International Agency for Research on Cancer

World Health Organization

Governing Council
Sixty-Sixth Session

Lyon, 15–16 May 2024
Hybrid format

GC/66/8
21 February 2024

EVALUABILITY ASSESSMENT OF THE IARC MEDIUM-TERM STRATEGY (MTS) 2021–2025 AND ITS WORKING GROUP MEMBERSHIP

Quote from WHO Director-General Dr Tedros Adhanom Ghebreyesus:

"We must be able to measure progress to make progress. (…)
Reliable data is the best way to coordinate response efforts and improve health in all areas."

Table of Contents

1. Introduction

1.1 Ambition of the MTS 2021–2025

In May 2021, the Governing Council (GC) of IARC/WHO adopted the Medium-Term Strategy (MTS) for 2021–2025 (Resolution GC/63/R4). The vision of the MTS 2021–2025 is to contribute to a world where fewer people develop cancer. This MTS provides guidance on IARC's priorities over five years, with a view to ensuring that the Agency's activities have a significant and sustainable impact on the global burden of cancer and, ultimately, on the lives and health of the world's citizens.

The MTS 2021–2025 develops IARC's strategic priorities, focusing on four fundamental priorities for cancer prevention research: Data for Action (to describe the occurrence of cancer), Understanding the Causes (to identify cancer risk factors), From Understanding to Prevention (to effectively implement cancer preventive strategies), and Knowledge Mobilization (to evaluate and disseminate knowledge about cancer research). The MTS also specifies an IARC investment into three emerging priorities: Evolving Cancer Risk Factors and Populations in Transition, Implementation Research, and Economic and Societal Impacts of Cancer.

The action plan of the MTS 2021–2025 aims to consolidate IARC's position as the leading global authority in cancer prevention research, as the global hub for open science in cancer prevention, and as a recognized United Nations (UN) agency for capacity-building and public health impact. This MTS 2021–2025 translates into the IARC Project Tree, which organizes the Agency's activities according to projects and their related budget and ensures proper management of the project portfolio. The four fundamental research priorities are represented by the four IARC scientific Pillars and they correspond to the value chain of research for cancer prevention.

1.2 Request for the evaluation of the MTS 2021–2025

In May 2021, the GC requested the Secretariat to evaluate the MTS 2021–2025 (Resolution GC/63/R4). The evaluation of the MTS consists of the systematic and objective assessment of IARC's strategic programme for 2021–2025: its design, implementation, and results. The aim of this evaluation is to determine the relevance and the fulfilment of the objectives, as well as the efficiency, effectiveness, and impact of IARC's activities.

The methodology, the evaluation framework and the Key Performance Indicators (KPIs) to assess progress in the implementation of the MTS were approved by the GC in May 2022 (Resolution GC/64/R12). This evaluation of the MTS implementation is complementary to the scientific reviews of individual Branches, which take place every five years through a peer-review process.

The research activities of the Agency are also evaluated through additional procedures that differ in scope and time interval, providing considerable flexibility and breadth in terms of review. These include annual reporting to the GC by the Director on a standard set of KPIs, annual reviews by the Scientific Council (SC) of selected topics, and peer-review of scientific publications and grant applications.

The evaluation of the MTS will provide reliable and useful information which will serve as a basis for IARC to adapt its decisions and to share lessons for the formulation of the next MTS.

1.3 Workplan and process for the evaluation of the MTS 2021–2025

In accordance with the request of the GC, the Secretariat will prepare a report on progress of the implementation of the MTS 2021–2025, including quantitative data on the KPIs of the MTS implementation and a series of case studies illustrating the main achievements for each of the MTS priorities.

This methodology and the content of this evaluation will follow the principles of the evaluation framework of the MTS 2021–2025 and its KPIs, as described in GC/64/13 approved by the GC. The process of the MTS evaluation framework relies on the theory of change and the UN results-based management methodology. It is built according to the "IOOI" model to better consider the impact pathway with the causal linkage between "Inputs, Outputs, Outcomes, and Impacts".

A dedicated Working Group (WG) will review the draft report on the evaluation of the MTS 2021–2025 and provide its recommendations to the SC in February 2025 and to the GC in May 2025.

With respect to this evaluation of the MTS 2021–2025, the IARC Secretariat proposes the following process:

- Establish a Joint SC/GC MTS WG including representation from WHO HQ (WHO Evaluation Office), through adoption of a resolution at the 66th session of the GC in May 2024. At the sixty session of the SC in February 2024, **the SC nominated Pål Richard Romundstad and Luis Felipe Ribeiro Pinto to be part of the Working Group** to prepare the MTS 2021–2025 evaluation. The GC is kindly requested to nominate two of its members to be part of the Joint SC/GC & WHO/HQ MTS Working Group for the evaluation of the MTS 2021–2025. The MTS evaluation WG will meet remotely during 2024–2025.
- Prepare the evaluation with a bibliometric study and a document analysis, including: IARC MTS 2021–2025, MTS evaluation framework and KPIs, Report on the evaluability assessment of the MTS (current document), Director's annual reports, Biennial reports, Reports of the Scientific Councils, Scientific reviews of the Branches, Biennial Reports on publications, Financial Reports, IARC Programme & Budgets, External Engagement and Resource Mobilization Strategy, Communication Strategy, and any other relevant documents.
- Conduct an internal consultation with all Branches of IARC and the Senior Advisory Team (SAT) and an external consultation with the governance and the main stakeholders of IARC.

Parts of this analysis and consultation process may be outsourced.

1.4 Timeline for the evaluation of the MTS 2021-2025

The evaluation of the MTS 2021–2025 is a five-year process, taking place over the whole duration of the MTS implementation.

In 2021 following the approval of the MTS, the evaluation framework and KPIs were defined. This significant achievement was made possible through to the contribution input of the WG on the draft report "Evaluation Framework of the IARC Medium-Term Strategy (MTS) 2021–2025 and its Key Performance Indicators (KPIs). This document was submitted for discussion to the SC in February 2022 and for approval to the GC in May 2022.

In 2023, an evaluability assessment was performed to determine the readiness of the MTS for the evaluation and to prepare the MTS evaluation to be conducted in 2024. The findings of this evaluability assessment are presented in this document for deliberation by the SC in February 2024. The data and KPIs of the evaluability assessment also present a short mid-term overview of the implementation of the MTS 2021–2025.

The **detailed planning** for 2024–2026 presents the different steps of the MTS evaluation and their articulation with the definition of the MTS 2026–2030, as well as the preparation of the Programme and Budget 2026–2027. This timeline for the MTS evaluation indicates that:

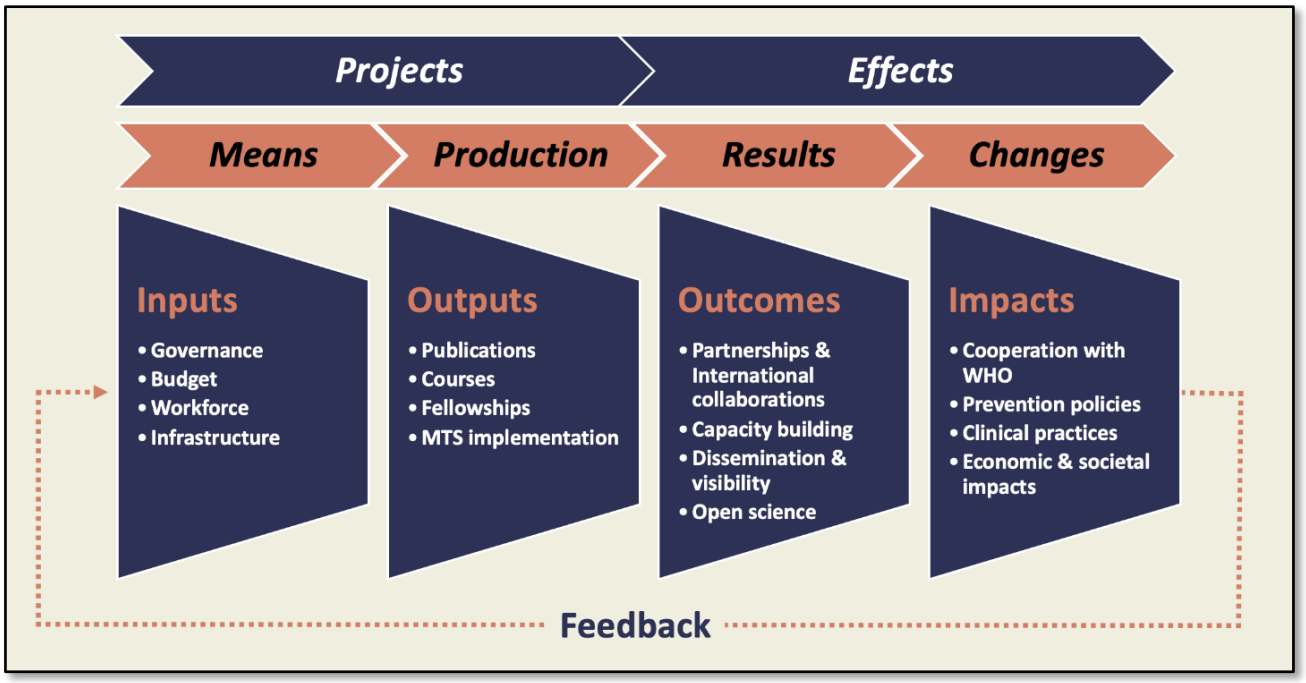
- In 2024, the evaluation of the MTS 2021–2025 will be conducted the Secretariat with the WG, and its conclusions will feed into the development of the MTS 2026–2030 to be defined the following year. The members of this MTS evaluation WG will be determined by the SC and the GC. The main deadlines for 2024 are reported below:
    - January–March 2024: the document analysis and the stakeholders survey will be conducted by the Secretariat,
    - March–May 2024: interviews and workshops will be organized to gather the elements required for the MTS evaluation,
    - July 2024: the Secretariat will circulate the draft "Evaluation Report of IARC Medium-Term Strategy for 2021–2025" document for consideration by the WG,
    - September 2024: the Secretariat will circulate a second draft of the Evaluation Report. The document will take into consideration the contribution of the WG, and will integrate the final remarks,
    - November 2024: the Secretariat will share the draft Evaluation Report with the members of the SC, for discussion during the SC session in February 2025.
- In 2025, the draft "Evaluation Report of IARC Medium-Term Strategy for 2021–2025" will be submitted for discussion to the SC in February 2025 and for approval to the GC in May 2025.

1.5 Evaluability assessment of the MTS 2021–2025

An evaluability assessment is an important step in the evaluation process, as it clarifies intervention goals and how they are expected to be achieved, to identify existing data sources within the Agency and their robustness. It also advises on further work to be completed by the Secretariat for the MTS evaluation. It defines how this evaluation process can be carried out with a reasonable investment.

This evaluability assessment of IARC's MTS 2021–2025 serves to test all the KPIs of the MTS evaluation framework to confirm their relevance and their deployability, in order to prepare the MTS evaluation to be run in 2024. The MTS evaluation framework contains quantitative or qualitative variables that provide a comprehensive approach to measure the implementation of the MTS 2021–2025. Although the document has been produced by the Director's office, it could not have been prepared without the contributions of the personnel of Services to Science and Research (SSR) and all the IARC Branches.

Each category of KPIs refers to the main ambitions of the MTS 2021–2025 to address the global cancer burden. It also mentions the main sources for the targeted KPIs. Therefore, the MTS evaluability assessment covers the four categories of KPIs defined in the MTS evaluation framework, as summarised below, on inputs, outputs, outcomes and impacts.



Source: Evaluation Framework of the IARC Medium-Term Strategy 2021–2025 and its Key Performance Indicators.

2. Key performance indicators on the MTS inputs

The first category of KPIs to assess the implementation of the MTS 2021–2025 focuses on the inputs, which can be defined as human, financial, technological and information resources used to achieve results. In the context of IARC's MTS, these inputs concern the **governance, the budget, the workforce, and the infrastructure of the Agency**.

