

The role of telemedicine at primary and secondary level hospitals in lower middle-income countries and the burden of IMNCI (Integrated Management of Neonatal and Childhood Illnesses)



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Introduction:

IMNCI, devised by the World Health Organization, focuses on the well-being of children by addressing major causes (over 80%) of under-5 morbidity and mortality such as pneumonia, diarrhea, measles, malaria, and malnutrition. In Pakistan, 50% of the burden of disease is due to communicable, reproductive, maternal, and child health illnesses. With 65% of the population living in rural areas lacking access to specialist care, ChildLife Foundation, via a public-private partnership, provides 24/7 audio-visual consults for pediatric patients through telemedicine in 300 government hospitals.

Objective:

The study aimed to assess the outcome of IMNCI cases via telemedicine in primary and secondary health centers across Pakistan.

Methodology:

A retrospective study was conducted from January 2024 to March 2024. Data was collected from electronic medical records of children diagnosed with IMNCI disease who received secondary opinion from specialist-level physicians through ChildLife Foundation telemedicine satellite centers in three cities. The teleconsultations included virtual rounds, system checks, and observations through fiber optic/VSAT screens with high-definition cameras. Physicians connected to the nurses for audio calls through IP phones on both sides.

Results:

A total of 99,129 tele-consultations were conducted, with 62% ($n = 61,804$) related to IMNCI diseases. Pneumonia was the most common diagnosis (59%, $n = 36,607$), followed by gastroenteritis (33%, $n = 20,177$), malaria (5%, $n = 3,131$), and measles (1%, $n = 661$). In 40% of consultations ($n = 39,344$), physicians corrected the triage category, recommending advanced treatments such as bubble CPAP for pneumonia (8%, $n = 2,959$) and IV fluids for gastroenteritis (37%, $n = 7,447$). Additionally, 57% ($n = 35,228$) of IMNCI cases were referred to district hospitals for further care.

Conclusion:

Nearly half of the children seen at district-level hospitals were diagnosed with IMNCI-related illnesses, highlighting the significant burden. Specialist consultations via telemedicine improved diagnostic accuracy and treatment, enabling mid-level healthcare providers to follow IMNCI guidelines. This approach demonstrated the potential of telemedicine to enhance health care, improving childhood illness management.

Keywords:

Integrated management of neonatal and childhood illness, ChildLife foundation, telemedicine satellite centers.