ECSA Scientific Day 2022

Report of Contributions

Contribution ID: **1** Type: **Oral presentation**

Global burden of cancer attributable to tobacco smoking: a comparative risk assessment study

Wednesday, 21 September 2022 10:06 (12 minutes)

Background: Tobacco smoking is a major cause of disease burden worldwide and can increase the risk of at least 15 different cancer types. To date, the global impact of tobacco smoking on cancer incidence has not been estimated.

Aims: To calculate the global, regional, and national burden of cancer in 2020 attributable to tobacco smoking to inform tobacco policy and cancer control globally.

Methods: In this comparative-risk assessment, we calculated the fraction of cancer cases attributable to tobacco smoking using two methods: in the first method we calculated the notional prevalence of tobacco smoking by country, sex, and age using lung cancer rates among non-smokers from the American Cancer Prevention Study-II; in the second method we obtained tobacco smoking prevalence by country, sex, and age for 2010 from the Institute of Health Metrics and Evaluation. For both methods we then calculated smoking-attributable cancer cases by applying the prevalence of tobacco smoking to relative risk estimates for tobacco-related cancers and the number of cancer cases in each country, sex, and age from the International Agency for Research on Cancer's GLOBOCAN 2020 estimates.

Results: Our preliminary results suggest that 3.2–3.6 million new cases of cancer in 2020 were attributable to tobacco smoking globally, which equated to around 1 in 5 (18–20%) cancer cases. Males represented 72–84% of the world total smoking-attributable cancer cases. The cancer sites which contributed the most smoking-attributable cases were cancers of the lung (1.5–1.7 million cases), oesophagus (310 000–330 000 cases), stomach (210 000–230 000 cases), and liver (190 000–200 000 cases). The largest fractions of cancer attributable to tobacco smoking were in Eastern Asia (25–30% of all cases), Central and Eastern Europe (19–21%), and Northern America (14–21%).

Conclusion: Our findings provide an estimate of the huge global burden of cancer attributable to tobacco smoking which should be used to reinforce and accelerate tobacco control efforts worldwide.

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Presenter: RUMGAY, Harriet (IARC)

Session Classification: Oral Presentation

Contribution ID: **2** Type: **Oral presentation**

Age at diagnosis for lung, colon, breast, and prostate cancers: An international comparative study

Wednesday, 21 September 2022 11:15 (12 minutes)

Purpose: We compared the median ages at diagnosis for the four most common cancer types (lung, colon, female breast, and prostate cancers) across different countries worldwide after removing differences due to variation in population age distributions.
Methods: We analyzed the Cancer Incidence in 5 Continents (CI5) Volume XI database, including cancer registries in 63 countries during 2008-2012. We calculated crude median ages at diagnosis for each cancer in each country, and then performed indirect standardization to remove the impact of different population age distributions.
Results: Before standardization, the median ages at cancer diagnosis varied across countries by up to 20 years. Age standardization changed the calculated median ages by up to 10 years, typically by increasing ages in low and middle income countries (LMICs) which have younger populations, and decreasing them in high income countries (HICs). After standardization, differences between the youngest and oldest median ages at diagnosis were: 12 years for lung (median age 61 in Bulgaria vs 73 in Bahrain), 12 years for colon (60 in Iran vs 72 in Peru), 10 years for breast (49 in Algeria,Iran and Korea vs 59 in USA and others), and 10 years for prostate cancer (65 in USA and Lithuania vs 75 in Philippines). LMICs had younger ages at diagnosis for colon cancer but older ages at diagnosis for prostate cancer compared with HICs(pwilcox test LMICS vs HICs < 0.001 for both colon and prostate). Countries with higher smoking prevalence had younger ages at lung cancer diagnosis (pcorr=0.001), and ages at breast cancer diagnosis were younger in Asia (East Asia and Middle East) and Africa.
Conclusion: For lung, colon, breast, and prostate cancers, differences across countries in the median age at diagnosis range from 10 to 12 years after adjusting for population age distribution. These differences likely reflect population-level variation in risk factors and screening.

