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CRG bibliography

A Comparison of the Explanatory Power of Two Approaches to the Prediction of Post Acute Care Resources Use

Author Jon Eisenhandler, Richard Averill, James Vertrees, Anthony Quain, James Switalski

URL https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Reports/Downloads/Comparing_CRGs_and_HCCs_V2_12-19.pdf

Date 2011

Institution 3M HIS

Abstract The important conclusions from this research include:

- For charges CRGs have a substantially higher R2 across all windows
- For charges the R2 for both CRGs and HCCs increases as the length of the window increases but for payments the R2 is relatively flat as the length of the window increases
- For both CRGs and HCCs the R2 drops substantially when readmissions are added to the post acute care bundle
- For payments CRGs have substantially higher R2 for post acute care bundles composed of hospital outpatient, physician and other part B, DME, and home health. However when skilled nursing facility and hospice are added to the post acute care bundle HCCs have a slightly higher R2
- The correlation coefficient for the predicted CRG and HCC values are 0.612-0.680 for charges and 0.715-0.769 for payments depending on the episode window.

Acute kidney injury secondary to a combination of renin-angiotensin system inhibitors, diuretics and NSAIDS: 'The Triple Whammy'

Author Rosa Maria Garcia Camin, Montse Cols, Julio Leonel Chevarria, Rosa García Osuna, Marc Carreras, Josep Maria Lisbona, Jordi Coderch

URL https://www.ncbi.nlm.nih.gov/pubmed/26300514

Publication Nefrologia: Publicacion Oficial De La Sociedad Espanola Nefrologia, Volume 35, Issue 2, Pages 197–206

Date 2015

Abstract Background: Renin-angiotensin system inhibitors (ACEI/ARB-II), diuretics and NSAIDs, a combination known as 'Triple Whammy', can result in decreased glomerular filtration rate (GFR) and acute kidney injury (AKI). Objectives: To describe the incidence of AKI for each drug type and their combinations. To define the profile of patients admitted for drug-related AKI secondary to Triple Whammy drugs (AKITW), with an assessment of costs and mortality. METHODS: A retrospective observational 15-month study developed in three stages: – First: a cross-sectional stage to identify and describe hospitalizations due to AKITW. – Second: a follow-up stage of an outpatient cohort consuming these drugs (15,307 subjects). – Third: a cohort stage to assess costs and mortality, which compared 62 hospitalized patients with AKITW and 62 without AKI, paired by medical specialty, sex, age and comorbidity according to their Clinical Risk Groups. RESULTS: There were 85 hospitalization episodes due to AKITW, and 78% of patients were over the age of 70. The incidence of AKITW in the population was 3.40 cases/1000 users/year (95% CI: 2.59-4.45). By categories, these were: NSAIDs + diuretics 8.99 (95% CI: 3.16-25.3); Triple Whammy 8.82 (95% CI: 4.4-17.3); ACEI/ARB-II + diuretics 6.87 (95% CI: 4.81-9.82); and monotherapy with diuretics 3.31 (95% CI: 1.39-7.85). Mean hospital stay was 7.6 days (SD 6.4), and mean avoidable costs were estimated at €214,604/100,000 inhabitants/year. Mortality during hospitalization and at 12 months was 11.3% and 38.7% respectively, and there were no significant differences when compared with the control group. Conclusions: Treatment with ACEI, ARB-II, diuretics and/or NSAIDs shows a high incidence of hospitalization episodes due to AKI; diuretics as monotherapy or dual and triple combination therapy cause the highest incidence. AKITW involves high health care costs and avoidable mortality.

Adjusting Population Risk for Functional Health Status

Author Richard L. Fuller, John S. Hughes, Norbert I. Goldfield

URL http://online.liebertpub.com/doi/abs/10.1089/pop.2015.0043

Publication Population Health Management, Volume 19, Issue 2, Pages 136–144

Date 8 September 2015

Abstract Risk adjustment accounts for differences in population mix by reducing the likelihood of enrollee selection by managed care plans and providing a correction to otherwise biased reporting of provider or plan performance. Functional health status is not routinely included within risk-adjustment methods, but is believed by many to be a significant enhancement to risk adjustment for complex enrollees and patients. In this analysis a standardized measure of functional health was created using 3 different source functional assessment instruments submitted to the Medicare program on condition of payment. The authors use a 5% development sample of Medicare claims from 2006 and 2007, including functional health assessments, and develop a model of functional health classification comprising 9 groups defined by the interaction of self-care, mobility, incontinence, and cognitive impairment. The 9 functional groups were used to augment Clinical Risk Groups, a diagnosis-based patient classification system, and when using a validation set of 100% of Medicare data for 2010 and 2011, this study found the use of the functional health module to improve the fit of observed enrollee cost, measured by the R2 statistic, by 5% across all Medicare enrollees. The authors observed complex nonlinear interactions across functional health domains when constructing the model and caution that functional health status needs careful handling when used for risk adjustment. The addition of functional health status within existing risk-adjustment models has the potential to improve equitable resource allocation in the financing of care costs for more complex enrollees if handled appropriately. (Population Health Management 2016;19:136–144).

Appointment 'no-shows' are an independent predictor of subsequent quality of care and resource utilization outcomes

Author Andrew S. Hwang, Steven J. Atlas, Patrick Cronin, Jeffrey M. Ashburner, Sachin J. Shah, Wei He

URL http://link.springer.com/article/10.1007/s11606-015-3252-3

Publication Journal of General Internal Medicine, Volume 30, Issue 10, Pages 1426–1433

Date 17 March 2015

Abstract Background: Identifying individuals at high risk for suboptimal outcomes is an important goal of healthcare delivery systems. Appointment no- shows may be an important risk predictor.Objectives: To test the hypothesis that patients with a high propensity to "no-show" for appointments will have worse clinical and acute care utilization outcomes compared to patients with a lower propensity. Design: We calculated the no-show propensity factor (NSPF) for patients of a large academic primary care network using 5 years of outpatient appointment data. NSPF corrects for patients with fewer appointments to avoid over-weighting of no-show visits in such patients. We divided patients into three NSPF risk groups and evaluated the association between NSPF and clinical and acute care utilization outcomes after adjusting for baseline patient characteristics. Participants: A total of 140,947 patients who visited a network practice from January 1, 2007, through December 31, 2009, and were either connected to a primary care physician or to a primary care practice, based on a previously validated algorithm.Main feature: Outcomes of interest were incomplete colorectal, cervical, and breast cancer screening, and above-goal hemoglobin A1c (HbA1c) and low-density lipoprotein (LDL) levels at 1-year follow-up, and hospitalizations and emergency department visits in the subsequent 3 years. Key results: Compared to patients in the low NSPF group, patients in the high NSPF group (n=14,081) were significantly more likely to have incomplete preventive cancer screening (aOR 2.41 [2.19–.66] for colorectal, aOR 1.85 [1.65–.08] for cervical, aOR 2.93 [2.62–3.28] for breast cancer), above-goal chronic disease control measures (aOR 2.64 [2.22–3.14] for HbA1c, aOR 1.39 [1.15–1.67] for LDL], and increased rates of acute care utilization (aRR 1.37 [1.31–1.44] for hospitalization, aRR 1.39 [1.35–1.43] for emergency department visits). Conclusions: NSPF is an independent predictor of suboptimal primary care outcomes and acute care utilization. NSPF may play an important role in helping healthcare systems identify high-risk patients.

