The 38th Annual IACR Conference

19 - 21 October 2016
Welcome Message ........................................................................................................4
About ................................................................................................................................6
Organizing Committee .....................................................................................................10
Practical Information .......................................................................................................12
Floor Plan and Information For Presenters .......................................................................14
Programme At A Glance ...................................................................................................15
Scientific Programme In Detail ..........................................................................................16
Johannes Clemmesen Lecture ............................................................................................18
Keynote Lectures ...............................................................................................................20
The Enrico Anglesio Prize ................................................................................................30
Workshops .........................................................................................................................32
Oral Presentation Abstracts ..............................................................................................36
Poster Presentation Abstracts ............................................................................................68
IACR 2016 – Marrakesh: A Welcome Message

Under the Patronage of Her Royal Highness Princess Lalla Salma, the International Association of Cancer Registries (IACR), in partnership with the Lalla Salma Foundation for the Prevention and Treatment of Cancers (FLSC), and with the Cancer Registry of Casablanca, brings you the 38th edition of its Annual Scientific Conference in Marrakech, Morocco.

The IACR Annual Scientific Meeting has been held regularly since 1970, and annually since 1982. Hosted on a different continent each year, the IACR annual conference attracts an average of 200 delegates and offers a rich programme on topics related to the impact of cancer (incidence, survival), the evaluation of cancer screening and treatments, the aetiology of different cancers, and many others.

The theme of this year Conference is “Progress in Cancer Registration Worldwide: Reducing Inequities and Demonstrating Benefit”. We were pleased to attract presenters and speakers who will discuss issues and directions for the future following the conference’s plenary themes: strengthening health data, cancer surveillance, cancer in Africa, infectious-related cancers and childhood cancers. A focal point of the program, the Johannes Clemmesen Lecture will be delivered by Dr D. Maxwell Parkin of the University of Oxford, UK and the African Cancer Registry Network (AFCRN). Dr Parkin founded the AFCRN in 2011 and has been closely working with the coordinating the activities and development of cancer registries in Africa.

Prior to the scientific conference, some of the participants will have a chance to attend any of two pre-conference workshops that will deliver focused lectures and discussions that will be of great benefit to registry professionals: Cancer Survival Methods and Data Quality and Registry Operations.

The Association is grateful to its membership and our dedicated partners in Morocco for the chance to bring its first meeting to North Africa and gather greater participation from experts and professionals from the region.

We look forward to a very rich exchange of information, ideas, future strategies that, as we always hope, will lead to greater cooperation and collective action on cancer control.

Dr Roberto ZANETTI
IACR President des cancers

Pr Abdellatif BENIDER
Directeur du Centre Mohammed VI pour le traitement

Dr Freddie BRAY
IACR Executive Secretary
The International Association of Cancer Registries (IACR) was founded in 1966 as a professional society dedicated to fostering the aims and activities of cancer registries worldwide. It is primarily for population-based registries, which collect information on the occurrence and outcome of cancer in defined population groups (usually the inhabitants of a city, region, or country). For each new cancer case, registries record details of the individual affected: the nature of the cancer, information on treatment, and on follow-up especially with respect to survival from the disease.

Registries play an important role in research into the cause of cancer, both by providing data on patterns and trends, and in different types of epidemiological studies (in particular, in their ability to follow up groups of persons exposed to potential hazards). Registries are an essential element in the planning and monitoring of cancer control strategies, and in identifying priorities in public health.

To ensure that cases are properly recorded, and that the statistical data gathered are complete and can be used to make valid comparisons, cancer registries must conform to accepted working practices and standards. The IACR was created to foster the exchange of information between cancer registries internationally, with the goal of improving the quality of data and comparability between registries.

The IACR is a non-governmental organization that has been in official relations with the World Health Organization since January 1979.

More information can be found at www.iacr.com.fr
The Foundation Lalla Salma: A Non Governmental Organization Dedicated In Fighting Cancer

Since its creation in 2005, the Lalla Salma Foundation against cancer has worked hand in hand with all its partners, to make the fight against cancer a public health priority in Morocco and the region. The Lalla Salma Foundation aims at setting up a national plan dedicated to fight cancer which will apply the best clinical practices, by implementing a strategy using an innovative and participative approach adapted to the specificities of the country.

Created at the initiative of Her Royal Highness Princess Lalla Salma, the “Lalla Salma Foundation against Cancer” (Fondation Lalla Salma) is working ceaselessly since 2005 to improve the patients’ care, promote cancer prevention and to make the fight against cancer a public health priority in Morocco. Furthermore, the Lalla Salma Foundation has made a commitment in terms of scientific research, hence multiplying partnerships in Morocco and worldwide.

The Lalla Salma Foundation against cancer adopted a participative and multidimensional approach to the cancer issue. The Foundation is officially recognized as a non-profit organization. It acts in concert with all its partners, working together at implementing a national health-system dedicated at fighting cancer modelled on the best international practices.

The Foundation has always been privileging the well-being and the comfort of the patient, who is at the center of all its concerns. It is fortunate to rely on the never-ending and active implication of all and every one of the private and corporate partners, working out to meet the cancer challenge in Morocco.

Text from LSF website, see http://www.contrelecancer.ma/en/
Le Registre Des Cancers De La Population De La Région Du Grand Casablanca

Le Registre des Cancers de la population de la Région du Grand Casablanca est domicilié provisoirement au centre d’Oncologie du Centre Hospitalier Ibn Rochd avec une unité de traitement des données du Registre.

Les activités du registre sont assurées par l’équipe du registre composée par un personnel permanent (un médecin épidémiologiste, une biologiste et un infirmier), et par du personnel vacataire. Ce personnel est assisté par le comité scientifique et fondateur qui assure l’appui scientifique et le suivi.

Objectif du register

Le Registre des Cancers de la Région du Grand Casablanca, par l’enregistrement exhaustif et continu de tous les cas de cancers diagnostiqués et traités chez des malades domiciliés à Casablanca, vise plusieurs objectifs :

- Etablir l’incidence réelle des cancers au niveau de la Région du Grand Casablanca pour évaluer l’impact du cancer sur la population de la région;
- Fournir des données statistiques fiables sur la morbidité liées aux cancers dans cette région aux responsables régionaux, nationaux et aux professionnels de la Santé;
- Déterminer les stades anatomocliniques;
- Comparer ces résultats à ceux de 2004;
- Orienter la recherche épidémiologique en matière de cancer et particulièrement la recherche de causalité entre les cancers et leurs facteurs de risque.
Le Registre des Cancers du Grand Casablanca

Le Registre des Cancers du Grand Casablanca a été mis en place en 2004 grâce à l’initiative d’un nombre d’enseignants chercheurs de la faculté de médecine et de pharmacie de Casablanca. La mission de surveillance épidémiologique des cancers au niveau de la zone couverte lui a été attribuée par le Ministère de la Santé et la Fondation Lalla Salma (FLSC).


Le Registre des Cancers du Grand Casablanca répond à la définition d’un registre de population, il effectue un recueil continu et exhaustif de données nominatives sur les nouveaux cas de cancer résidents au sein de la région du Grand Casablanca, à des fins de recherche en santé publique, tout en suivant les standards du Centre International de Recherche sur le Cancer (CIRC). En tant que dispositif de surveillance, il contribue à la constitution de la base de données nationale sur le cancer.
Organizing Committee

Local Organizing Committee

- Pr. Abdellatif BENIDER, Directeur du Centre Mohamed VI pour le traitement des cancers
- Dr. Rachid BEKKALI, General Director Fondation Lalla Salma de lutte contre le cancer
- Madame Maria BENNANI, Fondation Lalla Salma de lutte contre le cancer
- Pr. Souha SAHRAOUI, Centre Mohamed VI pour le traitement des cancers
- Pr. Benjaafar NOUREDDINE, Service de Radiothérapie Rabat
- Dr. Mohammed Adnane TAZI, Registre des cancers de Rabat
- Dr. Latifa BELAKHEL, Chef de Service de la Prévention et de Contrôle du Cancer, Ministère de la santé
- Dr. Taha AZZEDDINE, Registre hospitalier des tumeurs de Marrakech
- Dr. Karima BENDAHHOU, Registre des cancers du Grand Casablanca
Program Committee

- Pr. Abdellatif BENIDER, Directeur du Centre Mohamed VI pour le traitement des cancers
- Dr. Roberto ZANETTI, IACR President
- Dr. Sabine SIESLING, IACR General Secretary
- Dr. Freddie BRAY, IACR Executive Secretary

IACR Executive Board and Secretariat

- Dr. Roberto ZANETTI, President
- Dr. Brenda EDWARDS, Past President
- Dr. Sabine SIESLING, General Secretary
- Dr. Freddie BRAY, Executive Secretary
- Dr. Stefano ROSSO, Treasurer
- Mr. Les MERY (IARC)
- Dr. Lidia SACCHETTO (CPO Piemonte)
- Mrs. Chelle FERNAN (IARC)

IACR Regional Representatives

- Dr. Anne KORIR (Africa)
- Dr. Enrique BARRIOS (Central and South America)
- Dr. Maria J SCHYMURA (North America)
- Dr. Kevin WARD (North America)
- Dr. Sultan ESER (Asia)
- Dr. Hideo TANAKA (Asia)
- Dr. Anna GAVIN (Europe)
- Dr. Eero PUKKALA (Europe)
- Dr. Joanne AITKEN (Oceania)
Practical Information

The 38th International Association of Cancer Registries (IACR) Annual Conference is hosted in conjunction with the Fondation Lalla Salma.

Conference Location
The Atlas Meeting Rooms
Kenzi Farah Hotel
Avenue du Président Kennedy
40000 Marrakech, Morocco
www.kenzi-hotels.com/kenzifarah/meetings-en.html

Conference Dates

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 October</td>
<td>Pre-conference workshops (see pages 32-35 for more details)</td>
</tr>
<tr>
<td>19-21 October</td>
<td>Scientific Conference</td>
</tr>
<tr>
<td>21 October</td>
<td>Scientific Conference and Annual IACR Business Meeting</td>
</tr>
</tbody>
</table>

*Please note that Workshop 1 and Workshop 2 will take place at the same time
Workshop venue: Atlas Meeting Rooms, Kenzi Farah Hotel

Official Language
The official language for the presentations will be English. **No interpretation will be provided.**

Certificate of Attendance
A certificate of attendance for pre-registered attendees will be available at the registration desk or through the secretariat on days 2-3 of the conference.
Oral and poster presentation information

Oral Presentations
Length: The allocated time for each presentation is **10 minutes**, followed by up to a 5 minute discussion. All speakers are asked to keep to the allocated time.

Format: Presentations should be in English and in PowerPoint format.

Technical verification: Speakers are required to submit their presentation on a USB key in advance of their presentation to the AV technician to verify that the file is in working order before they present.

Poster Presentations
Format/Size: Posters should be in **portrait format**, with a size of 1.2m high by 0.9m wide.

Posters can be viewed during:
- Morning coffee/tea break
- Lunch break
- Afternoon coffee/tea break

Each poster presenter is expected to be in attendance for discussion of their poster at two of the designated times above on the day their poster is being showcased. (Please see the final conference programme for exact timing of the breaks and lunches.)

Award
A prize will be given to the authors of the three best posters at the closing ceremony. Scientific content as well as communication skills will be judged by the IACR board members.
Floor Plan and Information For Presenters
<table>
<thead>
<tr>
<th>Time</th>
<th>Pre – Conference Activities Tuesday, 18 Oct</th>
<th>Day 1 Wednesday, 19 Oct</th>
<th>Day 2 Thursday, 20 Oct</th>
<th>Day 3 Friday, 21 Oct</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00</td>
<td></td>
<td>Opening Ceremony and Welcome Addresses</td>
<td>Plenary 1 Presentations</td>
<td>KEYNOTE Economics of Cancer Registration: The Cost to Sustain and Improve Registries for Cancer Control Planning Dr. F. Tangka (CDC, USA)</td>
</tr>
<tr>
<td>09:15</td>
<td></td>
<td></td>
<td>Plenary 4 Presentations</td>
<td>Parallel Sessions 4</td>
</tr>
<tr>
<td>09:30</td>
<td></td>
<td></td>
<td>Break &amp; Poster Session</td>
<td>Parallel Sessions 2</td>
</tr>
<tr>
<td>09:45</td>
<td></td>
<td></td>
<td>Break &amp; Poster Session</td>
<td>IACR Business Meeting</td>
</tr>
<tr>
<td>10:00</td>
<td></td>
<td></td>
<td>Break &amp; Poster Session</td>
<td>Awards and Closing Program</td>
</tr>
<tr>
<td>10:15</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td></td>
<td></td>
<td>LUNCH BREAK and Poster Session</td>
<td></td>
</tr>
<tr>
<td>10:45</td>
<td></td>
<td></td>
<td>LUNCH BREAK</td>
<td></td>
</tr>
<tr>
<td>11:00</td>
<td></td>
<td></td>
<td>LUNCH BREAK</td>
<td></td>
</tr>
<tr>
<td>11:15</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>11:30</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>11:45</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>12:00</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>12:15</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>12:30</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>12:45</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>13:00</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>13:15</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>13:30</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>13:45</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>14:00</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>14:15</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>14:30</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>14:45</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>15:00</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>15:15</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>15:30</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>15:45</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>16:15</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>16:45</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>17:00</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>17:15</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>17:30</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>17:45</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>18:00</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td>Gala Dinner offered by the Lalla Salma Foundation</td>
</tr>
<tr>
<td>18:30</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>19:00</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>21:00</td>
<td></td>
<td></td>
<td>Lunch Break</td>
<td></td>
</tr>
</tbody>
</table>
**Wednesday, 19 October**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 - 09:30</td>
<td><strong>FORMAL OPENING CEREMONY</strong> IACR 2016 Hosts and IACR President Roberto Zanetti</td>
</tr>
<tr>
<td>09:30 - 10:00</td>
<td><strong>SESSION 1</strong> - <strong>Moderator:</strong> Dr Freddie Bray</td>
</tr>
<tr>
<td>10:00 - 10:15</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>10:15 - 11:45</td>
<td><strong>SESSION 2</strong> - <strong>Moderators:</strong> Dr K. Bendahhou; Dr A. Gavin</td>
</tr>
<tr>
<td>11:45 - 13:00</td>
<td>Lunch and Poster viewing</td>
</tr>
<tr>
<td>13:00 - 14:30</td>
<td><strong>PARALLEL SESSIONS 1</strong> - B. Kohler &amp; B. Edwards / S. Eser &amp; A. Znaor</td>
</tr>
<tr>
<td>14:30 - 15:15</td>
<td>Coffee Break - Poster viewing</td>
</tr>
<tr>
<td>15:15 - 15:45</td>
<td><strong>SESSION 3</strong> - <strong>Moderators:</strong> Dr J Aitken/Dr A Laudico</td>
</tr>
<tr>
<td>15:45 - 16:15</td>
<td></td>
</tr>
<tr>
<td>16:15 - 18:00</td>
<td></td>
</tr>
</tbody>
</table>

**Thursday, 20 October**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 - 09:30</td>
<td><strong>Session 4</strong> - <strong>Moderators:</strong> R Zanetti/Ann Korir</td>
</tr>
<tr>
<td>09:30 - 11:00</td>
<td></td>
</tr>
<tr>
<td>10:00 - 10:45</td>
<td></td>
</tr>
<tr>
<td>11:00 - 11:30</td>
<td>Coffee Break - Poster viewing</td>
</tr>
<tr>
<td>Time</td>
<td>Session/Activity</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>11:00 - 12:00</td>
<td>PARALLEL SESSIONS 2 - L. SACCHETTO &amp; M. PINEROS/M. BENNANI &amp; I. SOERJMATARAM</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>12:30 - 14:00</td>
<td>Lunch - Poster viewing</td>
</tr>
<tr>
<td>14:00 - 14:30</td>
<td>SESSION 5 - Moderators: Kevin Ward; Stefano Rosso</td>
</tr>
<tr>
<td>14:30 - 15:45</td>
<td>KN Address 5: International Classification of Disease</td>
</tr>
<tr>
<td></td>
<td>Plenary 5</td>
</tr>
<tr>
<td></td>
<td>s.1 Using Inpatient And Outpatient Medical Claims To Identify Missing Cancer Cases</td>
</tr>
<tr>
<td></td>
<td>s.2 Essential TNM: preliminary results from Malawi and Cote d’Ivoire</td>
</tr>
<tr>
<td></td>
<td>s.3 How do you communicate high quality cancer data in developing countries?</td>
</tr>
<tr>
<td></td>
<td>s.4 IARC Regional Hub For Cancer Registration In Northern Africa, Central And Western Asia</td>
</tr>
<tr>
<td></td>
<td>s.5 Cancer Pattern In Urban and Rural Population Based Cancer Registries in Punjab</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>15:45 - 16:15</td>
<td>Coffee Break - Poster viewing</td>
</tr>
<tr>
<td>16:15 - 18:00</td>
<td>PARALLEL SESSIONS 3 - G. CHESUMBAI &amp; H CHERIF / D. TURNER &amp; S. ROSS</td>
</tr>
<tr>
<td></td>
<td>3a.1 A Social determinants of Survival in Advanced Lung Cancer Patients</td>
</tr>
<tr>
<td></td>
<td>3a.2 Evaluation Of Five England-Wide Be Clear On Cancer Campaigns</td>
</tr>
<tr>
<td></td>
<td>3a.3 The Changing Profile Of Cancer In The Eastern Mediterranean Region: The Need For Action</td>
</tr>
<tr>
<td></td>
<td>3a.4 Departure Of Oropharyngeal Cancer From Smoking Related Cancer Incidence Trends:</td>
</tr>
<tr>
<td></td>
<td>3a.5 Optional Location Of Smoking Cessation Services For Patients With</td>
</tr>
<tr>
<td></td>
<td>Tobacco-Induces Cancers In Crete, Greece</td>
</tr>
<tr>
<td></td>
<td>3a.6 TBC</td>
</tr>
<tr>
<td></td>
<td>3b.1 Carreg5 – Masterclass</td>
</tr>
<tr>
<td></td>
<td>3b.2 Building A Simulation Model For Breast Cancer Incidence Based On Genetic And</td>
</tr>
<tr>
<td></td>
<td>Lifestyle-Related Risk Factors</td>
</tr>
<tr>
<td></td>
<td>3b.3 Patterns Of Care And Cost Profiles Of Cancer Patients In Italy: The Epicost Study</td>
</tr>
<tr>
<td></td>
<td>3b.4 Black-white differences in cancer risk in Harare, Zimbabwe 1991-2010</td>
</tr>
<tr>
<td></td>
<td>3b.5 Decline In Leading Causes Of Cancer Mortality In Russia In Men:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>19:00</td>
<td>Gala Dinner</td>
</tr>
<tr>
<td>Friday, 21 October</td>
<td></td>
</tr>
<tr>
<td>09:00 - 09.30</td>
<td>Session 6 - Moderators: F. Bray &amp; S. Siesling</td>
</tr>
<tr>
<td>09:30 - 10:45</td>
<td>PARALLEL SESSIONS 4 - T. MATSUDA &amp; C. GOMBE</td>
</tr>
<tr>
<td></td>
<td>4a.1 European Cancer Registries’ Data Quality Assessment Within The ENCR-JRC Project</td>
</tr>
<tr>
<td></td>
<td>4a.2 Perioperative Chemotherapy For Gastric Cancer In Daily Clinical Practice;</td>
</tr>
<tr>
<td></td>
<td>A Nationwide Population-Based Study</td>
</tr>
<tr>
<td></td>
<td>4a.3 Monitoring Care For Female Breast Cancer Patients In N.Ireland (Ni) Diagnosed 2012</td>
</tr>
<tr>
<td></td>
<td>4a.4 Linkage To Supplementary Registration Sources: Key Lessons Learned In The Last 30 Years In Slovenia</td>
</tr>
<tr>
<td></td>
<td>4b.1 World-Wide Trends In Stage At Diagnosis And Stage-Specific Breast Cancer Net Survival</td>
</tr>
<tr>
<td></td>
<td>4b.2 Geographical Differences In Population Attributable Fractions Of Tobacco</td>
</tr>
<tr>
<td></td>
<td>And Obesity On Cancer Burden In Turkey</td>
</tr>
<tr>
<td></td>
<td>4b.3 Relative Survival Trends For Colon, Breast And Cervical Cancer In Argentina’s Central Region. Period 2004-2012</td>
</tr>
<tr>
<td></td>
<td>4b.4 Estimation Of Incidence Rates And Its Trends Of Stomach Cancer In Indian Population</td>
</tr>
<tr>
<td></td>
<td>4b.5 Primary brain and central nervous system tumours diagnosed in Girona (Spain) in 1994-2013</td>
</tr>
<tr>
<td>10:45 - 11:00</td>
<td>Coffee Break - Poster viewing</td>
</tr>
<tr>
<td>11:00 - 12:00</td>
<td>IACR BUSINESS MEETING AND CLOSING CEREMONY</td>
</tr>
<tr>
<td></td>
<td>• IACR report • Financial Report • Poster Evaluation • Enrico Anglesio Prize • IACR 2017 - Utrecht</td>
</tr>
<tr>
<td>12:00</td>
<td>Lunch</td>
</tr>
</tbody>
</table>
Knowledge of cancer in Africa began a century ago, with the publication of case reports, followed by case series from individual clinicians or hospitals. Sometimes, comparisons of these revealed some interesting features, especially concerning more unusual cancers (Burkitt lymphoma, Kaposi sarcoma) with singular geographic or demographic characteristics.

True population based registration began in the 1950’s and 60’s, notably in South Africa, Rhodesia (Zimbabwe), Nigeria and Uganda. Some remain in existence today, although none could sustain continuous operation through the low point of the 1970’s, when no registry was suitable for publication in Cancer Incidence in Five Continents (Volume 5). Since then, there has been a slow increase in the numbers of registries represented. The pattern in North and sub-Saharan Africa has been very different, reflecting the differences in health care infrastructures, and the prominence of specialists in oncology and public health in the former.

With IARC’s “Global Initiative for Cancer Registration” project, the two parts of the continent have been the responsibility of different regional Hubs. The Sub Saharan African “hub” is not a centre, but a network (the African Cancer Registry Network), carrying out the training, technical support and research functions as a consortium of, currently, 30 PBCRs. A recent survey gave information on issues such as staffing and finance.

Sustained financial support from local sources remains a problem. Without a stable and trained cadre of cancer registry staff, facing up to the technical problems of registering cancer in the absence of adequate medical information systems is the biggest challenge. Hopefully, quality will improve sufficiently to allow more entries in future volumes of CI5. But, the data already produced are the principle sources of information for IARC’s Globocan estimates, and the individual results are now being published in an IARC Report “Cancer in Sub-Saharan Africa”.

The evolution of cancer registration in Africa
About the Speaker

Dr Donald Maxwell (Max) Parkin graduated in medicine from Edinburgh University in 1968. After initial specialisation in internal medicine - gastroenterology, he transferred to public health/epidemiology in 1973. After working in UK, mainly in health service information and planning, he moved in 1981 to the International Agency for Research on Cancer (IACR - WHO) in Lyon, France, as head of the Descriptive Epidemiology Unit, until October 2004.

Currently, his activities are:

(1) Visiting senior research fellow, Clinical Trials Service Unit and Epidemiological Studies Unit, Oxford University, UK¹.

(2) Senior Epidemiologist, Wolfson Institute of Preventive Medicine (Queen Mary University, London)².

(3) Head of Cancer Prevention Programme, International Network for Cancer treatment and Research (INCTR)³. The main activity since 2011 has been the establishment of the African Cancer Registry Network (AFCRN), a consortium of population based registries providing a regional hub for the development and improvement of cancer statistics in sub Saharan Africa.

(4) Senior Visiting Scientist, International Agency for Research on Cancer (Lyon). Since September 2012, in order to coordinate the activities of the AFCRN project with the wider goals of the Global Initiative for cancer Registration

(5) Foreign Adjunct Professor, Karolinska Institute

Dr Parkin is a member of the editorial board of several international journals and holds honorary professorships at the Universities of Peking (Beijing) and Tianjin, China. He has published extensively, with more than 400 papers and reviews in the international scientific literature, mainly on descriptive epidemiology (international cancer patterns and trends), with a major concern for cancer registration, and in cancer prevention and control (especially the effectiveness of cancer screening).
National plan on the prevention and control of cancer 2010-2019
Summary of mid-term projects

Dr Latifa BELAKHEL* Pr Maria Bennani**, Dr. Rashid Bekkali**
*Ministry of Health **Lalla Salma Foundation - Prevention and Treatment of Cancers

35,000 new cancer cases occur each year in Morocco. The first cancers for women are breast cancers and cervix with respective proportion 36.1% and 13%. For men, lung cancers with 23.8% and prostate cancer with 10% are predominant.

The national plan for prevention and control of cancer (PNPCC), developed through a partnership between the Ministry of Health and the Lalla Salma Foundation, is an action strategy that goes from 2010 to 2019. This plan is structured into four strategic pillars, 74 operational measures (prevention 30 measures, early detection of cancer 13 measures support measures 18 and 13 palliative measures) and four accompanying measures.

In the area of prevention, Morocco has been able to implement a program to fight against smoking and consultation in aid of smoking cessation is currently integrated into primary health care and in some hospitals.

A multi-sectoral action plan for the promotion of healthy lifestyles has been set up through collaboration with government sectors and civil society.

Morocco has set up a national program for early diagnosis of breast cancer based on clinical breast examination and a cancer screening program for cervical based on visual inspection with acid acetic. On the therapeutic management, Morocco has developed the support structures from 2 to 11 regional cancer centers. Care is free for all needy patients. The number of linear accelerators for radiotherapy increased from 1 to 15 and 3 being acquired (public sector).
The private sector has also experienced great development with the number of clinics rising from 4 in the cities of Rabat and Casablanca to more than 13 clinics. All these structures are equipped with the latest generation of accelerators and distributed in all regions of the country.

A palliative care strategy has been developed and we now have five pilot projects. The generalization will be phased with the development of territorial network.

About the Speaker

Dr Latifa Belakhel is the Head of Prevention and Control of Cancer Department of the Ministry of Health of Morocco. She completed her Master in Public Health at the National School of Public Health in Rabat Morocco and earned her medical degree (Doctorat on medicine) at the School of Medicine and Pharmacy in Rabat, Morocco.

Dr Belakhel has actively participated in the development of strategies for prevention and control of diseases (National Plan for Prevention and Cancer Control, Non-communicable Disease Strategy, strategies for cardiovascular disease and diabetes and communication strategies, the development of multi-sectoral plan for healthy living (supported by WHO), development of standards frameworks support structures for Oncology in Morocco (Regional Centers of Oncology, Reproductive Reference Centers of Health and Local Professional Services chemotherapy), the organization of breast cancer screening campaigns and have been responsible for the coordination in the development program guides, elaborations of Ministerial circulars relating to cancer and tobacco since 2008, organization of the celebration of world day programs (Cancer, Cancer of the child, Tobacco) and the conduct and coordination of research on primarily cancer and tobacco and early detection of breast and cervical cancers. She is married and has two children.
Childhood cancers: linking data to provide evidence and inform action in low- and middle-income countries

International Agency for Research on Cancer (IARC), jointly with the International Association of Cancer Registries (IACR) and with support of the Union of International Cancer Control (UICC), is coordinating a study on cancer incidence around the world, the results of which will be published as International Incidence of Childhood Cancer (IICC-3). Beyond the data assembly exercise, IICC-3 provides information on inequalities, obstacles and best practices.

The most important resource-dependent gap is data availability. Across the continents, the percentage of the population covered by quality registries varies from less than 5% to more than 85%. Where they exist, data are not always of a sufficient quality or collection methods are not sufficiently standardised. Within the IICC-3 project, about two thirds of the submitted datasets are of a high quality. The others reflect strong under- or over-ascertainment of cases, missing or unspecific morphology codes, problem with determination of the age of the patients and others. The high quality datasets still conceal differences in the registration or coding practices, which influence interpretation of the results.

To overcome these gaps, an investment in a production of local data is indispensable, because the chances of diagnosis, treatment and survival depend on where the child lives. The population-based cancer registries are the undisputed source of the relevant information and their production steers research, treatment and cancer control. To fulfil their role, quality and comparability of their data is obligatory. In addition to adhering to international standards, collaborative research powerfully improves the local data. Production of valid international statistics also helps to overcome barriers to data availability, such as unrecognised priority, withholding data considered confidential, lack of funding or interest. Coordinated efforts are particularly important when targeting cancer among children because of specific features of its occurrence.
About the Speaker

Eva Steliarova-Foucher, RNDr, MSc, PhD, is a senior scientist at the International Agency for Research on Cancer (IARC) of the World Health Organisation (WHO).

She studied mathematics and biology in Comenius University, Bratislava, Slovakia and medical statistics in London School of Hygiene and Tropical Medicine, London, UK. She worked in the National Cancer Registry of Slovakia; then affiliated to the National Cancer Institute of the Slovak Academy of Sciences in Bratislava, where she defended her PhD thesis. She joined the IARC in 1994, where her main research interests are related to cancer in children. In 2015 she joined International Society of Paediatric Oncology (SIOP) as a member of Scientific Programme Advisory Committee.

Dr Steliarova-Foucher has contributed to the cancer registry research, in particular of childhood cancer. She coordinated the two volumes of the IARC Scientific Publication International Incidence of Childhood Cancer (IICC) and co-authored two editions of the International Classification of Childhood Cancer (ICCC). She also led studies of childhood cancer incidence and survival in Europe in the Automated Childhood Cancer Information System (ACCIS). She also supported cancer registries through her work as Executive Secretary of the International Association of Cancer Registries (2007), the Scientific Coordinator of the European Network of Cancer Registries (1998 and 2008-2012) and through designing the infrastructure for automatized exchange between IARC and the cancer registries to support collaborative research studies and networking. She steered the development of the European Cancer Observatory (ECO) website and contributed to the tenth volume of Cancer Incidence in Five Continents.
Economics of Cancer Registration: The Cost to Sustain and Improve Registries for Cancer Control Planning

Low- and middle-income countries (LMICs) bear more than half of the global burden of cancer. Population-based cancer registries are required to collect, compile and report high quality data on cancer incidence, which is essential for providing the evidence base needed to guide targeted policies and interventions to prevent and control cancer.

Unfortunately, there are large inequalities in the existence, coverage, and quality of cancer surveillance systems across the world, with limited information on cancer registration currently available in the resource-limited setting. LMICs have the lowest proportion of the population covered by cancer registries. High-income countries generally have better infrastructure for cancer registration though they can also face staffing shortages and funding reductions. To address this critical gap, the World Health Organization’s International Agency for Research on Cancer has initiated the Global Initiative for Cancer Registry Development to establish regional resource centers to provide technical support and guidance for the development and improvement of population-based cancer registries around the world. Investing in high quality surveillance data is essential in the resource-limited setting in order to implement data driven selection of interventions to efficiently use available funds and optimize health benefits. Furthermore, accurate and reliable cost data can help registries to justify the required funding and can support both country-level and regional efforts to maintain, plan, implement, and evaluate investments in cancer registration. I will discuss the tool and methods we used to collect cost data from cancer registries in the U.S. and how we are adapting both for use in the international setting. I will also share cost and resource utilization data from cancer registries in six countries: U.S., India, Uganda, Barbados, and Columbia.
About the Speaker

Florence Tangka, PhD, MS, is a health economist in the Division of Cancer Prevention and Control’s Epidemiology and Applied Research Branch, at the Centers for Disease Control and Prevention (CDC).

She is the principal investigator for a number of CDC cancer economics studies. Her research focuses on the economics of cancer, economics of the cancer registration, economics of CDC’s Colorectal Cancer Control Program, and use of cancer screening services. Dr. Tangka received a Bachelor of Science from the University of Reading in the United Kingdom and a Masters from Rutgers. In 2008, she received an alumni award from Rutgers, The State University of New Jersey. She received her doctoral degree from the University of Florida and completed a two-year postdoctoral fellowship in Prevention Effectiveness at CDC. Dr. Tangka is a lead author of a book, monograph (guest editor) and several book chapters and has authored and co-authored over 50 publications in peer-reviewed journals.
The Structure and Contents of the 11th Revision of the ICD: Implications for Cancer Information

The International Classification of Disease (ICD) has existed for over a century. Since the 1950s, it has enjoyed a close relationship with the cancer classification community, resulting in the ICD-O (Oncology) series of adaptations.

The 11th revision of the ICD is dramatic yet conservative. At its core, ICD-11 invokes a semantic network of terms and concepts, called the Foundation Component, where any concept may have an unbounded number of parents. To achieve a mutually exclusive and exhaustive classification, the network can be serialized into a Linearization, or a tabular form of a statistical classification. In ICD-11, theoretically, there are potentially an unbounded number of Linearizations that could arise from the Foundation Component, covering diverse use cases such as morbidity and mortality statistics, clinical quality, decision support, or fiscal systems. In addition, ICD-11 support post-coordination with other terms or an entire chapter of modifier terms. Many ICD-O Morphology codes are included in this chapter. The overall structure of ICD-11 will be reviewed, with some commentary on possible implications for cancer coding.
About the Speaker

Dr. Chute is the Bloomberg Distinguished Professor of Health Informatics, Professor of Medicine, Public Health, and Nursing at Johns Hopkins University, and Chief Research Information Officer for Johns Hopkins Medicine.

He received his undergraduate and medical training at Brown University, internal medicine residency at Dartmouth, and doctoral training in Epidemiology at Harvard. He is Board Certified in Internal Medicine and Clinical Informatics, and a Fellow of the American College of Physicians, the American College of Epidemiology, and the American College of Medical Informatics. His career has focused on how we can represent clinical information to support analyses and inferencing, including comparative effectiveness analyses, decision support, best evidence discovery, and translational research. He has had a deep interest in semantic consistency, harmonized information models, and ontology. He became founding Chair of Biomedical Informatics at Mayo in 1988, retiring from Mayo in 2014, where he remains an emeritus Professor of Biomedical Informatics. He has been PI on a large portfolio of research including the HHS/Office of the National Coordinator (ONC) SHARP (Strategic Health IT Advanced Research Projects) on Secondary EHR Data Use, the ONC Beacon Community (Co-PI), the LexGrid projects, Mayo’s CTSA Informatics, and several NIH grants including one of the eMERGE centers from NGHRI, which focus upon genome wide association studies against shared phenotypes derived from electronic medical records. He has been active on many HIT standards efforts and currently chairs the World Health Organization (WHO) ICD-11 Revision. Additionally, Dr. Chute directed the Mayo Clinic Cancer Registry from 1988-2002.
On the way to a sustainable structure - Recent activities of the European Network of Cancer Registries

Cancer registration has a long tradition in Europe. Activities date back to the year 1900; the first cancer registries were established in 1926 and from that time on cancer registries spread out all over Europe, resulting in the current status of more than 250 registries across Europe.

Higher-level structures were missing however, and in 1989 the European Network of Cancer Registries (ENCR) was inaugurated. This was an important step towards harmonizing cancer registration and generating a common database as well as for promoting the use of cancer registries. Due to the fact that the ENCR is not a legal entity, it relies on external support and funding for its operation. Initially this funding was provided indirectly via grants from the European Commission’s health program via the International Agency for Research on Cancer (IARC) as well as from projects funded directly by the EU’s framework program for Research and Technological Development (e.g. EUROCOURSE). A new structure was developed in 2013 when the European Commission established a cancer information section within its Directorate-General Joint Research Centre (JRC), which now hosts the ENCR and its secretariat. This enabled the ENCR together with JRC to start a series of new activities, some of them listed here:

- Definition of a standard European database of cancer incidence and mortality
- Harmonization of data-quality checks
- Development of an open-source check tool for cancer registry data
- Unique European data portal for all data submissions
- Call for data at European level
- Working groups for update and development of recommendations
- Training courses
After three years of close and fruitful cooperation between ENCR and JRC, many activities are set on the right track. The next important step will be the implementation of a more comprehensive European Cancer Information System, which will display updated incidence and mortality of the European cancer registries in one place. But most importantly, due to the funding of the European commission all these activities have a high chance to reach sustainability and cancer information provided from cancer registries will be a fixed component of the European health reporting system.

**About the Speaker**

From 1986 – 1992 he studied human medicine at the University Erlangen, Germany. 1994 he got his doctoral degree (MD); 2004 postdoctoral lecture qualification with the vena legendi: social medicine, epidemiology and health care research. From 1993 – 1997 he was a scientific assistant, Institute for Medical Statistics and Documentation at the University Erlangen. Since 1997 he is doing his research at the University of Lübeck. In 2013 he became head of the Institute of Social Medicine and Epidemiology. He is involved in several national and international committees, e.g. as chairman of the Association of Population-Based Cancer Registries in Germany (GEKID) or as member of the early cancer detection board of the German Cancer Aid. He is the chairman of the Association of Population-Based Cancer Registries in Germany (GEKID) and since 2014 the chairman of the Steering Committee of the European Network of Cancer Registries (ENCR). He is author/co-author of more than 240 articles in peer-reviewed journals. His main research interests are cancer epidemiology, evaluation of early detection programs and health care research.

Contact: alexander.katalinic@uksh.de
Six prizes have been awarded at IACR annual events, out of 34 competitors from 18 different countries. The awards went to:

- **Hanna TERVONEN** from Australia in 2015: Cancer survival and summary stage among Aboriginal and Torres Strait Islander people in NSW

- **Clara CASTRO** from Portugal in 2014: Predicting cancer incidence in the north of Portugal for the years 2013, 2015 and 2020

- **Iman MEZIANE** from Morocco in 2013: The Moroccan Breast Cancer Registry (MBCR): Assessment of Breast Cancer Risk in Morocco

- **Susan SPILLANE** from Ireland in 2012: Use of the antidiabetic drug metformin and disease spread at diagnosis in colorectal cancer

- **Mugi WAHIDIN** from Indonesia in 2011: Methods of population-based cancer registry in Indonesia

- **Yuri ITO** from Japan in 2010: Trends in cure fraction for colorectal cancer in Osaka, Japan, between 1975 and 2000

The Enrico Anglesio Prize will be awarded again this year at the 38th IACR annual conference in Marrakesh. To be eligible, candidates must be under 35 years of age, and be the first and presenting author of the abstract selected for oral presentation. The abstract should cover original research that has not been presented elsewhere.
The jury for 2016 IACR Round includes:

- **Stefano ROSSO**
  Jury President
  ITALY

- **Betsy KOHLER**
  USA

- **Tomohiro MATSUDA**
  JAPAN

- **Sabine SIESLING**
  THE NETHERLANDS

- **Mohammed ADNANE TAZI**
  MOROCCO

Candidates will be evaluated by the jury based on the following criteria:

- Clarity and incisiveness of the oral presentation
- Originality and relevance of the scientific work
- Quality of the abstract
- Curriculum of the candidate

Prize money is €500, but is doubled to €1,000 if the research is published within one year in a Journal with an impact factor between 2.00 and 4.00. The prize is further raised to €1,500 if the journal has an impact factor over 4.00. The Enrico Anglesio Prize must be acknowledged in the article.

The award ceremony will take place at the end of the IACR conference on 21 October 2016.

For more information, please visit [http://www.anglesiomoroni.org/](http://www.anglesiomoroni.org/)
Workshops

This year there are 2 pre-conference workshops to provide additional training and information to interested conference delegates looking to learn about CanReg5 as well as costing and survival solutions for low and middle income countries.

PRACTICAL INFORMATION ON THE IACR PRE-CONFERENCE WORKSHOPS

WORKSHOP 1 & 2 ARE PARALLEL SESSIONS

📅 TUESDAY, 18 OCTOBER 2016
🕒 9:00H – 17:00H
📍 ATLAS CONFERENCE ROOMS, HOTEL KENZI FARAH

Workshop 1
Cancer Survival Methods for Population-Based Registries in Low and Middle Income Countries

Faculty

Dr. Isabelle SOERJOMATARAM
International Agency For Research On Cancer (Iarc)
Lyon, FRANCE

Dr. Swaminathan RAJARAMAN
Cancer Institute (Wia)
Chennai, INDIA

Workshop 2
Data Quality and Registry Operations

Faculty

Dr. Max PARKIN
University of Oxford
AFRICAN CANCER REGISTRY NETWORK

Gladys CHESUMBAI
Eldoret Cancer Registry
KENYA
**Workshop Faculty**

**Workshop 1: Cancer Survival Methods for Population-Based Registries in Low and Middle Income Countries**

**Isabelle SOERJMATARAM**

MD, PhD  
Scientist, Section of Cancer Surveillance, International Agency for Research on Cancer  
Lyon, FRANCE

Isabelle Soerjomataram is a medical epidemiologist with a special interest in global burden of cancer and also cancer causes and prevention. She received her medical degree from the University of Indonesia in 2001, followed by a PhD in cancer epidemiology with a thesis on the epidemiology of multiple cancers at Erasmus Medical Centre (2007). Before moving to the International Agency for Research on Cancer, she went to the Harvard School of Public Health as Visiting Scholar under a personal fellowship from the Dutch Scientific Foundation.

Her main research areas include international variation in the burden of cancer, estimating impact of prevention programmes on cancer burden, estimating new indicators to assess cancer burden and looking at the impact of cancer on healthy ageing (e.g. life expectancy). In addition to her research activities, she is a member of the GLOBOCAN2012 editorial board and she also teaches in diverse international courses on cancer registrations and descriptive cancer epidemiology.

**Swaminathan RAJARAMAN**

MSc/PhD  
Assistant Director and Head, Department of Epidemiology, Biostatistics and Cancer Registry at the Cancer Institute (WIA)  
Chennai, INDIA

Rajaraman Swaminathan, MSc/PhD is the Assistant Director and Head of the Department of Epidemiology, Biostatistics and Cancer Registry at the Cancer Institute (WIA) in Chennai, India. With notable expertise in survival study methods, Dr Swaminathan previously held the role of Associate Professor and Head of Department of Epidemiology, Biostatistics and Cancer Registry at WIA, monitoring national and international projects as well as teaching epidemiology and biostatistics for post-graduates in oncology and allied sciences. His professional experience also includes work as a Senior Biostatistician and Research Officer. Dr Swaminathan has been awarded Fellowships with the International Agency for Research on Cancer (IARC), the Indo-Japan cooperative study in Nagoya and the Union for International Cancer Control/ICRETT. He has Doctorate degrees in Statistics from the University of Madras (India) and in Epidemiology from the University of Tampere (Finland). In addition, he has produced over 70 scientific papers, and has both edited and contributed to numerous leading cancer publications, including the IARC Scientific Publications Cancer Incidence in Five Continents Volume X and Cancer Survival in Africa, Asia, the Caribbean and Central America (SurvCan).
Workshops

Workshop Faculty

Workshop 2

Donald Maxwell (Max) PARKIN
MD
University of Oxford
AFRICAN CANCER REGISTRY NETWORK (AFCRN)

Dr Donald Maxwell (Max) Parkin graduated in medicine from Edinburgh University in 1968. After initial specialisation in internal medicine - gastroenterology, he transferred to public health/epidemiology in 1973. After working in UK, mainly in health service information and planning, he moved in 1981 to the International Agency for Research on Cancer (IACR - WHO) in Lyon, France, as head of the Descriptive Epidemiology Unit, until October 2004. Currently, his activities are:

(1) Visiting senior research fellow, Clinical Trials Service Unit and Epidemiological Studies Unit, Oxford University, UK¹.

(2) Senior Epidemiologist, Wolfson Institute of Preventive Medicine (Queen Mary University, London)².

(3) Head of Cancer Prevention Programme, International Network for Cancer treatment and Research (INCTR)³. The main activity since 2011 has been the establishment of the African Cancer Registry Network (AFCRN), a consortium of population based registries providing a regional hub for the development and improvement of cancer statistics in sub Saharan Africa.

(4) Senior Visiting Scientist, International Agency for Research on Cancer (Lyon). Since September 2012, in order to coordinate the activities of the AFCRN project with the wider goals of the Global Initiative for cancer Registration

(5) Foreign Adjunct Professor, Karolinska Institute

Dr Parkin is a member of the editorial board of several international journals and holds honorary professorships at the Universities of Peking (Beijing) and Tianjin, China. He has published extensively, with more than 400 papers and reviews in the international scientific literature, mainly on descriptive epidemiology (international cancer patterns and trends), with a major concern for cancer registration, and in cancer prevention and control (especially the effectiveness of cancer screening).
Ms Gladys Chebet CHESUMBAI
AFRICAN CANCER REGISTRY NETWORK (AFCRN)

Gladys Chebet Chesumbai is an African Cancer Registry Network (AFCRN), CanReg5 consultant and the Cancer Registry Coordinator at The Eldoret Cancer Registry (ECR) Kenya, where she has worked for the last 8 years. Since 2012, through training and mentorship of Morten Ervik of the International Agency for Research on Cancer in Lyon, France, Ms. Chesumbai has consulted for the AFCRN on CanReg5 in helping solve and follow-up on CanReg5 related issues and has provided CanReg5 training and technical support to cancer registries and professionals in African Cancer Registries which include: South Africa, Seychelles, Namibia, Ethiopia, Tanzania, Uganda, and Kenya. Her work as a CanReg5 consultant includes: System definition and structuring, CanReg5 systems Repair and maintenance, Migration and Importation of data and variables from previous versions of CanReg and CanReg5 Training to the cancer registry personnel in AFCRN member Countries. Currently, she is doing a Master of Science degree in Health Informatics from Rongo University College, Kenya.
Oral Presentation Abstract

Cancer incidence in Casablanca region (2008-2012)

Dr Karima BENDAHHOU1, Mr Ibrahim Khalil Ahmady1, Mrs Soukaina Afghar2, Mrs Ibttissam Cherrat1, Dr Maria Bennani2, Dr Ahmed Zidouh2, Dr Rachid Bekkali2, Pr Abdellatif Benider3

1Casablanca Cancer Registry, Casablanca, Morocco, 2Lalla Salma Foundation, Rabat, Morocco, 3Mohammed VI center for cancer treatment, Casablanca, Morocco

Cancer is a public health problem worldwide. The surveillance of the disease, through cancer registries, shows the numbers of new cases diagnosed each year and number of patients dying of this disease. The objective of this work is to present the incidence of cancer in Casablanca region for the period 2008 to 2012.

