PGI30
COST-UTILITY ANALYSIS OF SOFOSBUVIR FOR TREATMENT OF GENOTYPE2 CHRONIC HEPATITIS C IN JAPAN
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OBJECTIVES: To conduct a cost-utility analysis of sofosbuvir for genotype 2 chronic hepatitis C virus (HCV) infection in Japan. **METHODS:** The Markov-model, "Sofosbuvir cost-effectiveness model", which was constructed originally for similar study in UK, was modified and used for this analysis, while imputed data were replaced with Japanese data, as far as possible. Various health states, such as non-cirrhotic hepatitis, sustained virological response (SVR), compensated cirrhosis, decompensated cirrhosis and hepatocellular carcinoma were incorporated to the model. Analyses were conducted for 4 scenarios, classified by treatment history (naive/experienced) and eligibility for interferon. Peg-interferon alpha with ribavirin was set as a comparator for those who were eligible for interferon. No treatment was selected for those who were not eligible for interferon. Probability of SVR was derived from clinical trials conducted in Japan. Other transition probabilities and utility scores of each health state were obtained from published data in Japan. Cost data for interferon-alpha and ribavirin were derived from national drug tariff (2014). For sofosbuvir, average European price was adopted since it was not yet approved in Japan. Other cost data, such as costs related to health states, were mainly obtained from claim data, provided by JMDC (Japan Medical Data Center). Inc. Time-horizon was set to lifetime. Costs and outcomes were discounted with 2% per annum, according to Japanese guideline. **RESULTS:** For interferon-unsuitable patients, sofosbuvir was dominant to no-treatment. Sofosbuvir would save overall costs for JPY990,000 (USD9,900, JPY100=USD1) and prolonged 6.20QALY for treatment naive patients. It would save JPY 837,000 and prolonged 6.08QALY for treatment experienced group, For interferon-suitable patients, sofosbuvir would increase overall costs for JPY3,270,000 and prolonged 2.23QALY for treatment-naives. It would increase JPY1,551,000 and prolonged 2.36QALY for treatment-experienced. ICER were JPY1,470,000 and JPY657,000 per QALY gained, respectively. **CONCLUSIONS:** Sofosbuvir was considered to be cost-effective for treatment of genotype-2 HCV patients in Japan.

PGI31
COST-UTILITY ANALYSIS OF FIDAXOMICIN COMPARED TO VANCOMYCIN IN THE MANAGEMENT OF SEVERE CLOSTRIDIUM DIFFICILE INFECTION IN POLAND
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OBJECTIVES: In recent years a number of infections caused by Clostridium difficile has been significantly increasing. In Poland oral metronidazole constitutes the therapy of choice of non-severe infection and first-recurrence, while oral vancomycin is recommended to be given in case of severe disease and subsequent recurrences. Fidaxomicin is a novel treatment for Clostridium difficile infections (CDI). The aim of this study was to perform a cost-utility analysis of fidaxomicin for the treatment of severe CDI compared to vancomycin. **METHODS:** A meta-analysis of two randomized clinical trials phase III comparing oral fidaxomicin and oral vancomycin in CDI was conducted. A Markov model was used to determine the cost-utility of fidaxomicin in patients with severe CDI. The cycle length was 10 days and the time horizon was 1 year. The patient entered the model in the severe CDI health state and was given either fidaxomycin or vancomycin for 10 days. The analysis was performed from the third-party payer perspective – the Polish National Health Fund. Only direct health care costs (drug costs, hospitalization) were included. Given the lack of formal utility measures for CDI, the utilities for the alternative health states described in the literature were adapted. **RESULTS:** In the base case, fidaxomicin was dominant compared to vancomycin, resulting in cost savings of PLN 905 and an incremental QALY gain of 0.015. Fidaxomicin was associated with higher cost savings (PLN 30,883) assuming that patients with severe CDI would be hospitalized at intensive care unit. One-way sensitivity analyses revealed that fidaxomicin remained dominant even if considering marginal values of both antibiotics' acquisition cost. **CONCLUSIONS:** Fidaxomicin was dominant compared to vancomycin, generating additional QALYs with cost-savings in severe CDI patients in Poland.

