in the assumptions. **CONCLUSIONS:** Compared with usual therapeutic strategies of anemia, the use of intravenous iron appears to be significantly cost saving in chemotherapy-induced anemia in breast cancers and gastrointestinal cancers.

PCN29

TREATMENT OF CHRONIC LYMPHOCYTIC LEUKEMIA (CLL) USING RITUXIMAB (R) WITH FLUDARABINE (F) AND CYCLOPHOSPHAMIDE (C): ASSESSING THE FINANCIAL IMPACT OF THE ROUTE OF ADMINISTRATION AT PRINCESS MARGARET HOSPITAL (PMH)

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OBJECTIVES: The objective of this study was to determine, from the perspective of PMH, the financial impact of treating patients with CLL using R and intravenous FC (R-FC IV) versus R and orally administered FC (R-FC PO). **METHODS:** A cost analysis was performed from the perspective of PMH. All drug and administration costs were obtained from relevant sources in the province of Ontario and validated by PMH. Rituximab dosing was set at 375 mg/m^2 for cycle 1 (day 1) and 500 mg/m^2 of cycles 2-6 (day 1). Intravenous F and C were dosed at 25 mg/m^2 and 250 mg/m^2, respectively, for 6 cycles (days 1-3). Oral dosing of these drugs was set at 40 mg/m^2 and 325 mg/m^2, respectively. Drug utilization was estimated based on a body surface area of 1.8 m^2. **RESULTS:** The cost of R-FC PO at PMH is $32,634 per patient (Drug cost: $29,292; Administration cost: $3,342), while the cost of R-FC IV is $33,400 per patient (Drug cost: $25,192; Administration cost: $8,208). Overall, utilization of R-FC PO is $766, or 2%, less costly than R-FC IV at PMH. Real-world conditions would impact the difference in price between these two options, as patients may tolerate more treatment cycles of one regimen compared to another. The cost of the PO and IV routes of administration may be viewed as functionally equivalent at PMH, making the decision to employ a specific route of administration one that should be based on non-financial criteria. These results should apply to all Canadian hospitals with drug and administration costs that are similar to those found at PMH. **CONCLUSIONS:** This analysis shows that R-FC PO is marginally less expensive than R-FC IV at PMH. Therefore, the choice of format should be made based on patients' individual needs.

PCN30

DOES A LACK OF HTA REVIEW LEAD TO HIGHER PRICES FOR HIV TREATMENTS? A COMPARISON WITH ONCOLOGY TREATMENTS

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OBJECTIVES: Therapies for HIV and cancer draw attention due to both high unmet need and high costs. In some cases, HIV treatments are approaching the prices of cancer treatments. However these disease states are often reviewed differently by payers and HTA agencies. NICE, for example, does not perform HTAs for HIV therapies while other European countries do. We examined the relative differences in prices between HIV and cancer therapies across several European countries to identify the potential impact of HTA reviews. **METHODS:** We included therapies approved for use 2004-2010 in HIV (Atripla, Trizivir, Reyataz, Norvir, Truvada, Invirase, Celsentri, Isentress, Fuzeon) and cancer (Alimta, Avastin, Erbitux, Sutent, Tyverb,Taxotere, Nexavar). Current yearly treatment prices (2010) were identified for all therapies for UK, FR, DE, IT, and ES. Price differentials between the UK and other countries were determined for each treatment. Mean country price differentials (UK reference) were compared. **RESULTS:** HIV therapies were on average 30% (median differential 29%) lower in price in the UK than other countries. Price differentials for HIV therapy ranged from −18% (higher price in UK) to 75% (less expensive in UK). Cancer therapy prices averaged 36% (median 36%) lower in UK than other countries. Price differentials for HIV therapy ranged from 6% to 80% (lower price in UK) with a median of 36%. The apparent discrepancy between mean country differentials was not present if the single HIV therapy was more expensive in the UK than other European countries (Norvir was excluded). **CONCLUSIONS:** Across 9 HIV therapies and 7 cancer treatments, all treatments were on average lower in price in the UK. However, the price differential was not substantially different across the 2 therapy areas. There is little evidence supporting an upward price pressure due to a lack of economic-driven HTA reviews of HIV products when compared to oncology therapies.

