



Summary

Following a request received from the Minister of Health of the Republic of Colombia in September 2021, an [imPACT Review](#) was conducted from 21 to 25 November 2022 by the [Programme of Action for Cancer Therapy \(PACT\)](#) of the International Atomic Energy Agency (IAEA), the World Health Organization (WHO), and International Agency for Research on Cancer (IARC). The imPACT Review was organized within the framework of the [WHO-IAEA Joint Programme on Cancer Control](#). A team of international experts, nominated by the IAEA, WHO and IARC, held technical discussions with key stakeholders, and visited the principal cancer facilities in the country.

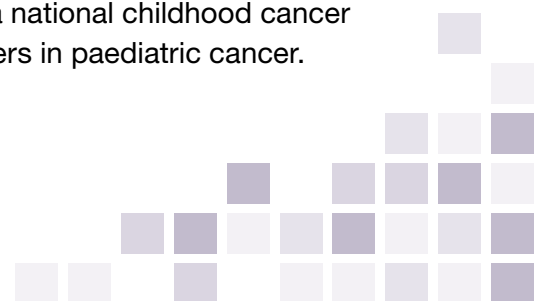
Main findings

1. Cancer control planning and governance: In Colombia, cancer control is managed by the Sub-directorate of Non-communicable Diseases (SENT) of the Ministry of Health and Social Protection (MSPS). The Cancer Unit at SENT is responsible to organize and facilitate dialogue with the main cancer care providers. The National Institute of Health (INS) and the National Cancer Institute (INC) assist the MSPS in coordinating and providing technical support to health service providers (IPS). The territorial entities of the MSPS (departments, districts, municipalities and native territories) are responsible for monitoring compliance with cancer prevention and early detection programmes. However, as these do not have sanctioning authority, they have minimal powers to control and enforce compliance for cancer prevention and early detection activities.

In 2012, the MSPS launched the Ten-Year Cancer Control Plan (PDCC) 2012–2021. The new PDCC will not be developed, instead the MSPS decided to integrate cancer control activities in the Ten-Year Public Health Plan (PDSP) 2022–2031.

There are several national regulations and improvements addressing financial coverage for childhood cancer in Colombia. Also, the National Advisory Council on Childhood Cancer (CONACAI) has follow-up and monitoring functions to ensure that national policies and programmes related to childhood cancer are implemented effectively.

Within the framework of the imPACT review, the MSPS with support from Regional Office for the Americas of the World Health Organization (PAHO/WHO) and St. Jude Children's Research Hospital carried out the formulation of a national childhood cancer plan with the participation of the main Colombian stakeholders in paediatric cancer.



2. Cancer registry and surveillance: There are several information systems for cancer surveillance in Colombia, operated by different institutions, including the Integrated Social Protection Information System (SISPRO), the National Cancer Observatory (ONC) and the National Public Health Surveillance System (SIVIGLIA), among others. Also, seven population-based cancer registries (PBCR) cover approximately 25% of the country's population, while high-quality cancer registries track 9% of the population.

The INC plays a key role in cancer surveillance. It produces estimates and analysis, contributes to registry training and data dissemination, and provides financial support and technical assistance to population-based registries. Likewise, the High-Cost Account (CAC) serves as an information system for cancer management indicators.

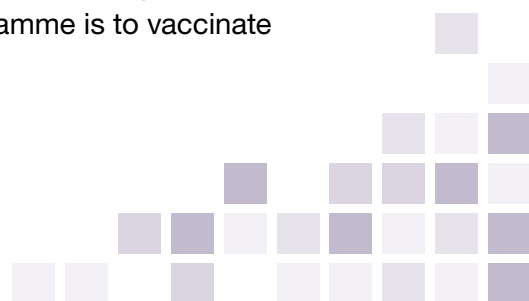
3. Prevention: Colombia has advanced in a set of policies aimed at controlling different risk factors, including opportunistic cancer screening tests for cervical, colorectum and breast cancers during routine medical appointments and offers organized cancer prevention activities to a target population.

