IARC Impact in practice series
The China experience

> ***"IARC gives our Chinese partners access to global research, moving from nationally focused work to being part of major international consortia and publishing with collaborators worldwide."***
> **Dr Partha Basu, IARC Liaison Officer for China**

Since becoming an IARC Participating State in **2021**, China has used IARC as a strategic lever to connect national priorities to **global cancer science**, pairing China's world-scale data and infrastructure with **independent international standards**. In practice, collaboration is often driven through leading institutions, but IARC's distinctive value is two-fold: it gives Chinese teams **direct exposure to global consortia and co-publication networks**, and it generates evidence that is **designed to inform policy**, with outputs that feed into national decision-making, including at Ministry level.

Why IARC membership made the difference for China:

- **Scientific leadership and global integration:** Over the past decade, Chinese researchers produced 306 oncology publications co-authored with IARC, typically in large consortia (median 28.5 institutions per paper), spanning 2,192 institutions across 181 countries. Outputs concentrate in data-intensive fields where international scale matters: genomics (GWAS), HPV/cervical prevention, screening/early detection, and infection-related cancers including H. pylori.
- **Evidence used in policy and regulation:** IARC outputs are cited in public-sector documents in China and Hong Kong SAR (including the Centre for Health Protection and environmental authorities) to benchmark burden, inform prevention debates, and support risk assessment. A concrete national outcome is the integration of tumour pathological classification at diagnosis into national public-hospital performance evaluation standards, linking data quality to accountability.
- **Global infrastructures and China co-investment:** IARC connects Chinese biobanks and cohorts to shared protocols and pooled analyses, notably through the Chinese Center for Disease Control and Prevention (CCDC) and infection-related cancer platforms. Several flagship collaborations are China-funded, signalling national ownership and sustainability.
- **Capacity and standards leadership:** China is IARC's largest source of talent: 38 IARC fellows since 1980 and 27 trainees (2021–2025). Chinese experts also contribute directly to global standards, with 14 contributions to IARC Monographs/Handbooks and WHO tumour classifications (2020–2025).

Part I. Scientific leadership through international collaboration

Exceptional intensity and depth of collaboration

China's partnership with IARC is a high-integration collaboration that plugs Chinese institutions into large, coordinated, multi-country cancer epidemiology, exactly the kind of architecture needed for questions that demand scale, standardisation, and global comparability.

The publication footprint captures that difference in one line: **306 oncology publications co-authored with IARC** in the last decade[1]. The real story, however, is the depth of the collaboration. **IARC-linked papers involve a median of 28.5 institutions per publication**, compared with **essentially single-institution publishing (median: 1) in the non-IARC baseline**, a stark indicator that IARC is the platform through which China's research becomes truly multinational and networked.

Cancer in China: a high-burden profile shaped by prevention and early detection opportunities

Based on GLOBOCAN 2022 estimates, cancer is a major public health challenge in China, with **around 4.82 million new cases** and **2.57 million deaths** in 2022. Incidence reflects rapid population ageing and changing risk-factor exposure, alongside a persistent burden from infection-related cancers. The leading cancer is **lung** (about **1.06 million cases** and **733,000 deaths**), followed by **colorectal**, **thyroid**, **liver**, and **stomach** cancers, highlighting both lifestyle and infectious drivers. While China's health system has made major progress, the scale of avoidable mortality underlines strong scope for further action on **tobacco control**, **infection prevention and treatment** (notably hepatitis and *H. pylori*), and **more targeted, evidence-based early detection**.

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

In total, China–IARC co-authored work spans **2,192 unique institutions across 181 countries**, connecting Chinese teams to a global research network that would be difficult to assemble through domestic mechanisms alone.

Web of Science micro-topic analysis shows that China–IARC outputs are strongly concentrated in high-impact, data-intensive areas, led by:

- **Genome-wide association studies (GWAS)** and genomic susceptibility research;
- **HPV and cervical cancer prevention**;
- **Screening disparities** and early detection;
- **Genetic testing** and molecular diagnostics
- **Head and neck cancer** and **nutrition/obesity**;
- **Treatment-relevant translational topics**, including **non-small-cell lung cancer (NSCLC) treatments** and **breast cancer imaging**;
- **Cancer types and pathways of particular relevance to China's burden**, including ***H.pylori*** and **oesophageal cancer**;
- **Metabolic and lifestyle risk mechanisms**, including **folate metabolism**, **smoking cessation**, **metabolic syndrome**, and **gut microbiota**.

