INPATIENT HEALTHCARE UTILIZATION AMONG PATIENTS WHO REQUIRE INTERPRETER SERVICES

Jane Njeru1; Paul Takahashi1; Jon Ebbert4,1; Jennifer St. Sauver2; Debra Jacobson3; Chun Fan3; Mark L. Wieland1. 1Mayo Clinic, Rochester, MN; 2Mayo Clinic, Rochester, MN; 3Mayo Clinic, Rochester, MN; 4Mayo Clinic, Rochester, MN. (Tracking ID #1928126)

BACKGROUND: More than 9% of the US population has limited English proficiency (LEP). LEP is associated with multiple health disparities and suboptimal health outcomes. While LEP is a barrier to effective healthcare, it has been associated with increased outpatient healthcare utilization. However, its association with inpatient healthcare utilization remains unclear. The objective of this study was to determine the association between LEP and inpatient healthcare utilization among adult patients.

METHODS: Design: This was a retrospective cohort study comparing emergency department (ED) visits and hospitalizations between patients requiring interpreter services (IS) and a cohort of age-matched English-proficient patients (non-IS patients). Setting and Participants: The study was set in a large multisite primary healthcare network in a medium-sized US city. The participants were adult patients who were actively empanelled to physicians in this practice for primary care. Measures and analytic procedures: Emergency Department visits and hospitalizations in 2012 were obtained from billing records of the 3 inpatient facilities in the county. Chart reviews were performed for all the study participants with at least 1 hospitalization or ED visit to confirm the event and review the associated diagnoses. Demographic data were obtained from registration information, while medical complexity data (summarized using the Charlson comorbidity index) was obtained from billing records. The total number of ED visits and hospitalizations during the 12-month period was compared by IS status, using a χ2 test. Proportional hazard regression was used to assess the association between IS status and first ED visit or hospitalization, and results were presented as hazard ratios (HRs) with 95% CIs. Multivariable models were used to adjust for the effect of age, sex, Charlson comorbidity index, and number of outpatient visits.

RESULTS: The cohort included 3,784 patients (1,892 per group). Patients who required interpreter services had significantly more total ED visits (841 vs 620; P<.001) and hospitalizations (408 vs 343; P<.001) than the non-IS patients. Regression analysis showed that the risk of a first ED visit were 60% higher for IS patients than non-IS patients (unadjusted hazard ratio [HR], 1.6; 95% CI, 1.4-1.9; P<.05), and risk of a first hospitalization were 50% higher (unadjusted HR, 1.5; 95% CI, 1.2-1.8; P<.05). These findings remained significant after adjusting for age, sex, medical complexity, and outpatient healthcare utilization. The reasons for the first ED visit and hospitalization differed between IS patients and non-IS patients; hospitalizations due to infectious, gastrointestinal, mental health, and genitourinary diagnoses were more common among IS patients than non-IS patients. Similarly, for ED visits, these same categories were also more common among IS patients, along with ear-nose-throat (ENT), ophthalmologic, dermatologic, dental, and trauma or assault diagnoses. Conversely, hospitalizations for musculoskeletal diagnoses were higher among non-IS patients, but this difference was explained almost entirely by elective joint arthroplasties.

CONCLUSIONS: Patients who required IS had higher rates of inpatient healthcare utilization compared with non-IS patients. Further research is required to understand factors associated with increased use of the ED and to develop sociolinguistically tailored interventions to facilitate appropriate healthcare in this population.
ASSOCIATION OF INFLUENZA VACCINATION COVERAGE IN YOUNGER ADULTS WITH INFLUENZA ILLNESS IN THE ELDERLY

Glen Taksler\(^1\); Michael B. Rothberg\(^1\); David M. Cutler\(^2,3\). \(^1\)Cleveland Clinic, Cleveland, OH; \(^2\)Harvard University, Cambridge, MA; \(^3\)National Bureau of Economic Research, Cambridge, MA. (Tracking ID #1928183)

BACKGROUND: Older adults suffer the majority of influenza morbidity and mortality, but influenza vaccine effectiveness declines with age. It is unknown whether vaccination of nonelderly adults confers additional disease protection upon the elderly.

