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# Poster Abstracts

## Poster 001

### 10-Year Evaluation of a Pediatric Weight Management Population before/after Program Restructuring

Jaime Moore, MD, MPH *Aurora CO*, Sean Wickers, BS, Austin Peralta-Fogle, BS *Denver*, Suzanne Paul, BSN, MSN, FNP-C *Denver CO*, Sonali Patel, MD, PhD *Aurora CO*

**Background:** In 2014, Children's Hospital Colorado's (CHCO) Lifestyle Medicine (LM) program adopted a unique tiered structure of distinct, but interconnected, interdisciplinary teams across specialties to provide integrated Stage 3&4 pediatric weight management for prevention and treatment of weight-related complications. This was accompanied by intensified primary care outreach to enhance education, support, and referrals. We aimed to describe geographic reach and LM patient population characteristics over a ten year period divided before and after restructuring to guide program operations and to facilitate comparisons to other pediatric weight management centers.

**Methods:** Setting: CHCO LM program. Population: all patients seen in LM Jan 1 2009-Dec 31 2019. Design: retrospective chart review. Analysis: LM visits were dichotomized into pre (2009-2013) and post (2014-2019) periods. To assess for differences between the two periods, Wilcoxon-Mann-Whitney was used for non-normally distributed continuous variables, and chi-square for categorical variables. Significance was defined as $p < 0.05$.

**Results:** A total of 30,835 LM visits were included, with volume increasing yearly and 8-fold from pre to post periods. Reach expanded to 87 new zip codes across Colorado, and new cities in Utah, New Mexico, and Missouri. From pre to post, median age increased from 11 to 13 years. The proportions of visits with males (48 to 50%) and Hispanic youth (59 to 56%) were statistically significant, but clinically comparable. The relative proportion of visits with Native American/Alaska Native youth doubled, with Asian youth increased by 75%, and with Black youth was unchanged. The payor mix was stable with ~75% of patients with Medicaid/Child Health Plan Plus during both periods. Median BMI% of the 95$^{th}$%ile at LM presentation significantly decreased (127 to 123%), but both were consistent with class 2 severe obesity.

**Conclusions:** Over the decade studied, visit volume and reach of the LM program swelled, which likely reflects both a shift from isolated subspecialty management of obesity complications and increased primary care referrals. Representation of select non-white minorities increased and LM access for low-income families remained high. Ongoing analysis includes detailed evaluation of patient outcomes and predictors of response within and across LM tiers.

## Poster 002

### 12-Week Weight Loss in Automated Online Obesity Treatment Implemented Pragmatically in Primary Care

J. Graham Thomas, PhD *Providence RI*, Emily Panza, PhD *Providence RI*, Hallie Espel-Huynh, PhD *Providence RI*, Carly Goldstein, PhD, FAACVPR *Providence RI*, Kevin O'Leary, MS *Providence RI*, Rena Wing, PhD *Providence RI*

**Background:** Lifestyle treatment for obesity is efficacious but costly to administer. An automated online adaptation has tremendous potential to reach large numbers of patients at low cost when implemented in primary care, yet outcomes achieved via pragmatic implementation have not been studied.

**Methods:** Providers in a large primary care practice network referred patients aged 18-75 years with a BMI ≥25kg/m$^2$ and Internet access to a fully-automated online obesity treatment. The researchers provided the program but had no role in patient care. The program provided weekly educational video lessons, a website for submitting self-monitored data, and automated feedback. Weight loss was assessed using weekly self-reported weight data and analyzed using the intent-to-treat principle. Engagement was assessed using frequency of lessons viewed and submission of self-monitored weight.