2.1 Governance

INPUTS: Governance		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source:**
➢ Recruitment of new Participating States	❑ Integration of new Participating States	DIR Office, SSR

The recruitment of new Participating States (PS) was defined as the number one indicator by the WG dedicated to the Evaluation Framework of the IARC MTS 2021–2025 and its KPIs. The WG members consider the integration of new PS as the main priority to consolidate the governance of IARC and to provide long term resources for the Agency to better implement its mission. The Table below shows the evolution of IARC's PS number since 2010 (MTS 2010–2015 as a baseline):

Number and evolution of the number of IARC's Participating States			
MTS periods	**Year**	**Number of Participating States**	**Evolution**
MTS 2010–2015	**2010**	**21**	**-**
	2011	**22**	**+1**
	2012	**22**	**-**
	2013	**24**	**+2**
	2014	**24**	**-**
	2015	**25**	**+1**
MTS 2016–2020	**2016**	**25**	**-**
	2017	**25**	**-**
	2018	**26**	**+1**
	2019	**27**	**+1**
	2020	**26**	**-1**
MTS 2021–2025	**2021**	**27**	**+1**
	2022	**27**	**-**
	2023	**27**	**-**

Source: IARC/WHO, DIR Office & SSR, October 2023

With the entry of China in May 2021, IARC has currently 27 PS. On average, during the last 2 MTS periods, IARC has integrated one new PS every 2 years, taking into consideration the departure of Turkey in 2019. PS are classified into five groups according to the WHO scale of assessment. All countries from Groups 1, 2 & 3 are now part of IARC. Any new PS will come from Groups 4 or 5. Of the 16 countries in Group 4, 8 are already PS.

Currently, the 10 potential additional PS are: Kingdom of Saudi Arabia, Portugal, Israel, Egypt, Kazakhstan, New Zealand, Mexico, Poland, Kuwait, United Arab Emirates. Kingdom of Saudi Arabia will join IARC as a new PS in May 2024.

2.2 Budget

INPUTS: Budget		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source**
➢ Budget increase: 25% in 10 years ➢ Diversification of resources ➢ Increase of extrabudgetary funds ➢ Innovative resource mobilization	❑ Evolution of total and regular budget ❑ Number and evolution of funders ❑ Resource mobilization and fundraising (case study)	DIR Office, SSR (BFO, RMO)

IARC's budget relies on two sources of revenue: the Regular Budget (RB) funded by the PS and Voluntary Contributions (VC). The VC consists mainly of competitive grants, direct contributions, and donations. In addition to these VC figures, the Extrabudgetary (EB) also integrates private individual donations and some additional resources.

The Table below shows the evolution of IARC's RB in million Euros (€), per year and per biennial budget since 2016. The biennial budget 2020–2021 covers two different MTS periods.

Evolution of IARC's regular budget in million € since 2016								
Biennial	**2016–2017**		**2018–2019**		**2020–2021**		**2022–2023**	
RB in M€	**€43.42**		**€44.15**		**€44.15**		**€45.37**	
Year	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
RB in M€	**€21.36**	**€22.06**	**€21.91**	**€22.24**	**€21.87**	**€22.28**	**€22.41**	**€22.96**

Source: IARC/WHO, SSR (BFO), October 2023

IARC's RB has increased by +4,5% in total since the biennial budget 2016–2017, which corresponds to +0,55% per year on average. The RB does not cover the cost of IARC's annual salary increase, which is about +2% per year for GS and P staff. Nor does it cover the inflation rate in France which has increased to over +11% during the same period (2016–2022). As a result, according to INSEE standards, IARC has lost 7% purchasing power since 2016.

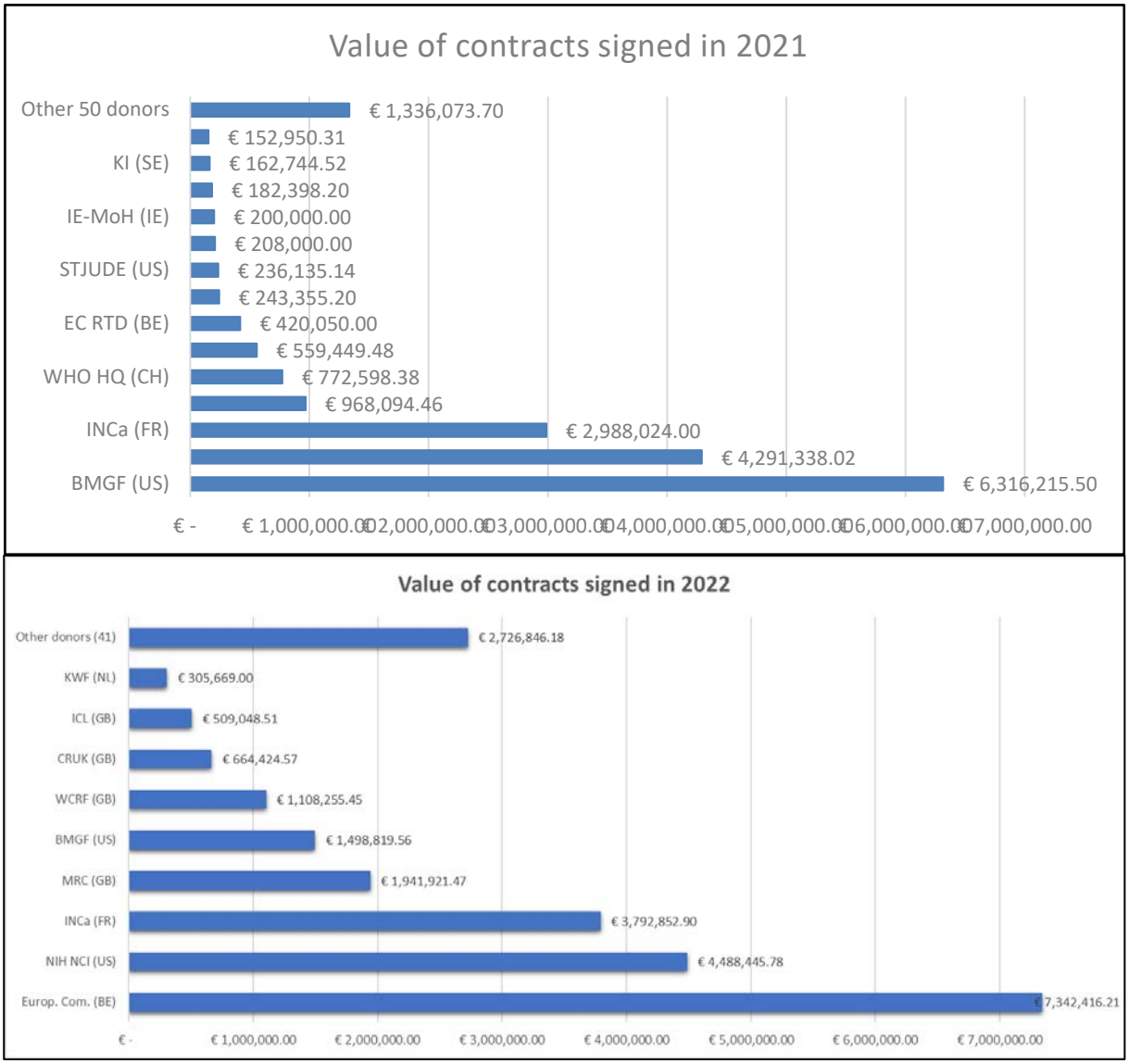
The Table below shows the evolution of IARC's VC (grants and contracts) since 2016, coming mainly from competitive grants, whether IARC is coordinating the programme or not.

Evolution of IARC's grants and contracts in million € since 2017				
Year	Number of applications	Number of signed contracts	Total value of signed contracts in million €	Value attributed to IARC in million €
2016	183	65	€28.31	€10.24
2017	193	65	€38.93	€11.86
2018	204	68	€20.99	€9.18
2019	236	81	€41.49	€12.41
2020	236	94	€20.07	€12.34
2021	245	101	€36.18	€19.04
2022	203	123	€70.34	€24.38

Source: IARC/WHO, SSR (RMO), October 2023

The amount of VC to IARC has increased by +238% since 2016. The year 2022 representants an exceptional performance with €24.38 million. The projections for 2023 are around €15 million (final data not yet available). This evolution of VC with respect to a rather static RB raises several questions for IARC, such as the ratio RB / EB, the impact of funder priorities, the financial and administrative costs of grants, and the process of recruitments for IARC.

The following Tables show the distribution of VC in 2021 and 2022, according to the main funders of the Agency.



Source: IARC/WHO, SSR (RMO), October 2023

IARC signed contracts with 63 funders in 2021 (for €19.03 million) and 62 in 2022 (for €24.38 million). The number of funders remains relatively stable over the years, and it does not really impact the volume of grants. The top seven funders of IARC/WHO represent 85% of the total amount of grants signed in 2021 and 2022. This concentration of funders generates more efficiency, but it may also expose IARC to potential risks and constraints. It leads to a higher dependency on the Funder priority and financial exposure in case of loss of a major funder.

Case study on Resource mobilization and fundraising
For the evaluation of the MTS 2021–2025, the Secretariat will prepare a case study on resource mobilization and fundraising. This will enable the presentation of the number and outcomes of grant applications, as well as the distribution of funding of Voluntary Contributions per Branch. It will also provide an overview of the success rates of IARC's grant applications (by funder and at Branch level), with a benchmark on the average success rates per calls for the key funders of the Agency, as well as the % of indirect costs for the main funders on grants.

2.3 Workforce

INPUTS: workforce		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source**
➢ Attraction and building of talent ➢ Well-balanced geographical representation ➢ Equal treatment of all personnel regardless of race, gender, disability, religion or belief, sexual orientation, and age	❑ Gender balance at management level (Branch Heads and Deputy Branch Heads) ❑ Geographical diversity across the Agency and at management level	SSR (HRO)

The Table below shows the evolution of IARC's personnel since 2021, presenting the figures in March for each year. It also details the number of Professional staff (P), General Service staff (GS and Early Career and Visiting Scientists (ECVS), for each Branch.

Evolution of the workforce of IARC according to Branches and categories of personnel in 2021-2023												
Year	**2021 (March)**				**2022 (March)**				**2023 (March)**			
Cat.	**P Staff**	**GS staff**	**ECVS**	**Total**	**P Staff**	**GS staff**	**ECVS**	**Total**	**P Staff**	**GS staff**	**ECVS**	**Total**
CSU	10	9	14	**33**	10	10	20	**40**	8	10	19	**37**
GEM	9	11	16	**36**	10	11	16	**37**	12	11	18	**41**
NME	16	22	22	**60**	12	21	34	**67**	10	19	37	**66**
ENV	8	6	15	**29**	6	6	19	**31**	7	5	17	**29**
EGM	5	6	14	**25**	6	8	16	**30**	6	8	9	**23**
EPR	16	12	25	**53**	13	9	29	**51**	13	9	21	**43**
ESC	10	7	5	**22**	9	9	9	**27**	12	11	6	**29**
LCB	1	4	0	**5**	1	4	0	**5**	1	4	1	**6**
SSR	14	36	2	**52**	15	35	2	**52**	16	36	3	**55**
DIR	10	10	2	**22**	5	5	2	**12**	5	4	1	**10**
Total	**99**	**123**	**115**	**337**	**87**	**118**	**147**	**352**	**90**	**117**	**132**	**339**

Source: IARC/WHO, SSR (HRO) & LCB, October 2023

Following an increase during the last MTS (from 232 staff in 2016 to 245 in 2020), the number of staff of IARC in 2022 went back down to the level of 2016. In more detail, the number of P-staff in the Branches Genomic Epidemiology (GEM), Epigenomics and Mechanisms (EGM), Evidence Synthesis and Classification (ESC), Services to Science and Research (SSR) has increased, while the number of P-staff in the Branches Cancer Surveillance (CSU), Nutrition and Metabolism (NME), Environment and Lifestyle Epidemiology (ENV), Early Detection, Prevention and Infections (EPR) & the Director's (DIR) office has decreased. The overall number of Early Career & Visiting Scientists (ECVS) tends to increase during the current MTS period, counterbalancing the reduction in the number P-staff.

The following Table presents the evolution in 2021–2023 and the distribution of IARC's personnel by gender and according to management level.

Evolution of IARC's workforce according to gender and position in 2021–2023					
Staff of IARC on fixed term positions (professional and general services)					
	Female		**Male**		**Total**
	Number	**%**	**Number**	**%**	
2021	141	64%	81	36%	**222**
2022	132	64%	73	36%	**205**
2023	139	67%	68	33%	**207**
Management level (Branch Heads and Deputy Branch Heads)					
Female	**Female**		**Male**		**Total**
Number	**Number**	**Number**	**Number**	**Number**	
2021	9	41%	13	59%	**22**
2022	8	40%	12	60%	**20**
2023	8	38%	13	62%	**21**
Executive level (P5 position and above)					
Female	**Female**		**Male**		**Total**
Number	**Number**	**Number**	**Number**	**Number**	
2021	2	18%	9	82%	**11**
2022	1	11%	8	89%	**9**
2023	2	20%	8	80%	**10**

Source: IARC/WHO, SSR (HRO), October 2023

The overall figures on IARC's workforce indicate that the Agency employs a majority of females, representing 67% of the personnel (P-Staff and GS-staff combined), 57% of the P-staff and 74% of GS staff, in 2023. At P4 level, the ten personnel of IARC have an even gender balance (50% females and 50% males). The leaders of the IARC's Research Teams (as defined and detailed in 4.1) are also well balanced in terms of gender (50% women and 50% men). However, in March 2023, at management level (Branch Heads and Deputy Branch Heads), the female employees represent only 38% of the personnel and at executive level (P5 positions and above) only 20%.

