EDITORIAL ARTICLE

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Meeting Highlights
The 4th Marie Skłodowska-Curie Symposium on cancer research and care: Mechanisms of support for regional & international collaborations

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ABSTRACT

The Marie Skłodowska-Curie Symposia on Cancer Research and Care (MSCS-CRC) promote collaborations between cancer researchers and care providers in the United States, Canada and Central and Eastern European Countries (CEEC) to accelerate the development of new cancer therapies, new strategies for early detection and prevention, and improve cancer care and the quality of life for patients and their families. The 4th MSCS-CRC (September 25-27, 2024, Buffalo, New York) brought together 147 participants from the US, Canada, Croatia, Czechia, Lithuania, Poland, Romania and Ukraine, and involved representatives of the US Centers for Disease Control and Prevention (CDC), National Cancer Institute (NCI) and their counterparts from Poland, Ukraine Lithuania and other CEECs. They were accompanied by New York State (NYS) and local representatives of the NYS Empire State Development, and of the Translational Research Consortium of Cancer Centers (TRCCC), involving 13 cancer centers from the Northeastern US and Canada, as well as several Pharma and Biotech companies. The 4th Meeting focused on prevention and early detection of smoking- and HPV-related cancers, reducing disparities in cancer detection-, care and outcomes, and increasing the feasibility and reducing costs of high-end treatments, such as cell therapies for patients with advanced cancers. The second focus area were the available sources of funding of regional and international collaborations in these areas. The relevance of the successful model TRCC to promoting the oncology training and research collaborations in the CEE Countries was discussed. The 5th MSCR-CRC meeting will take place September 3-5, 2025, in Warsaw, Poland.

KEY WORDS: Symposium, cancer research, cancer care, international collaborations, regional collaborations

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INTRODUCTION

The Marie Skłodowska-Curie Symposia on Cancer Research and Care (MSCS-CRC), started in 2019 with the overall goal to identify the areas of collaborative opportunities between cancer researchers and care providers in the United States, Canada and Central and Eastern European Countries (CEEC) and eliminate the bariers to such collaborations[8]. MSCS-CRC aims to accelerate the development of new cancer therapies, advance early detection and prevention strategies, increase cancer awareness, and improve cancer care and the quality of life for patients and their families. The latest 4th edition of MSCS-CRC held at the Roswell Park Comprehensive Cancer Center (RPCCC) in Buffalo, NY, brought together 147 participants from the US, Canada, Croatia, Czechia, Lithuania, Poland, Romania, and Ukraine, and included representatives of the National Cancer Institutes of the United States, Poland, Lithuania and Ukraine, members of the academic cancer researh institutions from the above countries and representatives from several Pharma and Biotech companies. Discussions involved representatives of the US Center for Disease Control (CDC), New York State (NYS) Empire State Development, and of the Translational Research Consortium of Cancer Centers (TRCCC), involving 13 cancer centers from North-Eastern US and Canada. The focus of the 4th Meeting was prevention and early detection of smoking- and HPV-related cancers, reducing disparities in cancer detection-, care and outcomes, and increasing the feasibility and reducing costs of high-end treatments, such as cell therapies for patients with advanced cancers. The discussions addressed the needs and arising opportunities in education and training, joint laboratory and clinical research projects in cancer prevention, early detection and treatment, as well as new health policy initiatives, within each of the individual areas of interest in each of the Sessions.

FEDERAL AND NEW YORK STATE SUPPORT FOR INTERNATIONAL PARTNERSHIPS

Mark Parascandola (National Cancer Institute [NCI], USA; Bethesda, MD, USA) discussed the global gaps in the implementation of cancer control and the research needs and opportunities in this area. He highlighted

New York Programs Supporting Biomedical Research and Clinical Trials

- **JLABS@NYC**[1]: Incubator program providing office and lab space, education, and access to industry experts and the startup community.
- **IndieBio New York**[3]: Life science accelerator program for early-stage life science companies providing financial support, lab space, mentoring, and business skills.
- **Biodefense Commercialization Fund**[5]: Grant funding program for startups and academic institutions developing solutions to infectious diseases.

United States Federal Programs Supporting Biomedical Research and Clinical Trials

- **Cancer Prevention and Control Clinical Trials Planning Grant Program**[2]**:** Grant funding mechanism intended to facilitate well planned clinical trials across the cancer prevention and control spectrum aimed at improving prevention/ interception, cancer-related health behaviors, screening, early detection, healthcare delivery, management of treatment-related symptoms, supportive care, and the long-term outcomes of cancer survivors.
- **High-Priority Research in Tobacco Regulatory Science**[4]: Grant funding mechanism to support new high-priority biomedical and behavioral research that will provide scientific data to inform the regulation of tobacco products to protect public health.
- **NCI Clinical and Translational Exploratory/Developmental Studies**[6]: Grant funding mechanism to support preclinical and early phase clinical research, as well as correlative studies, directly related to advancements in cancer treatment, diagnosis, prevention, comparative oncology, symptom management, or reduction of cancer disparities.
- **Bioengineering Research Grants**[7]: Grant funding opportunity to encourage collaborations between life and physical sciences that apply a multidisciplinary bioengineering approach to the solution of a biomedical problem and integrate, optimize, validate, translate or otherwise accelerate the adoption of promising tools, methods, and techniques for a specific research or clinical problem in basic, translational or clinical science and practice.

Fig. 1. Existing Programs and Funding opportunities to Support Biomedical Research and Clinical Trials Available through New York State or United States Federal Mechanisms.

the role of his Center (CGH, NCI, NIH) in supporting innovative research to reduce the global cancer burden, and developing international partnerships and training opportunities in these areas, with the goal of reducing disparities in cancer related outcomes. Malgorzata (Margaret) Wojtowicz (Division of Cancer Prevention (DCP), NCI, NIH,USA), highlighted the Cancer Prevention Clinical Trials Network (CP-CTNet) within her Division, as an opportunity for collaborative cancer prevention clinical research. CP-CTNet is one of the main agent development programs within the Division of Cancer Prevention (DCP), National Cancer Institute (NCI), National Institutes of Health (NIH). It's goal is to conduct federally funded early phase cancer prevention clinical trials assessing the safety, tolerability, and cancer preventive potential of novel agents and interventions. These early-stage clinical studies include phase 0 (micro-dosing), phase I (dose-finding), and phase II (preliminary efficacy) trials to identify safe and effective preventive interventions that can subsequently move into large-scale (phase III) clinical investigations. The network aims are : a) to optimize clinical trial designs, b) to develop surrogate and intermediate endpoint biomarkers, c) to test novel imaging technologies, and d) to develop further insights into mechanisms of cancer prevention by agents and/or strategies. Current Lead Academic Organizations (LAOs) of the CP-CTNet are The University of Texas MD Anderson Cancer Center (Houston, TX), Northwestern University (Chicago, IL) , University of Arizona (Tuscon, AZ), University of Michigan (Ann Arbor, MI), and University of Wisconsin (Madison, WI). The current scientific emphasis of studies conducted within CP-CTNet include (among others): a) targeting the biology of carcinogenesis (immunoprevention, focus on high-risk population, pilot studies integrating high throughput technologies to understand mechanisms of carcinogenesis and drug action), b) strategies to optimize risk/benefit ratio (regional drug delivery e.g. topical drug application forbreast ca., inhaled agents forlung ca.; alternative dosing schedules e.g. intermittent dosing; combinations), c) re-purposing "old" drugs for cancer prevention (focus on drugs affecting multiple chronic diseases e.g. aspirin, NSAIDs, metformin), d) intermediate endpoint biomarkers as surrogates for cancer incidence. Dr. Wojtowicz presented

examples of currently open CP-CTNet studies, discussed the process flow (from submission of a trial concept through study conduct/reporting/closure to making data/specimens available to the research community) and opportunities for new investigators and/or institutions to join CP-CTNet.

