IARC Impact in practice series
The United Kingdom experience

> ***"IARC's work is key to work we undertake in the UK in cancer control."***
> **Cancer Research UK Policy Directorate**

Since helping to found IARC in 1965, the United Kingdom has used the organisation as a strategic lever to turn global evidence into practical action on **prevention, screening, regulation and cancer planning**, while ensuring UK science helps shape international standards. Membership gives the UK both influence and reach: access to multinational platforms no country could build alone, and an independent evidence base that strengthens public decision-making. In practice, IARC evidence is used in **core government planning**, including the **National Cancer Plan for England** and **Scotland Cancer Action Plan.**

Why IARC membership made the difference for the United Kingdom:

- **Scale where it matters:** Over the past decade, UK researchers co-authored **1,436 oncology papers** with IARC through large international consortia, linking UK teams to **2,638 institutions in 183 countries** and anchoring them in priority areas such as prevention, early detection, infections, and environmental and occupational risks.
- **Evidence government can act on:** UK-backed IARC programmes, notably the ***IARC Monographs, IARC Handbooks*** **and WHO Classification of Tumours**, support decisions on **carcinogenic exposures, prevention policy and screening design**. IARC evidence has helped inform UK action on issues ranging from **HPV vaccination and worker protection** to **sunbed regulation** and broader prevention priorities.
- **Benchmarking that drives improvement:** Through IARC, UK experts and registries contribute to **GLOBOCAN, the International Cancer Benchmarking Partnership, CanScreen5 and NCD Countdown 2030**. These platforms give UK officials credible international comparisons on **cancer burden, survival and screening performance**, and are used in analysis and parliamentary responses where robust benchmarking is needed.
- **Standards and capability that stay in the UK:** The UK has built lasting national expertise through IARC-linked training and leadership, including **13 UK trainees in 2021-2025**, long-standing participation in expert panels, and dedicated support from bodies such as **Children with Cancer UK** and the **Medical Research Council**. This helps ensure that global standards developed with IARC are translated back into UK institutions and practice.

Part I. Scientific leadership through international collaboration

> ***"There is a great deal of enthusiasm for IARC here, people view it very positively and value the work it does."***
>
> **Marc Gunter**
> **Imperial College**

Exceptional intensity and depth of collaboration

The United Kingdom's partnership with IARC is a deeply integrated collaboration that places UK institutions at the core of large, multi-country cancer epidemiology initiatives, where global scale and standardized methods are essential for credible, policy-relevant evidence. Over the past decade, UK researchers have co-authored **1,436 oncology publications with IARC**[1]. This places the UK among the most active IARC Participating States in terms of joint publications. The depth of integration is striking: IARC-linked UK publications involve a **median of 25 institutions per paper, compared with 5 for UK oncology publications without IARC**, and connect UK teams to **2,638 institutions in 183 countries**, a truly global research network that would be extremely difficult to assemble through national mechanisms alone.

Web of Science micro-topic analysis shows that UK–IARC outputs are concentrated in high-impact, data-intensive fields that mirror shared priorities on prevention, equity and environmental risk, including:

- **Genome-wide association studies and related genomic susceptibility research** across major cancer sites;

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

- **Screening disparities and early detection**, including work on colonoscopy, lung cancer diagnosis, disease mapping and survivorship;
- **HPV and cervical cancer prevention**, spanning vaccine effectiveness, innovative screening technologies and implementation in different health-system settings;
- **Nutrition, obesity and metabolic risk**, including metabolomics, metabolic syndrome, fatty-acid pathways and life-course overweight and obesity;
- **Genetic testing and molecular markers**, from polygenic risk scores and circulating proteins to germline and somatic variants in oral, head-and-neck and other cancers;
- **Occupational and environmental risk factors**, such as ionising-radiation exposure in nuclear workers, parental occupational pesticide exposure, night-shift work, alcohol marketing and other lifestyle-related risks.

Box #1: Cancer in the UK: a high-income burden with scope for prevention

GLOBOCAN 2022 estimates around **455 000 new cancer cases** and **182 000 deaths** each year in the UK, a high burden typical of high-income countries, driven by ageing and modifiable risks such as **tobacco, alcohol, excess weight, unhealthy diet and physical inactivity**. Despite improving outcomes, cancer remains a **leading cause of premature death**, underlining substantial scope to prevent disease and diagnose it earlier through stronger tobacco and obesity control, healthier food and alcohol environments, **HPV vaccination** and **equitable access to high-quality screening and treatment**.

