and overcome the effects of under-valuation of vaccination on a global scale.

METHODS: Estimates of vaccine-preventable cases worldwide, vaccine coverage levels, disease incidence, vaccine costs and cost-effectiveness were obtained through in a four-stage process. First, an electronic document search was conducted. Second, government documents and academic publications were reviewed. Third, academic and government experts in vaccine cost-effectiveness were contacted to obtain several estimates. Fourth, the epidemiological and economic data obtained from the first two stages were converted to the following common units: US$, LYS, deaths, QALYs, and DALYs, to allow for further economic analyses of the value of vaccination.

RESULTS: Disease: Direct or indirect savings Smallpox $300 million in direct costs per year; Polio US$13.6B in total savings worldwide; Measles US$10 per DALY Cholera $770 million; Malaria $100B GDP lost per year in Africa; MMR $100 million direct medical costs; DTPa $23.6B direct and indirect costs; Hib $5B direct, $12B indirect costs in US.

CONCLUSIONS: Vaccines are unquestionably one of the most cost-effective public health measures available, yet they are undervalued and underutilized throughout the world. It is important for international agencies, governments, and health policy makers to keep this preventive measure in the spotlight. It is important to remind parents, the general population, and health care providers worldwide to take advantage of this life-saving measure so that no one will suffer diseases that can so easily be prevented.

AN EPIDEMIOLOGICAL EXAMINATION OF VACCINES: COST IMPACTS AND IMPACT ON HEALTH SYSTEMS

OBJECTIVE: To identify factors explaining the variance associated with individual out-of-pocket prescription drug costs.

METHODS: We analyzed data from the household component and event files of the 1996 Medical Expenditure Panel Survey (MEPS), with brand-generic status information obtained from MULTUM®. Of the 22,601 individuals, 14,015 (62%) incurred prescription expenditures. Out-of-pocket prescription costs were regressed on demographic factors, socioeconomic factors, perceived health status, type of health insurance coverage, perceived access to care, prescription drug characteristics, and health care cost data. Person level weights were included in the regression model. Variance estimation was performed to adjust for the complex survey design employed by MEPS.

RESULTS: The mean out-of-pocket prescription drug cost was $166 (se = 4.61). Minorities had lower out-of-pocket costs ($117, se = 7.87) compared to Caucasians ($175, se = 5.05), whereas uninsured consumers had greater out-of-pocket costs ($181, se = 20.29) compared to consumers with private insurance ($156, se = 4.76). Significant predictors with positive coeffi-
OBJECTIVE: Healthcare utilization during the last year of life has traditionally comprised 27% to 31% of the total Medicare budget, but knowledge of factors affecting terminal costs is limited. We examined the effects of age, gender, ethnicity, and chronic illness on medical costs in the last year of life.

METHODS: This was a retrospective cohort analysis of longitudinal utilization data in a regional health maintenance organization (HMO). Study subjects were HMO members (2312) who died between January 1, 1996 and December 31, 1998. Healthcare utilization during the 12 months prior to death was captured from administrative claims and matched to cause of death on the death certificate. We also determined chronic illnesses present using claims data and compared this to cause of death on the death certificate.

RESULTS: Mean total cost in the last year of life was $37,736 (+$21,692), with two-thirds of the costs attributed to inpatient care ($23,321 +$8,748) per patient. Costs varied widely by age at time of death, with mean total costs highest among persons age 65 to 70. Costs fell rapidly after age 70. Total costs increased linearly with the number of chronic illnesses, which varied significantly with age. Patients with renal failure and complicated diabetes had terminal costs substantially higher than did patients with most other chronic illnesses; costs for patients who died with chronic dementia were lower than average. Sex and ethnicity were not significant factors after adjustment for age. Cost analyses based on the cause of death on death certificates underestimated the impact of several major illnesses.

CONCLUSIONS: Healthcare costs at the end of life vary widely by age and the number and type of chronic illnesses in the year prior to death. Cause of death listed on death certificates does not accurately reflect the impact of chronic illness on terminal costs.

A DECISION ANALYSIS MODEL FOR SCREENING OF HEREDITARY HEMOCROMATOSIS

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OBJECTIVES: This study examines screening alternatives for detection of hereditary hemochromatosis (HH). The objectives included: (1) To evaluate three screening alternatives (no screening, phenotype screening, and genotype screening) in a cost-effectiveness analysis for HH; and, (2) To serve as a model for genetic diseases.

METHODS: The decision analysis using Data 3.5 software was conducted for both cost-effectiveness and cost-utility analyses. A hypothetical cohort of 10,000 white males between thirty and thirty-nine years old was the identified as the model population because of its high HH prevalence rate. Each screening alternative correlated to a decision tree branch, which further subdivided into branches depending upon treatment decisions. The costs data were conservatively estimated using 2001 United States Medicare charge data. Testing protocols were based on established methods previously used in a cost-effectiveness study by Adams and Valberg in 1999. The utility values were estimated using experts’ judgments on the Health Utilities Index.

RESULTS: The results of the cost-effectiveness analysis indicated that genotype testing was the dominant strategy. The marginal cost-effectiveness of genetic testing found that an extra $219.85 per case would identify another thirteen cases. A sensitivity analysis found the genetic testing cost as the threshold value. The cost-utility analysis, using quality-adjusted life years (QALY) as a measure of effectiveness, indicated that genotype testing was the dominant strategy. The marginal cost/QALY found that an additional $85.48 per case identified 10 new cases.

CONCLUSIONS: Genetic testing for HH represents an opportunity for widespread screening. The high prevalence rate and benefit of early diagnosis and treatment make HH an ideal screening target. The infrastructure for genetic testing must be built before widespread screening could occur; thus, the policy-makers and insurance companies should be educated about cost-effectiveness studies which demonstrate the merits of detecting genetic diseases prior to symptom manifestation.