

by improving compliance under the existing treatment threshold. In the second the size of the treated population was increased by 50%, by reducing the treatment risk threshold.

#### Results

Almost twice as much CHD was prevented by a 50% improvement in compliance from 50 to 75% under current risk thresholds, than was prevented by relaxing treatment risk

thresholds in order to medicate an equivalent number of untreated individuals.

#### Conclusions

Should policy makers wish to increase the proportion of individuals in the population receiving effective Statin therapy, the utility of interventions for improving compliance need to be assessed.

## 4.5. Workshop: Advanced Intelligence Systems using Enhanced Communication Technologies

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Communication technologies are becoming more mature and stable and have already yielded smart tools for the continuous battle against Infectious Disease. The word surveillance is rapidly losing currency in the context of Infectious Disease Control as it is becoming synonymous with data cemetery. Instead the word 'Intelligence' is gathering momentum in the health protection arena particularly when it is embedded in advanced computer applications capable of 'sniffing' a wide spectrum of data and providing clues for emerging situations. The purpose of this workshop is to explore recent advances in information systems and communication technologies for improved intelligence using innovative ideas, which secure the early identification of cases. The presentations in this workshop will include latest research from the Federal Office of Public Health in Switzerland, the Municipal Health Services in the Netherlands and the Health Protection Agency in the UK. The final presentation from the State Health Office, Epidemiology & Health Reports Unit in Government in Germany will provide a general forum as how the public at large conduct their own intelligence work based on available internet data.

### A symptom-based screening system for tuberculosis in asylum seekers in Switzerland

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#### Issue

Active case finding (screening) in specific groups of people with a high prevalence of tuberculosis (TB) is an essential component in TB control and aims at preventing further transmission of the disease. Chest radiography has been used as the standard method for screening but its high cost as well as the controversy surrounding its use in certain groups, such as asylum seekers, have prompted research in alternative screening methods.

#### Description of the problem

The decreasing number of asylum seekers in the years before 2006 led to increasing costs per case prevented using routine chest radiography. The costs were in around SFR 50 000 per case prevented. A revised TB screening strategy was therefore implemented in 2006. The new system considers the TB prevalence of the country of origin (WHO estimates) and focuses on symptoms and general signs of illness. Interviews are carried out by a nurse using a computer programme presenting pictures, text, audio messages and questions in 29 languages. Based on the geographic origin, the answers given and the general health assessment by the health care worker, a score is computed by the system and used to decide on referral for further check-up. The results of the check-up are also entered into a centralized database.

#### Lessons Learned

In 2006, 8963 interviews were conducted and 14 TB cases were identified. Fourteen cases would also have been expected on the basis of the World Health Organisation's estimates for TB prevalence in the countries of origin. Extrapolating from previous years, routine chest radiography would probably have identified double this number of TB cases. However, chest radiography also detects cases that are less likely to transmit disease (smear- and culture-negative TB, already treated TB, residual, pleural forms). The main objective is therefore more specifically reached now. Non-infectious TB cases depend on access to the regular health care system like any other disease. Access may not be assured when asylum is denied. Challenges in the implementation phase were the need to develop a multi-cultural/multi-language platform as well as the acceptance of the new strategy by practicing physicians. A challenge could now be persons denying symptoms.

#### Conclusions

The first year of the experience with a symptom-based screening system is reassuring. Symptom-based screening for tuberculosis seems to be as efficient as chest radiography for detection of infectious TB cases. The system will therefore be continued along with an on-going evaluation.

### Using new information and communications technologies in Tuberculosis control in the Netherlands

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#### Issue

Data exchange and comparing TB screenings results from e.g. asylum seekers and prisoners was difficult due to lack of standardization into the systems. At the beginning of the century over 20 different registration systems were used in the Netherlands. In the up-scaling process of TB control, it was not possible to work with one and the same system in the same region.

#### Description of the problem

In the Netherlands, directors of Municipal Health Services (MHS) agreed to use a maximum of three registration systems. A national TB project (VISI 2001–2004) yielded comprehensive technical and professional standards which have been defined and implemented including Digital X-ray data. Four MHS's already had a partnership with software houses and agreed about systems ownership. An active user group informed further developments and enhancements of the system.

