1996, 1999, 2002, 2005, 2008, and 2011 to show changes over time among 25-79 year olds in selected health behavior risk factors (smoking, obesity, exercise, dietary practices, stress, health beliefs), use of selected CAM modalities, and IT access; age and race-ethnic differences in health risk factors and CAM use; and age-related differences in IT access and preferences for IT-based health education. More information about the survey and survey results can be found at www.memberhealthsurvey.kaiser.org. **Conclusions:** Data and statistics from KPNC Member Health Surveys can be useful for researchers and administrators both within and outside KPNC for research and service planning.

Keywords: Member Population Health; Health Risk Behaviors; IT Access and Preferences

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PS3-39:

What Are Seniors Doing to Promote Healthy Aging?

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Background/Aims: We describe the percentages of seniors taking health actions to promote healthy aging; how well they are achieving recommended goals; and whether healthcare provider advice influences behavior. **Methods:** We analyzed weighted self-report survey data for approximately 6600 respondents aged 65+ to the 2011 Kaiser Permanente Northern California Member Health Survey. **Results:** Differences noted are significant at $P < .05$: (1) 73% (77%W, 68%M) try to eat mostly healthy foods. Those who try are more likely to eat 3+ servings of fruit/vegetables per day (64%W, 45%M vs. 35%W, 24%M), but <1/4 (23%W, 15%M) consume 5+ servings. "Triers" are more likely to report most of the time trying to eat reduced fat foods (65% vs. 29%) and avoiding foods high in salt/sodium (75% vs. 40%), and also more likely to read food labels/recipes (70%W, 57%M vs. 28%W, 16%M). (2) 55% (51%W, 59%M) try to exercise most days (44% moderate exercise, 11% nonaerobic walks). Effort to get daily exercise declines with age. Most (90%) who try report exercising 3+ times/week (vs. 33% of "nontriers"), but only 53% of "triers" (56%M, 49%W) exercise 5+ times/week. (3) 51% of overweight seniors are trying to lose weight/maintain weight loss. (4) 39% (46%W, 30%M) and 57% (62%W, 50%M) of those at high risk (recent fall history or balance/gait problem) are taking actions to reduce risk of falling. (5) 65% try to get enough sleep. (6) "Triers" are more likely to report getting advice about diet (67% vs. 58%), losing weight (66% vs. 45%), reducing fall risk (83% vs. 43%), and getting enough sleep (82% vs. 64%). (7) 71% do activities to keep their brain stimulated; 63% visit people at least once a week, and 64% do enjoyable activities at least once a week, but this declines with age. (8) 47% of seniors take low-dose aspirin for CVD prevention. **Conclusions:** Large percentages of seniors are trying to engage in health protective behaviors, but many who are trying are falling short of recommended health behavior goals. Healthcare provider advice appears to influence patient motivation, supporting the utility of health behavior assessment and wellness counseling for seniors.

Keywords: Healthy Living; Senior Health Promotion; Prevention

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PS3-41:

The Role of Health Literacy on Medication Adherence After Discharge Among Medical Aid Program Members

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Background/Aims: Low income and inadequate health literacy are independently associated with hospital readmission, a situation exacerbated by factors such as medication errors or non-adherence. The objectives of this study were to describe health literacy in a population of adult patients covered by medical aid programs, to test its impact on medication adherence, and to explore the role of depressive symptoms on adherence. **Methods:** Ninety patients who had been hospitalized at Scott & White Memorial Hospital participated in the study. Within 15 days of discharge, participants completed an in-person cross-sectional survey, on health literacy (REALM-SF), medication adherence (Morisky 4-item), depressive symptoms (CES-

D), demographics, and other psychosocial measures. Chi square was applied to test for differences in medication adherence by health literacy score and by depression score. Health literacy scores were categorized by grade equivalents of $\leq$ grade 6 (0-3 points), 7th- 8th grade (4-6 points), and high school or above (7 points). Depressive symptom scores were categorized as below or above a cut-off of 16 points (higher = more symptoms). Medication adherence scores were categorized as low (0-1 points), medium (2-3 points), or high (4 points).

Results: The majority of participants were women (62.2%) with a mean age of 50.4 (SD = 13.5). Fifty-four percent scored a grade equivalent of high school or above, thirty percent scored a 7th to 8th grade equivalent, and 15.6% scored equivalent to 6th grade or lower. Medication adherence did not differ across REALM-SF categories ($\chi^2 = 4.97$, $df = 4$, $P = .29$) or by CES-D categories ($\chi^2 = 1.79$, $df = 2$, $P = .41$). **Conclusions:** Health literacy scores varied in this sample of medical aid program members recently discharged from the hospital; 15% had scores indicating they may struggle with most patient education material. However, health literacy level was not associated with degree of medication adherence after discharge. Planned next steps in this study are to explore the role of motivation and other individual characteristics on medication adherence and other self-care behaviors. Improved understanding of experiences and behaviors following hospital discharge will aid in the tailoring of interventions to reduce avoidable readmissions for persons receiving medical aid.

