two-week recall. Two measures were derived for each condition—hours/worker/week of lost productive time (LPT) and its dollar equivalent. Several derivation methods were considered. We selected a conservative method based on self-reported attribution for LPT. A random sample of 13,252 workers 18–65 years of age completed the WHI between July 2, 2001 and January 2, 2002. LPT was converted to dollars/worker/week using self-reported annual salary. Tailored employer-specific reports can be generated based on the characteristics of an employer's workforce including age, gender, occupation, and region. The illustration follows.
RESULTS: Company Y (n = 5,400) included 3,460 men and 1,940 women with similar age distributions: 45% 18–34 years, 30% 35 to 44 years, 20% 45 to 54 years, and 5% 55+ years. The five episodic/chronic-episodic health conditions associated with the most LPT in Company Y were cold/flu (8.2%), headache (5.9%), low energy (3.2%), back pain (3.1%), and digestive disorders (2.8%). LPT attributed to each condition among those affected was cold/flu (0.42), headache (0.22), back pain (0.21), low energy (0.14), and digestive disorders (0.12). These five conditions potentially cost the employer an estimated $5.1 million dollars/year in LPT.
CONCLUSIONS: The APA can be used to generate tailored reports for employers of health-related work loss. This is a first step toward providing employers with concrete estimates of the indirect cost of specific health conditions.

PHP23

PREVENTABLE DRUG-RELATED MORBIDITY AND MORTALITY IN OLDER ADULTS: A CANADIAN COST-OF-ILLNESS MODEL

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The cost of drug-related morbidity and mortality is staggering, estimated to be $177 billion USD annually in the United States. Much of this is preventable and occurs in older adults.
OBJECTIVES: Given the lack of a Canadian cost-of-illness model, our objective was to determine the economic impact of preventable drug-related morbidity (PDRM) in older adults in Canada from a public payer perspective.
METHODS: A probability pathway model was developed for PDRM in older adults, based on a previously published methodology. To determine the probabilities that would be assigned to each branch of the pathway, a panel of 25 health care professionals (12 general practitioners, 4 clinical pharmacologists, 6 geriatricians, and 3 pharmacists) completed a written survey. Data from the Population Health Research Unit (PHRU) at Dalhousie University was primarily used to determine the costs that were assigned to each outcome. Data analysis was conducted by using Treeage (DATA,v3.5).
RESULTS: The cost-of-illness model estimated that the annual cost of PDRM in older adults in Canada is $10.9 billion CAN. Admissions to long-term care were found to be the biggest driver in the model, accounting for $6.7 billion CAN of the costs. One-way sensitivity analyses were performed, varying the probability and cost estimates, but the estimated total cost was relatively insensitive to these changes.
CONCLUSIONS: The burden of PDRM is potentially substantial in both the adverse clinical outcomes to the patient and the economic impact to our health care system. At an estimated annual cost of $10.9 billion, PDRM in older adults is one of the more costly "illnesses" in Canada, with a greater annual cost than either cancer or respiratory diseases. This study represents a progression in the literature on cost-of-illness models by focusing exclusively on (1) preventable drug-related morbidities that (2) occur in older adults, in (3) Canada.

PHP24

PHARMACY BENEFIT RESOURCE UTILIZATION BY ENROLLEES OF A PUBLIC EMPLOYEES INDEMNITY INSURANCE PROGRAM FOR FIVE FISCAL YEARS FROM 1996 TO 2001

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OBJECTIVES: Quantify the prevalence and magnitude of utilization of pharmacy benefits in a public employees indemnity insurance program.
METHODS: The study was a retrospective study of paid pharmacy claims for an insured population of approximately 150,000 eligible members per month for five fiscal years from July 1996 to June 2001. Eligibility and paid pharmacy claims files were analyzed to determine the proportion of members who were recipients, intensity (number of prescriptions) per recipient per year, pharmacy reimbursement per prescription, and pharmacy reimbursement cost per member per month. The data were divided into twenty age groups and a sub-analysis was performed to assess changes in proportion, intensity, and pharmacy reimbursement for each age group over a five-year period.
RESULTS: Over the five-year period, the proportion of recipients to eligible increased 9.4% from 0.717 to 0.784; intensity per recipient increased 13.9% from 16.5 to 18.8 prescriptions per recipient per year; pharmacy reimbursement per prescription increased 51.2% from $40.17 to $60.74 per member per month. This led to an overall increased cost per member per month over the five-year period of 83.2% ($42.20 to $77.31). Intensity per recipient and proportion of recipients increased greatly with age. Recipients aged 10–14 received 5.8 prescriptions per year while those aged 30–34 received 9.4, those aged 50–54 received 18.9, and those aged 70–74 received 30.1 prescriptions per year in fiscal year 2001. The proportion of recipients to eligible increased from 0.593 to 0.730 to 0.834 to 0.946, respectively, for the age groups per the fiscal year.

