



**Karolinska  
Institutet**

**Department of Clinical Science, Intervention and Technology  
(CLINTEC)**

# Moderately Preterm Infants Studies on Length of Hospital Stay and Neonatal Outcome

AKADEMISK AVHANDLING

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# **ABSTRACT**

## ***Objective***

Moderately preterm infants account for a large proportion of admissions and bed-days in neonatal units. Determinants of length of hospital stay, contemporary measures of morbidity by gestational week and risk factors predicting neonatal morbidity have been poorly studied. The overall purpose of this thesis was to fill these gaps with knowledge to make neonatal care more effective, and to improve short- and long-term outcome for moderately preterm infants.

## ***Methods***

Observational studies on length of hospital stay for moderately preterm infants in a longitudinal perspective over 20 years (Paper I) and a cross-sectional multicenter survey (Paper II) were performed. Risk factors for prolonged length of stay were determined in Paper II. Neonatal outcomes were studied in two national population-based studies. Paper III explored neonatal morbidity and interventions stratified by gestational week. In Paper IV, rates of transient tachypnea of the newborn (TTN) and respiratory distress syndrome (RDS) among moderately preterm infants were compared to corresponding rates in late preterm to term infants, and risk factors for these acute respiratory morbidities were evaluated.

## ***Results***

Paper I found that length of stay decreased by an average of 14 days from 1983 to 2002, in spite of no concomitant decrease in neonatal morbidity. Paper II showed that only 13% of the variation in length of stay in Swedish neonatal units (which differed up to two weeks) could be attributed to neonatal morbidity. In Paper III, overall rates of common neonatal morbidities were found to vary between 15 and 59% in moderately preterm infants, with a strong inverse relation to birth weight standard deviation score and gestational age at birth. Paper IV demonstrated that besides low gestational age, Cesarean section, male sex and low Apgar score are associated to significantly increased risks for TTN and RDS in moderately preterm infants.

## ***Conclusions***

Whereas neonatal morbidity has remained essentially unchanged and high, length of hospital stay has decreased significantly for moderately preterm infants during the last 20 years. Our data suggest that organizational factors of neonatal care are responsible for this development. Moderately preterm infants continue to face a considerable risk of acute respiratory morbidity, which is also predicted by low gestational age, multiparity, Cesarean section, low Apgar score and male sex.