

and thoracic MRI (tMRI) respectively (bMRI OR 3.48; 95% CI: 2.51–4.82; cMRI OR 2.93; 95% CI: 1.94–4.45; tMRI OR 2.50; 95% CI: 1.51–4.14). **Conclusions:** MRI plays a large role in how MS specialists diagnose, treat, and monitor MS. We found that telehealth patients had greater odds of MRI utilization. Due to data limitations, we were unable to control for all potential influencing factors. However, our results suggest future inquiry targeting the differences in patient care practices based on care delivery type related to imaging utilization and related MS population health outcomes.

MT3

ASSESSING THE POTENTIAL VALUE OF WEARABLE DIGITAL HEALTH TECHNOLOGIES IN CHRONIC KIDNEY DISEASE USING EARLY HTA METHODS

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Objectives: Wearable digital health technologies (WDHTs) offer several solutions in terms of chronic disease monitoring, management and delivery of specific interventions. Early HTA methods can inform considerations about the potential clinical and economic benefits of technology in the initial phases of the product's lifecycle, facilitating identification of those R&D investments with the greatest potential stakeholders' payoff. We report our experience of using early HTA methods to support R&D decisions relating to novel WDHT being designed to support self-management of chronic kidney disease (CKD). **Methods:** We performed a literature review, focus-group interviews with stage ≥ 3 CKD patients, and qualitative interviews with the prototype development team to understand the relevant characteristics of WDHTs, quantify relevant clinical indications and existing technological constraints. An early economic evaluation was used to identify the key drivers of value for money, and a discrete choice experiment shed light onto patient preferences towards what key features the WDHT should have for the users to adopt it. Then a model-based cost-effectiveness analysis was undertaken incorporating headroom analysis, return on investment, one-way sensitivity and scenario analyses. **Results:** The literature review, focus group discussions with CKD patients, and qualitative interview with technology developer helped to understand relevant characteristics of WDHT and user preferences helped inform the next R&D iteration. Compared to the standard care, WDHT that support stage ≥ 3 CKD patients self-management at home by measuring blood pressure and monitor mobility has the potential to be cost-effective at conventional cost-effectiveness threshold levels (that is £20,000–£30,000/QALY). From the headroom analysis, novel WDHT can be priced up to £280 and still be cost-effective compared to standard home blood pressure monitoring. **Conclusions:** Our study provides valuable information for the further development of the WDHT, such as defining a go/no-go decision, as well as providing a template for performing early HTA of Digital Health Interventions.



Alternative Medicine & Nutrition - Epidemiology & Public Health

PAM1

WILLINGNESS TO PAY FOR SUGAR-SWEETENED BEVERAGES TAX IN AN AFFLUENT SETTING OF ASIA: A PRELIMINARY FINDING

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Objectives: To assess the tax rates that an individual will change their consumption frequency for sugar-sweetened beverages (SSB) products i.e. Willingness to pay (WTP) **Methods:** We conducted a cross-sectional study via a random telephone survey for adult residents in Hong Kong from May to June, 2020. SSBs products were referred to all non-alcoholic water based beverages with added sugar. WTP of a respondent was defined as the accepted price that he is willing to pay for the SSB products without a reduction of purchase given a taxation scenario, and the maximum WTP (WTP_M) was defined as the highest accepted price that a respondent consuming SSB products. The questionnaire was designed consisting of socio-demographics, physical conditions, SSB consumption frequency, perception about SSB products, and WTP for each types of SSBs. **Results:** A total of 1,000 subjects were successfully interviewed and the response rate was 59.1%. We found the local population had a high consumption behavior of SSB products and even though a half of them perceived that a consumption of SSB products could contribute a risk of getting chronic diseases, only a moderate proportion of WTP (>60%) at a typical range of taxation (i.e. 5%–10%) was reported. Among the SSB products, we found a comparatively higher proportion of WTP in sweetened tea/coffee and the WTP_M was less sensitive when the price was increased, primarily due to a regular consumption in the daily lives of local population. Compared with the adults, the proportions of WTP in children were relatively lower indicating a higher effect of SSB tax. **Conclusions:** This is the very first study in the Chinese society to identify determinants for individuals' WTP and evaluate the acceptability of taxation policy on SSB products. The findings thus help with designing SSB tax policy especially in the Chinese population.