The Agency has a large representation in terms of geographical diversity among its staff with 48 nationalities working in the Agency. In March 2023 at executive level (P5 and above), the management consists of ten employees, representing eight different nationalities: India (2), United Kingdom (2), Brazil (1), Croatia (1), France (1), Germany (1), Hungary (1), and Ireland (1). More detailed figures on the geographical diversity across the Agency (staff and ECVS) will be provided for the final evaluation of the MTS 2021–2025.

2.4 Infrastructure

INPUTS: infrastructure		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source**
➢ IARC's new building (Nouveau Centre) in Gerland ➢ Support of the laboratories and biobank's sustainability ➢ Digitalization, open science and data	❑ Nouveau Centre in Gerland – investment and operating costs (case study) ❑ Implementation of the IARC Data Protection Policy	SSR (ASO)

For the infrastructure, the MTS evaluation focuses on IARC's move to its new headquarters (case study) and the implementation of the data protection policy.

- **New Headquarters of IARC in Lyon-Gerland**

Case study on New Headquarters in Lyon-Gerland Investment and operating costs
❑ The construction of the "Nouveau Centre" was officially completed on 28 October 2022, after 27 months of work (excluding preparation) and the collaboration of more than 60 companies. IARC's equipment and furniture have been moved into the new building as planned, including the delicate transfer of the Biobank and its six million biological samples. IARC personnel gradually moved into the new building in January and February 2023. The new headquarters of IARC, were officially inaugurated on 12 May 2023, at the end of the GC/65 Session with more than 500 participants. ❑ Located at 25 avenue Tony Garnier in Lyon's 7th district, the new IARC building is laid out over six floors offering 11 500 m2 in total, which represents an almost 20% increase in capacity compared to the previous premises. It provides attractive offices (5 000 m2), meeting rooms (1 100 m2) and modern laboratories (3 000 m2). It will enable IARC to expand its workforce to at least 500 personnel. It will also contribute to reducing IARC's ecological footprint, thanks to its eco-friendly design. ❑ The total investment supported by the French authorities for the building construction exceeds 60 million Euros (Lyon Métropole €19million, French State €17 million, Auvergne Rhône-Alpes Région €14.2 million, and land provided by Ville de Lyon €13 million). The fund-raising campaign (over €2 million of financial and in-kind donations), the sale of the Grange Blanche buildings (€1.5 million), the GC special funds (€1 million loan) and other funding have enabled IARC to make significant investment in new equipment and furniture. ❑ All elements for the MTS evaluation are available for this case study. However, the operating costs of the new building can only be estimated, as 2023 is a year of transition, with partial activity of the labs and limited data from the building operating system. It will require at least one additional year, to have a more reliable vision of these costs.

Source: IARC/WHO, SSR (ASO), November 2023

- **Data protection policy**

During the MTS period, IARC implemented several steps to solidify its data protection framework and data security measures. In 2021, two external data protection consultants conducted a comprehensive gap and impact analysis and wrote a report containing recommended measures to be taken to further solidify IARC's data protection framework and data security measures. IARC established a comprehensive Register of Records of Data Processing Activities (ROPA) for all scientific and non-scientific data processed at IARC. The Data Protection Policy, focusing on the processing of personal data for scientific purposes, was finalized and published on IARC's public website. IARC worked closely with WHO to review and advise on WHO's Data Protection Policy. The Agency has set up a Data Steward Network, in which appointed Data Stewards from each Branch take part, connecting science, data governance and IT. A Data Protection General Awareness training course was created, which is mandatory for all personnel. IARC established a permanent Data Protection Officer position.

In 2022, IARC continued to develop its data security measures to ensure IARC's data protection framework is in line with internationally recognized standards. The IARC Data Protection Policy was shared with the Agency's collaborators and the mandatory training in Data Protection General Awareness was undertaken by all staff, including newcomers. IARC maintained the established comprehensive Register of Records of Data Processing Activities (ROPA) for all scientific and non-scientific data processed at IARC. The Agency has worked on solutions that enable to share data with the collaborators remotely via the Scientific IT Platform. These solutions have been set up in accordance with internationally recognized standards, the initial pilot phase has been successful.

Lessons to prepare the evaluation of the MTS 2021–2025
➢ *Regarding the KPIs on Governance, there are no comments for the preparation of the MTS 2021–2025 evaluation as all information on the Participating States of IARC are available.* ➢ *Regarding the KPIs on budget, the data required are accessible for the MTS evaluation. A detailed case study will be prepared on "resource mobilization and fundraising".* ➢ *Regarding the KPIs on the workforce, the data required in the MTS evaluation framework are available. The figures about the geographical diversity across the Agency require some extra processing.* ➢ *Regarding the KPIs on infrastructure, information on the case study for the Nouveau Centre are accessible, apart from the operating costs which require more time to have reliable data.*

3. Key performance indicators on the MTS outputs

The second category of KPIs for the evaluation of the MTS 2021–2025 are outputs, referring to the direct production of the Agency. The MTS outputs deal with the scientific publications, learning events and courses, training and fellowships, as well as the modalities of the MTS implementation.

3.1 Publications

OUTPUTS: publications		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source**
➢ Promotion of scientific excellence in cancer prevention ➢ Collaborations between disciplines ➢ Implementation research	❑ Number and evolution of publications ❑ Number and evolution of publications per scientific staff and ECVS ❑ h-index overall and per Pillar	SSR (PLW)

- **The evolution of IARC's scientific publications**

The Table below presents the evolution of IARC's publications since 2016 with the proportion of peer-reviewed articles per year. Following a regular increase during the former MTS 2016–2020, the annual number of publications has been decreasing since the 2020 record of 470 publications but remained higher than the previous MTS. The proportion of peer-reviewed articles also tends to decrease compared to the results of the former MTS, but this proportion remains very significant with 78% to 80% of all articles.

Number and evolution of the publications of IARC since 2016				
MTS periods	**Year**	**Articles**	**Peer-reviewed articles**	**% of peer-reviewed articles**
MTS 2016–2020	**2016**	**341**	**290**	**85%**
	2017	**352**	**291**	**83%**
	2018	**351**	**284**	**81%**
	2019	**371**	**292**	**78%**
	2020	**470**	**387**	**82%**
MTS 2021–2025	**2021**	**436**	**350**	**80%**
	2022	**406**	**319**	**78%**
	Sept-2023	**229**	**180**	**78%**

Source: IARC- WHO, SSR (PLW), September 2023

- **The scientific productivity of IARC's scientists**

In accordance with the MTS evaluation framework, the number and evolution of publications is presented per Professional staff (P-staff) and ECVS, showing the scientific productivity of the Agency. The Table below shows the evolution of the productivity of the scientific personnel of IARC, for January 2021 to September 2023. The P-staff corresponds to the scientific staff members and the ECVS are mainly doctoral students and post-doctoral scientists.

Scientific productivity of IARC, January 2021 – September 2023							
MTS	**Year**	**Publications**	**P-Staff**	**ECVS**	**Total scientific staff**	**Number of publications per P-staff**	**Number of publications per personnel (P-staff & ECVS)**
MTS 2016–2020	**2016**	**341**	**103**	**99**	**202**	**3.31**	**1.68**
	2017	**352**	**106**	**104**	**210**	**3.32**	**1.67**
	2018	**351**	**102**	**118**	**220**	**3.44**	**1.59**
	2019	**371**	**106**	**109**	**215**	**3.50**	**1.72**
	2020	**470**	**103**	**126**	**229**	**4.56**	**2.05**
MTS 2021–2025	**2021**	**436**	**99**	**113**	**212**	**4.40**	**2.06**
	2022	**406**	**87**	**147**	**234**	**4.67**	**1.74**
	Sept-23	**229**	**90**	**132**	**222**		

Source: IARC/WHO, SSR (PLW, HRO) & LCB, Web of Science™, September 2023

On average 1,9 publications were published on an annual basis for each personnel of IARC (P-staff & ECVS) during the first two years of the MTS period. This ratio goes up to 4,5 publications per year, for each P-Staff. Restricting to scientific P-staff, the annual average number of publications reaches 6,4 publications for each P-Staff in the Branches. These ratios tend to increase compared to the former MTS period, demonstrating an improvement in productivity of IARC scientific personnel. The year 2023 is not taken into consideration, as the information on publications for the whole year 2023 is not yet available.

- **The impact of IARC's scientific publications**

The h-index is a KPI requested by the governance of IARC, to represent the impact for the publications of a scientist or of a group of scientists (corporate h-index). The h-index is "defined as the number of papers with citation number ≥*h*" [1]. For example, an h-index of 17 means that the scientist (or group of scientists) has published at least 17 papers, with each of these papers cited at least 17 times. As a signer of the San Francisco Declaration on Research Assessment (DORA), IARC is well aware of the benefits and the limits of the h-index. Therefore, to complement the h-index, the Agency plans to use some qualitative indicators for the MTS evaluation.

[1] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1283832/

The Table below presents the corporate h-index of IARC for the current and previous MTS periods. IARC's corporate h-index for January 2021–September 2023 is 49 for 1 091 publications. As the h-index is a cumulative indicator, the oldest MTS periods logically have the highest h-indexes. In other words, the h-index KPI is useful to build internal or external comparisons, rather than to follow historical evolutions.

Corporate h-index of IARC for current and previous MTS periods		
Periods	**Total number of publications**	**Corporate h-Index**
MTS 2005–2009 (5 years)	**1 487**	**170**
MTS 2010–2015 (6-years)	**2 037**	**164**
MTS 2016–2020 (5 years)	**1 944**	**136**
Current MTS 2021–2025 (2,5 years)	**1 091**	**49**

Source: IARC/WHO, SSR (PLW), September 2023

3.2 Learning events and courses

OUTPUTS: learning events and courses		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source**
➢ Training of the next generation of scientists ➢ Support of capacity-building in Low- and Middle-Income Countries (LMICs)	❑ Attendees of courses, and attendees from LMICs	LCB

IARC organized 21 courses and webinars in 2021 and 26 events in 2022, targeting researchers and health professionals from many countries, in particular LMICs. In view of the global health crisis, most courses were organized online. Courses were redesigned to combine live sessions with facilitated self-learning and lasted between a few days (Cancer Registration: Principles and Methods) to several months (IARC Summer School). Part 4.2 on capacity building provides more information on the IARC Summer Schools.

Regarding the MTS KPIs, it is worth mentioning that the current internal monitoring process does not allow the identification of participants' countries and related World Bank classification (HICs vs LMICs).

Number of courses and attendees in 2016–2022				
Year	**No. courses organized**	**No. different countries**	**No. courses in LMICs**	**No. participants**
2016	**36**	**23**	**19**	**1410**
2017	**32**	**16**	**15**	**1324**
2018	**26**	**14**	**11**	**763**
2019	**28**	**18**	**15**	**1083**
2020	**16**	**Online**		**868**
2021	**21**	**Online**		**1851**
2022	**26**	**Mostly online**		**1145**

Source: IARC/WHO, LCB, September 2023

3.3 Training and fellowships

OUTPUTS: training and fellowships		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source**
➢ Training of the next generation of scientists ➢ Support of capacity-building in LMICs	❑ Number of ECVS overall and from LMICs ❑ Number and distribution of IARC fellowships overall and from LMICs	LCB

The Table below shows the number and the distribution of ECVS during the MTS period. In 2021, IARC hosted a total of 142 ECVS through its Research Training and Fellowship Programme, out of which 83 were new arrivals. In 2022, IARC hosted a total of 195 ECVS from 56 countries, out of which 81 were new arrivals. About 20% to 24% ECVS come from LMICs and 70% to 74% from PS.

Number and distribution of ECVS since 2021				
Year	**Female**	**Male**	**Total**	**From LMICs**
2021	**77**	**36**	**113**	**22** (19.5%)
2022	**98**	**49**	**147**	**35** (23.8%)
2023	**92**	**40**	**132**	**32** (24.2%)

Source: IARC/WHO, LCB, September 2023

The Table below presents the number of IARC postdoctoral fellowships since 2016 (new + second year renewals). In other words, these figures correspond to the ECVS funded by IARC to support Post-doctoral scientists coming from LMICs. It should be mentioned that since 2019, only candidates from LMICs have been eligible to apply to this IARC programme. After a significant decrease in 2018, the total number of fellowships remains more or less stable (7 to 9 per year).