PCN31

DIRECT MEDICAL COSTS OF ELDERLY PATIENTS WITH STAGE III COLON CANCER DURING FIRST-LINE VERSUS SECOND-LINE CHEMOTHERAPY

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OBJECTIVES: Economic analyses of stage III colon cancer (CC) treatments should account for multiple lines of chemotherapy, yet little is known about the cost variation between first-line (1stTx) and second-line chemotherapy (2ndTx). This study investigates the direct medical costs of 1stTx and 2ndTx among elderly American patients with stage III CC. **METHODS:** We included patients over 65 years and diagnosed with stage III CC from the 1997-2005 Surveillance, Epidemiology, and End Results (SEER)-Medicare database. 1stTx was defined as any use of 5-fluorouracil/leucovorin-only, oxaliplatin-based, or irinotecan-based chemotherapies; 2ndTx was the chemotherapy following the 1stTx after a therapy gap of at least 12 weeks or a switch in chemotherapy. 1stTx and 2ndTx were examined during the first 40 weeks following chemotherapy initiation. Cost data representing total Medicare reimbursements were used to calculate weekly costs for the first 26 weeks of each treatment. We further examined the cost difference between patients who started 2ndTx early (≤26 weeks) and late (>26 weeks). **RESULTS:** Among 18,378 elderly patients with stage III CC, 57% received 1stTx (n=10,408). Among 1stTx users, 8% (n=870) went on to receive 2ndTx. Average weekly total medical costs for 1stTx varied between $647 and $1,493 (mean±SD=$895±166) while these for 2ndTx were higher, ranging from $752 to $2,041 (mean±SD=$1,046±286). Furthermore, average weekly total medical costs of 2ndTx in patients who started 2ndTx early ranged from $900 to $2,093 (mean±SD=$1,251±318), reflecting higher costs than among late 2ndTx users, whose costs ranged from $767 to $1,483 (mean±SD=$1,011±226). **CONCLUSIONS:** Average weekly total medical costs of stage III CC patients were higher for 2ndTx than 1stTx. Early 2ndTx initiators also had higher average weekly total medical costs than late 2ndTx users. Findings suggest that direct medical costs of stage III CC patients are lower when they are on first-line than second-line chemotherapy.

PCN32

COMPARISON OF EPOETIN ALFA AND DARBEPOETIN ALFA DOSING PATTERNS AND COSTS IN CHRONIC KIDNEY DISEASE AND CHEMOTHERAPY-INDUCED ANEMIA OUTPATIENTS

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OBJECTIVES: To compare erythropoiesis-stimulating agent (ESA) dosing patterns and costs in outpatients with chronic kidney disease (CKD) not on dialysis or with chemotherapy-induced anemia (CIA). **METHODS:** Electronic records from the Premier Perspective Comparative Hospital Database (2006Q1-2009Q3) were analyzed to identify outpatients ≥18 years old treated with epoetin alfa (EPO) or darbepoetin alfa (DARB). Patients receiving renal dialysis or treated with both ESAs were excluded. CKD patients had ≥1 claim for CKD, no claim for cancer, and did not receive chemotherapy. CIA patients had ≥1 claim for cancer, received chemotherapy, and had no claim for CKD. The mean cumulative ESA dose was used to calculate costs, based on April 2010 wholesale acquisition costs (EPO: $15.15/1,000 Units, DARB: $4.96/mcg). **RESULTS:** A total of 11,012 CKD (EPO: 6,921; DARB: 4,091) and 5,590 CIA (EPO: 2,856; DARB: 2,734) outpatients were identified. EPO patients were slightly younger than DARB patients in the CKD group (years: 71.0 vs. 71.6; P=.0341) and of similar age in the CIA group (years: 62.2 vs. 62.7; P=.1316). The proportion of females was higher in CKD (EPO 62.2% vs. DARB 58.8%; P=.0003) and smaller in CIA (EPO 63.4% vs. DARB 67.0%; P=.0047). The mean treatment duration was slightly longer for EPO CKD patients (months: 3.6 vs. 3.4, P=.0004) and similar for CIA patients (months: 2.6 vs. 2.5; P=.1816). The mean cumulative dose was EPO 137,101 Units and DARB 533 mcg in CKD, and EPO 221,652 Units and DARB 933 mcg in CIA, yielding dose ratios of 257:1 and 238:1 (Units EPO:mcg DARB), respectively. Corresponding ESA costs were higher for DARB than for EPO in both populations (CKD: $2,644 vs. $2,077; CIA: $4,627 vs. $3,358). **CONCLUSIONS:** This analysis reported dose ratios of 257:1 and 238:1 in CKD and CIA outpatients, respectively. DARB price premiums of 27% for CKD and 38% for CIA patients were observed.

