

Integrated Management of Childhood Illness (IMCI) in Oman: 16 Years of Pre-Service Initiatives for Education and Training

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Abstract

Each year, approximately 10 million children worldwide die before reaching the age of five, yet two-thirds of these deaths could be prevented with effective, low-cost interventions. The Integrated Management of Childhood Illness (IMCI) strategy was adopted in 1996 by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) to address and focuses on the holistic well-being of the child. The strategy has been advocated internationally with the objective of enhancing the quality of health care for children. The ultimate goals of IMCI are to develop a healthcare system that adheres to best practices and to improve the knowledge, attitudes, and skills of healthcare professionals. This paper describes the IMCI in pre-service education and training and the steps involved in integrating it into the child health-nursing course, the Oman College of Health Sciences (OCHS) in Oman. The program aims to reduce the morbidity and mortality rate of children under 5 years of age, as well as the severity of illnesses in children; thereby improving the growth and development of the child in the first five years of life. The OCHS in Oman was the first healthcare academic institution in the country to move quickly to implement the program in nursing education. As a result, the program has adopted various strategies to expand the application of this program to strengthen the knowledge, skills, and the clinical practice of the nursing students. Training students in IMCI core competencies will undoubtedly contribute to improve the quality of care for children in health care settings.

Keywords: Child care; IMCI; Pre-Service Education and Training; Oman

Introduction

Since 1990, significant progress has been globally in reducing child mortality. The total number of under-five deaths has decreased by 59%, from 12.8 million (93 deaths per 1,000 live births) in 1990 to 5 million (38 deaths per 1,000 live births) in 2021. Globally, acute respiratory infection (ARI), including pneumonia, acute diarrheal disease (ADD), measles, malaria, malnutrition, and preterm birth and delivery complications account for most of these deaths.^{1,2}

The Management of Childhood Illness (IMCI) strategy was developed and introduced by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) as the main strategy to improve and enhance the health of children under 5.^{3,4}

The IMCI strategy strives to build the capacity of health care professionals, the system, and the family and community practices. The goal is to promote the healthy growth and development of children improving the prevention and treatment of common childhood illnesses, especially during the neonatal period.³ In addition, the IMCI strategy was designed to achieve the Millennium Development Goal 4 (MDG 4), which aimed to reduce child mortality by two-thirds by 2015. However, with the expiration of the MDGs, a new set of Sustainable Development Goals (SDGs) was adopted in 2015. The SDGs continue to prioritize reducing child mortality, but they also place a greater emphasis

on ensuring healthy lives and promoting well-being for all ages. Specifically, the SDGs include a goal (Goal 3) focused on "Good Health and Well-being," which includes several targets related to reducing child mortality, improving maternal health, and controlling communicable diseases. Under this goal, target 3.2 specifically aims to "end preventable deaths of newborns and children under 5" by 2030.⁵

IMCI strategy

IMCI strategy was officially launched by the Ministry of Health (MOH) of Oman and included in the Sixth Health Development Plan (2001-2005).⁶⁻⁸ The approach focuses on the care of young children under five years of age, both in terms of reducing preventable mortality, minimizing illness and disability, and promoting healthy growth and development of children under five. As a result, the strategy minimizes the number of missed opportunities for early detection and treatment of diseases that may escape both parents and health care providers, thereby increasing the likelihood of worsening conditions and developing problems. Furthermore, as an inherent aspect of care, IMCI has an important component that emphasizes prevention and health promotion as essential elements of treatment. Therefore, among other benefits, it helps to improve understanding and techniques of home care for children under five years of age and to increase immunization coverage, thereby promoting healthy growth and development.

The community, the healthcare sector, and the family are also involved in IMCI implementation. This is accomplished in three ways: 1) Improving the performance of health-care workers' in preventing and treating childhood illnesses; 2) Improving the organization and operation of health services to provide high-quality care; and 3) Improving the quality of care provided by the family and community. The strategy also outlines how to monitor treatment progress to determine if preventive measures are needed, and how to inform and educate parents about disease prevention and child health promotion.³

Based on the epidemiological patterns of the relevant location, IMCI provides the knowledge and skills to analyze and integrate the child's health status in a sequential manner and, therefore, detect the diseases or problems that affect the child. Based on this assessment, the IMCI provides detailed instructions on the classification of diseases and difficulties encountered, as well as the treatment recommendations for each of them. The strategy also outlines how to monitor treatment progress to determine if preventive measures are needed, and how to inform and educate parents about disease prevention and child health promotion.¹

IMCI Impact

In 2007, Oman adopted an IMCI strategy. The main objective of IMCI is to help children grow and develop properly throughout their first five years of life. The IMCI has three goals: 1) to reduce the mortality rate of children under 5 years of age; 2) to reduce the frequency and severity of illnesses and health problems; and 3) to improve child growth and development. On this basis, IMCI is now considered the most effective technique for reducing the burden of disease and disability in this age group.