METHODS: Using the Behavioral Risk Factors Surveillance System Survey, we estimated countywide influenza vaccination coverage among adults aged 18-64 y in 313 counties comprising 56.5% of the US population, in each influenza season (Oct-May) of 2002-2010. We linked these data with all Medicare claims for a random sample of 3,090,857 beneficiaries aged ≥65 y residing in these counties, and identified seasonal influenza-like illness (ILI) in each individual during the same years (N=11,331,129 person-years). Using ICD-9 codes, we identified 4 types of ILI, from most specific to least specific definition: influenza (primary diagnosis), influenza (primary or secondary diagnosis), pneumonia or influenza, and broader ILI including pneumonia, influenza, bronchitis, cough, or upper respiratory infection. Using logistic regression models, we examined the association between countywide vaccine coverage among adults aged 18-64 y and diagnosis of ILI in Medicare beneficiaries, adjusting for comorbidity, influenza season severity, demographics, countywide health and socioeconomic variables, and dummy variables for influenza season and state of residence. We repeated the analysis for hospitalizations for ILI. Results were stratified by documented receipt of a seasonal influenza vaccine in each Medicare beneficiary. An adjusted odds ratio (AOR) for influenza diagnosis in the elderly that varied inversely with vaccine coverage among nonelderly adults would suggest herd immunity. Additionally, we expected to observe a lower AOR with more specific definitions of ILI than with less specific definitions, and during peak (Dec-Mar) vs. non-peak (Oct-Nov, Apr-May) months of influenza season.

RESULTS: Increases in countywide vaccine coverage among 18-64 year-olds were associated with lower adjusted odds of influenza-like illness in the elderly. Compared with elderly residents of counties with ≤15% of 18-64 year-olds vaccinated, the AOR for a primary diagnosis of influenza was 0.90 (95% CI=0.87-0.94) for elderly residents of counties with 16%-20% of 18-64 year-olds vaccinated, 0.84 (95% CI=0.81-0.88) for elderly residents of counties with 21%-25% of 18-64 year-olds vaccinated, 0.78 (95% CI=0.74-0.82) for elderly residents of counties with 26%-30% of 18-64 year-olds vaccinated, and 0.77 (95% CI=0.73-0.81) for elderly residents of counties with ≥31% of 18-64 year-olds vaccinated (P for trend<0.001). Weaker associations were observed for less specific definitions of influenza; elderly residents of counties with ≥31% of 18-64 year-olds vaccinated had an AOR of 0.78 (95% CI=0.74-0.81) for a primary or secondary diagnosis of influenza, 0.96 (95% CI=0.95-0.98) for pneumonia or influenza, and 0.95 (95% CI=0.94-0.96) for the broader definition of ILI, compared with elderly residents of counties with ≥31% of 18-64 year-olds vaccinated. The association was stronger among vaccinated elderly (AOR for primary influenza in counties with ≥31% vs. ≤15% of 18-64 year-olds vaccinated=0.63, 95% CI=0.59-0.68) than for unvaccinated elderly (AOR=0.84, 95% CI=0.79-0.89) (P for difference<0.001). The association was also stronger in peak months (AOR for primary influenza in counties with ≥31% vs. ≤15% of 18-64 year-olds vaccinated=0.75, 95% CI=0.70-0.79) than in non-peak months (AOR=0.84, 95% CI=0.78-0.90) (P for difference=0.002). For hospitalizations, overall associations were in the expected direction, but trends were not significant due to fewer hospitalizations.

CONCLUSIONS: In a large, nationwide sample of Medicare beneficiaries, influenza vaccination among 18-64 year-olds was inversely associated with influenza-like illness in the elderly.
IS HEALTHCARE PROVIDERS' RESPECT FOR PATIENTS ASSOCIATED WITH COMMUNICATION BEHAVIORS IN CLINICAL ENCOUNTERS?