Three presentations described the role of the New York State (NYS) Empire State Development Corporation (ESD) in enhancing the Biotech operations in the NYS (Figure 1). *Loretta Beine* (ESD, Long Island, NY, USA) provided and overview of the role of the ESD as the resource for industry attraction and retention. She described the ongoing complementary economic development assistance programs offered by ESD to support and attract all stage, all size life science businesses across New York state[9-13]. *Dylan Williams* (ESD, Albany, NY, USA) discussed the specifics role of ESD in advancing biotechnology, cancer research, and life science innovation. He highlighted the ESD-provided strategic financial assistance to the biotechnology and cancer research entities. Since 2017, ESD's Life Science Initiative has been to create, attract, grow, and retain life science companies by leveraging New York's academic life science assets and promoting venture capital investments in NYS life science companies; creation of accelerated paths to commercialization; and the development of life science entrepreneurial talent. ESD invests in biotechnology accelerators, academic research institutions, start-up commercialization assistance, and entrepreneurial training. *Smitha James* (University at Buffalo [UB], Buffalo, NY, USA) discussed practical examples of the interactions with the ESD within the UB Business and Entrepreneur Partnerships. Supporting both mature companies and innovative startups, UB Business and Entrepreneur Partnerships help biomedical and life sciences companies establish, grow and succeed, providing research support, access to experts, wet labs, office space, shared equipment, funding sources and connections (Figure 1).

ONGOING PARTNERSHIPS WITHIN THE MSCS-CRC AND OPPORTUNITIES FOR EXPANSION

Leszek Kotula (SUNY Upstate Medical University [SUNY-UMU]; Syracuse, NY, USA), discussed his team's experience in international collaborations developing of ABI1-based test for prostate cancer tumor progression and resistance. With his collaborators, including Pawel Wiechno; Elżbieta Sarnowska; Michal Mikula and Iwona Ługowska from the Maria Skłodowska-Curie National Research Institute of Oncology (MSCNRIO), and Kevin Lin from SUNY-UMP, Dr. Kotula evaluates the role of aberrant ABI1 in tumor tissue and liquid biopsy samples as a biomarker for cancer recurrence and predictor of sensitivity to anti-AR treatment. This project is an example of a sucessful joint collaboration between Upstate Medical University and the National Institute of Oncology in Warsaw.

Kathleen Kokolus and *Pawel Kalinski* (RPCCC, Buffalo, NY, USA) described their collaborative preclinical and early-phase clinical research program involving Rosswell Park Comprehensive Cancer Center (NY, USA), University of Pittsburgh (PA, USA), Mt. Sinai Icahn School of Medicine (NY, USA), University of Virginia (VA, USA) and Moffitt Cancer Center (FL, USA) involving live cell-based vaccine (alpha-type-1-polarized dendritic cells; αDC1s), and combinatorial reprograming of tumor mictorenvironments (TME) to sensitize immunotgherpay-resistant solid tumors to PD1 inhibitors.

Their preclinical studies show that a chemokine-modulatory regimen (CKM) combining TLR3-ligands and IFNα synergistically induces transient production of CTL attracting chemokines and suppresses Treg-attractants. CKM also selectively targets (NFκB-high) cancer lesions, but not healthy tissues, allowing its systemic application to abolish heterogeneity of TMEs, promote uniform CTL infiltration and responsiveness to immunotherapies[14-20]. The recently completed trial trial NCT03403634 confirmed the safety and immunologic efficacy of IV infusion of IFNα2b (INTRON-A) and selective TLR3-ligand (rintatolimod/Ampligen) in patients with metastatic triple-negative breast cancer (TNBC)[21]. CKM showed very good tolerability, average 10.3-fold increase in intratumoral CTL markers and preliminary signals of clinical activity (1 objective response, 50% survival of >4 years), when followed by pembrolizumab. Analogous CTL increases were also seen on study NCT04081389 (neoadjuvant CKM/chemotherapy in TNBC)[22] and NCT03403634 (liver-metastatic colon cancer). Ongoing studies NCT04093323 (in PD1-resistant solid tumors), NCT02432378 (in advanced ovarian cancer)[23], test the clinical efficacy of concomitant application of CKM with PD1 blockade and/or DC vaccines. Dr. Kalinski discussed the existing logistic-, legal-, fiscal and regulatory agreements between the participatting cancer centers in the US and biotech partners in the US and Argentina, which allowed the development of the trtials and sharing of patient material and the imported drugs (such as or Bioferon as alternative to the discontinued INRON-A), which can now be used to involve additional partners (including international) in their NCI- and DoD (US Department of Defense)-funded programs, and the newly arisng collaborative needs expanding the results to the areas of acute and chronic infections, such as hepatitis, HIV, HPV and tuberculosis.

Iryna Tanasiichuk (Bogomolets National Medical University; Kyiv, Ukraine) discussed the collaborative development of genetically modified T cells for cancer treatment in Ukraine, where patients' access to such therapies is curently limited. The current bariers involve the high cost of the FDA approved commercial treatments, challenging technology of manufacturing and lack of training needed to produce and use of these cells is the clincal settings. Dr. Tanasiichuk discussed how a collaboration between her institution and *Michael Nishimura* laboratory at Loyola University of Chicago, help to advance the development of the production of genetically modified T cells and the eventual introduction of adoptive cell therapies in Ukraine.

CONDUCTING CLINICAL TRIALS IN POLAND: MECHANISMS OF STATE SUPPORT FOR INTERNATIONAL COLLABORATIONS AND CURRENT COLLABORATIVE NEEDS

Wojciech Fendler (Medical Research Agency [MRA]; Warsaw, Poland)[24] discussed the last 5 years of the MRA experience in supporting the changing clinical trials landscape in Poland and the importance of non-commercial clinical trials as a cornerstone of medical research and the healthcare system (Figure 2). Dr. Fendler discussed how non-commercial trials provide patients with access to cutting-edge medical technologies and novel interventions . He also discussed the importance of ensuring that pateints in all disease areas those with the greatest health burden such as oncology or cardiology, but also the often underfunded rare diseases, have the opportunity to benefit from clinical research. The MRA, established in 2020, has the primary mission of increasing the number of the non-commercial clinical trials in Poland, to broaden the access to new therapeutic options for Polish patients and strengthening medical research. So far, the Agency has supported 248 projects with a total of €735 million, resulting in a sixfold increase in the number of non-commercial clinical trials in Poland. The second area of MRA's efforts is enhancement of the critical clinical trials infrastructure. MRA has provided Polish universities, research institutes and hospitals with PLN 700 million (€178 million) in competitively-funded MRA grants to establish 23 Clinical Trials Support Centers (CTSC) and 19 Regional Digital Medicine Centres. The MRE joined to the European Clinical Research Infrastructure Network (ECRIN) and has been actively guiding the national units towards the standards upheld in other EU countries. The third area of MRA's activities is bolstering the human potential of our healthcare centers, by supporting education and training opportunities in clinical research in the format of postgraduate studies, thematic courses and open seminars. Dr. Fendler highlighted the joint Clinical Scholars Research Program involving Harvard Medical School and MRA launched in 2023 and planned to support 500 participants over the next 5 years.

Iwona Ługowska (MSCNRIO; Warsaw, Poland) presented the insights from her pioneering work building the largest early-phase clinical trials program in Poland, and discussed some of the challenges and opportunities in this area. Early phase oncology trials (Phase I and early Phase II studies) assess the safety, tolerability, pharmacokinetics, and preliminary efficacy of novel anticancer agents. Advancement in the use of biomarker-driven approaches, which identify genetic mutations and molecular profiles specific to tumors, recently enabled more precise match between the individual patients and newly available treatment regimens, including immunotherapy. However, these trials face challenges in Poland and globally, due to the need of recruiting patients with specific genetic profiles. Dr. *Ługowska* discussed the existing ethical considerations and logistic challenges of such trials, whcih require advanced trial designs and adaptive methodologies. She highlighted the need for collaboration between Poland and the USA as being crucial for advancing this dynamic field and improving patient outcomes.

