Role of mobile phone based communication to improve routine immunization coverage in Pakistani children

Pakistan is the major polio epidemic country and one of the few places requiring proof of polio vaccination for international travel.[1] Improved routine immunization (RI) coverage is recommended as the priority public health strategy, to reduce vaccine preventable diseases and eradicate polio in Pakistan and worldwide. With reemergence of polio in Nigeria, increase uptake of polio vaccine as part of RI program is the only defense to eliminate and sustain polio eradication. Unfortunately, routine childhood immunization (RI) in Pakistan is well below the recommended coverage of 90% with rates as low as 16% in Baluchistan province.[2]

Some of the major factors responsible for low RI coverage in Pakistan include low demand for immunization, lack of awareness and education, drop-outs and inability to complete the subsequent doses and overestimates of vaccination coverage. Hence, novel and cost effective strategies for enhancement in RI uptake should be explored. The mobile phone and text message use has increased dramatically with around 7 billion mobile phone subscribers globally. There are around 130 million mobile phone subscribers in Pakistan. There is also a surge in the use of short messaging service (SMS), with 237.58 billion person-to-person SMS generated in 2011 estimating to around 175 SMS per mobile phone on a monthly basis.[3]

Data from mobile phones and text messages has the potential to connect health care services to pregnant women and mothers bypassing different barriers.[4] Vaccine reminders-recalls and parental education using text messages have long been endorsed to increase uptake for routine childhood vaccines.[5] Automated SMS and voice calls on mobile phone can be delivered as continuum of care starting from early pregnancy, continuing through child birth, newborn and infancy. This might bring about the behavioral changes necessary to improve the RI uptake among children. SMS text in general has more audacity and can be easily automated and scaled up in national and global programs. In addition, free airtime or voucher as incentive can be added to the intervention if required, however its feasibility for scale up in the EPI program is questionable.

One major reservation for SMS based interventions is the level of literacy. Automated calls and interactive voice response technology are other strategies to address the barrier of low literacy. Although the cost of SMS is 6 times less than automated calls. In addition, playing a catchy jingle or ringtone on mobile phone networks can help in increasing awareness and significance regarding RI and its schedule. Another major advantage of mobile based communication is quick and cheap conversion of campaigns into different versions according to local environment and context. An automated voice call from a religious leader advocating RI can be broadcasted in a conservative society, the same message recorded in celebrity voice can be disseminated in other settings.

In Pakistan SMS based messages have been used to send reminders to parents regarding vaccination and for monitoring of supplementary immunization activities.[6] We assessed the role of sending automated SMS messages to parents/ caregivers of children under five years of age to monitor polio supplementary immunization campaigns in polio endemic areas of Karachi.[7] The study reported positive outcomes in monitoring the polio immunization coverage at household level and could be used to highlight deficiencies in coverage. Similarly, another study evaluated the effectiveness of one way SMS reminder messages in improving RI coverage at weeks 6, 10 and 14. Although the results were not statistically significant, it showed potential of using SMS technology for vaccination reminders in Pakistan.[3] Financial incentive through mobile phone was added in few studies to make the intervention more effective. However, majority of these activities are either pilot studies, carried out on a single occasion or limited to a particular geographical location or province.[6]

In order to scale up mHealth based interventions, mobile phone numbers registries of the parents/ caregivers of children eligible for RI needs to be established for mass broadcast of immunization promotion. In addition, mobile phone numbers can be captured after consent from caregivers visiting the EPI centers, mobile phone vendors or government agencies. However it is essential to establish privacy and confidentiality policies guiding the use of information and mobile numbers acquired. Mobile phone based interventions can be of great potential and are a cost effective strategey to not only improve RI coverage in Pakistan but also address barriers to accessing health information and care. However, more research and a clear policy on the application and implementation of mHealth in all provinces is required.

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