



**KERMAN UNIVERSITY
OF MEDICAL SCIENCES**

Faculty of Management and Medical Informatics

In Partial Fulfillment of the Requirements for the Degree (M.Sc.) in Health Services
Management

Title

**Cost Management Evaluation of Sickle Cell Anemia Prevention Program in
Premarital Screening: A Case Study of Hormozgan Province in 2022**

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Thesis No : (123456)

(July, 2026)

Abstract

Background and Objectives: Sickle cell anemia is one of the most common genetic hemoglobin disorders, which is especially prevalent in some geographical areas, including southern Iran, and imposes a significant economic and social burden on the health system and families. Implementing premarital screening programs with the aim of identifying carrier couples and providing genetic counseling and care services is considered an effective strategy in preventing the birth of infants with this disease. Given the relative prevalence of this disorder in Hormozgan province, evaluating the cost management of the program to prevent the occurrence of this disease is of particular importance. Therefore, the present study was conducted with the aim of evaluating the cost management of the program to prevent the occurrence of sickle cell anemia in premarital screening in Hormozgan province in 2022.

Materials and Methods: The present study is a mixed (quantitative–qualitative) study with an explanatory approach. In the quantitative part, the total cost of the sickle cell anemia prevention program was calculated in different stages including screening, diagnosis, counseling, and genetic care. The required information was extracted from the data of the sickle cell anemia prevention program surveillance system in Hormozgan province, statistical forms, financial and accounting documents. The costs were calculated in three categories including direct medical costs (fixed and variable), direct non–medical costs, and indirect costs. An estimate of the treatment costs of affected patients was also made and compared with the prevention costs. Quantitative data analysis was performed using Excel software.

In the qualitative part, in order to evaluate and provide solutions to improve the program's cost management, an expert panel consisting of genetic counselors, specialists, and program executive experts was formed, and the data was collected and analyzed through semi-structured interviews.

Results: The findings showed that in 1401, 13,349 couples were screened, among whom 150 carriers were identified, and the birth of 5 affected fetuses was prevented. The total cost of implementing the program was estimated at 39,319,061,530 rials, of which 60% of the cost was allocated to direct and fixed medical costs, including personnel salaries and benefits, and the average cost per capita for each couple was calculated at 2,945,468 rials.

The results of the qualitative section also indicated that despite the high dependence of the program on human resources costs, the integration of this program within the framework of the National Beta-thalassemia Prevention Program and the joint use of existing infrastructure and human resources have prevented the imposition of a new financial burden on the health system. However, in order to improve cost management, experts emphasized solutions such as the use of non-face-to-face services and digital technologies, redesigning screening processes and patterns, training and strengthening middle management, and improving efficiency.

Conclusion: Overall, based on the study findings, it appears that the premarital screening program for the prevention of sickle cell anemia in Hormozgan province was acceptable in terms of cost management by preventing 5 new cases of the disease and reducing the burden of future medical costs. However, improving cost management through multi-level reforms could further strengthen the effectiveness and sustainability of this program in the coming years.

Keywords: Cost Management, Sickle Cell Anemia, Prevention, Premarital Screening