> ***Before China, our biggest scale reference point was the EPIC cohort. With China, you scale it up by a factor of 10. That gives us real expertise in how to scale protocols.***
>
> **Dr Zisis Kozlakidis**
> **IARC Liaison Officer for China**

➔ Leadership in global research infrastructure

Through IARC, Chinese institutions participate in - and help shape - major international research infrastructures that generate evidence used in cancer prevention, screening, and risk assessment. These collaborations embed China's cohorts, biobanks and programmes in **multi-country platforms with shared protocols and pooled analyses**, a level of coordination that is hard to achieve through domestic mechanisms alone. Examples from the past decade include:

- **Global biobank and cohort architectures:** Partnerships with the **Chinese Center for Disease Control and Prevention (CCDC)** and the planned **national population biobank near Beijing** bring IARC's standards and governance frameworks into China's flagship biobanking efforts, making data "global-ready" and feeding efficiently into international consortia (see Box #2).
- **Infection-related cancer platforms:** The **China Kadoorie Biobank case-cohort study** and **ENIGMA-Lanzhou** plug Chinese data into pooled international analyses on gastric and oesophageal cancers. ENIGMA-Lanzhou fieldwork is **funded locally by The First Hospital of Lanzhou University**, signalling strong national ownership (see Box #3).
- **Real-world screening science built for scale:** China-based studies, such as **cervical "screen-and-treat"** in rural Inner Mongolia (supported by the **China Medical Board**) and multi-centre breast screening cohorts, use harmonised protocols and economic evaluation so results can inform not only national choices but also international guidance on what works, for whom, and at what cost.
- **Next-generation prevention and early detection:** Newer collaborations highlighted by Chinese partners include work on **single-dose HPV vaccination and impact evaluation**, **AI-enabled cervical neoplasia detection**, and **colorectal cancer screening**, areas where international benchmarking and shared methods are essential.
- **Cross-disease methods and platforms:** China also funds participation in large international

Box #2: China-scale biobanks built to global standards

China is investing heavily in population biobanking. The policy challenge is turning that scale into **trusted, decision-ready evidence**, which depends on standards, governance, and long-term sustainability as much as on samples. Through IARC, China's flagship biobank initiatives are being designed from the outset to **connect to global infrastructures**:

- **Chinese Center for Disease Control and Prevention (CCDC):** working with IARC on the practical foundations - sample handling, data standards and protocols - so biobank outputs meet international quality and interoperability expectations.
- **Next-generation national biobank near Beijing:** conceived on a UK Biobank–style model, drawing on IARC experience in governance, ethics, and long-term sustainability for large cohorts.
- **Global-ready by design:** shared standards mean China's biobank data can be used immediately in pooled international analyses, accelerating risk stratification, smarter screening, and precision prevention, rather than being retrofitted later to "fit" global comparability requirements.

cohorts beyond cancer endpoints, for example, Beijing Tsinghua Changgung Hospital supports European Prospective Investigation into Cancer and Nutrition – Cardiovascular Disease (EPIC-CVD) study, showing how IARC-linked infrastructures support broader chronic-disease analytics and methods.

➔ Shaping the global cancer research agenda and standards

Chinese experts and diplomats help steer IARC's strategic direction. Through seats on the **Scientific Council and Governing Council**, and active involvement in developing the Medium-Term Strategy (MTS), China 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, China 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.

China 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, **14 Chinese experts** have contributed to the IARC's flagship evaluations, including:

- **IARC Monographs Volume 131:** *Cobalt, antimony compounds, and weapons-grade tungsten alloy*
- **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 Handbooks of Cancer Prevention Volume 18:** *Cervical cancer screening*
- **World Health Organization Classification of Tumours (Blue Books) 5th and 6th editions:** Editorial board and expert contributions supporting international standards for tumour pathology classification, diagnostic criteria, and reporting systems across multiple organ systems.

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

➔ Evidence that informs national regulation and prevention policy

In China, IARC evidence shows up in the documents that **shape rules, standards, and investment decisions**, from cancer situation reports to environmental risk reviews. An Overton analysis of Chinese public-sector documents (2005-2026) shows IARC-led work cited by the **Government of China**, the **Government of Hong Kong SAR**, the **Centre for Health Protection (Department of Health, Hong Kong)** and the **Environmental Protection Department**. In these materials, IARC outputs are used to:

- **Benchmark cancer burden and track progress:** GLOBOCAN figures are cited

Box #3: Targeting *H. pylori* to cut gastric cancer: China at the centre of global prevention

China carries a large share of the world's gastric and oesophageal cancer burden. That makes it the make-or-break country for global progress. IARC partnerships on *Helicobacter pylori* and upper gastrointestinal cancers place China inside an international platform designed to answer two policy questions fast: **who is at highest risk, and what prevention strategy delivers the biggest return:**

