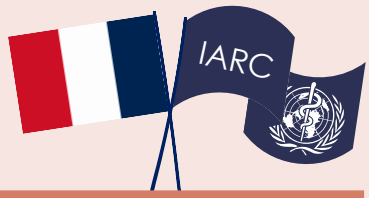
IARC Impact in practice series
The France experience



> ***"Il faut que le CIRC continue à travailler de la façon dont il travaille sur le plan scientifique: il faut que la science commande."*** **Professor Norbert Ifrah, French National Cancer Institute (INCa)**

France is not just home to IARC: **as a founding Participating State it sits at the centre of the Agency's engine room**. Through IARC, France turns its cohorts, registries and methodological strengths into international standards, using them to **drive prevention, shape regulation and optimise screening**, and to influence how cancer burden and risks are measured across Europe. Membership gives France both a strong voice in IARC governance and **very tangible operational benefits**: shared methods, benchmarking platforms and access to some of the largest coordinated cancer studies in the world.

Why IARC membership made the difference for France:

- **Scientific leadership at scale**: Between 2016 and 2026, French teams co-authored 887 papers with IARC: almost 90 joint articles every year, roughly one in 25 French oncology publications. That output puts France in the cockpit of IARC's biggest programmes - from EPIC and COSMOS France to pooled agricultural cohorts and multi-omics life-course studies - and on the front line of research into complex and emerging exposures such as low-dose ionising radiation, radiofrequency fields, pesticides and tattoos.
- **Evidence used across government:** Since the 2000s, more than 1400 French policy and technical documents have cited IARC work, most from ANSES, Santé publique France, HAS and HCSP. IARC evidence sits behind the headline figure that 41% of cancers in France are linked to 13 modifiable factors, underpins Nutri-Score and national nutrition guidance, shapes ANSES opinions on carcinogens and the €200 million annual cost of thyroid-cancer overdiagnosis, and informs HPV vaccination and screening recommendations – right down to behavioural studies on GPs' attitudes to HPV vaccination that guide professional training and communication.
- **Data and platforms that shape European standards:** French data feed key IARC infrastructures that guide policy across Europe. This ensures that French realities and innovations (FIT mailing, HPV self-sampling, AI-supported invitations) help set European benchmarks and standards.
- **Skills and leadership pipeline:** Between 2021 and 2025, 110 French trainees came to IARC, and over 60 French scientists have held IARC's highly competitive postdoctoral fellowships since the 1960s, many now in leadership roles in France. This steady flow of fellows and trainees means that IARC methods in epidemiology, statistics, exposure assessment and prevention are continuously re-injected into the French cancer-control system.
- **Soft power and global influence:** As host country, France doesn't just sit on IARC's Governing Council: it provides the stage. French experts help shape IARC Monographs, Handbooks, WHO classifications and the European Code Against Cancer, while high-profile events such as IARC@60 in Lyon bring global leaders to France. This gives France a front-row seat in setting international standards and a level of scientific visibility that goes far beyond individual projects.

Part I. Scientific leadership through international collaboration

Exceptional intensity and depth of collaboration

As a host country, France has one of IARC's most intensive and structurally embedded partnerships. Between 2016 and 2026, French researchers produced **21625 oncology publications**, of which **887 were co-authored with IARC**, almost **90 joint papers per year**[1]. This means that **around one in 25 French oncology articles** involves IARC collaboration, one of the highest absolute levels of co-publication among Participating States and a clear sign that French institutions treat IARC as a core scientific partner. The partnership is characterised by very dense international networking. IARC-linked papers with French co-authors connect **177 countries** and **2354 unique institutions**, and typically involve a **median of 30 institutions per article, compared with 8** for French oncology publications without IARC participation. Almost **29% of these France-IARC papers are IARC-**

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

led, underlining that the Agency does not simply "add its logo" to French studies but often coordinates large, multi-country consortia from its base in Lyon.

