

Ventilator treatment is required when infants are unable to breathe on their own due to underdeveloped lung function or neurological disease or symptoms. Most preterm infants born after the 28th week of pregnancy can be given breathing support either in the form of extra oxygen or using the method known as CPAP, whereby a constant air flow sufficient to prevent the lungs from collapsing is delivered through the child's nose. The child will then be breathing on its own without active help from a ventilator.

### Background

There is general professional consensus that breathing support in the form of CPAP is preferable to ventilator treatment if satisfactory gas exchange can be maintained. Ventilator treatment is also associated with serious complications, regardless of other morbidity. Today, most infants born after the 28th week of pregnancy will manage with CPAP without ventilator treatment, unlike the situation ten or fifteen years ago. The majority of infants admitted to neonatal units do not need ventilator treatment. Nevertheless, such treatment was provided in 9.1% of all admissions and 5.6% of all treatment days during the period 2009–2014.

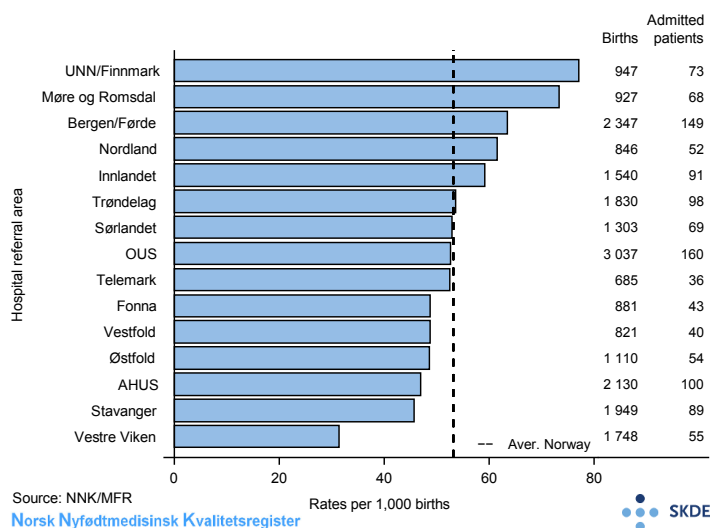


Fig. 1. Ventilator treatment, number of patients per 1,000 births, gestational age 28–37 weeks

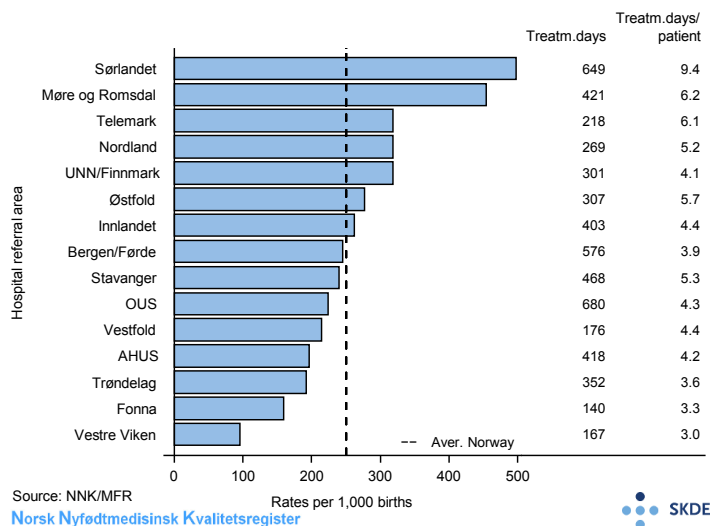
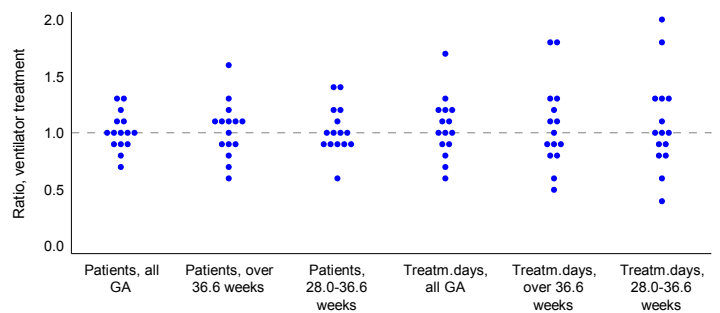


Fig. 2. Ventilator treatment, number of treatment days per 1,000 births, gestational age 28–37 weeks

### Results

For moderately preterm infants (gestational age 28 to 37 weeks) there is considerable variation between hospital referral areas in the use of ventilator treatment. In UNN/Finnmark hospital referral area, 2.5 times as many moderately preterm infants receive ventilator treatment as in Vestre Viken hospital referral area (Fig. 1). Nearly three times as many term infants undergo ventilator treatment in Møre og Romsdal hospital referral area as in Vestre Viken (see the report).

The number of days of ventilator treatment varies even more between hospital referral areas. More than five times as many days of ventilator treatment is administered to moderately preterm infants in Sørlandet hospital referral area as in Vestre Viken (Fig. 2). Term infants in Telemark hospital referral areas undergo 3.4 times more ventilator treatment days than those in the Vestfold area (see the report).



Source: NNK/MFR Norsk Nyfødmedisinsk Kvalitetsregister SKDE

Fig. 3. Variation profile, ventilator 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

There is considerable variation in the number of infants who undergo ventilator treatment as well as in the number of treatment days for patients of all gestational ages (Fig. 3).

There is reason to conclude that there is unwarranted variation, both in the number of infants treated and in the number of ventilator treatment days for moderately preterm and term infants. There is reason to ask whether differences in treatment strategies for preterm infants with pulmonary failure contribute to the high variation. There are no indications that high treatment rates result in better outcomes in terms of survival or morbidity.

A systematic review of differences in practice between units can help to clarify how important the variation in the use of preventive treatment strategies is to the observed variation in ventilator use.