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## Infections in the healthcare service – time for a smart approach

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### OPINIONS

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**What is the use of forging ahead if forging in the wrong direction? The practice of frequent point-prevalence surveys of healthcare-associated infections provides oversimplified data and is a poor use of resources. Rather, we should measure more reliable incidence figures. Reorganised monitoring of healthcare-associated infections is called for.**

Since 1999, the Norwegian Institute of Public Health has encouraged Norwegian hospitals to undertake regular point-prevalence surveys of healthcare-associated infections. Registration later became mandatory and enshrined in regulations (1). The current system makes provision for two mandatory and two voluntary surveys per year. The aim of registering hospital

infections is to provide a basis for improvements, but the results of these surveys are unsuitable for this purpose. We are therefore doubtful of their usefulness.

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## Unsuitable indicator

Since the results of point-prevalence surveys do not reflect the burden of healthcare-associated infections, we do not believe that the goal of 4.7 % set by the Ministry of Health and Care Services is useful as a quality indicator. This matter has been previously addressed in the Journal of the Norwegian Medical Association (2–4), but on that occasion only one type of infection was discussed, namely surgical site infection. We wish to rekindle the debate, as it includes all types of healthcare-associated infections.

At intervals of several years, national and supranational bodies have taken the initiative to conduct point-prevalence surveys of healthcare-associated infections, for example the National Nosocomial Infection Surveillance System under the auspices of the Centers for Disease Control and Prevention in the USA in 1975 (5) and the European Centre for Disease Prevention and Control in 2011–12 (6), and similarly in 2016–17. The Norwegian practice of undertaking four point-prevalence surveys per year is probably unique in global terms.

The results of point-prevalence surveys are rough measurements because they include more than one type of infection (urinary tract infection, three degrees of severity of postoperative wound infection, sepsis and lower respiratory tract infection), and because they contain a considerable amount of statistical noise. The ability to identify trends must be regarded as low (7), and an inaccurate indicator does not provide hospital managers with the necessary management support. It has previously been claimed that Norwegian prevalence registrations result in greater attention being paid to healthcare-associated infections (7). However, it is not enough to pay attention: to be able to manage, hospital managers need results for the individual types of infection, in other words, incidence statistics.

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## Prevalence results – not a basis for interventions

The prevalence figures can be found on the website [helsenorge.no](http://helsenorge.no), and surgical site infection is shown to be the most common type (8). This may indicate a methodological weakness in that the surveys overestimate persistent infections such as deep postoperative wound infections. Urinary tract infections and lower respiratory tract infections follow close behind, while sepsis is the least common infection. It has also been pointed out that current registrations underestimate the actual burden of healthcare-associated infections by using narrow case definitions. Moreover, a number of infection types are omitted (9), for example diarrhoea associated with *Clostridium difficile*.

No quality assurance system exists to ensure that the registration is undertaken in the same way throughout the country. Low prevalence figures can be achieved through systematic improvement work with regard to infection control, but also by entering poor registrations that do not reveal all infections. Duration of stay will also affect the results. Thus, artificially high rates can be achieved by hospitals with low duration of stay as a result of concentration of high morbidity patients.

Correct point-prevalence survey is resource-intensive. Our experience of these surveys over many years indicates that both Vestre Viken and St. Olavs Hospital each devote about one man-year annually to this work.

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## Solid basis for improvements

The alternative to the prevalence figures is for each infection type to be monitored individually, i.e. through simple and continuous incidence registrations. Results from the incidence registrations are without statistical uncertainty even at a low level in the organisation. Incidence results are far more useful for managers at different levels than corresponding results from point-prevalence surveys.

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## No shortage of criteria

The necessary criteria for incidence registration of all the nosocomial infection types are readily available. The Centers for Disease Control and Prevention as well as the European Centre for Disease Prevention and Control [\(10, 11\)](#) have developed and refined measurements over a long period – the measurements are simply waiting to be used.

Incidence registration of healthcare-associated infections is already used in New York, USA, for example. Since 2007, all 178 hospitals there have required ongoing incidence registration of a range of infection types such as surgical site infection (severe infections only), catheter-associated urinary tract infection, central venous catheter-related sepsis and infections caused by *Clostridium difficile*. Several of the hospitals have no specially designed electronic tool, and the work therefore requires manual routines (personal experience from Mount Sinai Roosevelt Hospital). Despite this, the report from 2014 shows that it was possible to undertake this effort with one hygiene nurse (full-time equivalent) per 239 somatic patient beds [\(12\)](#).

Naturally, the prerequisite for all work of this type is meticulous planning and good collaboration between managers and infection control personnel, infection control personnel and clinical staff.

With regard to central venous catheter-related sepsis and catheter-associated urinary tract infection, for example, the work in New York is organised such that staff in clinical positions register catheter use, while infection control staff

look for cases of infection which they then quality assure together. Risk factors are not included in any of the New York registrations.

Our experience in Vestre Viken is similar: incidence registration is possible with minimum resources for both these types of infection (13). As expected, we found that such results were highly popular and useful for both managers and clinicians in Vestre Viken.

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## What are we waiting for?

We encourage the authorities to reduce the frequency of point-prevalence surveys to a minimum, for example to every five years in cooperation with the European Centre for Disease Prevention and Control. The resources that are freed up should be used for incidence registrations that provide hospital managers with management support and clinicians with usable data. The management at individual hospitals in consultation with infection control staff can decide which types of infection should be monitored. In order to prioritise between infection types, results from point-prevalence surveys may certainly be used.

Only when infection control resources are used in this manner will hospital managers receive the necessary support to introduce measures to combat particular types of infection that effectively improve patient safety.

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