Keywords: Medication Adherence; Low-Income Populations

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PS3-42:

Health Literacy and Cancer Prevention: It's Not What You Say It's What They Hear

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Background/Aims: A growing body of literature documents the relationship between health literacy and important health behaviors and outcomes. Most research to date has focused on print literacy—few studies have examined literacy with respect to spoken information ("spoken health literacy"). We sought to examine the extent to which responses to physician advice about cancer prevention and screening were associated with spoken health literacy. **Methods:** Participants listened to 3 simulated physician-patient discussions addressing: 1) Prostate Specific Antigen (PSA) testing; 2) tamoxifen for breast cancer prevention; and 3) colorectal cancer (CRC) screening. The physician provided information on risks and benefits but did not endorse one course of action. Post-vignette questions assessed understanding and reactions to the physician's advice. Participants had previously completed the Cancer Message Literacy Test-Listening (CMLT-L), a measure of spoken health literacy. Bivariate analyses examined the relationship between CMLT-L scores and comprehension, attitudes, and behavioral intentions. **Results:** Four hundred thirty-eight adults from 3 HMORN sites participated. Comprehension: Post-vignette comprehension scores were correlated with CMLT-L scores ($r = 0.62$, $P < .001$) and those scoring in the lowest CMLT-L quartile scored significantly lower on the vignette-specific comprehension scales ($P < .001$). Attitudes: Participants scoring in the lowest CMLT-L quartile were more likely to report their views had become more favorable on PSA testing ($P < .001$) and CRC screening ($P < .001$) as a result of the vignette. Behavioral intentions: Participants who scored in the lowest CMLT-L quartile expressed stronger intent than higher scoring participants to undergo PSA testing ($P = .028$) and to take tamoxifen for chemoprevention ($P = .017$). **Conclusions:** The ability to understand spoken information is a critical component of health literacy. In this study, spoken health literacy influenced patients' comprehension of, and reaction to spoken health information provided by a physician. The findings that participants scoring in the lowest quartile on the CMLT-L were more likely to respond favorably to physician advice on cancer prevention but were less likely to comprehend content of the vignettes, may indicate that physician mention of a prevention

service is interpreted as endorsement of a prevention service in the absence of a full understanding of its risks and benefits.

Keywords: Health Literacy; Cancer Screening and Prevention; Health Communication

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PS3-43:

Using the Electronic Health Record to Evaluate the Collateral Impact of Bariatric Surgery

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Background/Aims: Bariatric surgery is the only effective long-term treatment for morbid obesity. The bariatric program includes commitment to lifestyle changes that may have a collateral effect on co-inhabitants. Studies of the collateral impact are limited by small sample sizes and results have been conflicting, with studies showing both weight loss and weight gain in family members of surgery patients. This is the largest study to investigate the impact of bariatric surgery on the BMI of adults living in the same household. **Methods:** Adult co-inhabitants of Roux-en-Y gastric bypass patients were identified by matching addresses from an electronic health record. The sample was limited to co-inhabitants with BMI measures within the year prior and within a year after their household member's surgery. Paired t-tests and repeated measures regression was used to determine if change in BMI from pre- to post-surgery was associated with the co-inhabitants' age, gender, and BMI. **Results:** Of 443 co-inhabitants (from 388 bariatric patients), 61% (n = 269) were male, and 21% (n = 91), 50% (n = 223), and 29% (n = 129) were aged <40, 40-59, and ≥60 years, respectively. Pre-surgery BMI was normal, overweight, moderately obese, and extreme obese (>40kg/m²) in 12% (n = 54), 26% (n = 116), 46% (n = 205), and 15% (n = 68), respectively. The overall change in the co-inhabitants' BMI was not significant (pre-surgery mean = 32.9, post-surgery mean = 32.8, paired t-test p-value = 0.072). Change in BMI from pre- to post-surgery was not associated with gender (P = 0.231) or pre-surgery BMI (P = 0.129). Older age was associated with significant decrease in BMI. Co-inhabitants aged ≥60 had a significant decrease in BMI (pre-surgery mean = 32.3 kg/m², post-surgery mean = 31.9, P = 0.0002). **Conclusions:** Older co-inhabitants (aged ≥60) of bariatric surgery patients had a significant reduction in BMI, while younger age, gender, and initial BMI were not associated with BMI change. The lifestyle changes required of bariatric surgery patients might have more of an impact on older co-inhabitants who are less likely to be influenced by competing lifestyle behaviors in the workplace than their younger counterparts. With more than 60 percent of co-inhabitants obese prior to surgery, it is critical to identify strategies for broadening the positive impact of bariatric surgery to co-inhabitants in all age groups.

