Does the use of quality improvement methods during patient discharge after a COPD exacerbation reduce readmission rates and improve patient outcome?

Authors: A, B, C, D


This peer-reviewed 9 page journal article had its research funded by Boehringer Ingelheim. Lead author Sean D. Candrilli Ph.D. serves as the Head of Health Economics Data Analytics at RTI Health Solutions. His expertise is in the field of data management and the analysis of clinical trials. No biases or conflicts of interest were reported. The article details a retrospective observational study that sought to determine factors most heavily associated with hospital readmission after a COPD exacerbation. Results show that the major factors are a longer length of hospital stay, older age, greater comorbidity burden, specific comorbidities (such as chronic renal failure ischemic heart disease), and COPD complexity (defined partly by comorbid respiratory conditions). These factors increased both the 30-day and 90-day COPD-related readmissions. The article is pertinent to our topic as it explores the issue of readmission and provides reasonable explanations as to why certain factors are associated with readmission while others make actually decrease the chance of readmission. Also pertinent is the suggestion that because most of these associated factors can be ascertained at discharge, there is reason to believe that readmissions can often be predicted and possibly prevented.

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This 11 page guideline was developed by the American College of Chest Physicians and the Canadian Thoracic Society and whose goal is to provide information about preventing acute exacerbations of COPD according to the major categories of prevention therapies available. Comorbidities are not clearly addressed in this guideline. The evidence of this guideline’s recommendations are based on the American College of Chest Physicians Grading System. There is also a CB grade, which stands for consensus based and is based mainly on expert opinion. This evidence was evaluated by an expert panel who read meta-analyses of randomized controlled trials, reviewed published meta-analyses and a systematic review of evidence tables. Expert consensus was used to formulate these recommendations. There are multiple specific recommendations with regard to implementation of a chronic care model including decision support systems, health care organizations, and clinical information management. The most useful aspect of this guideline is the breakdown of evidence for treatments and interventions with respect to managing acute exacerbations of COPD.

This 7 page article was developed by Georgetown University Medical Center and Forest Laboratories, LLC. This retrospective study addressed the fact that roflumilast treatment was associated with decreased all-cause 30-day hospital readmissions in patients previously hospitalized for COPD versus those COPD patients who did not receive the drug. The major implied recommendation is that roflumilast can be used to decrease hospital readmissions in COPD patients. The evidence is derived from a prior retrospective study based on real-world data observed from a large US commercial healthcare insurance database. The quality of this evidence is not directly assessed according to any grading system. Other evidence-based claims in this article reference outside articles but no analysis about the evidence of the other articles is mentioned in depth. Recommendations are based on review of prior studies cited in the references and this study’s results. Tools to help implementation were not directly addressed but it can be inferred that roflumilast can be prescribed to patients hospitalized with COPD to decrease exacerbations. The most useful aspects of this article are the direct results based on observing a real-world setting and the fact that there is a single pharmacotherapy that could be investigated for use on a large scale to decrease readmissions for COPD patients.


The GOLD Report is a guideline created by the Global Initiative for Chronic Obstructive Lung Disease. It was authored by a collaboration of committees of leading experts in COPD from around the world. Dr. Marc Decramer M.D., Chair of the GOLD Board of Directors, is a professor of medicine and CEO of University Hospital Leuven in Belgium. The updated 2015 report (original report created in 2001) is 115 pages in length. Its content is based on meta-analysis review and expert consensus. The clinical goals of the report are to decrease morbidity and mortality from COPD through implementation of effective programs for diagnosis and management and to raise awareness of COPD as a global public health problem. Chapter five is the most useful portion for our topic as it covers the management of acute exacerbations including the necessary therapeutic components of hospital management, discharge criteria, guidelines for follow-up, and methods to reduce readmission rates.
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This seven page peer-reviewed article was authored by Oliver Groene M.A. MSc Ph.D., who is an Honorary Senior Lecture for the Department of Health Services Research & Policy at the London School of Hygiene & Tropical Medicine. Previously, Dr. Groene was employed for seven years as Programme Manager for the Quality of Health Systems and Services Programme for the World Health Organization and is currently both the editor of BMC Health Services Research and the Deputy Editor of the International Journal for Quality in Health Care. While the author cites a total of thirty articles, no statements are made in regard to how the author assessed the level of evidence of each of the articles. This article focuses on patient centeredness and its relation to quality improvement efforts. Specifically, it aims to provide justification for the implementation of patient centered measures in quality improvement processes, address the current flaws in patient centered quality improvement practices, and discuss options to improve patient centered care. Despite addressing only one of the six aims of the Institute of Medicine’s (IOM) Health Care Quality Initiative, this article is useful in the way that it exposes a flaw in the current quality improvement methods and offers potential remedies for the identified issues. Another useful aspect of the article is that it provides a list of current patient-level measures of patient centered care, as well as a list of instruments used to assess organizational preparedness of patient centered care. These lists can be used as a basis to develop better clinical tools that will improve quality of care through the augmentation of patient centered care.


