IARC Impact in practice series
The Brazil experience

> ***"The conversations I am having in Brazil today, I would not have if I was not at IARC."***
> **Dr André Carvalho, IARC Scientist**

Collaboration between Brazil and IARC began in the **1990s** through sustained scientific exchanges between Brazilian researchers and IARC laboratories. When Brazil became an **IARC Participating State in 2013**, it formalised an already mature partnership and opened a new phase of engagement, positioning Brazil as **IARC's most deeply integrated partner in Latin America** and granting it a seat in IARC's governing bodies, with a direct role in co-shaping global cancer research priorities. IARC membership has done more than strengthen Brazil's cancer research and control: it has created a **two-way partnership** in which global science informs national action, and national experience feeds back into global evidence. As Dr Caroline De Aguiar Pires Poubel, IARC scientist, noted: *"This is a help for Brazil, but it is also a help for IARC. We gain a lot from the diversity of realities."*

Why IARC membership made the difference for Brazil:

- **Scientific leadership and inclusion in large-scale international consortia and research infrastructures**, with collaboration intensity nearly **five times higher** than in non-IARC-linked research.
- **Translation of evidence into tangible public health impact**, supporting major reforms in vaccination, screening, and early detection across Brazil's public health system.
- **Embedded policy modelling capacity**, allowing global evidence to be translated into implementable, costed national strategies.
- **Access to independent, trusted scientific evidence**, combined with the **credibility and convening power** to bring together national and international actors around complex policy decisions in politically sensitive areas such as vaccination, screening, nutrition, and environmental exposures.
- **Formal participation in global standard-setting**, through Brazilian expert contributions to IARC Monographs and Handbooks, shaping international norms.
- **Institutional and regional leadership**, strengthened through strategic partnerships such as the IARC Learning Centre in Brazil and Brazil's contribution to the Latin America and Caribbean Code Against Cancer, positioning Brazil as a reference country for cancer research, prevention, and capacity building in Latin America and other low- and middle-income settings.

Part I. Scientific leadership through international collaboration

Exceptional collaboration intensity and depth

Since Brazil became an IARC Participating State in 2013, scientific collaboration between Brazilian institutions and IARC has expanded significantly in both scale and scope **as a direct result of formal integration into IARC-led research networks**. Over this period, Brazil has co-authored **approximately 250 scientific publications with IARC**, averaging **19 joint papers per year**[1]. This collaboration is characterised by **exceptionally high levels of international integration**. Nearly **2,000 institutions** have participated in IARC–Brazil publications, including **32 Brazilian institutions**,

Cancer in Brazil: unmet needs in research and evidence

> ***"Brazil has one of the largest public health systems in the world. The challenge is not designing policy, but implementing it at scale."***
> **Prof João Viola, Brazil National Cancer Institute**

Recent GLOBOCAN estimates indicate approximately 627,000 new cancer cases each year in Brazil, the highest burden in Latin America, underscoring that cancer represents a major public health challenge, with substantial mortality across all population groups.

The Government of Brazil has prioritised cancer prevention and control through national strategies that emphasise expanded screening for common cancers, improved early detection and diagnosis, strengthened cancer care services, and investment in data and research capacity to support evidence-based planning and evaluation.

[1] Data derived from Web of Science records of IARC–Brazil co-authored papers published between January 2013 and January 2026.

with collaborators spanning **179 countries**. IARC-linked publications involve a **median of 13 institutions per paper**, a level of collaboration almost **five times higher** than that observed in Brazilian oncology publications not linked to IARC during the same period (median: 2.25 institutions per paper).

These publications cover a wide range of cancer research areas while remaining aligned with IARC's scientific priorities and Brazil's national needs. The research portfolio spans **prevention, early detection, environmental exposures, genetics, and health equity**, with major clusters in **nutrition and obesity** (36 publications), **HPV and cervical cancer** (26), **screening disparities** (31), and **head and neck cancers** (20). Additional work addresses **disease mapping**, **genomics**, **air pollution**, **oesophageal cancer**, **childhood cancer survivorship**, and **maternal health equity**.

