IARC Impact in practice series
The Belgium experience

Since becoming an **IARC Participating State in 1970**, Belgium has used IARC as a strategic gateway to the international evidence, methods and standards that increasingly shape cancer prevention and control in Europe. This partnership has not only strengthened Belgian research in **nutrition, infection-related cancers, molecular epidemiology and advanced laboratory science**, but has also helped inform national priorities, including actions within the **Belgian Cancer Plan.**

Why IARC membership made the difference for Belgium:

- **Stronger leverage of international science for Belgian priorities:** Over the past decade, Belgian researchers have co-authored 293 publications with IARC, embedded in highly networked global consortia, with a median of 18 institutions per paper, compared with 10 for Belgian oncology papers without IARC. This collaboration is concentrated in high-value, prevention-oriented fields such as nutrition and obesity, human papillomavirus and cervical cancer, genomic susceptibility, metabolomics, screening implementation and environmental exposures.
- **Independent evidence that informs Belgian decisions:** IARC evaluations and collaborative studies are widely used in Belgian government and advisory documents with more than 100 federal reports and technical opinions citing IARC evidence, particularly on human papillomavirus vaccination and cervical screening, diet and colorectal cancer risk, Nutri-Score labelling, ultraviolet radiation and air pollution. This influence extends beyond individual technical opinions to broader national planning, including actions linked to the Belgian Cancer Plan.
- **Access to European implementation tools:** Through IARC-linked European initiatives, Belgian authorities gain access to shared indicators, quality-assurance approaches and practical implementation tools that help align screening and prevention programmes with evolving European standards, while ensuring Belgian data and experience help shape common benchmarking frameworks.
- **National capacity that stays in Belgium:** Belgium has a long-standing tradition of engagement with IARC training and fellowships. In practice, this builds hands-on expertise in large-cohort analytics, harmonised data systems, virology and molecular epidemiology, capabilities that strengthen Belgian universities, laboratories and public health agencies and support lasting national capacity for cancer prevention and participation in European research infrastructures.

Part I. Scientific leadership through international collaboration

Exceptional collaboration intensity and depth

Belgium's collaboration with IARC is long-standing and unusually dense, embedding Belgian teams in large international consortia. Over the past decade, Belgian researchers have produced **293 publications co-authored with IARC**[1]. These collaborations are markedly more networked than Belgium's oncology research overall. When IARC is on the author list, Belgian papers involve a **median of 18 institutions per study, compared with 10 for Belgian oncology publications without IARC participation.**

Across the decade, IARC–Belgium publications connect **2,183 institutions in 177 countries**, situating Belgian centres within truly global research networks that would be difficult to assemble through national mechanisms alone.

Cancer in Belgium: a high-income burden with scope for prevention

Recent GLOBOCAN 2022 estimates show that cancer remains a major public health challenge in Belgium, with around **81,000 new cases and 29,000 deaths each year**. Incidence is higher than the Western European average, reflecting population ageing and continued exposure to **tobacco, alcohol, excess weight and physical inactivity**. **Breast, prostate, lung and colorectal cancers** account for nearly half of all diagnoses, with lung cancer the leading cause of death. Although strong health services and organised screening have improved survival, cancer remains a **leading cause of mortality**, highlighting clear opportunities for prevention, earlier diagnosis and reducing inequalities.

[1] Data derived from Web of Science records of IARC–Belgium co-authored papers published between January 2016 and January 2026.

Micro-topic analysis shows that this shared output is concentrated in prevention-oriented, data-intensive fields that match both IARC's mandate and Belgium's scientific strengths. The largest clusters include:

- **Nutrition and obesity, including dietary patterns and metabolic risk**
- **HPV and cervical cancer, from virology and mucosal infections to population studies**
- **Genetic testing, genome-wide association studies and other genomic susceptibility research**
- **Screening disparities and implementation science**
- **Folate metabolism, epigenetic regulation and metabolomics**
- **Site-specific work on prostate and bladder cancers, air pollution, and multidisciplinary oncology**
- **Methodological and mechanistic work on antioxidant activity and mycotoxin control**

Together, this profile points to a partnership anchored in **large cohorts, harmonised biobanks and pooled datasets**, with Belgium contributing strong expertise in nutrition, molecular epidemiology, and infection-related cancers to multinational platforms.

