Introduction

- RSV is the most common respiratory virus causing respiratory infections in children. Fifty percent are infected by the 1st year of life and almost all children will be infected by 2nd year of age.
- Infants born ≤38 weeks gestational age (WGA) are at high risk of severe RSV disease, which may result in pediatric intensive care unit (PICU) admissions or prolonged hospital stay.
- Due to high cost, infants born ≤36 WGA in some countries are not eligible for RSV vaccination.
- Data on community healthcare resource utilization (C-HCRU) of premature infants born ≤36 WGA are lacking.

Methods

- Setting: Soroka University Medical Center (SUMC) in Beer-Sheva, Israel.
- Study population: Premature infants born ≤36 WGA were included in the study.
- Methods: Community C-HCRU was obtained from the University Medical Center (SUMC) database and served to calculate the population at risk. Data from the hospitalization and up to 21 days from the hospitalization date. For each child only one hospitalized patient during working hours. In all patients NW were obtained in the immunofluorescence and culture (Wolf et al. Pediatr Infect Dis J 2006;25: 320-4).
- Inclusion criteria: First episode of bronchiolitis, under 12 months of age at time of hospitalization, diagnosed with bronchiolitis, hospitalized at the SUMC.
- Exclusion criteria: Children with background diseases.

Case definitions:

- Inclusion criteria:
  - Born in SUMC
  - Resident of the Negev region of southern Israel
  - Study Group: Late preterm (33-36 WGA)
  - Controls Group: >36 WGA (324 cases)

- Exclusion criteria:
  - Children with background diseases such as:
    - Congenital heart diseases
    - Chronic lung disease
    - Down syndrome

- Study design: Retrospective, population-based, observational study over a 9 year period (2004 through 2012).
- Annual numbers of live births were obtained from hospital records.
- Data of CHRU were retrospectively obtained from the “Clalit” HMO.
- In Israel “Clalit” is the largest health maintenance organization (HMO) which provides services to ~70% of all inhabitants in southern Israel. In Israel, RSV-monoclonal immunoglobulin (RSV-Ig) was reimbursed only for infants born ≤29 WGA up to 2009, <32 up to 2011, <33 WGA, up to 2013 for infants which are under 6 months of age during the RSV season, born ≤34 WGA and in 2014 extended to <35 WGA.

Results

- 290 infants born 33-36 WGA and 2,176 >36 WGA were included in the CHRU analyses.
- The following parameters were significantly higher in 33-36 WGA vs. >36 WGA: duration of hospitalization, PICU admissions, consultations by specialists and laboratory tests (Table 1).
- The following parameters were significantly higher in infants born 33-36 WGA than >36 WGA during the period from the day of hospitalization and up to 21 days: total outpatient clinic and specialist visits, pediatrician/GP visits, anti-histamine treatments, steroid prescriptions, blood tests for hematology, biochemistry and virology. These differences were not significant before hospitalization.
- When combined the total CHRU (from 7 days before hospitalization and up to 21 days from the day of hospitalization) the following parameters were significantly higher in the 33-36 WGA group compared with >36 WGA: total outpatient clinic and specialist visits, blood test for biochemistry, virology tests and duration of hospitalization (Figure 1).
- In the 7 days before admission the following differences in parameters (per 100 children) were more prevalent in the 33-36 WGA group compared with >36 WGA: total consultations by specialists and laboratory tests >36 WGA: duration of hospitalization, PICU admissions, blood tests for hematology, biochemistry and virology, and duration of hospitalization.
- In the 7 days before admission the following differences in parameters (per 100 children) were more prevalent in the 33-36 WGA group compared with >36 WGA: total consultations by specialists and laboratory tests.

Conclusions

- Higher healthcare resource utilization rates were found in infants born at 33-36 WGA vs. >36 WGA, 7days before and up to 21 days after admission due to first episode of bronchiolitis.
- The main differences were found after hospitalization mainly in pediatrician or general practitioner visits, specialists visits and consumption of treatments for respiratory symptoms such as: steroids and inhalations. In addition, more laboratory tests: biochemistry, hematological blood tests and virology PCR tests were observed in this group.
- Incidence of hospitalization and PICU admissions as well as duration of hospitalization were significantly higher in infants born at 33-36 WGA vs. >36 WGA.
- These findings can guide stakeholders in decisions concerning prevention of bronchiolitis in this high risk population.