CANCER INFORMATION SECTION (CIN)

Acting Section Head:
Dr Maria-Paula Curado

THE CANCER INFORMATION SECTION IS COMPOSED OF THREE GROUPS: THE NEWLY-CREATED BIOSTATISTICS GROUP (HEADED BY DR GRAHAM BYRNES), THE DESCRIPTIVE EPIDEMIOLOGY PRODUCTION GROUP (HEADED BY DR MARIA-PAULA CURADO) AND THE DATA ANALYSIS AND INTERPRETATION GROUP (HEADED BY DR HAI-RIM SHIN).

The overall objective of the Section is to provide scientists, epidemiologists and public health professionals with comparable data on cancer incidence from as wide a range of geographical locations worldwide as possible. Cancer incidence data allow the identification of high-risk incidence and mortality by gender, age groups and race in different parts of the world, underlining the need to establish research groups in those high-risk areas.

The Section manages a database covering some 11% of the world population, with most of its contents coming from developed countries. There is therefore a crucial need to collect more data from low- and middle-income countries, which represent more than 75% of the world population. The limited quality of the data coming from these countries underlines the importance of establishing some specific methodologies to analyse the information in such a way that it can be used for cancer research and control.

The main research issues of the Section are:

(a) To enhance geographical coverage of cancer incidence worldwide to better understand the heterogeneity of the cancer burden;

(b) To provide population-based cancer registries in low- and middle-income countries with adequate statistical means to enable them to analyse their results correctly and thus provide good quality data;

(c) To measure the impact of cancer incidence and mortality in developed countries and to use this information as a basis for cancer research and control.

Biostatistics Group

Head
Dr Graham Byrnes

Secretary
Ms Katiuska Veselinovic

THE BIOSTATISTICS GROUP (BST) WAS CREATED WITHIN THE CANCER INFORMATION SECTION IN APRIL 2009, WITH A SINGLE PROFESSIONAL STAFF MEMBER, GRAHAM BYRNES, WHO MOVED FROM THE PREVIOUS BIO GROUP. THE ROLE OF THE GROUP IS BROADLY COLLABORATIVE:

- TO ASSIST OTHER GROUPS IN DESIGNING EFFICIENT STUDIES;
- TO ASSIST THEM IN THE ANALYSIS OF COLLECTED DATA;
- TO DEVELOP NEW METHODOLOGY WHERE EXISTING METHODS ARE NOT ADEQUATE FOR THE TYPE OF DATA AVAILABLE.

A NUMBER OF COLLABORATIONS ARE PROGRESSING WELL, WITH SOME HAVING COMMENCED WHILE DR BYRNES WAS IN THE BIO GROUP. A FEW OF THE MORE IMPORTANT ONES ARE DETAILED BELOW.

IN-SILICO CLASSIFICATION OF VARIANTS IN GENES ASSOCIATED WITH CANCER RISK

Collaboration with the Genetic Cancer Susceptibility Group (GCS).

A number of genes are known to harbour variants that greatly increase the risk of certain types of cancer, notably BRCA1 and BRCA2 for breast cancer and the group of mismatch repair genes for colo-rectal cancer. However these genes are observed to present many different variants, hundreds in the case of BRCA1. Not all of these will have the same effect on gene function and hence on cancer risk, while most are seen so rarely that it is not possible to investigate each using epidemiological methods. For each, differing amounts of different types of data are available, so one task is to agree on an appropriate method of combining information from family histories, biochemistry and genetic sequence data. A second is to develop a method to recognize which changes are likely to alter gene function, based on the evolutionary history of the gene. Finally, it is necessary to find a method of communicating conclusions in a way that is clear and useful to people seeking to understand their personal risk and to clinicians who advise them.

The first and third of these issues were addressed in international meetings convened at IARC in 2008 (Breast cancer) and 2009 (Colo-rectal cancer). The second is the subject of a method developed in GCS with collaboration from BST, called GVGD. Several publications on the development and application of this method have now appeared.

RADIATION DOSE-RESPONSE AND THYROID CANCER

Collaboration with the Radiation Group (RAD).

It is known that exposure to ionizing radiation increases the risk of cancer of the thyroid, but it is not well understood how the risk depends on the magnitude of the dose received. Often a linear response is assumed, but this has a different meaning in the two different models that are commonly used. Another problem is that the exposure is inferred rather than directly measured. This makes it more difficult to evaluate the precision of estimates, and therefore to know if different estimates of dose response can really be said to be different.

These problems were addressed by using spline regression, which allows

the same response to be represented in each of the standard models, while the error was accounted for using multiple random draws. This highlighted theoretical and practical limitations of the existing software, so new programs were written. Efforts to account for all the complexities of the data continue.

Population Linkage and long haplotypes

Collaboration with the Genetic Epidemiology Group (GEP).

Standard methods of analysing genetic data are efficient for finding rare mutations that greatly increase the risk of cancer (linkage analysis) or for common variants that yield a modest increase in risk (association studies). At present there is no standard way of detecting the intermediate case: less common variants with intermediate effect. One approach is to look among cases for unexpectedly long lengths of shared DNA. Together with James McKay in GEP, we have been developing computer programs able to recognise such features. This work is still in its infancy.

Analysis of Dietary Patterns

Collaboration with the Dietary Exposure Assessment Group (DEX).

The search for a link between the consumption of individual food items and cancer has a long history. However it is complicated by the fact that different foods and nutrients are often consumed together, making it difficult to separate their effects. To address this, we are seeking to study patterns of consumption, rather than individual items. The methodological interest is in recognising which are the pertinent patterns.

Also, imperfect recall of foods consumed can lead to both random noise and systematic bias in the dietary measurement. This can be partly addressed by calibrating the data against more precise measurement carried out on a subset of the cohort. However, these two techniques interact, and it is not obvious how standard methods for pattern recognition should be applied when the data needs to be calibrated.

These problems are being investigated experimentally using data from the European Prospective Investigation into Cancer and Nutrition.

Breast Cancer Risk and Mammographic Density

Collaboration with the University of Melbourne, Australia.