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Presenter: ZAHED, Hana (IARC)

Session Classification: Oral Presentation

Contribution ID: **3** Type: **Oral presentation**

Metabolically-defined body size and body shape phenotypes and risk of postmenopausal breast cancer in the European Prospective Investigation into Cancer and Nutrition (EPIC)

Wednesday, 21 September 2022 12:03 (12 minutes)

BACKGROUND
Excess body fatness is an established risk factor for postmenopausal breast cancer. Higher insulin levels are also associated with an increased risk of postmenopausal breast cancer, however, whether women with high body fatness but with normal insulin sensitivity or those with normal body fatness who have high levels of insulin are at elevated risk of breast cancer is not known. We investigated the associations of metabolically-defined body size phenotypes with the risk of postmenopausal breast cancer in the European Prospective Investigation into Cancer and Nutrition (EPIC).

METHODS
Concentrations of C-peptide —a marker for insulin secretion —were measured in serum from 610 incident postmenopausal breast cancer cases and 1130 matched controls. C-peptide concentrations among the control participants were used to define metabolically healthy (MH; in 1st tertile) and metabolically unhealthy (MU; >1st tertile) status. We created four metabolic health/body size phenotype categories by combining the metabolic health definitions with normal weight (NW; BMI<25 kg/m2, or WC<80 cm, or WHR<0.8, or ABSI<73) and overweight or obese (OW/OB; BMI≥25 kg/m2, or WC≥80 cm, or WHR≥0.8, or ABSI≥73) status : (1) MHNW, (2) MHOW/OB (3) MUNW and (4) MUOW/OB. Conditional logistic regression was used to compute odds ratios (ORs) and 95% confidence intervals (CIs) for associations between metabolically-defined body size phenotypes and risk of postmenopausal breast cancer.

RESULTS
Cases were diagnosed on average 3 years after blood collection at an average age of 64 years. Women classified as MUOW/OB were at higher risk of postmenopausal breast cancer compared to MHNW women considering BMI (OR=1.58, 95% CI=1.14-2.19), WC (OR=1.51, 95% CI=1.09-2.08) and WHR (OR=1.29, 95% CI=0.94-1.77) cut points but not when considering ABSI (OR=1.15, 95% CI=0.83-1.59) definition. Conversely, women with the MHOW/OB and MUNW were not at statistically significant elevated risk of postmenopausal breast cancer risk compared to MHNW women.

CONCLUSION
These findings suggest that being overweight or obese and metabolically unhealthy raises risk of postmenopausal breast cancer while overweight or obese women with normal insulin levels are not at higher risk. Additional research should consider the combined utility of anthropometric measures with metabolic parameters in breast cancer risk.

Primary authors: MAHAMAT SALEH, Yahya (IARC); RINALDI, Sabina (IARC); Prof. KAAKS, Rudolf; BIESSY, Carine (IARC); GONZALEZ GIL, Esther (IARC); MURPHY, Neil (IARC); WEIDERPASS, Elisabete (IARC); GUNTER, Marc (IARC); DOSSUS, Laure (IARC)

Presenter: MAHAMAT SALEH, Yahya (IARC)

Session Classification: Oral Presentation

Contribution ID: **5** Type: **Oral presentation**

Registration practices of CNS tumours in children: analysis of population-based cancer registry data

Wednesday, 21 September 2022 10:18 (12 minutes)

Background:
Central nervous system tumours (CNS) represent 20% of childhood cancers. Among them, up to 40% are non-malignant (nmCNS). Untreated nmCNS are life threatening. We analysed registration practices of childhood CNS in population-based cancer registries to highlight the importance of registration of nmCNS.

Methods:
Tumours classified as intracranial and intraspinal in the International Classification of Childhood Cancer were extracted from the database of the International Incidence of Childhood Cancer volume 3 study. Overall, 188 registries operating in 82 countries and territories, covering populations aged 0-14 over variable time periods during 1982-2015, were included. Age-standardised incidence rates per million (ASR) and their confidence intervals (95% CI) were calculated for pools of registries classified by registration and coding practice and the Human Development Index (HDI).

Results:
Based on a total of 113,539 CNS, the overall ASR=29.94 (27.0-32.9). For 60 registries registering only malignant CNS tumours, the pooled ASR=18.5 (13.7-23.3). For 128 registries with systematic registration of nmCNS ASR=33.3 (29.8-36.8). Among 100 registries in countries with very high HDI, 82 (82.0%) registered nmCNS, while among 24 registries in countries with low or medium HDI levels only 9 (37.5%) did.