MT4

SAFETY WARNINGS ABOUT POWER MORCELLATION IN HYSTERECTOMY: A SIMULATION OF NATIONAL IMPACT

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Objectives: Laparoscopic hysterectomy has lower perioperative morbidity than abdominal hysterectomy. However, in 2014, the U.S. Food and Drug Administration warned that laparoscopic power morcellation increases tumor dissemination if patients have occult uterine cancer. This has increased use of abdominal hysterectomy. We simulated national health and financial impact of this practice change by accounting for both hysterectomy- and occult cancer-related outcomes. **Methods:** Using the State Inpatient Database and State Ambulatory Surgery and Services Database from Florida, Iowa, Kentucky, Michigan, Minnesota, Nebraska, New Jersey, North Carolina, Oregon, Vermont, and Wisconsin, as well as data from the New York Statewide Planning and Research Cooperative System and New York State Cancer Registry, we examined hysterectomies in the pre-warning (2013Q1–2013Q4) and post-warning (2014Q4–2015Q3) period. Via multivariable regression, we estimated patient outcomes and the counterfactual distribution of hysterectomy route in the post-warning period had there been no morcellation warning. Extrapolating these estimates to the national population and incorporating additional parameter estimates from the literature, we simulated the lifetime costs (societal perspective) and quality-adjusted life-years (QALYs) of patients nationwide in the post-warning period, compared to the counterfactual scenario had there been no morcellation warning. **Results:** The national simulation sample included 360,471 patients age ≥ 18 years undergoing hysterectomy for presumed benign indications in the post-warning period. In base-case micro-simulation, the practice change led to more surgical complications but fewer



PAM2

30 DAY READMISSIONS OF PATIENTS WITH A MALNUTRITION DIAGNOSIS: EXPLORATION OF THE US HOSPITAL POPULATION

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Objectives: Acute and chronic malnutrition is a serious condition known to worsen many healthcare outcomes, delay recovery, and slow return to desired quality of life. This study uses the National Readmission Database (NRD) 2017 data, from the Healthcare Cost and Utilization Project (HCUP), Agency for Healthcare Research and Quality (AHRQ) to explore readmission events among patients with an index visit that included a malnutrition diagnosis. **Methods:** Any patient in the NRD who had an ICD-10 code for malnutrition in the first ten diagnoses was included. Patients who had a non-elective hospital readmission within 30-days of discharge from the index visit were flagged for readmission. Major Diagnostic Categories (MDC) were used to classify causes for the index visit and adjusted Wald p-values were used to identify characteristics that were significantly different between those who had a readmission event and those who did not. A weighted, adjusted logistic regression was used to identify characteristics that increase the odds a patient who has an index visit will also have a readmission. **Results:** 407,440 eligible index visits were identified, 94,140 (22.97%) of which were followed by a readmission event. Infectious and parasitic disease and disorders (19.38%) and respiratory system (14.63%) were the most common MDCs assigned at the index visit. Characteristics associated with 30-day unplanned readmissions included age, male gender, and length of stay at the index visit. The presence of stage 2 (aOR: 1.20; 95% CI: 1.14 – 1.27) or stage 3 (aOR: 1.20; 95% CI: 1.13 – 1.26) pressure ulcer at the index event and discharge against medical advice (aOR: 1.84; 95% CI: 1.73 – 1.97) were also significant. **Conclusions:** 30-day readmissions are common following an index visit that included a diagnosis of malnutrition. Provision needs to be made



towards patient discharge coordination to ensure patients feel equipped to continue post discharge care at home.