METHODS

The Casablanca Cancer registry is a population-based one, it covers a population of more than 4 million. Data collection of new cases of cancer is done actively by trained registrars using a data collection form; from many sources including the public and private sectors. ICD-O version 3 is used for tumor coding. Data entry uses Canreg 5 software.

RESULTS

During the period studied, a total of 24,231 cancer cases were registered. The crude rate was 120.5 per 100,000 (131.3 per 100,000 in females and 109.3 in males). And the standardized rate was 137.3 per 100,000 (143.1 in females and 138.5 in males). The most common types of cancer in women were breast, cervical, thyroid, colorectal and ovary, the standardized rates were respectively 49.5, 16.3, 11.2, 8.8 and 6.2 per 100,000. In men, the most common was lung cancer (25.9 per 100,000) followed by prostate (18.8 per 100,000) then colorectal cancer (5.7 per 100,000) and bladder cancer (8.6 per 100,000). Non-Hodgkin lymphoma was registered in 1,032 cases; the standardized rate in males was 7.4 versus 4.5 in females. Childhood cancer represented 3.3% of the total of cases registered. Boys were more affected than girls (57.8% vs 42.2%). The most common types in cases aged between 0 and 19 years old were leukemia followed by nervous system cancers, bone, non-Hodgkin lymphoma and kidney with respectively 1.9, 1.4, 1.3, 1.1.

CONCLUSION

According to the latest data of our registry, breast cancer is still the most common type of cancer in women and while lung cancer is the most common in men.

Oesophageal Cancer in Eastern Africa

Dr Charles DZAMALALA1

1Malawi Cancer Registry, Blantyre, Malawi

INTRODUCTION

The mean worldwide age-standardized incidence rates (ASRs) for oesophageal cancer (OC) were estimated in 2012 to be 9.0 in males and 3.1 per 100,000 in females. However, this statistic does not reflect remarkable geographic variations in incidence rates. The incidence of OC varies geographically, with more than 80% of cases and deaths worldwide occurring in developing countries. However ASRs and other unique features for OC in this geographic area, with a history of extremely variable distribution of this highly fatal cancer, had not been evaluated or properly explained.

OBJECTIVE

This study aims to characterize the disease burden and time trends of OC in four urban populations in Eastern Africa, which represented a previously undescribed high-incidence area. An attempt was also made to relate the findings with the potential factors that could be responsible for the unique pattern of this cancer in this region.

Methodology Data on all cases of OC diagnosed between 2004 and 2008 were obtained through the African Cancer Registry Network (AFCRN) from four population-based cancer registries with high quality data in: Blantyre, Malawi; Harare, Zimbabwe; Kampala, Uganda; and Nairobi, Kenya. ASRs were calculated for each population, and descriptive statistics for incident cases were determined. Registry reports from the registries in the East African Region and those from the Western Cape Province of South Africa were also reviewed and compared with the statistics obtained.

RESULTS

Results were analysed according to patient characteristics, incidence rates, and tumour pattern and time trends. In Blantyre, 351 male (59%) and 239 (41%) female cases were reported, with ASRs of 47.2 and 30.3. In Harare, 213 male (61%) and 134 (39%) female cases were reported, with ASRs of 33.4 and 25.3, respectively. In Kampala, 196 male (59%) and 137 female (41%) cases were reported, with ASRs of 36.7 and 24.8.
Colorectal cancers epidemiology, trend and projection of incidence in Tunisia

Prof Mohamed HSAIRI1

1National Institute Of Cancer, Salah Azaiz - Tunis- Tunisia, North Tunisia, Tunisia

BACKGROUND
In Tunisia, colorectal cancers (CRC) are a major cause of morbidity and mortality. The objectives of this study are to describe the epidemiology of CRC in Tunisia during the period 2007-2009, to analyze the trend of CRC incidence in Tunisia during the period 1994-2009 and to perform incidence projection until 2024.

METHODS
Data collection was performed on the basis of Tunisia North Cancer Tunisia; this registry was created in 1997, and covers eleven governorates, among a total of 24. Data were entered in parallel with the collection of data using Epi Info version 6, and then analyzed using epi data analysis software. Joint Point software was used to analyze the trend, and age period cohort model was used for projection.

RESULTS
During the period 2007-2009, standardized incidence rate of CRC was 12.4 cases / 100,000 inhabitants. The average age at diagnosis was 60 +/- 15 years. The incidence increased progressively with age especially after 50 years. The sex ratio was 1.2.

The most affected anatomical sites were rectum followed by the distal colon and proximal colon. Adenocarcinoma was the most common histological type (84.4%). The highest incidence rates were observed in the governorates of Bizerte, the District of Tunis and Nabeul. During the period from 1994 to 2009 in the northern region of Tunisia, the trend in the incidence of CRC was significantly increased (CAMP 5.8%). Projections estimated by this study, the rate of standardized incidence of CRC is 23.5 [20.3 to 27.3] per 100 000 population in 2024.

CONCLUSION
These results show the magnitude of the increase in the incidence of colorectal cancers in Tunisia in the coming years. What constitutes a strong argument for strengthening screening in our country.

KEYWORDS
Epidemiology - colorectal cancers - incidence - trend - projection - Tunisia

A global framework for cancer within NCD surveillance: The case for registry implementation

Dr Marion PINEROS1, Dr Ariana Znaor1, Mr Les Mery1, Dr Freddie Bray1

1International Agency for Research on Cancer, Lyon [Rhône], France

BACKGROUND
Given the growing burden of cancer among several major NCDs, it is critical to understand the specificities of their surveillance, particularly in LMICs, where emphasis has been placed on the surveillance of communicable diseases. We review common and distinct aspects of the surveillance of cancer relative to other major NCDs and communicable diseases. A global framework is proposed that supports implementation of cancer incidence surveillance, while aligning with other disease surveillance systems.

METHODS
We examine the major characteristics of surveillance of three groups of diseases (communicable diseases, common NCDs and cancer) with respect to function, classification, coverage, follow-up, reporting and public health action.

RESULTS
A general framework for NCD and cancer surveillance shares target population subgroups (‘healthy’, ‘new disease’, ‘living with the disease’ and ‘dying from the disease’) as well as basic outcome measures (risk factor prevalence, incidence, prevalence, survival, and mortality). Nevertheless, there are differences in the approaches to surveillance across the diseases examined, mainly in their function, coverage and reporting. While risk factor surveys are predominant in the surveillance of major NCDs, population based cancer registries (PBCR) play a unique and fundamental role in cancer incidence surveillance; a schematic is developed outlining the key requirements.

CONCLUSIONS
To monitor cancer control actions, different surveillance strategies are necessary. Given the unique features of cancer incidence surveillance, PBCR must be implemented and function in harmonization with other common NCD surveillance systems.
Cancer in Setif, Algeria: Incidence, trend and survival 1986-2014

Prof Mokhtar Hamdi CHERIF1, Dr Ettore Bidoli2, Dr Diego Serraino2, Dr Zoubida Zaidi1, Dr Lamia Kara1, Dr Hafida Boukharouba1, Dr Saida Atoui1, Dr Khaoula Bouharati1

1Setif University, Setif, Algeria, 2CRO, Aviano, Aviano, Italia

BACKGROUND

Cancer is one of the major public health problems in Setif, Algeria. In the last 28 years, a significant increase in the incidence of the major cancer sites was observed in both sexes, and it is likely associated to an epidemiological transition. The 5-year survival is low for the main tumors due to a difficult access to cancer care and to an incomplete health care framework for cancer patients.

METHODS

Cancer Registry of Setif, Algeria, has been recording cancer incidence, mortality, and survival since 1986 in collaboration with International Agency for Research on Cancer (IARC). Epidemiological studies and trend incidence cancer are carried out in collaboration with CRO National cancer Institute Aviano, Italia. Setif Cancer registry has participated in the two Concord international Survival studies. Data are recorded by CanReg 5 software provided by the International Agency for Research on Cancer (IARC). SEER-STAT and JOIN Point are used for trend cancer.

RESULTS

In men the incidence of lung, colorectal, bladder, prostate, and laryngeal cancers has significantly and steadily increased in the most recent decades. In women, the incidence of breast, colorectal, thyroid, and lung cancers has also increased significantly. Survival rates of stomach, colon, rectum, liver, lung, breast, cervix, ovary, and prostate in adults, and childhood leukemia are relatively low compared with other countries.

CONCLUSION AND DISCUSSION

The incidence increasing is due to the increase of the life expectancy, the change of life style, the change of environment, and the epidemiologic and demographic transition.

Cancer estimation in Algeria of incidence, trend and survival is very important for surveillance, control, and planning. A network of cancer registries is created in Algeria. In addition, the Cancer Registry of Setif is a source of information for cancer planning and corresponding surveillance in the National Cancer Plan 2015-2019, starting in January 2015.

Registries and cancer outcomes in less-developed countries

Dr Rajaraman SWAMINATHAN1

1Cancer Institute (W.I.A), Chennai, India

Cancer registries are important sources of data not only on incidence but also on outcomes like mortality, survival and cure.

In Chennai, registry, mortality data acquisition has been done by perusing death certificates mentioning cancer (A) and irrespective of cancer (B) and by active follow-up (C). Deaths of cancer patients to number of incident cancers were the maximum (62.8%) when B+C was employed followed by A+C (46.8%) and B only (41%), reiterating the need for special efforts. Next, cancer survival data, as a viable alternative requires additional resources for ascertaining vital status of cancer patients by active means to overcome loss to follow-up problems at varying lengths of time since diagnosis. In Chennai, upward bias in 5-year survival estimation ranged between 5-13% in the presence 7-24% loss to follow-up and 28-40% in the total absence of active follow-up. This necessitates recognition of qualitative differences among censored cases and application of loss-adjusted approaches in survival estimation. Loss-adjusted rates elicited significant upward bias in survival estimation of hospital patient series in Chennai (5-10%) and Mumbai (3-year survival 5-10%). It was negligible in demographic registry data from Chennai (1-2%), Khon Kaen, Thailand (2-4%) and Rizal, Philippines (5%). Long-term trends in survival from common cancers based on hospital case-series can be correlated with treatment milestones. In Chennai, period analysis revealed significant increasing trend for breast (5-year survival: 31% to 68% in 50 years) and cervix (36% to 66%) while the survival remained static for cheek cancer (38-40%) generating local evidence base for evolution of treatment.

Different analogies using statistical cure models or relative survival analysis have provided meaningful insights into cancer prognosis and other outcomes. These have contributed to evaluating access to and development of cancer treatment and screening/early detection programs in the region. Thus, cancer registries are sine-qua-non for any rational cancer control.
**UPDATED survival of cancer patients diagnosed between 2006 and 2008: A collaborative study in Japan**

Dr Tomohiro MATSUDA, Dr Megumi Hori, Dr Akiko Shibata, Dr Kota Katanoda, Dr Hiroshi Nishimoto

1Center for Cancer Registries, Center for Cancer Control and Information Services, National Cancer Center, Tokyo, Japan

**BACKGROUND**

Population-based survival of cancer patients has been updated for a limited period in Japan (2006-2008). The purpose of the present study was to estimate 5-year relative survival of cancer patients across a much wider area in Japan than the precedent studies.

**METHODS**

We requested all the 47 population-based cancer registries to submit individual data of the patients diagnosed from 1993 to 2012, with the 5-year prognosis. Among the 27 registries, 21 registries met the required standards for the quality. The 5-year relative survival calculated using the Ederer II method by pooling 644,407 data from the 21 registries was used for the national estimation. Net survival was calculated for comparison as well.

**RESULTS**

The recent 5-year relative survival (2006-2008) was 62.1% for all cancers (males: 59.1%, females: 66.0%); survival probabilities for prostate, thyroid, skin, female breast, corpus uteri, cervix uteri, larynx, bladder, and colon-rectum from 100 to 70%; the survivals for kidney, malignant lymphoma, stomach, oral cavity and pharynx and ovary, were from 69.9% to 40%; those for leukaemia, multiple myeloma, esophagus, brain and central nervous system, liver, lung, gallbladder and pancreas ranged from 39.9 to 0%. Survival figures had improved over the 6-year period from 58.6% for the first 3 years of the study (2003-2005) compared to 62.1% for the last 3 years (2006-2008). Net survival revealed overestimation of the Ederer II method of the burden of the patients.

**DISCUSSION**

These results suggest improvement in survival and/or change in primary site distribution during the period, and wide availability of survival in Japan as an indicator of cancer control program. We will adopt net survival of cancer patients in Japan which is comparable to those in the CONCORD study and in the survival studies in the USA.

**Incidence of breast, cervical and colorectal cancer and secondary prevention programs in Setif, Algeria**

Dr Ettore Bidoli, Dr Diego Serraino, Prof Abbes Mahnane, Prof Slimane Laouami, Prof Zoubida Zaidi, Prof Hafida Boukharouba, Prof Lamia Kara, Prof Asma Ayat, Dr Silvia Birri, Prof Mokhtar Hamdi Cherif

1CRO - IRCCS / Cancer Epidemiology, Via F. Gallini 2, 33081 Aviano, Italy, 2University of Setif / Faculty of Medicine, Setif, Algeria

**BACKGROUND**

Population-based screening programs aimed at reducing breast, colorectal, and cervical cancers represent a benchmark of the 2015-2019 Algerian National Cancer Plan. This study described incidence rates of these three cancers in the wilaya of Setif, Algeria, from 1986 through 2010 in order to provide baseline data for future evaluation of screening efficacy.

**METHOD**

All incident cancer cases for 1986–2010 were derived from the population-based Cancer Registry of Setif, disentangled by site, morphology, age, sex, and calendar period. The general population was obtained from the Algerian Institute of Statistics. Age-standardized rates (world population) (ASR-WR) were computed by calendar period (five quinquennia from 1986–1990 to 2006–2010), while annual percent changes (APCs) were computed for the period 1996–2010.

**RESULTS**

During 2006-2010, colorectal cancers represented 9.6% of all cancers diagnosed in men, while colorectal, breast, and cervical cancers represented 50.9% of all cancers in women. In women, statistically significant decreasing trends were observed for cervical cancer (APC = -4.2%/year), particularly in the 45-64-year age group (-5.9%). In all age groups, a drop of the squamous cell carcinoma (SCC) histologic subtype (89% of all cervical cancer diagnoses in 1986–1990, vs. 53% in 2006–2010) was observed. Statistically significant increasing trends were displayed by both colorectal cancer (+5.4% in men, and +4.5% in women) and breast cancer (+8.2%) mostly above the age of 45 years.

**CONCLUSIONS**

The decrease of cervical cancer can be ascribed to opportunistic early detection by cytological screening, which is more effective in detecting SCC than adenocarcinomas. The variations observed for colorectal and breast cancers can give clues about large scale changes in exposure to risk factors, and to improvements of early diagnosis. International recommendations against cancer must be strongly promoted in Setif after taking into account epidemiological transition, lifestyle, environmental changes, poor health education, and limited access to health care facilities.
Survival of hematological malignancies patients in metropolitan France between 1989 and 2013: a population-based study

Dr Alain MONNEREAU1, Zoé Uhry2,3, Pr Xavier Troussard4, Dr Anne Cowppli-Bony2, Dr Emilie Marrer2, Pr Florence Binder2, Dr Patricia Delafosse5, Dr Bénédicte Lapôtre-Ledoux1, Dr Nadine Bossard3, Pr Marc Maynadie1

1Hematological Malignancies Registry of Gironde, Institut Bergonie, Bordeaux, France, 2French Network of Cancer Registries (FRANCIM), Toulouse, France, 3Hospices Civils de Lyon, Biostatistics Service, Lyon, France, 4French Institute of Public Health, , Saint Maurice, France

BACKGROUND – OBJECTIVES

This study aims to provide updated estimates of 1, 3, 5 and 10-years net survival and survival trends in patients diagnosed with hematological malignancy (HM). We also provide 15-year survival estimates for the first time in France.

METHODS

The present study included 35,520 incident cases diagnosed between 1989 and 2010 with one of the 16 HM distinct clinical entities, aged 15+ in 16 metropolitan departments. The data were collected by the French population cancer registries (Francim network). The vital status was registered according to a standardized procedure (last update 30/06/2013). Net survival was estimated with the unbiased Pohar-Perme method.

RESULTS

For 2005-2010, the 5-years standardized net survival (5ys SNS) varies dramatically from 22% for acute myeloid leukemia to 87% for marginal zone lymphoma. Seven out of the sixteen HM studied (45,5% of incidence cases) have a good prognosis with 5ys SNS of 75% or more. Reversely, two HM have an poor prognosis with 5ys SNS less than 33% (10% of incidence cases).

We observe upward trends in 5ys SNS for several HM, significant (+18% or more) for chronic myelogenous leukemia, follicular lymphoma and diffuse large B-cell lymphoma. These trends are observed in both sexes and in all age categories except for follicular lymphoma (cases aged 55 years or more). For other HM, upward trends in survival are less important but still detectable also for aggressive diseases such as in youngsters with acute myeloid leukemia or lymphoblastic leukemia/lymphoma.

DISCUSSION AND CONCLUSION

Most of the HM included in this analysis has shown better survival over time. For three specific HM entities, the progresses issued from clinical research seem to translate in better survival outcome in the general population. The access and usage of highly efficient novel treatments with low toxicity could largely explain these observations.

Paediatric cancer care in the Netherlands, where are patients (0-17 years) treated?

Mrs Ardine REEDUIJK1,2, Dr Otto Visser7, Dr-Margriet v.d. Heijden-v.d. Loo5, Dr Henrike Karim-Kos1, prof. dr. Jan Willem Coebergh4, Dr Hanneke de Ridder2, Msc Jan Lieverst1, Dr Leontien Kremer1, Prof. dr. Rob Pieters1

1Princess Máxima Center For Pediatric Oncology, Utrecht, the Netherlands, 2Comprehensive Cancer Organization the Netherlands, Utrecht, the Netherlands, 3Dutch Childhood Oncology Group, Den Haag, the Netherlands, 4Department of Public Health, Erasmus MC University Medical Center Rotterdam, Rotterdam, the Netherlands, 5Department of Paediatric Oncology, Emma Children’s Hospital/Academic Medical Center, Amsterdam, the Netherlands

BACKGROUND

Treatment of children and young adolescents with cancer in specialised paediatric oncology departments is thought to be essential to guarantee the most up-to-date treatments, maximal cure rates and minimal late effects. The aim of this study was to investigate where children and adolescents with cancer in the Netherlands are treated.

METHODS

All cancer patients aged 0-17 years diagnosed between 2004 and 2013 were selected from the Netherlands Cancer Registry. Data were checked for completeness by linkage with the Dutch Childhood Oncology Group (DCOG) registry. Cancers were classified according to ICCC-3. Treatment site was categorised into: treated at i) a paediatric oncology department of an academic centre, ii) other departments of an academic centre or iii) a non-academic centre. Age-specific differences by cancer type were studied in relation to treatment centre over time. For multivariable logistic regression treatment site was dichotomised into being treated at a paediatric oncology department or not.

RESULTS

In total, 6.625 patients were newly diagnosed with childhood cancer in the period 2004 -2013 in the Netherlands. Preliminary results showed that 78% of these patients had been treated at a paediatric oncology department, 14% at another department in an academic centre and 8% in a non-academic hospital. Univariate analysis demonstrated that with increasing age, more young females and adult-like carcinomas (e.g. colon carcinoids and melanomas) had been referred to an adult ward (all p < .001). Referral to a paediatric oncology department increased over time (p = 0.04). Further results will be available for presentation at the IACR conference.

CONCLUSION

In the Netherlands, not all paediatric cancer patients are treated by a paediatric oncologist. Differences can be explained by age, sex, cancer type and year of diagnosis. Population-based cancer registry data are mandatory to be able to monitor quality of childhood and adolescent cancer care.
Childhood cancer according the Great Casablanca Registry

Prof Souha Sahraoui1,
1Center Mohammed VI traitement cancer CHU Ibn Rochd casablanca, Casablanca, Morocco

BACKGROUND
Childhood cancer represents less than 1%. Considerable advances have been made in the treatment of children and adolescents with a significant improvement in the overall survival. We report the trend of the childhood cancer incidence in Casablanca - Morocco, from the Great Casablanca Cancer Registry (GCCR).

PATIENTS AND METHODS
Malignancies were coded according to the International Classification of Childhood Cancer (ICCC-3). Incidence rates per 100,000 person-years were calculated for all malignancies and groups of malignancies in Casablanca residents aged less than 20 years at diagnosis. The data used was according the cases collected between 2004 2012. The parameters were collected for 3 periods 2004, 2005-2007 and 2008-2012.

RESULTS
The GCCR registered 1490 new cases with an annually average of 165 new cases of cancer in Casablanca resident aged < 20 years, and with a median age at diagnosis of 5.6 years. Children represented 4.47%, 4.5% and 3.2% of all cancers respectively for 2004, 2005-2007 and 2008-2012.

The crude incidence of childhood cancer was 11.74 per 100,000 habitants in 2004 with increase during the period 2005-2007 with 14.1 per 100,000 habitants, and 13 per 100,000 habitants. The crude incidence was higher in boys with 15.4 versus per 100,000 habitants during the second period (2005-2007) and 13.2 versus 9.8 per 100,000 habitants. During the 3 periods, the first localisation was leukaemia with respectively 26.9%, 16.5%, and 16.6%, followed by central nervous system and bone tumours. The fourth frequent localisation was neuroblastoma in 2004, retinoblastoma in 2005-2007, and lymphoma in 2008-2012 periods.

CONCLUSION
The childhood incidence of cancer in Casablanca was less than 200 cases per years. Our results can be extrapolated to the Moroccan population so we estimate 1,650 to 2,000 new cases per year. It is necessary to create a paediatric population-based registry.

Cancer risks in Nairobi (2000-2014) by ethnic group

Rono V*, Wang E1, Korir A*, Sasieni P1, Parkin DM1

*Nairobi Cancer Registry, Kenya Medical Research Institute, Nairobi, Kenya, § Queen Mary University, London

BACKGROUND
We investigated the ethnic differences in the risk of different cancers in the population of Nairobi, Kenya, using data from the Nairobi Cancer Registry. Such data can give an indication as to whether differences in cancer incidence are the result of genetic or environmental factors, or a combination of both.

METHODS
Cancer cases from the Nairobi Cancer Registry for the years 2000-2014 were used. The registry records the variable “Tribe” for each case, which includes, as well as 22 tribal groups, Kenyans of European and of Asian origin, and non-Kenyan Africans. Tribes with 500 or fewer registered cases were grouped as ‘Other tribes’. The groups included in the final analysis were Kikuyu, Kamba, Kisii, Kalenjin, Luo, Luhya, Somalis, Other tribes, Asians, whites, non-Kenyans and unknown. The risk of individual cancers in the different ethnic groups was estimated as odds ratios (ORs), using a case-control approach, with “all other cancers” as controls, and the largest ethnic group as the reference category. The logistic regression model was fitted with 3 covariates: sex, age and ethnicity. The components of risk contributed by the three basic variables are estimated, as well as the interaction between sex and age. The significance of the ORs was obtained from the Wald test.

RESULTS
Clear variations in the occurrence of cancer were found, both in comparison of races and tribes. Cancers that were more common among the white population than in black Kenyans were skin cancers and cancers of the bladder, while cancers that are more common in Kenyan Asians include colorectal, lung, breast, and corpus uteri. Cancers that were less common among Asians and whites were oesophagus, stomach and cervix cancer. Within the black (African) population of Nairobi, there were marked differences in odds of having a cancer by tribe. The Kamba had higher risks of melanoma, Kaposi sarcoma, liver and cervix cancer, and lower risks of oesophagus, stomach, corpus uteri and nervous system cancers. Risks in Kisii are rather similar to those in Kikuyu, except for a higher risk of Kaposi sarcoma and prostate cancer, and lower risk of central nervous system (CNS) cancer. Luo and Luhya had much higher odds of Kaposi sarcoma and Burkitt lymphoma and lower odds of stomach cancer. Somalis had higher risks of cancers of the oral cavity, oesophagus, liver and non-melanoma skin cancers.

CONCLUSIONS
Clear differences in cancer risk by race and tribe in residents of Nairobi were uncovered. Some of the findings were expected, such as the higher prevalence of skin cancer in whites, and higher rates of Kaposi sarcoma in Luo people. Others, such as the high risk of bladder cancer in whites and the variation in occurrence of malignant melanoma by tribe, are more surprising.
Cancer incidence and mortality in Sudan 2009-2013

Dr Ula Nur

*Faculty of Public Health, Kuwait University, Kuwait city, Kuwait

BACKGROUND

Sudan is currently the third largest country in the continent of Africa that covers an area of 1,886,068 square kilometers. We present the numbers of diagnosed cancer cases (incidence) and deaths from cancer (mortality), together with the age-standardised incidence and mortality rates for patients diagnosed during 2009–2013 and followed up to 31 December 2013.

METHODS

Results are presented as the number of cancer cases registered during 2009 – 2013 in Sudan, for the whole population and for men and women (crude rates); for five year age groups (age specific rates) per 100,000 population, and the average rate of incidence.

RESULTS

A total of 43,102 invasive malignant cancer patients were diagnosed and registered during 2009-2013, including 19,954 new cases of cancer registered for males and 23,148 for females. Over 97% of the cancer cases were registered in 27 sites in the body. Breast (female), leukemia, prostate (male), lymphoma, colorectal and esophagus make up over half of cancer cases registered. Prostate cancer was the most common cancer diagnosed in males with 2,945 (15%) registered cases, followed by leukemia and lymphoma. Malignant breast cancer was the most common cancer diagnosed in females with 6,809 cases registered in 2009-2013, it accounted for 29.4% of the total female cancer registrations. A total of 1,613 females were diagnosed with leukaemia in the five years period followed by cervix, accounting for 7.0 and 6.8% respectively. The age-standardised cancer incidence rate in 2009-2013 varied between males and females and across regions of Sudan.

CONCLUSION

This is the first population-based surveillance on cancer incidence and mortality in Sudan. It shows substantial increase in cancer incidence in the recent years, with higher rates among females. Regional variation on cancer rates could be the result of differences in environmental risk factors.

Recent geographic patterns and trends of cervical cancer incidence in North Africa

Dr Farida Selmouni

Dr Richard Muwonge1, Dr Ariana Znaor1, Dr Catherine Sauvaget1, Dr Partha Basu1, Dr Rengaswamy Sankaranarayanan1, Dr Freddie Bray1, Dr Isabelle Soerjomataram1, On behalf of the North African Population-based cancer registries


*International Agency for Research on Cancer, Lyon, France

BACKGROUND

Cervical cancer (CC) incidence in North Africa was estimated to be 6.6 per 100,000 women in 2012 similar to those observed in North America and Western Europe much lower than rates estimated in Southern Africa. Yet large difference between countries in the regions has been reported. This study aims to describe country-specific trends in CC to assess similarities and changes over the past decade to provide insight to local cancer control.

METHOD

We retrieved annual cancer incidence data from regional population-based cancer registries from the Cancer Incidence in Five Continents (CI5) Volumes IX-X, complemented with more recent data (2008-2012). Truncated age-standardized incidence rates (ASR) were calculated using the world standard population for the most recent available data. We used joinpoint models to describe the most recent trends. The average annual percentage change (AAPC) was computed by registry, age group (25-49 and 50-74 years), and for all ages combined (25-74 years).

RESULTS

13 registries were included in this analysis covering 15% of the (female) population in North Africa. The truncated ASR (25-74 years) ranged between 2.9 and 30.5 per 100,000 women in Egypt and in Morocco, respectively. Where data permits, we observed a predominantly decreasing rate of CC in registries in North Africa in particular in younger women (25-49 years), with markedly large decline (AAPC: 14%) observed in Algeria and Tunisia.

CONCLUSION AND DISCUSSION

Large differences in CC incidence were observed calling for increased control in high risk areas. Declining trend, in absence of population-based screening, can partly be explained by social changes and the increasing awareness among the younger generation.

CONCORD-2 Study – using population-based cancer survival to inform cancer control in the United States.

DR HANNAH WEIR1, Dr Claudia Allemani2, Professor Michel Coleman3
1U.S. Centers for Disease Control and Prevention, Atlanta, United States, 2London School of Hygiene and Tropical Medicine, London, United Kingdom

BACKGROUND

Results from the first CONCORD study showed that 5-year survival in the United States was amongst the highest in the world for patients diagnosed 1990 through 1994 with cancers of the female breast, colon, rectum and prostate. However, large and consistent racial disparities were observed in all the 21 registries that participated. A follow-up study (CONCORD-2) has now updated these findings, expanded the number of cancers investigated, and doubled population coverage in the US to 83%.

Here, we focus on the 4 cancers included in the first CONCORD study.

METHODS

CONCORD-2 data for adults (15-99 years) diagnosed between 2001 and 2009 with a cancer of the colon, rectum, female breast, or prostate were provided by 37 statewide cancer registries. We estimated age-standardized 5-year net survival by race, adjusting for background mortality in each state by race, single year of age and calendar year (2001-09).

RESULTS

5-year age-standardized net survival for all races combined was 63.7% in 2001-2003 and 64.7% in 2004-2009 for cancer of the colon, 63.2% and 64.1% for rectum, 88.2% and 88.7% for breast, and 96.8% and 97.0% for prostate. Survival was substantially higher in whites than blacks in the same calendar periods, with differences of 15.3% and 13.6% for colon, 14.0% and 10.6% for rectum, 13.8% and 12.6% for breast, and 4.7% and 4.3% for prostate.

DISCUSSION

Survival has continued to improve in the United States since 1990-1994 (first CONCORD study) for cancers of the colon, rectum, breast and prostate. However, racial disparities had actually increased over the 15 years to 2004-2009 for colon and rectal cancers, remained the same for breast cancer and narrowed slightly only for prostate cancer, where survival exceed 90% in all states. How these data can be used to inform cancer control will be discussed.

Survival differences in hematological malignancies between Brazil and France.

Mrs Morgane Mounier1, Prof Carlos A Lima2, Mrs Sophie Gautheir1, Mrs Angela M Da Silva2, Mrs Stephanie Girard2, José Erinaldo L de Oliveira2, Mrs Marcia M M Lima2, Prof Marc Maynadié1
1EA4184, University Of Burgundy, Dijon, France, 2Registro de Câncer de Base Populacional de Aracaju, Aracaju, Brazil

BACKGROUND

Hematological malignances (HM) incidence appeared to be two fold higher in France compared to Brazil with some differences according to subtype. We wanted here to explore the survival probabilities of these diseases in order to identify potential discrepancies that could be due to different therapeutic approaches. This study was conducted in databases of two population-based cancer registries from Brazil and from France.

METHODS

Incident Cases of HM diagnosed from 1996 to 2012 and coded according to the ICD-O-3 classification were extracted from the data-base of the Registry of Aracaju, Brazil and from the Registry of HM of Côte d’Or, France. Both registries are covering a population of around 550 000 inhabitants. The end-point of follow-up was 01/01/2015. Probabilities of all causes of death survival were performed using the nonparametric Kaplan-Meier estimator and the log rank test allowed comparison between areas (STATA software).

RESULTS

For all HM, the 5-years probability of all causes survival were 49% in Aracaju and 55% in Côte d’Or but at 10 years they were respectively 43% and 40% (p=0.002). By subtype, they were statistically significant differences in 10-y survival in Chronic Lymphocytic Leukemia (26% vs 47%; p<0.001), in Follicular lymphoma (39% vs 66%; p<0.001), in Acute Lymphoblastic Leukemia (38% vs 67%; p<0.001) and in Myelodysplastic syndromes (55% vs 13%; p<0.001). Analysis by sex, age at diagnosis and by period will be presented. In order to take into account differences on mortality due to others causes of death between areas, the age-standardized net survival will be estimated.

DISCUSSION AND CONCLUSION

For many subtypes of HM, hopefully no differences in 10-y survival was found. Nevertheless, the equivalence of both health system was suffering for some quite frequent entities that are mainly chronic diseases.
Oral Presentation Abstract

International cancer survival differences and cancer registration practice in ICBP jurisdictions - Quantitative Analysis

Dr Michael EDEN

1National Cancer Registration And Analysis Service, England, 2Cancer Research UK, 3International Cancer Benchmarking Partnership,

BACKGROUND

International cancer survival comparisons often report differences in 1-year survival, which provide evidence that informs cancer control policies and clinical practice across a number of jurisdictions. 1-year survival estimates are particularly sensitive to differences in cancer registration practice. Understanding how differences in cancer registration practice can impact on 1-year survival calculations is essential to interpreting this data.

METHODS

We quantified the effect of differences in cancer registration practice (classification and coding, incidence date definition, recurrence recording, asymptomatic cancers) between jurisdictions using information from the key informant exercise and sensitivity analyses using a range of variables. Using this data we estimated the extent to which these differences affect 1-year survival calculations for all jurisdictions from ICBP Module 1.

RESULTS

Our findings varied by tumour site and jurisdiction. Variations in 1-year survival calculations between jurisdictions in ICBP Module 1 based on differences between cancer registration practices were estimated to account for a median 2.75(IQR 0.00-24.40)% for breast, 10.15(IQR 0.00-28.50)% for colorectal, 18.85(IQR 0.00-49.60)% for lung and 8.00(IQR 0.00-15.65)% for ovarian tumours.

CONCLUSION

This in-depth study has quantified the potential effect of variations in cancer registration protocols on international 1-year survival comparisons.

From theory to practice: Implementation of the Toronto Paediatric Cancer Stage Guidelines for population registries

Prof Joanne AITKEN1,2,3, Mr Danny Youlden1, Ms Leisa Ward1, Mrs Vicky Thursfield1, Prof Peter Baade2,3, Dr Andrew Hallahan1, Prof Adele Green2, Dr Patricia Valery5, Dr Sumit Gupta7, Assoc Prof Lindsay Frazier6

1Cancer Council Queensland, Brisbane, Australia, 2Menzies Health Institute Queensland, Gold Coast, Australia, 3Queensland Institute of Technology, Brisbane, Australia, 4Cancer Council Victoria, Melbourne, Australia, 5Children’s Health Queensland, Brisbane, Australia, 6QIMR Berghofer Medical Research Institute, Brisbane, Australia, 7Hospital for Sick Children, Toronto, Canada, 8Dana-Farber Cancer Institute, Boston, USA

BACKGROUND

Access to consistent, population-wide data on cancer stage is essential for meaningful international comparisons of incidence and outcomes. These data are lacking for most childhood cancers. The recently endorsed Toronto Paediatric Cancer Stage guidelines, designed to facilitate the collection of cancer stage by population registries, have not been tested in practice. Our objective was to implement the Toronto guidelines within a population-based cancer registry (the Australian Paediatric Cancer Registry) and to evaluate their feasibility and ease of use in a real-life setting. This work was supported as part of a national initiative by Cancer Australia to improve cancer staging data for all Australian patients.

METHODS

Detailed staging rules were developed for 16 diagnostic groups, following the Toronto Paediatric Cancer Stage guidelines, for both low (Tier 1) and high (Tier 2) resource settings. A sample of 1438 cases diagnosed during 2006-2010 was selected at random from seven major hospitals located across all six Australian states. The percentage of cases that could be staged by a clinical coder using the staging rules and available medical records was assessed. Information required for staging that was missing from the record was noted, when this occurred.

RESULTS

Results to date indicate that, in this setting, stage at diagnosis can be assigned for the majority of cases using the detailed Tier 2 criteria. Of 415 cases assessed thus far, the staging rules were applied successfully to 382 (92%) based on records located in the major hospitals. For most of the remaining 33 cases, all or part of the medical record could not be located, including 13 cases whose records may be available at other hospitals.

CONCLUSIONS

The Toronto Paediatric Cancer Stage guidelines provide the first comprehensive and useable framework for population registries to collect uniform information on stage at diagnosis for most childhood cancers.
Cancer incidence pattern from childhood to adolescence and young adults: Population-based analysis in Japan

Dr Kota KATANODA1,  
Dr Akiko Shibata1, Dr Tomohiro Matsuda1, Dr Megumi Horii1, Dr Kayo Nakata2, Dr Hiroshi Nishimoto1, the Research Group for Population-based Cancer Registration in Japan

1National Cancer Center, Japan, 2Osaka Medical Center for Cancer and Cardiovascular Diseases, Japan

BACKGROUND
Incidence patterns are different between childhood and adult cancers. Little is known about how cancer incidence patterns shift with age in Japan. We aimed to describe cancer incidence in Japan focusing on the shift from childhood to adolescence and young adult (AYA).

METHODS
Cancer incidence data were obtained from the Monitoring of Cancer Incidence in Japan (MCIJ). The MCIJ annually requests population-based cancer incidence data from all 47 prefectures. For the incidence in 2009-2011, the data were obtained from 40 prefectures, of which data from 27 prefectures meeting quality standards were analyzed (population coverage: 38.6%). Target age at diagnosis was set to 0-39 years old. Cancers were classified according to the International Classification of Childhood Cancer (ICCC version 3). Changes in the distribution of cancers according to age, and age-specific incidence rate of major cancers were described.

RESULTS
Five leading cancers among childhood (0-14 years old) were leukemia, cancer of the central nervous system (CNS), lymphoma, germ cell tumor, and neuroblastoma, whereas thyroid cancer replaced neuroblastoma among adolescence (15-19 years old). The leading cancer among adult aged 20-29 years was germ cell tumor (testis and ovary), whereas female breast cancer was most frequent among those aged 30-39 years. Age-specific incidence rate peaked at 0 year old for neuroblastoma, retinoblastoma, hepatoblastoma, and Wilms tumor. Among female epithelial cancers, thyroid, colorectal, and lung cancers were highest in incidence rate, and colorectal cancer was dominant after age 30.

DISCUSSION
Predominant cancers dramatically changed from childhood to young adult. This first detailed report on the incidence of childhood and AYA cancers will be useful for priority setting of cancer control policy.

Cancer incidence in Rabat, Morocco: 2005-2012

Prof Mohammed Adnane TAZI1, Phd Abdelouahed ER-RAKI1, Prof Noureddine BENJAAFAR1

1Ecole Nationale de santé publique, Rabat, Morocco, 2Institut National d’Oncologic, rabat, Morocco

BACKGROUND
No population-based data of cancer incidence from Morocco was available 10 years ago. Since then, two population-based cancer registries have been created in Casablanca and Rabat.

METHODS
The cancer registry collects data on all new cases of cancer diagnosed in the resident population of Rabat area. We collect Data by active process: registry staff visits all data sources, essentially hospitals, pathological laboratories, and private clinics in Rabat.

RESULTS
A total of 6,735 new cases of cancer were registered among residents in Rabat during the period 2005–2012. The overall world age-standardised rate (ASR) for all sites combined was 143.5/100,000 for males and 123.5/100,000 for females. The gyno-breast cancer represent 58% of women cancers, essentially breast cancer (39.5%, ASR: 46.6/105), cervix uteri cancer (11.2%, ASR: 13.6/105) and ovary (3.6%, ASR: 4.5/105). The most frequently diagnosed malignancies in males were lung cancer (20.0%, ASR 27.8/105), followed by prostate cancer (17.8%, ASR: 27.5/105). Digestive cancers account for 18% all cancers. Colorectal cancers were the most frequent among digestive cancers in both sexes (males: 8.8%, ASR: 12.4/105; females: 7.4%, ASR: 9.4/105).

Among malignant haemopathies, non-Hodgkin lymphoma was the most frequent: 5.4% in males (ASR 7.6/105) and 3.4% in females (ASR: 4.4/105). Of all cancers, 2.3% are observed in childhood (0–17 years). The most common are malignant haemopathies (41%), followed by central nervous system (12.5%) and kidney (7%).

CONCLUSION
Data of Rabat Cancer Registry indicates that, as in the majority of the world countries, the most frequent cancer is lung in males and breast in females. The cancer incidence observed in Rabat is similar to those observed in the neighboring North African countries but remains lower than those observed in developed countries.
Capture of stage at diagnosis using existing cancer registry notification sources

Ms Helen FARRUGIA¹
Ms Vicky Thursfield²
¹Victorian Cancer Registry, Melbourne, Australia

BACKGROUND
Population-based cancer reporting has existed across all Australian States and Territories for over 30 years but there are still no national figures available for cancer stage at diagnosis. Multiple factors have prevented progress on this work including increased workload pressures on Registries due to Australia’s increasing and ageing population, legislative barriers in some States and Territories and most of all lack of funding.

AIM
To develop business rules to support population based cancer registries derive a measure of cancer stage at diagnosis utilizing existing notification sources supported by cancer registration legislation. This project was limited to the five leading cancers in Australia being, cancers of the breast, prostate, bowel, lung and melanoma.

METHODS
All State and Territory registries participated in the development of the business rules. The final business rules were endorsed at the April 2016 meeting of the Australasian Association of Cancer Registries. The validity and completeness of the resulting derived stage data were evaluated. The Victorian Cancer Registry reviewed medical records at hospitals and private clinician rooms to enable comparison of registry derived stage with stage recorded in the medical record. The validation study sample included 400 tumours diagnosed in 2010 and 100 tumours diagnosed in 2013 for each of the five cancer types.

RESULTS
The concordance achieved comparing registry derived stage and stage obtained from the medical record was greater than 80% for all tumour types, supporting the validity of the business rules developed. The completeness of stage data was 92% for cancers of the breast, prostate, bowel and melanoma but less for lung cancer which was only complete for 71% of cases.

CONCLUSION
This study confirms the feasibility for population cancer registries in Australia to capture stage at diagnosis and the results of the validation study support the validity of the business rules developed.

Pathology in developing countries: challenges and perspectives.

Dr Meriem REGRAGUI¹
Dr Christelle Ahomadégbé¹, Pr Samira Benayad¹, Pr Nissrine Bennani Guebessi¹, Pr Farida Marnissi¹, Pr Mehdi Karkouri¹
¹Pathology department, Ibn Rochd Hospital, Casablanca, Morocco

The pathologist is at the forefront of the cancer battle, involved in detection and diagnosis of tumors, identification of prognostic and theranostic factors guiding therapeutic management. In a transitioning country like Morocco, the burden of cancer is high with 30000 to 54000 new cases per year but actors involved in its management are not always fully prepared to face the challenges, mainly caused by limited resources and non-optimal health systems.

We report the experience of Pathology Department of Ibn Rochd University Hospital of Casablanca, Morocco, the single public Pathology facility serving a population of 4.2 million inhabitants.

In Morocco, there are 2.2 pathology laboratories per 1,000,000 inhabitants, restricted in large cities. Thus, the pre-analytical phase, conditioning the sample quality, is beyond the control of the pathologist. The workload is very high, the facility is the only academic government run Pathology Lab in Casablanca, resulting in a high rate of burn out of physicians and technicians. The medical pathology staff is restricted to 4 full time and 3 part-time senior pathologists and the number of training pathologists is six. The Department processes around 12,000 histopathology cases per year, cytology is marginal. Standard routine techniques are all available. A great part of them is automated. Immunohistochemistry is also automated, however, the use of molecular biology is very limited, as well as techniques such as flow cytometry. Stock outs are frequent as procurement management is lengthy and bureaucratic with limited reactivity.

Despite all these challenges, the Pathology Department is in constant development, partly through national grants and multi-centric research collaborations, in order to keep up with the unrelenting challenges and the ever changing environment of modern medicine. This is why it is important to analyze and categorize the challenges and the issues facing the development of Pathology in order to suggest some solutions.
An assessment of data accuracy in a population-based cancer registry in Algeria using data on thyroid carcinoma

Houda BOUKHERIS1,2, Kaouel Meguenni2, Necib Berber3,4, Lakhdar Mokhtari1,2

1Department of Epidemiology and Preventive Medicine, University Hospital of Oran, Algeria, 2School of Medicine, University of Oran, Algeria, 3CancerLab laboratory, School of Medicine, University Aboubekr Belkaid, Tlemcen, Algeria, 4Department of Nuclear Medicine, University Hospital of Tlemcen, Algeria, 5School of Medicine, University Aboubekr Belkaid, Tlemcen, Algeria

OBJECTIVES
Over the past three decades, the incidence of thyroid cancer has been rising continuously in much of the developed world, however little is known about thyroid cancer incidence trends in developing countries. Using historic data methods, we undertook an investigation to assess thyroid cancer incidence trends for the period 1996-2013, using data from the Oran population-based cancer registry. There were no detectable trends in the incidence, and we hypothesized that data are not complete. We carried out a study to assess data completeness and validity using data on thyroid cancer diagnosed during the period 1996-2013.

MATERIAL AND METHODS
Using the independent case ascertainment approach, we re-screened all thyroid cancer sources for the period 1996-2013. Validation process included pathologic diagnosis of cancer, place of residence at the moment of diagnosis, gender, and management of duplicates. Morphology was recorded according to the International Classification of Diseases for Oncology, Third edition (ICD-O-3). Comparison of data collected with the cancer registry existing data included the number of sources re-screened, thyroid cancer number of cases, gender, date of birth, incidence date and morphological codes.

RESULTS
Between 1996 and 2013, 937 thyroid cancer cases were diagnosed, while only 455 cases were reported to the cancer registry. Differences included the number of sources screened (39 and 23 respectively), date of birth (37%), incidence date (61%), and morphological codes (34%).

DISCUSSION AND CONCLUSIONS
Although the Oran cancer registry was established in 1994, it has not been accredited by IARC, and the quality of cancer registration data has never been assessed. Our study suggests that data in the registry have a low level of accuracy. There is scope for improvement, and we believe the data are not sufficiently robust to justify their use in the assessment of health care needs and in preliminary epidemiological analyses of incidence and survival.