Number of IARC Fellowships since 2016		
Year	**Number of IARC Fellowships awarded**	**Number of Fellows from LMICs**
2016	**17 (7 + 10)**	**10**
2017	**14 (7 + 7)**	**12**
2018	**7 (0 + 7)**	**6**
2019	**7 (7 + 0)**	**7**
2020	**9 (2 + 7)**	**9**
2021	**9 (7 + 2)**	**9**
2022	**8 (1 + 7)**	**8**

Source: IARC/WHO, LCB, September 2023

3.4 Implementation of the MTS and sustainable research

OUTPUTS: implementation of MTS		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source**
➢ Reduction of ecological footprint ➢ Digital transformation	❑ Monitoring of carbon footprint ❑ Compensation programme for international travel	DIR Office, SSR

The MTS 2021–025 mentions two kinds of environmental objectives, for IARC to reduce its ecological footprint and the environmental impact of its work. The move to the New Headquarters contributes to transition to a state-of-the-art and eco-friendly building. Measures already in place, such as flexible teleworking arrangements, reductions in air travel for meetings and training events, and an increased use of e-learning tools are reinforced. Other ambitions include the shift to paperless offices, the promotion of green information technologies.

In 2022, IARC set up a "committee for a sustainable research Agency" with members from all Pillars, DIR Office and DAF Office to reach the MTS 2021–2025 ambitions and to comply with the UN Strategy for Sustainability Management in the United Nations System 2020–2030. The mission of this committee is to shape IARC as a global model of sustainable research, to ensure a coordinated and integrated approach of sustainability in research and support activities, as well as to contribute to bringing IARC to net zero by 2030. (https://www.un.org/en/climatechange/net-zero-coalition).

In 2022 and 2023, the Committee ran an analysis of the UN Guidelines such as "Greening the blue initiative" and the Strategy for Sustainability Management in the UN System 2020–2030. The members of the Committee also conducted some benchmarks and interviews amongst other WHO agencies (WHO EURO / UN City Copenhagen's climate strategy, UNITAID…) and UN agencies (World Bank, Global Fund, United Nations Development Programme, World Intellectual Property Organization…) to identify best practices and learning lessons for IARC.

Based on these elements, the Committee defined an action plan, which aims to implement the three steps of the UN Strategy for Sustainability Management: 1/ measure the climate footprint, 2/ reduce emissions as much as possible, 3/ offset what cannot be reduced. IARC's action plan, defined in 2023, promotes education & training sessions, events, networks of experts to join and the implementation of a carbon impact survey following the move to the new headquarters.

The Information Technology Services (ITS) built a software prototype to monitor the carbon footprint of IARC duty trips. This in-house monitoring tool is not yet fully operational, and it does not cover all dimensions of carbon footprint (energy, building, green IT, waste management…). The final version of the tool should enable the production of data for the MTS KPI on carbon footprint monitoring. At this stage, IARC has not defined any policy about a compensation programme for international travel, corresponding to the second MTS KPI.

Lessons to prepare the evaluation of the MTS 2021–2025

- *Regarding the KPIs on publications, all the output indicators required in the evaluation framework of the MTS 2021–2025 are accessible. The h-index can be calculated as a corporate indicator for IARC and for each Branch. The h-index at Pillar level is not yet available and it will be prepared for the final evaluation of the MTS in 2024. As the h-index is a cumulative indicator, checking its evolution over the years or the MTS period is not very relevant. However, it remains a useful indicator to assess the impact of IARC's scientific production among its Branches or to compare it to other scientific institutions.*
- *Regarding the KPIs on learning events and courses, all information is available with the exception of the countries of attendees to learning events (and related % of LMICs attendees).*
- *Regarding the KPIs on training and fellowships, the data required for the MTS evaluation are accessible.*
- *Regarding the KPIs on the MTS implementation, IARC is not yet ready to produce the data required by the MTS evaluation framework. To fulfil this ambition, we recommend implementing the IARC carbon footprint study, to complete the ITS monitoring tool and to define a policy on a compensation programme for international travel.*

4. Key performance indicators on the MTS outcomes

The third category of KPIs for the evaluation of the MTS 2021–2025 are outcomes, which means the intended changes resulting from the MTS interventions. The KPI on outcomes deal with partnerships and international collaborations, capacity building, dissemination and visibility, as well as open science.

4.1 Partnerships and international collaborations

OUTCOMES: publications		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source**
➢ Establishment of partnerships ➢ Engagement with UN agencies ➢ IARC as the leading global cancer authority	❑ International and national Memoranda Of Understanding (MoUs), Memoranda Of Agreement (MoAs), Collaborative Research Agreement (CRAs), etc., and international consortia (applications and grants) ❑ Research Team coordinated with Japan (case study) ❑ International publications with co-authorship	DIR Office, SSR (RMO & PLW)

- **International and national MoUs & MoAs, International consortia**

During the MTS 2021–025, IARC continued to build a strong collaborative global network with strategic partners. In 2021, IARC signed 133 Collaborative Research Agreements (CRAs, 113 CRAs in 2022 and 74 CRAs in 2023 (temporary data). These agreements were signed with about 50 countries worldwide.

In 2021, the Agency also signed five Memoranda of Understanding (MoU); with the Charité University Hospital Berlin, Germany; the Royal College of Pathologists, London, UK; the Cancer Genomics Consortium/Compendium of Cancer Genome Aberrations, Portland, USA; the Caribbean Public Health Agency, Newtown, Trinidad and Tobago; the Indian Council of Medical Research (ICMR)/National Centre for Disease Informatics and Research (NCDIR); and the Association for Molecular Pathology, Rockville, MD, USA. In addition, the Agency has renewed one MoU with the National Cancer Center, Seoul, Republic of Korea.

In 2022, the number of agreements remained stable with five MoU signed with the Programme National de Lutte Contre le Cancer, Abidjan, Côte d'Ivoire; the National Centre for Disease Informatics and Research Indian Council of Medical Research (Department of Health Research, Ministry of Health and Family Welfare, Government. of India), Bengaluru, India; the Union for International Cancer Control (UICC), Geneva, Switzerland; the Charles University, Prague, Czech Republic; and the National Central Cancer Registry, National Cancer Center, Beijing, China. In addition, in 2022, the Agency renewed three MoU with the Danish Cancer Society, Copenhagen, Denmark; the National Cancer Center, Tokyo, Japan; and the Beijing Genomics Institute at Shenzhen - China National Genebank, China.

In 2023 the number of MoU signed has increased: IARC signed eight MoU with: the Pan American Health Organization (PAHO), Washington DC, USA; the World Cancer Research Fund, London, UK; The Programme National de Lutte Contre le Cancer, Abidjan, Ivory Coast; the National Cancer Centre, Tokyo, Japan; the National Cancer Centre, Beijing, China; the European Organization for Nuclear Research (CERN), Geneva,

Switzerland; the European Society of Pathology, Anderlecht, Belgium; and the National Cancer Institute, INCA, Rio de Janeiro, Brazil.

In 2021, IARC submitted, 245 applications and signed 101 contracts representing €19 million of funding for the Agency. 203 applications were submitted in 2022, 123 international scientific contracts were signed representing €24 million of funding for the Agency. A major success is the Grand Challenge study PROMINENT led by IARC (€25 million), selected to explore molecular signatures of cancer promotion and how these can inform prevention.

IARC, the International Atomic Energy Agency (IAEA) and WHO are the three UN entities who have an explicit mandate to advance the global and national cancer agenda. In that regard, IARC, IAEA and WHO have engaged in routine dialogues to coordinate workplans and to identify areas of collaboration and synergy. Three factors provide the contextual foundation for enhancing dialogue among the UN agencies: workplan harmonization, optimizing partner engagement and increasing strategic planning. Currently, IARC, IAEA and WHO are implementing strategic workplans, in line with respective mandates, and developing joint activities.

It should also be mentioned that a new Policy Review by IARC, IAEA, WHO, and partner institutions presented the evolution of the IAEA, IARC, and WHO joint advisory service to help countries assess national capacities and the readiness of the health systems to plan and implement cancer control strategies. These assessments are known as the integrated mission of the Programme of Action for Cancer Therapy (imPACT) Reviews. The Policy Review was published in September 2022, in The Lancet Oncology.

The researchers describe the methodology of imPACT Reviews and present several country case studies. imPACT Reviews consist of a standardized assessment of the different aspects of cancer control - prevention, early detection, diagnosis and treatment, palliation of symptoms, and survivorship - as well as cancer surveillance and governance. Each agency is responsible for specific topics; the IARC assessment covers cancer surveillance and early detection.

In addition to these collaborations, IARC/WHO also interacts with several other international organisations such as the International Labor Organization (ILO) for worker protection, the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) for radiation protection, UN Environment Programme (UNEP) for environmental protection, the Food and Agriculture Organization (FAO) for nutrition, etc.

- **Research Team coordinated with Japan**

Case study: Research Team coordinated with Japan
❑ The concept of IARC Research Teams was developed to tackle a perceived silo mentality within existing IARC Research Branches and to facilitate scientific work across the Branches, as well as to increase scientific collaboration and coordination on closely related research topics. The IARC Teams are informal organizational units created across Branches. The added value of these Teams is to catalyse completion of projects through a cross-Agency research approach, by gathering people with complementary expertise in traditional and molecular epidemiology, exposure assessment, biostatistics and data science, database management, and project management. Teams are made up of scientists, early career scientists, and support personnel, and their composition ensures capacity and flexibility, with a strong focus on mentorship and training. ❑ A first international Team - the Population-Based Long-Term Surveillance Team- was established between IARC/WHO and NCC Japan in 2022. The objective of this international Team is to gather and share expertise and resources to follow up patients before and after a cancer diagnosis on a long-term basis, in order to study the impact of lifestyle on the prognosis, survival, and quality of life of patients with cancer. This research will use the infrastructure and statistics of existing cohorts in Japan (JPHC) and Europe (EPIC). This joint project will enable researchers to build the necessary evidence base to inform guidelines that can be used to improve the quality of life of cancer survivors around the world. The Research Team is being led by Dr Norie Sawada, Senior Visiting Scientist in the Nutrition and Metabolism (NME) Branch at IARC and Head of the Population-Based Long-Term Surveillance Section in the Division of International Health Policy Research at the NCC Institute for Cancer Control, and Dr Marc Gunter, former Head of the NME Branch at IARC, currently Professor at Imperial College, London, UK, Senior Visiting Scientist at IARC and Visiting Scientist, NCC Japan. This joint Team also includes the Cancer Surveillance (CSU) Branch at IARC, Dr Tomohiro Matsuda, Senior Visiting Scientist, CSU, and Division of International Health Policy Research, NCCICC, Japan. The research is funded by the National Cancer Center Japan and the Japan Society for the Promotion of Science.

- **International publications with co-authorship**

The Table below shows the number and the proportion of IARC publications with international collaborations. These figures were produced by calculating the percentage of IARC publications whose co-author affiliations include addresses in more than one country. Of the 1 121 total papers published in 2021-2023 by IARC, 1 065 publications (95%) involved international collaboration. This percentage is in line with the figures of the former MTS 2016–2020 (93%).

Number and proportion of the publications of IARC/WHO with international collaborations since 2021			
Year	**2021**	**2022**	**Nov. 2023**
Number of publications	**409 of 426**	**383 of 406**	**273 of 289**
% of publications	**96%**	**94%**	**94%**

Source: IARC/WHO, SSR (PLW), November 2023

4.2 Capacity building

OUTCOMES: capacity building		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source**
➢ Support of capacity-building in LMICs ➢ Training of trainers and cancer leaders	❑ Summer School & ECVS outcomes surveys ❑ Global Initiative for Cancer Registry Development (GICRNet Training of Trainers) (case study)	CSU, LCB

Capacity-building in LMICs is one of IARC's core missions as demonstrated by programmes such as the Summer School, the support to EVCS, as well as the Global Initiative for Cancer Registry Development, as described below. In addition to these three programmes, it is worth mentioning the Research and Excellence in African Capacity to Control and Treat Cancer (REACCT-CAN consortium), for capacity building with African cancer scientists.

- **Summer School in Cancer Epidemiology**

The IARC Summer School in Cancer Epidemiology aims to improve the methodological and practical skills of cancer researchers and health professionals, to promote Cancer Prevention & Early Detection. In 2021, because of the COVID-19 pandemic, the course was redesigned and conducted entirely online, while maintaining the features that make the course unique: fostering international collaboration, providing multiple opportunities for interaction, and delivering high-quality multidisciplinary lectures and practical activities to facilitate the learning process of participants.