Patient Behavior Studies

PB1

DIFFERENCES IN ADHERENCE AND HEALTHCARE UTILIZATION BETWEEN USERS OF ANALOG VIAL, ANALOG PEN, AND HUMAN INSULIN

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Objectives: Analog insulin is newer, costlier, and now more widely used than human insulin in the U.S. This study aimed to compare insulin adherence and healthcare utilization between users of analog and human insulin using real-world data. **Methods:** This retrospective cohort study used 2016-2018 Tennessee Medicaid claims data to identify patients with type 2 diabetes and capture their insulin prescription fills and healthcare utilization. U.S. adults aged ≥ 18 years who were on analog insulin vial (AV), analog insulin pen (AP), or human insulin (HI) with ≥ 6 months of continuous enrollment after their first filled insulin prescription were included. Patients with proportion of days covered value $\geq 80\%$ in 6-month baseline period were considered adherent. Healthcare utilization was assessed through numbers of ED visits and hospitalizations in 6-month follow-up period. Logistic regression and negative binomial regression determined associations between insulin type and insulin adherence or healthcare utilization, respectively. **Results:** The study included 2,763 individuals, including 69.8% female, 55.2% African-American, and 88.6% health professional shortage area residents. Insulin adherence was observed in 685 patients. AV users were less likely to be adherent compared to HI users (OR: 0.685, 95% CI: 0.527-0.889). Odds of adherence increased with age (OR: 1.028, 95% CI: 1.020-1.036) and use of additional antidiabetics (OR: 1.194, 95% CI: 1.080-1.319). AV users had higher odds of ED visits than HI users (OR: 1.288, 95% CI: 1.033-1.610). No significant associations with hospitalizations were seen. However, AP users were less likely to be hospitalized than HI users (OR: 0.618, 95% CI: 0.391-0.975). The odds of an ED visit and hospitalization decreased with age but increased with comorbidity burden. **Conclusions:** HI and AP may have higher real-world benefit compared to AV in patients at risk for disparities. Providers and payers should consider the differences in real-world benefit in selecting the right insulin for patients.



PB2

REAL-WORLD ADHERENCE TO SINGLE-INHALER FLUTICASON FUROATE/UMECLIDINIUM/VILANTEROL VERSUS MULTIPLE-INHALER TRIPLE THERAPY AMONG ASTHMA PATIENTS IN THE US

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Objectives: Guidelines recommend triple therapy for asthma patients who remain uncontrolled on inhaled corticosteroid(ICS)/long-acting beta-agonists(LABA). A previous real-world study reported low adherence/persistence to multiple-inhaler triple therapy (MITT); however, single-inhaler FF/UMEC/VI has not been assessed. This study compared adherence and persistence among asthma patients receiving FF/UMEC/VI or MITT in a large US claims database. **Methods:** Retrospective cohort study conducted using US-based claims data on asthma patients initiating FF/UMEC/VI 100/62.5/25mcg or MITT between 09/18/2017-09/30/2019. Index date=first dispensing date for FF/UMEC/VI or first overlap in days supply of ICS, LABA, and long-acting muscarinic antagonist (LAMA). Subjects were ≥ 18 years old at index, continuously enrolled for ≥ 12 months pre-index (baseline) and ≥ 3 months post-index, and had ≥ 1 asthma diagnosis during baseline/index. Patients with baseline use of MITT or FF/UMEC/VI, or diagnosed with COPD, cystic fibrosis, or acute respiratory failure were excluded. Study endpoints: adherence measured by mean proportion of days covered (PDC), proportion achieving PDC ≥ 0.8 and PDC ≥ 0.5 , and persistence (reported with Kaplan-Meier rates). Inverse probability of treatment weighting (IPTW) was used to control for confounding and post-weighting multivariable regression further adjusted for remaining differences in baseline characteristics. **Results:** In total 1,396 FF/UMEC/VI and 5,115 MITT initiators met study criteria. After IPTW, cohorts were balanced across most covariates. Among patients with ≥ 12 months follow-up, FF/UMEC/VI initiators (N=524) had significantly higher mean PDC over 12-months than MITT initiators (N=2,666) (mean[SD]: 0.46[0.33] vs 0.35[0.30], p<0.001). FF/UMEC/VI initiators had significantly higher adherence rates versus MITT initiators at 12 months (PDC ≥ 0.80 : 24.7% vs 12.9%; RR[95%CI]=2.01[1.61-2.60], p<0.001; PDC ≥ 0.50 : 38.3% vs 27.2%; RR [95%CI]=1.48[1.19-1.80], p<0.001). Additionally, FF/UMEC/VI initiators were more likely to persist on their treatment compared to MITT initiators at 6-months (40.5% vs 26.9%; HR[95%CI]=1.52[1.41-1.64], p<0.001) and 12-months (25.9% vs 15.1%; HR[95%CI]=1.49[1.39-1.60], p<0.001). **Conclusions:** Asthma patients



initiating triple therapy with single-inhaler FF/UMEC/VI had higher adherence and persistence compared to patients initiating multiple-inhaler triple therapy. Funding: GSK-sponsored (Study HO-18-18555/208189)

PB3

REAL WORLD ADHERENCE, PERSISTENCE, RELAPSE AND MULTIPLE SCLEROSIS SYMPTOMS AMONG PATIENTS TREATED WITH ORAL DISEASE-MODIFYING THERAPIES