- **ENIGMA–Lanzhou (Gansu Province):** hospitals in high- and low-risk counties use standardised IARC protocols to measure *H. pylori* infection and precancerous gastric changes, so China's results are directly comparable with other countries in the ENIGMA network.
- **China Kadoorie Biobank case-cohort study:** a large, prospective design uses IARC multiplex serology to quantify 15 *H. pylori* antigens (and other infections) and link them to lifestyle factors and outcomes, producing robust **relative and attributable risk** estimates for gastric cancer subtypes and oesophageal cancers.
- **Future-risk forecasting strengthens the policy case:** IARC modelling suggests global gastric cancer cases could rise by **~60–70% by 2040** if current trends continue, with China already accounting for **roughly four in ten cases worldwide**, making *H. pylori* control, alongside salt reduction and other lifestyle policies, central to changing the global trajectory.
- **From evidence to action:** because methods and analyses are harmonised, findings feed straight into policy options: **test-and-treat strategies, risk-stratified screening, and targeted prevention**.

These collaborations give China the evidence needed to design high-impact *H. pylori* interventions that prevent disease and reduce costs, while also shaping global guidance that reflects Chinese data and experience.

alongside registry data in official cancer reporting to identify priority cancers and monitor trends over time (see next section).

> *China already has an integrated system and a flood of data. IARC's role is to help turn that scale into policy-relevant evidence so the data actually informs decisions in a meaningful way.*
>
> Dr Zisis Kozlakidis
> IARC Liaison Officer for China

- **Strengthen prevention and screening choices:** Government-linked articles in the *Hong Kong Medical Journal* draw on IARC comparative analyses of breast-cancer mortality and IARC–China HPV prevalence studies (e.g., Shanxi) to benchmark outcomes and support stronger breast-cancer early detection and cervical cancer prevention (including HPV-based screening and vaccination).
- **Support environmental and occupational safeguards:** Technical reviews, including the Environmental Protection Department's *Review of Health Risks Associated with Emission of Dioxins* and a national nuclear safety document, use IARC-linked cohort evidence on dioxin exposure and nuclear-industry workers to quantify cancer risks and justify emission controls and occupational dose standards.
- **Deliver a concrete governance shift:** Improved cancer registry quality and internationally aligned classification standards, supported through IARC collaboration, contributed to tumour pathological classification at diagnosis being incorporated into **National Performance Evaluation Standards for Public Hospitals**, turning better data into accountability and enabling stronger survival analysis and planning.

➔ Setting national priorities through surveillance and economic evidence

> *Most of what we do is directly linked to cancer-control policy, the evidence we generate is designed to be used nationally.*
>
> Dr Partha Basu
> IARC Liaison Officer for China

In China, IARC's most visible policy impact happens **before programmes start**: it strengthens the evidence ministries and provinces use to decide **what matters most, where to invest, and how to measure progress**:

- **Burden benchmarking for planning:** IARC's **GLOBOCAN** series - comparable incidence and mortality estimates for **36 cancers in 185 countries** - is used as a reference in official public-sector reporting in the region, including the **Centre for Health Protection (Hong Kong SAR)**. By combining GLOBOCAN with local registry data, these reports benchmark trends internationally and sharpen priorities for prevention and early detection (notably lung, colorectal, breast and pancreatic cancer). This reflects IARC's China case example on cancer registration: stronger population-based registries are used not only to count cases, but to **set priorities, target action, and track results** in cancer control.
- **Health and economic case for action:** IARC's BRICS analysis estimated **US$46.3 billion** in productivity losses from premature cancer deaths in 2012, with **around US$28 billion in China alone**, a clear economic argument for prevention and earlier diagnosis that resonates beyond the health sector.
- **Identifying preventable deaths.** A seven-country analysis including China showed that **tobacco, alcohol, excess body weight and HPV** account for roughly **2 million preventable cancer deaths** and **over 30 million years of life lost** each year. China has the highest years-of-life-lost rates from tobacco- and alcohol-attributable cancers among the seven, pinpointing where the biggest avoidable losses, and the biggest returns on policy, lie.

Box #4: Curbing thyroid cancer overdiagnosis: protecting patients and budgets

China has seen one of the world's sharpest increases in **thyroid cancer diagnoses**, yet **mortality has remained flat**: a red-flag pattern that points to **overdiagnosis**, not a true surge in lethal disease. An IARC-led study with Chinese partners mapped this across regions using population-based cancer registry data.