Augmenting predictive modeling tools with clinical insights for care coordination program design and implementation

Author Tracy L. Johnson, Daniel Brewer, Raymond Estacio, Tara Vlasimsky, Michael J. Durfee, Kathy R. Thompson, Rachel M. Everhart, Deborath J. Rinehart, Holly Batal

URL http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4537083/

Publication eGEMs, Volume 3, Issue 1

Date 30 July 2015

Abstract The Center for Medicare and Medicaid Innovation (CMMI) awarded Denver Health's (DH) integrated, safety net health care system $19.8 million to implement a "population health" approach into the delivery of primary care. This major practice transformation builds on the Patient Centered Medical Home (PCMH) and Wagner's Chronic Care Model (CCM) to achieve the "Triple Aim": improved health for populations, care to individuals, and lower per capita costs. Case description: This paper presents a case study of how DH integrated published predictive models and front-line clinical judgment to implement a clinically actionable, risk stratification of patients. This population segmentation approach was used to deploy enhanced care team staff resources and to tailor care-management services to patient need, especially for patients at high risk of avoidable hospitalization. Developing, implementing, and gaining clinical acceptance of the Health Information Technology (HIT) solution for patient risk stratification was a major grant objective. Findings: In addition to describing the Information Technology (IT) solution itself, we focus on the leadership and organizational processes that facilitated its multidisciplinary development and ongoing iterative refinement, including the following: team composition, target population definition, algorithm rule development, performance assessment, and clinical-workflow optimization. We provide examples of how dynamic business intelligence tools facilitated clinical accessibility for program design decisions by enabling real-time data views from a population perspective down to patient-specific variables. Conclusions: We conclude that population segmentation approaches that integrate clinical perspectives with predictive modeling results can better identify high opportunity patients amenable to medical home-based, enhanced care team interventions.

Central line–associated bloodstream infection rates by chronic condition groups in children

Author John M. Neff, J. Mitchell Harris, James C. Gay

URL http://hosppeds.aappublications.org/content/6/7/399

Publication Hospital Pediatrics, Volume 6, Issue 7, Pages 399-403

Date 1 July 2016

Abstract The Deficit Reduction Act of 2005 and the Affordable Care Act of 2010 mandated that Medicaid and Medicare adopt payment-reduction policies that document hospital-acquired conditions. Central line–associated blood stream infection (CLABSI) is one of the most prevalent, potentially preventable acquired conditions in hospitalized children.The epidemiology of CLABSIs in PICUs and successes in reducing CLABSIs have been well described. Although line days are a recognized way of measuring risk of CLABSIs, there is no method to identify line days in the hospital discharge administrative billing data used for public reporting. Insertions of central lines and the risk of CLABSI are likely to increase according to the complexity of underlying conditions. In the absence of documentation of line days in administrative data, stratification of patient populations by medical complexity could be a useful way to determine CLABSI risk. Currently there is no method in administrative data reports to measure the risk of CLABSI according to underlying conditions. Diagnostic-related groups methods may provide a severity index for an admission, but they may not identify the patient's underlying conditions. Children's hospitals care for children with many complex chronic conditions, a group that seems to be increasing more than any other category. We proposed to determine the rates of CLABSI in 3 similar children's hospitals according to patient complexity groups by using the 3M Health Information Systems' clinical risk groups (CRGs). CRGs have already been used and validated as a method to stratify patients into complex chronic condition groups in children's hospitals and health plan administrative data. We explore whether such stratification can provide reportable rates of CLABSI that reflect populations at risk. We have divided our population into 2 age groups, <1 year and ≥1 year…

Comparing the value of three main diagnostic-based risk-adjustment systems (DBRAS)

Author Marc Berlinguet

URL http://www.cfhi-fcass.ca/migrated/pdf/researchreports/ogc/berlinguet_final.pdf

Institution Canadian Health Services Research Foundation

Date March 2005

Conclusion Conclusions Given the principal selection and evaluation criteria finally retained and in view of the results described in this report and the comments made by clinicians, evaluators, and other knowledgeable people during the course of this evaluation, the following summary table was produced. We believe all three groupers are basically good, sound, and usable in Canada: selecting one depends on one's preference, experience, and intended usage.

Criterion/product	Clinical relevance	Resources prediction	Convenient Resource Weighting
ADG/ACG	+	++	+
DCG-HCC	+ +	+ + +	+
CRG	+ + +	+ +/+ + +	+ + +

Conflicting readmission rate trends in a high-risk population: implications for performance measurement

Author C. Annette DuBard, Julie C. Jacobson Vann, Carlos T. Jackson

URL http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4675182

Publication Population Health Management, Volume 18, Issue 5, Pages 351–357

Date 1 October 2016

Abstract The 30-day readmission rate is a common performance indicator for hospitals and accountable care entities. There is reason to question whether measuring readmissions as a function of hospital discharges is an appropriate measure of performance for initiatives that aim to improve overall cost and quality outcomes in a population. The objectives of this study were to compare trends in 30-day readmission rates per discharge to population- based measures of hospital admission and readmission frequency in a high-risk statewide Medicaid population over a 5-year period of quality improvement and care management intervention. Further, this study aimed to examine case-mix changes among hospitalized beneficiaries over time. This was a retrospective analysis of North Carolina Medicaid paid claims 2008 through 2012 for beneficiaries with multiple chronic or catastrophic conditions. Thirty-day readmission rates per discharge trended upward from 18.3% in 2008 to 18.7% in 2012. However, the rate of 30-day readmissions per 1000 beneficiaries declined from 123.3 to 110.7. Overall inpatient admissions per 1000 beneficiaries decreased from 579.4 to 518.5. The clinical complexity of hospitalized patients increased over the 5-year period. Although rates of hospital admissions and readmissions fell substantially in this high-risk population over 5 years, the 30-day readmission rate trend appeared unfavorable when measured as a percent of hospital discharges. This may be explained by more complex patients requiring hospitalization over time. The choice of metrics significantly affects the perceived effectiveness of improvement initiatives. Emphasis on readmission rates per discharge may be misguided for entities with a population health management focus.