PGI32
ECONOMIC EVALUATION STUDIES IN GASTROENTEROLOGY IN BRAZIL: A SYSTEMATIC REVIEW
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OBJECTIVES: The aim of this study was to systematically review the economic assessment studies carried out in Brazil, published between January 1980 and December 2013, assessing the technologies studied, study types, the and temporal evolution and quality. **METHODS:** We systematically searched in MEDLINE (PubMed), EMBASE, LILACS, SciELO, NHS EED, HTA Database (CRD), BVS ECOS, SCOPUS, Web of Science, and SISREBRATS. We selected partial and full economic evaluation studies in gastroenterology, where at least one of the authors was affiliated to a Brazilian institution. Two authors performed study selection and data extraction independently. Disagreements were resolved through discussion or through consultation with a third reviewer. The study characteristics were summarized in figures and summary tables. **RESULTS:** Forty studies were included. The first studies were published in the 80s, but most occurred after 2000, with greater frequency in the last 4 years. Seventeen economic evaluations were incomplete (42.5%) and 23 complete (57.5%). In the 23 complete reviews, 11 (47.8%) studies were cost-utility analysis, 7 (30.4%) were cost-effectiveness analysis, 4 (17.4%) cost-consequence analysis, and 1 (4.3%) cost-minimization analysis. The type of technology evaluated was mainly medications in 25 studies (62.5%), 7 (17.5%) medical and surgical procedures, 3 (7.5%) medical and hospital equipment, 1 (2.5%) vaccines and 4 (10%) evaluated more than one type of technology. When classified by disease, 22 (55%) were studies on viral hepatitis, and in its most published after the year 2010 (63.4%). Five studies were related to digestive cancers and other included peptic diseases, hernias and other. **CONCLUSIONS:** There was a considerable increase in publications of economic evaluations in Gastroenterology in Brazil, being mostly studies of drugs for treatment of viral hepatitis. The high cost of these treatments and increased of lawsuits seem to account for this increase.

PGI33
ESTIMATING THE COST OF LIVER TRANSPLANTATION IN PATIENTS DIAGNOSED WITH CHRONIC HEPATITIS C AND B IN THE UK
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OBJECTIVES: Liver transplantation is an effective treatment option for end-stage liver disease and acute liver failure, including patients with hepatitis C (HCV) and hepatitis B (HBV). Recent health technology assessments of treatments for HCV and HBV have relied on data from a large cohort study of transplanted patients to inform estimates of costs of liver tranplantations; however this was conducted in the 1990s. The overall aim of this study was to estimate the current cost of liver transplant for patients with HCV and HBV in the UK. **METHODS:** Historical summary data from the original cohort study were updated to reflect current unit costs and key changes in clinical practice. Semi-structured interviews were conducted with experts and a computer-based user-interface was developed to elicit estimates of key resource use items. Uncertainty in the experts' estimates was captured by eliciting probability distributions for each item from each expert. Updated unit costs were obtained from national sources. Data were analysed by phase of the transplant procedure. **RESULTS:** The expert elicitation exercise included two hepatologists, three transplant surgeons and one liver transplant coordinator. Few patients with HBV are now being transplanted due to improvements in anti-viral treatments. Mean total costs for patients with HCV were £18,055 pre-transplantation, £64,452 during the transplant phase and £36,009 in two years post-transplant. The average cost per transplanted patient with HCV from assessment to two years post-transplant is £111,810. **CONCLUSIONS:** There have been some significant changes in clinical practice since the original study such as change in standard immunosuppressant therapy, more patients with co-morbidities being placed on the transplant waiting list, increased use of sub-optimal organs and reluctance to re-transplant patients with graft failure and recurrence of HCV.

GASTROINTESTINAL DISORDERS – Patient-Reported Outcomes & Patient Preference Studies

