

cal therapies (e.g., motivational interviewing). The effectiveness of BH screening in PC settings is related to the availability of adequate treatment and follow-up systems of care. **CONCLUSIONS:** Increasing evidence is available concerning the effectiveness of BH-PH integration/collaboration strategies in treating depressive and anxiety symptoms and medical/clinical outcomes. Improved stratification of BH-PH integration models will determine the relative success of different integration approaches. Additional studies are needed in adolescents and people with schizophrenia and bipolar disorder.

#### PMH56

##### THE RELATIONSHIP BETWEEN PSEUDOEPHEDRINE SALES AND CLANDESTINE METHAMPHETAMINE LABS

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**OBJECTIVES:** The illicit production of methamphetamine from the precursor chemical pseudoephedrine (PSE) in clandestine laboratories poses a public health risk for our communities and a financial burden on law enforcement. Previous work has shown a strong relationship between PSE sales and clandestine labs in Kentucky. The purpose of this project is to extend the study to Illinois and Louisiana and refine the model by adding additional explanatory variables and control variables. **METHODS:** Regression models predicting clandestine methamphetamine lab incidents using 2011 to 2012 county-level data for Kentucky, Illinois and Louisiana were calculated. Explanatory factors include PSE sales (in grams), population density, percent of adults with a high school diploma and percent population unemployed. Data sources include the National Precursor Log Exchange (NPLEx), the National Clandestine Laboratory Seizure report data received from the Drug Enforcement Agency, Federal Bureau of Investigation Crime in the United States statistics and the Census Bureau American Community Survey. **RESULTS:** Results indicate a strong positive relationship between PSE sales and clandestine labs ( $p < 0.01$ ). Counties with a more highly educated population ( $p < 0.05$ ) on average have fewer lab while a more rural population on average is associated with greater number of labs ( $p < 0.05$ ). Individually, sales of PSE are strongly correlated to labs in both Kentucky and Illinois, but not Louisiana. **CONCLUSIONS:** PSE sales have a strong relationship to clandestine labs. Counties with greater sales of PSE have a greater number of clandestine labs, controlling for counties with no labs reported. These findings are an important addition to our previous work providing evidence for a strong association between PSE sales and clandestine labs in multiple states over multiple years and have important policy implications as states struggle with policy options to reduce methamphetamine production in their communities.

#### PMH57

##### BENZODIAZEPINE USAGE PATTERNS IN RESPONDENTS WITH DEPRESSION FROM THE CO-MORBIDITIES AND SYMPTOMS OF DEPRESSION (CODE) STUDY

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**OBJECTIVES:** To assess treatment patterns, patient characteristics, and outcomes for respondents with depression who were prescribed benzodiazepines (BZDs). **METHODS:** Survey-eligible adults with  $\geq 2$  medical claims for depression from 6/1/2009-5/31/2010 in the HealthCore Integrated Research Database were invited to participate in this retrospective/prospective study. Consenting respondents completed index and 6-month post-index surveys assessing depression, anxiety, and other health measures. Respondents' survey data were linked to 24 months of claims data. Respondents with and without BZD prescriptions  $\pm 6$  months from index survey date were identified. Healthcare utilization and costs were assessed pre- and post-index survey date and compared across users and non-users using descriptive statistics. **RESULTS:** Of 970 respondents who completed both surveys, 638 (66%) were prescribed BZDs and 332 (34%) were not. Respondents with and without BZD prescriptions were similar. Mean age was 47.9 and 45.7 years, respectively. The majority of respondents were female, overweight/obese, married/cohabiting, and college educated. Respondents prescribed BZDs were more likely to have pre-index diagnoses of double depression (10.8% vs. 6.6%,  $p = .0338$ ), anxiety (90.4% vs. 65.7%,  $p < .0001$ ), and a higher mean Quan-Charlson Comorbidity Index score (0.7 vs. 0.5,  $p = .0393$ ) as well as higher depression, fatigue, pain, insomnia, and anxiety index survey scores. Tricyclic antidepressants, serotonin-norepinephrine reuptake inhibitors, and second-generation antipsychotic use were higher for respondents prescribed BZDs (all  $p < .05$ ). Mental health-related resource utilization involving psychiatrist visits was significantly higher for respondents prescribed BZDs at baseline and follow-up (all  $p < .05$ ). Although total annual medical mental health-related costs were similar (\$3,492 vs. \$3,054,  $p = .5229$ ), pharmacy and psychiatrist visit costs were significantly greater for respondents prescribed BZDs. **CONCLUSIONS:** A majority of respondents with depression also had anxiety and were prescribed BZDs. Results suggest that BZD use was associated with more pronounced comorbid conditions and symptoms of depression, as well as higher health care resource utilization and costs.