These data included 18,527 cases of pilocytic astrocytoma (PA) with pooled ASR=5.3 (3.9-6.6). The total CNS incidence varied according to registration of PA. In the 39 registries excluding PA the pooled ASR=13.0 (8.4-17.6), among 103 registries with PA considered non-malignant ASR=31.7 (26.3-37.1), in the pool of 26 registries with malignant PA ASR=36.0 (30.4-41.5) and among 20 registries coding PA with any behaviour ASR=32.3 (25.0-39.5).

Discussion and Conclusion:
Restrictive eligibility criteria results in underestimation of CNS incidence and overall cancer burden in children. The sporadic registration of nmCNS in countries with low HDI may be linked to limited diagnostic facilities. These results produced in ChildGICR collaboration (https://gicr.iarc.fr/childgicr) validate the importance of registration of nmCNS in children.

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Presenter: AVAGYAN, Manushak (Postdoctoral scientist)

Session Classification: Oral Presentation

Contribution ID: **6** Type: **Oral presentation**

Assessing ability of cancer registries to collect data for comparative research on childhood cancer survivorship

Wednesday, 21 September 2022 10:30 (12 minutes)

Background: Information collected by population-based cancer registries is crucial for estimating cancer burden indicators and planning cancer control policies. Within the Cancer Risk in Childhood Cancer Survivors (CRICCS) study we aimed to assess the ability of registries to collect data needed to conduct comparative studies of childhood cancer prevalence and risk of second primary neoplasms among survivors of childhood cancer.
Methods: We developed an online questionnaire using the Research Electronic Data Capture (REDCap) tool to enquire about data collected on stage, therapy, predisposing characteristics, and follow-up. We also asked about the willingness of registries to provide data for central analyses. The questionnaire was made available on the IARC Registries Portal in July 2021 to 548 registries. The registries received 2 reminders to complete the questionnaire. We summarised the data collected until 27th June 2022.
Results: Overall, 141 registries completed the questionnaire. Responding registries were from Europe (n=56), Asia (n=32), Latin America (n=28), North America (n=11), Africa (n=8), and Oceania (n=6). Sixteen registries were paediatric and 37 had national coverage. The earliest complete incidence year was 1944 and the latest was 2021. The average registration period was 27 years; 19 registries covered less than 10 years. Among 141 registries, subsequent primary neoplasms were recorded in 135 (96%) and follow-up data in 113 of them. Stage was collected in 112 (79%) registries, treatment in 75 (53%) and predisposing characteristics in 18 (13%) registries. Information on both stage and treatment was collected in 72 (51%) registries, however only 15 (11%) collected information on stage, treatment, and predisposing characteristics. Overall, 129 registries agreed to provide data for the CRICCS study.
Discussion and Conclusion: Population-based cancer registries can collect relevant data for studying childhood cancer survivors and the corresponding cancer burden. The CRICCS collaboration will boost the potential of registries in addressing survivorship issues.

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Presenter: DE PAULA SILVA, Neimar (IARC)

Session Classification: Oral Presentation

Contribution ID: **7** Type: **Lightning poster presentation**

CanGraph: a python utility to study and analyse cancer-associated metabolites using knowledge graphs

Wednesday, 21 September 2022 12:48 (6 minutes)

Research on cancer, one of the most lethal diseases in the world today, is an expensive, complex process, usually carried out manually in laboratories. In this publication, we present CanGraph, a software solution that allows its users to annotate and interpret unknown metabolites by making use of five pre-existing databases (HMDB, SMPDB, DrugBank, ExposomeExplorer and Wikidata) and five search criteria (InChI, InChIKey, Structural Similarity, HMDB_ID, Name and ChEBI ID), resulting in an output database in GraphML format containing the associations to the different metabolic pathways, tissues and organisms to which these molecules may belong.Although it still presents problems, such as the long processing time, we hope that this program will be useful in automating the search for potential relationships between compounds and various diseases (specially cancer, as is the mission of International Agency for Research on Cancer (IARC), the Institution where this project has been carried out), with a view towards generating a web service that will make this program, and all its knowledge, available to the scientific community at large.

