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1. Relative value unit-based compensation incentivization in an academic vascular practice improves productivity with no early adverse impact on quality.

**Authors**
Awad, Nadia; Caputo, Francis J; Carpenter, Jeffrey P; Alexander, James B; Trani, José L; Lombardi, Joseph V

**Source**
Journal of vascular surgery; Feb 2017; vol. 65 (no. 2); p. 579-582

**Publication Date**
Feb 2017

**Publication Type(s)**
Journal Article

**PubMedID**
27876522

**Abstract**
OBJECTIVE
Given the increased pressure from governmental programs to restructure reimbursements to reflect quality metrics achieved by physicians, review of current reimbursement schemes is necessary to ensure sustainability of the physician’s performance while maintaining and ultimately improving patient outcomes. This study reviewed the impact of reimbursement incentives on evidence-based care outcomes within a vascular surgical program at an academic tertiary care center.

METHODS
Data for patients with a confirmed 30-day follow-up for the vascular surgery subset of our institution's National Surgical Quality Improvement Program submission for the years 2013 and 2014 were reviewed. The outcomes reviewed included 30-day mortality, readmission, unplanned returns to the operating room, and all major morbidities. A comparison of both total charges and work relative value units (RVUs) generated was performed before and after changes were made from a salary-based to a productivity-based compensation model. P value analysis was used to determine if there were any statistically significant differences in patient outcomes between the two study years.

RESULTS
No statistically significant difference in outcomes of the core measures studied was identified between the two periods. There was a trend toward a lower incidence of respiratory complications, largely driven by a lower incidence in pneumonia between 2013 and 2014. The vascular division had a net increase of 8.2% in total charges and 5.7% in work RVUs after the RVU-based incentivization program was instituted.

CONCLUSIONS
Revenue-improving measures can improve sustainability of a vascular program without negatively affecting patient care as evidenced by the lack of difference in evidence-based core outcome measures in our study period. Further studies are needed to elucidate the long-term effects of incentivization programs on both patient care and program viability.

2. COPD symptom burden: impact on health care resource utilization, and work and activity impairment.

**Authors**
Ding, Bo; Small, Mark; Bergström, Gina; Holmgren, Ulf

**Source**
International journal of chronic obstructive pulmonary disease; 2017; vol. 12 ; p. 677-689

**Publication Date**
2017

**Publication Type(s)**
Multicenter Study Journal Article

**PubMedID**
28260874

**Abstract**
BACKGROUND
Chronic obstructive pulmonary disease (COPD) can greatly impact the quality of life by limiting patients’ activities. However, data on impact of symptomatic burden on the health care resource utilization (HCRU) and employment in COPD are lacking. We examined the association between COPD Assessment Test (CAT) score and direct/indirect costs associated with HCRU and work productivity.

METHODS
Data from >2,100 patients with COPD consulting for routine care were derived from respiratory disease-specific programs in Europe, the USA and China. Questionnaires, including CAT and Work Productivity and Activity Impairment (WPAI), were used to collect the past and current disease status data and HCRU characteristics from physicians (general practitioners/specialists) and patients. A regression approach was used to quantify the association of CAT with HCRU and WPAI variables. CAT score was modeled as a continuous independent variable (range: 0-40).

RESULTS
Ninety percent of patients with COPD had a CAT score ≥10. Short-acting therapy and maintenance bronchodilator monotherapy, respectively, were currently prescribed to patients with CAT scores of 10-19 (5.8% and 27.6%), 20-29 (5.1% and 13.1%) and 30-40 (2.8% and 6.6%). Prescribing of maintenance bronchodilator dual therapy was low across the CAT score groups (0-9, 7.8%; 10-19, 4.6%; 20-29, 5.9%; 30-40, 4.4%), whereas maintenance triple combination therapy was prescribed more commonly in patients with higher CAT scores (0-9, 16.1%; 10-19, 23.2%; 20-29, 25.9%; 30-40, 35.5%). Increasing CAT scores were significantly associated with a higher frequency of primary care physician visits (P<0.001), pulmonologist visits (P=0.007), exacerbations requiring hospitalization (P<0.001) and WPAI scores (P<0.001).

