small, although significant, and ranged from 2153€ (95% CI: 241–4064) to 2735€ (95% CI: 530–4940) and to 3650€ (95% CI: 676–6623). At 200–349 CD4 cells/mm³, the ICER was 2300€ 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 250€. CONCLUSIONS: Although early HAART initiation does not affect incidence AIDS and death at high CD4 levels, not deferring HAART below 200 CD4 cells/mm³ proved to be highly cost-effective.

**PIN10**

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

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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 prospectively 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 recipients 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$8868 for MP-NAT 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**

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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), a 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 35,378 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**

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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: “<14 years of age”, “<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 3%/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 5281–48,985) in the societal perspective and 647,011 in the NHS perspective (95% CI 35,015–64,732). 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