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Title: Low frequency of resistant pathogens in nursing home acquired pneumonia: A prospective study and systematic review

Ms. Catriona 11738 Rother c.rother@dundee.ac.uk¹, Dr. Waleed 11739 Salih w.salih@nhs.net MD¹, Dr. Aran 11740 Singanayagam Aransinga@gmail.com MD¹ and Dr. James D. 11741 Chalmers jamesdchalmers@googlemail.com MD¹. ¹ Department of Respiratory Medicine, Ninewells Hospital and Medical School, Dundee, Scotland, United Kingdom, DD1 9SY .

Body: Introduction It has been suggested that nursing home acquired pneumonia (NHAP) should be managed differently to community-acquired pneumonia (CAP) due to a higher frequency of potentially resistant pathogens. Methods This study describes two analyses: first, a prospective observational study of 1883 patients with CAP was used to compare microbiology between NHAP and CAP patients. Patients were classified as NHAP or CAP based on admission residency status. In the second analysis, a systematic review and meta-analysis compared the microbiology and outcomes of NHAP compared to CAP from all published comparative studies. Methicillin resistant Staphylococcus aureus (MRSA), Pseudomonas aeruginosa and enterobacteriaceae were studied as potentially resistant organisms. Results In the prospective study, there were 171 nursing home residents. S. pneumoniae was the most frequent causative organism in both groups. There was no increased frequency of MRSA (0.6% in NHAP vs 0.4% in CAP, p=0.6), P. aeruginosa (0.6% vs 0.5%, p=0.8) or enterobacteriaceae (2.3% vs 1.2%, p=0.2) in NHAP compared to CAP. In the systematic review and meta-analysis, 6 studies were identified including 6444 patients. There was no significant increase in the frequency of MRSA (OR 0.28 95% CI 0.03-2.76, p=0.3) or P. aeruginosa (0.63 95% CI 0.31-1.30, p=0.2) but a statistically significant increase in enterobacteriaceae (1.41 95% CI 1.01-1.97, p=0.04) was identified. Patients with NHAP were more likely to die (3.25 95% CI 2.06-5.15, p<0.0001) but were not more likely to require ICU admission (0.48 95% CI 0.13-1.74, p=0.3). Conclusion Our findings do not support a change in antibiotic prescribing practices for NHAP patients.