Micro-topic analysis shows that this collaboration is concentrated in high-impact fields that mirror both French and IARC strategic priorities. The largest clusters are **nutrition and obesity**, **genome-wide association studies**, and **screening disparities**, complemented by strong activity in **metabolomics**, **metabolic syndrome**, **genetic testing**, **radiation genotoxicity**, **asbestos–mesothelioma and other occupational exposures**, and site-specific work on **thyroid, ovarian, testicular and lymphoid cancers**, **HPV and cervical cancer**, and **colonoscopy-based screening**. Together, these patterns depict a partnership anchored in cutting-edge molecular and cohort-based epidemiology, where large French cohorts and registries are routinely pooled with international data to answer prevention-relevant questions that no single country could tackle alone.

> ***"La force du CIRC réside dans sa capacité à mobiliser des cohortes multinationales. Cette approche est indispensable pour investiguer les facteurs de risque émergents et optimiser la prévention."***
>
> **Prof Béatrice Fervers**
> **Centre Léon Bérard**

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

Based on recent Globocan estimates, cancer remains a major public-health challenge in metropolitan France, with around **484 000 new cases** and **191 000 deaths** in 2022. Age-standardised incidence is high for a high-income country, reflecting both an ageing population and widespread early detection and screening, but also continued exposure to modifiable risk factors such as **tobacco, alcohol, unhealthy diet, excess weight and physical inactivity**. Although France's age-standardised cancer mortality rate is **lower than in most EU countries with comparable income levels**, cancer is still a leading cause of premature death.

➔ Leadership in European and global research infrastructure

With IARC based in Lyon, France is plugged into **the big European and global "machinery"** that generates evidence for cancer prevention and control. **From 2016 to 2026, more than 530 IARC-coordinated projects were funded or involved French partners**, spanning major cohorts, international consortia and shared research platforms.

- **Big population cohorts that track risk over time**: **EPIC** (European Prospective Investigation into Cancer and Nutrition), one of IARC's flagship cohorts, includes a major French contribution - E3N Generations Cohort - and follows **500,000+ people** across Europe to understand how diet, obesity and physical activity shape cancer and other chronic diseases. France also contributes to large platforms such as **COSMOS France** (long-term follow-up on mobile-phone and wireless technology use) and uses these infrastructures to test "what if" prevention scenarios (e.g. how changes in behaviours could translate into fewer cancers).
- **The go-to setting for complex exposure questions**: France provides uniquely strong worker, health and population datasets that allow IARC to quantify **small risks at low doses** and disentangle "real life" mixtures of exposures. This includes major work on **low-dose ionising radiation in nuclear workers (INWORKS)**, **radiofrequency exposure and mobile-phone use**, and pooled agricultural studies on **pesticides and non-Hodgkin lymphoma**, as well as newer lifestyle exposures such as tattoos investigated in large French cohorts.
- **Real-world platforms for better screening and fewer inequalities**: France helps turn European recommendations into workable practice through the **EU Joint Action on cancer screening implementation**, and tests practical innovations in colorectal and cervical screening, alongside work on thyroid-cancer overdiagnosis and emerging lung-screening scenarios (see Section II).
- **Cutting-edge biology linked to population evidence**: French teams are deeply involved in IARC-linked multi-omics and life-course programmes (genomics, epigenomics, metabolomics, proteomics) that connect biology with prevention-relevant exposures and identify sensitive windows for risk reduction, including in paediatric cancers.

> ***"On se retrouve avec un vrai besoin d'avoir de très grandes cohortes pour pouvoir avancer, et ça, c'est un effort au moins national, mais aussi régional et international… Le CIRC peut jouer un rôle et le joue."***
>
> **Prof Robert Barouki**
> **Inserm**

➔ Shaping the global cancer research agenda and standards

French 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), France contributes directly to setting IARC's research and capacity-building priorities. This high-level engagement is

Box #2: Cohorts, hormones and women's health: France as a reference setting

France hosts several major population cohorts , notably **EPIC-France, the E3N-Générations cohort, and CONSTANCES**, that underpin IARC's work on hormonal, metabolic and lifestyle risk factors in women. These richly characterised cohorts make France a key setting for disentangling how different hormone regimens influence cancer risk.

