
Newborn Screening for Congenital Hypothyroidism in Sri Lanka: Economic Impact Assessment

N. Karunarathna^a, D. Liyanage^b and M. Hettiarachchi^b

^a *National Research Council, Sri Lanka*

^b *Nuclear Medicine Unit, Faculty of Medicine, University of Ruhuna, Sri Lanka*

Corresponding author: manjulah@med.ruh.ac.lk

Economic evaluations will determine policy decisions on any screening programs. Systematic approach on estimations of long term clinical and economic outcomes are necessary in project evaluations. The Newborn Screening Information System Database (www.nsisd.ruh.ac.lk) was retrospectively analyzed to assess key performance indicators of the program. Then total cost calculated for the screening program, including sampling, forms, hormone tests, diagnosis, treatments and care was identified and calculated up to the age of seventy-five years. The well-being is calculated by multiplying disability adjusted life year (DALY) by GDP per capita. Total benefits to the society and disability adjusted life year is calculated for each year. In 2019, the program achieved 92% coverage with 160,000 samples received. 126 babies were confirmed as having congenital hypothyroidism with an annual incidence of 1 and 1200 live births with the positive predictive value of 66%. The cost per baby for sample analysis was LKR 344.34 per sample received in 2019. The instrument maintenance, recall tests, confirmatory and follow up tests with the treatment costs were considered to calculate total cost of the program. The calculated cost for screening in 2019 was LKR 54,942,072 with follow up management cost of LKR 42,237,563. The total benefit to the country with the program in 2019 was LKR 356,553,781 resulted benefit/cost ratio 3.60. Considering high incidence of hypothyroidism, screening has a huge impact where improving health and welfare of the society that will ultimately improve the potential future economic impact on public health perspective. The national CH screening program has been able to prove it is effective in both timely detecting at-risk babies as well as appropriately effective in economic impact to the society. The improved health outcomes constitute a critically important part in both health outcomes and short-term as well as long-term costs when considering screening expansions and policy decisions.

Keywords: Congenital hypothyroidism, Cost-benefit, New born screening