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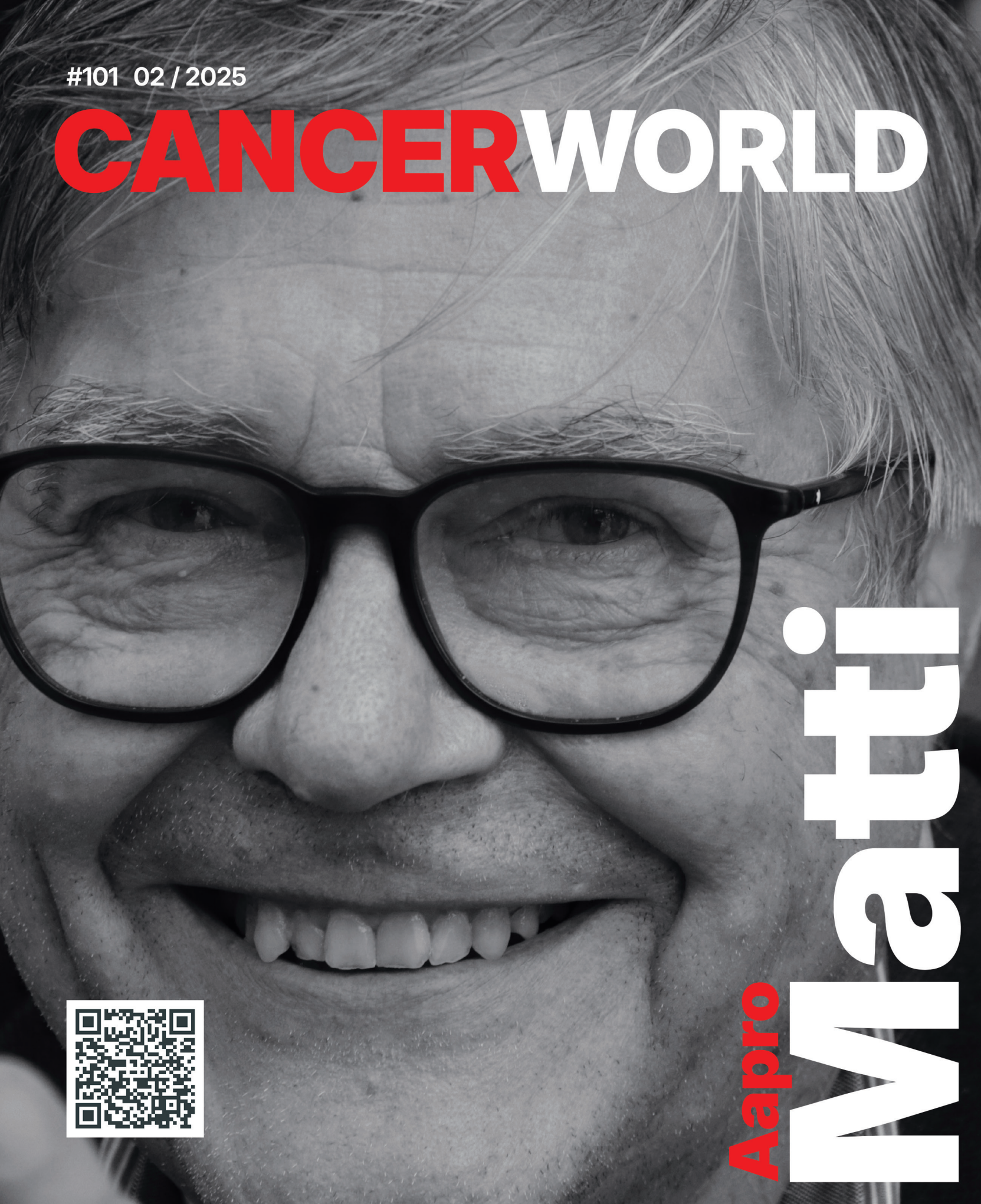
CANCERWORLD



Aapro Matti

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Adriana Albini
Editor-in-Chief

Oncology has been undergoing constant renovation at a rapid pace over the past decades. Molecular pathology and new imaging modalities, radiomics, the digital dimension, big data and eHealth technology, artificial intelligence, targeted therapy, immunotherapy, CAR-T and related cell treatments, antibody-drug conjugates, radiation therapy and nuclear medicine, and personalized combinations have all contributed to increasing survival rates for many cancers.

However, there are wide disparities in access to care based on geographic, ethnic, educational, age, gender, and socio-economic factors. War zones have created emergencies, and pandemics have challenged our preparedness.

Extended life expectancy has resulted from the epidemiological revolution of the last century. At the same time, the percentage of the aged population is increasing, bringing new fragilities. Cancer risk is higher with age.

Beyond genetics, poor lifestyle choices--such as lack of exercise, smoking, and unhealthy food--are accompanied by environmental deterioration, raising the necessity for a One Health approach.

Prevention studies and measures are the answer, though not always easy to implement.

We know that the health and well-being of cancer patients rely on many factors beyond diagnosis and therapy and that predicting who is at risk could decrease the cancer burden. All this and more is addressed by CancerWorld (CW), now part of the OncoDaily family.

CancerWorld was founded in 2004 by the European School of Oncology (ESO) and led by SPCC for four years.

Since its establishment, CancerWorld has sought to address the many complex aspects of cancer that matter to patients and where oncology professionals play a crucial role.

We have published opinion pieces, interviews with key figures, regular news updates, features, voices, educational resources, and discussions arising from conferences and courses. Prestigious international, global, and emerging journalists and professionals contribute to CW's pages.

Alberto Costa and Matti Aapro, from the European School of Oncology and Sharing Progress in Cancer Care, are physician-scientists with a deep appreciation of the humanities. They have built a truly original magazine with CancerWorld, and I have been honored to work with them.

As Editor-in-Chief of CancerWorld since 2020, I see the merger with OncoDaily as an opportunity to address new challenges together. OncoDaily and CancerWorld share the mission and vision of delivering reliable, high-quality oncology information.

As we return to printed issues after being exclusively online for a couple of years, we acknowledge innovation while preserving the essence that has made CancerWorld a trusted voice in oncology.

Through OncoDaily, CancerWorld will capture broader attention and communicate reflections on the many facets of oncology, working together for a future with less cancer-or, ideally, without it.

If you have ever stepped into a major oncology congress, you've likely felt his presence before you saw him. His voice, distinct and commanding, cuts through a room not with volume, but with purpose. His laugh--genuine and disarming--puts colleagues and mentees alike at ease. His words, brimming with conviction, have shaped the course of cancer care across continents.

For decades, Dr. Matti Aapro has been at the epicenter of progress in oncology. He has advised, built, and led organizations that have transformed the landscape of supportive care, geriatric oncology, and global cancer policy. But the man behind the reputation is more than his achievements-he is a mentor, a relentless question-asker, and most importantly, a doer. And at the core of it all, he is someone who believes in moving forward, always.

His journey started in the sun-drenched beaches of Rio de Janeiro, where he spent his early childhood before moving to Switzerland. A life that could have taken him into architecture, the profession he once considered, instead led him to the halls of medicine.

As he speaks, one thing becomes clear: this is not a man who merely observes history; he shapes it. From his pivotal role in the European Cancer Organization to founding international societies, his career is a testament to what happens when expertise meets unrelenting passion.

But beyond the boardrooms and conference halls, there is another side to Matti Aapro. A mentor who tells young oncologists, ***"Never be afraid to ask questions."*** A leader who understands that progress is not a solo endeavor, but a collective mission. A grandfather who, despite a life of global commitments, still finds joy in the laughter of his grandchildren.

As we sat down for this conversation, I realized this was more than an interview. It was a masterclass in leadership, resilience, and the simple yet profound belief that the best way to change the world is to keep asking: What more can we do?

This is the story of a man who never stopped pushing forward. And in doing so, pulled an entire field along with him.

A Childhood Between Two Worlds

"The life in Brazil was the life of a rich European kid in, at that time, an easy environment," Dr. Aapro recalls. ***"Rio de Janeiro was safe. I was able to walk from our apartment building to the beach with no problem. My parents had no anxiety. My brothers and sister went to school on the bus. It was a different time."***

Unlike his siblings, who attended the American school, young Matti was enrolled in a Brazilian school. ***"I enjoyed going to the beach, like any kid would. I was never good at soccer, but my friends still let me play,"*** he says with a smile. Life was comfortable-privileged, even-but it was about to change drastically.

His grandfather had emigrated from Finland to Brazil and became a successful businessman. His father, who had taken over the business, struggled with health issues and ultimately made the difficult decision to move the family to Switzerland. ***"Moving to Switzerland was a shock,"*** Dr. Aapro admits. ***"Coming from the freedom***

Matti Aapro

AN ONCOLOGIST WHO NEEDS NO INTRODUCTION

of Rio to the strict environment of Geneva, and the terrible weather-it was a huge adjustment. I arrived in September, and by October, I don't think I saw the sun again."

Integration wasn't easy. His parents had placed him in the Alliance Française in Rio to learn French before enrolling him in a private school, where he encountered Geneva's social divisions firsthand. ***"The city is overwhelmed by foreigners, even Swiss from other cantons are "foreigners". If you're not from Geneva, you're not from Geneva-period."***

From Architecture to Oncology

Originally, Dr. Aapro had dreams of becoming an architect. But a visit to Brazil and conversations with renowned architects changed his mind. ***"A close family friend took me to the architecture school, and I met some of the professors. When I returned to Switzerland, I spent time with a friend's father, a prominent architect in Geneva. He explained the reality of the work--and I said, maybe not."***

His mother was a physician, though she worked only as a volunteer. Medicine was a path he understood, though he entered it with little expectation.

"Let's see what happens," he thought. Then came a turning point-meeting Professor André Cruchaud, an immunologist looking for students to work in his lab. Matti eagerly volunteered.

"I liked immunology," he says. But his professor advised him against it. ***"He told me; the future is in oncology.' And then he sent me to talk to Professor Pierre Alberto."***

Dr. Aapro laughs, recalling that moment. ***"Everyone who knew Pierre, who unfortunately passed away a few years ago, succumbed to his charm. He was a wonderful person. And he said, 'Oh, yeah, Matti, I'll be happy to work with you.' And that's how I started in oncology."***

A Love Story Written in Medicine

If the story of Prof. Aapro's career is one of serendipity and mentorship, his personal life followed a similar fate. On his first day of medical school, sitting at the back of a crowded auditorium, he saw a young woman walk through the door. ***"She had blonde hair, an amazing elegance. You could tell immediately she was Italian," he remembers. "I looked at her and thought, 'Oh, wow.'"***

But she didn't notice him. ***"There were plenty of guys around her,"*** he laughs. ***"It took some time before she realized I existed. But then she did, at least because I did my homework properly."***

Their story wasn't without twists. She became engaged to a young Italian architect, leaving Matti heartbroken. ***"I was desperate. But eventually, she realized he wasn't the right one. And then, she decided I was the lesser problem. Even today, she says every year of our marriage is a miracle."***

They married in their second year of medical school and delayed having children until they both established their careers. ***"Our firstborn, Laurent, arrived after we'd been married eight years. Then Niccolo, who sadly passed away young. Then Elena. Now, we have grandchildren-Matteo, Kenji, and Anne-Sophie."***

Matti Aapro's journey, from Rio to Geneva, from architecture to oncology, from heartbreak to love, has been defined by moments of decision, of perseverance, and of finding joy in the unexpected. His story is not just one of professional triumph but of the human spirit-a relentless pursuit of betterment, not just in cancer care, but in life itself.

The Evolution of Medicine Through the Eyes of a Pioneer

Matti Aapro has lived through a revolution in medicine--one that has reshaped the very foundations of oncology. Looking back, he marvels at how dramatically the landscape has transformed over the decades.

"Of course, we have accelerated the rhythm of change. There's no doubt about that in all areas," he says. ***"When I compare the medical books my mother studied in Finland to the ones I had, the difference was already striking. And today, we don't even use medical books. Medicine has changed beyond recognition. What used to be learned from textbooks is now entirely digitized, constantly evolving with the latest advancements."***

Dr. Aapro has never been one to resist change. Instead, he embraces it, knowing that progress in oncology means lives saved. He is quick to remind us that oncology is not just about chemotherapy or targeted therapies--it is about a multifaceted approach that includes surgery, radiation and supportive care. ***"We must never forget that oncology is not just one field. It is surgical oncology, it is radiation oncology, and of course, it is medical oncology. All of these have changed and exploded in ways we never imagined."***

Yet, amidst all these advancements, he carries a tinge of regret for those who did not live to witness this transformation. ***"My first mentor, Professor André Cruchaud, once told me, 'Forget immunology. There's no future there.'" Aapro lets out another soft laugh, one filled with nostalgia. "Unfortunately, he passed away too soon to see what immunology would become in oncology. And now, it has revolutionized everything. I often wonder what he would have thought if he had seen this era."***

With a career spanning the full arc of modern cancer treatment, Dr. Aapro understands that progress is relentless. He has seen old paradigms collapse and new breakthroughs redefine the rules. But at the heart of it all, he remains committed to a single, unshakable belief: medicine exists to serve people. And the best doctors are not those who merely follow change but those who help drive it forward.

The Most Important Lesson: Always Ask Questions

For all the accolades and accomplishments, Matti Aapro's most enduring lesson from his career is simple: always ask questions.

"If you have a question, you ask," he says emphatically. ***"That's something I learned from all my mentors-André Cruchaud, Pierre Alberto, and from Syd Salmon, Stephen Jones and Dave Alberts when I worked in Tucson, Arizona. And later when I had the honour of working with Umberto Veronesi and Alberto Costa in Milano"***

This philosophy was ingrained in him early on, particularly during his medical training. He recalls the days when Professor Alex Müller, the head of the medical department, would conduct patient rounds. It was an event of great formality, with consultants, assistants and medical students standing in organized ranks.

"I was just a medical student," Dr. Aapro says, smiling at the memory. ***"And everyone else thought, 'Oh, the big professor. We cannot speak.' But I didn't care. He was just another human being. So I asked questions."***

That willingness to speak up paid off. When he later applied for an internship in the Department of Medicine-a highly competitive position-he received an unexpected call from the professor's secretary.

"She said, 'Professor Müller wants to see you.' And I thought, 'Well, here comes the rejection.'" Dr. Aapro laughs.

