Method used to identify exacerbations of bronchiectasis

We used a modification of methods previously used in UK medical records to identify exacerbations of COPD and applied this to the identification of bronchiectasis exacerbations. [1-3]

Guidelines for the management of bronchiectasis exacerbations locally recommended amoxicillin 500mg to 1g three times daily or doxycycline 100mg twice daily for acute exacerbation treatment during the study period. Additional options were clarithromycin 500mg twice daily, co-amoxiclav 625mg three times daily and ciprofloxacin 500mg twice daily only in patients with *P. aeruginosa*.

In the absence of a diagnostic code indicating a bronchiectasis exacerbation (or primary respiratory diagnostic code - see below -) exacerbations were identified by the acute prescription of one of the above recommended antibiotics. “Non-respiratory antibiotics” could be associated with bronchiectasis if a sputum sample was sent for culture concurrently or if the prescription was appropriate to the available microbiology data from a sputum culture within 12 months e.g co-trimoxazole with recent isolation of *Stenotrophomonas maltophilia* within 12 months. The assignment of exacerbation status is shown below (figure E1). The investigators that coded events as exacerbation or not were blinded to the air pollution data when determining whether events were included in the analysis or not. The analysis excluded chronic macrolide use, inhaled antibiotic use and drugs prescribed for *P. aeruginosa* eradication protocols.

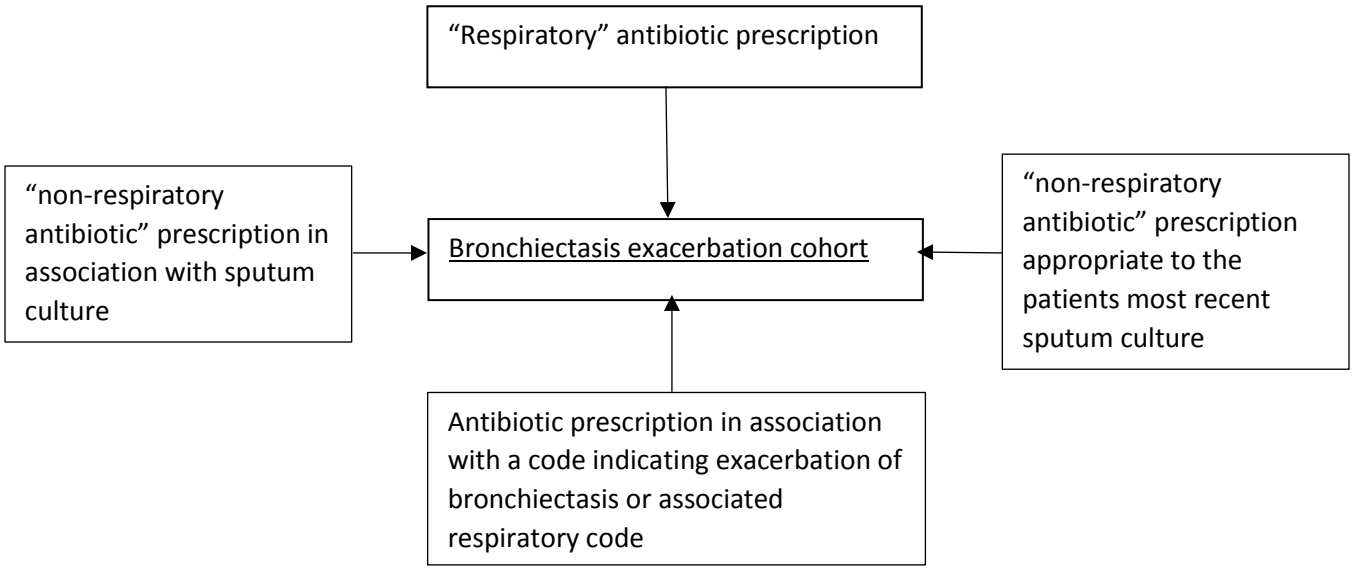

Figure E1: this figure shows the assignment of exacerbations status.

Diagnostic codes used to identify hospitalization for respiratory causes were J10 J11 J12 J15 J16 J17 J18 J44 J45 J47 which encompass lower respiratory tract infections and exacerbations of bronchiectasis, asthma and COPD. Multiple codes are used because of historical miscoding of bronchiectasis as asthma and COPD which is common in clinical practice. Only the primary diagnostic code was used.

Validation of the assignment of exacerbation events was performed using data from a prospective cohort of patients with bronchiectasis. [4] Fifty exacerbations that were prospectively diagnosed and confirmed and 38 non-respiratory events for which antibiotics were prescribed (predominantly urinary tract infections) were compared to the linked electronic medical records.

The above algorithm had successfully identified all 50 exacerbation events as being exacerbations of bronchiectasis giving a sensitivity of 100%. The algorithm also identified 5 out of 38 non-respiratory events as exacerbations of bronchiectasis giving a specificity of 87%.

References

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