Karolina Nowak (MRA; Warsaw, Poland) outlined the experience at the MRA in promoting collaborations with American partners in oncology clinical trials. Poland's well-developed clinical research sector has been an attractive place for international sponsors. As the sixth highest-populated country in the European Union, with a total population of 37 million, Poland has been a regional leader among the Central and Eastern European countries (CEEC). Dr. Nowak stressed the existence of numerous treatment-naive patient populations available for trial participation. In 2019 alone, over 25,000 Polish patients gained access to novel experimental therapies as trial participants. Based on the Clinical Trial Database run by the NCI, USA25, a total of 3088 clinical trials were started in Poland between April 1, 2019 and May 2024. Oncology represents the dominant area of these trials. The latest data from the Polish National Cancer Registry show that 1.17 million of Poles live with cancer, with the annual incidence of new cancer cases of 440 per 100,000. Since cancer accounts for over 25% of deaths in Poland and 1 in 5 Polish citizens will develop cancer over their lifetimes, MRA recognizes the importance and urgency of innovative cancer research and provides research public grants for non-commercial clinical trials in Poland26. Cancer treatment projects currently remain among the most

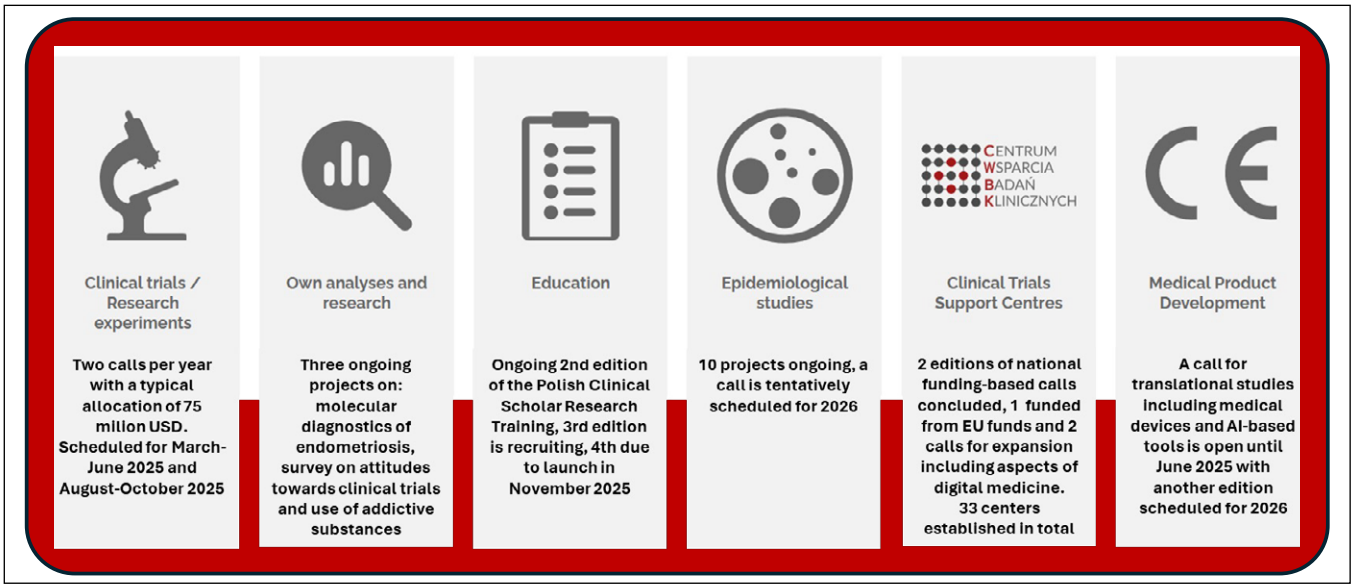

Fig. 2. Funding Opportunities from the Medical Research Agency of Poland in Support of Clinical Trials.

frequent requests from beneficiaries seeking MRA's support. In 2024 the MRA allocated $150 million for a call on cancer research including potential international projects, launching the biggest, targeted medical funding initiative, in the history of Poland. MRA developes new venues of collabotation with the US NCI to address the most pressing science-based and clinical oncology priorities faced by Poland and USA and benefiting patients in both countries. The discussed programs include sharing the knowledge and resources available to both Agencies, and engaging research teams, investigators and clinicians in cross-institutional clinical research, to accelerate the clincial implementation of new strategies into clinical practice, increase the number of non-commercial cancer trials and improve their availability to patients.

ARISING OPPORTUNITIES FOR COLLABORATIONS: TRANSLATIONAL AND CLINICAL RESEARCH

Piotr Rutkowski (MSCNRIO; Warsaw, Poland) presented the example of a phase II trial of Axitinib and Avelumab in patients with unresectable/metastatic gastrointestinal stromal tumor (GIST) who progressed after standard therapy (NCT04258956). A total of 58 patients were enrolled, of which56 were evaluable for safety and efficacy. Partial response was observed in 5 (9%), stable disease in 34 (61%) and progressive disease in 17 patients (30%). In patients with partial response, the median duration of response was 18.5 months (95%CI, 18.3-NA). Median PFS and OS were 4.6 months (95%CI, 2.9-6.4) and 14.2 months (95%CI, 9.2-26.3), respectively. The 12-month PFS and OS rates were 23% (95% CI: 14-37.1) and 59.3% (95% CI: 47.5-74), respectively. This largest trial of a combination of targeted therapy and immunotherapy in pretreated GIST, which showed significant and meaningful efficacy of this novel therapeutic approach. A significant subset of pts achieved long term clinical benefit highlighting the need for a multi-institutional phase III study.

Mikhail Berezin (Washington University School of Medicine; St. Louis, MO, USA) discussed the importance of better understanding of the acute and chronic side effects of cancer treatment. He presented the transcriptional effects of oxaliplatin in mice models and use of bioinformatics to better understand how the interplay of systemic toxicities contributes to specific pathologies, and discussed the arisng opportunities for collaborations to develop new treatments and diagnostic tools to better manage the side effects.

Peter Forsyth and Brian Czerniecki (Moffitt Cancer Center & Research Institute, Tampa, FL, USA) challenged the the notion of an incurable stage of cancer, by presenting the early data from an ongoing trial of a specialized subtype of dendritic cells (cDC1s) for patients with breast cancer who developed leptomeningeal disease (LMD), with a particularly poor prognosis. Their phase I single-arm, dose escalation multicenter study NCT05809752 aims to establish the safety of IT cDC1s, and associations between clinical outcomes and DC-induced changes in cerebro-spinal fluid. cDC1s are administered weekly intrathecallly using Omaya ports over 12 wks, at increasing dose levels ranging from 1 X 10^6 through 5 X 10^7 cDC1s, until disease progression, dose-limiting toxicities or patient withdrawal. As of August 2024, 7 patients were treated [1, 2 & 10 X 10^6 cDC1s] – and no DLTs were found. Preliminary data on

patient status and upcoming opportunities for collaborations were discussed.

Sandro Matosevic (Purdue University, West Lafayette, IN, USA) presented his work on immunotherapy of cancer using natural killer (NK) cells, which have innate ability to recognize and eliminate tumor cells, but become suppressed and dysfunctional in solid cancers. In order to overcome immune resistance of such "cold" tumors, Dr. Matosevic's team employs multi-modal engineering strategies to target multiple suppressive pathways. Targeted pathways include metabolic inhibition via purinergic signaling, antigen escape, and checkpoint-induced immunosuppression driven by TIGIT/CD155 to generate allogeneic, off-the-shelf immunotherapies based on iPSC-derived NK cells, are able to tackle complex mechanisms of treatment resistance in cancer. He discussed the functional gains of such NK cells with reprogrammed TIGIT-CD155 axis and CD73, and pharmacological approaches aimed at improving infiltration of NK cells into tumors via chemokines CXCL10 and CCL5.