But instead, Müller looked at him and said, ***"Why didn't you ask me directly rather than sending this application letter? Of course, you're hired."***

That moment reinforced a lesson that has stayed with Dr. Aapro throughout his career. ***"You ask questions, you will learn. That is what I try to tell everyone. Don't be shy."***

Even now, as a globally recognized leader in oncology, he sees the same hesitation in young professionals.

"You give a talk, and no one asks questions. Then during the coffee break, suddenly ten people surround


“You ask questions, you will learn. That is what I try to tell everyone. Don’t be shy”

you, asking all the questions they were too shy to ask in front of the room. And I tell them-why not ask it then? Others could have learned something too."

The message is clear: learning happens in the open. Growth happens when curiosity outweighs hesitation. And for Dr. Aapro, the greatest breakthroughs have always started with a simple question.

A Mentor to Many: Building Legacies

Throughout his career, Matti Aapro has guided countless mentees, offering wisdom, support, and opportunities. His approach to mentorship is simple but profound: ***"People need help-ask for help. And then it's a question of contact."*** Some of those he mentored moved on in different directions, but others stayed, carving their own impactful paths. ***"And I can tell myself," he smiles, "he's one of mine, and that's a great feeling."***

His influence extends far beyond individuals. Dr. Aapro has been instrumental in establishing organizations that are now pillars of global oncology. But he is quick to deflect credit. ***"It's not me," he insists. "You don't do these things by yourself. You need the right people around you. If you have the right team, you can talk on their behalf. You can amplify their voices, and in return, they will amplify yours. That's how real change happens."***

His ability to forge strong professional relationships has been instrumental in shaping some of the most important oncology organizations in the world. When the International Society of Geriatric Oncology (SIOG) was just an idea, it needed someone who could see beyond its immediate challenges. Dr. Aapro stepped in, insisting that geriatric oncology--an often-overlooked field-deserved a dedicated society. "***I told Lodovico Balducci, 'Let's stop having just meetings. Let's create something lasting.' He hesitated at first. 'It's too complicated,' he said. But I knew it could be done. And now, SIOG is thriving."***

This determination to turn ideas into action would become his trademark. He played a pivotal role in the Multinational Association of Supportive Care in Cancer (MASCC), an organization that fundamentally changed how cancer patients receive supportive care. He learned from its founders--Hans-Jörg Senn, Jean Klastersky, and Stephen Schimpff--absorbing their strategies and applying them to his own leadership roles.

Then came ECO (previously ECCO), the European Cancer Organization. When Dr. Aapro was asked to step in, it was at a crossroads. ***"ECO was in trouble," he recalls. "People told me there was no saving it. That it was done. But my friends at the European School of Oncology, namely Prof Franco Cavalli and Dr Alberto Costa, remembering ECCO was a legacy of FECS started among others by Umberto Venoses, didn't believe in writing off an idea that still has potential."***

He worked closely with key figures like Philip Poortmans and Mike Morrissey to redefine ECO's purpose. They introduced new working groups, engaging the oncology community in ways that hadn't been done before. The impact was immediate. Societies that had previously questioned ECO's relevance suddenly saw their members actively participating in discussions that shaped European oncology policy. This sense of mentorship and responsibility isn't confined to established institutions. It extends to the political sphere as well. His long-standing relationships with policymakers, including EU Commissioner for Health Stella Kyriakides, helped shape the Europe's Beating Cancer Plan-a groundbreaking policy initiative. When Kyriakides took office, she embraced Aapro in front of her entire team, saying, ***"I've known Matti for years."*** In that moment, it was clear that his work had moved beyond oncology and into the realm of shaping how cancer is tackled on a systemic level.

But despite all of these achievements, Dr. Aapro remains unwavering in his belief that the most important part of his legacy is not in titles or awards-it is in the people he has brought together. ***"At the end of the day, the best thing you can do is connect people. Ideas fade. Organizations change. But if you've built real relationships, those last forever."***

As he reflects on the many institutions he has helped shape, it's clear that his true gift is not just leadership-it's the ability to inspire those around him to dream bigger, to push further, and to never stop asking, What more can we do?

A Life of Knowledge, Dedication, and Legacy

For a man who has spent his life in the pursuit of better cancer care, choosing a single book to recommend is no easy task. Matti Aapro has read countless volumes, each offering different insights-history, science, philosophy, and human nature. Yet, when pressed to name just one, his mind instinctively travels back to the roots of civilization.

"The first book that comes to my mind," he says after a pause, "is a book about our origins as a civilization-our occidental civilization. To understand that where we are now started a long time ago. And a lot of the complaints we hear today? They were the same complaints written 3,000 years ago by the Greeks. The kids don't behave at school." He chuckles. ***"It was already an issue back then."***

For Matti Aapro, history is more than a collection of past events. It is a mirror that reflects our present and our future. Just as he has spent his career helping that oncology evolves with time, he values the ability to see continuity in human experience, learning from the past to better shape what comes next.

Defining a Life in One Sentence

If a lifetime of work, relationships, and accomplishments could be distilled into one sentence, how would he define himself? The answer comes without hesitation.

"Matti Aapro is a person dedicated to his family, his friends, and his patients."

Simple. Honest. At the core of everything he has built, these are the three pillars that have guided him from the beginning.

Who Comes Next?

After spending hours sharing his own journey, Aapro is posed with one final question: Who should we interview next? This, too, is a complicated question. Not because he lacks an answer, but because the list is too long. There are too many names that come to mind--people who have shaped the field, who have worked tirelessly for patients, who have revolutionized cancer care in ways big and small.

"I had the opportunity, thanks to a colleague in Russia, to make a presentation that my friends in France also asked me to do--Faces in Supportive Care. My presentation started with an apology. Because I had to choose some faces. And of course, I chose those that, for me, were the most significant. Which doesn't mean that many others aren't just as significant."

He pauses, acknowledging the weight of the question. "If I name just one, I'll have thousands of enemies and one friend." Yet, if one person must be named, it seems only fitting that it should be Alberto Costa, the man behind

CancerWorld. ***"I am the godfather of CancerWorld," Aapro says, "but it is Alberto's baby. I've enjoyed working with him and continuing to work with him."***

Had fate allowed, perhaps he would have named Umberto Veronesi, the pioneering Italian oncologist who changed the face of cancer surgery and prevention, but who sadly passed away in 2016. Still, there are many others--many who have made an impact, not just those whose names appear on the covers of medical journals, but those who have worked tirelessly behind the scenes, shaping the future of cancer care for generations to come.

As the conversation comes to a close, Dr. Aapro offers one final thought. "Who cares about the areas in which I've worked and written? Anyone can go online and retrieve my publications. That's easy. What matters is whether any of this--the experiences, the lessons--resonates with someone. Maybe we didn't miss anything. Maybe, after all of this, I'll still think of things I should have said." And with that, he leans back. A life's work spoken, a legacy still unfolding.

Janet Fricker

Key link identified in mechanism promoting lung metastases from breast cancer

The amino acid aspartate has been found to function as an extracellular signalling molecule to promote lung metastases in breast cancer. The study, published in Nature, 1 January, which was undertaken in mice and postmortem human tissue, showed evidence for an alternative "translation program" that results in increased aspartate levels in the lung leading to a cascade of events that allow cancer cells to grow more easily in the lung environment.

"Even before breast cancer cells arrive in the lung, we found that the primary tumour was preparing the metabolites needed to support metastatic growth," Sarah-Maria Fendt, the corresponding author tells Cancerworld. "We showed that aspartate induces a signalling cascade that allows disseminated breast cancer cells to make different proteins, resulting in collagen production creating a favourable environment, allowing the cancer cells to grow better in the lung."

In more than half of patients where cancer spreads beyond the primary site, the lung is the metastatic location. Common cancers that metastasise to the lung include breast and liver cancers and malignant melanoma. In transition through the metastatic cascade (between distinct states such as proliferation of the primary tumour, invasion into healthy tissue, survival in the circulation, and colonisation of distant organs), Fendt argues that cancer cells need to change their cellular phenotypes to adapt to each stage, and that this requires metabolic changes. "In our research we investigate how metabolic rewiring and available nutrients aid the growth of tumours in distant organs, and how we can interrupt this process to define new therapeutic strategies," explains Fendt, who is principal investigator at the VIB Center for Cancer Biology and Professor of Oncology at KU Leuven, Belgium.

In the current study, Fendt and colleagues focused on the 'pre-metastatic niche', defined first by David Lynden in a Nature paper in 2005, as the phenomenon where tumour-secreted factors induce the formation of microenvironments in distant organs conducive to tumour cell survival. "Our starting point was the realisation that, in order to effectively grow, the metastases require nutrients, leading us to theorise that primary tumours may alter the availability of nutrients in distant organs," says Fendt.

First, to investigate how metastases grow in healthy organs versus organs that have been primed by the secretome of primary breast tumours (leading to pre-metastatic niche formation), the team performed single-cell RNA-sequencing (scRNA-seq) to compare cells from the lungs of healthy mice injected with tumour cells (controls), with cells from mice injected with both tumour cells and tumour secreted factors taken from 4T1 breast tumours. Results showed that the major difference between metastases growing in the pre-metastatic niche and metastases growing in a healthy organ was a gene expression signature indicating altered translation –- the process in which new proteins are made.

Subsequently, they discovered that metastases growing in mice with primary tumours or mice who had been injected with tumour secreting factors showed highly elevated 'hypusination' of the initiation/elongation factor eIF5A. Hypusination is a post-translational modification, where a polyamine metabolite becomes attached to eIF5A. The hypusination of eIF5A is required for alternative protein production, and this modification was largely not found in lung metastases growing in healthy mice. The results led the team to conclude that the aggressiveness of lung metastases induced by pre-metastatic niche formation was mediated through eIF5A hypusination.

To identify the trigger, they compared lung interstitial fluid taken from mice injected with tumour secreted factors (derived from primary tumours) to interstitial fluid taken from healthy control mice. They found that concentrations of aspartate, an amino acid present in low concentrations in blood plasma, were around 2.5-fold higher in mice injected with tumour secreting factors compared to healthy mice.

Next, to investigate whether aspartate was the factor making metastasis more aggressive, the team explored differences in lung metastases growing in mice who underwent aspartate injections for 10 days and mice who received control solutions. Results showed that metastases from mice pre-treated with aspartate displayed increased eIF5A hypusination and increased total numbers of cancer cells in the lung. "We concluded aspartate triggers eIF5A hypusination and promotes the aggressiveness of lung metastases," says Fendt.

After growing tumour spheroids from mouse 4T1 and human MCF10A HRASV12 breast cancer cells, the team monitored aspartate with mass spectrometry using ^{13}C tracer analysis, and showed that aspartate bound to a subunit of the N-methyl-aspartate (NMDA) receptor known as glutamate ionotropic receptor NMDA type subunit 2D (GRIN2D). "We were surprised to find that aspartate wasn't metabolised in cells into downstream products, but instead bound to a cell surface receptor," says Fendt.

Using various methods, the team went on to demonstrate that, in comparison to controls, spheroids exposed to aspartate had increased levels of GRIND2D, eIF5A hypusination, collagen synthesis enzymes and collagen.

Finally, analysing postmortem human lung samples taken from patients with metastatic breast cancer the team found elevated expression of GRIN2D, eIF5A hypusination, collagen synthesis enzymes and collagen in metastases compared to the non-cancerous lung tissue.

"This step provided evidence that the proteins identified in mice were also present in breast cancer patients with lung metastases," says Fendt.

Overall, results from the study have enabled Fendt and colleagues to construct a pathway whereby signals from the primary breast tumour support the growth of lung metastases. "We believe that a yet-unidentified signal from the primary breast tumour induces aspartate levels in the lung to increase. The aspartate binds to the GRIN2D subunit of the NMDA receptor found on the incoming cancer cells, causing calcium to enter and induce a signalling cascade in the cancer cell. This in turn leads to eIF5A hypusination and consequently the induction of an alternative translational programme resulting in increased production of collagen by cancer cells," explains Fendt.

The ultimate hope would be to use this information to inhibit formation of metastases. Potential drugs that could be repurposed, suggests Fendt, include memantine (currently used in Alzheimer's disease), which targets the NMDA receptor, and difluoromethylornithine, (DFMO, currently used in patients with high-risk neuroblastoma), which targets a polyamine synthesis enzyme needed for eIF5A hypusination.

The team have recently started preclinical studies exploring use of memantine and DFMO, (both as single agents and in combination versus standard of care) in mouse models of metastasis. "My hope for metastatic disease is that we will identify effective drug combinations as well as novel treatment strategies," says Fendt, adding that the opportunity to repurpose drugs may offer the possibility to speed up the process.

Anna Wagstaff

Owning our successes is how we secure the future of Europe's Beating Cancer Plan

A surge in actions across the EU to improve cancer prevention, screening, and care of patients and survivors shows the success of Europe's Beating Cancer Plan. We know that. To ensure continued support for cancer in the next seven-year funding cycle, we need to make sure others know it as well, says ECO's policy lead, Richard Price.

What matter of pressing regional importance could have induced a sizeable group of countries in the southeast fringes of Europe to overcome some traditional fractures and frictions this January to look for ways to collaborate? The surprising answer is the opportunity they saw to work together to help protect their populations against the threat of dying from preventable HPV-related cancers.

At a meeting hosted by Bulgaria and coordinated by the European Cancer Organisation (ECO), officials and experts from Bosnia Herzegovina, Serbia, Croatia, North Macedonia, Turkey, Slovakia, Romania and Bulgaria looked for ways to work together to eliminate this group of cancers from their populations. Topics on the agenda included improving data collection and registries; reaching out to groups that can help raise awareness and advocate; expanding gender-neutral vaccination coverage; improving screening programmes; and developing sustainable forums for exchanging knowledge and best practice on how to address common challenges.

The meeting, titled 'A Shared Vision for South East Europe: Eliminating HPV Cancers Together', was not called or organised by an EU body. Yet it happened as a direct result of the EU's Europe's Beating Cancer Plan, says ECO's Head of Policy, Richard Price. As he points out, the Beating Cancer Plan promotes eliminating HPV across Europe as one of its flagship policies, and it has motivated member states to take action by setting specific goals, together with target dates for achieving them. Crucially, it has also made substantial funding available to help countries achieve these aims, and prioritises helping countries that are lagging behind to close the gap with those that are doing better.

Price sees this eight-country collaboration, in a region with by far the worst mortality from HPV-related cancers anywhere in Europe, as a clear sign of how effective Europe's Beating Cancer Plan has been at stimulating initiatives around many different aspects of cancer policy

–– prevention, screening, quality care, survivor support –– even in countries with little history of action in these areas. What's important, he says, is that the motivation for that meeting came from the bottom up, "because the partners in those countries were suggesting to create a cooperation."

