

Evaluation of the impact of an immunisation program combining pneumococcal conjugated vaccine and inactivated influenza vaccine in Nunavik children, Province of Quebec, Canada

Project number: EOI 1119

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Abstract:

In the Nunavik region in the province of Quebec, hospitalizations for pneumonia are much more frequent than in the general population of Quebec and it is estimated that a quarter of children present hearing deficit by the age of 5 years. In the spring of 2002, a routine infant immunization program with the 7-valent pneumococcal conjugate vaccine (PCV-7) was implemented along with a catch-up for children younger than 5 years of age. In the fall of 2003, the trivalent inactivated influenza vaccine (TIV-3) was offered to all 6 to 23 months old children. The objective of the study is to evaluate the impact of this double immunization program in young Inuit children, and to study for the first time the ability of the PCV-7 combined with the TIV-3 to prevent respiratory infections and audiological sequelae due to otitis media. This entails the retrospective monitoring of 12 birth cohorts of children born between 1994 and 2005 up until the age of 5 years. The evaluation will be done in comparing the frequency rates of different indicators in three birth cohorts (1994-1996) not having received the PCV-7 and the TIV-3, in the following six cohorts (1997-2002) having been vaccinated with a number of doses less than the complete schedule and in the last three, having been recipients of a routine immunization program combining the PCV-7 and the TIV-3. The specific objectives of the study are to measure (1) the frequency of respiratory and middle ear infections before and after the implementation of the combined immunization program; (2) the frequency of the of antibiotic treatments caused by these pathologies; (3) the frequency of hospitalizations and transfers to hospitals situated in southern Quebec caused by respiratory infections; (4) the frequency of myringotomy and ventilation tube placement; and (5) the prevalence of anatomical and functional lesions of the middle ear at 5 years of age. Sources of information will include the provincial hospital discharge database, the registry of invasive pneumococcal strains received by the provincial reference laboratory, immunization charts and medical records detained by health centers and dispensaries, and results of audiology screening tests and diagnostic examinations. In the Nunavik region, an audiology screening test is routinely performed around the age of 5 years, combining audiometry, tympanometry and otoscopy. This program was implemented in 1984 and provides a unique opportunity to assess the effect of immunization to prevent audiological sequelae due to otitis media.

Project Status: Active

Project Progress:

The study is underway and Phase I, the collection and computing of data regarding the immunization status, is almost complete. Collection of data from the latest cohort will occur in 2010-2011, once the cohort will be 5 years old. Currently, Synflorix from GSK has been licensed in Canada and the Quebec

Ministry of Health is currently evaluating the potential use of this new vaccine. The additional protection against serotypes 1 & 5 and against NT-Hi is a strong argument for the use of this vaccine in the Nordic communities.