**Results:** A total of 464 provider-referred patients (70% female; 94% White) enrolled and entered at least 1 weight post-baseline. In a mixed effects model using all available weight observations, mean weight change at week 12 was −5.1% (SE = 0.2). In similar analyses with missing values assumed to be zero after the last available observation, the mean 12-week weight loss was 3.2% (SE = 0.2). On average, patients submitted their weight on 7.8/12 weeks and accessed 6.5/12 lessons. Thirty-seven percent submitted their weight on all 12 weeks and 20% percent accessed all 12 lessons. Those patients with high engagement (i.e., submitted

  

key new products launched in Thailand during the period of 2016-2020. The obtained FOP labels contain barcode-level information on the product's printed material and their corresponding nutrition profile data. The prevalence of FOP claim and label type was estimated and the association between claim types and median energy and total grams of sugar per 100 mL were analyzed using Wilcoxon rank-sum tests. The percentages of products with and without each claim type and label were also calculated and compared.

**Results:** In Thailand, almost all (92.9%) juice drinks had at least one nutrition-related FOP claim. Implied on natural products like "no addictive or preservatives" was the most common (64%). Claims about vitamin C (28.8%), no added sugar (15.7%), and calorie and sugar-related (4.6% and 4.1% respectively) were also commonplace. Products labeled with the "Healthier Choice" nutritional logo were also trendy (12.9%). The presence of the "Healthier Choice" logo and nutrition-related claims on "calorie and sugar-related" was associated with lower calorie and sugar content, comparing with products without that specific claim type, whereas claims on "vitamin C" and "no added sugar" were not inconsistently associated. Moreover, products with the "Healthier Choice" logo also carry a higher frequency of claims on "calorie and sugar-related" than non-labeled products ($p < 0.001$).

**Conclusions:** In Thailand, claims are substantially universal on juice drinks regardless of their nutritional profile. Products labeled with "Healthier Choice" give a "better" nutrient profile and may facilitate consumers' awareness of the nutrition qualities of their foods products.

## Poster 120

### Examining the Role of Neighborhood Environment in a Weight Gain Prevention Program for Young Adults

Justin Guan, MS *Richmond VA*, Amy Gorin, PhD *Storrs CT*, Mark Espeland, PhD *Winston-Salem NC*, Jean Reading, MA *Richmond*, Morgan Meyer, MS, Deborah Tate, PhD *Chapel Hill NC*, Rena Wing, PhD *Providence RI*, Jessica Gokee LaRose, PhD *Richmond VA*

**Background:** Young adults (YAs) experience declines in physical activity (PA) and high rates of weight gain. Evidence suggests that the built environment is associated with PA and weight. However, most data are cross-sectional and little is known about how perceptions of built environment (pBE) might influence outcomes within a weight gain prevention trial for YAs.

**Methods:** This is a secondary analysis from the Study for Novel Approaches to Weight Gain Prevention (SNAP) trial, which tested two individual-level self-regulation interventions (small changes [SC] and large changes [LC] and a control group. Only intervention participants were included (N = 391; BMI = 24.8kg/$m^2$; 28.2 yrs; 78% female; 26.6% racial /ethnic minority). Assessments of weight (in clinic), daily steps (Sensewear Pro armbands), and pBE (PANES Survey) were obtained at 0, 4 months, 1 and 2 years. We fit linear mixed effects models to explore the relation between pBE and daily steps and multiple linear regression models to examine the association between pBE and weight change. In our models we adjusted for treatment arm, sex, and race, and tested for interactions by treatment arm.

**Results:** Baseline pBE ranged from 1.6 to 3.7 and change in pBE at 2 years was modest (−0.07 ± 0.73). Overall weight change at 2 years was inversely associated with baseline pBE: −1.95 kg/1 unit pBE ($p = 0.001$). At 2 years, change in daily steps was positively associated with change in pBE: +3812 steps / 1 unit pBE ($p = 0.003$). Associations varied by treatment arm; as pBE scores increased, the LC group lost 1.88 kg more than SC (interaction $p = 0.024$) and averaged 4099 more steps than SC (interaction $p = 0.024$).