For many patients who use large amounts of health care services, the need is intense yet temporary

Author Tracy L. Johnson, Deborah J. Rinehart, Josh Durfee, Daniel Brewer, Holly Batal, Joshua Blum, Carlos I. Oronce, Paul Melinkovich, Patricia Gabow

URL http://content.healthaffairs.org/content/34/8/1312.abstract

Publication Health Affairs (Project Hope), Volume 34, Issue 8, Pages 1312-1319

Date August 2015

Abstract Patients who accumulate multiple emergency department visits and hospital admissions, known as super-utilizers, have become the focus of policy initiatives aimed at preventing such costly use of the health care system through less expensive community- and primary care-based interventions. We conducted cross-sectional and longitudinal analyses of 4,774 publicly insured or uninsured super-utilizers in an urban safety-net integrated delivery system for the period May 1, 2011-April 30, 2013. Our analysis found that consistently 3 percent of adult patients met super-utilizer criteria and accounted for 30 percent of adult charges. Fewer than half of super-utilizers identified as such on May 1, 2011, remained in the category seven months later, and only 28 percent remained at the end of a year. This finding has important implications for program design and for policy makers because previous studies may have obscured this instability at the individual level. Our study also identified clinically relevant subgroups amenable to different interventions, along with their per capita utilization and costs before and after being identified as super-utilizers. Future solutions include improving predictive modeling to identify individuals likely to experience sustained levels of avoidable utilization, better classifying subgroups for whom interventions are needed, and implementing stronger program evaluation designs.

Fracaso renal agudo secundario a combinación de inhibidores del sistema renina-angiotensina, diuréticos y AINES. 'La Triple Whammy'

Author Rosa Maria Garcia Camin, Montse Cols, Julio Leonel Chevarria, Rosa García Osuna, Marc Carreras, Josep Maria Lisbona, Jordi Coderch

URL http://www.sciencedirect.com/science/article/pii/S0211699515000351

Publication Nefrologia: Publicacion Oficial De La Sociedad Espanola Nefrologia, Volume 35, Issue 2, Pages 197–206

Date March 2015

Abstract ResumenIntroducción Inhibidores del sistema renina-angiotensina (IECAS/ARA II), diuréticos y AINES, combinación conocida como "Triple Whammy", pueden producir descenso de filtrado glomerular y fracaso renal agudo (FRA). Objetivos Describir la incidencia de FRA para cada tipo de fármaco y sus combinaciones. Caracterizar el perfil de paciente que ingresa por FRA extrahospitalario secundario a fármacos de la Triple Whammy (FRAETW), evaluando costes y mortalidad. Métodos estudio observacional retrospectivo realizado durante 15 meses y desarrollado en tres etapas: - 1° Etapa transversal de identificación y descripción de los ingresos hospitalarios por FRAETW. - 2° Etapa de seguimiento de una cohorte ambulatoria consumidora de estos fármacos (15.307 consumidores) - 3° Etapa de cohortes para evaluar costes y mortalidad, contrastando 62 pacientes ingresados con FRAETW, con 62 pacientes sin FRA, apareados por especialidad médica, sexo, edad y comorbilidad según Clinical Risk Groups. Resultados 85 ingresos por FRAETW, 78% mayores de 70 años. Incidencia poblacional de FRAETW: 3,40 casos/1.000 consumidores/año (IC95% 2,59-4,45). Por categorías: AINES + diuréticos 8,99(IC95% 3,16-25,3), la "Triple Whammy" 8,82(IC 95% 4,4-17,3), IECA/ARA II + diuréticos 6,87(IC95% 4,81-9,82) y la monoterapia con diuréticos 3,31(IC95% 1,39-7,85). Estancia media 7,6 días (DE 6,4), estimándose coste medio evitable de 214.604 €/100.000 habitantes/año. Mortalidad del 11,3% durante el ingreso y del 38,7% a los 12 meses, sin diferencias significativas con los controles. Conclusiones El tratamiento con IECA, ARA II, diuréticos y/o AINES presenta elevada incidencia de ingreso por FRA, siendo los diuréticos en monoterapia, doble y triple terapia combinada los que ocasionan la mayor incidencia. El FRAETW supone elevados costes sanitarios y muertes evitables. AbstractIntroduction Renin-angiotensin system inhibitors (ACEIs/ARBs), diuretics and non-steroidal anti-inflammatory drugs (NSAIDs) — a combination also known as the Triple Whammy (TW) — can reduce the glomerular filtration rate (GFR) and lead to acute kidney injury (AKI). Objective To study the incidence of AKI due to any type or combination of drugs. To describe patient profiles admitted for outpatient AKI due to TW drugs (AKI-TW), hospital costs and mortality. Methods This was a 15-month retrospective observational study, developed in 3 stages: - First stage: Cross-sectional description of outpatient AKI-TW hospitalisation episodes. - Second stage: Outpatient drug consumer cohort follow-up (15,307 individuals). - Third stage: Mortality and costs evaluation. It included 62 patients with AKI-TW and 62 without, paired by medical specialty, gender, age and comorbidity according to the Clinical Risk Groups (CRG) system. Results There were 85 hospitalisation episodes attributed to AKI-TW; 78% of cases were older than 70 years. Incidence of AKI-TW was 3.40 cases/1000 users/year (95% CI: 2.59-4.45). Double therapy with NSAIDs + diuretics was 8.99 (95%CI 3.16-25.3); Triple Whammy was 8.82 (95% CI 4.4-17.3); double therapy with ACEIs/ARBs + diuretics 6.87 (95% CI 4.81-9.82); and diuretics in monotherapy 3.31(95% CI 1.39-7.85). Mean stay for cases was 7.6 days (SD 6.4) and total avoidable costs were €214,604/100,000 inhabitants/year. Mortality during hospital stay and at 12 months was 11.3% and 40.3% respectively, without significant differences between groups. Conclusions Triple Whammy therapy is associated with a high incidence of hospital admission for AKI. Diuretics in monotherapy, double and combined triple therapy are associated with a high incidence of AKI. AKI-TW involves high hospital costs and avoidable mortality.

Health care savings with the patient-centered medical home: community care of North Carolina's experience

Author Herbert Fillmore, C. Annette DuBard, Grant A. Ritter, Carlos T. Jackson

URL http://online.liebertpub.com/doi/abs/10.1089/pop.2013.0055

Publication Population Health Management, Volume 17, Issue 3, Pages 141–148

Date 21 September 2013

Abstract This study evaluated the financial impact of integrating a systemic care management intervention program (Community Care of North Carolina) with person-centered medical homes throughout North Carolina for non-elderly Medicaid recipients with disabilities during almost 5 years of program history. It examined Medicaid claims for 169,676 non-elderly Medicaid recipients with disabilities from January 2007 through third quarter 2011. Two models were used to estimate the program's impact on cost, within each year. The first employed a mixed model comparing member experiences in enrolled versus unenrolled months, accounting for regional differences as fixed effects and within physician group experience as random effects. The second was a pre-post, intervention/comparison group, difference-in-differences mixed model, which directly matched cohort samples of enrolled and unenrolled members on strata of preenrollment pharmacy use, race, age, year, months in pre-post periods, health status, and behavioral health history. The study team found significant cost avoidance associated with program enrollment for the non-elderly disabled population after the first years, savings that increased with length of time in the program. The impact of the program was greater in persons with multiple chronic disease conditions. By providing targeted care management interventions, aligned with person-centered medical homes, the Community Care of North Carolina program achieved significant savings for a high-risk population in the North Carolina Medicaid program. (Population Health Management 2013;17:141–148).