It is known that a woman whose breasts appear more dense on a mammogram will be at higher risk of breast cancer than another woman of same age, height and weight, assuming other important risk factors are the same. This raises the possibility that important mechanisms for the development of breast cancer may depend on genes associated with mammographic density. A particularly useful resource for such studies is the Australian Twisters study, a cohort of female twins and their sisters. Comparing genetic and mammographic density information within these families has given rise to a number of methodological difficulties which have now been resolved, resulting in several publications submitted and published.
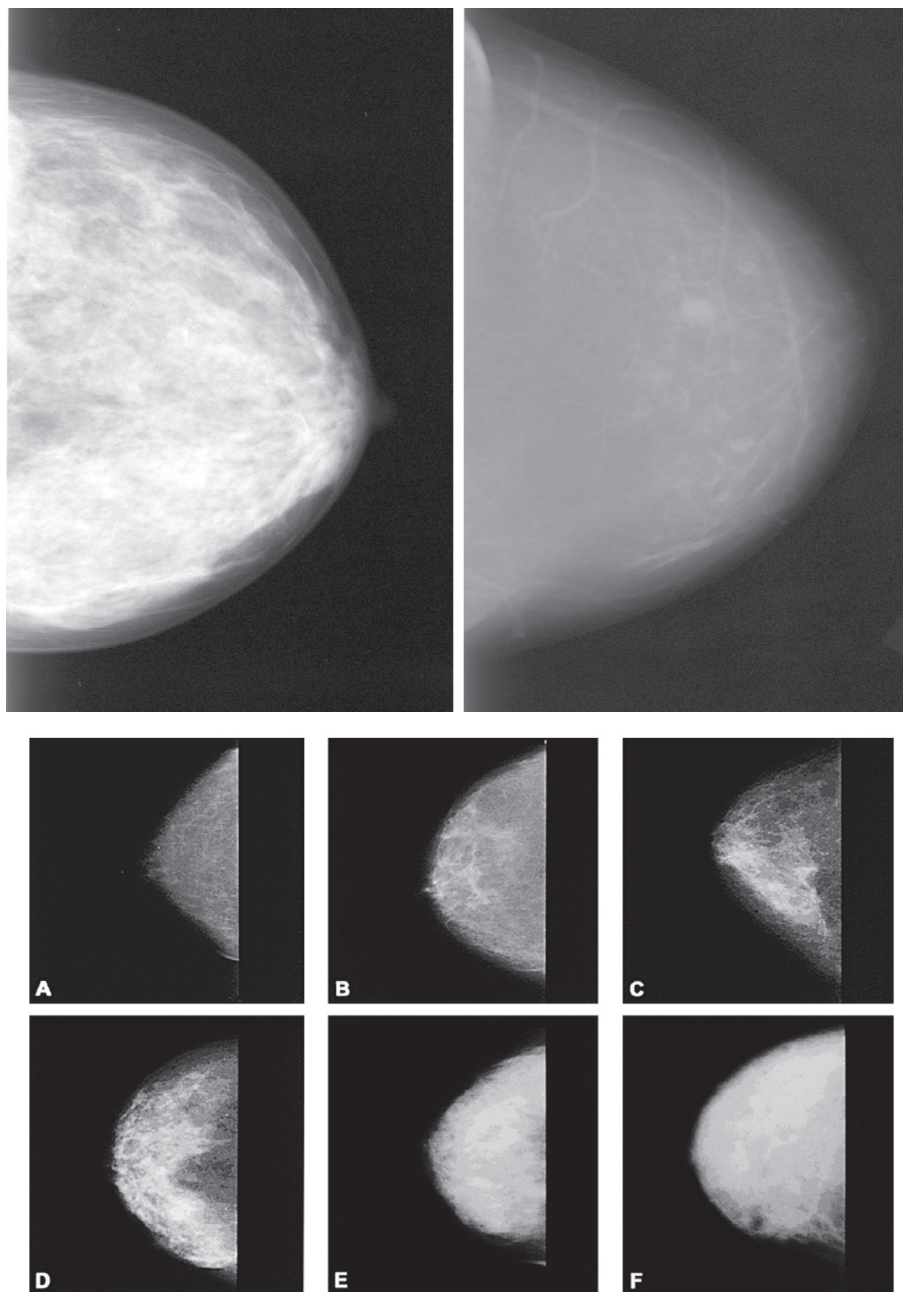

Figure 1: Examples of a dense breast (left) and a non-dense breast (right).

TRAINING COURSES

IARC Summer School in Cancer Epidemiology 2008 (IARC, 2–27 June 2008 and 15 June–3 July 2009).

MEETINGS ATTENDANCE

Unclassified variants/clinical interpretation workshop (IARC, 4–5 Feb. 2008); Unclassified Variants in Mismatch Repair Genes Working Group (IARC, 19–20 Feb. 2009).

The BST Group is grateful to the following for their collaboration in its projects:
Australia: Lyle Gurrin, Carolyn Nickson, John Hopper, Jennifer Stone;
Germany: Heiner Boeing, Brian Buijsse;
USA: David Goldgar

PUBLICATIONS

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REVIEWS:

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Data Analysis and Interpretation Group

Head
Dr Hai-Rim Shin

Scientists
Dr Jari Haukka (April 2008-April 2009)
Dr Eva Steliarova-Foucher

Informatics Officer
Mr Jacques Ferlay

Assistants (statistics)
Mr Eric Masuyer
Mrs Aurélie Millerat (until Dec. 2008)

Visiting collaborator
Mr Mark O'Callaghan (from July 2009)

Visiting Scientists and Postdoctoral fellows
Dr Jiansong Ren (from Sept. 2009)
Dr Kumiko Saika (July-Dec. 2009)

Secretary
Ms Katiuska Veselinovic (since May 2008)

Students
Mr Pierre Boniol (July-August 2008)
Ms Clarisse Hery
Mr Ryan Shin (July-August 2009)

THE OBJECTIVE OF THE DEA GROUP IS TO MAKE THE BEST USE OF ALL EXISTING DESCRIPTIVE EPIDEMIOLOGY DATA TO DEVELOP BETTER HYPOTHESES ON THE ETIOLOGY OF CANCER AND REPORT ON THE DEVELOPMENT OF PREVENTION AND SCREENING ACTIVITIES.

The overall objective of the Group is to develop a comprehensive program of activities on the creation of appropriate statistical methodology for the analysis of descriptive epidemiology data; to apply statistical methods to the analysis of available incidence and mortality data; to provide assistance in data analysis to Cancer Registries and Vital Statistics Offices worldwide; to provide interpretation of the available data and the data analyses for the development of priority hypotheses, and finally to work with appropriate Groups within IARC and external bodies to develop and undertake appropriate etiological studies.

The estimation of the burden of cancer is an important core project of the Group. In order to improve accessibility to and comprehension of this information by the general public, the results are presented in a clear format to the layperson on the CANCER*Mondial* website through different databases: GLOBOCAN, the WHO mortality database, NORDCAN, and Cancer Incidence in Five Continents (CI-5) volumes I-IX.

GLOBOCAN

The GLOBOCAN estimates, one of IARC's major projects, are currently being updated for the year 2008 and should be available at the beginning of 2010. To this end, a collaborative working group has been set up between WHO (Global Burden of Disease) and IARC to allow a deeper exchange of data and methods (Figures 1 and 2).
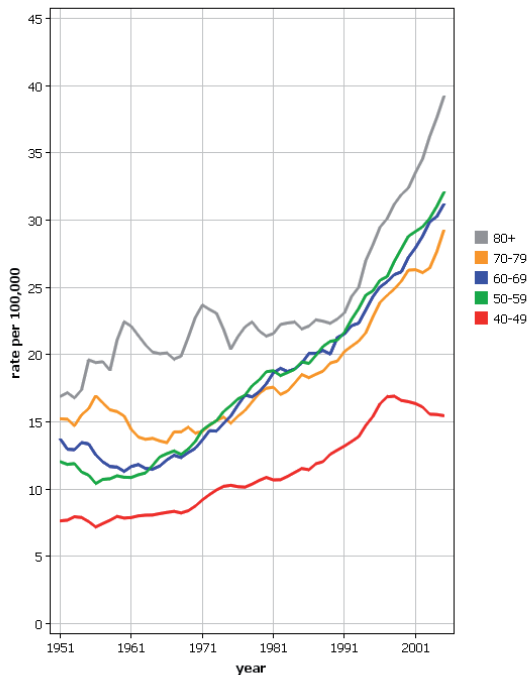
NORDCAN

In collaboration with the Association of Nordic Cancer Registries (ANCR), the NORDCAN web application has been implemented and has been available since 2007 (http://www-dep.iarc.fr/NORDCAN.htm) (Figure 3). It provides access to the most up-to-date information on the incidence, mortality and prevalence of cancer in the five Nordic countries. The facilities created within the NORDCAN web application are then integrated into the other IARC web sites (WHO and CI5 I-IX) and have been extensively used for the development of the ECO web site (see European Cancer Observatory).

