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PREVENTION SAVES LIVES

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Over the past three decades, researchers have observed an increase in the global number of new cases of early-onset cancer and associated deaths, with the increase expected to be 31% and 21% respectively, by 2030, people aged 40 years being the most exposed to risk.

It is also estimated that the number of cancer cases worldwide will increase by more than 75% until the year 2050. Also, according to the statistics, the following fact is observed, cancer cases have increased from 14.1 million new cases and 8, 2 million deaths worldwide in 2012 to 20 million new cases and 9.7 million deaths, 10 years later.

It has been observed that the more developed the country, the higher the cancer rate among those under 50, in the last 30 years.

Cervical cancer, despite being entirely preventable, is the eighth most common cancer worldwide and the ninth leading cause of cancer death, responsible for 661,044 new cases and 348,186 deaths.

Prevention is essential in detecting precancerous lesions, and the correct application of screening and vaccination programs can reduce the incidence and mortality from cervical cancer or even its effective eradication.

Keywords: promotion, screening, prevention, vaccination, cervical cancer

CONTEXT / INTRODUCTION

According to the latest figures provided by the International Agency for Research on Cancer, which belongs to the World Health Organization and deals with cancer research, the number of cancer cases worldwide is expected to increase by more than 75% until the year 2050. Also, according to statistics, the following fact is observed, cancer cases increased from 14.1 million new cases and 8.2 million deaths worldwide in 2012 to 20 million new cases and 9.7 million deaths 10 years later, WHO [1].

One extremely worrying thing was noticed by a group of researchers who used data from the 2019 Global Burden of Disease Study and analyzed the rates of 29 different types of cancer in 204 countries. The more developed the country, the higher the cancer rate among those under 50 years, in the last 30 years, and the causes of the increase are not fully known [2].

There is also an almost 80% increase in the percentage of cancer cases among people aged 14 to 49, from 1.82 million to 3.26 million, between 1990 and 2019, according to the recent study, conducted by the University of Edinburgh, Scotland, and the Zhejiang University School of Medicine in Hangzhou, China. The study was the first of its kind to look at this problem on a global scale and risk factors for younger adults [3], with researchers determining that in addition to poor diet, smoking and alcohol consumption, genetic factors, sedentary lifestyle and obesity may contribute and they to this trend.

Based on trends over the past three decades, the researchers estimate that the global number of new cases of early-onset cancer and associated deaths will increase by a further 31% and 21%, respectively, by 2030, with people aged 40 and over those most exposed to risk [4].

In the European Union, it is estimated that the number of cancer cases will increase by 24% until 2035, so that this serious disease will become the main cause of death, according to WHO data, which is why it is essential to adopt a set of measures and policies to ensure fair and efficient access to health services for cancer diagnosis, treatment and care, as well as reducing waiting times and facilitating access to innovative therapies.

According to the latest studies/estimates, for Romania by the Joint Research Center, it shows that in 2022, 95,276 new cases of cancer were diagnosed [1]. In women, cervical cancer is the third in frequency, after breast cancer and colorectal cancer, a situation that differs from the European profile, where the main 5 locations of cancer in women are breast cancer, colorectal cancer, lung cancer, body cancer uterine and non-Hodgkin's lymphoma. In men, in Romania, the first 5 locations of cancer are lung cancer, prostate cancer, colorectal cancer, bladder cancer and gastric cancer.

Gastric cancer accounts for 5.2% and 3% of new cancer cases in men and women respectively (above the EU average). Malignant melanoma accounts for 2% of new cancer cases in both men and women (below the EU average).

The main locations of cancer with an estimated incidence above the EU-27 average are cervical cancer, pharyngeal cancer and gastric cancer, as well as genital, vulva, vaginal and penile cancers.

It should be noted that among these are all cancers preventable by vaccination against HPV, oropharyngeal cancer, cancer of the cervix, vulva, vagina and penis.

The projections for Romania, estimate that in the period 2020-2040 the incidence of cancer will increase by 7%. Significant increases of more than 10% are estimated in the incidence of gastric, pancreatic, lung, liver and colorectal cancer in both men and women. Also, the incidence of multiple myeloma will increase in both sexes. Among specific cancers, prostate cancer will increase by 21.8%, and vaginal and vulva cancer by 13.8% and 10.9%, respectively.

