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Title: Impact of age and comorbidity on presentation, aetiology and outcome in patients with community-acquired pneumonia

Dr. Catia 6731 Cilloniz catiacilloniz@yahoo.com , Dr. Eva 6732 Polverino epolveri@clinic.ub.es , Dr. Santiago 6733 Ewig sewig@versanet.de , Dr. Stefano 9403 Aliberti stefano.aliberti@unimib.it , Mr. Albert 9404 Gabarrus gabarrus@clinic.ub.es , Dr. Rosario 9405 Menéndez rmend@separ.es , Dr. Josep 9407 Mensa jmensa@clinic.ub.es , Dr. Francesco 9427 Blasi francesco.blasi@unimi.it and Dr. Antoni 9432 Torres atorres@clinic.ub.es . ¹ Pneumology, Institut del Tórax, Hospital Clinic, IDIBAPS, University of Barcelona, Spain/Centro de Investigación Biomédica En Red-Enfermedades Respiratorias (CibeRes, CB06/06/0028), Barcelona, Spain ; ² Thoraxzentrum Ruhrgebiet, Kliniken für Pneumologie und Infektiologie, Thoraxzentrum Ruhrgebiet, Kliniken für Pneumologie und Infektiologie, EVK Herne und Augusta-Kranken-Anstalt, Bochum, Germany ; ³ Dipartimento di Medicina Clinica e Prevenzione, Dipartimento di Medicina Clinica e Prevenzione, University of Milan- Bicocca, San Gerardo Hospital, Monza, Milan, Italy ; ⁴ Pneumology, Hospital La Fe de Valencia, Spain ; ⁵ Infectious Disease, Hospital Clinic, IDIBAPS, Barcelona, Spain and ⁶ Respiratory Medicine Section, Dipartimento Toraco-Polmonare e Cardiocircolatorio, Respiratory Medicine Section, Dipartimento Toraco-Polmonare e Cardiocircolatorio, University of Milan, IRCCS Fondazione Ca' Granda Ospedale Maggiore, Milan, Italy .

Body: Background: Community-acquired pneumonia (CAP) is currently undergoing re-evaluation. The aim of the study was to determine the influence of age and comorbidity on microbial patterns in elderly patients with community-acquired pneumonia (CAP). Methods: In a prospective observational study of adult patients with CAP, excluding those residing in nursing homes, we compared patients aged 65 -74 years, 75 - 84 years and 85 years or older for potential differences in clinical presentation, comorbidities, severity on admission, microbial investigations, aetiologies, antimicrobial treatment, and outcomes. Findings: We studied a total of 2149 patients. The number of patients in each age group was as follows: 759 (35.3%) patients aged 65-74 years, 941 (43.7%) aged 75-84 years, and 449 (20.8%) patients aged 85 years or older. At least one comorbidity was present in 1710 (79.6%) patients. Streptococcus pneumoniae was the most frequent pathogen in all age groups, regardless of comorbidity. Pathogens such as S. aureus (including MRSA), H. influenzae, enterobacteriaceae, and P. aeruginosa were present in 15% and were found almost exclusively in patients with comorbidities. Increasing CAP severity on admission and mortality but decreasing ICU admission rates and use of mechanical ventilation suggested an increasing frequency of treatment restrictions across age groups. Interpretation: Age did not significantly affect pathogen patterns. Potential multidrug-resistant (MDR) pathogens were not frequent and were found almost exclusively in patients with comorbidities. Excess mortality in the elderly was not related to aetiology but to age and

disability.