Another aim of the Group is to analyse temporal trends and gather additional descriptive information about these trends to allow a better interpretation of the reasons for temporal changes in incidence and mortality. Thus breast cancer incidence and mortality in Asia, epidemiology of cholangiocarcinoma (incidence rate and risk factors in East Asian countries), epidemiology of liver fluke infection in East Asia, brain cancer in Nordic countries, prostate cancer incidence and mortality have been studied and articles published or in the process of publication.

The relative importance of major risk factors in the global burden of cancer is currently estimated in the Attributable Causes of Cancer project, led in collaboration with scientists of two other groups (Prevention Group and Lifestyle

Japan
Mortality from Breast Cancer

International Agency for Research on Cancer (IARC) - 14.9.2009

Figure 1

Melanoma of skin
Age Standardised Incidence Rate (World), Female age [20-74]

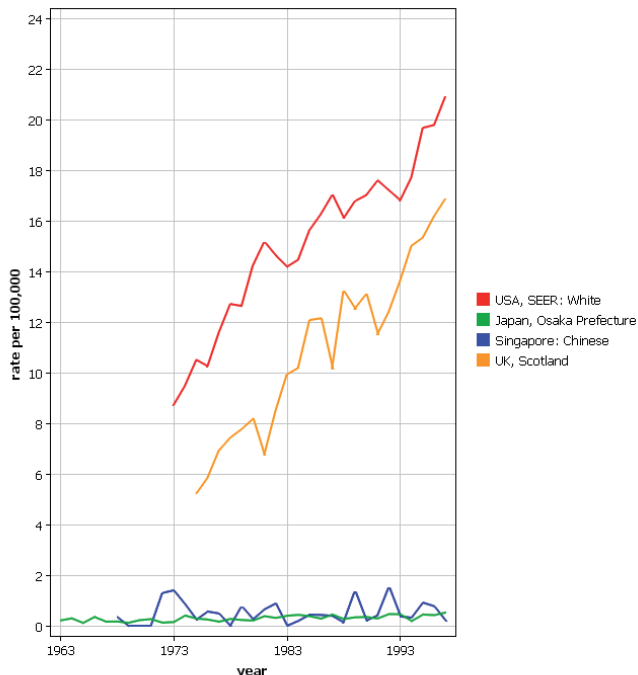International Agency for Research on Cancer (IARC) - 14.9.2009

Figure 2

and Cancer Group). One specific aspect in which DEA is involved is Attributable Causes of Cancer in Korea, in collaboration with the Korean National Cancer Center.

ACCIS

The Automated Childhood Cancer Information System (ACCIS) (http://www-dep.iarc.fr/accis.htm) is an international project funded by the European Commission, La Ligue contre le cancer - Comité du Rhône, CLARA (Canceropôle Lyon, Auvergne, Rhône-Alpes) and the Ministry of Health of the Federal Government of Germany, jointly with IARC.

The need for substantial population coverage for studies of childhood cancer has led to this collaborative project involving some 80 population-based cancer registries in 35 European countries. The aim of this project is to use automated procedures to collect, analyse, interpret and disseminate data on incidence and survival of children and adolescents with cancer in Europe.

To date, data have been accumulated for some 160 000 tumours in children and adolescents (age 0–19), arising from 1300 million person-years over the 1970s, 1980s and 1990s, and became thus the world's largest childhood cancer database.

The collected data are being explored, and two versions of a data presentation software package, ACCIS pass, are being developed for different audiences. Meanwhile, the database is being extended in time and geographic coverage. These activities are overseen by the ACCIS Scientific Committee.

International Incidence of Childhood Cancer, vol. 3 (IICC-3)

A core project of DEA, the next volume of International Incidence of Childhood Cancer aims to address the lack of data on cancer incidence in children and adolescents through a worldwide collaboration with cancer registries (http://www.iacr.com.fr/childhood/iicc3.htm). A check program to facilitate data quality control and evaluation has been developed, and a modern system of data submission and processing has been

implemented, including website upload of the files, on-line questionnaires and partial automation of data processing. The publication of the monograph is planned for 2010 (Figure 4).

UICC "My Child Matters" Programme

The Group's expertise in the descriptive epidemiology of childhood cancer has also contributed to the international programme My Child Matters, organised by the UICC and Sanofi-Aventis. It is devoted to improve the conditions and management of childhood cancer in selected low-resource countries. Eva Steliarova-Foucher, as a member of the UICC Childhood Cancer Task Force, mentors two projects involving registration and follow-up of childhood cancer patients, awarded in 2008 to Cali, Colombia and Karachi, Pakistan.

European Network of Cancer Registries (ENCR)

Since December 2008, when Eva Steliarova-Foucher became the ENCR Scientific Coordinator, DEA has contributed substantially to the activities

Cancer stat fact sheets
Norway - Lung

	Male	Female
Number of cases per year (2001–2005)	1375	867
Age–standardized (W) incidence rate (2001–2005)	36.4	21.4
Proportion of all cancers (%)	11.3	7.7
Proportion of all cancers except non–melanoma skin (%)	11.9	8.1
Risk of incidence before age 75 (%)	4.5	2.8
Trends in incidence: annual change (latest 10 years, %)	−0.2	+2.7
Number of deaths per year (2000–2004)	1175	691
Age–standardized (W) mortality rate (2000–2004)	30.6	16.4
Proportion of all cancer deaths (%)	21.0	13.9
Risk of death before age 75 (%)	3.8	2.2
Trends in mortality: annual change (latest 10 years, %)	−0.2	+2.4
Total prevalence (31–12–2005)	2138	1765
Prevalence, as proportion of the population per 100,000	93	75
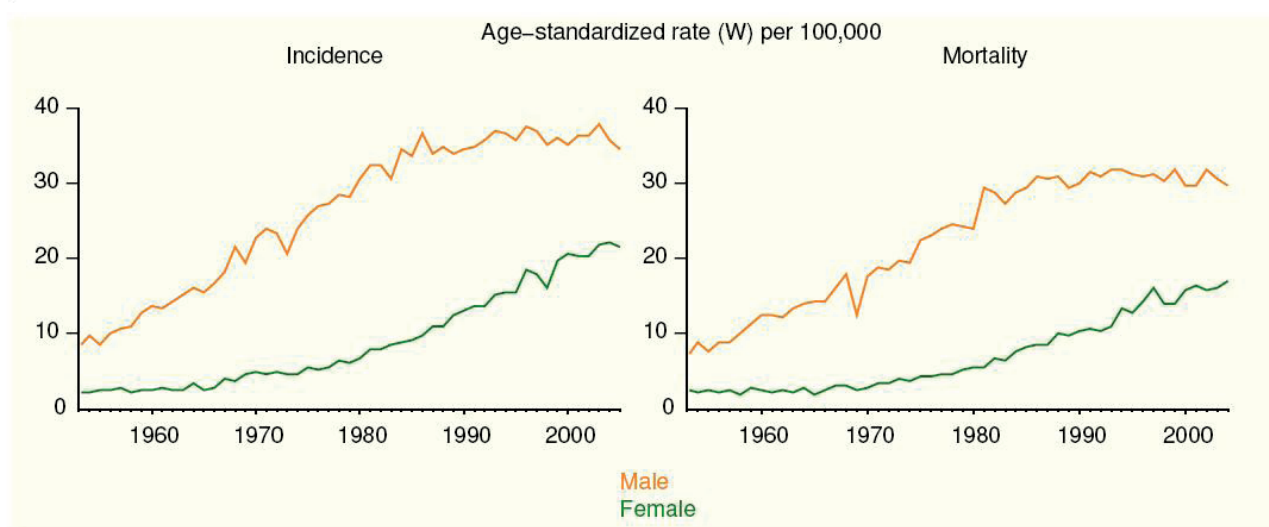
Figure 3