Tobacco. According to the National Study on Psychoactive Substance Use (2019) the prevalence of tobacco use is currently 9.75% in the population aged 12–64 years. The Colombian Tobacco Control Law (Law 1335) was enacted in 2009. The main provisions of the Law include smoke-free environments, total ban of tobacco products advertising and regulations for warning labels in tobacco products. The Law 1928 (2016) increased the tax rate on tobacco products. The trend for tobacco consumption has been declining between 2008 and 2019. The use of e-cigarettes is a concern in Colombia, particularly among young people: the 2017 National Youth Smoking Survey found that 15.4% of schoolchildren aged 13–15 years reported using e-cigarettes.

Alcohol. The National Strategy for the Prevention and Reduction of Harmful Alcohol Consumption was developed by the MSPS to address the negative health and social impacts associated with alcohol consumption. The National Survey on Psychoactive Substances in School Students (2016) reported that the lifetime prevalence of alcohol use was 69.2%, while 37% of students reported using alcohol in the last month. Prevalence increases in ancestral communities where 59% of adolescents report regular alcohol use (Colombian Association of Psychiatry, 2019; research conducted in the municipality of Inírida).

Physical activity and nutrition. According to the National Survey on the Nutritional Situation (2015), only 13.4% of the population meets the minimum recommended physical activity among children aged 13–17 years old. The percentage increases to 51.3.6% among adults aged 18–64 years old. In addition, the survey estimated that almost 1 in 5 adults (18.7%) is obese, with higher values among women (22.4%) than men (14.4%). The regions with the highest prevalence of obesity were the Orinoco region, Amazon region (21.8%), Pacific region (21.0%) and Atlantic region (19.9%).

Human papilloma virus (HPV) vaccination. HPV vaccination is carried out by the Institutions providing health services (IPS) and the Entities Administering Health Benefit Plans (EAPB). The goal of the HPV vaccination programme is to vaccinate



the population of girls in the fourth grade of primary school who are nine years of age and older, and out-of-school girls aged 9 to 17. Over the past decade, the government has developed communication strategies to restore confidence in the vaccination programme and, according to UNICEF and WHO data, vaccination has risen to 36% of the target population in 2019, after falling to 6.1% in 2016. The PDSP 2022–2031 has set a 90% HPV vaccination coverage target among eligible girls aged 9–17 years old. Several factors could contribute to reducing the gap in HPV vaccination coverage, including developing national guidelines, strengthening the training of health professionals and increasing community engagement.

Hepatitis B virus (HBV) vaccination. Colombia has a comprehensive strategy for HBV vaccination in line with the global strategy. The programme is supported through a range of public health promotion and prevention activities aimed to improve timely HBV diagnosis, treatment and follow-up care. Coverage with three doses of a DTP-Hib-HepB vaccine is 98 %, but most children did not receive them according to the recommended schedule.

HIV/AIDS. In Colombia, HIV infections reported to the CAC have increased from 82856 in 2017 to 123490 in 2020. According to the latest report the estimated crude incidence of HIV for 10000 people in Colombia is 25.36, including 12528 new cases of HIV. Nationally, in 2022, 2098 cases of HIV deaths were reported. Most were reported in the central region, which documented 618 cases, followed by the Caribbean with 510 cases, the Pacific region with 334 cases, the Eastern region with 276 cases and the Amazon-Orinoco region with 38 cases.

- 4. Early detection:** The cancer screening programme in Colombia is based on Resolution 3280 of 2018, which aims to guarantee comprehensive care for families and communities. Territorial entities, health insurance and health service providers have specific obligations related to health promotion and risk reduction, considering patient satisfaction.