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Co-authors: AMARA, Adam (IARC); POVEDA VILLALÓN, María (Universidad Politécnica de Madrid)

Presenter: MARCOS LOPEZ, Pablo (IARC)

Session Classification: Lightning poster presentation

Contribution ID: **8** Type: **Oral presentation**

Geographic variations of cancer mortality in the capital and northeast region of the state of São Paulo, Brazil

Wednesday, 21 September 2022 09:30 (12 minutes)

Background: Cancer is a major and growing public health problem in both developed and developing countries. The International Agency for Research on Cancer (IARC) has estimated there are over 19 million new cases and 10 million cancer deaths worldwide in 2020. The greatest impact of the rising cancer burden will occur in less developed countries, where four-fifths of the world's population resides. In Brazil, the National Cancer Institute (INCA) estimates that there are 625,000 new cases of cancer in each year of the 2020-2022 triennium. This study examines the geographic variations in cancer mortality in the State of São Paulo, Brazil, comparing profiles in the capital (São Paulo, population=12,396,672) and the Regional Health Department of Barretos (RHD-Barretos, population=445,216), describing the magnitude and distribution of deaths of the major cancer types over the period 2003-17. Methods: The total of 7,513 and 201,156 cancer deaths occurring 2003-17 in São Paulo and RHD-Barretos, were respectively obtained from the Brazilian public government database, the Information System on Mortality, developed as part of the Informatics Department of the Unified Health System (DATASUS). Age-standardized rates (ASR), per 100,000 persons-years, were calculated for all cancer combined and the six most common cancers using the Segi-Doll World standard population. The results are presented in thematic maps, by municipality for the RHD-Barretos, and by districts for the municipality of São Paulo. The software RStudio® version 2022.02.3 was used for the analysis and QGIS® version 3.22 were used to prepare the maps. Results: Lung cancer is the leading cause of cancer death, with 1,023 deaths (13.6% of total deaths) in RHD-Barretos, followed by colorectal (9.1%), stomach (7.6%), breast (6.7%) and prostate cancer (6.6%). In the municipality of São Paulo there was a similar distribution with 25,420 lung cancer deaths (12.6% of total deaths), followed by colorectal (11.1%), breast (9.1%), stomach (7.6%) and prostate cancer (5.6%). Overall death rates (per 100,000) were slightly lower in the RHD-Barretos in comparison of the municipality of São Paulo for breast (11.6 vs 15.9), prostate (12.6 vs 13.8), colorectal (8.3 vs 11.1), stomach (7.0 vs 7.7) and cervix uteri (3.2 vs 3.6), with the exception of lung cancer (13.1 vs 12.9), respectively. Conclusions: Lung cancer followed by colorectal were the leading cause of cancer death in both regions, though geographic differences in mortality were also identified for the major cancer types. This study aims to contribute to a better understanding of the profile of the cancer mortality burden in the region, as a means to better inform tailored cancer policies, and so doing, minimizing the future impact of cancer mortality in the population.

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Session Classification: Oral Presentation

Contribution ID: **9** Type: **Oral presentation**

International patterns of incidence of neuroblastoma: pooled analysis of data from 192 population-based cancer registries

Wednesday, 21 September 2022 09:42 (12 minutes)

Background: The neuroblastoma burden varies considerably between countries, likely reflecting inequalities in cancer services. Here we evaluated global differences related to neuroblastoma incidence in children.
Methods: We used the database of the International Incidence of Childhood Cancer study (IICC-3) to analyse global variations in neuroblastoma and peripheral nervous tumours incidence in period 2001-2010. We computed age-standardised incidence rates per million (ASRs) with corresponding 95% confidence intervals (95%CIs) to investigate differences across 14 world regions, five ethnic groups in the USA and four levels of Human Development Index (HDI). Pearson's correlation coefficients were computed.
Results: A total of 15,542 neuroblastoma cases and 255 peripheral nervous tumours were diagnosed in children aged 0-14 years. Overall, the peripheral nervous tumours ASR was 0.11 (95%CI: 0.10-0.13), whereas the ASR of neuroblastoma was 8.2 (95%CI: 8.0,8.3), ranging from 1.5 (95%CI: 1.1-2.1) in Sub-Saharan Africa to 10.9 (95%CI: 10.1-11.7) in Southern Europe. The neuroblastoma age-specific incidence peaked among infants in very high HDI countries, whereas no age-specific incidence peak was evident in low and medium HDI countries. The neuroblastoma ASRs in children (aged 0 to 4 years) were correlated with the level of HDI ($p<0.001$), but not in the age group 5-19 years ($p=0.24$). Among adolescents (aged 15-19 years), 464 neuroblastoma and peripheral nervous tumours were diagnosed (ASR = 0.2; 95%CI: 0.1-0.2).
Conclusions: This most recent assessment suggests that global incidence of neuroblastoma is affected by inequalities in cancer services between countries, because high incidence rates and younger age at diagnosis are observed in affluent countries. With an improvement of childhood cancer care provision in low resource settings, the global incidence of neuroblastoma is expected to increase.