CONCLUSION
Most patients with COPD presented with high symptom levels, despite being treated for COPD. Increasing symptom burden was associated with increasing HCRU and had a detrimental impact on work productivity.
3. A cross-sectional assessment of the burden of COPD symptoms in the US and Europe using the National Health and Wellness Survey.

**Authors**
Ding, Bo; DiBonaventura, Marco; Karlsson, Niklas; Bergström, Gina; Holmgren, Ulf

**Source**
International journal of chronic obstructive pulmonary disease; 2017; vol. 12; p. 529-539

**Publication Date**
2017

**Publication Type(s)**
Multicenter Study Journal Article

**PubMedID**
28223793

**Database**
Medline

**Abstract**
INTRODUCTION Past research has suggested significant relationships between symptoms and health outcomes among patients with COPD. However, these studies have generally focused on a broad COPD sample and may have included those not receiving proper treatment. As a result, the aim of this study was to document the burden of COPD symptoms among those who are currently treated with the standard-of-care (SOC) medications in both the US and Western Europe. METHODS Data from the 2013 US (N=75,000) and 2011 (N=57,512)/2013 (N=62,000) European (France, Germany, Italy, Spain, and UK; 5EU) National Health and Wellness Survey (NHWS) were used. The NHWS is a health survey administered to a demographically representative sample of the adult population in each country. A total of 1,666 and 2,006 patients with self-reported physician diagnosis of COPD in the SEU and US, respectively, were being treated with the appropriate SOC (based on self-reported medication use) and were included in the analyses. Symptoms (e.g., dyspnea, coughing, wheezing) were reported descriptively and summed to create a symptom score (with higher score indicating more frequent symptoms). The relationships between the symptom score and patient outcomes (e.g., health status using the Short Form-36 version 2 [SF-36v2], work productivity and activity impairment [WPAI], and self-reported health care resource use) were explored using regression modeling. RESULTS Nearly all patients (99.7% and 99.8% in the 5EU and US, respectively) reported experiencing symptoms and >80% reported experiencing at least one symptom 'often'. Increasing symptom scores were associated with poorer health status (unstandardized beta [b] = -0.87 and -0.78 for mental component summary and physical component summary, respectively, in the US and b = -0.67 and -0.79 in the 5EU, respectively; all P<0.05). Increasing symptom scores were also associated with greater work impairment (b = 0.09 and 0.06 for the US and 5EU, respectively), activity impairment (b = 0.05 and 0.06, respectively), and health care resource utilization (e.g., hospitalizations: b = 0.05 and 0.06, respectively; all P<0.05). Approximately 70% of patients reported some level of non-adherence. Greater non-adherence was significantly associated with more frequent symptoms, poorer health status, and greater work impairment and health care resource use (all P<0.05). CONCLUSION Patients with COPD who are using the appropriate SOC still experience symptoms, which have a significant effect on both humanistic and economic outcomes.


**Authors**
Chang, Chongwon; Lee, Seung Mi; Choi, Byoungh Whui; Song, Jong Hwa; Song, Hee; Jung, Sujin; Bai, Yoon Kyeong; Park, Haedong; Jeung, Seungwon; Suh, Dong Churl