It's just one of many examples he can point to of "a ripple effect" created by the Beating Cancer Plan that has caught his attention as he has travelled around European capitals, with ECO colleagues, to promote the Plan and discuss with health ministers about their cancer priorities and how they can use the funding and support opportunities offered by the Plan to help address them.

"What we were finding when we went to a country like Slovakia, for example, is that they were conscious that their neighbour Czechia was involved in lots of things in the Cancer Plan and Slovakia wasn't." The politicians, he says, were asking about how they too could join consortiums and access funding and support. Some smaller countries, he said, have jumped at the opportunities and become leaders in specific areas that other European states are now looking to learn from "So you have a country like Latvia, which is leading on the European gastric cancer screening initiative. Everyone is looking to what they are doing. And a country like Croatia, which is leading on lung cancer screening. People are trying to learn from what they are doing."

> **"While the progress for citizens is visible on the ground, the EU policies and support that delivered it are not, and that needs to change"**

Watching this dynamic play out is both satisfying and energising, particularly for people like Price who have been involved in building support for and helping shape Europe's Beating Cancer Plan and then advocating for its implementation by member states. There's a problem, however. While the progress for citizens, patients and survivors is visible on the ground, the EU policies and support that delivered it are not, he says, and that needs to change.

"What we know, because we are working in it, is that there are many great things happening and lives being saved because of the Plan. The public unfortunately probably don't know that…" He's concerned that this lack of public recognition could hamper efforts to ensure that the priority that was given to health in general, and cancer in particular, in the EU's multiyear financial framework for 2021–2027 is sustained in the next seven-year funding cycle.

"Our challenge is to ensure that the EU Commission and politicians understand the success of the Plan," he says. "[ECO is] trying to put our shoulder to the wheel on that effort. Others need to as well."

Hidden in plain view

Price singles out for special mention the Beating Cancer Plan's action point on "Creation of 'National Comprehensive Cancer Centre(s)' in all Member States and EU network by 2025". There is arguably no area that matters more to citizens –– and is consequently more politically sensitive – than questions around the quality of care, and whether people are dying unnecessarily because of delays and failings in diagnosing and treatment their cancer.

That action, he says, has stimulated important debates across member states around: Which cancer centres in your country are going to be part of that? What will your national approach be? He gives the example of Spain, a country in which healthcare policies are largely left to regional rather than national government, where these discussions have prompted a recognition that some parts of the country do not have a comprehensive cancer centre, and raised questions about how that can be addressed. "Slovakia and Ireland have had similar discussions, and felt, 'OK, we need a national approach on this,'" says Price, "So it's been a good provoker sometimes, to get something dealt with that has been not dealt with for too long."

As he points out, the principles behind comprehensive cancer centres and networks as the key infrastructures required to provide all European citizens with access to high quality comprehensive cancer care were developed and agreed through successive EU Joint Actions and other collaborations almost a decade ago. But it wasn't until the Beating Cancer Plan included a requirement that every member state should develop these centres and networks that governments have begun to take notice.

"We all agreed, but nothing was then happening as a result. The needle wasn't moving," says Price. "Then when you have a Plan which said, 'we have a target that 90% of EU citizens should be offered access to comprehensive care,' that has pushed things." That, together with "some quite substantial funding" made available, as part of the EU4Health programme, to support that goal. For the first time, he says, "Big countries like Bulgaria and others with significant populations but also small countries that were not providing their citizens with access to comprehensive cancer care –– through the Beating Cancer Plan they now will be. Real people

getting much better quality treatment as a result of the Plan."

"When you have a Plan that sets a target that 90% of EU citizens should be offered access to comprehensive care, that has pushed things"

That's an outcome that should guarantee levels of public support that Europe's political leaders would take note of when deciding between competing policy priorities -– except for the fact that, as Price points out, "When they go to the cancer centre... they have no idea that that has come about because of the Plan. There is no poster on the wall."

And the same applies to the other areas of progress that have resulted from Europe's Beating Cancer Plan. Improvements in long-term care for cancer survivors through the eSmartCard initiative, or better protection from cervical and other HPV-related cancers through the gender-neutral vaccination policies (now endorsed by all European member states), lowered risk of lung cancer through air pollution regulations, lower risk of late diagnosis through improvements in screening triggered by the recent EU updated guidelines. "There is nothing to tell them [it is thanks to the Plan]. No adverts on TV. It's almost like a secret benefit of the EU for the individual citizens.

"So that's our challenge, to find ways to bring that success to the public, and tell the story."

Look what we've achieved!

The European Cancer Organisation marked World Cancer Day, on February 4th by meeting with EU Health Commissioner Olivér Várhelyi to talk about how much Europe's Beating Cancer Plan has achieved in its first few years, what this means for the health of citizens across member states and the case for continued funding in the next seven-year EU funding cycle.

ECO President Csaba Dégi, pictured here (on the right) with Várhelyi, highlighted a number of key achievements and work in progress, including:

- World-leading legislation in cancer prevention
- Unprecedented efforts to eliminate HPV cancers
- Expanded EU cancer screening
- Growing national adoption of 'The Right to Be Forgotten'
- A review of tobacco legislation for a tobacco-free generation by 2040
- A new EU network of comprehensive cancer centres

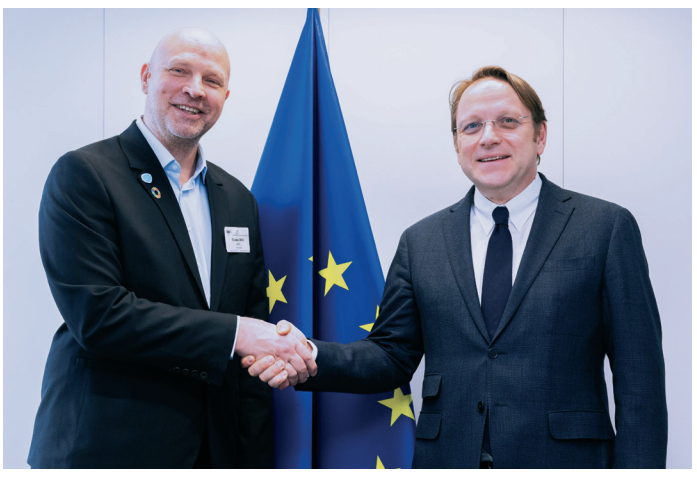
"It is now undeniable: Europe's Beating Cancer Plan is working," said Dégi. "Just look at the many lifesaving initiatives it has already spawned. I am personally grateful to the new Health Commissioner for his generous support and collaboration. Together with Europe's cancer community, there is so much more we can do to ensure EU citizens have the cancer care they all deserve."

What is at stake?

Telling the story of the successes of Europe's Beating Cancer Plan will be important, in particular, for maintaining and strengthening backing from the European Commission, says Price. Negotiations around the EUs spending allocations, which currently happen every seven years, are a key arena where policy priorities are decided. So, ensuring health and cancer get the priority they deserve will be crucial.

"That is a big political contest, because in theory there could be no money for the Beating Cancer Plan in that framework. They can say, 'We want it to be a lot more on defence, a lot more on competitiveness. We've done the Cancer Plan and that is that.' The current framework finishes in 2027. So, we have to make the case to continue financing. That is something we've been looking at a lot this year in terms of our representations."

"The current framework finishes in 2027. So, we have to make the case to continue financing"



Csaba L. Dégi, President of the European Cancer Organisation (ECO) and Olivér Várhelyi, EU Commissioner for Health and Animal Welfare

Winning that case will be part of a wider battle to consolidate the EU's role in the area of health, which expanded significantly under the previous Commission, with the launch of the European Health Union, "in which all EU countries prepare and respond together to health crises, medical supplies are available, affordable and innovative, and countries work together to improve prevention, treatment and aftercare for diseases such as cancer."

To "pave the way", almost €4.5 billion was made available under the EU4Health programme. Top of the list of priorities was "health promotion and disease prevention, in particular cancer". At least as important, particularly for Europe's cancer patients, was a commitment to strengthening health systems, including access to care, diagnostics and treatments. That money continues to be crucial in helping member states fund many of the actions set out in the Europe's Beating Cancer Plan.

Further major funding was made available, as part of the EU's 'Cancer Mission' to support efforts around cancer research, innovation, technology and cancer control, via the Horizon research framework programme and others such as the Digital Europe Programme, the Euratom Programme, and the Interregional Innovation Investments funding instrument.

Stella Kyriakides, the Commissioner for Health and Food Safety who oversaw the development of the Beating Cancer Plan, has attributed the expansion of the EU's health role under the previous Commission to "an alignment of the stars": Ursula von der Leyen had taken on top job at the European Commission on a ticket to prioritise health; Kyriakides herself, a committed and experienced cancer advocate, was given the health portfolio; and the Covid pandemic, which broke out shortly after the new Commission took office, completed the alignment, breaking down previous arguments that health is a purely national issue, and that there are no economic dividends to come from investing in better health.

In the run up to the negotiations over the 2028–2034 funding cycle, that alignment no longer holds. Changing realities at a global and European level are pushing issues of competitivity and security up the agenda. The new Health Commissioner, Olivér Várhelyi, is certainly focused on the competitivity agenda, having previously headed up the European Commission unit on intellectual and industrial property rights, dealing with patents and trademarks, including in the pharmaceutical, biotech and medical devices areas.

Furthermore, cardiovascular diseases have been brought in as the new top focus, with an instruction to develop a plan for this group of conditions along the lines of Beating Cancer Plan. At the same time, a trend towards greater Euroscepticism among many member states could affect how much member states will agree to contribute, and the areas that money can be spent on.

Voices calling to maintain and expand European funding for health and cancer through the next cycle will need to make themselves heard.

How we win the argument?

Price agrees the current alignment of the stars may not be as favourable as it once was. However, five years into the Beating Cancer Plan, we have a lot of evidence to show its impact, which should count for a lot, he says, and ECO has built up a solid bank of allies. "We're not resting on our laurels. Taking nothing for granted. But we're confident that we've got a good case, good arguments, good political support behind us."

ECO is giving a lot of thought about how best to demonstrate the progress made. At the time the Cancer Plan was being developed, says Price, ECO had asked that it include establishing a 'cancer dashboard', which could show progress in different countries towards the different goals. "That's a massive thing in terms of being able to show success."

While that proposal was not accepted –- in part because member states can be a bit sensitive about their metrics being evaluated and ranked in this way, says Price – the Commission did agree to set up a Cancer Inequalities Registry. This uses data collated by IARC (the WHO's International Agency for Research on Cancer), the OECD (Organisation for Economic Cooperation and Development) and the Commission's own Joint Research Centre, to show inequalities between countries and also social inequalities across a variety of cancer and cancer control/care metrics.

> **"We can play a role in presenting data. Putting colours on it – green, red and orange"**

The inequalities registry is designed to present snapshots, rather than track changes over time, says Price. However, ECO – being less constrained by political considerations –- is using the information to do some analyses of its own. "We can play a role in presenting data. Putting colours on it –- green, red and orange. Being able to say 'good' and 'bad' for certain countries. So we've been doing that with our European Cancer

Pulse, and country reports, and most recently screening policy index." He's not overly concerned about cancer being seemingly 'downgraded' as a priority for the Commission, in favour of cardiovascular diseases. As he points out, pursuing the goals of the Beating Cancer Plan remains part of the mission given to the incoming health commissioner. And, while it would have been good for cancer to have a further five years as the top priority, he reflects that such sustained attention is rare in politics. Price even sees something positive for cancer in the instruction to develop a plan to tackle cardiovascular diseases. "I see this as a sign that the Beating Cancer Plan is seen to have been a good approach. Because it is now being thought of for other areas... I would be more worried if there was a lapse back to just having general non-communicable diseases policy, which is all a bit nebulous and non-specific."

There will also be opportunities for working together around shared issues, he believes. Smoking, alcohol, diet and exercise are all areas of common concern, as are the many challenges around caring for cancer patients with cardiovascular comorbidities. And many innovations in the cancer plan, such as eSmartCards for survivorship, could also be applied to cardiovascular diseases.

"The challenge is to make those voices heard by the Commission, "[which] can be more distant from citizens in terms of decision making."

On the issue of broader changes in political priorities, away from health, Price argues that the key is how to win the argument at the level of the Commission. "If the European Parliament was in charge, there wouldn't be any risk of health not being on the EU agenda. The MEPs are strong on it. They've just set up a new permanent health committee of the Parliament. They are closer to the citizens."

Surveys consistently show 75%–80% support among citizens of member states for the EU to play a role in health, says Price. The challenge is to make those voices heard by the Commission, "[which] can be more distant from citizens in terms of decision making and can zone in on the big geopolitical topics".

Yet cancer and geopolitical interests are not necessarily entirely counterposed, as Price explains. Cancer has always been a unifying force within Europe, and it continues to play that role despite increased fragmentation among members states. In the run-up to the 2024 elections to the European Parliament, ECO led a strong campaign to get candidates to sign up to their Time to Accelerate manifesto.

"We got hundreds of candidates supporting the call to continue the plan, expand it and have new targets added to it," says Price. "Even people who were elected on very Eurosceptic tickets are part of our parliamentarians' group, receiving information on cancer and seeing there is a legitimate role for cooperation between countries on topics like this... I think everybody wants to see more progress on research. More progress on treatment and prevention."

Importantly, as the HPV meeting in Sofia shows, the interest is not limited to current member states. The majority of countries involved -- Serbia, Bosnia, Macedonia, Albania and Turkey -- are not current members, and the EU is keen to strengthen relations with neighbouring states. The value of this 'soft power' is a key reason why the non-member states are able to access funding from e.g. the EU4Health programme and the Horizon programme, which are the primary funders of initiatives related to the Beating Cancer Plan. There is therefore a strong argument to be made that maintaining strong funding for the Beating Cancer Plan could be part of the agenda to promote the EU's global standing and security interests, rather than counterposed to it.

Likewise, with the agenda on competitivity, where the evidence for the economic benefits from investing in prevention, early detection and support for survivors, and also research, is incontestable.

In short, the argument for maintaining strong levels of funding behind Europe's Beating Cancer Plan beyond 2027 is strong, and the mood of the public and Parliament is behind it, says Price. "But we have to be clever in how we bring that into action." Key to winning that argument where it matters, he says, will be getting much more visibility, at local, national and regional levels across Europe, for what the Beating Cancer Plan has already achieved for citizens. He is calling on Europe's cancer community to join that effort. "We all want as many European cancer stakeholders as possible to help and support that political effort."

