OBJECTIVES: This study assesses the cost-effectiveness of universal vaccination with RV5 in a hypothetical cohort of 1,091,156 children in Japan during their first 5 years of life. METHODS: A Markov model was developed to evaluate the cost per quality-adjusted life-year (QALY) associated with the healthcare and societal perspectives. The base case scenario assumes 94% of the vaccinated cohort received 3 doses of RV5 orally at 2, 4, and 6 months of age with the remaining children receiving only 1 or 2 doses. In the absence of a vaccination strategy, there is annually 1 death, 78,808 cases of diarrhea, 739,874 outpatient visits, and 7,432 hospital admissions. The effectiveness metric of RV5 was based on the results of the Rotavirus Efficacy and Safety Trial (REST). The three dose efficacy in REST was similar to the one obtained from clinical trials conducted in Japan. RESULTS: Universal vaccination could reduce hospitalizations by 89% and all symptomatic episodes of rotavirus gastroenteritis by 59%. For the base case scenario, at a cost of JPY 5316 per dose and administration fee of JPY 100 per dose, the cost per case avoided was JPY 22,704 and the cost per QALY saved was JPY 2,230,978 from the healthcare payer perspective. From the societal perspective, the cost per case avoided was JPY 8,934 and the cost per QALY saved was JPY 877,855. CONCLUSIONS: Using three times the GDP per capita as a threshold, universal vaccination with RV5 is likely to be cost-effective and result in substantial reductions in rotavirus-related healthcare use in Japan.

OBJECTIVES: According to national guidelines, HIV-positive patients in Uganda are to be initiated on combination antiretroviral therapy (cART) at a CD4+ T-cell (CD4) count below 250 cells/μl. However, cART initiation at higher CD4 counts increases survival, albeit at higher lifetime treatment cost. This analysis evaluates the cost-effectiveness of initiating cART at CD4 counts between 250 – 349 cells/μl vs. current guidelines. METHODS: The average CD4 decline in untreated patients with CD4 counts below 550 cells/μl occurs at a rate of 56.6 cells/μl annually. Life expectancy of untreated patients at baseline on CD4 count 300-349 is modeled based on published literature. First line cART costs US$192 annually, with an additional US$113 per year for patient monitoring. Delay of cART until the CD4 count falls below 250 cells/μl incurs the cost of the bi-annual CD4 test and cost of routine maintenance care at US$85 annually. The analysis compares lifetime treatment costs and disability adjusted life expectancy between early vs. delayed cART for ten baseline CD4 count ranges from 250-259 to 340-349 cells/μl. All costs and benefits are discounted at 5% annually. RESULTS: Treatment delay varies from 0.5 year (CD4: 250-299) to 4.0 years (CD4: 300-349). Early cART initiation increases life expectancy by 1.48 and 3.01 years and averts 1.31 – 2.67 disability adjusted life years (DALY’s) per patient. Lifetime treatment costs are US$4255 – US$5210 for early initiation and US$7355 – US$8430 for delayed initiation. The cost/DALY averted range delay of 1-2 years from baseline from US$710 to US$362. CONCLUSIONS: In HIV-positive patients presenting with CD4 counts between 250-350 cells/μl, immediate initiation of cART is a highly cost-effective strategy using the recommended 1 time per capita GDP threshold of $460 reported for Uganda. Expanding the number of treatment slots to include patients with higher CD4 counts would constitute an efficient use of scarce health care dollars.

OBJECTIVES: Chronic infection with the hepatitis C virus (HCV), if not cleared, can cause severe liver damage and eventual death. Despite treatment with current standard of care (pegylated interferon-alfa and ribavirin (PegIFN-R)), sustained virologic response (SVR) is achieved in less than half of genotype 1 HCV patients. This analysis evaluated the cost-effectiveness of boceprevir in combination with FR in treat- ment-naive and previously treated genotype 1 HCV patients, based on results of the phase III clinical trials, and from the perspective of the NHS Scotland. METHODS: A Markov model was used to simulate the treatment strategies studied in the boceprevir phase III trials: boceprevir response guided therapy (RGT), where a shortened treatment duration was possible for early responders; a full duration boceprevir arm (4 weeks FR plus 44 weeks triple therapy); and a 48 week FR stand- ard arm. Baseline characteristics included 94% SVR in the boceprevir RGT and full duration arms respec- tively, compared to 21% who received FR alone. RESULTS: The ICER over current standard of care for HCV genotype 1 patients is clinically efficacious and cost-effective, and comfortably below a threshold of £20,000 per QALY, irrespective of whether pa- tients have been previously treated.

