to understand patient behavior, however, the relationship between time preference and medication adherence is not widely understood. This study aims to summarize the existing literature on the association between time preference and medication adherence. **METHODS:** A literature search was conducted on Medline, PsycInfo, PubMed and CINAHL from January 2000 to 2015 using the keywords "time preference", "patient compliance", "medication adherence" and "non-adherence". Studies that did not include medication adherence, lacked empirical data on time preference or assessed time preference with addictive behaviors (e.g. smoking) were excluded. A table summarized results, including the publication year, author, study design, source and findings. **RESULTS:** A total of 53 articles were identified and nine studies were retained. Only three studies directly investigated the relationship between time preference and medication adherence. Of those, studies in 2001 examined adherence to hypertension medication in 195 older adults and adherence to cholesterol lowering medication in 169 adults. Findings revealed weak to no association between time preference and medication adherence. Conversely, a 2013 study reported time preference as a significant predictor of medication adherence to asthma control medications for 47 patients with persistent asthma. **CONCLUSIONS:** Taking into account the extent to which patients will worry about adverse future outcomes, this review identified very few studies addressing the objective. More empirical research must be conducted before any conclusion can be made in regard to the impact of a patients' time preference on their medication adherence behaviors.

PIH26

A COMPREHENSIVE SURVEY OF MANAGED CARE ORGANIZATION (MCO) MEDICATION ADHERENCE INTERVENTION PROGRAMS

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OBJECTIVES: Medication non-adherence causes hundreds of billions of dollars in avoidable costs. This study sought to survey the existing medication adherence programs of managed care organizations (MCOs). **METHODS:** Thirty MCOs were interviewed in Spring 2014 about their current and future medication adherence programs. 19 small (<200,000 members) and 11 large (≥200,000 members) filled out a 19-question (excluding 6 on program characteristics) survey covering the strategies and methods used to improve patient adherence. **RESULTS:** The MCOs dedicate the majority of adherence resources toward cardiovascular disease states but most are looking to expand to more disease states. Just two (7%) of the MCOs surveyed use predictive analytics to target patients for their intervention programs while 12 (40%) use retrospective adherence measures. 75% of MCOs are looking to expand their adherence programs while 60% specifically plan to use predictive analytics in the future. Only two (7%) only used outsourced interventions, 10 (33%) used in-house and 18 (60%) used some combination of the two. 20 (67%) MCOs used live call interventions and only 2 (7%) used text reminders. 14 small (74%) and 9 (82%) large MCOs used direct mail interventions. 20 (67%) of the MCOs rated their intervention programs to be "moderately effective." **CONCLUSIONS:** Most MCOs prioritize adherence to cardiovascular disease medication but most are also interested in expanding their programs. Few MCOs use enhanced platforms to select patients for interventions but many plan on expanding their platforms. MCOs intervened to improve adherence largely through provider-centric channels and with a combination of in-house and outsourced methods. Many MCOs are interested in adopting a platform that identifies high-value interventions, like AllazoHealth, since current programs aren't personalized and are perceived as ineffective.

PIH27

PREDICTING MEDICATION ADHERENCE AND HEALTHCARE COSTS IN A MANAGED CARE POPULATION

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OBJECTIVES: To develop and validate predictive models that identify members with higher risk of medication non-adherence and increased total healthcare cost over a 12-month period in a managed care setting. **METHODS:** The study included members insured under a commercial healthcare plan who filled ≥ 1 prescription for any of seven targeted medication classes for common chronic diseases between October 2010 and May 2014. Pharmacy and medical claims during the four months before and six months after the member's first prescription for a targeted medication (index date) were used to generate 85 baseline member variables. These variables were tested for potential model inclusion to separately predict medication non-adherence (proportion of days covered <80%) and total healthcare costs during the 12-month follow-up period. Total costs included pharmacy and medical costs from outpatient, emergency room, and inpatient visits. Members were randomized 3:1 to the development or validation samples. The development sample was used to estimate and refine model parameters. The validation sample was used to evaluate the final model's performance based on c-statistic and R-squared values. Medication non-adherence was predicted using a logistic model. Total healthcare cost was predicted via a generalized linear model with a log link function and gamma distribution. **RESULTS:** Among the 70,502 and 23,505 members included in the development and validation samples, respectively, baseline prevalence of medication non-adherence ranged from 37% to 73%, depending on the medication class. Baseline adherence and cost were the most important predictors. Predictive performance improved when other variables, such as member demographics and comorbidities, were added to the baseline adherence only model (c-statistic increased from 0.81 to 0.89; p<0.0001). The cost model's R-squared value was 0.43. **CONCLUSIONS:** The models demonstrated good predictive performance and could be used together to identify members with potential non-adherence to medications and greater healthcare costs for intensive clinical interventions.