Figure 4. Group meeting for International Incidence of Childhood Cancer, Volume 3

of ENCR. A major extension of these activities is the EUROCOURSE project, coordinated from the Netherlands, in which IARC plays an important role (see DEP section for further details).

European Cancer Observatory (ECO)

This project is supported by the Canceropôle Lyon–Auvergne–Rhône-Alpes (CLARA), awarded specifically to support the activities of ENCR. It includes the following major areas of work: (a) reinforcement of population-based cancer registration as the only means to measure cancer burden in Europe and the basis of etiological studies; (b) Studies of cancer in children, which necessitate international collaboration,

and (c) Scenarios, meaning modelling of cancer burden in population, using available data on incidence, mortality, survival and prevalence.

Jacques Ferlay has contributed significantly to the design and content of the ECO website (Figure 5).

Support to cancer registries in low-and middle-resource countries: Training courses

As cancer registry data is seen as an aid to the evaluation of the local cancer burden and as a tool for cancer control, it is important to continue supporting cancer registration in the world through training courses. Therefore, several international training courses on cancer registration were organised during this biennial period. The aim is to provide an intensive introduction to the methodology of cancer registration and to the use of cancer registry data. The target participants are individuals who are working in cancer registration on aspects of data collection, analysis and presentation of data, or ideally, both.

Our Group actively participated in the cancer registration modules of the 2008–09 IARC Summer Schools, providing faculty members and training in cancer control and cancer registration basic principles.

Other courses attended were:
(a) IARC/ National Cancer Center, Korea – International Course on Introduction to Cancer Registration and its Application to Cancer Epidemiology, Seoul, Korea, Sept. 08; (Figure 6)
(b) IARC/National Cancer Institute, Bangkok (Thailand) with the Thai Association of Cancer Registries – International Course on Introduction to Cancer Registration, Pattaya, Thailand, Feb. 09;
(c) IARC/Jigme Dorji Wangchuck National Referral Hospital, Thimphu (Bhutan) – Course on Cancer Registry and Management of Cancer Prevention Programme, Thimphu, Bhutan, May 09. Bhutan is the only country in the world not allowing tobacco sales, and for this reason cancer statistics are of great importance for cancer research and control. As this country has no comprehensive incidence
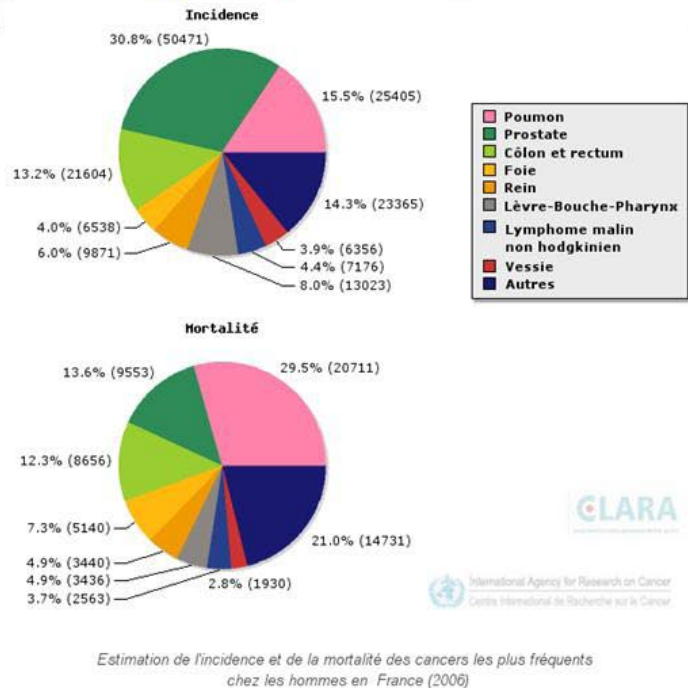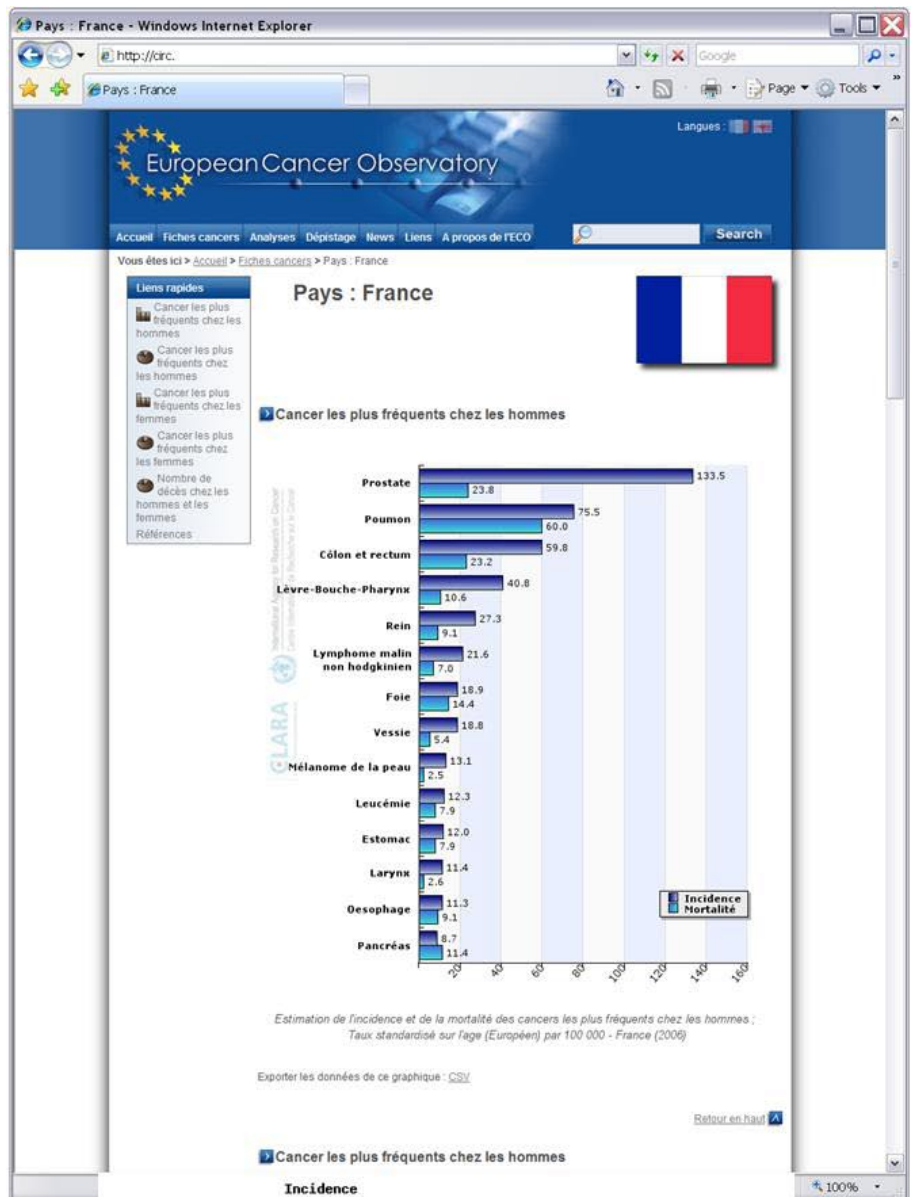
Figure 5. European Cancer Observatory website. http://eu-cancer.iarc.fr