Two modules were offered: Introduction to Cancer Epidemiology and Implementing Cancer Prevention and Early Detection. A blended learning approach was adopted for both modules, including four weeks of self-paced activities (recorded lectures and assignments, punctuated by two or three live sessions and networking events), followed by two weeks of daily live sessions and group work activities. A total of 73 cancer researchers and health professionals from more than 45 countries (the vast majority of which were LMICs) participated in the two modules. All the resources used to deliver the 2021 Summer School are available from the IARC Learning portal (https://learning.iarc.fr/).

Given the budget constraints, the IARC Summer School on Cancer Epidemiology was not organized in 2022. In 2023, both above mentioned modules were held in a blended format, including 2–4 weeks of online self-paced activities (recorded lectures and assignments, punctuated by a few live sessions), followed by one week on site in Lyon, focused on practical and networking activities. A brand-new Public Events Series was part of the programme, with 12 live public events successfully organized throughout the period, attracting 260 to 1100 viewers per event (https://www.youtube.com/@iarclearning5527/streams).

A total of 70 cancer researchers and health professionals from 41 countries (most of which were LMICs) participated in the two modules, representing a wide variety of disciplines and nationalities. All the resources used to deliver the 2023 Summer School are available on the IARC Learning portal (https://learning.iarc.who.int). Pre-course and post-course surveys were administered to measure the impact of the course on participants' self-perceived level of confidence with regard to knowledge and skills covered in the modules. The results showed a substantial progression, which was also clearly expressed by the participants in their oral and written feedback.

Based on the recommendation provided by China during the 64th Session of IARC Governing Council in May 2022, and to leverage the impact of the course, the Agency and the National Cancer Centre (NCC) China collaborated to set up a first regional centre, the IARC-NCC China Learning Centre. This joint Centre will include: i) the organization of the IARC Summer School's modules in China, targeting researchers and health professionals from China and South-Eastern Asian countries, ii) the joint development of new learning modules, and iii) the organization of Train the Trainers courses in the framework of initiatives such as GICR, CanScreen5 which conducted hybrid training programmes focusing on Latin America, Europe and Africa. The first course of the IARC-NCC China Learning Centre (Introduction to Cancer Epidemiology) is planned in early 2024.

A similar partnership is being developed with the INCA Brazil and the University of Sao Paolo, in collaboration with other national entities. The first course (Introduction to Cancer Epidemiology) is planned for 2025, targeting health professionals from Brazil, as well as from Asian and African Lusophone countries. In this instance, it is planned that online material will also be translated into Portuguese.

The Summer School survey, run in 2021 with 163 participants, showed that 74% of respondents remain active in cancer research and 93% of participants have been able to apply what they have learnt in their jobs. 73% developed collaborations with IARC and 46% with other course participants. The next Summer School survey will be run in 2024.

- **ECVS outcomes survey**

IARC runs an ECVS outcomes survey on a regular basis. This survey identifies areas of improvement for the IARC Research Training and Fellowship Programme and evaluates the experience of ECVS. The last survey was conducted in Autumn 2021 targeting 123 doctoral students and postdoctoral scientists. This survey showed the importance of promoting dual supervision, a mentoring programme, as well as training across different Branches. The ECVS survey also highlighted the impact of IARC experience on the ECVS' careers, with 53% considering it as decisive and 44% helpful. The main benefits of an ECVS experience at IARC are a multidisciplinary and multicultural scientific environment, opportunities for international collaborations and the status of UN/WHO agency.

The survey includes a specific focus on IARC postdoctoral fellows, to find out where they work immediately after their fellowship. The results show that 35% took up a position in a high-income country which is not their home country, 22% returned immediately to their home country to take up a position, 22% are still working at IARC as postdoctoral scientists, 9% work as an IARC scientist, 8% returned after an extension funded by IARC host group and 4% returned without a position. The next ECVS outcomes survey will be run in 2024.

- **Global Initiative for Cancer Registry Development**

Case study: Global Initiative for Cancer Registry Development

- ❑ Launched in 2011, the Global Initiative for Cancer Registry Development (GICR, https://gicr.iarc.who.int) is a partnership based on the commitment of leading cancer organizations to address inequities in underserved countries. Together with a leading group of partners, the GICR is making this possible by helping transitioning countries to build their capacity to collect local cancer data, synthesize the data, and disseminate findings, so that targeted actions can be taken to tackle the rising cancer burden. The GICR is designed to provide decision-makers with the information necessary to act. This involves working directly with national partners to assess local cancer data, develop quality improvement plans, and build linkages with the cancer control community in developing national plans. The GICR targets more than 85% of the world's population: 6 billion people in more than 150 countries. Six IARC Regional Hubs work in collaboration to strengthen the quality of cancer data and their use in cancer control.
- ❑ Capacity-building is a key objective, and one important milestone was the launch of an e-learning series of 14 modules developed in partnership with Vital Strategies and the African Cancer Registry Network (AFCRN) and supported by Bloomberg Philanthropies. Available in English, French, and Spanish, the freely available course offers the staff of population-based cancer registries (PBCRs) formal certification as International Cancer Registrars. As well as a series of consultancies to PBCRs, virtual courses were held during the MTS period on cancer registration (in collaboration with the Quito Cancer Registry in Ecuador and the Pan American Health Organization, and in the Lao People's Democratic Republic with the National Cancer Institute of Thailand), on CanReg5 (in collaboration with the National Cancer Institute of Colombia), and on cancer coding (in collaboration with the National Cancer Institutes of Argentina and Colombia). The annual IARC–GICR Summer School with the National Cancer Center of the Republic of Korea was held virtually in 2022 and in person in 2023.
- ❑ The GICR programme also brings innovation to registry operations. The E-NNOVATE partnership piloted the linkage of electronic medical records to PBCRs via the world's largest health information management system, the District Health Information Software version 2 (DHIS2). Continuing the model of strengthening regional capacity, in late 2022 three IARC-GICR Centres of Expertise in sub-Saharan Africa were officially launched, in Côte d'Ivoire, Kenya, and South Africa, in collaboration with Vital Strategies.
- ❑ The GICRNet uses a Train the Trainer model to form a network of experts. Experts from the Hub regions are selected and trained by IARC in specific subject areas. Designated as IARC GICR Regional Trainers, they serve as a resource to further educate registry staff in each Hub region. To complement formal training, the GICR Mentorship and Twinning Programme provides opportunities for knowledge transfer through peer-to-peer exchanges. The goal is to build local capacity by matching individuals from established cancer registries with those from less developed registries within the same region to work on specific, in-depth areas of need.
- ❑ From June 2020, IARC entered into a bilateral agreement with St. Jude Children's Research Hospital (USA) to implement the Targeting Childhood Cancer through the GICR (ChildGICR) project, an extension of the GICR programme to build national childhood cancer surveillance capacity in LMICs via implementation, education, and research. Networking workshops involving local stakeholders were held virtually in four target countries: Georgia, Mexico, South Africa, and Viet Nam.

- ❑ IARC's Global Initiative for Cancer Registry (GICR) Development will be adapted by IARC and WHO as GICR+, upon consensus, to optimally support the provision of relevant indicators to inform and evaluate progress in scaling-up the three WHO Cancer Initiatives and more broadly in the support of the implementation of NCCP.
- ❑ Working closely with the GICR, IARC also serves as the Secretariat for the International Association of Cancer Registries (IACR, http://www.iacr.com.fr), the professional body dedicated to fostering the aims of PBCRs worldwide. Following online meetings held during the COVID-19 pandemic, an in-person scientific conference was hosted in Granada, Spain, in partnership with the European Network of Cancer Registries (ENCR).

4.3 Dissemination and visibility

OUTCOMES: dissemination and visibility		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source**
➢ Sharing knowledge and scientific evidence ➢ Dissemination of information ➢ Presence in media, on the web and social media	❑ Printed publications and e-publications as public goods ❑ Media releases and social media presence ❑ Organization of scientific conferences and events and oral and poster presentations by IARC scientists at congresses and invited conferences	PLW, COM

The dissemination of IARC scientific publications can be illustrated by printed publications and e-publications, as public goods. In addition, promotion of IARC and the increased visibility of the Agency is achieved though media releases and social media presence, as well as conferences and events.

- **Printed publications and e-publications as public goods**

In 2021, eight new IARC publications were printed or made available as an electronic version, seven publications in 2022 and eight publications for the first semester of 2023. The table below shows the list of publications at mid-term of the current MTS period. On 1 February 2024, IARC launched Globocan 2022 estimates, the latest version of the Global Cancer Observatory (GCO), an interactive web-based platform presenting global cancer statistics to inform cancer control and research.

Number and list of publications & e-publications of IARC since 2021			
Year	**2021**	**2022**	**2023**
Number of publications	**8 publications**	**7 publications**	**8 publications** (first semester)

Main publications in 2021

WHO Classification of Tumours

- WHO Classification of Soft Tissue and Bone Tumours, 5th edition (PDF & print)
- WHO Classification of Female Genital Tumours, 5th edition (PDF & print)
- WHO Classification of Thoracic Tumours, 5th edition (PDF & print)

IARC Monographs

- Volume 126, Opium Consumption (PDF)
- Volume 127, Some Aromatic Amines and Related Compounds (PDF)
- Volume 128, Acrolein, Crotonaldehyde, and Arecoline (PDF)

IARC Scientific Publications

- Cancer Incidence in Five Continents, Volume XI, IARC Scientific Publication No. 166 (PDF and print)

Non-series publications

- Patterns of Care for Women with Breast Cancer in Morocco: An Assessment of Breast Cancer Diagnosis, Management, and Survival in Two Leading Oncology Centres (PDF)

Main publications in 2022

WHO Classification of Tumours

- WHO Classification of Central Nervous System Tumours, 5th Edition, Volume 6 (PDF & print)
- WHO Classification of Urinary and Male Genital Tumours, 5th Edition, Volume 8 (PDF & print)

IARC Monographs

- Gentian Violet, Leucogentian Violet, Malachite Green, Leucomalachite Green, and CI Direct Blue 218 (IARC Monographs on the Identification of Carcinogenic Hazards to Humans, Volume 129) (PDF)
- 1,1,1-Trichloroethane and Four Other Industrial Chemicals (IARC Monographs on the Identification of Carcinogenic Hazards to Humans, Volume 130 (PDF)

IARC Scientific Publications

- IARC Biennial Report 2020-2021 [May] (PDF)
- Cervical Cancer Elimination in Africa: Where Are We Now and Where Do We Need to Be?, joint publication with UICC (PDF)
- IARC Handbooks of Cancer Prevention, Cervical Cancer Screening, Volume 18) (PDF and print)

Main publications in 2023

WHO Classification of Tumours

- WHO Classification of Paediatric Tumours, 5th edition (PDF & print)
- *WHO Reporting System for Lung Cytopathology*, 1st edition (2023) (PDF & print)
- *WHO Reporting System for Pancreaticobiliary Cytopathology*, 1st edition (2023) (PDF & print)

As beta versions online:

- *Head and Neck Tumours*, 5th edition
- *Endocrine Tumours*, 5th edition
- *Haematolymphoid Tumours*, 5th edition
- *Skin Tumours*, 5th edition
- *Eye and Orbit Tumours*, 5th edition
- *Genetic Tumour Syndromes*, 5th edition

IARC Monographs

- Volume 131, Cobalt, Antimony Compounds, and Weapons-grade Tungsten Alloy (PDF)
- Volume 132, Occupational Exposure as a Firefighter (PDF)

IARC Working Group Reports

- Best Practices in Cervical Screening Programmes: Audit of Cancers, Legal and Ethical Frameworks, Communication, and Workforce Competencies, IARC Working Group Report No. 11 (PDF)

Non-series publications

- Mise en œuvre d'un programme pilote de dépistage du cancer du col de l'utérus intégré dans les services courants de soins de santé primaires au Bénin, en Côte d'Ivoire et au Sénégal (PDF)
- Implementation of a Pilot Cervical Cancer Screening Programme Integrated in Routine Primary Health-Care Services in Benin, Côte d'Ivoire, and Senegal: Repot of a Pilot Project (Care4Afrique) in Three African Countries (PDF)

Electronic resources

- Atlas of Breast Cancer Early Detection, IARC CancerBase No. 17
- Using HPV tests for cervical cancer screening and managing HPV-positive women – a practical online guide, IARC CancerBase No. 18

IARC Scientific Publications

- IARC Biennial Report 2022-2023 (PDF)
- Schüz et al, Latin America and the Caribbean Code Against Cancer 1st Edition: A landmark for cancer prevention in the region. Cancer Epidemiol . 2023 Oct:86 Suppl 1:102453. doi: 10.1016/j.canep.2023.102453
- Espina et al, Latin America and the Caribbean Code Against Cancer 1st Edition: 17 cancer prevention recommendations to the public and to policy-makers (World Code Against Cancer Framework). Cancer Epidemiol. 2023 Oct:86 Suppl 1:102402. doi: 10.1016/j.canep.2023.102402.

