IARC Impact in practice series
The Germany experience

***"Germany has long been a close partner of IARC, grounded in the joint conviction that effective cancer prevention at home can only be achieved through the collective endeavour of nations united in the global fight against cancer."* – Dr Joachim Schuz, IARC Liaison Officer for Germany**

As a **founding Participating State of IARC**, Germany uses the Agency as a strategic platform to connect its world-class cancer registries, cohorts and clinical datasets with international evidence, methods and standards. This strengthens **prevention, screening, survivorship, cancer surveillance and risk assessment** at home, while ensuring that German expertise helps shape how cancer burden, carcinogenic hazards and cancer-control standards are defined in Europe and globally. For Germany, IARC is more than a research partner: it is also a source of **norms, classifications, guidelines and comparative tools** that are directly used in national policy and public-health practice.

Why IARC membership made the difference fo Germany:

- **Scale with purpose:** Over the past decade, German researchers co-authored around 1 100 publications with IARC, linking Germany to thousands of institutions in more than 180 countries and focusing on high-impact fields such as GWAS, obesity and metabolic health, HPV-related cancers, screening, and environmental and occupational risks.
- **Evidence used across government:** Hundreds of German reports, guidelines and technical papers cite IARC, mainly from government bodies and expert committees. IARC evidence feeds into clinical guidelines, cancer reporting, environmental and food-safety assessments, and health and technology policy. IARC Monographs are used as a scientific basis for regulatory decisions, while IARC classifications support national cancer-registration standards and international comparability.
- **Benchmarking and planning from registry data:** German registries and cohorts, including EPIC-Germany, the German Childhood Cancer Registry and *Krebs in Deutschland*, are closely linked to IARC methods and platforms. Joint analyses help Germany benchmark outcomes, monitor inequalities, stress-test cancer services and refine screening and prevention strategies. IARC-developed European screening guidelines also help inform the design of organised screening programmes in Germany.
- **Capability and standards that stay in Germany: Since** 1969, IARC has trained multiple generations of German fellows and trainees, while German experts contribute to *IARC Monographs, IARC*

Part I. Scientific leadership through international collaboration

Exceptional collaboration intensity and depth

Germany's partnership with IARC is long-standing and highly networked, reflecting a **major research nation** embedded in large, multi-country studies where harmonised methods and pooled datasets are essential.

Between 2016 and 2026, German researchers co-produced **1,110 publications with IARC, roughly 110 joint papers per year**[1]. This places Germany among the **most scientifically engaged Participating States** in absolute terms: **around one in 30 German oncology articles involves IARC collaboration**, a notable share for such a large research system. The collaboration is defined not only by volume but also by depth and international coordination. **IARC-linked publications from Germany involve a median**

Box #1: Cancer in Germany: a high-income burden with opportunities for prevention

Recent GLOBOCAN 2022 estimates cancer is a major public health challenge in Germany, with about **606,000 new cases** and **253,000 deaths** each year. Breast, prostate, colorectal and lung cancers account for much of the burden, driven in part by **tobacco, alcohol, excess body weight, physical inactivity and occupational/environmental risks**.

Despite strong health services and generally good survival, cancer remains a **leading cause of disease burden**, with marked **socioeconomic and regional inequalities**. This leaves clear scope for **prevention, earlier diagnosis and more equitable outcomes**.

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

of 31 institutions per paper, compared with 4 institutions for German oncology publications without IARC participation, and connect **2,575 partner institutions across 183 countries**.

Micro-topic analysis shows that Germany-IARC outputs are concentrated in **high-impact, data-intensive areas**, including:

- **Genome-wide association studies (GWAS)** across multiple cancer sites
- **Nutrition, obesity and metabolic health** (including **metabolic syndrome**, **fatty acids**, and related biomarkers)
- **HPV and cervical cancer prevention**, as well as **head and neck cancers**
- **Metabolomics** and **epigenetic regulation**
- **Screening disparities**, **colonoscopy and colorectal cancer**, and the performance of **early-detection programmes**
- **Genetic testing and molecular markers**, including **thyroid, ovarian, pancreatic and lymphoid cancers**
- **Environmental and occupational hazards**, including ionizing and non-ionizing radiation, and **asbestos and other lung carcinogens**, **physical activity at work**, tattoos, **antioxidant activity** and **vitamin D**

This profile points to a partnership built around **large cohorts, biobanks and sophisticated exposure assessments**, where multinational coordination is needed to achieve statistical power and robust, policy-relevant evidence. Germany's strengths in **population-based cancer registries, national cohorts, advanced imaging, and laboratory science** make it a natural and highly valued contributor to these platforms.