Michael Nemeth (RPCCC, Buffalo, NY, USA) discussed new immunotherapeutic opportunities resulting from metabolic reprogramming of the TME. He focused on myeloid-derived suppressor cell (MDSC) as a barrier to effective treatment of metastatic TNBC. During infections, MDSCs constitute a small and transient population which resets the immune system after pathogen elimination. However, in cancer, MDSCs expand their numbers and become persistent, resulting in the suppression of anti-cancer immune responses. Dr. Nemeth's lab developed a new strategy to target the MDSCs by re-purposing a compound called brequinar (BRQ) that is currently being tested in clinical trials of acute myeloid leukemia (or AML). The combination of BRQ and an immune checkpoint inhibitor (ICI) agent, anti-PD-1, suppressed tumor growth in mouse models of TNBC. BRQ is currently being tested in patients with AML, and Dr. Nemeth is seeking new collaborations to translate his latest research in TNBC patients.

Waldemar Priebe (University of Texas MD Anderson Cancer Center [MD Anderson]; Houston, TX, USA) discussed Annamycin (ANN), a novel topoisomerase II poison and analog of doxorubicin (DOX) formulated in liposomes (L-ANN). He presented data on increased penetration and accumulation of ANN in lungs and liver, which was correlated with high antitumor activity against primary and metastatic cancers. He highlighted needs for international collaborative research to advance clinical evaluation of ANN and develop new drugs.

Kęstutis Sužiedėlis (NCI, Lithuania and Vilnius University; Vilnius, Lithuania) presented ongoing projects aiming to develop more efficient cancer radiotherapy in the Laboratory of Molecular Oncology at NCI, Lithuania. His research exploits synthetic lethality to achieve this goal.

OPPORTUNITIES FOR COLABORATIONS TO REDUCE HEALTH DISPARITIES AND ENHANCING PATIENT EXPERIENCE AND QUALITY OF LIFE

Mihaela Balu (University of California; Irvine, CA, USA) discussed latest developments in non-invasive skin cancer imaging using in vivo multiphoton microscopy. Current screening for early detection of melanoma relies on the assessment of macroscopic morphological changes in lesions by a highly experienced board-certified dermatologist. These low-cost screening tools often miss microscopic morphological and functional changes that occur early in melanomagenesis, which are not detectable by these devices or the naked eye. High-resolution screening devices are essential for accurately identifying early evolving lesions and enhancing the melanoma diagnosis beyond the capabilities of expert dermatologists. Multiphoton microscopy (MPM) is capable of generating real-time subsurface images of skin with histologic resolution and sensitivity based on endogenous molecular and chemical contrast. Dr. Balu's group has recently developed the fast large area multiphoton exoscope (FLAME), a unique imaging platform optimized for efficient clinical skin imaging. FLAME rapidly generates macroscopic images (mm to cm-scale) with microscopic resolution (0.5μm) using label-free molecular contrast (fluorescence intensity and lifetime), allowing for the selective detection of melanin, imaging pigment-rich cells such as melanocytes and melanophages with high specificity, while time-resolved NADH fluorescence detection reports on the protein binding activity and metabolic heterogeneity within immune cells present in lesions. The presentation highlighted recent preliminary results of an ongoing clinical study aimed at evaluating the potential of MPM imaging to enhance early melanoma detection by using the newly developed FLAME device. While the current efforts focus on enhancing the accuracy of early melanoma diagnosis, the validated optical biomarkers may also help to better understand melanoma origin, monitor its progression and therapy response and assess other skin conditions.

Jonathan Bramson (McMaster University; Hamilton, ON, Canada) provided update on the development of allogeneic T cell therapies with increased patient accessibility. The existing engineering methods to enhance the ability of cancer patients' white blood cells to attack tumors are highly effective, but also very expensive due

to the need to perform genetic engineering on each patient's own blood cells. To address this problem, Dr. Bramson's group has been developing methods to create universal white blood cell therapies from healthy donors that can be implanted into cancer patients for treatment. Their successful clinical translation may lead to universal white blood cell therapies to overcome the high costs of manufacturing on a patient-by-patient basis and make these therapies available to resource-poor jurisdictions that lack the infrastructure to manufacture personalized cells from the cancer patients themselves.

Brian Czerniecki (Moffitt Cancer Center & Research Institute; Tampa, FL, USA) discussed the emerging alternatives to anti-estrogen therapy for breast cancer prevention in high-risp groups. The currently approved prevention strategies for breast cancer are anti-estrogens, either estrogen blockers (aromatase inhibitors) or estrogen antagonists, such as tamoxifen. They have 33-50% efficacy in reducing the risk of breast cancer, but their side effects reduce their appeal to most women, limiting the prevention role. To develop an alternative immunotherapy approach, Dr. Czeriecki's goup demonstrated that intratumoral delivery of type I polarized dendritic cells (cDC1) pulsed with oncodriver derived Her2 peptides can eliminate the progression of ductal carcinoma in situ (DCIS) to mammary carcinoma, in a mechanism involving CD4 Th cells, gamma delta T cells (γδ T cells) and natural killer T cells (NKT). They have also shown that the prevention or treatment effects can be enhanced by co-administration of DCs pulsed with glycolipid alpha-galactosyl-ceramide (a-gal-cer; an NKT cell activator) and antibody against HER2. These results provide new low-toxicity tools to prevent the development of breast cancer in both pre- and post-menopausal women, resulting in need for multi-center clinical trials.

Kaushal Nanavati (SUNY-UMU; Syracuse, NY, USA) discusses the potential of integrating wellness and integrative medicine into oncology care, expanding the survivorship paradigm. He discussed the role of nutrition and evidence-based guidelines from the American Institute for Cancer Research (AICR), advocating for a diet rich in plant-based foods in supporting overall health and potentially reducing cancer recurrence. Physical exercise, another cornerstone of the presentation, was discussed in the context of the American College of Sports Medicine (ACSM). Stress management is a critical component of integrative care, and the mindfulness-based techniques showed promise in the research from the National Center for Complementary and Integrative Health (NCCIH). Spiritual wellness, often overlooked in traditional oncology care, was also discussed with reference to studies that highlight its strongimpact on mental and emotional health.

Ekaterina (Katia) Noyes (University at Buffalo; Buffalo, NY, USA) disussed the benefits of using new data science methodologies for cancer prognostication and outcomes research. While cancer treatment plans and prognoses have been traditionally predicted by tumor characteristics at diagnosis, Dr. Noyes and her team incorporate the effect of socioeconomic and environmental factors (i.e., literacy, education, employment, environment, access to treatment, obesity and weight loss etc.) on survival, recurrence and probability of developing metastases. They postulated that cancer patients' survival and metastasis risk are affected by their residential area deprivation index (ADI) and access to an NCI-designated cancer center and a a board-certified surgeon, after controlling for patient comorbidities and tumor characteristics.

Ioana-Miruna Stanciu (Carol Davila University of Medicine and Pharmacy and Elias University Emergency Hospital; Bucharest, Romania) discussed the challenges of managing immune-related adverse events (irAEs) in patients treated with immune checkpoint inhibitors (ICIs). She evaluated the incidence of irAEs in ICI-treated patients at the Oncology Clinic of Elias University Emergency Hospital, Bucharest, Romania, from 2018 to 2024. While ICIs represent one of the most significant advances in cancer care, their substantial toxicity profile must be acknowledged. Since no randomized clinical trials have established a standard of care for irAE management, balancing the clinical management of toxicity with maintaining anti-tumor immunity remains challenging. The presentation outlined the incidence and types of irAEs encountered at Elias Hospital—one of the largest oncology clinics in Romania—over the seven-year period. It focused on the clinical management of difficult cases, such as neurological irAEs, which require patient-tailored decisions and, at times, external expertise. The discussion highlighted the need for cross-border communication and collaboration in managing irAEs, particularly for challenging cases. Dr. Stanciu emphasized the importance of creating international expert networks to facilitate real-time communication and guidance for effective patient management.