Help spread the word!

A single-page fact sheet highlighting the achievements of Europe's Beating Cancer Plan and calling for support and funding to be sustained can be downloaded from the European Cancer Organisation's website.

EUROPE'S BEATING CANCER PLAN IS WORKING

A SUCCESS STORY FOR PAN-EUROPEAN HEALTH POLICY ACTION

A FLAVOUR OF WHAT HAS BEEN ACHIEVED...

World-leading cancer prevention legislation

- Ambitious new limits on air pollution
- New legal protections against carcinogens
- Updated EU recommendations on smoke and aerosol-free environments

The EU, leading the world on HPV cancer elimination

- Following Europe's Beating Cancer Plan goal for HPV cancer elimination, all EU countries are now politically committed to Gender-Neutral HPV Vaccination

Advancing Cancer Screening in all countries

- New cancer screening programmes piloted across Europe Growing
- EU guidelines to help guarantee quality of screening Cancer Image
- Europe platform to advance research

Right to Be Forgotten*

- Just two countries provided protection in 2019
- Now, nine countries offer legal binding protection
- Six countries follow non-binding guidelines
- Growing recognition of the benefit of a European approach

Europe's Beating Cancer Plan is driving strong collaboration across European Commission DGs and is inspiring the development of national cancer plans.
**The 'right to be forgotten' (RTBF) refers to the rights of cancer survivors to resume a "normal" lifestyle without encountering discrimination based on their past cancer diagnosis, after they have been declared cured. Reference: Ending discrimination against cancer survivors*

...WITH MUCH MORE COMING!

New edition: European Code Against Cancer

- An international benchmark in the understanding of modifiable cancer risks

Forthcoming reviews of tobacco legislation

- Following the EU ambition of creating a tobacco free generation by 2040

New EU Network of Comprehensive Cancer Centres

- Building capacity and connecting centres across the EU & beyond to widen access to comprehensive cancer care

European Inter-specialty cancer training

- 105 cancer centres in 25 countries participating in a new cross-border inter-specialty cancer training programme

EU leading in cross-border digital health

- Data sharing platforms and EU apps for patients' benefit
- Training programmes to upskill cancer professionals

Plus! New European networks of oncology expertise, an EU Cancer and Public Health Genomics Platform, a European Cancer Patient Digital Centre, a Cancer Survivor Smart Card, an EU Network of Youth Cancer Survivors and much much more.

BUT THE PLAN MUST BE SUSTAINED TO REACH ITS FULL POTENTIAL

Fulfil
Europe's Beating Cancer Plan

Refresh
The Plan for new developments in science

Expand
European goals on cancer control

Opportunities

- Linkage with forthcoming cardiovascular health plan
- Addressing long-standing health and oncology workforce shortage

Through the 'Time to Accelerate: Together Against Cancer' campaign, the European cancer community is asking that the success of Europe's Beating Cancer Plan be maintained in the next EU financial framework period, and that a refresh of the Cancer Plan take place to take account of new developments in science and practice and to ensure strong linkage with any forthcoming cardiovascular health plan.

www.europeancancer.org/timetoaccelerate

OncoDaily Acquires CancerWorld

A New Era in Oncology Media

In January 2025, OncoDaily, a leading oncology media globally, had the privilege of acquiring CancerWorld, one of Europe's oldest and most respected oncology magazines and online platforms.

CancerWorld was established in 2004 by the European School of Oncology (ESO) and was successfully managed by Sharing Progress in Cancer Care (SPCC) from 2020 to 2025. This transition represents an important step in OncoDaily's commitment to delivering reliable, high-quality oncology information. It allows OncoDaily to tap into CancerWorld's extensive and respected network of journalists from around the globe, who have consistently delivered content on critical topics in oncology.

CancerWorld has long been recognized as a key resource for oncology professionals, researchers, and advocates, offering insightful stories and fostering critical

discussions in the field. OncoDaily's co-founder and editor-in-chief, prof. Gevorg Tamamyan, commented:

> **"OncoDaily values collaborations with leading oncology organizations and is committed to providing diverse, informative content to the oncology community. CancerWorld, with its strong reputation, great staff and network, enhances our ability to meet this commitment. Together with OncoDaily and the OncoDaily Medical Journal (ODMJ), it supports our goal of delivering comprehensive coverage in oncology."**

Under OncoDaily's management, CancerWorld will retain its focus on quality journalism while expanding its reach through new opportunities and formats. This will enable CancerWorld to grow its global audience and adapt to the evolving needs of the oncology community.

We extend our appreciation to ESO and SPCC for their exceptional contributions to CancerWorld's success.

Their efforts have laid a strong foundation, ensuring the magazine's place as a trusted source of oncology information.

With this acquisition, OncoDaily aims to integrate CancerWorld into its portfolio while maintaining its integrity and mission.

Together with SPCC and ESO, we will work to ensure that CancerWorld continues to serve as a vital resource for education and communication in oncology.

Yeva Margaryan

Making Personal Experience a Political Priority: Insights from EU Commissioner Stella Kyriakides

The fight against cancer in Europe has taken center stage, with Europe's Beating Cancer Plan being one of the most comprehensive initiatives aimed at reshaping cancer care across the continent. In an exclusive interview, EU Commissioner for Health and Food Safety, Stella Kyriakides, shares key achievements, under-discussed challenges, and her vision for the future of cancer care in Europe.

As a breast cancer survivor herself, Commissioner Kyriakides brings both a professional and deeply personal perspective to her mission, advocating for equity, mental health, innovation, and resilience in healthcare.

Europe's Beating Cancer Plan

Launched in 2021, Europe's Beating Cancer Plan is one of the most ambitious and well-founded plans that Europe has ever had. This holistic plan goes from prevention to screening, treatment, care, and quality of life. ***"We always say, this is every European citizen's plan. Because what we are trying to do through this plan is to change the realities for cancer care in Europe so that we have equal access and care for all citizens of Europe,"*** Kyriakides noted.

Key Achievements of Europe's Beating Cancer Plan

Under Kyriakides' leadership, Europe's Beating Cancer Plan has made significant progress in improving cancer care. She highlighted some of the plan's major accomplishments during her mandate:

- **Updated Cancer Screening Recommendations:** For the first time in 19 years, breast, cervical, and colorectal cancer screening recommendations were updated for all member states. This ensures that citizens receive the most up-to-date care.

- **Access to Medicines:** The plan also focuses on ensuring that all cancer patients have equal access to medicines and innovative treatments, a crucial step toward bridging the gaps in care between different regions.

- **Comprehensive Cancer Centres:** A network of Comprehensive Cancer Centres is being established to promote equity in care across Europe.

"There are many different actions going from prevention to quality of life afterwards, with the main focus being

on ensuring that every European citizen and every European cancer patient, no matter where they live, have equal chances of surviving cancer, equal access to medicines, equal access to optimal treatment and care," Kyriakides stated.

COVID-19 as One of the Biggest Challenges in Delivering Cancer Care

Like many healthcare initiatives, the Beating Cancer Plan faced unexpected challenges due to the COVID-19 pandemic. Access to screening programs and treatments was disrupted as healthcare systems prioritized pandemic response.

"Member states had to put screening programs on hold because of the pandemic. COVID-19 impacted access to care. That was an unprecedented challenge that could not be foreseen. But we worked very closely with the member states and with the health ministers to ensure that people got back to screening and that cancer treatments were not interrupted," Kyriakides explained.

Despite the immense pressure COVID-19 placed on health systems, patients, and all citizens across Europe, the Commissioner described it as a defining moment that highlighted the power of solidarity in health. ***"We were able to deliver COVID-19 vaccines simultaneously, on the same day, to all citizens, regardless of which member state they lived in. This was a crucial step in building what would become the European Health Union, demonstrating that we are stronger together,"*** Kyriakides said.

Mental Health and Quality of Life as Integral Parts of Cancer Care

The psychosocial care and mental health of cancer patients and their families is another, often overlooked challenge that the Commissioner puts a great emphasis on. ***"We often don't talk about this. We talk about other treatments for cancer, but we don't look at treating the whole person and not only the disease.***

That's why, for the first time as part of the European Health Union, we introduced a comprehensive mental health strategy addressing also mental health within cancer care. This plan is expansive, well-funded, and designed to implement a wide range of actions gradually but steadily across Europe," explains Commissioner Kyriakides.

Bridging Gaps in Cancer Care Across Europe

Despite significant advances, disparities remain, particularly in rural or under-resourced areas, with limited access to innovative treatments. ***"Ensuring equitable access to innovative medicines is a huge challenge," acknowledges Kyriakides. To address this, the EU has introduced a new pharmaceutical reform proposal aimed at creating a single market of medicines, enhancing access to innovative treatments for all EU citizens. "In order to understand what the problems are, you need to be able to identify them. For the first time, we have created the European Cancer Inequalities Registry, which is mapping the situation in relation to cancer care and medicines in different member states. The reason for this is that it allows us to focus on where we should be supporting member states in order to bridge the gaps so that we are able to bring forward the concept of equity in cancer care across the EU,"*** she adds.

Besides the European Cancer Inequalities Registry which allows to explore where the support is needed and help member states through the cancer plan, the EU is building up a network of accredited Comprehensive Cancer Centres. ***"This is the way in which you bring up equality in access to care for all the patients in the EU. We also have an ongoing workforce training program for healthcare professionals. By the next year, it will be running in 100 cancer centers in 15 member states,"*** emphasized Kyriakides.

Rare and Pediatric Cancers: Addressing Challenges and Enhancing Support

Rare and pediatric cancers often receive less attention. According to the Commissioner, the Commission has focused a significant part of the plan and joint actions on addressing the needs of these populations.

"The pharmaceutical reform that we proposed has many proposals in the area of innovative medicines, which will improve access to innovative medicines for all patient groups, including those with rare diseases and pediatric cancers," Kyriakides stated.

Sometimes, there aren't enough patients with certain types of cancer to participate in clinical trials, making it difficult to determine the most effective treatment plans for that specific cancer type. In many cases, only a few hundred people may share the same cancer type.

According to the Commissioner, another way to address these challenges was the establishment of the European Reference Networks. "It allows you to pool all the

knowledge together. So, even if you don't have a large number of patients, a critical mass of patients, you are pooling it all together.

So, even if you come from a member state where you are one of the very few, you are part of a big network with the expertise to bring all the knowledge together," Kyriakides stated.

Other vital initiatives that tackle the existing disparities include European Reference Networks for adults with rare diseases and pediatric cancers and the Network of Youth Cancer Survivors to allow everyone to come together on a platform and exchange information, including young patients.

However, the collaborations and initiatives that aim to improve cancer care among these groups of patients are not limited to EU borders.

"For the first time, we have linked Europe's Beating Cancer Plan with the US Cancer Moonshot in order to work on pediatric cancers together and really exchange information," the Commissioner added.

Life After Cancer: Employment and Discrimination in Access to Financial Services

Life after cancer brings its own set of challenges, in particular, discrimination in employment and financial services. Kyriakides highlighted the progress on the "right to be forgotten," which has expanded to 13 member states.

"No type of discrimination for any patient! Retention of employment and return to work are two very important issues for cancer patients, this is a very important area that we need to protect... any sort of discrimination following a cancer diagnosis needs to be addressed. Europe's Beating Cancer Plan is a part of this because we don't only look at care in terms of medical care, but also the quality of life, and those who live after having cancer need to have their quality of life and their rights safeguarded," Kyriakides said.

When asked about her vision for cancer care over the next five years, Kyriakides expressed her desire to see

gaps in cancer care fully bridged across Europe. She emphasized the importance of Comprehensive Cancer Centres, ongoing professional training, and the need for resilient healthcare systems that can withstand future crises.

"Success is defined in different ways and by different milestones. I believe that what we would like to see with Europe's Beating Cancer Plan is to deliver on the promises that it has made to citizens, and to ensure that we have equal access to screening programs, treatment, good quality of life for all those who are diagnosed with cancer. We are working towards that, and we will go on working towards that," Kyriakides noted.

Keeping Health as a Political Priority

For the next generation of healthcare professionals, oncologists, and policymakers who will continue the work on Europe's Beating Cancer Plan, Kyriakides has a simple but compelling message: ***"To keep health as a political priority." "Europe's Beating Cancer Plan is very much a priority for this Commission. It has been a priority for President von der Leyen from the very beginning. And it's a plan which is now a pillar of the European Health Union. So, we will continue to work in that direction because that's what European citizens expect from us,"*** Kyriakides added.

A Personal Journey That Fuels the Mission

The breast cancer journey of Commissioner Stella Kyriakides has been widely discussed and had a key role in shaping the principles behind Europe's Beating Cancer Plan and the approach to policymaking.

"Being someone who has a cancer experience definitely changes your outlook. It has always been a part of my life. It's very much a priority in the work that

we do to ensure that we protect the rights of patients. But I would say that it also determines the work we do and the policies that we promote," Kyriakides shares.

In addition to being a cancer survivor, Kyriakides is also a qualified psychologist and has extensive experience in mental health, allowing her to understand the mental health needs of cancer patients and advocate for appropriate policies.

"I believe that when you go through any life experience, which could be any difficult life experience, you can use this experience to bring about change, to make your personal experience political," Kyriakides stated.

You Are Not Alone: A Message of Hope from the EU Commissioner of Health and Food Safety

While each individual's cancer journey is unique, Commissioner Kyriakides, herself a person with an impactful and motivating life after cancer, offered a universal message to all cancer patients and survivors:

"Every cancer patient, when they hear the diagnosis, enters a world of uncertainty. But it's a journey where there is someone there to hold their hand and walk this pathway with them so that they are able to deal with their diagnosis and continue with their lives. I believe that it's a very strong community of doctors, scientists, researchers, policymakers, and patients. And everybody is working in the same direction. And this is the community that Europe's Beating Cancer Plan brought together," Kyriakides concludes.

Under Commissioner Stella Kyriakides' leadership, Europe's Beating Cancer Plan has catalyzed transformative changes in cancer care across the continent, with a clear commitment to a future where all cancer patients not only have access to the highest standard of care but also experience an improved quality of life during and after treatment.

The goal is clear: no patient should be left behind.

Tina Jiang

China's integrated cancer care guidelines 'reflect self-confidence' in the field of oncology

China's oncologists now have access to guidelines which have been developed specifically for their patient population, incorporating locally generated evidence, and embracing holistic approaches to care, including appropriate use of Chinese traditional medicine. Tina Jiang was at the China Integrative Oncology Conference in Xi'an, last November, to find out more.