➔ **Leadership in global research infrastructure**

> ***"IARC membership strengthens the collaboration between organisations internationally which in turn leads to greater impact of research, studies and policy calls in the UK."***
>
> **Cancer Research UK Policy Directorate**

Through IARC, UK institutions and funders have supported **80+ projects** in the last decade (2016–2026), with **240+ UK collaborators** involved across IARC projects over the same period, including **100+ projects coordinated by IARC**. This makes the UK a major driver of IARC's global research infrastructure. Key strands include:

- **Prevention and modifiable risks** – UK-funded work by **Cancer Research UK (CRUK)**, **King's College London** and the **World Cancer Research Fund (WCRF)** quantifies how much cancer could be prevented by tackling **tobacco, alcohol, obesity and diet**, and strengthens the evidence base on how these risks drive cancer. UK participation in **Cancer Prevention Europe** also helps connect this work to wider European efforts to align prevention priorities and strengthen collective advocacy on cancer prevention.
- **Benchmarking outcomes and system performance** – UK National Health Service bodies, cancer registries and universities are central to the **International Cancer Benchmarking Partnership (ICBP)** and related **SURVMARK-2** studies, comparing **stage at diagnosis and survival** with peer countries. These analyses, together with the ICBP-COVID-19 programme and the broader IARC Cancer and COVID-19 initiative, provide UK decision-makers with independent evidence on where earlier diagnosis, pathway redesign and post-pandemic recovery can most effectively reduce avoidable cancer deaths (see part II).
- **Worker and environmental protection** – UK cohorts and investigators are core to **INWORKS** (low-dose ionising radiation in nuclear workers) and to studies on other exposures (e.g. pesticides, methoxsalen-based psoralen plus ultraviolet A therapy (PUVA)), with results feeding into hazard evaluations and guidance.
- **Screening and early detection** – UK partners contribute to biomarker and risk-model work for **lung cancer** (proteomics, lung nodules, equitable eligibility) and to innovations in **cervical screening**, including the **EASTER** project (validating new technologies for cervical screening and diagnosis, including AI-supported approaches).
- **Major cohorts and data platforms** – UK institutions are key nodes in the **European Prospective Investigation into Cancer and Nutrition (EPIC)**, the **Childhood Cancer and Leukemia International Consortium (CLIC)** and the **Cancer Risk in Childhood Cancer Survivors (CRICCS)** study, and co-lead pooled analyses on obesity, diabetes, ultra-processed foods and cancer, enabling studies at a scale no country can achieve alone.
- **Inequalities and better value care** – UK-linked work on **underuse/overuse and inequalities** (with Imperial College London and CRUK), plus projects such as **African Breast Cancer – Disparities in Outcomes (ABC-DO)**, **Social Inequality and Gender (SILICA)**, **Making cancer data count**, **HEADSpAcE** (head and neck cancer translational research in South America and Europe), **Prevention at Primary Care Level**, and studies on tobacco cessation and alcohol marketing, help translate evidence into practical levers for fairer outcomes.

Box #2: IARC flagship collaboration: the Mutographs of Cancer and allied UK-led programmes

Launched in 2017 under the **Cancer Grand Challenges** initiative, the Mutographs of Cancer project is a **£20 million** global effort to uncover the causes of cancer by decoding **mutational signatures**, the distinctive DNA patterns left behind by cancer-causing processes. **Led from the UK and funded by Cancer Research UK**, with **IARC** as a core scientific partner, the project brings together researchers in **27 countries and 46 medical centres**, integrating whole-genome sequencing, molecular biology and epidemiology on an unprecedented scale.

Mutographs epitomises UK scientific leadership within IARC's global network. Analyses of **more than 8,000 cancer genomes** have identified previously unrecognised mutagenic exposures, shown that some high-incidence cancers may arise through **non-mutagenic pathways**, and **linked genotoxic bacteria to rising rates of early-onset colorectal cancer**. The project has also created enduring public resources - open biobanks, curated genomic datasets and harmonised analytical tools - while **strengthening research capacity in partner countries** through training and long-term collaboration.

