

PAIN**PAIN—Clinical Outcomes Studies****PPN1****ANTICIPATED PAIN PRIOR TO SURGERY COMPARED TO ACTUAL PAIN IN PATIENTS UNDERGOING OUTPATIENT ARTHROSCOPIC KNEE PROCEDURES**

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OBJECTIVES: The objective of this analysis was to compare anticipated pain prior to surgery with actual pain experienced postoperatively by patients undergoing outpatient surgical arthroscopic knee procedures. **METHODS:** In a prospective multicenter study, patients undergoing knee arthroscopy reported their anticipated pain prior to surgery. The patients recorded actual pain at the time of discharge and on the evening of surgery, at which time they assessed their worst pain and average pain since the surgery. Pain was measured on a visual analog scale (0 = none to 10 = worst pain). The anticipated pain and actual pain were compared with a paired student t-test. Using the difference in the actual pain and the anticipated pain measure as a dependent variable, three multiple regressions were performed where anticipated pain intensity, age, gender, ethnicity, education, and surgery duration were used as covariates. **RESULTS:** Forty-two patients enrolled in the study. The mean age was 45.8 years, 54.8% were female, 69% were white, and 37% had a high school education or less. The mean duration of surgery was 28 minutes. The pre-surgery anticipated pain was 6.0 + 2.1 (mean + SD); the actual pain was 2.5 + 2.8, 4.3 + 2.4 and 5.7 + 2.7 for discharge pain, average pain, and worst pain, respectively. The t-tests indicated that discharge pain and average pain were significantly different from anticipated pain ($p < 0.05$). On the contrary, the worst pain was in a close agreement with the anticipated pain. From the multiple regressions, there were no significant covariates except the anticipated pain for the difference between discharge pain or average pain, and anticipated pain, respectively. **CONCLUSIONS:** Although the worst pain reported may be closest to the anticipated pain reported, there is still a considerable gap in the anticipation of pain, which may create an additional psychological burden on the patients.

PAIN**PAIN—Cost Studies****PPN2****THE DIRECT AND INDIRECT ECONOMIC IMPACT OF PAIN AND ITS COMPARISON WITH THREE OF THE TOP FIVE MOST COSTLY DISEASES**

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OBJECTIVES: The national estimate of total cost of illness for pain as published by the National Institute of Health in Fiscal year 2000 is 79 billion dollars whereby 45 billion dollars were contributed by direct costs and 34 billion dollars by indirect costs. Due to the prevalence and excessive cost of pain in the United States (Gatchel R.J., 2001) it is important to estimate current economic burden of pain on the society. This study aims to estimate and compare direct costs and wages lost due to missed workdays (WLMW) of pain with three of the five most costly conditions: angina, myocardial infarction (MI), and hypertension. **METHODS:** The self-administered questionnaire and

priority conditions supplement from 2000 Medical Expenditure Panel Survey were used to extract 4 groups of patients (pain, angina, MI, and hypertension). A matched sample size of 399 patients per group was identified. The costs were annualized and are reported in dollars. Direct costs included physician, non-physician, outpatient, inpatient, emergency room, medical supplies, and home health care expenses. The WLMW were computed using the following formula: [(Workdays lost due to illness or stay in bed) × (Hourly wages) × (8)]. The analyses were undertaken using SAS v.8.2. and Microsoft Excel 2000. **RESULTS:** The results are limited to the 2000 MEPS database. Direct cost per pain patient was \$3173 as compared to \$9646 for MI, \$9504 for angina, and \$5204 for hypertension. The WLMW per pain patient was \$210 as compared to \$318 for hypertension, \$260 for MI, and \$164 for angina. **CONCLUSIONS:** Pain is a costly condition. In terms of direct costs, pain was not as costly as MI or angina. The WLMW per pain patient was greater than angina by \$46.