#### PMH58

##### PATTERNS OF PSYCHOTROPIC PRESCRIPTION UTILIZATION AMONG DISABLED MEDICARE BENEFICIARIES UNDER 65

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**OBJECTIVES:** One-third of Medicare beneficiaries <65, who are deemed eligible for Social Security Disability Insurance, are disabled due to a mental disorder. But psychiatric services research targeting this population is limited. This study estimated annual trends in and identified factors associated with psychotropic prescription utilization among disabled Medicare beneficiaries <65. **METHODS:** This serial cross-sectional study used 2002-2009 Medicare Current Beneficiary Survey data. Nationally

representative community-dwelling Medicare beneficiaries <65 were included ( $n = 10,384$  person-years, weighted  $n = 30,086,849$  person-years). Psychotropic prescription utilization included self-reported antidepressants, antipsychotics, stimulants, mood stabilizers, anxiolytics, hypnotics, and antimanic prescription use. Weighted annual trends in psychotropic prescription utilization were estimated. Repeated person-year data using generalized estimating equations multivariable models were used to identify factors associated with psychotropic prescription utilization. **RESULTS:** Annual prevalence of any psychotropic prescription utilization among disabled Medicare beneficiaries <65 increased from 53.4% to 57.9% in 2002-2009, but the trend was not statistically significant ( $P = 0.36$ ). Antidepressants (35.09%), hypnotics (20.16%), and anxiolytics (17.31%) were the top three therapeutic classes used in 2009. No significant trend in utilization was observed for any individual therapeutic classes. Multivariable results showed that beneficiaries <65 who were female, white, divorced, Medicare-Medicaid dual eligible, with higher education and poorer health status, smoking, and having chronic and psychiatric conditions were more likely to use any psychotropic prescriptions (all  $P < 0.05$ ). Female and white beneficiaries were more likely to use all psychotropic therapeutic classes except for antipsychotics (females only) and stimulants/antimanics (whites only). Beneficiaries with poorer health status and chronic conditions were more likely to use antidepressants, anxiolytics, and hypnotics. Medicare-Medicaid dual enrollees were more likely to use antipsychotics (all  $P < 0.05$ ). **CONCLUSIONS:** Psychotropic prescription utilization is prevalent among disabled Medicare beneficiaries <65. Patterns of use vary by psychotropic therapeutic class. Future research needs to evaluate psychotropic prescription access and quality of use among this vulnerable population.

#### PMH59

##### USE OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD) DRUGS IN CANADA, 2010-2014

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**OBJECTIVES:** The use of attention-deficit/hyperactivity disorder (ADHD) medications has been increasing among children, adolescents and adults but little is known about its usage pattern, and treatment adherence among distinct age groups in Canada. This study sought to characterize utilization patterns of ADHD drugs approved for use in Canada with a special focus on the non-stimulant drug, atomoxetine. **METHODS:** Prescription data and anonymized longitudinal patient level data from IMS Brogan were used. Descriptive statistics were used to characterize drug utilization patterns from 2010-2014. Utilization trends were analyzed with respect to age, gender, concomitant medications and physician specialty of the prescribing physician. Adherence patterns for atomoxetine were measured by the medication possession ratio (MPR). **RESULTS:** IMS data indicate that the average annual prescription volume of all ADHD drugs in Canada have been increasing each year (35% increase from 2,795,226 in 2009 to 3,772,266 in 2013). Methylphenidate stimulants accounted for approximately 70% of all prescriptions, and children 6-12 years accounted for most of these prescriptions. Prescriptions of atomoxetine showed the same increasing trends; however females aged 19-65 accounted for most of this increase. ADHD drug use declined during the summer months and in 2013, over 20% of children aged 13-18 years had at least one gap of more than 30 days between the end of one prescription of atomoxetine and the start of the next. In addition, 25-35% of this age group had an MPR of less than 80%. **CONCLUSIONS:** ADHD drug utilization has been increasing over the last 5 years in Canada. Children aged 6-12 years account for most of the prescriptions, and they are most likely to go on a "drug holiday". Given that serious adverse reactions can be associated with ADHD drugs in some children, their clinical benefits should be continuously and closely monitored, and weighed against their potential risks.