➔ Leadership in European and global research infrastructure

Through IARC, Belgian institutions participate in and help shape major European and international research infrastructures that generate evidence directly informing cancer prevention, screening and early-detection policies. Belgian teams are integrated into multi-country platforms that combine **standardised protocols**, **shared biobanks** and **long-term follow-up**. Examples from the past decade include:

- **Large European cohort platforms, notably the European Prospective Investigation into Cancer and Nutrition (EPIC),** through which Belgian researchers work with IARC in harmonised multinational studies on diet, metabolic risk and other determinants of cancer, using shared data and long-term follow-up at a scale not achievable nationally (see Box #2).
- **Global HPV and cervical-cancer consortia**: in which Belgian virology and pathology groups collaborate with IARC on high-throughput viral DNA analysis, characterisation of mucosal and cutaneous papillomaviruses, and HPV prevalence and vaccine-impact studies in Europe and partner countries.
- **Multi-country screening and early-detection networks**: where Belgium contributes data and expertise to comparative studies on **screening performance, equity and implementation**, benefiting from IARC's coordination, quality-assurance tools and shared indicators. In Flanders, collaboration with the **Centrum voor Kanker Opsporing** has also provided practical insights into **quality parameters, data collection and distribution, and screening approaches used in other countries**, helping strengthen programme design and implementation while feeding Belgian experience into wider international work.
- **Metabolomics and genomic-susceptibility consortia**: linking Belgian laboratories to IARC-coordinated projects that integrate metabolomic profiling, genetic variants and lifestyle information across large pooled datasets.

> ***"The joint projects brought knowledge and insights into data collection and distribution. In addition, relationships were formed, which brought an opportunity for collaborations and working together in studies."***
>
> ***Representative from the Belgian Public Health authorities***

Box #2: From diet and contaminants to cancer prevention

A distinctive strength of the Belgium-IARC partnership is its work on **diet, food contaminants and cancer prevention**, combining Belgian laboratory expertise with IARC's coordination of the European Prospective Investigation into Cancer and Nutrition (EPIC) **cohort.** Belgian teams, particularly at Ghent, work with IARC to understand how **mycotoxins and other dietary exposures** influence cancer risk and to generate evidence that can inform both **food-safety policy** and **prevention strategies**.

One important strand of this work examines whether long-term exposure to **food-borne toxins** is linked to **kidney and colorectal cancers**. Using EPIC data and blood samples from large European populations, Belgian and IARC researchers have shown that higher exposure to some mycotoxins is associated with a higher risk of bowel cancer. Other joint projects explore how **diet quality** and **dietary biodiversity** relate to breast cancer, mortality and long-term health outcomes.

Together, these collaborations show how Belgium and IARC can address prevention questions that no country could tackle alone, by:

- linking **laboratory science, biomarkers and large population studies**;
- using **shared European cohorts** to generate robust evidence on diet and cancer;
- producing findings that support both **healthier diets** and **better food-safety policies**.

- **Childhood cancer and survivorship research:** where Belgian researchers collaborate with IARC on long-term follow-up studies of childhood cancer survivors in the **Cancer Risk in Childhood Cancer Survivors (CRICCS)** study, helping to understand late effects, second cancer risks and lifelong health outcomes through pooled international data.
- **Methodological and implementation-science collaborations**: including work on cancer registries, outcome indicators and modelling studies that support benchmarking of prevention and screening policies across Europe (see Parts II & III).

➔ Shaping the global cancer research agenda and standards

Belgian experts and diplomats help steer IARC's direction. Through seats on the **Scientific Council and Governing Council**, and active involvement in developing the Medium-Term Strategy (MTS), Belgium contributes directly to setting IARC's research and capacity-building priorities. This high-level engagement is a form of **soft power**. By shaping IARC's work programme, Belgium 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.

Belgium also play a central role in developing widely respected **international evidence frameworks and classification standards** that shape global cancer science, prevention, and regulation. During the 2020-2025 cycle, 6 Belgian experts have contributed to the IARC's flagship evaluations, including:

- **IARC Monographs Volume 138:** *Automotive gasoline and some oxygenated gasoline additives*
- **IARC Handbooks of Cancer Prevention Volume 18:** Cervical cancer screening
- **World Health Organization Classification of Tumours (Blue Books) 5th and 6th editions:** Editorial board and expert contributions supporting tumour classification standards, diagnostic criteria, and reporting systems across multiple organ systems.

