# A Service Evaluation following the implementation of Computer Guided Consultation Software to support Primary Care Reviews for Chronic Obstructive Pulmonary Disease

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## Background & Aim

We have previously reported that the approach of an intelligent clinical decision support system, a Computer Guided Consultation (CGC), in COPD allows consistent delivery of specialist, guideline quality care. This is even in the hands of clinicians with basic disease specific training. *(Angus RM et al.. Prim Care Respir J. 2012 Dec; 21(4): 425-30)*

In this service evaluation, we report on the use of the CGC software on a larger scale when it is integrated within routine clinical practice within a structured clinical pathway in order to perform standardised COPD reviews within primary care.

## LungHealth COPD Guided Consultation

**The Lunghealth guided consultation diagnoses COPD, grades the disease according to severity which then leads to correct treatment pathways**

- 4,500 interconnected algorithms
- Products CE marked and ORCHA/NHS DTAC accredited

**Algorithms for:**
- Treatment interventions
- Spirometry interpretation
- Inhaler technique
- Emergency review
- Pulmonary Rehab
- Oxygen Assessment
- Flu/COVID Vaccinations
- Smoking Cessation
- Diagnosis, challenge and confirmation

Provides real time patient reporting and practice dashboards
·Sign posts referrals in line with locality resources
·Sign-posts patients who do not have COPD/ASTHMA for further investigation
·Read/Write back integration with EMIS/ SystemOne
·Drive prescribing policy and ensures patient follow-up

## Results of the COPD+ service evaluation

**5221 patients on the COPD register in 254 GP practices nationally underwent a respiratory therapy review using the CGC between March 2021 and March 2023.**

- 21.1% were found not to have COPD following CGC review based on the clinical assessment integrated with spirometry
- When considering those with an established diagnosis of COPD following CGC review, the CGC highlighted findings of previously unrecognised new onset cardiac disease in 7% (303 cases).
- CGC review resulted in the number of patients possessing a written management plan rising from 62% to 85% (McNemar's test; $p<0.001$); 28% of the cohort were current smokers of whom 99% were counselled; 13% were found to have sub-optimal inhaler technique during CGC review: the CGC prompting correction of deficient technique or other intervention in all cases.
- The CGC identified 1,996 patients deemed appropriate to be referred to Pulmonary Rehabilitation (PR) according to guidelines, of whom only 26% had previously attended a PR program.
- The presence of low oxygen saturation (i.e.<=92%) on room air was noted in 0.02% (74 patients) which was highlighted in all cases to the healthcare professional along with the need to consider specialist review and/or oxygen clinic referral
- CGC review found that 11% and 10% of patients had not been up to date with Influenza and Pneumococcal Vaccination respectively.
- 2674 patients were prescribed ICS therapy prior to CGC review of which 5% (n=135) had been prescribed ICS monotherapy. ICS monotherapy was discontinued in 75% (101/135),25 were commenced on ICS/LABA therapy, 30 were commenced on ICS/LABA/LAMA ("Triple" therapy), and 46 were prescribed bronchodilators only.
- 524 patients were commenced on ICS/LABA/LAMA following CGC review of whom 74 patients were escalated from LABA/LAMA therapy and 407 patients were switched from an ICS/LABA inhaler. Thus, the proportion who had been prescribed ICS/LABA/LAMA rose from 29% (1184/4117) prior to CGC review to 41% (1678/4117) following CGC review

**Competing interests:** The CGC is owned by LungHealth Ltd. Drs. Chakrabarti, Angus, Davies, Professor Pearson and Mr. McKnight are all directors of LungHealth Ltd.
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## The COPD+ clinical pathway

This quality improvement project involved 254 GP surgeries across England and Wales

- Phase 1a: Patients on the COPD register (i.e. having a READ code diagnosis of COPD) within each GP practice were identified using a bespoke MIQUEST©/SNOMED Software tool and underwent a case note review conducted by the lead service GP together with a trained primary care respiratory specialist nurse
- Phase 2: Patients underwent a face-to-face or remote clinical review using the CGC conducted by primary care respiratory specialist nurses.
- Phase 3: Following completion of the CGC reviews, each GP practice received a COPD education and training session (using Royal College of General Practitioners (RCGP) accredited modules) conducted by the primary care respiratory specialist nurse following the reviews

The final analysis was performed taking only those patients undergoing CGC review who had valid spirometry entered as part of the consultation.

## Conclusion

The integration of technology in the form of clinical decision support system software within the clinical pathway described is more likely to result in an accurate diagnosis of COPD and greater implementation of holistic guideline-level care representing a scalable solution when performing primary care COPD reviews.