formulation resulted in less erosion from the total brand. In cases where branded utilization is not converted to TR formulation prior to launch of generic competition, such as risperidone and fluoxetine, or TR launch precedes generic launch by less than six months or not at all, such as azithromycin and sertraline, dramatic reduction in total silver brand exclusion. In the unique case where branded esomeprazole was introduced prior to the generic launch of citalopram, an effect similar to a branded TR launch was observed. CONCLUSIONS: While generic use typically replaces the majority of branded equivalents in a short timeframe, branded products with a time-release formulation may limit uptake rate of the generic version of the total branded product.

PUBLIC HEALTH AND ECONOMIC IMPACT OF 13-VALENT PNEUMOCOCCAL CONJUGATE VACCINE (PCV13) IN AN INFLUENZA PANDEMIC IN SINGAPORE AND HONG KONG

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OBJECTIVES: Historic data suggest that most 1918 influenza pandemic-related deaths were due to pneumococcal disease (PD); preliminary evidence shows a similar pattern for the 2009 H1N1 influenza outbreak. Implementation of 13-valent pneumococcal conjugate vaccine (PCV13) national immunization programs would likely lessen the impact of a pandemic in Asia-Pacific populations that currently have low pneumococcal vaccination rates; our objective was to quantify this impact in Singapore and Hong Kong. METHODS: We used a decision-analytic model to assess the impact of PCV13 infant vaccination on PD incidence and mortality in an influenza pandemic in Singapore and Hong Kong versus no vaccination. The model was estimated from US national sources; both direct and indirect (herd) effects against PD were included. Effectiveness of PCV13 was extrapolated from observed US 7-valent PCV (PCV7) data, using assumptions on serotype prevalence in the pre-PCV7 era, and PCV13 protection against the 6 serotypes not in PCV7. Country-specific data were used where available; where unavailable, US data were used. To simulate acceleration of PD transmission in a flu pandemic, we calibrated to 1918 estimates of country-specific incidence and mortality, adjusting mortality for the advent of antibiotics. PD incidence and mortality, and total PD-related health-care costs were evaluated over a 1-year horizon. Results are reported in 2008 currency. RESULTS: Preliminary results of the model indicate that in a pandemic of 1918 severity, PCV13 vaccination would prevent 3,300 cases of hospitalized pneumococcal pneumonia and 320 deaths in Singapore, and save SGD1.53 million in health-care costs (net of vaccination). In Hong Kong, PCV13 would prevent 8,200 cases of hospitalized pneumonia (all-cause), and 2,200 pneumonia deaths, respectively; PCV13 would save HKD250 million in medical costs. CONCLUSIONS: In an influenza pandemic affecting the Asia-Pacific region, infant vaccination with PCV13 would likely be highly effective in reducing pandemic-related deaths, PD cases and associated costs.

PODIUM SESSION III: HEALTH CARE DECISION-MAKER’S CASE STUDIES

IMPLEMENTATION OF A NONFORMULARY PRESCRIBING MONITORING SYSTEM REVEALS OPPORTUNITIES FOR COST SAVINGS IN AN ACADEMIC MEDICAL CENTER

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ORGANIZATION: University of California San Diego Medical Center (UCSDMC) is a 548 bed academic medical center with an average daily census of 368 patients and 23,000 annual discharges. UCSDMC has a large regional footprint as it is the only academic medical center in the region and serves as the regions burn center and high risk obstetrics and neonatal care center. In addition, UCSDMC was the regions first level 1 trauma unit. Consequently, patients are admitted to UCSDMC with a wide variety of medications and insurance coverage. From a medication safety standpoint, outpatient maintenance medication is generally not substituted in our hospital. In addition, patients are discouraged to bring their own medication into the hospital to assure the quality of the medications. These patient population and policy characteristics make formulary management particularly challenging, as this practice results in a constant baseline use of nonformulary outpatient maintenance medications in our inpatient patient population. PROBLEM OR ISSUE ADDRESSED: Detecting trends in nonformulary prescribing is important as increased use of nonformulary medications could indicate an important clinical need of this medication. On the other hand, increased use of nonformulary medications in therapeutic areas with equivalent but less expensive nonformulary medications, leads to increased costs. We hypothesized that analyzing trends in nonformulary prescribing leads to detection of irrational and more expensive, nonformulary medications and therefore to cost savings. GOALS: To address these issues, we developed a nonformulary medication use monitoring system designed to detect nonformulary adherence by 50% or more at an early stage. OUTCOMES ITEMS USED IN THE DECISION: Formulary adherence is defined as the number of nonformulary medication doses billed divided by the total number of doses billed. As an example of irrational prescribing detected by this system, cost savings associated with reversing nonformulary levofloxacin use to formulary albuterol are reported. IMPLEMENTATION STRATEGY: Trends in nonformulary use are monitored using daily, monthly and semi-annual reports.—Daily monitoring is done by the clinical pharmacist. A report that specifies the nonformulary orders per nursing unit where branded use was observed. The pharmacist evaluates the order for appropriateness and contacts the physician if substitution to a formulary alternative is possible. The intervention is recorded in the pharmacy information system and compliance is monitored by the pharmacist as the order is filled.—Monthly monitoring is done by the pharmacoeconomics specialist.—RESULTS: The pharmacist evaluates the order for appropriateness and contacts the physician if substitution to a formulary alternative is possible. The intervention is recorded in the pharmacy information system and compliance is monitored by the pharmacist as the order is filled.—RESULTS: The results of this monthly analysis are discussed with the Pharmacist-in-Chief and with the Chair of the P&T Committee.—Semi-annual reporting is done by the pharmacoeconomics specialist. Trends in nonformulary prescribing over a six month period are discussed at the P&T meeting. As an example of irrational prescribing detected by this semi-annual report is noted. CONCLUSIONS: Nonformulary prescribing has shown a 20% decrease of nonformulary use to 0.05% of billed doses. Levalbuterol use decreased by 67% from an average of 8 patients per month in the 6 month period before the intervention to 8 patients after the intervention. Levalbuterol expenditure decreased from $780 to $142 over the same period and continues to drop, corresponding to an annualized cost avoidance of $5,880. LESSONS LEARNED: Setting a benchmark and developing a credible process for monitoring nonformulary medication is challenging, a nonformulary prescribing monitoring system is successful in decreasing nonformulary prescribing and identifying areas of improvement. The large decrease in use of levalbuterol is only one of the successes resulting from this effort. However, by implementing continuous monitoring of nonformulary prescribing we expect to detect and prevent these excesses in the future. We acknowledge that the monetary savings of decreasing levalbuterol use and nonformulary prescribing as a whole is marginal. However, other benefits of a formulary that is better tailored to the institution’s needs could include better inventory management, improved medication safety and less interruptions of therapy. This will be the focus of a subsequent study.