statistics on cancer, the training course was an opportunity for the participants to have an overview on cancer registration and cancer prevention;

(d) IARC/Cancer Institute & Hospital Chinese Academy Medical Sciences (CIHCAMS), Beijing – International Course on Introduction to Cancer Registration and its Application to Cancer Epidemiology, Beijing, People's Republic of China – Sept. 2009.

MEETINGS

Group members have also organised or attended the following meetings: Methodology for Estimating the Global Cancer Burden (IARC, 21 January 2008); Attributable causes of cancer in Korea (11-12 Feb. 2008 and 9-11 Sept 2009 at National Cancer Center, Korea, and 9-13 July 2009 at IARC); ACCIS Scientific Committee (IARC, 30 June - 1 July 2008); Editorial Board Meeting for Vol. 3 of the International Incidence of Childhood Cancer (IARC, 1 - 2 July 2008); Satellite meeting to discuss the creation of an Asian Cancer Registry Network (National Cancer Center, Korea, 29 Sept. 2008); ENCR/ECO/ EUROCOURSE (IARC, 13 Jan. 2009); GLOBOCAN (IARC, 14 Jan. 2009); Establishment of an Asian Cancer Registry Network (Thailand, 12 Feb. 2009); 41st and 42nd ENCR Steering Committee Meetings (IARC, 6 - 7 April 2009 and Turin, 6 Nov. 2009); 1st meetings of the EUROCOURSE Steering and Executive Boards (IARC, 7 and 8 April 2009).

Figure 6

PUBLICATIONS

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THE CORE ACTIVITY OF THE DEP GROUP IS TO SUPPORT CANCER REGISTRATION ALL OVER THE WORLD AND TO MONITOR AND PROVIDE CANCER INCIDENCE DATA AS A BASIS FOR ETIOLOGICAL RESEARCH AND CANCER CONTROL POLICIES, WHETHER LOCAL OR INTERNATIONAL. THE INFORMATION ON CANCER INCIDENCE, MORTALITY AND TRENDS QUANTIFIES THE SIZE OF THE BURDEN OF CANCER INCIDENCE, ALLOWING ASSESSMENTS OF CANCER CONTROL ACTIONS TAKEN IN THAT POPULATION. TO DATE, OUR DATABASE COVERS 11% OF THE WORLD POPULATION, I.E. 705 MILLION PEOPLE. RECENTLY, THE NEED TO IMPROVE CANCER INFORMATION DATA IN LOW- AND MEDIUM-RESOURCE COUNTRIES HAS BEEN EMPHASISED, IN ORDER TO PROVIDE RELIABLE CANCER FIGURES TO GOVERNMENTS AND ENABLE THEM TO PROMOTE RESEARCH AND CANCER CONTROL PROGRAMMES IN THEIR COUNTRIES. A CRUCIAL ISSUE IN THESE REGIONS IS THE LACK OF MORTALITY DATA, SO CANCER REGISTRIES ARE OFTEN THE BEST SOURCE FOR CANCER OCCURRENCE DATA. SINCE THE 1970S, IARC HAS SYSTEMATICALLY RECEIVED DATA FROM POPULATION-BASED CANCER REGISTRIES WORLDWIDE, WHICH IS THEN REFINED BASED ON DATA QUALITY INDICATORS FOR EACH CANCER REGISTRY. THE CANREG5 SOFTWARE HAS BEEN ONE OF THE STRATEGIES TO HELP REGISTRIES PRODUCE CONSISTENT QUALITY DATA, ALONG WITH TRAINING COURSES HELD IN LYON AND LOCALLY. THE DATA RECEIVED ARE SCREENED TO MATCH IARC STANDARDS AND SUBSEQUENTLY ADAPTED TO ENABLE COMPARISONS BETWEEN THE POPULATIONS DISTRIBUTED OVER THE FIVE CONTINENTS.

CANCER INCIDENCE IN FIVE CONTINENTS
(1) Volume IX

The series on *Cancer Incidence in Five Continents* is one of the most important databases in the world. It has a long history (since the 1960s) of compiling population-based cancer registries from the five continents and providing comparability data to evaluate the worldwide cancer burden. Its information is used by scientists and health policies to promote research and cancer control. The latest volume is available in two versions, the first web-based (www-dep.iarc.fr) with chapters describing the methodologies applied to evaluate the data from the cancer registries and their practices. Online analysis was also made available so that users can perform specific analyses as needed via a user-friendly site that also provides links to other related databases. An Editorial Board composed of representatives from around the world (Drs Maria-Paula

Curado, Brazil; Brenda Edwards, USA; Hans Storm, Denmark; Hai Rim Shin, Republic of Korea; as well as DEP/DEA IARC staff) reviewed the data produced by the population-based cancer registries for Volume IX which was then converted into standardized data and disseminated to the scientific community.

This publication is produced on an aggregated 5-year basis; in this case the time of reference was from 1998 to 2002. In order to allow the editors to verify local situations in the areas covered by the cancer registries, a questionnaire about the registry activities was submitted to the contributors to better understand quality, comparability and completeness issues. Contributors were also asked to send data for the years preceding the reference period.

Volume IX has been divided into 7 chapters: introduction, techniques of registration; classification and coding;

histological groups; comparability and quality of data; processing data; age standardisation, and denominators, with narratives and maps. The evaluation criteria used to analyse the data submitted by the cancer registries were based on cancer registration data quality indicators outlined in *Cancer Registration, Principles and Methods* (IARC Scientific Publication No. 95) and the Manual for Cancer Registry Personnel, IARC Technical Report No.10 (Chapter 5).