Estimates for the period 2020–2040 also show significant declines in the incidence of thyroid cancer and non-Hodgkin's lymphoma in both sexes, and in the incidence of testicular cancer, breast cancer, and cervical cancer [5]

CERVICAL CANCER

Cervical cancer, despite being completely preventable, is the eighth most common cancer worldwide and the ninth leading cause of cancer death, being responsible for 661,044 new cases and 348,186 deaths (fig. no. 1 and fig. 2) [1].

In Europe, more than 66,000 women are diagnosed with cervical cancer and more than 30,000 die from this preventable disease. Cervical cancer is a difficult disease, with traumatic effects, which mainly affects

Figure no. 1. Worldwide distribution of age-standardized incidence rates of cervical cancer (2022) [1]

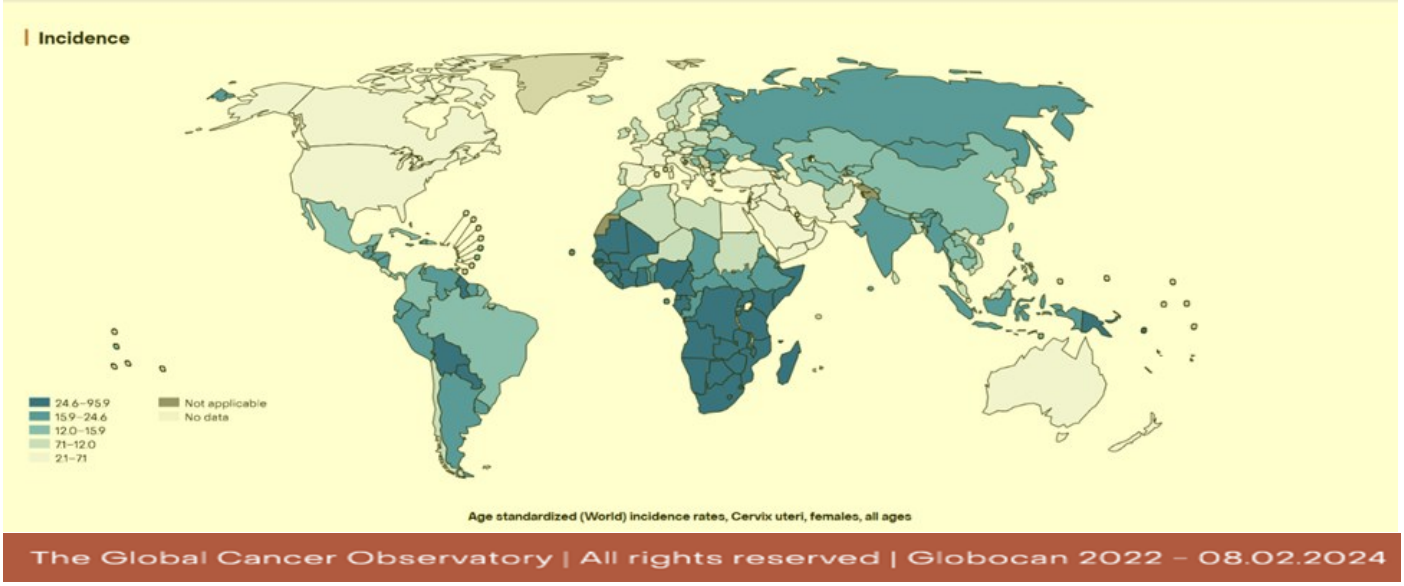
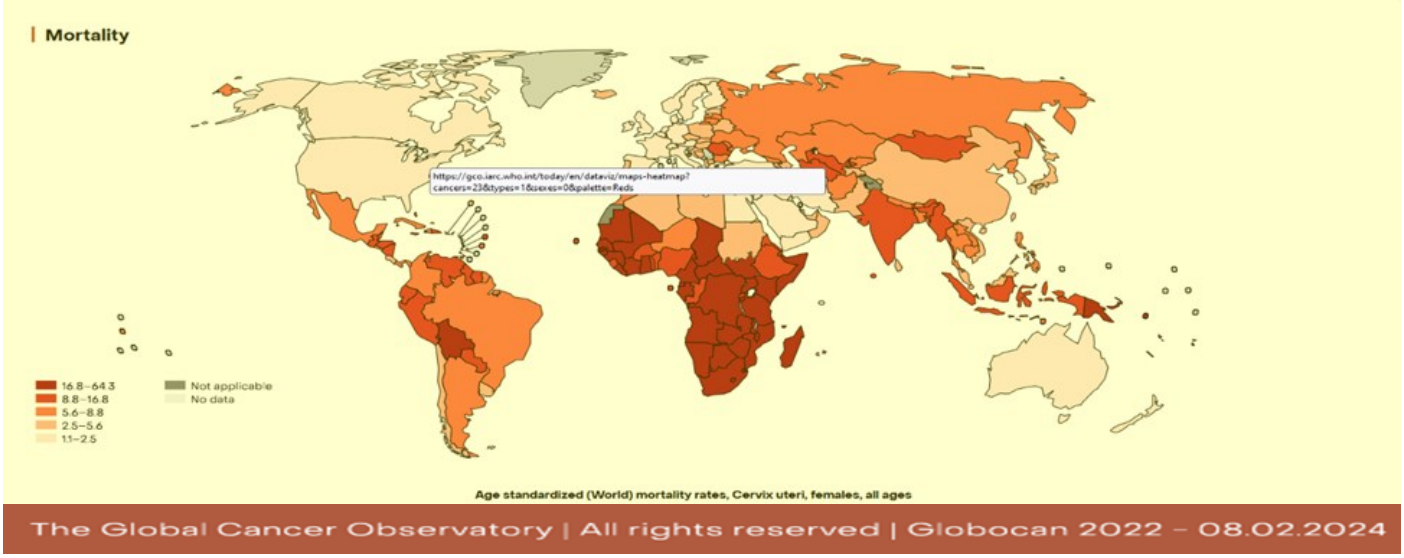