Primary authors: GINI, Andrea (IARC); COLOMBET, Murielle (IARC); RIES, Lynn AG; MORENO, Florencia; DOLYA, Anastasia (IARC); HESSELING, Peter; YOUNG SHIN, Hee; STILLER, Charles A; STELIAROVA-FOUCHER, Eva (IARC); IICC-3, Contributors

Presenter: GINI, Andrea (IARC)

Session Classification: Oral Presentation

Contribution ID: **11** Type: **Lightning poster presentation**

The use of a new protocol for identify mechanistic pathways in the association between dietary patterns and breast cancer

Wednesday, 21 September 2022 12:36 (6 minutes)

Background and objective
Diet could be a risk factor for several cancers, even breast cancer. Dietary patterns reflect the overall diet as it considers the associations between food items and nutrients. However, there is a lack of studies assessing the mechanisms that play a role in the associations of dietary patterns and cancer. The main objective is to develop a protocol to identify, summarise and describe the existing evidence on (breast) cancer-related mechanisms associated with dietary patterns in human studies.
Methods
The stage 1 of the Bristol Methodology was applied to identify and select potential mechanisms in the associations between dietary patterns and breast cancer risk. PubMed was used for the initial search considering relevant MeSH (Medical subject headings) terms for studies evaluating associations between exposure, outcome, and IPs. The TEMMPO (Text Mining for Mechanism Prioritisation) tool was used to identify, out of that initial search, the relevant mechanisms that linked both exposure, dietary patterns, and outcome, breast cancer. Once mechanisms were identified, specific searches were conducted for human studies evaluating the associations between dietary and lifestyle patterns and the mechanisms. Only meta-analyses and systematic reviews were examined and summarized in a narrative review.
Results
The initial search using MeSH terms was conducted on the 26th of April of 2022 in PubMed. 9,217 papers included the three components: dietary patterns AND mechanisms AND breast cancer. This search was uploaded into the TEMMPO web tool. After grouping mechanisms pertaining to the same pathway, the following 4 mechanisms were selected for from the identified intermediate phenotypes: sex hormones, inflammation, insulin resistance and antioxidants/oxidative stress. Subsequently, a specific search in Pubmed were conducted to identify systematic reviews and meta-analyses evaluating associations between dietary patterns and each of these mechanisms.
Conclusion
The use of TEMMPO tool could help to summarize and highlight relevant mechanisms. In the same vein, the use of this new developed protocol, based on Bristol Methodology, could be useful to identify, in a semi-systematic way, relevant mechanistic pathways between exposures and outcomes.

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Presenter: GONZALEZ GIL, Esther (IARC)

Session Classification: Lightning poster presentation

Contribution ID: **12** Type: **Lightning poster presentation**

Impact of pre-existing cardiometabolic diseases on cancer stage at diagnosis in the EPIC study

Wednesday, 21 September 2022 12:30 (6 minutes)

Background: Among chronic non-communicable diseases, cardiometabolic diseases and cancer are the leading causes of morbidity and mortality worldwide. Shared risk factors and population aging contribute to an increased lifetime risk of an individual to concomitantly develop cardiometabolic diseases and cancer, resulting in multimorbidity. Multimorbidity can impact cancer screening and may affect both ongoing cardiometabolic diseases and cancer treatment. Stage at cancer diagnosis is an important prognostic factor for cancer survival. Existing evidence suggests that participation to cancer screening may be lower among individuals with type 2 diabetes (T2D) or cardiovascular diseases (CVD) compared to individuals without cardiometabolic diseases. Therefore, cardiometabolic diseases may lead to late cancer detection and advanced stage at diagnosis. This study aimed to investigate whether pre-existing cardiometabolic diseases are associated with stage at cancer diagnosis.

