Global Practice Summaries
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St Helens and Knowsley Teaching Hospitals NHS Trust—Whiston, UK
NHS Knowsley—Knowsley, UK

Holistic COPD patient management service reduces hospital admissions and shortens length of stay

Due to high chronic obstructive pulmonary disease (COPD) prevalence rates and emergency admissions to the local acute provider, improving COPD management has long been a priority in the Knowsley health economy. Recently, a holistic COPD management programme has proved successful in identifying patients early, reducing secondary care admissions and length of stay (LOS) for admitted patients, and improving the patient's experience of care and overall care quality. Success, in its simplest form, can be described as the integration of several key services around a patient centered approach.

Knowsley Borough Snapshot

- Population of 151,300
- Levels of smoking in Knowsley are significantly above national levels; 32.6% of people in Knowsley are current smokers, with national levels currently at 24%.
- The East of England Public Health Observatory predicts the expected COPD prevalence in Knowsley to be 4.6% of the PCT population (7,079 patients). GP registers only capture 3.2% (5,053 patients).
- In 2007–2008, hospital admission rates for COPD in Knowsley were 122% higher than nationally and 78% higher than regionally.

Improvement Initiative

In March 2008, NHS Knowsley commissioned a COPD patient management service to St Helens and Knowsley Teaching Hospitals NHS Trust (STHK). This consultant-led multidisciplinary programme has close ties with primary and secondary care providers and offers patients rapid access to diagnostic and exacerbation management services.

Programme Components

- **Consultant-led, community-based team for intermediate services.** This team staffs three pulmonary rehabilitation centres and a consultant-led COPD clinic held at various community leisure and primary care centres throughout the borough. Pulmonary rehabilitation – a multicomponent, multidisciplinary intervention incorporating physical training, disease education, and nutritional, psychological and behavioural therapy – is provided to optimise a patient's physical and social wellbeing and improve quality of life. The community-based COPD clinics offer patients access to specialist assessment and diagnostic services and care at convenient locations.
- **A rapid response service.** A 24/7 call number to a team of 11 specialist nurses facilitates home management of exacerbations. Patients are encouraged to contact the service once symptoms begin to deteriorate such that interventions can be initiated as soon as possible. A condition assessment and review of the patient's history result in a trifurcation of care management:
  1. Stay at home with an altered care regimen
  2. Wait for a home visit evaluation
  3. Be admitted to the hospital (Patients suffering serious exacerbations are referred directly to STHK's COPD clinic, thus bypassing possible delays in the emergency department and medical admissions unit.)
- **An early supported discharge (ESD).** This scheme for patients admitted to STHK, reduces the time spent in hospital. The consultant-led multi-disciplinary respiratory team based at STHK, in collaboration with the community care team of nurses and support staff, assesses each admitted patient with COPD for ESD appropriateness and arranges an individualized care plan incorporating specialist education, advice and support. Arrangements for the loan of equipment may also be made. Follow-up is provided through home visits by the community nursing team.

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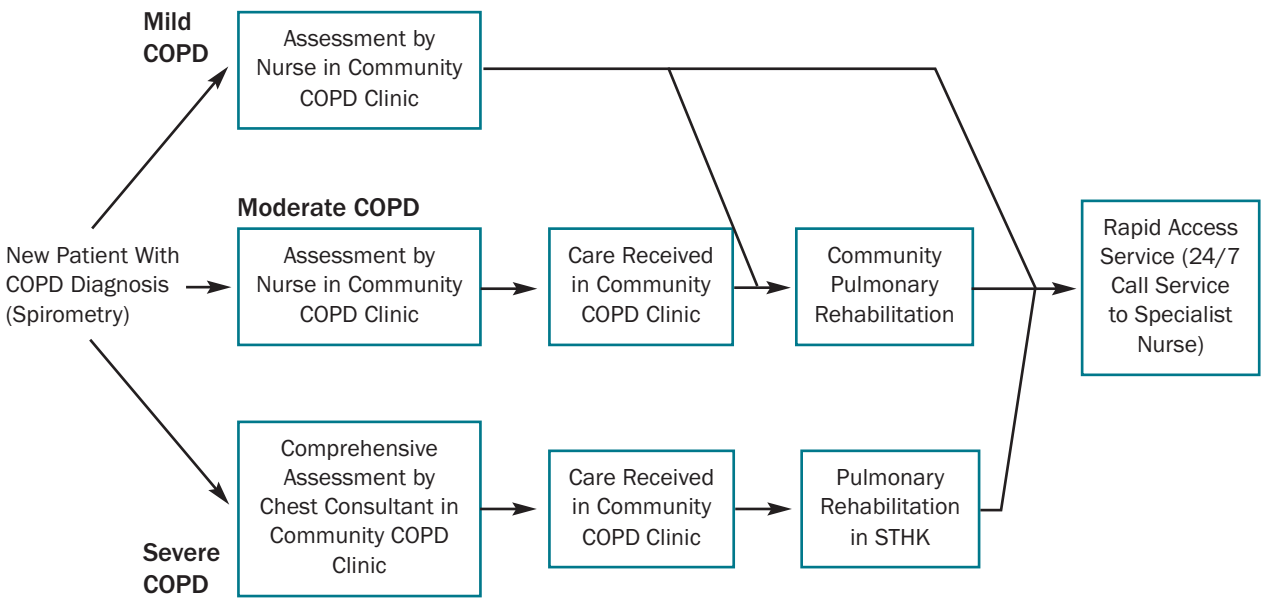
- **Specialist assessment access.** To tackle the difficulties in diagnosing COPD and accurately determining disease severity, numerous community-based diagnostic clinics were set up. Patients suspected of having COPD can be referred for an assessment either by local GPs or secondary care clinicians. COPD is confirmed through the combination of spirometry testing by an experienced lung function technician and a comprehensive health assessment by a member of the COPD team. Patients with a confirmed diagnosis are entered into the programme, undergo oxygen requirement assessments and have their inhaler regime optimised. Direct referrals may also be made to other members of the team as required (eg, smoking cessation counsellors, dietician, psychologist). To encourage referrals to the service, NHS Knowsley established an incentive scheme to reward GPs when a referral results in a confirmed diagnosis.
- **Condition severity tailoring.** The programme's innovative approach involves matching the intensity of care provision to a patient's condition severity – an effective and efficient way of managing patients with chronic diseases. Services are designed to provide care near to or at a patient's place of residence whenever possible. New patients suspected of having COPD undergo spirometry testing to assess the level of airflow obstruction according to the forced expiratory volume of air in 1 second (FEV1) as a percentage of the predicted value. Patients are subsequently stratified into 1 of 3 condition severity states: mild (FEV1 = 50%-80% predicted), moderate (FEV1 = 30%-49% predicted) or severe (FEV1 <30% predicted).