"For every three cancer patients who die in the world, one is Chinese." The President of the China Anti-Cancer Association Fan Daiming was speaking to journalists at the 2024 China Integrative Oncology Conference (CCHIO) in Xi'an. He used the stark statistic to underline key messages to both the Chinese and international reporters present in the room: cancer is a major health issue in China, and China's experiences in oncology can make a vital contribution to global efforts to understand the disease and how best to treat it and care for patients.

As one of China's ancient capitals, Xi'an was once the starting point of the ancient Silk Road, a bridge between East and West. With this cancer conference, the city once again took on that international bridging role. From November 14 to 17, 2024, the city welcomed more than 60,000 cancer experts to share insights and advances in cancer treatment and care. The conference featured thousands of presentations and discussions across 250 venues, focusing on different aspects of prevention, diagnosis and holistic multidisciplinary care across a full range of cancer types.

These discussions have taken on a particular importance in recent years, since China has embarked on a project to develop its own national cancer care guidelines, and promote their dissemination and implementation. The mammoth task is coordinated by the China Anti-Cancer Association (CACA) -- a sizeable national NGO that brings together professional and advocacy organisations from across the country -- whose President, Fan Daiming, served as guidelines editor in chief.

Between 2022 and 2023, more than 13,000 specialists were involved in developing national cancer clinical guidelines, which are continually updated and improved. Today, the 'Chinese Integrated Cancer Diagnosis and Treatment Guidelines' cover 53 cancer types and 60 treatment modalities and techniques for use in

diagnostics, treatment and care. The launch of the 2025 edition was the highlight of the Xi'an Integrative Oncology Conference.

Fan stressed how important it is for Chinese patients to be cured according to guidelines developed for the use of this specific population. The updated guidelines are more comprehensive than the first edition, he said, with the content expanded by almost one third. They are also more tailored to Chinese patients, as they incorporate much more evidence emanating from China.

Hong Liu is an Executive Board Member of the Breast Cancer Special Committee of CACA. Historically, Chinese doctors have been using, referring to, or translating relevant foreign guidelines to treat their cancer patients, she told Cancerworld. "In the past, we all followed these, whether it was European or American guidelines, but perhaps the localisation was not particularly sufficient, and we felt that not all foreign ones were suitable for us Chinese."

Foreign guidelines do not always fit the specific context of Chinese patients due to differences, for instance, in their genetic make-up, lifestyle, and environment, Liu explained. She cited the example of anti-angiogenesis treatment for patients with advanced non-small cell lung cancers, which underperformed in Western studies but showed promising results in China due to genetic variations.

Sometimes, it's not a matter of not wanting to follow foreign guidelines, she adds, but rather not being able to. "We know that many new drugs are still manufactured by several well-known pharmaceutical companies in Europe and the United States, and it takes time for them to enter China. Previously, clinical trials for these drugs lacked data on the Chinese population. Therefore, China will need to conduct its own clinical studies, which can lead to delays in adopting new drugs and treatment methods."

"It reflects a sense of self-confidence. It's a way of saying, 'I have gained extensive experience, and I should share this knowledge with others'"

Liu also pointed out that medicine is fundamentally an empirical science, and with China's vast population and the multitude of cancer cases, Chinese doctors have gained significant experience in this area. "Why not share our findings from these cases? Can we utilise some of our own data and evidence to inform clinical treatment?"

The ability to create a national guideline also reflects a sense of self-confidence, she added. It's a way of saying, "I have gained extensive experience, and I should share this knowledge with others."

It is a truly remarkable achievement, according to Katy Winckworth-Prejsnar, Director of the Global Program at the US National Comprehensive Cancer Network (NCCN), who attended the Xi'an conference. The NCCN develops cancer guidelines that are widely used across the US and around the world. Developing a full set of guidelines from scratch is a resource-intensive process that many countries struggle with, she told Cancerworld.

"What we found is it's very time-consuming and costs a lot of money, and not every country can do it," she said. "Often countries try to make national guidelines, and they realise it's very time-consuming and very expensive, and then they come back to us." In many cases, countries or even regions seek instead to adapt existing international guidelines to better fit their needs. The NCCN Global Program has some very large initiatives in Africa, Poland, Spain, and also the Middle East helping countries with this work.

"There's a lot of guideline organisations even in the Western world," said Winckworth-Prejsnar, mentioning the US and European societies of clinical/medical oncology, ASCO and ESMO, as key players. "I don't think that's a bad thing." Different guidelines can complement each other and enhance the overall quality of cancer care, she argued.

She acknowledges the growing importance of China in developing evidence for the use of new cancer treatments. "I know there's been drug approvals here before the FDA [the US regulators] has approved certain drugs, which is pretty unique. Typically, for many years, FDA was first, and so I think there's a lot of clinical advancements going on, and it makes sense to have context-specific guidelines."

> **"There's a lot of clinical advancements going on, and it makes sense to have context-specific guidelines"**

Winckworth-Prejsnar also mentioned that US oncology could learn a lot from clinical trials in China about tailoring treatments to the large Chinese American population. "We know, metabolically, there are some differences. We've seen that in Africa... we have a large African American population, and they're very under-represented in clinical trials in the US, and I'm sure the same could be said for Asian Americans. So that's really important, because there are different reactions to these therapies."

Implementing change in the clinic

Wang Guijun has been a gastric surgeon for around 20 years. He is from a hospital in Jinzhou, a remote and less-developed city located in Northeast China's Liaoning Province. He made the 3000km round trip to Xi'an to attend the CCHIO conference, hoping to learn more about the latest developments in his field. He listened attentively to the presentation of the 2025 edition of the Chinese guidelines, and took pictures of many of the slides.

This conference was his first opportunity to get to know the guidelines, Wang told Cancerworld. While CACA has made strenuous efforts to ensure they are disseminated

to every cancer professional in every hospital in every province of the country (see box), Wang says hospitals in smaller cities can often fall through the net.

"From a medical perspective, we are the medical centre of western Liaoning, but if it stands from a national perspective, our hospital is easily overlooked."

The promotion may reach larger hospitals in cities like the provincial capital Shenyang, or the major port city of Dalian, he said, "but Jinzhou might get ignored."

Promoting the guidelines

The Chinese Anti-Cancer Association has spent considerable efforts to promote awareness of the guidelines.

From 2022 to 2023 the Association organised:

> ***At a community level:** 100 lectures, conducted in 31 of China's 34 provinces, covering a distance of 35,000km, and reaching a huge audience online.*
>
> ***Within hospitals:** More than 2,000 training courses for local doctors conducted by more than 50 professional societies across the country.*
>
> ***Within universities:** Cooperation with 222 universities in China to promote the Guidelines in classes and libraries.*
>
> ***Training and certification:** A test book with 46,500 questions & answers was compiled for doctor training. As of November 2024, certificates have been issued to the almost 16,000 doctors who have passed the examination.*

While Wang recognises the value of the CACA guidelines, he observes that many of his colleagues still prefer established international standards. "From the feedback of our oncology department, they rarely refer to the CACA guidelines, but more often mention ESMO, ASCO, etc."

> **Wang believes it could take time for his peers to accept and switch to the new guidelines**

The guidelines Wang uses most frequently in clinical practice are Japanese ones, he says, due to Japan's strong track record in treating gastric cancer. Wang believes it could take time for his peers to accept and switch to the new guidelines. "Even though CACA guidelines incorporate a lot of Chinese data, I don't feel that frontline healthcare professionals have yet to fully realise the advantages at the technical level," he said.

One of the big attractions of the national guidelines, he feels, is the emphasis on holistic, integrative care.

Treating the whole patient

Liu Hong, who chairs CACA's Breast Cancer Integrated Rehabilitation Committee, and is a specialist at Tianjin Medical University Cancer Institute and Hospital, agrees that the holistic approach is a particular strength of the updated guidelines.

She noted that Western medicine still tends to treat each organ separately.

"We have very specialised departments, like those for breast cancer. If you're a breast cancer specialist, you may not be as knowledgeable about heart disease, respiratory issues, or digestive problems. However, the human body functions as a whole, and cancer is a systemic issue. What we observe as a lump in the breast is not merely a local problem of the breast," she says.

"Many times when patients get sick, when we investigate some possible causes, the patient may realise that, 'I may have been under great work pressure recently,' maybe a family member suddenly passed away, or some particularly big blows, etc."

> **"It's essential to integrate a range of professional knowledge, as the development of a tumour inevitably impacts the entire body"**

Liu elaborates that a holistic approach emphasises that it's essential to address not only the disease but also the associated risk factors, and to integrate a range of professional knowledge, as the development of a tumour inevitably impacts the entire body.

"For example, metastasis can occur. Breast cancer patients might face psychological challenges, and surgery can lead to physical effects, such as oedema. It's also important to consider the potential long-term effects of medications."

She concludes that treatment should be viewed as comprehensive and multidisciplinary. "When diagnosing this disease, I must also consider other problems caused by this disease. Ultimately, it's about managing the patient throughout the entire process."

A question of capacity

With the latest version of the guidelines, CACA joins other oncology societies around the world that are leading efforts to routinely integrate holistic care into the patient-centred process of planning treatment and care. In doing so, however, they may have to tackle many of the same challenges of capacity and access encountered by clinicians and patients elsewhere.

"In Beijing, large hospitals have strong capabilities across various disciplines, making it easier to promote services like mental health support, acupuncture, music therapy, and so on," said Wang; however, many hospitals in less developed cities lack these supportive treatment options.

"You need to have these disciplines in place before you can promote them," he points out. "If they're not available, how can you implement such approaches?" And he worries that the way hospitals are financed will deter putting more resources into expanded access to holistic care.

Hospital directors, who control resource allocation, tend to prioritise departments with higher profit margins, such as oncology, he says, while auxiliary treatments, such as traditional Chinese medicine, psychology, and palliative care, often do not receive much attention.

In an echo of similar conversations happening across many Western healthcare systems, Wang expressed concern that the huge investment China is making in cancer may be focusing too much on disease treatment at the expense of a holistic approach that promotes health and quality of life among citizens and patients. "If we invested more money and manpower not just in cancer treatment but also in prevention – improving eating habits and enhancing the quality of life – the results might be just as beneficial as focusing solely on treating the disease," he suggested.

Shushan Hovsepyan

The Second Global OncoThon

Messi, Richard and Alejandra Gere, HRH Princess Dina Mired, Pediatric Oncologists and Others Join Forces: What's the Urgent Mission Bringing Them Together?

Every year, **half a million children around the world** are thrust into a battle they never chose, against a disease they don't understand. **Every 90 seconds, a family hears the devastating words: "Your child has cancer."** But the cruelest truth is that many children suffer and die not because their cancer is untreatable - but because they lack access to care. In wealthier nations, **eight out of ten** children diagnosed with cancer survive. In poorer countries, where doctors and essential medicines are scarce, **fewer than three in ten** will live. These children are no less deserving, their parents no less loving, their futures no less full of promise. Yet they are lost - not because their disease is insurmountable, but because they were born in a place where treatment is out of reach.

Pediatric cancer research remains underfunded compared to adult cancers. With fewer than 3**0 specialized drugs** available for childhood cancers -compared to **more than 200 for adults** - there is an urgent need for greater investment in research, clinical trials, and treatment infrastructure.

But fate, though often cruel, can be challenged.

And so, on **February 15, 2025,** people from around the world came together -not in government chambers or in the halls of power, but at the Second Global OncoThon, a 24-hour virtual event where voices from every nation united to demand change.

Co-hosted by **OncoDaily** and **the International Society of Pediatric Oncology (SIOP),** the O**ncoThon had a clear mission: to raise awareness and funds for childhood cancer research.** Every dollar raised will go directly to **SIOP,** where it will be distributed as **research grants** to fund life-saving studies and advance global pediatric cancer care.

The event opened with a powerful address by **Her Royal Highness Princess Dina Mired of Jordan,** Patron of SIOP and mother of a cancer survivor, who spoke to a global audience:

> **"We're here to turn ideas into action, to bring together leaders, doctors, advocates, and families - all fighting for better care for children with cancer."**

Her challenge was simple, yet profound: **Donate $10. Challenge three friends to do the same. Keep the chain going.**

Her call was met with swift and decisive action. **Dean Crowe,** Founder and CEO of the **Rally Foundation for Childhood Cancer Research,** took the stage to **announce a $100,000 match challenge** - urging other foundations to step up and amplify the impact of the OncoThon's mission.

Support poured in from all corners of the world. Among the most celebrated voices was **Lionel Messi,** the **eight-time Ballon d'Or winner,** revered not only for his dominance on the field but also for his unwavering dedication to philanthropy.

> **"There are children who could be cured, but they don't have the chance. Please join SIOP to give them that chance," Messi urged.**

Hollywood, too, lent its voice. **Richard Gere** made an urgent appeal:

> **"We need your support. Your donation can help save thousands of children and bring hope to their families."**

His wife, Alejandra Gere, underscored the harsh reality:

> **"Childhood cancer receives far less funding than adult cancers because it is considered rare. Richard and I want to thank SIOP and the Aladina Foundation in Spain for their relentless work supporting children with cancer."**

Doctors and researchers reinforced a message that could not be ignored: This fight is urgent.

Dr. Guillermo Chantada, President of SIOP, made it clear:

> **"Research is not a luxury. It's a necessity - especially in low-income countries."**

Dr. Cliff Hudis, CEO of the American Society of Clinical Oncology (ASCO), reminded the world that this is a fight that requires unity:**"Nobody gets to the finish line alone."**

Dr. Eric Bouffet, former President of SIOP, highlighted an often-overlooked tragedy: **"Many children never even receive a diagnosis because of limited healthcare access."**

Dr. Kirsty Duncan, Former Minister of Science, Sport, and Persons with Disabilities of Canada, put forth a

direct call to governments: **"A child's access to cancer treatment should never depend on where they are born. Sustainable funding isn't just important -it's a responsibility."**

Professor Robert Peter Gale, Emmy Award-winning hematologist and Editor-in-Chief of Leukemia, made it personal: **"Instead of buying a $5 coffee at Starbucks, save that money - it could save a child's life in Zambia."**

The campaign is set to run for a total of nine months, continuing until September, which marks Childhood Cancer Awareness Month. This extended timeline ensures sustained momentum, allowing for greater awareness, fundraising, and advocacy efforts. By keeping the initiative active throughout this period, the campaign aims to maximize global engagement, secure critical funding for pediatric cancer research, and drive lasting change in access to treatment and care for children worldwide.

