

13th Annual HMO Research Network Conference

Abstracts from the HMO Research Network

With this issue, we include abstracts from the 2007 13th Annual HMO Research Network Conference held in Portland, Oregon, which focused on: "Building a National Research Model: The Future of HMO-Based Research."

From: Geisinger Health System and Lund University

Worse diabetes control in US compared with Swedish patients from similar populations despite more rigorous intervention.

Langer RD, Lindblad U, Melander A.

OBJECTIVES: To evaluate diabetes control in regions with similar racial/ethnic mix, infrastructure and physical environment in Pennsylvania served by the Geisinger Health System (GHS), and Skaraborg, Sweden, with comprehensive care through a public health service.

METHODS: Using longitudinal electronic health records containing similar detail we identified 26,433 GHS patients (12,829 men and 13,614 women) with diabetes seen within

the prior two years, and 10,391 patients (5473 men, 4918 women) in the Skaraborg Primary Care Database (SPCD). Equivalent data on demographics, HbA_{1c}, height, weight, and medication use were extracted for both populations. We defined Uncontrolled Diabetes (UD) as HbA_{1c} > 7.0.

RESULTS: Mean HbA_{1c} was 7.54 in GHS (n = 17,958) and 6.29 in SPCD (n = 9945). UD among patients with HbA_{1c} measured within two years was more than twice as high in GHS (60%) versus SPCD (25%) patients. Including patients with no HbA_{1c} in two years as UD, the GHS rate increased to 73% and the SPCD rate was unchanged. GHS patients used a mean of 1.6 diabetes drugs compared with 0.9 for SPCD (p < 0.001). In logistic regression adjusted for age, sex, BMI, number of diabetes drugs, and insulin dependence, the odds for UD in GHS patients compared with SPCD was 6.9 (p < 0.001). Restricting the analysis to patients with similar medical coverage (Geisinger HMO and all SPCD), the odds ratio

(OR) was 5.9 (p < 0.001). Models restricted to users of a specific class of drug demonstrated similarly robust differences. With adjustment for all factors above plus insurance, or all factors above restricted to GHS HMO and SPCD patients, ORs were: Biguanides 5.6 and 5.2, Sulfonylureas 6.1 and 5.5, insulins 6.2 and 5.5, glitazons 9.1 and 8.5, meglitins 4.9 and 4.4, combinations with metformin 12.4 and 14.1, and other less common drugs 5.3 and 4.8; all p < 0.001.

CONCLUSIONS: These marked differences in diabetes control between similar populations in the US and Sweden are robust to control for BMI, treatment and access to care. Diet, compliance with treatment, other physical and social environmental factors, or gene-environment interactions may be involved and should be explored.

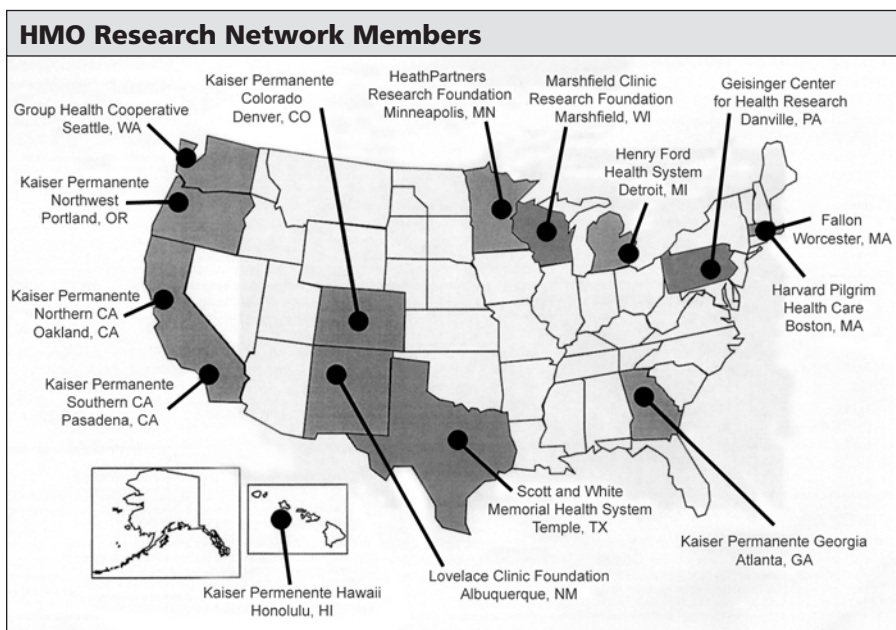
From: HealthPartners, Minnesota Community Measurement, Preferred One, Blue Cross Blue Shield, HealthPartners Research Foundation

Improved diabetes care using a single comprehensive diabetes quality measure: The Minnesota experience.

Amundson GM, Chase JA, Frederick JP, Hiza DJ, O'Connor PJ, Solberg LI.

OBJECTIVE: To describe a comprehensive diabetes quality measure used by Minnesota Community Measurement (MNCM), and recent trends in diabetes quality of care.

METHODS: MNCM classifies each patient with diabetes as meeting or not meeting all these measures: glycated hemoglobin (A_{1c}) ≤ 8.0, low-density lipoprotein cholesterol (LDL-cho) <130 mg/dL, blood pressure under 130/85 mmHg, documented nonsmoking status (NSMK), and regular aspirin (ASA) use in those over 40 years of age. Performance data is derived electronic data or manual chart audits for a random sample of at least 60 adults with



diabetes at each provider group. Chi-square tests and nested multivariate logistic regression models were used to assess trends.

