Cervical Cancer

Improving Care and Driving Policy Change

Serbia

THE SWEDISH INSTITUTE FOR HEALTH ECONOMICS
ENABLING INFORMED DECISION MAKING

KEY TAKEAWAYS

400
DEATHS ANNUALLY

Cervical cancer causes over 400 deaths annually in Serbia, yet it is largely preventable through HPV vaccination, screening, and treatment.

3-8
TIMES ITS VALUE

Every dinar invested in prevention, early detection, and treatment returns 3–8 times its value to society and the economy.

2-4%
FULLY VACCINATED

Since the free provision of the HPV vaccine, vaccination rates have remained very low at 4% in girls and 2% in boys in 2024.

6%-63%
UNCLEAR SCREENING PARTICIPATION

Screening remains opportunistic, and data systems are inadequate, with program-based data pointing to only 6% of eligible women screened but self-reported data indicating 63% participation.

NO MODERN THERAPIES

Newer cancer medicines that are on the WHO Essential Medicines List are currently not reimbursed by the RFZO.

HIGH-LEVEL RECOMMENDATIONS

To accelerate the elimination of cervical cancer in Serbia, this policy brief proposes the following five recommendations.

Develop a National Cervical Cancer Elimination Plan

Change the status of the HPV vaccine in the NIP and strengthen data systems

Co-create and expand public education and awareness campaigns

Establish a modern invitation system for the cervical cancer screening program

Improve access to cancer medicines

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BACKGROUND

In 2025, the Swedish Institute for Health Economics (IHE) published Bridging the Gap in Women's Cancer Care: A Global Policy Report on Disparities, Innovations, and Solutions (1). Endorsed by the Advanced Breast Cancer (ABC) Global Alliance, the International Gynecologic Cancer Society (IGCS), the International Gynecological Cancer Advocacy Network (IGCAN), and the World Ovarian Cancer Coalition (WOCC), the report outlines the unique challenges and opportunities in improving outcomes for women's cancers.

Building on the content and findings of this global report on women's cancers, this policy brief examines the situation of cervical cancer in Serbia. It provides an overview of the societal burden and highlights priority areas for strengthening care and policy responses. Targeted literature searches were conducted to identify information on the state of care in Serbia. In addition, interviews with three local experts were held in November and December 2025 to verify and discuss challenges and opportunities specific to the care of cervical cancer in Serbia.

WHAT IS CERVICAL CANCER?

Cervical cancer is a type of cancer that develops in the cervix, in the lower part of the uterus that connects to the vagina (2). It usually begins with abnormal changes in the cells lining the cervix called "precancerous lesions". Over time, if these changes are not detected and treated, they can grow uncontrollably and form a tumor.

The main cause of cervical cancer is persistent infection with certain types of human papillomavirus (HPV), a very common sexually transmitted virus that around 85-90% of sexually active women and men will acquire at some point in their lives (3). In early stages, cervical cancer often causes no symptoms. When symptoms do appear, they may include abnormal vaginal bleeding (i.e., bleeding after sex, between menstrual periods or after menopause) (4).

Cervical cancer is the fourth most common cancer among women globally (5). Unlike most cancers, it is largely preventable through a combination of HPV vaccination, regular screening, and treatment. Yet, hundreds of thousands of women continue to be diagnosed and die from cervical cancer each year worldwide (5).

Global commitment to eliminating cervical cancer

In 2018, the World Health Organization (WHO) called for the elimination of cervical cancer, leading to the 2020 Cervical Cancer Elimination Initiative (CCEI), the first global pledge to eliminate a cancer as a public health problem (6). Elimination is defined as an age-standardized incidence rate (ASR) of below 4 cases per 100,000 women in every country. To reach this, the WHO sets the 90–70–90 targets until 2030: 90% of girls fully vaccinated against HPV by age 15; 70% of women screened with a high-performance test by ages 35 and 45; and 90% of women with disease receiving appropriate care (including 90% of precancers treated and 90% of invasive cancers managed).

Serbia has not formally aligned with the WHO CCEI and has not yet adopted a national plan for the elimination of cervical cancer. The 2013 National Program for the early detection of cervical cancer sets the aim of 75% screening coverage in the target population of women aged 25-64 (7). The Serbian national cancer control plan (NCCP) 2020-2022 does not set a specific target for HPV vaccination coverage (8).

In European countries where HPV vaccination programs, including catch-up programs, were introduced early at the end of the 2000s, a decrease in cervical cancer incidence is already visible. In Sweden and Denmark, a significant decrease started in 2017 and 2018 respectively, when the first cohort of vaccinated girls reached the age of 25-29 (9). Similarly, in England, a lower incidence of cervical cancer and precancerous lesions (CIN3)[1] is found in the cohort of women who were offered vaccination at a young age, compared to those never offered vaccination, and by mid-2020 HPV vaccination had prevented an estimated 687 cervical cancers and more than 23,000 CIN3 cases (10).

[1] CIN3 = severe cervical intraepithelial neoplasia; abnormal growth of cells on the surface of the cervix that can lead to cervical cancer.