KEY WORDS
Cancer registry, thyroid cancer, data accuracy

In situ, thin and thick melanoma in Europe: How and where are they increasing?

Ms Lidia SACCHETTO1, Dr Stefano Rosso1, Dr Paolo Broganelli2, Dr Roberto Zanetti2, TIM (Trends In Melanoma) Working Group

1Piedmont Cancer Registry - CPO Centre for Cancer Prevention, Torino, Italy, 2Dermatology Clinic - San Lazzaro Hospital, Torino, Italy

BACKGROUND
The cutaneous malignant melanoma has been the tumour with the highest increase in incidence in the last decades, everywhere. Recently, some countries showed signs of decreasing trends for invasive lesions; however there are not enough elements to understand if this is the result of prevention campaigns or of the higher diagnostic pressure. Consequently, it seems important to jointly analyse the behaviour of in situ, thin and thick lesions.

This work aims to verify the hypothesis of a change in incidence, analysing trends by Breslow levels and focusing on fatal cases.

METHODS
Individual anonymous data from population based European cancer registries (CRs) was collected through an ad hoc call and a database of invasive and in situ cases was created. World age standardized incidence trends were analysed, stratifying for Breslow levels; fatal cases were studied in-depth, following a previous analysis of Criscione and colleagues on SEER (Surveillance Epidemiology and End Results Program) data.

RESULTS
At present we gathered data from CRs in 12 different European countries, covering a total population of about 113 million inhabitants. Almost everywhere the incidence of invasive lesions increased: the Average Annual Percent Change (AAPC) was quite similar for men and women, while it varied a lot among CRs (from 1.8% in Norway to 7.4% in Romania). A steeper increase was observed for in situ lesions (AAPC over 10% for the majority of CRs). With respect to fatal cases, more people died from thick melanoma than from thin lesions.

CONCLUSIONS
The concurrent behaviour of in situ, thin and thick melanoma appears fundamental to better understand the melanoma evolution. In some cases the “epidemic” seems real with a parallel increase in trends for both thin and thick lesions; in other cases, there is a shift towards thinner and in situ cases due to early diagnosis.
### Oral Presentation Abstract

**Changing trends in colorectal cancer incidence by anatomic site in Japan from 1978 to 2004**

**Dr Hiroko NAKAGAWA**, Dr Hidemi Ito, Dr Satoyo Hosono, Dr Isao Oze, Dr Haruo Mikami, Dr Masakazu Hatton, Dr Yoshikazu Nishino, Dr Hiromi Sugiyama, Dr Kayo Nakata, Dr Hideo Tanaka

1Division of Epidemiology and Prevention, Aichi Cancer Center Research Institute, Nagoya, Japan, 2Division of Epidemiology, Chiba Cancer Center, Chiba, Japan, 3Department of Cancer Therapy Center, Fukui Prefectural Hospital, Fukui, Japan, 4Department of Epidemiology and Public Health, Kanazawa Medical University, Kanazawa, Japan, 5Department of Epidemiology, Radiation Effects Research Foundation, Hiroshima, Japan, 6Center for Cancer Control and Statistics, Osaka Medical Center for Cancer and Cardiovascular Diseases, Osaka, Japan

**BACKGROUND**

Colorectal cancer (CRC) is the third-most common cancer in men and the second in women worldwide in 2012. Although CRC has shown a proximal or right-sided shift in subsite distribution in western countries, trends in subsite incidence in Asian countries remain unclear. Here, we evaluated subsite-specific trends in CRC incidence rate between 1978 and 2004 in Japan using large data from 10 population-based cancer registries.

**METHODS**

The colorectal sites (C18-20) were categorized into three groups, proximal colon (C18.0-18.5), distal colon (C18.6-C18.7) and rectum (C19.9 and C20.9). Trends in age-standardized incidence rates (ASRs) were characterized by Joinpoint regression analysis. We allocated colorectal cancers without site-specific information (C18.9) to the other 11 categories (C18.0-18.8, C19.9 and C20.9) on a registry-, year at incidence-, and sex- and age-specified basis by the multiple imputation methods.

**RESULTS**

A total of 303,802 colorectal cancer cases were analyzed for 27 years. Overall, ASRs increased remarkably until 1993, with an annual percent change (APC) of 4.9%, and then stabilized thereafter. By anatomic subsite, however, ASRs of proximal colon significantly increased, with APCs of 7.1% (1978~1991), 3.8% (1991~1996) and 0.9% (1996~2004); distal colon showed an initial significant increase, with an APC of 7.6%, but stabilized from 1991 until the end of observation; and rectal cancer showed an initial significant increase, with APCs of 1.9% (1978~1988) and 5.6% (1988~1992), but then decreased abruptly in 1992, the year colorectal cancer screening was introduced nationwide in Japan, with an APC of -1.0%.

**CONCLUSION AND DISCUSSION**

Thus, we revealed that changes in incidence trends for the three anatomic sites apparently began to differ in the 1990s. Careful monitoring is necessary to confirm whether these trends are changing in the Japanese population.

---

**Agreement between questionnaires and registry data on routes and time intervals to cancer diagnosis**

**Dr Anna GAVIN**

Dr Alina Zaloumina Falborg, Professor Peter Vedsted, Dr Henry Jensen, Professor David Weller, Professor Usha Menon

1Department of Public Health, Aarhus University, Denmark, 2Centre for Population Health Sciences, University of Edinburgh, United Kingdom, 3Gynaecological Cancer Research Centre, Institute for Women’s Health, University College London, United Kingdom, 4N. Ireland Cancer Registry, Queen’s University Belfast, Belfast, N. Ireland

**BACKGROUND**

Routes and time intervals to cancer diagnosis are hypothesized to influence cancer survival. Routes and milestone dates can be established from registries and other databases, although where data is incomplete or inaccurate other data sources may also be needed, particularly in the pre-diagnostic phase. We aimed to analyse the agreement between cancer patients, general practitioners (GP), secondary care specialists (SP) and registries regarding routes to diagnosis and milestone dates of the diagnostic pathway.

**METHODS**

Routes to diagnosis (screening and primary care presentation) and milestone dates (e.g. date of first presentation to primary care, date of diagnosis and date of treatment) were compared between the registries and the patient-, GP- and SP questionnaires from the International Cancer Benchmarking Partnership (ICBP) module 4 study. The study describes patients’ diagnostic routes and time intervals of the pathway from first symptom until treatment start. This is done for breast, colorectal, lung and ovarian cancer in 10 jurisdictions (UK, Scandinavia, Canada and Australia).

The agreement for routes to diagnosis was assessed by Kappa coefficients. The agreement for dates was measured by Lin’s concordance correlation coefficient (CCC).

**RESULTS**

Preliminary results of breast cancer patients (n=3,471) show that agreement between all data sources for milestone dates was high (CCC>0.95 for date of diagnosis, CCC=0.95 for date of treatment and CCC=0.94 for date of first presentation to primary care). Furthermore, agreement was almost perfect for screening route (Kappa> 0.80), and substantial for primary care route (Kappa> 0.60). We aim to present the results for colorectal, lung and ovarian cancer at the conference.

**CONCLUSION**

Overall, we found high agreement between all data sources regarding dates and routes to diagnosis for breast cancer. These results suggest that combining data from registries and patient/physician questionnaires may be useful to measure routes to diagnosis and milestone dates of the diagnostic pathway.
Age and its influence on the surgical management of colorectal cancer across England: 2002-2010

Dr Rebecca BIRCH1, Dr Amy Downing2, Mr James Thomas3, Prof Phil Quirke4, Prof Paul Finan4, Dr Katie Spencer5, Prof Riccardo Audisio3, Prof Eva Morris1

1Cancer Epidemiology Group, Leeds Institute of Cancer and Pathology, University Of Leeds, Leeds, England, 2National Cancer Registration and Analysis Service, Leeds, England, 3Pathology and Tumour Biology, Leeds Institute of Cancer and Pathology, University of Leeds, Leeds, England, 4John Goligher Colorectal Unit, St James’s University Hospital, Leeds Teaching Hospitals NHS Trust, Leeds, England, 5Leeds Cancer Centre, St James’s Institute of Oncology, St James’s University Hospital, Leeds, England, 6Molecular and Clinical Cancer Medicine, Institute of Translational Medicine, University of Liverpool, Liverpool, England

BACKGROUND

Concern exists around delays in diagnosis in younger patients and the potential under treatment of elderly patients. This study aimed to investigate the characteristics and outcomes of surgically treated colorectal cancer, in relation to age, within the English NHS.

PATIENTS AND METHODS

The relationship between major surgical resection and death with 30-days of surgery, age, case-mix factors and the summary poor case-mix score (PCS) was examined in a cohort of 256,925 colorectal cancer patients.

RESULTS

The proportion of colon cancer patients undergoing a major resection fell from 77.6% to 33.2% between the youngest and oldest patients, and from 68.0% to 13.0% for rectal tumours. The proportion dying within 30-days increased from 1.2% to 22.8% between the youngest and oldest colon patients and from 0.9% to 13.6% for rectal tumours. In colon cancer there was minimal difference in resection rate between ages when the PCS was zero (91.8% in the youngest group compared to 87.8% in the oldest). Post-operative mortality increased with age and PCS.

CONCLUSIONS

Surgical intervention rates decrease and 30-day post-operative mortality rates increase with age. However, case-mix factors associated with poorer surgical outcomes also varied. In the subset of colon patients with none of these factors, age appeared to have a smaller impact on surgical rates. Consequently, age alone does not appear to be accountable for the variation in outcomes observed. The PCS used in this study is a novel way of examining the factors which impact on treatment and outcomes from cancer in relation to age.

Differences between population-based patients diagnosed with mantle cell lymphoma and LYSA group clinical trials patients

Mrs Alix AUGUSTIN1, MD-PhD Steven LeGouill2, MD Remy Gressin3, MD Alain Monnerereau3, Pr Xavier Troussard1, MD Anne-Sophie Woronoff3, MD Patricia Delafosse3, MD Brigitte Tetre2, MD Aurélie Bertaut1, Pr Marc Maynadier1,3,4

1Registre des Hémopathies Malignes de Côte d’Or, EA 4184 University of Burgundy, Dijon, France, 2Lymphoma Study Association (LYSA), Centre Hospitalier Lyon-Sud, Lyon, France, 3French Network of Cancer Registries (FRANCIM network), Paris, France, 4Centre Georges François Leclerc, EA 4184, University of Burgundy, Dijon, France

BACKGROUND

Between 2008 and 2012, the LYSA Group conducted in France two prospective multicenter clinical trials on Mantle Cell Lymphoma: LM manteau 2010 SA “RibVeD” (N° NCI 01457144) and Manteau 2007 Si “LyMa” (N° NCT 00921414). Patients included in those trials were compared to those diagnosed in general population and recorded in six French registries (3 general and 3 specialized ones).

METHODS

A total of 352 MCL diagnosed during 2008 – 2012 were compared to the 374 MCL included in the clinical trials. Databases were linked together and registry cases participating in the clinical trials were erased from the registry database. Due to inclusion criteria in those trials (patients over 18 y-o), registry patients were selected on the same age pattern. Variables associated with inclusion in a clinical trial were identified using a multivariate logistic regression. Nelson et al flexible parametric model for survival analysis was used to determine the effect of those variables on net survival and net survival probabilities were calculated using Pohar Perme estimator.

RESULTS

Patients included in clinical trials were younger (median, 59.8 vs 71.9, p<0.001) with more advanced Ann Arbor stages at diagnosis especially in the “LyMa” trial. No significant gender differences were found between registry and clinical data. Net survival 3 years after diagnosis was better for patients in clinical trials [84.2% [80.0 – 88.5] vs 65.4% [58.6 – 72.2]]. This result was confirmed in multivariate analysis after adjustment on gender, age and Ann Arbor stage: inclusion in a clinical trial was associated with a lower mortality rate (HR = 0.43, p<0.001). We found the same results while stratifying on the clinical trial group.

CONCLUSION

This study confirms that MCL included in trials are highly selected. Efforts must be made to widen inclusion criteria in clinical trial especially regarding patients older than 65 y-o.
Health data on rare and heterogeneous diseases: Incidence of sarcomas and histological subtypes in Germany

Dr. Sylke Ruth ZEISSIG1, Prof. Eva Wardelmann*, Prof. Peter Hohenberger*, Dr. Jens Jakob*, Prof. Bernd Kasper*, Dr. Katharina Emrich1, Dr. Andrea Eberle1, Prof. Maria Blettner*, Dr. Meike Ressing1

1Cancer Registry Rhineland-Palatinate, Mainz, Germany, 2Institute for Medical Biostatistics, Epidemiology and Informatics, University Medical Center, Johannes Gutenberg University Mainz, Mainz, Germany,
3University Hospital Münster, Gerhard-Domagk-Institute for Pathology, Münster, Germany, 4University Medical Center Mannheim, Mannheim, Germany, 5Cancer Registry Bremen, Bremen, Germany

BACKGROUND

Sarcoma is a rare type of cancer (soft tissue sarcomas < 1%, bone cancers 0.02% of all invasive cancers). The population-based incidence of sarcoma and its histological subtypes in Germany is unknown. The aim was to determine this incidence using data from the German epidemiological cancer registries.

METHODS

Pooled data from the German Centre for Cancer Registry Data for the year 2012 of primary diagnosis were used. All German cancer registries with sufficient completeness and with no objection because of reasons of data protection were included (10 out of 11), covering a population of 69.8 Million people representing 87% of the German population.

All malignant sarcomas according to the RARECARE Project [1] and to the WHO classification were considered for analysis and, above all, gastrointestinal stromal tumours (GIST) of uncertain behaviour. Sensitivity analysis was performed excluding certain histologies.

RESULTS

The analysis included 3,045 cases in men and 3,385 cases in women diagnosed in 2012. The age adjusted incidence (European standard) was 6.8 (men) and 6.4 (women) per 100,000 inhabitants. About 71% of sarcomas were soft tissue sarcomas, about 21% GIST and about 8% bone sarcomas. The most common histology subtypes besides GIST were fibrosarcomas (15%) and liposarcomas (11%) in men and complex neoplasia (21%) and fibrosarcomas (9%) in women.

DISCUSSION

Sarcomas as a heterogeneous group of neoplasia arising from diverse sites (e.g. connective tissue, skin, uterus, retroperitoneum, bones) and analysis of different subtypes of histologies are not part of routine reports on cancer incidence in Germany. This study is the first detailed analysis of a German wide population-based incidence of sarcomas being comparable to the incidence detected in the RARECARE Project [1].


Incidence and trends of cancer in Tlemcen province (West Algeria) 2003 -2014

Prof Kaouel MEGUENNI1

1Chu Tedjini Damerdji - Tlemcen And Cancer Laboratory, Tlemcen, Algeria, 2REGAGBA, Derbali, Algeria

BACKGROUND

The Cancer Registry of Tlemcen covered the population of Tlemcen province in the west of Algeria. The main objective of this Registry is to provide a statistical database of cancer in the province of Tlemcen (West Algeria) and given its epidemiological profile. The study of the incidence and the trends of the cancer in this province is our purpose in this study.

METHODS

A descriptive analysis using the registration of CanReg 5 database from 2003 to 2014 and joint point regression for the trends study.

RESULTS

13,104 cases were recorded, with ratio of sex was 0.77, an average of age was (56.3±18.3 for men, 52.1±16.8 for women, P< 10-3), an average annual incidence (ASR) per 100,000 for man 113.4 CI95% 110.4, 116.3 and for women 138.8 CI95% 135.6, 141.9

The most important localizations per 100,000 for men were the bladder (11.0 CI95% 10.1, 12.95), trachea, bronchus and lung (10.9 CI95% 9.96, 11.84), stomach (8.9 CI95% 8.07, 9.7), and for women were breast (47.3 CI95% 45.46, 49.14), thyroid (11.3 CI95% 8.56,10.24). The Average Annual Percent Change (AAPC) for men was 5.3 CI95% 2.0, 7.8; p=0.00 and for women 4.1 CI95% 1.8, 6.4 ; p=0.00.

DISCUSSION AND CONCLUSION

The urologic cancers for men and gynaecologic cancers for women take the lead in the epidemiologic cancer profile in this province. We need the urgent establishment of prevention programs, principally screening programs.

KEY WORDS

Cancer Registry, incidence, trends, epidemiology, Tlemcen
Golestan Population-based Cancer Registry: 10-years experiences of an ongoing registry from Iran

Dr Gholamreza ROSHANDEL1,2, Dr Shahyad Semnani3, Dr Mohammadreza Honavar4, Dr SeyedMeihdi Sedaghat4, Mrs HoveydaSadat Mirkarimi1, Mr Abbas Moghaddami1, Mrs Fatemeh Chasemi_Kebria2, Dr Kazem Zendehdel4, Professor Reza Malekzadeh2
1Golestan University of Medical Sciences, Golestan Research Center of Gastroenterology and Hepatology, Gorgan, Iran, 2Digestive Diseases Research Institute, Tehran University of Medical Sciences, Tehran, Iran, 3Deputy of Health, Golestan University of Medical Sciences, Gorgan, Iran, 4Cancer Research Center, Cancer Institute, Tehran University of Medical Sciences, Tehran, Iran

BACKGROUND
Golestan province in northeast of Iran, is located on the infamous esophageal cancer belt. Golestan population based cancer registry (GPCR) was established in parallel to a large case-control and cohort study to determine the risk factors of esophageal cancer and plan for proper prevention in this high risk area. The aim of this paper is to present the progress report and latest updates and achievements of the GPCR.

METHODS
GPCR started data collection in 2004. We collected data on newly diagnosed (incident) cancer cases from all public and private diagnostic and therapeutic centers (hospitals, pathology/laboratory centers, imaging centers and some of the specialist physician’s offices) of the whole province. Data were collected using standard data collection sheets. The 3rd version of the international classification for disease- oncology (ICDO-3) was used for coding. Data were entered into computer and analyzed annually using the CanReg-4 software.

RESULTS
Data collected during the first 10 years of GPCR activity (2004-2013) showed decreasing trends in the incidence rate of esophageal cancer as well as increasing trends in the incidence rates of breast and colorectal cancers. We will present the results 10-years time trend analysis on incidence of common cancers in male and female. GPCR data have been used in designing and conducting 26 research projects and the results were published as 32 research papers. By the end of May, 2016. The International Association of Cancer Registries (IACR) accepted the GPCR as a voting member in June, 2007. The GPCR data were published in the 10th volume of the cancer in five continents (CI5-X), published in 2014.

CONCLUSION
The GPCR is the first and the only cancer registry form Iran whose data were published in the CI5. The GPCR may be considered as a model of conducting population-based cancer registration in other similar settings.

The differences in esophageal and stomach cancers by region of birth: Izmir Cancer Registry data

Assoc. Prof. Sultan ESER1, Dr. Erdem Erkoyun1, Dr. Cankut Yakut1, Dr. Ariana Znaor4, Prof. Hoda Anton-Culver1
1Hacettepe University Institute of Public Health, Ankara, Turkey, 2Dokuz Eylul University Faculty of Medicine, Izmir, Turkey, 3Izmir Cancer Registry, Izmir, Turkey, 4International Agency for Research on Cancer, Section of Cancer Surveillance, Lyon, France, 5University of California Irvine, Department of Epidemiology, Irvine, USA

BACKGROUND
Izmir is in the Aegean Region (AR) in western Turkey. Esophageal (EC) and stomach cancer (SC) rates are lowest while the eastern region of Turkey has the highest burden of upper-gastrointestinal carcinoma. Squamous cell carcinomas and adenocarcinomas of EC are associated with different risk factors. Adenocarcinomas are more prevalent in developed countries while squamous cell carcinomas are common in high risk areas.

We aimed to show the differences in the distributions of EC and SC cases by region of birth (RoB) and by histologic types.

METHODS
RoBs of Izmir residents diagnosed with EC, SC and all cancer sites were included using 1993-2013 Izmir Cancer Registry (ICR) data. Relative frequencies (with 95% CI) for ECs and SCs for each RoB (n=12) were calculated. Eye Ball tests and Z tests where necessary were done to compare frequencies by different RoBs. Type 1 error threshold was taken as 0.05 in the statistical comparisons. Distributions of squamous cell carcinomas and adenocarcinomas of EC between AR and two high risk regions were compared.

RESULTS
1270 EC cases: North-East Anatolia (NA) (2.79%; CI: 1.23–4.33) and Central-East Anatolia (CEA) (1.52%; CI: 1.21–1.83) the proportions are different by birth region (0.37; CI: 0.22–1.05) for EC (p<0.05). Squamous cell carcinomas of ECs is significantly higher in cases born in NA+CEA relative to cases born in AR (p<0.001). 6553 SC cases: NA (8.58%; CI:5.53–6.53), CEA(6.03%; CI:5.42–6.64), Central Anatolia (5.93%; CI:5.34–6.52), East Black Sea (5.01%; CI:4.31–5.71) and West Black Sea (5.33%; CI: 4.73–5.93) regions showed statistically higher relative frequencies compared others (p<0.05).

This study concluded that EC and SC are predominant in Eastern parts of Turkey.

CONCLUSION
This study indicates that first generation immigrants from high risk regions to Izmir continue to be at high risk for esophagus and stomach cancers.
Black-white differences in cancer risk in Harare, Zimbabwe 1991-2010

Eric CHOKUNONGA1, Peter Windridge1, Peter Sasieni2, Margaret Borok1, D Maxwell Parkin1,2,3

1Zimbabwe National Cancer Registry, P. O. Box A449, Avondale, Harare, Zimbabwe, 2Centre for Cancer Prevention, Wolfson Institute of Preventive Medicine, Barts & The London School of Medicine & Dentistry, Charterhouse Square, London EC1M 6BQ.

Data from 20 years of cancer registration in Harare (Zimbabwe) are used to investigate the risk of cancer in the white population of the city (of European origin), relative to those in blacks (of African origin). In the absence of information on the respective populations-at-risk, we calculated odds of each major cancer among all cancers, and took the odds ratios of whites to blacks.

Some major differences reflect obvious phenotypic differences (the very high incidence of skin cancer – melanoma and non-melanoma- in the white population), whilst others (high rates of liver cancer, Kaposi sarcoma, and conjunctival cancers in blacks) are the result of differences in exposure to infectious agents. Of particular interest are cancers related to lifestyle factors, and how the differences in risk are changing over time, as a result of evolving lifestyles. Thus, the high risk of cancers of the oesophagus and cervix uteri in blacks (relative to whites) and colo-rectal cancers in whites, show little change over time. Conversely, the odds of breast cancer, on average four times higher in whites than blacks, have shown a significant decrease in the differential over time. Cancer of the prostate, with odds initially (1991-1997) 15% higher in whites had become 33% higher in blacks by 2004-2010.

Using inpatient and outpatient medical claims to identify missing cancer cases

Dr Leticia NOGUEIRA1, Dr Beatriz Gutierrez1, Ms Miriam Robles1

1Texas Cancer Registry, Austin, USA

INTRODUCTION

Under-reporting is one of the major issues faced by cancer registries. Cancers that can be diagnosed and treated in non-hospital facilities are frequently under-reported because these patients may never be seen by the hospitals or facilities who typically report to registries. We hypothesize that inpatient and outpatient claims records can help identify missing cancer cases.

METHODS

Cancer diagnosis codes were used to search approximately 3 million inpatient claims and 11 million outpatient claims records from the Texas Health Care Information Collection (THCIC) 2014 database. A combination of probabilistic (LinkPlus) and deterministic (SAS) matching criteria was used to eliminate THCIC records that were already part of the 3 million existing records in the Texas Cancer Registry (TCR) 1995 to 2014 database. THCIC records that did not match any records in TCR were selected.

The number of newly diagnosed cases identified in the THCIC database were compared to the number of expected cases in Texas in 2014 for each cancer site. Cancer type, billing statement period, facility name, and medical record number were used to follow-back with the facilities.

RESULTS

More than one million THCIC records had a cancer diagnosis code in 2014. Of these, 77,993 records didn’t match any record in TCR, and were identified as potential new cancer cases diagnosed. The cancers with the highest proportion of newly identified records were prostate (4,517 newly identified cases, 36.3% of the expected number of cases), melanoma (1,224, 35.0%), bladder (849, 22.6%), and kidney (1,089, 22.0%) cancer.

CONCLUSION

Inpatient and outpatient claims data can effectively be used to identify missed cancer cases due to under-reporting to cancer registries. This newly developed method allows the registry to establish a relationship with facilities that are not currently reporting, and to work with all facilities to improve their diagnostic and reporting activities.
**Essential TNM: preliminary results from Malawi and Cote d’Ivoire**

**Steady CHASIMPHA.**
Guy Nda, Blying Liu, D Max Parkin

**BACKGROUND**

Essential TNM is a simplified version of the TNM staging system, that is designed to be useable by cancer registrars extracting case records for population-based cancer registries (PBCR) particularly in low and middle income countries (LMIC). We report some preliminary results from two on-going field trials

**METHODS**

50 cases of each of four cancers (colon-rectum, breast, cervix, prostate) were drawn at random from the registry database. The registries were asked to trace the case notes, and then:

1. Tumour registrar to code stage of disease using Essential TNM
2. A clinical oncologist to stage the same cases, using the full TNM

**RESULTS**

It proved difficult to trace the old case records, especially in Malawi, so that only 135 (two thirds) could be staged, compared with 93% in Cote d’Ivoire.

The level of agreement in the derived Stage (I-IV) between that based on Essential TNM (cancer registrar) and TNM (clinician) was modest, especially in Blantyre. In general, we found that the stage based on Essential TNM was lower than that based on the clinician’s opinion. In Malawi, in particular, the cancer registrar did not record the presence of metastases (M+) in many instances in which the clinician did (M1).

We observed a minor problem in using the flow chart for cervix cancers in Cote d’Ivoire, where 6 cases were judged to have Regional lymph node (R+) AND an extensive primary tumour (A2), and should be allocated to Stage IV.

**CONCLUSIONS**

Essential TNM has the potential to be a valuable tool for cancer registries in LMICs. However, these preliminary results suggests that the registrars would need more training in recognising terminology relating to tumour spread – for example, the presence (or not) of metastatic disease.

---

**How do you communicate high quality cancer data in developing countries?: Let’s try interactive maps!**

**Dr Arturo REBOLLON,**
Ms Mirka Rodriguez1, Ms Maskil Solis1, Mr. Oscar Bernal1, Mr Alvis Rufoba1, Dr. Reina Roa1

1Ministry Of Health - Panama, Panama city, Panama

**BACKGROUND**

Panama has a population-based cancer registry since the 70’s. In 2012, this registry received a well-deserved update. Cancer-related data is collected through a web-based encryption-protected registry that meets IARC data quality standards. This new data contains a cadre of highly relevant variables for policy-makers, physicians, and common public. However, a “one size fits all” communication strategy is complicated to develop. This project shares the process of creating a pilot version of a GIS-based interactive application to share tailored cancer data.

**METHODS**

Development of the interactive atlas followed this phases: 1) Bioinformatics export the latest data from the cancer registry in *.*xls format, 2) estimation of age-adjusted cancer morbidity and mortality trends in SAS 9.2®, 3) Geocoding of database in ArcGIS and shared online; 4) development of ESRI storymap (i.e. platform to post the cancer atlas) using online geocoded cancer data; 5) sharing of online platform; 6) communication of results and promotion of the cancer atlas.

**RESULTS**

7,540 new cases and 2,129 deaths were captured by the (95% of exhaustivity process completed). Over 99% of cancer data had location variables (e.g. province, district) providing a stable baseline to build maps for the cancer atlas. The ESRI storymap provides a robust online platform for open data and secure sharing of cancer statistics.

**CONCLUSIONS**

Using interactive cancer websites opens new ways of sharing, interpreting, and analyzing cancer data. Additionally, ESRI storymaps are a free resource, thus reducing production and maintenance costs, and increasing sustainability of the cancer atlas. The next phase of the implementation is the validation of the atlas with key agents and development of a social marketing strategy to communicate the results.
IARC Regional Hub for cancer registration in Northern Africa, Central and Western Asia

Dr Ariana ZNAOR1, Associate Professor Sultan Eser2, Les Mery2, Dr Freddie Bray1

1International Agency for Research on Cancer, Lyon, France, 2Izmir Cancer Registry, Izmir, Turkey

BACKGROUND

Izmir Cancer Registry, the first population-based cancer registry (CR) in Turkey, became the second IARC Regional Hub for Cancer Registration within the GICR (Global Initiative for Cancer Registry Development) program in October 2013. The Hub aims to build capacity for cancer registration in low- and middle-income countries within Northern Africa, Central and Western Asia.

METHODS

The Hub supports cancer registries in the region by being the first point of contact for the registry communities, providing localized technical and scientific support, delivering tailored training in population-based cancer registration, promoting the use of data, advocating for the cause of cancer registration and facilitating collaboration and networking between cancer registries. A Hub Advisory Committee, consisting of international and regional experts, has been established to develop the Hub activities.

RESULTS

Since 2013, sixteen training events in both basic and advanced levels, as well as two training visits to Izmir CR, have been organized in the Hub region and about 250 cancer registry professionals trained. New training resources have been developed, including the first Russian language basic cancer registration course, and the translation of IARC Technical Report “Training and developing population-based cancer registration in low and middle-income countries” to Russian and Turkish languages. A roster of regional experts has been created to assist in delivering Hub activities. Ten site visits were carried out and recommendations provided to Algeria, Egypt, Georgia, Iraq, Kazakhstan, Kyrgyzstan, Lebanon, Morocco, Uzbekistan, West Bank and Gaza Strip. Research collaborations have been initiated in the Eastern Mediterranean and Middle Eastern regions.

DISCUSSION AND CONCLUSION

Following successful implementation, the Izmir Hub is developing as a regional resource centre capable of providing targeted support for population-based cancer registries in the region. Further efforts are needed to empower regional cancer registry networks and integrate newly available data into cancer control programs.

Cancer Pattern in urban and rural population based cancer registries in Punjab: Is it really higher from rest of India

JS THAKUR, Atul Budukh, Rakesh Kapoor, SPS Bhatia, Pankaj Malhotra, S Kathirvel, Pankaj Arora, Rajesh Dikshit, RA Badwe

Post Graduate Institute of Medical Education and Research, Chandigarh and Tata Memorial Centre, Mumbai, India

BACKGROUND

India is experiencing epidemiological transition and Punjab has reported higher occurrence of cancer in Northern part of India. Two urban Population Based Cancer Registries, in Chandigarh Union Territory and SAS Nagar district of Punjab and two rural PBCRs in Sangrur and Mansa districts of Punjab were initiated covering a population of 4.5 million in 2013 to assess the magnitude, pattern, urban rural difference and comparison of cancer rates at National level.

METHODS

The registry staff undertakes home visited in the community and cancer diagnostic and treatments facilities to collect the information of cancer incidence and death cases. The data collected was checked for quality parameters and resident confirmed cancer cases were entered in the Canreg5 software. Data was analyzed to assess the magnitude and pattern of cancer in urban and rural registries. The first report was released in 2016 which compared cancer rates with rest of PBCR in India.

RESULTS

In the year 2013, 833, 767, 798 and 403 incidence cases were registered in Chandigarh, Mohali, Sangrur and Mansa respectively. The age adjusted incidence rates among males were 93.4 and 74.3 in urban registry of Chandigarh and SAS Nagar as compared to 43.7 and 45.3 in rural registry of Sangrur and Mansa and among females as 105, 104.2 in urban registry of Chandigarh and SAS Nagar and 52.6 and 55.8 in rural registry of Sangrur and Mansa per 100000 respectively. In males, leading cancer sites in urban area were lung and prostate as compared to esophagus, leukemia and lung in rural registry of Sangrur and Mansa and among females as cervix, breast followed by esophagus.

CONCLUSIONS

Within state, cancer incidence rates are significantly higher in urban registries as compared to rural registry with different pattern and however, it is broadly comparable rates with national level. Cancer registry data will be useful for designing cancer control activities in Punjab and Chandigarh Union Territory in northern part of India.
Social determinants of Survival in Advanced Lung Cancer Patients

**Prof Erhan ESER**
**Prof Sultan Eser**, **Prof Tuncay Gökşel**, **Prof Ahmet Emin Erbaycu**, **Dr Burcu Basank**, **Dr Aysen Öz**, **Dr Kader Kıyarcı Gürsül**, **Prof Pınar Çelik**, **Prof Ebru Çakır Ediz**, **Prof Osman Hatipoglu**, **Prof Bedriye Atay Yayla**, **Dr Sevin Baser**, **Dr Hakan Baydur**

1Hacettepe University, Ankara, Turkey, 2Ege University, Izmir, Turkey, 3Dr. Suat Seren Chest Disease and Thoracic Surgery Education and Research Hospital, Izmir, Turkey, 4Celal Bayar University, Manisa, Turkey, 5Trakya University, Edirne, Turkey, 6Pamukkale University, Denizli, Turkey

**AIM**
Social determinants of health have gained a growing attention in the management of chronic illnesses including cancers. This paper aims to present the effect of social inequalities on lung cancer survival in Turkey.

**METHODS**
This paper presents a secondary analysis of the national multicenter Project titled “the Lung Cancer Quality of Life Project (AKAYAK)” —a multicenter Project on 299 advanced lung cancer patients in total. Following univariate analyses (included variables were sociodemographic variables, social support, tumor stage, comorbidity and quality of life) two additive Cox’s proportional hazard regression models were set out: In model 1 only social determinants of health such as, age, gender, social class and level of education were included whereas in Model 2 a priori assessment of Euroqol 5D (an HRQOL instrument) were added to the social determinants.

**RESULTS**
Advanced age, male gender, advanced cancer stage, existence of comorbidity, and all dimensions of Eq 5D except for “mood” dimension were found statistically sensitive of survival. In model 1, male gender, lower social class and the advanced cancer stage remained significant to survival. In the additive model (model 2) HRs were obtained as: 2.91 (1.60-5.30 CI95% ) for male gender; 2.25 (1.71-2.96 CI95% ) for cancer stage; 2.60 (1.48-4.61 CI95% ) for social class; 3.56 (2.07-6.15 CI95% ) for the Mobility dimension of the baseline Eq5D and 1.60 (1.06-2.41 CI95% ) for the Usual Activities Mobility dimension of the baseline Eq5D assessment.

**CONCLUSIONS**
Being poor is a strong predictive variable in the treatment of lung cancer in Turkey. Health inequalities play significant roles in survival, even for the lung cancer having such a very limited median survival (8 months). Those who are in the lower social classes should have been treated as a priority in lung cancer early diagnosis and treatment.

Evaluation of five England-Wide Be Clear on Cancer campaigns

**Mr. Gurnam JOHAL**
**Mrs. Katie Haddock**, **Mrs. Lucy Elliss-Brookes**, **Mr. Vivian Mak**


**BACKGROUND**
Be Clear on Cancer campaigns have been used in England since 2011. They aim to improve early diagnosis of cancer by raising public awareness of signs and symptoms of cancer, and encouraging people to see their GP without delay. Public Health England has responsibility for evaluation of all campaigns implemented from April 2013 onwards.

Each campaign is tested locally and regionally, then rolled out nationally if proven to be effective. Evaluation results will be presented for five England-wide campaigns: Urological, Bowel, Breast, Lung, and Oesophago-gastric cancers.

**METHODS**
Evaluation measures were agreed before each campaign. Key metrics included: public awareness of key campaign messages, GP attendances, GP referrals, diagnostic tests and cancer diagnoses. Each campaign ran over set time periods (typically 6-12 weeks), between 2012 and 2015.

**RESULTS**
All campaigns raised public awareness of signs and symptoms of cancer, and encouraged people to see their GP as early as possible. There were significant increases in the number of GP referrals. Measurements across each metric in the patient pathway were used to produce a full evaluation of the campaigns, including examination of the impact by age, sex and socio-economic status.

**DISCUSSION**
Robust evaluation has established the impact of the campaigns, and contributed significantly to the evidence base for early diagnosis. Be Clear on Cancer is a well-recognised health promotion activity that has been shown to have a positive impact in reducing inequities and demonstrating benefit in its campaigns.
The changing profile of cancer in the Eastern Mediterranean region: the need for action

Dr Ivana KULHÁNOVÁ1, Dr Freddie Bray2, Dr Ibithal Fadhihi2, Dr Ali Saeed Al-Zahrani3, Dr Amani El-Basmy4, Dr Wagida Anwar5, Dr Amal Al-Omar6, Dr Ali Shamseddine7, Dr Ariana Znaor3, Dr Isabelle Soerjomataram1

1International Agency for Research on Cancer, Lyon, France, 2WHO, Regional Office of the Eastern Mediterranean, Cairo, Egypt, 3King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia, 4Kuwait Cancer Control Center, Kuwait City, Kuwait, 5Ain Shams University, Cairo, Egypt, 6King Hussein Cancer Center, Amman, Jordan, 7American University of Beirut Medical Center, Beirut, Lebanon

BACKGROUND

Many countries in the Eastern Mediterranean region (EMR) are undergoing marked demographic and socioeconomic transitions that are increasing the annual cancer burden in each of the 22 countries. We sought to examine and illustrate similarities and differences in the national cancer incidence and mortality profiles as a support to regional cancer control planning in the EMR.

METHODS

The incidence and mortality estimates by country, cancer type, sex, and age for 22 EMR countries were obtained from GLOBOCAN 2012. Numbers, rates (age-standardised per 100,000) alongside overall rankings of their magnitude are presented.

RESULTS

The cancer incidence and mortality vary considerably between countries in the EMR. Incidence rates were highest in Lebanon (rates of 204 and 193 per 100,000 in males and females, respectively). Mortality from cancer was highest in Lebanon (119) and Egypt (121) among males and in Somalia (117) among females. The profile of common cancers differs substantially by sex. For females, breast cancer is the most common cancer in all 22 countries, followed by cervical cancer, which ranks high only in the lower-income countries in the region. For males, lung, prostate, and colorectal cancer in combination represent almost 30% of the cancer burden in countries that have attained very high levels of human development.

CONCLUSION AND DISCUSSION

The most common cancers in the EMR—lung, and other smoking-related cancers, colorectal and female breast cancers are largely amenable to preventive strategies by primary and/or secondary prevention. There is therefore an urgent need for the implementation of effective interventions tackling smoking behaviour, encouraging physical activity and a healthier diet. The high mortality observed from breast and cervical cancer highlights the need to break the stigmas surrounding these cancers and improve awareness that will increase female participation in screening programmes in the region.

Departure of oropharyngeal cancer from smoking related cancer incidence trends: age-period-cohort analysis for 1993-2012

Dr Barchuk BARCHUK1, Alexander Bespalov2, Prof. Alexander Scherbakov2, Prof. Alexey Belayev3, Nikita Levchenko1

1Petrov Research Institute Of Oncology, Saint-Petersburg, Russia, 2School of Health Sciences, University of Tampere, Tampere, Finland, 3Saint-Petersburg Electrotechnical University, Saint-Petersburg, Russia

BACKGROUND

The lip and oropharyngeal cancer (more than 2 500 annually, ASR 12-15 per 100 000) is reported to be associated with both “traditional” lifestyle (smoking, alcohol) and “novel” infectious (HPV, EBV) risk factors. The aim of the study was to compare lip, oral, pharyngeal, lung and cervical cancer cohort effects in order to trace possible transition in the risk factor pattern.

METHODS

Number of registered cancer cases and deaths from 1993 to 2012 was taken from report of Russian Cancer Registry (Kaprin et al, 2015, nationwide data). Cohort effects were quantified using age-period-cohort model (B.Carstensten, 2007). Cohort effects were further analyzed for breakpoints and annual percentage change (APC) between them (Muggeo, 2003).

RESULTS

Analysis shows decline in the cohort effect for lip cancer incidence, but not oral and pharyngeal cancer with similar results for both men and women. The annual APC is -2.7% (95 CI: -2.79- -2.62) for lip cancer incidence in men. APC for oral cancer in men is -1.27% (95 CI: -1.54 - -0.98) between 1953 and 1963 cohorts but increases with APC 1.17% (95 CI: 1.14-1.19) after 1963 cohort. As lip cancer incidence cohort effects show similar pattern with lung and gastric cancer (linear decrease), oral and (and similarly pharyngeal cancer) incidence cohort effects show same pattern with cervical cancer incidence and mortality in women – decline with APC -1.89% (95%CI: -2 - -1.79) before 1938 cohort, and stable increase with APC 1.34% (95%CI: 1.33-1.35) after 1956 cohort.

CONCLUSIONS AND LIMITATIONS

The increasing risk of oropharyngeal cancer may possibly indicate the rising role of infectious risk factors (HPV and EBV). The individual level studies are needed to assess the causal relationship. The control policies for HPV infection should take into account possible relationship with oropharyngeal cancer burden.
Optimal location of smoking cessation services for patients with tobacco-induces cancers in Crete, Greece

Mrs Dimitra SIFAKI-PISTOLLA1, Mrs Vasiliki-Eirini Chatzea1, Dr Fillipos Koinis1, Prof. Nikos Tzanakis2, Prof. Vassilis Georgoulias1, Prof. Christos Lionis1

1Cancer Registry of Crete, Heraklion, Greece

BACKGROUND
Smoking is associated with several chronic diseases and low survival rates. High smoking rates in Greece indicate the urgency of smoking cessation programs. Previous reports of CRC confirmed an increase of smoking-related malignant neoplasms. Aim of this study was to develop a robust model for identifying the optimum locations of establishing smoking cessation services for patients with tobacco-induced cancers in Crete.

METHODS
Data for tobacco induced cancers (lung, oral cavity and pharynx, nasal cavity and paranasal sinus, larynx, esophagus, stomach, pancreas, kidney, liver, bladder, uterus, cervix, colon/rectum, ovary and leukemia) were obtained from CRC (1992-2013). Age-adjusted Incidence Rates (AAIR) and Smoking Attributable Fraction (SAF) were estimated for each municipality. Smoking rates were estimated by age group and selected socio-economic and clinical variables. Rates were mapped and analyzed in ArcGIS 10.3.1. Getis ord statistic, K-Means (a=0.05) and multi-criteria model builder were performed.

RESULTS
The AAIR for tobacco-related cancers was 160 new cases/ 100,000/year (AAIRmales=222.1/100,000/year; AAIRfemales=98.7/100,000/year). The overall SAF was 20.4 in 1992 and presented significant increase (Pvalue=0.02) reaching the 30.5 in 2013. Larynx (SAF=71.4%), esophagus (SAF=42.4%), lung (SAF=41.9%), oral cavity (SAF=38.7%) and bladder (SAF=36.5%) presented the highest SAFs in all municipalities of Crete. Significant variations were observed in the geographical distribution of all rates (Pvalue=0.05). Higher smoking rates among the cancer patients were observed in the two urban centers, as well as in several rural municipalities with lower income rates (mean income/year<9,000euro). Ten different locations were identified as optimal areas for smoking cessation services; providing also alternative locations.

CONCLUSIONS
The proposed model identified the optimum locations for establishing smoking cessation services for patients with tobacco-related cancers in Crete aiming to minimize the burden of tobacco-induced cancers.

CanReg5 – Masterclass

Mr Morten ERVIK1, Mr Les Mery1, Dr Freddie Bray1

1International Agency for Research on Cancer (IARC), Lyon, France

BACKGROUND
CanReg5 is an open source tool developed and maintained by the International Agency for Research on Cancer (IARC) that registries in low and mid-income countries (LMIC) can adopt as their operation system. It is free, handles multiples sources of data entry, has built-in quality control features including consistency checks and duplicates handling, and allows a basic analysis of the data. Given the often limited availability of and access to IT-trained staff in LMIC, CanReg5 requires the development of a network of users / experts worldwide who can serve as local trainers (within the Regional Hubs and in registries), handle queries and make requested visits to a given registry to provide tailored installations and provide training to countries and regions.

METHODS
A training course to develop set of advanced CanReg5 trainers targeted across the six Hub regions was delivered as part of this programme of GICR work in 2016. 14 participants were invited to Lyon, France for a full week.

RESULTS
Following the course, participants are in a position to serve as experts within their region in all CanReg5-related matters, providing onsite support and training to affiliated staff in the registries.

CONCLUSION
The participants of this CanReg5 Masterclass will serve as a cohort of experts that will be involved in future work on the software, ranging from beta testing releases prior to dissemination, to development of features. They will also serve as first line of support to end users in their respective regions as well as serving as faculty in regional courses.
Building a simulation model for breast cancer incidence based on genetic and lifestyle-related risk factors

Dr Megumi HORI1, Dr Hidemi Ito2, Dr Keitaro Matsuo3, Dr Kota Katanoda1

1Center for Cancer Control and Information Services, National Cancer Center, Chuo-ku, Japan, 2Division of Epidemiology & Prevention, Aichi Cancer Center Research Institute, Nagoya, Japan, 3Division of Molecular and Clinical Epidemiology, Aichi Cancer Center Research Institute, Nagoya, Japan

BACKGROUND

Knowing individual disease risk would be a motive for improving lifestyle, and life-style changes could lead to prevention or early detection of the disease. The aim of this study was to build a simulation model for breast cancer incidence, based on personal genetic and lifestyle-related behaviors.

METHODS

Our simulation model used a Markov process to calculate breast cancer incidence and distribution of extent of disease at diagnosis. A Markov process is a modeling technique used for conditions in which the occurrence of a status is determined by a series of stochastic events. Our model had six health statuses; “healthy”, diagnosed with “localized”, “regional”, or “distant” breast cancer, “death from breast cancer”, and “death from other causes”. An individual began in the “healthy” status, and was tracked through the defined health statuses at annual intervals. We used following risk factors for breast cancer: age, genetic risk factors, parity, body mass index, physical exercise, and screening behavior. Transition probabilities between statuses were determined using incidence rate based on population cancer registry and relative risks obtained from previous studies. The prevalence of each risk factor was obtained from nationally representative survey data or large-scale cohort study data.