#### PMH60

##### AUDIT OF IRREVERSIBLE MONOAMINE OXIDASE INHIBITORS (MAOI) PRESCRIPTION FOR DEPRESSION IN CURRENT CLINICAL PRACTICE WITHIN THE HEALTH IMPROVEMENT NETWORK (THIN) UK PRIMARY CARE DATABASE

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**OBJECTIVES:** MAOIs were first discovered in the 1950s and used to manage depression when few alternatives existed. MAOIs block tyramine catabolism, meaning patients consuming tyramine rich foods (e.g. cheeses, cured meats) risk increased release of noradrenaline, potentially leading to hypertensive crisis. While MAOIs still have some role in depression management, little is known about current clinical practice. This study aims to audit the usage of MAOIs from 2004-2013. **METHODS:** The THIN database was used to identify all patients prescribed irreversible MAOIs between 01/01/2004-31/12/2013. Dates of first MAOI prescription and first depression diagnosis were identified, along with age, social deprivation score and repeat MAOI prescriptions. **RESULTS:** 886 patients were prescribed MAOIs during 2004-2013, 44% of which were new prescriptions. Median age at first use was 53 years (IQR 43-63), M:F ratio was 1:1.8 and 49% were in the 2 most affluent quintiles. The median time from first depression diagnosis to first MAOI prescription was 11.2 years (IQR 4.3-21.1). From 2004-2013, MAOI usage decreased from 555 to 248 patients, with treatment initiation falling from 72 to 28 patients. Median age of treated patients increased from 63 to 68 years and 4-8% had concurrent SSRI prescriptions. Median prescription use was 8.8 months (IQR 5.1-11.0) in each year, with per patient prescriptions ranging from 37 (IQR 20-69) to 54 (IQR 27-83). Median time on MAOI from 2004-2013 was 1.7 years (IQR 0.4-4.8). **CONCLUSIONS:** THIN is a representative sample of 6% of the UK population. This study projects an estimated 600 UK patients start MAOIs yearly, with numbers decreasing. Estimated UK MAOI usage has fallen from 9,000 to 4,000 patients during 2004-2013. Records indicate that patients are receiving shorter, more frequent prescriptions. NICE guidelines confirm that MAOIs still have some role in depression management, although not defined. This is the first large study to audit changes in MAOI usage.

## PMH61

## ANTIPSYCHOTIC UTILIZATION AMONG WASHINGTON STATE DUAL ELIGIBLES

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**OBJECTIVES:** Approximately 4.1% of the U.S. adult population suffers from serious mental illness (SMI). Those dually eligible for Medicare and Medicaid suffer disproportionately from SMI (~30%). Antipsychotic medications can significantly improve the lives of people with SMI, but can have a variety of adverse effects, which may be exacerbated by polypharmacy. Antipsychotic nonadherence is also problematic. The real-world observation of antipsychotic utilization patterns has been identified as a priority. We assessed utilization of antipsychotics and other psychotropic medications among dually-eligible adults with SMI, including calculations of adherence, discontinuation, switching and polypharmacy. **METHODS:** The Medicare Part D Drug Event (PDE) file was used to identify Washington State dual-eligibles who filled an antipsychotic prescription in 2010. Twelve-month antipsychotic utilization rates were broken down by class (typical or atypical), and by medication. Adherence was measured using the proportion-of-days-covered methodology. For nonadherent beneficiaries we distinguished between those who discontinued use and those who switched to another antipsychotic. Rates of antipsychotic polypharmacy in a given 30-day period, and antidepressant and mood-stabilizer utilization within the 12-month observation period were estimated. **RESULTS:** There were 21,749 WA State dual-eligibles who filled an antipsychotic prescription in 2010. Over the 12-month observation period, 92% of the sample filled an atypical antipsychotic prescription (adherent=61%, discontinued=9%, switched=30%), and 16% filled a typical antipsychotic prescription (adherent=50%, discontinued=11%, switched=39%). Of the 4,307 duals who used more than one antipsychotic within a 30-day window, 91% used a maximum of two medications and only 9% used three or more. Finally, during the 12-month observation period, 46% of duals filled an antidepressant prescription and 23% filled a mood-stabilizer prescription. **CONCLUSIONS:** This information is critical for policymakers looking to improve quality of care and reduce costs, given that individuals with SMI often avoid clinical trials and duals accumulate roughly \$300 billion (2013 USD) in annual healthcare expenditures.