➔ Access to large-scale research infrastructures

Nearly **half of IARC–Brazil publications are led by IARC**, reflecting its role as a coordinator of large, complex, multicountry studies. **Through IARC membership**, Brazilian institutions and datasets have been embedded in major international cohorts and consortia coordinated by IARC, **platforms that Brazil would not have been able to access, lead, or coordinate independently**, examples include:

- **HEADSpAcE**, an EU-funded project integrating genomic, infectious, lifestyle, and socio-economic data from Europe and Latin America to study determinants of late-stage diagnosis in head and neck cancers.
- **BCNET** (Biobank and Cohort Building Network), one of IARC's most extensive and impactful global research networks, involving Brazilian centres such as Barretos Cancer Hospital and the Instituto do Câncer do Estado de São Paulo.
- **InterCHANGE**, the largest case–control study of head and neck cancers in Latin America, investigating the combined role of HPV, genetics, tobacco, and alcohol across multiple South American centres.
- **ESTAMPA**, a multicentric study evaluating HPV-based cervical cancer screening and triage strategies in real-world health-system settings.
- **MICROGENNET**, a global staff-exchange and data-integration initiative on micronutrient genomics combining epidemiology, bioinformatics, and metabolic research.

Owning global science: population-specific cancer genetics

IARC collaboration has also been instrumental in strengthening Brazil's contribution to **population-specific cancer genetics research**, an area where international comparative genomics is reshaping understanding of cancer etiology. Despite being a middle-income country, Brazil has developed strong capabilities in molecular epidemiology, supported by partnerships with IARC's Genetics and Epigenetics Branches.

Through IARC-led, multicountry genomic studies, Brazilian oesophageal cancer samples have been analysed using **mutational signature approaches**, revealing patterns that differ from those reported in high-income countries. These findings underscore the importance of **biological diversity** in global cancer and illustrate how IARC enables scientifically robust, globally relevant research rooted in local biological and epidemiological realities.

➔ Shaping the global cancer research agenda and standards

Brazilian experts and diplomats help steer IARC's direction, not just implement its outputs. Through seats on the **Scientific Council and Governing Council**, and active involvement in developing the Medium-Term Strategy (MTS), Brazil contributes directly to setting IARC's research and capacity-building priorities. This ensures that concerns central to middle-income, high-burden countries, from infection-related cancers to social inequalities and affordability, are built into the global agenda. This high-level engagement is a form of **soft power**. By shaping IARC's work programme, Brazil brings national and regional realities into global decision-making while gaining early insight into emerging priorities, methods, and partnership opportunities, aligning its own cancer plans and investments with cutting-edge international evidence.

> ***"The seat at the table IARC has in Brazil today would not exist without this long scientific and institutional trust."***
>
> **Dr André Carvalho**
> **IARC Scientist**

Brazilian experts also play a central role in IARC's flagship evaluations, including the **IARC Handbooks of Cancer Prevention** and the **IARC Monographs**, helping define international standards on screening and carcinogenic hazards. This ensures that evidence from **middle-income, high-burden contexts** is systematically represented in global guidance used by researchers, regulators, and public health agencies worldwide.

Contributions during the 2020–2025 cycle include:

- **IARC Monographs Volume 129:** *Gentian violet, leucogentian violet, malachite green, leucomalachite green, and CI direct blue 218*
- **IARC Monographs Volume 131:** *Cobalt, antimony compounds, and weapons-grade tungsten alloy*
- **IARC Monographs Volume 134:** *Aspartame, methyleugenol, and isoeugenol*
- **IARC Monographs Volume 137:** *Hydrochlorothiazide, Voriconazole, and Tacrolimus*
- **IARC Monographs Volume 138:** *Automotive gasoline and some oxygenated gasoline additives*
- **IARC Monographs Volume 140:** *Atrazine, Alachlor, and Vinclozolin*
- **IARC Handbooks of Cancer Prevention Volume 19:** *Oral cancer prevention*
- **IARC Handbooks of Cancer Prevention Volume 20A:** *Reduction or cessation of alcoholic beverage consumption*
- **IARC Handbooks of Cancer Prevention Volume 20B:** *Alcohol policies*
- **IARC Handbooks of Cancer Prevention Volume 21:** *Lung cancer screening*
- **WHO Classification of Tumours (Blue Books) 5th and 6th editions:** Editorial board and reporting-system contributions supporting international standards for tumour pathology classification and diagnosis across multiple organ systems

Part II. From evidence to action: IARC's impact on national Public Health

➔ Evidence uptake in national policy: Overton insights

> ***"Without reliable data, it becomes significantly more challenging to plan and allocate a targeted public budget."***
>
> **Pr Luis FelipeRibeiro Pinto**
> **Brazil NCI**

IARC's long-standing scientific credibility translates into **direct access to policy dialogue** and the **systematic uptake of its research to justify national policy choices**. An Overton analysis shows that IARC's research is embedded in Brazilian decision-making processes with its publications **consistently cited in official Brazilian public-sector documents**:

- **Clinical Protocols and Therapeutic Guidelines (PCDTs)**: IARC epidemiological and burden-of-disease research is repeatedly cited in **PCDTs** issued by the **Brazilian Ministry of Health**. Examples include the 2025 PCDTs for c**olorectal cancer**, and a**denocarcinoma of the colon and rectum**, which cite IARC-led studies on cancer incidence, mortality trends, and survival patterns. These citations are used to justify **clinical prioritisation, treatment pathways, and population-level planning**.
- **Regulatory and technical norms**: IARC research is also referenced in **regulatory resolutions**, including federal-level technical norms addressing cancer risk and prevention. For example, **Resolution 2436/2025** cites IARC Monographs in the context of **exposure-related cancer risks**.
- **Nutrition, obesity, and cancer prevention**: Brazilian public-sector documents addressing **diet, nutrition, and chronic disease prevention** cite IARC research on obesity, dietary patterns, and cancer risk. These references appear in technical and policy-oriented publications supporting national prevention strategies, reinforcing the role of IARC evidence in shaping **population-wide risk-reduction policies** beyond the health sector alone.
- **Environmental and occupational health**: IARC Monographs and exposure-related studies are cited in **environmental and occupational health documents**, particularly where carcinogenic risk classification is required to inform prevention, regulation, or professional guidance.

How evidence enabled a national HPV Policy shift

Brazil's decision, in April 2024, to shift from a **two-dose to a single-dose HPV vaccination schedule** illustrates how IARC helps governments translate emerging global evidence into **feasible, equity-oriented public health policy**. Drawing on **international trial data and IARC-led modelling**, Researchers at IARC showed that a single-dose strategy could offer strong protection while better addressing real-world implementation challenges, notably missed second doses and unequal access to services. These findings were formally presented to the **Brazilian Ministry of Health** and discussed within a structured decision-making process involving **IARC, national health authorities, and WHO/PAHO counterparts**. On the basis of this evidence, Brazil adopted a **single-dose HPV vaccination strategy**:

The shift to a single-dose schedule has had immediate and structural benefits:

- **Expanded vaccine coverage**, particularly among populations with limited access to health services,
- **Improved adherence**, by reducing drop-out between doses,
- **Equity gains**, through the expansion of **school-based vaccination**,
- **Extended eligibility**, with the target population expanded up to **19 years of age**.

Watch a short video for more on the study.

➔ Transforming cancer screening and early detection

A major area of IARC's public health impact in Brazil has been **cancer screening and early detection**, where IARC has supported both **policy design** and **implementation planning**. Contributions include:

- **Cervical cancer screening reform,** including the pilot implementation of HPV PCR–based screening in Pernambuco, which redesigned the full care pathway from testing to diagnosis and treatment, and directly informed the **national and state-level transition to HPV PCR testing,** described by Professor João Viola as a "turning point" in Brazil's screening strategy.
- **Colorectal cancer screening planning**, conducted with Brazil's NCI, focusing on feasibility, sequencing, and long-term system sustainability.
- **Oral cancer early detection redesign**, developed at the request of the Ministry of Health and the University of São Paulo, drawing on IARC expertise in implementation research and health-system reorganisation.

> *"Brazil always implemented WHO evidence very early on. Many of these recommendations came from IARC handbooks."*
>
> Dr André Carvalho
> IARC Scientist

Across these programmes, IARC's role has gone beyond technical advice. It has supported **co-creation with national authorities**, ensuring that interventions are adapted to Brazil's epidemiological profile, service capacity, and referral pathways.

➔ Policy modelling: enabling informed, cost-effective decisions

IARC has also played a critical role in **policy modelling**, helping Brazilian decision-makers estimate **resource needs, workforce requirements, and long-term cost implications** of cancer control strategies. Through work led by Brazilian researchers based at IARC, modelling tools have been developed and applied to to the **scale-up of cervical cancer screening**, **colorectal cancer screening**, and **breast and prostate cancer care pathways**, enabling more informed and implementable policy decisions. In addition, IARC has supported evidence-based planning for lung cancer screening by comparing alternative eligibility strategies, showing how optimised criteria could avert thousands of lung cancer deaths while improving programme efficiency. These tools allow policymakers to move beyond aspirational policies toward **budgeted, implementable strategies**, particularly important in a constrained fiscal environment.

➔ Independent science in politically complex environments

> *"The Monographs are a symbol of independence. Preserving that is critical for science and public trust."*
>
> Pr Luis Felipe Ribeiro Pinto
> Brazil NCI

IARC's **scientific independence** is repeatedly cited as one of its greatest public health assets in Brazil, particularly in politically sensitive domains such as **food, pharmaceuticals, pesticides, and agribusiness**. For example, IARC's flagship **Monographs Programme** provide Brazilian authorities with **credible, internationally validated evidence** that enables action even in the face of industry pressure. Their willingness to update conclusions as science evolves, such as the re-evaluation of coffee, has reinforced long-term trust in the process.