Figure no. 2. Worldwide distribution of age-standardized mortality rates of cervical cancer (2022) [1]



women between the ages of 45-60, but also younger women, being the most common cancer in women in 25 countries (fig no. 3 and fig. 4). Romania ranks first in Europe in terms of cervical cancer mortality - the mortality rate is 4 times higher than the average of the European Union [1].

PREVENTION AND SCREENING PROGRAMS WORLDWIDE

Cervical cancer is 80% preventable by regular testing in screening programs. The purpose of screening programs is to reduce the risk of disease and improve health status.

Prevention is essential in detecting precancerous lesions, and the correct application of screening programs can reduce the incidence and mortality from cervical cancer.

Worldwide, the most commonly used tests in screening programs are cervical cytology (PAP test) and HPV test.

⇒ The European Union (EU) aims, until 2025, to improve the early detection of cancer, by implementing a program that will offer the possibility of carrying out a screening for the detection of breast, cervical and colorectal cancer, to a percentage of 90% from the population eligible for screening. Also the gradual introduction of screening programs for the detection of prostate, lung and gastric cancer, based on additional research. Thus:

- screening for breast cancer, with mammography, for women between the ages of 50 and 69 and suggests the implementation of this screening for women between the ages of 45 and 74;
- human papillomavirus (HPV) testing as the preferred tool for cervical cancer screening for all women aged 30 to 65 at least once every five years, taking into account HPV vaccination status;
- screening for colorectal cancer by quantitative fecal immunochemical testing, before further referral for endoscopy or colonoscopy in people aged 50 to 74 years [6].

Figure no. 3. Distribution of age-standardized incidence rates of cervical cancer in Europe (2022) [1]