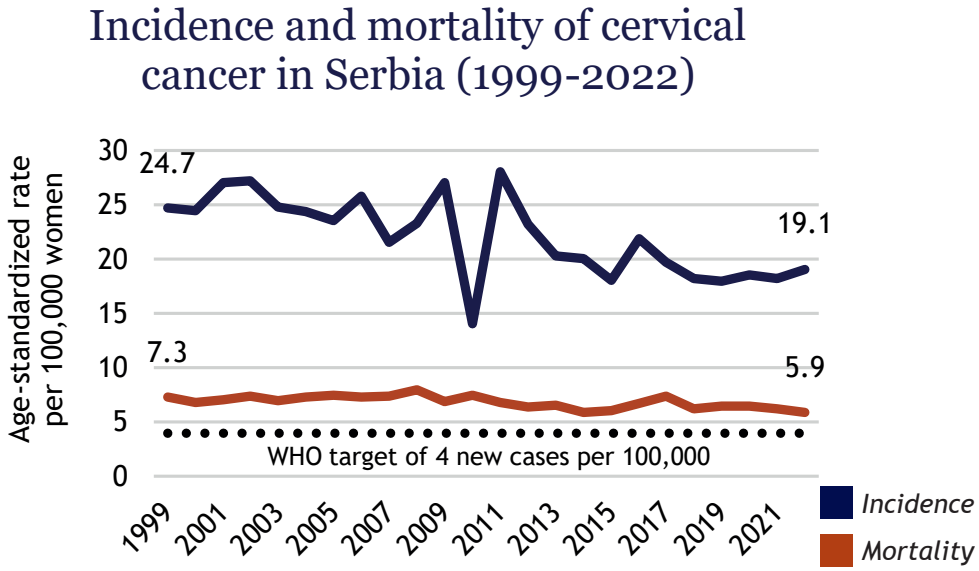
DISEASE BURDEN

In 2022, Serbia registered 1060 new cervical cancer cases and 404 deaths, making it the fourth most common cancer and the sixth leading cause of cancer death among women in the country (11). The lifetime risk is substantial, with around 1 in 63 women (1.6%) diagnosed with cervical cancer before age 84 and 1 in 105 women (0.95%) dying from it (5).

Cervical cancer largely affects women of reproductive age and working age, and is the second leading cause of cancer death among those aged 15-44 in Serbia (11). In 2022, around one-third of cervical cancer cases (31%) were diagnosed in women below 50 years, though the highest number was diagnosed among those aged 55-59 (11). Half of cervical cancer deaths (52%) occur among those below 65 years old, with the highest number of deaths occurring among women aged 60-64 (11).

Incidence rates remain far above the WHO elimination target

The age-standardized rate (ASR) of cervical cancer incidence has seen some reduction through the years, from 24.7 new cases per 100,000 women in 1999 to 19.1 cases per 100,000 in 2022 (12). However, conclusions on long-term trends need to be drawn with caution, as data until 2015 derive only from Central Serbia. Only considering national data, a decrease was noted from the 21.9 new cancer cases per 100,000 in 2016 until 2022. Despite this, cervical cancer incidence is still about five times higher than the WHO elimination target of 4 new cases per 100,000. The ASR of cervical cancer mortality remained relatively stable over time, amounting to 7.3 cervical cancer deaths per 100,000 women in 1999, 6.7 deaths per 100,000 in 2016 and 5.9 deaths per 100,000 in 2022 (12).



Graph title: Age-standardized incidence and mortality rate of cervical cancer per 100,000 women in Serbia in 1999-2022.

Note: Numbers come from different sources. Incidence and mortality data between 1999 and 2015 were taken from the Central Serbia Cancer Registry reports. Data for the period 2016-2022 were taken from the reports of the Serbian Cancer Registry (national data). Age standardization according to World Population. Source: (12).

Limited availability of data to monitor progress and identify challenges

A reorganization of the Serbian Cancer Registry was initiated in 1996, but for the period 1999-2015, only regional data are available through the annual reports of the Cancer Registry of Central Serbia (12). Since December 2019, the Serbian Cancer Registry of the Institute of Public Health of Serbia "Dr Milan Jovanović Batut" issues national cancer statistics reports, available for the years 2016-2022 (as of December 2025). Despite data on incidence and mortality by age and district, local experts noted that data on important indicators, such as stage at diagnosis and survival, are not available. Reporting of information on stage at diagnosis is not required in the registry's protocol. This makes it impossible to assess the effectiveness of early detection/screening efforts and bottlenecks across the country. Local experts also mentioned plans to use AI software on medical records to enable the development of a clinical registry that would contain detailed information on the effectiveness of the diagnosis and treatment process.

Cervical cancer incidence in Serbia is still about five times higher than the WHO elimination target of 4 new cases per 100,000.

RETURNS ON INVESTMENT

Evidence from multiple countries shows that every dollar invested in prevention, early detection, and treatment of cervical cancer can return 3–8 times its value in economic benefit (1). The WHO estimates that for every US$ 1 invested through 2050, an average of US$ 3.20 will be returned to the economy, primarily through increased women's workforce participation (13).

Every dollar invested in prevention, early detection, and treatment of cervical cancer can return **3–8 times** its value.

ECONOMIC BURDEN

Cervical cancer places a considerable financial strain on health systems and societies.

The economic burden of cervical cancer is not well documented

There are no published analyses quantifying the amount of public healthcare spending specifically on cervical cancer in Serbia. However, according to a recent global analysis, the estimated direct economic burden of cervical cancer in Serbia in 2021 was US$ 1.74 million [RSD 173 million], with a cumulative burden of US$ 13.11 million [RSD 1.3 billion] between 1990 and 2021 (14). In terms of indirect costs that accrue outside the healthcare system, some data are also available. In 2019, cervical cancer was responsible for 7,705 years of life lost (YLL) and 2,544 years of productive life lost (YPLL), the third highest numbers among 9 countries in Central Eastern Europe (15). The present value of future lost productivity (PVFLP) due to cervical cancer was estimated at around EUR 8.8 million [RSD 1.04 billion], and EUR 20,083 [RSD 2.4 million] per death. The high indirect costs in Serbia are a consequence of the high proportion of new cervical cancer cases and deaths that occur in women of working age in Serbia (see section "Disease burden"). These costs could be alleviated through better prevention, early detection, and timely treatment and management of precancerous cervical lesions and cancer cases.