Tabor E. Flickinger¹; Somnath Saha²,³; Debra L. Roter⁴; Philip T. Korthuis³; Victoria L. Sharp⁵; Jonathan A. Cohn⁶; Richard D. Moore⁴; Mary Catherine Beach¹, ¹University of Virginia, Charlottesville, VA; ²Portland VA Medical Center, Portland, OR; ³Oregon Health and Science University, Portland, OR; ⁴Johns Hopkins University, Baltimore, MD; ⁵St. Luke's Roosevelt, New York, NY; ⁶Wayne State University, Detroit, MI.

(Tracking ID #1935661)

BACKGROUND: Communication training of health professionals emphasizes the acquisition of skills, yet attitudes towards patients may influence how healthcare providers interact. We aimed to investigate whether provider-reported respect for patients was associated with communication behaviors during clinical encounters.

METHODS: We analyzed audio-recordings of routine follow-up visits between 413 adult HIV-infected patients and 45 primary providers in 4 sites across the United States. The primary independent variable was provider-reported respect for that particular patient assessed immediately following the encounter with the item, "Compared to other patients, I have a great deal of respect for this patient" (strongly agree - strongly disagree). Responses were dichotomized to compare those who strongly agreed/agreed (higher respect) with those who were neutral or disagreed (lower respect). The outcomes were provider and patient communication behaviors assessed by the Roter Interaction Analysis System (RIAS). Covariates included patient and provider demographics and length of relationship. To examine associations between provider respect and communication, we performed negative binomial regressions with generalized estimating equations to account for clustering of patients within providers and adjusted for practice site and patient/provider characteristics.

RESULTS: Patients were predominantly male (66%) and African-American (57%), while providers were predominantly female (58%) and white (71%). Providers strongly agreed that they had a great deal of respect for 155 (38%) patients, agreed for 182 (44%), neutral for 66 (16%), disagreed for 8 (2%), and strongly disagreed for 2 (1%). Patients who were non-white, not actively using drugs, and who were known less than 5 years were more highly respected than others. Younger and non-white providers reported more respect for patients than other providers. Providers' respect for patients was not associated with provider gender, or with patient age or gender. In multivariable analysis, providers with higher respect had a more positive emotional tone [IRR 1.10 (1.06-1.14)], engaged in more social chit chat [IRR 1.78 (1.11-2.84)], and more positive talk [IRR 1.20 (1.04-1.39)]. Patients of providers with higher respect had more positive emotional tone [IRR 1.05 (1.03-1.07)], engaged in more social chit chat [IRR 2.03 (1.16-3.56)], more positive talk [IRR 1.22 (1.08-1.39)], and gave more psychosocial information to their providers [IRR 1.60 (1.26-2.04)]. Encounters between patients and providers with higher respect were characterized by less verbal dominance [IRR 0.87 (0.78-0.96)] and more patient-centeredness [IRR 1.38 (1.12-1.71)].

CONCLUSIONS: Respectfulness is associated with a host of positive and patient-centered communication behaviors during medical encounters that are voiced by both providers and patients. The study results underscore the highly reciprocal nature of communication and suggest that interventions that enhance provider attitudes of respect may help improve communication and care quality.
NEGOTIATING EMERGENCY DEPARTMENT ADMISSION HANDOFFS: EXPERIENCES, BELIEFS, AND PERCEPTIONS OF ADMITTING AND EMERGENCY PHYSICIANS
Christopher J. Smith; Denise H. Britigan; Nathan Anderson; Elizabeth Lyden; Tedd Welniak; Michael C. Wadman. University of Nebraska Medical Center, Omaha, NE. (Tracking ID #1936119)

BACKGROUND: Transfer of care between healthcare providers is a vulnerable time for patient safety, and ED admission handoffs are subject to unique structural and contextual challenges. The ED admission process involves changes in provider, department, and physical location. It also occurs early in a patient’s evaluation when the clinical trajectory is uncertain. Despite these challenges, there is relatively little research on ED admission handoffs. To better understand the barriers to effective handoff communication, we surveyed admitting and emergency physicians about their experiences, beliefs, and perceptions.