CONCLUSION: Managerial strategies can be developed to control some of the increasing costs by promoting the use of cost-effective therapies for optimum outcomes but pharmacy benefit costs will continue to escalate because of an increasing proportion of recipients and intensity per recipients and compounded by an aging population.

PHP25

WORK-RELATED COST OF EPISODIC AND CHRONIC-EPISODIC HEALTH CONDITIONS IN THE UNITED STATES: RESULTS FROM THE AMERICAN PRODUCTIVITY AUDIT

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OBJECTIVES: The American Productivity Audit (APA), an on-going week-to-week telephone survey, provides valid and reliable estimates of health-related lost productive work time. This paper describes the APA and identifies the five most costly episodic/chronic-episodic health conditions.
METHODS: We developed and validated the Work and Health Interview (WHI) for APA administration. The WHI quantifies missed work hours and lost productive time while at work for specific health conditions using two-week recall. Two measures were derived for each condition—hours/worker/week of lost productive time (LPT) and its dollar equivalent. Several derivation methods were considered. We selected a conservative method based on self-reported attribution for LPT. A random sample of 13,252 workers 18–65 years of age, selected using Random-Digit-Dialing, completed the WHI by phone in their homes between July 2, 2001 and January 2, 2002. LPT was converted to dollars/worker/week using self-reported annual salary.
RESULTS: Among all respondents, mean LPT from episodic/chronic-episodic conditions was 1.6 hours/worker/week (1.8 hours/week for women; 1.4 hours/week for men). Thirty-three percent reported LPT from >1 of 16 different episodic/chronic-episodic conditions. The prevalence of the five conditions associated with the most LPT/worker/week was cold/flu (8.9%), headache (7.3%) back pain (3.9%), low energy (3.7%), and arthritis (2.7%). LPT attributed to each condition among those affected was cold/flu (0.43), headache (0.23), back pain (0.20), low energy (0.14), and arthritis (0.13). Extrapolating to the US workforce, the estimated cost of these five health conditions to employers was approximately $124.7 billion/year.
CONCLUSIONS: The APA provides national estimates of health-related LPT. Results indicate that common conditions like cold/flu, headache, and back pain result in a significant but largely invisible financial loss to employers. Findings may be subject to seasonality bias based on only six months of data collection. Unbiased estimates that we will benchmark to the Current Population Survey will follow as we collect additional data.

PHP26

COST-EFFECTIVENESS OF SCREENING DONATED BLOOD WITH MINIPOOL NUCLEIC ACID TESTING (NAT) FOR HEPATITIS B VIRUS (HBV), HEPATITIS C VIRUS (HCV), AND HUMAN IMMUNODEFICIENCY VIRUS (HIV)

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OBJECTIVE: To examine the CE of adding minipool NAT to current blood screening (CS) of volunteer blood donations to reduce the risk of HBV, HCV and HIV infection in the United States.
METHODS: We developed a decision analytic model of screening volunteer blood donations in the US based on recently published Markov models of HBV, HCV, and HIV infection to estimate discounted lifetime costs and quality-adjusted life year (QALY) gains. Infection risk (including prevalence and the window period between antigen and antibody detectability in the donated blood), and test sensitivities were derived from the literature. Age-specific ten-year survival of transfusion recipients was from Vamvakas (1994) and the age distribution from a private managed care database for transfusions in 1995. Secondary analyses considered alternative screening strategies.
RESULTS: The model estimated NAT would annually prevent 37, 128 and 7 transfusion-acquired cases of HBV, HCV, and HIV respectively compared to CS alone (6.2 million transfusion recipients). HCV had the greatest impact on total QALYs and costs. Although the cost per case of HIV avoided was 3–4 times that for HBV or HCV, the overall impact of HIV on CE was small. Adding NAT to CS would add 86 life years, at an incremental cost per life year gained of $2.1M and an incremental cost per QALY gained of $1.2M. The CS + NAT-p24 strategy dominated CS + NAT, and had an incremental cost per QALY of $0.9M compared to CS. Results were most sensitive to disease incidence rates, screening test costs, estimates of window period closure, and the age distribution of transfusion recipients.
CONCLUSIONS: The CE of adding NAT to current screening, although not within a range considered cost-effective for health care treatments, may be reasonable when considered in the context of other blood-related preventive interventions such as autologous blood donation, and the desire for a zero tolerance level for infections from blood transfusions.