

Suspected infection is the most common cause of term infants being admitted to neonatal units. Symptoms of infection in neonates are nonspecific, and it is difficult to determine whether a neonate's symptoms are passing or a sign of an infection that requires treatment. There is therefore broad agreement among neonatologists that it is good clinical practice to start antibiotic treatment if a neonate shows symptoms that could be a sign of a beginning infection, but that such treatment should be discontinued quickly once the reason for the symptoms has been clarified.

Background

Each year, a total of 40% of neonates admitted to hospital and 3.8% of all neonates undergo a short or long course of antibiotic treatment.

At worst, not using antibiotics could result in deaths. However, there are no indications that such practice occurs in Norway. Overuse of antibiotics has several side effects, including the development of antibiotic resistance. Using antibiotics also affects the infants' intestinal flora and thus contributes to increasing the risk of illness in later life. Recent guidelines recommend discontinuing treatment within 36–48 hours if infection/sepsis is no longer suspected.

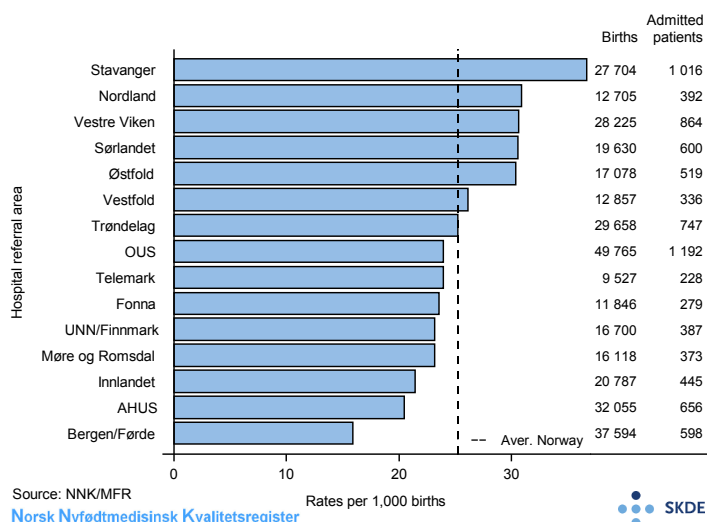


Fig. 1. Antibiotic treatment, number of patients per 1,000 births, gestational age 37 weeks or more

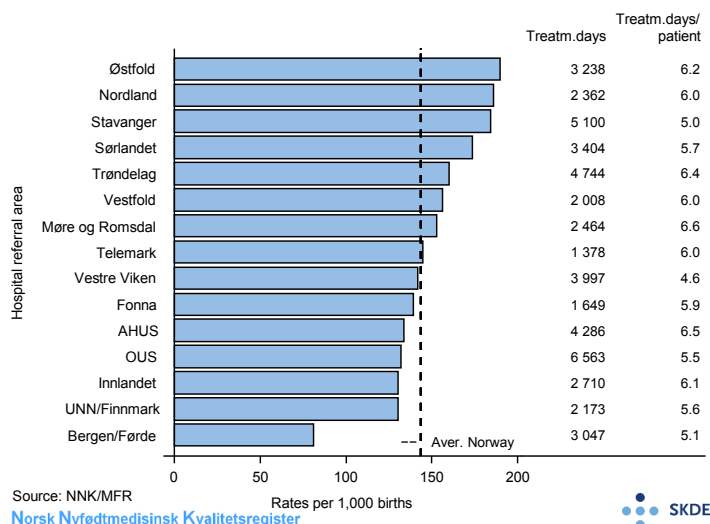
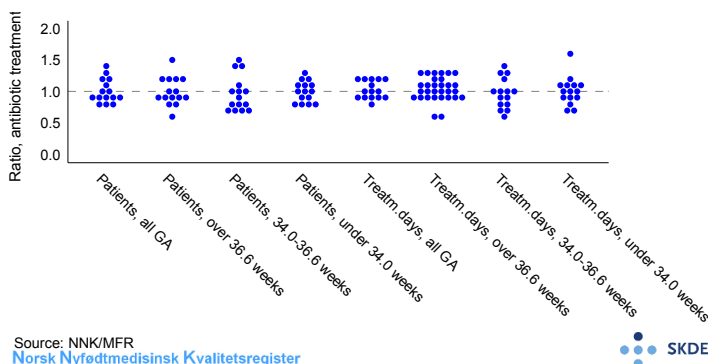


Fig. 2. Antibiotic treatment, number of treatment days per 1,000 births, gestational age 37 weeks or more

Results

The greatest variation in the use of antibiotics is found for term infants (gestational age 37 weeks or more). There are 2.3 times as many term infants receiving antibiotic treatment in Stavanger hospital referral areas as in the Bergen/Førde area (Fig. 1). The same variation is observed for the duration of antibiotic treatment. Østfold hospital referral area has 2.3 times as many treatment days for term infants as the Bergen/Førde area (Fig. 2). The difference in treatment days is due to more term infants being started on antibiotics in Østfold than in Bergen/Førde, but also to the fact that the duration of treatment is longer in Østfold.

There is also relatively high variation (Fig. 3) for late preterm infants (gestational age 34 weeks–36 weeks and 6 days), and somewhat lower variation for early preterm infants (gestational age less than 34 weeks).



Source: NNK/MFR
Norsk Nyfødtemedisinsk Kvalitetsregister

Fig. 3. Variation profile, antibiotic treatment, patients and treatment days. Hospital referral area ratio = Rate of hospital referral area / national rate. If the rate of a given hospital referral area is equal to the national rate, the hospital referral area ratio for the area in question will equal one. Variation is low when many hospital referral areas have a ratio that is equal to or close to one.

Comments

The observed variation between hospital referral areas in the use of antibiotics cannot be explained by medical factors or differences in risk factors, neither for term infants, late preterm infants or the most preterm infants (Fig. 3). It is therefore characterised as unwarranted variation.

The use of the sepsis diagnosis also varies considerably between hospital referral areas (see the report). The diagnosis is used 5.5 times as often for term infants in Nordland hospital referral area as in the Bergen/Førde area. Even in the hospital referral area with the lowest rate of use of the sepsis diagnosis, it is used considerably more often than warranted by the documented incidence of sepsis in Norway. Overdiagnosis of sepsis appears to be associated with high rates of start-up and duration of antibiotic treatment.