Colorectal cancer. The incidence of colorectal cancer in Colombia in 2020 was 16.9 and 8.2 the mortality rate (age-standardise rate per 100000, Globocan 2020). The screening programmes include faecal occult blood test, immunochemical test every two years and colonoscopy every ten years, starting at age 50 and up to 75 years. Positive cases of faecal occult blood are referred for colonoscopy, but availability of colonoscopy equipment is limited outside of urban areas. There is no official data on positive cases and on loss to follow-up. The most commonly used colorectal cancer screening test is the guaiac faecal occult blood test. If a faecal occult blood test is positive or symptomatic, the specialist will perform a physical examination and ask about personal and family medical history and perform a colonoscopy. A specialist performs a biopsy for further testing to diagnose. The median waiting time between diagnosis and treatment is 50 days in 2020 and 45 days in 2021 (CAC 2020–2021).

Breast cancer. The incidence of breast cancer in 2020 was 48.3 and 13.1 was the mortality rate (age-standardise rate per 100000, Globocan 2020). The screening strategy includes mammography for women between the ages of 50 and 69 every two years and a yearly clinical breast examination for women starting



from 49 years. According to the National Survey of Demography and Health (ENDS) conducted in 2015, 48.1% of women aged 40–69 years had undergone mammography screening, showing an improvement since the last ENDS in 2010. Mammography services are mainly available in cities and the population from country-side and remote areas needs to travel to neighbouring municipalities.

Cervical cancer. The incidence of cervical cancer in 2020 was 14.9 with a 7.4 mortality rate, the lowest in the last 14 years (age-standardise rate per 100000, Globocan 2020). The guidelines for cervical cancer published in 2018 recommend that women aged 25–29 years have a cervical cytology test every 3 years, that women aged 30–65 years have HPV DNA-test every 5 years, as well as Visual inspection with Lugol’s iodine (VILI) and Visual inspection with acetic acid (VIA) each 3 years for women aged 30–50 years. The HPV DNA-test is covered by the Per Capita Payment Unit (UPC). The protocols allow to *see and treat* with cryotherapy, thermal ablation, LLETZ (the acronym stands for *large loop excision of the transformation zone* a very common treatment to remove abnormal cells in the cervix) and cold cone biopsy. Ablative treatments are performed at the Primary Healthcare Level (PHL) by duly certified medical and nursing professionals. Two clinical practice guidelines for cervical cancer were published in 2014, *Manejo de lesiones preneoplásicas de cáncer de cuello uterino*, and *Guía de práctica clínica para el manejo de cáncer de cuello uterino invasivo*. The guidelines established the procedures and conditions that must be met by health care providers in cervical cancer screening services. Despite the inclusion of new technologies, the main test used for cervical cancer screening is cytology. The specific steps that follow a positive screening test may include additional tests, such as colposcopy and biopsy. If the biopsy confirms the presence of high-grade lesions, the patient may need to undergo a cone excision performed by a medical doctor who specializes in colposcopies. Great efforts have been made to reduce the time between the access to diagnosis and the treatment, yet still needs improvements. Women can expect to receive their cytology results within 33 working days, while 60 days are needed before treatment can begin (CAC 2021).

Childhood cancer. Colombia has made significant progress in paediatric cancer for the timely detection. In 2013, Colombia participated together with the PAHO/WHO in the development of the Early Diagnosis of Childhood Cancer manual (as part of the Strategy for the Integrated Management of Childhood Illnesses – IMCI), a reference tool for early detection by health personnel, mainly at the PHL. The manual was updated in 2021 and integrated into the *Clinical Support Tool for Initial Management of Childhood Prevalent Conditions*.

- 5. Diagnostics:** Diagnostic tools used for cancer vary from ultrasound to cytogenetic testing or molecular biology tests. The availability of diagnostic tools in Colombia varies across the country. The Colombian government has made efforts to improve access to universal cancer care enrolling almost 99% of the population in the health insurance schemes.

The MSPS has implemented a technology management policy which includes the use of cost-effective safe technologies in line with country’s needs. Clinical practice guidelines have been developed for various neoplasms such as lung, breast, prostate, stomach, Hodgkin lymphoma, non-Hodgkin lymphoma and colorectal. The guidelines do not include



18F-FDG PET for breast cancer and locally advanced cervical cancer. The guidelines include 11C- and 18F-choline PET for evaluation of biochemical recurrence in prostate cancer, one of the diseases with the highest incidence and mortality rates in Colombia.

