PS2-22:

Geisinger Health System's Clinical Interventions for Preventing Pediatric Obesity - Infancy through School-age

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Background/Aims: Childhood obesity remains a priority issue for the nation and health systems yet little is known about the effectiveness of pediatric obesity prevention interventions overall and evidence is particularly lacking with regard to prevention in clinical settings. Our aim is to discuss process steps in developing two clinical interventions to prevent obesity and their research designs to evaluate effectiveness. **Methods:** Two interventions were developed, the first to address early childhood obesity prevention among 0-26 month old children and the second to address prevention among children aged 2-9 years, with intentional overlap to coordinate care. A team, comprised of pediatric clinical operations, clinical innovations, research, eHealth, biostatistics, and external university partners, worked collaboratively to develop each intervention and their respective research designs. **Results:** Each intervention is delivered at scheduled Well Child Visits with consistent components: 1) parent self-reported data to screen for parenting practices, child behaviors, and home environments; 2) parent engagement via screening and risk prioritization; 3) best practice alerts for providers to aid analytical assessment of risk; 4) primary care provider talking points and a SmartSet of parent educational materials; 5) electronic health record progress note construction; and 6) post-visit education. A cluster randomized design is being used to evaluate the effectiveness of both interventions with 6 clinics assigned to the intervention and 6 matched clinics providing standard care. Process outcomes including intervention fidelity and parent engagement are being examined as well as health outcomes. Data are being collected and will be compared to 12-month indicators to evaluate changes in child weight/length or BMI-for-age and BMI; child behaviors; and parenting practices. **Conclusions:** A focus on health system goals, a priority health issue, and principles of the learning health care system engaged internal and external entities to leverage resources and successfully develop and implement pediatric obesity prevention interventions. In addition, two pragmatic trials to examine the implementation and effectiveness of the interventions are underway and will contribute to a gap in the evidence base.

Keywords: Clinical intervention; Prevention

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Chronic Conditions/Diabetes/Obesity

A2-1:

Longitudinal eGFR, eGFR Slope, and Cardiovascular Events Among Adults with CKD

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Background/Aims: Single time-point GFR estimates are used for risk prognostication among those with CKD. Various applications of longitudinal eGFR using linear models, including time-independent slope and variability, have been shown to independently predict cardiovascular events. We wished to extend these applications by modeling longitudinal eGFR—forming estimates of current eGFR value and time-dependent eGFR slope at any point in time—and then test the independent association with cardiovascular event risk in an adjusted, joint longitudinal-survival model. **Methods:** We retrospectively assembled a cohort of Geisinger primary care patients with stage G3-G4 CKD (1/1/2001 to 6/30/2012) who had a minimum of 4 outpatient eGFR results and 6-months follow-up. Exclusion criteria included a history of dialysis or renal transplantation. Patients were followed through 12/31/2012 for the first occurrence of MI, HF, or stroke (CVD event), or were censored at ESRD, death or end of study. eGFR was modeled using a random intercept and slope model with a flexible spline transformation of time to capture non-linear trends. Time to first CVD event post-CKD diagnosis was modeled using a Cox Proportional Hazard regression model.

The longitudinal and survival models were then jointly estimated. **Results:** A total of 24,777 patients met cohort entry criteria. A random sample of 90% (22,300) was used for model development (mean age 69.3 y, 42% (9409) male, 28% (6277) with diabetes, mean baseline eGFR 51 mL/min) and contributed 119,165 person-years of follow up. 6% (1339) had a prior CVD event. During follow-up 4216 (19%) patients had a post-CKD CVD event. In fully adjusted models, each 5 mL/min/1.73m² decrease in current eGFR was associated with a hazard ratio (HR) of 1.05 (95% CI 1.04, 1.06). For the time-dependent slope of eGFR trend, each 2 mL/min/1.73m²/year decrement was associated with a HR of 1.06 (95% CI 1.03, 1.10). Both diabetes and gender modified the eGFR slope associations, such that the associations were significantly greater among non-diabetics (HR = 1.17) and females (HR = 1.11). **Conclusions:** Longitudinally modeled eGFR and time-dependent eGFR slope each independently associates with CVD risk among patients with moderate and advanced CKD. The relative prognostic value of static, single time point eGFR vs. joint modeling of eGFR warrants further investigation.

Keywords: Chronic kidney disease; Joint longitudinal-survival models

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A2-2:

Improving Diabetes Management with Mindfulness-based Stress Reduction

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Background/Aims: Managing diabetes can be challenging and stressful for many people resulting in poor diabetes control and increased mental health issues such as depression and anxiety. **Methods:** We conducted a pilot study of mindfulness-based stress reduction (MBSR), a combination of mindfulness meditation and gentle yoga, to look at whether it could help patients better manage their diabetes. We recruited 38 people with diabetes and 2 HbA1c values > 8 in the prior 18 months to complete a community-based MBSR course. Participants attended eight-weekly intervention sessions and participated in home-based MBSR practice. Surveys and HbA1c values were obtained at pre and post-intervention, Cohen's-d statistic was estimated for survey outcomes. Pre-post change was evaluated using paired t-test. **Results:** Participants were 31- to 78-years-old (M = 57), the majority were female (68 %), white (70%), employed, with some college education. Mean HbA1c pre-intervention was 9.18. Participants showed significant improvement in pre-post measures of HbA1c (change .73%, $P = .000$), overall mental health (Cohen's-d .69, $P = .001$), stress (Cohen's-d -.76, $P = .001$), depression (Cohen's-d .62, $P = .001$), and anxiety (Cohen's-d .66, $P = .001$). There was also improvement in two measures of diabetes management: Problem Area in Diabetes Questionnaire (Cohen's-d -.71, $P = .002$) and the Diabetes Empowerment Scale (Cohen's-d .80, $P = .000$). **Conclusions:** These results suggest that MBSR may offer a safe and effective method for helping people better manage diabetes and improve their mental health. Effect sizes were large and significant pre-post differences were found indicating that a larger clinical trial is warranted.

Keywords: Diabetes; Complementary therapies

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A2-3:

Impact of Mild Chronic Kidney Disease Stage on Outcomes after Total Hip or Knee Arthroplasty

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Background/Aims: Dialysis and kidney transplantation adversely impact outcomes of total hip or knee arthroplasty (THA, TKA), but complication rates have not been reported for patients with less advanced stages of chronic kidney disease (CKD). Surgeons lack the data necessary to have informed discussions regarding anticipated outcomes of joint replacement for these patients. **Methods:** We retrospectively reviewed electronic health records of 779 adults with stages 1, 2, and 3 CKD not requiring dialysis or transplantation