- **Media releases and social media presence**

The Table below shows the number of press releases and news items produced by IARC since 2021. These figures highlight the large production of IARC, but they do not present their impacts in the media. IARC does not have a comprehensive media coverage study allowing the evaluation of the impact of its publications. The Agency considers implementing such an analysis in 2024.

Number of press releases and news items since 2021		
Year	**Press releases**	**News items**
2021	**14**	**137**
2022	**16**	**163**
September 2023	**13**	**86**

The Table below shows the presence of IARC on the three main social media (X, LinkedIn and YouTube), since 2021. These figures tend to improve during the MTS period especially the number of followers or subscribers. A preliminary benchmark indicates that IARC is relatively well positioned on social media, compared to other key institutions (UICC, WHO Euro…). Some data for X and LinkedIn are not yet available (NA), and they will be prepared for the MTS 2021–2025 evaluation.

Evolution of the presence of IARC on social media since 2021						
Social networks	**X / Twitter**					
Year	**Followers**	**Impressions**	**Link clicks**	**Retweets**	**Likes**	
2021	**11 602**	**NA**	**NA**	**NA**	**NA**	
2022	**14 082**	**930 000**	**5000**	**3100**	**8300**	
September 2023	**15 726**	**560 400**	**3085**	**1581**	**4613**	
Social networks	**LinkedIn**		**YouTube**			
Year	**Followers**	**Impressions**	**Subscribers**	**Views**	**Videos**	**Watch hours**
2021	**7634**	**NA**	**1928**	**104 700**	**29**	**1720**
2022	**12 801**	**NA**	**2957**	**141 500**	**26**	**1988**
September 2023	**17 306**	**496 853**	**3721**	**110 683**	**23**	**1621**

Source: IARC/WHO, COM, September 2023

- **Organization of scientific conferences and events, Oral and poster presentations by IARC scientists at congresses and invited conferences**

Information for this last MTS KPI is not available, as IARC does not maintain a comprehensive database about the organisation and the presentations of IARC personnel at conferences, events or congresses. The constitution of such a database would require some specific investments and the new Customer Relationship Management (CRM) tool embedded as part of the new Business Management System (BMS) should hopefully help in collating such information. In the meantime, the only existing source of information to have an idea of IARC active presence in international conferences is the trip reports that are filled by IARC personnel when returning from duty travel. However, this will give only a partial view of IARC involvement in these conferences as more and more IARC scientists participate through video-conferencing facilities.

4.4 Open science

OUTCOMES: open science		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source**
➢ Open Access as cornerstone of Open Science	❑ Open access publications ❑ Scientific IT Platform (case study) ❑ Open access biobank (case study)	SSR, GEM, LSB

- **Open Access publications**

The Table below shows the evolution of the number and proportion of IARC's open access publications, since 2016. Since the beginning of the current MTS period, IARC has published the majority of its publications in Open Access.

Number and proportion of Open Access publications since 2016			
Year	**Number and % of Open Assess publications**	**Number and % of non-Open Assess publications**	**Total number of publications**
2016	**133 (37%)**	**225 (63%)**	**358**
2017	**164 (43%)**	**217 (57%)**	**381**
2018	**142 (39%)**	**224 (61%)**	**366**
2019	**173 (44%)**	**218 (56%)**	**391**
2020	**219 (48%)**	**241 (52%)**	**460**
2021	**227 (54%)**	**192 (46%)**	**419**
2022	**223 (55%)**	**183 (45%)**	**406**

Source: IARC/WHO, SSR (PLW), September 2023

In spite of this very positive evolution, IARC is not yet member of cOAlition S, unlike WHO or other major scientific organisations. This international consortium promoting open science, states that "*with effect from 2021, all scholarly publications on the results from research funded by public or private grants provided by national, regional and international research councils and funding bodies, must be published in Open Access Journals, on Open Access Platforms, or made immediately available through Open Access Repositories without embargo*". (https://www.coalition-s.org/)

- **Scientific IT platform**

Case study: the Scientific IT platform

- ❑ The IARC scientific IT (SIT) platform was developed with the ambition to provide IARC investigators with a centralized and secure platform to store and analyse scientific data. The platform also aims to facilitate remote access to IARC-held scientific data to external investigators without necessitating transfer of individual-level data.
- ❑ The SIT platform allows storage of confidential data in a secure fashion that is compliant with modern best-practice data protection standards, most notably the GDPR and other similar regulations. Additionally, the SIT platform provides a high-performance computing environment for more computationally demanding analyses in a cost-effective fashion. The SIT platform also contributes to IARC's move into Open Science, specifically by developing a means to allow access to IARC-held data to third-party investigators remotely in a secure fashion. This objective also addressed demands from various funding agencies that require IARC to share scientific data generated within funded projects to external investigators. With this background, the Governing Council allocated €350 000 in 2020 to support the platform development.
- ❑ The SIT platform opened to all IARC personnel in October 2021. As of January 2023, the SIT platform has evolved into an essential scientific infrastructure of the Agency. It offers access to shared centralized IT resources for scientific data storage and analysis, based on modern tools and best practices. It provides a collaborative environment for IARC scientists, allows remote access to high performance computing, is cost effective, and ensures data security and compliance with best practices in data protection. The next step associated with the development of the platform is to make it accessible to external collaborators.
- ❑ Key indicators on the development of the SIT platform at the end of 2022 are the following:
  - 126 IARC personnel are using the platform for their data storage and analysis. Users are from all IARC branches, and include epidemiologists, biostatisticians, bioinformaticians, data managers etc.
  - 156 "projects" are stored (folder storing data with an identified PI, data manager and user(s)).
  - 2.5 million hours of computing were performed in 2022. This is the equivalent of 325 desktop computers running eight hours/day, 240 days/year.
  - 1 Petabyte (1000 Terabytes) of data is stored and backed-up, with a 45% increase compared to 2021.

- **Open access biobank**

Case study: Open Access biobank

- ❑ The IARC biobank is unique on the international scene because of its size (>six million biological samples) and the diversity of its biological resources both in terms of nature (30 natures) and geographical origin (86 providers countries). It feeds more than 60 international scientific projects involving more than 250 partners. The biobank relies on a team of 12 professionals. Its operating budget is €0.6 million, it is publicly funded with 60% of its budget provided by IARC Participating States and 40% from research grants.
- ❑ The IARC biobank is involved in regional, national, European and international activities and programmes. At the national level, it is a member of the 3CR Network, the French network of biobanks (https://www.3cr-ressourcesbiologiques.com/). The IARC biobank also participates in several international research programmes, in accordance with IARC's mission. To remedy the under-representation of biological resources in low- and middle-income countries (LMICs) in the field of research, IARC has been coordinating the biobank cohort network BCNet (https://bcnet.iarc.fr/) since 2013, in collaboration with the NCI (Center for Global Health, NCI, NIH, USA) and 46 institutions representing 24 countries.
- ❑ During the current MTS period, the IARC biobank was successfully transferred from the Lyon Grange Blanche building to the new premises in Lyon-Gerland. The new biobank has its storage capacity increased to ten million biological samples and meet all the norms, standards and state-of-the-art rules in the field of biobanks. It occupies over 1550 square metres of the first basement of the new building with more than 1000 square metres for storage facilities with restricted access (~400 square metres for liquid nitrogen storage, ~550 square metres for freezers storage and ~50 square metres for ambient temperature storage, an additional ~65 square metre area is allocated to a potential new fully-automatic -80°C freezer). A state-of-the-art liquid nitrogen facility is set up with new ultra-modern liquid nitrogen tanks controlled and monitored through a smart management system of the cryogenic rooms. Freezers rooms are equipped with new freezers units. A dedicated space is allocated for the extension of the storage capacity at -80C through the acquisition of a fully-automatic -80C freezer.
- ❑ These new premises are a unique opportunity for the technological evolution of the IARC biobank towards a new generation of biobanking. In 2023, the IARC biobank successfully applied to the IBIsA programme, in order to reinforce its quality management and to strengthen its open science collaborations in the local, regional, national and international research landscape.

Lessons to prepare the evaluation of the MTS 2021–2025

- *Regarding the KPIs on partnerships and international collaborations, the information required in the MTS evaluation framework is available for CRAs, Other information (MoUs, MoAs) need to be processed manually as there are no dedicated databases on these elements,*
- *Regarding the KPIs on capacity building, the data on the IARC Summer School and on ECVS (2021 surveys), as well as on GICR are accessible. The next surveys on the Summer School and on EVCS outcomes will be run in 2024.*
- *Regarding the KPIs on dissemination and visibility, the information on IARC's publications, press releases and social networks are available. IARC should consider setting up an annual impact survey of media releases and building a database on scientific conferences and events.*
- *Regarding the KPIs on Open Science, the information on open access publications, scientific IT platform and the open access biobank are available.*

5. Key performance indicators on the MTS impacts

The fourth category of KPIs for the evaluation of the MTS 2021-2025 are impacts, corresponding to the long-term effects produced directly or indirectly by the MTS programme. These impacts are related to the cooperation with WHO on implementation, the contributions to prevention policies, clinical practices, economic and societal impacts.

5.1 Cooperation with WHO

IMPACTS: cooperation with WHO on implementation		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source**
➢ Common strategy with WHO NCDs department ➢ Support to WHO normative work ➢ Establishment of a formal engagement structure (IARC, WHO headquarters and regional offices)	❑ High-level oversight committee and implementation committee ❑ Contribution to the three WHO global initiatives (case studies) ❑ Contribution of *IARC Handbooks* to WHO guidelines (case study)	ESC, CSU, PLW, ENV, EPR

Sharing knowledge on cancer science with WHO for policy formulation is identified as a clear ambition of the MTS 2021–2025. In 2022, IARC and WHO HQ defined a strategic workplan for 2023–2025. In addition to the joint efforts made by both organizations on three co-designed projects (the strengthening of the GICR network, the *IARC Handbooks* supplements and the Integrated Health Tool), this cooperation relies on a shared governance system, as well as the cooperation on the three WHO Global Initiatives on cancer (breast, cervical, childhood). It is also worth mentioning the following co-publications of IARC and WHO during the MTS period:

IARC/WHO co-publications in 2021–2023
Co-publications IARC/WHO in 2021: ▪ IARC (2021). Cancer Incidence in Five Continents Volume XI. IARC Scientific Publication N°166. Lyon, France. Available from https://publications.iarc.fr/597 ▪ IARC (2021). Acrolein, crotonaldehyde, and arecoline. IARC Monographs Identification Carcinogenic Hazard Hum. 128:1–335. PMID:36924508 Available from: https://publications.iarc.fr/602 PMID:36924508. **Co-publications IARC/WHO in 2022:** ▪ IARC (2022). Cervical cancer screening. IARC Handbook of Cancer Prevention 18:1–456. Available from: https://publications.iarc.fr/604 **Co-publications IARC/WHO in 2023:** ▪ IARC; Department of Health and Health Service Executive of Ireland (2023). Best practices in cervical screening programmes: audit of cancers, legal and ethical frameworks, communication, and workforce competencies. Lyon, France: International Agency for Research on Cancer (IARC Working Group Reports, No. 11). Available from: https://publications.iarc.fr/625

- **High-level oversight committee and implementation committee**

The strategic workplan for 2023–2025 for IARC and WHO defines the governance with three levels of coordination: Leadership committee, Executive committee, Global Initiatives Team interface.

- IARC/WHO Leadership Committee: To promote areas of mutual cooperation and interest to WHO and IARC. The IARC/WHO Leadership committee provides advice and guidance to the IARC/WHO Executive committee on the ongoing development of joint activities within the Action Plan and reviews biannual reports. This may include additional areas of collaboration, engagement strategies with partners and/or resource mobilization activities.
- IARC/WHO Executive Committee: To review progress on current activities, especially on the three co-designed projects, to identify and manage potential bottlenecks in collaboration, to track progress and to report to the Leadership committee.
- Global Initiatives Cross-agency Working Group: Each of the Global Initiatives (Global Initiative on childhood cancer (GICC), Cervical Cancer Elimination Initiative (CCEI), Global Breast Cancer Initiative (GBCI), Global Initiative for Cancer Registry Development (GICR)) holds regular meetings with participants from both organizations. WHO Director of NCDs will designate focal points for each of its initiatives and IARC will create cross-cutting Teams (as per IARC MTS definition), alongside the existing GICR Team. They will meet as a group on a regular basis to share information and knowledge and update each other on the latest developments. They will explore possible avenues for collaboration, define coordinated activities with timelines and benchmarks, and inform the Executive Committee on recent activities, future needs and opportunities, accordingly.

