**New Eyes: Improving Europe’s Infectious Disease Surveillance**

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“The real voyage of discovery consists not in seeing new landscapes, but in having new eyes.” Marcel Proust

This edition of Eurosurveillance contains reports of infectious disease surveillance systems from all corners of Europe. In some instances, routinely collected notifiable data coupled with microbiological data can provide sufficient information to allow appropriate public health intervention. In other instances, as described below in the pertussis paper, a period of active case finding is required to provide the basis of a comprehensive assessment of the changing epidemiology of an infectious disease [1]. For rapid assessment of incidence, sentinel systems from a sample of general practices can provide timely information, particularly in those diseases where most cases are not routinely tested microbiologically (e.g. influenza). As the papers here indicate, we need to continually evaluate our systems and ensure they are fit for purpose.

The report from Cyprus on a pertussis outbreak in 2003 demonstrates the effectiveness of an active reporting surveillance system. All paediatricians were recruited to report on a weekly basis on all suspected pertussis cases of any age. If no report (including zero reports) were received, the paediatricians were reminded by telephone. This active surveillance system resulted in the detection of an outbreak of 128 cases, 24 of which were laboratory-confirmed by the detection of positive Bordetella pertussis-specific IgA. Two thirds of the confirmed cases were aged between 10 and 20 years. While 13 of the confirmed cases (54%) were correctly vaccinated with five doses as in the Cypriot schedule, 23 of the 24 confirmed cases had received their last immunisation over four years previously. The outbreak was controlled within one month by a combination of Erythromycin chemoprophylaxis for close contacts and vaccination boosters for close contacts who were considered not to be fully immunised.

In most European countries, pertussis is a notifiable disease. However, the consensus is that the under-reporting of the routine surveillance system identified in Cyprus is a common problem worldwide [2]. A prolonged cough may be the only feature in teenagers and adults. Primary care physicians may be unaware of this atypical presentation and neither diagnose nor report. In addition, the variation in the use of diagnostic tests for pertussis in Europe may influence the sensitivity of testing, e.g. routine services for serological testing are frequently not available and while PCR tests are more sensitive than culture these methods are not universally applied [3]. Waning immunity in fully immunised individuals coupled with incomplete immunisation in some individuals, as in this study, is considered responsible for the shift in age distribution to older age groups. This has prompted the United States and some European countries to introduce an additional pertussis booster in adolescence. Interestingly, after this period of intensive active surveillance by paediatricians, the Cypriots have now moved to syndromic surveillance of pertussis by general practitioners. It will be interesting to see if, having sensitised the general practitioners to the changing epidemiology of the disease, this system is as efficient in detecting pertussis outbreaks promptly.

Two papers in this month’s edition examine the surveillance of influenza. The paper from the Spanish Influenza Surveillance System ascertains to what extent the system meets guidelines currently being drafted by the European Influenza Surveillance Scheme. Sentinel physicians sent an impressive number of swabs on 11.5% of cases meeting the case definition for influenza-like illness. This figure exceeded the draft target set by EISS for 10% of cases swabbed. However, further discussion of the rationale for such a target would be welcome from EISS. Younger patients, males and vaccinated patients were more likely to be swabbed in the Spanish system. It is clear that an increasing number of regions in Spain are contributing to the system and, as in many other European countries, continuing audit bodes well for improvements in the surveillance of influenza.

The paper, from the United Kingdom (UK) looks at outbreaks of influenza and influenza-like-illness in schools in England and Wales in 2005/06. Despite relatively low influenza activity overall, the Centre for Infections (CfI) of the Health Protection Agency (HPA) in the UK started to receive reports in January 2006 of outbreaks of respiratory illness in school children. In response, CfI requested weekly reporting of outbreaks in schools through HPA health protection units. Six hundred and eighty-eight school outbreaks were identified and in 70 Influenza B was confirmed. The HPA is now exploring the feasibility of collecting absence data from schools on a regular basis to supplement the general practitioner influenza surveillance system and the data collected in the nurse led telephone advice system NHS Direct.