RESULTS AND DISCUSSION

Our model calculated that breast cancer incidence risk within 10 years was 2.60% among 40-year-old, 3.32% among 50-year-old, and 3.33% among 60-year-old females. The proportion of localized, regional and distant cancer at diagnosis was 55.0%, 40.4%, 4.6% for 40-year-old, 60.2%, 33.7%, 6.0% for 50-year-old, 58.6%, 36.9%, 4.5% for 60-year-old females. This simulation model can be used for the evaluation of the impact of change in lifestyles or screening behavior on the incidence of breast cancer on a population level, after validating its predictive accuracy.

Patterns of care and cost profiles of cancer patients in Italy: the EPICOST study

Dr Anna GIGLI1, Dr Silvia Silvia2, Dr Stefano Guzzinati3, Dr Susanna Busco4, Ms Giulia Capodaglio1, Dr Daniela Pierannunzio Daniela Pierannunzio1, Dr Andrea Tavilla Andrea Tavilla2, Dr Sandra Mallone2, Ms Tania Lopez Tania Lopez2

1National Research Council, Roma, Italy, 2National Health Institute, Roma, Italy, 3Veneto Cancer Registry, Padova, Italy, 4Latina Cancer registry, Latina, Italy

BACKGROUND

In most countries cancer accounts for a major proportion of national health expenditures, due to population changes in risk factor prevalence, prevention efforts and population aging. Measuring the burden of disease is of great interest to public health researchers and policy makers.

METHODS

We reconstruct the cancer pathway and the cost-related dynamic according to 3 phases of care: initial, continuing and final. Profiles of cancer-related costs are built using administrative data (hospital admissions, outpatients and pharmaceutical data) linked with cancer registry data. Cancer sites under study are colon, rectum and breast; 8 Italian registries participate in the study.

RESULTS

Preliminary results for colo-rectal cancer show cost profiles with higher costs during the first months of the initial phase, then reaching a plateau during the continuing phase and increasing again during the final phase of life. There is a trend in costs by stage at diagnosis in the initial phase: more advanced stages correspond to higher average costs. Age is also related to costs: younger patients have higher costs in all phases of the disease.

CONCLUSION AND DISCUSSION

The phase-of-care approach allows the estimation of patterns of care and costs at a given date, taking into account the survivors’ distribution and their care needs during lifespan. The results confirm the importance of primary prevention and early detection of cancer in a public health perspective, not only in the improvement of patient survival and but also in the economic sustainability of health care. The methodology can be used to compare patterns of care in different countries.

The study is partially supported by the Italian Ministry of Health (CCM 2014)
Algerian cancer registries national network: First evaluation

Doudja HAMMOUDA, Mokhtar Hamdi-Chérif, Zoubir Fouatih

A national cancer registries network was set up in Algeria in 2015 in the context of the first cancer plan (2015–2019). The goal is to reach a coverage rate of 50% of the population on January 1, 2015.

The collection of new cases began in January 2014. The intermediate target was to set up a registry in each wilaya (region) in addition to the 15 existing registries. The registries are organized into three networks: east, centre and west networks coordinated by Sétif, Algiers and Oran cancer registries. The networks are grouped together for national coordination.

First results:

• 10 out of 13 registries (76.9%) from the centre network, 15 out of 20 registries (75%) from the east, and 08 out of 15 (53.3%) from west network, reported the results of their first year of activity;

• The results of 19 registries were validated: 10 registries in the east, 8 from the centre and 3 at the west of Algeria. We have to consolidate achieved results of 13 other registries (03 in the centre, 05 in the east and 05 at the west). 15 wilayas still have no results nor no cancer registries: 03 in the centre, 05 in the east and 07 in the west;

• The validated cancer registries network covers 50.8% of the population;

• Using data from 9 wilayas* housing cancer facilities, standardised rates are 101.4 per 100,000 men and 103.6 per 100,000 women.

The analysis is ongoing. More data will be presented at the meeting of 19 October.

Conclusion. The implementation of new cancer registries and their networking will allow better coverage of the population and an improvement of data. However, we see fluctuations, sometimes significant, between cancer registries data. Our priority is now to consolidate the registries. A meeting of the national network of cancer registries, scheduled on 24 October, will allow us to discuss this issue.

* The 9 wilayas are: Alger, Bliida, Médéa, Sétif, Batna, Constantine, Oran, Mostaganem and Tlemcen.

Decline in leading causes of cancer mortality in Russia in men: Age-period-cohort analysis for 1993-2012

Mr Alexander BESPALOV1, Mr Anton Barchuk2,3, Mr Yury Komarov2, Mr Alexander Sherbakov2, Dr Alexey Belyaev2

1Saint-Petersburg Electrotechnical University, Saint-Petersburg, Russia, 2Petrov Research Institute of Oncology, Saint-Petersburg, Russia, 3School of Health Sciences, University of Tampere, Tampere, Finland

BACKGROUND

Lung and gastric cancer are two major causes of cancer deaths in men in Russia and drive overall cancer mortality (more than 65 000 cases annually, ASR 60-90 per 100 000). Most of the registered cases are attributed to smoking and alcohol consumption. Recent cross-sectional studies report 50% smoking prevalence without major changes over 20 years.

METHODS

The aim was to analyze trends in incidence and mortality of both malignancies. Number of registered cancer cases and deaths from 1993 to 2012 was taken from report of Russian Cancer Registry (Kaprin et al, 2015, nation-wide data). Lung and gastric cancer mortality and incidence cohort effects were quantified using age-period-cohort model (Carstensten, 2007). Cohort effects were further analyzed for breakpoints and annual percentage changes (APC) between them (Muggeo, 2003). Possible smoking rates in the presence of given lung cancer incidence and mortality were qualitatively assessed in comparison with Finnish data (Nordcan, THL).

RESULT

Age-period-cohort analysis shows decline in the cohort effects of lung cancer diagnosis with risk decreasing after cohort born in 1924 with APC of -0.9% (95%CI: -0.92 - -0.88) and -2.02% (95%CI: -2.03 - -2.01) after 1956 cohort with similar estimates for mortality data. Similar results are shown for gastric cancer with APC -1.42% (95%CI: -1.49 - -1.34) for incidence and -1.62% (95%CI: -1.70 - -1.53) for mortality. Comparison with Finland suggests 20 years lag. Similar lung cancer mortality rates drop in Finland was accompanied by the drop in smoking prevalence from 50% to 30%.

CONCLUSIONS AND LIMITATION

Decline in the risk of lung and gastric cancer could be caused by similar changes in smoking and alcohol consumption, as well as changes in H.pylori infection for gastric cancer. Further research is needed to estimate the true smoking and alcohol rates with more critical appraisal of study methodologies of the ongoing cross-sectional studies.
The Zambia National Cancer Registry: 2 years of data from Lusaka

Severin Zulu, Rachel Chirwa, Richard Zimba, Richard Nsakanya

The cancer registry of Zambia is one of the longest established in Africa, being founded in 1981. For the first 30 years, it relied upon voluntary notification of cases of cancer treated in all the hospitals in Zambia, using a special notification form. The extent to which cancer patients were notified by different hospitals varied enormously, and registration was very incomplete.

In 2014, active case finding for the city of Lusaka was added to the registry protocol, so that it became a true population-based registry for the urban population of about 2 million. Data collection takes place in some 56 hospitals and clinics (although about 90% of notifications are from the huge University Teaching Hospital, and associated specialist Cancer Diseases Hospital), 3 pathology laboratories (2 private), and via death certificates from the Department of National Registration.

Data collection for Lusaka was started retroactively (for 2011 onwards). Here we present results for 2012-2013: The highest number of cases registered in men was Kaposi sarcoma (29%) followed by prostate (24%) and eye (8.7%). Cancers of the cervix and breast comprised 56% of all malignancies in women.

The overall incidence rates are rather lower than the national estimates in Globocan 2012. This is partly due to very low rates for some sites – for example, in these early years, almost no cases of leukaemia were registered. Nevertheless the incidence of prostate cancer in men, and cervix cancers in women are very high. In children, these are kaposi sarcoma, malignant lymphoma and Bone. Most cases registered were in the age groups 0-4. The percentage of cases with morphological basis of diagnosis (histology/cytology) is 87% in men and 93% in women.
European Cancer Registries' Data Quality Assessment within the ENCR-JRC Project

Dr Francesco GIUSTI1, Dr Carmen Martos1, Dr Giorgia Randi1, Dr Emanuele Crocetti1, Dr Tadek Dyba1, Dr Lydia Voti1, Dr Roisin Rooney1, Dr Raquel N. Carvalho1, Dr Nicholas Nicholson1, Dr Manola Bettio1

1European Commission, DG Joint Research Centre (JRC), Ispra, Italy

BACKGROUND
In 2015 the project “Incidence and Mortality in Europe” was launched as a collaboration between the European Network of Cancer Registries (ENCR) and the European Commission's Joint Research Centre (JRC) with the purpose to collect data from European population-based Cancer Registries (CRs). The goal of this study is a preliminary quality assessment of the data collected so far.

METHODS
Out of 98 participating CRs, data from 73 CRs based in 20 European countries, 4 of Northern Europe (NE), 6 of Western Europe (WE), 4 of Eastern Europe (EE), 6 of Southern Europe (SE) was included. Percentage of cases with morphological verification (MV), percentage of death certificate only (DCO), mortality-to-incidence ratio (MI) and median time to case registration (MTCR) were used as indicators for data quality assessment.

RESULTS
Overall, 16,881,458 cancer cases were analysed; 19% from NE, 46% from WE, 17% from EE, 19% from SE. DCO proportion varied from 6% (NE) to 16% (EE) for liver, from 3% (SE) to 8% (WE) for lung, from 2% (NE) to 4% (WE) for colorectal cancer.

Cases with MV ranged from 64% (NE) to 45% (SE) for liver, from 84% (WE) to 72% (NE) for lung, from 94% (SE) to 84% (EE) for colorectal cancer.

MI ratio varied from 0.85 (NE) to 1.34 (EE) for liver, 0.85 (SE) to 1.01 (EE) for lung, and from 0.38 (WE) to 0.64 (EE) for colorectal cancer. MTCR ranged from 1 year (WE) to 4 years (SE).

CONCLUSION
We observed good data quality in CRs, although with a certain variability across European regions. Participation to the ENCR-JRC Project allows extensive comparisons on data quality at the European level. The use of a data check tool common to all CRs and the participation to collaborative studies will improve CRs data quality, resulting in improved validity and comparability.

Perioperative chemotherapy for gastric cancer in daily clinical practice: A nationwide population-based study

Dr. Rob VERHOEVEN1, Mw Margreet van Putten1, Prof. dr. Valery Lemmens2, Prof. dr. Hanneke van Laarhoven2, Dr. Grad Nieuwenhuijzen3

1Department of Research, Netherlands Comprehensive Cancer Organisation, Utrecht, The Netherlands, 2Department of Surgery, Catharina Hospital, Eindhoven, The Netherlands, 3Department of Medical Oncology, Academic Medical Center, Amsterdam, The Netherlands

BACKGROUND
Based on the results of the MAGIC trial it is recommended to treat patients with perioperative chemotherapy if they are eligible for a gastrectomy. However, little is known about the administration of perioperative chemotherapy in the daily clinical practice. The aim of this study was to examine the utilization of this treatment and its impact on survival in the Netherlands.

METHODS
All 3,486 patients diagnosed with potentially curable gastric cancer (cT1 cN+ cM0/cT2-4a, cN0-3,cM0) who underwent a gastrectomy between 2006 and 2014 were selected from the Netherlands Cancer Registry. Trends in treatment were examined, including administration of perioperative chemotherapy, neoadjuvant chemotherapy and treatment with surgery only. Multivariable logistic regression analyses were used to investigate the likelihood to undergo these treatments. Cox regression analyses were used to compare overall survival according to treatment of patients who survived at least three months after surgery.

RESULTS
The percentage of patients treated with perioperative chemotherapy increased from 4% in 2006 to 40% in 2014. Among patients who underwent neoadjuvant chemotherapy, 63% underwent adjuvant treatment in 2014. Females, older patients and patients having surgery in a hospital which performed less than 20 gastrectomies per year had a lower likelihood to undergo adjuvant treatment after neo-adjuvant chemotherapy and surgery. Patients who received perioperative chemotherapy had the most favourable survival (HR=0.73 95%CI 0.64-0.84) and patients who received neoadjuvant chemotherapy followed by surgery had a similar survival compared to patients who underwent surgery only (HR=0.89 95%CI 0.77-1.04).

CONCLUSION
A significant proportion of the patients (60) who underwent a gastrectomy in 2014 were not treated with perioperative chemotherapy. The prognosis of patients treated with perioperative chemotherapy seems to be most favourable, although this may be due to selection bias.
Monitoring care for female breast cancer patients in N. Ireland (NI) diagnosed 2012

Dr Anna GAVIN, Dr Victoria Cairnduff, Dr Deirdre Fitzpatrick
1N. Ireland Cancer Registry, Queen’s University Belfast, Belfast, N. Ireland

BACKGROUND
Over recent years there have been considerable changes in services provided to cancer patients in NI, with several guidelines produced to specifically improve enhance services and outcomes for breast cancer patients. This audit aimed to document presentation, treatment and outcomes for female breast cancer patients diagnosed in 2012 and compare with data collected in 1996, 2001 and 2006.

MATERIALS AND METHODS
Data on all breast cancers (n=1279) diagnosed in 2012 were available from the NICR database. Additional clinical information was extracted for patients diagnosed between September and December 2012 (n=411). Chi-Square analysis tested statistically significant differences between audit years and Kaplan-Meier was used to estimate observed survival.

RESULTS
Over half (56%) of patients diagnosed in 2012 came from GP referrals and almost a third (30%) through the breast screening programme. Three quarters (76%) of women were diagnosed at early Stage I or Stage II disease. Seven out of 10 women had a sentinel node biopsy in 2012, an increase from 21% in 2006. As a result the more invasive axillary node clearance fell from 82% in 1996 to 45% in 2012. Use of endocrine treatments increased to 84% in 2012 from 78% in 2006. 90% of women had surgery (49% mastectomy and 51% breast conserving surgery). Regional inequality in breast reconstruction was identified. Two year observed survival improved significantly since 1996 from 84% to 89%. Survival improvements were most marked for older ladies (65+) and late Stage IV disease.

CONCLUSIONS
Although the number of women diagnosed with breast cancer continues to increase (+1.3%/year), the findings demonstrate improvements in treatment and patient outcomes over time.

ACKNOWLEDGMENTS
The N.Ireland Cancer Registry is funded by the Public Health Agency N.Ireland and this audit was facilitated by Guidelines and Audit Implementation Network (GAIN) a unit within Regulation & Quality Improvement Authority (RQIA).

Linkage to supplementary registration sources: Key lessons learned in the last 30 years in Slovenia

Prof Vesna ZADNIK, Prof Maja Primic-Zakelj, Dr. Tina Zagar
1Cancer Registry of Slovenia, Institute of Oncology Ljubljana, Slovenia

BACKGROUND
Population-based Cancer Registry of Slovenia (CRS) was founded in 1950 and is one of the only 18 cancer registries that were invited to contribute data to all volumes of the Cancer Incidence in Five Continents. Good data quality in CRS is mainly attributable to compulsory notification. The main sources of data are paper notifications gathered from all hospitals and diagnostic centres in Slovenia. From 1985 on the CRS is linked with several governmental and health databases. In this summary we aim to describe the main features of supplementary data sources used in CRS and to estimate the improvements that these sources have brought to the completeness and the quality of our data.

METHODS AND RESULTS
Synchronization of data between different sources is based on comparing unique personal identification number (PIN) which is owned by every resident in Slovenia and recorded in every state registry including CRS. PIN guaranties data integrity, data quality and prevents data duplication. CRS links with the Central Register of Population instantaneously through secure on-line connection (24/7 availability) and daily updates information on vital status and address. This enables better follow up and more precise statistical calculations such as survival. The electronic linkage to the national Mortality Database and to the breast, colorectal and cervical screening registries is performed several times per year. Special requests for notifications are sent out for all linkage-initiated cases; in addition the CRS database is completed with new information (mainly on diagnosis and treatment). Withdrawing these supplementary data sources would underestimate the overall cancer incidence for around 10% in Slovenia.

CONCLUSION
Our long-standing registration practice indicates that that linkage to supplementary data sources in Slovenian Cancer Registry is indispensable in obtaining additional information on registered cases and in finding cases that might otherwise slip through registration process.
World-wide trends in stage at diagnosis and stage-specific breast cancer net survival

Miss Veronica DI CARLO
Professor Coleman M. P., Dr Audrey Bonaventure, Dr Claudia Allemani, on behalf of the CONCORD Working Group

BACKGROUND
We have reported 5-year net survival for about 5 million women diagnosed with breast cancer between 1995 and 2009 in 62 countries (CONCORD-2). Between 1995-99 and 2005-09, 5-year net survival increased world-wide, particularly in Brazil (from 78% to 87%), Ecuador (from 69% to 83%) and China (from 54% to 81%).

METHODS
We have now examined the distribution of stage at diagnosis and analysed trends in 5-year net survival by stage, between 2001-2003 and 2004-2009. Cancer registries were offered several options to submit data on stage at diagnosis: TNM, condensed TNM and SEER Summary Stage 2000. We designed an algorithm to summarise all the available data on stage in order to examine the world-wide distribution of stage at diagnosis. We dichotomised stage as “localised” vs. “advanced” for these analyses. Net survival by stage was estimated for more than 2 million women, corrected for background mortality by single year of age and calendar year in each country. All-ages survival estimates were standardised with the International Cancer Survival Standard weights.

RESULTS
We will present the stage distribution and stage-specific net survival trends for 39 countries for which adequate data were available. The percentage of tumours diagnosed at an advanced stage fell between 2001-2003 and 2004-2009. The proportion of unknown stage also fell, suggesting improved diagnosis. 5-year net survival for localised breast cancer is above 96% in most countries, and has changed little. For advanced breast cancer, survival has increased, but the range among the population is very wide, and has narrowed only slightly, from 28%-78% in 2001-2003 to 37%-83% in 2004-2009.

DISCUSSION
These results offer the widest picture on the availability of data on stage at diagnosis for breast cancer and stage-specific survival worldwide. Information on stage at diagnosis is crucial for the interpretation of international survival comparisons.

Geographical differences in population attributable fractions of tobacco and obesity on cancer burden in Turkey

Dr. Deniz YUCE1
Prof. Dr. K. Mutlu Hayran1, Assoc. Prof. Dr. Sultan Eser2, Prof. Dr. Sarp Uner2

BACKGROUND
A combination of genetic, lifestyle-related and environmental factors triggers the mechanisms for carcinogenesis. Preventive measures for efficient cancer control interventions should include the evaluation of preventable causes of cancer. This study evaluated the contribution of tobacco and obesity on cancer burden in Turkey.

METHODS
Population-attributable fractions were calculated according to Peto-Lopez, and Comparative Risk Assessment Collaborative Group Methods. Geographical distributions of PAFs were analyzed with ArcMap 10.4 geographical information system software. Tobacco- and obesity-related cancers were determined according to IARC, and WCRF reports, respectively. Sex-specific relative risks were obtained from CPS-II, and standardized meta-analysis estimates and the Continuous Update Project. Prevalence for smoking and obesity were obtained from National Burden of Diseases and Cost-Effectiveness-Turkey 2003 Study. Ten years of lag time was considered for the progression of diseases, and cancer incidence rates were obtained from MoH’s 2013 national cancer statistics.

RESULTS
PAFs for tobacco and obesity were 60.4% (59.6-62.7%); and 11% (9.8-13.7%), respectively. Site-specific PAFs ranged between 29.8-91.7% and 2.2-67.9% for tobacco; and between 5.7-13.1% and 3.0-25.9% for obesity in males and females, respectively. Highest PAFs for tobacco were in lung and larynx cancers for both sexes and highest PAFs for obesity were in kidney cancer for males, and endometrium cancers for females, respectively. GIS analyses revealed that PAFs showed geographical distribution variations. Western and southern parts of Turkey were found to have greater numbers of preventable cancers.

CONCLUSIONS
Determining possible interactions between geographical factors, distribution of risk factors, and prevalent cancers should guide preventive tasks against this important public health problem. According to our results western and southern parts of Turkey have the largest preventable numbers of tobacco and obesity related cancers. This geographical distribution variance suggests that preventive medicine for tobacco and obesity control should be delivered more intensively in these regions.
Relative survival trends for colon, breast and cervical cancer in Argentina’s Central Region 2004-2012

**Tec. Beatriz Carballo Quintero**, Dr. Patricia Giacciani, PhD. Dora Loria, Dr. Rosalba Fita, Lic. Abigail Green, Dr. Miguel Prince, MhD. Maria Graciela Abriata

1Registro Provincial De Tumores De Córdoba, Argentina, 2Registro Argentino de Melanoma Cutáneo, CABA, Argentina, 3Registro Poblacional Provincial De Tumores de la Provincia de Entre Ríos, Argentina, 4Registro Provincial de Tumores de Santa Fe, Argentina, 5Instituto Nacional del Cáncer, CABA, Argentina

**BACKGROUND**

Based on CONCORD2 study, survival from colon (CC), breast (BC) and cervix cancer (CUC) in Argentina has been reported among the lowest in Latin America. In Argentina, estimated incidence and mortality rates for 2012 were 23.8 and 13.0 CC (both sexes), 71.2 and 19.9 for BC and 20.8 and 8.3 per 100,000 for CUC respectively. The aim of this study was to examine most recent trends in survival in Argentina’s Central Region by age and sex.

**MATERIAL AND METHODS**

Data from Entre Rios, Santa Fe and Cordoba Population Based Cancer Registries (PBCR) were used to estimate cumulative relative survival (CRS) for CC (n=5443), BC (n=11343) and CUC (n=2164) diagnosed during 2004-2012 and followed through 2015. Cohort approach was used to obtain 2004-2009 estimates and hybrid approach was used for 2010-2012 estimates in Stata 13.1. Data quality controls were made using R-3.2.

**RESULTS**

In Argentina, mortality for BC and CUC has been declined but mortality for CC has showed a different pattern. Overall age-standardized 3-year CRS increased from 2004-2006 to 2010-2012 (CC: from 54.8 to 64.7%; BC: from 82.3 to 91.7%; CUC: from 68.1 to 73.5%). Younger patients with CUC or CC have higher CRS than patients over 64 years (p<0.0001). No differences in CRS between ages were observed in BC (p=0.3).

**CONCLUSIONS**

Considerable improvement in survival for these 3 sites was observed over the period 2004-2012 However, the survival gap with other countries in the region persists. Further increase in survival and a decline in mortality in Argentina could be achieved by facilitating early diagnosis in all age groups, but particularly among patients over 64.

This is the first joint analytic initiative achieved between PBCR and the National Cancer Institute, although there is a commitment to improve data quality because of a high proportion of DCO is still observed.

Estimation of incidence rates and its trends of stomach cancer in Indian Population

Mr Vaitheeswaran Kulothungan, Dr Debjit Chakraborty, Dr Sathya Prakash Manimunda, Mrs Priyanka Das, Mr Sathishkumar Krishnan, Mr Stephen Santhapapan, Ms R Janani Surya, Mr Anish John, Mr Sureshkumar Natesan, Mr Thillaiogovindarajan Chitrambalam, Mr Vinodh Nallasamy, Dr Ambakumar Nandakumar, Dr Prashant Mathur

1National Centre for Disease Informatics and Research (NCDIR), National Cancer Registry Programme (NCRP), Bengaluru, India

**BACKGROUND**

Stomach cancer is a major public health problem worldwide as well as in India. Stomach is among the top five leading sites of cancers in North East and South East regions of India. This study aims to observe the geographical variation and time trends of incidence of stomach cancer in India.

**METHODS**

The data on stomach cancer from 27 Population Based Cancer Registries (PBCR) under National Cancer Registry Programme were analyzed to generate the Age Adjusted Incidence Rates (AAR per 1, 00,000 population) for 2012-2014. The data from 4 PBCRs (34,007 cases) namely, Bangalore (1982-2012), Chennai (1982-2013), Mumbai (1982-2012) and Delhi (1982-2012) were considered for analysis of trends of AAR by linear regression using in-house developed PBCRDM 2.1 software. Further the Joinpoint Regression Analysis programme version 4.0.4, was used to calculate trends and Annual Percentage Change (APC).

**RESULT**

In males, twelve north east registry areas occupied the top position by AARs. The PBCR at Papumpare District of Arunachal Pradesh (50.2), Aizawl District (43.9) of Mizoram and Mizoram State (41.1) as a whole were in the leads among all the PBCRs. Chennai had the highest AAR (10.8) in south east regions of India and similar results were observed in females. Chennai (APC:-1.01), Mumbai (APC:-1.99) and Bangalore (APC: -0.74) showed a significant decline in AARs over time in males whereas in females a significant trend was observed in Chennai (APC:-0.68), Mumbai (APC:-2.02) and Dehli (APC:-2.03) PBCRs.

**CONCLUSION**

The geographical variation is observed across different regions in India and we also observed higher incidence rates in north east regions compared to other parts of the country.

**KEYWORDS**

Stomach, PBCR, Incidence, Rates and Geographical
Primary brain and central nervous system tumours diagnosed in Girona (Spain) in 1994-2013

Dr Rafael Marcos-Gragera1, Dr M Loreto Vilardell2, Dr Rafel Fuentes-Raspall3, Dr M Carmen Carmona-Garcia1, Dr Sonia del Barco1, Ms Marta Solans1, Ms Montse Puigdemont4

1Epidemiology Unit and Girona Cancer Registry, Oncology Coordination Plan. Department of Health. Autonomous Government of Catalonia. Catalan Institute of Oncology (ICO), Girona, Spain, 2Radiation Oncology Service, Catalan Institute of Oncology, Girona, Spain, 3Medical Oncology Service, Catalan Institute of Oncology, Girona, Spain, 4Catalan Institute of Oncology (ICO), Hospital Cancer Registry, Hospital Universitari Dr Josep Trueta, Girona, Spain, Girona, Spain

BACKGROUND AND INTRODUCTION

According to ENCR international guidelines, the registration of all intracranial and intraspinal cases is recommended irrespective of their behaviour (benign, uncertain and malignant). However, information on benign tumours is collected by relatively few European Cancer Registries and the proportion of such cases varies widely between them. The aim of the present study was to estimate the population-based incidence and survival of primary malignant and non-malignant brain and central nervous system (CNS) tumours by histology, sex and age at diagnosis.

MATERIALS AND METHODS

We included cases of primary malignant and non-malignant brain and CNS tumours. All pathological reports were revised in order to classify them according to the 2007 World Health Organization (WHO) Classification. Incidence was calculated as crude rate (CR) and European age-standardized rate (ASRe). The follow-up was available until 31st December 2014. Death certificate only (DCO) cases were excluded for the survival analysis. We will estimate five-year net survival with the Pohar-Perme estimator.

RESULTS

From 1994 to 2013, 1,964 patients diagnosed with CNS tumours were registered in the area covered by the Girona cancer registry (north-east Spain). The ASRe (malignant and non-malignant) was 14.3 in males and 16.1 in females. The distribution of malignant and non-malignant was 55% and 45% respectively. The most frequently reported histology overall was meningioma (30%, ASRe=4.3), followed by glioblastoma (23%; ASRe=3.6). Incidence rates and net survival estimates by histology will be presented.

CONCLUSIONS

With these preliminary results and compared with other published series (Ostrom QT et al, Neuro-Oncology, 2015), we found an incomplete registration of non-malignant brain and CNS tumours. Taking into account that during this year the 2016 WHO Classification of Tumours of the CNS has been published, an update of the ENCR guidelines would be required.
**Trend of incidence and mortality rate of stomach cancer in Aomori prefecture, Japan**

Dr Masashi MATSUZAKA, Miss Rina Tanaka, Dr Yoshihiro Sasaki

1Department of Medical Informatics, Hirosaki University Hospital, Hirosaki, Japan, 2Department of Medical Informatics, Hirosaki University Graduate School of Medicine, Hirosaki, Japan

**BACKGROUND**

Age-standardised mortality rate (AMR) of cancer in Aomori prefecture is the highest among 47 prefectures of Japan. How to reduce AMR of stomach cancer, which is the second highest among men and the third among women in Aomori prefecture, is one of the biggest issues of cancer control. But, reasons of high AMR of it have not been summarised.

**METHODS**

Stomach cancer (ICD-10 C16) cases diagnosed in 2009-2012 were extracted from Aomori Cancer Registry Database. Age-standardised incidence rate (AIR) in each year was calculated with a direct method using Japan standard population. The means of age-specific incidence rate and proportion of stage at diagnosis in 2010-2012 were also calculated. AIR, age-specific incidence rate and stage at diagnosis in Japan were identified from Monitoring of Cancer Incidence in Japan 1995-2012. AMR of stomach cancer and age-specific mortality rate in Aomori and Japan were extracted from National Census of Japan.

**RESULTS**

Age-standardised mortality rates among men and women in Aomori were higher than those in Japan, although age-standardised incidence rates in Aomori were almost the same among men and lower among women compared to those in Japan. In Aomori, proportions of “Localised” stage at diagnosis were lower than those in Japan among all age groups except for 70-74 years in men and 70-79 years in women.

Discussion: High AMR of stomach cancer in Aomori prefecture was not caused by high AIR. One of plausible reasons of it was the low proportion of “Localised” stage at diagnosis. A nationwide screening programme for stomach cancer is performed in Japan and the response rate of it in Aomori is higher than that of national average. To reduce AMR of stomach cancer, quality assurance of the screening programme must be implemented and quality indicators of them should be disclosed for manifestation of progress of it.

**Alcohol and related cancers reported by the Cancer Registry of Crete**

Mrs Vasiliki-Eirini CHATZEA1, Mrs Dimitra Sifaki-Pistolla1, Dr Fillipos Koinis1, Prof. Nikos Tzanakis1, Prof. Vassiliis Georgoulias, Prof. Christos Lionis1

1Cancer Registry of Crete, Heraklion, Greece

**BACKGROUND**

Alcohol consumption is related to the Mediterranean Pattern of Drinking (MPD), while is considered to increase the risk of malignancies. MPD is characterized by almost daily drinking of alcohol (usually wine) that is often served with meals. Aim of this study was to report the core statistics of alcohol related cancers in Crete, Greece and estimate the average alcohol-attributable Years of Potential Life Lost (YPLL).

**METHODS**

The CRC provided pooled data on malignant neoplasms of larynx, oesophagus, breast, liver and intrahepatic bile ducts, colon, mouth and oropharynx and pancreas. The Age-Adjusted Incidence Rates (AAIR) and the Age-Standardized Mortality Rates (ASMR) were calculated using the European Standard population. Additionally, Alcohol-Attributed Fractions (AAF) and alcohol-attributable YPLL of cancer were estimated in a sample of 6,350 cases (1992-2013). Rates were exported using STATA software.

**RESULTS**

- Among females the most frequent malignant neoplasm is breast (AAIR=56.8 new cases/100,000/year; ASMR=22.7 deaths/100,000/year). Colon cancer presents 25.1 new cases/100,000/year for both genders; (AAIRmales=30.1 new cases/100,000/year; AAIRfemales=19.9 new cases/100,000/year) and 14.7 deaths/100,000/year (ASMRmales=15.8 deaths/100,000/year; ASMRfemales=13.7 deaths/100,000/year). A total of 15.3 new liver cases were observed (AAIRmales=23.4 new cases/100,000/year; AAIRfemales=19.9 new cases/100,000/year), while pancreas (AAIRmales=11.2 new cases/100,000/year; AAIRfemales=5.8 new cases/100,000/year), larynx (AAIRmales=6.8 new cases/100,000/year; AAIRfemales=3.4 new cases/100,000/year), mouth/ oropharynx (AAIRmales=5.3 new cases/100,000/year; AAIRfemales=1.6 new cases/100,000/year) and oesophagus (AAIRmales=2.2 new cases/100,000/year; AAIRfemales=0.2 new cases/100,000/year) fill the next positions.

**CONCLUSIONS**

Study results provide further evidence that alcohol consumption is associated with a greater risk to develop certain tumour types. Greater understanding needs to be gained as regards the dose-dependent effects of alcohol use in causing cancer.
Assessing the cancer with the most significant increasing trends in Crete: Melanoma 1992 to 2013

Mrs Vasiliki-Eirini CHATZEA, Mrs Dimitra Sifaki-Pistolla, Dr Fillipos Koinis, Prof. Nikos Tzanakis, Prof. Vassilis Georgoulia, Prof. Christos Lionis

1Cancer Registry of Crete, Heraklion, Greece

BACKGROUND

Sun exposure is an established cause of malignant melanoma. Greece is among the countries with the sunniest days per year. Aim of this study was to report the incidence rates of malignant melanoma of skin (MM) in Crete from 1992-2013 and describe demographic and clinical characteristics of patients diagnosed with MM.

METHODS

Data on MM were obtained from the CRC’s database (ICD-10 O:C43). The Age-Adjusted Incidence Rates (AAIR) and Age-Specific incidence rates (ASIR) were estimated for both genders. Graphs were exported for overall rates; grouping for multiple-morbidities, stage at diagnosis and anatomical site (this variable was available only at the 85% of the data).

RESULTS

The mean AAIR/year for both genders is around 9 new cases per 100,000 population. MM is more frequent in males (AAIRmales=10.6/100,000/year, AAIRfemales=8.2/100,000/year). Rates varied from 2.9 to 15.9/100,000/year for both genders. Females presented more rapidly increasing trends (14.9%). ASIRs in males increased from the age of 20-24 years (ASIR=14.6/100,000/year) reaching a peak at the age of 90 years (ASIR=84.1/100,000/year). Males present higher rates especially in the age-groups of 60-90 years (ASIR-males/females ratio=120%). Increase in females is presented at a younger age (15-20 years) and is steadily increasing until the age of 50-55 years (ASIR-males/females ratio= 85%). Most MM are diagnosed at stage I (59%) and II (29.5%). The 44.1% of MM in males occur in the trunk (C43.5), while in females the vast proportion is found in the legs (37.1%). After the MM diagnosis, increased risk of secondary cancer was observed for breast, prostate, and non-Hodgkin lymphoma (RR=2.2; 95%CI=1.528-2.847).

CONCLUSIONS

There is a rapid increase in the incidence of melanoma in Crete during the last 20 years. Therefore community education programs focusing on sun smart strategies along with promoting early detection of MM should be of high importance for the healthcare services.

Poverty and cancer incidence during the Greek austerity period: Insights from Cancer Registry of Crete

Mrs Dimitra Sifaki-Pistolla, Mrs Vasiliki-Eirini Chatzea, Dr Fillipos Koinis, Prof. Nikos Tzanakis, Prof. Vassilis Georgoulia, Prof. Christos Lionis

1Cancer Registry of Crete, Heraklion, Greece

BACKGROUND

Association of socioeconomic status and cancer morbidity was always the focus of epidemiologists and policy makers. Greece is a country greatly affected by the economic crisis. This study aimed to investigate its impact on cancer incidence.

METHODS

Site-specific cancer data and poverty data were used. Data were obtained from the CRC’s database (1992-2013). A total of 39 sites (ICD10-O) were included. Age-Adjusted Incidence Rates (ASIR) and Age-Standardized Mortality Rates (ASMIR) were estimated. Human Poverty Index (HPI-2) for high income countries was used to assess poverty per municipality in Crete at two periods (1991-2000; 2001-2011). HPI was grouped in five categories across municipalities. Cases were studied at place of residence during the time of diagnosis. The Risk Ratio (RR) of the highest-to-lowest poverty category was measured using Poisson regression, adjusting for age. STATA and R software were utilized.

RESULTS

HPI varied significantly (Pvalue=0.03) among Crete’s municipalities, ranging from 9.3 to 30.2. Association between poverty and cancer incidence was observed in 36 out of 39 sites, while 30 sites were found to be significantly associated (Pvalue<0.05). A total of 22 sites presented monotonic increases or decreases in risk across poverty categories from 1992 to 2013 (RRs=0.3-2.9 depending on the site). Larynx (RR=2.6), cervix (RR=2.5), penis (RR=2.2), liver (RR=2.1), vagina (RR=2.1), lung and bronchus (RR=1.9) presented higher risk of cancer incidence between the highest-lowest poverty category. Melanoma (RR=0.3), thyroid (RR= 0.4), testis (RR= 0.4) and prostate (RR= 0.5) presented lower risk indicating a negative association with poverty. Several variations on RRs were observed among the municipalities, with urban/semi-urban municipalities of Lasithi county and rural municipalities of Heraklion, Chania and Rethimnon counties presenting stronger association (Pvalue<0.05).

CONCLUSIONS

Results are on line with other European and American studies. Socioeconomic status appeared as an important variable in national cancer surveillance, especially during austerity times.
Longitudinal trends in thyroid cancer and a short-term projection in Crete, Greece

Mrs Vasiliki-Eirini CHATZEA1, Mrs Dimitra Sifaki-Pistolla1, Dr Filippos Koinis1, Prof. Nikos Tzanakis1, Prof. Vassilis Georgoulias1, Prof. Christos Lionis1

1Cancer Registry of Crete, Heraklion, Greece

BACKGROUND

During the last two decades, thyroid cancer has increased sharply at a worldwide level. Similar observations have been made in Greece, especially during the last years. Aim of this study was to assess the burden of thyroid cancer in Crete, Greece and forecast its future trend, using longitudinal models.

METHODS

Data on malignant neoplasms of the thyroid gland were obtained from the CRC (1992-2013). Data were observed on annual basis and grouped according to age. Age-Adjusted Incidence Rates (AAIR) were estimated for each year and these data were employed for the longitudinal Functional Data Analysis (FDA) to predict the expected AAIR (2014-2020). Smoothing splines along with nonparametric regression techniques were performed before the prediction of the time-series to estimate the smoothed curves. Gender, stage of cancer and multiple-morbidities were set as coefficients before the prediction of the time-series to estimate the smoothed curves. The Mean Integrated Squared Forecasting Error (MISFE) was used to evaluate the accuracy of the estimated predictions. All tests were performed in STATA (a-0.05).

RESULTS

The mean AAIR for both genders is 3.2 new cases/100,000/year, while it appears to be more frequent in females (AAIRfemales = 3.3/100,000/year; AAIRmales = 3.1/100,000/year). Both genders presented increasing longitudinal trends from 1992 to 2013 (AAIRfemales = 2.9-3.7/100,000/year; AAIRmales = 2.8-3.5/100,000/year). Further increase is expected within the next seven years, especially among females (Pvalue<0.03). The expected AAIR in females is 4.2/100,000/year, while for males is 3.9/100,000/year. Increases are predicted for all counties of Crete, with one in west Crete and another in east Crete presenting significant increasing trends (mean AAIRobserved = 3.2/100,000/year; mean AAIRestimated = 4.0/100,000/year).

CONCLUSIONS

The increased incidence of thyroid cancer in Crete comes in agreement with the worldwide trends. It should be studied further, to see if it is a true increase or it is partially attributed to the more sensitive diagnostic procedures.

Trends in incidence, survival and mortality of childhood and adolescent cancer in Austria, 1994-2011

Mrs Ardine REEDUK1, Dr Henrike E. Karim-Kos2, Dr Monika Hackl1, Dr Georg Mann3, Prof. dr. Christian Urban1, Dr Adelheid Woehrer1, Prof. dr. Irene Slavc4, Prof. dr. Ruth Ladenstein2

1Austrian National Cancer Registry, Directorate Social Statistics, Statistics Austria, Vienna, Austria, 2Children Cancer Research Institute, St. Anna Children's Hospital, Vienna, Austria, 3Dept. of Paediatrics and Adolescent Medicine, Division of Haemato-Oncology, Medical University of Graz, Graz, Austria, 4Institute of Neurology, Medical University of Vienna, Vienna, Austria, 5Dept. of Paediatrics and Adolescent Medicine, Medical University of Vienna, Vienna, Austria

BACKGROUND

This is the first study on trends in cancer incidence, survival and mortality for children and adolescents in Austria. The aim was to assess to what extent progress has been made in Austria since childhood cancer treatment has been centralized in the 1990s. Furthermore, neuroblastoma screening took place between 1991 and 2003.

METHODS

All malignant neoplasms and non-malignant tumours of the Central Nervous System (CNS) in patients aged <20 years and diagnosed between 1994 and 2011 (N=3,582 children: 0-14 years; N=1,842 adolescent: 15-19 years) were derived from the Austrian National Cancer Registry (ANCR). Incidence and mortality trends were evaluated using the average annual percentage change (AAPC). Observed survival rates were calculated based on follow-up until December 31st 2013 and changes over time were evaluated applying Poisson regression modelling.

RESULTS

Childhood cancer remained stable with 182 cases per million in 2011, but rose among girls by 1.4% (95% CI: 0.1, 3.6) annually. Overall, non-malignant CNS tumours and Non-Hodgkin lymphoma increased. Neuroblastoma increased to 22.5 per million children in 2002 followed by a decline to 13.8 in 2011. Adolescent cancer rose by 1.5% (95% CI: 0.4, 2.6) annually, from 182 cases per million in 1994 to 269 in 2011, mainly due to an increase of leukaemia, non-malignant CNS and epithelial tumours. Five-year survival improved by 5-7% reaching 86% for both groups (p<.05). Mortality declined by -2.4% (95% CI: -3.7, -1.2) among children and -2.0% (95% CI: -4.6, 0.5) among adolescents. The strongest decline was seen for childhood leukaemia.

CONCLUSIONS

Progress is demonstrated by improved survival and declined mortality most likely related to improved diagnostic techniques, more effective therapeutic regimes, supportive care and central advisory function of experts in the Austrian paediatric oncology. Increases of nonnotifiable non-malignant CNS tumours were noted with the introduction of Austrian Brain Tumour Registry since 2005.
Five-year relative survival with Human papillomavirus-associated cancers

Dr Florence K. Tangka1, Dr Hilda Razzaghi1, Dr. Mona Saraiya1, Mr. Trevor Thompson1, Ms. Reda Wilson1,

1Centers For Disease Control And Prevention, Atlanta, USA

BACKGROUND

Human papillomavirus (HPV) vaccines can potentially prevent more than 90% of cervical and anal cancers, and a substantial proportion of vulvar, vaginal, penile, and oropharyngeal cancers caused by certain HPV types. Because more than 30,000 HPV-associated cancers are diagnosed annually, current studies are needed to understand how relative survival varies for each of these cancers by certain demographics, including race or ethnicity and age.

METHODS

We examined data from 27 population-based cancer registries that met CDC’s publication criteria, linked with the National Death Index, completed active patient follow-up from 2001 to 2011, and covered approximately 59% of the US population. We limited our analyses to invasive cancers that met specified histologic criteria for HPV-associated cancers. We calculated 5-year relative survival from diagnosis until death for these cancers by age, race, and sex by using the Ederer II method.

RESULTS

Five-year age-adjusted relative survival was 64.2% for cervical, 65.9% for anal, 66.0% for vulvar, 52.8% for vaginal, 56.2% for rectal, and 51.2% for oropharyngeal cancers. Five-year relative survival was consistently higher among white compared to black persons for all HPV-associated cancers and all age groups, and the largest differences were for oropharyngeal cancers among those aged 40-49 (73.2% white vs. 40.0% black) and 50-59 years (67.6 white vs. 38.6 black); and for anal cancers among those aged 40 years and younger (72.0% white vs. 50.6% black).

CONCLUSION

Disparities in relative survival with HPV-associated cancers among young black populations was most notable for anal and oropharyngeal cancers. These groups may benefit most from targeted preventions, including HPV vaccination and improved access to screening and treatment.

Cancer incidence in Lahore, Pakistan, amongst children, adolescents, and adults-2010-2012: A cross-sectional study

Dr. Farhana Badar1, Mr. Shahid Mahmood1, Dr. Muhammad Yusuf1, Dr. Mohammad Mahmood1, Dr. Misbah Masood1, Dr. Ghulam Sial1, Dr. Omar Chughtai1, Dr. Tanveer Mustafa1, Dr. Asif Loya1, Dr. Faisal Sultan1

1Shaukat Khanum Memorial Cancer Hospital & Research Center, Lahore, Pakistan, 2The Institute of Nuclear Medicine & Oncology, Lahore, Pakistan, 3Ittefaq Hospital, Lahore, Pakistan, 4Chughtais Lahore Lab, Lahore, Pakistan, 5Fatima Jinnah Medical University, Lahore, Pakistan

BACKGROUND

The objective is to estimate the cancer incidence for the population of the Lahore district, which is part of the Punjab Cancer Registry, Pakistan. The population, per year, of Lahore was estimated at 9.8 million in 2010-2012.

METHODS

The Registry has nineteen centers working together in Lahore that report their data to its collaborating office located within a tertiary care, charitable hospital, in Lahore, Pakistan. A cross-sectional study was conducted and the residents of Lahore, of any age-group, diagnosed with cancer in 2010-2012, were studied. The age-groups taken into consideration were: 0-14, 15-19, and ≥ 20 years. Cancer counts were determined and the Age-Standardized Incidence Rates (ASIR) computed, per 100,000 population, by gender, cancer site, and age-group.

RESULTS

Between 2010 and 2012, in Lahore, a total of 15,840 new cancers were diagnosed, with 57% seen in female patients. 93.5% of the cancers were microscopically confirmed and 6.5% non-microscopically. The ASIRs in age-groups 0-14, 15-19, and ≥ 20 years, amongst females, were: 6.1; 8.4; and 170.7 and, amongst males: 9.3; 12.2; and 104.5, respectively. The ASIRs for the most commonly diagnosed cancers, by age-categories, 0-14, 15-19, and ≥ 20 years, were: 1) amongst females: leukemia 2.2; bone tumors 1.4; and breast cancer 79.2 and, 2) amongst males: leukemia 3.6; bone tumor 2.4; and prostate cancer 10.7, respectively.