➔ Leadership in global research infrastructure and benchmarking initiatives

Through IARC, German institutions do more than join international studies: they help power the infrastructures that generate comparable evidence for **prevention, screening, survivorship and risk assessment** across Europe and beyond. These platforms allow German data, cohorts and expertise to shape analyses at a scale no single country could achieve alone. Examples from the past decade (2016-2026) include:

- **Metabolic health, obesity and cancer survival consortia**: a set of IARC-coordinated studies on adiposity, metabolic health and cancer outcomes implemented with German partners such as the **German Cancer Research Center (DKFZ)** and other centres, using German cohorts and biobanks within international consortia to clarify how excess adiposity affects cancer risk and survival (see Box 1).
- **Long-term diet and lifestyle infrastructure through EPIC-Germany**: two large population-based cohorts at **DKFZ in Heidelberg** and the **German Institute of Human Nutrition (DIfE) in Potsdam**, together including more than **50,000 adults**, form the German component of the **European Prospective Investigation into Cancer and Nutrition (EPIC)** study. With harmonised follow-up, linkage to cancer and mortality registries and extensive biobanking,

Box #2: From excess weight to action: IARC–Germany obesity research for smarter cancer control

Obesity is one of Germany's most important **avoidable cancer risks**. Around **one quarter of adults are obese**, increasing the likelihood not only of diabetes and cardiovascular disease, but also of multiple cancers. Through IARC, Germany is helping move the field beyond simple body-mass index measures towards a more policy-relevant understanding of obesity as a **metabolic, immune and life-course driver of cancer risk and outcomes**.

Two projects illustrate this added value. The **MEGA study** ("Metabolic health and immune status in obese and normal-weight subjects"), supported by **Augsburg University Medicine**, uses advanced imaging, metabolic profiling, diet, microbiome and omics data to show how obesity reshapes biological pathways linked to cancer. The **"Lifetime Overweight and Obesity: Impact on Cancer Survival"** pooling project, supported by the **German Research Foundation** and implemented with the **German Cancer Research Center**, links repeated anthropometric data from major European and United States cohorts to cancer incidence and survival, showing how the **duration and timing of overweight** influence prognosis.

These projects are reinforced by wider IARC–Germany analyses in large cohorts such as **UK Biobank**, which distinguish **"preclinical" and "clinical" obesity** and show that **MRI-derived organ measures** can predict cancer and mortality more precisely than body-mass index alone. Together, this work gives Germany something highly practical: a stronger basis for **earlier prevention, better risk stratification and more targeted survivorship care**. It helps decision-makers treat obesity not simply as a lifestyle issue, but as a **major cancer-control priority**.

- **For prevention:** stronger evidence to prioritise obesity, diet and metabolic health in cancer policy.
- **For care:** better tools to identify which patients need more tailored follow-up and survivorship support.

EPIC-Germany underpins research on **diet, body composition, metabolic factors and genetic susceptibility**, while also supporting risk prediction directly relevant to German prevention policy.

- **HPV vaccination, biomarkers and cancer-elimination platforms**: German partners at **DKFZ** collaborate with IARC in the extended follow-up of the **IARC–India HPV vaccination trial**, the **HPVC3 biomarker study**, work on **HPV serologic correlates and vaccine durability**, and genomic studies of **oral and oropharyngeal cancers** and the **HEADSpAcE consortium**. These platforms ensure that German expertise helps shape evidence and tools for **cervical-cancer elimination** and **HPV-related head-and-neck cancers** worldwide.

> *"Scientific collaboration between IARC and Germany spans every stage, from the inception of research and the elucidation of underlying mechanisms to the identification of causes, the development of effective interventions, and their successful implementation."*
>
> **Dr Joachim Schuz, IARC Liaison Officer for Germany**