**Conclusions:** Perceived neighborhood environment was associated with change in daily steps and weight change among YAs in a weight gain prevention trial. Findings suggest that with a more supportive pBE, the LC intervention might promote better outcomes than SC. Future studies should explore these interactions using objective BE data.

## Poster 121

### Exercise Fat Oxidation Capacity Is Directly Associated with Body Fatness in Men with Obesity

Isaac Chavez-Guevara, MSc *Ciudad Juarez*, Rosa Hernandez-Torres, PhD *Ciudad Juarez Chihuahua*, Marina Trejo-Trejo, PhD, Everardo Gonzalez-Rodriguez, PhD, Veronica Moreno-Brito, PhD, Abraham Wall-Medrano, PhD, Jorge Perez-Leon, PhD, Arnulfo Ramos-Jimenez, PhD

**Background:** A decreased fat oxidation capacity, called metabolic inflexibility, is liked to obesity and metabolic syndrome. However, evidence supporting this paradigm is not consistent across literature, partly due to different fat oxidation capacity indicators used among studies. This study aimed to determine the independent interrelation of body fatness with the following metabolic flexibility markers measured during submaximal exercise: 1) maximal fat oxidation (MFO); 2) total fat oxidation (TFO), 3) maximum respiratory exchange ratio (RERpeak).

**Methods:** The cardiorespiratory fitness (CRF), MFO, and its corresponding intensity (FATmax) were defined through a graded exercise test on 21 men with obesity (95% CI: 32.0-39.5% body fat). Seven days after, all subjects walked for 60 min at FATmax, and the resulting TFO and RERpeak were recorded. Gas exchange, blood lactate, and hearth rate levels were measured during the graded and steady-state exercise trials. Multivariate analysis of variance and multiple regression were used to investigate the independent relationship of body mass index (BMI), body fat percentage (BF%), and CRF on Metflex markers.

**Results:** The MFO (4.14 ± 1.24 mg·kgFFM$^{-1}$·min$^{-1}$) occurred at a low exercise intensity (35.85 ± 6.09% of $VO_{2peak}$) during the graded exercise test. The RERpeak (0.92 ± 0.03) occurred after 15 min of walking at FATmax, and 60-min TFO was 136.95 ± 12.88 mg·kgFFM$^{-1}$·h$^{-1}$. Together, CRF and %BF explained 40% and 31% of RERpeak and TFO variance respectively ($p < 0.01$). Otherwise, only %BF was directly associated with MFO ($R^2 = 0.40$, $p < 0.01$).

**Conclusions:** Fat oxidation increase in response to physical exercise is positively related to body fatness in men with obesity. Therefore,

fat oxidation capacity does not decrease with fat mass expansion, and other mechanisms must trigger skeletal muscle lipid accumulation, leading to insulin resistance.

## Poster 122

### Experience of Excess Skin and Attitude to Plasitic Surgery of a Chinese Post-Bariatric Population

Zhiyuan Jiang *Chengdu*, Guixiang Zhang, Xiao Du, Yi Chen, Chaoyong Shen, Bo Zhang, Zhong Cheng

**Background:** Western studies have explored post-bariatric patients concerning their views on excess skin and body contouring surgery (BCS), but Asian data was lacking. This study aims to investigate the experience of excess skin and attitude to BCS of a Chinese post-bariatric population.

**Methods:** A total of 210 patients who underwent bariatric surgery at Sichuan University West China Hospital from March 2015 to September 2018 were identified, and were cross-sectional surveyed using the Sahlgrenska Excess Skin Questionnaire (SESQ) and a study-specific questionnaire.