PPN3**AN EVALUATION OF THE DIRECT COSTS OF ADVERSE GI EVENTS ASSOCIATED WITH THE USE OF NSAIDS IN THE UNITED STATES**

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OBJECTIVE: Non-steroidal anti-inflammatory drugs (NSAIDs) are one of the most commonly prescribed classes of drugs in the U.S. Previous studies have demonstrated that the use of NSAIDs results in an increased risk of GI adverse events. This study seeks to quantify the direct costs of GI-related adverse events associated with the use of non-Cox-2 selective NSAIDs. **METHODS:** A decision-analytic model was used to estimate the annual direct costs of adverse GI events from the societal perspective. We used market share and utilization data to simulate individuals taking prescription NSAIDs for pain in the U.S. in 2002. Univariate and multivariate probabilistic sensitivity analyses were conducted to examine the impact of uncertainty on the parameter estimates. Base case estimates were derived from the published literature to identify the attributable risk of GI-related adverse events, and the associated treatments and costs. All costs are expressed in 2002 dollars utilizing a 3% discount rate. Incidence rates of GI adverse events were adjusted for exposure based on actual compliance with prescription NSAIDs. **RESULTS:** In the U.S., over 27 million patients take non-selective prescription NSAIDs for pain. The resulting direct cost of GI-related adverse events associated with NSAID use is approximately \$567 million. **CONCLUSIONS:** Our study demonstrates that GI-related adverse events associated with NSAID use results in substantial direct medical costs to society each year. Total GI-related adverse event costs associated with NSAID therapy may be reduced by enhanced understanding of drug-specific relative risks of GI events.

PPN4**EXAMINATION OF TOTAL HEALTH CARE EXPENDITURES FOR PATIENTS ON LONG ACTING OPIOID MEDICATIONS FOR THE TREATMENT OF CHRONIC PAIN IN A MEDICAID POPULATION**

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OBJECTIVES: To identify factors associated with total annual health care expenditures for Medicaid patients prescribed a Long

Acting Opioid (LAO) medication for chronic pain management. The LAOs considered were transdermal fentanyl (TF), controlled release morphine sulfate (CRMS) and controlled release oxycodone (CRO). **METHODS:** Medicaid beneficiaries from three states during 1999–2000 were studied. Patients were followed for at least one year, starting with their first LAO prescription in 1999. Patients who did not have a LAO in the six months prior to that index date were labeled “incident”, while patients with a history of LAO use were labeled as “prevalent”. Patients were then grouped by the opioid they received on the index date. Disease-type, demographics, health status, health care utilization, and expenditures were measured and compared among the three LAO cohorts. LAO costs and total annual health care expenditures by LAO cohort were compared using descriptive and multivariate analyses, for the incident and prevalent patient samples. **RESULTS:** Descriptive results indicate that incident (I) and prevalent (P) LOA annual cost for CRO (\$1361 I; \$4146 P) were significantly higher than costs observed for TF (\$1202 I; \$3061 P) or CRMS (\$919 I; \$3572 P) ($p < 0.01$). After controlling for confounding characteristics, total annual health expenditures in the CRO incidence sample were similar to the CRMS sample. However, total annual health care expenditures for the CRO population were significantly lower than expenditures for the TF population, with an annual cost savings of about \$960 ($p < 0.01$). Economic differences were not noted among the prevalent LAO populations. **CONCLUSIONS:** Total cost, not just pharmaceutical costs, should be considered when making policy decisions about insurance coverage for LAO drugs. In the incident sample, patients on TF cost about \$960 more per year ($p < 0.01$), on average, compared to similar CRMS and CRO patients.