CONCLUSIONS

In Lahore, the ASIR was higher in adult women than in men, but it was lower in females in the category of children and young adults than their corresponding male counterparts. In both males and females, leukemia was the most common diagnosis in children and young adults. Amongst women, breast cancer and, in men, prostate cancer were the leading cancer types in adults. These estimates, by age-group, are of significance and can be used for program planning and evaluation in the region.
Disparities in cancer incidence and mortality by area-level socioeconomic status in Busan, Korea, 2001-2011

M.D Minhyeok CHOI1
M.D. Ph.D Changhoon Kim2, Ph.D Meangseok Noh1, M.S. Yeongkyu Koh1, M.S. Daeseong An1,

1Pusan cancer regional center, Pusan national university, Seogu, Korea

BACKGROUND
A large proportion of disparity of cancer incidence and mortality may be attributed to area-level socioeconomic status. The purpose of this study was to examine whether there be association between cancer incidence/mortality and socioeconomic deprivation level in small-area level.

METHOD
Datasets on the regional cancer registry and 2010 census were used for calculating the age-standardized incidence and mortality rates of cancer (except thyroid cancer) and the deprivation index as area-level socioeconomic status at town level. The multi-level multiple logistic regression was used to identify association between incidence, mortality and deprivation index.

RESULT
Cancer incidence rate (p<0.001) increased but cancer mortality (p < 0.001) decreased from 2001 to 2011 in Busan. In the multi-level multiple logistic regression, cancer incidence and mortality rates were associated with deprivation index (p<0.001) after controlling for age, sex and year of diagnosis. Compared to the least-deprived areas (Q1), adjusted Odds ratio(aOR) for cancer incidence in the most-deprived areas (Q4) was 0.945 (95% CI: 0.908-0.985) and aOR for cancer mortality rates in the most-deprived areas (Q4) was 1.134 (95% CI: 1.053-1.229).

CONCLUSION
Results suggest that area-level deprivation index is associated with cancer mortality but inversely with cancer incidence in Busan, South Korea. Area-level deprivation index has the potential for appropriately targeting interventions to reduce regional and socioeconomic disparities of cancer.

Cancer Registry Of Crete: Geographical variation of lung cancer and smoking trends

Mrs Dimitra SIFAKI-PISTOLLA1
Mrs Vasiliki-Eirini Chatzea1, Dr Filippos Koinis1, Prof Vasilis Georgoulas1, Prof Christos Lionis1, Prof Nikos Tzanakis1

1Cancer Registry Of Crete, Heraklion, Greece

BACKGROUND
Greece lacks systematic records of lung cancer (LC). The Cancer Registry of Crete (CRC) is the only population-based regional registry in Greece operating since 1992. It aims to collect data on cancer mortality/morbidity and selected risk factors. Aim of the study was to discuss the spatio-temporal variation of LC in Crete. Special focus was given to smoking habits of LC patients and its effect on survival.

METHODS
LC patients’ records (1992-2013) regarding medical history and smoking habits were obtained from the CRC’s database. Age-Standardized Incidence Rates (ASIR), prevalence of smoking among LC patients and smoking-attributable portion (SAP) of LC mortality were estimated. Kaplan-Meier curves for LC patients grouped according to smoking status were exported. Spatio-temporal statistics were performed to assess the geographical variations of LC and smoking (α=0.05).

RESULTS
Around 9% of new cases in Crete are accredited to LC (both genders: 40.2, males: 73.1, females: 11.8 new LC cases/100,000/year). An increase of LC morbidity for both genders is observed; females present significant increasing longitudinal trends (Pvalue<0.05). The SAP of LC mortality is 86% for both genders (males: 89%, females: 78%), while significant variation is observed among the different geographical regions in Crete. Smokers living in the south-east urban regions present higher risk of dying (ExpB=2.2; 95%CI= 1.271-3.514). An 11% of never-smokers survive LC for 10 or more years after diagnosis, while survival is lower for ever-smokers (7%).

CONCLUSIONS
LC and smoking trends in Crete are similar to those of several European countries. Nevertheless, their constant increase among females outlines the need for targeted geographically-oriented preventive measures.
Prediction of breast cancer incidence in the Region of Crete

Mrs Dimitra SIFAKI-PISTOLLA1, Mrs Vasiliki-Eirini Chatzea1, Dr Georgia Pistolla1, Dr Filippos Koinis1, Dr George Pitsoulis1, Prof Nikos Tzanakis1, Prof Vasilis Georgoulis1, Prof Christos Lionis1

1Cancer Registry Of Crete, Heraklion, Greece

BACKGROUND
This study reports on the burden of malignant neoplasms of breast among Cretan women, with the aim to predict future trends and identify high risk areas for potential interventions.

METHODS
Data were obtained from the CRC for the period of 1992-2013. The Age-Adjusted Incidence Rates (AAIR) and Age-Specific Incidence Rates (ASIR) were calculated, while a spatio-temporal prediction model was performed to estimate the expected AAIRs per municipality for the next decade (2014-2023). Getis-Ord Gi* was applied on individual-level data (mapped based on the place of residence) to identify the current and future hot spots. The ArcMap 10.3.1 was used for the analysis, while all tests were performed at a=0.05.

RESULTS
Breast cancer (BC) is the most frequent malignant neoplasm among Cretan women (mean AAIR=56.8 new cases/100,000/year). A significant increase (Pvalue=0.04) was observed from 1992 (AAIR1992=48.5 new cases/100,000/year) to 2013 (AAIR2013=66.7 new cases/100,000/year). These trends are expected to keep increasing within the next decade (expected AAIR=76.2 new cases/100,000/year). ASIRs increased steeply in the age group of 30-34 (ASIR= 85.3/100,000/year), rises steadily until the age group of 50-54 (ASIR= 273.8/100,000/year) and then increases rapidly from 55 to 64 (ASIR= 344.6/100,000/year). ASIRs decrease slightly in the age group of 65-69 (ASIR= 321.9/100,000/year) and increase again after the age of 70 years (AAIR= 387.5/100,000/year). BC hot spots were identified across certain municipalities (Gi* z score >2.58 St.Dev), while in five municipalities excessive future risk has been identified (ExpB=3.6, 95%CI=1.521-5.681).

CONCLUSIONS
The Region of Crete should arm its mobile mammography units in order to minimize the increased BC burden among women. Due to the low funding resources during the period of the Greek economic crisis, priority should be given to the identified hot spots.

Distribution of various sub-types of Non-Hodgkin’s Lymphoma : A single center study from Nepal

Dr Ajay Kumar JHA1, Dr Bikesh Suwal1, Dr Roshan Prajapati1, Dr Sudip Shrestha1, Dr Sanat Chalise1, Dr Prakash Raj Neupane1

11.Dept. of Hematology, Medical Oncology, Bhaktapur Cancer Hospital, Bhaktapur, Nepal, 2Dept. of Pathology, Bhaktapur Cancer Hospital, Bhaktapur, Nepal, 3Dept. of Oncosurgery, Bhaktapur Cancer Hospital, Bhaktapur, Nepal

INTRODUCTION
Distribution of major sub types of Non-Hodgkin’s lymphoma (NHL) differs across the globe. As per the United Nations Development Programme’s Human Development Report, Nepal has a low human development index of 0.54. Diagnosis and management of patients with cancer can be a challenge in a mountainous country.

AIM
A retrospective review of cases with NHL at Bhaktapur Cancer Hospital from January 2015 to December 2015

MATERIAL AND METHODS
Total of 82 cases were diagnosed as Non-Hodgkin’s lymphoma based on histopathology at Bhaktapur cancer hospital between January 2015 to December 2015 were enrolled in the study. Biopsy was done in all cases however immunohistochemistry (IHC) was done in 60 . Concordance between microscopy and IHC was found in 55 cases  which were further considered for the analysis . Cases were classified according to WHO /REAL classification.

RESULTS
Age distribution revealed, majority 34 (41.5%) belong to 40-60 years of age group (range 8 – 82). Male : Female ratio was 1.6 : 1. FNAC was done in 34 cases, diagnosis consistent with NHL was reported  in 17 (50%). Concordance between histopathology and IHC was found in 55 cases which were further considered for the analysis .

B cell lymphoma formed 46 (84 %) and 9 (16 %) was T cell NHL. The most common sub type was DLBCL  32 (58%) followed by 8-cell small lymphocytic 6 (11%), MALTOMA 3 (5%), 2 (3.5%) each Follicular and Mantle cell and 1 (2%) Burkitt’s lymphoma. Among T cell lymphomas, Lymphoblastic lymphoma 3 (5.5%), T/NK cell nasal type  3 (5.5%), T-cell Peripheral 2 (4%) and 1 (2%) was ALCL.

CONCLUSION
Distribution differs from western world. Lack of diagnostic armamentarium limits scientific study. Discordant between histopathology and IHC was found in 8%.
Developing and testing a cost data collection instrument for cancer registry planning
Mr Patrick EDWARDS1, Dr Sujha Subramanian2, Dr Florence Tangka2, Ms Sonja Hoover1, Dr Maggie Cole-Beebe1, Dr Mona Saraiya2
1RTI International, Durham, United States, 2CDC, Atlanta, United States

BACKGROUND
Economic evaluations of cancer registries are increasingly important for policy makers to identify the funding required to initiate and sustain registry operations. Detailed cost data is required to evaluate efficient approaches for collecting surveillance data, and to quantify the resources needed for specific registry activities. Our objective was to develop a systematic process for collecting, reporting, and comparing cost data on cancer registry operations across countries.

METHODS
We developed a standardized, excel-based instrument, the International Registry Costing Tool (IntRegCosting Tool), using established economics methods and building on our previous experience collecting cost data from U.S. CDC-supported state cancer registries. 11 population-based cancer registries, representing countries of diverse income levels (India, Kenya, Uganda, Colombia, and Barbados), expressed interest and were selected to pilot-test the IntRegCosting Tool. Using information gathered from a questionnaire and site visits, we tailored the tool to be easily understood by each registry. The IntRegCosting Tool collected expenditure and in-kind contribution information for specific fiscal or annual periods by registry.

RESULTS
Registries were able to allocate at least 90% of their costs to specific registry activities using the IntRegCosting Tool. Additionally, registries were able to provide accurate estimation of labor costs, which is the largest expenditure incurred by registries. The total cost of registry operations varied significantly by registry, reflective of the diversity in registries’ characteristics such as size of the geographic area served, volume of cases, number of reporting sources, staffing, and population covered.

CONCLUSIONS
Results from the pilot study indicated that the IntRegCosting Tool can be used to collect detailed, high-quality cost data with minimal burden to registries. The lessons learned will be used to develop a web-based tool to collect cost data from population-based registries in order to create the evidence base to foster cost-effective operations.

Number of risk factors involved within the same D’Amico Risk Group enhances prostate cancer prognostication
Dr Honghong HUANG1, Dr Jonathan Teo2, Dr Li Yan Khor, Ms Rehena Sultana2, Dr Joe Yeong, Dr Weber Lau, Dr John Yuen
1Singapore General Hospital, Singapore, Singapore, 2DUKE-NATIONAL UNIVERSITY OF SINGAPORE GRADUATE MEDICAL SCHOOL, Singapore, Singapore

INTRODUCTION
D’Amico risk stratification for organ-confined prostate cancer employs three presumably independent risk factors: PSA, Gleason score and clinical stage by DRE, with equal weightage. The objective was to determine whether the number of risk factors in a specific D’Amico risk group has different prognostication impacts within the risk group for patients undergoing radical prostatectomies.

MATERIALS AND METHODS
562 consecutive patients who underwent robot-assisted laparoscopic radical prostatectomy from January 2005 to March 2015 were recruited. The patients were identified and categorised in respective D’Amico risk groups based on the biopsy results (Gleason score), clinical T stages and PSA levels. Biochemical-recurrence-free (BCR) survival in the intermediate and high-risk groups were analysed using the Kaplan-Meier curves, stratified to the number of risk factors.

RESULTS
The mean age was 67 years (range 41 - 86). The median follow-up period was 32 months (range 1 - 127). The patients categorised in the low-, intermediate- and high-risk groups were 34.6% (n=194), 50.9% (n=286) and 14.6% (n=82). In the intermediate-risk group, the number of patients who had one, two and three risk factors were 208, 72, and 6. In the high-risk group 71, 8 and 3 patients had one, two and three risk factors. Patients in the intermediate-risk group who had one, two and three risk factors had BCR-free survival of 98%, 89% and 48% (p<0.001). For the high-risk group, patients with one, two and three factors had BCR-free survival of 74%, 70% and 67% (p=0.7).

CONCLUSION
The prognostication value of D’Amico risk classification can be further stratified and enhanced by the number of risk factors present, signifying a heterogenous group of patients within the same risk group. For D’Amico high-risk group patients, the difference in BCR-free survival stratified to the number of risk factors didn’t reach statistical significance, possibly due to the small sample size.
Cancers attributable to infectious agents in Nigeria: 2012-2014

Dr Michael ODUTOLA1, Dr Elima Jedy-Agba2, Dr Emmanuel Oga2, Dr Festus Igbinoba3, Dr Theresa Otut, Prof Emmanuel Ezeome1, Dr Ramatu Hassan4, Prof Clement Adebamowo1,2,5

1Nigerian National System Of Cancer Registries, Abuja, Nigeria, 2Institute Of Human Virology Nigeria, Abuja, Nigeria, 3Department of Non-communicable Disease Epidemiology, London School of Hygiene and Tropical Medicine, London, United Kingdom, 4Department of Epidemiology and Public Health, University of Maryland, Baltimore, USA, 5National Hospital Abuja, Nigeria, Nigeria, 6University of Abuja Teaching Hospital, Nigeria, Gwagwalada, Nigeria, 7University of Nigeria Teaching Hospital Enugu, Nigeria, Nigeria, 8Federal Ministry of Health, Nigeria, Nigeria, 9Institute of Human Virology and Greenebaum Cancer Center, University of Maryland School of Medicine, Baltimore, USA

BACKGROUND

Infections by certain viruses, bacteria, and parasites have been identified as risk factors for some cancers. In 2008, there were 12.7 million new cancer cases worldwide and of these, about 2 million cases were attributable to infections. Majority of these cancers occurred in less-developed regions of the world, where Population Attributable Fraction (PAF) was estimated to be 23%. We carried out this study to evaluate the numbers of cancers in Nigeria from 2012-2014 attributable to infections using data from Population Based Cancer Registries (PBCR) in Nigeria.

METHODS

We considered cancers associated with Epstein-Barr virus (EBV), Human Papilloma Virus (HPV), Hepatitis B and C Virus (HBV/HCV), Human Immunodeficiency Virus and Human Herpes Virus 8 (HIV/HHV8), Helicobacter pylori and Schistosoma haematobium that have been classified as oncogenic by IARC. We obtained data on infection associated cancers from the registry databases of 2 PBCR in Nigeria; Abuja and Enugu cancer registries. We used PAF for infectious agents associated cancers in developing countries that were calculated using prevalence data and relative risk estimates in previous studies.

RESULTS

The 2 PBCR reported 4,336 cancer cases from 2012-2014; 1,627 in males and 2,709 in females. There were 365 infection-associated cancers in males accounting for 22% of total cancers in males, and 328 [90%] of total cancers in females and of these, 623 [94%] were attributable to infections. Cancers of the Cervix [n=392], Liver [n=145] and Non-Hodgkin’s Lymphoma [n=110] were the commonest infection-associated cancers in both sexes. The commonest infectious agents associated with cancers were HPV [n=453], HIV/HHV8[n=171], HBV/HCV[n=134] and EBV [n=117].

CONCLUSION

Our finding suggests that 90% of infection-associated cancers in males and 94% infection-associated cancers in females can be prevented with vaccination, safer risk behaviours or anti-infective treatments.

Using a workforce planning model to build a comprehensive national cancer registrar education system

Ms Leah KIESOW1, Ms Kimberly Watson1, Ms Margaret Meehan1, Ms Mary Maul2, Ms Robin Havens3, Mr Michael Hechter1

1National Cancer Registrars Association, Alexandria, United States

BACKGROUND

A well-trained cancer registry workforce is critical to the success of the quality of cancer data. An ongoing charge in the U.S. is to enhance national cancer data and statistics in order to address the nation’s cancer burden. The National Cancer Registrars Association had a history of reactive educational development for the workforce, but in 2010 implemented a workforce planning model to assess, define, and build a proactive comprehensive national education system for the workforce.

METHODS

By using workforce planning model mechanisms, NCRA was able to further understand the cancer registry workforce and begin to think proactively about workforce recruitment and ongoing education needs.

RESULTS

Workforce planning model mechanisms enabled NCRA to identify, define, develop and deliver a comprehensive education system for cancer registrars in the U.S. NCRA’s approach includes phases:

1. Education for the prospective workforce
2. Accredited higher education programs
3. Education for the workforce with minimal experience
4. Credentialing exam to demonstrate a baseline of knowledge
5. Continuing education for experienced workforce
6. Specialized education for highly experienced workforce

Each phase incorporates evaluation instruments to adjust content/delivery mechanisms. To stay current, NCRA recognizes the need to revisit the model on regular intervals of five to seven years. The infrastructure developed to deliver the NCRA system has been found to be useful to partner organizations and has expanded the ability to reach additional audiences in new ways that strengthen the system.

CONCLUSION AND DISCUSSION

Initiating workforce planning models enables an organization to be proactive about education/training needs for their workforce. Using this model will offer the opportunity for improved reporting of accurate, timely, and complete data which is necessary for agencies to report on cancer trends, better identify the impact of cancer prevention and control efforts, participate in research, and respond to reports of suspected increases in cancer occurrence.
Trends in incidence of melanoma and nonmelanoma skin cancer in South Korea

Dr Chang-mo Oh1, Prof Hyunsoon Cho1,2, Mr. Byung Woo Kim1, Ms Hyun-Joo Kong1, Dr Kyu-Won Jung1, Dr Young-Joo Won1,2

1Cancer registration and statistic branch, National Cancer Control Institute, National Cancer Center, Goyang-si, Republic of Korea, 2Department of Cancer Control and Policy, Graduate School of Cancer Science and Policy, Goyang-si, Republic of Korea

BACKGROUND
Although there is accumulating evidence that melanoma and nonmelanoma has increased among white-skinned population, there was rare evidence whether there was a change in the incidence of melanoma and non-melanoma skin cancer in Asian.

METHODS
The nationwide incidence data for melanoma and non-melanoma skin cancer was obtained from the Korean Central Cancer Registry. Age-standardized rates were calculated for melanoma and non-melanoma and Joinpoint regression model was used to analyze the trends in incidence for melanoma and non-melanoma in South Korea.

RESULTS
The age-standardized incidence rates (ASRs) of melanoma, squamous cell carcinoma and basal cell carcinoma for 1999-2012 were 0.60, 1.08 and 1.96 per 100,000 people, respectively. Squamous cell carcinoma has increased from 2001 to 2008 with a 7.9% (95% CI: 5.5 – 10.3) increase per year. Basal cell carcinoma has increased from 1999 to 2007 with a 12.2% (95% CI: 9.2 – 15.4) annual percentage change (APC) and from 2007 to 2012 with a 4.7% (95% CI: 1.1 – 8.5) APC. Incidence of melanoma also increased from 1999 to 2005 by 7.3% (95% CI: 3.7 – 11.0) annually. These increasing incidence trends were observed in both men and women.

CONCLUSIONS
Our study shows that incidence of squamous cell carcinoma and basal cell carcinoma increased in South Korea. Although overall incidence rates for skin cancer was much lower than those of white people, our findings suggest increasing incidence trends of non-melanoma skin cancer in Korea.

Predictive factors of discontinuation of active surveillance in Asian prostate cancer patients

Miss Saajida Begum Binte Syed Aneesur RAHMAN1, Mei Ying Ng1, Hong Hong Huang1, Kam On Weber Lau1, Lui Shiong Lee1

1Singapore General Hospital, Singapore, Singapore

BACKGROUND
Active surveillance (AS) is offered as a treatment option to a select group of low/intermediate risk localised prostate cancer (Pca) patients. Literature review reporting on predictive factors of discontinuation of AS revealed a disparity between Asian and Western populations. We aim to determine the predictive factors of discontinuation of AS in an Asian population.

METHODS
From the institutional review board-approved Urological Cancer Registry at the Singapore General Hospital, 250 Pca patients diagnosed between 1998 and 2014 were recruited into this retrospective study. Inclusion criteria were Gleason sum ≤7, T stage at digital rectal examination (DRE) ≤2a and AS ≥6 months.

Variables analysed were age, prostate specific antigen (PSA), Gleason sum, T stage at DRE, number of positive cores, maximum percentage of cancer in a core, laterality of positive cores, diagnosis by template biopsy, and negative biopsies before diagnosis, Charlson Comorbidity Index and follow-up biopsy. All analyses were done using SPSS 23 software.

Results: Of 250 patients with 2.3 years median follow-up, 39 (15.6%) patients were aged <60, 56 (22.4%) 60-64, 74 (29.6%) 65-69, and 81 (32.4%) 70-85.

98 (39.2%) patients had intervention; median intervention-free time was 1.3 years. Patients with intervention had a higher PSA (median 6.8 versus 5.6; p=0.007). Age 70-85 (OR 0.443; 95% CI 0.201-0.975; p=0.043), >2 positive cores (OR 2.183; 95% CI 1.072-4.444; p=0.031) and diagnosis by template biopsy (OR 2.566; 95% CI 1.103-5.973; p=0.029) were significant.

After adjusting for age and diagnosis by template biopsy, >2 positive cores (OR 2.195; CI 1.064-4.531; p=0.033) was an independent predictor of discontinuation of AS.

CONCLUSION
Age 70-85, >2 positive cores and diagnosis by template biopsy were significantly associated with an increased risk of discontinuing AS. However, >2 positive cores was the only independent predictor of discontinuation.
Life After Prostate Cancer Diagnosis (LAPCD): A UK-wide patient-reported outcomes study

Dr Anna GAVIN1, Dr Amy Downing1, Dr Penny Wright1, Dr Richard Wagland2, Prof Eila Watson1, Mr Hugh Butcher1, Dr Luke Hounsome1, Mr Conan Donnelly1, Prof Paul Kind1, Prof Adam Glaser1

1University of Leeds, Leeds, United Kingdom, 2University of Southampton, Southampton, United Kingdom, 3University of Oxford Brookes University, Oxford, United Kingdom, 4Public Health England, London, United Kingdom, 5Queen’s University Belfast, Belfast, United Kingdom

BACKGROUND

Prostate cancer may impact physically, psychologically and socially affecting health-related quality of life (HRQL) of men and their partners/spouses. The LAPCD study aims to: describe HRQL of men with prostate cancer using qualitative and quantitative methods; explore if and how HRQL is associated with or predicted by disease, treatment and/or patient characteristics with a view to informing healthcare policy and service delivery; describe levels of patient empowerment and explore the interaction between patient empowerment and HRQL; undertake a study of men without prostate cancer to determine community levels of symptoms for comparison.

METHODS

We will survey prostate cancer survivors in all four United Kingdom (UK) nations who are 18–42 months post-diagnosis, identified through cancer registration systems (~100,000). Men will be surveyed twice, 12 months apart, to determine changes in outcomes over time. We plan to survey second new cohorts once and will investigate the acceptability of online survey tools. To ensure detailed understanding of issues of importance, we will interview a sample of men who complete the survey (~150) and a small number of partners/spouses (~30). We have developed a comprehensive Patient Reported Outcome Measure (PROM) using generic and specific instruments with proven psychometric properties and relevance in national and international studies. The outcome data will be linked with administrative health data (e.g. treatment information from hospital data).

RESULTS

The first surveys are underway and preliminary results will be available late 2016. Aggregated results will be available to men and their partners/spouses, the funders, the health service, social care, voluntary sector organisations and other researchers.

CONCLUSIONS

This 3-year study will provide data to steer service improvements, produce information to help men when making treatment decisions, and inform future research. This study is funded by Prostate Cancer UK and the Movember Foundation and linked closely with national cancer registries.

Patient-reported outcomes following curative treatments for rectal cancer: a population-level study in England

Dr Anna GAVIN

Dr Amy Downing1, Prof Paul Finan1, Prof David Sebag-Montefiore1, Dr Penny Wright1, Dr Alexandra Gilbert1, Prof Jessica Corner2, Prof Mike Richards3, Prof Eva Morris3, Prof Adam Glaser3

1University of Leeds, Leeds, United Kingdom, 2University of Southampton, Southampton, United Kingdom, 3University of Oxford Brookes University, Oxford, United Kingdom, 4Public Health England, London, United Kingdom

BACKGROUND

Colorectal cancer survival rates continue to improve and use of multimodal therapy, including radiotherapy, is now common. Consequently, there is a growing population at risk of morbidity secondary to treatment. In January 2013, all individuals alive 12-36 months post-diagnosis of colorectal cancer in England were sent a survey. This study focuses on the rectal cancer survivors and investigates how curative treatments influence health-related quality of life (HRQL) and functional outcomes.

METHODS

The survey response data were linked to data from the National Cancer Data Repository. The generic HRQL (EQ-5D) and cancer-specific outcomes (FACT and Social Difficulties Inventory items) related to bowel, urinary and sexual function were analysed in relation to type of treatment.

RESULTS

Questionnaires were returned by 6,713 (64.2%) of 10,452 rectal cancer patients, of whom 3,998 were in remission after a major resection and formed the final analysis sample. Overall, 32.9% of respondents reported ‘perfect’ HRQL (no problems) whilst 67.1% reported ≥1 HRQL problem on any EQ-5D domain. Individuals with a stoma still present were more likely to report ≥1 HRQL problem than those without a stoma (74.6% compared to 61.7%, p<0.001). Respondents who had radiotherapy reported lower levels of bowel control: 24.8% reported good control compared to 41.6%, p<0.001. Respondents who had radiotherapy reported lower levels of bowel control: 24.8% reported good control compared to 41.6% in the no radiotherapy group (p<0.001). Urinary dysfunction and sexual difficulties were consistently higher for those with a stoma present. For sexual difficulties, receipt of radiotherapy resulted in a higher level of difficulties. Those undergoing a stoma reversal reported better outcomes than those with a stoma still present.

CONCLUSION

A large population-level cross-sectional assessment of HRQL is feasible. A stoma-forming operation (which is not or cannot be reversed) and the use of radiotherapy are associated with worse reported outcomes. This study supports reversal of stomas, where possible, and a selective approach to radiotherapy in treating rectal cancer.
Clinical characteristics and outcomes of hepatocellular carcinoma in Korea: results from a random sample survey

MS Hyun-Joo KONG1, BS Min Ji HONG2

MD, PhD Bo Hyun Kim1, MD, PhD Young-Suk Lim Lim1, BS Eun-Yang Kim1, PhD Young-Joo Won1

1Center for Liver Cancer, National Cancer Center, Goyang, Korea, 2Department of Gastroenterology, Liver center, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea, 3Division of Cancer Registration and Surveillance, National Cancer Center, Goyang, Korea

BACKGROUND

Hepatocellular carcinoma (HCC) is the fifth most common cancer and second most common cause of cancer mortality in South Korea. The Korea Central Cancer Registry (KCCR) has registered cases nationwide; however, has limited information about cancer characteristics.

METHODS

Out of 35,411 HCC registrants to the KCCR between 2008 and 2010, 4,962 (14%) patients were randomly selected and were investigated for clinical characteristics and outcomes through reabstracting survey at 47 hospitals. The data of 4,596 patients were analyzed after excluding 366 patients who had insufficient data.

RESULTS

The mean age of the patients was 59 ± 12 years and 78% were men. The causes of HCC were hepatitis B, hepatitis C, and alcohol in 64%, 13%, and 32% of patients, respectively. About 71% of patients had Child-Pugh class A liver function. The modified UICC stages were I, II, III, Iva, and IVb in 14%, 38%, 26%, 12%, and 10% of the patients, respectively. The BCLC stages were 0, A, B, C, and D in 6%, 29%, 15%, 42%, and 8.3% of the patients, respectively. As an initial treatment, transarterial therapy was the most common (46%), followed by surgical resection (16%), local ablation (11%), systemic chemotherapy (4%), and radiotherapy (1%). The median overall survival was 28 months (95% confidential interval, 25–30 months), and 1- and 3-year survival rates were 62.9% and 44.6%, respectively.

DISCUSSION

About half of HCC patients are diagnosed at advanced stages, and transarterial therapy is the most commonly performed initial treatment in Korea. These data from a random sample survey provide unbiased information of characteristics and outcomes of HCC in Korea and may help establishing public health policy.

Indicators of long-term survival and cure of cancer

Dr Stefano GUZZINATI1, Dr Luigi Dal Maso2, Dr. Roberta De Angelis3

1Veneto Cancer Registry, Padova, Italy, 2Aviano National Cancer Institute-IRCCS, Aviano - PN, Italy, 3Italian National Institute of Health (ISS), Rome, Italy

BACKGROUND

Presently the indicators of long term survival and cure are lacking.

The purpose of this work is to provide estimates of these indicators for 50 cancer types.

METHODS

Data from 1.6 million of Italian cancer patients diagnosed between 1976 and 2010 (AIRTUM) were included. Validated statistical models had been used to estimate four population-based original indicators of cancer cure, by sex, age, and period:

1. Cure fraction: proportion of patients expected to reach the same death rates of the general population;
2. Time to cure: years after cancer diagnosis necessary to eliminate the excess mortality of patients vs the general population. This occurs when 5-year conditional relative survival (CRS) becomes >95%;
3. Already cured patients: proportion of patients survived longer than the Time to cure;
4. Cure prevalence: the proportion of all prevalent cases who will not die of that cancer.

RESULTS

The cure fractions ranged from >90% for patients aged <45 years with thyroid and testis cancers to <10% for liver and pancreatic cancers patients. For several cancers types they increased of >10% from the 1980s to 2000s. Five-year CRS>95% is reached in <10 years by patients with cancers of the stomach, colon–rectum, pancreas, corpus and cervix uteri, and Hodgkin lymphoma. Mortality rates similar to the ones reported by the general population were reached after approximately 20 years for breast and prostate cancer patients Five-year CRS remained <95% for >25 years after cancer diagnosis in patients with liver and larynx cancers, non-Hodgkin lymphoma, myeloma, and leukemia. Time to cure was reached by 27% of all people living after a cancer diagnosis, defined as already cured. Therefore, the cure prevalence was 67% for men and 77% for women.

Conclusion and discussion: The availability of these indicators has a high potential impact on health planning, clinical practice, and patients’ perspective.
Hospital of diagnosis influences the probability to receive curative treatment for oesophageal cancer

Dr. Rob Verhoeven1
Mw Margreet van Putten2, Mr. Marijn Koëter2, Prof. dr. Hanneke van Laarhoven1, Prof. dr. Valery Lemmens1, Prof. dr. Peter Siersema4, Dr. Maarten Hulshof3, dr. Grard Nieuwenhuijzen1

1Netherlands Comprehensive Cancer Organisation, Utrecht, The Netherlands, 2Department of Surgery, Catharina Hospital, Eindhoven, The Netherlands, 3Department of Medical Oncology, Academic Medical Center, Amsterdam, The Netherlands, 4Department of Gastroenterology and Hepatology, Radboud University Medical Centre, Nijmegen, The Netherlands

BACKGROUND

Surgical treatment for oesophageal cancer (OC) is centralized in the Netherlands, while the diagnostic process is often performed in another hospital where surgical treatment is not performed. We investigated the influence of the hospital of diagnosis on the probability to undergo a potentially curative treatment and its impact on survival in patients with OC.

METHODS

All patients with OC or gastro-oesophageal junction tumors diagnosed between 2005 and 2013 who were potentially curable according to their stage (cT1-4A, N0-3, M0) were selected from the Netherlands Cancer Registry. Multilevel analysis was performed to examine the probability of undergoing potentially curative treatment (resection, definitive chemoradiotherapy or local tumor excision) according to hospital of diagnosis. Effects of variation in probability of receiving curative treatment among hospitals of diagnosis on survival were investigated by Cox regression analyses for the period 2005-2009 and 2010-2013.

RESULTS

A total of 11,728 patients with potentially curable OC, diagnosed in 91 hospitals, were included. The proportion of patients that underwent curative treatment ranged from 37% to 91% in the period 2005-2009 and from 48% to 93% in the period 2010-2013 depending on the hospital of diagnosis. After adjustment for patient- and hospital-related characteristics, this proportion ranged from 51% to 84% in the recent period (P<0.001). Multivariable survival analyses showed that patients diagnosed in hospitals with a low probability of receiving curative treatment had a worse overall survival (HR=1.08; 95%CI 1.01-1.17; HR=1.16; 95%CI 1.06-1.26).

CONCLUSION

The variation in probability of undergoing a potentially curative treatment option for OC between hospitals of diagnosis and its impact on survival indicates that decision-making in OC may be improved.

High mortality for obesity-related cancers among US-born Latino men

Prof Paulo Pinheiro1,2
Ms Karen Callahan1, Dr Hongbin Jin1, Dr. Cyllene Morris3, Dr. Scarlett Gomez4

1University Nevada Las Vegas, Las Vegas, USA, 2Nevada Cancer Registry, Carson City, USA, 3California Central Cancer Registry, Sacramento, USA, 4Greater San Francisco Bay Registry, Fremont, USA

In the US, Latinos are the largest minority group comprising 17% of the population. Overall, Latinos are perceived as having relatively low risk for cancer. However, this advantage is partially due to the Healthy Immigrant Effect and may possibly be the result of a constant immigrant influx of truly lower-risk populations.

Taking advantage of available data on birthplace on US death certificates, we examined the cancer mortality burden for Latinos in the two largest US states, California and Texas, populations 37 and 25 million respectively, comprising over 45% of all US Latinos, overwhelmingly of Mexican ancestry. Using granular data on birthplace, race, and ethnicity coding, we analyzed 282,733 cancer deaths in California and 183,018 in Texas from 2008-2012 among non-Hispanic whites, foreign-born Hispanics, and US-born Hispanics, estimating age-adjusted rate ratios using negative binomial regression models.

While overall Latinos have lower cancer mortality rates compared to whites, the risk is truly lowest among the foreign born (210 per 100,000 for white males and 166, 125, and 201 per 100,000 for combined, foreign-born, and US-born Latinos respectively.) US-born Latino males in Texas have an age-adjusted mortality rate ratio of 1.37 (95% CI:1.28-1.45) compared to whites for colorectal cancer, 1.46 for kidney cancer (CI:1.33-1.60), and 2.80 (CI:2.27-3.45) for liver cancer. These high risks, corresponding largely to obesity-related cancers, are replicated for California Latinos, albeit to a lesser extent.

Birthplace data are critical in detecting meaningful differences among US Latinos in cancer mortality. There is a need to improve the poor quality of birthplace and Hispanic origin data in US cancer registries, so that cancer risks among the highly heterogeneous US Latino population can be better characterized. High rates of cancer mortality among US-born Latino males, particularly for liver cancer, is an urgent concern, and merit public health attention.
Poster Presentation Abstract

Socioeconomic position and breast cancer survival in Switzerland

MSc Anita FELLER1,2
MD, MPH Kurt Schmidlin1, MD Andrea Bordoni1, MD Christine Bouchardy1, MD Manuela Maspoli1, MD Rafael Blanc Moya1, MD Bertrand Carney1, MD Isabelle Konzelmann1, MD Miriam Wanner2, DSc, MPH Kerri M. Clough-Gorr1,10
1Institute of Social and Preventive Medicine (ISPM), University of Bern, Bern, Switzerland, 2Nationale Institute for Cancer Epidemiology and Registration (NICER), Zurich, Switzerland, 3Ticino Cancer Registry, Locarno, Switzerland, 4Geneva Cancer Registry, Geneva, Switzerland, 5Neuchâtel and Jura Cancer Registry, Neuchâtel, Switzerland, 6Valais Cancer Registry, Sion, Switzerland, 7Fribourg Cancer Registry, Fribourg, Switzerland, 8Vaud Cancer Registry, Lausanne, Switzerland, 9Zurich Cancer Registry, Zurich, Switzerland, 10Section of Geriatrics, Boston University Medical Center, Boston, USA

PURPOSE
This study aims to investigate the association between socioeconomic position (SEP) and breast cancer survival in Switzerland.

METHODS
The study used population-based breast cancer incidence data (women aged ≥30 years, N=16,459) from the cantonal cancer registries of Fribourg, Geneva, Neuchâtel, Ticino, Vaud and Zurich 2001-2008 linked to the Swiss National Cohort. Follow-up and cause-specific death information was available until the end of 2013. Stage at diagnosis was classified by SEER summary stage (localized, regional, distant). We used highest education level attained to estimate SEP (compulsory or less, secondary education, tertiary education). To assess the association between SEP and breast cancer survival, competing risk regression models were performed using attained age as time-scale. The final fully adjusted model reports sub-hazard ratios (SHRs) with 95% confidence intervals (95% CI) and included the following covariates: stage at presentation, age at diagnosis (<50, 50-70, 71-85, >85 years), civil status (single, married, widowed, divorced) and nationality (Swiss, non-Swiss). Final analyses will also include estimates of relative survival based on life-tables stratified by SEP, civil status and nationality.

RESULTS
Compared to women with tertiary education, adjusted SHRs were higher in women with secondary (1.07, 95% CI 0.93-1.22) and compulsory or less education (1.28, 95%CI 1.11-1.48). Later stage at presentation was strongly associated with elevated SHRs (regional: 4.03, 95%CI 3.60-4.50; distant: 24.44, 95%CI 21.35-28.00). Compared to women aged 50-70 years, women aged 71-85 years (1.37, 95%CI 1.23-1.53) and >85 years (1.28, 95%CI 1.11-1.48) showed increased SHRs. For women aged <50 years reduced SHR were observed (0.75, 95%CI 0.66-0.86). Non-Swiss residents showed a decreased SHR of 0.79 (95%CI 0.68-0.90). We observed no significant effect for civil status.

CONCLUSIONS
The results indicate social inequalities in survival for women diagnosed with breast cancer in Switzerland. Importantly, these inequalities cannot be explained by socioeconomic differences in stage at presentation.

Metabolic syndrome as an independent risk factor for cancer in a Mediterranean eight-year population-based cohort

Prof. Marc SAEZ1,4, Dr. Maria A Barcelò1,2, Marta Solans-Margalef1,3, Dr. Carme Saurina1,2, Dr. Rafael Marcos-Gragera1,4, Dr. Gabriel Coll-de-Tuero1,6,7
1Research Group on Statistics, Econometrics and Health (GRECS), University Of Girona, Girona, Spain, 2CIBER in Epidemiology and Public Health (CIBERESP), Madrid, Spain, 3Epidemiology Unit and Girona Cancer Registry, Oncology Coordination Plan. Department of Health. Autonomous Government of Catalonia. Catalan Institute of Oncology. Girona, Spain, 4Research Support Unit. University Institute of Research in Primary Care Jordi Gol (IdiPACGol), Girona, Spain, 5Department of Medical Sciences, University of Girona, Girona, Spain

BACKGROUND
There is already enough evidence of the association of metabolic syndrome (MetS) and its components with the risk of some common cancers - colorectal, breast, endometrial, pancreas, liver, bladder and, although controversial, prostate cancer. It is still debated whether this association is independent or attributable to some of MetS components. To unravel it, we conducted a retrospective cohort study on 21,546 adults to determine the independent effect of MetS and its components on cancer risk.

METHODS
A retrospective cohort (between January 1, 2005 and December 31, 2012) was made up of individuals from the general population in a region in the northeast of Catalonia, Spain. Data on demographics, lifestyle factors and the MetS components were collected among 30,321 men and 11,225 women aged 15 years or older. Given that most of the explanatory variables of the risk of having cancer were time dependent and, therefore, the risk was not proportional, we used the Andersen-Gill (AG) model to perform a multivariate survival analysis. Inferences were performed using a Bayesian framework.

RESULTS
5124 (23.8%) of the participants developed MetS and 1776 (8.2%) patients developed a neoplasm – 175 prostate, 154 breast cancer, 153 colorectal, 70 bladder, 45 endometrial. As preliminary results we found that more than the MetS are two of its components, impaired glucose intolerance (relative risk, RR, 1.99, 95% CI 1.41-2.82) and high blood pressure (RR=1.66, 95% CI 1.28-2.15) (without a diagnosis of diabetes mellitus and hypertension, respectively), which are associated with the occurrence of any cancer. Although this association is maintained when stratified by sex, age, comorbidity, smoking and alcohol and medications, the risk differs between different neoplasms.

CONCLUSION
Our results indicate that impaired glucose intolerance and high-blood pressure, both core components of MetS, are consistently associated with an increased risk of several cancers in adults.
World-wide trends in stage-specific survival from cervical cancer (CONCORD-2)

Miss Rhea HAREWOOD, Dr Audrey Bonaventure, Professor Michel Coleman, Dr Claudia Allemani, CONCORD Working Group

Cancer Survival Group, Department of Non-Communicable Disease Epidemiology, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK, London, United Kingdom

BACKGROUND

Cervical cancer remains one of the most common cancers among women. The CONCORD-2 study revealed huge world-wide variation in age-standardised net survival, ranging between 40% and 80% for women diagnosed during 2005-2009 in 61 countries. Stage at diagnosis is a strong predictor of cancer prognosis, and it has been shown to account for some of the survival differences between high-income countries.

We aimed to examine the extent to which world-wide differences in survival are reflected in survival by stage.

METHODS

We developed an algorithm to assign each tumour as either localised or advanced stage, utilising available information on TNM, FIGO, condensed TNM, and SEER Summary Stage in a hierarchical manner.

Survival was estimated for localised and advanced disease and, where possible, for the more detailed TNM stage categories, for women diagnosed during 2001-2003 and 2004-2009. To control for international differences in background mortality, we constructed life tables by single year of age, single calendar year and, where possible, race or ethnicity, for each country or region. We estimated net survival with the non-parametric Pohar-Perme estimator, using the cohort approach for women diagnosed in 2001-2003 and the complete approach for women diagnosed in 2004-2009.

RESULTS

Following standardised quality procedures, usable stage information was available from 27 countries for 164,661 women (15-99 years) diagnosed with invasive cervical cancer between 2001 and 2009. We will present trends and international differences in 1- and 5-year net survival by stage at diagnosis.

CONCLUSION AND DISCUSSION

Surveillance is essential for monitoring survival trends, which are required for guiding national cancer policies. These results will highlight the extent of worldwide disparities in stage-specific survival from cervical cancer. They will contribute to the evaluation of current screening programmes and to the implementation and assessment of policies to reduce inequalities in survival.

Different association between neighborhood-level socioeconomic status and cancer risk, from 12 cancer registries data

Prof Sun-seog KWEON, Miss Min-Gyeong Kim, Miss Mi-Ran Kang, Mr. Kwang-Wook Kim, Prof. Min-Ho Shin, The Community of Population-Based Regional Cancer Registries in Korea

There have been research showing the association between socioeconomic status (SES) and risk of cancer both in individual and neighborhood level. The low socioeconomic state is closely associated with higher incidence of some major cancer, both on individual and community level. On the other hand, there seems to be an inverse association between the socioeconomic state and the incidence of some cancers including breast and thyroid cancer, which are reported to have lower incidence or mortalities in less deprived areas or peoples. Therefore, we could hypothesize that cancer risk depends on the site of cancer itself, and the regional environment of cancer patients.

This study performed to evaluate the association between socioeconomic deprivation and cancer risk using 12 population-based cancer registries data of South Korea. Cumulative incidences of 10 major cancers during 2008-2012 were estimated from total of 178 counties. Correlation with deprivation index and cancer incidence of each cancer site was estimated. Incidence rate ratio (IRR) was also calculated according to regional deprivation index quartiles across the 10 major cancers.

Significant correlation between deprivation index and all sites cancer incidence was showed in men, but inverse correlation found in women. We also found differences in the association between deprivation index and cancer risk according to sites after adjusting for neighborhood-level health behaviors and medical facilities related factors. Higher risks of breast cancer, thyroid cancer, colorectal cancer were showed in less deprived areas.

In conclusion, we could suggest the ecological correlation between cancer incidence and neighborhood SES-related factors differs by cancer sites and sex.
Establishment of Cancer Registry population based in Khuzestan Province, Iran; 2016

Dr Maria CHERAGHI,
Dr Nader Sakî2, Dr Ali Khodadadi3, Dr Esmail Idani4
1Ahvaz Jundishapur University Of Medical Sciences, Ahvaz, Iran, 2Ahvaz Jundishapur University Of Medical Sciences, Ahvaz, Iran, 3Ahvaz Jundishapur University Of Medical Sciences, Ahvaz, Iran, 4Ahvaz Jundishapur University Of Medical Sciences, Ahvaz, Iran

INTRODUCTION
Incidence of cancer has been growing in low and middle income countries including Iran. People in the Khuzestan Province located in the south west of Iran were exposed to the effects of the petroleum industry. Previous attempts failed to estimate cancer incidence in this area. Khuzestan Province was selected to establish population based cancer registry.

METHODS
We reviewed the last results of pathology based cancer registry in Khuzestan province. We selected year 2015 as the starting year for population based cancer registry. In addition to the active data collection, we started automatic pathology reporting to collect data from different pathology centers.

RESULTS
Based on pathology-based cancer registry in 2009, common cancers in this province include breast (ASR= 35.44), skin (ASR= 14.76), colon and anal (ASR = 9.73) in female and in male was skin (ASR= 15.36), lung (ASR= 12.04), stomach (ASR = 11.51). We succeeded to connect 35 laboratories to the central data bases.

CONCLUSION
Accurate estimates of cancer incidence among people living in Khuzestan province will provide opportunity to study association of cancer risk and exposure to petroleum. It will also provide data for an evidence-based cancer control planning in this region.