We received data from 406 populations and published cancer incidence data from 300 populations, 225 cancer registries and 60 countries. The number of populations included represents a 38% increase over Volume VIII. The incidence rates and numbers as originally published can be accessed from the electronic version available on the IARC website.
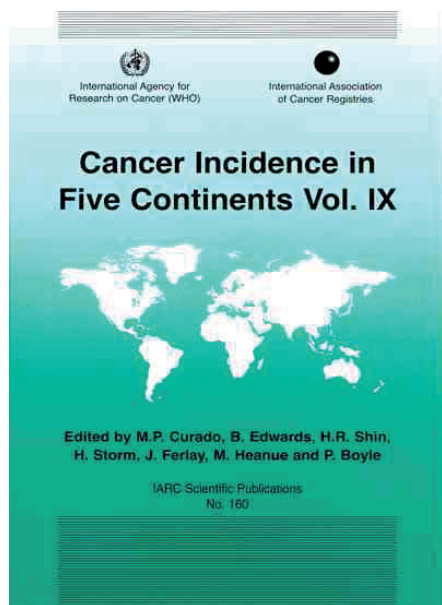
(2) Volumes I-IX

This database is a compilation of the nine already published volumes in the series, containing updated data from cancer registries whose results have been published in at least 3 consecutive volumes in the series. Whenever possible, the years have been re-grouped to correspond to standard consecutive five-year periods, and denominators (person-years at risk) and number of cancer cases have also been updated; as a result some data included in this database may not correspond to those published in the original one. The cancer sites dictionary is identical to that used in the original

database. More options are available to analyse the data (by histological groups and by year of incidence). An Editorial Board (Dr Brenda Edwards, NIH, USA; Dr Max Parkin, Univ. of Oxford, UK; Dr Hai-Rim Shin, Dr Maria-Paula Curado and Mr Jacques Ferlay from IARC) was convened on 29-30 Oct. 2009 to establish the contents and layout of the volume.

European Cancer Atlas

A meeting of European experts took place at IARC in October 2008 to review the 1993–1997 European Cancer Atlas prior to publication and to submit data for the 1998–2002 atlas. Mortality data was collected at sub-national level (NUTS III) from 34 countries, and world age-adjusted rates for 25 of the most common cancers (Figure 1) calculated for presentation in maps in order to examine the geographic pattern of cancer in Europe. In examining the recently published atlas, distinct geographical groupings are evident; map production at sub national level removes international borders to highlight the international problem cancer is. Processing is underway thanks to DG Sanco Direct funding, and publication is expected in 2010.

Fund for Cancer Registration

Following two Working Group meetings on (1) Data production in Low- and Medium-Resource Countries and (2) Cancer Registration in Africa, Asia and Latin America, Improving Data Quality, held at IARC in July and December 2007 respectively, the Agency was advised to set up a Fund for Cancer Registration to support seven African cancer registries in the Republic of Guinea (Conakry), Mali (Bamako), Mozambique (Beira), Nigeria (Ibadan and Maiduguri) and Zimbabwe (Harare). The sum of US$10 000 was attributed to each of them, payable in four instalments of US$2500 respectively (one in 2008, two in 2009 and a last one in 2010).

International Classification of Diseases (ICD)

The 11th revision of ICD was officially launched at the WHO Collaborating Centres meeting in Trieste, in April 2008. IARC has agreed to review ICD-10 and make recommendations for the

neoplasms chapter of the latest revision of ICD in order to bring it into line with ICDO, the IARC "Blue Book" series, TNM and SNOMED under the chair of Dr Maxwell Parkin in collaboration with the IACR.

The ICD (International Statistical Classification of Diseases and Related Health Problems) provides codes to classify diseases and a wide variety of signs, symptoms, abnormal findings, complaints, social circumstances and external causes of injury or disease. ICD is used worldwide for morbidity and mortality statistics, reimbursement systems and automated decision support in medicine. This system is designed to promote international comparability in the collection, processing, classification and presentation of these statistics. The ICD is a core classification of the WHO Family of International Classifications (WHO-FIC).

CanReg Software

During the biennium, new or modified versions of the CanReg4 software have been developed and installed in Africa (Algeria, Botswana, Mozambique, Nigeria, Yemen), Latin America (Argentina, Grenada, Nicaragua), Asia (Iraq, Syria), Europe (Cyprus, France) and Oceania (Australia, New Caledonia). Staff were trained during the IARC Annual Summer School in Cancer Epidemiology held in Lyon, as well as in regional courses in Colombia, Australia, Syria, Nigeria, Peru, Turkey and China.