This six page peer-reviewed retrospective cohort study was produced by three physicians from Texas Tech Health Sciences Center. The group’s main goal was to assess risk factors associated with early rehospitalization (i.e. a readmission within 30 days of an initial visit) in patients with Chronic Obstructive Pulmonary Disease (COPD). The group reviewed the charts of patients with COPD, who were admitted to University Medical Center, Lubbock, Texas, USA, between October 2010 and March 2011. There were a total of 81 COPD patients in the study with 103 recorded hospitalizations. To develop their hypotheses, they used a logistical regression when analyzing their data. Their study protocol was approved by the Texas Tech University Health Sciences Center Lubbock/Odessa Institutional Review Board. No conflicts of interest were reported, and the research did not receive grants from public, commercial, or not-for-profit funding agencies. While the results of their study did not identify remarkable differences between early readmission patients and non-early readmission patients, their analysis suggests that a history of ischemic heart disease and/or unilateral pulmonary infiltrates increase the risk of an early hospital readmission. Additionally, the patients in the study were found to have a lower readmission rate than patients in some earlier studies. The authors attribute this difference to the implementation of early follow-up by the hospital. The article is pertinent to our project primarily due to its demonstration of risk factors (associated with COPD hospital readmissions) that can now be addressed to help potentially lower readmission rates.

This fourteen page guideline was developed by representatives of the American College of Physicians (ACP), American College of Chest Physicians (ACCP), American Thoracic Society (ATS), and European Respiratory Society (ERS). It is intended to be an update to the 2007 ACP clinical practice guideline on diagnosis and management of stable chronic obstructive pulmonary disease (COPD). A metaanalysis was performed using literature produced between March 2007 and December 2009, and all recommendations were formed by unanimous vote of all four groups. To rate both their evidence and recommendations, the groups utilized the ACP guideline grading system, which was based on the GRADE (Grading of Recommendations, Assessment, Development, and Evaluation) workgroup’s system. Funding for the guideline was obtained exclusively from the ACP operating budget. An extensive list of potential conflicts of interest is provided in the article. The guideline’s primary goal is to provide recommendations that will assist clinicians in the management and diagnosis of patients with COPD. This article is particularly pertinent to our project in that it helps us understand the expected treatment of a patient following their discharge from the hospital.


The independent research presented was commissioned by the National Institute for Health Research. The authors declared no conflicts of interest. It is nine pages in length and sought to determine how the plan-do-study-act (PDSA) method of quality improvement is applied to healthcare. It also sought to provide an outline as to how to determine the quality of a particular PDSA application. The data was obtained from NHS Evidence and Cochrane databases and a systematic narrative review was completed. 73 articles were ultimately studied after having met the inclusion criteria of being peer-reviewed and providing a description of the use of the PDSA method in healthcare. Results showed that only two of the articles demonstrated a complete and accurate use of the PDSA method. Therefore, the large majority of studies that suggested use of the PDSA method actual displayed inconsistent use or a lack of adherence to its fundamental principles, such as a lack of iterative cycles. This article is pertinent to our topic as it provides a great description of the PDSA method, as well as an explanation of how to determine if the method has been applied successfully. This is important to be aware of when reading peer-reviewed articles that claim use of the PDSA method, as an incorrect application of the method could alter the results of the study.

This 9 page article was developed by Northwestern University’s Feinberg School of Medicine. The primary goal of the article is to help individuals with COPD have their palliative care needs better met by analyzing the state of palliative care with respect to COPD from a quality improvement perspective. The evaluation of evidence for the statements in this article is not clearly broken down according to a grading system but evidence is instead cited by referring to other articles. There were some recommendations made regarding how to handle future care for COPD patients however the suggestions do not have quality of evidence attached to them for analysis. To implement these changes there are suggestions for incorporating training for pulmonologists and primary care providers to screen for patients who would benefit from supportive outpatient care and palliative care. These front-line providers could work with interdisciplinary teams to help care for these complex patients. The most useful aspect of this article is helping to give an idea about how to improve care for COPD patients by taking an interesting perspective of utilizing quality improvement concepts especially with respect to the need for palliative care options for these patients.