Medicines Optimisation & Case Management Trust Outreach Clinics for COPD Patients

Miller R[1,2], Jones C[1], Sharkey R[1], Friel A[1], Clifford D[1], Moore B[1]

1. Pharmacy Department, Altnagelvin Area Hospital, Londonderry
2. Pharmacy Academic Practice Research Group, School of Pharmacy & Pharmaceutical Sciences, Ulster University, Coleraine

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BACKGROUND

In the 2015 update of the GOLD global strategy for the diagnosis, management and prevention of COPD, it was recognised that COPD has multiple symptomatic effects and for this reason, a combined assessment of symptoms, exacerbation risk and comorbidities is recommended. Figure 1 represents the GOLD combined assessment of COPD using symptoms, breathlessness, spirometric classification and risk of exacerbations[1].

Global Initiative for Chronic Obstructive Lung Disease

A recent workshop report by the American Thoracic Society on the 'Integrated care of the COPD Patient' stated that optimal management requires provision of the right treatment at the right time, and in the right place[2].

American Thoracic Society Documents

An Official American Thoracic Society Workshop Report: The Integrated Care of the COPD Patient

Linda Nici and Richard ZuWallack, on behalf of the American Thoracic Society Subcommittee on Integrated Care of the COPD Patient

This Official Workshop Report Was Approved by the American Thoracic Society Board of Directors, January 2012

PROCESS MAPPING

Prior to project initiation, a multidisciplinary process mapping event (figure 2) was held, attended by the Head of Pharmacy and Medicines Management, respiratory pharmacist, respiratory consultant, registrar, community respiratory team, clinical pharmacists and the project manager. This established the current pathways of care for COPD patients and helped to inform the best place for the respiratory pharmacist to be based.

Figure 2: Results from the Multidisciplinary Process Mapping Event

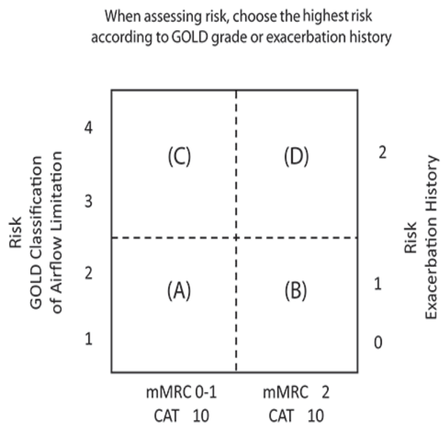
AIMS & OBJECTIVES

In line with the Transforming Your Care[3] strategy, the team aimed to address the following issues:

- Frequency of presentation to acute care
- Therapeutic over-treatment of patients
- Implementation of GOLD standards in primary care to ensure accurate COPD diagnosis and appropriate management
- The enablement of patients to self-manage their disease

RESULTS

Data were collected over a period of six months; the respiratory pharmacist held clinics with 658 patients (326 male, 332 female, aged 66.1±11.0 years (Range 30-92 years).



Patient Category	Characteristics	Spirometric Classification	Exacerbations Per Year	mMRC	CAT
A	Low Risk, Less Symptoms	GOLD 1-2	1	0-1	<10
B	Low Risk, More Symptoms	GOLD 1-2	1	2	10
C	High Risk, Less Symptoms	GOLD 3-4	2	0-1	<10
D	High Risk, More Symptoms	GOLD 3-4	2	2	10

Figure 1: GOLD combined assessment of COPD[1]

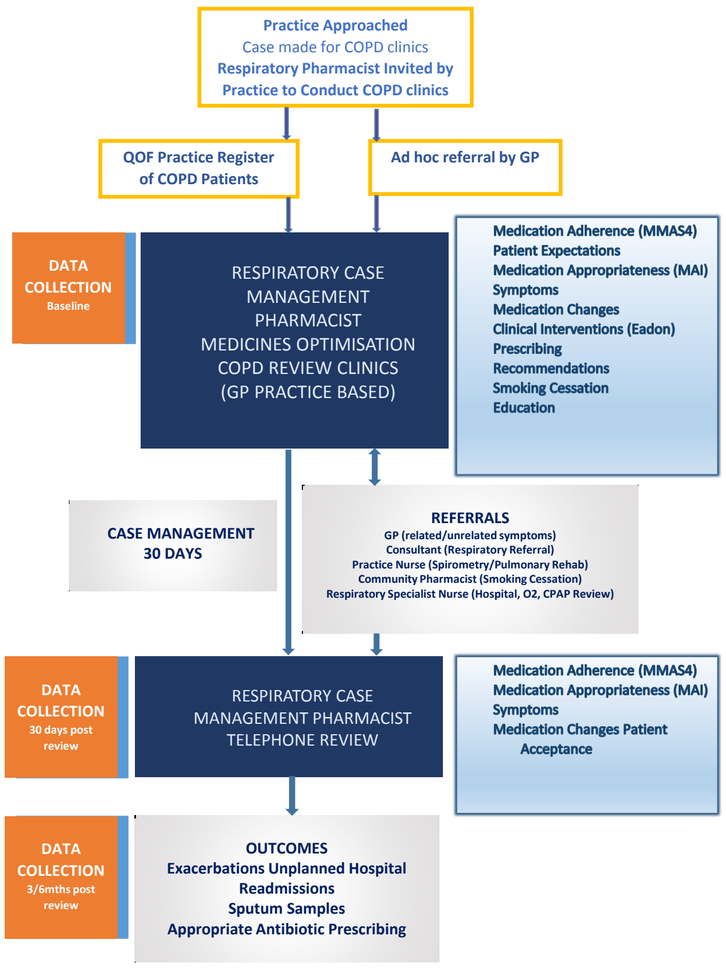


Figure 3: Model of Care for COPD Patients Attending a Medicines Optimisation GP-Based Clinic