Keywords: Bariatric Surgery; Obesity

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PS3-44:

Can Health Insurance Improve Employee Health Outcome and Reduce Cost? An Evaluation of Geisinger's Value-Based Insurance Design

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Background/Aims: Employers have recently seen rapid increases in their cost of providing health insurance benefits for their employees, partly because the traditional health insurance benefit design does not reflect the value of healthcare consumed. Value-based insurance design (VBID) seeks to address this problem by incorporating value as well as cost in each beneficiary's healthcare decisions. Since 2007, Geisinger Health System (GHS) has implemented its own version of VBID called MyHealth Rewards for its employee population. Key components of the program included zero-copay prescription drugs for patients with certain chronic conditions and a health management program designed to enhance employee self-management. In this study, we examine whether MyHealth Rewards has led to improvements in employee health outcomes in terms of reduced incidence of stroke and MI and also whether it has lowered the cost of care. **Methods:** A cohort of GHP members who remained as Geisinger employees throughout the study period

was identified (N = 4,895). Because MyHealth Rewards program was offered only to Geisinger employees starting in 2007, this cohort was compared against a comparison group consisting of GHP members who remained as non-GHS employees during the same period (N = 12,077). Propensity score matching was used to stratify the sample based on a set of baseline characteristics. Cox proportional hazard model was used to estimate time to first incidence of stroke or myocardial infarction (MI) since 2007. The total medical cost excluding prescription drugs was analyzed using a two-part model consisting of a generalized linear model and a logistic regression model. Covariates included employee age, gender, disease management and chronic condition status, and medical home status. **Results:** The Geisinger employee cohort experienced stroke or MI later than the non-Geisinger employee group (hazard ratios of 0.73 and 0.56, respectively; P < 0.01). There was also reduction in cost of care by about 10% to 13% associated with the Geisinger employee cohort relative to the non-GHS employee group during the second and third years of the program. However, the cost reduction disappeared in subsequent years. **Conclusions:** VBID has the potential to be an effective tool in achieving the dual goal of improving health outcomes while lowering cost.

Keywords: Value Based Insurance Design; Health Outcomes; Cost of Care
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PS3-46:

Do Rural and Urban Populations Define "Health" Differently?: Findings from a Review of the Literature

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Background/Aims: An earlier analysis of rural and urban focus group discussions of end-of-life care preferences documented that rural and urban participants often discussed "good health" and "meaningful survival" differently. In that study, rural participants tended to equate "health" with being able to function, particularly on one's own behalf, and to dismiss the idea of meaningful survival when unable to do so. Urban participants were more likely to describe health and survival as goals independent of function.

Methods: We conducted a review of the literature to assess the current understanding of rural definitions of health. PubMed and CINAHL and other databases (PsycINFO, AnthroSource, Sociological Abstracts, etc.) were searched for years 1970 to 2011 using terms including health definition, health belief, health attitude, health values, and health behavior for relevant articles pertaining to rural US, Canada and Australia. The initial search and subsequent follow up of cited material identified 101 articles, which were reviewed by the authors for content, methodology and rigor. **Results:** Thirty-nine of the articles included commentary or findings relevant to a rural definition of health. Rural residents had been found to characterize good health as being able to "take care of what has to be done" and to avoid dependency. In particular, rural residents assessed their health on the basis of their ability to work and to reciprocate in social relationships, and associated health with independence. While these findings were consistent across much of the literature reviewed, few studies compared rural and urban definitions of health directly. That is, a distinctive rural definition of health is suggested in the literature, but there has been little empirical documentation of differences between rural and urban health concepts. **Conclusions:** Rural-urban differences in the definition of health may be important in promoting healthy behavior, and in the delivery of health education, preventive services, and primary care. Future research must overcome methodological and conceptual challenges, including the heterogeneity of rural communities, inconsistent definitions of what is "rural," the need to adjust for rural-urban differences in socio-economic status, and especially the need for valid rural/non-rural comparisons.

Keywords: Prevention and Wellness; Health Education; Health Behaviors
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