COPD National Collaborative Pilot Report

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Foreword by Prof Timothy McDonnell, Clinical Lead, National Clinical Programme for COPD

I am pleased to see the positive results of this COPD collaborative pilot. I’m grateful to the participating sites for their hard work and enthusiasm together with CSPD for the funding to conduct this pilot.

It is well-known that care of patients with exacerbations of COPD who are admitted to our hospitals is suboptimal. According to the NHQRS 2018 report we still have the highest rate of admissions for COPD exacerbations in the OECD. Not alone that, but we know that the admission rate is variable across the country and indeed the length of stay varies considerably for patients between individual hospitals. Consequently we know that patients with COPD are subjected to deficiencies in care and unnecessary morbidity.

The COPD collaborative is an attempt to improve this care and the initial results are very exciting. With the funding now available from the CSPD, we can look forward to significant achievements in more of our hospitals with consequent improvement in the care given to our patients and reduction in the bed days related to COPD admissions.

Prof. Tim McDonnell
Consultant Respiratory Medicine
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<tr>
<td>COPD</td>
<td>Chronic Obstructive Pulmonary Disease</td>
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<td>AECOPD</td>
<td>Acute Exacerbation of COPD</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>CSPD</td>
<td>Clinical Strategy and Programmes Division</td>
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<td>NCPCOPD</td>
<td>National Clinical Programme for COPD</td>
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<td>QI</td>
<td>Quality Improvement</td>
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<td>RCPI</td>
<td>Royal College Of Physicians of Ireland</td>
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<td>KPI</td>
<td>Key Performance Indicator</td>
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<td>STGH</td>
<td>South Tipperary General Hospital</td>
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<td>SVUH</td>
<td>St Vincent’s University Hospital</td>
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<tr>
<td>ED</td>
<td>Emergency Department</td>
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<tr>
<td>CNS</td>
<td>Clinical Nurse Specialist</td>
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<td>CANP</td>
<td>Candidate Advanced Nurse Practitioner</td>
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<tr>
<td>COPD OT</td>
<td>Outreach Team</td>
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<tr>
<td>DTA</td>
<td>Decision to Admit</td>
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<td>LOS</td>
<td>Length of Stay</td>
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<tr>
<td>AMU</td>
<td>Acute Medical Unit</td>
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<tr>
<td>IHI</td>
<td>Institute for Healthcare Improvement</td>
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<td>NHS</td>
<td>National Health Service</td>
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Final Report of the COPD Pilot

Introduction

Chronic obstructive pulmonary disease (COPD) is a clinical condition characterised by chronic, slowly-progressive decline in lung function with only partially reversible airflow obstruction, systemic manifestations and increasing frequency and severity of exacerbations.

COPD has considerable impact both on quality and quantity of life for the patient, involving long term medical care, frequent hospital admissions for many and often resulting in premature death. Prevention of an exacerbation (AECOPD) is a key component of COPD-management strategies. Ireland may have the potential to reduce avoidable hospital admissions for a proportion of patients with COPD. This requires greater anticipatory care and integrated services.

Background

In 2017-2018, under a joint initiative between the Clinical Strategy and Programmes Division (CSPD), National Clinical Programme for COPD (NCPCOPD) and Royal College of Physicians of Ireland (RCPI), a quality improvement project was undertaken to focus on improving care for COPD. The initial project has three key aims that converge towards the collective global aim of developing recommendations towards a national collaborative programme proposal:

1. to seek evidence through a literature review for improvement interventions in COPD care
2. to develop a ‘change package’ for implementation
3. to undertake a pilot in two hospital sites and make recommendations regarding feasibility of a national improvement collaborative.*

*short-term learning system, bringing together teams from different hospital sites to seek improvement in a specific subject area. Subject matter experts work with improvement experts, using QI methodology to implement front line change.
Literature Review
An initial rapid scoping exercise was undertaken to gather data on current practice in integrating primary, community & acute COPD care and to inform the design an integrated improvement approach for use in the Irish system which will include Interventions for the acute and community care settings.

Key themes emerged from this early review. Although no single intervention has been used successfully to date and there is limited experience in Ireland of implementing COPD interventions, there is evidence for standardised care bundles**, validated assessment tools and key recommendations for integrated care pathways to improve clinical outcomes and patient wellbeing. There is an opportunity for publication of the pilot outcomes (with time and resource dependence) and to complement this future work, an in depth literature review is currently underway with two objectives:

- gather data on specific improvement interventions in COPD care that impact patient access to urgent specialist care, admission and discharge processes, and readmissions
- explore available data informing the design of an improvement approach for implementation and evaluation of a bundle of specific COPD interventions (the ‘change package’) for use in the Irish healthcare system.