PREVENTION

Cervical cancer is one of the few cancers considered highly preventable, as persistent infection with high-risk HPV is the cause and effective vaccines are available (1). Primary prevention relies on HPV vaccination, which provides long-term protection against the most oncogenic HPV types. International recommendations prioritize immunization of girls aged 9-14 years, before the onset of sexual activity, but many countries are also adopting catch-up vaccination of older adolescent and young adult cohorts to accelerate reductions in cervical cancer burden. In addition, there is a growing switch toward gender-neutral vaccination, with boys increasingly included in national programs to enhance herd immunity and prevent other HPV-related cancers (16). As of November 2025, 85 countries vaccinate both boys and girls, including Serbia (16). The WHO CCEI calls for 90% of girls fully vaccinated by age 15 by 2030 (6).

PREVENTION

HPV VACCINATION

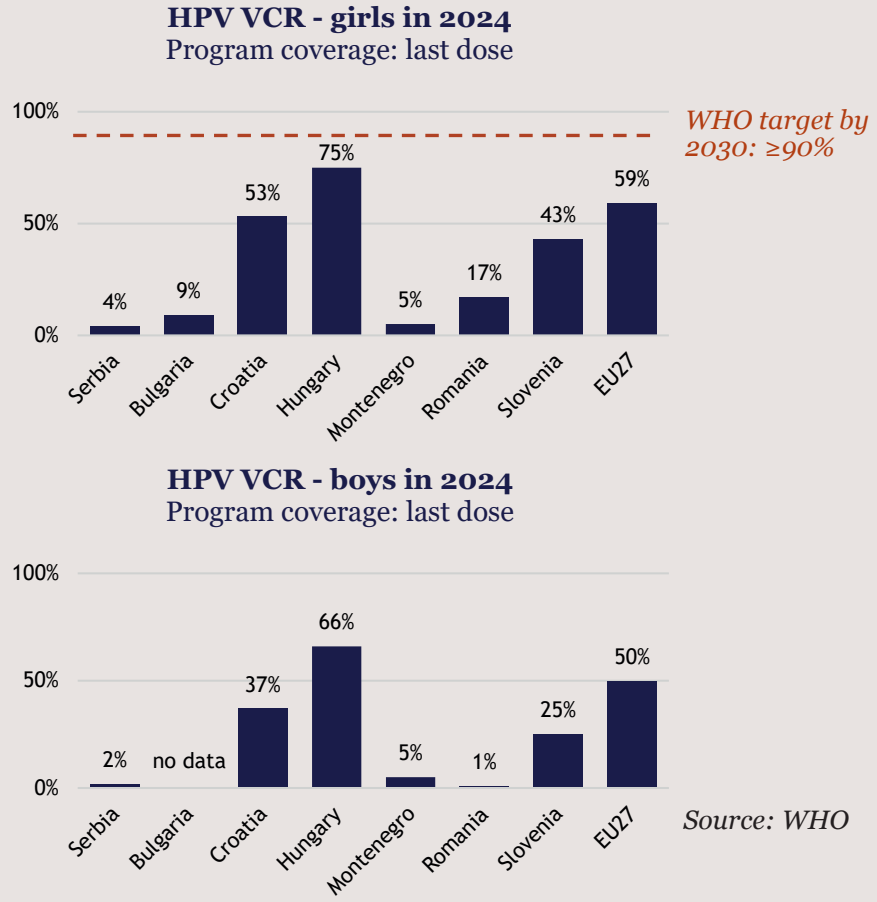
WHO GOAL:
90% OF GIRLS FULLY VACCINATED AGAINST HPV BY AGE 15 BY 2030

Since 2008, vaccination against HPV has been recommended for adolescents before their first sexual intercourse, however, its cost was not covered by public health insurance in Serbia (17). Following a successful local campaign in 2020 and 2021 in Novi Sad, where free of charge vaccination was offered to both girls and boys, the HPV vaccine was introduced into the National Immunization Program (NIP) in 2022 (18). Since June 2022, HPV vaccination is recommended for individuals aged 9-19, and provided free of charge (17). It is however not on the list of mandatory vaccines (such as the polio and MMR vaccines) in the NIP.

HPV vaccination is only available in primary care – administered by pediatricians or general physicians (17).

HPV vaccination coverage is low

WHO estimates indicate that only 4% of eligible girls and 2% of eligible boys received the final HPV vaccination dose in 2024, through the vaccination program (19). National data indicate that 5.7% of girls and young women between 9 and 19 years old received at least one dose of the HPV vaccine during the first year of the implementation of HPV vaccination in the country (17). The HPV vaccination coverage rate (VCR) was similar among age groups; 5.5% among girls 9-14 years old and 5.9% among girls aged 15-19. In the first year since the initiation of vaccination in the country, only the administrative region of Moravica saw a VCR higher than 10% (17). According to local experts, expanding the setting of HPV vaccination from primary care to include pharmacies or introducing school-based vaccination could reduce geographical and financial barriers and improve uptake.



Why does HPV matter beyond cervical cancer?

