ONLINE DATA SUPPLEMENT

Title
COPD discharge bundle and pulmonary rehabilitation referral and uptake following hospitalisation for acute exacerbation of COPD

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COPD discharge bundle

The COPD discharge bundle is a structured list of evidence-based practices delivered prior to hospital discharge following admission for an acute exacerbation of chronic obstructive pulmonary disease to attempt to standardise post-discharge care in the UK. The bundle delivered in this cohort study incorporates all five items recommended by the British Thoracic Society COPD Discharge Bundle (https://www.brit-thoracic.org.uk/quality-improvement/clinical-resources/copd-spirometry/), namely: 1) Review of medication and providing inhaler technique education; 2) Provision of a self-management plan; 3) Assess and offer referral for smoking cessation; 4) Arrangement of post-hospitalisation follow-up; and 5) Assess suitability and refer for pulmonary rehabilitation. Figure E1 below provides an example of the standardised paperwork which requires completion when delivering the COPD discharge bundle.

Figure E1. Example of standardised paperwork which requires completion for the COPD discharge bundle.
Sample Size Calculation

The sample size calculation was based on previous observations that approximately 30% of those receiving a discharge bundle are referred for pulmonary rehabilitation. (1) To demonstrate an increase in referral rate to 60% in those who received a discharge bundle from a pulmonary rehabilitation practitioner, with 80% power at the 5% significance level and assuming an exposure ratio of 1:9 (i.e. 10% of discharges would receive a bundle from a pulmonary rehabilitation practitioner) would require a minimum of 220 patients (MedCalc Software, Ostend, Belgium).

For the overall population at hospital discharge, we estimated the proportion taking up pulmonary rehabilitation to be 20%. (1) To demonstrate an increase in the proportion of those at hospital discharge taking up pulmonary rehabilitation to 50%, with 80% power at the 5% significance level and assuming an exposure ratio of 1:9 (i.e. 10% of discharges would receive a bundle from a pulmonary rehabilitation practitioner), would require a minimum of 190 patients (MedCalc Software, Ostend, Belgium).

We planned to collect data for a minimum of one year to take into account seasonal variations, and continue to collect if the planned sample size had not been recruited within one year.
Diagram for study flow

411 were eligible episodes

120 were excluded
- Ineligible for PR
- Re-admission of a patient already included

291 patients were included

63 did not receive a COPD discharge bundle

0 were referred for PR at hospital discharge

25 received a bundle from a hospital practitioner involved in PR delivery

15 were referred for PR at hospital discharge

208 received a bundle from a hospital practitioner with no involvement in PR

25 were referred for PR at hospital discharge

6 commenced PR within 28 days of hospital discharge

2 completed the PR programme

8 commenced PR within 28 days of hospital discharge

3 completed the PR programme

Figure E2. Diagram of study flow
References