PGI34
ADHERENCE RATES FOR PEGINTERFERON + RIBAVIRIN COMPARED WITH TELAPREVIR + PEGINTERFERON + RIBAVIRIN IN MEDICAID AND COMMERCIAL PATIENTS TREATED FOR CHRONIC HEPATITIS C
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OBJECTIVES: Prior to approval of telaprevir (TPV), the treatment for chronic hepatitis C virus (HCV) included peginterferon (P) weekly injections and ribavirin (R) orally twice daily. In 2011, TPV was approved for coadministration with P+R during the first 12 weeks. Though TPV improved viral clearance, it also increased the treatment complexity by 2 pills given 3 times a day. The impact of increased regimen complexity on adherence is not well understood. This study compared treatment adherence over 24 weeks in HCV patients treated with TPV+PR compared to those on PR. **METHODS:** Large US commercial and Medicaid health insurance claims databases were used to identify HCV patients initiating treatment with PR (pre-TPV [2007 to 2009]) or TPV+PR (post-TPV [2011 to 2013]). The index date was the date of HCV treatment initiation. Adherence was measured by medication possession ratio for all patients at 4 week intervals thru 24 weeks. Regression analyses adjusted for age, sex, comorbidities, liver disease severity, and pill count prior to HCV treatment. **RESULTS:** The study included 7,601 and 1,487 treated HCV patients in the commercial and Medicaid databases. Unadjusted and adjusted adherence was high for both cohorts throughout the study period (>88% for Medicaid and >82% for the commercial at 24 weeks). Adherence was not significantly different between the PR and T+PR cohorts at any time point in the Medicaid patients (88.9% [TPV+PR] and 90.5% [PR] at 24 weeks). Adherence was also similar between the cohorts in the commercial patients (82.7% [TPV+PR] and 83.2% [PR] at 24 weeks) but was statistically different at weeks 8 and 12, though not clinically meaningful. Age was the only factor consistently associated with adherence. **CONCLUSIONS:** Among HCV patients, adherence rates were high and were similar between the cohorts, despite the higher daily pill count for patients on TPV+PR.

PGI35
QUALITY OF LIFE OF DIARRHEAL CHILDREN AND CAREGIVERS IN THAILAND
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OBJECTIVES: To estimate the utility scores for diarrheal children aged under 5 years and their caregivers and to identify the influencing factors which affected on these. **METHODS:** Hospitalized diarrheal children aged between 2 months and 5 years and their caregivers at were recruited in this cross-sectional study at three hospitals in Phetchabun province. The EQ-5D instrument was used to collect the quality of life (QoL) data at the first date of admission. Quality of life of diarrheal children was measured as proxy report from caregiver while QoL of caregiver was measured as self-report. The raw data was converted to utility values using the Thai algorithm. The clinical severity of diarrheal children was rated using the Vesikari clinical severity scoring system. Stepwise multivariate linear regression was applied to explore the impact of the various factors on the utility value of children and

caregivers. **RESULTS:** 468 children and caregivers were included in this study. Mean children's age was 1.77 years. The caregivers rated the mean child's utility and themselves as 0.604 (95%CI: 0.592, 0.615) and 0.618 (95%CI: 0.606, 0.629), respectively. Mainly domains of diarrheal children were affected as pain/discomfort and anxiety/depression similarly to their caregivers. On multivariate regression analysis, factors which affected the children's utility significantly were Vesikari score, child's age and child's gender. Next, reduced QoL of their caregivers related to caregiver's gender and Vesikari score. **CONCLUSIONS:** Diarrhea had an impact on quality of life of children and their caregivers. It appeared that QoL of children with diarrhea was impacted worse in girls, those with high severity score and was associated with age. In addition, the diarrheal severity and female gender reduced the impact of diarrhea on QoL of caregivers. These results can be useful to evaluate the cost-effectiveness of vaccines against diarrhea such as rotavirus vaccines.

PGI36

HOW DOES NON-MALIGNANT OPIOID INDUCED CONSTIPATION (OIC) IMPACT HEALTH STATE UTILITY?

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OBJECTIVES: Little is known about the impact of OIC and treatments for OIC on health state utility. Studies often focus on collecting data on changes in OIC status. The objective of this paper is to examine if the utility impact of treatment is driven by change in OIC status, and what the magnitude of the change in utility associated with changes in OIC status is. **METHODS:** 1352 patients with non-malignant OIC were allocated to one of two, phase III, 12 week randomised controlled trials to study naloxegol. These trials were pooled and prospective analyses on these data were undertaken. Both trials collected the three level EQ-5D at baseline, week 4 and week 12. EQ-5D scores were converted into estimates of utility using a tariff generated based on UK general population preferences. A repeated measure mixed model (RMMM) regression analysis was conducted to identify the impact of the following factors on utility: age, gender, race, BMI, duration of opioid use, treatment (naloxegol 12.5mg, 25mg or placebo), baseline utility and OIC status (OIC or non-OIC). **RESULTS:** Baseline utility across all patients was 0.559. The regression demonstrated that baseline utility score (β=-0.532, SE=0.023) and OIC status (β=0.032, SE=0.012) were the only significant predictors of change in utility score ($p<0.0001$and $p=0.008$ respectively). Further univariate analyses examined the effect of OIC status in patient subgroups that had different experiences of laxative treatment. OIC status had an increased and meaningful impact on patients who had previously responded inadequately to laxatives. **CONCLUSIONS:** OIC status is a significant factor on the impact of treatment on patient's utility. Furthermore the impact of OIC status is increased in patients who had previously responded inadequately to laxatives.