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

➔ Evidence that informs national regulation and prevention policy

In Belgium, IARC evidence feeds into regulatory debates, technical risk assessments, and prevention strategies. An Overton analysis of Belgian public-sector documents (2005-2026) shows that IARC research is routinely used as a reference point for cancer prevention and health-policy decisions. Between 2002 and 2025, at least **119 distinct Belgian government and agency documents cite IARC evaluations or IARC-linked studies**, with close to 60% published since 2017. This reflects a growing reliance on international evidence as Belgium updates its strategies on prevention, screening and environmental health.

Most of these citing documents come from core federal actors: around three quarters are issued by the **Belgian Federal Public Services**, including opinions of the **Conseil Supérieur de la Santé/Hoge Gezondheidsraad/Superior Health Council**, and just over one fifth by the **Belgian Health Care Knowledge Centre (KCE)**. A smaller number are produced by the **Government of Flanders** and other public bodies. Together, they cover the main channels through which scientific evidence is translated into Belgian guidance, recommendations and technical standards.

Thematically, the citations cluster around a few key areas where IARC plays a central role in global evidence synthesis:

Box #3: Strengthening cervical cancer prevention through HPV-based screening

Belgium's transition to **primary HPV-based cervical cancer screening**, effective **1 January 2025**, is a clear example of how IARC evidence translates into public health action. In **December 2022**, the Interministerial Conference of Public Health decided to move from cytology (Pap tests) to HPV testing from age 30 onwards, **explicitly building on the scientific evidence base developed by IARC.**.

This shift matters because HPV testing is **more sensitive and more effective** at identifying women at risk, enabling earlier detection and more efficient screening intervals. In Belgium, the reform goes beyond a change in test: it is accompanied by updated **clinical guidelines, screening algorithms, quality standards, laboratory accreditation and data reporting systems**, ensuring a consistent, high-quality programme nationwide.

For Belgium, this is a concrete example of IARC's added value of helping translate global evidence into **better screening policies, stronger programme performance and improved population outcomes**.

- **HPV vaccination and cervical cancer screening:** IARC evidence has helped shape Belgian decisions on HPV vaccination, the choice of HPV tests and the transition to HPV-based cervical screening (see Box #3).
- **Diet, obesity and cancer (including Nutri-Score):** Belgian authorities draw on EPIC and other IARC-linked studies to assess how diet influences cancer risk, particularly for colorectal and other cancers. This evidence informs national work on Nutri-Score, a front-of-pack label promoted to help consumers make healthier choices and encourage product reformulation. IARC evidence shows that diets composed of foods with poorer nutritional profiles are associated with higher cancer risk and mortality, providing a strong scientific basis for using labelling as a population-level cancer prevention tool.
- **Environmental and physical agents:** opinions on artificial UV sources and documents addressing air pollution and other environmental risks refer to IARC hazard classifications and pooled epidemiological studies when assessing cancer risks and setting protective measures.
- **Alcohol and other lifestyle risks:** advisory texts on alcohol use and broader lifestyle-related cancer prevention cite IARC burden-of-disease work and comparative risk assessments to justify proposed targets and interventions.
- **Classification standards and clinical pathways:** IARC-linked standards such as **International Classification of Diseases for Oncology (ICD-O)** and the **WHO Classification of Tumours** have also influenced more technical aspects of cancer care in Belgium, including the criteria used for multidisciplinary oncologic consults and reimbursement arrangements.

➔ **A European multiplier for evidence-based cancer policy**

Across the European Union, IARC acts as a **multiplier of national efforts**, turning scientific evidence into coordinated, practical action at scale. An Overton analysis (2005-2026) identified **over 500 EU policy and technical documents** citing IARC research, demonstrating that IARC evaluations are routinely used by EU institutions and agencies to inform legislation, guidance, and public health strategies.

IARC's added value is not only generating evidence but packaging it into forms that governments can use. Building on large European research platforms (including those described in Part I), IARC produces Europe-wide analyses that inform key policy debates: for example, work showing that recent increases in prostate cancer incidence in Europe are likely driven by PSA testing patterns (with implications for screening approaches), comparative burden estimates for Europe (millions of new cancer cases and deaths annually), and major studies mapping socioeconomic inequalities in cancer mortality to inform targeted cancer control.