As Princess Dina Mired so powerfully stated: "Together, let's make this OncoThon not just a MOMENT, but a MOVEMENT."

How You Can Get Involved

The fight against childhood cancer requires collective action. **Here's how you can make a difference:**

Donate: Even a small contribution can fund research, provide treatment, and support families.

Spread Awareness: Share messages on social media using #OncoThon2025.

Take the Challenge: Join HRH Princess Dina's $10 challenge or Dean Crowe's $100,000 match -and encourage three friends to do the same.

Because no child should have to fight alone. And no child should die simply because of where they were born.

DONATE

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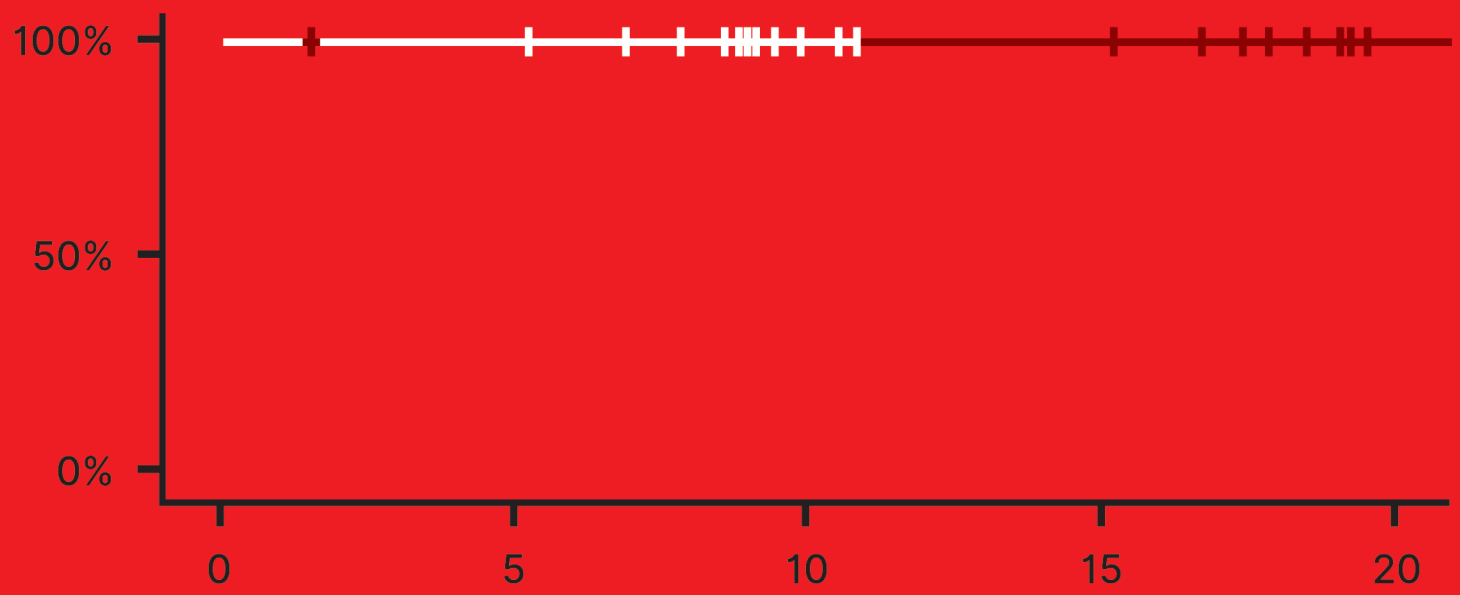

FROM NO RESPONSE *TO* NO RECURRENCE

Will bot/bal immunotherapy transform MSS colon cancer outcomes?

YVONNE AWARD 2025

for Excellence in Oncology

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The **Yvonne Award by OncoDaily**, symbolizing the strength and longevity of the yew tree, honors exceptional achievements in oncology. This prestigious award, represented by a unique **Y-shaped sculpture**, embodies resilience and recognizes young innovators and leaders advancing cancer care.

Nominate yourself or your colleague by May 10, 2025, to highlight outstanding contributions to the field.

Submit your nomination today and be part of recognizing excellence and innovation in cancer care.

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Swagata Yadavar

How Indian centres slashed treatment drop-out rates in childhood cancer

Dedicated support from day 1 for families of children diagnosed with cancer has resulted in a reduction in children failing to complete their course of treatment from one in five to one in fifty. The result has been a significant drop in mortality at centres running the programme, writes Swagata Yadavar.

Just 15 years ago, the odds were against children with cancer ever completing their treatment – especially if they happened to be female. Data from India's largest cancer centre, Tata Memorial Hospital in Mumbai, show that in 2010 nearly one child in every five dropped out by the mid-way point of their treatment course, most of them in the first six weeks. The main reasons, surveys showed, were financial constraints, lack of belief in curability and a gender bias against girls.

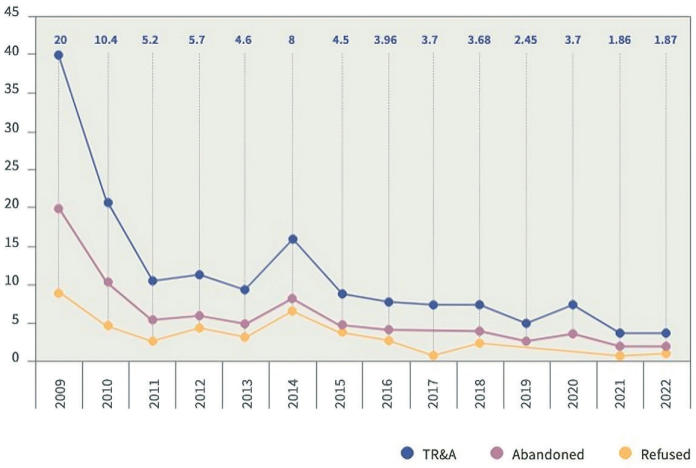
But today, there has been a remarkable transformation.

The opening illustration shows Samruddha Kulkarni, medical social worker with ImPaCCT, speaking to a young patient at Tata Memorial Hospital. Photo credit: © Afzal Adeeb Khan

The multidisciplinary team at ImPaCCT, with Shalini Jatia (in black with grey scarf). © Afzal Adeeb Khan

By 2022 the treatment abandonment rate had plummeted to just 2% thanks to the efforts of the ImPaCCT Foundation, a non-profit body founded in 2010 by the Tata Memorial Hospital. It provides comprehensive support to all families affected by paediatric cancer, from diagnosis and treatment to post-treatment.

Rates of treatment refusal and abandonment, childhood cancer patients, 2009–2022



The treatment refusal and abandonment (TR&A) rate at India's largest cancer centre, the Tata Memorial Hospital in Mumbai, has fallen drastically from 25% in 2008 to 2% in 2022.

Source: ImPaCCT Foundation, Annual Report 2022-23

From the very start, ImPaCCT (Improving Paediatric Cancer Care and Treatment) focused on supporting families who had come from India's rural villages and towns to Mumbai for treatment. Knowing no one in the big city, having little money and no place to stay, most parents of children with cancer found the hospital experience overwhelming and arduous. Discouraged by rising expenses and lack of familial support, they often took their children home without completing the treatment and sometimes without even completing initial diagnostic tests.

"The strength of the programme is that the child is supported from day one of registration at the hospital and is supported during the treatment, as well as after completion of treatment for their follow-ups," said Shalini Jatia, Officer in Charge at the ImPaCCT Foundation.

Discouraged by rising expenses and lack of familial support, they often took their children home without completing the treatment

The reason the programme began in the first place can be traced to exhaustive record-keeping at Tata. Shripad Banavali, head of the hospital's paediatric oncology department, led an analysis of treatment sheets, which revealed the scale of the problem of treatment abandonment. So Banavali decided to provide holistic support to families, inspired by a similar project at St

Jude's Research Hospital in Memphis, USA, where he had worked previously.

"Paediatric cancer was treated free of cost there, and I wanted to bring the concept to India, because childhood cancer is a highly curable disease and the children here were more impoverished and needed much more support," Banavali said.

While the average five-year survival rate for paediatric cancers is more than 80% in high-income countries, it is only 30% in low- and middle-income countries, due to the barriers in diagnosis, treatment and care. At the Tata Memorial Hospital, in 2010 the survival rate was 41%. Twelve years of patient records since then show that the department's efforts resulted in an improvement of child survival rates to 58% in 2018 – an increase of 17 percentage points.

The abandonment rate, which was 20% before 2010, had decreased to below 5% by 2015, and hit 2% by 2021.

The ImPaCCT foundation now supports 4,000 children and their families every year – at the Tata Memorial Hospital and ACTREC (affiliated clinical research centre) in Mumbai, and seven other Tata Memorial centres across India. The model has been replicated at the private Manipal Hospital, and has been shared at international conferences as a template for supporting childhood cancer patients in low- and middle-income countries.

All-round support for patients and families

Initially, the foundation started helping families by assigning a social worker to each one. Then gradually it added help with accommodation and nutrition, providing psycho-social and bereavement support and education. It also funded an "After Completion of Therapy" (ACT) clinic for survivors of childhood cancer.

Today, the ImPaCCT Foundation has a multidisciplinary team of over 76 support staff, including data managers, social workers, nutritionists, pharmacists, infection control specialists and psychologists. The ACT clinic has registered more than 5000 childhood cancer survivors.

Gradually it added help with accommodation and nutrition, providing psycho-social and bereavement support and education

Initially, survivors did not come for yearly follow-ups, due to the cost of transport and investigations. Now, the foundation has assigned a separate 'Survivorship Fund' that pays for the ACT doctor and funds investigations, medicines and even support for prosthetics. Similarly, a bereavement programme set up in 2013 ensures that families whose children die during treatment get financial support to conduct the last rites and transport the body back to their native home.

A new programme called 'Full Circle' allows childhood cancer survivors to provide services and mentorship to new patients. For example, one of the survivors has become a choreographer and comes to the wards to teach children dance once a week.

To fund all its activities, the foundation initially relied on help from other NGOs, individual donors and government grants. The introduction in 2014 of a corporate social responsibility law, which requires eligible companies to contribute 2% of net profits to social causes, was a "game-changer", says Jatia. "It significantly increased funds for paediatric cancer care."

Access to financial aid for treatment has also improved since the 2018 introduction of the Pradhan Mantri Jan Arogya Yojana, a national health scheme that provides cover to all under-privileged families for hospitalisation expenses. ImPaCCT social workers help parents access government grants by assisting them with documentation, which reduces turnaround times.

The price of success

In an article on ImPaCCT published in Pediatric Hematology Oncology Journal, Jatia, Banavali and colleagues pointed out that the model has the "potential to be adapted and implemented in other centres treating children with cancer across India and similar settings".

Jatia says the work is never-ending but "deeply satisfying". The hundreds of children who are thriving are testament to the foundation's work – but so are the parents of children who died and who want to remain associated with their work, because it gives them strength. "It speaks to their relationship with the hospital and the foundation," she said.

But as the demand has increased, so has the need for funds. "The number of cases being registered is on a rise, and there is a dire need to raise additional funds to support this," says Jatia. "Additionally we need funds for second line treatment, high end therapies and bone marrow transplants."

Amalya Sargsyan

Did we finally found a way to make immunotherapy work for MSS colorectal cancer?

It is often said in medicine that the only true constant in facing life-threatening diseases is change. Nowhere is this more evident than in oncology, where advances in chemotherapy, targeted therapies, immunotherapies, and other novel agents continue to spark hope.

Yet people still ask: Why isn't there a universal cure for cancer?

Perhaps the question itself is misguided. We don't seek a single treatment for every type of infection, after all. Cancer, similarly, is not one disease but a constellation of disorders with different genetic and biological drivers.

Colorectal cancer (CRC) illustrates this complexity. Decades ago, metastatic CRC was nearly untreatable. Then, chemotherapy with 5-fluorouracil (5-FU) and platinum-based drugs extended survival and cured some early-stage cases. Targeted therapies offered additional gains, but most advanced diseases remained beyond cure. Dogma held that metastatic CRC is incurable. Yet as scientific knowledge evolves, so do our certainties.

The last two decades saw immunotherapy generating extraordinary optimism in some cancers, where complete responses or long-term remissions emerged. In CRC, that success hinges on how tumors repair DNA damage. Deficient mismatch repair (dMMR) or high microsatellite instability (MSI-H) leads to enough mutations to draw the immune system's attention. However, nearly 80% of CRCs are microsatellite-stable (MSS) and lack these mutation profiles, rendering them invisible to standard immunotherapies.

The challenge is clear: how can we bring immunotherapy benefits to this majority?

In this shifting landscape, botensilimab-a next-generation, Fc-enhanced CTLA-4 inhibitor developed by Agenus Inc. -has fueled cautious optimism. Paired with balstilimab, a PD-1 inhibitor, it forms a dual approach designed to penetrate the traditionally unresponsive MSS population.

In two independent neoadjuvant trials (UNICORN and NEST) involving more than 80 patients, botensilimab plus balstilimab produced responses once considered unattainable in MSS colon cancer. UNICORN, a Phase

2 study in Italy with 56 patients, reported a 93% pathological complete response (pCR) rate in the dMMR/MSI-H subset -and, more surprisingly, a 29% pCR and 36% pathological major response rate in MSS tumors. Only one surgery was delayed due to side effects. Meanwhile, data from other U.S. studies indicated zero recurrences and 100% ctDNA negativity at 18.2 months (NEST1 trial) and 8.98 months (NEST2 trial), hinting that a substantial fraction of MSS patients might achieve deep remission before ever entering the operating room.

This promising data inspired the cover image of this issue - a flat curve from NEST1 and NEST2 trials with a 100% recurrence-free status at the current follow-up.

Encouraging data extends beyond the neoadjuvant setting. A randomized Phase 2 trial (NCT05608044) with 234 patients who had refractory MSS metastatic CRC compared botensilimab plus balstilimab to regorafenib or trifluridine/tipiracil. The new combination achieved a 19% overall response rate (ORR) and a 55% disease control rate (DCR), while today's standard of care arm showed 0% ORR. Around 70% of these responses were ongoing at the time of analysis. Although 89% of participants reported treatment-related side effects and 12% discontinued, such figures can be acceptable in a population with few remaining options. Even a 10–20% chance of meaningful tumor reduction can be life-changing.