Health district drug management tools in the comunidad Valenciana health system

Author J. L. Trillo, R. Usó, D. Vivas, J. Bru, C. Sancho, L. Buigues, I. Saurí, P. Mendez

URL http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6864309

Publication Conference paper: IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI)

Date June 2014

Abstract This paper presents two software tools developed by the Conselleria de Sanitat CV (Valencia Regional Health Department) to improve pharmaceutical management and the rational use of medicines. The first tool (SCPcv) stratifies the population into groups according to morbidity using Clinical Risk Groups (CRG) and establishes pharmaceutical consumption forecasts by type of patient and compliance indicators. The second tool (PRM) is used to manage medicine related problems (MRP) under the programme REFAR (Review and Follow Up of Pharmacotherapy). Both tools are improving the quality of care delivered in the scope of pharmaceutical treatments and helping pharmaceutical cost containment.

Identifying high-risk children in the emergency department

Author Katie R. Nielsen, Russ Migita, Maneesh Batra, Jane L. Di Gennaro, Joan S. Roberts, Noel S. Weiss

URL http://jic.sagepub.com/content/early/2015/02/05/0885066615571893

Publication Journal of Intensive Care Medicine

Date 2 October 2015

Abstract Abstract Purpose: Early warning scores (EWS) identify high-risk hospitalized patients prior to clinical deterioration; however, their ability to identify high- risk pediatric patients in the emergency department (ED) has not been adequately evaluated. We sought to determine the association between modified pediatric EWS (MPEWS) in the ED and inpatient ward-to-pediatric intensive care unit (PICU) transfer within 24 hours of admission. Methods: This is a case–control study of 597 pediatric ED patients admitted to the inpatient ward at Seattle Children's Hospital between July 1, 2010, and December 31, 2011. Cases were children subsequently transferred to the PICU within 24 hours, whereas controls remained hospitalized on the inpatient ward. The association between MPEWS in the ED and ward-to-PICU transfer was determined by chi-square analysis. Results: Fifty children experienced ward-to-PICU transfer within 24 hours of admission. The area under the receiver–operator characteristic curve was 0.691. Children with MPEWS > 7 in the ED were more likely to experience ward-to-PICU transfer (odds ratio 8.36, 95% confidence interval 2.98-22.08); however, the sensitivity was only 18.0% with a specificity of 97.4%. Using MPEWS >7 for direct PICU admission would have led to 167 unnecessary PICU admissions and identified only 9 of 50 patients who required PICU care. Conclusions: Elevated MPEWS in the ED is associated with increased risk of ward-to-PICU transfer within 24 hours of admission; however, an MPEWS threshold of 7 is not sufficient to identify more than a small proportion of ward-admitted children with subsequent clinical deterioration.

Incremental benefit of a home visit following discharge for patients with multiple chronic conditions receiving transitional care

Author Carlos Jackson, Elizabeth W. Kasper, Christianna Williams, C. Annette DuBard

URL http://online.liebertpub.com/doi/abs/10.1089/pop.2015.0074

Publication Population Health Management

Date 2 October 2015

Abstract Transitional care management is effective at reducing hospital readmissions among patients with multiple chronic conditions, but evidence is lacking on the relative benefit of the home visit as a component of transitional care. The sample included non-dual Medicaid recipients with multiple chronic conditions enrolled in Community Care of North Carolina (CCNC), with a hospital discharge between July 2010 and December 2012. Using claims data and care management records, this study retrospectively examined whether home visits reduced the odds of 30-day readmission compared to less intensive transitional care support, using multivariate logistic regression to control for demographic and clinical characteristics. Additionally, the researchers examined group differences within clinical risk strata on inpatient admissions and total cost of care in the 6 months following hospital discharge. Of 35,174 discharges receiving transitional care from a CCNC care manager, 21% (N = 7468) included a home visit. In multivariate analysis, home visits significantly reduced the odds of readmission within 30 days (odds ratio = 0.52, 95% confidence interval 0.48–0.57). At the 6-month follow-up, home visits were associated with fewer inpatient admissions within 4 of 6 clinical risk strata, and lower total costs of care for highest risk patients (average per member per month cost difference $970; P < 0.01). For complex chronic patients, home visits reduced the likelihood of a 30-day readmission by almost half compared to less intensive forms of nurse-led transitional care support. Higher risk patients experienced the greatest benefit in terms of number of inpatient admissions and total cost of care in the 6 months following discharge. (Population Health Management 2015;xx:xxx–xxx).

It's all about impactability! Optimizing targeting for care management of complex patients

Author Carlos Jackson , Annette DuBard

URL https://www.communitycarenc.org/media/files/data-brief-no-4-optimizing-targeting-cm.pdf

Publication Community Care of North Caroline, Data Brief, Issue 4

Date 2 November 2015

Abstrat The key points from this brief are: Return on investment for care management interventions is highly dependent on intelligent targeting of patients who are most likely to benefit. High cost/high risk does not mean highly impactable. CCNC's vast experience with complex care management has led to the development of an empirical approach to predicting impactability, or identifying patients for whom complex care management will yield the greatest benefit. A targeting strategy that uses CCNC's Complex Care Management Impactability ScoresTM will likely yield twice the savings of simply targeting high cost/high risk patients, and three times the savings compared to less discriminant deployment of care management resources.

Medicaid admissions and readmissions: Understanding the prevalence, payment, and most common diagnoses

Author Tara Trudnak, David Kelley, Judy Zerzan, Katherine Griffith, H. Joanna Jiang, Gerry L. Fairbrother

URL http://content.healthaffairs.org/content/33/8/1337

Publication Health Affairs, Volume 33, Issue 8, Pages 1337–1344

Date 8 January 2014

Abstract Reducing hospital readmissions is a way to improve care and reduce avoidable costs. However, there have been few studies of readmissions in the Medicaid population. We sought to characterize acute care hospital admissions and thirty-day readmissions in the Medicaid population through a retrospective analysis in nineteen states. We found that Medicaid readmissions were both prevalent (9.4 percent of all admissions) and costly ($77 million per state) and that they represented 12.5 percent of Medicaid payments for all hospitalizations. Five diagnostic groups appeared to drive Medicaid readmissions, accounting for 57 percent of readmissions and 49 percent of hospital payments for readmissions. The most prevalent diagnostic categories were mental and behavioral disorders and diagnoses related to pregnancy, childbirth, and their complications, which together accounted for 31.2 percent of readmissions. This analysis, conducted through the Medicaid Medical Directors Learning Network, allows Medicaid medical directors to better understand the nature and prevalence of hospital use in the Medicaid population and provides a baseline for measuring improvement.