There are 12 high-risk HPV types that are causally linked to anal, vulvar, vaginal, penile, and oropharyngeal cancers (3). In Europe, 2.5% of all cancer cases or around 87,000 cases are caused by HPV (3). More commonly, HPV causes precancerous lesions in the cervix (CIN2+) – between 263,227 and 503,010 annual cases among women in Europe – and genital warts (in both sexes) - around 680,000-844,000 new cases per year in Europe (20). HPV also causes a rare disease called recurrent respiratory papillomatosis in adults and children that affects the vocal cords in the larynx (21). In Europe, around 20–30% of HPV-related cancers occur in men (22).

Misinformation and lack of awareness may suppress demand

In Serbia, parental consent is required for the vaccination of children and adolescents below the age of 15 (23). Therefore, parental attitudes may enable or hinder HPV vaccination. Evidence shows that half of Serbian parents are uncertain regarding the need to immunize their children, and they are not well-informed on HPV infection and vaccination (23, 24). Furthermore, they consider the promotion of HPV vaccination in the country to be insufficient (at least prior to 2022) (24). The sex of their child may play a role in the knowledge level, as parents of girls showcase higher knowledge, whereas parents of boys more often downgrade the seriousness of HPV infection and the need for vaccination (24). This is reflected in vaccination rates, which are higher among girls and women (23, 25). The vaccine's protective effect against different kinds of cancers is one of the most common motivations among parents who vaccinated their children (18). Information campaigns are needed to raise HPV awareness among parents in Serbia and highlight the significance of vaccination in protecting against cancers in both sexes. In that direction, the women's center "Milica" (Ženski centar "Milica") with support from the Ministry of Health recently launched the campaign "Not without her" ("Ne Bez Nje"), targeting fathers and boys in order to break the stigma surrounding gynecologic conditions (26). Low HPV vaccination awareness is also prevalent among young people. Studies among female university students indicate that a fraction of them lacks adequate information about the HPV vaccine and its availability (27, 28). In the university student population, exposure to and trust in informational sources are the most significant determinants of HPV vaccination acceptance, further highlighting the importance of interventions that improve knowledge and build trust towards health authorities (25).

Local action to increase HPV vaccination uptake

Between 2019 and 2024, several health promotion activities were organized in Novi Sad by the Institute of Public Health of Vojvodina (29). The most notable initiative is the "Open door" walk-in vaccination sessions, when the HPV vaccine can be administered without prior booking of an appointment. "Open door" sessions are implemented three times per year and last for a week. Educational content and information on the sessions are shared through media (TV, radio, social media), as well as in collaboration with school principals, with information about the timing and setting of the sessions communicated to parents through SMS or Viber messages. The initiative has been associated with increased HPV vaccination uptake, with vaccination peaks during the weeks of "Open door" implementation.

There is also an NGO called "Progovori" that operates across Serbia and whose work is focused exclusively on promoting HPV vaccination of boys and girls aged 9-19.

Suboptimal physician recommendations influence vaccination decisions

Parents in Serbia identify pediatricians as the most common source of information on HPV vaccination, and consider their recommendation as a strong motive for vaccination acceptance (18, 23, 24). However, only about a fifth of parents (19%) have received recommendation for HPV vaccination from their pediatrician (24). Evidence from Serbia has shown a varied knowledge level on HPV vaccination among pediatricians and gynecologists, while the level of their knowledge, as well as their attitudes and beliefs, influence their willingness to recommend the vaccine (30, 31). Local experts report that physicians are not always adequately informed or supportive of HPV vaccination, resulting in suboptimal recommendation to parents. Part of this hesitancy to recommend the vaccine is grounded in the fact that the HPV vaccine is currently only recommended but not mandatory in the NIP, according to local experts. Education for healthcare professionals (HCPs), is needed to overcome potential hesitancy and improve active recommendation of HPV vaccination. Students of medical professions constitute a key group as future HCPs, and those who have attended education on HPV infection and prevention, showcase a higher knowledge level, as well as higher likelihood to recommend HPV vaccination (32, 33). In addition, the majority of students reports willingness to get informed about HPV (32). Thus, incorporating relevant education during medical studies has the potential to increase knowledge and cultivate positive attitudes regarding HPV prevention early on and shape well-informed future HCPs.

Sociodemographic disparities in primary prevention of HPV

Certain sociodemographic disparities exist both in terms of HPV awareness and vaccination uptake. Higher knowledge and/or vaccination acceptance of parents have been associated with higher education and income, medical education, employment, and urban residence (23, 24). Analyses from the first year of the implementation of HPV vaccination in Serbia show that vaccination coverage was lower in the administrative units with a higher proportion of low educated women (17). Targeted interventions, focusing on the needs of specific population groups, could enhance vaccination awareness and uptake among groups that need it the most.

Lack of infrastructure for monitoring and evaluation

Reliable monitoring systems are indispensable for tracking progress, ensuring accountability, and building public trust. HPV VCRs in Serbia are primarily available through the WHO immunization database, as there is no publicly accessible national platform that systematically reports coverage data. These international figures are based on data submitted through standardized reporting mechanisms, but they do not provide disaggregated information by, e.g., age, catch-up campaigns, or geographic region. Local experts stress the need for an electronic vaccination registry, to enable easier access to data that will support progress monitoring, as currently all registration is paper-based.