In addition to these governance mechanisms established between IARC and WHO, a Standard Operating Procedure (SOP) between IARC and WHO was set up in 2018 to guide communication between the *Monographs* and the *Handbooks programmes* and WHO HQ. (https://events.iarc.who.int/event/46/attachments/110/483/GC60_13_CoordinationWHO.pdf and https://events.iarc.who.int/event/46/attachments/110/484/GC60_13_Corr1.pdf). This SOP can be used as a reference for communication of other programmes of mutual interest.

In 2022 IARC-IAEA-WHO quarterly meetings were established for directors from IARC, IAEA and WHO Department of Noncommunicable Diseases (NCDs) supported by the technical leads from each agency.

- **Contribution to the three WHO global initiatives on cancer**

IARC's contribution to the three Global Initiatives on Cancer is supported through three specialized IARC Research Teams and materialized by a substantial number of scientific publications.

Case study: contribution to the three WHO global initiatives on cancer

❑ IARC Research Teams related to the WHO Global Initiatives on breast, cervical and childhood cancers were established in 2023 with the objective of improving information sharing and knowledge that relates to the WHO Global Initiatives and improving dialogue and coordination with the WHO Cancer Team. These three IARC Teams are:

- IARC Research Team on breast cancer related to the WHO Global Breast Cancer Initiative
- IARC Research Team on cervical cancer related to the WHO Cervical Cancer Elimination Initiative
- IARC Research Team on childhood cancer related to the WHO Global Initiative for Childhood Cancer

- ❑ The benefits of these three IARC Research Teams are:
  - A more structured approach and dialogue with WHO about the three WHO Global Initiatives. These IARC Research Teams bring together all IARC projects specifically related to the respective WHO initiatives and dedicated staff members.
  - An improved coordination with WHO: each IARC Research Team is coordinated by a Team Leader who is the IARC focal point for WHO, and includes a staff member to take minutes, action points and follow-up and to convene regular internal and IARC/WHO meetings.
- ❑ A greater visibility for IARC on its research on these three cancers related to the WHO initiatives, through the development of dedicated websites.

Number and evolution of the publications of IARC related to the WHO global initiatives on cancer since 2021

	2021	**2022**	**Mid-2023**
WHO Global Initiative on breast cancer *(IARC Branches: CSU, EPR, ENV, ESC)*	32 IARC publications on breast cancer 12 publications related to the WHO Global Initiative on breast cancer (37.5%)	25 IARC publications on breast cancer 8 publications related to the WHO Global Initiative on breast cancer (32%)	33 IARC publications on breast cancer 18 publications related to the WHO Global Initiative on breast cancer (54.5%)
WHO Global Initiative on cervical cancer *(IARC Branches: CSU, EPR, ESC)*	14 IARC publications on cervical cancer 9 publications related to the WHO Global Initiative on cervical cancer (57%)	5 IARC publications on cervical cancer 5 publications related to the WHO Global Initiative on cervical cancer (100%)	20 IARC publications on cervical cancer 15 publications related to the WHO Global Initiative on cervical cancer (75%)
WHO Global Initiative on childhood cancer *(GICC)* *(IARC Branches: CSU, ENV, ESC)*	7 IARC publications on childhood cancer 5 publications related to the WHO Global Initiative on childhood cancer (71%)	8 IARC publications on childhood cancer 2 might be related to the WHO Initiative on childhood cancer (25%)	6 IARC publications on childhood cancer 2 might be related to the WHO Initiative on childhood cancer (33%)

Source: IARC, DIR Office & SSR (PLW), November 2023

- **Contribution of *IARC Handbooks* to prevention policies**

Case study: *IARC Handbooks* and collaboration with WHO
❑ The *IARC Handbooks* of Cancer Prevention, relaunched in 2014, represent a relevant example of collaboration with WHO (see Section 5.2 below for more details about the Programme). The topics reviewed rest close to the WHO agenda of NCDs and the evaluations can be used directly by WHO to develop recommendations. All recent volumes of Handbooks have integrated some collaboration with WHO to a certain extend: Vol. 18 on cervical cancer screening with WHO-HQ, Vol. 19 on oral cancer prevention with the WHO Regional Office for South-East Asia, Vol. 20A on alcohol control with WHO-EURO.
❑ Volume 18: "Cervical Cancer Screening" was planned to coincide with the WHO call for Cervical Cancer Elimination Initiative. The evaluations were used as the basis to update the WHO Guideline for Screening and Treatment of Cervical Pre-Cancer Lesions for Cervical Cancer Prevention. The Handbook and the WHO guideline were developed jointly and in parallel and were launched at a joint webinar attended by over 500 participants worldwide.
❑ Volume 19: "Oral Cancer Prevention" was conceived with a strong focus on South-East Asia and was developed in concertation with the WHO Regional Office for South-East Asia. The Handbook volume 19 Supplements are a set of "products" that aim to use the results of the Handbook to produce data and knowledge that can directly support governments and other decision-making bodies in the implementation of prevention strategies. The supplement on the cost-effectiveness of oral cancer screening and of behavioural interventions to quit smokeless tobacco is currently being developed in collaboration with WHO-HQ.
❑ Volume 20: "Alcohol control" was a request from and is developed in close collaboration with the WHO Regional Office for Europe. Part II on the volume, with a focus on alcohol control policies, is partly funded by the WHO Regional Office [Published in the NEJM on 28 December 2023]

5.2 Prevention policies

IMPACTS: preventions policies		
Main ambitions of the MTS 2021-2025	**KPIs**	**Source**
➢ Translation of IARC's scientific production into WHO public health prevention policies	❑ Contribution of *IARC Monographs* programme to prevention policies (case study) ❑ Codes Against Cancer (case study) ❑ I*ARC Handbooks* of Cancer Prevention (case study) ❑ Documentation on prevention advocacy	ESC, CSU, PLW, ENV, EPR

Four types of IARC scientific production directly contribute to the definition of public health prevention policies with WHO: the *Monographs* programme, the Codes Against Cancer, the *Handbooks* programme, as well as documentation on prevention advocacy.

In addition to these programmes, it worth mentioning a major initiative of IARC focused on secondary prevention: Cancer Screening in Five Continents (CanScreen5) is a global cancer screening data repository, which reported the status and performance of breast cancer (n = 57), cervical cancer (n = 75), and colorectal cancer (n = 51) screening programmes in 84 countries in 2023. Data collected mainly from the ministry of health in each country, using a harmonized set of criteria and indicators, were made publicly available through a web-based portal (https://canscreen5.iarc.fr/).

- **The *Monographs* programme**

Case study: The *Monographs* programme

- ❑ The *IARC Monographs* Programme on the Identification of Carcinogenic Hazards to Humans produces a series of systematic scientific reviews that identify environmental factors that may cause cancer in humans. This programme is fundamental to the Agency's mission. Since the inception of the *Monographs* programme in 1971, over 1000 agents have been evaluated, sometimes re-evaluated, for carcinogenicity. This international, interdisciplinary endeavour provides an authoritative reference for researchers, health authorities, and the public. Health agencies worldwide rely on the Monographs for the scientific support of actions to control exposures and prevent cancer.
- ❑ In 2021, the *Monographs programme* organized two virtual Working Group meetings (129-130). The evaluations undertaken in these meetings included new or updated classifications for ten agents: Group 2A: 1,1,1-Trichloroethane; Group 2B: Gentian violet, leucomalachite green, CI Direct Blue 218, 1,2-diphenyl hydrazine, diphenylamine, N-methylol-acrylamide, isophorone; Group 3: Leucogentian violet, malachite green. Three Monographs volumes were published: v.126: Opium consumption; v.127: Some aromatic amines and related compounds; v.128: Acrolein, crotonaldehyde, arecoline.
- ❑ In 2022, the *Monographs programme* organized two Working Group meetings (131-132) and scientific workshops. The evaluations undertaken in these meetings included new or updated classifications for eight agents: Group 1: Occupational exposure as a firefighter; Group 2A: Trivalent antimony, cobalt metal, soluble cobalt (II) salts; Group 2B: cobalt (II) oxide, weapons-grade tungsten alloy. Two Monographs volumes were published: v.129: Several dyes; v.130: Five industrial chemicals.
- ❑ In 2023, the Monographs organized three Working Group meetings (133-135) and scientific workshops. The evaluations undertaken in these meeting included new or updated classifications for nine agents: Group 1: perfluorooctanoic acid; Group 2A: perfluorooctanesulfonic acid, methyleugenol, 2-bromopropane; Group 2B: aspartame, isoeugenol, anthracene, butyl methacrylate, dimethyl hydrogen phosphite. Two Monographs volumes were published: v.131: Cobalt, antimony compounds and weapons-grade Tungsten Alloy; v.132: Occupational exposure as a firefighter.

- **The Codes against cancer**

Case study: The Codes against cancer

- ❑ The European Code Against Cancer (ECAC), initially launched in 1987 has been refined and expanded to include information on successful interventions, as described in a roadmap laid out within the European Union (EU) Innovative Partnership for Action Against Cancer (iPAAC). The Cancer Prevention Europe programme on ECAC launched in 2021, proposes eLearning modules on each of the 12 recommendations from the ECAC, as well as a 13th module on the ECAC methodology. In 2022, IARC became partner in a new project called Boosting the Usability of the EU Mobile App for Cancer Prevention (BUMPER) funded by the European Union (EU) EU4Health programme, aiming to bring the messages of ECAC to a broader and more diverse population through an EU Mobile App for Cancer Prevention. The fifth version of the European Code (ECAC5) officially began in July 2022, lasting for four years. The main objective is to develop the 5th edition of ECAC, taking into account the latest scientific developments, with a multidisciplinary collaborative effort gathering 80 regional experts. WHO HQ is a member of the Scientific Committee of ECAC, while the WHO Regional Office for Europe is a member in the Advocacy Group.

- ❑ Inspired by the European Code Against Cancer, IARC called for this model to be extended to other world regions to achieve a World Code Against Cancer. In 2021, this process began with the preparation of the first Latin American and Caribbean Code Against Cancer (https://cancer-code-lac.iarc.who.int/en), in collaboration with the Pan American Health Organization and several regional partners. The Latin America and the Caribbean (LAC) Code Against Cancer is the first regional adaptation of the European Code Against Cancer, under the umbrella of the World Code Against Cancer Framework. More than 60 experts from the region have developed a set of 17 cancer prevention recommendations for the public, suited to the epidemiological, economic, social, and cultural conditions of Latin America and the Caribbean. Each recommendation is accompanied by recommendations for policymakers to guide governments in establishing the infrastructure needed to enable the public to adopt the recommendations. The first edition of the LAC Code against Cancer was launched in October 2023. The Pan American Health Organization is in charge of its dissemination and actively works on the promotion of 17 evidence-based recommendations for the public (https://www.paho.org/en/latin-america-and-caribbean-code-against-cancer#referencias).
- ❑ To mark World Cancer Day on 4 February 2022, IARC and partners launched the new World Code Against Cancer Framework, an online platform that will promote cancer prevention globally and the development of Regional Codes Against Cancer. IARC scientists also presented the World Code Against Cancer Framework at the occasion of the first China Primary Cancer Prevention Conference held in Taiyuan, China, in March 2023.

- ***IARC Handbooks* of Cancer Prevention programme**

Case study: *IARC Handbooks* of Cancer Prevention programme

- ❑ The IARC Handbooks of Cancer Prevention Programme produces a series of systematic scientific reviews and evaluations of interventions and strategies that can reduce the risk of cancer or mortality from cancer. The principles of systematic review are applied to the identification, screening, synthesis, and evaluation of the evidence. Since their inspection in 1995, the Handbooks Programme has evaluated chemopreventive agents, preventive actions, effectiveness of screening, and effectiveness of tobacco control measures. The Handbooks are used worldwide by public health representatives to set guidelines and recommendations for cancer prevention.
- ❑ The IARC Handbooks of Cancer Prevention volume 18: Cervical Cancer Screening reviewed and evaluated all available studies of current methods for cervical screening in terms of their effect on cervical cancer incidence and mortality. The evaluations have been used as a basis to update the WHO Guideline for Screening and Treatment of Cervical Pre-Cancer Lesions for Cervical Cancer Prevention.
- ❑ The IARC Handbooks of Cancer Prevention volume 19: Oral cancer is highly prevalent in South-East Asia and is linked to chewing smokeless tobacco products. This volume of the IARC Handbooks aims to fight a major public health problem and will fit into the WHO mission of tobacco control, feeding into the WHO Framework Convention on Tobacco Control. Handbook volume 19 on the prevention of cancer of the oral cavity has considered the development of a Supplement. This Supplement is a set of "products" which aims to deepen the results of the Handbook and present data and knowledge that can be directly useful to governments and other decision-making bodies in the implementation of prevention strategies.
- ❑ In November 2023, the programme of IARC Handbooks organized a scoping meeting for the Volume 20B, Alcohol Control Intervention with international experts. The group meeting for the volume will take place in October 2024. Volume 20B is the fruit of a collaboration with the WHO Regional Office for Europe.