Methods: Within the European Prospective Investigation into Cancer and Nutrition cohort (EPIC), incident localised and metastatic cancers were diagnosed between 1992 and 2012 from 400,577 cancer-free participants from 6 European countries (i.e., Denmark, Germany, Italy, Spain, Sweden, and the UK). Participants with incident diagnosis of cardiometabolic diseases, including CVD and T2D, prior to cancer were identified (participants with a history of CVD and/or T2D at recruitment were excluded). Logistic regression models were used to estimate odds ratio (OR) and 95% confidence intervals (CI) of diagnosis of metastatic cancer according to the presence of CVD, T2D, both or no cardiometabolic disease among EPIC participants diagnosed with cancer. Models were adjusted for country, age at cancer diagnosis, sex, physical activity, BMI, alcohol intake, smoking status, education level, and self-reported hypertension at baseline. Analyses were carried out for all cancers combined and separately for screened cancers (breast and colorectal cancer) and non-screened (all cancers except breast and colorectal cancer) according to the availability of population-based cancer screening programs in Europe.

Results: During a median follow-up of 15 years, 11,945 incident cancers were diagnosed, of which 35.1% were metastatic and 53.6% were diagnosed in women. Overall, 86.8% had no pre-existing cardiometabolic diseases at cancer diagnosis, 4.8% of cancers followed a CVD diagnosis, 7.1% a T2D diagnosis, and 1.3% both CVD and T2D. The ORs for metastatic vs. localized cancer comparing participants with T2D, CVD, and T2D/CVD to those without a cardiometabolic disease prior to cancer were 1.12 [95% CI 0.95-1.30], 1.02 [95% CI 0.79-1.16], and 1.11 [95% CI 0.78-1.58], respectively. The corresponding ORs for non-screened cancers were 1.26 [95% CI 1.04-1.55], 1.07 [95% CI 0.85-1.34], and 1.18 [95% CI 0.78-1.78], respectively. No associations were found for screened cancers.

Discussion: The findings of this multi-national cohort study suggest an increased risk of advanced tumour stage at diagnosis, particularly for non-screened cancers, among individuals with pre-existing T2D compared to individuals without cardiometabolic diseases. In addition, among individuals with T2D, the results underline the importance of encouraging participation of the eligible population in screening programmes by healthcare professionals and pay special attention to the detection of cancers not included in screening programmes.

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Presenter: JANSANA RIERA, Anna

Session Classification: Lightning poster presentation

Contribution ID: **14** Type: **Oral presentation**

Reproductive history and breast cancer survival: findings from the African Breast Cancer –Disparities in Outcomes cohort

Wednesday, 21 September 2022 11:51 (12 minutes)

Objectives: Reproductive characteristics are well-established risk factors for breast cancer but their impact on survival has not been studied yet in Sub-Saharan Africa (SSA).

Methods: In this setting, we examined the influence of reproductive factors on survival after a breast cancer diagnosis using data from the African Breast Cancer –Disparities in Outcomes cohort study. In a sample of 1485 women with incident breast cancer recruited between 2014 and 2017, we described changes in reproductive behaviours over time, and used Cox models to determine whether reproductive characteristics were associated with all-cause mortality with and without accounting for tumour subtype and confounding by social factors.

Results: Four years after diagnosis, 822 (56%) women had died. Median parity was 4 (IQR=2, 6) and 255 (34%) of premenopausal women had had a recent birth in the five years prior to cancer diagnosis. Fertility trends by birth cohort showed declining parity, increasing age at first birth and declining age at last birth. Mortality rates was higher in women with higher parity and those with a recent birth (HR (95% CI) =1.06 (1.04, 1.10) per full-term pregnancy increase and 1.27 (1.03, 1.58), respectively). The proportion of hormonal receptor negative tumours was higher in these women, and they had a less favourable social environment, which partly explained their lower survival.

Conclusion: In SSA, higher parity and recent birth are associated with poorer breast cancer survival. Our results suggests that the on-going fertility transition may lead to a slight improvement in survival, partly through a small shift towards better prognosis tumours.

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Presenter: BOUCHERON, Pauline (IARC, ENV)

Session Classification: Oral Presentation

Contribution ID: **15** Type: **Oral presentation**

Breast cancer survival by stage at diagnosis in countries in transition: a population-based study (SURVCAN-3)

Wednesday, 21 September 2022 09:54 (12 minutes)