Epidemiology of childhood and adolescent cancer in Bangladesh, 2001-2014

Dr Mohammed S HOSSAIN,
MSc Mamta Begum2, MSc Md Mahmuduzzaman Mian1, Shameema Ferdous1, MD Shahinur Kabir1, MD Humayun K Sarker1, MD Sabina Karim1, MD Salma Choudhury2, Dr Asaduzzaman Khan7, Dr Zohora J Khan1, Dr Henrike E Karim-Kos8
1Faculty of Basic Sciences, Bangladesh University of Health Sciences, Dhaka, Bangladesh, 2National Institute of Cancer Research and Hospital, Dhaka, Bangladesh, 3Centre for Excellence, University of Dhaka, Dhaka, Bangladesh, 4Talent Hub, Dhaka, Bangladesh, 5ASHIC Foundation, Dhaka, Bangladesh, 6Dhaka Medical College and Hospital, Dhaka, Bangladesh, 7School of Health and Rehabilitation Sciences, University of Queensland, Brisbane, Australia, 8Dept. Public Health, Erasmus MC University Medical Centre, Rotterdam, The Netherlands

BACKGROUND
Cancer burden among children and adolescents is largely unknown in Bangladesh. This study aims to provide a comprehensive overview on childhood and adolescent cancers and to contribute to the future strategies to deal with these diseases in Bangladesh.

METHODS
Data on malignant neoplasms in patients aged less than 20 years, diagnosed between 2001 and 2014 (N = 3 143) in Bangladesh was collected by the National Institute of Cancer Research and Hospital, and ASHIC Foundation. The age pattern and distribution of cancer types were analysed and the incidence rates were calculated.

RESULTS
The age-standardised incidence rate was 7.8 per million person-years for children (0-14 years) in the last time period (2011-2014). Retinoblastoma (25%) and leukaemia (18%) were the most common childhood cancers. For adolescents (15-19 years), the age-specific incidence rate was 2.1 per million person-years in the same time period. Most common adolescent cancers were malignant bone tumours (18%), germ cell and gonadal tumours (17%), and epithelial tumours (16%). There were more boys affected (M: F ratio 2.0 in children and 1.4 in adolescents) than girls.

CONCLUSION
Cancer incidences were lower than expected most likely due to a low level of awareness about cancer among clinicians and the population, inadequate access to health care, lack of diagnostic equipment and incomplete recording of cases. Improvements on different levels should be made to get a better epidemiologic insight and to detect cancer earlier resulting in a better outcome for affected children and adolescents.
Investigating the compatibility of application elements in pathology labs and cancer registry minimum data set

Dr Nasrin DAVARIDOLATABADI, Dr Abdolazim Nejatizadeh, Dr Mehraban Shahi, Mrs Maedeh Hashemipour

1Health Information Management Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran, Bandar Abass, Iran, 2Department of Genetics, Faculty of Medicine, Hormozgan University of Medical Sciences, Bandar Abbas, Iran, Bandar Abass, Iran, 3Population-Based Cancer Registry, Hormozgan University of Medical Sciences, Bandar Abbas, Iran, Bandar Abass, Iran

BACKGROUND

Cancer registry requires clearly defined minimum data sets as well as standardized guidelines for data collection. This study has conducted to investigate the compatibility of data elements in pathology centers and cancer registry minimum data set.

METHODS

This descriptive research is a cross sectional study. We collected pathology reports from all pathology labs in Hormozgan province, located in the southern Iran in the Persian Gulf. The minimum data set for PBCR consist of patient identification, healthcare provider elements, sample elements, pathologic diagnosis elements. The instrument was a standardized questionnaire that were grouped into three categories: Basic Profile pathology centers (13 items), Pathology reports (21 items), software used in pathology centers (8 items). In the study, researchers used the SPSS 20 to analyze the data.

RESULTS

All information concerning patient’s identity (100%) including national identification number, name and family name, father’s name, sex, birth date, city of birth, place of residence, contact number were already integrated into laboratory information system (LIS) used in labs. Service provider’s information and sample information has got a distinct item in the application of labs. Elements of pathologic diagnosis section include disease group (neoplasm or another disease), topography for each neoplasm according to the ICD-O-3-C coding system, morphology of the neoplasm according to the ICD-O-3-M coding system, and pathology reporting date. In all of LIS 100% exist pathology reports date, but only 44 percent of them, had a special section for recording diagnostic code that users were unaware of its existence or were not aware of its use.

DISCUSSION

In order to duplicate person search are suggested to ask national identification number, as an obligation. ICD-O-3 is required to be taken as a routine action in pathologies. Items of minimum data set, are available in the applications. Their completion should be reminded to lab personnel.

On cancer data harmonisation: A common quality-checking software tool for the European population-based cancer registries

Dr Carmen MARTOS, Dr Francesco Giusti, Dr Giorgia Randi, Dr Emanuele Crocetti, Dr Tadeusz Dyba, Dr Lydia Voti, Dr Roisin Rooney, Ms Raquel N. Carvalho, Mr Nicholas Nicholson, Ms Manola Bettio

1European Commission, DG Joint Research Centre, Ispra, Italy

BACKGROUND

In 2013 the Joint Research Centre (JRC) and the European Network of Cancer Registries (ENCR) launched an initiative to establish a standardised list of cancer data quality checks. A Working Group was established and the JRC Technical report ‘A proposal on Cancer Data Quality Checks: one common procedure for European cancer registries’ was published in 2014. This report served as the basis for a data-quality-check software developed by the JRC. The objective of this study is to explore on real data the ability and utility of the JRC software tool to check the internal consistency of data provided by the European cancer registries (CRs).

METHODS

Data from European population-based CRs applying to the ENCR-JRC project in the 2015 ENCR-JRC data call were included in the analysis. The JRC-ENCR software was used to check the internal consistency of the data. Consistency within and between variables was assessed and edits for multiple primary tumours were also applied.

RESULTS

A total of 73 CRs from 20 European countries were included in the study and 16,881,458 cases were analysed. Only 0.8% of the cases needed additional checks (range: 1.9% Northern European CRs and 0.2% Western European CRs). The low overall proportion of warning messages (6.2%) was due to missing values for demographic data and tumour topography. The proportion of cases with unspecified morphology was 12% (range: 22% Eastern and 7% Western European CRs). A greater variability was found among CRs data for tumour grade, stage, patient follow-up and multiple primary tumours.

CONCLUSION

Using a common data quality checklist will improve the comparability among European CRs. The JRC-ENCR quality checks software will be soon released and made available to all European population-based CRs. New international rules and the feedback from CRs will be taken into account for future versions of the software.
Nationwide statistical analysis of lymphoid malignancies in Korea from 1999 to 2012

MS Eun-hye PARK1, MD Hyewo Lee1, MD Hye Young Ju1, MD Eunyoung Lee1, MD Chang-Mo Oh1, MS Kyu-Won Jung1, MS Hyun-Joo Kong1, MD Byung-Kiu Park1, MD Hyeon-Seok Eom2, PhD Young-Joo Won1

1Division of Cancer Registration and Surveillance, National Cancer Center, Goyang-si, Republic of Korea, 2Research Institute and Hospital, National Cancer Center, Goyang-si, Republic of Korea

BACKGROUND
The incidence of lymphoid hematologic malignancies has been reported showing different geographical distribution between the ethnic groups. However, large-scale and comprehensive epidemiologic analysis in Korea has been limited so far.

METHODS
The Korea Central Cancer Registry (KCCR) performed the nationwide analysis on the incidence and survival of hematologic malignancies including lymphoid diseases, from the Korean National Cancer Incidence Database. Subtypes of hematologic malignancies were coded by the ICD-O-3 and were grouped according to the WHO classification.

RESULTS
Overall 102,872 hematologic malignancies were identified between 1999 and 2012 from the database, including 65,948 (64.1%) lymphoid diseases. Incidence of lymphoid malignancies has increased according to age, with a peak in 70s. There was slight male dominance (M:F=1.28:1 in 2012). Annual age-standardized incidence rates (ASR) per 100,000 persons of Hodgkin’s lymphomas, mature B-cell neoplasms, mature T/NK cell neoplasms, and precursor cell neoplasms were 0.24, 3.41, 0.47, and 1.33 in 1999, and 0.46, 6.60, 0.95 and 1.50 in 2012, showing increasing trends with annual percentage changes of 5.0%, 5.6%, 6.6% and 1.4%, respectively. Composite Hodgkin’s and non-Hodgkin’s lymphomas were extremely rare less than 5 cases per year. Five-year relative survival of Hodgkin’s lymphomas, mature B-cell neoplasms, mature T/NK cell neoplasms, and precursor cell neoplasms were 83%, 63.8%, 50.4%, and 56.3%, respectively. In subgroup analysis, survival improvement was observed in patients with Hodgkin’s lymphomas (71.1- 83.0%), diffuse large B-cell lymphomas (49.5-61.5%), plasma cell neoplasms (20.2-36.9%), and precursor cell lymphoblastic leukemia (41.4-56.3%) throughout the time intervals of 1993-1997, 1998-2002, 2003-2007, and 2008-2012. However, survival rates of T/NK cell lymphomas excluding cutaneous T cell lymphomas ranged 40.5-44.2% during the study period. Survival rates have decreased according to the age groups in most subtypes, showing poor prognosis in elderly patients.

CONCLUSION
This report updated the Korean nationwide statistical analysis of lymphoid malignancies since 2008, providing subtype-specific epidemiologic data.

THE TENDENCY OF CHILDHOOD CANCER MORTALITY IN BRAZIL FROM 1996 TO 2012

Dr. Jane Kelly Oliveira FRIESTINO1,2, Miss Ariane Sabina Steven1, Dr. Paulo Roberto Barbato1, Dr. Rosemeire de Olanda Ferraz2, Dr. Priscila Maria Stolses Bergamo Francisco2

1Federal University Of Fronteira Sul, Chapecó, Brazil, 2University of Campinas, Campinas, Brazil

BACKGROUND
The childhood cancer mortality in Brazil occurs in different ways in the distinct regions of the country. The data of deaths has been one of the most reliable ways of monitoring. Cancer remains the leading cause of death in childhoods over five years old, behind only the external causes. The aim of this study was to analyze the temporal trend of standardized rates of cancer mortality in children and adolescents in the period from 1996 to 2012 in the five Brazilian regions.

METHOD
This is an ecological time series study of standardized rates of cancer mortality in children and adolescents, between 0 to 19 years old, under Brazilian regions from 1996 to 2012. The rates were standardized by age and analyzed using a polynomial model, segmented regression (Join point).

RESULTS
The North and Northeast regions had the largest increases in linear component APC 2.62 and 3.17 respectively. The largest annual percentage change in mortality rates occurred in the Northeast (APC = 3.2 and CI: 2.5 to 3.8) in the period from 1996 to 2012, while the most expressive and significant drop was in the Southeast (APC = -2.3 and CI: -2.8 to -1.8) in the period from 1996 to 2006. The Midwest region did not show significant annual variation. To the North, Northeast and Southeast linear model was the most appropriate. Quadratic or cubic models were the most suitable for the South.

CONCLUSION
Brazilian regions do not have the same cancer mortality trends in children during the study period. It noted a significant increase in the North and Northeast and decline in the Southeast and South region. The regions that showed an increase are also those with less socioeconomic and health conditions as well as difficult access to healthcare services.
Estimates of cancer incidence 2016, State Sergipe, Brazil: Using data from Aracaju Cancer Registry

Dr Carlos Anselmo LIMA1, Dr Marceli Santos1, Dr Rejane Reis2, José Erinaldo Oliveira1, Sueli Vieira1, Elma Oliveira1, Dr Marcia Lima1, Dr Angela Silva1, Suzana Carvalho1, Sueli Vieira1, Elma Oliveira1, Dr Marcia Lima1, Dr Angela Silva1

1Aracaju Cancer Registry/Health Agency, State Of Sergipe, Brazil, Aracaju, Brazil, 2Instituto Nacional de Câncer José Alencar Gomes da Silva. Coordenação de Prevenção e Vigilância, Rio de Janeiro, Brazil

BACKGROUND
Cancer incidence and mortality data are important to assess the impact of control strategies. Incidence estimates using data of cancer registries are published in Brazil every two years using mean rates of the regions to extrapolate to states. We provide incidence estimates for the State of Sergipe, using data from Aracaju Cancer Registry (CR).

METHODS
We used incidence rates from CR, 2007-2011. Aracaju is the capital of Sergipe, which is divided into seven Health Regions (HR). We collected mortality data from official System of Information on Mortality (SIM). Incidence and mortality rates were calculated using populations of each region. The method proposed by Black et al. was used to estimate incidence in each HR. Crude mortality rates were calculated using populations of areas where deaths occurred, then a regression model was applied. When data fluctuated, we applied mean period rates. To estimate incidence, HR mortality rates were multiplied by incidence to mortality ratios of CR area.

RESULTS
We will present estimations for incident cases and age-standardized incidence rates (ASR) for 19 cancer site. Excluding non-melanoma skin cancer, prostate (men) and breast (women) cancer are expected to present the highest incidence rates in the state, with ASR of 100.3/100,000 and 45.7/100,000 respectively. ASR showed variation among HR. They varied from 75.42-123.13 per 100,000 for prostate cancer and 24.56-62.22 per 100,000 for breast cancer. Thyroid cancer estimates were high and also varied, from 10.02-41.95 per 100,000 women. Cancer of the cervix was third, with estimated rates from 11.24-20.65 per 100,000 women.

CONCLUSION
The estimates of cancer incidence 2016 for Sergipe, show how data of CR can be used at local level, and help monitor disease surveillance and implement public policies to help control the most incident cancer types.

Recent trends in colorectal cancer incidence and mortality in Daejeon, South Korea

Prof Hae sung NAM1, MSc JeungA Kim2, MSc Miran Kang2, Seo-Hee Park2

1Chungnam National University School Of Medicine, Daejeon, South Korea, 2Daejeon Regional Cancer Center, Chungnam National University Hospital, Daejeon, South Korea

OBJECTIVES
South Korea has been one of the high risk countries for colorectal cancer (CRC) incidence in the last decade. We described the time trends in colorectal cancer incidence and mortality in Daejeon metropolitan city, South Korea.

METHODS
Using the Daejeon Cancer Registry database, age-standardized (to world standard population) rates for incidence (ASRI) and mortality (ASRM) were calculated by sex. Annual percent change (APC) and average annual percent change (AAPC) was assessed using joinpoint regression.

RESULTS
In men, ASRI increased during 2000-2008 (APC, 5.9%) and then stopped the increment during 2008-2013 (APC, -1.4%) (AAPC, 3.0% during 2000-2013). In women, ASRI increased during 2000-2010 (APC, 5.0%) and then decreased during 2010-2013 (APC, -6.6%) (AAPC, 2.2% during 2000-2013). The trend in CRC mortality was different to that of CRC incidence. Over 2000-2013, ASRM had no significant change among men (AAPC, 0.2%) and women (AAPC, -0.4%), respectively.

CONCLUSIONS
Daejeon had an increase in CRC incidence but not in CRC mortality during 2000-2013. The trends were similar in both sexes. This pattern seems to follow that of high-income countries such as Canada, UK, Denmark, and Singapore.
Trends for carcinoma and carcinoma in-situ incidence in Busan, South-Korea, 1999-2013

Mrs Soon Young CHOI1, MD Chang hun Kim, Mrs Kyu yen Whang
1Busan Cancer Registry, BUSAN, KOREA

BACKGROUND
This study attempted to examine trends for cancer and carcinoma in-situ incidence during 15 years (1999-2013) in Busan, South Korea and produce the evidence for establishing and performing regional policies for cancers.

METHODS
Data for study was obtained from the Regional Cancer Registry Database in Busan, Korea, 1999-2013. Crude rates (CRs) and Age-standardized rates (ASRs) per 100,000 persons for carcinoma and carcinoma in-situ in thyroid, colon-rectum, breast and cervix uteri were calculated. We analyzed annual trends for these incidences for 15 years.

RESULTS
5-RSRs of 1,687,127 patients with cancer who were diagnosed in the recent period (2005–2009) for all sites combined are 71.2% in 35-64 years of age, 45.8% in 65 and older. When compared with earlier periods (1993-1995), increasing rates of 5-RSR are 58.9% in 35-64 years of age, 59.0% in 65 and older. When examined by age groups and periods of diagnosis at major cancer sites, for stomach, breast, thyroid cancer sites, increasing rates of the 5-RSRs of patients 65 and older appeared to be higher than patients 35-64 years of age. For liver, gallbladder and etc., pancreas, lung, ovary cancer sites, increasing rates of the 5-RSRs of patients 35-64 years of age appeared to be higher than patients 65 and older.

CONCLUSION
Trends for incidences of both carcinoma and carcinoma in-situ (except cervical carcinoma in-situ) seems be increased. In cervix uteri, however, ASR has a different transition that seems evident downward trends in carcinoma and upward trend in carcinoma in-situ. These results seem to have been affected by the National Cancer Screening Program which began in 2006.

Completeness and validity of the cancer data in the Finnish Cancer Registry

Mrs Sanna HEIKKINEN1, Dr Maarit Leinonen1, Mr Joonas Miettinen1, Dr Janne Pitkäniemi1, Prof. Nea Malila1
1Finnish Cancer Registry, Helsinki, Finland

BACKGROUND
The Finnish Cancer Registry (FCR) has a long tradition of collecting data and monitoring the cancer burden in the country. Completeness for solid tumours has been close to 100% but the estimate is based on cases diagnosed thirty years ago. Thus, we aimed to provide a comprehensive data quality assessment at the FCR.

METHODS
Established quantitative and semi-quantitative techniques with a special focus to review cases diagnosed in 2009-2013.

RESULTS
The FCR’s database for the period 2009-2013 comprised 150,405 incident cases. Childhood cancer incidence rates for both genders were close to the upper limit of the reference interval. Overall, 93.0% of all new cancer cases were morphologically verified. There was great variation according to the cancer site, %MV being lowest of 44% for the site uterus, other (C55). Independent case ascertainment using hospital discharges and mortality to incidence ratios revealed that substantial amount of solid tumours without histological verification, such as benign or borderline tumours of brain and central nervous system and eye tumours, are missing from the FCR.

CONCLUSION AND DISCUSSION
In spite of slight violations from the recommended rules by the European Network of Cancer Registries, registration and coding routines in place at the FCR yields comparable data of high quality. Registration of tumours without histological verification is incomplete and warrants an active trace-back using external data sources like hospital discharges.
Long term childhood cancer survivors: A pilot study in Italy

Dr Silvia FRANCISCI1, Dr Anna Gigli2, Dr Stefano Guzzinati1, Dr Luigiino Dal Maso1, Dr Carlotta Sacerdote1, Dr Daniela Alessi1, Dr Daniela Pierannunzio1, Dr Silvia Rossi1, Dr Andrea Tavilla1, Dr Carlotta Buzzoni2

1National Centre for Epidemiology, Surveillance and Health Promotion. Istituto Superiore di Sanità, Rome, Italy, 2Institute of Research on Population and Social Policies. National Research Council, Roma, Italy, 3Registro Tumori Veneto, Padova, Italy, 4Centro di Riferimento Oncologico, Aviano, Italy, 5Centro di Riferimento per l’Epidemiologia e la Prevenzione Oncologica in Piemonte, Torino, Italy, 6Istituto per lo Studio e la Prevenzione Oncologica, Firenze, Italy

BACKGROUND

Childhood cancer survival has increased significantly during the last decades. As a result, an increasing number of adults require appropriate follow-up care due to recurrences and late effects of early treatments. This study contributes to the ongoing discussion about the design and delivery of care to long term childhood survivors: by estimating their number, features and age distribution in the Italian cancer registry areas.

METHODS

We apply the CHILDREPREV method to limited duration prevalence of 15 Italian registries, and obtain complete prevalence of people of all ages who were diagnosed during their childhood of one of the following cancers: Acute lymphocytic Leukemia (ALL), Brain and Central Nervous System cancer (CNS), Hodgkin lymphoma (HL), and all cancer types combined but non-melanoma.

We also reconstruct the patterns of care in adult age of individuals diagnosed with cancer in childhood age in Veneto and Piemonte, by linking at individual level cancer registry data with hospital admissions archives. We compute hospitalization and incidence rates for diseases possibly related with childhood cancer treatment and compare results with those obtained for the general population with same age, gender, residence area.

RESULTS

In Italy we estimate about 44,000 survivors of childhood cancer at January 1, 2010 out of 2.6 million people living with a cancer diagnosis; ALL accounts for 23% of prevalent cases, CNS for 24% and HL for 7%. Severe diseases possibly related with childhood cancer treatments are present in 3.4% and 2.6% of childhood cancer survivors in Piemonte and Veneto, respectively; these proportions are significantly higher than those measured in regional populations.

DISCUSSION AND CONCLUSIONS

Adults with a childhood cancer diagnosis represent a relevant target from the public health perspective. Providing for them specific health care monitoring is appropriate for early detection and timely treatment of late effects and severe diseases.

Polymorphisms of nucleotide-excision repair genes and nasopharyngeal carcinoma in Naga population

Dr Vinotsole KHAMO1, Miss Chenole Keppen1,2, Dr Manab Deka1, Dr Subhash Medhi1

1Department Of Bioengineering And Technology, Gauhati University Institute Of Science And Technology, Guwahati, Assam, Guwahati, India, 2Healthcare Laboratory and Research Centre, Naga Hospital Authority Kohima, Nagaland, Kohima, India

BACKGROUND

Nasopharyngeal carcinoma (NPC) is uncommon in most parts of the world but is highly prevalent in Nagaland, India. Recent report has shown that Nagaland has the 2nd and 3rd highest incidence of NPC among females and males respectively in the world. To assess the risk of NPC in Naga population, this study sought to determine single nucleotide polymorphisms in nucleotide excision repair genes of XPC rs2288000 (Val499Ala), XPD rs13181 (Lys751Gln) and ERCC1 rs3212986 (Cys8092Ala).

METHOD

Blood sample were collected from 55 NPC patients (M:F 2:1, mean age: 49±11.8 yrs) from Naga Hospital Authority Kohima. Controls were matched by age, sex and tribe. DNA was isolated from whole blood and the genetic variants of the SNPs were determined by using PCR-RFLP method.

RESULTS

In case of XPC Val499Ala, Val/Ala genotype (OR=2.05, Chi sq.=5.2 p=0.01) showed a significant correlation with NPC whereas Ala/Ala genotype (OR=2.2, chi sq.=1.3, p=0.12) and allelic frequency (OR=1.60, Chi sq.=1.89, p=0.08) showed nonsignificant correlation. For XPD Lys751Gln, both Lys/Gln genotype (OR=1.22, Chi sq.=0.33, p=0.28) and allelic frequency (OR=0.88, Chi sq.=0.03, p=0.43) gave nonsignificant correlation. For ERCC1 Cys8092Ala, Cys/Ala genotype (OR=3.36, Chi sq.=14.53, p=0.00) showed a highly significant association with NPC whereas Cys/Cys genotype (OR=1.3, Chi sq.=0.07, p=0.47) and allelic frequency (OR=1.60, Chi sq.=1.89, p=0.08) showed no association. For life style factors, smoking (OR=2.46, Chi sq.=7.51, p=0.002) showed a highly significant correlation with NPC whereas both alcohol consumption (OR=1.32, Chi sq.=0.73, p=0.19) and tobacco chewing(OR=1.65,Chi sq.=2.28, p=0.06) showed nonsignificant association with NPC.

CONCLUSION

The present study provides an estimate of allele and genotype distributions of XPC Val499Ala, XPD, Lys751Gln and ERCC1 Cys8092Ala, polymorphisms wherein XPC Val/Ala genotype, ERCC1 Cys/Ala His280His genotype and smoking are found to be associated with increased risk of NPC in Naga population. Larger population based studies have to be done in our population to confirm our findings.
Essential TNM: a cancer registry tool to reduce gaps in cancer stage information

Dr Marion PINEROS1, Professor James Brierley2, Dr Freddie Bray1, Mr Morten Evrik1, Dr Max Parkin1, Dr Brian O'Sullivan2, Dr Kevin Ward1, Dr Ariana Znaor1, Professor Mary Gospodarowicz2

1International Agency For Research On Cancer, Cancer Surveillance Section, Lyon [Rhône], France, 2University of Toronto, Princess Margaret Cancer Centre, Toronto, Canada, 3Georgia Center for Cancer Statistics, University of Emory, Georgia, USA

BACKGROUND
Information on extent of disease at diagnosis is crucial for management of patients and cancer control purposes. The TNM system is the most used cancer staging classification though difficult to use by population-based cancer registries (PBCR) particularly in low and middle income countries (LMIC). The objective was to develop a simplified system comparable to TNM for use by PBCR.

METHODS
We developed Essential TNM using an approach starting with the most advanced disease form, summarizing extent of disease in the following order: M, N and T. Diagrams and rules for combining Essential TNM elements into stage groups (I-IV) were developed for breast, cervix, prostate and colon cancers. Essential TNM stage groups were compared to full TNM stage groups in two field studies: 1) 50 cases of each of the four cancers, were coded independently by a cancer registrar using Essential TNM and by a clinical oncologist using TNM; 2) information from one dataset containing 29,941 cases with TNM stage was recoded according to Essential TNM.

RESULTS
Essential TNM and TNM stage groups had a very good concordance for colon and cervix cancers; breast and prostate cancers presented difficulties in both field studies. After adjustments, a new database test performed for breast cancer (n=13,750) showed that compared to TNM, Essential TNM stages I, II, III and IV had an agreement of respectively 95.5%, 100%, 71% and 100%; there was over-assignment of stage II and under-assignment of stage III by Essential TNM.

CONCLUSIONS
Essential TNM is an alternative to provide staging information by PBCR that complies with the objectives of the Global Initiative for Cancer Registry Development (GICR).

Trends in the cancer survival gap between elderly and middle-aged patients in Switzerland

Dr Matthias LOREZ1, PD Dr Volker Arndt2,3

1National Institute for Cancer Epidemiology and Registration, Zurich, Switzerland, 2Epidemiological Cancer Registry Baden-Württemberg, Heidelberg, Germany, 3German Cancer Research Center, Heidelberg, Germany

BACKGROUND
Survival from cancer has been improving for most types of cancer over the last decades in many countries. Several studies indicated a widening gap in relative cancer survival with less improvement among older versus younger cancer patients. The present study compares the survival of elderly (75-94) and middle aged (60-74) cancer patients in Switzerland, with an emphasis on the question whether age-related survival gaps have changed over time.

METHODS
Primary malignant cases were pooled from all nine Swiss cantons registering cancer from 1996 up to 2012 and providing vital status follow-up information at time of analysis. Relative survival (RS) of the period analysis approach was used which adjusts for higher comorbidity in the elderly. Relative excess risk of death due to cancer (RER) was calculated as the ratio of the logarithm of RS in elderly and middle-aged persons.

RESULTS
Our main finding is that survival gaps between elderly and middle-aged patients have been rather stable in Switzerland for most cancer sites since 1996. We observed, however, a prominent widening of the survival gap selectively for prostate cancer based on larger survival gains in middle-aged versus elderly men. On the other hand, there were strongly decaying survival gaps for melanoma (both genders), as well as for cancer at the oral cavity/pharynx (women only), based on survival gains restricted to elderly patients.

CONCLUSION AND DISCUSSION
In contrast to other countries, prognosis for most types of cancer has improved similarly for elderly and middle-aged patients in Switzerland. The Prostate cancer finding was probably affected by overdiagnosis and overestimated survival improvements selectively in middle-aged men. The disappearance of survival disadvantages for elderly melanoma patients likely reflects improved health behavior and practices. Nevertheless, survival gaps still exist and further efforts are necessary to improve earlier diagnosis and optimize cancer care, especially among the elderly.
Characteristics of interval colorectal cancer among participants in immunochemical fecal occult blood test screening

Dr Fumitaka MOKI 1, Dr Hiroaki Hagiwara 2, Dr Nobuhiro Saruki 3, Dr Hiroshi Koyama 4

1 Gunma Health Foundation, Maebashi, Japan, 2 Maebashi Medical Association, Maebashi, Japan, 3 Gunma Prefectural Institute of Public Health and Environmental Sciences, Maebashi, Japan, 4 Gunma University Graduate School of Medicine, Maebashi, Japan

BACKGROUND
There have been few reports about interval colorectal cancer in persons undergoing screening by the immunochemical fecal occult blood test (iFOBT). We investigated the characteristics of interval colorectal cancer among participants in an iFOBT screening program.

METHODS
Interval colorectal cancer was defined as cancer diagnosed by another test within 2 years of a negative iFOBT. The gender, age, stage, location, seasonality, and histological features of interval cancer were compared with those of cancer detected by screening. Medical records of the subjects were linked with confirmed colorectal cancer records from the Gunma Cancer Registry to identify interval cancers.

RESULTS
Among 27,870 iFOBTs, there were 37 interval cancers and 85 screening-detected cancers. Interval cancers arising in elderly persons and tumors of the cecum were more likely to be higher stage, and cecal tumors were more common in the elderly. Lower stage interval cancer showed seasonal variation. The risk factors for higher stage interval cancer were old age and a cecal location, while lower stage cancer was associated with the summer season and a rectal location.

CONCLUSION AND DISCUSSION
The stage of interval cancer is associated with gender, age, season, and location. iFOBT has a lower detection rate for cancer of the right colon in elderly persons.

Cancer incidence projections to 2035 in Northern Ireland

Dr Anna GAVIN 1, Dr David Donnelly 2

1 N. Ireland Cancer Registry, Queen’s University Belfast, N. Ireland, 2 Previously N. Ireland Cancer Registry, Queen’s University Belfast, Belfast, N. Ireland

INTRODUCTION
Monitoring trends in cancer incidence is essential for high quality cancer services. With incidence rates of many cancers increasing and the size of the elderly population expected to rise, projections of cancer incidence up to 2035 are presented to help guide future allocation of health service resources.

METHODS
Age-specific rates for all cancers combined and 30 common cancers are determined for both sexes by year of diagnosis. The data is fitted separately for ages 0-49, 50-59, 60-69, 70-79 and 80+ using a generalised linear model with a power 5 link function. Five-year age group, five-year birth cohort and year of diagnosis are used as predictor variables. The resulting model is used to predict rates in future years, which are combined with population projections to provide estimates of the future number of cases.

RESULTS
For all cancers (excluding non-melanoma skin) age-standardised rates are expected to fall by 1% by 2035 among males and rise among females by 13. The number of cases is projected to increase by 25% among males and by 24% among females by 2020, while by 2035 increases of 65% for males and 63% for females are expected. Rates are projected to fall for male lung, bladder, brain, cervical, prostate, ovary and stomach cancers and leukaemia. Increases are expected for breast, colorectal, kidney, liver, oral, female lung, female pancreatic and uterine cancers, melanoma and non-Hodgkin’s lymphoma. The number of cases is expected to increase for all cancer types except for cervical and stomach cancers.

CONCLUSION
This work monitors past changes to cancer cases and rates and predicts an increase of new cancer cases which will require preparation by service planners to meet the needs of future cancer patients. The potential exists to alter these projections through tobacco and alcohol control.
CANSTAGING - A cancer staging tool facilitating tumour staging into the future: Planned developments and enhancements

Dr Anna GAVIN1
Mr Colin Fox2, Mr Giulio Napolitano2,3, Morten Ervik4, Carlos Valesco5, Dr Lisa Ranaghan1, James Brierly1,2

1N. Ireland Cancer Registry, Queen’s University Belfast, Belfast, N. Ireland, 2Institute of Medical Biometry, Informatics and Epidemiology, University Hospital Bonn, Germany, 3Section of Cancer Surveillance, International Agency for Research on Cancer, Lyon, France, 4Fraunhofer Institute for Applied Information Technology FIT, Sankt Augustin, Germany, 5Institute of Medical Biometry, Informatics and Epidemiology, University Hospital Bonn, Germany, 6Princess Margaret Cancer Centre, Toronto, Ontario, Canada, 7Union for International Cancer Control, Geneva, Switzerland

BACKGROUND & INTRODUCTION

The staging of cancers is an important and necessary activity which has a significant impact on treatment strategies and patient outcomes, including screening, survival and assessment of new diagnostic techniques.

CanStaging (http://go.qub.ac.uk/CanStaging) has been available online since 2014. The objectives of this current work are: to evaluate the use of CanStaging so far; to identify and communicate future developments which will maximise the usability of the tool and expand its availability to a wider global audience.

MATERIALS & METHODS

CanStaging access has been monitored after its official release. We invited existing users to provide feedback and requests for additional functionality. We also assessed potential technical barriers to accessibility and availability, such as internet connectivity. The initial consortium (the Northern Ireland Cancer Registry, the IARC Global Initiative for Cancer Registry Development and the UICC TNM Core Group) was expanded to include the Institute of Medical Biometry, Informatics and Epidemiology (Bonn University) and the Fraunhofer Institute for Applied Information Technology.

RESULTS

As of May 2016, 94 organisations and individuals from 51 countries have requested access to CanStaging and, on average, the tool recorded 20 access sessions per month, mostly for the staging of breast (43%) and cervix (29%) tumours. The access frequency, however, shows a declining trend. Based on user feedback, a number of enhancements will be developed, including more stable connectivity and the conversion of CanStaging into a multilingual instrument, with the capability to add new languages in a matter of days.

CONCLUSIONS

CanStaging is being used globally on a regular basis. It is hoped that the planned enhancements to functionality and the removal of language barriers along with more stable connectivity will increase usability. Thanks to the UICC, the tool is available at no cost for non-profit use.

Predictors of survival in esophageal cancer patients: The role of health services utilization

Dr Gholamreza ROSHANDEL1
Dr Golnaz Golalipour1, Dr Shahryar Semnani3, Dr Bita Safaie2, Dr Siamak Rajaei1, Dr Seyyed Mehdi Sedaghat1, Dr Hamid Reza Kamalinia1, Dr Mohsen Aarabi1

1Golestan University of Medical Sciences, Golestan Research Center of Gastroenterology and Hepatology, Gorgan, Iran, 2Department of Pathology, Golestan University of Medical Sciences, Gorgan, Iran, 3Hyrcania Cancer Research Center, Golestan University of Medical Sciences, Gorgan, Iran, 4Health Sciences Research Center, Mazandaran University of Medical Sciences, Sari, Iran

BACKGROUND

Esophageal cancer (EC) is a fatal disease with poor survival rates. We aimed to determine predictors of survival in a high-risk area in Northern Iran.

METHODS

This study was conducted on EC patients diagnosed during 2007 and 2008 in Golestan, Iran. Data on patients’ sociodemographic factors, vital status, and tumor characteristics were obtained from Golestan population-based cancer registry. Diagnostic (DU) and Therapeutic (TU) services utilization indices were determined using a valid questionnaire. The results were categorized as good or poor utilization. EC-specific survival rates were calculated. Multivariate Cox-regression model was used to assess the effects of different variables on survival. Adjusted hazard ratios (AHR) and 95% confidence intervals (CI) were calculated.

RESULTS

223 EC subjects were enrolled with mean age of 64.3 years, and 57.8% were male. The median of survival time was 10.47 months and the 5-year survival rate was 11%. Cox-regression analysis suggested that stage of tumor (AHRregional=3.75, 95%CI: 2.34-6.00; AHRmetastasis=12.21, 95%CI: 7.42-20.08) and TU (AHR=1.78, 95%CI: 1.25-2.52) were the strongest variables related to EC survival. The median survival time in patients with good and poor TU were 14.37 and 8.53 months, respectively (P<0.01). There was no significant relationship between DU and EC survival.

CONCLUSION

We found relatively low survival rates in EC patients from Northern Iran when compared with developed countries. Our results also suggested an increasing trend for EC survival rate in our population during recent years. Good TU could predict higher survival rates in EC subjects. Therefore, patients’ access to therapeutic services should be considered as an important indicator in decision-making for controlling EC in our region and other high-risk populations. Developing and implementation of appropriate diagnostic services for early detection or screening of EC may be helpful in increasing survival rates and decreasing burden of EC in high-risk areas including Northern Iran.
**Differences in incidence of hematological malignancies between Brazil and France**

**Prof Carlos A LIMA**, Mrs Morgane Mounier, Mrs Angela M Da Silva, Mrs Stéphanie Girard, Mrs Marcia M M Lima, José Erinaldo L de Oliveira, Mrs Sophie Gauthier, Prof Marc Maynadie

1EA4184, University of Burgundy, Dijon, France, 2Registro de Cáncer de Base Populacional de Aracaju, Aracaju, Brazil

**BACKGROUND**

Before 2000, hematological malignancies (HM) were classified according to various classifications. The unique classification published by a worldwide committee of experts under the auspices of the WHO and its inclusion in the ICD-O-3 classification, has led more relevant comparisons of epidemiological data of HM between continents. The objective of this work was to compare the incidence of these diseases from data of two population-based cancer registries from Brazil and France.

**METHODS**

Cases of HM diagnosed from 1996 to 2012 and coded according to the ICD-O-3 classification were extracted from the database of the Registry of Aracaju, Brazil and of the Registry of HM of Côte d’Or, France. Both registries are covering a population of around 550 000 inhabitants. Crude and standardized incidence rate by sex and age were calculated as a whole and by sub-type. Comparisons were performed using STATA software.

**RESULTS**

All HM world population standardized incidence rate were 20.2 in Men and 13.6 in women in Aracaju and 40.1 in men and 27.2 in women in Côte d’Or. There were no difference according to sex. By sub entities, the differences range from 0.8 to 27 fold in men and from 0.01 to 36.8 fold in women. The highest differences were found for Lymphoplasmocytic Lymphoma in women and for Chronic Myelomonocytic Leukemia in men. The sex ratio was higher but not very different in Brazil in Hodgkin lymphoma, in Acute Myeloid leukemia and in myeloproliferative diseases. Conversely, it was higher in France for Non Hodgkin lymphoma and myelodysplastic syndrome.

**DISCUSSION AND CONCLUSION**

Incidence rates of HM were two fold higher in France compared to Brazil. These differences could be true but a possible under diagnosis in the Brazilian population could not be excluded as highest differences were found in diseases with chronic evolution.

**Cancer incidence rates are numbers which must abide by mathematical laws**

**Giorgia RANDI**, Emanuele Crocetti, Raquel Negrao Carvalho, Tadeusz Dyba, Francesco Giusti, Carmen Martos, Roisin Rooney, Lydia Voti, Manola Bettio

1Joint Research Centre / European Commission, Ispra (VA), Italy

**BACKGROUND**

Some numerical series abide by Benford’s law (BL). BL describes the distribution of the first significant digit (FSD) of these numbers, which is unexpectedly skewed towards small figures. Violations of BL are already considered evidences in trials for frauds in accounting. We evaluated whether population-based cancer incidence rates follow BL, to use possible violations during the quality assessment of cancer registry (CR) data.

**METHODS**

We randomly sampled from CI5C-X website the detailed databases of two population-based CRs for each of the following regions: Africa, north and south America, Asia, Europe and Oceania. The distribution of the FSD of crude incidence rates was evaluated for each registry separately, as well as for all of them together in a single dataset. The observed FSD distribution was plotted against the Benford theoretical one, and the following statistics were computed: Person’s r, distances’ measures, and Chi2/n to check if the data were fitting Benford’s distribution. A summary index was also computed (the lower the index the best the fitting).

**RESULTS**

The distributions of FSD of crude incidence rates (overall on 40493 observations) showed a mean greater than the median and a positive skewness, typical of Benford-like distributions. In fact, FSD of rates fitted almost perfectly BL (r=0.997; m=0.01; d*=0.02; Chi2/n = 0.05). Single CRs (having from 779 up to 5376 observations) had generally very good fitting; however, one registry had all the four statistics in the worst duo-decile (p=0.00005).

**CONCLUSIONS**

Crude cancer incidence rates adhere to BL. BL is very simple, quick and easy to be understood and computed. Moreover, it does not rely on subjective opinion or personal professional expertise of any reviewer. Therefore, we propose to add the use of BL as an objective screening tool in cancer data quality assessment, to identify anomalies worthy of further inspection.
No hints on geographical variability of cancer incidence in cancer registry rates

Francesco GIUSTI1, Emanuele Crocetti1, Giorgia Randi1, Raquel Negrao Carvalho1, Tadeusz Dyba1, Carmen Martos1, Roisin Rooney1, Lydia Voti1, Manola Bettio1

1Joint Research Centre / European Commission, Ispra (VA), Italy

BACKGROUND

As a standard practice worldwide, cancer registries (CRs) express the frequency of cancer in a defined population and in a certain period as a rate, independently of the size of the population at risk. However, this single measure may not describe the variability of incidence within a country. In fact, the only measure of variability provided – the standard error - refers to the precision of the estimator.

METHODS

We retrieved from the CDC website (https://nccd.cdc.gov/uscs/) age-adjusted (US 2000) incidence rates (ASR) and 95% confidence intervals (CI) for all cancer sites combined, for the period 2008-12, in the whole United States (US). We compared them across sub-geographical areas (4), regions, states (50) and a few cities, using the overlap between CI of ASR.

RESULTS

The overall US ASR, for men and women together, was 462.0 cases per 100,000 person/year (95% CI 461.6-462.3). The national rate was lower (95% CI did not overlap) than the ASRs in Northeast and Midwest and higher (95% CI did not overlap) than in South and West regions. 26 states had incidence rates higher, 18 lower and six states within the variability of the national average rate. Additionally, within states, the overall ASR did not reflect accurately single cities (e.g. California and sub-areas).

CONCLUSIONS

In this exploratory analysis, the US ASRs are used to demonstrate how a national (or supernational) ASR may not reflect incidence of subareas. Although we did not statistically quantify this variability major differences appeared between and within regions, states and cities. When heterogeneity is present among regions, regional rates are more informative than the single national one. CRs should then start providing information on internal cancer incidence variability as well as on incidence level.

Evaluating a screening programme in a population with limited resources using a cancer registry

Ms Nontuthuzelo SOMDYALA1, Professor Debbie Bradshaw1, Mr Linda Mbuthini1

1Eastern Cape Cancer Registry, SAMRC Burden of Disease Research Unit, PO Box 19070, Tygerberg 7505, Cape Town, South Africa, 2Eastern Cape Cancer Registry, SAMRC Burden of Disease Research Unit, PO Box 19070, Tygerberg 7505, Cape Town, South Africa, 3Eastern Cape Cancer Registry, SAMRC Burden of Disease Research Unit, PO Box 19070, Tygerberg 7505, Cape Town, South Africa

BACKGROUND

Cervical cancer screening is a public health intervention whose main aim is to find early asymptomatic invasive cancer by using simple tests across a healthy population. In 1999; South Africa adopted a national cervical cancer screening programme as part of the National Cancer Control Policy whose main goal was 70% population coverage in 10 years. There are no known studies undertaken to evaluate performance of this screening programme particularly in the Eastern Cape Province. Results will be useful to health policy planners in this province.

METHOD

Data of all women with cervical cancer for the period 1998-2012 were extracted from the cancer registry database. Basic descriptive statistics and frequencies were analysed using CanReg4. The average annual population at risk was calculated for the three five year periods (1998-2002, 2003-2007 and 2008-2012). The 1996, 2001 and 2011 census provided age specific counts of the population. The annual rates of change (by age, sex and magisterial area) in between these years were used to prepare annual and 5 year period estimates. A direct method was used to calculate age standardised rates per 100 000 person years and reference standard population used was the world standard.

RESULTS

A total of 1808 of new incidence cases were reported. Histologically verified diagnoses were 77% of which only 12.3% were by cytology. Combined stages I and II at diagnosis accounted for 21% of cases reported, stages III and IV: 26% and 53% had unknown staging. ASRs in three periods were; 1998-2002: 22.0 with 95% CI of (20.0-24.0), 2003-2007: 24.4 with 95% CI of (22.4-26.4) and 2008-2012: 29.4 with 95% CI of (27.3-31.6).

CONCLUSION

Results of this study clearly show that so far the main goal of the screening was not achieved in this rural population of South Africa. A revised strengthened programme is urgently needed.
Structured cancer registration training program in Turkey

Dr. Sultan ESER, Dr Raziye Ozdemir, Dr. Saniye Ozalan, Dr Cankut Yakut

1Karabuk University School of Health, Occupational Health and Safety Department, Karabuk, Turkey

BACKGROUND
The overall success of cancer surveillance systems strongly depend on the qualification of cancer registrars. Here we present ongoing certified training program for the cancer registration in Turkey.

METHOD
The training programs and teaching materials of Izmir Cancer Registry (ICR) were examined.

RESULTS
1) The past training activities: The development of active cancer registration in Turkey started through ICR, the first population-based registry set up in 1992. ICR undertook a principal role in the establishment of cancer registration infrastructure. First, data collection tools and guidebooks, including data collection rules and standards by international standards were adopted. Fundamental publications, such ICD-O3, SEER Summary Staging Manual-2000, were translated into Turkish. Training programs consisting of three modules: “the basis of cancer registration (Module-I),” “SEER Summary Staging (Module-II)” and “Can-Reg software (Module-III)” were implemented. A team of trainers composed of selected registrars from different registries was formed and they participated in national and international training programs. The training material, including the presentations, exercises and the proxy patient files used for the applied sessions were generated.

2) The current training activities: Trainings including theoretical and practical sessions have become routine practice. Module-I, takes 30 hours, includes main concepts in registration, privacy policy, abstracting, and case finding and coding rules. The Module-II, takes 25 hours, consists of the basic principles of staging and site-specific staging sessions using practice cases. Further, 30 hours of the Module-III aims to gain the skills such as data entry control of duplicate records and data analysis using the Can-Reg software for registrars. The participants of each course were given pre-and post-training exams and were given certificates.

CONCLUSION AND DISCUSSION
In Turkey, significant progress has been made in the cancer surveillance over time with important contributions of the ICR.

Changes in cervical cancer in Poland: Time trends and prediction

Dr Joanna DIDKOWSKA, Dr Urszula Wojciechowska

1The Maria Skłodowska-Curie Cancer Center and Institute, Warsaw, Poland

BACKGROUND
Cervical cancer is currently the fourth most common cancer among women in the world. Poland is a country with an average incidence of this cancer. However, it has one of the highest rates of morbidity and mortality in Europe.

Cervical cancer has well documented viral etiology. Scientific studies have shown that infection with the high risk Human Papillomavirus (HPV) is necessary in over 99% of all cervical cancers.