**Source**
Yonsei medical journal; Jan 2017; vol. 58 (no. 1); p. 187-194

**Publication Date**
2017

**Publication Type(s)**
Journal Article

**PubMedID**
27873513

**Database**
Medline

**Abstract**
PURPOSE To estimate annual health care and productivity loss costs attributable to overweight or obesity in working asthmatic patients. MATERIALS AND METHODS This study was conducted using the 2003-2013 Medical Expenditure Panel Survey (MEPS) in the United States. Patients aged 18 to 64 years with asthma were identified via self-reported diagnosis, a Clinical Classification Code of 128, or an ICD-9-CM code of 493.xx. All-cause health care costs were estimated using a generalized linear model with a log function and a gamma distribution. Productivity loss costs were estimated in relation to hourly wages and missed work days, and a two-part model was used to adjust for patients with zero costs. To estimate the costs attributable to overweight or obesity in asthmatic patients, costs were estimated by the recycled prediction method. RESULTS Among 11,670 working patients with a diagnosis of asthma, 4,428 (35.2%) were obese and 3,761 (33.0%) were overweight. The health care costs attributable to obesity and overweight in working asthma patients were estimated to be $878 [95% confidence interval (CI): $861-$895] and $257 (95% CI: $251-$262) per person per year, respectively, from 2003 to 2013. The productivity loss costs attributable to obesity and overweight among working asthma patients were $256 (95% CI: $253-$260) and $26 (95% CI: $26-$27) per person per year, respectively. CONCLUSION Health care and productivity loss costs attributable to overweight and obesity in asthma patients are substantial. This study’s results highlight the importance of effective public health and educational initiatives targeted at reducing overweight and obesity among patients with asthma, which may help lower the economic burden of asthma.
A Cost-Minimisation Analysis Comparing Sublingual Immunotherapy to Subcutaneous Immunotherapy for the Treatment of House Dust Mite Allergy in a Swedish Setting

Authors: Bjorstad A.; Cardell L.-O.; Hahn-Pedersen J.; Svard M.
Source: Clinical Drug Investigation; Mar 2017; p. 1-9
Publication Date: Mar 2017
Publication Type(s): Article In Press
PubMedID: 28326466
Database: EMBASE
Abstract: Background and Objectives: In Sweden, approximately 6% of children and 10% of adults suffer from house dust mite (HDM) allergy with symptoms of allergic rhinitis and allergic asthma. Treatment is aimed at reducing HDM exposure and to control the symptoms of allergic rhinitis and allergic asthma by symptom-relieving pharmacotherapy. This pharmacotherapy is often effective, but some patients remain inadequately controlled. For these patients, allergy immunotherapy (AIT, subcutaneous or sublingual) with repeated administration of HDM allergen should be considered. The objective of this study was to compare the costs for sublingual AIT (SLIT; SQ SLIT-tablet) to the costs for subcutaneous AIT (SCIT; SQ SCIT) for the treatment of HDM allergy in a cost-minimisation analysis (CMA). Methods: The CMA included resources (and costs) for treatment, healthcare visits, travelling and lost productivity. Resource use based on Swedish clinical treatment practice and costs were obtained from medical price lists. Analyses were conducted from the societal, as well as healthcare perspective, by use of a time horizon of 3 years. Results: The results show that SQ SLIT-tablet is a cost-saving treatment as compared to SQ SCIT for the treatment of HDM allergy (6800 over 3 years). The results are mainly driven by the cost of healthcare visits and the frequency of SCIT administrations. Conclusion: In conclusion, cost-savings of 6800 over 3 years are expected from treating HDM allergy with SQ SLIT-tablet as compared to SQ SCIT, including costs for treatment, healthcare visits, travelling and lost productivity. The reduced number of healthcare visits compensates for higher medication costs.

Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines-2016 revision

Source: Journal of Allergy and Clinical Immunology; 2017
Publication Date: 2017
Publication Type(s): Article In Press
PubMedID: 28602936
Database: EMBASE
Abstract: Background: Allergic rhinitis (AR) affects 10% to 40% of the population. It reduces quality of life and school and work performance and is a frequent reason for office visits in general practice. Medical costs are large, but avoidable costs associated with lost work productivity are even larger than those incurred by asthma. New evidence has accumulated since the last revision of the Allergic Rhinitis and Asthma (ARIA) guidelines in 2010, prompting its update. Objective: We sought to provide a targeted update of the ARIA guidelines. Methods: The ARIA guideline panel identified new clinical questions and selected questions requiring an update. We performed systematic reviews of health effects and the evidence about patients’ values and preferences and resource requirements (up to June 2016). We followed the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) evidence-to-decision frameworks to develop recommendations. Results: The 2016 revision of the ARIA guidelines provides both updated and new recommendations about the pharmacologic treatment of AR. Specifically, it addresses the relative merits of using oral H1-antihistamines, intranasal H1-antihistamines, intranasal corticosteroids, and leukotriene receptor antagonists either alone or in combination. The ARIA guideline panel provides specific recommendations for the choice of treatment and the rationale for the choice and discusses specific considerations that clinicians and patients might want to review to choose the management most appropriate for an individual patient. Conclusions: Appropriate treatment of AR might improve patients’ quality of life and school and work productivity. ARIA recommendations support patients, their caregivers, and health care providers in choosing the optimal treatment.