- **Radiation and environmental epidemiology infrastructures**: IARC collaborates with the **Federal Office for Radiation Protection (BfS)** on **fallout from Soviet nuclear weapons testing**, on the **Semipalatinsk cohort**, and also on **high-frequency electromagnetic fields, ionising radiation and computed tomography-related risk assessment**. Together with IARC's early-life exposure platforms, this gives Germany direct access to internationally harmonised evidence that feeds into **radiation-protection, environmental-health and precautionary policy**.
- **Birth-cohort and child-health platforms**: IARC works with the **Leibniz Institute for Prevention Research and Epidemiology**, the **University of Bonn** on the childhood dietary metabolome, and **Heinrich-Heine University Medical Center Düsseldorf** on environmental hazards and prevention of **acute lymphoblastic leukaemia in children**. At the same time, the **German Childhood Cancer Registry (DKKR)** provides a major share of the data for the **Automated Childhood Cancer Information System (ACCIS)**, the IARC-coordinated European childhood cancer information system. This places German data at the core of long-term infrastructures for **early-life risk assessment, childhood cancer surveillance and service planning**.
- **Global equity and screening initiatives**: German partners at **Dresden Technical University** collaborate with IARC on **bladder-cancer early detection and treatment in Malawi**, while **University Hospital Halle** is a key partner in **African Breast Cancer – Disparities in Outcomes (ABC-DO and ABC-DO-Plus)**, led by IARC. At European level, the **Robert Koch Institute** collaborates closely with IARC on the **Joint Action on the New EU Cancer Screening Scheme**. Together, these collaborations link German registry and clinical data to IARC-coordinated platforms that **benchmark outcomes, test implementation strategies and address disparities**.
- The **German national cohort (Nako)** is one of population sources to investigate whether **having tattoos increases your risk of cancer**.

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

> *"The IARC Monographs and the IARC Handbooks provide important guidance for various specialist and policy areas in Germany."*
>
> **Representative from Germany Ministry of Health (MoH)**

German 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), Germany 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, Germany 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.

Germany 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, 15 German experts have contributed to the IARC's flagship evaluations, including:

- **IARC Monographs Volume 128:** *Acrolein, Crotonaldehyde, and Arecoline*
- **IARC Monographs Volume 130:** *1,1,1-Trichloroethane and Four Other Industrial Chemicals*
- **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 Handbooks of Cancer Prevention Volume 20A:** *Reduction or cessation of alcoholic beverage consumption and cancer risk*
- **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:** Editorial board and expert contributions supporting tumour classification standards, diagnostic criteria, and international reporting systems across multiple organ systems

Box #3: IARC–Germany evidence safeguarding children with cancer during and after COVID-19

When COVID-19 disrupted cancer services across much of the world, IARC and German partners were able to deliver something few countries had in real time: a **national, registry-based picture of what was happening to children with cancer**. Using the **German Childhood Cancer Registry** and a survey of paediatric oncology centres, they showed that Germany's paediatric oncology system remained **remarkably resilient** in 2020. New diagnoses did not fall; monthly case numbers were similar to, or higher than, in 2015-2019, and **diagnosis and treatment pathways were largely maintained**, even though psychosocial support and some non-urgent care were reduced during lockdowns.

IARC and German investigators then went one step further, using modelling to anticipate the **longer-term consequences of the pandemic**. Their analysis suggests that about **6.4% of acute lymphoblastic leukaemia cases in children aged 2–6 years in Germany in 2020–2024** may be linked to pandemic-related changes in infection patterns, immune training, or to SARS-CoV-2 infection itself.

Taken together, these studies show the added value of the IARC-Germany partnership at its clearest: it helped Germany **track the immediate impact of a global shock on childhood cancer care**, while also identifying possible **future risks for cancer incidence**. For decision-makers, this provides:

- **Real-world evidence** that core paediatric cancer pathways withstood the acute phase of the pandemic;
- **Early warning signals** that disruptions in early-life exposures may have lasting consequences for cancer risk;
- a strong case for **continued registry-based monitoring, psychosocial support and resilience planning** for children with cancer and their families.

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

➔ Evidence that informs national regulation and prevention policy

In Germany, IARC evidence is used as a **practical policy tool** by government, regulators and expert bodies, It informs **risk appraisal, cancer surveillance, clinical guidance, screening design, food and environmental standards, and technology assessment**.

An Overton analysis identified **around 300 German reports, guidelines, inquiries and technical papers since 2005** that explicitly cite IARC research or evaluations, with about three quarters published since 2015. More than 70% come from government bodies, with the remainder from think tanks and international organisations. The most frequent users include the **Association of the Scientific Medical Societies in Germany (AWMF)** through more than **80 clinical guidelines and consensus papers**; the **Robert Koch Institute**, especially through *Krebs in Deutschland* and other cancer-surveillance outputs; the **Federal Environment Agency (Umweltbundesamt)** and the **Federal Institute for Risk Assessment (BfR)** in environmental, chemical and nutrition-related assessments; and the **Federal Ministry of Health**, the **Bundestag** and Länder authorities in strategy papers, technical assessments and parliamentary reports.

