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EDITORIAL

FROM EVALUATION TO CONTINUOUS QUALITY ASSURANCE OF SURVEILLANCE SYSTEMS

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Surveillance systems have been described as the nerve cells of public health with afferent arms receiving information, cell bodies analysing the information and efferent arms initiating appropriate action or further distribution of information [1]. Increasing numbers of scientific publications on the methodology and evaluation of surveillance systems seem to underline the importance of surveillance systems in public health. The most often cited references in these publications appear to be the definition of public health surveillance by Thacker and Berkelman [2] and variations thereof, and the recommendations for evaluating surveillance systems from 1988 [3] and its update from 2002 written by working groups at the Centers for Disease Control and Prevention (CDC) in the United States [4].

While surveillance certainly does need to be approached systematically, the evaluation of surveillance systems needs to be part of a broader strategy. One example of such a systematic evaluation strategy is the current evaluation process of all European Union Disease Surveillance Networks (DSN) coordinated by the European Centre for Disease Prevention and Control (ECDC) [5].

Do such evaluations have a lasting and positive effect on the quality of the system? If public health surveillance needs to be continuous, should not evaluation of a surveillance system also be continuous? How do these evaluations fit into the concept of continuous quality assurance?

Quality assurance is generally described as a continuous process to improve quality of a system; Decker called this the plan-do-check-act cycle [6]. In such a system, evaluation is only one component of quality assurance, typically followed by problem identification, problem analysis and intervention [6-8]. In hospital epidemiology in particular, it is acknowledged that surveillance is an effective component of quality assurance, yet little has been published about the role of quality assurance as a component of a surveillance system. In one of the few publications on this subject, Salman et al describe surveillance system evaluations as part of quality assurance in animal disease surveillance systems [9]. It is intriguing that most medical disciplines have adopted the principles of quality assurance as a continuous process, while epidemiology appears to maintain a static concept of quality control in surveillance management. On the other hand, one might argue that procedures such as the cleaning of databases, application of case definitions, standard operating procedures, and algorithms to detect statistical deviations are to be seen as part of an integrated quality assurance process. While this is undoubtedly true, there are multiple additional activities that could or should be part of a quality assurance effort.

If public health surveillance needs to be continuous, should not evaluation of a surveillance system also be continuous?

When Germany enacted a new law on infectious disease control in 2001, the national surveillance system for notifiable infectious diseases was significantly restructured and expanded [10]. Simultaneously with the implementation of the system the Robert Koch-Institut (RKI) has applied a variety of activities to accompany and to influence the implementation by actively gathering feedback from participants or other interested parties of the surveillance system. Before implementation of the new system, surveys carried out in local health departments (LHD) provided baseline data for the design of the new system. A few months after the implementation of the new system, the RKI conducted focused group discussions among LHD officers to identify key challenges in the practical implementation of the new system [11]. These led to the instalment of technical info-mails and influenced the design and frequency of data feedback to LHD. Some of the hypotheses generated on the basis of these focused group discussions were then systematically assessed in a survey of all 430 local health departments [12]. The results of this survey had a major impact on the development and design of a number of tools such as SurvStat@RKI, a web-based interactive query system for surveillance data [13]. Additional information was gained through an interdisciplinary quality circle, as described in the report published in this Eurosurveillance issue [14], which was also complemented by larger surveys among general practitioners [15], laboratories [16] and recipients of the yearly epidemiological report. An example for a very specific aspect of evaluation was the application of a round robin methodology including all local health departments to assess the unambiguity and clarity of the national case definitions [17]. This resulted in a new structure and a thorough revision of the national case definitions [18], and has also contributed to the

revised version of the EU case definitions currently being finalised by ECDC. A number of capture-recapture analyses have provided a framework for estimating the completeness of reporting and thus an important aspect of the epidemiological interpretation [19]. All these activities are components of an ongoing effort to further improve the national surveillance systems for notifiable infectious diseases and have resulted in very practical consequences in the surveillance system. Admittedly, these components have not yet been scheduled for a systematic, intermittent reassessment of the progress, and therefore cannot be considered proof of an existing quality assurance system. One module which is, however, designed to contribute to continuous quality assurance is a direct result of the quality circle described in this issue. In 2004 the RKI established a special network of 45 representatively selected local health departments (LHD) (approximately 10% of the total number of LHD) to conduct regular workshops on technical issues of the surveillance system using a quality circle approach. This network, which has been working almost continuously, has enabled the RKI to better assess the needs of LHD and to pre-test various surveillance instruments such as questionnaires and reporting software. Similar approaches certainly exist in other countries. However, as far as can be seen from the current literature, continuous quality assurance is not well established in surveillance systems. If evaluations are integrated into such a quality assurance system they are likely to have more impact on the improvement of the system. It therefore seems worthwhile to assess how the concept of continuous quality assessment should and could be established in the design of surveillance systems. The current evaluation of DSN may be a good opportunity to start this process.

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