❑ *IARC Handbooks* Volume 20A, published in *The New England Journal of Medicine*, reviewed and summarized the available evidence on the effectiveness of reduction or cessation of alcohol consumption in reducing alcohol-related cancers. Based on the evidence reviewed, the experts concluded that there is *sufficient evidence* that reduction or cessation of alcohol consumption reduces the incidence of cancers of the oral cavity and the oesophagus, *limited evidence* for cancers of the larynx, colorectum, and breast, and *inadequate evidence* for cancers of the pharynx and liver.

- **Documentation on prevention advocacy**

In addition to the three programmes mentioned above, IARC produces on a regular basis reference documents on prevention advocacy. During the first half of the MTS 2021–2025, it is worth mentioning the following publications:

- Cervical Cancer Elimination in Africa: Where Are We Now and Where Do We Need to Be?, joint publication with UICC, 2022
- Best Practices in Cervical Screening Programmes: Audit of Cancers, Legal and Ethical Frameworks, Communication, and Workforce Competencies, IARC Working Group Report No. 11 , 2023
- Mise en œuvre d'un programme pilote de dépistage du cancer du col de l'utérus intégré dans les services courants de soins de santé primaires au Bénin, en Côte d'Ivoire et au Sénégal, 2023
- Implementation of a Pilot Cervical Cancer Screening Programme Integrated in Routine Primary Health-Care Services in Benin, Côte d'Ivoire, and Senegal: Repot of a Pilot Project (Care4Afrique) in Three African Countries , 2023
- Atlas of Breast Cancer Early Detection, IARC CancerBase No. 17, 2023
- Using HPV tests for cervical cancer screening and managing HPV-positive women – a practical online guide, IARC CancerBase No. 18, 2023
- Atlas de l'inspection visuelle à l'acide acétique du col de l'utérus pour dépister, trier et déterminer l'éligibilité des lésions au traitement ablatif. IARC Cancer Base No. 16, 2023
- Cancer Incidence in Five Continents Volume XI, IARC Scientific Publication No. 166, 2021
- Cancer Incidence in Five Continents, Vol. XII, IARC Cancer Base No. 19, 2023

5.3 Clinical practices

IMPACTS: preventions policies		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source**
➢ Translation of IARC's scientific publications into clinical practices	❑ Contribution of WHO Classification of Tumours programme (case study) ❑ Scientific production on clinical practices	CSU, ESC, ENV

- **WHO Classification of Tumours programme**

Case study: The WHO Classification of Tumours programme
❑ The "WHO Classification of Tumours", also known as the "WHO Blue Books" provide the definitive and internationally accepted standards for the diagnosis of tumours. Tumour classification is a major

scientific endeavour of considerable importance, underpinning the diagnosis of all cancer worldwide. In recent years, the series' adoption of a relational database approach and a hierarchical classification according to Linnaean principles has vastly improved the standardization of tumour classification across anatomical sites, requiring authors to consider all characteristics of each tumour and highlighting the increasingly multidisciplinary nature of cancer diagnosis. The WHO Classification of Tumours programme also runs a website which gets a growing success (WHO Classification of Tumours Online; https://tumourclassification.iarc.who.int/). Production of the WHO Classification of Tumours series are funded by book sales and website subscriptions alone.

- ❑ During the first half of the MTS 2021–2025, the following volumes were published. In 2021, IARC published IARC the 5th Edition, volume 6, of the WHO Classification of Tumours: Central Nervous System Tumours. This WHO series is regarded as the gold standard for the diagnosis of tumours and comprises a unique synthesis of histopathological diagnosis with digital and molecular pathology. In 2022, IARC published the 5th edition, volume 8, of the WHO Classification of Tumours: urinary and male genital tumours. In 2023, IARC published the 5th Edition, Volume 7 of the WHO Classification of Tumours: Paediatric Tumours.
- ❑ The IARC programme also launched a new website dedicated to Mapping the Evidence for the WHO Classification of Tumours: a Living Evidence Gap Map by Tumour Type project (https://wct-evi-map.iarc.who.int/).

- **Scientific production on clinical practice**

In addition to the WHO classification of Tumours programme described above, IARC produces some scientific documents on clinical practice in oncology. During the first half of the MTS 2021–2025, it is worth mentioning the following publications:

- Patterns of Care for Women with Breast Cancer in Morocco: An Assessment of Breast Cancer Diagnosis, Management, and Survival in Two Leading Oncology Centres, 2021
- WHO Reporting System for Lung Cytopathology, IAC-IARC/WHO Cytopathology Reporting Systems, 1st Edition, Volume 1, IAC-IARC/WHO, 2022
- WHO Reporting System for Pancreaticobiliary Cytopathology, IAC-IARC/WHO Cytopathology Reporting Systems, 1st Edition, Volume 2, IAC-IARC/WHO, 2022
- Treatment guideline concordance, initiation, and abandonment in patients with non-metastatic breast cancer from the African Breast Cancer-Disparities in Outcomes (ABC-DO) cohort in sub-Saharan Africa: a prospective cohort study, Lancet Oncology, 2022 Jun;23(6):729-738
- Risk of hematological malignancies from CT radiation exposure in children, adolescents and young adults, Nature Medicine, 29, 3111–3119 (2023)

WHO Classification of tumours:

Four volumes published in 2020–2021: Soft Tissue and Bone Tumours, Female Genital Tumours, Thoracic Tumours and Central Nervous System Tumours.

2022–2023: Published in print:

- *Central Nervous System Tumours*, 5th edition (2022)
- *Urinary and Male Genital Tumours*, 5th edition (2022)

- *Paediatric Tumours*, 5th edition (2023)
- *WHO Reporting System for Lung Cytopathology*, 1st edition (2023)
- *WHO Reporting System for Pancreaticobiliary Cytopathology*, 1st edition (2023)

As beta versions online:

- *Head and Neck Tumours*, 5th edition
- *Endocrine Tumours*, 5th edition
- *Haematolymphoid Tumours*, 5th edition
- *Skin Tumours*, 5th edition
- *Eye and Orbit Tumours*, 5th edition
- *Genetic Tumour Syndromes*, 5th edition

5.4 Economic and societal impacts

IMPACTS: economic and societal impacts		
Main ambitions of the MTS 2021–2025	**KPIs**	**Source**
➢ Integration of economic and societal impacts into IARC programmes and studies	❑ Research Team: Health economics and cancer (case study) ❑ Research Team: Cancer inequalities (case study)	CSU, other Branches

IARC's scientific production on economic and societal impacts of cancer focuses on Health Economics and Cancer inequalities. Those topics are part of the MTS emerging priorities. A dedicated Research Team was set up for each of these two topics: Health Economics and Cancer Team (HEC), Cancer Inequalities Team (CIN). In addition to these two Research Teams, IARC also studies intergenerational burden of cancer, including maternal orphans due to cancer, paternal cancer orphans, and Children living with a parent undergoing cancer.

- **Health Economics and Cancer**

Case study: Research Team on Health Economics and Cancer (HEC)
❑ To assess the economic burden of cancer, IARC's work has focused on the monetary valuation of productivity lost due to premature mortality from cancer. The CSU Branch estimated that half of the total productivity loss in Europe was due to unpaid work, with a particularly high proportion among women. The cumulative costs of cancer would be €1.3 trillion over the next two decades, amounting to 0.43% annually of total GDP. Novel methods, country-specific analyses, and economic evaluations of alcohol reduction strategies were also published during the MTS period. Within ChildGICR, a systematic review of financial hardship in childhood cancer proposed a data-driven methodological framework to inform effective policies to address the economic impact on families.
❑ Within the Lancet Commission on Women, Power, and Cancer, IARC also analysed the economic impact of cancer diagnosis among women, evaluating women's contribution to the cancer health workforce, setting the investment case and standards for a responsive health system refocused to the needs of women in all their diversity.
❑ Due to a departure in 2021 of the dedicated P-staff and a delayed recruitment process, the Research Team on Health economics is not yet structured. The new IARC employee in charge of this topic joined the Agency at the end of 2023.

- **Cancer inequalities**

Case study: Research Team on Cancer Inequalities (CIN)

- ❑ In 2021 a report entitled "Childhood Cancer: Inequalities in the WHO European Region" was jointly developed by WHO HQ, WHO Regional Office for Europe, IARC, and international partners. The report published in February 2022 makes recommendations on the key steps that are likely to have the greatest impact in reducing inequalities across the Region.
- ❑ In 2022, IARC launched a new website on inequalities in cancer incidence and mortality. The website describes IARC's specific projects on cancer inequalities. It also provides links to recently published articles and to news and media coverage of this research (https://cancer-inequalities.iarc.who.int/).
- ❑ For the World Cancer Day 2023, IARC published a series of videos highlighting the Agency's research on cancer inequalities. In February 2023, IARC Director and Head of the Environment and Lifestyle Epidemiology (ENV) Branch gave lectures on cancer prevention and inequalities in cancer incidence and mortality during the Conference on Strategies to Decrease Inequalities in Cancer Therapeutics/Care and Prevention, hosted by the Pontifical Academy of Sciences and the European Academy of Cancer Sciences in Vatican City.
- ❑ Major publications on social inequalities during the MTS 2021–2025 period include:
  - Vaccarella S, Ginsburg O, Bray F (2021). Gender inequalities in cancer among young adults. Lancet Oncol. 22(2):166–7. https://doi.org/10.1016/ S1470-2045(21)00001-2 PMID:33539738
  - Vaccarella S, Georges D, Bray F (2023). Socioeconomic inequalities in cancer mortality between and within countries in Europe: a population-based study, The Lancet Regional Health - Europe, Volume 25, https://doi.org/10.1016/j.lanepe.2022.100551.

Lessons to prepare the evaluation of the MTS 2021–2025

- ➢ *Regarding the KPIs on cooperation with WHO, the information on the shared governance with WHO, the cooperation on the three Global Initiatives on cancer including the co-publications of IARC and WHO, as well the Handbooks on cancer prevention are accessible,*
- ➢ *Regarding the KPIs on prevention policies, the data required in the evaluation framework are accessible, including the information about the Monographs programme, the Codes Against Cancer, as well as the documentation on prevention advocacy,*
- ➢ *Regarding the KPIs on clinical practices, the information about the WHO classification of Tumours programme and the scientific documents on clinical practices in oncology are available for the MTS evaluation,*
- ➢ *Regarding the KPIs on Health economics and Cancer inequalities, the scientific productions are accessible. The Health Economics and Cancer Team (HEC) has a limited production due to delayed recruitment. The contents of the Cancer Inequalities Team (CIN) are available.*

6. List of abbreviations

- ASO: Administrative Services Office
- BFO: Budget and Finance Office
- CCEI: Cervical Cancer Elimination Initiative
- COM: Communication
- CSU: Cancer Surveillance
- DAF: Director of Administration and Finance
- DIR Office: Director's Office
- EB: Extrabudgetary funds
- ECAC: European Code Against Cancer
- ECVS: Early Career and Visiting Scientists
- EGM: Epigenomics and mechanisms
- ENV: Environment and lifestyle epidemiology
- EPR: Early Detection, prevention, and infections
- ESC: Evidence synthesis and classification
- GBCI: Global Breast Cancer Initiative
- GC: Governing Council
- GEM: Genomic epidemiology
- GICC: Global Initiative on childhood cancer
- GICR: Global Initiative for Cancer Registry Development
- HRO: Human Resources Office
- IARC: International Agency for Research on Cancer
- IOOI: Inputs, Outputs, Outcomes, and Impacts
- ITS: Information Technology Services
- KPI: Key Performance Indicator
- LAC: Latin America and the Caribbean
- LCB: Learning and Capacity Building
- LMICs: Low- and Middle-Income Countries
- LSB: Laboratory support, biobanking and services
- MTS: Medium-Term Strategy
- NME: Nutrition and metabolism
- PLW: Publishing, Library and Web-services
- PS: Participating States
- RB: Regular Budget
- RMO: Resource Mobilization and Management Office
- SC: Scientific Council
- SSR: Services to Science and Research
- VC: Voluntary Contributions
- WHO: World Health Organization