## PMH62

## EVIDENCE FOR THE OFF-LABEL USE OF METHYLPHENIDATE FOR COGNITIVE ENHANCEMENT IN HEALTHY INDIVIDUALS

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**BACKGROUND:** Legal indications for the use of methylphenidate are restricted to children diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). Despite its defined therapeutic indications, there is a trend in non-prescribed methylphenidate off-label use by students and professionals to improve performance. New terms related to this trend: academic doping, nootropic, cosmetic neurology or smart pill. **OBJECTIVES:** To describe findings and consequences on methylphenidate's off-label use for cognitive enhancement in healthy individuals. **METHODS:** A systematized search was conducted to retrieve the best scientific evidence on the subject available in English, Portuguese or Spanish. **RESULTS:** One review evaluated nine studies on the use of methylphenidate among healthy medical students. The prevalence was 16%, with no gender difference. However, there was a higher prevalence among those with had a low academic performance. Most students (65.2%) began using the drug after starting college. The use was seasonal throughout the year - periods close to exams or at the end of the semester were associated with a higher demand for the stimulant. There is little evidence in the literature about the effect of methylphenidate on the cognition of those without ADHD. There is no evidence that the drug increases memorization or associative learning, only that it makes people more alert, but with their selective attention capacity reduced. Some studies suggest that stimulants may interfere with neural mechanisms for the consolidation of learning and long-term memory, which is a risk for intellectual performance. Also, methylphenidate increases heart rate and blood pressure, potentially more worrying in adults than children due to possible associations with other substances and reports of sudden deaths and side psychiatric effects. **CONCLUSIONS:** Although we currently live in a highly competitive environment, it's important to adopt social interventions that focus on the misuse of methylphenidate, alerting the public and focusing on the consequences of its non-prescribed use.

## PMH63

## ANTIPSYCHOTIC USE AND FOSTER CARE PLACEMENT STABILITY AMONG YOUTH WITH ATTENTION-DEFICIT HYPERACTIVITY/DISRUPTIVE BEHAVIOR DISORDERS

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**OBJECTIVES:** Attention-deficit hyperactivity/disruptive behavior disorders (ADHD/DBD) often lead to multiple placement transitions among youth in foster care. Increasingly, antipsychotic medications are used off-label to manage disruptive behaviors. There is limited evidence of the impact of antipsychotic management of ADHD/DBD on placement stability among fostered youth. This study is to investigate the association between antipsychotic initiation and time to first foster care placement transition among antipsychotic users and propensity-score matched nonusers. **METHODS:** All youth (n=18,034) involved in foster care anytime from January 1, 2010 through March 31, 2014 in one Mid-Atlantic state were identified. Data were from child welfare administrative records linked with Medicaid claims. The index date was identified by filling the first antipsychotic prescription in 2010-2013. New antipsychotic users were restricted to youth with (1) continuous foster care involvement 180 days preceding and following the index date, (2) any diagnosis of ADHD, conduct disorder, oppositional defiant disorder, impulsive control, and (3) no antipsychotics 180 days before the index date. Propensity-score matched nonusers were defined as youth with no antipsychotic use in 2010-2013 and met the same selection criteria as

the new antipsychotic users. The outcome was time to first foster care placement transition during a 180-day follow-up. Cox proportional hazard models estimated hazard ratios (HRs) associated with antipsychotic initiation, adjusting for demographic, clinical, and foster care characteristics. **RESULTS:** Comparing new users to propensity-score matched nonusers, there was no difference regarding average days to placement transition (109 versus 113 days). The proportion experiencing a foster care placement transition (37% versus 36%) during the follow-up. The HR was 1.1 (95% CI: 0.7-1.6). **CONCLUSIONS:** Youth initiating antipsychotics had no significant reduction in foster placement transitions within the 180-day follow-up. Although antipsychotics are widely used for aggressive behaviors, a better understanding of clinical management of youth in foster care is needed to promote stable foster placement.