Telisa Stewart and Elizabeth Luke (SUNY-UMU; Syracuse, NY, USA) presented a community-driven approach to boost human papillomavirus (HPV) vaccination rates in NYS. The HPV vaccine is highly effective, yet barriers to widespread vaccination persist, particularly in rural NYS. The disussed aims of the project were to a) cultivate partnerships to foster collaborative efforts to increase HPV vaccination uptake; b) investigate cultural factors influencing HPV vaccination behavior in Lewis County, NY; and c) implement evidence-based strategies, co-created by community members and

academics, to enhance HPV vaccination uptake. Dr. Stewart emphasized the importance of collaborative efforts between academia and communities to address health disparities and improve cancer prevention efforts. Since many CEEC countries share similar problems, the discussion emphasized the need to disseminate knowledge on vaccine implementation efforts ans strategies to increase the vaccination rates, especially in rual communities.

EDUCATION AND INTERNATIONAL TRAINING

Khurshid Guru (RPCCC; Buffalo, NY, USA) presented the efforts of RPCCC Urology in global education, especially in surgical training. Over last two decades Dr. Guru's team has partnered with teams across the world, traveling to them and hosting them at RPCCC. They have performed live surgeries in over 15 countries, to further new surgical techniques. They have fhosted students, scientists, and faculty during visits to observe ongoing work and learn from each other. Dr. Guru discussed the most effective processes and ways to avoid failures.

Iwona Ługowska (MSCNRIO; Warsaw, Poland) discussed the role of comprehensive medical education in assuring optimal cancer care. With cancer rates rising worldwide, there is an urgent need to prepare the next generation of oncologists to meet the demands of increasingly complex patient care. This necessitates comprehensive multi-disciplinary approach as the centerpiece of training programs and involvement of cross-sector collaborations, experiential learning opportunities, leadership development, effective patient communication and ethical decision-making. Dr. Lugowska stressed the mportace of the integration of these components into oncology curricula, highlighting the benefits of a more holistic educational model to ensure that future oncologists are equipped both with the latest scientific knowledge and with the skills necessary to provide compassionate, patient-centered care.

Mukund Seshadri (RPCCC; Buffalo, NY, USA) highlighted the unique postion of RPCCC as a free-standing Comprehensive Cancer Center with one central mission: to understand, prevent and cure cancer. Consistent with this mission, RPCCC's education and training programs are focused on developing the next generation of cancer research professionals. Dr. Sheshadri presented RPCCC's comprehensive educational and training portfolio that includes immersive cancer research experiences for K-12 students, a long-standing (of more than 65 year old) summer internship program for high school, college and medical students, new nurse residency and nursing scholars program, graduate programs in the Cancer Sciences, postdoctoral training, and oncology-focused residency and fellowship programs.

Edita Sužiedėlienė (Vilnius University; Vilnius, Lithuania) discussed the training and development of early career researchers in Medical and Life Sciences at Vilnius University. Early career researchers (ECRs) are a vital part of academic community of Vilnius University (VU). Established in 1579, VU is the oldest and largest academic institution in Lithuania, conducting research in over 30 research fields. VU participation in the European Universities Alliances network offers shared resources (mentoring and careers outside academia programmes , innovative mobility initiatives) to support ECRs. In recent years, specific focus is given on developing skills to conduct interdisciplinary research and to work in interdisciplinary research teams. Towards this goal, the internal funding scheme for interdisciplinary research projects, which are proposed, led and conducted solely by inter-faculty ECRs teams, have been established at VU. Dr. Sužiedėlienė disussed the institutional experience, challenges and future directions in ECRs training and development.

Wei-Zen Wei (Karmanos Cancer Institute and Wayne State University; Detroit, MI, USA), the current President of the Translational Research Consortium of Cancer Centers (TRCCC)[27], highlighted the role of TRCCC in supporting the development of future leaders in cancer immuno-prevention, interception and therapy. Initiated in 1998, TRCCC is a 501(c)3 organization consisting of 13 Cancer Research Institutions in the Great Lakes area, including Case Comprehensive Cancer Center (Cleveland, OH, USA), Karmanos Cancer Institute (Detroit, MI, USA), McMaster University (Hamilton, ON, Canada), The Ohio State University Comprehensive Cancer Center- The James (Columbus, OH, USA), Penn Medicine's Abramson Cancer Center (Philadelphia, PA, USA), Penn State Cancer Institute (Hersehy, PA, USA), RPCCC (Buffalo, NY, USA), Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins (Baltimore, MD, USA), University of Michigan Rogel Cancer Center (Ann Arbor, MI, USA), University of Virginia Comprehensive Cancer Center (Charlottsville, VA, USA), University of Pittsburgh Medical Center Hillman Cancer Center (Pittsburgh, PA, USA), University of Rochester Medicine Wilmot Cancer Institute (Rochester, NY, USA), and West Virginia University Cancer Institute Mary Babb Randolph Cance Center (Morgantown, WV, USA). TRCCC mentors and trainees come together annually to share information, plan collaboration, and review clinical trials to improve the outcome of individuals diagnosed with, or at risk of developing cancer (). Many clinical/scientific leaders emerged from this stimulating and nurturing environment including cancer center directors, departmental

chairs, program leaders, industry founders and more.

The annual meetings of TRCCC is the centerpiece of TRCCC activities. Many ground breaking new findings such as CAR-T cell clinical success were first reported in this event. The responsibility of hosting the annual meeting is rotated among member institutions, helping to introduce different approaches to aspiring scientists. Beyond plenary lectures and faculty discussion forum, every abstract submission is rewarded with the opportunity to give both an oral and a poster presentation. Trainees present their findings in 5 min talks and discuss the details in their posters. In the 2024 meeting, over 350 participants attended 150 presentations. The comprehensive meeting programs are designed to better prepare the trainees for the tasks ahead. Trainees connect with and learn from patient advocates who have experienced cancer and are assisting others inflicted by cancer. Trainees learn the basics in securing financial support for their projects. Representatives from the US NCI provide program and financial information, guiding trainees through the process of grant applications. Different career paths are explained. TRCCC alumni who enter the pharmaceutical or biotech industry, or start their own company share their perspectives. Trainees often give back after becoming faculty or moving to industry by taking on TRCCC service duties.

Member Institutions take advantage of the annual event by holding training program retreats or joint grant and trial discussions on site. Dr. Wei further discussed the role of the stress management in trainees' physical and mental well-being and their family relationships. This goal is facilitated by many attendees bringing their families to the annual event. A wealth of indoor and outdoor activities keep the young happy while mom and/or dad attend the meeting. The intense interactions are boosted by shared meals, coffee break and allotted time for personal activities. The registration fees are kept modest to ensure the event is affordable to all, thanks to support from the participating Cancer Centers and Industry Sponsors. The relevance of the TRCCC model to promoting oncology training and research collaborations in CEE Countries was discussed.

REDUCING CANCER BURDEN IN CEECS: NATIONAL AND INTERNATIONAL EXPERIENCE

Ioana Berindan-Neagoe (Iuliu Haţieganu University of Medicine and Pharmacy; Cluj-Napoca, Romania) discussed her experience in promoting collaborations between Central and Eastern European Countries and the US on the role of noncoding RNA (ncRNA) in cancer. The discovery of ncRNAs opened up new horizons in cancer biology, offering promising avenues for diagnosis, prognosis, and therapy. Cancer-specific ncRNAs circulating in blood represents a particularly hopeful diagnostic approach. Once considered "junk" DNA, ncRNAs have now been recognized for their crucial roles in gene regulation and expression, regulating cellular differentiation, proliferation and apoptosis. Their dysregulation has been linked to the development and progression of many cancers, making them promising biomarkers and therapeutic targets. Dr. Berindan-Neagoe presented a success story of collaborations between cancer researchers, healthcare professionals, and pharmaceutical companies from CEE countries and which have already shown significant progress in noncoding RNA testing and healthcare improvements. The project presents a multidisciplinary, translational research in oncology, involving and combining expertise in oncology, molecular genetics, bioinformatics, biotechnology and technology transfer and commercialization. She highlighted the dependence of effective collaborations on allocation of funds and joint applications for international grants, including a Marie Curie grant to develop and consolidate iinternational research networks.

