tified between January 1, 2007 and December 31, 2009. The surgical approach was laparoscopic in 57.3% patients, and open in 42.7% patients. Mean cost per discharge was significantly higher in open thoracic procedures compared to laparoscopic procedures, $24,995 vs. $19,238, respectively($p<0.001$). Patients undergoing laparoscopic thoracic procedures had a significantly lower rate of surgical site infections compared to patients who underwent open procedures (4.8% vs. 5.8%, respectively, $p<0.001$). There was a significantly higher rate of blood transfusions with patients undergoing open surgery compared to patients undergoing laparoscopic procedures (13.2% vs. 6.3%, respectively, $p<0.001$). **CONCLUSIONS:** Laparoscopic thoracic procedures were associated with shorter hospital lengths of stay, lower rate of surgical site infections, hemorrhage, blood transfusion and mortality rates. The mean costs for laparoscopic procedures were significantly lower than mean costs for open procedures. These observations highlight the potential cost advantages of providing thoracic procedures through laparoscopic techniques as a method to potentially save increasingly scarce healthcare funds for hospitals.

PMD17

ANALYSIS OF COST DRIVERS IN STRUCTURED SMBG IN POORLY CONTROLLED, NON-INSULIN TREATED TYPE-2 DIABETES: RESULTS FROM THE STEP STUDY

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**OBJECTIVES:** Analyze the differential in selected direct costs of a collaborative structured blood glucose testing intervention in non-insulin treated patients with type 2 diabetes mellitus (T2DM) when compared to enhanced usual care (active control group (ACG)). **METHODS:** Data was derived from the Structured Testing Program (STeP) - a 1 year, prospective, cluster-randomized, multicenter study that examined the utility of a collaborative intervention using structured self-monitoring of blood glucose (SMBG) in 483 poorly-controlled (HbA1c > 7.5%) T2DM subjects compared to the ACG. The structured testing group (STG) used the ACCU-CHEK® 360¢[a] View 3-day profile tool that facilitates collection and interpretation of 7-point glucose profiles. From a US payer perspective, direct costs of diabetes medications, lab HbA1c tests, physician visits, and blood glucose testing strips associated with STG were compared with ACG using student t-test at a significance level of 5%. **RESULTS:** In the intent-to-treat population, STG showed a significantly greater HbA1c reduction over 12 months than the ACG (-1.2% vs. −0.9%; Δ-0.3%; $p=0.04$). During the study, STG incurred +$180.95 mean PPPY (Pay per Patient Year) total cost for diabetes medications, but -$173.73 mean PPPY for SMBG test strips, -$5.20 mean PPPY for lab HbA1c tests, and -$2.15 mean PPPY for physician visits compared to ACG. There was no significant difference in direct costs between STG and ACG ($p=0.9898$). **CONCLUSIONS:** Use of a collaborative structured testing intervention improved HbA1c in STG without increasing direct cost. The increased STG medication cost was offset by a decreased use of blood glucose test strips. As previously reported, STG subjects performed significantly fewer tests/day than ACG subjects (mean = 0.9 vs. 1.2, $p=0.0003$) over the year. Structured testing, from a 1 year US payer perspective, is an effective and overall cost-neutral tool for management of non-insulin treated patients with type 2 diabetes.

PMD18

THE COST-EFFECTIVENESS OF INITIATING SENSOR-AUGMENTED PUMP THERAPY VERSUS MULTIPLE DAILY INJECTIONS OF INSULIN IN ADULTS WITH TYPE 1 DIABETES: EVALUATING A TECHNOLOGY IN EVOLUTION

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**OBJECTIVES:** Sensor-augmented pump therapy (SAPT) demonstrated a significant reduction in HbA1c levels in type 1 diabetes patients compared to multiple daily injections of insulin (MDI) in a recent randomized trial. We analyzed the data on medical resource use collected within the trial and evaluated the long-term cost-effectiveness of SAPT versus MDI in adults with type 1 diabetes from the healthcare system perspective. **METHODS:** We combined estimates derived from the trial data and the medical literature to populate the previously-validated CORE Diabetes Model, which includes a series of Markov constructs that simulate the progression of diabetes-related complications. During the 52-week trial period, SAPT patients were provided insulin pumps and 3-day sensors. Electronic records indicated that sensors were worn only by patients 65% of the time. The incremental reduction in mean glycated hemoglobin was 0.6 percentage points in patients randomized to SAPT relative to MDI. **RESULTS:** Among the 329 adults (19-70 years), mean age was 41 years and mean duration of diabetes was 20 years. Total treatment costs over the 52-week follow-up period were estimated at $10,760 for SAPT patients and $5,072 for MDI patients (2010 US$). Discounted (3% per year) lifetime estimates of direct medical costs and QALYs were $253,493 and 10.794 for SAPT patients and $167,170 and 10.418 for MDI patients. The corresponding ICER was $229,675 per QALY (95% CI: 139,071 to 720,865). Sensitivity analyses revealed that evolving technologies could improve the cost-effectiveness of SAPT. With a 6-day sensor, the ICER decreased to $168,104 per QALY. Upon development of a 6-day sensor that requires only one test strip per replacement for calibration, the ICER would drop to $72,417/QALY. **CONCLUSIONS:** Our base-case findings revealed that the current SAPT technology is not economically attractive. However, with technological advances currently in process, the cost-effectiveness of the SAPT could significantly improve.