Building on this platform, an **IARC-led programme on early-onset colorectal cancer (EOCRC)** is using large, UK-linked cohorts and harmonised international datasets to understand why incidence is rising in younger adults. In parallel, the **DISCERN project**, co-led with **Imperial College London** and other partners, searches for previously unknown causes of **renal, pancreatic and colorectal cancers**, combining exposome data, genetics and molecular profiling to pinpoint novel carcinogenic pathways.

Looking ahead, the Mutographs platform and its allied programmes will focus increasingly on explaining the sharp rise in EOCRC and clarifying the causes of cancers where incidence is changing rapidly but aetiology remains uncertain.

➔ **Shaping the global cancer research agenda and standards**

UK 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)**, the United Kingdom 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, the UK 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 UK 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, **48 UK experts** have contributed to the IARC's flagship evaluations, including:

- **IARC Monographs Volume 126:** *Opium Consumption*
- **IARC Monographs Volume 127:** *Some aromatic amines and related compounds*
- **IARC Monographs Volume 128:** *Acrolein, Crotonaldehyde, and Arecoline*
- **IARC Monographs Volume 130:** *1,1,1-Trichloroethane and Four Other Industrial Chemicals*
- **IARC Monographs Volume 131:** *Cobalt, antimony compounds, and weapons-grade tungsten alloy*
- **IARC Monographs Volume 132:** *Occupational Exposure as a Firefighter*
- **IARC Monographs Volume 133:** *Anthracene, 2-bromopropane, butyl methacrylate, and dimethyl hydrogen phosphite*
- **IARC Monographs Volume 134:** *Aspartame, methyleugenol, and isoeugenol*
- **IARC Monographs Volume 135:** *Perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS)*
- **IARC Monographs Volume 136:** *Talc and Acrylonitrile*
- **IARC Monographs Volume 137:** *Hydrochlorothiazide, Voriconazole, and Tacrolimus*
- **IARC Monographs Volume 138:** *Automotive gasoline and some oxygenated gasoline additives*
- **IARC Monographs Volume 139:** *Hepatitis D Virus, Human Cytomegalovirus, and Merkel Cell Polyomavirus*
- **IARC Monographs Volume 140:** *Atrazine, Alachlor, and Vinclozolin*
- **IARC Handbooks of Cancer Prevention Volume 18:** *Cervical cancer screening*
- **IARC Handbooks of Cancer Prevention Volume 19:** *Oral cancer prevention*
- **IARC Handbooks of Cancer Prevention Volume 20A:** *Reduction or cessation of alcoholic beverage consumption and cancer risk*
- **IARC Handbooks of Cancer Prevention Volume 20B:** *Alcohol policies*
- **IARC Handbooks of Cancer Prevention Volume 21:** *Lung cancer screening and early detection approaches*
- **World Health Organization Classification of Tumours (Blue Books) 5th and 6th editions:** Extensive editorial board, expert panel, and reporting-system contributions supporting international 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

> *"UK government cancer policy and strategy staff frequently review IARC evidence which is regarded as high quality and a trusted source."*
>
> **Dr Mark Palmer**
> **Medical Research Council**

In the UK, IARC-linked evidence is used in **core government planning**, including the development of the **National Cancer Plan for England**, where it helped shape the ambition and content on **cancer incidence, prevention and wider macroeconomic impacts**. More specifically, evidence from the **International Cancer Benchmarking Partnership (ICBP)** helped catalyse the plan in England and was also a key reference for **Scotland** in shaping and delivering its own Cancer Action Plan. UK officials also use the **Global Cancer Observatory** and **ICBP survival estimates** in analysis and parliamentary responses, particularly where robust international comparisons are needed. More broadly, IARC evidence is also used in **parliamentary inquiries, National Institute for Health and Care Excellence (NICE) guidelines, national strategies and government risk-communication materials**.

An Overton analysis of UK policy documents (2005–2026) identifies **around 540 documents** citing IARC-authored studies or evaluations, including roughly **400 from government bodies and parliaments** and **140 from UK think tanks and non-governmental organisations (NGOs)**. This places the UK among the countries that cite IARC most frequently in policy documents worldwide.