Background: Breast cancer is the most common cancer in females worldwide. Stage at diagnosis is an important prognostic factor with early-stage patients generally having a better survival than patients diagnosed with late stage. Despite this, little evidence exists about breast cancer survival by stage at diagnosis in transitioning countries.
Purpose: The aim of this study is to explore variations in breast cancer survival by stage at diagnosis in transitioning countries.
Methods: This study is a population-based study with all data coming from the SURVCAN-3 dataset. This dataset collected patient-level data, including stage information, from population-based cancer registries in 65 jurisdictions from 31 countries. Registries that had 50% or more of the breast cancer cases staged were included. Age-standardized 1-, 3- and 5-year net survival for non-metastatic, metastatic, and missing stage were calculated for each included registry. Additionally, based on a data quality table and if the registry had more than 30 cases in each stage category, multiple imputation was used to reassign missing stage data. For these registries, age-standardized 1-, 3- and 5-year net survival was calculated by stage and country.
Results: Preliminary results show large proportions of advanced disease with variation across countries ranging from 4% (Algeria) to 18% (Bahrain) with metastatic disease. Variation in breast cancer survival by stage at diagnosis and across countries was observed.
Conclusion: Stage information is an important indicator for survival that cancer registries should collect. The observed variation in breast cancer survival by stage at diagnosis across transitioning countries is informative for cancer control and identifying regions where additional resources are required to improve survival.

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Presenter: FINK, Hanna (IARC)

Session Classification: Oral Presentation

Contribution ID: **16** Type: **Oral presentation**

Capacity assessment as part of context evaluation in three European countries to implement cervical cancer screening strategies tailored for vulnerable women

Wednesday, 21 September 2022 11:39 (12 minutes)

Cervical cancer screening is the third most common cancer among women. Though evidence showed the high effectiveness of population-based screening programme in reducing the burden of this disease, only 20 out of 28 European Union Member States reported to have population-based screening programme in place in 2017. It is well known that many of the existing programmes in Europe are poorly organized and the most vulnerable women remain hard-to-reach, which increases health inequalities. The EU H2020-funded project CBIG-SCREEN aims to reduce this gap by implementing cervical cancer screening strategies (CCS) that have been co-constructed by and tailored for vulnerable women. To be able to pilot these strategies, a deeper understanding of the country's contexts would be the first step. Such context assessment includes evaluation of the barriers and facilitators to access screening services as well as the capacity of the health system to implement and sustain changes. We conducted a capacity assessment in the three intervention countries –Estonia, Portugal, and Romania –from October 2021 to July 2022.

The capacity assessment related to implementation of new strategies to improve screening of vulnerable women was divided in three steps. First a desk review assessing the countries policies and guidelines related to cervical cancer screening and vulnerable women was conducted. Then, we performed facility visits in screening and colposcopy centres in the three countries. Finally, key informants were identified, and interviews were conducted to understand key institutions climate.

Data from the facility visits were analysed using R software and lead to a readiness score in 8 dimensions –infrastructure, equipment and supplies, services, staffing, data management, procurement, infectious control, and follow-up. Interviews were transcript and coded using the CFIR codebook for implementation readiness climate. A mixed-method analysis plan was followed to assess the strengths, weakness, opportunities, and threats (SWOT) in each country. The results of the SWOT analysis will help the stakeholders in each country to prioritize intervention and implementation strategies to develop. It will further guide how we should monitor and assess the effects of the tailored strategy that will be pilot tested.

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Session Classification: Oral Presentation

Contribution ID: **17** Type: **Lightning poster presentation**

Adiposity, proteins, colorectal cancer: Mendelian randomization analysis

Wednesday, 21 September 2022 12:42 (6 minutes)

Evidence suggests that increased and excess fat mass, adiposity, is associated with increased colorectal cancer risk. There is also evidence that concentrations of many circulating proteins are altered in individuals with adiposity and colorectal cancer. Whether these proteins mediate the association between adiposity and colorectal cancer is not clear.

We use two-sample Mendelian randomization (MR) to assess the potential causal relationship between: (i) adiposity measures (body mass index (BMI), waist hip ratio (WHR), and WHR adjusted for BMI) and overall and site specific colorectal cancer; (ii) adiposity measures and 4,907 proteins; 4,907 proteins and overall and site specific colorectal cancer. We subsequently performed multivariable MR to assess the potential mediating affect of proteins which are associated with both adiposity measures (ii) and colorectal cancer (iii). All analyses were performed using sex-combined and sex-specific data.

Preliminary results of over 500,000 models suggest adiposity measures are associated with over half of the 4,907 proteins and that the majority of these proteins are associated with colorectal cancer. Analyses using cis only SNPs are currently being performed and results will guide the multivariable MR analyses for which results will be available to present at the ECSA day.