PCN33

COST SAVINGS ASSOCIATED WITH TRANSFUSION INDEPENDENCE IN PATIENTS WITH MYELODYSPLASTIC SYNDROME WITH A 5Q- DELETION

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OBJECTIVES: Red blood cell transfusion is the standard of care for many patients with myelodysplastic syndrome (MDS) in the US. Transfusions are economically burdensome due to the costs associated with the transfusions including iron chelation therapy (ICT). This study aimed to investigate potential cost savings associated with transfusion independence as a result of lenalidomide use. **METHODS:** A one-year simulation model was constructed to estimate the relevant costs of using lenalidomide compared to transfusions in the treatment of MDS patients with a 5q-deletion and transfusion-dependent anemia. A two arm model was constructed to simulate patients through the costs of lenalidomide vs. transfusions. Patients were assigned initial transfusion and ICT requirements, response status, risk of infection, death, progression to acute myeloid leukemia (AML), and iron overload complications (IOC) based on data from a clinical trial and existing literature. Patients who became transfusion independent were subject to lower risk of infection, death, progression to AML and elimination of ICT. Dosing frequency and modification of lenalidomide was simulated based on results of the MDS-003 clinical trial. Treatment guidelines also served as a basis of assumptions when required. Resource use and cost data (in 2010 US dollars) were obtained from US databases and available literature. **RESULTS:** In a scenario where it was assumed that patients became transfusion independent with lenalidomide use, a patient's cost was $119,186 inclusive of the cost of lenalidomide, whereas the costs for a transfusion dependent patient were $77,729. In this scenario, patients receiving lenalidomide experienced reduced infections, IOCs, progression to AML and ICT compared to patients treated with transfusions. **CONCLUSIONS:** In the US, treating MDS patients with transfusion-dependent anemia and a 5q-deletion with lenalidomide results in cost savings due to a reduction in costs from transfusion related complications. These savings serve to largely offset lenalidomide treatment costs.

PCN34

LONG-TERM DIRECT MEDICAL COSTS IN PATIENTS DIAGNOSED WITH FOLLICULAR LYMPHOMA WHO RECEIVE FRONTLINE CHEMOTHERAPY WITH VERSUS WITHOUT RITUXIMAB - A SEER MEDICARE ANALYSIS

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OBJECTIVES: To compare long-term costs to Medicare in patients diagnosed with follicular lymphoma (FL) receiving frontline chemotherapy +/- rituximab.

METHODS: Using Surveillance, Epidemiology, and End Results (SEER) cancer registry data linked to Medicare claims, we identified 1,117 FL patients diagnosed between 01/99 and 12/05. Patients were included if chemotherapy began within 90 days of cancer diagnosis and consisted of CHOP (cyclophosphamide [C], doxorubicin, vincristine [V], and prednisone [P]) or CVP ± rituximab. Monthly Medicare paid amounts were calculated for each of 48 monthly partitions following chemotherapy initiation. To account for censoring we conducted 48 inverse probability-weighted (IPW) least-squares regression analyses to examine patient factors associated with cumulative costs after each partition. Total costs were divided into chemotherapy and non-chemotherapy. Overall survival was estimated using Kaplan-Meier analysis. **RESULTS:** The median age was 73 years, 56% were diagnosed with stage III-IV disease, 67% received rituximab, and, among these, the average cost of rituximab was $17,958 during the first 12 months of frontline therapy. In IPW regression, the incremental cumulative total cost associated with rituximab was $20,622 (95% Confidence Interval [CI] $16,999-$24,092) at month 6, $19,606 (95% CI $14,996-$23,914) at month 12, and $18,122 (95% CI $8,110-$27,533) at month 48. Other factors associated with higher costs were later cancer stage and higher comorbidity index. The cumulative chemotherapy cost associated with rituximab was $18,109 (95% CI $16,081-$20,365) at month 6, $16,249 (95% CI $13,820-$19,023) at month 12, and $16,130 (95% CI $11,320-$21,015) at month 48. There were no differences in cumulative non-chemotherapy costs associated with rituximab at any time. Kaplan-Meier 48-month survival was 74.4% for rituximab and 62.6% for non-rituximab patients. **CONCLUSIONS:** The net cost of rituximab is consistent with the cost of rituximab treatment, suggesting that over 48 months additional costs from improved survival were balanced by the reduced need for medical services.