METHODS
Incidence data are derived from the Polish National Cancer Registry. The population data are from the Central Statistical Office of Poland. For the analysis of the incidence the join point analysis was used. Group 25-59 years is the group covered a population screening program. APC model was used to analyze the changes in incidence, Dyba-Hakulinen model to forecast.

RESULTS
Join point analysis shows that in the group covered by the screening (25-59 years) average annual percentage change of incidence was highest after 2008 (-6.3). In the population over 60 years of age until 1986 increased morbidity remained (AAPC + 1.3% per year), but the next two decades brought a significant decrease (AAPC -2.6). Since 2005 no change has been observed (AAPC -0.2).

Forecast of incidence for 2018 is 8.8/105, which represents a slight decrease compared to the last year of observation (9.3/105 in 2013). In 2018 we should expect about 2,740 cancer cases (vs. 2,909 in 2013).

Model APC shows the largest decline in incidence among women who were born in the postwar years.

CONCLUSIONS
Cervical cancer is becoming a scarcer cancer in Poland. The greatest improvement among women 60 years of age and born after the war. No decrease in incidence in women over the age of 60 might argue for an extension of population screening for another age group.
Poster Presentation Abstract

Disparate patterns of lung cancer in American Indians, Hispanics, and non-Hispanic whites, New Mexico USA

Dr Charles WIGGINS1, Dr Marc Barry1, Ms Angela Meisner1
1New Mexico Tumor Registry, Albuquerque, United States

BACKGROUND

New Mexico’s culturally-diverse population is comprised of Hispanics (47%), non-Hispanic whites (40%), American Indians (10%), and other racial/ethnic groups (3%) including African Americans and Asian Americans. Results from previous studies have shown that cancer incidence rates differ among the state’s racial/ethnic groups. We utilized existing records from the population-based New Mexico Tumor Registry to characterize lung cancer incidence rates by racial/ethnic group over time and across geographic areas within the state.

METHODS

We identified all incident cases of malignant lung cancer diagnosed among New Mexico residents during the time period 1981-2013. Average annual age-adjusted incidence rates were calculated by the direct method and standardized to the distribution of the United States 2000 population. Time trends in incidence rates were assessed with join-point regression.

RESULTS

Lung cancer incidence rates in New Mexico during the most recent 5-years of the study period (2009-2013) were highest among non-Hispanic whites (48.7 per 100,000; 95% confidence interval (CI) 47.0-50.4), followed by Hispanics (35.5 per 100,000; 95% CI 33.5-37.5), and American Indians (12.6 per 100,000; 95% CI 10.0-15.6). Rates for males were higher than for females in all groups. Rates peaked at different times for non-Hispanic white males and females during the study period, then declined. Modest but persistent increases in lung cancer incidence were observed in Hispanics of both sexes throughout the study period. Lung cancer incidence rates remained low for American Indian males and females throughout the study period. High rates of lung cancer in New Mexico were documented among non-Hispanic whites in the Southeastern region of the state.

DISCUSSION

Lung cancer incidence rates varied dramatically among the three largest racial/ethnic groups in New Mexico during the time period 1981-2013. Culturally competent public health measures to diminish the burden of lung cancer must be targeted by race/ethnicity and geographic region within the state.

Status of coding quality of population–based cancer registry in Southern Iran

Dr Mehraban SHAHI1, Dr Nasrin Davaridolatabadi2, Mrs Maedeh Hashemipour1, Mrs Mehri ansari1, Mr Nader Alishan Karami2
1Hormozgan Cancer Registry, Hormozgan University of Medical Sciences, Bandar Abbas, Iran, Bandar abass, Iran, 2Health Information Management Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran, Bandar abass, Iran

INTRODUCTION

A source of information on cancer registry, are hospitals. For case-finding, coded records in hospitals were used. This study investigates accuracy and completeness of ICD-10 codes assigned to medical records of patients.

METHOD

In this cross-sectional descriptive study, accuracy of codes 432 medical records were selected from the Children’s Hospital. We abstracted and recoded the first sequenced diagnostic codes based on ICD10. For completeness, expert’s codes were compared with codes assigned by coders. A researcher-made checklist (validity and reliability checked) was used for evaluation of completeness. Data analysis was done using descriptive statistics of SPSS20.

RESULTS

Although 20% of the records had pathology reports, codes were not assigned according to pathology results in none of the records by coders of hospitals. In 23% of first hospitalizations, the codes assigned by hospital coders were not the same as the codes by expert. In cases with different codes, the expert assigned the correct codes based on CT Scan Report (28%) and Pathology Report (14%). Hospitals recorded no optional codes for morphology. In 2nd hospitalizations, there was correct Z-code just in 50% of the records by hospitals. Due to chemotherapy, Z-code was recorded in other conditions (30%) section and was not recorded in 20% of cases. Codes for chemotherapy procedures assigned to only 30% of cases under chemotherapy according to ICD-9-CM. However, diagnostic codes based on ICD-10 had a better condition and were more complete.

CONCLUSION

It is concluded that the following measures should be taken: organizing in-service training courses for reviewing coding of ICD-10, for coding of procedures, necessity for assigning M-code for cases with morphological information, and emphasis on preference of diagnostic procedural forms. It is suggested that all of population-based cancer registries, to improve case-finding in hospitals, promote coding quality in medical records.
Accuracy of hospital records as a data sources for population–based cancer registry in Hormozgan

Dr Mehraban SHAHI, Dr Abdolazim Nejatizadeh, Dr Nasrin Davaridolatabadi, Mrs Maedeh Hashemipour, Mrs Mehr Ansari
1Hormozgan Cancer Registry, Hormozgan University of Medical Sciences, Bandar Abbas, Iran, Bandar abass, Iran, 2Department of Genetics, Faculty of Medicine, Hormozgan University of Medical Sciences, Bandar Abbas, Iran, Bandar abass, Iran, 3Health Information Management Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran, Bandar abass, Iran

INTRODUCTION

After pathology reports, hospital records and mortality registry are important sources of information for population based cancer registry (PBCR). We studied quality of hospital records in the Hormozgan provinces and evaluated to what extent we can rely on the hospital records for improvement of the PBCR.

METHOD

We reviewed hospital records of 432 of cancer patients from Children’s Hospital. We abstracted and carefully reviewed the patient files that were archived in the hospital record department and re-coded the diagnosis based on ICD10. The validity was determined by the comparison of the routine hospital data with the data created by this study, as the gold standard measure for coding. We estimated sensitivity and specificity of the routine hospital records.

RESULTS

We found that the cancer patients can be detected through hospital records, sensitivity of using ICD10 code in the hospitals for detection of cancer patients were more than 90% in this study. However, only 23% of the patients were properly coded for the type of cancers in the routine coding in the hospitals. We found that with careful review of the patient information including pathology reports, imaging, laboratory tests, and the accuracy of coding for the patients can be improved by more than 80% percent.

CONCLUSION

Hospital records are reliable source of data for detection of cancer cases and use it in the cancer registry. However, accuracy of the codes about exact diagnosis and verification of cancers types is low. Careful monitoring of the coding and organizing in-service training courses for reviewing coding of neoplasms based on ICD-10. We suggest regular monitoring of the coding practice in all the hospital. We have established a course for medical record experts to improve the situation of ICD10 coding. The evaluation will be repeated after this intervention and the results will be presented in the conference.

Implementation of Cancer Registry in Georgia: First results

Dr Marina MAGLAKELIDZE, acad. Fridon Todua, prof. Rezo Gagua, David Maglakelidze
1Research Institute Of Clinical Medicine, Tbilisi, Georgia, 2Georgian Association of Oncology, Tbilisi, Georgia, 3David Tvildiani Medical University, Tbilisi, Georgia

BACKGROUND

The estimates from the International Agency for Research on Cancer (IARC) indicate 12 361 new cancer cases in 2012. In GLOBOCAN cancer incidence in Georgia was estimated from medium quality complete national mortality estimates using modelled survival. Georgian Population–based Cancer Registry was set up since 2015.

METHODS

In 2011-2014, as a result of work with Ministry of Health, preliminary actions were taken under the State Programme:
• Translation and publishing of ICD-O-3;
• Translation of CanReg5 software and training of registrars;
• Participation in international trainings organized by IARC;
• Trainings on ICD-O coding for oncologists and pathologists
• Introduction of “Cancer notification form”

The government has funded a “State Program of Modern Cancer Registry Implementation”.

RESULTS

1. New model of Cancer Registry has been developed
2. The first results of the register are received:
   • 9819 new cases of cancer have been diagnosed in Georgia in 2015 (240 per 100 000). The standardized incidence rates (per 100,000 persons) were 252 for males (n=4471) and 276 for females (n=5348).
   • The cumulative percentage rates, to 75 years of age, were 32.9% for males and 38.1% for females. 67.5% of cases have been registered in 30-70 age group.
   • In 15-19 age group registered 0.5% from all cases (n=51)
   • The five most common cancers in women are: breast, skin, thyroid, cervical and uterine
   • The five most common cancers in men are: lung, prostate, skin, bladder and stomach
   • Cancers of unspecified primary site (CUP) form a substantial group of new cancers with 689 (7%) diagnosed.

CONCLUSION

Improvement of PBCR incidence in comparison with the previous year (dry statistics without register) has increased twice. Initial data quite closely approaches the GloboCan estimated data (264 per 100 000). Some more years are necessary to receive more accurate and clear data.
Differences between multiple myeloma incident cases in three French Areas: Effect on survival

Mrs Morgane MOUNIER1, Mrs Sophie Gauthier 1, Mrs Sandra Le Guyader-Peyrou2, Dr Edouard Cornet3, Dr Marie-Lorraine Chrétien4, Mrs Audrey Viale2, Mr Jean-Marc Poncet3, Dr Alain Monnereau2, Pr Xavier Troussard1, Prof Marc Maynadié1

1Registre des Hémopathies Malignes de Côte d’Or, EA4184, University of Burgundy, Dijon, France, 2Registre des hémopathies malignes de la Gironde, INSERM U1219, Bordeaux, France, 3Registre des hémopathies malignes de Basse-Normandie, Caen, France, 4Service Hématologie Clinique, Dijon, France

BACKGROUND

Within the past decade, new therapeutic support for Multiple Myeloma (MM) has improved survival of patients included in clinical trials. The objective of this study was to measure and compare characteristics and survival of MM patients in different French areas in the general population.

METHODS

All incident cases with MM (ICD-O-3 codes 9731/3, 9732/3 and 9734/3) between January, 1st 2008 and December, 31st 2009 in the French Hematological Malignancies (HM) registries (Calvados, Côte d’Or and Gironde) were included. The end point of follow-up was January, 1st 2015. Specific clinical information was recorded from clinical charts. Age-standardized probabilities of Net Survival (as-NS) were estimated with the non-parametric Pohar-Perme estimator. To model effects of covariate on the Excess Mortality Rate (EMR), the flexible model of Nelson et al. was used.

RESULTS

A total of 346 patients (Sex ratio equal to 0.96) were diagnosed during the period in the three registries. Between the three areas, only 4% to 10% of MM were smoldering myeloma and the median age at diagnosis varied from 69 to 75 years old. The proportions of treated patients were similar between the three areas. Significant differences were found for the ISS score (score 3: 19%, 33% and 41%) and for deaths at 5 years (19%, 33% and 41%). In symptomatic patients (321 cases), geographical differences were found in the 5-y as-NS (59%, 45% and 38%). In the multivariate model based on sex and area, significant effects of covariate on the Excess Mortality Rate (EMR), the flexible model of Nelson et al. was used.

CONCLUSION

This population-based study showed an area-related difference in MM survival in France due to discrepancies in patients at diagnosis. This suggests differences in the access to diagnosis according to the geographical areas.

Changes in completeness of data in Polish Cancer Registry after the year of publication reports

PhD Urszula WOJCIECHOWSKA1, PhD. Joanna Didkowska1

1The Maria Sklodowska-Curie Memorial Cancer Center and Institute, Warsaw, Poland

BACKGROUND

Data collected in the National Cancer Registry in Poland (PNCR) is ‘frozen’ in order to calculate annual statistics for an official report. PNCR reports complete counts of new cases two years after the end of the diagnosis year. The registry database is constantly updated by information arrive long after the case was diagnosed. After introducing in 2013 a new cancer registration system in Poland based on a central database available through the Internet for registry staff and doctors, completeness of registration is increasing with each year up to the latest reported.

METHODS

Data from current status of database in years 1999-2013 was compared with data from annual official reports from the same period. To analyze the change in the age-standardized incidence rates (ASR) published in official reports and rates calculated for current data, the standardize rate ratio (SRR) was calculated.

RESULTS

The difference between ASR published in annual official reports and calculated for current cases gathered in the PNCR database ranges from 1% -9%. The average change for years 1999-2013 is 6% (95%CI 5.5%, 6.0%). Similar differences are observed for breast cancer - 5% (95%CI 4.3%, 5.6%), lung cancer – 4% (95%CI 3.2%, 4.2%) and colorectal cancer - 5% (95%CI 4.7%, 6.0%). Greater differences are notified for prostate cancer: from 2% in 2013 to over 20% in years 1999-2002. The average difference for prostate cancer is 11% (95%CI 10.3%, 12.2%).

CONCLUSION

Timeliness have a great impact on time trends of cancer incidence in Poland. The introduction of an electronic registration system in Poland contributed to improve the completeness of cancer data.
Mortality among children and young people who survive cancer in Northern Ireland

Dr Anna GAVIN1,
Dr David Donnelly2
1N. Ireland Cancer Registry, Queen’s University Belfast, Belfast, N. Ireland,
2Previously N. Ireland Cancer Registry, Belfast, N. Ireland

INTRODUCTION
While survival rates for childhood cancers are excellent it is known that these patients have an increased risk of death from disease recurrence and other causes. We investigate patterns and trends and survival of cancers in children and young adults in N. Ireland.

METHODS
20 years (1993, 2013) of cancer incident data including nonmalignant brain tumours from the N. Ireland Cancer Registry for persons age 0-24 years was analysed using joinpoint for trend and Kaplan Meier method for survival analysis examining with excess mortality calculated at one and five years after first cancer diagnosis using standardised mortality ratios.

RESULTS
2633 children and young people were diagnosed with cancer, 1386 (52%) male and 1247 female with 1140 (43.3%) aged 0-14. 59 patients (2.2%) had a record of a second cancer. While trends were increased over time they did not reach statistical significance except in the 15-24 group for all persons combined. The most common cancers for age 0-14 were brain, eye and CNS and leukaemia with skin the most common in 15-24 age group. Survival was high 90.7% at 1 year, better among females and similar for older and younger groups. Excluding the primary cancer there was an excess mortality of from all causes with non-cancer deaths twice that of the background level, however a significant contribution to deaths was congenital malformations.

CONCLUSION
While survival from childhood cancers is excellent this work in common with larger studies highlights the need for ongoing monitoring of cancer survivors. Preventable skin cancer was identified as a problem.

Upper gastrointestinal cancer burden in Hebei Province, China: A population-based study

Prof Yutong HE1,
Prof Baoen Shan1
1Hebei Cancer Institute, Shijiazhuang, China

OBJECTIVE
To investigate upper gastrointestinal cancer incidence and mortality rates in Hebei Province, especially in high risk areas.

METHODS
Hebei Province cancer registry collected 21 population-based cancer registries’ data of upper gastrointestinal cancer, covering 15.25% of the whole population in Hebei Province. The data stratified by 5-year age groups, gender and area were analyzed. The mortality rates of upper gastrointestinal cancer were extracted from national retrospective death surveys in the period of 1973-1975, 1990-1992 and 2004-2005 and stratified by gender and areas (high risk areas/non-high risk areas).

RESULTS
The crude incidence rate of upper gastrointestinal cancer was 55.47/100 000 (75.80 in male and 34.28 in female) and correspondingly the adjusted rate (Segi’s population) was 44.90/100 000 (63.50 in male and 26.75 in female). Male in rural area had the highest incidence rate with the age-standardized rate of 87.89/100 000. For mortality, the crude rate of upper gastrointestinal cancer displayed a significant decrease trend in Hebei Province from 1970s (50.53/100 000) to 2013 (40.21/100 000) and the adjusted rate decreased 43.81% from 1970s (58.07/100 000) to 2013 (32.63/100 000). The mortality rates of upper gastrointestinal cancer were dropped both in the high risk areas and non-high risk areas from 1970’s to 2013 and the rates declined more in high risk areas (57.26%) than in non-high risk areas (55.02%). There is a notable delay for the median age at death of upper gastrointestinal cancer from 1970’s to 2013, especially in high risk areas.

CONCLUSIONS
Upper gastrointestinal cancer was the major causes of cancer death in Hebei Province and male in rural area was the high risk population. The mortality rates of upper gastrointestinal cancer decreased from 1970s to 2013 and the rates declined more in high risk areas.

KEY WORDS
Upper gastrointestinal cancer; Incidence; Mortality
Healthcare utilization in local hospitals by cancer patients

Dr Moo-kyung OH1, Mr Young Kweon Park1, Miss Eun Bi Cho1

1Kangwon Cancer Centers, ChunCheon, South Korea, 2Kanwon National University Hospital, ChunCheon, South Korea

PURPOSE
To investigate the self-sufficiency for inpatient care services of local hospitals in residence by cancer patients, focusing on variation among the cancer subtypes.

METHODS
One province (Kangwon-do) which has most broad but underserved medical services area in South Korea was selected. Inpatients medical claim data during 2010 to 2012 from the National Health Insurance (NHI) were used. Self-sufficiency was measured using the relevance Index (RI). For analysis, we divided Kangwon-do into three service areas and RI according to cancer subtypes of each area were calculated. Cancer subtypes classified using ICD-10 codes.

RESULTS
RI in almost cancer subtypes were below than 50% in all service areas. Among the cancers with the high prevalence in South Korea, colorectal cancer, gastric cancer, lung cancer, showed relatively mid-level RI among the cancer subtypes. However, cancers in women and children and adolescents such as cancer of female genital organs, breast, lymphoid, hematopoietic and related tissue showed low RI. The service area with low health resource and easy to access toward metropolitan city especially showed low self-sufficiency.

CONCLUSION
Local hospital’s self-sufficiency in cancer patients were low. Healthcare utilization to local hospitals varied among cancer subtypes and services area.

KEY WORDS
Neoplasm, Cancer Care Facilities, Delivery of Health Care

The ENCR-JRC project on incidence and mortality in Europe: European population-based cancer registries’ participation

Dr Giorgia RANDI1, Dr Carmen Martos1, Dr Emanuele Crocetti1, Dr Francesco Giusti1, Dr Tadeusz Dyba1, Dr Lydia Volt1, Dr Roisin Rooney1, Dr Raquel Carvalho1, Dr Manola Bettio1, Dr Alexander Katalinic1

1European Commission - DG Joint Research Centre, Ispra (VA), Italy, 2European Network of Cancer Registries

OBJECTIVES
The European Network of Cancer Registries (ENCR) and the Joint Research Centre (JRC) launched in 2015 an ENCR-JRC call for data to all European population-based cancer registries (CRs), proposing the ENCR-JRC project on “Incidence and Mortality in Europe” with the goal of assessing the cancer burden in Europe and identifying gaps in population coverage.

METHODS
The ENCR-JRC web portal was developed as a unique gateway for European cancer data collection, facilitating uploading of data and participation in different studies through a single data submission. More than 200 European population-based CRs were invited to the call.

RESULTS
A total of 108 CRs (93 general, 8 site-specific, and 7 paediatric CRs) from 28 European countries uploaded their data into the portal. Of these, 98 CRs from 25 countries participated in the ENCR-JRC project. Restricting to European Union (EU) countries only, 39% of the population is covered by the general CRs participating in the ENCR-JRC project, ranging from 15% in the Northern EU regions, up to 60% in the Eastern ones. The covered incidence period is also quite heterogeneous, the median incidence year being 2001 in the Northern regions, 2004 in the Southern regions, and 2006 in the Western and in the Eastern Europe.

CONCLUSIONS
The portal proved to be a successful tool for CR data submission to the proposed projects. Heterogeneity was observed among CRs in the use of the portal and in the formats of the uploaded files. The JRC technical support was welcome and sometimes needed; targeted ENCR training and comprehensive open-source data check software will be beneficial for harmonisation and data quality improvement of future calls. Despite the geographic variation, the ENCR-JRC project had overall a good participation of the European CRs.
Outcomes of Yemeni women breast cancer using DALY and other relevant measures

Prof Amen BAWAZIR

1College of Public Health and Health Informatics, KSAU-HS. College of Medicine Aden University, Riyadh, Saudi Arabia

BACKGROUND

Although the rate of breast cancer in Yemen is not high in comparison to other high developed indexed countries, it is among the highest rate of incidence among Yemeni women.

OBJECTIVE

The aim of the study is to estimate the main outcomes of breast cancer using some other parameters such as death rates, Disability Adjusted Life Years (DALY); Years Lived with Disability (YLD); and Years of Life Lost (YLL) among the Yemeni women.

METHOD

Data from Aden Cancer registry was used to describe the incidence of the breast cancer cases over 15 years period (1997-2011). Also data from the Global Burden of Diseases (GBD) from the Institute for Health Metrics and Evaluation (IHME) were used for the analysis of the death rate, DALY, YLD and LLY.

RESULTS

The age standardized rate of breast cancer among female showed the highest peak at the age group of 45-49 years old (35.1/100,000). Death rates, DALY, YLD and YLL were reported higher in 2010 than in 1990 with almost two folds and show steady increase with increase of age. By using the analysis of the DALY for cases with breast cancer for the year 2009 and YLL analysis for the same year has shown a peak of the mean at the age-group of 50-54 (915.9 and 505.2 per 100,000, respectively).

CONCLUSION

Findings from this study support the use of other epidemiological parameters used to express the burden of breast cancer in Yemen by other method than the incidence rate. The burden of breast cancer among Yemeni women was clear health priority and needs a rigorous plan for implementing prevention, and early detection for better control.

Cancers attributable to major risk factors in the Eastern Mediterranean region

Dr Isabelle Soejjomataram1, Ivana Kulhanova1, Ali Saeed Al-Zahrani2, Amani El-Basmy1, Wagida A. Anwar4, Amali Al Omari1, Ali Shamseddine1, Ibtihal Fadhil2, Freddie Bray1

1International Agency For Research On Cancer, Lyon, France, 2King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia, 3Epidemiology and Cancer Registry Department, Kuwait Cancer Control Center, Kuwait, 4Department of Community, Environmental and Occupational Medicine, Faculty of Medicine, Ain Shams University, Cairo, Egypt, 5Division of Hematology and Oncology, Department of Internal Medicine, American University of Beirut Medical Center, Beirut, Lebanon

INTRODUCTION

Cancer is a major contributor to the burden of disease in the Eastern Mediterranean region (EMR). This study sought to estimate the fraction of cancers in the EMR in 2012 that can be attributed to sub-optimal exposures of major risk factors.

METHODS

Population-attributable fractions (PAF) were calculated for cancers associated with exposure to the major risk factors in EMR: tobacco smoking, alcohol intake, infections, body mass index, salt intake, red meat consumption, insufficient fruit and vegetables intake, physical inactivity, suboptimal breastfeeding, and air pollution. Standard methods based on risk factor prevalence and relative risk were utilised, with country- and sex-specific PAF applied to cancer incidence data from GLOBOCAN 2012 for the 22 countries of the EMR.

RESULTS

Our preliminary results show a total of 31% of all cancers diagnosed in the EMR in 2012 were attributable to the studied risk factors (men 31%, women 30%). The major contributors were tobacco smoke (PAF all cancers: 13.4%), infection (6.2%), physical inactivity (6.1%) and excess body weight (3.4%). Therefore cancers of the lung, breast, cervical and colorectal are the key avoidable cancers in the region. Additionally, the major causes of cancer differ markedly by sex, with tobacco smoking (13%) and infection (10%) the leading PAF for men, compared with infection (14%), physical inactivity (6%) and excess BMI (5%) in women. Large variations were also observed across countries in the region.

CONCLUSIONS

At least one in three cancers in the EMR is attributable to known modifiable factors. The marked variations in the cancer profiles and risk determinants calls for targeted prevention strategies requires a combination of regional, country- and gender-specific approaches.
**Building and developing cancer registration in Henan Province of China**

**Professor Xi-bin SUN**
Lecturer Qiong Chen, Associate professor Shu-zheng Liu, Associate professor Pei-liang Quan, Assistant professor Shao-lai Zhang

1Office for Cancer Control and Ressearch, Henan Cancer Center, Zhengzhou, China

**BACKGROUND**
Henan province which located in central China is big population province, which has the people of more than one hundred million, and the area with high cancer incidence and mortality rate. Cancer registration is an indispensable instrument in cancer control programmes.

**METHOD**
According cancer registration principles and methods recommended by IACR and using methods of rational layout, phased and gradual adjustment, the cancer registration system of Henan province has been established and improved.

**RESULT**
From 2008 to the end of 2014 year 24 population-based cancer registries have been established, covering a population of 24,000,000 that account for 24% of the total population in Henan province. Based on the data of cancer registration of Henan province in 2012 the crude incidence was 247.51/105 (265.48/105 in male, 228.44/105 in female), the age-standardized incidence by world standard population was 207.94/105 with the cumulative incidence rate (0~74 age years old) of 24.51%. Lung cancer, gastric cancer, esophageal cancer, liver cancer, breast cancer, colorectal cancer, cervical cancer, uterus cancer, brain cancer and ovarian cancer were the most common cancer in Henan, accounting for 82.71% of all cancer new cases. The crude mortality, age-standardized mortality by world standard population and the cumulative mortality rate (0~74 age years old) were 158.83/105 (185.26/105 in male, 130.76/105 in female), 130.21/105 and 14.99%, respectively. Lung cancer, esophageal cancer, gastric cancer, liver cancer, breast cancer, colorectal cancer, cervical cancer, brain cancer, leukemia and pancreatic cancer were the leading causes of cancer deaths, accounting for 88.44% of all cancer deaths.

**CONCLUSION**
The cancer registration system in Henan province which provides the basic information for cancer control has been set up. In the future, enlarging coverage population the cancer registration, setting up network direct report system and improving the quality of cancer registration effectively will be prioritized.

---

**A study of prostate cancer in Chennai, India, 1982-2013**

**Mr Pitchaimuthu SAMPATH**
Dr Viswanathan shanta, Dr Rajaraman Swaminathan

1Cancer institute (w.l.A.), Chennai, India

**BACKGROUND**
Cancer of the prostate is one of the common cancers among men in Chennai in recent period. This paper studies the relationship with change in registration practices and other characteristics.

**METHOD**
A total of 2,220 prostate cancer cases registered in Madras Metropolitan Tumour Registry (MMTR) during 1982-2013 formed the study material. Case-finding was carried out predominantly by active methods from multiple data sources in MMTR, following international standard norms. Age standardized rate (ASR) was calculated using world standard population.

**RESULT**
The average annual prostate cancer burden in Chennai rose from 20 in 1982-86 to 148 in 2012-13 accounting for 1.8% and 5.4% of total cancers in men respectively. Prostate cancer was not within the top ten in 1982-86 while it was ranked fifth in 2012-13. ASR of prostate cancer per 100,000 men in Chennai was 2.0 in 1982-86 and 6.7 in 2012-13 showing an annual increase of 7-8%. Peak incidence occurred in 75+ years age group at all times. Prostate cancers registered from government hospitals and private medical institutions in 1982-86 were 58.5% and 41.5% respectively; the corresponding figures for 2012-13 were 18% and 82% in respective periods following expanded coverage of private hospitals in the last two decades. The population at risk aged 65+ years has also doubled in 30 years in Chennai: from 3.1% in 1981 to 6.2% in 2011.

**CONCLUSION**
The risk of prostate cancer appears to be more among affluent and the phenomenal rise in the recent period might be due to a combination of expanded coverage of data sources/active case-finding in private sector, increased instances of incidental diagnosis by PSA testing and population ageing. A survey of prostate cancer patients including overall clinical profile is essential to rule out artifacts and to substantiate any change in the risk factors for prostate cancer rise.
Age-period-cohort analysis of international kidney cancer incidence trends

Dr Ariana ZNAOR1
Mathieu Laversanne1, Dr Freddie Bray1
1International Agency For Research On Cancer

BACKGROUND
Kidney cancer incidence in men varies from the ASRs (World Standard Population) of about 1/100,000 in African countries to over 15/100,000 in several Northern and Eastern European countries and the US Blacks. Women have similar patterns with half the incidence magnitudes. The best established risk factors are smoking and obesity. Incidence rates are higher in developed countries, where up to half of the cases are discovered incidentally. Increasing incidence trends have been reported from most countries worldwide.

METHODS
We analysed trends in kidney cancer incidence in men and women in 16 countries worldwide from the Cancer Incidence in Five Continents series using age-period-cohort analysis. We presented the results based on period and cohort scenarios.

RESULTS
Incidence rates were increasing in most of the countries, with highest increases in Latin America, Asia and some European countries, such as Belarus, Lithuania and Spain. In most countries and in both sexes, full age-period-cohort model best described the data. Apart from few countries with clearly stabilizing incidence trends, such as Denmark, Finland and Japan, kidney cancer incidence rates were increasing in successive generations of both men and women. However, period effects in terms of stabilization of increasing incidence rates were observed in Belarus, Czech Republic and Lithuania after mid-1990s, and in some Latin American countries since 2000s.

DISCUSSION AND CONCLUSION
Kidney cancer incidence is still increasing in successive generations of men and women in most countries worldwide. While lot of emphasis has been put on incidental diagnosis, predominant cohort effects in countries such as the US, alongside stabilizing risks on period scale observed in several countries, point to the importance of lifestyle risk factors and henceforth necessity of increased cancer control efforts worldwide.

International incidence of childhood cancer, 2001-2010

Dr Eva STELIAROVA-FOUCHER1
Ms Murielle Colombet1, Dr Ries LAG2, Emeritus Professor Peter Hesseling3, Dr Florencia Moreno4, Professor Hee Young Shin5, Mr Stiller CA6
1Section of Cancer Surveillance, International Agency For Research On Cancer, Lyon, France, 2Division of Cancer Control and Population Sciences, National Cancer Institute, Bethesda, USA, 3Department of Paediatrics and Child Health, Stellenbosch University, Tygerberg Children’s Hospital, Cape Town, South Africa, 4Paediatric Cancer Registry, National Cancer Institute, Buenos Aires, Argentina, 5Seoul National University Children’s Hospital, Institute of Cancer Research, Seoul, Republic of Korea, 6National Cancer Registration and Analysis Service, Public Health England, Oxford, United Kingdom

BACKGROUND
Cancers occur rarely in childhood. They are comprised of distinct histology types and raise ethical, psychological, and societal concerns. The extent of cancer burden is unknown in many low-resource countries.

IARC, jointly with the International Association of Cancer Registries (IACR) and with a support of the Union of International Cancer Control (UICC), is coordinating a third study in the series, International Incidence of Childhood Cancer (IICC-3). The new publication will provide comparable data on childhood cancer occurrence worldwide.

METHODS
Cancer registries were identified through the IACR and other links. A rigorous peer-review was conducted by the IICC-3 Editors in collaboration with the registries. A selection of 146 cancer registries in 71 countries covering the period 2001-2010 with comparable data contributed to the analyses.

RESULTS
The overall incidence rate was 140 per million at the age 0-14 years and 157 per million at age 0-19 years. Incidence rates were higher in boys than in girls and the age-specific incidence rates were higher on both ends of the age-range. Although the rates tended to be high in North America, Europe and Oceania, there were large variations between and within the defined regions.

In the age group 0-14 years the leading cancer types were leukaemias, followed by CNS tumours in most world regions, except in Africa, where lymphomas and soft tissue sarcomas predominated. In adolescents aged 15-19 years the three largest diagnostic groups were leukaemia, lymphomas and carcinomas & melanoma.

DISCUSSION AND CONCLUSIONS
IICC-3 is a unique source of comparable data on childhood cancer and constitutes a good ground for assessment of cancer burden in children. The geographical differences suggest a variety of aetiological hypotheses. Sustained data availability over time and their quality is indispensable to devise cancer control mechanisms in this population.
Breast cancer survival in main hospitals of Argentina, 2012-2016

Dr Florencia MORENO*, Dr Guillermo Macias1,2, Lic. Dolores Breit3, Dra. Graciela Abriata4

*Instituto Nacional Del Cáncer - Argentina, Ciudad de Buenos Aires, Argentina, 1Universidad Nacional de La Matanza, San Justo, Argentina

BACKGROUND
Breast cancer is the most common malignant tumor among women worldwide. Argentina presents a profile closer to developed countries (but with varied profiles within country), with downward mortality trends. In 2010 Argentina established the Cancer Epidemiological Surveillance and Report System (National Cancer Institute [SIVER-INC]). One of the components is an online, hospital-based registry (Institutional Tumor Registry [RITA]) that records information about patients, tumors, diagnostic and treatment. The aim of this article is to describe the breast cancer survival in women registered in RITA between 2012 and 2016.

METHODS
Descriptive study of female cases of breast cancer (C50) registered in the RITA from June 2012 to April 2016. Specific survival at 12 and 36 months using Kaplan Meier technique was calculated and compared between immunohistochemical profiles, clinical stages and morphological types (significant differences assessed by Logrank test). Survival at 60 months was not analyzed because of the small number of cases with complete 5 years follow-up.

RESULTS
4,883 patients and 4,950 tumors between June 2012 and April 2016 were analyzed, registered in 40 institutions located in 20 of 24 provinces. 53.7% of women were 45 to 64 years old (mean 57.6, median 56, mode 59, SD=14.9). Twelve months survival was 96.0% (95%CI 94.8%-97.0%); 36 months was 84.7% (95%CI 80.1%-88.3%). Significant differences were observed between most frequent immunohistochemical profiles (E(+)/P(+)/Her2-neu(-) vs. E(-)/P(-)/Her2-neu(+) [lower] - p=0.0179), grouped clinical stages (Stage I+II vs. III+IV [lower] - p=0.0000) and most frequent tumor morphology (ductal, lobular and medullar Neoplasms vs. epithelial Neoplasms [lower] - p=0.0000).

CONCLUSION
Survival observed appears lower than in central countries. Groups described as having worst prognosis and epithelial neoplasm with malignant behavior present significant lower survival. Although this is hospital sample with short time tracking, it is beginning to delineate trends in mortality of women attended in Argentina by this disease.

Using electronic health record system for case finding and improving completeness of population-based cancer registry

Dr Azin NAHVJOU1

1Cancer Research Center Of Cancer Institute Of Iran, Tehran, Iran, 2Amir Kabir University of Technology, Tehran, Iran, 3statistics and Information Office, Ministry of Health& Medical Education, Tehran, Iran, 4Radiation Oncology research center , Tehran, Iran

INTRODUCTION
Electronic Health Record (EHR) provides opportunities for case finding and improvement of completeness in population based cancer registry (PBCR). In Iran, the national EHR system, which is called SEPAS, has been established to store data about diagnosis, and treatment of patients. However, EHR/SEPAS is a large database and it is necessary to refine the data and prepare it for application in the cancer registry. We developed a model for cleaning of EHR/SEPAS and application of clinical data in PBCR.

METHODS
We used both manual and intelligent approach to clean the data. We developed a guideline to identify codes assigned for diagnosis and services in the database. We searched ERH/SEPAS database and developed list of ICD10 codes assigned for cancer patients and the diagnosis description in English and Farsi language in an Excel sheet and added codes and description of pharmaceuticals and procedures to the list. We applied the above database and linked it to the patient data to identify the cancer patients. We repeated this process by mathematical algorithm using customized Levenstein algorithm. The results were compared with manual method to estimate sensitivity and specificity of intelligent method.

RESULTS
We selected 5841 diagnosis codes and phrases, 9300 cancer pharmacetics, 1964 cancer specific items related to the diagnosis procedures and treatment methods. Linkage of this list to the patient list generated a database of about 500000 cancer patients for linkage in PBCR program. Intelligent approach used mainly C, D, M, and Z codes from ICD10 to clean the diagnosis data. The sensitivity and specificity of the intelligent method were 99.3% and 81.9%, respectively.

CONCLUSION
We showed reliable method for case finding from EHR-SEPAS for improving completeness of PBCR. The intelligent method used in this study produced valid report and can be used as an alternative for data cleaning.
Examining variation in the burden of lung cancer across GP clusters in Wales

Dr Anna GAVIN1, Dr Ceri White1, Dr Dyfed Huws1, Mrs Rebecca Thomas1, Mrs Tamsin Long1, Mr Ciarán Slyne1, Julie Howe1, Claire Wright1, Rebecca Cushen1

1Welsh Cancer Intelligence And Surveillance Unit, Cardiff, United Kingdom, 2N. Ireland Cancer Registry, Queen’s University Belfast, Belfast, N. Ireland

BACKGROUND

Examining variation in the burden of lung cancer across groups of GP practices developing collaborative working (GP clusters) in Wales.

METHODS

We extracted data from the Welsh Cancer Intelligence and Surveillance Unit’s Cancer Registry for patients diagnosed with lung cancer between 2009 and 2013 living in Wales and registered with a Welsh GP at diagnosis. Population figures were obtained from NHS Wales Informatics Service for each GP practice. The Welsh Index of Multiple Deprivation 2014 was used to assign a deprivation half to lung cancer patients, and also to the population of each GP practice. We calculated crude incidence rates and one-year relative survival rates for GP clusters by sex, deprivation half and stage.

RESULTS

The highest crude incidence rate in men was two and a half times higher than the lowest (119.2 and 46.9 per 100,000 population respectively). In women, the highest incidence rate was almost three times higher than the lowest rate (100.9 and 35.3 per 100,000 population respectively).

For relative survival, there was a 29.5 percentage point difference in men and a 25.5 percentage point difference in women between the highest and lowest relative survival.

Crude incidence rates were generally higher in the most deprived half of each GP cluster. There was no clear relationship between deprivation and survival.

For the majority of GP clusters, most lung cancer patients were diagnosed at a late stage (stages 3 and 4) where relative survival was statistically significantly lower than relative survival from early stage lung cancer (22.5% and 71.2% respectively for Wales).

CONCLUSIONS

There was wide variation in incidence and survival between GP clusters when considering sex, deprivation and stage. There is still work to be done to improve survival across Wales, including increasing the number of lung cancer cases diagnosed at an early and potentially treatable stage.

Investigating the rise in malignant melanoma in Wales

Dr Anna GAVIN1, Dr Ceri White1, Dr Dyfed Huws1, Mrs Rebecca Thomas1, Mr Ciarán Slyne1, Mrs Tamsin Long1, Miss Julie Howe1, Mrs Claire Wright1, Rebecca Cushen1

1Welsh Cancer Intelligence And Surveillance Unit, Cardiff, United Kingdom, 2N. Ireland Cancer Registry, Queen’s University Belfast, Belfast, N. Ireland

BACKGROUND

Incidence of malignant melanoma in Wales has been steadily rising over the last several decades. Between 2002-2004 and 2012-2014, the age-standardised incidence rate has risen by three quarters in men and by a third in women. It went from being the 13th most common type of cancer in 2002 to the 6th most common in 2014. Survival rates of malignant melanoma have continued to improve and are the highest of all the cancers for women. The aim of this study is to investigate trends in inequalities in malignant melanoma epidemiology in Wales.

METHODS

We extracted all cases of malignant melanoma of the skin in Welsh residents from the cancer registry that were diagnosed between 2001 and 2014. Where data allowed, we calculated trends in malignant melanoma incidence stratified by age, sex, stage, body site, area deprivation, rurality and sub-Wales geographies. Relative survival trends were described by similar sub-groups, where possible.

RESULTS

Rates of men and women diagnosed with malignant melanoma continue to increase. Men are more likely to develop melanoma on the trunk or head and neck and women are more likely to develop it on the arms and legs. Patients residing in less deprived areas have a higher rate of melanoma and the deprivation gap has increased slightly over time. One-year relative survival is much higher for early stage melanoma compared to late stage melanoma.

CONCLUSION

More needs to be done to encourage patients in more deprived areas to identify signs of the disease as this may increase incidence in these areas but also help to improve survival. Variations in body site should also be investigated further, as it is unclear whether or not these differences are biological or related to UV exposure levels.

Dr Derbali REGAGBA1, Professor Kaouel MEGUENNI

1University Hospital Of Tlemcen (Algeria), Tlemcen, ALGERIA, 2University Hospital of Tlemcen, Tlemcen, Algeria

BACKGROUND

The knowledge about the childhood cancer epidemiology in Algeria particularly in the province of Tlemcen (west of Algeria) is limited; the main purpose of this survey is the study of incidence and trends evolution of this cancer in Tlemcen.

METHODS

A descriptive analysis using the registration of CanReg 5 database from 2003 to 2014 and joint point regression for the trends study. The International Childhood Cancer Classification the third edition (ICCC-3) was used for the encoding of diagnoses

RESULTS

During this period, 368 new cases of cancer were recorded among children (0-14 years) in the province of Tlemcen, 2.8% of all cancers, or an annual average of 31 cases. The Annual standardized incidence (ASR per 1000 000) was 122.38 CI 95% [104.74 - 140.02] for boys and 102.2 CI 95% [85.99 - 118.50] for girls. The most common cancers for boys were Leukemia’s I (31.85 CI 95% [22.75 – 41.65]), Lymphomas (27.25 CI 95% [19.22 - 42.58]), CNS (25.11 CI 95% [17.02 - 43.22]) and for girls Leukemia’s I (24.36 CI 95% [16.29 – 32.44]), Central Nervous System (CNS) (18.19 CI 95% [11.33 – 25.06]), Lymphomas (17.27 CI 95% [10.76 – 23.80]).

Trend analysis showed a significant trend of increasing cancer for the two sex (APC=7.9, P=0.0, 8.36 new cases per 1000 000/years) and for boys (APC = 7.4, p= 0.01, 8.42 new cases per 1000 000/years) and established trends for girls (APC = 8.1 p=0.1).

CONCLUSION

Our results clearly show an increasing trend in the incidence of childhood cancer in Tlemcen especially for CNS lymphomas and leukemia illustrate the need for effective surveillance and etiologic research.

The group for cancer registration and epidemiology in Latin Language countries is evolving

Dr Ana MIRANDA1, Dr Pascale Grosclaude2, Dr Emanuele Crocetti3, Maria-José Sanchez-Perez4, Dr Jean Faivre5

1Lisbon Cancer Institute, Lisbon, Portugal, 2Registre des Cancer du Tarn, Toulouse, France, 3Romagna Cancer Registry, Meldola, Italy, 4Registro de Cáncer de Granada/Escuela Andaluza de Salud Pública, Granada, Spain, 5Registre des Cancers Digestifs, INSERN U866, Faculté de médecine et CHU de Dijon, Dijon, France

BACKGROUND

The Group for Cancer Registration and Epidemiology in Latin Language Countries (GRELL; www.grell-network.org) was set up in the mid-70ths by a group of experts from several European countries. After 41 years of intense activity including being among the founders of European Network of Cancer Registries and annual scientific meetings, the Steering Committee has decided to change GRELL moving it from a group of ‘friends’, as it was in the origin, to a scientific society more representative of the Latin language countries.

METHODS

The following changes in the GRELL’s statute are up-coming: open the membership to all researchers actively involved in GRELL cancer registry (CR) activities; the members constitute the General Assembly (GA); the Steering Committee (SC) is voted by GA; the Steering Board is nominated within the SC. The national networks of CRs will also provide suggestions for country’s representatives.

RESULTS

With these changes GRELL will get a real representativeness of the GRELL countries, being the members of the SC no more nominated by other members but elected by the GA. The first GA will take place during the next GRELL scientific meeting, scheduled for 24-26 May 2017 in Belgium, when there will be the voting of the new SC.

CONCLUSION

In recent years fruitful scientific collaborations have been implemented within GRELL (e.g. with Eurocare). They have increased the cooperation among researchers and their sense of belonging to this group. The transformation of GRELL into a scientific society representative of the member states will strengthen these collaborations. Latin languages are spoken by more than 800 million people in the world. GRELL has the responsibility to properly represent this incredibly huge population standing out in the international scientific scenario.
Childhood Cancer: Comparison of two cohorts in southern Portugal

Dr Ana MIRANDA1, Dr Claudia Brito2, Dr Alexandra Mayer3, Dr. Gabriela Caldas1
1Lisbon Cancer Institute - ROR-Sul, Lisbon, Portugal

BACKGROUND

In Portugal cancer is the leading cause of death above 74 years old. In children, more than 1/5 of deaths in the age group of 5-14 years are due to cancer.

Childhood cancer incidence has been increasing in last decades, and the main objective of this study is to compare incidence and survival of two cohorts (between 1998-2002 and 2003-2007) for the 3 most important groups of cancers in children – Leukemia, CNS tumors and Lymphomas.

METHODS

Cases were extracted from ROR-Sul database, diagnosed between 1998 and 2007, in a total of 1130 cases. The follow up was completed for almost all cases and the end point was 31st December 2012. Incidence rates were calculated for 4 age groups and for survival Ederer II method was applied.

RESULTS

Leukemia’s, CNS tumors and Lymphomas are responsible for 2/3 of cancer cases with some differences among gender. Children aged 01-04 years presented the highest rate among leukemia (in both cohorts). CNS tumors incidence rate is higher among in 10-14 years. Lymphomas have highest number in the last age group. In both cohorts acute leukemia account for more than 90% of all leukemia’s whereas LLA is responsible for 71%. Survival in LLA at 5 years was 83%. Comparing the two cohorts there is an increase in survival for the most recent period. Hodgkin lymphoma was the most frequent lymphoma being higher in boys. They have a good prognosis with 89% survival at 5 years. In CNS tumors in children is different from the adults. Astrocytoma is the most important one. In CNS tumors survival rates are similar in the two cohorts.