This report demonstrates the considerable morbidity associated with Influenza B epidemics causing major disruption to the educational system. The separate reporting of three associated deaths in the UK demonstrate that Influenza B infection is not as benign as often portrayed.

The incidence of Beijing genotype of Mycobacterium tuberculosis is studied in a 13-year look back at 332 isolates in the Elche region of Spain. A recent review has highlighted the importance of this emerging pathogen in several areas and its association in some areas with drug resistance [4]. In Estonia, the Beijing strain is reported in 29% of cases, where it is strongly associated with resistance to all tested drugs. In Western Europe, Beijing
genotype is more common among immigrant TB patients than among indigenous patients. In the Spanish Elche study reported here, only one isolate of the Beijing strain, with no resistance was identified, in a patient originally from Senegal. None of his close contacts who were placed on chemoprophylaxis developed tuberculosis during follow-up. While the data presented here is reassuring, population movements in Europe warrant continued vigilance in relation to the further emergence of this pathogen.

Trends in meningococcal disease in Poland and improvements to the surveillance system are described in a paper by Olga Gryniewicz et al. While there is a relatively low incidence by European standards, a recent increase in the proportion of cases caused by serogroup C has caused concern. Monitoring of all types of invasive meningococcal disease started in 2005 using a slightly modified case definition from the European Centre for Disease Prevention and Control (ECDC). At present, data from the National Reference Laboratory is not merged with the epidemiological notification data. The authors recognise the need to obtain more complete serogroup data. Diagnosis by molecular methods has only recently been applied to meningococcal disease and it can be expected that this will contribute to improved case ascertainment in the future.

A paper from Semenza and Nichols looks at the incidence of cryptosporidiosis as reported by 16 European countries in 2005. Ireland and the United Kingdom have the highest reported incidence rates. However, the authors advise that the extent to which routine diagnostic laboratories screen for cryptosporidiosis is unclear and it is likely that there are substantial differences in ascertainment between countries. Evidence from the North-West of England is reported to show substantial reductions in the number of cases following improvements in drinking water treatment. The report demonstrates the power of good surveillance data in targeting resources to achieve control of this potentially severe disease in the young, the elderly and the immunocompromised.

Finally, an evaluation of two surveillance systems for sexually transmitted infections (STI) in the South-West region of England rings true for many of us involved in national surveillance of sexually transmitted diseases. Aggregate data from the genito-urinary medicine clinics was neither timely nor representative of all diseases diagnosed in the community. While the laboratory data was timelier, the information was inadequate to assess risk factors that could enable targeted interventions. The authors describe developments in Scotland, where a web-based surveillance system allows real time secure data collection and validation. Ideally, the merging of laboratory and clinical data provides the best surveillance data, but concerns around data confidentiality have traditionally hampered progress in this regard with STI data. However, as the authors say, varying access limitation can overcome issues of confidentiality. As described in this paper, many European countries have seen dramatic increases in the number of cases of STIs in recent years. The scale of the problem merits better surveillance and this paper points the way forward.

Europe is undergoing a period of unprecedented change, with more of us travelling further, faster and more often than ever before. New and emerging diseases present a real and current challenge to all of us charged with health protection. However, with developments in the pipeline from ECDC (such as TESSy – The European Surveillance System) and information technology allowing web-based real time collection and feedback of analysed data, we will be in a better position to meet these challenges and enable the more effective targeting of resources and prioritisation of interventions.

“Good surveillance does not necessarily ensure the making of the right decisions, but it reduces the chances of wrong ones.” Alexander Langmuir 1963.

References

Citation style for this article: O’Flanagan D., New eyes: improving Europe’s infectious disease surveillance. Euro Surveill 2007;12(5)[Epub ahead of print]. Available online: http://www.eurosurveillance.org/ftp/v12n05/1205-221.asp