Methods to control the pharmaceutical cost impact of chronic conditions in the elderly

Author David Vivas-Consuelo, Ruth Usó-Talamantes, José Luis Trillo-Mata & Pablo Mendez-Valera

URL http://www.tandfonline.com/doi/abs/10.1586/14737167.2015.1017564#.VytNz_koShc

Publication Expert review of Pharmacoeconomics & Outcomes Research, Volume 15, Issue 3

Date 23 February 2015

Abstract Multimorbidity is the main cause of polypharmacy in elderly people, with the consequent increment in cost and use of inappropriate medication. To control cost, specific strategies have been implemented in healthcare services to reduce potentially inappropriate prescription. Many interventions are applied online during the prescription process using computerized decision support systems, for example, therapeutic algorithms and alerts. Other interventions can be categorized as offline due to their application before or after the prescription process, the main strategies being financial incentives, medication reviews and organizational change. All these strategies are complementary and multifaceted. There is evidence that some of these interventions are effective, but further research should be directed in this field, including investigation of patient cost and outcomes.

Mispricing in the medicare advantage risk adjustment model

Author Jing Chen, Randall P. Ellis, Katherine H. Toro, Arlene S. Ash

URL http://journals.sagepub.com/doi/full/10.1177/0046958015583089

Publication INQUIRY: The Journal of Health Care Organization, Provision, and Financing, Volume 52, Pages 1–7

Date 1 May 2015

Abstract The Centers for Medicare and Medicaid Services (CMS) implemented hierarchical condition category (HCC) models in 2004 to adjust payments to Medicare Advantage (MA) plans to reflect enrollees' expected health care costs. We use Verisk Health's diagnostic cost group (DxCG) Medicare models, refined "descendants" of the same HCC framework with 189 comprehensive clinical categories available to CMS in 2004, to reveal 2 mispricing errors resulting from CMS' implementation. One comes from ignoring all diagnostic information for "new enrollees" (those with less than 12 months of prior claims). Another comes from continuing to use the simplified models that were originally adopted in response to assertions from some capitated health plans that submitting the claims-like data that facilitate richer models was too burdensome. Even the main CMS model being used in 2014 recognizes only 79 condition categories, excluding many diagnoses and merging conditions with somewhat heterogeneous costs. Omitted conditions are typically lower cost or "vague" and not easily audited from simplified data submissions. In contrast, DxCG Medicare models use a comprehensive, 394-HCC classification system. Applying both models to Medicare's 2010-2011 fee-for-service 5% sample, we find mispricing and lower predictive accuracy for the CMS implementation. For example, in 2010, 13% of beneficiaries had at least 1 higher cost DxCG- recognized condition but no CMS-recognized condition; their 2011 actual costs averaged US$6628, almost one-third more than the CMS model prediction. As MA plans must now supply encounter data, CMS should consider using more refined and comprehensive (DxCG-like) models.

Modelling of Clinical Risk Groups (CRGs) classification using FAM

Author Salina Mohd Asi, Puteh Saad

URL https://www.researchgate.net/publication/260438409_MODELLING_OF_CLINICAL_RISK_GROUPS_CRGs_CLASSIFICATION_USING_FAM

Date 1 January 2008

Publication Conference paper from Malaysian Technical Universities Conference on Engineering and Technology, 2008, Volume 1

Abstract Clinical Risk Groups (CRGs) are a clinical model in which each individual is assigned to a single mutually exclusive risk group which relates the historical clinical and demographic characteristics of individuals to the amount and type of resources that individual will consume in the future [1]. CRGs based risk adjustment system is a potential risks adjustment to be used in the capitation-based payment system, a budgetary system for healthcare resource and care management [1, 2, 3]. The purpose of CRGs is to provide a conceptual and operational means through diagnosis and procedure code information routinely available from claims and encounter records. Basically, CRGs classifies patient population by presents of chronic health condition, type of chronic health condition, severity of chronic health condition and presence of significant acute health condition. Fuzzy ARTMAP (FAM) is an incremental supervised learning of recognition neural networks in response to input and target pattern [4, 5]. FAM is a fast learning algorithm and used less epoch training [4]. Based on its performance in doing the classification, FAM is theoretically suitable to do the CRGs classification. This paper views CRGs clinical logic and the data elements focus on identification of CRGs features using FAM. Previous studies (in USA and Canada) used claimed base data such as Medicare, Medicaid and private insurance provider data for few years back. Some of the material use in this paper is based on research proposal titled, "Development Of Clinical Risk Groups -Based Intelligent System For Future Prediction Of Health Care Utilization And Resources" by UKM CRGs researchers and KUKUM AI Embedded researchers.

Multi-layer representation learning for medical concepts

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URL http://arxiv.org/abs/1602.05568

Publication Cornell University Library, arXiv, 1602.05568

Date 17 February 2016

Abstract Learning efficient representations for concepts has been proven to be an important basis for many applications such as machine translation or document classification. Proper representations of medical concepts such as diagnosis, medication, procedure codes and visits will have broad applications in healthcare analytics. However, in Electronic Health Records (EHR) the visit sequences of patients include multiple concepts (diagnosis, procedure, and medication codes) per visit. This structure provides two types of relational information, namely sequential order of visits and co-occurrence of the codes within each visit. In this work, we propose Med2Vec, which not only learns distributed representations for both medical codes and visits from a large EHR dataset with over 3 million visits, but also allows us to interpret the learned representations confirmed positively by clinical experts. In the experiments, Med2Vec displays significant improvement in key medical applications compared to popular baselines such as Skip-gram, GloVe and stacked autoencoder, while providing clinically meaningful interpretation.

Outcomes in stage I non-small cell lung cancer following the introduction of stereotactic body radiotherapy in Alberta – A population-based study

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URL http://www.sciencedirect.com/science/article/pii/S0167814015004521

Publication Radiotherapy and Oncology, Volume 117, Issue 1, Pages 71–76

Date 5 September 2015

Abstract Review outcomes of patients with stage I non-small cell lung cancer (NSCLC) following the introduction of stereotactic body radiation therapy (SBRT). Methods SBRT cases were linked to the cancer registry database along with clinical, treatment and health service parameters for n = 2146 cases of stage I NSCLC diagnosed between 2005 and 2011. The pre-diagnosis Aggregated Clinical Risk Grouping score (ACRG3) was used as a proxy for pre-treatment patient comorbidity. A Cox regression model and the concordance statistic (C-statistic) were used to examine variables predicted for overall survival (OS). Results The SBRT utilization rate increased annually with superior OS to conventional RT (median survival [MS] of 39.4 VS. 23.5 months, P & lt; 0.001) despite higher ACRG3 scores. Surgical patients were younger, had lower ACRG3, achieving MS of 69.6 months. Regression analysis indicated both Surgery (hazard ratio [HR] = 0.23, 95% CI: 0.18–0.28) and SBRT (HR = 0.33, 95% CI: 0.21–0.51) remained most strongly associated with OS. ACRG3 (HR = 0.79, P < 0.001) and age (HR = 0.83, P = 0.03) were independently associated with OS. The OS model was associated with the C-statistic at 0.86, 95% CI: 0.81–0.90. Conclusion In stage I NSCLC patients treated with surgery have the best survival. SBRT demonstrates improved OS compared to conventional RT. C-statistic result demonstrates discrimination of treatment selection factors on OS.

