

department screening and transition bundle performance and the reliability of implementing this complex model is improving each month. Approximately 2,000 patients have been discharged from units where the pilots were in operation. **Conclusions:** The TOCI approach is interdisciplinary at all levels of governance, coordination, and patient care. We believe the methods that are developed and utilized, including specialized screening tools, nursing and care management protocols, interdisciplinary team rounds, discharge protocols and post acute care management strategies, will be essential components of the national strategy to reduce readmissions.

C-B2-01:

Disease and Care Management for Multimorbid Patients in an Integrated System: How Much is Too Much?

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Background: As registry use for disease- and care-management (DCM) has become more common, subsets of patients with multiple chronic illnesses may be listed in multiple registries and subject to outreach by multiple DCM clinicians. While much outreach is beneficial, too many different types of DCM contacts per patient may be inefficient and/or create competing demands for patients. **Methods:** We assessed number and type of DCM encounters in a two year cohort of 23,385 HMO members listed in 2 or more of the following disease registries: diabetes, coronary artery disease, hypertension, congestive heart failure, and chronic kidney disease. Outcomes were 0, 1, or 2+ encounters; and 3+ types vs. 1 or 2 types of encounter. We assessed all types of DCM not just those specific to the five registries. Descriptors included: age group, gender, overall morbidity, specific diagnoses for each registry, utilization, and depression diagnosis. We assessed frequencies of descriptors, and used multivariate techniques to identify those significantly associated with outcomes. **Results:** Ages ranged from 17 to 98, and 55% were male. 5,626 had no DCM encounters, 3,090 had one, and 14,669 had two or more. Of the 17,759 persons with DCM encounters, 45% received one type of DCM (e.g. diabetes care management), 31% received two types, 15% received 3 types, and 9% (or 1,668 persons) received 4 or more types of DCM. The most common types of care management received were lipid management, chronic care coordination (a global care management service that includes hospital follow-up), diabetes care management, and nutritional counseling. In multivariate analyses, female gender, higher morbidity level, emergency department or inpatient admission, diagnosis of depression, and each of the individual registry diagnoses were significantly associated with receipt of 2 or more DCM encounters. All of these characteristics except gender were also associated with receiving 3+ types of care management encounters relative to 1 or 2 types. **Conclusions:** Within a clinical environment that is able to make near-optimal use of DCM technology and processes, we explored the potential limitations of outreach-based care management for a subset of multimorbid patients. Certain patients characterized by higher morbidity, a diagnosis of depression, and high utilization receive more numbers and types of DCM and may benefit from careful assessment of their care needs.

C-B2-02:

Measuring the Effect of a Patient-Centered Health Initiative on Clinic-Level Outcomes

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Background: Geisinger Health Plan's ProvenHealth Navigator (PHN) Program, a "Patient Centered Medical Home" initiative is designed to improve patient experience, optimize patient's health status, and improve efficiency. Components include 24-hour primary and specialty care access, a GHP funded nurse case manager embedded in each practice site to coordinate services for patients with complex medical conditions, home based monitoring, interactive voice-response surveillance, and support for end-of-life care decisions. We analyzed hospitalization rates as well as financial outcomes to measure the effect of the

PHN intervention in 11 clinics. **Methods:** Monthly data from 44 Geisinger clinic sites from 2005 to 2008 were retrospectively analyzed to test for a significant effect of the PHN intervention on admissions, readmissions, and expense outcomes. Eleven sites began the ProvenHealth Navigator at different times during the study period between 2006 and 2008. Statistical analysis was performed (SAS 9.1.3, Cary, NC) using Poisson regression to model admissions per member and readmissions per admission, or using linear regression to model inpatient expenses and total pre-prescription (PreRx) expenses per member. Each of these clinic level outcomes was modeled as a function of year, month, mean risk score, percent males, mean age and PHN status. PHN status was modeled using a within clinic and betweenclinic variable (Berlin et al., *Biometrics* 1999) to minimize confounding due to center-exposure association. The significance of the within clinic variable was tested at the $p < 0.05$ level. Repeated measures from clinics were clustered using the Generalized Estimating Equation method with exchangeable covariance. **Results:** Results are expressed as parameter estimates [95% confidence interval]. The PHN intervention was associated with a 17.1% lower admission rate [10.2 to 23.4, $P < 0.001$], a 14.5% lower readmission rate [0.8 to 26.2, $P = 0.04$], a non significant \$27 or 15% lower inpatient allowed expense per member per month [\$60 to +\$5, $P = 0.099$], and a \$59 or 11% lower PreRx expense per member per month [\$25 to \$93, $P < 0.001$]. **Conclusions:** Geisinger's ProvenHealth Navigator was associated with significantly improved outcomes in the clinics where it was implemented. Non-randomized clinic selection and varying intervention times were considered in the model. Future work should investigate interactions between PHN and clinic characteristics and cost-benefit relationships.

C-B2-03:

Patient and Clinician Experience in a Patient-Centered Medical Home Demonstration

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Background: Many have called for the adoption of the patient-centered medical home (PCMH) model with the expectation that such a model will alleviate ills of the American health care system. Little has been published that evaluates implementations of the PCMH as a comprehensive primary care practice redesign intervention in an actual care setting. We present reported patient experience and clinician burnout following the adoption of this model. **Methods:** To assess patient experience, a total of 6,187 adult patients from the PCMH clinic and two control clinics were surveyed prior to the PCMH deployment and again twelve months following its adoption. Patient experience was measured using the Ambulatory Care Experiences Survey – Short Form (ACES) and two subscales from the Patient Assessment of Chronic Illness Care (PACIC). To assess clinician experience, we surveyed all clinicians ($n = 132$) at the PCMH clinic and two control clinics at baseline and twelve months. Clinician experience was measured using the three Maslach Burnout Inventory (MBI) sub scores of emotional exhaustion, depersonalization, and lack of personal accomplishment. **Results:** Patient survey response rate was 55% at baseline and 80% at 12-month follow-up. Twelve months after the PCMH deployment, 4 of 7 patient experience subscales improved at the PCMH clinic (quality of doctor-patient interactions, coordination of care, patient activation, and goal setting). Only 2 of 7 improved at the control clinics. After adjusting for baseline patient experience, age, education, and self reported health status at baseline in the linear regression, patients at the PCMH clinic had significantly improved patient experience in 6 of 7 subscales compared to patients at the control clinics. Clinician survey response rate was 76% at baseline and 83% at 12-month follow-up. At baseline, burnout in all three sub scores was not significantly different between the PCMH clinic and control clinics. At twelve months, clinicians at the PCMH clinic reported significantly lower burnout compared to the control clinics on the emotional exhaustion and lack of personal accomplishment subscales and trended lower on the depersonalization subscale ($P = 0.06$). **Conclusions:** Twelve months following adoption, patients at the PCMH clinic reported superior patient experience compared to control clinics. Clinicians at the PCMH clinic also reported significantly less burnout compared to their control counterparts.