PPNS

AN OPIATE RENEWAL CLINIC: A COST EFFECTIVE APPROACH TO REDUCING UNSCHEDULED PATIENT VISITS

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OBJECTIVES: The number of patients on opiates for chronic non-malignant pain continues to grow. With an emphasis on treating pain, opiate medication is being used more often. Following patients in a Primary care clinic has become more difficult because of the increased time required to manage and assess medication effects and the large number of unscheduled walk-in visits. Our objectives were to reduce unscheduled walk-in visits, reduce substance abuse, and diversion. **METHODS:** We established a multidisciplinary opiate renewal clinic that meets once a week and sees between 20–50 patients in a group education setting. A thirty minute educational presentation is made each session; all patients undergo urine drug testing and blood work. Patients who are negative for prescribed medication receive a one week renewal and return date to rule out diversion. Patients who have street drugs present are referred for Substance abuse counseling and given a one week renewal. Patients who are impaired do not receive medication and appropriate referral is made. Patients who are compliant may receive a one month renewal and face-to-face visits every two months. **RESULTS:** Unscheduled walk-in visits decreased by 76%. Referrals for substance abuse treatment increased by 100%. It was previously difficult to diagnose substance abuse without drug testing. Approximately 32% of patients had positive urine for marijuana, cocaine or both. **CONCLUSIONS:** An Opiate renewal clinic for patients with chronic non-malignant pain and substance abuse can be a cost effective approach to management.

PAIN

PAIN—Quality Of Life Studies

PPN6

RELATIONSHIP BETWEEN PAIN AND PERCEIVED HEALTH STATUS IN OLDER PERSONS WITH POST-HERPETIC NEURALGIA

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OBJECTIVE: Post-herpetic neuralgia (PHN, persistent pain following “shingles”) is common, especially among older persons. The pain often lasts well beyond the acute episode, occasionally lasting for several years. This study explored the impact of chronic pain on perceived health status in patients with PHN. **METHODS:** This was a community-based survey where persons aged ≥ 65 years with PHN were recruited via advertisements in 24 large US newspapers. Eligible subjects were sent a questionnaire to complete, which included items concerning PHN pain intensity in the prior week (current, average, worse, least), the EQ-5D, and a 100-point global health rating scale. **RESULTS:** A total of 385 persons participated in the study; 61% were age ≥ 75 years. Mean (\pm SD) current, average, worst, and least pain due to PHN was 4.0 (± 2.7), 4.6 (± 2.1), 6.0 (± 2.4), and 2.9 (± 2.3) respectively. Mean values for the EQ-5D weighted health index and the global health rating scale were 0.61 (± 0.26) and 65.7 (± 21.1). There was a strong relationship between pain intensity and overall health rating. Subjects with “mild” worst pain (range: 0–4) had a mean health rating of 73.8 (± 17.5), while those with “moderate” (range: 4–<7) or “severe” (range: 7–10) worst pain had mean values of 65.2 (± 21.0) and 60.5 (± 22.6) respectively. Similar results were obtained for other measures of pain intensity. The EQ-5D weighted health index varied in a similar fashion in relation to pain intensity. Subjects with “mild” average pain had a mean EQ-5D weighted health index score of 0.69 (± 0.17) while those with “moderate” or “severe” average pain had mean values of 0.58 (± 0.27) and 0.25 (± 0.31) respectively. **CONCLUSIONS:** Pain intensity due to PHN is substantial and has a profound impact on self-reported health.

PAIN

PAIN—Health Policy Studies

PPN7

TRENDS IN MEDICAL USE AND ABUSE OF SUSTAINED-RELEASE OPIOID ANALGESICS: A REVISIT

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OBJECTIVES: Previous literature suggests that increases in the medical use of opioids over the early 1990s did not contribute to increased morbidity secondary to opioid abuse. Our objective was to evaluate the period 1997–2001 to analyze trends in medical use and medical abuse of three classes of opioid analgesics that are commonly used in sustained-release formulations: fentanyl, morphine, and oxycodone. **METHODS:** A retrospective analysis of the Drug Abuse Warning Network (DAWN) database and the Automation of Reports and Consolidation Order System (ARCOS) database for the years 1997–2001 was used for this study. **RESULTS:** The analysis of the DAWN database showed that there was an 83.5% increase in all opioid analgesic mentions from 1997 to 2001. Mentions involving any fentanyl compound increased 249.8%, any morphine compound