For example, a recent IARC–France analysis of more than **75 000 postmenopausal women in E3N** showed that **estrogen-only menopausal hormone therapy (MHT)** was not significantly associated with ovarian cancer risk, whereas **combined estrogens with progesterone or dydrogesterone** were linked to a higher risk.

Together, this body of evidence positions France as a **reference setting for hormone-related cancer research**, providing data that feed into French and international recommendations on MHT use, and strengthening IARC's global evaluations of hormonal carcinogenesis.

a form of **soft power**. By shaping IARC's work programme, France 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.

France's engagement with IARC extends to **active leadership in international standard-setting**. During the 2020-2025 cycle, 28 French experts have contributed to IARC's flagship normative programmes, including:

- **IARC Monographs Volume 127:** *Some aromatic amines and related compounds*
- **IARC Monographs Volume 129:** *Gentian violet, leucogentian violet, malachite green, leucomalachite green, and CI direct blue 218*
- **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*
- **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 and diagnostic practice 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 France, IARC work is used as a **day-to-day decision tool** by public agencies. An Overton analysis of French public-sector documents (2001–2025) identifies **more than 1400 reports, opinions, guidelines and technical papers** that explicitly cite IARC-authored studies or evaluations, with close to **90% published since 2010**. Around **nine in ten** of these documents come from government bodies. Four institutions alone account for the large majority of citations: **Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail - ANSES (~680 documents), Santé publique France (~320), Haute Autorité de Santé (~110)** and the **Haut Conseil de la santé publique (~80)**, complemented by **line ministries, La Documentation française, Office parlementaire d'évaluation des choix scientifiques et technologiques - OPECST** and parliamentary services.

> ***IARC's evaluations of asbestos, night shift work, pesticides, and radiofrequency fields show how IARC can directly shape French exposure limits and occupational health policies across multiple high-level agencies***
>
> **Dr Véronique Chajès**
> **IARC Liaison Officer**
> **For France**

Across this corpus, IARC research and evaluations are mobilised in several recurring policy domains:

- **Regulating carcinogens in the environment and at work**: ANSES systematically relies on IARC Monographs when characterising carcinogenic hazards and reviewing dose–response evidence for agents such as asbestos, crystalline silica, night shift work, pesticides, diesel exhaust and radiofrequency electromagnetic

fields. IARC classifications are used as a scientific anchor in formal opinions that guide occupational exposure limits, substance authorisations, substitution priorities and risk-reduction measures. In practice, IARC evidence feeds directly into decisions on worker protection, environmental monitoring and regulatory restrictions.

- **Driving prevention on alcohol, diet and obesity**: Santé publique France and the Haut Conseil de la santé publique (HCSP) draw heavily on IARC-coordinated cohort evidence - notably EPIC and major French cohorts - and on IARC Monograph evaluations of alcohol, processed meat, obesity and physical inactivity. This evidence underpins national prevention targets, communication campaigns and policy tools such as **Nutri-Score** (see Box #4), as well as recommendations within the Programme national nutrition santé (PNNS). IARC findings are used not only to describe risk, but to justify concrete guidance on limiting alcohol consumption, reducing ultra-processed foods and improving overall diet quality.
- **Guiding vaccination and screening choices**: The Haute Autorité de Santé (HAS) and HCSP use IARC syntheses on HPV and other infection-related cancers to estimate the preventable cancer burden, define priority age groups and refine vaccination strategies, including extension to boys and catch-up schemes. IARC evidence also informs modelling of screening impact and the optimisation of cervical and colorectal screening programmes, helping balance expected benefits, harms and cost-effectiveness.
- **Tracking cancer burden and inequalities**: National surveillance reports, regional cancer profiles and "cancer barometers" routinely apply IARC methods and international comparators such as GLOBOCAN to benchmark France against European and global standards. This alignment allows policymakers to monitor trends in incidence, mortality and survival, assess social and regional inequalities, and evaluate progress against national cancer plans using internationally harmonised indicators.