OBJECTIVES: Ventilator-associated pneumonia (VAP) is the most common nosoco- mial infection in the intensive care unit (ICU). Literature suggests that costs could be reduced using the most efficient empiric therapy. The aim of this study was to assess the cost-effectiveness (CE) of linezolid against generic vancomycin as an empiric therapy for VAP patients, from the health care payer’s perspective. METHODS: A decision-tree model was used to compare costs and effectiveness of linezolid (600mg/12hours) and vancomycin (1g/ 12 hours) for VAP patients) for a single course of treatment with VAP. Effectiveness measures were: clinical and microbiological success rates, mortality rates, ICU LOS and over- all costs. Effectiveness and epidemiologic data were collected from published litera- ture. Local costs (2011 US$) were obtained from Canada’s Social Security official databases. The model used a 12-week time horizon and only direct medical costs were considered (hospital LOS, microbiological costs, in-hospital deaths, and skin adverse events and lab exams). Monte Carlo probabilistic sensitivity analysis (PSA) was constructed. RESULTS: Results showed linezolid as more effective and less expensive option for VAP. Clinical success rate was higher with linezolid (64%) against vancomycin, (59.5%). Mortality was lower with linezolid (10.3% vs. 15.74%). Average ICU LOS was 17.4 days with linezolid and 21.26 days with vanco- mycin. Overall medical costs per patient were $19,507 with linezolid and $20,411 with vancomycin. CE analyses showed linezolid was the dominant strategy. Accept- ability curve showed that linezolid would be cost-effective within <3 GDP per capita threshold. PSA outcomes support the robustness of these findings. CONCLUSIONS: This is the first CE study for VAP developed in Japan. Linezolid resulted as the cost-saving option for treating VAP patients in the Panamanian clinical environment.

OBJECTIVES: Approximately 40,000 new TB cases are treated annually in Uganda, and 4,000 are reported to require re-treatment (category II treatment). Current tuberculosis (TB) treatment in Uganda is standard 4 drug therapy in intensive phase (6 months) and 2 drug therapy in continuation phase (6 months). However, the World Health Organization recommends isoniazid and rifampicin for 4 months (4HR) in the continuation phase, which is associated with better efficacy. We sought to investigate the cost-effectiveness of 4HR vs. 6HE. METHODS: Randomized controlled trial evidence indicated that delays in TB treatment result in treatment failure and relapse associated with 6HE versus 4HR from 10.0% to 5.0%. The median international daily price is HR: US$0.115 and US$0.069. When the initial regime is not successful, re-treatment is associated with a mortality rate of up to 23% and involves an additional 6 month drug regimen at a cost of US$39.25.

A decision tree was used to calculate the expected total cost of TB treatment in the 4HR versus 6HE arm. RESULTS: The cost of TB treatment in the continuation phase is 4HR: US$13.82 and 6HE: US$12.46. However, once the course of re-treatment is factored in, the average weighted treatment cost is 4HR: US$15.79 and 6HE: US$16.38. Replacing 6HE with 4HR not only could decrease the annual cost of TB treatment by an estimated US$23,500 and prevent about 2,000 TB treatment fail- ures and relapses per year. CONCLUSIONS: Combination therapy with 4HR in the continuation phase dominates 6HE, as it is associated with improved effectiveness and a lower average cost per patient. Since treatment failure or relapse is associ- ated with worsened clinical outcomes in resource constrained settings, considera- ble gains to population health could be achieved at lower cost if 4HR became the new standard of care in the continuation phase of TB treatment in Uganda.

OBJECTIVES: To assess cost-effectiveness of pegylated interferon alpha-2a (PEG-INF-a2a) vs. pegylated interferon alpha-2b (PEG-INF-b2b) in the treatment of chronic hepatitis C patients from Polish public payer perspective. METHODS: Systematic review assessed clinical efficacy and safety of the two treatment op-