Mental Health—Cost Studies

**PMH7 ANNUAL COSTS ASSOCIATED WITH PATTERNS OF ANTIDEPRESSANT TREATMENT RESPONSE AMONG EMPLOYEES**


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**OBJECTIVES:** Describe the annual direct health care and indirect work loss costs for employees treated with antidepressants and compare them across patients with different treatment response. **METHODS:** We examined 1999–2003 data from a claims database of 1.2 million beneficiaries, from 7 large U.S. employers. Analysis was restricted to employees aged 18–64, with at least one diagnosis of major depressive disorder (ICD-9: 296.2x, 296.3x) and at least one prescription of selective serotonin reuptake inhibitor (SSRI/SNRI). Patients were classified as combination antidepressant therapy users, switchers, discontinuers, or monotherapy maintainers. Annual direct health care costs, including drug and medical costs (comprising inpatient, outpatient, and emergency visits), and indirect work loss costs (comprising absenteeism and disability) were calculated for the 12-month period following therapy initiation. Results were compared descriptively across treatment responses using t-tests and ANOVA analyses.

**RESULTS:** Of the 3971 patients, 18.4% were on combination therapy, 19.7% switchers, 45.1% discontinuers, and 16.8% monotherapy maintainers. Patients on combination therapy had similar direct and indirect costs compared to switchers (all p > 0.08). The average direct and indirect costs for patients on combination therapy and switchers ($7986 and $2806 respectively) were higher than those for discontinuers ($6013 and $1680 respectively, all p < 0.001) or maintainers ($5193 and $1467 respectively, all p < 0.001). Compared to patients on combination therapy and switchers, maintainers had similar drug costs ($1980 vs. $2068, p = 0.469). Compared to discontinuers, maintainers had higher drug costs ($1,980 vs. $1,095, p < 0.001), but lower medical ($3214 vs. $4918, p = 0.002) and disability costs ($360 vs. $664, p = 0.008). **CONCLUSION:** Patients on combination therapy or who switched monotherapy had higher average direct health care costs and indirect work loss costs than patients who discontinued or maintained therapy. Maintainers had higher drug costs but lower medical and disability costs compared to discontinuers.

**PMH8 COST-EFFECTIVENESS OF VENLAFAXINE: A CANADIAN PERSPECTIVE**

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**OBJECTIVE:** To estimate the incremental cost-effectiveness of venlafaxine extended-release compared to Selective Serotonin Reuptake Inhibitors (SSRIs) in the treatment of major depressive disorder (MDD) in Canada. **METHODS:** A previously validated decision-tree model for the treatment of MDD was adapted to the Canadian clinical practice setting. Probabilities used to populate the decision-tree were derived from the literature and where needed, from a Delphi panel consisting of two General Practitioners and two Psychiatrists. The Ontario Ministry of Health and Long-term Care perspective was used in this study. The relevant direct medical costs (year 2005 Canadian dollar values) were derived from the Ontario Health Insurance Policy (OHIP) and the Ontario Case Costing Initiative (OCCI). The drug acquisition cost for venlafaxine (brand) and SSRIs (generic) was derived from the Ontario Drug Benefit Formulary (ODB). The treatment goal in the model was achieving remission and the primary outcome measure in the model was Symptom Free Days (SFDs). The time horizon was six months; therefore the costs and outcomes were not discounted. Various one-way sensitivity analyses were performed. **RESULTS:** The average six-month expected cost per patient for venlafaxine and SSRIs were CDN$4136 and CDN$4224 respectively. The average six-month expected SFDs were 33.4 and 46.7 days for venlafaxine and SSRIs respectively. The cost-effectiveness as measured by cost per SFDs was CDN$77.86 for venlafaxine and CDN$90.36 for SSRIs. The incremental cost-effectiveness analysis showed a treatment strategy using venlafaxine as first line was dominant. The sensitivity analysis demonstrated the results robustness to variations in drug acquisition cost. **CONCLUSION:** Despite a higher drug acquisition cost, venlafaxine extended-release may be cost-effective and even cost saving compared to SSRIs when used as first line treatment of MDD in a Canadian clinical practice setting.

**PMH9 COST-EFFECTIVENESS OF ATYPICAL ANTIPSYCHOTICS IN THE TREATMENT OF ACUTE MANIA**

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**OBJECTIVES:** To estimate the cost-effectiveness of atypical antipsychotics (AAPs) in the treatment of acute mania in patients with bipolar I disorder from a managed care perspective. **METHODS:** The model estimated the cost-effectiveness (CE) ratios for each AAP when used as monotherapy for the acute (3-week) treatment of patients with bipolar mania. CE ratios were defined as the total annual cost per responder, and responders were defined as patients with a 50% improvement on the YMRS scale at 3 weeks. Data sources included published literature, package inserts, and primary data analysis of a managed care claims database. The median response rate for each AAP was used in the base case scenario; 45.5%, 50.0%, 58.0%, 53.3%, and 56.7% for aripiprazole, ziprasidone, risperidone, quetiapine, and olanzapine, respectively. Since there are no pub-
lished head to head comparisons between all AAPs, response rates were obtained from individual studies for each AAP. Total annual costs were calculated based on 1.3 acute manic episodes per year and included costs of AAPs, concurrent medications, adverse events, and medical resource utilization. All costs were inflated to 2005 values. Incremental cost-effectiveness and sensitivity analyses will be conducted. RESULTS: The total annual costs per patient were $7897, $7778, $7807, $7730, and $7829 for aripiprazole, ziprasidone, risperidone, quetiapine, and olanzapine, respectively. Given the response rates and costs per patient listed above, the CE ratios were $17,356, $15,555, $13,360, $14,504, and $13,807, respectively. CONCLUSIONS: These findings suggest that, among AAPs, treatment with risperidone may be the most cost-effective choice for acute management of mania in patients with bipolar I disorder. The results of this model are limited to a 3-week acute treatment of mania, thus no conclusions can be drawn about the cost-effectiveness of AAPs when used as maintenance treatment.

