5/2017

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Extract from Rigsrevisionen's report on

prevention of hospital-acquired infections

submitted to the Public Accounts Committee

December 2017

1. Introduction and conclusion

1.1. PURPOSE AND CONCLUSION

1. This study concerns the government's efforts to prevent hospital-acquired infections. Hospital-acquired infections are infections with harmful micro-organisms (in the following bacteria) that patients can acquire while they are in hospital for diagnostics, treatment and care.

Some hospital-acquired infections can be treated with antibiotics. However, this type of treatment contributes to increasing the consumption of antibiotics, which again contributes to developing resistant bacteria and keeping them alive. Other hospital-acquired infections are caused by bacteria that are resistant to one or several antibiotics and therefore difficult to treat effectively.

2. We initiated the study in December 2016. The background to the study is *Statens Serum Institut's* (government body responsible for Denmark' preparedness against infectious diseases) estimate that 7 to 10 per cent of all in-patients in Denmark, corresponding to approximately 60,000 patients annually, acquire an infection while in hospital. At the same time, the number of patients acquiring an infection that is resistant to antibiotics is increasing. In the financial agreement for 2013, the Danish government and the five Danish regions agreed on a statement of intent to reduce infection rates. The focus of this study has therefore been limited to the period from 2013 to 2016.

3. Not all hospital-acquired infections can be eradicated, but it is Statens Serum Institut's assessment that infections can be reduced by up to 20 per cent. To support efforts made in this area, Statens Serum Institut has included a section on the issue in the Danish infection control programme, which outlines the measures required to prevent hospital-acquired infections, such as surveillance and guidelines for hygiene and responsible use of antibiotics.

4. Surveillance of hospital-acquired infections is essential as a tool for improving the quality of care. According to international health-care authorities, such as the European Centre for Disease Prevention and Control (ECDC), setting specific goals for reducing hospital infections helps clarify the purpose of the efforts. Guidelines on hygiene, like cleaning and handwashing, are considered the most effective measures to interrupt transmission of infection. Responsible use of antibiotics implies that antibiotics are used only when deemed necessary, and narrow-spectrum antibiotics are used to the widest extent possible, because they contribute less to the development of resistant bacteria.

MICRO-ORGANISMS
Can be found anywhere. Most are beneficial; some are harmful. The term micro-organisms includes bacteria, viruses and parasites.

RESISTANT BACTERIA
Resistant bacteria cannot be treated with antibiotics.

ANTIBIOTICS
There are different types of antibiotics. The narrow-spectrum antibiotics are active against selected groups of bacteria, whereas the broad-spectrum antibiotics are active against different types of bacteria. The broad-spectrum antibiotics contribute to the further development of resistant bacteria. It follows that responsible use of antibiotics involves narrow-spectrum agents.

PENICILLIN
Penicillin is an antibiotic and penicillin V is just one of several types of penicillin.

5. In 2012, the Danish Health Authority issued a guideline according to which the use of three critically important antibiotics should be reduced, because they contribute to the development of resistant bacteria and at the same time can save the lives of critically ill patients. It also appears from the *National action plan on antibiotics in human health care*, developed by the Danish Ministry of Health in 2017 that the use of the small-spectrum penicillin V should be increased, because it rarely leads to resistance and is active against many common infections, at the same time.

6. The purpose of the study is to assess whether the Ministry of Health, the regions and the hospitals have done enough to prevent hospital-acquired infections. The report answers the following questions:

- Has the Ministry of Health, the regions and the hospitals defined goals and developed surveillance systems that support the efforts to reduce infection rates?
- Is hospital hygiene meeting the requirements of the guidelines?
- Is the Ministry of Health, the regions and the hospitals supporting responsible use of antibiotics?

CONCLUSION

It is Rigsrevisionen's assessment that the Ministry of Health, the regions and the hospitals have not done enough to prevent hospital-acquired infections. No goals have been set for reduction of infection rates, and surveillance of the development in infection rates has not been fully effective. At the same time, hospital hygiene can be considerably improved, and the use of antibiotics can be more responsible.

Goals and surveillance are important instruments in reducing infection rates; they provide direction and insight. However, the study shows a lack of specific goals for reducing infection rates. The Ministry of Health conducted biannual studies of infection rates until 2015, when the ministry set up a national database for ongoing surveillance of infection rates. Rigsrevisionen's study shows that the hospitals have not, to the extent necessary, participated in these biannual studies, nor have they drawn on the national database in their efforts to monitor the development on the wards. As a result, the ministry has not had sufficient overview of neither the prevalence nor the types of hospital-acquired infections.

Good hygiene reduces the risk of infection occurring and spreading to other patients, but the study shows that 29 per cent of the inspections of cleaning, carried out in the hospitals in the period from 2013 to 2016, did not meet the cleaning requirements specified in the guidelines. 54 per cent and 43 per cent of the inspections of hand hygiene and work clothing hygiene, respectively, did not meet the requirements either. It follows that there is room for considerable improvement in hospital hygiene.

Responsible use of antibiotics is particularly effective against antibiotic-resistant infections in hospitals. The study shows no clear trend in the consumption of antibiotics, since too many antibiotics are still being prescribed and too many of the prescriptions are for broad-spectrum antibiotics. The hospitals' consumption of antibiotics increased from 2013 to 2016. In 2013, critically important antibiotics accounted for 6 per cent of the total consumption of antibiotics in the health sector against 5 per cent in 2016. In the hospitals, consumption of these antibiotics was reduced from 28 per cent to 22 per cent. Although this is a positive development, Statens Serum Institut, the regions and the hospitals had expected a larger reduction. Small-spectrum penicillin V accounted for 25 per cent of the total consumption of antibiotics in the health sector, but dropped to 23 per cent in 2016. The consumption of penicillin V in hospitals was 10 per cent in 2013 as well as in 2016. The study shows that workflow processes in the hospitals do not always support responsible use of antibiotics: MRSA screenings are inadequate, transport times for samples are long and systematic overviews of the general pattern of prescriptions are not available.

In 2017, the Ministry of Health defined reduction goals and general goals for the consumption of antibiotics in a national action plan. The goals aim to reduce consumption of antibiotics in humans and in that way reduce the development in resistance towards 2020. In the opinion of Rigsrevisionen, the development in the consumption of antibiotics indicates that the Ministry of Health should have set reduction goals for the use of antibiotics earlier. Rigsrevisionen is also of the opinion that the action plan should be supplemented with reduction goals for hospital infections to ensure that efforts in this field are highlighted and considered in connection with the development in the overall consumption of antibiotics. The Ministry of Health should monitor the development in resistance in a way that allows assessment of the effectiveness of the new action plan.