Efficacy and Safety of Subcutaneous and Sublingual Immunotherapy for Allergic Rhinoconjunctivitis and Asthma

Authors: Roxbury C.R.; Lin S.Y.
Source: Otolaryngologic Clinics of North America; 2017
8. Transfer of innovation on allergic rhinitis and asthma multimorbidity in the elderly (MACVIA-ARIA) - EIP on AHA Twinning Reference Site (GARD research demonstration project)

**Authors**

**Source**
Allergy: European Journal of Allergy and Clinical Immunology; 2017

9. Pharmacoeconomics applied to biological drugs in the management of severe asthma

**Authors**
Martinez Moragon E.

**Source**
Basic and Clinical Pharmacology and Toxicology; Aug 2017; vol. 121; p. 23

**Publication Date**
Aug 2017
Asthma currently affects around 300 million people globally, being one of the most prevalent chronic diseases, affecting 5% of the adult population in Spain. Approximately 10% of patients with asthma suffer from severe asthma, which has an increased risk of death. Achieving good disease control involves taking good control of symptoms and reducing the number of exacerbations. Approximately 50% of patients with severe asthma receiving maintenance therapy, through the combination of inhaled corticosteroids (ICS) and long-acting β2-adrenergic agonists (LABA) do not achieve good disease control, as evaluated through the administration of the Asthma Control Questionnaire. In addition, these poorly controlled patients are the ones that generate the greatest cost to the National Health System and those that show a greater affectation of the quality of life. The management of these patients in specialized units of asthma is cost-effective (improving asthma control and reducing exacerbations and hospitalizations) and this is achieved with therapeutic modifications that sometimes include addiction to the treatment of biological drugs. Biological therapy in severe asthma has a beneficial impact on disease control, provided that patients are adequately selected. The results obtained in the published studies suggest that severe asthmatics treated with biological agents (after appropriately selecting the appropriate therapeutic target for each patient) can improve their symptoms and increase the number of QALYs, consume less health resources and have a lower loss of productivity. All these variables should be considered in real practice when choosing an effective treatment and improving the quality of life of patients with severe asthma.

10. The Finnish experience to save asthma costs by improving care in 1987-2013

Authors: Haahtela T.; Herse F.; Leskela R.-L.; Karjalainen J.; Klaukka T.; Linna M.; Selroos O.; Reissell E.
Source: Journal of Allergy and Clinical Immunology; Feb 2017; vol. 139 (no. 2); p. 408
Publication Date: Feb 2017
Publication Type(s): Article
PubMedID: 27979429
Database: EMBASE
Abstract: The Finnish National Asthma Program 1994-2004 markedly improved asthma care in the 1990s. We evaluated the changes in costs during 26 years from 1987 to 2013. Direct and indirect costs were calculated by using data from national registries. Costs from both the societal and patient perspectives were included. The costs were based on patients with persistent, physician-diagnosed asthma verified by lung function measurements. We constructed minimum and maximum scenarios to assess the effect of improved asthma care on total costs. The number of patients with persistent asthma in the national drug reimbursement register increased from 83,000 to 247,583. Improved asthma control reduced health care use and disability, resulting in major cost savings. Despite a 3-fold increase in patients, the total costs decreased by 14%, from 222 million to 191 million. Costs for medication and primary care visits increased, but overall annual costs per patient decreased by 72%, from 2656 to 749. The theoretical total cost savings for 2013, comparing actual with predicted costs, were between 120 and 475 million, depending on the scenario used. The Finnish Asthma Program resulted in significant cost savings at both the societal and patient levels during a 26-year period.