#### Lessons learned

Eight Back-office MHS's are responsible for the co-ordination of the regional TB control (1 – 3 million citizen per region). Every region will have its own regional Internet based registration system from January 2008. One national system is available for the screening of prisoners and other risk groups for TB. The system supports the data exchange between the Mobile

Röntgen Units, the MHS's, the medical services in prisons and RIVM. The systems developed have a multi-lingual interface. The system development took three years to complete

### Conclusions

The TB screening system allowed a regional and national Internet based registration system for TB control. The new system incorporates all existing local registration facilities and has a tool for source and contact tracing. This makes data exchanges between MHS's in and outside the region possible and improves the quality of TB control. The system is also available for MHS's in other European countries.'

### HPIntelligence: A strategic, tactical and operational Intelligence support tool for health protection in the United Kingdom.

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### Issue

In view of the growing number of emerging diseases, there is an urgent need for a real-time intelligence tool not just at the operational level but also at the strategic and tactical levels. The web-based tool HPZone has already been developed to successfully do this at the local level and has been so far deployed in three regions of the Health Protection Agency in the UK. This paper describes the development of HPIntelligence as a module of HPVista – a suite of decision support tools for health protection at the strategic (national) and tactical (regional) levels.

### Problem Description

HPIntelligence is a web based support tool which has been developed in tandem with HPZone and is aimed at significantly enhancing intelligence locally, regionally and nationally by enabling Health Protection Professionals (HPP) to:

- View key aggregate clinical, epidemiological and laboratory data in real-time. The data relating Situations, Cases and Contacts across Health Protection Units and Regions as well as nationally can be viewed in GIS or tabular format.
- Provide timely data sets for scientific evaluation by epidemiologists, modellers and others, which can be used to forecast projections and prioritize options for control strategies.

### Results

HPIntelligence facilitates horizon scanning by providing the following facilities:

- Incidence, Co-incidence and Threshold alerts to key HPPs.
- Dashboards for the current situation at Health protection Unit, Region and National levels using special filters relating to Scenario, Location and Time periods.
- A comprehensive query facility for the advanced user to carry out detailed data mining

### Conclusions

HPIntelligence has been successfully piloted using HPZone

databases collected at three different regions. The results obtained are promising and readily prove that HPIntelligence can be used to enhance intelligence and in turn inform control policies and evaluation of their effectiveness at regional and national levels.

### Who informs? The Google epidemic and challenges for quality in public health information

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### Issue

Media surveys indicate continuing change in the way in which Europeans interact with the internet (European Interactive Advertising Association, 2006). Broadband technology and search machines influence information channels on which a growing percentage of European populations rely. This review aims at illustrating consequences for the adaptation of public health information strategies.

### Description of the problem

Seven European top level domains were searched for index terms relevant to public health (infectious diseases, immunization) in five languages, using a dominant internet search machine. Top listed links were reviewed for site owner (public health institution, research/academic, news media, commercial web sites, otherwise), link contents and presence of advertisements.

### Results

Not counting advertised links, commercial and 'other' sites dominated among the top listed links. The prevalence of public health institution pages varied by top level domain and language. Example: Searches for 'measles' in 14 top level domain/language combinations retrieved 132 first page hits, including 41 links to sites maintained by public health (29 = 22%) or research/academic institutions (12 = 9%). Public health institutions frequently provided contents in printable file formats, including documents for public health, medical or research professionals. Only pages on news media web sites (15, including 7 with ads), commercial sites (36/29) and other owners (40/8) contained advertisements or links to commercial offerings. Other links related to medical associations, chance occurrences of search terms (e.g. blogs) and alternative or critical contents diverging from evidence-based medicine.

### Conclusions

Index term based internet searches indicated a limited visibility of public health institutions in Europe as direct providers of public health information to the general public. Search machine use advises to expand from printable file formats to genuine web display formats and to audiovisual contents. Trends in communication technologies demand that public health communication strategies actively include the placement of quality public health information in Web 2.0 presences such as wikis.

## 4.6. Tobacco/Smoking

### How does IQ affect onset of smoking and cessation of smoking—linking the Swedish 1969 conscription cohort to the Swedish Survey of Living Conditions

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### Background

An association between IQ and mortality is found in several studies where mortality is increasing with decreasing IQ. It is not clear if the increased risk is mediated by behavioural factors. The objective of this study is to examine the association between IQ measured at ages 18–20 and onset of smoking and the association between IQ and smoking cessation.

### Methods

Data on IQ, smoking, mental health and social background among 49321 Swedish men born 1949–51 collected at conscription for military service in 1969. The association