➔ Supporting societal change and prevention culture

IARC's contribution has supported **long-term societal change** in Brazil, particularly in tobacco control and cancer prevention. While driven by sustained national leadership, especially by the Brazilian National Cancer Institute, **IARC's surveillance data, hazard assessment, and global comparisons** have strengthened prevention strategies and public communication. Over the past two decades, Brazil has achieved an estimated **40% reduction in smoking prevalence** and a **15% reduction in lung cancer incidence**, placing it among the most successful tobacco control experiences globally.

Brazil has also played a central role in the Latin America and the Caribbean Code Against Cancer, coordinated by IARC. Co-financed by the **Hospital Israelita Albert Einstein**, the Code translates scientific evidence into **17 actionable prevention recommendations**, combining individual behaviours with policy-level interventions tailored to Latin America. **Brazilian experts were directly involved in developing the recommendations**, ensuring that the Code reflects regional realities and addresses structural inequalities.

> *"We had a big decrease in the prevalence of smokers in Brazil in the last 20 years (…) We have a lot of data that support that and we believe it is in part due to INCA and IARC efforts."*
>
> Prof João Viola
> Brazil NCI

Part III. Building capacity for lasting impact

➔ Stronger data for better decisions

IARC leads the **Global Initiative for Cancer Registry Development (GICR)**, a coordinated effort with international partners to help countries establish and strengthen population-based cancer registries. In Latin America, **the IARC Regional Hub for Cancer Registration**, coordinated by IARC with collaborating centres including Brazil's National Cancer Institute (INCA), supports registries in 19 Spanish- and Portuguese-speaking countries across Central and South America. Through site visits, tailored technical assistance, regional courses and the GICRNet e-learning programme, the hub helps Brazilian registries improve data completeness, quality and comparability, including better integration of hospital-based and population-based cancer data systems. This strengthened registry network in Brazil provides more robust incidence and survival data to guide national and subnational cancer control planning and evaluation.

➔ Training as a multiplier of capacity

Training and capacity building are central to the IARC–Brazil partnership. Over time, **17 Brazilian fellows, supported through IARC scholarships, have been trained at IARC since its creation**, and during the **2021–2025 Medium-Term Strategy (MTS) cycle alone, 21 Brazilian early-career visiting scientists (ECVS)** undertook placements at IARC. Brazilian PhD students, postdoctoral fellows, and visiting scientists trained at IARC acquire advanced methodological skills, standardized research practices, and access to international networks, which they later reinvest in Brazilian institutions.

> ***"We believe that sending young people to work at IARC is an investment. When they come back, they become multipliers."***
>
> **Prof João Viola**
> **Brazilian National Cancer Institute (NCI)**

This approach has been **progressively institutionalised**, ensuring continuity beyond individual fellowships. Formal agreements, such as the 2013 **Memorandum of Understanding (MoU) between IARC and Hospital Israelita Albert Einstein,** established a structured framework for long-term cooperation. The MoU prioritises high-quality collaborative research for cancer prevention and control, joint scientific meetings and staff exchanges, and training of students and early-career researchers. More recently, this institutionalisation has been further strengthened through the creation of the **IARC Learning Centre in Brazil**. The Learning Centre replicates IARC Summer School modules in Portuguese, adapted to Brazilian realities and focused on real-world policy and implementation challenges. Brazilian scientific leadership has strongly endorsed this initiative as a cornerstone for long-term impact.

These activities are part of IARC's wider capacity-building ecosystem, which includes the Postdoctoral Fellowship Programme, the IARC Summer School, the IARC Learning Platform, and global networks for cancer registries, screening, and biobanking. Together, these initiatives train thousands of professionals worldwide and generate durable benefits: in a 2024 outcome survey, **98% of postdoctoral respondents reported transferable skills, 72% maintained research ties with IARC after training, and over half progressed to leadership roles (53%) or managed independent research funding (52%).** This creates a **two-way multiplier effect**: expertise gained at IARC is reinvested in national institutions, while the priorities, data, and methodological strengths of participating countries feed back into IARC's networks, helping shape future research, standards, and capacity-building efforts.

Beyond national capacity, Brazil's engagement with IARC has generated **regional spillover effects**. Brazilian researchers trained through IARC-supported programmes actively transfer expertise to other Portuguese-speaking countries, notably **Mozambique and Angola**, adapting global evidence and methodologies to local epidemiological and health-system realities. This outward flow of expertise illustrates how IARC membership enables countries not only to benefit from global science, but also to **exercise scientific leadership and cooperation beyond their borders**.