PGI37

MAPPING MAY CAUSE STRAINING: THE INCONSISTENT RELATIONSHIP BETWEEN A DISEASE- SPECIFIC QUESTIONNAIRE (PAC-QOL) AND EQ-5D MAPPING IN CONSTIPATION

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OBJECTIVES: A recent double-blind, placebo-controlled clinical study with lubiprostone in opioid-induced constipation (OIC), OBD-1033, included the EQ-5D generic quality-of-life instrument, and the PAC-QOL, a constipation-specific disease measure. This study calculated utility values for patients with OIC using the direct EQ-5D responses, and compared the resulting utilities to those calculated from a published mapping formula between the PAC-QOL and EQ-5D that was derived in chronic idiopathic constipation. **METHODS:** EQ-5D responses from OBD-1033 were converted to utilities using the EQ-5D UK value set. These were compared with utilities generated with the published mapping algorithm. Following this step, an attempt was made to map the PAC-QOL to the EQ-5D in OIC. The root mean squared error (RMSE), adjusted R^2, and predicted/observed plots were used to assess the quality of mappings. **RESULTS:** Patients in OBD-1033 had low utility values at baseline: mean=0.45 (Standard Deviation 0.33, n=439). Using the published algorithm, the predicted mean utility was much higher: 0.74. This led to a high RMSE (0.43), indicating a poor fit to the data. Replicating the mapping using OBD-1033 PAC-QOL and EQ-5D data showed the PAC-QOL, although correlated with the EQ-5D, had a poor predictive value (RMSE=0.31; $R^2<0.10$). High utilities were underestimated and low utilities overestimated. **CONCLUSIONS:** Mapping algorithms are a vital tool for generating utility values when none are available. However, the relationship derived between instruments should be assessed cautiously. Mappings with the same instruments may not be reliable if crossing disease areas – even if the symptoms experienced by patients appear similar. Data show patients in OBD-1033 entered the study with poorer health status than those in the chronic constipation mapping (utility of 0.45 vs 0.81), likely due to comorbid conditions (the reason for opioid prescribing). This led to a different relationship between the PAC-QOL and EQ-5D, compared to the previous estimate.

PGI38

A COMPARISON BETWEEN THE HEALTH-RELATED QUALITY OF LIFE REPORTED BY THE GENERAL POPULATION AND BY PATIENTS WITH MAJOR LIVER DISEASES

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OBJECTIVES: The impact of liver diseases (LDs) on health-related quality of life (HRQoL) is an important aspect to understand the burden of these conditions and improve their management. A well characterized impact of the major LDs on HRQoL of the general population is still lacking. The aim of our study was to fill this GAP. **METHODS:** A dataset with HRQoL data of a representative sample of the general population of most populated Italian region was matched with the dataset from a multicenter study conducted in the same region and time period to generate and validate a set of health care outcomes indicators for the major LDs (hepatitis B (HBV), hepatitis C (HCV), compensated cirrhosis (CC), decompensated cirrhosis (DC), hepatocellular carcinoma (HCC), autoimmune hepatitis (AIH), primary biliary cirrhosis (PBC), primary sclerosing cholangitis (PSC), NAFLD/NASH and patients listed for liver transplant (LTL)). Within both datasets, HRQoL data were collected using the EQ-5D-3L. Multivariate logistic and Tobit regressions were then performed adjusting for possible confounders (age, sex, education and working status). **RESULTS:** A total of 6,800 "healthy subjects" and 3,105 subjects with LDs were included in the analyses. Multivariate logistic analyses showed that DC, HCC, and LTL had significantly ($p<0.05$) higher risk to have problems in mobility, self-care, and usual activities compared to "healthy subjects". AIH had significantly higher risk to have problems in self-care; while HCV, CC, DC, and NAFLD/NASH in Anxiety/depression. Similar results were obtained with the Tobit model performed using VAS and Utility-index. DC, HCC, AIH and LTL reported the highest decrease in VAS and Utility score. **CONCLUSIONS:** HRQoL decreased in advanced LDs (DC, HCC, LTL) and AIH. This study provides an actual true estimate of the impact of major LDs on the patients' HRQoL compare to the general population, and therefore is a key tool for decision-making in care delivery for liver diseases.

