

# New guidelines for use of antibiotics in the primary health care service

New national guidelines are now being issued for use of antibiotics in the primary health care service. We encourage all Norwegian doctors to follow them.

The effort to promote an acceptable use of antibiotics and to prevent further development of resistance is increasingly being given priority on the health policy agenda. The European Centre for Disease Prevention and Control (ECDC) has recently established that annually around 25 000 deaths in Europe can be attributed to antibiotic resistance (1). This is more than the number of fatalities from traffic accidents. The UK Chief Medical Officer recently stated in a meeting with the House of Commons' Science and Technology Select Committee that antibiotic resistance is a greater threat to humankind than terrorism.

## Increasing resistance also in Norway

In Norway as well, there is a growing incidence of antibiotic resistance. It appears from the report by NORM (Norwegian Surveillance System for Antimicrobial Drug Resistance) that the occurrence of methicillin-resistant *Staphylococcus aureus* (MRSA) has increased. Because of resolute efforts to improve hygiene in hospitals, however, the number of MRSA cases in Norwegian hospitals has fallen (2). Another growing threat is that of intestinal bacteria which produce extended spectrum beta-lactamase (ESBL). These most commonly cause infections of the urinary tract, but can also lead to more serious infections (2). A particular challenge of ESBL-producing bacteria is that patients can be healthy carriers of these bacteria in their intestines and unknowingly spread them to others in their environment. Both these types of resistant bacteria can also be found outside of hospitals – especially in Norwegian nursing homes, where they can present a major challenge.

The documentation of the link between the increase in total antibiotic use and the proportion of broad-spectrum antibiotics, and development of resistance, is continuously improving (3). As long as no new antibiotics are developed, the main strategy, both nationally and internationally, will therefore be to restrict total use and promote use of narrow-spectrum antibiotics. Despite the publication of Norwegian guidelines in 2008 for use of antibiotics in the primary health care service (4) and an increased emphasis on antibiotic resistance, the consumption has increased by 10% from 2005 to 2011, from 15.6 DDD per 1 000 inhabitants per day to 17.2 DDD per 1 000 inhabitants per day. The use of broad-spectrum

antibiotics has also increased somewhat, particularly that of macrolides and tetracyclines. And the use of ciprofloxacin has increased, although overall use in Norway is low compared to other countries (2).

## New guidelines

On this basis, the Directorate of Health decided that the national professional guidelines on antibiotic use for the primary health care service should be revised. The previous guidelines were issued in 2008 (4). The revision process started in 2010 in collaboration with the same network that developed the 2008 edition. An academic general practitioner and a hospital specialist within the field have together revised each chapter and updated it after a fresh review of the knowledge base. All the authors of this article have participated in this work.

## What is new in the guidelines?

Dental prescriptions represent approximately 8% of total antibiotic prescriptions on a national basis, essentially penicillin V

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(5). The new guidelines include a separate chapter on infections of the teeth and gums. An abbreviated version is available for use by dentists.

The treatment of genital chlamydia infections has changed, with a switch from the first-line drug azithromycin to doxycycline. The reason for this is the risk of development of resistance in other pathogens, such as *Mycoplasma genitalium*. However, since one week's treatment with doxycycline may represent a challenge with regard to compliance compared to single-dose azithromycin,

azithromycin is maintained as an alternative treatment.

A separate chapter on children has also been developed, which has been harmonised with the Norwegian guide to paediatric use of antibiotics. The guidelines detail the choice of antibiotics and different dosages. A new Norwegian study has shown that children in Norway are too often prescribed broad-spectrum antibiotics for respiratory infections (6).

The chapter on nursing homes has been further developed and includes suggestions for intravenous therapy in nursing homes, which has become a relevant topic following the introduction of the Coordination Reform.