METHODS: A cross-sectional survey was conducted at a 627-bed tertiary-care teaching hospital. Questions were created to examine five domains: clinical content, interpersonal perceptions, expectations, organizational factors, and patient safety. Surveys were distributed to residents, fellows, and faculty physicians from emergency medicine (EM) and six medical admitting services, which account for two-thirds of ED admissions. Data was analyzed using SPSS software. Fisher’s Exact Test was used to compare dichotomized responses between EM and admitting physicians. Non-dichotomized distribution was analyzed using the Mann-Whitney Test. Examples of adverse outcomes related to handoff were categorized independently by two physicians with disagreements settled by consensus. Based on preliminary survey results, a supplemental study was designed to determine the frequency in which 8 pieces of handoff information were communicated: working diagnosis, relevant past medical history, relevant physical exam findings, results of relevant diagnostic studies, therapeutic interventions initiated, trend in the patient’s clinical condition, patient’s clinical condition at the time of handoff, and pending diagnostic studies. Prospective data was collected by a hospitalist immediately following oral handoff and was documented as communicated without prompting, communicated with prompting, or not communicated.

RESULTS: A total of 117 admitting (67%) and 32 EM (86%) physicians completed the survey. There was significant disagreement between EM and admitting physicians across multiple domains. Admitting physicians reported communication of clinical information occurred less frequently than EM physicians (p-value <0.05 for all eight content areas). Nearly all EM physicians felt they had to defend their decisions and face-to-face communication was rare. Sixty-three percent of respondents could not identify who was responsible for patients “boarding” in the ED. Competing clinical duties frequently distracted physicians during handoff, but environmental factors more commonly distracted EM physicians (p=0.007). Sequential handoffs occurred regularly and were felt to have negative impact on patient care. Adverse outcomes related to handoff communication were reported by 30% of respondents, most of whom reported multiple events. Thirty examples of adverse events were reported. Final categorization is under way, but errors in communication, assignment of responsibility, and boarding were common. Prospective data from 89 admission handoffs were collected. The frequency in which specific clinical information was communicated varied from 35-95% and prompting from the admitting physician was common (73% of admissions). The content areas least frequently communicated were treatments initiated in the ED (71.9%), trend in the patient’s clinical condition (57.3%), and pending studies (34.8%).

CONCLUSIONS: These results highlight several barriers to the safe transfer of patients from the ED. Admitting and EM physicians had vastly different perceptions about communication of clinical information, although most information was communicated regularly. Inter-disciplinary biases, differing expectations, and egocentric anchoring likely play a role in this discrepancy. The frequency of prompting during handoff suggests that dialogue between EM and admitting physicians was common, but lack of standardized communication may have also contributed. In addition to inconsistent transfer of information, handoffs were further compromised by sequential handoffs, lack of face-to-face communication, distractions, and lack of clearly delineated responsibilities. These results demonstrate the complex interplay of factors that impact admission handoffs. Successful improvement efforts will need to address the dynamic quality of content, institutional culture and policies, environment, and organizational factors. Collaborative interventions may include interdisciplinary team-building, expanded handoff training, implementation of bedside handoffs, and better leveraging of the electronic health record.
THE HUNT FOR DIABETES: CHARACTERISTICS AND RISK FACTORS ASSOCIATED WITH UNDIAGNOSED DIABETES AND PREDIABETES IN NHANES

Michael E. Bowen 1,2; Lei Xuan; Ethan Halm 1,2. 1UT Southwestern Medical Center, Dallas, TX; 2UT Southwestern Medical Center, Dallas, TX. (Tracking ID #1937085)

BACKGROUND: Over 7 million people with diabetes (DM) and 73 million people with prediabetes (preDM) in the US are undiagnosed. Although characteristics of individuals with diagnosed DM and preDM are well described, those with undiagnosed disease are less well characterized. Understanding risk factors and characteristics of individuals with undiagnosed DM and preDM are essential to successful case-identification strategies.