PGI39

TRANSLATION AND CULTURAL ADAPTATION DIFFICULTIES ENCOUNTERED DURING LINGUISTIC VALIDATION OF THE BRISTOL STOOL SCALE

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OBJECTIVES: The aims of this study were: (1) to investigate translation difficulties encountered during linguistic validation of the Bristol Stool Scale; (2) to discover whether certain items consistently posed problems across different languages; and (3) to analyse how solutions were reached and what types of solutions were appropriate. **METHODS:** The investigation was made up of the following stages: (1) collation of back translation reviews of the Bristol Stool Scale for 30 European and Asia-Pacific languages; (2) identification of problematic words and phrases, based on written discussion between lead translators and project managers; (3) investigation of patterns that became apparent across different languages; (4) review of methods used to overcome the translation difficulties. **RESULTS:** For more than a third of the languages reviewed (2 European and 9 Asia-Pacific, including 7 Indian), difficulties were experienced when attempting to translate certain items word-for-word. The majority of these difficulties centred on the food-related similes used in the scale to describe the different stool types. In all of the Indian languages in this study, alternative food-related similes were deemed necessary (e. g. 'banana' replacing 'sausage') in order to ensure that the wording was culturally relevant. Of the other languages, Thai and Romanian preferred similes that did not relate to food ('bullets' and 'beads/little round bits' respectively, instead of 'nuts'), while for Singapore Chinese and Polish it was decided to remove certain similes altogether ('like nuts'/'like a sausage'). **CONCLUSIONS:** Certain items in the Bristol Stool Scale, in particular the two food-related similes, cause translation difficulties for some languages. For such items, it may not be appropriate to produce a word-for-word translation. In these cases, alternative solutions must be sought, taking into account cultural considerations, in order to achieve conceptual equivalence.

PGI40

SELF-REPORTED HEALTH RELATED QUALITY OF LIFE OF HEPATITIS C VIRUS (HCV) GENOTYPE 1 PATIENTS WITH AND WITHOUT COMORBID CONDITIONS

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OBJECTIVES: To describe and compare self-reported health-related quality of life (HRQL) in HCV Genotype-1 infected patients with and without comorbid conditions (e. g. depression, hypertension, obesity, arthritis, anemia and diabetes). **METHODS:** A Cross-sectional survey of physicians and their consulting patients was conducted from October 2012 to January 2013 as part of the Adelphi Real World Hepatitis C Disease Specific Programme. Overall, 348 patients from USA and France (231 with comorbidities and 117 without comorbidities) completed an EQ5D-3L and/or a Multidimensional-Assessment-of-Fatigue (MAF) scale. HRQL was evaluated by estimating EQ5D health-state-index (EQ5D-HSI), Visual-Analogue-Scale (EQ5D-VAS) score, Domain-dimension score and MAF Global-Fatigue-Index (MAF-GFI). Further analysis compared HRQL reported by patients with comorbidities who completed treatment for HCV and were cured versus those who were not cured. **RESULTS:** HRQL reported by untreated patients were better for those without comorbidities than those with comorbidities. For three of the five EQ5D domains, more patients without comorbidities versus patients with comorbidities reported no problems performing usual activities (85% versus 49%, $p<0.001$), no pain or discomfort (70% versus 33%, $p<0.001$) and not being anxious/depressed (67% versus 37%, $p=0.004$). The corresponding mean HQRL estimates were EQ5D-HSI 0.89 vs 0.77, $p=0.001$; EQ5D-VAS 79 vs. 69, $p=0.014$ and MAF-GFI 11 vs. 19, $p=0.016$ for patients without comorbidities versus those with comorbidities. Among treated patients with comorbidities, those cured had significantly higher HRQL than those not cured (EQ5D-HSI 0.84 versus 0.67, $p=0.008$, EQ5D-VAS 74 vs. 57, $p=0.003$ and MAF-GFI 18 versus 32, $p<0.001$). **CONCLUSIONS:** The results from this study suggest that patients with comorbidities have a poorer HRQL than patients without comorbidities, and that the treatment and cure of HCV in these patients is associated with higher HRQL compared with treatment and no cure. This implies that treatment and subsequent cure of HCV genotype 1 patients with comorbidities may help improve their HRQL.