small, although significant, and ranged from $215 to $520 per AIDS-free month gained and the probability of early treatment being more cost-effective exceeded 0.9 for prices per effectiveness unit greater than $230. CONCLUSIONS: Although early HAART initiation does not affect incidence AIDS and death at high CD4 levels, not deferring HAART below 200 CD4 cells/mm$^3$ proved to be highly cost-effective.

**PIN10**

**COST-EFFECTIVENESS OF EXPANDED HIV SCREENING OF BLOOD DONATIONS IN GHANA**

Van Hulst M,$^1$ Vermande J,$^2$ Sagoe K,$^3$ Bos JM$^4$, Postma MJ$^5$

$^1$University of Groningen / Martini Hospital, Groningen, Groningen, Netherlands; $^2$University of Groningen; $^3$University of Ghana Medical School, Accra, Accra, Ghana; $^4$The Netherlands Vaccine Institute, Bilthoven, Utrecht, Netherlands

OBJECTIVES: NAT (Nucleic acid Amplification Testing) screening of blood donations in addition to antibody testing displays high cost-effectiveness ratios in the developed world. However, areas with higher prevalence of HIV-infection in developing countries, such as Ghana, may show more favorable cost-effectiveness ratios for HIV NAT. We evaluated the cost-effectiveness of MP-NAT (MiniPool-NAT) or SD-NAT (Single Donation–NAT) in addition to the HIV-antibody screening currently in place in Ghana from the health care perspective.

METHODS: The residual risk of HIV transmission was derived from the screening of blood donations to the Ghanaian National Blood Transfusion Service during 2002. The age, gender, number of transfusions were registered respectively in the Korle Bu teaching hospital (Accra, Ghana) for 193 patients receiving blood transfusion. Remaining life expectancies of patients receiving blood transfusion were estimated using WHO gender, age and country specific life expectancies. Cost-effectiveness ratios for MP-NAT and SD-NAT were determined by using a decision tree model. Health gains were expressed in Disability Adjusted Life Years (DALY’s). Health gains and costs were discounted by 3%, age correction was not performed. RESULTS: In 2002, the prevalence of HIV-infection was 3.15% in 18,378 donations. Unpaid volunteers donated 35% and 65% were replacement donations by relatives or friends. Average age of the blood transfusion recipient was 23.8 years. On average 0.56 DALY were averted by MP-NAT and 0.77 by SD-NAT in addition to HIV-antibody screening. Net costs per DALY averted varied from US$868 to US$13,112 for SD-NAT and was sensitive to test costs. CONCLUSIONS: Adding MP-NAT or SD-NAT to HIV-antibody screening displays high cost-effectiveness ratios for Ghana, given the cut-off points for net costs per DALY averted of US$ 100 to 1000 for developing countries.

**PIN11**

**PHARMACOECONOMIC EVALUATION OF HERD PROTECTION FOR THE SEVEN-VALENT PNEUMOCOCCAL CONJUGATE VACCINE IN SWITZERLAND**

Ciuryla VT,$^1$ Siegertel LR$^2$, Casciano B$^3$

$^1$Wyeth, Collegeville, PA, USA; $^2$Analytica International, New York, NY, USA; $^3$Analytica International, Lorrach, Germany

OBJECTIVES: To estimate the value of herd protection in Switzerland for the seven-valent pneumococcal conjugate vaccine (PCV-7). METHODS: A cross-sectional pneumococcal disease health model was developed examining outcomes and direct cost savings among Swiss children (ages ≤10 years) vaccinated with PCV-7 (assuming a 4-dose schedule and 80% vaccination coverage) and unvaccinated adults (ages ≥20 years). Swiss estimates of population size, disease incidence and mortality, and direct medical and non-medical cost were applied to the model. Vaccine efficacy was assumed to be 97%, 11%, and 6% for invasive pneumococcal disease, pneumococcal pneumonia, and otitis media, respectively. Recently-reported PCV-7 associated reductions in IPD rates due to herd immunity in the US were applied to unvaccinated adults 20–39, 40–64, and ≥65 years. RESULTS: PCV-7 vaccination results in 235.5 life years gained (LYG). Vaccinating each hypothetical annual Swiss cohort of 80,000 births is expected to save a total of 20,592,499 CHF (before accounting for vaccine cost), in savings on an additional 598,652 CHF due to herd immunity. As a result of vaccination, the per-patient payer savings was calculated at 321.76 CHF. When accounting for herd immunity, PCV-7 has a cost-effectiveness ratio of 19,973 CHF per LYG or 16,607 CHF per QALY; without herd immunity the cost per LYG and cost per QALY were 33,378 CHF and 28,822 CHF, respectively. Per-unit resources required to avoid illness were also lower when benefits of herd immunity are considered. CONCLUSIONS: Wide-spread PCV-7 use would result in substantial cost savings and reduction in pneumococcal disease-related morbidity and mortality not only in vaccinated infants, but also in adults. Decreased nasopharyngeal carriage of S. pneumoniae among those vaccinated with PCV-7 is associated with a decline in pneumococcal disease among unvaccinated community members via reductions in disease transmission (herd effects).