Medication Appropriateness (Table 1)

A high MAI score indicates less appropriate prescribing[4]; total MAI scores were reduced by a statistically significant figure immediately following review (Wilcoxon Signed Rank Test, p<0.001, n=658), with a further improvement in scores evident 30 days post review (Wilcoxon Signed Rank Test, p<0.001, n=646)

Table 1: Total MAI scores for COPD medicines as determined by the pharmacist prior to, immediately after and 30 days post review

Total MAI Score for COPD medications		
Baseline (prior to pharmacist review)	**Immediately post pharmacist review**	**30 days post pharmacist review**
7.8 ±6 (n=658)	1.0±1.9 (n=658)	0.44 ±1.4 (n=646)

CLINICAL INTERVENTIONS AND GRADING

- A total of 1875 clinical interventions were made by the respiratory pharmacist (an average of 2.8 interventions per patient) with all interventions being Eadon graded as 4 or above (Grade 4 represents a significant intervention with resultant improvements in the standard of patient care)[5]. Two hundred and seventy-five interventions were graded as a 5 with none being graded at level 6.
- Ten drug interventions graded by the respiratory pharmacist were presented to the respiratory consultant, consultant pharmacist and five clinical pharmacists to independently grade and check for consistency of agreement. A Reliability Analysis confirmed the validity of the pharmacist's self-grading within acceptable parameters.

Table 2: COPD Assessment Test (CAT) scores for patients at baseline and 30 days post case management and review

		Baseline (prior to pharmacist review & case management) No. of patients (%) (n=658)	30 days post pharmacist review No. of patients (%) (n=646)
CAT Score	<10	314 (47.7)	372 (57.6)
	10 or more	344 (52.3)	274 (42.4)

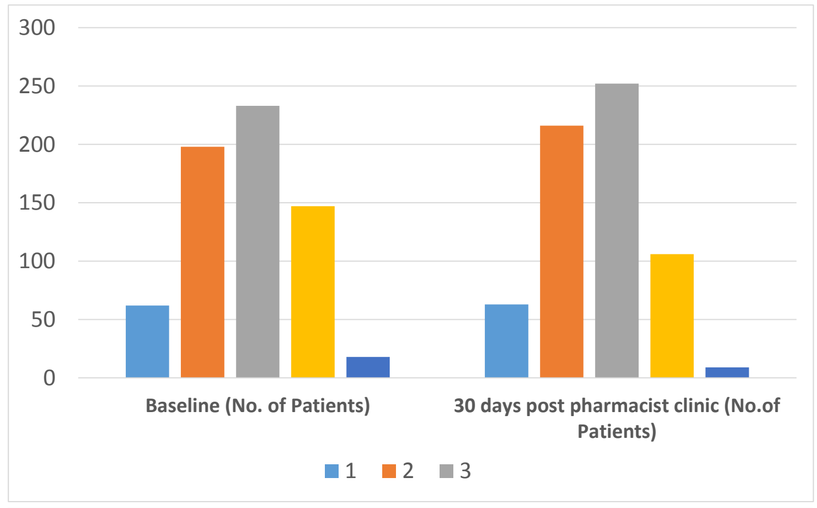


Figure 4: A statistically significant change in the MRC Breathlessness Score between baseline (prior to pharmacist review and case management) and 30 days post review (Wilcoxon Signed Rank Test, p<0.001)

Medication Adherence (Table 3)

For those patients taking one or more medications for the treatment of COPD at baseline, i.e. prior to review by the respiratory case management pharmacist, medication adherence to these particular treatments was quantitatively established via application of the 4-item Morisky Medication Adherence Scale (MMAS-4)[6]. This scale yields a score from 0-4, with 0 indicating non-adherence and 4 indicating full adherence to the medicines prescribed. This scale was completed again 30 days post baseline review; results are shown in Table 3. The results show a statistically significant move towards better adherence with COPD medicines following review and case management (Wilcoxon Ranked Sign Test, p<0.001).

Table 3: Medication Adherence Scores (MMAS-4) for patients taking ≥1 COPD medications at baseline (prior to pharmacist review)

MMAS 4 Score	No. of Patients (Baseline: prior to review & pharmacist interventions) (n=627)	No. of Patients (30 days post pharmacist review and case management) (n=622)
0	22	0
1	43	2
2	96	16
3	145	50
4	321	554

Drug Cost Savings

Drugs stopped and started, as appropriateness was determined and acted upon, resulted in a net drug cost saving of £122,014over the six month data collection period. Therefore the projected annual saving within the primary care drug budget following COPD medication review and case management by a respiratory specialist pharmacist is £244k per annum, an approximate £4.44 return per £1 invested (based on an annual investment of £55k pa.

Exacerbations & Antibiotic Prescribing

In the 12 months prior to the respiratory pharmacist review, two-thirds of all patients had experienced ≥1 COPD exacerbations. Six-month follow-up data showed that 8.4% have had ≥1 exacerbations, with only nine patients (1.4%) having been admitted to hospital non-electively (n=375). Sputum sampling has increased substantially with appropriateness of antibiotic prescribing increasing from 78.7% prior to the baseline clinic to 95.8% post pharmacist review.

SUMMARY

This project demonstrates that respiratory pharmacist case management of COPD patients in line with GOLD, leads to improved patient outcomes, more appropriate prescribing and cost savings (drug costs and reduced healthcare resource usage).

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Correspondence: Dr Ruth Miller E-mail: ruth.miller@westerntrust.hscni.net