to the total number of cancer patients with diagnosis of 2021, regardless of whether they were diagnosed and registered alive or dead.

Rate "**From among the newly diagnosed – diagnosed post mortem**" is calculated as a ratio of number of cancer patients with post mortem diagnosis to the total number of those diagnosed in 2021.

Rate "**Microscopically verified**" is a proportion of cancer cases of 2021 verified with histological or cytological examination. Rate "**Histologically verified**" is a proportion of histologically verified cases of the total number of cancer cases of 2021.

"**Unspecified morphology**" is a percentage of microscopically verified cases with ICDO morphology codes 8000-8005.

Rate "**Patients diagnosed during the preventive medical examinations**" is a proportion of patients with cancer detected during the preventive medical examination or in a doctor's consulting room for women of the total number of cancer patients of 2021.

Rate "**Newly diagnosed patients received the special treatment**" is a ratio of cancer patients who received the special anti-cancer treatment (curative, palliative or prophylactic anti-cancer therapy), along with surgery or without it, during 12 months from the moment of diagnosis, to the total number of cancer patients. Ratio of patients received "**combined or complex treatment**" shows percentage of patients who received chemotherapy, hormonal treatment, immunotherapy and radio-therapy along with surgery, as distinct from those who received "**surgical treatment only**" or other monotherapy.

Rates "**Incidence and mortality of children population**" are calculated as a ratio of number of cancer cases and deaths from cancer in population of persons under 18 years old at time of diagnosis or death to the total number of children population of the correspondent gender.

Table 2 - Incidence and mortality, 2021 includes rates by administrative territories (oblasts and Autonomous Republic of Crimea). All rates are given for total, male and female population in according to such pattern: crude rate, ARS(*W*) and ASR(*U*). These data are calculated considering corrections and additive information received by regional registries during 2022.

Table 3 - Incidence and mortality, 2022 includes incidence rates by administrative territories according to the on-line data of regional cancer registries. The rates are given for total, male and female population in according to a pattern: number of cases and crude rate. This Table includes on-line (not adjusted) data that were registered until the end of 2022, and therefore these rates could change after receiving the additional information during the next years.

In 2022, due to large-scale hostilities in Ukraine, all regional cancer registries received information about both newly diagnosed cancer patients and those who were already registered, with a delay or with long interruptions. In particular, this applies to regions such as Donetska, Zaporizka, Kyivska, Luhanska, Mykolaivska, Kharkivska, Khersonska oblasts and Kyiv city, where the number of new cases registered during 2022 has decreased significantly and cannot represent cancer incidence and mortality even roughly.

Besides, the State Statistics Service of Ukraine did not publish the number of the Ukrainian population at the end of 2022, therefore it is impossible to calculate rates of cancer incidence, mortality and prevalence for this year.

Table 4 includes some important rates of 2022 calculated based on the on-line data of regional registries.

Rates "**Stage distribution of new cases**" consist of proportions of cancer patients with respective stage that was automatically defined based on (p)TNM indices (TNM classification of the 6th edition

was used). Column "**Not determined**" accounts cancers that are subject to TNM staging classification but were registered without TNM indices (though they are to be classified) or the indices were incorrect or any other relevant information was missed (e.g. differentiation grade of tumour of bones, etc.). Cancers that are not subject to staging by TNM were not taken into account in "Not determined" stage. The articles **Hodgkin lymphoma** and **Non-Hodgkin lymphoma** show the distribution by Ann-Arbour stages. The article **Leukaemia** includes proportions of acute, sub-acute, chronic and unspecified forms of the disease. The **Children** article shows the distribution by the stage of solid cancers and lymphomas (C00-C85).

The **distribution by stage** as well as rates "**Received special treatment**" and "**During the preventive examination**" are calculated as a ratio of the corresponding on-line number of cancer patients of 2022 to the total number of new cancer patients registered in 2022, and rate "**Microscopically verified**" is calculated based on the relevant *cancer cases*.

Rate "**Lived less than 1 year since the diagnosis in 2021**" is calculated in a similar way to that described in Table 1. Number of cancer patients who were **diagnosed post-mortem** is also given.

"**Patients per 100,000 of population**" represents rates of complete cancer prevalence at the end of 2022 per 100,000.

Tables of **Annex A "Rates for selected cancer sites by age groups – incidence"** and **Annex B "Rates for selected cancer sites by age groups – mortality"** include total number of cancer cases and deaths from cancer, age-specific rate, crude rate, age-standardized rate (World Standard Population) per 100,000 of population and standard error (SE) of the ASR(W) for 53 nosologic forms of cancer as well as for all sites in total and for all sites with the exception of non-melanoma skin cancer. All rates are calculated for population of Ukraine by gender and age groups and based on the adjusted NCR data of 2021.

Annex E – "Total cancer prevalence by site" shows the nosological structure of all cancer patients that are registered in the oncological institutions and have not been registered as deceased at the end of 2022, as well as appropriate numbers of cancer patients and prevalence rates per 100 000 of population. The same data for the **5-year cancer prevalence** see on page 9.