Andriy Beznosenko (NCI, Ukraine; Kyiv, Ukraine) presented unique experience of Ukraine in navigating cancer care in wartime. Since February 24th, 2022, when the Russian invasion started, cancer care was particularly affected due to the complexity of cancer treatments, long-term and continuous treatments involving combined approaches of surgery, radiation and chemotherapy involving multiple groups of drugs. NCI, Ukraine in Kyiv, the main center of anti-cancer control and treatment in the country, had to adapt to the challenges of the war. The day the full-scale invasion started, there were 450 inpatients, including 40 children, and 96 personnel on the night shift. Rapid evacuation to Poland started for all children via Ukrainian railways. Adult patients were discharged from clinic when it was possible. Cancer care needed to adapt to personel shortages, difficulties reaching the clinic, and mobilization of personnel to Armed Forces or territorial defense. Frequent moves of patients to shelters further complicated the work process but were necessary for their safety. The units of the hospital were temporarily reformed and the clinic started to provide specialized care for the wounded. All the departments, were reopened in the summer of 2022, 90% of the staff had returned. Currently, the key metricks are approaching the pre-war levels. In 2023, the number of patients treated increased compared to the pre-war levels, due to internally displaced patients (29 022 in 2021, 21 169 in 2022 and 38 671 in 2023). Hospital mortality decreased compared to 2022 but, basically, returned to the level of 2021.

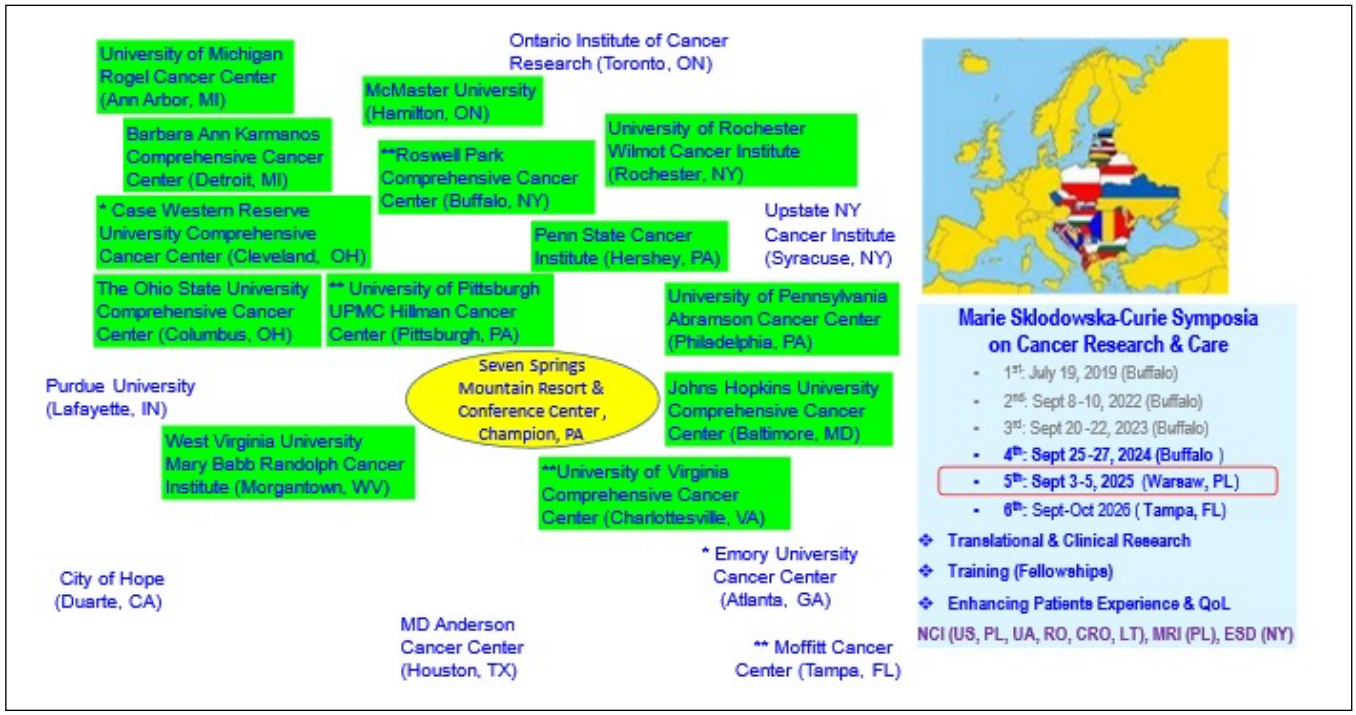

Fig. 3. Translational Research Consortium of Cancer Centers: A Model for Regional Collaborations within CEE? Current academic members of the TRCCC (Green Boxes) and affiliate cancer centers involved in MSCS-CRC.

** Cancer centers currently involved in academic multi-institutional clinical trials of cell therapies within TRCCC.

* Cancer centers with planned in academic clinical trials of cell therapies within TRCCC (existing regulatory, legal, fiscal and logistic arrangements to conduct such collaborative trials).

Philip Castle (NCI, USA; Bethesda, MD, USA) representing the DCP[28], made a convincing case for cancer prevention, stressing the particularly high societal burden of cancer. Betweeen 2020-21 when 6 million people died of COVID-19, approximately 20 million people died of cancer. 30-50% of current cancers and cancer-related deaths are already preventable and new technologies may increase the fraction of preventable cancers even further. The DCP leads, supports, and promotes research and training to reduce risks, burden and consequences of cancer. DCP supports basic and early translational research in the areas of preventive agents, biomarkers for screening and early detection, and symptom management. Through its funding programs[29], DCP supports the discovery, preclinical development and validation of novel primary prevention (prophylaxis), secondary prevention (interception) and mitigation methods. DCP also supports novel approaches and technologies to increase access to current life-saving prevention and control interventions and reduce their risks, in order to increase the uptake.

*Rūta Everatt (*National Cancer Institute, Lithuania; Vilnius, Lithuania) discussed the emerging targets and opportunities for collaboration in the development of more efficient cancer prevention and screening methods, focusing on cancer prevention and screening effectiveness studies carried out at the NCI, Lithuania, and at other research institutions. In 2022, Lithuanian men had the highest incidence in Europe and the third highest mortality rates for all cancers combined[30]. Mortality is particularly high for oesophageal, kidney, gastric, pancreatic, prostate and larynx cancers (1st to 4th highest). Lithuania ranks among the five European countries with the highest mortality in women for kidney, cervical, ovarian and stomach cancers and melanoma. The cancer prevention research at the NCI, Lithuania covers cancer incidence, mortality, survival analyses and the role of risk factors. Preventing cancer by modifying risk factors is the most cost-effective strategy; taking into account high rates of smoking (29.9% in men, 9.7% in women), alcohol consumption (11.9 l pure alcohol/capita) and obesity (55%) in Lithuania. Secondary prevention, i.e. cancer screening and earlier diagnosis, is the second area of efforts. Screening for breast, prostate, cervical and colon cancer has been implemented in Lithuania, but cervical and prostate cancer death rates remain to be the fourth highest in Europe. The evaluation of the effectiveness of screening programmes demonstrated that participation in screening has been effective in reducing cervical cancer deaths (and might have contributed to a moderate decline in prostate cancer mortality in men younger than 65 years of age)[31-36], providing rationale for greater efforts in this area. The NCI of Lithuania is one of the 25 consortium

institutions in the EU4Health funded PRAISE-U project, aimed to improve screening of prostate cancer[37]. The Lithuanian University of Health Sciences is a partner of the EU4Health project TOGAS ("Towards gastric cancer screening implementation in the European Union"). High lung cancer rates and a national screening programme starting in 2025 may offer possibilities to enhance lung cancer screening addressed in the EU4Health project SOLACE. Specific opportunities for collaborations include: a) improving participation in existing cancer screening programmes, by better access to screening (self-sampling, home-based testing, CT screening trucks, etc.); b) optimizing risk-stratified cancer screening and improving the quality of screening programmes; c) cancer screening combined with preventive interventions, e.g. smoking cessation, early detection of co-morbidities; and d) population-based screening studies for aditional cancer types.