This literature review provides an informative and novel approach to COPD care with no existing publication of this nature available.

Change Package (Menu of improvement interventions)
Following the rapid review, a series of stakeholder meetings and discussions resulted in selection of a ‘change package’ for COPD including direct or expedited access to respiratory specialist care, clinical admission and discharge bundles and standardised clinical assessment. The use of clinical bundles and standardised assessment has been validated in a number of international studies and endorsed by bodies including the British Thoracic Society and NCPCOPD. Although expert consensus was that timely access to the respiratory team would be of significant clinical benefit, there was a lack of supporting literature and experience in Irish healthcare to this effect. Access to specialist care is a key performance indicator (KPI) for the National COPD Audit in England and Wales.

**a structured way of improving processes of care & patient outcomes: a small, straightforward set of evidence-based practices (generally 3-5) that, when performed collectively & reliably, have been proven to improve patient outcomes**

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**Page**
Consequently, the pilot focused on supporting teams to use QI methodology to implement a pathway providing direct or timelier access to respiratory specialist care during a presentation or admission and to explore the feasibility of including this final element in the change package for the national improvement collaborative proposal.

Pilot
The pilot involved teams from two hospitals; South Tipperary General Hospital (STGH), Clonmel and St Vincent’s University Hospital (SVUH), Dublin. Both sites completed the ten-week pilot learning and implementation pilot. During a series of onsite face-to-face learning sessions, teams were supported by expert RCPI faculty members to examine current practices, identify areas for improvement and apply Quality Improvement (QI) tools to implement changes to impact clinical outcomes and improve patient experience. In between sessions, the teams undertook to implement specific change ideas at local level through a methodology known as Plan > Do > Study > Act which allows for small tests of change with immediate learning and honing of ideas to ultimately deliver sustainable, locally-owned improvement. Over the short timeframe, both sites succeeded in reducing Emergency Department (ED) wait-times, increased the percentage of inpatients receiving respiratory specialist review, increased admission avoidance where appropriate and identified areas for future improvements. It should be noted that as the pilot was over a short timeframe the numbers to date are small. However, improvement trends are visible and could be further developed and rolled-out at a national collaborative programme.

The PDSA cycle:
A tool for incremental testing of low risk change ideas in practice to determine if they lead to improvement.

Team 1: South Tipperary General Hospital, Clonmel
The multidisciplinary team from STGH involved all members of the respiratory team; consultant, registrar, Clinical Nurse Specialist (CNS) and Candidate Advanced Nurse Practitioner (CANP). They selected to implement a new emergency access pathway for patients presenting in crisis to the ED. A ‘direct from triage’ specialist review process was initiated with the CANP role, decreasing patient wait-times for initial review,
providing direct access to specialist care and relieving pressure on the ED medical team. This immediately resulted in a 98% time reduction from patient registration to first respiratory specialist review (see graph 1) and achieved a 100% rate of consultant review within 6 hours of registration (see graph 2). Additionally, the STGH team have overseen an improvement from 1 inpatient in 7 having a respiratory consultant review to 100% of COPD admissions with a respiratory consultant review within 24 hours of admission.

Over the course of the pilot in STGH, the admission rate for COPD presentations dropped from 100% to 22% with the intervention of early respiratory specialist care. Given that the average length of stay in STGH was 4 days in 2017, the team has estimated the bed-day savings due to their intervention is at least 1700 per annum.

These early results have been presented at the Irish Association of Advanced Nursing and Midwifery Practitioners, May 2018 (see appendix 1) and the senior management team have committed to ensuring resources to continue with the new pathway through the winter months when COPD and other respiratory presentations increase.

The STGH team now plans to utilise the QI toolkit and explore ways to improve follow up after discharge. The Senior Management Team has committed to supporting the respiratory service delivery of the new pathway and may consider adapting the model for other chronic care areas as appropriate.