Across this corpus, IARC outputs are used to:

- **Underpin environmental and chemical regulation:** UK Government departments, the Chief Medical Officer's annual reports and specialist committees on toxicity and air pollution use *IARC Monographs* and multi-country analyses when assessing carcinogenic hazards from air pollution, industrial chemicals and other environmental exposures. These evaluations help identify which agents are carcinogenic, frame dose-response judgements and justify proposed limits or mitigation measures.
- **Support alcohol, tobacco and nutrition policy:** Public Health England/UK Health Security Agency (UKHSA) evidence reviews, submissions to parliamentary inquiries and advocacy materials from Action on Smoking and Health (ASH), the Alcohol Health Alliance, Cancer Research UK and others draw on IARC classifications and burden estimates for alcohol, tobacco, processed meat and obesity-related cancers. IARC Monographs are also used as a trusted source of hazard identification in current UK prevention policy, including work relevant to the tobacco and vapes bill.
- **Inform national cancer-control and Non-Communicable Diseases (NCDs) strategies:** Government plans and think-tank reports use IARC data and analysis to benchmark the UK against peer countries, identify priorities and support decisions on prevention, early diagnosis and cancer surveillance. (see next section).
- **Provide a common reference for occupational and environmental health:**

Box #3: HPV, cervical screening and innovation: from evidence to implementation

In **HPV and cervical cancer**, UK-supported IARC work shows how robust causal evidence can translate into **concrete policy** and into **new screening models** that work in the real world.

***IARC Handbooks, IARC Monographs* and HPV vaccine trials** have been central in demonstrating that **a single dose of HPV vaccine is highly effective** at preventing infection and precancerous lesions. This evidence, to which **UK experts** contributed, fed into the **Joint Committee on Vaccination and Immunisation (JCVI)** 2022 advice to move the routine schedule for girls under 15 from **two doses to one**, a change that **simplifies delivery, reduces costs** and helps **sustain high coverage** without compromising protection.

On the screening side, the **EASTER project**, co-developed with UK partners such as the **University of Central Lancashire**, is validating **AI-enabled, point-of-care cervical cancer screening and triage tools** in low- and middle-income countries. By integrating HPV testing, automated image interpretation and treatment selection into a **one-stop visit**, EASTER aims to deliver a pathway that can be scaled in constrained health systems and, in time, **adapted to hard-to-reach and underserved communities in the UK**.

The **BELMED** collaboration adds a practical implementation dimension: **Belarusian breast-screening teams** have been hosted within the **NHS Breast Screening Programme** to learn about **programme organisation, quality assurance and audit**. This positions the UK not only as a user of IARC evidence, but also as a **living reference for how high-quality screening programmes** can be designed, monitored and improved.

Box #4: From hazard classification to national law – sunbeds and skin-cancer prevention

IARC's classification of **UV-emitting tanning devices as carcinogenic to humans (Group 1)** helped turn scientific evidence into concrete public-health action in the UK. In 2006, an IARC Working Group highlighted evidence of a **"prominent and consistent increase in risk for melanoma"** among people who first used indoor tanning facilities in their teens or twenties. In 2009, IARC then classified UV-emitting tanning devices as **Group 1 carcinogens**.

This strengthened momentum for regulation across the UK. **Scotland** banned under-18s from using sunbeds through regulations brought into force in **December 2009**. In **England and Wales**, **Cancer Research UK** used the IARC classification prominently in its campaigning and parliamentary engagement in support of a ban on sunbed use for under-18s. This contributed to the passage of the **Sunbeds (Regulation) Act 2010**, which came into force in **2011**. In **Northern Ireland**, the **Sunbeds Act** came into effect in **2012**.

According to UK stakeholders, IARC's classification helped strengthen political support at a critical moment, including during the passage of a Private Member's Bill, when success was far from guaranteed. The case shows how IARC's role in identifying carcinogenic hazards can directly support national legislation, strengthen prevention advocacy and shape practical action to reduce avoidable cancer risk. The issue remains live today: in **January 2026**, the UK Government announced plans to consult on **stronger action against illegal underage sunbed use** as part of the National Cancer Plan, with **IARC evidence again cited to support the case for tighter regulation**.

Guidance and technical reports on occupational exposures, from pesticides to night-shift work, use *IARC Monographs* and the WHO Classification of Tumours as reference points for identifying high-priority carcinogens, defining research needs and shaping worker-protection standards.

- **Guide immunisation, screening and public-facing risk communication:** Government immunisation guidance (including the HPV chapter of the Green Book), Public Health Scotland reports and NHS materials on screening and vaccination cite IARC evaluations and epidemiological studies when explaining which infections and exposures cause cancer, why particular vaccines or screening tests are recommended, and how changes to schedules or eligibility criteria are justified.