EARLY DETECTION

Cervical cancer can be detected in two main ways: either when a woman experiences symptoms and seeks care, or through screening programs that identify precancerous lesions or actual tumors before symptoms appear. Early detection relies heavily on organized screening programs, traditionally using Pap smear (cytology) and, increasingly, HPV testing. Leading medical bodies like ASCO, ESMO, and European guidelines endorse HPV testing as the preferred approach, often using Pap smear only to triage HPV-positive cases (34, 35). The WHO CCEI calls for 70% of women to be screened with a high-performance test by ages 35 and 45 by 2030 (6). The latest European Code Against Cancer recommends using HPV tests in women aged 30–65 years at intervals no shorter than five years (36).

It is unclear how well early detection of cervical cancer works in Serbia, because of the absence of collected data on the stage distribution at diagnosis. In order to improve the situation, attempts to establish organized cervical cancer screening have been carried out since 2012 (37). Women aged 25-64 are recommended to have a Pap smear every three years. The Serbian National program for early detection of cervical cancer specifies that the screening coverage should be at least 75% of the eligible population (7). It additionally aims to raise awareness on cervical cancer screening, strengthen the country's screening capacity, and establish systems for data collection and quality control.

DETECTION

SCREENING PROGRAM WITH PRIMARY HPV TESTING (PREFERRED) OR PAP SMEAR

SELF-DETECTION OF SYMPTOMS

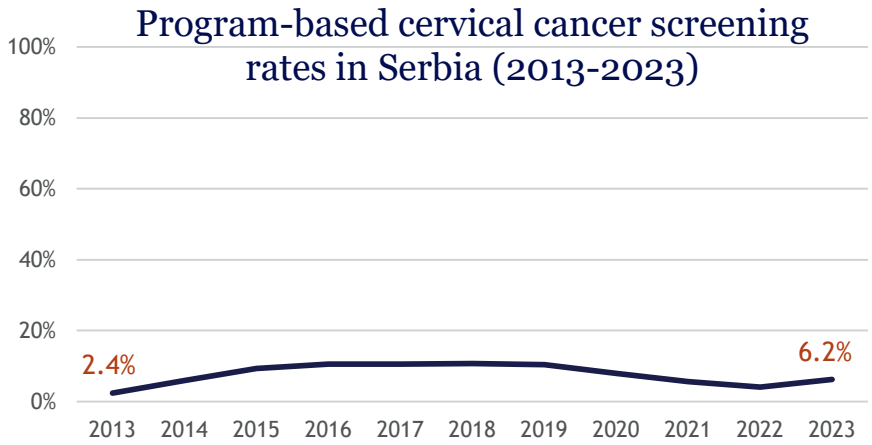
WHO GOAL:
70% OF WOMEN SCREENED WITH A HIGH-PERFORMANCE TEST BY AGES 35 AND 45 BY 2030

Cervical cancer screening remains mostly opportunistic

Although cervical cancer screening is available in Serbia, this remains largely opportunistic. In 18 (out of 145) municipalities, screening has been offered under an organized program, where women are identified by the primary healthcare centers' lists and subsequently invited to screening (38). However, the local experts interviewed noted that in practice the organized program does not function properly and that only a letter-based invitation is available to some extent. A central challenge is that contact information for the whole target population based on population lists (e.g., from censuses, voting lists, or RFZO-insured persons list) is not available to gynecologists, and women can currently only be identified based on gynecologic health records if they have previously visited a gynecologist. Experts further highlight the need for a flexible system for booking/re-booking screening appointments, either via phone or a digital platform, similarly to measures taken during the Covid-19 pandemic for booking vaccinations, instead of requiring physical presence to schedule appointments. This would enable women to manage their appointments without additional time and cost barriers.

Low screening uptake and disparities in participation

Program-based data from 2013 to 2023 show that screening rates in Serbia remained very low and relatively stable over time (39). The peak in screening participation was noted in 2018, with an almost 11% participation rate, while in 2023 it stood at around 6%. A large discrepancy is noted between program-based data and self-reported data. In 2019, 63% of women aged 20-69 in Serbia reported that they got screened for cervical cancer over the past three years (40). This discrepancy indicates that most women get screened outside the program. Nevertheless, Serbia's cervical cancer screening rates lie below both the national and WHO targets based on the available data.



Graph title: Program-based cervical cancer screening rates in Serbia during the period 2013-2023. Source: (39).

Certain differences in screening participation based on sociodemographic characteristics are also observed. Women with a low education level report cervical cancer screening at a lower rate (43%) compared to those with tertiary education (77%) (40). Overall, younger age, not being married, lower socioeconomic status and education level, as well as rural residence contribute to non-participation (41-43). Local experts reported a lack of gynecologists and infrastructure, particularly in rural areas, that limits the country's screening capacity, and which may also contribute to screening disparities. They further mentioned that mobile units are already utilized to perform mammography for breast cancer screening or blood donations. The services offered by these units could also include cervical cancer screening to improve participation among hard-to-reach populations.

Lack of infrastructure for invitations, monitoring, and evaluation

At present, Serbia lacks a national cervical cancer screening registry that captures screening rates across the country. Some versions of a screening registry have previously been developed and used in standalone projects, but no national screening registry has yet been developed (44). In addition, as previously mentioned, population data and contact information of eligible women are not available to gynecologists within their catchment area, hindering the possibility to identify and invite women to screening (38). Lack of electronic infrastructure poses a challenge in monitoring and evaluation of the situation in cervical cancer early detection in the country and hinders the possibility to map population needs and implement targeted interventions.