Graph 1: STGH – Time to specialist respiratory nurse review in ED

[Graph showing time in hours vs patient number, with no review and new pathway initiated markers, median calculated on baseline data, goal based on best standards for completed clinical bundle]
Team 2: St Vincent’s University Hospital, Dublin

In SVUH the team comprised a respiratory consultant, registrar, and the two-person COPD Outreach Team*** (OT) of a physiotherapist and nurse specialist. This was a very well established team with an existing high standard of quality within the service. The pilot took place against a backdrop of concurrent process redesign within the on-call system to direct patients admitted through the ED to the relevant specialist team as soon as possible. The team undertook an in-depth review of the processes around COPD admissions and identified a number of areas for improvement including the complexities of the AECOPD patient journey through SVUH, multiple admission pathways converging into an ED bottleneck, and AECOPD patients being admitted under non-respiratory teams out of hours and at weekends which resulted in some patients having a delay in respiratory specialist input.

***A service providing active treatment by specialist healthcare professionals in the patient’s own home that otherwise would have necessitated a hospital stay\(^9\)
The original aim was to ensure that every patient admitted with COPD was reviewed by a medical respiratory specialist within 24 hours of the Decision to Admit (DTA) in ED. Initial testing of change ideas to improve the referral pathway included moving from recording a recommendation for respiratory referral to making that referral by phone at the point of decision, and encouraging patients to phone the OT early in an illness episode to improve earlier interventions in the community.

A revision of the project and development of a new aim occurred following further process analysis. To ensure that patients were not missed (due to admission to on-call non-respiratory teams and out of COPD OT hours), new ways of detecting these patients from registration were tested. A daily check-in has been established between the ANP in Acute Medical Unit (AMU) and the OT. As a sustainable solution, the Respiratory CNS will engage in this process when there is no OT cover. On the first day of implementation, the team were notified of a new patient presenting with AECOPD. The patient was reviewed within 5 hours and discharged within 28 hours with a complete review of inhaler prescriptions, technique and a follow-up plan.

SVUH Process redesign

1. Team original aim: 100% COPD patients reviewed by senior respiratory medical decision maker within 24 hours of DTA
2. PDSA testing phase 1: Direct call to Registrar from COPD Outreach 1. Bypass ED team 2. Improve communication pathway 3. Improve documentation
3. New process gap analysis: Discovery of ‘missed’ patients
4. PDSA testing phase 2: 1. Daily check in with AMU 2. Daily MAXIMS review
5. Team updated aim: 100% registered COPD patients detected and reviewed by respiratory specialist within 24 hours of admission
6. PDSA testing phase 3: Redesign of steps in process
As an immediate next step, the team in SVUH is planning to undertake an additional QI project to test a new discharge bundle. Further work will involve improving patient experience during clinic wait times, streamline OPD booking processes and in evaluating and sustaining changes already made to a COPD Optimisation clinic.

The greatest change in SVUH was a cultural shift towards improved teamwork, sense of empowerment to change, and a realisation that the small tests of change encouraged under QI methodology can have a significant impact for an individual patient. The team also gained new QI skills that are already being used to focus on other improvement areas.

**SVUH examples of QI culture change**

| Spending time with the team, meeting new members and understanding our processes | COPD patients are more likely to fall under the respiratory team |
| Seeing things through a patient’s eyes and acknowledging the complexity of the system for patients trying to negotiate it | The emphasis on teamwork helps us not to feel isolated, particularly knowing everyone is pulling in the same direction |
| QI methodology has changed our team culture, enabling us to challenge traditional hierarchies and bring solutions | This project has changed how we approach challenges and we are applying the tools to other areas of our practice |
| We understand what we have control of and therefore what we have the power to change | The changes don’t need to be large scale. Small changes are making a big difference for our patients. |

**Evaluation of pilot**

The short term, small size of this pilot and the lower patient numbers owing to the seasonal impact on COPD exacerbation was understood from the beginning to be unlikely to produce significant impact on clinical care.
outcomes. The pilot learning was anticipated to predominantly focus on the applicability of the methodology of the learning session structure and QI toolkit in supporting teams to analyse their own processes and devise new admission procedures for respiratory team access, and in turn, incorporate this aspect of care into the national collaborative proposal change package.

The methodology and structure of the pilot followed the Improvement Collaborative approach described in the Institute for Healthcare Improvement (IHI) Breakthrough Series White Paper\textsuperscript{10}. One strength of the breakthrough series model is that teams do not need to have prior QI learning or experience. They are supported to learn and practically apply QI tools and methods which enhances the likelihood of success of their project.

The COPD Improvement Collaborative Working Group were invited to meet with the pilot teams in May 2018. The teams presented their projects, discussed learning, key outcomes and challenges that arose. The Working Group then had opportunity to draw out additional learning towards the national collaborative proposal.

