

**SMS**  
**FOR THE CONTROL OF COMMUNICABLE AND**  
**NON-COMMUNICABLE DISEASES**  
**IN**  
**DEVELOPING COUNTRIES**

**A systematic review**

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## ABSTRACT

**Introduction:** The last decade has seen an unprecedented growth of mobile phones in the developing world, thus linking millions of previously unconnected people. The ubiquity and popularity of Short Message Service (SMS) for communication and data transfer provide new perspectives for improving healthcare delivery. This review aims to describe and evaluate SMS-supported interventions for the control of communicable and non-communicable diseases in developing countries. It will also examine opportunities and challenges to identify priority research areas and the way forward.

**Methodology:** An electronic database search of peer-reviewed and grey literature was performed. It retrieved 272 eligible articles from scientific journals, newspapers and reports from research institutes, international or non-governmental organizations, conference proceedings, websites, blogs or personal communications with experts in the field.

**Results:** There is an increasing number of SMS-based applications in various levels of sophistication. But convincing evidence on their relevance and effectiveness is still limited, since there was a minority of controlled studies and a majority of pilot projects with inherent methodological issues. The effects measured were more subjective than objective and reported process of care rather than clinical outcomes. Nevertheless, the findings show that interventions were feasible and often well accepted by the beneficiaries in four different areas. First, health promotion communication can be diffused through tailored or bulk text messages that target many people at the same time. The technology was mainly used for HIV/AIDS awareness, malaria prevention and vaccination campaign. Then, there are many SMS-based applications designed for improving diseases surveillance in general or in emergency situation. Data collection on mobile phones and transmission via SMS channel were

considered as easy and fast by participants and reduced reporting delay compared with paper-based system. This facilitated near real-time compilation and analysis of the data but the effect on data quality was still controversial. Third, health workers can benefit from access to communication and information for diagnostic and treatment support. SMS-based systems contributed to improve electronic patient registration and tracking, particularly valuable for long-term care, and enabled remote consultation by medical specialists. Finally, the technology can be used for patient monitoring and peer-to-peer support. Adherence to medical appointment or to HIV/AIDS and TB treatments was improved. Despite the potential of mobile phones and SMS, various challenges may hinder their applications in resource-poor settings. Main barriers identified were financial sustainability, access to mobile phone services, appropriateness of the content, inclusion of vulnerable groups, language issues threats to data security, loss of face-to-face contact and capacities building to fully harness the potential of technology.

**Conclusion:** Capitalizing on SMS-based interventions could improve efficiency in healthcare delivery. But the approach should remain careful since quality research is needed to explore thoroughly their real potential, optimal utilization and cost-effectiveness. Simplicity, need-centred and participative approach, well-coordinated multi-stakeholders process, capacity building, good policy and regulatory frameworks and long term financial planning may be all essential building blocks for scaled-up and sustainable projects.