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Session Classification: Lightning poster presentation

Contribution ID: **18** Type: **Oral presentation**

Geospatial disparities in 4-year survival in the African Breast Cancer-Disparities in Outcomes (ABC-DO) cohort

Wednesday, 21 September 2022 11:27 (12 minutes)

Background: Breast cancer is the most commonly diagnosed cancer and the most frequent cause of cancer death globally. Though prognosis is good in high-income countries, there is an urgent need to improve survival in sub-Saharan Africa, where 3-year survival can fall below 50%. Within these settings, geospatial barriers contribute to delays in diagnosis, but their impact on survival is not well-understood. We examined geospatial disparities in 4-year survival in the African Breast Cancer-Disparities in Outcomes (ABC-DO) cohort.

Methods: Women with breast cancer were recruited from eight hospitals in Namibia, Nigeria, South Africa, Uganda, and Zambia between 2014 and 2017. Sociodemographic, diagnostic and treatment data were collected, and participants were actively followed-up every 3 months. We estimated crude and adjusted hazard ratios (HRs) and 95% confidence intervals (CIs) for all-cause mortality in relation to three geospatial characteristics (rural vs. urban residence, straight-line distance between geocoded home and hospital addresses, and estimated travel times based on road types) using Cox proportional hazards and flexible parametric survival models.

Results: Among the 2101 women in this analysis, 44% lived in a rural area. Compared to urban residents, rural residents had a 24% (95% CI: 9, 40%) higher crude risk of mortality, but there was no difference after adjustment for site, age, stage at diagnosis, treatment, socioeconomic position, and HIV status. However, even in fully-adjusted models, both distance and travel time to the treatment hospital were significantly associated with a higher risk of mortality: 2% (95% CI: 0, 3%) per 50km, and 3% (95% CI: 1, 5%) per hour. Time-dependent HRs for rural vs. urban residence showed a clear peak around 1-year post-diagnosis, e.g. crude peak HR=1.45 (95% CI: 1.21, 1.74).

Conclusions: There are geospatial barriers to survival among breast cancer patients in sub-Saharan Africa. Further work should be done to identify and remove these barriers to improve survival in these settings.

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Session Classification: Oral Presentation

Contribution ID: **19** Type: **Lightning poster presentation**

Alcohol intake and Pancreatic cancer in the Diet and Cancer Pooling Project

Wednesday, 21 September 2022 12:54 (6 minutes)

Although alcohol is recognized as a type 1-carcinogen, prospective studies evaluating the association between alcohol consumption and the risk of pancreatic cancer (PC) have generally faced power limitation to generate consistent evidence among never smokers. Here, we evaluated the association as part of the Diet and Cancer Pooling Project, a large international consortium of prospective studies.

We pooled individual-level data for 2,459,382 participants from 32 cohorts, of whom 10,082 developed incident PC during follow-up (10,953,275 person-years). Alcohol intake at baseline was collected using food frequency questionnaires and expressed in grams of ethanol per day (10g corresponds to ~1 drink). Cox proportional hazards models were used to estimate multivariable hazard ratios (HR) and 95% confidence intervals (CI). Analyses were conducted in men and women combined and stratified by smoking status.

The population comprised 70% drinkers overall (mean intake: 13g/day) and men (38%) drunk on average twice as much as women. In the overall population, a statistically significant positive association between alcohol intake and PC risk was observed in both continuous (total number of cases [nPC]=10,082; for a 10g/day increment: HR=1.03, 95%CI:1.02-1.04) and categories (HR=1.10, 95%CI: 1.02-1.20 for 30-<60g/day and HR=1.32, 95% CI:1.18-1.47 for ≥60g/day compared with 0.1–<5g/day), with a significant trend across categories (ptrend=<0.001). Among never smokers, there was not statistically significant association either in continuous (nPC=3,835; HR=1.02, 95%CI:0.99-1.05) or in categories (HR=1.25, 95% CI:0.94-1.66 for ≥60g/day compared with 0.1–<5g/day, ptrend=0.19).

Results from a large consortium of prospective studies suggested that alcohol consumption may not be independently associated with PC risk due to heavy confounding by tobacco smoking. Future steps of analysis will entail examination by type of alcoholic beverage, geographical region, and PC histological subtype.

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Session Classification: Lightning poster presentation