**PIN12**

**COST-EFFECTIVENESS OF UNIVERSAL PNEUMOCOCCAL VACCINATION FOR INFANTS IN ITALY**

Marchetti M$^1$, Colombo GL$^2$

$^1$IRCCS Policlinico San Matteo, Pavia, Italy; $^2$S.A.V.E Studi Analisi Valutazioni Economiche, Milano, Italy

OBJECTIVES: Infant vaccination with seven-valent pneumococcal conjugate vaccine (PCV-7) reduces the incidence of pneumococcal diseases, a leading cause of paediatric infections. METHODS: We built a Markov model simulating lifelong evolution of 538,138 Italian infants receiving or not 4 doses of PCV-7. The model included 3 states: “<1 years of age”, “between 3 and 14 years of age” and “death”. Yearly transitions were allowed. Children younger than 14 years of age were allowed to incur invasive pneumococcal diseases (IPD), including meningitis and bacteremia, otitis, pneumonia and all-cause death. Probability of pneumococcal infections was age-dependent: in young children (<4yrs) IPD yearly incidence rate was 59/100,000, while incidence of pneumonia and otitis was 1.1% and 42–82%, respectively. Coverage of vaccine serotypes in IPD was 72%, based on country-specific data. Efficacy rates of PCV-7 were provided by the Kaiser Permanent trial. PCV-7 cost was 39€/dose. Beta distributions were adopted for incidence rates and gamma distributions for costs. Life years and costs were discounted at a 5% year rate. RESULTS: The model calculated that universal vaccination with PCV-7 would save 215 cases of pneumococcal meningitis, 17 pneumococcal infection-related deaths and 1251 life years. Vaccination would cost 24,655€ per life year-saved (95% CI 5,251–48,985) in the societal perspective and 4,870,011 in the NHS perspective (95% CI 3,505,64–6,732). In the societal perspective, vaccination costs <20,000/LYS in 34.8% of the Monte-Carlo simulations and was cost-saving in areas at high incidence of IPD (>0.5% /yr) or pneumonia (>4.3%/yr). Universal vaccination was cost-saving at a vaccine cost lower than 23.5€/dose, in the societal perspective, while no cost-saving threshold was found in the NHS perspective. The results were sensitive to the efficacy of PCV-7 in preventing episodes of acute pneumonia, the prevalence of S. pneumoniae nasopharyngeal carriage and the prevalence of IPD.
otitis media. CONCLUSIONS: Universal infant vaccination with PCV-7 has intermediate cost-effectiveness, therefore, regional policies are warranted, according to local epidemiology of the disease.

ECONOMIC EVALUATION OF VORICONAZOLE IN THE TREATMENT OF INVASIVE ASPERGILLOSIS IN GERMANY
Jansen J1, Kern W2, Resch A1
1MAPI Values, Houten, Netherlands; 2Albert-Ludwigs-Universität, Freiburg, Germany; 3Pfizer GmbH, Karlsruhe, Germany

OBJECTIVES: To assess the costs and cost-effectiveness of voriconazole in comparison to conventional amphotericin B for the treatment of invasive aspergillosis in Germany. METHODS: The cost-effectiveness of voriconazole in comparison to conventional amphotericin B was evaluated with a life-time Markov model, focusing on the long-term survival of patients treated for invasive aspergillosis. Long term survival was extrapolated from survival after 12 weeks of treatment, obtained from a large randomized aspergillosis study (Herbrecht et al. NEJM, 2002). Information on medical resource consumption, treatment pathways and switch rates were obtained from both this randomized study and an expert committee. Probabilistic analysis was used to evaluate the cost-effectiveness of voriconazole compared to amphotericin B, and was expressed by the incremental costs per life weeks gained. The evaluation was performed from an insurance perspective (both inpatient and outpatient costs) and hospital perspective (direct costs, inpatient). RESULTS: The mean survival of patients treated with voriconazole was 174.4 life weeks (95%CI 159.4; 191.3), compared to 119.4 life weeks (95%CI 106.4; 132.3) for amphotericin B. With voriconazole, the total mean costs for treating invasive aspergillosis per patient were 31,763€ (95%CI 24,094€; 39,383€) compared to 28,569€ for amphotericin B (95%CI 22,674€; 36,860€) from the insurance perspective. Total inpatient costs were approximately 85% of the total mean costs of treating aspergillosis infection. The corresponding incremental cost-effectiveness ratio was 18€ per life week gained, resulting in a >99% probability of being cost-effective for a willingness-to-pay threshold of 20,000€ per life year gained. CONCLUSIONS: In the treatment of invasive aspergillosis, voriconazole is cost-effective in comparison to amphotericin B. Inpatient costs had been represented within the current German reimbursement system (per diem charges), but are higher than those currently reimbursed within the newly introduced German DRG system.