Limited health literacy and awareness of screening

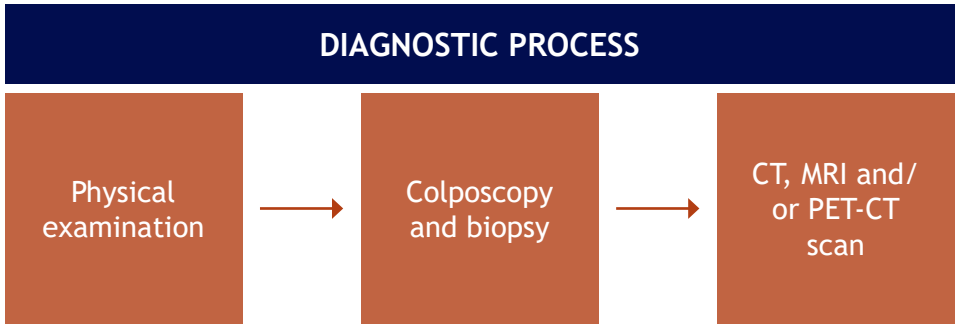
Knowledge on the relationship between HPV, cervical cancer, and screening is suboptimal among women in Serbia (45). Overall, screening uptake has been associated with women's knowledge level; those who regularly participate in screening have better knowledge than those who do not, whereas lack of knowledge about the testing procedure is identified as one of the common barriers to screening attendance (45). Additionally, research among university students indicates that although they are mostly aware of cervical cancer screening, they still lack proper knowledge on it, as well as regarding early signs of cervical cancer (28). According to local experts, lack of knowledge about the importance of screening and its pathway is intertwined with a lack of preventive mindset and low significance placed on prevention. These constitute important barriers to screening participation, as women do not prioritize preventive measures and delay healthcare-seeking when not experiencing specific symptoms. In addition, stigma around gynecological conditions – such as the belief that they are caused by "promiscuous" sexual behavior – is prevalent and hinders screening participation.

HPV testing is not available

In Serbia, the primary cervical cancer screening method is through cytology (Pap smear) (38). HPV testing is not routinely used and has only been part of individual screening initiatives. In the beginning of 2025, the Institute of Public Health of Serbia "Dr Milan Jovanović Batut", with the support of the Ministry of Health and the United Nations Population Fund, offered free cervical cancer screening to women aged 30-65 in Belgrade and Niš, with simultaneous HPV and Pap tests (46). Apart from sporadic uses of the method, Serbia has not yet incorporated HPV testing in the cervical cancer screening program, and thus, remains far from reaching the WHO target of 70% of women being screened with a high-performance test by ages 35 and 45 until 2030. As underlined by experts interviewed, the lack of HPV testing means that a system of sending out HPV self-sampling kits is currently not feasible in the country.

DIAGNOSIS

Cervical cancer diagnosis follows a structured, multi-step pathway. Positive screening results or suspicious findings are followed by physical examination, colposcopy, and biopsy to confirm the presence of precancerous lesions or invasive disease. Following this, images (through CT, MRI, or PET-CT scans) are taken to determine disease extent and guide staging. Accurate diagnosis and staging are critical for treatment planning. Strengthening access to timely diagnostic services and ensuring continuity across these steps remain essential for improving survival and advancing toward elimination goals.



Source: based on ESMO (47) and ESGO/ESTRO/ESP guidelines (48).

Clinical guidelines are outdated and not routinely enforced

In Serbia, guidelines on the diagnosis and treatment of cervical cancer, as well as clinical pathways have been developed, but are not updated often according to the latest advancements (8). Moreover, local experts describe how interviews with gynecologists in a district in Vojvodina with very high incidence and mortality rates revealed that follow-up of the Pap test or evaluation of lesions with colposcopy, are not always performed. Without quality control of proper examinations according to international standards, there is a risk of late detection of cervical cancer, leading to higher incidence and need for more complex and costly treatment.

Shortages in equipment compromise access to diagnostic services

Despite progress in recent years, several shortcomings in diagnostics persist in Serbia. The country remains below the EU average when it comes to availability of diagnostic imaging technologies in the public sector (such as CT, MRI and PET-CT scanners), although important investments have been made (8, 49). Moreover, several secondary level medical institutions lack the necessary diagnostic equipment, which contributes to long waiting times and poses barriers to timely and equitable access to diagnostic services; however, data on time delays to diagnosis are not available (8).

Accurate diagnosis and staging are critical for treatment planning.

Workforce shortages pose a challenge in timely diagnosis and treatment

Shortages exist in healthcare workforce, which is one of the reasons for long waiting times for certain procedures, including diagnostic imaging (8, 49). Delays in accessing diagnostic services can in turn lead to delays in receiving a diagnosis and life-saving treatment. The numbers of physicians and nurses per 100,000 inhabitants in Serbia have remained stable since 1990, mainly due to population decrease (49). However, absolute numbers have declined, placing the country below WHO European Region and EU averages (49). Affected specialties include pathologists, radiologists, as well as internists/medical oncologists (8). To address this, the Serbian NCCP set a target to increase oncologists from 114 in 2018 to 125 in 2022 (8). Additional challenges that compromise timely diagnosis include the concentration of HCPs in urban areas, the decrease in medical graduates, and the aging of physicians (49). Additionally, emigration of HCPs exacerbates workforce shortages.