RESULTS: Provider groups are making vigorous efforts to improve diabetes care. The proportion of diabetes patients who achieved recommended levels of all five components of the comprehensive diabetes measure was 7.6% in 2001, 11.7% in 2002, 12.0% in 2003 and 15.5% in 2004. There is considerable variation in the composite measure across provider groups; in 2001 the range across provider groups was 0% to 20%, and in 2004 the range across provider groups was 1% to 40%. In 2001, 6% of provider groups had over 15% of patient meeting this measure, and in 2004, 46% of provider groups had over 15% of patients at this goal ($X^2 = 20.8$, $p < .0001$). In 2005, among the five measures, the one with the lowest proportion of patients at goal was BP (41.7%), followed by ASA (60.3%), A_{1c} (62.3%), LDL (62.9%), and NSMK (63.6%).

CONCLUSIONS: These data show substantial improvement in diabetes care in a short period of time in a large geographically defined community. It is likely that at least part of the medical group motivation to improve diabetes care was related to implementation of a commonly agreed-upon publicly reported comprehensive diabetes control measure. The remaining variation across medical groups suggests that further substantial improvement in community levels of diabetes care are possible, and that special attention to BP control may be indicated for many of the participating medical groups.

*From: Marshfield Clinic
Research Foundation*

Childhood overweight and the incidence of distal forearm fracture.

Coleman LA, Mukesh BN, McCarty DJ.

BACKGROUND: A rising prevalence of obesity among children and adults over the past several decades has been accompanied by an increase in the incidence of distal forearm fractures among individuals <35 years of age. Reasons for this trend in fracture incidence are unclear and likely to be multifactorial. The objective of the current study was to report the incidence of distal forearm fractures by child-

hood weight status among participants of the 1982 population-based Heartwatch study.

METHODS: In 1982, 3106 children ages 5-15 years from 16 public and private schools in Marshfield, WI participated in a cardiovascular disease risk factor study (80% response rate). Baseline measure included a health, dietary, and family history questionnaire, blood pressure (BP), height, weight, and fasting serum lipid and lipoprotein measurements. Ninety-nine percent of the cohort received medical care at the Marshfield Clinic. Baseline data were merged with Marshfield Clinic data on distal forearm fracture (ICD-9 codes 813.00-813.93) identified from electronic medical records to determine fracture incidence in the cohort over time. Subjects with <5 years follow-up ($n = 255$) were excluded from analysis.

RESULTS: Overall distal forearm fracture incidence was significantly greater in males vs females (11.4 vs 7.7%, respectively, $p = 0.0002$). For males, there were no differences in fracture incidence by childhood weight status. For females, the incidence of forearm fracture was greater among overweight subjects compared with healthy weight subjects (odds ratio: 1.78; 95% CI: 0.94, 3.2), particularly after age 11 years.

CONCLUSIONS: Among female members of the Heartwatch cohort, the incidence of distal fractures was greatest among subjects who were overweight during childhood. This finding is consistent with the literature showing that overweight, in combination with site-specific bone weakness, contributes to fracture risk.

From: Meyers Primary Care Institute
Patterns of care, medication use and drug expenditures for the oldest old with diabetes mellitus.

Tjia J.

BACKGROUND AND AIMS: American Geriatrics Society guidelines for diabetes mellitus treatment suggest individualization of care for older adults based on health status, patient preference and life expectancy. Benefit from aggressive medical therapy for diabetes in the oldest old is unclear and patterns of preventive care, pharmaceutical treatment

and medication spending for diabetes in the oldest old are not well described. The aim of this study is to examine, among the oldest old (≥ 80 years) compared to younger old adults (65-79 years), differences in the receipt of preventive care, patterns of medication use and overall drug spending, controlling for potential confounders including comorbid conditions and diabetes complications.

METHODS: Using data from the 2001 Medical Expenditure Panel Survey (MEPS), we examined patterns of care, medication use, and drug expenditures of adults with diabetes aged 65 years and older, controlling for sociodemographic characteristics, health status, and complications from diabetes. Drug expenditures adjusted to 2006 US dollars were stratified by age.

RESULTS: Overall, the oldest old had a higher burden of retinal and renal complications from diabetes (40.6% vs 30.5%, $p = 0.05$). The oldest old were no less likely to have podiatry exams (29.7% vs 37.0%, $p = 0.17$) and were not less likely to have at least one HbA_{1c} checked in the past year (37.7% vs 40.4%, $p = 0.48$). Of the oldest old, 15.9% used innovative hypoglycemic agents compared to 16.4% of the younger older people ($p = 0.89$). Innovative hypoglycemics included thiazolidiones, meglitinides, alpha-glucosidase inhibitors and rapid-acting insulins. The oldest old with complications were less likely to use lipid-lowering drugs (22.05% vs 48.5%, $p = 0.003$) than their younger old counterparts. Overall drug spending adjusted for sociodemographic and clinical characteristics was not significantly different between oldest oldw and younger old adults (\$2410 vs 2298, $p = 0.30$).

CONCLUSIONS: Quality of care for the oldest old with diabetes appears to be no different than for younger old adults with the exception of the use of lipid-lowering drugs. In addition, overall adjusted drug spending was no different for the oldest old. Further investigation is necessary to understand whether this pattern of care is consistent with the patient care goals and whether this leads to prolonged independent functional status, and improved health outcomes. ❖