ABSTRACT

The Epidemiology of Invasive *Haemophilus Influenzae* Type B Disease in Jamaica and A Cost-Benefit Analysis of Vaccine Provision

Janice Marie Alexander

To study the epidemiology of invasive *Haemophilus influenzae* type b disease and to estimate the costs of treatment of this disease to the Government of Jamaica, epidemiological data was retrospectively collected for the 5 year period, 1989-1993, on persons with microbiologically confirmed invasive *Haemophilus influenzae* infection amongst patients admitted to 5 of the 6 major hospitals in Jamaica. The study aimed at establishing justification for the inclusion of *H. influenzae* type b vaccine in the primary immunization schedule of Jamaican children.

Over the 5 year period, 111 cases of invasive *H. influenzae* type b disease were detected from laboratory data. The records of 70 cases were accessed. The minimal average estimated annual incidence rate for invasive disease was 8.05

per 100,000 children aged less than 5 years. The majority of the disease (52.9%) occurred in infants (less than 1 year old), and 77.2% occurred in children less than 2 years of age with peak incidence between 4 and 7 months. The case fatality rate was 7.1%.

The mean cost of treatment of a case of *H. influenzae* type b disease admitted to hospital was J$14,363. The total discounted cost of treatment over 5 years when the population is not vaccinated was J$1,329,420. If routine vaccinations are instituted, it is estimated that 87 cases of *H. influenzae* disease will be prevented from being admitted, and 6 deaths will be prevented. The implied maximum cost of vaccination (i.e. the point where at any lower cost, the vaccination would be less costly than treatment) when subjected to a sensitivity analysis produced a range of J$1.94 to $7.00.

Benefits such as reduction of pain and suffering, reduction of mortality and morbidity, and "external" or spill-over benefits were not included. The provision of *H. influenzae* type b vaccine is justifiable (on the basis of treatment costs only) within the price range of J$1.94 to $7.00. However at present costs, provision of *H. influenzae* type b vaccine is not justified.