TREATMENT

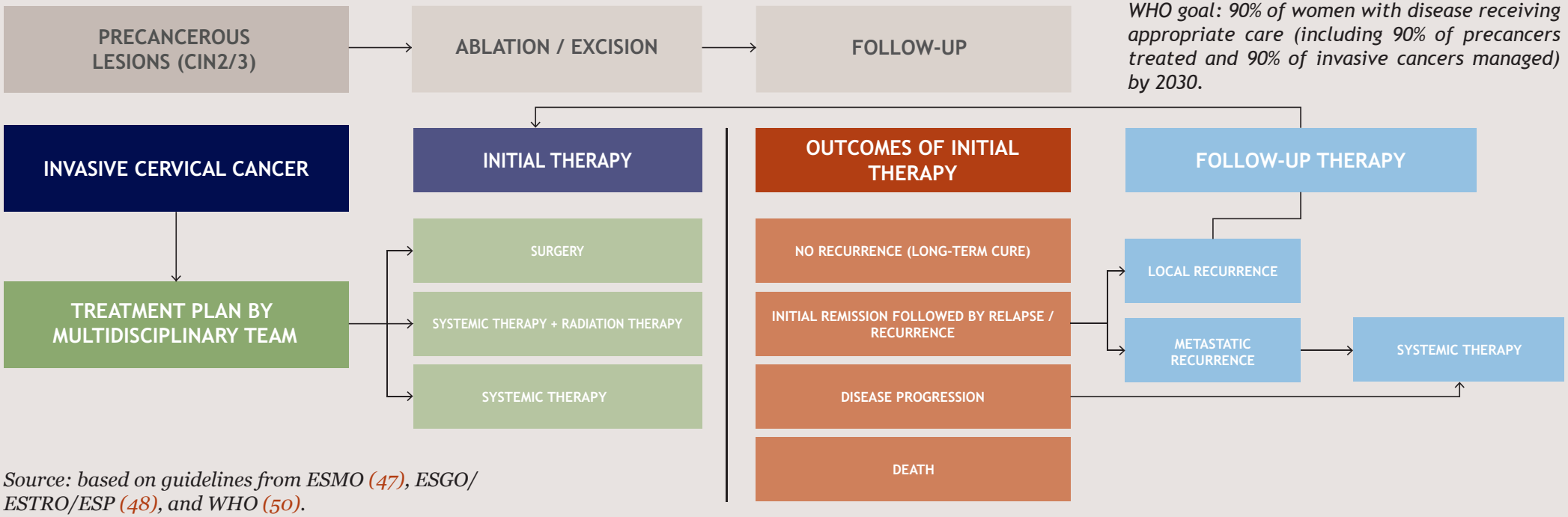
Secondary prevention through screening and treatment of precancerous lesions plays a critical role in preventing progression to invasive cervical cancer. Early detection and timely management of precancerous lesions (CIN) can interrupt the disease process (50), avoiding the need for more complex and costly cancer treatments later on. However, when cervical cancer develops despite preventive efforts or in the absence of such measures, comprehensive treatment strategies become essential to achieve cure or control of the disease.

The management of cervical cancer should be coordinated by a multidisciplinary team (MDT) of oncologists, surgeons, radiologists, pathologists, and oncology nurses to ensure the most appropriate care for each patient (48). Treatment approaches vary by disease stage and typically involve surgery, radiation therapy, and cancer medicines used alone or in combination (47, 48).

Broadly, therapeutic approaches include:

- **Localized, operable cases:** Surgery, often involving removal of the entire uterus, and often followed by radiation therapy with or without chemotherapy (48).
- **Locally advanced cases:** Concurrent chemoradiation with brachytherapy used to be the curative standard (48), but nowadays immunotherapy may be added in selected high-risk cases (51).
- **Recurrent or metastatic cases:** Chemotherapy used to be the standard of care but should now be combined with immunotherapy in patients with a positive PD-L1 tumor expression (48). The latest WHO Essential Medicines List (EML) from September 2025, includes immunotherapy as a first-line monotherapy for metastatic cervical cancer (52).

Ensuring equitable access to these treatments and timely referral to specialized centers remains critical for improving outcomes.



Source: based on guidelines from ESMO (47), ESGO/ESTRO/ESP (48), and WHO (50).

Access to essential and novel medicines is limited

Serbia remains among the European countries with the lowest availability of novel cancer medicines. According to the latest EFPIA WAIT indicator, 56 cancer medicines were approved in the EU by the European Medicines Agency (EMA) between 2020 and 2023, while only 8 (14%) of these medicines were available through the National Health Insurance Fund (RFZO) reimbursement list in Serbia at the beginning of 2025 (53). In EU countries, on average 28 (50%) of these medicines were reimbursed. This highlights a substantial gap between EU regulatory approvals and actual patient access to innovative cancer therapies in Serbia. The general lack of reimbursement of novel cancer medicines by the RFZO was also acknowledged in the NCCP 2020-2022 (8).

The situation is particularly evident in the treatment of metastatic cervical cancer. Although immunotherapy is registered for this indication by the Medicines and Medical Devices Agency of Serbia (ALIMS) and immunotherapy already being reimbursed and used in Serbia for other cancer types, such as triple-negative breast cancer, it is not reimbursed for cervical cancer. According to experts interviewed, a one-time donation enabled treatment for 100 women with metastatic cervical cancer; however, the reimbursement status of this therapy has not been formally reviewed for more than two years, despite its established clinical value and it being on the WHO EML. Only older chemotherapy is available in both locally advanced and metastatic cervical cancer as of November 2025. The irregular update of the reimbursement list of medicines by the RFZO presents a challenge.

A key structural barrier is the absence of a dedicated budget line for innovative cancer medicines, according to local experts. While public funding for innovative therapies exists for rare diseases, no earmarked funding for innovative cancer therapies is foreseen, including in the 2026 state budget. This results in delayed and unequal access to novel cancer therapies, despite increasing cancer burden and inclusion of these therapies in European clinical guidelines.