## PMH64

## UTILIZATION PATTERN OF ANTIPSYCHOTIC DRUGS IN A SOUTH INDIAN TERTIARY CARE HOSPITAL

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**OBJECTIVES:** The investigation was undertaken to determine the treatment pattern used in psychiatric patients and also to determine the symptoms, risk factors and clinical presentation of patients with psychiatric diseases. **METHODS:** The present observational study was carried out at a tertiary care psychiatric hospital in Warangal, India over a period of six months. Three hundred prescriptions were collected and analyzed according to the recommendations of World Health Organization. **RESULTS:** It was found that schizophrenia (45%, n=147) is the most common among the study population followed by depression (31%, n=122). Dementia was the least detected (5%, n=8) psychiatric condition. Among Schizophrenia patients, mostly were administered with lorazepam (n=131). On the other hand, amisulpride was found to be administered in fewer patients. Among 29 anxiety patients, lorazepam was found to be widely used and fluvoxamine, propranolol, trazodone and mirtazapine were used in fewer number. Among Dementia patients mostly used drug was donepezil (n=13). **CONCLUSIONS:** The study revealed the anti-psychoactive drug utilization pattern in a tertiary care hospital of Warangal city (an historic city of south India). Among the study population, dementia was the least detected case. Schizophrenia and anxiety patients were mostly administered with lorazepam and however, among dementia patients, mostly used drug was donepezil.

## PMH65

## RESOURCE UTILIZATION AND COSTS ASSOCIATED WITH OFF-LABEL USE OF ATYPICAL ANTIPSYCHOTICS IN A COMMUNITY-DWELLING ADULT POPULATION: FINDINGS FROM THE MEDICAL EXPENDITURE SURVEY

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**OBJECTIVES:** Atypical antipsychotics (AAP) are commonly used to treat off-label conditions such as anxiety, depression, and post-traumatic stress disorder. Despite a black box warning in 2005, AAP still remain the second most common therapeutic class used for dementia. The objective of the study is to determine resource utilization (RU) and costs in patients using AAP to treat off-label conditions. **METHODS:** A retrospective cross-sectional study was conducted using 2009 Medical Expenditure Survey (MEPS) data. Study sample included individuals aged ≥ 18 years with at least 2 claims for AAP identified from the Prescribed Medicines file. Indications were identified using ICD-9-CM and CCCODEX codes from the Medical Conditions file. Schizophrenia and bipolar disorder were categorized as FDA approved indications; all other indications were categorized as off-label use. RU and costs were obtained from the Full-Year Consolidated Files. **RESULTS:** N=352 patients had at least 2 claims for AAP. 55.7% were off-label users with 1,442 AAP claims. The most common off-label conditions were depressive disorder (29.89% of claims), neurotic disorders (15.40%) and general symptoms (13.80%). 5.20% of the claims were for dementia. The typical off-label AAP user was female (60.20%), White (67.86%) with mean age 51.11+16.81 years (R: 18-85). Mean RU for off-label users was 14.61+16.79 (0-138) office-based provider visits, 1.41+3.94 (0-32) hospital-outpatient visits, 0.61+1.38 (0-12) ED visits, and 0.36+0.83 (0-4) inpatient discharges. The average total cost was \$13,751.64 per person. For FDA approved users, mean RU was 17.77+26.73 (0-216) office-based provider visits, 2.51+11.83 (0-123) hospital-outpatient visits, 0.71+1.22 (0-7) ED visits, and 0.39+0.84 (0-5) inpatient discharges. The average total cost was \$14,573.93 per person. **CONCLUSIONS:** Off-label prescribing of AAP is still a prevalent practice and needs to be monitored. Future research will compare RU and costs among patients prescribed and not prescribed AAP for off-label indications.

## PMH66

## HEALTH RESOURCE USE OF PATIENTS ENROLLED TO JANSSSEN CONNECT TREATED WITH LONG-ACTING INJECTABLE (LAI) ATYPICAL ANTIPSYCHOTICS: PRELIMINARY RESULTS FROM A SUMMATIVE EVALUATION

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**OBJECTIVES:** To describe and evaluate health resource use (HRU) of schizophrenia patients enrolled to JANSSSEN CONNECT® (JC). **METHODS:** This is a multi-center, retrospective medical chart review of patients enrolled in JC, a comprehensive information and assistance program that supports patients after a healthcare professional has determined a Janssen long-acting injectable atypical antipsychotic to be the most clinically appropriate treatment option. Data collected included demographic and clinical characteristics, HRU, outpatient and injection appointments (missed and completed) and medication usage. The index date was defined as LAI initiation date where new users initiated LAI on/after JC enrollment while continuous users initiated LAI prior to enrollment. Descriptive analysis was conducted to evaluate the demographic, clinical characteristics and HRU of JC enrollees at 6-month pre- and post-index periods. Comparative analysis on