volumes. These techniques are often validated statistically using analyses intended for one-dimensional not 2D or 3D data. We highlight drawbacks of this approach and propose an alternative. We measured intracranial (ICV), cerebrospinal fluid (CSF) and white matter lesion (WML) volumes on structural MR brain images of individuals from the Lothian Birth Cohort 1936(www.disconnectedmind.ed.ac.uk) with a reference standard (RS) and two automated methods (M1 and M2). We used 18 subjects representing a range of CSF and WML volumes. We compared agreement with Bland-Altman[1] and similarity using the Jaccard Index.[2] The Bland-Altman method suggested different agreement between the automated measures and RS than was apparent on visual inspection of the segmented volumes or the similarity index. For example, the difference between the ICV RS and M1 was larger (1.44%) than between RS and M2 (0.71%), but the similarity indices were 0.96 and 0.97 respectively. For CSF, the M2 volume had sixfold worse agreement with RS than M1 (mean difference M2=131.2 $cm^3$ vs M1=20 $cm^3$) but the mean similarity index was 0.54 for both methods. Apparently good agreement for WML volumes mirrored a high similarity index, but it was not always an indicator of good segmentation assessed visually. The validation of tissue/lesion segmentation methods on medical images for epidemiological studies should include spatial information by plotting similarity indices across the sample.

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## P1-59 TOPICS RELATED TO SKIN CANCER WHICH AROUSE GREATER DEMAND FOR INFORMATION DURING NATIONAL CAMPAIGNS IN BRAZIL

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**Introduction** Institutional campaigns of prevention of skin cancer, strongly emphasise the importance of individual responsibility in the protection against excessive sun exposure and early identification of pre cancerous lesions. Despite the large investment of public resources, there are few studies that identify the topics most sought during the campaigns—which may indicate a collective motivation to change behaviour. The analysis of log files of qualified websites has become recently a simple way to estimate the collective demand for health information on internet.
**Methods** The Brazilian National Cancer Institute (INCA) website was selected by its popularity and volume of qualified information. We studied 4800 pages over 4 years (January 2006 to December 2009) by means of log analyser software. We estimated the access to skin cancer pages during November (month of two national campaigns concerning cancer prevention).
**Results** The pages about melanoma (epidemiology, diagnosis and treatment) consistently attracted the highest number of hits during the entire period (annual mean of 3200; 6127; 8785; and 10864 hits from 2006 to 2009, respectively). The highest peaks of interest were observed in November (during campaigns) with monthly mean of 5366; 8593; 11 977; and 13 496 hits. In contrast, the self skin exam—most accessed topic on prevention—had a much smaller number of hits: 1710; 2640; 3722; and 3197.
**Conclusions** Institutional campaigns can motivate the search for information about skin cancer, although this search has little focus on issues related to prevention or early detection.

## P1-60 EUROPEAN GUIDELINES FOR COLORECTAL CANCER SCREENING—INITIAL STANDARDS

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**Introduction** Colorectal cancer (CRC) is the 4th most common cause of cancer death worldwide. The efficacy of screening in reducing CRC mortality has been proven in RCTs. The EU recommends population-based screening with appropriate quality at each step in the screening process. Evidence-based, multidisciplinary European Guidelines for Quality Assurance in Colorectal Cancer Screening and Diagnosis have been developed by experts and will be published shortly by the European Commission. The EU Guidelines include a summary table of performance standards in CRC screening.
**Methods** A multidisciplinary, pan-European group of experts in implementation, evaluation and quality assurance of colorectal cancer screening led by an editorial board drafted and revised the guidelines outline and key clinical questions covering the entire screening process. An expert literature group provided additional scientific support in defining the questions, conducting the respective literature reviews and evaluating the evidence. The bibliographic searches (Medline, Embase, Cochrane Library) covered the years 2000–2008. In selected cases, references not identified by the above process were included in the evidence base, for example, relevant articles published after 2008 identified by the authors.
**Results** For 13 parameters sufficient evidence was found from published trials and the experience in implementation of population-based screening programmes to achieve consensus on recommended targets across the EU.
**Conclusions** Initial performance standards have been developed which are suitable for a pan-European setting. Programmes should monitor numerous additional parameters to maintain and continuously improve quality. All standards should be constantly reviewed and revised accordingly with regard to results achieved and best clinical practice.

## P1-61 CAN ROUTINE HOSPITAL ACTIVITY DATA BE UTILISED TO PROVIDE RELIABLE INFORMATION ABOUT HOSPITAL INCIDENCE OF CASES OF SEVERE SEPSIS?

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**Introduction** "Severe sepsis", defined as sepsis plus organ failure, is a heterogeneous and complex condition which occurs across all specialities, causes significant morbidity and mortality (case fatality rate about 30%), and consumes substantial healthcare resources. Yet the diagnostic coding schemes commonly in use do not have a code for this prognostically-important diagnosis, and epidemiological data are hence scarce. Our study aimed to develop an algorithm to ascertain cases of severe sepsis from routine hospital data.
**Method** The algorithm was developed iteratively, utilising Scottish hospital activity data (n=133 597 selected admissions ie, having an infection code and/or hospital death), secondary analysis of national prospectively-collected critical care research data (n=2687) and

expert clinical judgement, followed by validation against case note review (n=1058).

