OUTCOMES RESEARCH IN CANADA

ECONOMIC ANALYSIS OF IMPLANTABLE CARDIOVERTER DEFIBRILLATORS IN THE PRIMARY PREVENTION OF SUDDEN CARDIAC DEATH—A CANADIAN PERSPECTIVE
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OBJECTIVE: To conduct a cost-benefit analysis (CB) for the Implantable Cardioverter Defibrillators (ICDs) in the primary prevention of Sudden Cardiac Death (SCD) compared to amiodarone. METHODS: A discrete event simulation model was built to determine the cost-benefit ratio associated with ICDs from a societal perspective in Canada using the “value of life” approach as a measure of “benefit”. The clinical inputs were derived from the Sudden Cardiac Death in Heart Failure Trial (SCD-HeFT) and the Amiodarone Trial Analysis (ATMA) studies. The related costs were derived from the Ontario Health Insurance Plans’ (OHIP) schedule of benefits and fees, Ontario Drug Benefit formulary (ODB) and published data. The value of life in Canada (CND$5.8Mil.), as determined by Health Canada, was used in the model. One hundred replicates of 1000 identical twin pairs over 7 years, aligned with the average life of an ICD, were run. The costs (year 2006) and outcomes are discounted at 3%. Sensitivity Analysis (SAs) were performed for key input parameters. RESULTS: The absolute all-cause mortality was reduced by eight percent with ICD over seven years compared to amiodarone. The average costs associated with ICD and amiodarone treatments were estimated as CND$32,000 and CND$6400 per patient, respectively. The predicted cost-benefit ratio (CBR) was 0.04. This figure suggests that for every $1 spent for ICD in the primary prevention of SCD the society will gain $25 in “value” by human lives saved. SAs showed that results were robust (CBR: 0.035–0.044). CONCLUSION: ICDs reduce the risk of SCD due to arrhythmia compared to amiodarone. The estimated CBR suggests that ICDs are worthwhile investment from a societal perspective in Canada. The initial investment for ICD in primary prevention of SCD in Canada is comparable and in many cases lower when compared to other societal programs for saving lives.

THE USE OF RESEARCH ABSTRACTS IN FORMULARY DECISION MAKING BY THE ONTARIO CANCER DRUG APPROVAL COMMITTEE
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OBJECTIVE: To evaluate the influence of research abstracts in guiding evidence based decisions of the Ontario Cancer Drug Approval Committee. METHODS: The Ontario Cancer Drug Approval Committee is a joint initiative between the Ontario Ministry of Health and Cancer Care Ontario that provides a clinical and economic evaluation process for new cancer-related drugs for formulary listing consideration. The minutes of the monthly committee meetings between 2005 and 2007 were reviewed. One submission per drug indication was included. Elements from the decisions were entered into a database which included the level of evidence supporting each decision, the location from which the evidence originated, and the year the literature was produced. An abstract was defined as anything in the evidentiary base that was unpublished or was clearly defined as an abstract in the meeting minutes. RESULTS: There were 62 recommendations reviewed over the 27 months. Ten recommendations were deferred and 8 recommendations were re-submissions, thus 44 recommendations underwent analysis. The subcommittee decisions were based on literature of varying levels of evidence. There were 24 recommendations based on abstracts, of which 14 (58%) were approved and 10 (42%) were rejected. Eleven recommendations were based exclusively on abstracts, of which 7 (64%) of which were in favor of the new chemotherapy indication. As a comparison, published Randomized Control Trials were part of the evidentiary base in 27 committee recommendations (61%). Of these, 16 (59%) were in approval of a new chemotherapy indication while 11 (41%) were opposed. CONCLUSION: Research abstracts are commonly involved in evidence based decision making for cancer drug funding. The rates of approving cancer drugs for funding by the Ontario Cancer Drug Approval Committee were similar among recommendations based on abstracts and other levels of evidence.

A COST-EFFECTIVENESS ANALYSIS OF HEPATITIS C SCREENING AMONG IMMIGRANTS IN CANADA
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OBJECTIVE: The costs and benefits of hepatitis C (HCV) screening among immigrants need to be assessed since about 20% of HCV cases in Canada are immigrants. METHODS: A decision analytic model was developed to assess HCV screening among immigrants. The prevalence of hepatitis C and distributions of viral genotypes among immigrants were projected by the studies related to HCV epidemiology in their home countries. Meta-analyses of randomized trials were conducted to estimate the effectiveness of current anti-viral therapy (pegylated interferon plus ribavirin) in terms of genotype and disease stage. Survival regression model and logistic regression model were applied to project the transition probabilities for the disease progression by identifying cohort studies on the natural history of chronic HCV. The awareness of the disease, and the HCV incidence among immigrants were estimated using PHAC’s surveillance data. The costs associated with HCV screening test, anti-viral therapy, and health care were estimated through published literatures. Cost-effectiveness analysis for immigrants was further stratified by world regions. RESULTS: HCV screening was associated with an increase of life years (0.0013 years) and cost ($40.6) when compared to no screening for all immigrants ($30,552 per additional life year). HCV screening for immigrants born in South Asia was associated with longer life years (0.0108 years) and less cost ($50.6). HCV screening strategy for immigrants born in Africa cost $8635 to gain one additional life year. No obvious advantages of HCV screening were observed for immigrants from other areas. CONCLUSION: The preliminary findings suggest that it may be cost-effective to screen immigrants from South Asia and Africa. However, further studies are needed to confirm our findings.