Across these documents and institutions, IARC evidence supports concrete regulatory and preventive action, including:

- **Surveillance and benchmarking:** *Krebs in Deutschland* and related expert reports use IARC methodologies and international comparative analyses to track incidence, survival and inequalities, and to benchmark Germany against other high-income countries.
- **Clinical guidelines and screening:** AWMF guidelines cite IARC Monographs and pooled studies when assessing carcinogenic exposures, long-term treatment risks, and the balance of benefits and harms in diagnosis, follow-up and screening.
- **Environmental and consumer protection:** assessments by Umweltbundesamt and BfR draw on IARC classifications and large consortia such as **EPIC** to evaluate cancer-related risks from air pollution, chemicals, diet and nutritional products.
- **Food, alcohol and prevention policy:** parliamentary and advisory documents use IARC evaluations of **processed meat, alcohol and other lifestyle-related carcinogens** in debates on dietary guidance, prevention strategies and regulatory options.
- **Radiation and technology assessment:** Bundestag studies and environmental expert opinions rely on IARC evaluations of **ionising and non-**

> ***"Germany relies on IARC norms and standards, especially with regard to the ongoing updating of classifications used in cancer registration."***
>
> **Representative from Germany MoH**

ionising radiation, including mobile communications, when formulating recommendations on precaution and exposure limits.

Crucially, IARC does not only provide evidence that is cited: it also provides part of the **classification backbone** for German cancer policy. The **Centre for Cancer Registry Data at the Robert Koch Institute** relies on IARC norms and standards for tumour classification and cancer registration, notably the **World Health Organization Classification of Tumours** and the **International Classification of Diseases for Oncology**. This helps define national registration standards and ensures that German cancer data remain internationally comparable.

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

> ***"The European guidelines for the early detection of certain types of cancer developed or updated by the IARC on behalf of the European Commission are of great importance for Germany."***
>
> **Representative from Germany MoH**

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

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 Euorpe. 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), 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. For Germany, this European role has **direct national relevance**: screening guidelines developed or updated by IARC for the European Commission are used to inform the directives of the **Joint Federal Committee (Gemeinsamer Bundesausschuss, G-BA)** under **Section 25a of the German Social Code, Book V (SGB V)**.

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)**.

> ***"The European Code Against Cancer is an important basis for discussion in the National Cancer Plan of Germany."***
>
> **Representative from Germany MoH**

Together, this body of evidence also 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 Germany, the ECAC is also an important reference point for the **National Cancer Plan**, while the **German Cancer Research Center (DKFZ)** and the **Leibniz Institute for Prevention Research and Epidemiology (BIPS)** – both also Steering Group members of the IARC-coordinated Cancer Prevention Europe (CPE) network – help disseminate the Code in German and works with IARC on related online learning initiatives.

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 Germany, as one of Europe's largest research

systems, this collaboration provides not only access to data and expertise but a central role in shaping the European standards and tools that guide cancer prevention across the EU.

Part III. Building capacity for lasting impact

➔ Training as a gateway to international science

> *"A mutually beneficial arrangement: IARC's projects are enriched by the contributions of highly skilled young scientists from Germany, who in turn broaden their scientific horizons and cultivate international networks."*
>
> **Dr Joachim Schuz, IARC Liaison Officer for Germany**

Training and knowledge exchange are central features of the Germany–IARC partnership, supporting two-way flows of expertise between German institutions and international research networks. Since **1969**, **16 German scientists** have held highly competitive IARC postdoctoral fellowships.This historical investment is complemented by a steady pipeline of new trainees: during the **2021–2025** cycle, **eight German trainees** have undertaken short-and medium-term research attachments at IARC. For German institutions, these opportunities give early-career researchers and technical experts hands-on experience in harmonising data, applying advanced analytical methods and working within multidisciplinary, multinational teams, skills that are difficult to acquire within a purely national setting.

Training flows are further anchored by **Memoranda of Understanding** with the **German Cancer Research Center (DKFZ)**, **Charité – Universitätsmedizin Berlin**, **Martin Luther University Halle-Wittenberg** and the **International Academy of Cytology**, which formalise joint projects, student placements and knowledge exchange beyond individual funding cycles.

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.