## Which guidelines are carried over from the previous edition?

Treatment of respiratory infections represents approximately two-thirds of antibiotic use outside of hospitals. A recent Norwegian study has shown that prescribing of antibiotics for respiratory infections is still widespread for conditions such as acute otitis, acute sinusitis and acute bronchitis (7) and should be reduced. The guidelines recommend continued use of delayed prescriptions, especially for respiratory infections. In another recent Norwegian study it was shown that with these types of prescriptions only around half of the prescribed antibiotics are consumed (8).

The guidelines maintain the recommendation on use of narrow-spectrum antibiotics. This primarily implies penicillin V as the first choice for respiratory infections. For urinary tract infections, alternation between the three equivalent alternatives mecillinam, nitrofurantoin and trimethoprim is maintained, as well as the avoidance of ciprofloxacin.

Norwegian doctors prescribe too high a proportion of macrolides, despite documented development of resistance. Macrolides should in essence not be prescribed for anything other than atypical pneumonias (*Mycoplasma pneumoniae*, *Chlamydia pneumoniae*) and in case of allergy to penicillin.

Where staphylococcal skin infection is suspected, the recommendation of dicloxacillin is maintained. Penicillin V is recommended for streptococcal infection.

## Further work on the guidelines

The guidelines are issued in book form and will be sent to all Norwegian GPs, muni-

cial medical officers, emergency rooms and nursing home doctors. They will also be given to all Norwegian medical students in the last year of their studies. An abbreviated version has been produced which is also available in English. An electronic version will be published on the websites of the Directorate of Health and the Antibiotic Centre for Primary Medicine. It is planned to develop an electronic mobile phone app.

In the course of the work there has been an aspiration to harmonise with the guidelines for antibiotic use in hospitals as well as other central electronic sources, such as the *Norwegian Electronic Medical Handbook* and the new *Emergency Department Handbook*. To maintain Norway's unique position with respect to low levels of antibiotic resistance, it is crucial that Norwegian doctors faithfully follow the revised guidelines.

**Morten Lindbæk**

*morten.lindbak@medisin.uio.no*

**Siri Jensen**

**Knut Eirik Eliassen**

**Arne Fetveit**

**Nils Grude**

**Dag Berild**

**Per Hjortdahl**

Morten Lindbæk (born 1950) is a professor of general medicine at the University of Oslo, a GP in Stokke municipality and head of the Antibiotic Centre for Primary Medicine. The author has completed the ICMJE form and declares no conflicts of interest.

Siri Jensen (born 1962) is a researcher and coordinator at the Antibiotic Centre for Primary Medicine, University of Oslo. The author has completed the ICMJE form and declares no conflicts of interest.

Knut Eirik Eliassen (born 1976) is a GP and PhD student at the Antibiotic Centre for Primary Medicine, University of Oslo. He represents the Norwegian College of General Practice on the Academic Council of NORM and is a deputy member of the Specialty Committee for General Medicine.

The author has completed the ICMJE form and declares no conflicts of interest.

Arne Fetveit (born 1968) is a specialist in general medicine, a Dr. Med., master in community health sciences, associate professor at the Department of General Medicine, Institute of Health and Society, University of Oslo, and a GP at Kjelsås Medical Centre.

The author has completed the ICMJE form and declares no conflicts of interest.

Nils Grude (born 1951) is a specialist in medical microbiology, a PhD and was previously a specialist in general medicine. He is departmental senior consultant at the Department of Microbiology, Vestfold Hospital, and affiliated with the Antibiotic Centre for Primary Medicine as a researcher.

The author has completed the ICMJE form and declares no conflicts of interest.

Dag Berild (born 1951) is a Dr. Med., specialist in infectious diseases and Senior Consultant at the Department of Infectious Diseases, Oslo University Hospital. He conducts research on the rational use of antibiotics and resistance. The author has completed the ICMJE form and declares no conflicts of interest.

Per Hjortdahl (born 1946) is a specialist in community medicine and professor at the Department of General Medicine, Institute of Health and Society, University of Oslo.

The author has completed the ICMJE form and declares no conflicts of interest.

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*Received 5 April 2013 and approved 11 April 2013.  
Medical editor Hanne Støre Valeur.*