THE EARLY CLINICAL AND ECONOMIC BENEFITS OF ATORVASTATIN IN A CANADIAN SETTING
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OBJECTIVE: Recent analyses from randomized clinical trials (RCTs) indicate that, compared to generic simvastatin, atorvas-
tatin treatment results in a reduction of cardiovascular (CV) events during the first year of treatment. This study was conducted to estimate the early clinical and economic consequences of initiating statin therapy with atorvastatin vs. simvastatin from a Canadian societal perspective. METHODS: A cost-consequence model was developed to estimate CV events and costs over the first 2 years of treatment associated with initiating atorvastatin or simvastatin in a hypothetical cohort of 100,000 patients. Four groups of new users were considered, including patients with: 1) diabetes; 2) multiple CV risk factors; 3) coronary heart disease; and 4) acute coronary syndrome. RCT data were used to estimate the CV event rate for each statin. CV events included myocardial infarction, stroke, and revascularization procedures. Corresponding direct costs (i.e., health care utilisation, drug) were obtained from the Ontario Drug Benefit and Ontario Case Costing Initiative. Estimates of indirect costs (loss of productivity) were obtained from Statistics Canada. All costs were expressed in 2007 Canadian dollars. Multivariate (Monte Carlo simulation) and univariate sensitivity analyses were conducted on model assumptions. RESULTS: Within two years of treatment initiation, the use of atorvastatin is predicted to prevent 1648 CV events (95% CI: 1343–1956) per 100,000 new patients compared with simvastatin. Similarly, the cost of CV events was reduced by $50.8 million (95% CI: $41.9–$59.8). The incremental cost associated with atorvastatin treatment was $31.3 million. This resulted in a net saving of $19.5 million (95% CI: $10.7–$28.7). Savings were also observed across all four groups considered. Results were sensitive to assumptions regarding simvastatin efficacy and levels of persistence. CONCLUSION: Based on this model, atorvastatin use is predicted to result in cost savings to the Canadian society over simvastatin use within 2 years of therapy initiation.

**Abstracts**

**DH1**

**FOLLOW-UP VISITS FOR PATIENTS WITH MAJOR DEPRESSIVE DISORDER DURING INITIATION OF ANTIDEPRESSANT TREATMENT**

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OBJECTIVE: Clinical guidelines recommend frequent follow-up visits for patients initiating antidepressant treatment in order to provide patient support, adjust dosage, and monitor side effects and clinical response. We examined the frequency of follow-up visits and factors associated with having guideline concordant care during the acute phase of antidepressant treatment.

METHODS: Medical and prescription claims from a large national health plan affiliated with i3 Innovus were analyzed with a retrospective cohort design. Adults newly diagnosed with major depressive disorder (n = 4447) from July 2000 to December 2002 who started a course of antidepressant treatment were included. Follow-up visits during the first three months after the index prescription were counted, and patients were classified as receiving guideline-concordant care if they had at least three visits. Logistic regression was used to explore the predictors for having the minimum number of recommended follow-up visits.

RESULTS: The mean number of follow-up visits during acute phase treatment was 2.68. Only 43.4% of patients received guideline-recommended level of follow-up care. In regression analysis, an initial prescription from a psychiatrist was the strongest predictor (OR = 2.66, 95% CI = 2.30–3.07). Receiving psychotherapy, having comorbid anxiety, and having a lower copayment was also positively associated with the probability of guideline-recommended follow-up care (P < 0.05).

CONCLUSION: Routine care for antidepressant management falls short of guideline recommendations, especially in primary care. Modifiable factors such as provider of care and copayments appear to influence the likelihood of receiving guideline-concordant care.

**DH2**

**IMPACT OF ADHERING TO LIPID MANAGEMENT NATIONAL GUIDELINE RECOMMENDATIONS ON CARDIOVASCULAR EVENTS AND COSTS IN A MANAGED CARE POPULATION**

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OBJECTIVE: Estimate the impact of adhering to lipid treatment guidelines [National Cholesterol Education Program’s Third Report on Detection, Evaluation, and Treatment of High Blood Cholesterol and Adult Treatment Panel’s (NCEP-ATP III)] on cardiovascular disease (CVD) events and associated costs in a managed care population. METHODS: A retrospective analysis was conducted using the HealthCore Integrated Research Database on patients with laboratory values on low-density lipoprotein-cholesterol (LDL-C), high-density lipoprotein-cholesterol (HDL-C), & triglycerides (TG) between January 1, 2003-December 31, 2005 [index date], no lipid therapy 6-months pre-index date, and minimum 12 months health plan eligibility pre- and post-index date. Baseline lipid levels and the first post-index follow-up lipid panel (goal attainment) were used to estimate annual rate of CVD events [Annual Event Rate (AER)] and CVD-attributable costs ($CV) from a Canadian societal perspective.

RESULTS: Results were sensitive to assumptions regarding simvastatin efficacy and levels of persistence. CONCLUSION: Based on this model, atorvastatin use is predicted to result in cost savings to the Canadian society over simvastatin use within 2 years of therapy initiation.

**DH3**

**THE IMPACT OF DRUG VINTAGE ON PATIENT SURVIVAL: A PATIENT-LEVEL APPROACH USING QUEBEC’S PROVINCIAL HEALTH PLAN DATA**

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OBJECTIVE: There is much controversy about the value of new medications and the substantial spending on R&D associated with new treatments. The current study aimed at evaluating the impact of drug innovation on longevity in three important disease areas using patient-level data. METHODS: An analysis of health claims from Quebec’s provincial health plan data