**Results:** The survey response rate was 61.4%. Most responders (78.2%) reported they had excess skin, and the most common sites were the abdomen (70.2%) and the upper arms (61.3%). Most responders (66.1%) reported being bothered by impaired health-related quality of life (HRQoL), and the most common problem was "the feeling of having unattractive body appearance" (42.7%). Many patients (37.9%) desired for BCS, and "the impact of excess skin is not serious enough" was the reason why not undergoing BCS being chosen most (28.1%), then "the cost is too high" (20.2%) and "worrying about the risk or complications of BCS" (18.4%). Younger age, female gender, higher weight loss, having full-time job, and earning higher income were independent factors increasing their desires for BCS.

**Conclusions:** Most Chinese post-bariatric patients have excess skin and are bothered by impaired HRQoL. The abdomen and upper arms are the sites where patients are most seriously affected and most eager for BCS. The conservative attitude towards BCS and the cost without reimbursement are the main barriers.

## Poster 123

### Experiences of a Theory-Based Physical Activity Program in Adults with Overweight or Obesity

Danielle Ostendorf, PhD *Aurora CO*, Lisa Kisling, DO, Juliana Barnard, MA *Aurora CO*, Erin Rogan, BSed, Liza Wayland, MA *Aurora CO*, Shelby Panter, MS, David Conroy, PhD, FACSM, FSBM *University Park PA*, Kevin Masters, PhD *Denver CO*, Angela Bryan, PhD, Victoria Catenacci, MD

**Background:** We implemented a theory-based physical activity (PA) program (called MOVE) within an ongoing 52-week behavioral weight loss intervention designed to compare weight loss generated by intermittent fasting (IMF) to daily caloric restriction (DCR) in adults with overweight/obesity. MOVE was designed to enhance autonomous motivation for PA and adherence to the weight loss maintenance PA prescription (300 min/wk of moderate intensity aerobic PA). Our objective was to explore participants' experiences/acceptability of the MOVE program.

**Methods:** The MOVE program is based on the Self-Determination Theory and encourages 1) choice in PA type, 2) a personally meaningful rational for engaging in PA, and 3) PA that is intrinsically enjoyable. MOVE was delivered by trained study staff in two, 60-min group-based sessions (weeks 10 and 14) and one, 45-min individualized support session (week 18). Focus groups (n = 4) were conducted over weeks 21-30 with participants who attended ≥2 MOVE sessions (n = 15 in DCR, n = 13 in IMF). Discussions focused on MOVE content/structure and the effects of MOVE on PA and were recorded and transcribed verbatim. Data were analyzed by a team-based approach, using content analysis to identify emergent themes.

**Results:** Participants included 28 adults (43 ± 10 years; 86% White, 7% Black, 7% Asian; 86% Female, BMI 34 ± 4 kg/m$^2$). Participants described enjoying the MOVE program and perceived it as beneficial for helping them to increase PA. After experiencing MOVE, participants described having greater flexibility in PA type, and indicated that this led to increased engagement in PA, reduced anxiety, and greater feelings of success for PA. Participants indicated that they noticed immediate benefits of moving more and related these benefits to their life priorities, which enhanced their confidence for maintaining PA long-term. Participants also indicated a desire for MOVE content to be introduced earlier within the intervention and for additional MOVE sessions. Major themes were not different by randomized group.

**Conclusions:** Results demonstrate that the MOVE program was well accepted. Participation in MOVE helped adults create positive perceptions around their own PA behavior. Areas of improvement were identified. These findings are important to consider for future lifestyle interventions targeting adults with overweight/obesity.

## Poster 124

### Experiences of Weight Stigma in Adolescents with Severe Obesity and Their Families

Karyn Roberts, PhD, RN, CHSE *Milwaukee WI*, Michele Polfuss, PhD, RN, APNP-AC/PC *Milwaukee WI*, Emma Marston, RN, BSN, CLC, Renee Davis, DNP, APRN, CPNP-PC *St. Louis MO*

**Background:** Weight stigma has been associated with adverse health behaviors such as maladaptive eating behaviors, reduced physical activity, poor body image, and obesity-related comorbidities such as metabolic syndrome, cardiovascular disease, and health-related