Oman has attained a key goals of IMCI, which is to assist children grow and develop appropriately throughout their first five years of life. Firstly, the implementation of the IMCI strategy has contributed to reducing the under-five mortality rate in Oman from 11 to 10.1 in 2007 and 2021, respectively. Secondary, the initiative has contributed to maintaining an Extending program of Immunization (EPI) vaccine coverage rate above 95%.^{9,10} In addition, the rates of acute respiratory infections per 1,000 child under 5 years decreased from 262 to 116 in 2007 and 2021, respectively, which are much lower than the global rates.¹¹ Thirdly, Oman provides free universal health care (UHC) to all Omani citizens, and all hospitals and clinics provide patients with access to low-cost, basic pharmaceuticals and having reached the SDG3 benchmarks for maternal, neonatal, and child health.¹²

Our review concurs with previous research conducted in Uganda,¹³ Tanzania,¹⁴ and South Africa.¹⁵

Milestones of IMCI intergradation within Child Health Nursing Curriculum: Pre-service education training¹⁶ (Figure 1)

In 2007, the Oman College of Health Sciences (OCHS) was established (Health institutes earlier), and it is one of the governmental colleges with eight branches of nursing programs in Oman. In 2008-2009, the Child Health Working Group of the Muscat Nursing Program decided to add IMCI as an important program to be taught to nursing students to raise their awareness of this program and improve their clinical skills in assessing childhood cases seen in primary health care settings. The health professional institutions play a crucial role in preparing the future cadres of health providers in IMCI who will provide public or private infant health care services in a country.

The OCHS Child Health Department has been the pioneer and the founder of IMCI in pre-service education of all academic health institutions in Oman. Given the importance of IMCI, the institution's nursing curriculum includes an IMCI course as a program.¹⁷ At the same time, the IMCI guideline/manual was being developed, and members of the institute were invited to evaluate the manual as members of the IMCI committee. In 2009, the IMCI program was integrated into the child health nursing curriculum and was introduced for the first time in Oman's higher health education institution for third year nursing students.

Initially, the program was only taught as a theory session; however, in 2013, the Child Health Task Force decided to include it in the laboratory practice session to enrich their clinical practice and to strengthen nursing students' IMCI assessment skills. Remarkably, IMCI is now part of the formative and summative evaluation of theory and lab. This ensures that learning has occurred and that students have the skills to assess children under five years of age using the IMCI checklist.

During laboratory practicum, the learning and teaching methodology that is adapted for the IMCI enhances the students' abilities to analyze, think critically, and apply the IMCI algorithm to assess, classify, and identify the appropriate treatments.

For example, students receive IMCI videos that demonstrate how to manage different cases such as diarrhea, pneumonia, malnutrition, and anemia. They also learn how to assess and manage children with different signs and symptoms including danger signs, coughing, difficulty breathing, and fever. Students are also used the IMCI guideline/manual to practice and apply the algorithm for assessing and managing these illnesses. The IMCI is included in the continuous graded lab assessment. In 2018, the IMCI program was integrated into the child health practicum and students were assigned to primary health centers to practice IMCI on children under five years of age. The sole purpose of the students' assignment is to enrich their experience with the IMCI program and to strengthen their clinical skills in IMCI assessment and management strategies.

During clinical practice, students are assigned to primary health care with the aim of applying the knowledge and skills gained about IMCI in clinical practice. Nursing students must select a child under the age of 5 and complete Forms A and B. Students follow the child from triage to the physician's room to their destination. During triage, students must check vital signs and assess for danger signs such as inability to drink or breastfeed, persistent vomiting, lethargy and seizures.

Other routine assessments are also performed including, feeding and psychosocial aspects, head circumferences, and eyes, heart, and hips. The child is also checked for malnutrition, anemia, and immunization. Furthermore, students assess the child's growth and development, and finally, a report is created by each student and submitted for grading to the clinical faculty. A faculty member is assigned to the health centers to assist students with IMCI skills for 15 weeks, 2 days per week. Students are rotated to gain the full clinical exposure and achieve the IMCI goal.

By 2021, the IMCI program was integrated into the "Al Shifa System", the health portal for recording and documenting of patient data developed by MOH. A computer laboratory has been prepared for simulation purposes and to mimic the reality of IMCI application in primary health care facilities. A computer laboratory has been prepared for simulation purposes and mimic the reality of IMCI application in primary health care facilities. The lab is organized into three different stations: 1) the triage, where students assess danger signs and document the results, 2) the physicians' room, where students are required to observe the comprehensive assessment performed by physicians to

identify health problems and plan the management of the child, and 3) the treatment room, where the management plan is implemented based on the individual case.