PMD19

COST-EFFECTIVENESS OF EPIDERMAL GROWTH FACTOR RECEPTOR GENE MUTATION TESTING IN THE SELECTION OF FIRST-LINE THERAPY FOR PATIENTS WITH ADVANCED NON-SMALL CELL LUNG CANCER IN ONTARIO

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**OBJECTIVES:** To assess the cost-effectiveness of epidermal growth factor receptor (EGFR) gene mutation testing for guiding the application of gefitinib as first-line therapy in patients with advanced non-small cell lung cancer (NSCLC) living in Ontario. **METHODS:** A decision analytic model was developed to compare EGFR gene mutation testing strategy versus no testing strategy in patients with advanced NSCLC. Under the testing strategy, patients tested positive for mutation would receive gefitinib as first-line therapy. Under no testing strategy, patients would receive conventional chemotherapy as first-line therapy. Probability variables were estimated through literature review. Utility variables were estimated from a multivariate linear regression analysis taking into account of the clinical responses and side-effects associated with treatment for NSCLC. Cost variables were based on two Ontario cost studies for NSCLC. Both benefits and costs were discounted at 5% per annum. **RESULTS:** Compared to no testing strategy, the incremental cost-effectiveness ratio for EGFR gene mutation testing was $46,021 per life year or $81,071 per quality adjusted life year (QALY). The cost-effectiveness of EGFR gene mutation testing was sensitive to the cost and efficacy of gefitinib. The budget impact analysis projected that EGFR gene mutation testing would cost Ontario health care system $4.6M, $7.0M, $7.9M, $8.1M, and $8.1M more a year in the next five years. **CONCLUSIONS:** EGFR gene mutation testing would not be cost-effective in patients with advanced NSCLC in Ontario until willingness-to-pay was above $81,000 per QALY. The efficacy and cost of gefitinib significantly affected the cost-effectiveness of EGFR gene mutation testing.

PMD20

COST-EFFECTIVENESS ANALYSIS OF A NEW INDEX FOR PROSTATE CANCER DETECTION

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**OBJECTIVES:** A new prostate cancer detection index was developed as a combination of serum prostate-specific antigen (PSA), free PSA, and a PSA precursor form [-2]proPSA to calculate the probability of prostate cancer and used as a diagnostic aid for men age 50 years or older with PSA 4-10 ng/mL and nonsuspicious digital rectal exam. The index has demonstrated improved specificity for detecting prostate cancer over PSA test alone in clinical trials. The current study evaluated the cost-effectiveness of early prostate cancer detection with the index adding to PSA compared with PSA test alone from the U.S. societal perspective. **METHODS:** A Markov model with probabilistic sensitivity analysis was constructed to estimate the costs and health state utilities of prostate cancer detection and consequent treatment for the annual prostate cancer screening of the male from age 50 through 75 years. The transition probabilities, health state utilities, and prostate cancer treatment costs were derived from the published literature. The diagnostic performance of the index was obtained from a multi-center simulation study of the index. Diagnostic related costs were obtained from the 2009 Medicare Fee Schedule. Expected costs and effects were discounted at 3%. **RESULTS:** Over 25 annual screening cycles, the strategy of the index adding to PSA dominated the PSA test alone for prostate cancer detection. It was estimated to save $234, with an expected gain of 0.02 quality adjusted life years (QALYs). The probability of the index test being cost-effective is approximately 85% at the range of $50,000/QALY to $200,000/QALY willingness to pay. Model results are most influenced by screening starting age, discount rate, and biopsy utilization rates. **CONCLUSIONS:** The index as an aid adding to PSA test may be an important strategy for prostate cancer detection as compared to using PSA alone testing.

PMD21

IS CYBERKNIFE A COST-EFFECTIVE OPTION FOR TREATING PROSTATE CANCER?

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**OBJECTIVES:** To assess the cost-effectiveness of CyberKnife (CK) compared to surgery and radiation therapies for the treatment of localized prostate cancer (PC) from societal and third party payer perspectives. **METHODS:** A Markov model was used to compare treatment with CK, intensity modulated radiation therapy (IMRT), proton therapy (PT), and surgery, in 60-year-old patients. The model reflected both procedure-related mortality and the comparative risks of long-term toxicity among survivors, defined as adverse events >grade 2 on Radiation Therapy Oncology Group scale occurring at least 12 months following treatment: genitourinary (GU); gastrointestinal (GI); and/or sexual dysfunction (SD). In the absence of evidence on comparative effectiveness we assumed that long-term disease control and mortality would not differ across treatments. Toxicity probabilities were derived using meta-analytical techniques. Utilities for adverse events were derived from a published survey of PC patients using standard gamble technique. Model-projected expected lifetime costs and quality adjusted life years (QALYs) for each treatment were used to calculate the incremental cost-effectiveness of CK versus comparators. The societal perspective included productivity costs owing to time spent in treatment. Extensive sensitivity analyses were conducted. **RESULTS:** From a payer's perspective, surgery was least expensive followed by CK, IMRT and PT. However, CK patients had higher expected QALYs (9.54) than other options (9.08-9.49). Incremental cost per QALY gained for CK versus surgery was $13,100/QALY. Compared to IMRT and PT, CK was less costly with higher QALYs (dominant). From a