Pediatric medical complexity algorithm: A new method to stratify children by medical complexity

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URL http://pediatrics.aappublications.org/content/133/6/e1647

Publication Pediatrics, Volume 133, Issue 6, Pages e1647–e1654

Date 1 June 2014

Abstract The goal of this study was to develop an algorithm based on International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), codes for classifying children with chronic disease (CD) according to level of medical complexity and to assess the algorithm's sensitivity and specificity. Methods: A retrospective observational study was conducted among 700 children insured by Washington State Medicaid with ≥1 Seattle Children's Hospital emergency department and/or inpatient encounter in 2010. The gold standard population included 350 children with complex chronic disease (C-CD), 100 with noncomplex chronic disease (NC-CD), and 250 without CD. An existing ICD-9-CM–based algorithm called the Chronic Disability Payment System was modified to develop a new algorithm called the Pediatric Medical Complexity Algorithm (PMCA). The sensitivity and specificity of PMCA were assessed. Results: Using hospital discharge data, PMCA's sensitivity for correctly classifying children was 84% for C-CD, 41% for NC-CD, and 96% for those without CD. Using Medicaid claims data, PMCA's sensitivity was 89% for C-CD, 45% for NC-CD, and 80% for those without CD. Specificity was 90% to 92% in hospital discharge data and 85% to 91% in Medicaid claims data for all 3 groups. Conclusions: PMCA identified children with C-CD (who have accessed tertiary hospital care) with good sensitivity and good to excellent specificity when applied to hospital discharge or Medicaid claims data. PMCA may be useful for targeting resources such as care coordination to children with C-CD.

Pharmaceutical cost and multimorbidity with type 2 diabetes mellitus using electronic health record data

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URL http://dx.doi.org/10.1186/s12913-016-1649-2

Publication BMC Health Services Research, Volume 16, Pages 394

Date 17 August 2016

Abstract The objective of the study is to estimate the frequency of multimorbidity in type 2 diabetes patients classified by health statuses in a European region and to determine the impact on pharmaceutical expenditure. The conclusion of this study was that diabetes is characterized by the co-occurrence of other diseases, which has implications for disease management and leads to a considerable increase in consumption of medicines for this pathology and, as such, pharmaceutical expenditure.

Pharmaceutical cost management in an ambulatory setting using a risk adjustment tool

Author David Vivas-Consuelo, Ruth Usó-Talamantes, Natividad Guadalajara-Olmeda, José-Luis Trillo-Mata, Carla Sancho-Mestre, Laia Buigues-Pastor

URL http://dx.doi.org/10.1186/1472-6963-14-462

Publication BMC Health Services Research, Volume 14, Pages 462

Date 21 October 2014

Abstract Pharmaceutical expenditure is undergoing very high growth, and accounts for 30% of overall healthcare expenditure in Spain. In this paper we present a prediction model for primary health care pharmaceutical expenditure based on Clinical Risk Groups (CRG), a system that classifies individuals into mutually exclusive categories and assigns each person to a severity level if s/he has a chronic health condition. This model may be used to draw up budgets and control health spending. The conclusion of this study was that the model is a valid tool to implement rational measures of cost containment in pharmaceutical expenditure, though it requires specific weights to adjust and forecast budgets.

Potentially preventable events: an actionable set of measures for linking quality improvement and cost savings

Author Norbert Goldfield, William P. Kelly, Kavita Patel

Publication http://journals.lww.com/qmhcjournal/Abstract/2014/10000/Potentially_Preventable_Events___An_Actionable_Set.6.aspx

Date 23 January 2014

Abstract Rising health care costs will result in reduced payments to providers, but across-the-board provider payment reductions are not the answer. Instead, existing payment systems should be reformed to strengthen value for the dollars spent. This can be accomplished by increasing efficiency, improving quality and outcomes, and lowering costs. Payment system reforms must be practical, transparent, identify opportunities for care improvement, and demonstrate material cost savings. Most importantly, because the current growth in health care costs is unsustainable, these reforms must be able to be implemented today. A set of comprehensive measures is being used by state government and private payers in the United States to adjust payment, based on improved outcomes quality. This article details the use of this set of measures, referred to as potentially preventable events, and demonstrates how they are being applied to achieve health care value.

Predictability of pharmaceutical spending in primary health services using Clinical Risk Groups

Author David Vivas-Consuelo, Ruth Usó-Talamantes, José Luis Trillo-Mata, Maria Caballer-Tarazona, Isabel Barrachina-Martínez, Laia Buigues-Pastor

URL http://www.sciencedirect.com/science/article/pii/S0168851014000256

Publication Health Policy, Volume 116, Issue 2–3, Pages 188-195

Date 17 February 2014

Abstract Background Risk adjustment instruments applied to existing electronic health records and administrative datasets may contribute to monitoring the correct prescribing of medicines. Objective We aim to test the suitability of the model based on the CRG system and obtain specific adjusted weights for determined health states through a predictive model of pharmaceutical expenditure in primary health care. Methods A database of 261,054 population in one health district of an Eastern region of Spain was used. The predictive power of two models was compared. The first model (ATC-model) used nine dummy variables: sex and 8 groups from 1 to 8 or more chronic conditions while in the second model (CRG-model) we include sex and 8 dummy variables for health core statuses 2–9. Results The two models achieved similar levels of explanation. However, the CRG system offers higher clinical significance and higher operational utility in a real context, as it offers richer and more updated information on patients. Conclusions The potential of the CRG model developed compared to ATC codes lies in its capacity to stratify the population according to specific chronic conditions of the patients, allowing us to know the degree of severity of a patient or group of patients, predict their pharmaceutical cost and establish specific programmes for their treatment.

Predicting individual risk of high healthcare cost to identify complex chronic patients

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URL http://www.scielosp.org/scielo.php?pid=S0213-91112014000400006&script=sci_arttext&tlng=es

Publication Gaceta Sanitaria vol.28 n.4

Date July/August 2014

Abstract High consumption of healthcare resources is associated with complex chronic morbidity. A model based on age, morbidity, and prior utilization is able to predict high-cost risk and identify a target population requiring proactive care.

Proposals for enhanced health risk assessment and stratification in an integrated care scenario

Author Ivan Dueñas-Espín, Emili Vela, Steffen Pauws, Cristina Bescos, Isaac Cano et. al.

URL http://bmjopen.bmj.com/content/6/4/e010301.abstract

Publication BMJ Open 2016;6:e010301

Date 1 April 2016

Abstract Population-based health risk assessment and stratification are considered highly relevant for large-scale implementation of integrated care by facilitating services design and case identification. The principal objective of the study was to analyse five health-risk assessment strategies and health indicators used in the five regions participating in the Advancing Care Coordination and Telehealth Deployment (ACT) programme (http://www.act-programme.eu). The second purpose was to elaborate on strategies toward enhanced health risk predictive modelling in the clinical scenario. The results of this study indicate the need for further efforts to improve both comparability and flexibility of current population-based health risk predictive modelling approaches. Applicability and impact of the proposals for enhanced clinical risk assessment require prospective evaluation.