CONCLUSIONS

There were differences between the two cohorts which seem more significant in incidence than in survival.
Semi-Automated ICD-O3 coding in pathology laboratories: PROMISING Infrastructure for population based cancer registries

Dr Azin NAHVIOU1, Dr Kazem Zendehdel2, Dr Azadeh Goodini2, Ms Maryam Haadji2
1Cancer Research Center, Cancer Institute of Iran, Tehran, I.R. Iran

INTRODUCTION
Coding of the tumors is important process in cancer registry. Accuracy of coding is crucial for validity of population based cancer registry (PBCR). Iran has launched several PBCRs in 2015 to increase coverage of PBCR. We upgraded laboratory information systems (LIS) software to implemented semi-automated ICDO3 coding to mitigate misclassification of tumor diagnosis and decrease cost of data collection and coding in the new program. In this initiative, based on the pathology report, laboratory staff select ICD-O3 description and add to the laboratory software. The IDCO codes are automatically assigned to the tumor, saved in the LIS and sent to the central database and cancer registry offices. Here we report validity of semi-automated coding that was introduced in the pathology laboratories in IR. Iran.

METHODS
We extracted pathology reports who were coded by LISs and were submitted from different laboratories. In this study, two experts reviewed the pathology reports and assigned ICDO codes to the tumors. The results of this high quality coding was considered as gold standards and compared with automated ICDO3 codes provided by laboratories. We estimate sensitivity of the automated coding by this comparison.

RESULTS
In overall, we studied reports from 694 patients. We found that 556 (80%) of topography and 537 (78%) of morphology codes were accurately assigned for the cancer patients in the automated approach. However, the third digit of the ICDO-C (sub-site) was not assigned accurately in 99 (14%) patients. From 138 (20%) mismatch codes, 50 (7%) were metastatic patients and 88 (13%) were primary tumor.

CONCLUSION
Semi-automated coding in the pathology laboratories seems to be promising appropriate to improving quality of PBCR and decrease workload in the PBCR. It will improve efficiency and cost-effectiveness of PBCR. However, training program and regular feedbacks to the laboratories are necessary to improve the accuracy of coding.

National network of hospital-based cancer registry for evaluation of quality of care in Iran

Dr Azin NAHVIOU1, Dr Mohammad Reza Rouhollahi1, Dr Nahid Karkhaneh Yosefi2, Dr Mohammad Ali Mohagheghi1, Mr Zeinab Mohammdzadeh1, Mrs Monirieh sadat Seyedalaei1, Dr Azadeh Goodini1, Dr Kazem Zendehdel1, Dr Seyed Hossein Yahyazadeh Jabbari1, Dr Habibollah Mahmoudzadeh1
1Cancer Research Center_cancer Institute Of Iran, Tehran, Iran, 2Clinical Cancer Research Center_Milad Hospital, Tehran, Iran, 3Cancer Institute of Iran, Tehran, Iran

INTRODUCTION
Registration of clinical data is useful for evaluation of quality of care. We established a network of hospital based cancer registry (HBCR), in which 20 hospitals will share data to evaluate of pattern of care in the country. Ministry of Health and Medical Education provided funding for this program.

METHODS
Twenty hospitals from different province started HBCR on five common cancers in Iran, including breast, stomach, esophageal, colorectal, and prostate cancers. We used a modified version of the North American Association of Cancer Registry standards and defined about 100 variables to collect data on patient identity, pathology diagnosis, stage, prognostic factors, different treatments modalities, and follow-up. Trained registrars collected and registered the information. We customized CanReg5 software for this program. Data sources for HBCR were archived medical records, hospital information systems (HIS), and active follow up. In the pilot phase, we collected data of colorectal cancer from three centers and estimated feasibility, time and cost of HBCR program.

RESULTS
In about six months, three centers registered all their incident cases. Three centers managed to 344 patients during this period. Completeness in each center was about 90%. However, only data of 62% of the variables was available in the medical records. We found that about 50% of the patients were in advance stage (stage IIIA or higher). Canreg5 was suitable for this program, although it required specific modification to manage needs of HBCR.

CONCLUSION
Establishment of HBCR is feasible and will provide valuable information for monitoring of quality of care, patterns of diagnosis and treatment, referral pattern, patient journey, delays in the diagnosis and treatment, and effectiveness of different treatment types. Evidence from this program will be used to provide important evidenced for improvement of the cancer control program. CanReg5 is applicable for HBCR program.
Cancer related to tobacco use: What about Casablanca?

Dr Karima BENDAHOU, Mrs Soukaina Afghar, Mr Ibrahim Khalil Ahmadaye, Mrs Ibtissam Cherrat, Dr Ahmed Zidouh, Pr Maria Bennani, Dr Rachid Bekkali, Pr Abdellatif Benider

1Casablanca Cancer Registry, Casablanca, Morocco, 2Lalla Salma Foundation, Rabat, Morocco, 3Mohammed VI Center for Cancer Treatment, Casablanca, Morocco

OBJECTIVES

Tobacco is one of the most known risk factors associated with certain types of cancer. The objective of this work is to describe the burden of cancer related to tobacco in Casablanca region.

METHODS

The population included was extracted from Casablanca registry database. We considered all cases diagnosed between 2008 and 2012 especially sites known in the literature as cancer related to tobacco (lung, larynx, pharynx, bladder, tongue, lip and the others tumor of mouth). Cancer observed in patients aged less than 20 years old was excluded from the analysis. Age standardization was done using world population as a reference.

RESULTS

The cancer types considered in the analysis represented 18.5% of cases registered. The crude rate was 22.3 per 100000 (6.3 in female and 38.7 in male), the age standardized rate was 28.2 per 100000 (7.5 in female and 51.1 in male). The age group 50-64 represented 45.7% of total cases in men and 27.7% in women. The most frequent type was lung cancer with a proportion of 62% of cases.

CONCLUSION

If we organize an education against tobacco use, we will act on 18% of news cases registered each year.

Casablanca region: increase of Cancer incidence rates 2004-2012

Dr Karima BENDAHOU, Mrs Soukaina Afgar, Mr Ibrahim Khalil Ahmadaye, Mrs Ibtissam Cherrat, Dr Ahmed Zidouh, Pr Maria Bennani, Dr Rachid Bekkali, Pr Abdellatif Benider

1Casablanca Cancer Registry, Casablanca, Morocco, 2Lalla Salma Foundation, Rabat, Morocco, 3Mohammed VI Center for Cancer Treatment, Casablanca, Morocco

INTRODUCTION

Cancer Incidence rate is increasing in developing countries. It is expected to reach rates observed in developed ones in few decades. This work aimed to describe the incidence rates of most common cancers in Casablanca region from 2004 through 2012.

METHODS

The cases considered in the analysis were extracted from Casablanca cancer registry. The period studied was from 2004 the year of establishment of the registry to 2012.

RESULTS

The overall cancer incidence rates steadily increased in both sexes. In men, rates increased from 84.0/10-5 in 2004 to 102.1/10-5 in 2012 while in women rates increased from 100.0/10-5 in 2004 to 122.7/10-5 in 2012. For breast cancer in women, the incidence rate increased from 35.5/10-5 in 2004 to 43.5/10-5 in 2012. Cervical cancer increased from 12.8/10-5 in 2004 to 15.3/10-5 in 2012. The same trends were observed for lung and prostate cancer in men, the incidence changed respectively from 20.3/10-5 to 25.4 and 7.0/10-5 for prostate in 2004 to 14.4/10-5 in 2012. Looking at the colorectal cancer in both sexes, the incidence rates increased from 5.5/10-5 in 2004 to 9.9/10-5 in 2012.

CONCLUSION

Cancer rates in developing countries are substantially lower than those reported in developed ones. However some increases in cancer incidence observed are associated to epidemiological transition, lifestyle, and environmental changes.
Hormonal risk factors and breast cancer (study of Case - Control)

Ms Houda DRISSI, Miss Fatima ezzahra IMAD1, Dr Karima BENDAHHOU2, Pr Driss RADALLAH3, Pr Abdelatif BENIDER3

1Faculty of Sciences ben M’SIK University Hassan ii Casablanca Morocco, CASABLANCA, Morocco, 2Register of cancers of the Greater Casablanca Morocco, CASABLANCA, Morocco, 3Centre Mohammed VI for the treatment of cancers, Casablanca Morocco, CASABLANCA, Morocco

Breast cancer ranks first in terms of incidence and mortality worldwide. The aim of our study is the identification of risk factors, including dietary factors and lifestyle on the development of this pathology.

Our study included 100 samples matched according to age. 50 breast cancer patients newly diagnosed collected at the Centre Mohamed IV for the treatment cancers of Casablanca, compared to 50 controls free of any cancer ous disease (patients admitted to the center of the consultations of dermatology and ophthalmology CHU Ibn Rushd Casablanca). Data collection is done using a standardized questionnaire administered face to face with patients and completed from patient records. Statistical analysis of epidemiological data was made using the R software.

Our study population had a middle age of 48 years with a standard deviation of 12; most are married. Moreover, the study of the diet of patients compared to controls suggests that the average weekly consumption of fries, potatoes and red meat is higher in patients than in controls, respectively (3.92 vs 2.57; p = 0.02). (7.54 vs 5.30; p = 0.04). (5.90 vs 4.95; p = 0.04). However patients consumed less fruit oilseeds than controls (2.18 vs 3.45; p = 0.01). Consuming less rice than controls (3.13 vs 4.13; p = 0.03). Consumed less fish than controls (4.25 vs 5.28; p = 0.01).

Furthermore, in our population 15% of patients were smokers versus 0% of the control with a p <0.01. Note that 60% of patients are overweight or obese, while 40 witnesses are overweight. In addition, we noted that the women in our study took with age, more and more weight and significantly reduced the practice of physical activity. Most patients are overweight or obese and ate a lot of red meat.
Epidemiological study about 115 cases of breast cancer in Moroccan population.

Ms Houda DRISI1, Miss Fatima ezzahra IMAD1, Dr Karima BENDAHHOU2, Pr Driss RADALLAH1, Pr Abdelatif BENIDER1

1Faculty of Sciences ben M’Sik University Hassan ii Casablanca Morocco, CASABLANCA, Morocco, 2Register of cancers of the Greater Casablanca Morocco, CASABLANCA, Morocco, Centre Mohammed VI for the treatment of cancers, Casablanca Morocco, CASABLANCA, Morocco

Breast cancer is the more frequent cancer among women in Morocco and in the world, its incidence increases with age. Breast cancer is a major public health problem.

Our retrospective study, conducted within the Centre Mohammed IV for the treatment of cancers of Casablanca concerned 115 patients with breast cancer affected with an average age of 50 with 11 young people aged under 35. 60% of patients are married. Most patients are from a wide area including the regions of Casablanca-Settat Beni Mellal, Khenifra, Meknes and Fez-Marrakech-Safi. This is mainly due to the proximity, as the study center is located in Casablanca and does not reflect the geographic distribution of this type of cancer throughout Morocco.

The most common histological type in our patients was represented by invasive ductal carcinoma (75 cases) with SBR grade from 2 to 3 in almost all. Vascular emboli are present in 40% of cases. The expression of hormone receptors is positive in 58% of patients while the expression of HER-2 is positive in 26% of patients with a proliferation index greater than 15% in 50% of patients.

To deepen our knowledge, the breast cancer field and its management among Moroccan women other etiological studies are recommended to address these issues.

Breast cancer risk factors: A comparison between pre-menopausal and post-menopausal women At Tlemcen

Prof Latifa HENAOUI1, Samira Benbekhti1, Loubna Bouhmama1

1University Tlemcen Algeria, Tlemcen, Algeria

OBJECTIVE
To evaluate the difference between pre- and post-menopausal breast cancer regarding menstrual and reproductive risk factors

METHODS
The case-control study was conducted in Tlemcen Hospital, between January 2011 and March 2013. We conducted a case-control study within this population. 320 cases of incident breast cancer recruited at the University Hospital, EHS and the EPSP in the province of Tlemcen, and 640 controls recruited at the polyclinics among the wilaya, matched by age and place of residence of the cases. Menstrual and reproductive history was taken from both the cases and the controls. For every risk factor odds ratio (OR) and 95% confidence interval (CI) was calculated by conditional logistic regression analysis, separate for pre- and post-menopausal women.

RESULTS
Among the breast cancer patients, 45.6% were pre-menopausal and 54.4% were post-menopausal.

Age at menarche had no association with breast cancer for both pre- and post-menopausal women. Parity was a protector factor for only pre-menopausal females (OR = 0.47, 95% CI 0.25-0.88), age at first live birth was not associated with both pre- and post-menopausal breast cancer, only females having > 3 children decreased risk cancer in both pre-menopausal (OR = 0.34, 95% CI 0.16-0.69) and post-menopausal women (OR = 0.44, 95% CI 0.20-0.95), Breastfeeding was associated with pre-menopausal breast cancer (OR = 0.55, 95% CI 0.32-0.94).

CONCLUSIONS
Majority of risk factors for pre-menopausal breast cancer are also associated with post-menopausal breast cancer except the parity, and breastfeeding which decreased the risk for pre-menopausal breast cancer only.
Establishing Population Based Cancer Registry in 14 Provinces in Indonesia: to achieve national cancer incidence

Dr Evlina SUZANNA1,4, Dr Tri Hesty Widjastoei Marwotoesoeki2, Dr Lily Sriwahyuni Sulistyawati2, Prof Abdul Kadir4, Dr Ina Kosalina Dadan2, Dr Niken Palupi1, Prof Soehartati Argadikoesoema Gondhowiardjo4

1National Cancer Control Committee, South Jakarta, Indonesia, 2Directorate of Referral Healthcare, Ministry of Health, South Jakarta, Indonesia, 3Directorate of NCD Control, Ministry of Health, Central Jakarta, Indonesia, 4Dharmais National Cancer Center, West Jakarta, Indonesia

BACKGROUND

Indonesia is the 4th most populated country in the world but still has no national cancer registry. Country with large population, autonomous but linked regional registries may be more effective to achieve national coverage. Based on decree of Minister of Health No HK.02.02/Menkes/390/2014, there are national referral hospitals in 14 regional, those are Medan, Padang, Palembang, Jakarta, Bandung, Semarang, Sleman, Surabaya, Denpasar, Pontianak, Samarinda, Manado, Makassar, and Jayapura. These are the 14 national referral hospitals in regional area of Indonesia in charge in conducting PBCR.

METHOD

These 14 regional cover 26 cities/districts which are 14% (33 million) of Indonesian population representing urban and rural areas. The regulation that have been released by National Cancer Control Committee, Ministry of Health is implementing in 14 regional by collaboration among Dharmais NCC as quality control, National Cancer Data; Directorate of NCD Control which released NCCP in Indonesia and Directorate of Referral Healthcare as directorate that in charge in developing health facility and program conducting Training Cancer Registry in these regional which is seven regional per period. National referral hospital and provincial health department are also supporting this program. The participants are stakeholders (oncologist and/or head of medical record department in hospital, head of primary health care, and head of NCD also Health Care department in provincial health office) and registrar candidate.

RESULT

The system of action plan in each province is determined at the end of the training. To support the activities, National Cancer Control Committee points out one person to be in charge monitoring the system of cancer registry in each region. All 14 Regional PBCR should report cancer data at the end of November 2016.

DISCUSSION AND CONCLUSION

National PBCR as part of NCCP supported by decree of MOH should be followed by the decree of governor as Indonesia has decentralized system of government.

A review of tobacco-related cancer from Hospital Registry Dibrugarh

Dr Rafiqua AKHTAR

Hospital Cancer Registry, Dibrugarh, India

The etiology of cancer associated with the use of tobacco considered as tobacco related cancer (TRC). Despite of worldwide efforts against the use of tobacco of various forms it cannot be effectively reduced. There are several anatomical sites of cancer are associated with the consumption of tobacco. These sites are: Lip, Tongue, Mouth, Pharynx, Oesophagus, Larynx, Lung and urinary bladder.

The highest percentage of TRC observed in Dibrugarh Cancer Registry of Assam is more that 50% of all male cancer and almost 25% of female cancer which were exceedingly high as compared with any other Indian Registry.

Method: In the Hospital Registry, Dibrugarh, Assam the relative proportion of TRC data decades ago in 1999 were compared with data of 2012. In 1999 a total number of 664 cancer cases were registered against 1255 cases in 2012, which were observed in the study.

Result: in 1999 out of 664 cases, 449 were made and 215 were female and percentage of TRC 68.4% and 31.2% respectively. In males hypopharynx 16.5% followed by oesophagus 15.4% and mouth 7.8% and in females oesophagus 12.6% followed by mouth 6% and hypopharynx 5.1% of all cancers. In 2012 in case of male oesophagus 14.4% followed by hypopharynx 14.1% and mouth 9.6% and in female oesophagus 8.6% followed by mouth 4.4% and hypopharynx 3.4% of all cancers. During the decade oesophagus was the leading site of cancer in case of female it was remarkably high almost 40% of all TRC. The TRC according to age group shows that it was gradually increases from age 45 years reached peak at age group 60-64 years in male and 50-54 years in female.

Conclusion: During the decade the relative proportion of TRC decreased by almost 15% and 10% in males and females respectively.
Action plan of National Network of cancer registration in 14 provinces in Indonesia

Dr Evlina SUZANNA 1,4
Dr Dian Tria 1, Dr Tri Hesty Widjyastuti Marwotosoek2, Dr Lily Sriwahyuni Sulistiyowati 3, Prof Abdul Kadi 4, Dr Ina Rosalina Dadan 4, Dr Niken Palupi 4, Prof Soehartati Argadikoesoema Gondhowiardjo 4

1National Cancer Control Committee, South Jakarta, Indonesia, 2Directorate of Referral Healthcare, Ministry of Health, South Jakarta, Indonesia, 3Directorate of NCD Control, Ministry of Health, Central Jakarta, Indonesia, 4Dharmais National Cancer Center, West Jakarta, Indonesia

BACKGROUND
Indonesia has developed a national cancer registration system through 14 regional cancer registries in Indonesia. The system covers 26 districts/municipals to reach 14% (33.272.139) of the population of Indonesia. In 2016, cancer registration will collect the data of cancer patients who were diagnosed in 2008-2012.

METHODS
To implement, monitoring, evaluate the action plans of cancer registry in each regional PBCR in Indonesia.

RESULTS
There were 3 network systems of cancer registration determined at the end of training in 14 regional PBCR. The system is accommodated the decentralize government system in each area. The first system: all of health facilities will report the data directly to National Referral Hospital (Type A). The second system: since in one region there were two type A hospital but only one hospital point out as National Referral Hospital, the others type A hospital should report the data to National Referral Hospital. The third system namely specific for Jakarta as Capital city which has National Cancer Center and also National Cancer Hospital, National Referral hospital in charge for Jakarta cancer registry. All of the network system in 14 regions will merge in National Central Data in Dharmais NCC, Indonesia as the quality control center of data.

DISCUSSIONS/ CONCLUSIONS
The third part of this system has not determined the way of reporting system in each region. In data collection of cancer registration, the reporting system could be active or passive. The role of the Health Province/District/Municipal office in each region is to report the completeness of the data such as reporting mortality data that have not been determined yet. The result of the system will be evaluated in a national meeting in September 2016.

Mortality registration in population based cancer registries: An Indian perspective

Mr Anish JOHN 1
Dr ANandakumar 1, Mrs Priyanka Das 1, Mr S Stephen 1, Mr KSathishkumar 1, Dr Debjit Chakraborty 1, Mr N Vinodh 1, Dr Prashant Mathur 1

1National Centre For Disease Informatics & Research (Indian Council Of Medical Research), BENGALURU, INDIA

BACKGROUND
There are 29 Population Based Cancer Registries (PBCRs) under National Centre for Disease Informatics & Research in India. Collection of cancer incidence and cancer mortality by PBCRs is a regular activity. The Mortality registration system is weak and actual cause of deaths is hardly available in the records. Thus, collection of All Cause deaths rather than only cancer deaths was a probable solution for the PBCRs to improve the mortality figures.

METHODS
All cause of deaths from civil registration system are received in Ms-Excel/Ms-Access in non-standardized formats. The file may contain information on Civil RegNo, Deceased Name, Age, Sex, Address, pincode, Date of death, Cause of Death, ICD10, Place of Death and Hospital Name. A desktop application has been developed to import of All cause deaths into the database. The application formats the data (dates, address, converts descriptions to codes) and imports the data. All deaths are processed to match with incidence and confirmations on matches are obtained from registry. DCN clarifications are sought on unmatched cancerous deaths and matching is completed.

RESULT
10 out of 29 PBCRs are providing all cause deaths. The contribution from All cause data out of the total mortality cases in four urban PBCRs namely, Bangalore (2012), Mumbai (2012), Delhi (2011) and Kamrup Urban (2013) PBCRs was 34.0%, 22.2%, 13.1% and 9.3% respectively whereas in a semi urban PBCR at Cachar District (2013) it was 16.8%. The Mortality/Incidence (M/I) ratio saw an overall increase. The M/I ratio at Mumbai (2009-2010) was 44.1 when only cancer deaths were collected whereas in 2012 with all cause deaths it was 63.7.

CONCLUSION
Hence, if the existing system is strengthened to obtain actual cause of death the mortality figures will improve as M/I ratio is dependent on the source of mortality data and the topographical site of cause of death.
**Epidemiology of palliative care patients with cancer in Casablanca**

Dr Asmaa El AZHARI

1Centre Mohammed VI Pour Le Traitement Des Cancers. Chu Ibn Rochd., Casablanca, Maroc

**BACKGROUND**

In Morocco palliative care (PC) constitute the 4th strategic axe of the national plan of prevention and control cancer 2010-2019. However, PC strategy begins in 2014, firstly by ambulatory PC, then PC home in 2016.

**METHODS**

Retrospective descriptive analysis. 700 patients with cancer in PC treated in Centre Mohammed VI pour le traitement des cancers in Casablanca were included in this study. We used Cristalnet support to evaluate the clinical and epidemiological profile of those patients.

**RESULTS**

The average age of patients is 58 years. 63% are male. Lung cancer is the most frequent. Over 60% of patients have benefited from palliative care without specific treatment (chemotherapy or radiation therapy). The average of de following was 2.2 month. The majority of patients was died receiving PC at home. Half of caregivers was the first degree parent. The most frequent symptom is pain 90% and opiodes were prescribed in 60% of patients and provided free in 77% of cases.

**CONCLUSION**

Late diagnosis of cancer in Morocco increases the number of palliative care patients. Lung cancer remains the most frequent and devastating. Pain management is the first priority of the program and was achieved thanks to the availability and free opiodes.

**Skin melanoma: Changing incidence trends in a Spanish Mediterranean region**

Diego SALMERÓN, María Dolores Chirlaque, Isabel Valera, Jacinta Tortosa, Carmen Navarro

1Department of Epidemiology, Regional Health Council, IMIB-Arrixaca, Murcia, Spain CIBER Epidemiology and Public Health (CIBERESP), Spain. Department of Health and Social Sciences, Universidad de Murcia, Murcia, Spain, Murcia, España

**OBJECTIVE**

The objective is to study incidence trends of cutaneous melanoma in Murcia Region for the period 1983-2009.

**METHODS**

Longitudinal study of patients newly diagnosed with skin melanoma in 1983-2009 from population based Cancer Registry of Murcia Region. Invasive behaviour of the tumour was selected with C44 topography and 8720-8790 morphology ICDO-3 code. The included variables were sex, age group, date of incidence, histology type and skin subsite. Age-standardized rates per 100,000 inhabitants were computed by direct method using the European Standard Population. Trends in incidence were analysed using joinpoint regression models.

**RESULTS**

2,253 skin cancer cases were diagnosed in 1983-2009. The main site were skin of trunk in men, and skin of limbs in women. Superficial spreading melanoma was the most frequent (53%) in 2007-2009 followed by nodular melanoma (14%) and lentigo maligna melanoma (6%). 27% of the cases were malignant melanoma SAI and other melanomas. The adjusted rates increased from 2.7 in 1983-1987 to 9.5 in 2007-2009 in men, and from 3.1 to 10.9 in women. The model detected a joinpoint in 1997 for men. Until this year the trend was increasing: APC 9.6% (6.5;12.8), and after that the APC was 1.8% (-0.2;3.9). Projecting the trend of 1983-1996, the estimated rate would be 14 in 2009, 51% more than the observed rate. Rates in women showed a similar behaviour, detecting a joinpoint in 1998: PCA 7.9% (4.7;11.2) in 1983-1998, and 0.7% (-2.1;3.6) in 1998-2009. When we projected the period 1983-1997, the estimated rate in 2009 was 22.7, 92% higher than the rate observed.

**CONCLUSIONS**

The incidence of melanoma has increased steadily, being a turning point in the trend late 90s. The main group is the superficial spreading melanoma and skin of the trunk and limbs the most frequent subsite.
National Vital Statistics Systems: A complementary cancer data source in low and middle income countries

Dr Olga JOOS, Dr Sam Notzon

1National Center For Health Statistics, CDC, Hyattsville, USA

BACKGROUND

Many low and middle income countries lack complete and reliable information on the burden of cancer: cancer registries may not exist at all, or may cover only a portion of the population. An alternative source of information could come from routine cause of death reporting, although currently the completeness and quality of mortality data is poor in many countries. To address this and other health data issues, the Bloomberg Data for Health Initiative aims to improve the completeness and quality of routine reporting and use of mortality data in 18 low and middle income countries or cities. The project includes a number of governmental organizations, universities and consultants, including many of the world’s leading experts on civil registration and vital statistics. The project aims to develop and implement standard data improvement interventions in all of the project sites. A particular focus is on the collection and coding of causes of death, whether facility- or community-based deaths. This will include physician training on reporting causes of death, verbal autopsy for community deaths, and ICD10 coding.

RESULTS AND CONCLUSION

Cause of death data from a national vital statistics system can serve as a valuable complement to cancer registry data. Unlike surveys but similar to a cancer registry, a vital statistics system collects causes of death on a continuous basis and produces annual data. An important advantage of a national vital statistics system is that it provides information on all deaths in the country, permitting the analysis of small area data. Because it includes information on all deaths, vital statistics data can complement the information available from local, regional or national cancer registries. This allows for comparative data quality assessments. An improved national vital statistics system can serve as an essential adjunct to cancer registries in low and middle income countries.

A new method for improving race completeness in cancer registries using inpatient and outpatient claims

Dr Leticia NOGUEIRA

1Texas Cancer Registry, Austin, USA

BACKGROUND

Cancer information for certain racial groups is frequently incomplete, and available statistics may not represent the true cancer burden for these populations. We hypothesized that inpatient and outpatient claims data can be used to identify missing race information in cancer registries.

METHODS

Records with missing race information in the Texas Cancer Registry (TCR) database were matched with inpatient (2004-2014) and outpatient (2010-2014) claims records from the Texas Health Care Information Collection (THCIC). First name, last name, birthday, and social security number were used to identify matching records. The matches were independently checked before updating race information in the TCR database.

RESULTS

Of the 109,027 records the TCR has for cancers diagnosed in 2013, 3,758 records (3.4%) were missing race information. Approximately 70 million claims records from THCIC contained data for race and at least three of the four variables used for matching. A total of 804 records with missing race data in the TCR database matched 2 or more records in THCIC and were updated. Of these, 732 were white (91%), 36 were African American (4.5%), 11 were American Indian (1.4%), and 25 were Asian (3.1%). After updating the database, the percent of TCR records missing race information decreased to 2.7%.

CONCLUSION

Inpatient and outpatient claims data can be used to identify missing race information for cancer patients. The large number of records per individual in the inpatient and outpatient claims database provides for a higher likelihood of obtaining race information compared to the number of records typically received by the cancer registry. In combination with other efforts, such as linkage with the Indian Health Services database, population-based cancer statistics for Native Americans are now available for the first time in Texas, and cancer researchers using registry data can more accurately evaluate health disparities for historically disadvantaged racial groups.
Estimating the annual direct and indirect state health care cost associated with HPV-related cancers

Dr Leticia NOGUEIRA

1Texas Cancer Registry, Austin, USA

BACKGROUND

Human papillomavirus (HPV)-related cancers are a major worldwide public health concern. Virtually all cases of cervical cancer are caused by HPV, and the virus plays a major etiologic factor in other cancers. As part of a strategic plan development to reduce morbidity and mortality from HPV-related cancers in Texas, the annual direct and indirect state costs attributable to these cancers will be estimated.

METHODS

For the purposes of this study, only direct costs to the state of Texas will be estimated. HPV-related cancer cases diagnosed between 1995 and 2015 were selected from the Texas Cancer Registry (TCR). A combination of deterministic and probabilistic linkage methods will be used to identify these patients in the Medicaid database. Texas Medicaid claims data will be used to estimate costs associated with diagnostic and treatment procedures for HPV-related cancers. Indirect costs will be estimated as present value of lifetime earnings (PVLE) lost due to cancer deaths.

RESULTS

Approximately 93,000 HPV-related cancer cases were diagnosed in Texas since 1995. The most commonly diagnosed HPV-related cancer was oropharyngeal cancer (51,587 cases, 55.6%), followed by cervical (25,421 cases, 27.4%), anal (6,768 cases, 7.3%), vulva (4,945 cases, 5.3%), penile (2,125 cases, 2.3%), and vaginal (1,997 cases, 5.3%) cancers. The cost of diagnosis and treatment of these cancers will be added to the PVLE and compared to the cost of administration of HPV vaccines.

CONCLUSION

In addition to the physical and emotional burden, the financial cost of cancer is high for the cancer patient and for society as a whole. HPV vaccines protect both males and females against diseases caused by HPV, including cancers, when given before HPV infection. They are safe and effective. Investing in HPV vaccination programs could allow for greater public health impact and efficiency in the allocation of resources in the state of Texas.

Characteristics of patients who die early from colon cancer: A retrospective case-control study

Dr Conan DONNELLY

1Queen’s University Belfast, Belfast, UK, 2Belfast Health & Social Care Trust, Belfast, UK

BACKGROUND

UK five-year relative-survival for colon cancer remains poor compared to the best performing health systems. Deficits are largely explained by outcomes in the first three months following diagnosis. The goal of this study is to identify factors which are more common in the patients who die early in Northern Ireland (NI) with a view to determine factors which might help identify groups for early diagnosis interventions.

METHODS

This study employed a retrospective, individually matched, case-control design. Patients diagnosed with primary colon cancer (C18) in NI between January 2005 and December 2010 were identified using the N. Ireland Cancer Registry. Cases had observed survival < 3 months from diagnosis. Controls were matched on age sex and year of diagnosis and had observed survival ≥6months<3yrs on. Demographic, disease, clinical and service data were collected on 484 cases and matched controls by trained data abstractors under the guidance of a clinical adviser. Conditional logistic regression was used to determine factors associated with early death.

RESULTS

Demographic, clinical and disease factors all play a role in early death. Patients living alone or in residential/nursing care, single or widowed patients, patients from deprived communities and those with dementia had higher odds of early death. Largely differences were not explained by disease, clinical characteristics or by diagnostic delays. Missing data was also associated with early death. Unknown marital and smoking status and unknown histology, grade and stage had higher odds of early death.

DISCUSSION

Early death seems to be strongly associated with social isolation. Despite collection of detailed clinical, diagnostic pathway and treatment data, the underlying drivers of early death in these at risk groups was unexplained and requires further research. Future study should also be undertaken to explain the relationship between missing data and poor colon cancer outcomes.
International cancer survival differences and cancer registration practice in ICBP jurisdictions: Key-informant exercise

Dr Michael EDEN1

1National Cancer Registration And Analysis Service, England

BACKGROUND

Large variations in cancer survival have been observed internationally. One explanation for this observation could be due to differences in cancer registration practices between jurisdictions, particularly for short-term survival. Although the International Association of Cancer Registries (IACR) provides global guidelines for cancer registration processes, separate regional guidelines also exist. No previous study has undertaken a review of guidelines and coding systems used by different cancer registries, and their application in day-to-day registration practice. We conducted a key informant exercise to assess differences in cancer registration practices in the International Cancer Benchmarking Partnership (ICBP) present in 10 jurisdictions (UK, Scandinavia, Canada and Australia).

METHODS

To assess guidelines used and actual registry practices, ICBP partners from each jurisdiction identified key informants. Semi-structured interviews were conducted with informants (face-to-face and by telephone) focusing on topics that could influence survival time. The guidelines and actual registration practices used within ICBP jurisdictions were documented and differences between registry practices that might influence apparent cancer survival rates were described.

RESULTS

ICBP jurisdictions use a range of cancer registration guidelines and actual practices. Only five of the jurisdictions use the IACR guidelines, and the remaining five use other guidelines, such as European Network of Cancer Registries (ENCR). Most registries deviated in their interpretation and implementation of guidelines to varying degrees. No registries used exactly the same processes in day-to-day practice. Many of the observed practices and differences were likely to influence observed survival calculations.

CONCLUSION

We demonstrated international differences in cancer registration practices used in ICBP jurisdictions that are likely to impact on observed cancer survival variation between jurisdictions, primarily for short-term survival estimates. The degree by which registration differences influence survival estimates has not been quantified, but it is likely that efforts to harmonise guideline implementation globally would aid the comparability of international survival estimates.

Epidemiological features of cancer-
population regional cancer registry-
Autonomous Region Of Madeira - Portugal

Dr. Cláudia FRAGA1

1Instituto de Administração da Saúde e Assuntos Sociais, IP-RAM, Funchal, Portugal

BACKGROUND

The Regional Cancer Registry at Madeira Island was implemented in 1998 and capture a complete summary of patient history, diagnosis, treatment, and status for every cancer patient. It covers all population, that it is almost at 256 424 inhabitants. The study’s objective is characterizing incidence, survival and mortality of the five principal tumours on the period 2010-2012, recorded on the REGIONAL CANCER REGISTRY.

METHODS

A regional retrospective study was performed considering all registered tumours during 2010-2012. All cases were analysed for the following variables: date of birth, gender, diagnosis, type of tumour, diagnosis date, diagnosis`s age, region of residence and date of death. To compare incidence rates among different populations, it was used the direct method of standardization based on global population. The Kaplan-Meier method (KM) was performed for survival analysis.

RESULTS

3,190 cases were analysed. The largest number of cases was recorded in women, 1630 (51, 1). Male cases correspond to 1566 (48, 9). Most cancers recorded above 40 years (93). Breast cancer has the highest incidence,114,14 /100,000. The five cancers that are leading the mortality are: Trachea, bronchus, lung: 89,25 / 100,000; Stomach: 36,97 / 100,000; Breast: 35.10 / 100,000; Colon: 34.73 / 100,000; Prostate: 32.49 / 100,000. Regarding survival, the principle findings are: Breast: 79, Prostate: 68, Trachea, bronchus and lung: 10% Colon: 52% Stomach: 21.

CONCLUSIONS

Women are more affected by cancer than men, giving a ratio of 1.04: 1. The incidence rate increases with age. Breast cancer has the highest incidence rate with 114,14 /100,000. The Trachea, bronchus and lung cancer is the one with higher mortality. Survival is higher for breast cancer.
Trend of standardized incidence of breast cancer according the Great Casablanca registry

Prof Souha SAHRAOUI1

1Center Mohammed VI traitement cancer CHU Ibn Rochd Casablanca, Casablanca, Morocco

BACKGROUND
In Morocco, the national plan for prevention and control of cancer 2010-2019 define the priorities cancer: female cancers breast and cervix uteri cancer. Many actions were performed in the early detection by the Lalla Salma Foundation for prevention and treatment of Cancer with the ministry of health. We report the trend of the incidences of breast cancer according the great Casablanca cancer Registry.

PATIENTS – METHODS
We reported data’s of the Great Casablanca cancer Registry, collected in 2004, 2005-2007 and 2008-2012. The collection was active and passive. The standardized incidence was analysed according age at diagnosis, class age, histological type and stage. We used the International Classification of Diseases for Oncology (ICD- O), 3rd Edition.

RESULTS
The standardized incidence of breast cancer was 35.04 per 100 000 habitants in 2004, 36.4, per 100 000 habitants during the second period 2005-2007 and the average of age was 36.4 per 100 000 habitants of the third period. The average of age was 48.1 years, 49 years and 50.2 years respectively in 2004, 2005-2007 and 2008-2012. In the all cases the infiltrative carcinoma was most histological type and we noted an increase in the non-invasive carcinoma with 0.2 in 2004, 1.8 in 2005_2007 and 2.1 in 2008-2012. Localized stages were noted in 23% cases in 2005-2007 and 37% in 2008-2012, the parameter wasn’t collected in 2004.

CONCLUSION
Our study showed a small increase in breast-standardized incidence. The same trend was noted for the percent of non-invasive carcinoma and the localized stages. More parameters need to be collected specially, conservative surgery, survival and quality of life.

IARC Regional Hub for cancer registration In Latin America

Dr Florencia MORENO, Dr Maria Graciela Abriata1, Dr Marion Piñeros1, Dr. Les Mery2, Dr Freddie Bray2

1National Cancer Institute, Buenos Aires, Argentina, 2International Agency for Research on Cancer, Lyon, France

PURPOSE
The Regional Hub for Latin America (the GICR-LA Hub) was established within the GICR (Global Initiative for Cancer Registry Development) program in early 2014. The coordinating centre based within the National Cancer Institute (INC) of Argentina in Buenos Aires, incorporates additional expertise from other countries and through designated Collaborating Centres. The LA-Hub aims to build and improve capacity for cancer registration in Spanish and Portuguese speaking countries of Central America, South America and The Caribbean.

METHODS
The Hub supports cancer registries in the region providing tailored technical and scientific support, delivering training in population-based cancer registration, promoting the use of data, advocating for the cause of cancer registration and facilitating collaboration and networking between cancer registries. A Hub Advisory Committee with key regional partners and experts has been established to steer the Hub activities.

RESULTS
13 site visits were carried out and recommendations provided to Argentina, Costa Rica, El Salvador, Guatemala, Honduras, México, Nicaragua, Panama, Paraguay and Peru. Three intermediate level training courses have taken place, 5 CanReg5 webinars have been organized and regional transmission of registry training events has been facilitated with more the 5 hundred participants from different countries of LA. Basic criteria for a mentorship program have been developed. A virtual discussion forum has been set up at INCs website and a monthly update on GICR regional activities is issued since March 2015. A series of articles on cancer and cancer registration in the region have been accepted for publication.

CONCLUSION
The model of the LA Hub has had a successful onset for becoming a regional resource centre capable of providing targeted support for population-based cancer registries in the region. Virtual courses optimized resources. Further efforts are needed to empower regional cancer registry networks and integrate newly available data into cancer control programs.
Cancer Registry of Norway – the modern and international standard of cancer registration

MD, PhD Elisabete WEIDERPASS

1Cancer Registry of Norway, Oslo, Norway, 2Karolinska Institutet, Stockholm, Sweden, 3UIT The Arctic University of Norway, Tromsø, Norway, 4Folkhälsan, Helsinki, Finland

Since 1952 the Cancer Registry of Norway has collected and systematized information about cancer occurrence in Norway. High quality data collected for over five decades provide an almost complete (98.8%) source of information for cancer surveillance and epidemiological research. The cancer registry is updated continuously and contains the basic variables provided by clinicians, pathologists, administrative patient hospital discharge records, and causes of death. In 2014 a total of 31,651 new cancer cases were reported, 53,8% among men and 46,2% among women. The most common in men is cancer of the prostate whereas in women cancer of the breast. The overall cancer incidence rates during recent years are still somewhat increasing, and survival has improved for several cancer sites. Per 1st of November 2015 the cancer registry contained cumulative information on 1743,361 cancer cases (including premalignant and some benign conditions) in 1392,636 persons.

Clinical cancer registries, including comprehensive registration of specific cancers, have been established in recent years. The main aim of the clinical registries is to complement data from the cancer registry, by providing additional detailed information on specific diagnostic procedures, pathology, treatment and follow-up information. The clinical cancer registries will provide data for monitoring treatment outcomes, prognostic factors, and survival in subgroups of patients classified according to different criteria. They will also allow the evaluation of different parameters of quality of cancer care. Clinical registries for colorectal and prostate cancers were established in 2009, and for breast, lung, gynaecological, lymphomas and lymphoid leukaemia, malignant melanoma and childhood cancer were established in 2013. The ongoing and expanding activities in the clinical registries are a major focus for Cancer Registry of Norway activities currently. An established path of information flow from the source of information throughout clinical notification, coding, quality control and registration has been successfully set in place.

Epidemiology of thyroid pathology in a pathology laboratory

Dr Akpo WILFRIED, Pr BENNANI Nsrine, Pr KAKOURI Mehdi

1Chu ibn Rochd, Casablanca, Morroco

Thyroid disease is fairly present in endocrine disorders. We intend to review the epidemiological profile of this disease in our pathological laboratory.

MEANS AND METHOD

A retrospective study of 267 thyroidectomy.

RESULT

Sex ratio 6 women for 1 man . The average age is 47 years. The heteronodular dystrophy represents 56% of thyroid diseases. The malignancy is dominated by papillary carcinoma and its variants representing 22.7% of cases.

DISCUSSION

These figures are close to those of the literature. Especially women are more than men. The malignancy is dominated by papillary carcinoma.

CONCLUSION

This study highlights the importance of the particular knowledge of the papillary carcinoma that although rare dominates the malignancy.

Dr Florencia MORENO, Dr Daniel Freigeiro, Dr Mora Medichi, Dr Dora Loria, Dr Marcelo Scopinaro

1National Oncopediatric Registry -National Cancer Institute, CABA, Argentina

BACKGROUND

Argentina is a middle-to-high income country. Childhood cancer survival probability (SP) was 61.7% 2000-2009, whereas in high-income countries results of approximately 80% are achieved. This discrepancy may be due to diagnostic delay, early death, inaccessibility specialized centres, remoteness of residence, differences in quality of care across centres, lower participation in cooperative group trials, and significant socio-economic and cultural disparities.

METHODS

ROHA is fed by a network of pediatric oncology units and population-based cancer registries, collect demographic and disease data according to the international standards as recommended by the IARC, coded according to the WHO’s International Classification of Diseases for Oncology, 3rd Edition and the International Classification of Childhood Cancers.

RESULTS

The ROHA network has coverage of approximately 93% of all pediatric cancer cases. Between 2000 and 2013 19,800 patients were reported (yearly average: 1245). The incidence of childhood cancer was found to be 129/million in children. The worst SP were found in children who had central nervous system tumors (CNST) and in children who came from the northern provinces (areas with higher poverty levels). Overall, 80% of the patients were treated at public health institutions and 40% of the patients travel to tertiary health-care centers in larger cities.

DISCUSSION

The ROHA provides crucial data for the identification and development of lines of action of the pediatric program: Stratification of public health centers (national, provincial, and diagnostic centers for referral and follow-up); ratification of an outreach referral and counter-referral network; standardization of practices (publication of guidelines for clinical and palliative care and the initial management of CNST; training in early detection of cancer throughout the country; training fellowships (pediatric oncology, clinical care, pathology, molecular biology, cytogenetics, palliative care), and research fellowships. Availability of high-quality data is important to develop, implement, and assess strategies to improve the care for children with cancer.
Evolution of cancers in Mali from 1987 to 2008
BAYO S, TRAORE CB, KAMATE B, COULIBALY B, MALLE B

BACKGROUND
The Mali Cancer Registry was established in 1986, a population-based registry in Bamako, within a radius of 15Km. Data are computerized on Canreg4 software.

METHODS
T S A: incidence rate gross world population divided into five age groups.

RESULTS

<table>
<thead>
<tr>
<th>Cervix</th>
<th>28.04(ASR)</th>
<th>26.95(%)</th>
<th>26.85</th>
<th>28.18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>13.64(ASR)</td>
<td>12.99(%)</td>
<td>15.24</td>
<td>16.69</td>
</tr>
<tr>
<td>Stomach</td>
<td>13.47(ASR)</td>
<td>10.95(%)</td>
<td>11.91</td>
<td>10.12</td>
</tr>
<tr>
<td>Liver</td>
<td>16.97(ASR)</td>
<td>14.78(%)</td>
<td>4.92</td>
<td>4.86</td>
</tr>
</tbody>
</table>

MAIN CANCERS IN MEN - (1087-1997)

<table>
<thead>
<tr>
<th>Stomach</th>
<th>17.76(ASR)</th>
<th>14.92(%)</th>
<th>15.50</th>
<th>19.04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liver</td>
<td>37.77(ASR)</td>
<td>37.16(%)</td>
<td>13.34</td>
<td>18.65</td>
</tr>
<tr>
<td>Prostate</td>
<td>5.93 (ASR)</td>
<td>3.71(%)</td>
<td>10.29</td>
<td>9.20</td>
</tr>
<tr>
<td>Bladder</td>
<td>9.46(ASR)</td>
<td>7.72(%)</td>
<td>5.90</td>
<td>7.26</td>
</tr>
</tbody>
</table>

Wei Kuangrong, Liang Zhiheng, Cen Huishan
Zhongshan Cancer Registry of China

BACKGROUND
Researchs on incidence of corurpus uteri cancer in China were few, which showed an increasing trend, and without long term incidence studies. Hence, we explored its long term incidence in Zhongshan of China in1970-2012.

METHODS
Incident data of corpus uteri cancer in Zhongshan in 1970~2012, which came from population-based Zhongshan Cancer Registry, whose incident data were received by CIV IX and X, were collected and collated. Its incident counts, crude rate, age-standardized rates etc were calculated and analyzed.

RESULTS
There were 2 102 new cases of corpus uteri cancer in Zhongshan in 1970~2012, its incident crude rate and world ASR were 8.28/105 and 9.15/105, respectively, with the highest world ASR (18.47/105) in 2012. Its incidence increased obviously and significantly during the period(P<0.000), especially after 1990. Its age specific incidence rose from 35-39 age group rapidly, peaked at 50-55 and declined quickly thereafter. Its incident ages showed a younger trend.

CONCLUSIONS
The incidence of corpus uteri cancer in Zhongshan in 1970~2012 increased remarkably, its incidence in 2010-2012 was at a high level worldwide and nationwide. It suggested that its control and prevention should be enhanced in Zhongshan.