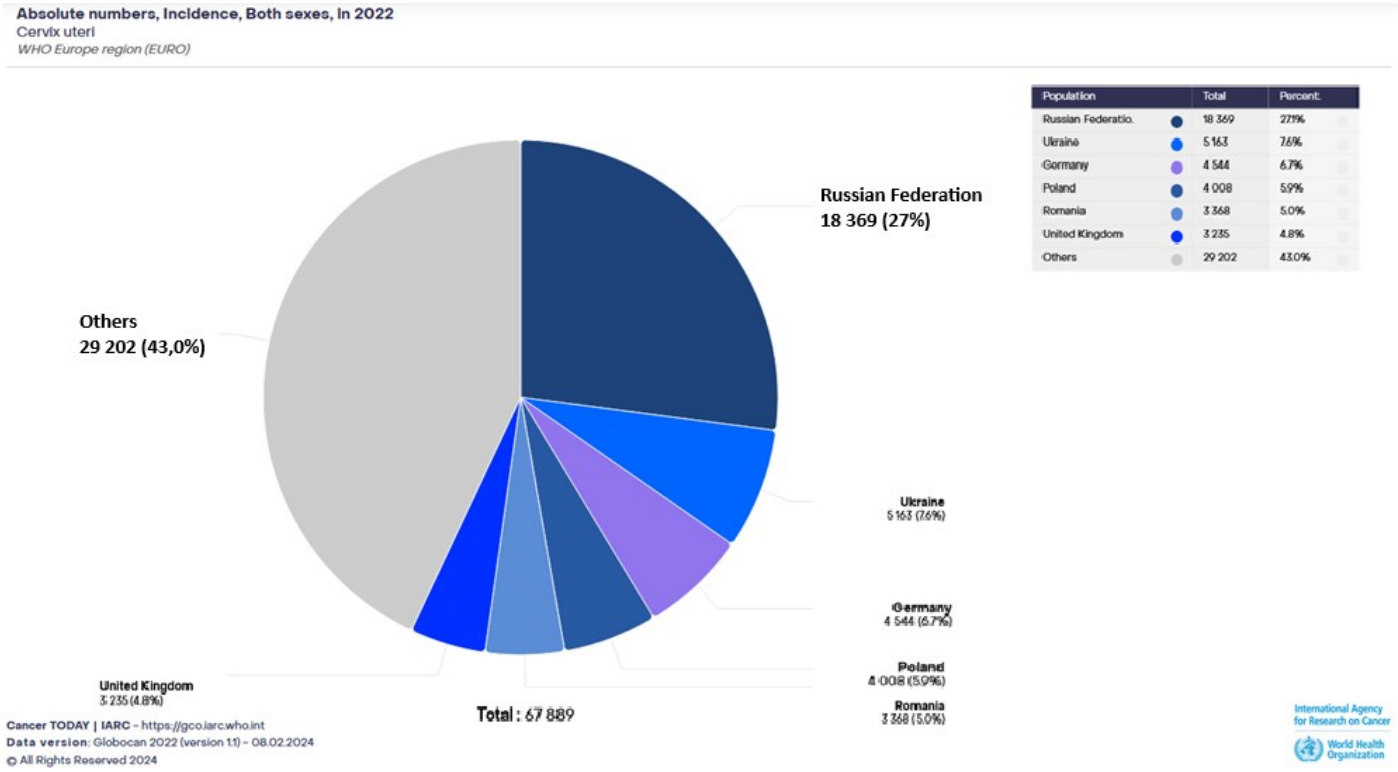
