IARC Impact in practice series
The Hungary experience

"IARC plays an extremely important role in cancer research, prevention, the international conduct of clinical trials, and the harmonization of oncological care."
Prof Gabriella Liszkay - Central-Eastern European Academy of Oncology (CEEAO)

Hungary has pursued a National Cancer Control Program since 1992, and collaboration with IARC has long contributed to this effort. Since joining IARC as a Participating State in 2019, Hungary has been able to build on that relationship more systematically, linking national strengths in registries, biobanking and research to international standards and large multicountry platforms. It also helps Hungary close the East–West gap in cancer burden while ensuring that Central and Eastern European realities are reflected in European and global cancer-control agendas.

Why IARC membership made the difference for Hungary

- **Prevention-focused collaboration at international scale:** Hungarian researchers work with IARC mainly through large global consortia, giving them access to far broader networks than Hungarian oncology papers typically mobilise on their own. This collaboration is concentrated in high-impact, prevention-oriented fields such as nutrition and obesity, screening disparities, asbestos–mesothelioma, genetic susceptibility and childhood cancer survivorship, and includes flagship work such as the 28-country study on gains in life expectancy from declining cardiovascular and cancer mortality.
- **Evidence that strengthens policy and prevention action:** IARC Monographs, Handbooks and multicountry studies inform Hungarian approaches to environmental and radiation risks and tobacco control, including smoke-free legislation. IARC-linked evidence also feeds into practical prevention tools such as the EU Mobile App for Cancer Prevention, helping translate the European Code Against Cancer into clear, everyday guidance for Hungarian citizens.
- **Stronger systems, skills and strategic influence:** Through IARC, Hungarian institutions are connected to major European platforms for screening, translational research, survivorship and radiation-risk assessment. Cooperation with the National Cancer Registry strengthens data quality and international comparability, while Hungarian fellows and trainees build advanced skills that return to the national system. At the same time, Hungary's place in IARC governance gives it a voice in shaping global standards and helps align national cancer-control priorities with cutting-edge international evidence.

Part I. Scientific leadership through international collaboration

Exceptional collaboration intensity and depth

Hungary is one of IARC's newest Participating States, but the scientific partnership is already dense and strongly international. Over the recent decade, Hungarian researchers **co-authored 116 publications with IARC**[1]. The collaboration is defined less by volume than by the scale of coordination behind each paper. IARC-linked articles with Hungarian co-authors involve a **median of 27.5 institutions per publication, compared with 5 for Hungarian oncology papers without IARC**, and connect **1,573 partner institutions across 170 countries**. This pattern shows that Hungary's work with IARC is firmly embedded in global consortia, giving Hungarian groups access to platforms that no single country could build alone.

Cancer in Hungary a high-income burden with opportunities for prevention

Based on recent Globocan estimates, is a major public health challenge in Hungary, with around **66,300 new cases** and **33,300 deaths** each year. Incidence is high by international standards, but mortality is among the highest in the EU, reflecting continued exposure to modifiable risk factors such as tobacco, alcohol, obesity and air pollution, alongside gaps in early detection and treatment. These patterns underline the urgency - and the opportunity - to strengthen prevention, screening and early diagnosis in Hungary.

Web of Science micro-topic analysis confirms that Hungary-IARC publications are concentrated in high-impact, prevention-oriented domains. The largest cluster is **nutrition and obesity**, complemented by strong

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

activity in **screening disparities**, **asbestos–mesothelioma links**, **genome-wide association studies and genetic testing**, **antioxidant activity and folate metabolism**, **multidisciplinary oncology**, and **childhood cancer survivorship**. Together, these patterns depict a partnership focused on modifiable risk factors, early detection and survivorship, where multinational pooling and high-quality Hungarian registry and cohort data are used to generate directly policy-relevant evidence.

Box #2: Quantifying life-years gained: Hungary and IARC map Europe's progress

Researchers from **IARC** and Hungary's **National Institute of Oncology** jointly led an analysis of **28 European countries (1995–2019)** to ask a simple question: *how many extra years of life have been gained thanks to better control of cardiovascular disease and cancer?* Using harmonised Eurostat and Human Mortality Database data, the study decomposes life-expectancy trends by cause of death, age group and cancer site.

For Hungary, this collaboration delivers **hard numbers that national planners can use**: how much of the country's life-expectancy gain comes from improved cardiovascular care, how much from progress against specific cancers, and how far it still lags behind Western Europe. By embedding Hungary's data in a comparative European framework, IARC provides a benchmarked evidence base that supports national cancer-control planning and underlines where strengthened prevention and earlier diagnosis could yield the largest additional life-year gains.