One concrete example: the **HCSP's 2025 recommendations for PNNS 5** (Programme national nutrition santé/National Nutrition and Health Programme) explicitly mobilise IARC evidence on diet, obesity and cancer, including evaluations on alcohol and processed foods (including industrial trans fatty acids), to justify stronger prevention directions. The report then translates that evidence into **operational levers**: reformulation incentives, fiscal and marketing measures, communication priorities and monitoring indicators. In other words, IARC findings move from Lyon into **real policy tools** used to shape the food environment and reduce cancer risk.

➔ **Screening, early detection and inequalities: using France as a "living lab"**

France's organised screening programmes and rich registry data make it a **real-world testbed** where IARC and French partners can trial, evaluate and refine innovations before they are scaled nationally or shared internationally. A major cluster of joint work targets **uptake, quality and social inequalities**, with results used by **INCa, Santé publique France and regional authorities** to adjust programme design, guidance and communication.

- **Colorectal screening: boosting uptake where it lags:** Within the national programme, IARC and partners (including Hospices Civils de Lyon, Centre Léon Bérard

Box #3: Quantifying preventable cancers in France: from method to message

To support France's third Cancer Plan and future prevention strategies, IARC led a large collaborative project with INCa, Santé publique France and several national institutes to quantify **how many cancers in metropolitan France could be prevented** if major lifestyle and environmental risks were reduced. Using French registry data, national surveys and exposure estimates, the team applied standard population attributable fraction (PAF) methods to **13 risk factors classified as carcinogenic by IARC**, including tobacco (active and passive), alcohol, dietary patterns, excess weight, physical inactivity, UV radiation, infections, occupational exposures, air pollution and others.

The analysis showed that in **2015, 41% of new cancer cases in French adults: 142 000 of 346 000 cases (84 000 in men, 58 000 in women)** were attributable to these modifiable factors. Tobacco alone accounted for about **20% of all cancers**, followed by alcohol (~8%), diet (~5%) and excess weight (~5%), with infections and occupational exposures each adding roughly 4%.

For France, this collaboration delivers **robust, nationally tailored numbers** that underpin widely used messages such as **"4 in 10 cancers are preventable",** and provide a quantitative basis for prioritising tobacco, alcohol, diet and obesity in cancer-control policy. The PAF estimates are now cited in national cancer and nutrition strategies, prevention campaigns and parliamentary discussions, and they serve as a reference for setting targets and monitoring progress. For IARC, the project demonstrates how methods developed in Lyon can be applied in a data-rich setting, refined, and then extended to other European countries, reinforcing France's role as a **reference laboratory for prevention-oriented cancer epidemiology**.
protective measures.

and regional screening centres) test practical levers such as behavioural/lifestyle interventions at the point of screening and **direct home mailing of FIT kits** (e.g. Grand-Est). Findings inform invitation strategies, reminder systems and targeted resource allocation in low-participation areas.

- **Cervical screening and HPV: modernising delivery:** Regional projects (Grand-Est, Nancy, Reims, Occitanie) assess **HPV self-sampling** and **AI-supported decision tools**, generating evidence on feasibility, acceptability and cost-effectiveness that feeds into choices on HPV-based screening and outreach to under-screened women. Complementary behavioural research on **GPs' attitudes to HPV vaccination** pinpoints barriers (including safety/efficacy doubts) and highlights the role of trust in institutional information, directly informing professional training and communication strategies.
- **Overdiagnosis and new screening domains: balancing benefit, harm and cost:** Joint analyses of **thyroid cancer overdiagnosis** and regional variation help separate true risk from diagnostic artefacts, while modelling work explores scenarios for **lung cancer screening**. In thyroid cancer, IARC–France estimates indicate **~€200 million per year** in management costs, with **29–57%** attributable to overdiagnosed cases, making the clinical and economic case for avoiding unnecessary investigations and treatment.
- **Equity as a performance criterion:** Across these strands, projects track **social gradients** in incidence, survival and screening participation, ensuring innovations are judged not only on overall impact but on their ability to **narrow rather than widen** gaps, supporting equity-focused targets in national and regional cancer plans.

