CONCLUSIONS: Costs incurred in previous years can be used to predict costs and outcomes in the future. This dynamic three-part model clarifies the relationship between risk of hospitalization, cost of hospitalization and mortality.

**INFECTIOUS DISEASE**

**ESTIMATING THE POTENTIAL HEALTH GAIN AND COST CONSEQUENCES OF INTRODUCING A PRE-SCHOOL DTAPA PERTUSSIS BOOSTER INTO THE UK CHILD VACCINATION SCHEDULE**

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OBJECTIVE: To establish the likely health and cost impacts of a pre-school booster vaccination for Bordetella pertussis, when added to existing UK primary vaccination schedules assuming that a diphtheria, tetanus, and acellular pertussis, (DTPa) booster would replace the current diphtheria and tetanus (DT) booster.

METHODS: A transition state model of pertussis infection in a closed population representative of England and Wales, comprised of eight age bands with susceptible, infected and immune population sub-groups. Herd-immunity was explicitly modeled. Epidemiological service use and cost data were sourced from routine statistics, published literature and, where necessary, clinical estimates. The number of pertussis cases, hospitalizations and deaths were forecast for a five-year period. Quality of life gains were not explicitly calculated.

RESULTS: Introducing a pre-school pertussis booster and achieving 84% coverage is predicted to cost an additional £14.32m over a five-year period, assuming £5 marginal cost between DTPa and DTP or £8.60m assuming a £3 marginal cost. Offset against this are the cost of reduced hospitalizations and GP consultations, which are expected to total between £4.21m and £4.60m. The return on this investment would be a reduction in up to 1700 hospitalizations, between 5000 and 27,000 pertussis cases depending on the level of under-reporting and assuming a vaccine waning period, and one infant death.

CONCLUSIONS: The introduction of a pre-school booster is predicted to significantly reduce the number of hospitalizations and pertussis cases contracted. The estimated marginal cost of this strategy is £10m over a five-year period, assuming a £5 difference between DTP and DTPa or £4m, were the difference only £3.

**THE OBSERVED COSTS AND HEALTH-CARE USE OF CHILDREN IN A RANDOMIZED CONTROLLED TRIAL OF PNEUMOCOCCAL CONJUGATE VACCINE**

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Viral respiratory infection (VRI) is the most commonly occurring illness in man, imposing considerable burden on patients and on society. However, to date, no formal study of the economic impact of VRI has been performed.

OBJECTIVES: To rigorously quantify the economic impact of viral respiratory disease (VRI) in the US in terms of health-care resource utilization (direct costs) and productivity losses (indirect costs).

METHODS: Publicly available databases including the US Census, National Health Interview Survey (NHIS), the National Ambulatory Medical Care Survey (NAMCS) and the National Ambulatory Medical Care Survey (NAMCS) were used. From these databases, projections regarding population characteristics, physician and emergency-room encounters, prescription and over-the-counter drug utilization, and productivity losses related to VRI were made. Data obtained from primary epidemiological research and prospective randomized clinical trials were used to estimate the incidence of VRI in the general population and the rate of secondary clinical complications associated with VRI.

RESULTS: Nearly 500 million episodes of VRI occur annually in the US alone. Direct costs associated with VRI are estimated to be $16.8 billion annually and are broken down as follows: physician visits, $6 billion; complications, $3.8 billion; prescription and over-the-counter medications, $4.8 billion. Indirect costs for employed individuals approximate $7.6 billion per year. Physician encounters via a telephone and the internet, productivity losses incurred by caregivers (i.e. parent) of VRI-infected individuals, and costs associated with diminished productivity while at work or home were not included, suggesting that this projection of total VRI costs—$25 billion annually in the US alone—is very likely an under-estimate.

CONCLUSIONS: Viral respiratory infections impose a significant clinical and economic burden to society, approaching or surpassing the aggregate costs of many common chronic diseases. The resultant clinical and cost ramifications attributable to this common acute condition warrants increased attention from health-care providers and policy makers.