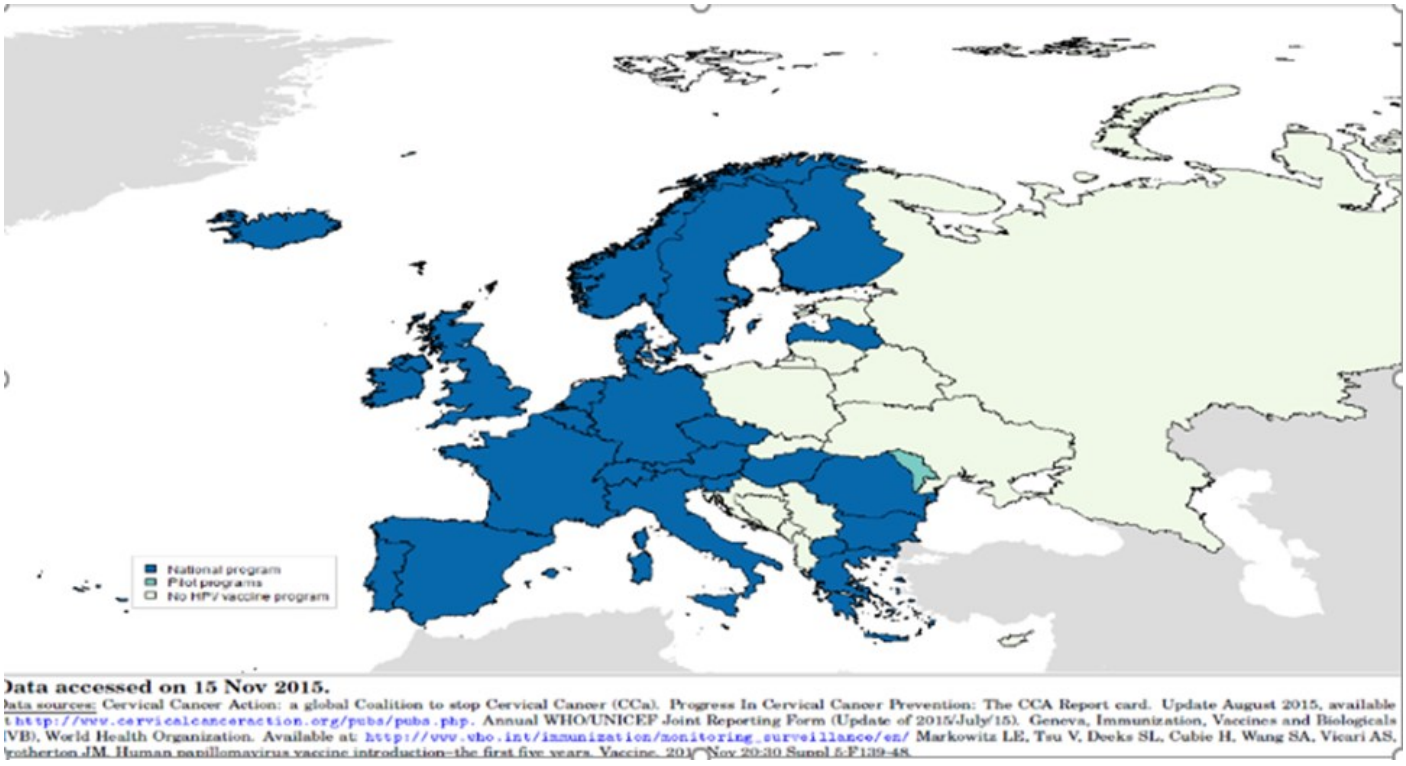