METHODS: Non-pregnant adults without self-reported DM and preDM in the 2005-2009 NHANES survey were analyzed. Using A1C and fasting glucose, participants were classified as normal (A1C< 5.7% and fasting glucose <126mg/dL), undiagnosed preDM (A1C 5.7-6.5% or fasting glucose 100-125mg/dL), or undiagnosed DM (A1C≥6.5% or fasting glucose≥ 126mg/dL). Patient characteristics and risk factors were obtained from interview and exam survey components. Associations between risk factors and undiagnosed preDM and DM were examined using logistic regression with the normal glucose group as a reference. We present results weighted to national estimates.

RESULTS: Of the 13,792 participants without diagnosed DM, 65% had normal glucose, 32% had undiagnosed preDM, and 3% had undiagnosed DM. Forty-four percent of individuals with undiagnosed DM and 54% of those with undiagnosed preDM reported not being screened for DM in the past 3 years—potential screening or diagnostic failures. In univariate analyses, undiagnosed DM and preDM were associated with: older age, BMI≥25, non-white race, hypertension, hyperlipidemia, and a family history of DM (p<0.001; Table 1). Having less than a high school education (DM OR=2.0, p<0.001; preDM OR=1.6, p<0.001) and Medicare insurance (DM OR=5.3, p<0.05; preDM OR=2.3, p<0.001) were also associated with undiagnosed disease. Those with undiagnosed disease were more likely to have ≥2 MD visits in the past year (undiagnosed DM OR=1.4, p=0.02; undiagnosed preDM OR 1.3, p<0.001). Individuals satisfying ADA and USPSTF screening criteria were more likely to have undiagnosed DM (ADA OR=15.6; USPSTF OR=4.8, P<0.001 for both) and preDM (ADA OR=5.2; USPSTF OR=2.5, p<0.001 for both) than those with normal glucose. The strongest single predictor of undiagnosed DM was a single random glucose≥100 mg/dL (OR=74.1, p<0.001). A single random glucose≥100mg/dL (OR=4.5, p<0.001) was a better predictor of undiagnosed preDM than USPSTF (OR=2.5, p<0.001) but inferior to ADA guidelines (OR=5.2, p<0.001). After multivariate adjustment for age, gender, race, BMI, hypertension, hyperlipidemia, cardiovascular disease, and family history of DM, random glucose≥100mg/dL remained a robust predictor of undiagnosed DM (OR 51.3, p<0.001).

CONCLUSIONS: Risk factors included in ADA and USPSTF guidelines are associated with undiagnosed DM and preDM. However, a single RBG≥100mg/dL is the best single predictor of undiagnosed DM and superior to either national guideline. Those with undiagnosed disease are routinely engaged with the healthcare system and greater attention to abnormal RBG values may improve identification of undiagnosed DM and preDM.

Table 1. Patient Characteristics Associated with Undiagnosed Prediabetes and Diabetes