Iva Kirac (University Hospital for Tumors; Zagreb, Croatia) discussed the role of the EU Projects in reducing the disparities in cancer care across the EU. Croatia has one of the highest cancer mortalities in the EU and an active participant in several major EU projects, including the Beacon cancer care, Comprehensive Cancer Infrastructure for the European Union (CCI4EU) and Europe on Quality of Life (EUonQoL). The Cancer Care Beacon project is funded by the EU4Health program of the EU with the aim to examine inequalities in diagnosis, treatment and palliative care. The project helps the patients choose the care providers, and helps data dissemination among providers, researchers and policymakers. CCI4EU is a Horizon 2020 project aiming to increase the availability and quality of research in all aspects of cancer care. EUonQoL is a Horizon 2020 project that compiles the existing questionnaires on quality of life and tests them on patients in treatment, survivors, and end-of-life care.

Pawel Koczkodaj (MSCNRIO; Warsaw, Poland) highlighted the ongoping efforts in cancer prevention in Poland, marked by significant policy initiatives and legislative measures. The introduction of the National Oncology Strategy for the years 2020-2030 was a pivotal moment, encompassing a wide array of actions aimed at reducing population exposure to modifiable carcinogenic factors and increasing participation in screening programs. This strategy has been further supported by the European Commission's launch of Europe's Beating Cancer Plan in 2021. Key achievements include the implementation of stringent regulations to limit tobacco consumption, such as bans on smoking in public places, menthol- and opther flavored cigarettes, along with increased excise taxes. Additionally, the introduction of a sugar tax, a nationwide ban on the use of tanning beds by individuals under 18, and the establishment of a free national HPV vaccination program, have significantly contributed to reducing cancer risk factors. The upcoming introduction of health education in schools is expected to further reinforce these preventive measures. Despite these positive developments, Polish population continues to exhibit high levels of exposure to the "big three" modifiable risk factors: tobacco smoke, obesity, and alcohol consumption. According to the OECD report "State of Health in the EU. Poland – Health System Profile 2023," 44% of all deaths in Poland in 2019 were attributable to behavioral risk factors, surpassing the EU average of 39%. Additionally, new health threats such as heated tobacco products and e-cigarettes have emerged. According to the latest Global Youth Tobacco Survey (GYTS 2022) conducted by Cancer Epidemiology and Primary Prevention Department in cooperation with World Health Organization (WHO), 9.7% of boys and 10.4% of girls aged 13-15 are current users of heated tobacco products, while 21.2% of boys and 23.4% of girls use electronic cigarettes. For comparison, in the same age group, traditional cigarettes were used by 11.2% of boys and 12.3% of girls. These statistics highlight the need for sustained and enhanced efforts in public health interventions targeting lifestyle and behavioral changes.

CANCER PREVENTION AND EARLY DETECTION

Philip Castle (NCI, USA; Bethesda, MD, USA) highlighted the opportunities and challenges for global control of cervical cancer. Prophylactic human papillomavirus (HPV) vaccination is highly effective in preventing invasive cervical cancer, especially when given to young women before becoming sexually active. HPV testing has replaced Pap testing as the standard-of-care for cervical cancer screening because of its much greater sensitivity and reliability and it enables the use of self-collected specimens. However, critical gaps remain especially affecting low- and middle-income countries, with a 10-fold greater burden of cervical cancer in the lowest-income countries vs. the highest-income countries. These gaps include: 1) insufficient awarness of condom use as a method of primary prevention of HPV; 2) lack of global procurement strategy to provide affordable vaccination to Global Alliance for Vaccine and Immunization (GAVI)-ineligible lower-income countries; 3) lack of global procurement strategy for in vitro diagnostics; 4) primary and secondary prevention in women living with HIV has not been optimized; 5) lack of sufficiently effective biological therapeutic agent against chronic HPV infection and related abnormalities; 6) limited healthcare infrastructure to provide treatment

of precursors and invasive cervical cancer; and 7) the ability to provide palliative end-of-life care.

Jeffrey E Gershenwald (MD Anderson, Houston, Texas, USA) showcased melanoma as a paradigm for leveraging international collaborations in cancer research and prevention. More than 100,000 individuals in the US and more than 300,000 worldwide are estimated to be diagnosed annually with invasive melanoma[38]. An overaching goal of the MD Anderson Moon Shots Program® melanoma initiative, launched in 2012, is to reduce melanoma incidence and mortality through the development and delivery of personalized treatment options to reduce melanoma mortality and to reduce incidence and ultimately deaths from melanoma through public policy initiatives, education, and early detection. Althougth overexposure to ultraviolet (UV) radiation – from the sun or from indoor tanning devices/solaria – is known to be responsible for >90% of cutaneous melanoma[39], there has been no integrated nationwide US policy to promote UV radiation protection. To date, 22 US states have indoor tanning bed restrictions for minors under 18 years old; there has been a significant reduction in the use of indoor tanning devices by high school students (and adults)[40]. The resulting lessons learned and resources created have fostered collaboration and knowledge exchange with key academic and governmental stakeholders in Poland, including Profs Piotr Rutkowski and Piotr Czauderna, as well as President Duda. This collaboration contributed to the proposal, passage, and implemenation of national legislation that prohibits solaria use for persons <18 years old across Poland nationwide, and in 2020 was recognized by the World Health Organization[41]. Importantly, these efforts fostered subsequent dialog and collaboration with colleagues in Estonia, which recently passed similar legislation that will restrict indoor tanning use by minors under 18 years of age. Additional collaborations in the melanoma arena between the US and Poland include the 8th edition American Joint Committee on Cancer (AJCC) melanoma staging system[42,43], The legacy Cancer Genome Atlas (TCGA) melanoma project[38], and the ongoing US National Cancer Institute's Clinical Proteomic Tumor Analysis Consortium (CPTAC).

Cristian Lungulescu (University of Medicine and Pharmacy Craiova; Craiova, Romania) discussed the unique challenges in incidence and treatment of HPV-related cervical cancer in Romania. While Europe overall has seen a significant decrease in cervical cancer incidence and mortality, Romania continues to register the highest rates in the European Union, followed by Latvia and Bulgaria. The incidence rate in Romania is 32.6 per 100,000 women, and the mortality rate is 16.8 per 100,000 women, which is eight times higher than Finland's rate of 2.2 per 100,000 women. Cervical cancer remains the third most common cancer among women in Romania, with 3,368 new cases in 2022. Many cases are diagnosed at advanced stages, resulting in reduced treatment efficacy. Although the HPV vaccine is effective, the rate of immunization in Romania is still unacceptably low. The national HPV vaccination program was introduced in 2008, targeting girls aged 10 to 11, but faced significant resistance and skepticism. A communication campaign in 2009 yielded modest results, and the program was halted for nearly a decade. It resumed in 2019, targeting girls aged 11-18. As of September 12, 2023, the program has expanded to include free vaccination for boys and girls aged 11 to 19, and 50% vaccine price reduction for women aged 19 to 45. The national cervical cancer screening program, which ran from 2012 to 2017, aimed to screen 6 million women but only reached about 260,000 due to poor promotion, complex procedures, insufficient funding, and limited accessibility, especially in rural areas. The discussion highlighted the need for sharing knowledge between health policy makers, to improve vaccination and boost cancer prevention programs.

Tomasz Zdrojewski (Polish Academy of Sciences and Medical University of Gdańsk; Gdańsk, Poland) contrasted the lessons from prevention of two most common noncommunicable diseases (NCDs): cancer and cardiovascular disease (CVD), which together with chronic respiratory diseases and diabetes are collectively responsible for more than 70% of all deaths worldwide. CVD accounted for the most NCD deaths in 2019 (17.9 million people), followed by cancer (9.3 million), respiratory diseases (4.1 million) and diabetes (1.5 million). Of these deaths, almost 40% are premature (under 70 years of age). Many NCDs can be prevented by reducing the common and modifiable risk factors, e.g. tobacco use, harmful alcohol use, lack of physical activity and unhealthy diet. The potential for NCD prevention is high since an estimated 80% of them are preventable (e.g. elimation of tobacco exposure would prevent nearly 1/4 of cancer deaths and 1/5 of CVD deaths), highlighting the need to identify the most cost-effective interventions. The high-risk individual-level screening projects for lung cancer using low-dose computed tomography (LDCT) carried out in Poland in the last decade (as part of the Pomeranian Lung Cancer Screening Program (PLCSP) are good examples of the beneficial cooperation between oncologists, cardiologists and pulmonologists. The LDCT screening for lung cancer among 50-80 year olds with a 20-pack-year smoking history who currently smoke (or have quit within the past 15 years) was extended to detect hypertension, chronic coronary artery disease, hypercholesterolemia, prediabetes and

diabetes, chronic obstructive pulmonary disease, atrial fibrillation and early stages of heart failure. Such interdisciplinary collaborations significantly increase the medical and economic effects of this program.