**Results** The algorithm developed had sensitivity 74% (95% CI 69% to 78%) and estimated specificity was 94%. Applied to all Scottish hospital activity data for 2005 (n=883 K), the algorithm gave an estimate of annual incidence of severe sepsis (2.7%) and case mortality (34%). Analyses were undertaken of factors associated with severe sepsis and outcomes. For example, it was found that in those with severe sepsis, critical care admission was less common in females and those aged over 70 years.

**Conclusion** Internationally, this is the first rigorously-validated algorithm to detect severe sepsis, and performance is impressive given the complex nature of the condition. Application of the algorithm to provide reliable hospital-wide case rates will allow monitoring of incidence and outcomes, and better-informed planning of intensive care services.

## P1-62 THE VIRTUAL COMMITTEE: A PRACTICAL PROCESS FOR MAINTAINING HIGH QUALITY CONTENT OF ONLINE LEARNING RESOURCES FOR PUBLIC HEALTH PRACTICE IN CANADA

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**Introduction** The Public Health Agency of Canada's Skills Online program, developed in partnership with government, academic and professional organizations, supports public health core competencies by enhancing the skills of practitioners. This internet-based continuing education program aims to provide relevant, timely and practical Canadian content for public health practitioners. It is delivered in English and French, with an international component. More than 6000 individual public health practitioners have taken at least one of the modules. Subject areas include basic and epidemiology, outbreak management, surveillance, and evidence based public health practice (http://www.phac-aspc.gc.ca/skills). A significant challenge for the program is how best to maintain high quality content that reflects the current realities of Canadian and international public health practice, using up-to-date educational approaches, all informed by a variety of public health practitioner experiences.

**Methods** The Public Health Agency of Canada has met this challenge by establishing a multidisciplinary committee, comprised of public health experts, continuing education experts, practitioners and program participants. This "virtual committee" uses a variety of communication options to permit monthly virtual meetings, supplemented by online sessions and demonstrations, and occasional face-to-ace meetings.

**Results** This approach has resulted in a dynamic process for the continued review and revision of the content of online learning modules, establishment of some innovative learning solutions, and ongoing evaluation of the program.

**Conclusion** A virtual committee efficiently and effectively provides for maintenance of content, essential for the Public Health Agency of Canada's continued delivery of high quality continuing education for public health practitioners.

## P1-63 ESTIMATING FRACTION CURED FROM CANCER: WHICH STATISTICAL PACKAGE TO USE?

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**Background** Estimates of the fraction of patients cured from cancer provide important information to both patients and clinicians. But how reliable are the estimates?

**Methods** Three statistical approaches, based on similar assumptions that a fraction of patients will be cured from cancer, were used to estimate the fraction cured. The first approach was CANSURV software and the second was developed by De Angelis *et al* (1999), both using grouped survival data. The third was published by Lambert *et al* (2007), requiring individual patient records. All three approaches fit mixture cure models; and CANSURV and Lambert's implementation use maximum likelihood, while De Angelis' implementation is based on non-linear least squares. Cansurv is a standalone program whereas the other approaches were implemented using SAS and Stata respectively. SEER-9 data for rectal cancer were used to illustrate the methods.

**Results** As shown in the Abstract P1-63 table 1, estimates of the cure fraction were similar for the two approaches requiring grouped survival data while Lambert's method provided lower a estimate for patients with localised disease.

Abstract P1-63 Table 1

| Estimated cure fraction | Cansurv | De Angelis 1999 | Lambert 2007 |
|---|---|---|---|
| Localised | 0.720 | 0.738 | 0.667 |
| Regional | 0.404 | 0.406 | 0.388 |
| Distant | 0.049 | 0.033 | 0.034 |

**Discussion** The three approaches provided similar estimates of the cure fraction for patients with regional and distant stage at diagnosis, however there are considerable differences in the estimates for patients with localised disease. Estimates of the cure fraction appear to depend on the choice of statistical model even when the underlying assumptions are very similar.

## P1-64 NOVEL GENETIC RISK VARIANTS FOR BREAST CANCER: FROM DISCOVERY TO DISEASE PREVENTION

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Breast cancer is the most common malignancy among women in many parts of the world. Genetic factors play an important role in the aetiology of this common malignancy. Recent genome-wide association studies (GWAS) have identified multiple genetic susceptibility loci for breast cancer. Most of the GWAS, however, were conducted among women of European ancestry. It is unclear whether genetic risk variants identified in Europeans may also be associated with breast cancer risk in Asians. Furthermore, genetic factors identified to date explain only a small fraction of heritability for breast cancer, and thus many genetic susceptibility loci remain to be discovered. In 2008 we established the Asia Breast Cancer Consortium to search for genetic risk variants for breast cancer. The consortium now consists of over 15 000 breast cancer cases and an equal number of controls who were recruited from 12 studies conducted among Chinese, Korean, and Japanese women. Using a multi-stage study design, we have identified several novel genetic risk variants for breast cancer, including those located at chromosome 6q25 and 16q12. We also have systematically evaluated GWAS-reported genetic risk variants in Chinese and established a risk prediction model that incorporates information from both traditional clinical predictors and genetic risk markers. Results from the Asia Breast Cancer Consortium demonstrate the value of conducting genetic studies in non-European populations to identify novel genetic factors for breast cancer.