IARC also produces actionable modelling, showing that scaling up tobacco control could prevent one in four lung cancer cases in Europe (about **1.65 million fewer cases over 20 years**), and supports implementation through initiatives such as EU-funded implementation research such as **EU Joint Action on the implementation of cancer screening programmes (EUCanScreen)**, which sets common standards for screening delivery and quality assurance and **EUROHELICAN**, assessing the feasibility of population-based *H. pylori* test-and-treat strategies for gastric cancer prevention. In parallel, IARC remains a core technical partner in efforts to improve the quality, comparability and timeliness of cancer registry data and to refine indicators used in the **European Cancer Information System (ECIS)** and the **European Cancer Inequalities Registry (ECIR)**. By contributing data and expertise to these platforms, Belgian registries are integrated into comparative analyses that inform both European and national policy on cancer burden, survival and inequalities.

This body of evidence feeds into one of IARC's flagship initiatives, the **European Code Against Cancer (ECAC)**, which converts evidence into clear, practical prevention recommendations for governments and citizens across Europe. In Belgium, ECAC has helped inform actions and measures within the **Belgian Cancer Plan**, including earlier phases and current updates. IARC further supports implementation through coordinated European initiatives such as the **Innovative Partnership for Action Against Cancer (iPAAC)**, which brings Member States together to strengthen evidence-based cancer prevention policies and capacity building.

IARC also strengthens Europe's prevention ecosystem by convening and supporting major collaborative platforms, such as **Cancer Mission Europe** and **Cancer Prevention Europe** (including its Learning Centre), that accelerate translation of evidence into capacity building and practice across Member States.

By combining independent evidence, harmonised methods, and implementation support, IARC enables Participating States to **benchmark performance, share best practices, and adopt proven prevention strategies faster and more efficiently** than acting alone. For **Belgium**, this collaboration provides not only

access to data and expertise, but also reinforces its role **as host country to many EU institutions and agencies** as a natural hub where European and global cancer control standards are shaped and advanced.

Part III. Building capacity for lasting impact

➔ Training the next generation of Belgian cancer researchers

For Belgium, collaboration with IARC is also a practical pipeline for the skills that matter most for modern cancer prevention: **large-cohort analysis, harmonised data management, molecular epidemiology and advanced laboratory methods**. Since the mid-1960s, at least **12 Belgian scientists have been awarded competitive IARC Fellowships**, building a long-standing presence of Belgian researchers inside IARC's programmes. During the 2021-2025 cycle, **five trainees** have undertaken short- and medium-term training attachments.

Capacity-building is also embedded directly into joint projects. In the **food biodiversity and mortality** collaboration, for example, IARC not only manages and analyses EPIC data but also organises structured **knowledge transfer, training activities and working meetings** so that Belgian teams can apply shared methods and indicators in their own research. Similar skills transfer takes place through virology projects where Belgian laboratories act as reference centres within IARC-led international studies, gaining hands-on experience in high-throughput viral DNA analysis, HPV testing methods and quality assurance for multicountry studies.

> *"The collaboration initiated with Wallonie Bruxelles International aims at further expanding the number of postdoctoral scientists trained at IARC."*
>
> *Anouk Berger*
> *IARC Liaison Officer for Belgium*

This engagement is part of IARC's wider capacity-building ecosystem, which includes the IARC Research Training and Fellowship Programme, the IARC Learning Programme (including the Summer School), 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.

➔ Building national capacity for cancer prevention and control

IARC's contribution to Belgium goes beyond individual training placements. Capacity-building is embedded directly into collaborative projects, helping Belgian institutions strengthen the systems, methods and partnerships needed for long-term cancer prevention and control. In the **food biodiversity and mortality** collaboration, for example, IARC not only manages and analyses data from **EPIC** study, but also organises structured knowledge-transfer activities, training sessions and working meetings so that Belgian teams can apply shared methods and indicators in their own research. Similar skills transfer takes place through virology projects, where Belgian laboratories act as reference centres within IARC-led international studies, gaining hands-on experience in **high-throughput viral DNA analysis, HPV testing methods and quality assurance for multicountry studies**.

> *"For Flanders, the relationship is considered a two-way partnership. CvKO learning from IARC and its members, but also the other way around. With the main goal: strengthening the cancer screening programs in Flanders."*
>
> *Representative from the Belgian Public Health authorities*

This wider capacity-building role also extends to **cancer registration, classification and benchmarking**. Through tools and standards such as the **International Classification of Diseases for Oncology (ICD-O)**, the **WHO Classification of Tumours**, **Cancer Incidence in Five Continents (CI5), Cancer Incidence in Five Continents (CanScreen5),** and **GLOBOCAN**, IARC has helped support the standardization and quality of cancer registration in Belgium, while collaboration with screening bodies in Flanders has strengthened work on **quality indicators, data collection and benchmarking**.