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**Title:** Seasonal variation in COPD admissions and pneumonia and a review of imaging follow up in these patients

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**Body:** Introduction Respiratory diseases have predictable seasonal variations driven primarily by viral pathogens. COPD patients have a high risk of developing lung cancer. It is important that COPD patients with pneumonia have follow up imaging. Objectives To assess seasonal variation of admissions and pneumonia in patients admitted with COPD. To review the imaging follow up of COPD patients with pneumonia. Methods We reviewed CXR reports of all patients admitted with an exacerbation of COPD during winter and summer. We compared presence of pneumonia, length of stay (LOS) and use of supported discharge (SD) in these seasons. We reviewed the follow up imaging of all patients with pneumonia. Results 283 patients were admitted during the study period. 71(25%) had pneumonia on CXR, 26/117(22.2%) summer versus 45/166(27%) winter. Although there was a 41.8% increase in admissions during the winter, the proportions with pneumonia were not statistically significant. Comparing those who had SD there were no significant differences analysing by seasonality or pneumonia. LOS was only statistically significantly longer in those with pneumonia, 7 days versus those without at 5 days. Of the 71 pneumonias only 40 (56.3%) had an appropriately timed repeat CXR. Of these 20 (50%) showed non-resolution. Of these 20, 9 (45%) had CT scans. 3 (33.3%) showed a potential cancer. 2 incidental cancers were picked up on initial CXR. Conclusions COPD admission are greater in the winter months (41.8%), are associated with pneumonia in 25% and patients with pneumonia have increased LOS. Radiology is an important follow up tool for COPD patients with pneumonia and is not currently being utilised effectively.