CanReg5

A 5th version of the software is currently under preparation as open-source software. The program was designed based on the outcome of a survey held among all members of IACR. The biggest changes from previous versions are that it has stronger multi-user network support, it can run under all major operating systems, and it has a more powerful database engine and a more modern graphical user interface. Implementation started at IARC in March 2008 (Morten Ervik). The first closed beta version was released in January 2009 with cancer registries from Cyprus, Turkey, Jordan, Egypt, France and Italy participating in the testing.
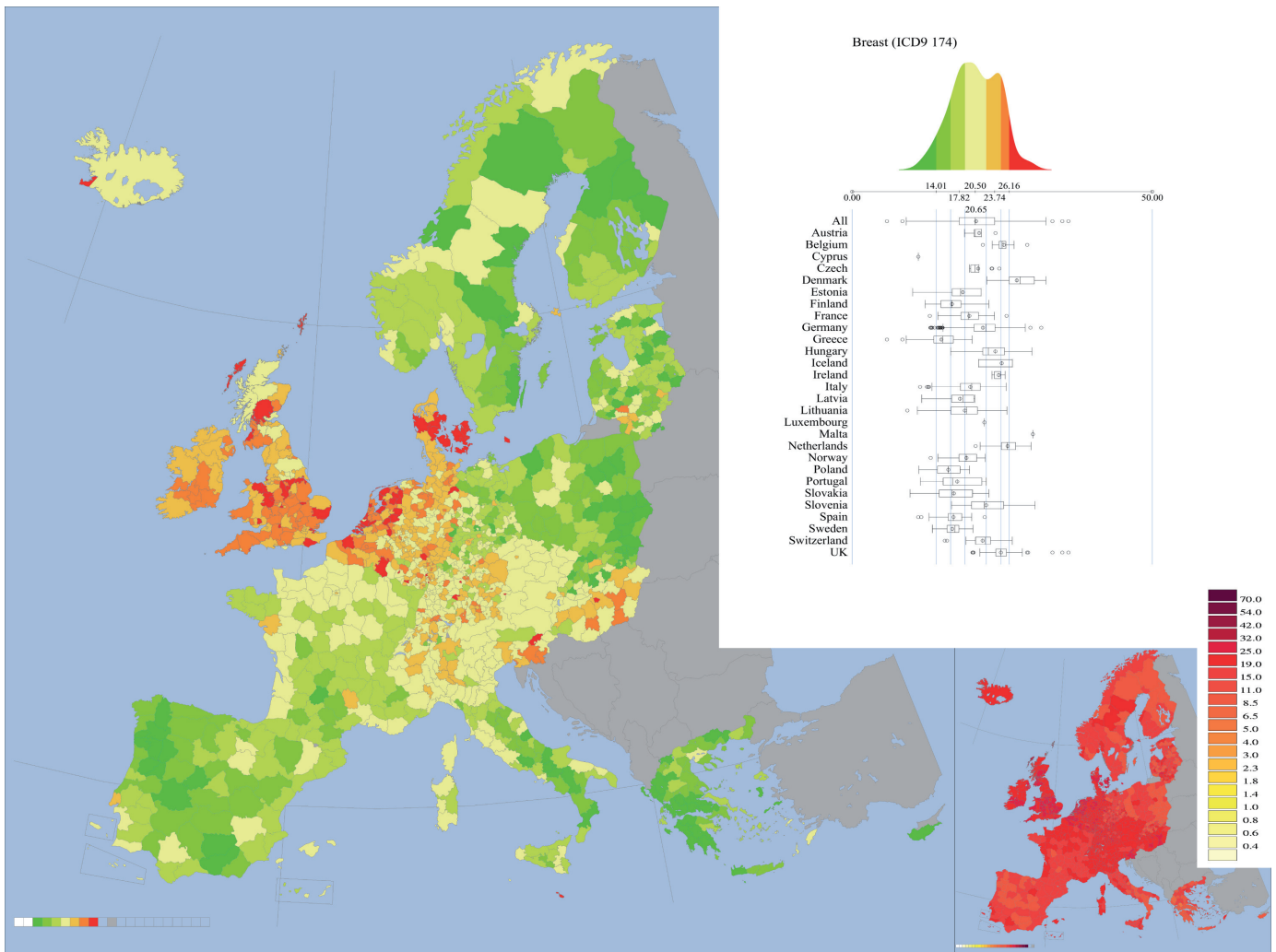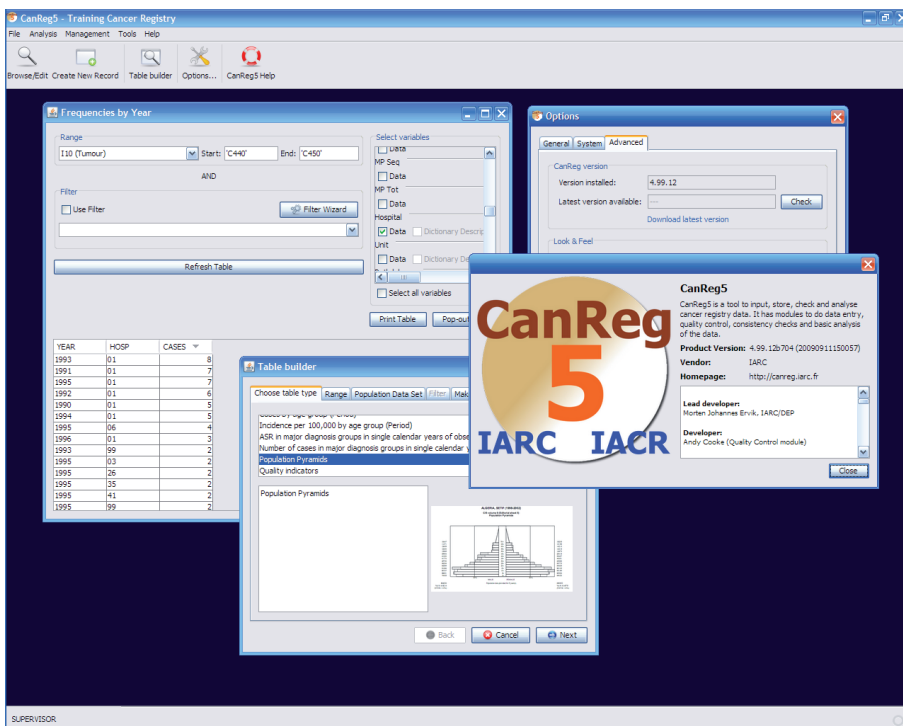
Figure 1. Sample page from European Cancer Atlas showing Female Breast Cancer

Sample screen from CanReg5

A workshop on CanReg5 was held in Istanbul in June 2009, with participants from the MECC countries, and another one in Beijing in September 2009.

IACR/ENCR

The Group provides the facilities for the administration and secretariat of the International Association of Cancer Registries (IACR) and the European Network of Cancer Registries (ENCR).

IACR (International Association of Cancer Registries)

Since 1973, IARC has supported the activities of the non-governmental International Association of Cancer Registries (IACR) by hosting its secretariat. During 2008–09, the role of IACR Executive Secretary has been assumed by Maria-Paula Curado, with technical assistance provided by Isabelle Savage. This team is responsible

for coordinating the activities of the Association and for promoting exchange of information between over 600 members all over the world. During the biennium, the IACR Secretariat helped to raise funds and organised two Annual Scientific Meetings—in Sydney (18–20 November 2008) and in New Orleans (3–5 June 2009)—and the Executive Board Meetings held on 16–17 November 2008 and 1 June 2009. Other activities included maintenance of the IACR website at http://www.iacr.com.fr/, the publication of the IACR Newsletter, communication with associated journals, management of membership (applications, fees and data-base) and IACR fellowships, and grant applications. IACR collaborated with IARC in several projects, namely Volume IX of Cancer Incidence in Five Continents, and the development of CanReg,.

ENCR (European Network of Cancer Registries)

ENCR was established in 1989 to improve quality, comparability and availability of cancer incidence data across Europe. It was originally funded by the European Commission until 2003; its activities were partially supported by the French Cancéropôle (CLARA) until 2008.

Further funds are being identified to allow continuous support to the Network, which is the provider of cancer incidence data in Europe.

IARC hosts the Secretariat of ENCR, which is the executive body of the Network. The Scientific Coordinator was Lydia Voti (until December 2008) and Eva Steliarova-Foucher (since then). The decisions are being made by the ENCR Steering Committee (SC), currently composed of Freddie Bray (Cancer Registry of Norway, Oslo), Anna Gavin (Dept of Epidemiology and Public Health, Northern Ireland), Jean-Michel Lutz (National Institute for Cancer Epidemiology and Registration - NICER, Zurich, Switzerland), Stefano Rosso (Piedmont Cancer Registry, Turin, Italy), Sabine Siesling (Comprehensive Cancer Centre North East – IKNO, Groningen, The Netherlands), Emanuele Crocetti (Tuscany Tumour Registry and GRELL representative), Risto Sankila (Finnish Cancer Registry and representative from the Nordic Cancer Registries Association), Max Parkin (Chairman and representative of IACR) and Maria-Paula Curado (IARC representative). The SC usually meets twice a year.

Over the period 2008–09, much effort has been devoted to identifying new funding sources, and partial success has been achieved with the IARC-coordinated application for the EUROCOURSE project (see below). Further funds to finance ENCR core activities are being sought.