SMOKING CESSATION, TOBACCO PRODUCTS AND HEALTH

Indu B. Ahluwalia (Centers for Disease Control and Prevention; Atlanta, GA, USA) represented the Office on Smoking and Health, Global Tobacco Branch [44] at MSCS-CRC-2024. She highlighted the importance of tobacco cessation services. CDC's Office on Smoking and Health (OSH) is the lead federal agency for tobacco control and prevention, working to end tobacco use domestically and globally. The U.S. Department of Health and Human Services Framework to Support and Accelerate Smoking Cessation focuses on reducing tobacco use, increasing knowledge, strengthening and sustaining cessation services, increasing access to and coverage of cessation treatment, advancing and sustaining surveillance and strengthening evaluation, and promoting research. Globally, Article 14 of the WHO Framework Convention on Tobacco Control (WHO FCTC) encourages countries to implement effective "measures to promote cessation of tobacco use and adequate treatment for tobacco dependence." Quitting smoking is beneficial at any age and reduces the risk of premature death, including from many forms of cancer. Dr. Ahluwalia, the branch chief for OSH's Global Tobacco Control, discussed the tobacco use trends globally and domestically, outlining the need for expanded cessation services around the world, especially in communities disproportionately impacted by tobacco products.

Łukasz Balwicki (Medical University of Gdańsk, Gdańsk, Poland) presented the results of the NIKO Study, the collaborative project of the MRA on New Nicotine Products in Poland. Poland has experienced rapid growth of popularity of electronic cigarettes among youth with emerging data showing a growing use of heated tobacco products and e-cigarettes also among adults. Recently, traditional cigarettes sales also started to grow, prompting the interest of the Ministry of Health Agency and MRA to to better understand the growing popularity of emerging nicotine products. The NIKO study involves researchers from Medical University of Gdańsk, Medical University of Łódź, Poznań University of Medical Sciences in collaboration with RPCCC to learn from experience gained during realization of PATH study (Population Assessment of Tobacco and Health), to assist tobacco control decisions in Poland.

Maciej Goniewicz (RPCCC, Buffalo, NY, USA) presented his pioneering decades-long lab- and population science research on the opportunities for cancer risk reducing using alternative tobacco products. Although the best way to avoid the cancer risks associated with smoking is to quit smoking altogether, an alternative strategy to reduce smoking-related mortality and morbidity may be the substitution of less toxic means of delivering nicotine. The concept proceeds from the principle that the combustible tobacco cigarette smoking involves a wide array of carcinogens generated by the combustion of the tobacco. Alternative nicotine delivery systems, like electronic cigarettes (e-cigarettes) and Heated Tobacco Products (HTPs), represent a new stage in which nicotine is delivered in a method that simulates smoking but without involving a tobacco combustion process. Due to relatively short existence of alternative nicotine delivery products, data on the long-term health effects, including cancer risk, of e cigarette and HTPs use are not currently available. Evidence from *in vitro* and *in vivo* laboratory studies, observational human studies, and short-term clinical trials may provide important information on the potential harms of alternative nicotine delivery systems. Current findings provide preliminary evidence that e-cigarettes may be less harmful than conventional tobacco cigarettes. Claims of lowered risk or health benefits of HTPs compared to conventional cigarettes are based almost exclusively on industry-funded research, and evidence from independent studies is needed.

Christine Sheffer (RPCCC, Buffalo NY) presented recent developments and current opportunities for international collaboration and innovation in reducing the prevalence of cigarette smoking. While telephone Quitlines have demonstrated unprecidented reach into the tobacco using population, by all accouts they remain underutilized[45]. Quitline utilization has, in fact, decreased significantly over the past 10 years, and many populations remain underserved. Shifts in communication preferences, digital reach, treatment and training adaptations, and tobacco product use provide new opportunities to develop collaborative, innovative approaches to increase the reach of tobacco and nicotine use treatment services across national boundaries[46]. Dr. Sheffer discussed severalopportunities to collaborate including increasing the number of Tobacco Treatment Specialist training programs[47-49], and developing pre-programmed text-based mobile applications.

REDUCING BARRIERS TO INTERNATIONAL TRAINING

The New Investigator Awards Session included four presentations from international trainees, all having first hand experience with the related opportiunities and bar-

riers to international training and research collaboration. *Brygida Baran* (4Cell Therapies S.A; Warsaw, Poland) discussed new approaches to CAR T cell therapy and lessons from hematologic malignancies (such as multiple myeloma, MM) that can be applicable to solid tumors,. Clinical trials of anti-BCMA CAR T-cell therapy have demonstrated remarkable success, achieving response rates of up to 90% in refractory MM cases. Despite this success, accessibility remains limited in Europe. While two BCMA-targeted products have received FDA (idecabtagene vicleucel) and EMA (ciltacabtagene autoleucel) approvalthe unmet demand persists due to medical and economic factors. 4 Cell Therapies-developed humanized anti-BCMA CAR T-cell therapies for MM and for pancreatic ductal adenocarcinoma (PDAC), targeting the carcinoembryonic antigen-related cell adhesion molecule (CEACAM). *Blanka Borowiec (*Poznań University of Medical Sciences; Poznań, Poland) discussed her experience in translating the experience from the Loyola University in T cell-based gene therapies to cliniocal trials in Poland. Her month-long training at Loyola University in the laboratory of Dr. Michael Nishimura involved the protocols and regulations governing clean room environments and independently performing the entire cell transduction process to generate CAR-T cells. *Szabolcs Bozsányi* (RPCCC; Buffalo, NY, USA) discussed his postdoctoral experience at RPCCC in developing new tools for elimination of UV-induced skin tumors, using non-thermal atmospheric pressure plasma (NTAPP). *Maciej Luba (*MSCNRIO; Warsaw, Poland) discusssed his work on predictive markers for relapse in clear cell renal cell carcinoma (ccRCC) and the relative (and cummulative) values of pan immune-inflammation value (PIV) and the assessment of the tumor infiltrating limphocytes (TILs) in accurate predictions of the tumor progression. The vigorous discussion of the experiences from both continents focused on the challenges in advancing early investigators' careers and the value of international training in moving towards independent faculty positions in Europe.

MSCS-CRC 2025: INNOVATING TOGETHER TO CONQUER CANCER GLOBALLY

The final comments of the MSCS-CRC-2024 were provided by *Iwona Ługowska*; *Michał Mikula,* and *Piotr Rutkowski* from MSCNRIO in Warsaw Poland, who will host the 5th Edition of the Marie Skłodowska-Curie Symposium on Cancer Research and Care on September 3-5, 2025. The focus areas of the 5th Symposium will focus on:

- Artificial Intelligence in Oncology: Leveraging AI for early cancer detection, personalized treatment plans, and improving patient outcomes.
- Global Health Initiatives: Strategies for reducing global cancer disparities and improving access to care in underserved populations.
- Immunotherapy and Precision Medicine: Recent advances and clinical trials aimed at developing targeted cancer therapies.
- Innovative Public Health Policies: Developing and implementing new health policies to support cancer prevention and control.
- Collaborations between Academia and Biotech: Eliminating barriers to effective collaboration in the development and testing of new cancer treatments.

Abstract submission will open in March 2025 and will be accepted until the end of May 2025, with selections announced in June 2025.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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