In general, students are exposed to different IMCI case scenarios that illustrate common danger signs that children may present in the primary care setting. Students are asked to analyze the critical thinking scenarios and list the danger signs, management plan, consultation, and health education points. Students are guided to report and document the analyzed data in the "Al Shifa System" under the IMCI icon. To the best of our knowledge, our experience is unique and no similar practice has been found in the academic setting to serve as a reference for our practice

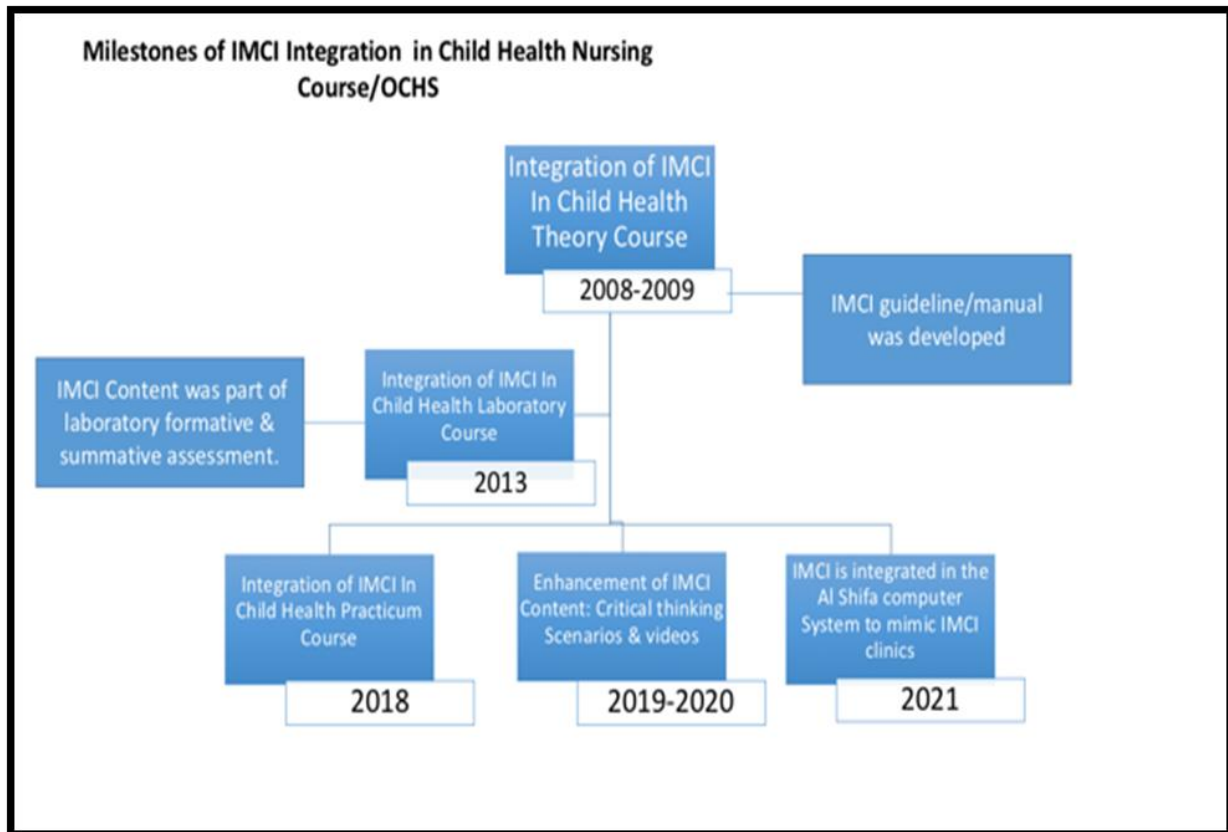


Figure 1: Milestone of Integrated Management of Childhood Illness (IMCI) in Child Health Nursing Courses, Oman College of Health Sciences (OCHS), Oman

Perspectives for the future directions

The college future plan is to introduce and integrate the IMCI program into the community nursing practicum course and reach out the Omani communities where students can practice more assessments and make appropriate referrals for the identified cases. This will give nursing students more opportunity to teach caregivers about danger signs and how to intervene, thereby reducing the consequences and complications their children may experience due to late assessments and interventions.

In addition, we are looking to become a hub for collaboration with the World Health Organization office and to share the best practices we have with other countries. Our plan is to disseminate IMCI practice in countries that need and to collaborate with other neighboring countries to develop policies and train nurses in IMCI.

Conclusions

IMCI is one of the most effective programs in Oman impacting the health of children and the community. The IMCI strategy has reduced the infant mortality rate in Oman and the prevalence of vaccine-preventable diseases. The review provides a unique opportunity to understand the evolution of IMCI implementation in Oman since its inception.

IMCI has taught us that pre-service training reaches the largest number of health care workers and should be the primary focus of training. This paper reflects the best practice of integrating the IMCI program into the OCHS child health nursing curriculum.

Our college is proud to be the first academic health institution in Oman to move quickly to implement IMCI in nursing education and to have adopted various strategies to expand the application of this program to enhance the knowledge, skills and clinical practice of nursing students. Preparing students with core IMCI competencies will improve the quality of care for children in health care settings.

Disclosure

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