Preliminary findings also suggest that combining botensilimab/balstilimab with standard chemotherapy (FOLFOX) and targeted therapies like bevacizumab may yield response rates as high as 71% in MSS disease. If confirmed, this synergy could expand patient eligibility and improve outcomes without incurring untenable toxicity. While "paradigm shift" is often overused, the possibility of immunotherapy success in MSS CRC could earn that label. A once-impervious subtype is now within reach, challenging the long-held belief that MSS disease is untouchable by immunotherapies.

Such breakthroughs do not come without risks. Immune-mediated toxicities can affect various organs, and not every patient responds. Yet even incremental advances matter. Because progress can never be purely numerical in oncology. ***A few extra months - or years-can mean a father witnessing his daughter's graduation or a mother holding her first grandchild -profound reminders that "statistics on a chart" translate into something more valuable - human experiences.***

In the neoadjuvant setting, a substantial response might also spare patients from disfiguring or life-altering surgeries, underscoring that quality of life is at stake as much as survival. Historically, medicine has repeatedly revised its certainties: advanced breast cancer was once universally fatal, then new therapies extended remission for many; MSI-H CRC seemed off-limits to immunotherapy until dramatic remissions surfaced. Today, MSS CRC stands poised on the cusp of a similar shift: from ***"no response"*** to potentially ***"no recurrence."***

The next steps - regulatory approvals and Phase 3 trials - are critical. ***Can botensilimab and balstilimab help patients at every stage, from first-line metastatic to second-line salvage? Will neoadjuvant use boost cure rates further? Who benefits most?*** The answers could reshape the care landscape for thousands of patients, paving the way for organ-preserving strategies and better long-term outcomes. While no one expects instant transformation, still, every piece of evidence that brings MSS CRC toward improved outcomes signals that dogmas can indeed be dismantled.

Progress often begins when we dare to question what we think we know.

Although the data are encouraging, botensilimab remains investigational, and further studies are needed to confirm its efficacy while carefully balancing its benefits against potential toxicities. Yet its overarching principle - that even deeply ingrained assumptions can be overturned - is already making waves. Data from UNICORN and NEST, plus the randomized Phase 2 trials in advanced disease, hint at a viable path for MSS CRC patients once deemed out of reach. In oncology, major leaps often start as bold questions that eventually topple conventional wisdom. Should botensilimab deliver on this early promise, it will join that remarkable lineage.

For now, it stands as a powerful reminder that medicine's "facts" can change the moment new evidence emerges. "Incurable" can become "durable remission," and, for some, ***"no response"*** may yet turn into ***"no recurrence."***

Disclaimer: *Botensilimab and balstilimab remain under investigation and are not yet FDA-approved. The findings described here are based on interim data. Patients should consult with qualified healthcare providers about current treatment options. This overview is for informational purposes and should not replace professional medical advice.*

The views expressed are those of the author and are not influenced by any sponsorship or financial relationships.

Janet Fricker

MRI technique can identify pre-malignant pancreatic lesions

Diffusion tensor imaging (DTI), a form of MRI, is capable of detecting pre-malignant lesions in both mouse and human pancreatic specimens. The 'proof of concept' study, published in Investigative Radiology, 13 December 2024, opens the way to use DTI for early diagnosis in people at risk of pancreatic cancer, and to understand more about carcinogenesis.

"This study represents a first step towards the early detection of pancreatic cancer with magnetic resonance imaging, even before the cancer develops," says Carlos Bilreiro, the first author from the Radiology Department at the Champalimaud Clinical Centre in Lisbon. "We conclude that pancreatic intraepithelial neoplasia (PanIN) can be detected and characterised with DTI in mice, and that the findings are generalisable to specimens taken from human pancreas."

Because symptoms of pancreatic cancer develop late in the course of the disease, many patients are diagnosed at advanced stages, too late to be eligible for pancreatic resection surgery, which is the only potentially curative therapeutic option. When patients are diagnosed in early stages, however, their outlook is much improved, with five-year survival rates of 25% to 50%.

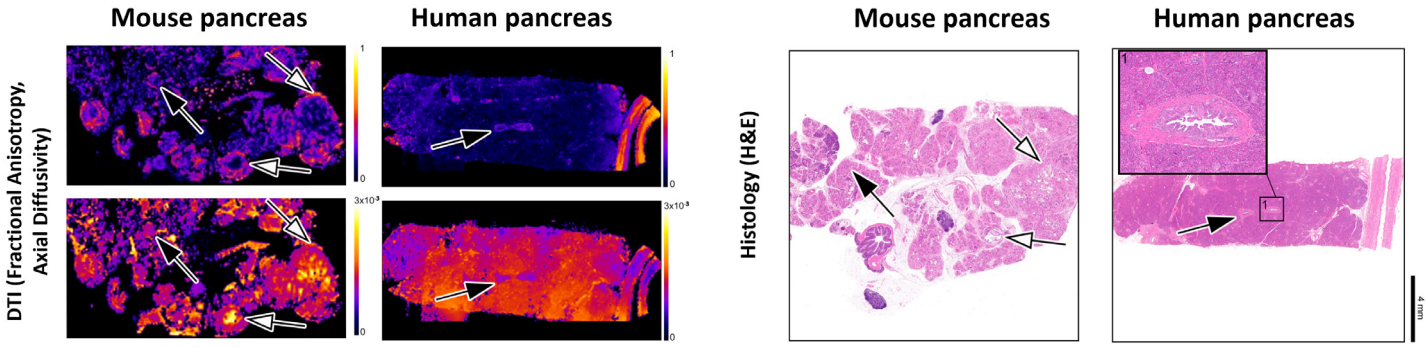
Pancreatic ductal adenocarcinoma (PDAC) accounts for more than 90% of pancreatic cancers, and has several known precursor lesions (lesions that evolve into cancer). The most frequent precursor is pancreatic intraepithelial neoplasia (PanIN) -– a lesion known to foreshadow 85% to 90% of PDACs. Noam Shemesh and Carlos Bilreiro, both from the Champalimaud Foundation, Lisbon, suggested that identifying PanIN could provide opportunities for early diagnosis of PDAC. However, until now the difficulty has been that PanIN lesions could not be diagnosed with current imaging modalities, including MRI.

Together, Shemesh and Bilreiro hypothesised that high-resolution DTI, with high sensitivity towards microarchitecture, would be capable of detecting and characterising microstructural changes in PanIN and early PDAC. "DTI is an MRI technique that relies on the diffusion of water molecules inside tissues. Because water molecules diffuse within the cells and experience interactions with cell walls and other microscopic objects, they serve as an endogenous tracer for tissue microstructure," explains Shemesh, the corresponding author, who heads the Preclinical MRI lab at Champalimaud Research. Clinically, DTI is most commonly used for tractography in neuroimaging and to characterise neurological diseases.

For the study, the team used powerful preclinical MRI scanners (designed for use with small rodents and

MRI microscopy of mouse and human pancreas, with respective histology, demonstrating the ability of diffusion tensor imaging maps to identify pre-malignant lesions (black arrows). The white arrows point to foci of adenocarcinoma.

Source: *Adapted from C Bilreiro et al. (2024) Pancreatic Intraepithelial Neoplasia Revealed by Diffusion-Tensor MRI. Investigative Radiology, courtesy of the investigators*



ex-vivo tissue specimens) that are considerably more powerful than the MRI scanners used clinically for imaging patients (16.4 Tesla vs 1.5 Tesla or 3 Tesla).

First, they focused on imaging two genetically engineered mouse models of PanIN and pancreatic cancer – the KC model and KPC model – on a monthly basis, until abnormalities were observed. KC mice develop PanIN over time, and may progress to pancreatic cancer in advanced stages; while the KPC models shows a more aggressive phenotype, resulting in earlier development of both PanIN and pancreatic cancer. "This part of the study was aimed at determining the time of onset of disease in both lines of transgenic mice, so that we could plan our experiments. Having the two models and controls allowed us to explore different degrees of disease burden and severity," Bilreiro tells Cancerworld.

Once the team had identified gross changes in the structure of the pancreas with anatomical scans (signal heterogeneity and cystic changes), they went on to scan the changes in greater detail using DTI, looking for 'hot spots' that might suggest pathology. Next, after sacrificing the mice, the mouse pancreases underwent histopathological diagnosis that allowed the actual disease status (presence of PanIN, PDAC or normal pancreas) to be established for each animal. Healthy mice (with no genetic tendency to develop PanIN and PDAC) were used as controls to explore sensitivity and specificity.

Results showed correlation between the DTI-identified 'hot spots' and the histopathological diagnosis (using control mice for the comparison), with up to 100% sensitivity and specificity. Finally, the team imaged biobank samples taken from five patients who underwent surgery for PDAC, with specimens sliced and placed inside a 10-mm MRI tube. "The histology and pathology of the samples showed that DTI was also efficient and effective for detecting human lesions,"says Shemesh.

The team view their study as 'proof of concept'. "We have found a contrast approach that is relevant for diagnosing PanIN in humans and wanted to share these important findings early with other investigators," Shemesh tells Cancerworld.

DTI technology, they believe, could ultimately be used as a method to screen for PanIN/ early signs of pancreatic cancer in people at high risk of developing the disease. "If we could identify PanIN early, we might be able to intervene before the cancer is established and improve prognosis," says Bilreiro. DTI technology, he adds, is also likely to play a role in helping to understand the tumorigenesis of PanIN and its evolution to PDAC, an area that is currently little understood.

Although current clinical MRI machines will require technical adaptation (e.g. in image processing) to undertake DTI of the pancreas, the investigators are confident that these changes are relatively straightforward to make, and within the competence of most radiologists.

Next, Shemesh and Bilreiro hope to evaluate animals from the same transgenic line at different stages of disease progression to explore whether DTI is capable of staging PanIN and PDAC. Ultimately, they hope to validate the DTI imaging technology in patients prior to undergoing surgery for pancreatic cancer.

Adriana Albini
Milan, Italy

Francesca Albini
London, UK

Sleep & Cancer: Why Rest Matters More Than You Think?

Recognizing the importance of sleep in cancer care, the European Society for Medical Oncology (ESMO) recommends regular screening and assessment for insomnia throughout all phases of treatment and survivorship. But there is more to that. Sleep disturbance and night-shift at work have been associated with increased cancer risk.

Despite centuries of wisdom recognising the importance of sleep, modern society has relegated it to a secondary concern, often sacrificed to work demands, entertainment and the distractions of modern technology. Busyness has become a badge of honour, with public figures often boasting about surviving, thriving even, on just five hours per night. With its demand for stillness and surrender, sleep feels almost subversive in a culture obsessed with constant activity.

Yet growing evidence that quality and duration of sleep impact the risk of many chronic conditions, such as obesity, diabetes, depression, high blood pressure, stroke, and heart disease, is now highlighting a good night's sleep as more than just a lifestyle preference. Evidence for the impact on the risk of many types of cancer has also been steadily growing, supported by both epidemiological and experimental studies. While much remains uncertain or poorly understood, the case is building for advice and support on sleep to be added to diet and exercise to help people lower their risk of cancer.

Introduction

Over recent decades, sleep medicine has grown at an extraordinary pace, with diagnostic sleep laboratories now being a standard feature in many countries. The evolution of this field owes much to the twentieth-century breakthroughs in understanding sleep physiology and identifying sleep disorders, which ultimately led to its formal recognition as a distinct medical specialty in the 1970s.

However, this modern discipline is deeply rooted in a long history of fascination with sleep (and dreams) that stretches back to antiquity. Ancient Egyptian texts, such as the Edwin Smith, Ebers, and Kahun Papyri, provide some of the earliest recorded references to sleep. These documents reveal that insomnia was already a recognised condition, with opium possibly being one of the first pharmacological treatments used to address it. In the medical writings of Hippocrates, it is stated that disturbances in sleep patterns often foreshadow physical ailments or mental distress. Aristotle, in his treatise On Sleep and Sleeplessness, considered sleep a natural and necessary part of life, seeing it as the way for body and mind to achieve balance and restoration.

Evidence from Epidemiology

Epidemiological studies using various methodologies shed light on the link between various sleep characteristics and different types of cancer. Not all findings are consistent and more will be needed to understand the complexities and possible confounders.

Colorectal cancer

Certain sleep disorders raise the risk of colorectal cancer (CRC) by more than 50%, according to a case–control study by Lin et al. – adjusted odds ratio 1.76 for sleep apnoea, 1.54 for insomnia, and 1.29 for any sleep disorder.

Both short and long sleep durations have been identified as risk factors. Research by Zhang et al., at Brigham and Women's Hospital and Harvard Medical School, in Boston, linked sleeping 9+ hours to higher risk of colorectal cancer, particularly among overweight individuals or those who snored. Thompson and her group at Case Western Reserve University, Cleveland, Ohio, found that short sleep duration increased colorectal adenoma risk.

A randomized study found that snoring was associated with higher rectal and colon cancer risk. Difficulty sleeping or frequent awakenings have also been linked to colorectal cancer, with UK Biobank data suggesting that good sleep quality might serve as a protective factor. A Mendelian randomisation study in Frontiers in Oncology suggests that an individual's chronotype – their preferred sleeping and waking periods over 24 hours – influence their risk of developing CRC and advises that adopting healthier sleep patterns could serve as a preventive measure to reduce this risk .

Prostate cancer

The relationship between sleep disturbance and prostate cancer risk remains complex, with studies producing mixed and often contradictory results.

An American Cancer Society study by Gapstur et al. found a higher risk of fatal prostate cancer associated with short sleep duration during the first eight years of follow-up. The REDUCE trial identified elevated odds of high-grade prostate cancer in men who reported trouble falling asleep. Additionally, research based on actigraphy (which measures body movement over time) revealed that men experiencing prolonged wakefulness after sleep onset had an increased risk of prostate cancer. Chronotype seems to exert an influence,

whereby evening types may be more susceptible to the negative effects of sleep deprivation on prostate cancer risk. However, several studies found no consistent link between sleep patterns and prostate cancer risk. The Health Professionals Follow-Up Study, for instance, reported no association between sleep duration or changes in sleep duration and advanced or lethal prostate cancer.

Lung cancer

Short sleep duration was associated with a 13% increased lung cancer risk in a 2023 meta-analysis, while long sleep duration (>8 hours) was linked to increased risk in a large 2022 UK study, which also concluded that frequent insomnia symptoms, and a pronounced evening chronotype, may contribute to an increased risk of lung cancer.