PCN35

DOSING PATTERN AND COST COMPARISON OF EPOETIN ALFA AND DARBEPOETIN ALFA IN CHRONIC KIDNEY DISEASE AND CHEMOTHERAPY-INDUCED ANEMIA INPATIENTS

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OBJECTIVES: To compare erythropoiesis-stimulating agent (ESA) dosing patterns and costs in inpatients with chronic kidney disease (CKD) not on dialysis or with chemotherapy-induced anemia (CIA). **METHODS:** Electronic records from the Premier Perspective Comparative Hospital Database (2006Q1-2009Q4) were analyzed to identify inpatients ≥18 years old treated with epoetin alfa (EPO) or darbepoetin alfa (DARB). Patients receiving renal dialysis or treated with both ESAs were excluded. CKD patients had ≥1 claim for CKD, no claim for cancer, and did not receive chemotherapy. CIA patients had ≥1 claim for cancer, received chemotherapy, and had no claim for CKD. The mean cumulative ESA dose was used to calculate costs, based on April 2010 wholesale acquisition costs (EPO: $15.15/1,000 Units, DARB: $4.96/mcg). **RESULTS:** A total of 148,746 CKD (EPO: 116,017; DARB: 32,729) and 13,832 CIA (EPO: 10,454; DARB: 3,378) patients were identified. EPO patients were slightly younger than DARB patients in the CKD group (years: 71.0 vs. 71.2; P=.0199) and slightly older in the CIA group (years: 60.7 vs. 59.2; P<.0001). The proportion of females was higher in CKD (EPO 52.3% vs. DARB 51.3%; P=.0018) and similar in CIA (EPO 52.9% vs. DARB 53.8%; P= .3722). The mean length of stay (LOS) was slightly longer for EPO patients (days: CKD: 9.9 vs. 9.7, P=.0006; CIA: 13.4 vs. 12.6; P=.0028). The mean cumulative dose was EPO 37,333 Units and DARB 149 mcg for CKD patients, and EPO 62,605 Units and DARB 272 mcg for CIA patients, yielding dose ratios of 251:1 and 230:1 (Units EPO:mcg DARB), respectively. Corresponding ESA costs were higher for DARB than for EPO in both populations (CKD: $739 vs. $566; CIA: $1,349 vs. $948). **CONCLUSIONS:** This analysis reported dose ratios of 251:1 and 230:1 and a cost premium associated with DARB of 31% and 42% for CKD and CIA inpatients, respectively, despite longer LOS for EPO patients.

PCN36

COST ANALYSIS, SAFETY, AND EFFICACY OF PEMETREXED/CISPLATIN COMPARED WITH BEVACIZUMAB/GEMCITABINE/CISPLATIN IN PATIENTS WITH PREVIOUSLY UNTREATED ADVANCED NON-SQUAMOUS NSCLC IN RUSSIA

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OBJECTIVES: The novel chemotherapy agent pemetrexed combined with cisplatin and the vascular endothelial growth factor (VEGF)-targeted agent bevacizumab combined with cisplatin and gemcitabine are approved as first-line treatments for patients with non-squamous non-small cell lung cancer (NSCLC). Recent studies have claimed that bevacizumab has equivalent safety and is cost-saving when compared with pemetrexed in this population. This study analyzed the health care costs in Russia based on the indirect analysis and local treatment practice. Safety and efficacy were also compared. **METHODS:** As no direct head-to-head trials have been undertaken comparing the two regimens, an indirect treatment comparison approach was used. Data from 2 separate studies, that had a common comparator (cisplatin/gemcitabine), were analyzed. Only the 7.5 mg bevacizumab arm was included. The cost analysis comprised chemotherapy and adverse event treatment costs. Chemotherapy costs were based on the average number of cycles in the trials. Safety and efficacy endpoints were matched from the available data. Previous studies had assumed equivalent safety and used median number of cycles for the calculation of drug costs when the cycles of bevacizumab are not normally distributed. **RESULTS:** The overall proportion of patients suffering a severe adverse event was significantly lower with pemetrexed (−10.50; 95%CI −18.4, −2.71). No significant differences were found in overall survival (HR 0.90; 95%CI 0.72, 1.13), although in the individual trials only pemetrexed demonstrated significant survival advantage (HR 0.84; 95%CI 0.74, 0.96) while 7.5 mg bevacizumab showed no survival advantage (HR 0.93; 95%CI 0.78, 1.11). When costs were based on the average number of cycles used on a per-patient basis (4.3 vs. 7.2), pemetrexed was cost-saving (saving R337,600 or $US11,100) with most savings from chemotherapy costs to pharmacy (R334,100 or $US10,900). **CONCLUSIONS:** Pemetrexed is cost-saving and less toxic compared to bevacizumab in this patient population, and produces at least equal survival outcomes.

