there exists a significant unmet need.[78] For patients who go on to respiratory failure, prognosis is particularly poor, with mortality rate as high as 56%.[79] Only 10% of high-risk patients with symptoms compatible with RSV go on to have RSV confirmed by qt-PCR. This is because these patients have low but prolonged viral loads and so current rapid care diagnostics are inadequate to identify these subjects effectively. Although no clinical studies have been attempted to date, improvements in diagnostics may well change this in the future and open up opportunities for clinical trials in this important RSV-susceptible group.[80] An observational study has been reported to be under way to profile RSV disease in the COPD population, the data from which will be useful in further defining the incidence and severity of the disease and identifying potential endpoints for clinical trials. As yet, however, no clinical trials for RSV-related treatments in this patient group have been reported (see ClinicalTrials.gov, Identifier: NCT01455402).

2.6.3 Clinical Studies in Infants

Infants below the age of 2 years can be considered for potential treatment-based fusion inhibitor RSV trials. Unlike the adult natural infection populations, infants offer some advantages, but along with that they also bring some additional hurdles. Almost all infants will be infected with RSV by the age of 24 months and RSV is the leading cause of hospitalization to pediatric general inpatient units in the USA and Western Europe. Of the infants less than 1 year old, >68% will contract RSV.[8] Infections occur primarily in the winter months, but this varies by region. Typically, patients present to physicians or emergency units with symptoms of an upper respiratory tract infection which may progress to a lower respiratory tract infection within days. Children with respiratory distress who experience difficulty with feeding due to tachypnea, or develop hypoxemia, will often be admitted to hospital. The most predictive clinical variable for progression to severe lower respiratory tract disease is the patient's age, with the highest risk for deterioration in children less than 3 months of age and an incremental decline in risk of progression with increasing age.[81,82] Most infants require only supportive care, *e.g.* hydration and oxygen, but ~20% of inpatients are admitted to intensive care units, where some ultimately require mechanical ventilation. Mortality is not high for infants in the developed world, but in the developing or underdeveloped world, where maintenance care is not readily available, mortality rates are significantly higher. In 2005, an estimated 66 000–199 000 infant deaths resulted from RSV infection worldwide, with 99% occurring in the developing world.[43] The viral loads in infants hospitalized for RSV and their relationship to disease severity have been studied.[83,84] These prospective studies have reported that higher viral loads are associated with an increased risk of intensive care, prolonged hospitalization and respiratory failure. Viral loads tend to be higher than in adults with RSV infection, typically reaching beyond 6–7$\log_{10}$PFU mL^{-1}. Measurements of lower respiratory tract virus infection have been obtained from some infants upon mechanical ventilation, which allows deep tracheal