Ovarian cancer

Sleep patterns, particularly the presence of sleep disorders like insomnia, have been increasingly linked to the risk and prognosis of ovarian cancer. A large-scale population-based cohort study conducted by Wu Zheng et al., employing propensity score matching, demonstrated that people with sleep disorders had a significantly higher risk of developing ovarian cancer, with an adjusted incidence rate ratio of 1.30 compared to those without such disorders.

A Mendelian randomization study found that insomnia was associated with a 60% increased risk of endometrioid epithelial ovarian cancer, with an odds ratio of 1.60. However, conflicting evidence complicates the narrative surrounding sleep and ovarian cancer risk. For instance, a study involving over 109,000 postmenopausal women found no significant overall association between sleep duration or quality and ovarian cancer incidence. Despite this, the study noted that insomnia was linked to an increased risk of invasive serous ovarian cancer, with a hazard ratio of 1.36. Conversely, restful sleep quality was associated with reduced risks for certain cancer subtypes.

Breast cancer

The relationship between sleep and breast cancer risk has been studied extensively.

While some studies have suggested links between sleep duration and cancer incidence, the evidence remains inconsistent. A large-scale study using data from the Million Women Study found no significant association between sleep duration and breast cancer risk after adjusting for confounding factors, highlighting the need for careful interpretation of results in this field.

Sleep quality, including difficulties falling or staying asleep, has yielded mixed results regarding breast cancer risk. A 2023 case-control study in China provided compelling evidence, finding that women with short sleep durations had a significantly higher risk of breast cancer, with an odds ratio of 4.86. This study also identified specific genetic variants in the circadian genes CRY2 and PER1 linked to increased breast cancer risk, underscoring the potential role of genetic factors in the sleep-cancer relationship.

Other cancers

Sleep disturbances are also increasingly recognised as significant risk factors for various other cancers, including oral, thyroid, and kidney.

How much sleep do we need?

Current health guidelines from organizations like the National Sleep Foundation and the American Academy of Sleep Medicine outline age-specific recommendations for optimal sleep duration:

- **Adults (18-64 years):** 7–9 hours per night
- **Older adults (65+ years):** 7–8 hours per night
- **Teenagers (14–17 years):** 8–10 hours per night
- **School-age children (6-13 years):** 9–11 hours per night
- **Preschoolers (3–5 years):** 10–13 hours per day (including naps)
- **Toddlers (1–2 years):** 11–14 hours per day (including naps)
- **Infants (4–11 months):** 12–15 hours per day (including naps)
- **Newborns (0–3 months):** 14–17 hours per day

The biology behind the link

While the epidemiological data provide strong evidence of a relationship between the duration and quality of sleep and risk of different types of cancer, unravelling the nature of that relationship is not easy. Sleep disturbances can elevate cancer risk, yet cancer itself often disrupts sleep, which can make it difficult to identify which came first.

The impact of different types of sleep disturbances and different durations differs by cancer type, as well as by age and sex. Increase in overall cancer risk associated with insomnia seems higher among younger age groups, particularly between 20 and 59. Disruptions in circadian

rhythms, alterations in immune function, and hormonal imbalances are among the biological pathways thought to mediate the connection between sleep disorders and cancer. There are also many confounding factors, which muddy the waters further; obesity, chronic inflammation, and stress, for instance, are all linked to both sleep disturbances and cancer risk. Recent research also highlights the role of genetic factors. Variants in circadian genes have been identified that may influence both sleep patterns and susceptibility to cancer, suggesting a shared genetic basis for these conditions in some individuals.

Efforts to reveal how sleep issues impact cancer risk focus primarily on disruption of several biological systems that normally function harmoniously to maintain health.

Circadian rhythm

Disruption of the circadian rhythm is one of the most critical factors, as it interferes with the body's internal clock, which regulates DNA repair, gene expression, metabolism, and hormone production. This misalignment can lead to the accumulation of DNA damage, dysregulated cell growth, and hormonal imbalances, for instance in the stress hormone cortisol or the sex hormone oestrogen, all of which create a fertile environment for cancer development. Disruption of the circadian rhythm has been implicated in studies showing higher levels of breast cancer risk among night shift workers, though that increased risk level has not been conclusively demonstrated.

Melatonin

Production of melatonin is primarily governed by the circadian rhythm. Produced primarily at night, melatonin not only regulates sleep-wake cycles but also serves as a potent antioxidant, protecting cells from oxidative stress and DNA damage. Melatonin's anti-proliferative properties and its role in enhancing immune function and inhibiting tumour angiogenesis make its reduction caused by sleep disruption a significant concern in cancer prevention.

Chronic inflammation

A well-known driver of cancer, and often associated with insulin resistance, chronic inflammation is one of the consequences of poor sleep. Good sleep upregulates anti-inflammatory cytokines, such as IL-10. Sleep disturbances elevate levels of pro-inflammatory cytokines such as IL-1, IL-6, TNF-α, and C-reactive protein, contributing to oxidative stress, epigenetic changes, and the creation of a tumour-promoting microenvironment. These inflammatory processes can accelerate cancer initiation and progression, particularly in environments already predisposed to malignancy.

Immune system

The immune system, crucial for identifying and eliminating cancerous cells, is also impaired by inadequate sleep. Sleep deprivation weakens immunosurveillance mechanisms, reduces the activity of natural killer cells, and disrupts the balance of cytokines that regulate immune responses. These deficits undermine the body's ability to prevent or combat the development of cancer. The impact of sleep disturbances on cancer risk varies across different cancer types, with some showing stronger associations with sleep patterns than others.

Insulin

Sleep deprivation has also been shown to impair insulin sensitivity, making it harder for the body to manage blood sugar levels. Even short periods of restricted sleep can decrease glucose tolerance and increase insulin resistance. Insulin acts as a potent mitogen, stimulating cell division and proliferation. Elevated insulin levels resulting from insulin resistance can significantly impact cancer development and progression. It facilitates metabolic reprogramming in cancer cells, increasing glucose uptake and providing more fuel for growth and division. This can be particularly problematic for cancer cells expressing high levels of insulin receptors or insulin-like growth factor 1 receptors. When insulin binds to these receptors, it activates crucial signalling cascades. The growth-promoting effects of elevated insulin extend beyond tumour initiation, influencing cancer progression and metastasis by enhancing cancer cell survival, promoting angiogenesis, and facilitating cancer cell invasion.

Not all circadian clocks are set to the same time

Circadian timing significantly influences the restorative quality of sleep. For instance, sleep occurring outside the natural circadian window, as often experienced by night-shift workers, is less effective in providing cognitive and health benefits. Individual differences in circadian rhythms, or chronotypes, further complicate this relationship, as some people are naturally inclined to be "morning larks" or "night owls." These preferences, largely genetic, determine optimal sleep and wake times for each person. Recognising and respecting individual circadian patterns can help optimise sleep, hence health and performance, however, it is not often a viable option

in employment and schools, generally biased towards early morning starts.

Sleep – a wake-up call

We live in an era of unprecedented medical and scientific advancement, yet the fundamental role of good sleep in preserving our health continues to be largely overlooked and unaddressed. Sleep, once revered as nature's healer, is now a silent casualty in the battle between modern living and human biology. The American Academy of Sleep Medicine in recent years has issued a wake-up call, declaring that "Sleep is a biological necessity, and insufficient sleep and untreated sleep disorders are detrimental for health, well-being, and public safety." It emphasised the need for a much greater focus on sleep health, alongside a healthy diet and physical activity, in education, clinical practice, public health promotion, and the workplace.

The relationship between sleep disorders and cancer is bidirectional, leading to a vicious cycle that negatively affects both mental and physical health. Sleep disturbances are a frequent and often underestimated challenge among cancer patients. Individuals undergoing cancer treatment or living as survivors experience significantly higher rates of sleep disorders compared to the general population. Recent meta-analyses report overall prevalence rates of sleep disturbances in cancer patients ranging from 57.4% to 60.7%, substantially higher than the 9-33% prevalence observed in the general population. For patients with advanced cancer, the prevalence is even higher at 70.8%. These disturbances can manifest as difficulties falling asleep, staying asleep, or excessive daytime sleepiness. Multiple factors contribute to sleep disruptions in cancer patients, including pain, fatigue, depression, anxiety, and treatment side effects. While poor sleep is often considered a secondary concern, its impact extends beyond comfort. In addition to reducing quality of life and impairing cognitive function and mood, disrupted sleep can also influence cancer progression and treatment outcomes. Poor sleep may create an internal environment favorable to cancer cell survival, proliferation, and metastasis by weakening immune function, disrupting hormonal balance, and increasing systemic inflammation. Furthermore, inadequate sleep has been linked to reduced treatment efficacy and worse survival outcomes.

Many comprehensive cancer centers have now integrated sleep assessment and intervention as fundamental components of oncology care, aiming to enhance both patient well-being and treatment effectiveness. These centers employ integrative approaches, including cognitive behavioral therapy for insomnia (CBT-I), relaxation techniques, sleep hygiene education, and, when necessary, pharmacological interventions, to improve sleep quality in cancer patients. Monitoring and addressing sleep disturbances in cancer patients is also crucial for optimising treatment through chronotherapy. Since circadian rhythms regulate critical processes such as cell division, DNA repair, and metabolism, their disruption can significantly affect treatment efficacy and tolerability. Chronotherapy-aligning cancer treatments with these biological cycles-has shown promise in enhancing therapeutic outcomes and reducing toxicity. By systematically assessing and stabilising sleep patterns, clinicians can better tailor the timing of treatment, potentially improving both efficacy and patient resilience. Despite challenges such as individual variations in circadian biology, integrating sleep monitoring into oncology care can provide a cost-effective strategy to refine treatment delivery, reduce side effects, and maximise therapeutic effectiveness.

Given the potential impact of sleep on cancer outcomes, oncologists and patients alike must acknowledge the role of sleep in both symptom management and potential disease progression. Measures should include routine sleep quality assessment, early intervention, integration of sleep specialists into cancer care teams, and consideration of chronotherapy in treatment planning.

Recommendations for a better sleep

To improve sleep and promote overall health, the following evidence-based strategies are recommended:

Maintain a Consistent Sleep Schedule

Going to bed and waking up at the same time each day helps regulate the body's internal clock. This consistency reinforces the circadian rhythm, which is crucial for optimal sleep quality and overall health.

Create an Optimal Sleep Environment

A dark, quiet, and cool bedroom, along with comfortable bedding, promotes restorative sleep. Studies have demonstrated that environmental factors significantly impact sleep quality. For instance, a room temperature between 15.6-19.4°C is generally considered optimal for sleep.

Limit Exposure to Bright Lights and Screens Before Bed
A study published in the Journal of Clinical Endocrinology & Metabolism found that exposure to room light before bedtime shortened melatonin duration compared to dim light exposure. Reducing blue light exposure from

phones and computers at least an hour before sleep supports melatonin production.

Engage in Regular Physical Activity

Regular exercise is widely recognized for its ability to improve sleep quality, but its timing and intensity play a critical role in determining its effectiveness. Research indicates that structured high-intensity exercise, performed four times per week for 30 minutes or less over 9–10 weeks, significantly enhances sleep. However, engaging in vigorous exercise too close to bedtime may disrupt sleep. Intense physical activity raises core body temperature, heart rate, and blood pressure, interfering with the natural cooling and relaxation processes essential for sleep onset. Additionally, it triggers the release of stress hormones like cortisol and adrenaline, which can heighten alertness and delay melatonin production, disrupting the sleep-wake cycle. It is recommended to complete such activities at least 2–3 hours before bedtime to allow the body sufficient time to return to a restful state.

Manage Stress

Practices such as meditation, mindfulness, or deep breathing can reduce stress levels and prepare the mind for restful sleep. A meta-analysis of randomized controlled trials found that mindfulness meditation may be effective in improving sleep quality.

Limit Alcohol Consumption

While alcohol may help with falling asleep initially, it disrupts sleep quality later in the night. A study involving 11,905 participants found that higher alcohol consumption was associated with poorer sleep quality and higher odds of having snoring and short sleep duration. Alcohol delays the onset of the first REM period, reduces total REM sleep, and decreases its density (the frequency of eye movements during REM). Additionally, as blood alcohol levels drop, a rebound effect may occur, leading to fragmented sleep and more vivid or distressing dreams. Chronic alcohol use can cause long-term alterations in REM sleep patterns, which may persist even during abstinence.

Reduce Caffeine Intake

Caffeine can significantly disrupt sleep, even when consumed 6 hours before bedtime. A study demonstrated that caffeine taken 6 hours before bedtime reduced total sleep time by an average of 41 minutes. Caffeine works by blocking adenosine receptors in the brain. Adenosine is the chemical that builds up throughout the day creating "sleep pressure." By blocking these receptors, caffeine masks the signal of sleepiness without removing the adenosine.

Avoid Sleeping Pills for Long-Term Use

In Why We Sleep, neuroscientist and sleep expert Matthew Walker argues strongly against the use of sleeping pills for addressing sleep problems, as they do not induce natural sleep but rather sedate the brain by shutting down higher cortical regions. The sleep achieved lacks the deep brainwave activity characteristic of natural NREM sleep, resulting in poorer sleep quality. Sleeping pills cause daytime grogginess, memory impairment, and slowed reaction times. These medications provoke heightened risks of depression, suicide, accidents, sleep apnea, and other health issues. Furthermore, discontinuing these drugs often leads to "rebound insomnia," worsening the very problems they are intended to treat.

Rather than relying on pharmaceutical solutions, Walker and other sleep scientists advocate for cognitive behavioural therapy for insomnia (CBT-I) as a safer and more effective approach.

Cognitive Behavioural Therapy for Insomnia (CBT-I)

Cognitive Behavioural Therapy for Insomnia (CBT-I) has emerged as one of the most effective treatments for chronic insomnia. A meta-analysis of 20 randomized controlled trials demonstrated significant improvements in sleep onset latency and time awake after sleep onset for individuals undergoing CBT-I. Unlike medications, the effects of CBT-I are long-lasting and address the root causes of insomnia rather than merely alleviating symptoms. CBT-I incorporates several key components, including sleep restriction therapy, sleep hygiene, stimulus control, cognitive restructuring, and relaxation techniques. Sleep restriction therapy, one of the most impactful elements, involves limiting the time spent in bed to increase sleep pressure, which helps to restore the brain's natural sleep drive, while cognitive restructuring plays a crucial role in rebuilding patients' confidence in their ability to sleep by addressing anxieties and negative thoughts associated with insomnia. In recognition of its efficacy and safety, professional organizations such as the American College of Physicians recommend CBT-I as the first-line treatment for insomnia.