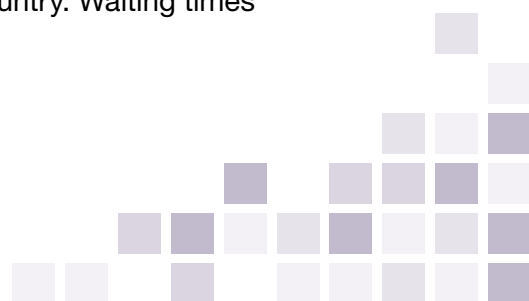
In general, it is evident that urban areas with comparatively higher per capita income have better access to prepaid medicine (voluntary health plans, complementary to the care provided by the Health Benefit Plan), with times from diagnosis, staging and treatment not exceeding 30 days. Similarly, it is observed that most of the low-income population in Colombia lives in rural or remote areas with lower access to diagnosis and treatment services. The need to leave their own community to access care (within a range of 100–200 km) presents as a significant cost for the individual and family, and which can lead to the discontinuation of care.

Childhood cancer waiting time between diagnosis and treatment started to improve between 2015 and 2020. The median waiting time between symptom investigation and diagnosis was of 12 days in 2021 and 5 days between cancer diagnosis and treatment (CAC 2021). However, waiting times vary across cities.

6. Treatment: Medical oncology and haematology-oncology are medical specialties in Colombia. Physicians who specialize in these fields complete a specialized training programme. After completing the programme and becoming certified, they provide cancer care and prescribe cancer drugs. During the interviews and through the evaluation questionnaires, it was reported that decision making is usually supported by national or international guidelines or recommendations, and usually involves multidisciplinary teams and committees discussing optimal treatment. Cancer drugs are broadly available and accessible. Highly complex procedures, such as bone marrow transplantation, are typically only performed at specialized cancer treatment providers (around 50% of the reported service providers). Isolation rooms are available for immunocompromised patients, such as those undergoing bone marrow transplantation and high-dose chemotherapy treatment.

In general, institutions specialized in cancer care in Colombia offer **surgical oncology** services and have fully equipped operating rooms. Most operating rooms have the required equipment and facilities to perform surgical oncology. However, operating rooms in the Orinoco and the Amazon regions have limited resources. The average waiting time for surgical oncology procedures ranges from two to eight weeks. There may be longer waiting times in rural or remote areas, where access to specialized healthcare resources and equipment may be limited.

The **radiotherapy** facilities in Colombia are adequately updated and the number of radiotherapy providers is generally acceptable. However, most radiotherapy centres are in the Andean, Caribbean and Pacific regions, while the Orinoco and Amazon regions are severely underserved (1 RT centre active in the Orinoco and none in the Amazon). According to the interviews, 3/4 of radiotherapy services are provided by the private sector; no official data were provided to detail this and to obtain a regional distribution of active radiotherapy services in the country. Waiting times



for radiotherapy treatment in Colombia can vary depending on several factors. The average waiting time after the initial consultation is about 19 days [range of 5–35]. Radiotherapy centres deliver treatments using standards that are individually considered appropriate according to established protocols (for linear accelerators) and that in most cases are monitored by the territorial entities (Secretariat for Health of each department). There are no national quality control plans or specific practice audits. Approximately 30% of the radiotherapy centres do not offer brachytherapy treatment.

There are inequalities in **childhood cancer care** in Colombia, with wide variability and decentralization across the country. There are at least 50 cancer care providers for children and adolescents with cancer. Most of them have only one physician specialized in paediatric oncology, while the international standard of care for children with cancer is to employ at least two full-time paediatric oncologists per treatment centre. According to 2022 CAC data, the dropout rates for acute lymphoblastic leukaemia (ALL) was of 10.26% while acute myeloid leukaemia (AML) were lower than 10%. Also, the review of CAC publications over the last decade (2012–2021) show important improvements in the capabilities and efficacy of treatments in the paediatric oncology population is noted. Among the most important are an increase in the survival estimate of patients from 40% to 61%, the increase in insurance coverage, the incorporation of new technologies and treatments, the creation of high-quality specialized centres as the Comprehensive Childhood Cancer Care Units (UACAI), and the strengthening of capabilities and training of health care workforce.