Rate of spending on chronic conditions among medicaid and CHIP recipients

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URL http://pediatrics.aappublications.org/content/134/1/e80

Publication Pediatrics, Volume 134, Issue 1, Pages e80-e87

Date 1 July 2014

Abstract Objective: To evaluate the rate at which children with and without chronic conditions became recipients of Medicaid and the Children's Health Insurance Program (CHIP) during a period of economic recession and to evaluate changes in spending and service utilization among children with chronic conditions. Methods: Child recipients of Illinois fee-for-service Medicaid and CHIP from 2007 to 2010 were assigned to 5 chronic condition groups using 3M Clinical Risk Group software. Outcome measures were change in recipient number in each chronic condition category, total and per capita spending changes within various categories of service, and changes in service utilization. Results: From 2007 to 2010, children with chronic conditions became recipients of Illinois fee-for-service Medicaid and CHIP at a higher rate than children without chronic conditions (26.7% vs 14.5%). Inflation-adjusted mean spending fell with a linear trend in all chronic condition categories except malignancy ($P < .001$). Per member inpatient and emergency department service utilization fell and outpatient service utilization increased in all condition categories. Average inpatient length of stay declined in all chronic condition groups ($P < .001$) but not in children without chronic conditions. Conclusions: From 2007 to 2010, a period of severe economic recession, a disproportionately high number of children with chronic conditions became Illinois Medicaid and CHIP recipients. Total spending increases were driven by an increase in the number of recipients with the most complex chronic conditions, not increases in per-member spending.

Readmission patterns and effectiveness of transitional care among medicaid patients with schizophrenia and medical comorbidity

Author Carlos Jackson, Annette DuBard, Marvin Swartz, Amelia Mahan, Jerry McKee, Theo Pikoulas, Kathleen Moran, Mike Lancaster

URL http://www.ncmedicaljournal.com/content/76/4/219

Publication North Carolina Medical Journal, Volume 76, Issue 4, Pages 219-226

Date 9 January 2015

Abstract Background: Patients with chronic medical and mental health comorbidities are at increased risk of hospital admission, but little is known about their hospital utilization patterns or whether nurse-directed transitional care interventions have any appreciable impact on future hospitalizations. Method: Using paid Medicaid claims and a care management database, we examined patterns of hospital utilization for adults with multiple chronic conditions where one of the conditions was schizophrenia. Patients were enrolled in Community Care of North Carolina's medical home program and were discharged from 100 different hospitals throughout the state from July 1, 2010 through June 30, 2011. We examined readmission rates after psychiatric and nonpsychiatric hospital discharges, and we compared patients who received community-based, nurse-directed, transitional care management services to patients who received usual care. Results: A total of 1,717 patients were included in the final analysis. Patients in this study experienced 980 readmissions over the course of 1 year, with 20% of readmissions for a different reason than the primary hospitalization, and 36% of readmissions occurring at a different hospital. Controlling for demographic, clinical, and hospital characteristics, patients receiving transitional care (n = 1,104) were as much as 30% less likely to experience a readmission during the year following discharge compared to patients receiving usual care (n = 613). Limitations: This descriptive study reports on a nonrandomized intervention and its impact on service utilization for Medicaid patients with complex illnesses in North Carolina. Conclusions: Regardless of the reason for hospitalization, patients with chronic medical and psychiatric conditions may benefit from transitional care support that addresses both conditions. This holds true even when the patient is already receiving intensive outpatient psychiatric care.

Risk adjusting survival outcomes of hospitals that treat cancer patients without information on cancer stage

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URL http://www.ncbi.nlm.nih.gov/pmc/articles/PMC5038982/

Publication JAMA oncology, Volume 1, Issue 9, Pages 1303–1310

Date 8 October 2015

Abstract Importance Instituting widespread measurement of outcomes for cancer hospitals using administrative data is difficult due to the lack of cancer specific information such as disease stage. Objective To evaluate the performance of hospitals that treat cancer patients using Medicare data for outcome ascertainment and risk adjustment, and to assess whether hospital rankings based on these measures are influenced by the addition of cancer-specific information. Design Risk adjusted cumulative mortality of patients with cancer captured in Medicare claims from 2005–2009 nationally were assessed at the hospital level. Similar analyses were conducted in the Surveillance, Epidemiology and End Result (SEER)-Medicare data for the subset of the US covered by the SEER program to determine whether the exclusion of cancer specific information (only available in cancer registries) from risk adjustment altered measured hospital performance. Setting Administrative claims data and SEER cancer registry data Participants Sample of 729,279 fee-for-service Medicare beneficiaries treated for cancer in 2006 at hospitals treating 10+ patients with each of the following cancers, according to Medicare claims: lung, prostate, breast, colon. An additional sample of 18,677 similar patients in SEER-Medicare administrative data. Main Outcomes and Measures Risk-adjusted mortality overall and by cancer type, stratified by type of hospital; measures of correlation and agreement between hospital-level outcomes risk adjusted using Medicare data alone and Medicare data with SEER data. Results There were large outcome differences between different types of hospitals that treat Medicare patients with cancer. At one year, cumulative mortality for Medicare-prospective-payment-system exempt hospitals was 10% lower than at community hospitals (18% versus 28%) across all cancers, the pattern persisted through five years of follow-up and within specific cancer types. Performance ranking of hospitals was consistent with or without SEER-Medicare disease stage information (weighted kappas of at least 0.81). Conclusions and Relevance Potentially important outcome differences exist between different types of hospitals that treat cancer patients after risk adjustment using information in Medicare administrative data. This type of risk adjustment may be adequate for evaluating hospital performance, as the additional adjustment for data only available in cancer registries does not seem to appreciably alter measures of performance.

Stratification of children by medical complexity

Author John M. Neff, Holly Clifton, Jean Popalisky, Chuan Zhou

Publication Academic Pediatrics, Volume 15, Issue 2, Pages 191–196

Date 21 November 2014

Abstract Objective: To stratify children using available software, Clinical Risk Groups (CRGs), in a tertiary children's hospital, Seattle Children's Hospital (SCH), and a state's Medicaid claims data, Washington State (WSM), into 3 condition groups: complex chronic disease (C-CD); noncomplex chronic disease (NC-CD), and nonchronic disease (NC). Methods: A panel of pediatricians developed consensus definitions for children with C-CD, NC-CD, and NC. Using electronic medical record review and expert consensus, a gold standard population of 700 children was identified and placed into 1 the 3 groups: 350 C-CD, 100 NC-CD, and 250 NC. CRGs v1.9 stratified the 700 children into the condition groups using 3 years of WSM and SCH encounter data (2008-2010). WSM data included encounters/claims for all sites of care. SCH data included only inpatient, emergency department, and day surgery claims. results: A total of 678 of 700 children identified in SCH data were matched in WSM data. CRGs demonstrated good to excellent specificity in correctly classifying all 3 groups in SCH and WSM data; C-CD in SCH (94.3%) and in WSM (91.1%); NC-CD in SCH (88.2%) and in WSM (83.7%); and NC in SCH (84.9%) and in WSM (94.6%). There was good to excellent sensitivity for C-CD in SCH (75.4%) and in WSM (82.1%) and for NC in SCH (98.4%) and in WSM (81.1%). CRGs demonstrated poor sensitivity for NC-CD in SCH (31.0%) and WSM (58.0%). Reasons for poor sensitivity in NC-CD are explored. Conclusions: CRGs can be used to stratify children receiving care at a tertiary care hospital according to complexity in both hospital and Medicaid administrative data. This method will enhance reporting of health-related outcome data.