General Feedback from Pilot Participants

The response from the pilot teams at both sites has been overwhelmingly positive. Team members have described a greater feeling of teamwork and sense of empowerment to achieve real change to impact their patients and has given perspective to the occasional frustrations at the perceived inability to effect change.

“With RCPI supporting us, we are part of an actual collaborative and the gravitas behind that holds sway with management. We can finally achieve real things” (SVUH team member)

“I’m really enjoying this process as it’s helping me to learn my role and giving me great confidence in developing the service” (STGH team member)

“RCPI was the catalyst for progress and streamlining of this service” (STGH team member)

Feedback from hospital management
Greater understanding of their processes, improved clinical outcomes for patients including admission avoidance and reduced length of stay, and enhanced patient experience are further results seen across both teams in the two hospital sites.

“In relation to capacity of the ED, the respiratory service, the bed situation, the impact this has had is significant. It’s a no-brainer. We are fully committed to resource sustainability to continue the service”

(STGH Senior Management Team)

“The improvement in patient care is evident, our older population is not spending hours on a trolley, there is a reduction in unnecessary interventions” (STGH Senior Management Team)

“We now understand what we have control over and therefore have the power to change. We no longer feel frustrated or helpless” (SVUH Team member)

Outcomes for the patient

A key focus of the project is patient-centeredness. There has been collaboration with the patient representative group, COPD Support Ireland, from the earliest opportunity with the CEO as a member of the Working Group. Teams have been encouraged to keep the patient experience at the heart of their thinking throughout the pilot. Team members have reported many examples of ‘good news stories’ of patients under their care who have been impacted by the improved service provision.

“I’m mad about you, so glad I met you, you’re very good to me. You’re a good person” (Patient, STGH)

“Patients are now asking how to manage their own care” (STGH team member)

“It is wonderful to have someone calling out to teach us about his nebulisers, his condition and to have a contact number for when we are worried” (Daughter of a patient, SVUH)

“The collaborative plan is very patient-centric, reduces the frequency of admission and aims to facilitate people to stay in their own home in a well-supported and holistic way” (Bernie Murphy, CEO of patient group COPD Support Ireland)
Learning from the pilot
QI methods enhance stakeholder engagement and support local adoption through the use of testing, measurement and feedback of key interventions. Improving patient safety climate (beliefs and attitudes) and culture (actions) is complex. The Working Group and pilot teams collaborated to explore challenges and opportunities to the improvement programme, which will aid national collaborative planning and for teams and organisations to identify and manage local issues.

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Opportunities</th>
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<tr>
<td><strong>Change management</strong></td>
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<tr>
<td>• ‘So what’s next?’ – moving the bottleneck from ED to further up the system</td>
<td>• Strategic planning, continual process review</td>
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<td></td>
<td>• Tailor-made management plan for patients to ensure standardised care</td>
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<td></td>
<td>• National collaborative will seek improvements in all phases of the patient journey</td>
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<td>• Sustaining change</td>
<td>• Securing organisational support from Senior Management Team to ‘open doors’ and endorse improvements</td>
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<td></td>
<td>• Need to harness goodwill</td>
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<td></td>
<td>• Present improvements to share learning</td>
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<tr>
<td><strong>Staffing / Resources</strong></td>
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<tr>
<td>• If additional resource requirement identified – funding and backfill dependent</td>
<td>• Creativity in ‘filling the gap’ on a temporary basis</td>
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<td></td>
<td>• QI methodology and data collection may identify resource requirement to bolster a business case</td>
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<td><strong>Service provision</strong></td>
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<tr>
<td>• Non COPD cases referred to pathway</td>
<td>• Repeat training for participating staff</td>
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<td></td>
<td>• Clear standards and protocols for AECOPD</td>
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<td>• Summer versus winter workload</td>
<td>• Supported by QI tools to prepare</td>
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<td></td>
<td>• Changes may be tested and embedded before the winter pressures build</td>
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<tr>
<td>• New service – true patient numbers still an unknown quantity</td>
<td>• Building the service from the beginning allows for tailoring to suit local needs</td>
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<tr>
<td>• Existing service is very good – harder to see effects of improvements</td>
<td>• Every patient counts</td>
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<td></td>
<td>• Improvements may be small but still make a difference</td>
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<tr>
<td>• Human factors impact on project progress – e.g. illness, leave</td>
<td>• Collaborative will be 18 months in length to allow for normal fluctuations in staffing and workload pressures</td>
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Summary of Pilot