➔ Leadership in European and global research infrastructure

Through IARC, Hungarian institutions are embedded in major European research infrastructures that generate evidence at population scale and inform prevention, screening and radiation-protection policy:

- **Measuring life-expectancy gains and closing the East–West gap:** The National Institute of Oncology works with IARC on a landmark analysis of gains in life expectancy from declining cardiovascular and cancer mortality across 28 European countries (see Box #1). This collaboration positions Hungary as a contributor to Europe-wide monitoring of population health gains and provides policymakers with benchmarked data on where stronger prevention and cancer control could accelerate convergence with Western Europe.
- **Biobanks, cohorts and translational platforms:** Hungary's biobanking and cohort infrastructures are connected to Europe-wide platforms through IARC-linked projects. The University of Pécs participates in **BBMRI – Large Prospective Cohorts**, while Hungary's full membership in **BBMRI-ERIC** anchors national biobanks within a shared European infrastructure for high-quality samples and data. Together with Hungarian partners, IARC also contributes to **A European Platform for Translational Cancer Research**, the **Coordination and Support Action to prepare UNCAN.eu**, and **Comprehensive Cancer Infrastructures 4 Europe**, positioning Hungarian oncology centres within emerging European "comprehensive cancer" networks.
- **Childhood cancer survivorship and long-term follow-up:** Markusovszky University Teaching Hospital contributes to **PanCare** childhood and adolescent cancer survivor studies, which pool data across Europe to map late effects and long-term needs of survivors. By feeding Hungarian registry and clinical data into these consortia, IARC helps turn survival gains into concrete guidance on follow-up care and survivorship services.
- **Radiation emergency preparedness and environmental risk:** The Hungarian Academy of Sciences Centre for Energy Research and the Public Health Department of Budapest collaborate with IARC in the **OPERRA** nuclear-emergency surveillance project, strengthening Europe's capacity to monitor health effects after radiation incidents and to assess long-term cancer risks from environmental exposures.

➔ Shaping the global cancer research agenda

Hungarian 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), Hungary 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, Hungary 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.

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

➔ Evidence that informs national regulation and prevention policy

In Hungary, IARC research appears in government documents as a reference point for regulating environmental and lifestyle risks and for supporting implementation of the country's long-standing National

Cancer Control Program, in place since 1992. As Prof Gabriella Liszkay (CEEAO), notes: "*Since 2000, the Hungarian National Cancer Registry has been operating according to international standards under the direction of the National Institute of Oncology.*" An Overton analysis of Hungarian policy papers (2015-2026) identifies central-government reports that draw directly on IARC-linked evidence when assessing carcinogenic hazards and evaluating prevention measures.

Two clusters stand out. First, in a small number of background reports on environmental and radiation risks, Hungarian authorities cite **IARC Monographs** and related IARC material when discussing how cautious policy should be. For example, technical documents on exposure to mobile-phone base stations and handsets draw on **IARC Monographs Volume 102, *Non-ionizing Radiation, Part 2: Radiofrequency Electromagnetic Fields*** and the 2011 IARC press release classifying radiofrequency fields from mobile phones as "possibly carcinogenic to humans" (Group 2B). These IARC evaluations are used to frame long-term cancer uncertainty and to justify maintaining conservative exposure limits in Hungary.

Second, government analyses of the tightening of the **Act on the Protection of Non-Smokers (PNS Act)** and its impact on indoor air quality in Budapest hospitality venues rely on IARC's tobacco-control evidence base. The WHO Regional Office for Europe case study *Protection from exposure to tobacco smoke: the story of Hungary* cites the **IARC Handbooks of Cancer Prevention, Tobacco Control, Volume 13: *Evaluating the effectiveness of smoke-free policies*** to summarise international findings that comprehensive smoke-free laws improve health without damaging the hospitality sector. This international evidence is combined with Hungarian measurements of particulate levels in bars and restaurants before and after the ban to show that the strengthened PNS Act has cleaned up indoor air and supported the hospitality industry, helping to secure political backing and sustained enforcement.

➔ 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.

Box #3: Turning IARC evidence into daily choices: Hungary and the EU Cancer Prevention App

Hungary is a partner in **BUMPER (Boosting the Usability of the EU Mobile App for Cancer Prevention)**, a Europe's Beating Cancer Plan flagship project that builds an EU-wide app to translate the **European Code Against Cancer**, coordinated by IARC, into practical tips for citizens. IARC ensures that the app's content is aligned with the updated Code and grounded in the latest international evidence on tobacco, alcohol, obesity, infections, and other major risk factors.