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Objectives: To evaluate real world adherence, persistence, relapse, physical disability, and neurological impairment among patients with multiple sclerosis (MS) treated with oral disease-modifying therapies (DMTs). **Methods:** Adults (≥ 18 years) with ≥ 2 ICD9/10 codes for MS from 01/2016 to 12/2018 were identified from the Optum Non-Affiliate claims database. Patients on oral DMTs were attributed to drug cohorts based on their first (index) DMT prescription. Patients were required to have ≥ 12 months of continuous enrollment before and after index date. Demographic characteristics were assessed during the baseline period (1 year before index DMT). Adherence to index DMT was assessed with possession ratio (MPR) and persistence (<90-day gap allowed) in the first year of follow-up. Also, relapse, physical disability and neurological symptoms were identified. MS relapse was defined by inpatient hospitalization with primary diagnosis of MS or relapse drug claim within seven days of MS-related outpatient visit or administration of high doses steroids IV or plasmapheresis procedure for >2 days. **Results:** 1,952 patients initiated oral DMTs including fingolimod hydrochloride (26%), dimethyl fumarate (54%), and teriflunomide (20%). Patients had a mean age of 47 (SD: 11) years; 76.13% were female; with a mean Charlson Comorbidity Index score of 0.5 (SD: 1) in the baseline period. MPR $\geq 80\%$ to index DMT was exhibited by 88% of the patients, and 74% were persistent to their index DMT. During follow-up, 11% of patients had one or more study-qualifying relapses with a mean annualized relapse rate of 0.19 (SD: 0.64). Physical disability was captured as spasticity (35%), bladder dysfunction (20%), visual impairment (17%), mobility impairment (2%), and cognitive/behavior dysfunction (11%). Neurologic impairment was captured as pain (31%), depression (12%), and sensory disturbances (33%). **Conclusions:** Despite high persistence and adherence to oral DMTs, the breakthrough symptoms of physical disabilities and neurological impairment indicate a significant unmet need in the treatment of MS.



PB4

PATIENT PERSPECTIVES ON IMPLEMENTATION OF A LONG-ACTING INJECTABLE ANTIRETROVIRAL THERAPY REGIMEN IN HIV US HEALTHCARE SETTINGS: FINAL MONTH 12 RESULTS FROM THE CUSTOMIZE STUDY

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Objectives: Cabotegravir and rilpivirine long-acting (CAB+RPV LA) administered by monthly injection has demonstrated non-inferiority compared to standard daily oral antiretroviral therapy (ART). Patient perspectives after one year of implementation of CAB+RPV LA in US healthcare settings were evaluated in an innovative implementation-effectiveness study (CUSTOMIZE). **Methods:** This single-arm study enrolled virologically suppressed patients to receive monthly CAB+RPV LA across eight US clinics. Surveys were administered at Baseline (BL) prior to first injection, Month 4 (M4) and Month 12 (M12) to evaluate patient experience with CAB+RPV LA implementation. **Results:** At BL and M12, 109 and 102 patients completed surveys, respectively (BL: 87% male; 59% Caucasian; 27% Hispanic/Latino; mean age 39 years). At M12, majority (87%) reported monthly clinic visits and time spent in the clinic (93%) were very/extremely acceptable (M4: 84% and 89%, respectively). Most patients (64%) reported spending ≤ 30 minutes on average in clinic for each injection visit; 82% reported spending ≤ 15 minutes in the exam room waiting for the injection. Majority (92%) reported preferring CAB+RPV LA over daily oral tablets. At M12, 74% reported that nothing is interfering with their ability to receive CAB+RPV LA (M4: 66%). Injection pain/soreness was the most common worry at BL (58%); by M12, 15% reported this concern. Through M12, 94% of expected injections (1076/1140) occurred within the +/- 7 day dosing window, 4% were early, <1% were late, <1% were missed due to COVID but covered with short term oral ART. At M12, 97% stated they will use CAB+RPV LA injection treatment going forward. **Conclusions:** Most patients had no challenges with receiving monthly CAB+RPV LA dosing and reported monthly appointments and time spent in clinic to be highly acceptable after one year. Final implementation data suggest CAB+RPV LA is a convenient, appealing alternative treatment option for patients, with the vast majority preferring CAB+RPV LA over daily oral ART.