Other activities included collection of cancer data to update the EUROCIM European database after the year 1997; development of DEPedits software for verification of cancer registries data and at IARC, organisation of a structured review of the Munster Cancer Registry, reviewing several research proposals using EUROCIM data and other output from ENCR. Further details may be found on the dedicated ENCR website http://www.encr.com.fr/ENCR.htm.

Steering Committee meetings were held at IARC on 5 March 2008, 12–13 May 2008, 2–3 Sept. 2008, 6–7 April 2009, and in Turin (Italy) on 6 Nov. 2009. A joint ENCR/ECO/EUROCOURSE meeting was also held in Lyon on 13 January 2009, as well as the first meetings of the EUROCOURSE Steering and Executive Boards (7-8 April 2009)

EUROCOURSE Steering Board Meeting 7th April 2009, IARC, Lyon

EUROCOURSE

A grant application (EUROCOURSE) was submitted by the ENCR to the European Commission through its FP7/ERA-net Programme (Work Package on Cancer Incidence and Trends in Europe). The EUROCOURSE project, driven by cancer registries and their supporting bodies, will tackle fragmentation in the funding and usage of cancer registries in Europe. It will do so by exploring ways to link and integrate national/regional programmes aimed at supporting cancer registries and research carried out using registry data. At the same time, EUROCOURSE is seeking to optimise the use of cancer registration data to improve cancer control and the strengthening of population-based cancer research in Europe. This 3-year project started in April 2009 (http://www.eurocourse.org/).

Intended to be the coordinator of the project, IARC has eventually become an important sub-contractor of the two partners in the key work packages. This change of the role reflected the specific conditions of participation in ERAnet.

Within EUROCOURSE, IARC assumes the strategic role of collection, processing, quality control and dissemination of European cancer data. Other support to EUROCOURSE involves survey of registries status and practices, establishment of a teaching course, organisation of large-scale meeting and management of the project. Some of the above activities are supported by other sources.

TRAINING COURSES

(1) IARC Summer School in Cancer Epidemiology

As in previous years, our Group actively participated in the cancer registration modules of the 2008 and 2009 IARC Summer Schools, providing the course coordinator (Mary Heanue), faculty members and training in cancer registration basic principles, methods in data collection, quality control measures, CanReg software data entry, checks and practical exercises (See the section on IARC Education and Training).

(2) IARC courses on introduction to cancer registration and its application to cancer epidemiology

Courses were held in Goyang, Korea on 22–25 September 2008, in collaboration with the National Cancer Center, and on 14–18 September 2009 in Beijing, People's Republic of China, in collaboration with the Cancer Institute Hospital and the Chinese Academy of Medical Sciences (CIHCAMS). The localised nature of these courses allows for more in-depth training and a focus on methods.

(3) Other courses

Presentations were also given by Group staff at the following courses: University of Goiania (Brazil) Summer Course on Cancer Epidemiology (7–15 March and 11–22 Aug. 2008); Workshop on Cancer Registration and Epidemiology (6–10 April 2009 in Abuja, Nigeria); Workshop to enhance collaboration with PAHO in the field of cancer registration in Latin America (23–24 April 2009 in Quito, Ecuador); University of Michigan at Ann Arbor Summer Course (22–24 July 2008); MECC Cancer Registries Meetings (3–4 Nov. 2008 in Larnaca, Cyprus and 8–13 June 2009 in Istanbul, Turkey) and at the IARC/PAHO/MOH Regional Meeting of Cancer Registries and Cancer Managers on Improving Cancer Information in Latin America and the Caribbean (13-16 Oct. 2009, in Brasilia).

MEETING ATTENDANCE

The following international events were attended by DEP staff: Michigan Symposium on Cancer in Africa (8–11 Jan. 2008, Ann Arbor, MI, USA); ICD Topical Advisory Group and Revision Steering Committee Meeting (WHO, Geneva, 10–11 April 2008); GRELL Annual Meetings (30 April–2 May 2008 in Parma, Italy and 19–21 May 2009 in Lugano, Switzerland); IACR Annual

Conferences (Sydney, 14–17 Nov. 2008 and New Orleans, LA, USA on 1–7 June 2009); Meeting on National Cancer Control Programmes (Geneva, 2–4 July 2008); Editorial Board Meeting for the revision of the IARC Scientific Publication "Cancer Registration, Principles and Methods" (Oxford, UK, 20–21 Oct. 2008); 5th National Arab-American Health Conference and Symposium on Cancer in Africa (Ann Arbor, MI, USA, 8–10 Nov. 2008); International Congress on Head and Neck Cancer (Fortaleza, Brazil, 2–9 Sept. 2009) and the 3rd International Cancer Control Congress (Cernobbio, Italy, 8–11 Nov. 2009).

Review of Cancer Registration in the world

The activities of the following cancer registries were reviewed by the Group Head: Antigua (31 March–1 April 2008); Grenada (2–3 April 2008); Barbados (3–4 April 2008); Banjul, The Gambia (16–21 June 2008); Gezira and Khartoum, Sudan (5–10 July 2009) and Tirana, Albania (17–19 Nov. 2009). Meetings of the Italian/Libyan registries (31 Oct.–2 Nov. 2008, Benghazi, Libya), Oncological Registries (4 July, Porto), "Organizing a Local Cancer Registry" (5 April 2008, Chania, Crete) and the MOH/INCA Working Group on Population-Based Cancer Registries (6–9 Oct. 2008, Brasilia) were also attended.

Collaborations
(1) IAEA/PACT

As a follow-up to its collaboration with the International Atomic Energy Agency PACT Programme in developing countries to introduce, expand and improve their cancer care capacity by integrating radiotherapy into comprehensive cancer control programmes, IARC participated in imPACT missions to Sri Lanka (Kandy, Galle and Colombo, 14–18 Jan. 2008), Chisinau, Moldova (8–10 April 2008), Sana'a, Yemen (23–26 June 2008), and Mongolia (12–15 Oct. 2009), and in the development of national cancer control plans in these countries.

(2) PATH

The Program for Appropriate Technology in Health (Seattle, WA, USA) has launched screening and vaccination programmes in various low-resource countries, and in order to assess the effectiveness of their on-going cervical cancer vaccination programmes in Uganda, Peru and Vietnam, they decided to devote funds to cancer registration in these countries. The DEP Group was asked to submit a grant proposal along these lines, and the related funds were received for site visits in the three countries to evaluate cancer registry capacity for cervical cancer as a first step (4–8 Feb. 2008 in Kampala, Uganda; 24–28 March 2008 in Lima and Trujillo, Peru and 20–22 May 2008 in Hanoi, Vietnam). Then, workshops on cancer registration and HPV vaccine were organized on 10–11 Feb. (Kampala), 19–21 May (Lima) and 26–27 May 2009 (Hanoi).

(2) Low- and Medium- Resource Countries in Latin America

DEP has begun a collaboration with the Pan-American Health Organization (PAHO; Washington, DC, USA) to enhance cancer registration in low- and medium-resource countries in Latin America. A preliminary meeting was held in Quito on 23–24 April 2009, and a Regional Meeting on ""Improving Cancer Information in Latin America and the Caribbean" took place in Brasilia, 13–16 Oct. 2009.

PUBLICATIONS

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