Figure no. 4. Status of HPV vaccination programs in Europe [1]



The American Cancer Society recommends for cervical cancer screening:

- Testing starting at the age of 25;
- For the 25-65 age group, primary testing with the HPV test, every 5 years is recommended. If primary testing with HPV test is not available, Pap test at 5 years or exclusive testing with PAP test at 3 years, can be used;
- People over 65 who have performed regular tests during the last 10 years and obtained normal results and have no history of precancerous lesions

Figure no. 5. Status of HPV vaccination programs in the world [1]

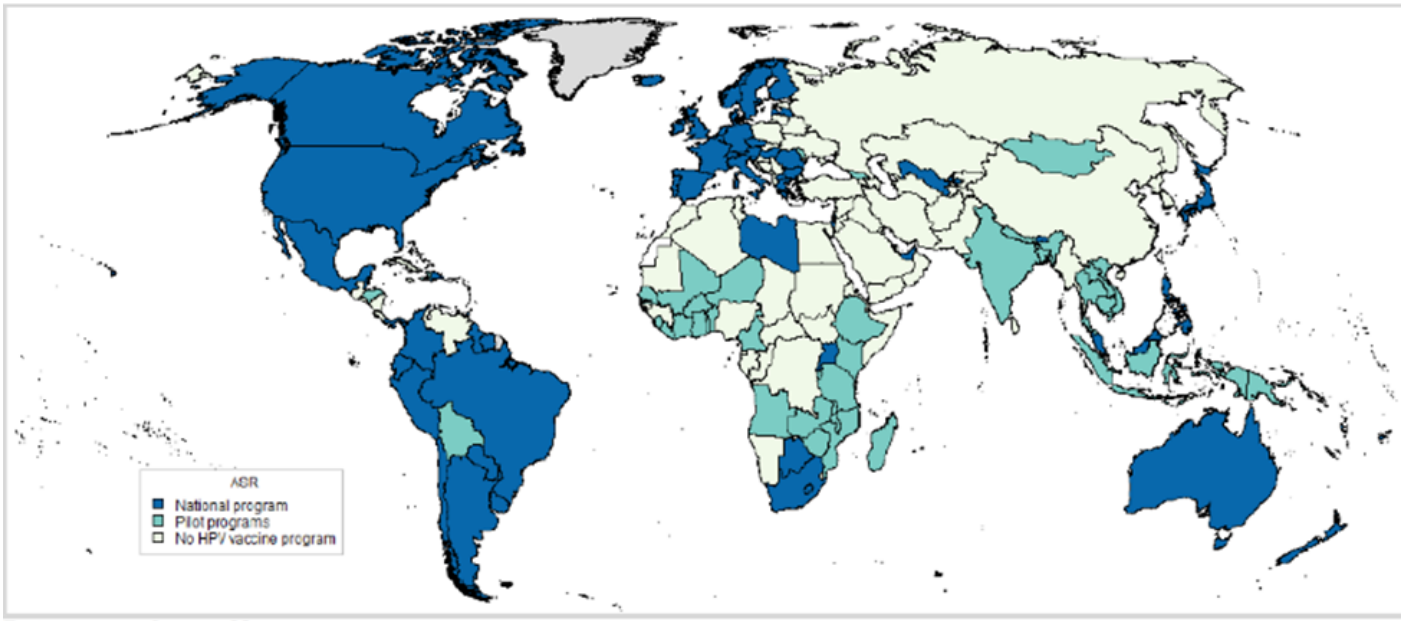


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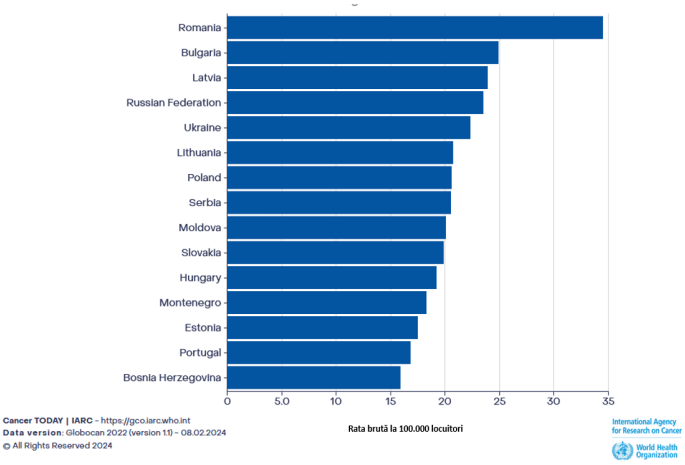
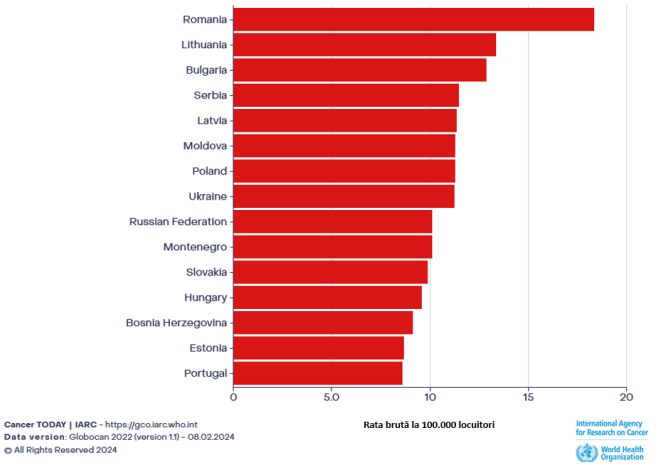
Figure no. 6: Estimated incidence and mortality from cervical cancer: Europe, 2022 [1]

Crude rate per 100.000, Incidence, Females, In 2022
Cervix Uteri
Europe (top 15)



Crude rate per 100.000, Mortality, Females, In 2022
Cervix Uteri
Europe (top 15)



in the last 25 years, can stop participating in screening programs;

NOW WORLDWIDE

⇒ The WHO Regional Director for Africa, said on World Cancer Day on February 4, 2024, that this continent is facing a cancer crisis.