PMH10
COST AND EFFECTIVENESS OF SWITCHING FROM RISPERIDONE TO OLANZAPINE IN THE TREATMENT OF SCHIZOPHRENIA
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OBJECTIVES: To assess changes in cost and effectiveness parameters following switch from risperidone to olanzapine during the long-term treatment of schizophrenia patients. METHODS: Patients were randomized to a 1-year treatment trial of olanzapine, risperidone, and typical antipsychotics in the treatment of schizophrenia. Study protocol permitted antipsychotic switching when clinically warranted. Resource utilization was systematically abstracted from medical records. Treatment outcomes were assessed with standard psychiatric measures. Statistical analyses assessed changes from pre-to-post switch among patients who were randomized to risperidone, but later switched to olanzapine for any cause. RESULTS: Sixty of the 218 (27.5%) patients randomized to risperidone switched antipsychotics—with 43 (72%) switching to olanzapine. Average duration on risperidone before switching to olanzapine was 86.1 days (mean maximum dose 4.5mg/day). Most of these switchers (86%) completed the 1-year study on olanzapine (average maximum dose 13.3mg/day). Following switch to olanzapine, patients experienced significant improvement on clinical and social parameters (both, p < 0.001), with 35.7% of the prior non-remitters achieving remission status. Mean total daily costs changed from $49.5/day pre-switch, to $44.4/day post-switch (non-significant difference). CONCLUSIONS: Olanzapine appears to be a cost effective “rescue” option for patients who require switching from risperidone in the long-term treatment of schizophrenia.

PMH11
A COST-EFFECTIVENESS ANALYSIS MODEL FOR TREATMENT OF CHRONIC SCHIZOPHRENIA IN MEXICO
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OBJECTIVES: Chronic schizophrenia is a high prevalence disease in Mexico which generates significant disabilities and economic expenditures on the Mexican Health System. The purpose of the study was to model the economic consequences of adverse events (AE) related with five antipsychotic drugs in adult patients in the Social Security Mexican Institute. METHODS: A cost–effectiveness model was developed using a Markov modeling approach. The model simulated treatment of a cohort of 1000 schizophrenics for twelve months, initiating treatment with one of five antipsychotic drugs: haloperidol (10mg), ziprasidone (80mg), risperidone (4mg), olanzapine (15mg) and clozapine (300mg). Conditional probabilities of developing any AE (akathisia, weight gain, extrapyramidal symptoms) were obtained according to clinical trials previously published and were adjusted with local expert opinion surveys. Treatment was susceptible to be modified (decrease dose, switch medication). Effectiveness measure was the number of free months of psychotic symptoms. The analysis was conducted from the healthcare payer's perspective (only direct medical costs were used). Resource use and costs were obtained from hospital records of the biggest psychiatric hospital in Mexico (“Hospital San Fernando”). Probabilistic sensitivity analysis was performed and acceptability curves were constructed. RESULTS: Ziprasidone showed the lower expected annual costs per patient ($US$17,139.5 ± 7,605.1) and the higher number of free months of psychotic symptoms (9.2 ± 1.5 months). Ziprasidone was followed by risperidone and clozapine who obtained annual expected costs of US$19,589.2 and US$24,656.1; and effectiveness of 8.8 and 8.9 months, respectively. Results were robust to Monte Carlo second order sensitivity analysis. Acceptability curves showed the same results with a mean of 60% of certainty. CONCLUSIONS: In Mexico, ziprasidone resulted the treatment most cost-effective, followed by risperidone, clozapine and olanzapine. These results should be taken into account by Mexican decision makers and clinicians in the management of patients with chronic schizophrenia.

PMH12
AN ECONOMIC EVALUATION OF ATYPICAL ANTI psychosis FOR BIPOLAR DISORDER IN THE NC MEDICAID PROGRAM
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OBJECTIVES: This study examined health care and resource utilization associated with atypical antipsychotic treatment for bipolar disorder. METHODS: Using the NC Medicaid Claims database 3328 patients were identified who had 3 months pre- and 12 months post-treatment initiation data. Patients diagnosed with bipolar disorder were classified into three groups based on type of treatment during the first 30 days after treatment initiation (index date): atypical antipsychotic (AP2) monotherapy, atypical antipsychotic plus mood stabilizer (AP2 + MS) combination therapy, and mood stabilizer (MS) monotherapy. For the 12 month treatment period, total bipolar-related and total health-related costs were examined including and excluding index medication. Comparative costs of index medications were also analyzed. Propensity score matching was employed to balance baseline characteristics between the three comparison groups. Gamma regression models were further employed to estimate the average treatment effect on the cost outcomes. RESULTS: Compared to MS monotherapy, AP2 monotherapy and AP2 + MS therapy incurred higher index medication costs during the treatment period. Patients on AP2 monotherapy incurred significantly lower total health-related costs excluding index medication (~10.9%, p < 0.046), leading to no statistical difference in total health-related cost including index medication (1.5%, p < 0.76). In terms of total bipolar-related costs, patients on AP2 monotherapy had higher costs than MS monotherapy when including index medication costs (14.9%, p < 0.01). However, bipolar-related costs excluding index medication cost was significantly lower (~16.7%, p < 0.03). Results were similar