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11. Clinically significant improvements in asthma patient-reported outcomes: Results from the prospective observational study to evaluate predictors of clinical effectiveness in response to omalizumab (PROSPERO) Study

Authors: Gonzalez-Reyes E.G.; Luskin A.T.; Busse W.; Casale T.B.; Chipp B.E.; Antonova E.; Limb S.L.; Trzaskoma B.L.; Griffin N.M.; Zeiger R.S.
Source: Journal of Allergy and Clinical Immunology; Feb 2017; vol. 139 (no. 2)
Publication Date: Feb 2017
Publication Type(s): Conference Abstract
Database: EMBASE
Abstract

RATIONALE: Real-world data on patient-reported outcomes in asthma patients receiving omalizumab treatment are limited. This study aims to bridge that gap. METHODS: PROSPERO, a US-based, multicenter, prospective, 12-month, observational study, enrolled patients > 12 years old with asthma who initiated omalizumab therapy between 6/2013-3/2015 (clinicaltrials.gov: NCT01922037). At baseline and throughout the study, patients completed the following validated questionnaires: Asthma Control Test (ACT), Asthma Quality of Life Questionnaire (AQLQ), Work Productivity and Activity Impairment (WPAI)-Asthma Questionnaire, and Mini Rhinoconjunctivitis Quality of Life Questionnaire (miniRQLQ). Changes from baseline at month 12 are reported for each questionnaire. RESULTS: Among 806 enrolled patients, 622 (77.2%) completed the study. Patients were primarily female (63.5%), white (70.3%), obese (48.5%), diagnosed with moderate (48.1%) or severe (47.8%) asthma and never smoked (65%); 61% of patients reported > 2 exacerbations in the 12 months prior to enrollment. At baseline, patients reported mean [SD] scores: ACT (13.9 [5.0]), AQLQ (4.0 [1.4]), miniRQLQ (2.7 [1.4]), and % WPAI Overall Work Impairment (33.5 [28.7]), and % Daily Activity Impairment (47.7 [28.9]). At the end of the study patients reported clinically meaningful mean [SD] changes from baseline in ACT (4.4 [4.9]), AQLQ (1.3 [1.3]), and miniRQLQ (-1.0 [1.3]) and all WPAI domains, including % Overall Work Impairment (-16.4 [29.6]) and % Daily Activity Impairment (-20.80 [32.4]). CONCLUSIONS: In a real world setting, patients receiving omalizumab reported at month 12, clinically meaningful improvement from baseline in asthma control, asthma- and rhinoconjunctivitis-related quality of life, and decline in work and daily activity impairment.

12. Asthma control and disease burden in patients with asthma and allergic comorbidities

Authors
Lee L.K.; Obi E.; Kavati A.; Chipps B.; Paknis B.

Source
Journal of Asthma; May 2017; p. 1-12

Publication Date
May 2017

Publication Type(s)
Article In Press

Database
EMBASE

Abstract
Objective: To assess asthma control and associations with health-related quality of life (HRQoL) and economic outcomes among patients with asthma and allergic comorbidities treated with inhaled corticosteroids (ICS) and long-acting beta-agonists (LABA) combination therapy. Methods: Data from the 2011-2013 US National Health and Wellness Survey were used to identify patients with asthma currently treated with ICS and LABA combination therapy (N = 1923). Patients were included if they self-reported a physician diagnosis of asthma and at least one allergic/asthma-related comorbid condition (e.g., nasal allergies, atopic dermatitis). Asthma Control Test scores categorized patients as very poorly (scores <= 15; 29.3%), not well (16-19; 25.1%), or well controlled (20-25; 45.7%). Outcomes included HRQoL (SF-36v2; SF-12v2), work productivity and activity impairment, healthcare utilization (HRU), and annual indirect and direct costs. Generalized linear models, controlling for covariates, examined whether outcomes differed by asthma control. Results: Over half of the patients had very poorly or not well-controlled asthma (54.4%). Patients with very poorly controlled versus well-controlled asthma reported significantly greater decreases in HRQoL, greater overall work impairment, and higher HRU (all, p < 0.05). Very poorly controlled patients incurred over double the indirect costs and nearly one and a half times the direct costs of well-controlled patients. Conclusions: Increasing level of asthma control was related to improved HRQoL and lower costs. The considerably high prevalence of uncontrolled asthma among patients on ICS and LABA suggests poor treatment adherence or unmet needs in current treatment and may require step-up therapy in appropriate patients according to clinical guidelines.