⇒ In the year 2022, approximately 882,000 new cases of cancer will appear in the African region, with approximately 573,000 deaths, a statement issued in Kenya's capital, Nairobi. It is also estimated that annual cancer deaths on this continent will reach 1 million by 2030. In two decades, the cancer death rate in Africa will exceed the global average of 30%. Moeti emphasized the need for investments in solid measures for the prevention and detection of this disease [7].

- in 2011, Rwanda became the first African country to introduce a national HPV vaccination campaign, starting vaccinating 12-year-old girls in schools. Since it began, the program has reached over 90% coverage;
- 17 African countries have already introduced high performance screening tests, in accordance with WHO recommendations;
- 28 African countries that are members of the WHO, have introduced national vaccination against human papillomavirus (HPV) to reach the vaccination

Figure no. 7: Incidence of cervical cancer in Romanian women [1]

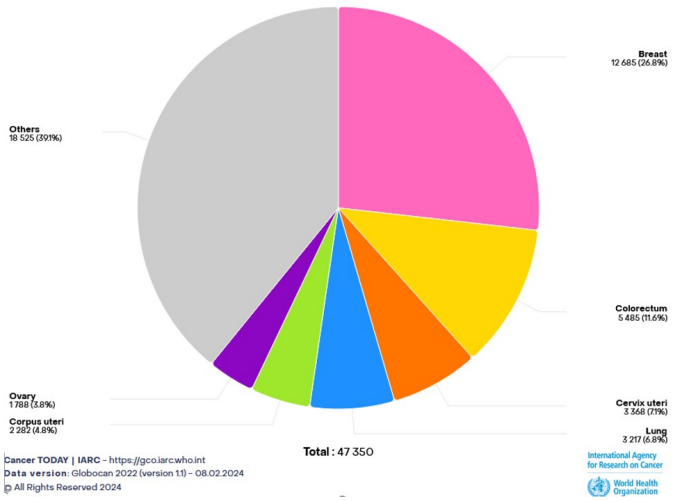
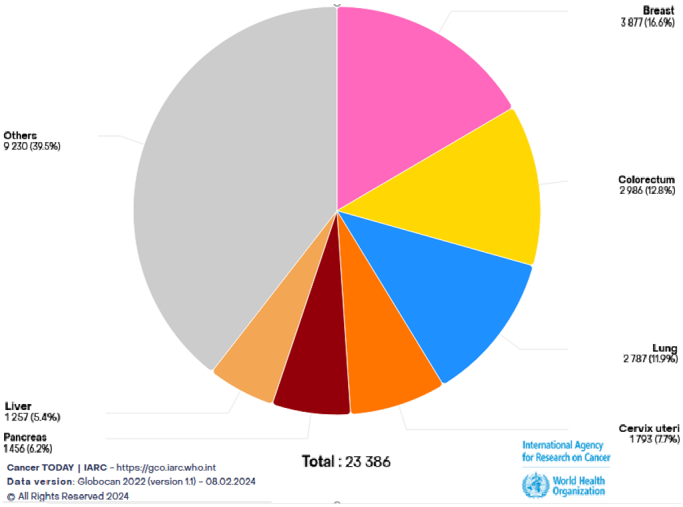


Figure no. 8: Cervical cancer mortality in Romanian women [1]



target of approximately 60% of the target population, including adolescent girls.

⇒ In 2007, Australia became one of the first countries to introduce the human papillomavirus (HPV) vaccination to Australian girls and boys up to 12-13 years of age in the National Immunization Program. They are vaccinated with HPV in some school programs; the vaccine is free for everyone between the ages of 12 and 25 and is given in a single injection

- Starting in 1991 through the National Cervical Cancer Screening Program, Australia offered a free Pap test every two years to women aged 18 to 70;
- As of December 1, 2017, the Pap test was replaced by the new cervical screening test. Under the new program, most women between the ages of 25 and 74 will be tested every five years;

Through screening and vaccination programs, the incidence and mortality rates from cervical cancer have been halved. Australia has a strong chance of becoming the first country within 20 years to effectively eliminate cervical cancer if vaccination and screening rates are maintained, say researchers [8].

⇒ Sweden predicts that the disease, cervical cancer, could be eliminated in this country within five years, which means that there will be less than 4 new cases per 100,000 women annually. This is due to a high rate of vaccination and screening for cervical cancer, with women having the option to collect their own samples through self-sampling.

