Human Respiratory Syncytial Virus (RSV) is the most commonly identified pathogen in children with acute lower respiratory infections (ALRI) presenting as pneumonia or bronchiolitis. It causes severe disease in the very young, elderly and in high risk groups like those with congenital heart disease, congenital lung disease, immunosuppression etc. RESCEU’s aim is to integrate and exploit existing knowledge and data to provide greater insights into the impact of RSV on health systems and societies throughout Europe, and to engage stakeholders to improve strategic planning and decision-making.
making. It also seeks to access existing clinically annotated biological specimens from prospective studies and to supplement this with bespoke clinical studies to create a powerful new bio-repository for future research. The collaboration within the Consortium has been productive during the first two years of the project and has progressed according to the plan. Below are listed the major achievements per project area:

**Work performed from the beginning of the project to the end of the period covered by the report and main results achieved so far**

- **Systematic literature review on RSV and current estimates of burden of disease (WP1)**
  We have completed nine systematic reviews (two in year1 and seven in year2). Four of the reviews (RSV burden in children with bronchopulmonary dysplasia and congenital heart disease; aetiological role of common respiratory viruses in acute respiratory infections (ARI) in older adults; medium and long-term outcomes of RSV) were based solely on the reviews of published literature. Four reviews (global estimates of hospitalisations in older adults with ARI; global RSV disease burden in older adults; direct and indirect cost of RSV associated acute lower respiratory infections (ALRI) in young children; and direct and indirect cost of management of ARI in older adults) involved assembling unpublished data from partners and collaborators in addition to reviews of published articles. We completed a systematic review on RSV seasonality at the global level and utilised unpublished data available with our collaborators and publicly available databases to predictively model the seasonality of RSV (and other respiratory viruses) worldwide.

- **Consolidation of health care systems data (WP2)**
  We finalised a research protocol document outlining the background, justification, research questions, design, methodology and outputs to assess RSV healthcare impact in young children, elderly and other high-risk groups utilising national and regional routine health service data. All partners have obtained full or partial approvals necessary to access, link and analyse their routine health data. Data cleaning has begun, and some countries have begun preliminary analyses for our main research questions.

  We worked with European Centre for Disease Prevention and Control (ECDC) to establish a Europe-wide survey of the national surveillance systems among EU/EEA Member States and a report has been drafted for publication by ECDC.

  We maintained contacts with several major international efforts to quantify the healthcare consequences of RSV. This included a collaboration with WHO to design and implement an RSV surveillance project in 14 countries around the world; to be extended to further countries in phase 2 starting in 2019.

  We built on the extensive systematic reviews to collate clinical guidelines describing current RSV prevention and treatment practices in Europe and identified a significant number of additional guidelines for the RSV prevention practices in Europe.

- **Retrospective resource use analyses from existing databases / networks (WP3)**
The questionnaires developed in year 1 with WP4 to collect data on direct and indirect costs and health outcomes in the observational and case-control studies being conducted in WP4 were rolled out in WP4 studies and preliminary data were received. We have been in close interaction with WP2 to formulate protocols to gain access to available data sources in Europe and a generic protocol was developed. We developed detailed collection tools for data analyses on costs and resource use, customised to the country-specific health care characteristics. Several models for impact estimation are being developed and tested.

Prospective data collection (WP4)
Recruitment to the 4 prospective clinical studies continued. Although progress was satisfactory, the recruitment rate will need to be increased in some of the study sites.

Clinical Study 1 (Birth-cohort study): 482/1000 infants were recruited in the active cohort and 3530/9000 infants in the passive cohort, with 143 ARTI visits performed in winter 2017-2018, 14 RSV positive, and 212 ARTI visits performed of which 42 RSV positive in current winter. 16 hospitalizations for respiratory illness within the first year of life occurred in 383 participants and 10 were RSV positive.

Clinical Study 2 (Infant case-control study): 176 participants recruited during the 2017/2018 and the ongoing 2018/2019 season. It is likely recruitment will need to continue for a third season.

Clinical Study 3

Progress beyond the state of the art and expected potential impact (including the socio-economic impact and the wider societal implications of the project so far)

RESCEU will provide sustainable long-term impact on RSV disease burden and thus make a significant contribution to improved health and wellbeing in Europe. RESCEU will form the platform for upcoming future actions on RSV and even other pathogens which are identified as a priority for action in Europe.