Taking stock of the CSHCN screener: A review of common questions and current reflections

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URL http://www.sciencedirect.com/science/article/pii/S1876285914003799

Publication Academic Pediatrics, Volume 15, Issue 2, Pages 165–176

Date 5 December 2015

Abstract Since 2000, the Children with Special Health Care Needs (CSHCN) Screener (CS) has been widely used nationally, by states, and locally as a standardized and brief survey-based method to identify populations of children who experience chronic physical, mental, behavioral, or other conditions and who also require types and amounts of health and related services beyond those routinely used by children. Common questions about the CS include those related to its development and uses; its conceptual framework and potential for under- or overidentification; its ability to stratify CSHCN by complexity of service needs and daily life impacts; and its potential application in clinical settings and comparisons with other identification approaches. This review recaps the development, design, and findings from the use of the CS and synthesizes findings from studies conducted over the past 13 years as well as updated findings on the CS to briefly address the 12 most common questions asked about this tool through technical assistance provided regarding the CS since 2001. Across a range of analyses, the CS consistently identifies a subset of children with chronic conditions who need or use more than a routine type or amount of medical- and health-related services and who share common needs for health care, including care coordination, access to specialized and community-based services, and enhanced family engagement. Scoring algorithms exist to stratify CSHCN by complexity of needs and higher costs of care. Combining CS data with clinical diagnostic code algorithms may enhance capacity to further identify meaningful subgroups. Clinical application is most suited for identifying and characterizing populations of patients and assessing quality and system improvement impacts for children with a broad range of chronic conditions. Other clinical applications require further implementation research. Use of the CS in clinical settings is limited because integration of standardized patient-reported health information is not yet common practice in most settings or in electronic health records. The CS continues to demonstrate validity as a non-condition-specific, population-based tool that addresses many of the limits of condition or diagnosis checklists, including the relatively low prevalence of many individual conditions and substantial within-diagnosis variations and across-diagnoses similarities in health service needs, functioning, and quality of care.

The wellness incentives and navigation project: design and methods

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URL http://dx.doi.org/10.1186/s12913-015-1245-x

Publication BMC Health Services Research, Volume 15, Pages 579

Date 29 December 2015

Abstract About 35 % of non-elderly U.S. adult Medicaid enrollees have a behavioral health condition, such as anxiety, mood disorders, substance use disorders, and/or serious mental illness. Individuals with serious mental illness, in particular, have mortality rates that are 2 to 3 times higher as the general population, which are due to multiple factors including inactivity, poor nutrition, and tobacco use. 61 % of Medicaid beneficiaries with behavioral health conditions also have multiple other co-occurring chronic physical health conditions, which further contributes to morbidity and mortality. The Wellness Incentives and Navigation (WIN) project is one of 10 projects under the Centers for Medicare and Medicaid Services "Medicaid Incentives for the Prevention of Chronic Diseases" Initiative, to "test the effectiveness of providing incentives directly to Medicaid beneficiaries of all ages who participate in prevention programs, and change their health risks and outcomes by adopting healthy behaviors."

Timeliness of outpatient follow-up: An evidence-based approach for planning after hospital

Author Carlos Jackson, Mohammad Shahsahebi, Tiffany Wedlake, C. Annette DuBard

URL http://www.annfammed.org/content/13/2/115

Publication The Annals of Family Medicine, Volume 13, Issue 2, Pages 115–122

Date 3 January 2015

Abstract Timely outpatient follow-up has been promoted as a key strategy to reduce hospital readmissions, though one-half of patients readmitted within 30 days of hospital discharge do not have follow-up before the readmission. Guidance is needed to identify the optimal timing of hospital follow-up for patients with conditions of varying complexity. Methods: Using North Carolina Medicaid claims data for hospital-discharged patients from April 2012 through March 2013, we constructed variables indicating whether patients received follow-up visits within successive intervals and whether these patients were readmitted within 30 days. We constructed 7 clinical risk strata based on 3M Clinical Risk Groups (CRGs) and determined expected readmission rates within each CRG. We applied survival modeling to identify groups that appear to benefit from outpatient follow-up within 3, 7, 14, 21, and 30 days after discharge. Results: The final study sample included 44,473 Medicaid recipients with 65,085 qualifying discharges. The benefit of early follow-up varied according to baseline readmission risk. For example, follow-up within 14 days after discharge was associated with 1.5%-point reduction in readmissions in the lowest risk strata (P <.001) and a 19.1%-point reduction in the highest risk strata (P <.001). Follow-up within 7 days was associated with meaningful reductions in readmission risk for patients with multiple chronic conditions and a greater than 20% baseline risk of readmission, a group that represented 24% of discharged patients. Conclusions: Most patients do not meaningfully benefit from early outpatient follow-up. Transitional care resources would be best allocated toward ensuring that highest risk patients receive follow-up within 7 days.

Varied differences in the health status between medicare advantage and fee-for-service enrollees

Author Yunjie Song

URL http://journals.sagepub.com/doi/10.1177/0046958014561636

Publication INQUIRY: The Journal of Health Care Organization, Provision, and Financing, Volume 51, Pages 0046958014561636

Date 1 January 2014

Abstract This article examines the differences in mortality measured health status between the Medicare Advantage (MA) program and Fee-for-Service (FFS) program from 1999 to 2007. At the national level, differences in mortality rates were associated with MA market share. In some counties, enrollees in the MA program were 40% less likely to die than their peers in the FFS program, but in other counties, they were 20% more likely to die. Cost shifting between the two programs could bias county classifications of average FFS spending, and enlarged disparities in health status could make it difficult to evaluate risk adjusters.

Ways to identify children with medical complexity and the importance of why

Author Jay G. Berry, Matt Hall, Eyal Cohen, Margaret O'Neill, Chris Feudtner

URL http://www.jpeds.com/article/S0022-3476(15)00456-4/fulltext

Publication The Journal of Pediatrics, Volume 167, Issue 2, Pages 229–237

Date 28 May 2015

Abstract Children with medical complexity, although a small fraction of the pediatric population, are important due to their high levels of healthcare spending, unmet healthcare needs, substandard quality of care, and poor health outcomes.[1] Consistent with the Triple Aim,[2] these children are the focus of clinical, research, and policy initiatives seeking to: (1) improve their healthcare experience and quality of care; (2) improve outcomes (for themselves and their families); and (3) reduce the future healthcare costs that they might accrue.