- 7. Palliative care:** There is an extensive legislative framework for palliative care in Colombia, which recognizes the right to palliative care and governs the use of medication. According to the 2020 Atlas of Palliative Care in Latin America approximately 250 000 patients require palliative care each year, but only 16% have access to palliative care services. There are not enough resources to meet the demand. There is no national strategy to develop and improve palliative care to meet the growing demand. The number of palliative care services, the number of healthcare professionals trained in palliative care and the type of services available vary across different regions.
- 8. Radiation safety:** Two regulatory bodies are established in Colombia by national decrees. The Ministry of Mines and Energy with some functions delegated to the Colombian Geological Service (SGS) and the MSPS with 38 health territorial entities. The total number of qualified and competent regulatory personnel is not adequate to ensure compliance with all regulatory requirements in accordance with the IAEA set of safety standards. There are no provisions for regular review and update of regulations and guidelines by the regulatory bodies. However, the Ministry of Mines and Energy is developing a national investment project that includes updating its regulatory framework. There is a global quality assurance programme for medical exposures, which has been partially implemented. Colombia has been making efforts to implement national diagnostic reference levels and optimize radiation protection in medical exposure to protect workers and patients.



■ Key priority recommendations

Cancer control planning and governance

- To establish a National Cancer Control Programme, or a similar entity, to foster coordination among cancer stakeholders and ensure the design and management of a National Cancer Control Plan to clearly define targets and milestones in cancer control and to orient the development of territorial action plan for cancer prevention and control.
- To revise current regulations to ensure that the development of guidelines or recommendations on prevention and clinical practices can be annually updated by interdisciplinary working group, ensuring the participation of all relevant professional associations.
- To conduct a thorough cost-effectiveness-opportunity analysis on the creation of an Organized Cancer Screening Programme with allocated resources and the capacity to implement cancer prevention and control actions and initiatives.
- To coordinate the model of integrated childhood cancer in Colombia with the CureAll framework (WHO's Global Initiative for Childhood Cancer) in order to ensure monitoring and comparison across Latin America.

Registration and surveillance

- To establish the sources of information that will be officially used for each of the cancer surveillance indicators (incidence, mortality, survival and quality of care) and identify the entity or responsible generating them.
- To strengthen the information exchange between information systems and stakeholders, particularly between the INC and the population-based cancer registries, in order to improve the completeness and quality of cancer-related information.
- To improve the completeness and quality of data and facilitate data collection and ensure the sustainability of population-based registries and facilitate their work.

Prevention

- To develop clinical practice guidelines for smoke cessation and communication strategies to increase public awareness about the harmful effects of cigarettes and e-cigarettes.
- To assess current indicators on national HPV vaccination coverage.
- To ensure the availability of vaccines in the country (HPV and HBV).
- To increase HBV vaccination for pregnant women, for women who are not already vaccinated.

Early detection

- To promote scientific dissemination (among professional associations) on early detection of oncological diseases and promote knowledge dissemination among the general population on cancer services providers—particularly among marginal native communities.



- To update the clinical practice guidelines for colorectal cancer screening, increase colorectal cancer screening coverage by implementing immunochemical testing and develop quality indicators for the screening programme.
- To implement induced demand actions to improve mammography coverage and assess the implementation of the follow-up programme for women who have been diagnosed with breast cancer.
- To promote self-care and responsible sex and achieve at least 50% of women aged 30–65 years screened for HPV and assess the introduction of an HPV screening strategy based on self-sampling for HPV testing.
- To deliver training for Primary Healthcare Level (PHL) workforce using existing virtual courses, such as PAHO virtual course on Early Diagnosis of cancer in childhood and adolescence and the MSPS clinical tool for the initial management of prevalent early childhood conditions and start implementing a community awareness strategy on symptoms and signs of childhood cancer.

