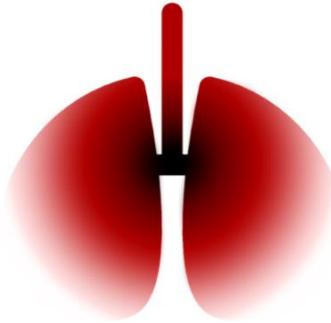




## ADULTS HOSPITALIZED WITH PNEUMONIA: A FOLLOW UP STUDY

PRINCIPAL INVESTIGATORS: JULIO RAMIREZ MD & RUTH CARRICO PHD DNP



In 2014, a population-based study began that would help understand the burden of community-acquired pneumonia (CAP) and the impact of *Streptococcus pneumoniae* (*S. pneumoniae*) as the pathogen of consequence.

When that work started at all nine adult hospitals in Louisville, we did not recognize the worldwide interest that would result from the findings and the research processes. Results from the first study were revealing, as shown below.

### KEY FINDINGS & RESULTS FROM FIRST PNEUMONIA STUDY



- The population of Louisville, in terms of most demographic characteristics, comorbidities, diseases, and social determinants of care are remarkably similar to those of the US at large. This means that we can look at disease incidences in the Louisville population and extrapolate them to provide a reasonable corresponding national incidence.
- Although we recognized that CAP is the leading cause of infectious disease-related death in the US, this study showed that the burden of CAP is much greater than any study has previously recognized.
- Approximately 1 of 3 patients hospitalized with CAP died within 1 year.
- The impact of pneumococcal vaccination was also part of the study. Those results demonstrated a 73% vaccine efficacy when the serotypes causing pneumonia matched those in the vaccine.
- A related study activity also looked at the impact of antiviral treatment for patients admitted to hospital with influenza.

The results of the first study and the continued interest in following patients with CAP in Louisville is a tribute to the relationships that exist among the hospitals and the CERID research teams. Without such collaboration, strides such as these would not have been possible.

Due to those results and the availability of two pneumonia vaccines, there is interest in monitoring the changing epidemiology of CAP and the current *S. pneumoniae* serogroups causing pneumonia. The new study is poised to begin in October 2019.

## WHAT'S INVOLVED IN THE NEW PNEUMONIA STUDY?



- Research teams from the University of Louisville Center of Excellence for Research in Infectious Diseases (CERID) will work in each hospital to identify patients admitted to the hospital with symptoms consistent with CAP and approach them with an invitation to enroll in the pneumonia study.
- Research team members will communicate the objectives of the study with staff, specifically nursing staff as they are critically involved in the physical care needs of patients.
- For patients who agree to the study, a urine specimen will be collected and sent to the CERID research laboratory for analysis.

### Clinical Implications to Care:

Recognizing the current assessment of the incidence, epidemiology, and clinical outcomes of patients hospitalized with CAP is important to guide appropriate allocation of resources for prevention, management, and research, before hospitalization, during hospitalization, and after discharge.

The three studies mentioned can be found in the following publications:

1. Ramirez JA, Wiemken TL, Peyrani P, Carrico RM, et al. (2017). Adults Hospitalized with Pneumonia in the United States: Incidence, Epidemiology and Mortality. *CID*. 13;65(11):1806-1812.
2. McLaughlin JM, Jiang Q, Isturiz ER, et al (2018). Effectiveness of 13-Valent Pneumococcal Conjugate Vaccine Against Hospitalization for Community-Acquired Pneumonia in Older USA Adults: A Test-Negative Design. *CID*. 30;67(10):1498-1506.
3. Ramirez J, Peyrani P, Wiemken T, Chaves SS, Fry AM. (2018). A Randomized Study Evaluating the Effectiveness of Oseltamivir Initiated at the Time of Hospital Admission in Adults Hospitalized with Influenza-associated Lower Respiratory Tract Infections. *CID* 16;67(5):736-742.



Center of  
Excellence for  
Research in  
Infectious  
Diseases

**UL** Division of  
Infectious Diseases

Founded in 2017, CERID, the Center of Excellence for Research in Infectious Diseases, is housed in the University of Louisville Division of Infectious Diseases. The mission of CERID is the generation of new knowledge through clinical and population-based research. To accomplish this mission, CERID seeks to actively and inclusively engage healthcare facilities, healthcare personnel, industry, and communities at large in research efforts that will result in improvements in the human condition.