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Undiagnosed Prediabetes</th>
<th>Undiagnosed Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age≥45</td>
<td>3.5 (3.1, 3.9)</td>
<td>6.8 (5.3, 8.8)</td>
</tr>
<tr>
<td>BMI≥25 kg/m², (SE)</td>
<td>2.3 (2.1, 2.6)</td>
<td>6.5 (4.5, 9.4)</td>
</tr>
<tr>
<td>Non-white Race, % (SE)</td>
<td>1.2 (1.1, 1.4)</td>
<td>1.5 (1.2, 2.0)</td>
</tr>
<tr>
<td>Family History Diabetes</td>
<td>1.4 (1.2, 1.5)</td>
<td>1.9 (1.5, 2.4)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>2.5 (2.2, 2.7)</td>
<td>4.8 (3.8, 6.0)</td>
</tr>
<tr>
<td>Hyperlipidemia</td>
<td>2.0 (1.8, 2.2)</td>
<td>2.4 (2.0, 3.0)</td>
</tr>
<tr>
<td>Cardiovascular Disease</td>
<td>2.5 (2.1, 3.1)</td>
<td>4.7 (3.5, 6.3)</td>
</tr>
<tr>
<td>ADA guidelines</td>
<td>5.2 (4.5, 5.9)</td>
<td>15.6 (8.1, 29.8)</td>
</tr>
<tr>
<td>USPSTF Guidelines</td>
<td>2.5 (2.2, 2.7)</td>
<td>4.8 (3.8, 6.0)</td>
</tr>
<tr>
<td>Random glucose≥100mg/dL</td>
<td>4.5 (3.9, 5.1)</td>
<td>74.1 (53.1, 103.4)</td>
</tr>
</tbody>
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Data presented as weighted Odds Ratio (95% CI); p<0.001 for all values BMI: Body mass index ADA: American Diabetes Association USPSTF: US Preventative Services Task Force
FACTORS ASSOCIATED WITH LOSING AT LEAST 75% OF GESTATIONAL WEIGHT GAIN BY EARLY POSTPARTUM IN WOMEN WITH RECENT GESTATIONAL DIABETES

Jacinda M. Nicklas¹,²; Chloe A. Zera³; Sue E. Levkoff⁴,⁵; Ellen W. Seely². ¹University of Colorado School of Medicine, Aurora, CO; ²Brigham and Women’s Hospital, Boston, MA; ³Brigham and Women’s Hospital, Boston, MA; ⁴Brigham and Women's Hospital, Boston, MA; ⁵University of South Carolina, Columbia, SC.

(Tracking ID #1937893)

BACKGROUND: Women with gestational diabetes (GDM) have a 30-70% risk for developing type 2 diabetes (T2DM) later in life. Postpartum weight retention is highly predictive for future obesity, and further increases risk for T2DM. We sought to identify factors associated with losing at least 75% of gestational weight gain by early postpartum in women with recent GDM.

METHODS: We recruited women with GDM during pregnancy or just after delivery. Pre-pregnancy weight was self-reported at recruitment; gestational weight gain, mode of delivery, and insulin use were extracted from medical records. At a mean of 7.2 (±2.1) weeks postpartum we measured weight, height, and administered questionnaires, including: demographics, breastfeeding, sleep, Edinburgh Postnatal Depression Scale, Harvard Food Frequency, and the International Physical Activity Questionnaire. After conducting an analysis of univariates, we used backward selection to fit a multivariable logistic regression model for univariates with p<.2 to identify factors associated with losing 75% or more of gestational weight gain by early postpartum.

RESULTS: Our study included 75 women (mean 33 ±5 years; pre-pregnancy BMI 31.4 (±5.6) kg/m²; 57% White, 29% African-American, 15% Asian, with 20% identifying as Hispanic and 34% low income). Mean pregnancy weight gain was 12.5 kg (±7.8). 52% of participants lost at least 75% of their pregnancy weight gain by the study visit. Dietary composition, fiber intake, added sugars, and glycemic index were similar between those who demonstrated early weight loss and those who did not, and consequently were not included in the multivariate model. Physical activity, sedentary time, race/ethnicity, education, income, mode of delivery, postpartum depressive symptoms, and breastfeeding were also similar between groups and not included in the model. In a multivariate model adjusting for weeks postpartum, only increased age (OR 1.31; 95% CI 1.06 to 1.76 per year) and less gestational weight gain (OR 0.63; 0.48 to 0.76 per kg) were associated with at least 75% early postpartum weight loss. Insulin use, nulliparity, and sleep were not retained in the model.

CONCLUSIONS: A substantial proportion of women with recent GDM lost at least 75% of their gestational weight gain by early postpartum. Older women and those who had gained less weight during pregnancy were significantly more likely to have lost at least 75% of gestational weight. Limiting gestational weight gain may help women with GDM return to pre-pregnancy weight quickly during the postpartum period.