  Subsequent care is provided accordingly:

  - Patients with a mild to moderate diagnosis are managed in the community by a specialist nurse–led multidisciplinary team. Responsibilities include:
    - Assessing the patient (need for oxygen, aids for daily living, inhaler therapies)
    - Managing the patient (noninvasive ventilation, pulmonary rehabilitation, hospital-at-home, managing anxiety and depression)
    - Enforcing self-management strategies
  - Patients with a severe diagnosis are managed through a more resource-intensive care pathway. These patients are also managed in the community COPD clinic but undergo a more comprehensive health assessment by a respiratory consultant and a multidisciplinary team. Investigations such as chest radiographs, full blood count, pulse oximetry, electrocardiography (ECG) analysis and sputum culture are ordered if deemed necessary.
- **COPD patient register.** A COPD patient register, accessible at various locations, is kept and managed by the team. This facilitates the tracking and management of individuals as knowledge of a patient's history upon presentation enhances the ability for early decision making, allows for effective monitoring of a patient's condition and their various comorbidities, and minimises work duplication.

New Patient Stratification Process



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Key Outcomes

A programme audit comparing utilisation data for STHK between 2006 (pre-implementation) and 2008 (postimplementation) show benefits to both patient and the health service, in terms of:

- **Patient identification:** increasing rate of patients registered as having COPD, which highlights the programme's success in the early identification of sufferers.
- **Average LOS:** Reduction in LOS from 7.7 (± 0.9) to 5.9 days (± 1.3), a reduction of 23% patients.
- **Hospital admission:** Reduction in COPD and bronchitis admissions from 60 (± 9) admissions per month in 2006 to 47 (± 6) in 2008, a reduction of 22%.
- **Savings:** savings to the Primary Care Trust of approximately £360,000 per year through a reduced number of admissions[1], and savings to STHK of around £270,000 from a reduction in LOS for admitted patients.[2]

[1]Based on the average emergency tariff for COPD (2008-2009 HRG Tariff, Department of Health), market force factor adjusted for NHS Knowsley.
[2]Assuming a hospital stay costs £300 per day.

Postimplementation Considerations

Following full implementation, there were noted variations from an ideal state – many of which can be addressed with ongoing program modification.

- **Short-stay admissions:** STHK saw an increase in short-stay admissions for COPD following full programme implementation. The increase was likely due to a combination of factors: an increased awareness by better-informed patients of the exacerbation of their condition, leading them to go to the hospital more frequently before the community programme was in full effect; the lack of financial incentives to prevent 30-day readmissions; and the absence of specification in the contract of where the patient evaluation would take place, which could have led to increased short-stay hospital utilisation.
- **Evening ambulance utilistion:** The service also receives a surge of calls in the morning, suggesting that patients are not aware it is operational 24 hours a day. Patients with exacerbations at night are still utilising the ambulance service.
- **Pulmonary rehabilitation:** despite expanding the capacity for pulmonary rehabilitation, few patients enrolled in the programme.

Transferrable Learnings

- Provide patients with detailed information on the service's scope, purpose and function in a concise and straightforward format.
- Form a project implementation board with representation from all relevant stakeholder groups.
- Define and monitor clinically relevant performance and outcome indicators to ensure effective programme implementation and operations.
- Incentivise programme managers on the achievement of previously agreed upon goals/milestones.
- Allocate full-time personnel from the commissioner organisation to oversee implementation and ensure the service is set up correctly.
- Ensure all clinical stakeholders are fully informed throughout the scoping and implementation process to establish buy-in at an early stage.

Sources: NHS Knowsley, Health & Care in Knowsley: Public Health Annual Report, 2006; NICE Clinical Guideline CG12: Chronic Obstructive Pulmonary Disease, February 2004; STHK. Respiratory medicine. www.sthk.nhs.uk/pages/Departments.aspx?iPageId=811. Accessed 04 October 2010; Interview with Dr Susan Church, Respiratory Consultant, STHK, 21 January 2009; Interview with Dianne Johnson, Assistant Director of Commissioning, NHS Knowsley, 16 June 2010; Eastern Region Public Health Observatory. Modelled estimates of prevalence of COPD for PCTs in England, November 2008; The NHS Information Centre. Hospital Episode Statistics, 2007/2008.