Concrete examples show how this translates into action. In occupational health, UK guidance on **diesel engine exhaust** draws directly on IARC's classification of diesel exhaust as a **Group 1 human carcinogen**, supporting exposure controls and compensation decisions. In prevention policy, IARC's classification of **UV-emitting tanning devices** as **Group 1 carcinogens** helped build support for restrictions on sunbed use by minors and continues to be cited in current UK policy discussions on tighter regulation (see Box 4).

➔ **Quantifying preventable cancers and lifestyle risk**

UK-funded IARC research is putting hard numbers on **how many cancers could be avoided** through changes in **tobacco, alcohol, diet, weight and infections**, and turning those numbers into priorities for policy. At the core is ***Estimating the proportion of cancer attributable to lifestyle***, an international study funded by **Cancer Research UK** and **King's College London** and coordinated by **IARC**. Using comparable methods across countries, it quantifies the share of **cancers, deaths and years of life lost** that are linked to tobacco, alcohol, excess body weight, diet, infections and key occupational exposures. For the UK, this work underpins the now widely used message that **around four in ten cancers are preventable**, and shows which tumour sites including **lung, colorectal, breast, liver, endometrial and cervical cancers**, account for most of that avoidable burden.

This is reinforced by an **IARC-led multi-country analysis** showing that **around two million cancer deaths every year** across seven countries, including the UK, could be prevented by acting on a small number of modifiable risks. Together, these projects give UK decision-makers **clear, comparable indicators** of where prevention will have the biggest impact, and how the UK's progress stacks up against its peers.

Underpinning the headline numbers is an extensive **WCRF** portfolio coordinated by IARC with strong UK participation. These studies unpack the **mechanisms linking obesity, diet, metabolic pathways and cancer** across colorectal, breast, endometrial and other sites, from **metabolomic profiling** of dietary and obesity-related exposures, to **lifetime overweight and obesity and their impact on cancer survival**, to **social-inequality (SILICA)** and **food-biodiversity** projects. This mechanistic evidence feeds directly into **global and national prevention guidelines**, allowing UK-funded epidemiology to support **more precise, more credible prevention policies**.

Part III. Building capacity for lasting impact

➔ Training as a gateway to international science

Training, fellowships and long-term partnership building are central to the UK–IARC relationship. **UK charities and public funders - notably Children with Cancer UK and the Medical Research Council - invest directly in IARC's fellowship and capacity-building programmes**, including support to the IARC Postdoctoral Fellowship Programme, targeted fellowships for childhood-cancer research, and the IARC initiative for resilience in cancer control linked to the Agency's 60th anniversary. Formal **Memoranda of Understanding with the World Cancer Research Fund (2023–2026) and the Royal College of Pathologists (2019–2027)** further anchor collaboration on evidence synthesis, training and dissemination, ensuring that UK expertise in prevention and pathology is fully integrated into IARC's global capacity-building offer.

Training and knowledge exchange are also longstanding pillars of the UK–IARC relationship. Since the late 1960s, **25 UK researchers have been regular recipients of IARC Fellowships**, creating generations of scientists who move between IARC and leading UK institutions. This historical investment is now complemented by a steady flow of trainees: **in the 2021–2025 cycle alone, 13 UK trainees** took part in short and medium-term training attachments at IARC. These fellows and visitors help keep links vibrant between UK institutions and IARC teams working on screening and early detection, occupational and environmental carcinogens, tumour classification and global cancer surveillance.

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.

➔ Technical foundations for cancer surveillance and comparability

Beyond training, the UK also benefits from IARC through the technical standards and methods that underpin cancer surveillance and research. The **International Classification of Diseases for Oncology, Third Edition (ICD-O-3)** provides a common language for coding tumours and is essential to cancer registration, epidemiology and data-driven research in the UK. Collaboration with IARC's **Cancer Surveillance Section** also supports UK-focused analyses carried out with internationally comparable methods.

These technical foundations make UK cancer data more **robust, comparable** and **policy-relevant**. They help ensure that decisions on cancer control are informed by **shared standards** for classification, surveillance and analysis that allow the UK to benchmark trends, monitor inequalities and participate fully in international research.