PIH28

A REVIEW OF THE EFFECTIVENESS OF VISUAL MEDICATION TOOLS IN BOOSTING PATIENT ADHERENCE AND REDUCING HOSPITAL ADMISSIONS

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OBJECTIVES: Thirty-two million Americans use three or more medications daily. Approximately 75% of patients fail to adhere to physician prescribed treatment regimens. The economic impact of non-adherence is estimated to cost $100 billion annually. Evidence suggests that the elderly are one of the largest groups contributing to the economic burden associated with non-adherence. Studies support the development of visual focused tools to improve adherence among older persons. The aim of this study was to explore the use of visual adherence tools in the hospital, clinic, and home settings to determine effectiveness in improving patient adherence and negating hospital readmissions. **METHODS:** Electronic databases such as PubMed and Google Scholar were searched from 2000 – 2014. Key words were "visual," "adherence," "elderly," "readmissions," and "visual adherence tool." Studies were included if they were conducted outside of the U.S. since few U.S. studies examined visual adherence tools. A custom-designed table included year of publication, author, study design, intervention, findings, and sources. **RESULTS:** A total of 24 articles and economic evaluations were retrieved. Older adults are the largest users of prescription medication. Whilst evidence suggests that visual medication adherence tools are useful, the tools are not being widely used in hospitals. This may be due to lack of knowledge about benefits. Exploration in psychology and marketing denotes that humans have a cognitive preference for picture-based, as opposed to text-based information. Reports have shown that pictorial aids expand recall, comprehension, and adherence. These instruments can also be particularly valuable for conveying dosage times, instructions on when to take medicine, as well as the importance of completing a course of therapy. Studies show that older persons prefer medication tools that focus on visual characteristics such as large print and simplified information. **CONCLUSIONS:** Several studies focused on the clinic and home setting, but few were hospital based. Further research is warranted.

PIH29

ASSESSMENT OF LEVEL OF MEDICATION ADHERENCE IN DIFFERENT NON-COMMUNICABLE CHRONIC DISEASES PATIENT IN QUETTA, PAKISTAN: DOSE DISEASE CONDITION PRODUCES ANY CHANGE

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OBJECTIVES: This study aimed to assess the level of medication adherence among patients with different non-communicable chronic diseases in Quetta Baluchistan, Pakistan. **METHODS:** A cross sectional study was conducted in different non-communicable chronic diseases patient, visiting outpatient department in public/private hospitals and clinics of Quetta, Pakistan. Morisky Medication Adherence Scale (Urdu version) was used to collect the data. The descriptive statistics was used to present the demographic and disease related information. Inferential statistics was used to the evaluation relationship among study variables. All analyses were performed using SPSS 20.0. **RESULTS:** A total of 505 patients with different non- chronic diseases (Diabetes, Hypertension, Heart diseases, Asthma and others) were enrolled for the present study. The mean age of the patients was 44.9 years, majority 304 (60.2%) were females. There were 228, 134, 37, 32 and 74 patients for diabetes, hypertension, heart diseases, asthma and others respectively. There was significant statistical difference (p = 0.004) as present mean mediation adherence scores in different non-communicable chronic diseases condition (5.34, 5.05, 4.65, 4.69, 4.59 for diabetes, hypertension, heart diseases, asthma and others respectively) **CONCLUSIONS:** The present study concluded that different disease conditions did affect the level of medication adherence, efforts should be made to provide specified health education to improve medication adherence in different disease condition for better therapeutic outcome.

PIH30

ASSESSMENT OF MEDICATION ADHERENCE AMONG PATIENTS WITH NON-COMMUNICABLE CHRONIC DISEASES IN QUETTA BALUCHISTAN, PAKISTAN

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OBJECTIVES: This study aimed to assess the level of medication adherence among patients with non-communicable chronic diseases in Quetta Baluchistan, Pakistan. **METHODS:** A cross sectional study was conducted among patients with non- chronic diseases, visiting outpatient department in public/private hospitals and clinics of Quetta city. Morisky Medication Adherence Scale (Urdu version) was used to collect the data. The descriptive statistics was used to present the demographic and disease related information. Inferential statistics was used to the evaluation relationship among study variables. All analyses were performed using SPSS 20.0. **RESULTS:** A total of 505 patients with non- chronic diseases (Diabetes, Hypertension, Heart diseases, Asthma and others) were enrolled for the present study. The mean age of the patients was 44.9 years, majority 304 (60.2%) were females. The proportions of diseases were; diabetes (45.1%) hypertension (26.5%) heart diseases (7.3%) asthma (6.3%) mainly and other (14.7%). A very small proportion of the patient 11.1% were having good medication adherence while 27.9% were having moderate adherence and 61.0% exhibited poor adherence. **CONCLUSIONS:** The study concluded that level of medication adherence among patients with non- communicable chronic disease was very poor, efforts should be made to identify the factors associated with non-adherence so that level of adherence should be improved to achieve better therapeutic outcome.

PIH31

DESCRIBING MEDICATION ADHERENCE ACROSS A POPULATION: THE VALUE OF CONSIDERING MULTIPLE MEASURES

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