Despite the short timeframe of this pilot, the teams fully engaged with the process, embraced their projects and saw positive changes within their team structures, learned new QI skills to apply to any setting or practice area, and changed local culture towards QI and patient experience. Patients with COPD exacerbation experienced improvements in care including:

- Admission avoidance
- Reduced wait-times in ED
- Timelier access to respiratory specialist team
- Personal contact with respiratory specialist post discharge in case of concern at home

Patients with non-respiratory conditions also benefitted as the number of patients waiting in ED was reduced and there were recorded examples of expedited specialist to specialist referrals.

These improvements contribute to the global aim of improved COPD care and will lead to a better patient experience and facilitate enhanced sense of self-management among patients with COPD.

All of these improvement opportunities have demonstrated significant cost-reduction potential for the health service. Additionally, beyond the time required for learning session attendance and team meetings, have been cost and resource-neutral to implement. However, as in the case of STGH, a quality improvement project completed within existing resources may facilitate identification of areas that will benefit from additional resource and provide substance for any consequent business case.

The pilot has demonstrated the potential for significant cost-savings and the positive implications for the spread of good practices at a national collaborative forum. Following the early clinical successes and positive team feedback the Working Group has concluded that the QI methodology facilitated the pilot teams to drive sustainable, effective improvements in their own systems. Learning from the pilot has informed recommendations within the National COPD Improvement Collaborative Proposal.
References


2. DOH 2018 *Health Service Capacity Review: Review of health demand and capacity requirements in Ireland to 2031*. Main Report


8. Institute for Healthcare Improvement [http://www.ihi.org/resources/Pages/ImprovementStories/WhatsaBundle.aspx](http://www.ihi.org/resources/Pages/ImprovementStories/WhatsaBundle.aspx)


Appendix 1 - Poster presentation to IAANMP, May 2018

An Acute Change for a Chronic Problem
Improving COPD care in STGH
Nora McNamara, Dr. Tariq Aziz, Dr. Kenneth Bolger

Chronic Obstructive Pulmonary Disease (COPD) is a progressive lung disease caused by exposure to inhaled noxious substances including tobacco smoke.

It is characterised by persistent dyspnea, chronic cough and sputum production.

The natural progression of the disease includes exacerbations — events described as acute worsening of respiratory symptoms which typically last for several days.

It is estimated that approx. 500,000 people in Ireland suffer from COPD and possibly another 500,000 remain undiagnosed. At least 25% of these will suffer one or more exacerbations annually.

COPD is the commonest disease-specific cause of emergency hospital admissions in Ireland (389 admissions per 100,000 population) (1).

In April 2018, a pilot initiative was undertaken in STGH with the aim to improve care of COPD exacerbations via

- Total management protocol
- Time to decision to admit and anti-challenge
- Senior specialist medical review
- Functional assessment, pulmonary function testing
- Early admission, early intervention
- COPD passport
- Identification and Diagnoses

To date, 1331 patients have been managed through the pathway.

Improvement in time to time points from triage as displayed below;

- This rate of admission avoidance is in keeping with data from BTS studies analysing various forms of hospital at Home approaches to COPD care in the UK (2).
- In 2017 the estimated total number of bad days for ARCoPD in STGH amounted 2, 676.
- This pathway has the potential to reduce the number of bad days consumed by ARCoPD by approx. 1700 per annum.
- Longer term data may show an effective LOS on those ultimately admitted, and an overall re-admission rate.
- It is acknowledged that investment into the initiative is necessary to maximise its potential.
- By assessing the feasibility of this pilot program in STGH, we can aim to expand to reach, expecting an equally positive, albeit larger impact, on patient care, satisfaction and health outcomes, while targeting admission avoidance and cost savings.

References
- National Health Quality Reporting System Annual Report 2017

Tipperary county has one of the highest admission rates in Ireland (3).

In 2017 STGH dealt with 664 presentation of COPD, with an average LOS of 4 days.

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In 2017 the estimated total number of bad days for ARCoPD in STGH amounted 2, 676.

This pathway has the potential to reduce the number of bad days consumed by ARCoPD by approx. 1700 per annum.

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References
- National Health Quality Reporting System Annual Report 2017

It is recognised that not all admissions for COPD are appropriate and some can be avoided.