Outdated clinical guidelines

In Serbia, clinical guidelines exist but are not updated often enough to mirror the most recent advancements in diagnostics and treatment (8). Regarding cervical cancer, guidelines for its diagnosis and treatment have been developed, and in 2017, a clinical pathway as well. Serbia lacks national recommendations on the development of clinical guidelines, leading to their datedness; according to the NCCP 2020-2022 existing guidelines had not been updated in the past five years (8). It is important to ensure that national guidelines follow the most up-to-date recommendations and that they are implemented in practice.

Geographic concentration and lack of resources compromises treatment quality

Several challenges in cancer treatment may compromise the quality of care and lead to treatment delays. This includes heavy workload and shortages of HCPs (see previous section), lack of equipment for diagnosis and treatment, and the concentration of specialized services in essentially only two institutions – the Institute for Oncology and Radiology of Serbia (IORS) in Belgrade and the Oncology Institute of Vojvodina in Novi Sad (8, 49). MDTs are mainly functioning only in these two institutions. As of November 2025, there are eight radiotherapy centers across the cities of Belgrade [3 centers], Kladovo [1], Kragujevac [1], Niš [1], and Novi Sad [2], with each city having one brachytherapy machine (54). One of the NCCP 2020-2022 targets was to increase the rate of cervical cancer patients receiving radiation therapy within 28 days of being indicated for it to 40% (baseline value: 33%) (8), but it is unclear whether this target was reached. Local experts pointed out that after confirmation of the final diagnosis (“consilium”), there is a wait of 6 weeks until getting a treatment plan and appointment, and another 6 weeks until treatment initiation. They additionally remarked that waiting times are long even for late-stage cervical cancer cases, and that the high volume of patients results in overcrowding in central medical institutes.

ROLE OF CIVIL SOCIETY

Limited involvement of patient organizations in health policy-making

In Serbia, the role of patient organizations in advocating for the rights of women affected by cervical cancer is not systematically recognized nor institutionally embedded, according to local experts. Although patient organizations possess valuable real-world evidence on the patient journey – from screening to diagnosis and treatment – they are not included in formal health policy decision-making processes. Instead of structured institutional dialogue, patient organizations are often forced to rely on public advocacy initiatives and media engagement, supported by medical experts and professional societies, to secure patients' basic rights, including access to guideline-recommended care. Patient organizations have no formal representation in advisory bodies, committees, or working groups responsible for screening programs, clinical guidelines, or treatment reimbursement.

The lack of systematic involvement represents a missed opportunity to improve policy design and implementation, as insights from the field could significantly contribute to identifying barriers in screening, diagnosis, and treatment, and to reducing inequalities in access to cervical cancer care, in line with European and WHO principles of participatory health governance (55, 56).

Good practice example: Women's Center Milica

Women's Center Milica is a national patient organization in Serbia and a member of the ENGAGE network, providing support and advocacy for women affected by breast and gynecologic cancers. Its representatives have completed a structured Patient Navigator Training Program, implemented within the Oncologic-Social Navigation System project in cooperation with gynecologic and oncologic specialists and with institutional support from the Ministry of Health. Trained patient navigators provide person-centered support to newly diagnosed women, facilitating navigation of the healthcare system and support throughout treatment within a national network of support centers.

In parallel, the organization implements awareness-raising and prevention campaigns aligned with Europe's Beating Cancer Plan, such as "Daj pedalu raku" and "Not Without Her" ("Ne Bez Nje"). A central digital platform (www.nebeznje.com) supports these campaigns by providing reliable information on breast and cervical cancer prevention and diagnosis, as well as by collecting data on women's awareness and barriers to screening implementation in Serbia.

RECOMMENDATIONS

Develop a National Cervical Cancer Elimination Plan

Establish a national elimination plan with clear targets, KPIs, and coordinated cross-ministerial governance. Actively involve medical societies and patient organizations in co-design, implementation, and monitoring to ensure that policies reflect patient needs and real-world barriers.

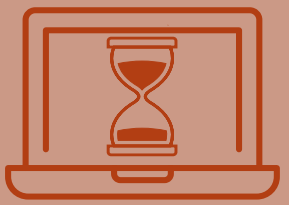
Change the status of the HPV vaccine in the NIP and strengthen data systems

Change the status of the HPV vaccine from being recommended to mandatory in the NIP, supported by an electronic vaccination registry. Improve access by offering vaccination in schools and pharmacies in addition to primary care, and educate pediatricians and gynecologists to promote vaccination.

Co-create and expand public education and awareness campaigns

Implement sustained, multi-channel awareness campaigns on HPV vaccination and cervical cancer screening, co-created with patient organizations, healthcare professionals including pediatricians, educators, and media partners. Focus especially on women of lower socioeconomic status.

Establish a modern invitation system for the cervical cancer screening program



Create a robust invitation and reminder system – similar to Covid-19 vaccination bookings – with updated and accessible contact data and flexible booking. Align the criteria for the target age group (30 to 65 years) and the primary screening method (HPV test, including self-sampling options) with international guidelines, and consider using available mobile units to facilitate access in remote areas.

Improve access to cancer medicines

Ensure sufficient budget for regular updates of the reimbursement list and include essential and cost-effective cancer medicines following at least the WHO Essential Medicines List. Also ensure regular updates of clinical guidelines and an organization of healthcare that enables the inclusion of new medicines into routine clinical practice.

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