Diagnosis (diagnostic imaging and nuclear medicine)

- To develop telemedicine diagnostic programmes, deliver training to technologists and radiologic technologists for screening using mobile diagnostic units of patients previously assessed by trained PHL physicians.
- To revise the current guidelines to include 18F-FDG PET for the treatment of locally advanced breast and cervical cancer.
- To add oncology services to the boat service for isolated communities along the river.
- To promote normative reporting for imaging, pathology, and immunohistochemistry through continuing medical education courses and monitoring of compliance by the MSPS.

Treatment (radiotherapy, medical oncology, and surgical oncology)

- To strengthen the agreements between EPSs and IPSs with the intent of improving patient care (reduce delays for patients to begin their oncological treatment, compensate additional costs for patients related to travel and working hours/days lost, provide support to patients and family to reduce discontinuation or abandonment of therapy).
- To implement regulations mandating that all centres equipped with ionizing radiation have an oncological radiation specialist on staff and that a full-time medical physicist is present.
- To plan for the decentralization of radiotherapy in the Orinoco and Amazon regions.
- To prioritize the installation of gynaecological brachytherapy equipment and services (human resources, infrastructures, supplies) in geographical areas where the availability is limited or non-existent.



Palliative care

- To promote collaboration between public institutions, private institutions and non-governmental organizations, so that they can enhance their strengths and have a greater capacity to influence Public Policies in palliative care.
- To develop strategies and prescription procedures to ensure the availability of medicines that are guaranteed, but do not reach patients.
- To orient and support territorial authorities in defining the quantity of opioids that should be available at the department level.
- To define standards for the competences of palliative care specialists and ensure that they are consistent with profiles of specialists in interventional pain management.

Education and training

- To develop undergraduate courses on prevention and early diagnosis of cancer.
- To develop and implement a training program for PHL physicians in the use of basic diagnostic tools, and achieve the early diagnosis of oncological patients, especially in regions with limited access to second- or third-level centres.
- To ensure that all cancer care professionals are properly registered, and that the registry is periodically updated with information about the specialty.
- To adopt and implement the childhood cancer module *Herramienta clínica para el abordaje inicial de las condiciones prevalentes en la primera infancia* (MSPS).
- To define standards for the competencies of palliative care specialists, particularly to assess differences between palliative care and interventional pain management.

Radiation safety

- To continue to strengthen the coordination between the two regulatory bodies, the Ministry of Energy and Mines and the MSPS and explore the opportunity for establishing one integrated, independent regulatory body.
- To strengthen human resource capacities by increasing the number of staff and by implementing a training programme to create, develop and retain competencies on regulatory control for complex and new radiation technologies.
- To ensure that provisions are in place for education and training services to develop and maintain the competence of individuals and organizations with responsibilities related to radiation protection and radiation safety.



■ The WHO–IAEA–IARC joint activities on cancer control

In March 2009, WHO and IAEA signed arrangements at the Director-General level to implement a [Joint Programme on Cancer Control](#). The main purpose of this arrangement is to coordinate activities and resources to provide evidence-based and sustainable support to comprehensive cancer control programmes, particularly in low- and middle-income countries. The imPACT Review is carried out as a comprehensive assessment of national cancer control capacities and needs. It is a partnership effort between the International Atomic Energy Agency (IAEA), the International Agency for Research on Cancer (IARC) and the World Health Organization (WHO). Where relevant, other partners are involved, such as the Union for International Cancer Control (UICC) and the United Nations Office on Drugs and Crime (UNODC). The IAEA Division of [Programme of Action for Cancer Therapy \(PACT\)](#) is responsible for coordinating the [imPACT Reviews](#) and for mobilizing the resources for their implementation.

Click here to read more about the imPACT mission to Colombia: [Expanding Cancer Control: IAEA, WHO and PAHO Support Colombia | IAEA](#)



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