➔ 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 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 #4: Nutri-Score: from French–IARC research to a European nutrition label

The Nutri-Score is a front-of-pack label that ranks foods and drinks from **A (higher nutritional quality)** to **E (lower nutritional quality)** using a single nutrient-profiling system (FSAm-NPS). IARC, together with French teams in **EPIC** and national cohorts, has shown that this score is not just a technical label: people whose diets are composed of products with **worse Nutri-Score profiles** have a **higher risk of cancer and of overall mortality**, confirming that the system captures meaningful differences in long-term health.

Building on this evidence, **France officially adopted Nutri-Score in 2017** as its national reference front-of-pack label. It is now widely displayed by major retailers and manufacturers and has been endorsed by several neighbouring countries. IARC considers that Nutri-Score is currently the **front-of-pack scheme with the strongest scientific backing in Europe**, and supports its harmonised use at EU level.

For France, this means that a flagship nutrition and cancer-prevention policy rests directly on **French–IARC epidemiological research**, using French and European cohort data. Nutri-Score now underpins PNNS messaging, guides product reformulation and gives consumers a simple, science-based signal on supermarket shelves that aligns with national and international evidence on diet and cancer.

For the full evidence base and policy implications, see IARC's Evidence Summary Brief on Nutri-Score.

IARC both generates the evidence and translates it into action. Through large research infrastructures such as **EPIC** (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 opportunistic 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)**.

Together, 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. 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 France, as IARC's host country and a key contributor to EPIC, Nutri-Score evidence and cancer-burden modelling, 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

➔ Growing talent and partnerships for impact

Training and knowledge exchange are another cornerstone of the France–IARC partnership. **Between 2021 and 2025, IARC hosted 110 French trainees**, more than for any other Participating State in this period. France has also been **exceptionally well represented in IARC's highly competitive postdoctoral fellowship programme**. Since the mid-1960s, more than **60 French scientists** have been awarded IARC postdoctoral fellowships (from 1966 through 2016), forming one of the largest national contingents in the programme's history. Many of these fellows have gone on to senior roles in French universities, hospitals, research organisations and agencies, and continue to collaborate with IARC, reinforcing the long-term scientific ties between Lyon and the French research community.

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.

> ***"IARC's presence in Lyon creates a two-way 'ecosystem effect': France supports IARC globally, while benefiting from strengthened scientific infrastructure, training pipelines, and policy-relevant research: a significant national advantage."***
>
> **Dr Véronique Chajès**
> **IARC Liaison Officer**
> **For France**

➔ France as a hub for global health and high-level scientific training

As IARC's host country, France functions as the Agency's **scientific and educational home base**. Numerous French grants and philanthropic donations support not only collaborative research, but also the **Nouveau Centre itself, biobanking capacity, and a rich programme of training and outreach**, from Fête de la Science and public lectures to specialised epidemiology and biobanking courses and the Lyon Masters of International Health. Major scientific events such as the **IARC@60 conference** bring researchers, policymakers and practitioners from all over the world to Lyon, further consolidating the city's role as a focal point for global cancer-prevention dialogue.

This hub role is reinforced by **formal collaboration agreements** with Lyon-based partners, including Memoranda of Understanding with the Biosciences/ENS de Lyon–UCBL partnership and with Centre Léon Bérard, a Memorandum of Agreement with the Université Catholique de Lyon's biology and biotechnology school, and a MoU with the Musée des Confluences for communication and public engagement. These agreements anchor shared teaching, student placements, joint projects and public events in the city where IARC is based, ensuring that France's status as host country translates into **shared infrastructure, shared visibility and privileged access to IARC's scientific and training ecosystem**.