- **A clear policy signal:** incidence varies dramatically between provinces, but deaths do not, consistent with intensive ultrasound use detecting large numbers of very small, low-risk tumours.
- **Avoidable harm:** the pattern is driven in part by **papillary microcarcinomas**, many of which are unlikely to ever cause symptoms, but can still trigger biopsies, surgery, lifelong medication and complications.
- **Actionable course correction:** the study spports tightening practice and regulation, discouraging routine ultrasound screening in low-risk, asymptomatic people and strengthening indications for biopsy and surgery.

For policymakers, this is an "early warning system" for low-value care. Acting on it can reduce unnecessary procedures and patient harm, and free capacity and budgets for cancers where targeted prevention, earlier diagnosis and treatment deliver real survival gains.

Part III. Building capacity for lasting impact

➔ Stronger data for better decisions

IARC leads the **Global Initiative for Cancer Registry Development (GICR)**, a coordinated effort with international partners to help countries establish and strengthen population-based cancer registries. China is served through the **Regional Hub in Mumbai**, which coordinates technical assistance, tools, and training for cancer registries across East, South-East, and South Asia. Within this framework, the **National Central Cancer Registry of China (NCCR)** at the National Cancer Center serves as an **IARC GICR Collaborating Centre**, providing guidance and training to a nationwide network of registries. Since its implementation in 2002, the NCCR helped expand population-based registries from **around 50 in 2008 to more than 570 by 2018**, covering an estimated **438 million people (about one-third of China's population)**.

This expansion, supported by IARC/GICR tools and standards has made cancer registration a **core decision instrument** in China: registry data are used to set priorities, monitor urban-rural inequalities, and evaluate major initiatives such as tobacco control and early detection.

➔ Talent pipeline and China-owned capacity building

Training and knowledge exchange are a central pillar of the China–IARC relationship. Since **1980**, **38 Chinese scientists** have been awarded highly competitive IARC fellowships - the highest number from any country - creating a deep pool of alumni with first-hand experience of IARC methods and international infrastructures. This is matched by a strong student pipeline: **27 trainees** from Chinese institutions completed short- and medium-term research attachments during the **2021–2025** cycle, making China the single largest source country for IARC students.

> *"Shanghai Jiao Tong funds Masters, PhD and postdoctoral researchers to be embedded in IARC projects. It's been exceptionally productive: around 10-15 joint papers in just three years, including publications in top-tier journals."*
>
> Dr Zisis Kozlakidis
> IARC Liaison Officer
> for China

China is also moving from ad hoc training to **institutionalised knowledge transfer**. The **IARC–NCC China Learning Centre**, formalised by MoU in **May 2023** and **funded and sustained by the National Cancer Center of China**, is designed to serve **national and provincial cancer centres, CDCs, and academia**, while functioning as a regional hub for the **Asia-Pacific/South–South** exchange. It delivers IARC Summer School modules in China, co-develops new learning resources, and runs "train-the-trainer" courses linked to initiatives such as **GICR**, **CanScreen5**, and primary prevention programmes. The Centre's second course, *Introduction to Cancer Epidemiology*, was successfully held in **2025** in Beijing in a blended format. These efforts are reinforced by practical standards networks such as **BCNet (Biobank and Cohort Building Network)**. In **2024–2025**, BCNet delivered **34 workshops and presentations**, including in China, helping align biobanking practice with international quality and interoperability expectations.

This people-to-people pipeline is anchored by institutional agreements that sustain cooperation beyond individual projects: an MoU with the **China National Cancer Centre** (**2017–2020**), an MoA with the **NCCR/National Cancer Center** (**2017–2021**), and an MoU with the **China National GeneBank** (**2020–2026**).

This China engagement sits within IARC's wider training ecosystem (fellowships, Summer School, Learning Platform and global networks), which shows strong global returns: in a **2024 outcome survey**, **98%** of postdoctoral respondents reported transferable skills, **72%** maintained research ties with IARC, and over half moved into leadership roles (**53%**) or managed independent 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.

> *"In China, the collaboration is driven strongly at the institutional level, that's where the partnerships are really active and sustained."*
>
> Dr Partha Basu
> IARC Liaison Officer
> for China

➔ Regional networks that multiply impact

China is also helping extend IARC's reach across the region through collaborative platforms. The **China–ASEAN Cancer Prevention and Control Training Programme**, jointly organised by the Cancer Hospital (Chinese Academy of Medical Sciences) and IARC, has trained dozens of mid-career professionals from China and **11 ASEAN countries** through blended delivery. Beyond training, the partnership is increasingly amplified through regional networks such as **ANCCA (Asian National Cancer Center Alliance)**, where China plays a convening role and IARC supports agenda-setting, governance approaches, and capacity building. Together, these mechanisms strengthen alignment with **WHO frameworks** on surveillance, prevention, and health-system strengthening, helping ensure that evidence, standards, and trained leadership translate into lasting cancer control capacity.