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13. The impact of poor asthma control among asthma patients treated with inhaled corticosteroids plus long-acting beta 2-agonists in the United Kingdom: A cross-sectional analysis

Authors
Pavord I.D.; Mathieson N.; Scowcroft A.; Pedersini R.; Isherwood G.; Price D.

Source
npj Primary Care Respiratory Medicine; Dec 2017; vol. 27 (no. 1)

Publication Date
Dec 2017

Publication Type(s)
Article

Database
EMBASE

Abstract
Available at npj Primary Care Respiratory Medicine from Nature Publishing Group - Open Access
Available at npj Primary Care Respiratory Medicine from Europe PubMed Central - Open Access
Abstract

There are several new treatment options for patients whose asthma remains uncontrolled on free-dose and fixed-dose combinations of inhaled corticosteroids plus long-acting beta2-agonists (ICS+LABA). In order to evaluate the likely impact of these treatments, we assessed the effect of uncontrolled asthma on healthcare and patient burden within the UK among adult patients treated with ICS+LABA. Data obtained from 2010-2011 UK National Health and Wellness Surveys identified 701 patients treated with ICS+LABA. Patients with not well-controlled asthma (Asthma Control TestTM score <20) were compared with well-controlled asthma (score >= 20) patients on multiple measures. Cost burden was calculated using healthcare resource utilisation models and work productivity and impairment questionnaire. Overall, 452 and 249 patients reported not well-controlled and well-controlled asthma, respectively. A greater proportion of not well-controlled patients visited the accident & emergency department (21 vs. 14%, P = 0.016), were hospitalised (13 vs. 8%, P = 0.022) and had lower mental and physical health-related quality of life (P < 0.001) and impaired work productivity and activity scores: Presenteeism (23 vs. 11%, P < 0.001), work impairment (29 vs. 17%, P < 0.001) and activity impairment (46 vs. 24%, P < 0.001). Calculated direct and indirect yearly costs/person doubled among not well-controlled compared to well-controlled asthma patients (6592 vs. 3220). Total cost to society was estimated at 6172 million/year (direct costs, 1307 million; indirect costs, 4865 million). In conclusion, not well-controlled asthma is common among UK adults treated with ICS+LABA, resulting in impairments across a number of important health outcomes and represents a significant unmet need and resource burden.

14. Association between asthma control and asthma cost: Results from a longitudinal study in a primary care setting

Authors
Nguyen H.V.; Nadkarni N.V.; Lye W.K.; Sankari U.; Tan N.C.; Mital S.

Source
Respirology; Apr 2017; vol. 22 (no. 3); p. 454-459

Publication Date
Apr 2017

Publication Type(s)
Article

Database
EMBASE

Abstract
Background and objective: Asthma control can be assessed with the Asthma Control Test (ACT) and a score of 20 or higher indicates good asthma control. Patients pay for their consultation and treatment in the fee-for-service primary healthcare system in Singapore. We hypothesized that achieving asthma control would result in lower asthma costs through reduced acute exacerbations, fewer physician consultations and lower lost productivity. The study compared the healthcare costs of patients who achieved asthma control and those with suboptimal asthma control based on ACT scores. Factors influencing asthma control and healthcare expenditure over time were also examined. Methods: A total of 736 patients were enrolled into an asthma care programme in two polyclinics during 2008 and 2013. Direct costs of asthma management were derived from the frequency of polyclinic consultations, medication costs and hospitalization. Indirect costs were estimated from lost workdays due to exacerbations. The generalized estimating equation (GEE) approach was used to longitudinally model the factors associated with total healthcare expenditure. Results: Patients with asthma control spent S$48 (US$36) more per doctor visit on asthma drugs (P < 0.01) but incurred S$65 (US$48) less per doctor visit in total costs (P < 0.01) than those with suboptimal asthma control. The savings from achieving asthma control for obese patients were greater than for normal-weight patients (S$42 or the equivalent of US$31; P < 0.05). Conclusion: Optimal asthma control was associated with reduced healthcare costs. An effective treatment regimen should also consider other modifiable factors such as weight control to achieve asthma control and eventually reduce asthma costs. Copyright © 2016 Asian Pacific Society of Respirology
# Strategy

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