The **Hungarian League Against Cancer** works with IARC and other European cancer leagues to test the app with Hungarian users, including younger adults, and to adapt messages to different levels of digital and health literacy. Pilot sessions in Hungary and other countries feed back on usability, language and equity issues, so that the final tool is accessible to people with lower education or limited digital skills. For Hungary, this collaboration means that **IARC-coordinated prevention evidence is delivered directly to people's phones**, in Hungarian, as concrete goals and reminders rather than abstract recommendations, supporting national efforts to reduce tobacco use, improve diet and physical activity, and close prevention gaps in younger and more vulnerable groups.

IARC both generates the evidence and translates it into action. Through large research infrastructures such as **EPIC (the European Prospective Investigation into Cancer and Nutrition)** (see Section I), it produces long-term, high-quality data on risk factors and outcomes relevant to Europe. This is complemented by Europe-wide analyses that directly shape policy choices and guidance, 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), major studies mapping socioeconomic inequalities in cancer mortality to inform targeted cancer control and the **joint IARC–Hungarian National Institute of Oncology analysis of gains in life expectancy from declining cardiovascular and cancer mortality in 28 European countries**, which highlights how Central and Eastern European countries, including Hungary, can close the remaining life-expectancy gap (see box #2).

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)**. Here, Hungary, through the National Korányi Institute for TB and Pulmonology, is helping develop common indicators, quality-assurance tools and data-collection standards for the EU's expanded screening recommendations. This ensures that the realities of Central and Eastern European health systems help shape European guidance from the outset. IARC also contributes to **EUROHELICAN**, which is assessing the feasibility of population-based *H. pylori* test-and-treat strategies for gastric cancer prevention. Together, this body of evidence feeds into the **European Code Against Cancer (ECAC)**, which converts evidence into clear, practical prevention recommendations for governments and citizens across Europe (see Box #3). IARC also strengthens Europe's prevention ecosystem by convening and supporting major collaborative platforms, such as **Cancer Mission Europe** and **Cancer Prevention Europe**, 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 **Hungary**, this collaboration provides not only access to data and expertise, but a seat at the table where European and global cancer control standards are defined, and an avenue to ensure that Central and Eastern European needs and perspectives are reflected in those standards.

Part III. Building capacity for lasting impact

➔ Growing talent and partnerships for impact

Training and knowledge exchange are an emerging pillar of the Hungary–IARC partnership. Although Hungary only became an IARC Participating State in 2019, the country already has a long historical link to IARC's fellowship schemes: **7 Hungarian scientists have held highly competitive IARC postdoctoral fellowships between 1967 and 2014**. During the current 2021–2025 cycle, **2 Hungarian trainees** have undertaken research attachments at IARC. This engagement is 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.

Box #4: A century of cancer statistics, strengthened through IARC

Hungary has a long tradition in cancer statistics, with cancer data collection dating back to the beginning of the last century. This strong national foundation is now being reinforced through collaboration with IARC, helping ensure that Hungarian cancer surveillance meets international standards and can fully support modern cancer-control planning.

A key step was the **2020–2023 Memorandum of Understanding between the Hungarian National Cancer Registry and IARC**, which strengthened cooperation on surveillance methods, data quality and comparability. Through this partnership, IARC experts and the Registry carried out joint analyses that identified biases and areas for improvement in Hungarian cancer data, helping increase the reliability of national incidence and survival estimates.

The collaboration has also delivered lasting institutional benefits. A Hungarian postdoctoral researcher trained at IARC was later employed by the National Cancer Registry, bringing advanced methodological expertise back into the national system.

Institutional partnerships are also expanding beyond individual training placements. Cooperation with the **Hungarian National Cancer Registry** has strengthened national capacity in cancer surveillance, data quality and international comparability (see Box #4), while helping anchor Hungary more firmly in multinational registry-based research. Hungary is also using its links with IARC to strengthen **regional cooperation in Central and Eastern Europe**. Through the **Central-Eastern European Academy of Oncology (CEEAO)** and related partnerships, Hungarian institutions are helping build stronger oncology education, professional exchange and coordination across the region. This gives Hungary a role as a regional bridge through which IARC standards, methods and collaborative approaches can reach a wider community of neighbouring countries. Looking ahead, this regional role could become even more important. Hungary is exploring an **international accreditation programme for oncology education and institutions tailored to Central and Eastern Europe**, building in part on cooperation with IARC. This points to a more ambitious role for the partnership of helping raise quality standards across the region.