And other countries in the European region are close to eradicating cervical cancer. Among the countries that have seen major success is the United Kingdom, one of the first countries to introduce a national program where women have the option to collect their own samples through self-sampling as part of a screening program. At the same time, they have a high vaccination rate [8] (fig. no. 4) [1].

The 34 countries of the Commonwealth - the Commonwealth of Nations, which were part of the British Empire, have an HPV vaccination program included in the national immunization schedule, increasing from 32 countries in 2017, and 29 in 2015 (fig. no. 5) [1]. Sierra Leone introduced the vaccine into the national immunization program in October 2022 [9].

⇒ In Romania, the figures, published in 2023 by the European Commission in the "State of health in the EU" report, show the need for rapid intervention and finding appropriate solutions. Annually, over 1,500 women die as a result of cervical cancer and almost 3,400 are diagnosed with this disease. The incidence is 2.5 times higher than the EU average. The HPV vaccination situation has been worrying in recent years, with a relatively low vaccination rate and a high number of cervical cancer cases (fig. 6) [1].

Romania maintains its high incidence and mortality rates from cervical cancer. It is the third cause of cancer mortality in women in Romania, after breast, colorectal and cecal cancer, pulmonary, but the first among young women, between 15 and 44 years old (fig. no. 7 and fig. no. 8) [1].

HPV infection is responsible for at least 5 types of cancer, including 100% of cervical cancer, 88% of all anal cancer, 70% of vaginal cancer, 50% of penile cancer and 43% of vulvar cancer cases.

In 2008, Romania was among the first countries to introduce vaccination against HPV, along with Great Britain, for example. The target group of 9-11 years was chosen because, according to experts, the vaccine is most effective if it is given before the age of 14, before the start of sexual life, when the body can develop the most antibodies to protect girls from uterine cancer for the rest of your life. With the introduction of the anti-HPV vaccine, Romania faced an unexpectedly voluminous and vocal anti-vaccine movement. Until then, we enjoyed a fairly high vaccination coverage in the national programs, especially in children. According to the data of the National Institute of Public Health [5] related to the year 2020, the incidence rate of cervical cancer is 32.3 percent of thousands of women and the mortality rate is 16.9 percent of thousands of women, both being the highest in the EU. HPV

infection is very common – approximately 80% of the sexually active population under 45 will be exposed to this virus at some point. Only 1 in 10 women will develop complications. Also the mass media at that time contributed to the propagation of false information and the disinformation messages started to be so many that the authorities were unable to combat them, which led to the stopping of the vaccination campaign. However, the vaccination campaign since then has been a total failure. Out of 110,000 schoolgirls aged between 9 and 11 - the target group for vaccination, only 2%, i.e. 2,600 girls, were vaccinated. [10]

Currently, HPV vaccination in Romania is fully compensated for girls and boys between the ages of 11 and 18 and 50% compensated for women over 19-45 years of age. The prescription for the compensated HPV vaccine can be issued either by the family doctor or by the specialist - gynecologist.

In Romania there are 466,624 women aged between 20 and 24, 466,524 women aged between 25 and 29, 590,957 aged between 30-34, 612,403 between 35-39 and 693,437 between 40-44 years in total, more than 2.8 million women who are addressed by the 50% HPV vaccine compensation measure [5].

The number of women aged 19-45 who were vaccinated between December 2023 – when the vaccine offset came into force – and until August 15, 2024 is [5]:

- 25,727 women received the first dose of vaccine;
- 469 women took the second dose;
- 4,243 women took the third dose.

CONCLUSION

Prevention, anti-HPV vaccination and early diagnosis are fundamental in the approach, to reduce the devastating impact of this disease on our society.

An interdisciplinary, collaborative approach between the medical body, authorities, patient associations and the media is necessary.

Countries where screening and vaccination programs have halved cervical cancer incidence and mortality rates are likely to become the first countries within 20 years to effectively eliminate cervical cancer if they maintain their rates. vaccination and screening. The experiences of these countries may help others to understand and address the barriers in their countries to the implementation of HPV vaccination, cervical cancer screening, cancer treatment and palliative care.

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