CALCULATING THE COST OF WOUND CARE IN A COMMUNITY SETTING IN THE UK: AN EXAMPLE USING MODERN WOUND MANAGEMENT DRESSINGS
Ormé ME1, Daniels S2
1Heron Evidence Development, Letchworth Garden City, UK; 2Convatec UK Ltd, Ickenham, Uxbridge, UK

OBJECTIVES: A review of debridging agents found that wound care costs are very sensitive to the frequency of dressings change particularly home wound care requiring a visit by a nurse. (NICE, 2001) Modern wound dressings increase the time between dressing changes freeing up nursing resources. The objective of this paper is to show the relationship between frequency of change, nursing resources and wound care costs. METHODS: A simple model has been developed to help NHS professionals in the UK estimate the wound care costs in their local practice. The cost calculation is based upon the use of wound dressings and nurse resources. Resource use depends upon type of wound and treatment setting (hospital or community), and frequency of change depends upon type of dressing. Unit costs for dressings are from the Drug Tariff (May 2004) or NHS Stores Catalogue (October 2003) and the nursing costs from PSSRU (Netten 2003) depending upon treatment setting. In this analysis, we considered a sloughy pressure ulcer with medium exudate treated in a community setting by a district nurse. Assuming the wound is managed using modern wound dressings, typical treatment could be a fibrous hydrocolloid wound contact dressing and a sacral semi-permeable hydrocolloid secondary dressing. The frequency of change for this strategy is once per week. RESULTS: The weekly cost of this strategy would be £30.10 including dressing materials (£7.84), nurse time to change dressings (£15.33) and time spent travelling to/from patient (£6.93). Hence dressing resources account for just 26% of the total cost. CONCLUSIONS: The main cost drivers in wound care are the frequency of dressing change and the associated nursing time required to change the dressing. Choice of dressing should be based on an assessment of the frequency with which it can be changed and not just the unit cost of the dressing.

ACUTE ROTAVIRUS GASTROENTERITIS: BURDEN OF DISEASE AND COST OF ILLNESS AMONG YOUNG CHILDREN IN GERMANY
Hammerschmidt T, Gartner B
GlaxoSmithKline, Munich, Germany

OBJECTIVES: Rotavirus (RV) infections are probably the most important cause of severe acute gastroenteritis (AGE) in infants and children up to 4 years of age. Evidence on the overall burden of RV-AGE in Germany is limited, especially due to under-reporting. The objective is to estimate the burden of disease and cost-of-illness of RV-AGE in Germany. METHODS: Data on incidence of community-acquired and nosocomial infections as well as related health care utilization were derived from a systematic literature review and official statistics. Population data and prices were taken from official statistics and price compendiums. A payers’ (sickness funds) perspective was taken. Costs include out- and inpatient care as well as work loss by parents (considering their labour force participation). The latter is paid by sickness funds in Germany (i.e. “childcare benefits”). Price level is that of 2002. RESULTS: Community-acquired RV-AGE requiring outpatient care occurs each year in nearly 120,000 children aged 0–48 months. 6.1% of those cases require hospitalisation resulting in about 7,350 inpatient cases and 38,250 inpatient days. Nosocomial infections result in 6,900 additional RV-AGE with a prolonged hospital stay amounting to 10,350 additional inpatient days. Outpatient costs amount to 8.5€ per p.a. and account for 27.4% of overall costs. Inpatient care costs about 15.9€ per p.a. Childcare benefits amount to 6.6€ per p.a. Overall costs to payers are 31.6€ per p.a. CONCLUSIONS: Rotavirus causes severe acute gastroenteritis among young children. The overall burden of rotavirus gastroenteritis is considerable and even underestimated as not all children are presented to physicians and stool samples are not analysed on a regular basis. Furthermore, rotavirus causes considerable costs to health care payers, especially due to hospitalizations and nosocomial infections.

ECONOMIC BURDEN AND FACTORS INFLUENCING COSTS IN GERMAN PATIENTS HOSPITALISED FOR COMMUNITY-ACQUIRED PNEUMONIA (CAP)
Decker-Burgard S1, Ehrnsperger M3, Eichmann FRW2, Huppertz E1, Kreyenberg K1, Reitberger U2, Roscher K2, Spannheimer A2
1Deutsches Zentrum für Lungenforschung, Thoraxklinik, Heidelberg, Germany; 2Universität Leipzig, Leipzig, Germany; 3Bayer HealthCare, Wuppertal, Germany