PCN37

ESTIMATING COST OF TREATMENT IN ELDERLY PATIENTS WITH COLORECTAL CANCER USING MEDICARE DATA

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OBJECTIVES: Coloretal cancer (CRC) is one of the most common and costly cancer in the United States. 70% of the patients are diagnosed post 65 years old. This study used a large cohort of patients from 2005-2008 100% Medicare Institutional Inpatient and Outpatient data to estimate the cost of different treatments and understand the chemotherapy use for CRC patients. **METHODS:** 203,532 (50.8% Female) CRC patients that were age 65 or older with a mean Charlson Comorbidity Index (CCI) of 2.30 (± 3.26) were identified by ICD-9 code 153.x and/or 154.x. The overall cost for patient groups with different characteristics was compared by using standard t-test, Wilcoxon test or ANOVA. The cost was further modeled in a generalized linear model (GLM) with a log-link and gamma distributed variance functions. **RESULTS:** 38% of CRC patients had surgery, 6.0% conducted radiotherapy and 5.7% received chemotherapy. Patients on chemotherapy were incurred with the highest cost ($41,867), followed by radiotherapy ($13,812) and surgery ($4,964). Patients on 5-FU, Leucovorin, Oxaliplatin and Bevacizumab (5-L-O-B) had the highest estimated cost ($52,158), as its patient population was the most severe (Mean CCI=7.6), followed by 5-FU, Leucovorin and Oxaliplatin (5-L-O) ($39,435, Mean CCI=4.6). The average cost for other chemotherapies was $30,838. Most colon cancer patients (2,761 patients) used the drug combination of 5-L-O and 5-L-O-B (1,450 patients). Oxaliplatin and Bevacizumab were administered at a lower dose when used in combination with other drugs than used alone. About 60% of the patients received these combinations as adjuvant therapy after surgery. **CONCLUSIONS:** This study provided information on the average annual cost of elderly CRC patients by treatment type and disease comobidity. The analysis illustrated the utilization of chemotherapy in CRC treatment: the common drug combinations and its costs, dosing and administration information as well as chemotherapy use after surgery.

PCN38

FIRST-YEAR COSTS FOR THE 19 MOST COMMON CANCER DIAGNOSES IN ONTARIO

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OBJECTIVES: The first year after cancer diagnosis is a period of intensive treatment and high cost. Our objective is to estimate the first year costs for patients initially diagnosed with one of the 19 most common cancers in Ontario between 1997 and 2007. **METHODS:** We selected patients who were diagnosed at 19 years of age or older, with valid ICD-O and histology codes, who survived more than 30 days after diagnosis, and had no second cancer within 90 days of the initial cancer from the Ontario Cancer Registry (N= 412,787). We linked these patients to health care administrative databases, and radiation therapy data from Cancer Care Ontario. We defined the health care resources to be costed and developed suitable costing methodologies. We examined health care resource use and calculated mean costs for each type of cancer in the first year after diagnosis. **RESULTS:** Patients with myeloma and brain cancer incurred the highest mean first-year costs ($71,892 and $65,629, respectively); patients with melanoma, uterine and prostate cancers had the lowest mean costs ($21,050, $29,115 and $29,309 respectively). The most costly resources for all cancer types were hospitalizations (38% of total costs) and physician services (28% of total costs). Surprisingly, chemotherapy and radiation therapy contributed very little to the total (4% and 1%, respectively). Previous research on first-year costs for patients aged 65+ in the US also found that brain and other nervous system cancers had the highest cost of care while melanoma of the skin had the lowest cost; hospitalization was also the costliest resource. **CONCLUSIONS:** The first-year costs of cancer care in Ontario are substantial and vary by tumour site. Hospitalizations and physician services comprise a large portion of the costs for all cancer types. These estimates will improve the quality of future cancer-related economic evaluations and are of value to researchers and policy makers.

PCN39

COSTS AT THE END OF LIFE FOR PATIENTS WITH CASTRATION-RESISTANT PROSTATE CANCER (CRPC)

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OBJECTIVES: Recent research describes decreasing quality of life for patients with CRPC at the end of life, but less is known about accompanying changes in health care costs. This study aimed to examine costs at the end of life for patients with CRPC who died compared to patients alive at the end of the study period. **METHODS:** A retrospective study design used medical and pharmacy claims and lab results (2001-2007) to identify patients with CRPC from a large U.S. managed