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Use of mHealth to improve the quality of services of the village doctors

Recent learning from Chakaria, Bangladesh

Bangladesh continues to be one of the 57 countries with a serious shortage of trained doctors, paramedics, nurses and midwives despite attempt for increased production in the recent years. Village doctors, a group of informally trained practitioners of modern medicines and drugs, are the dominant health care providers in rural areas. Recognizing the importance of their role in the face of serious shortage of trained health care providers, icddr,b has previously tested interventions to improve the quality of their services – especially training on acceptable practice and the creation of a franchise called ShasthyaSena (health soldier). But training alone met with limited success, as the incentives to sell inappropriate medicines and drugs were too strong. To continue to shift these incentives and to improve the quality of services, icddr,b has been testing an mHealth intervention that linked ShasthyaSenas to qualified physicians through a call centre. This brief documents the successes and challenges faced during the first year of implementation of the mHealth intervention.

Village doctor consulting over phone

Credit: Masud Rana, Chakaria

Background

In working to improve the quality of services provided by village doctors, icddr,b tested a training and franchising model several years ago in Chakaria, a rural area in the southeast coast of Bangladesh. Although they are often the first port of call for health services in rural areas, the quality of their services is variable – partly because they are poorly trained, and partly because they over-sell certain drugs for making their living. The intervention involved training on the 'dos and don'ts' for appropriate treatment of 11 major prevalent health problems. Before accepting individual village doctors into the *ShasthyaSena* franchise, their performance was systematically evaluated – those with sub-standard performance were retrained until they met an acceptable level of performance, while those who met the performance criteria became *ShasthyaSena*. Qualifying village doctors were given a branded crest in a public ceremony to strengthen community knowledge about the franchise. Subsequently, *ShasthyaSena* franchisees were studied to assess their performance in terms of the appropriate prescription of drugs and medicines. The assessment showed a modest reduction in inappropriate prescription of drugs, but adherence to recommended practices was hindered, for it often would result in the loss of income from selling drugs.

To further improve the services of the *ShasthyaSenas*, a new intervention was developed and implemented

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by icddr,b in collaboration with a local mHealth call centre. The intervention linked the *ShasthyaSenas* with a private mHealth company. The hope was that this mHealth intervention would both shift incentives by charging consultation and referral fees rather than relying solely on selling drugs and improve care through consultations with qualified mHealth physicians. This mHealth service was solely designed for and used by *ShasthyaSenas*.

This brief provides an overview of the intervention, the extent to which the service was actually utilized and the strengths and weaknesses of the design. It concludes with lessons learnt for implementing mHealth interventions with village doctors.

mHealth intervention design

The mHealth intervention required registration of the *ShasthyaSenas* with the mHealth service through any mobile phones and SIM cards without any fee. Upon registration, the *ShasthyaSenas* gained access to a 24/7 call centre staffed by trained physicians. In this way, *ShasthyaSenas* taking part in the intervention had the potential to consult with the qualified physicians when patients came to them with illnesses and symptoms that were beyond their level of expertise. If consulted, the call centre physicians would provide diagnosis, prescriptions, drug management and investigation or referral advice as needed to the informal care provider. In relevant cases, a prescription for certain drugs would be sent through text messages (SMS) to the mobile phone of the *ShasthyaSena*. The *ShasthyaSena* would then pass on the physician's advice to their patients, thereby giving the community a higher quality of medical care than they could previously provide.

The *ShasthyaSenas* participating in this programme charge Taka 30 (US 40 cents) from the patient as consultation fees for the mHealth physician and their services. This money received from each patient is then divided between the company and the *ShasthyaSenas*, with three-fifths of the fee (Taka 18) going to the company and two-fifths (Taka 12) going to the *ShasthyaSenas*. The fee received by the *ShasthyaSenas* was an addition to the profits from the medicines they typically sold from their chambers. *ShasthyaSenas* use the system by pre-purchasing a bundle of five calls for Taka 90 (i.e. 3/5th of the full consultation fee). The calls made by the *ShasthyaSenas* were subject to charge as per prevailing rate of the cell phone companies which was approximately Taka 1 per minute.

Orientation and training of the *ShasthyaSenas* on the mHealth services started in June 2011. Although the programme started with great enthusiasm from the mHealth company, the inputs from the company started to suffer from month six (December 2011) onward, for issues unrelated to this intervention. The table below presents the number of *ShasthyaSenas* who participated in the training along with their level of utilization of the mHealth call centre. Between June and August 2011, the first batch of *ShasthyaSenas* was oriented on mHealth services jointly by the company and the icddr,b team. A total of 110 *ShasthyaSenas* participated in the first orientation and training session. Between September and December 2011, refresher training sessions were organized for the *ShasthyaSenas*. These trainings included the opportunity to discuss problems faced along with potential solutions to further refine the intervention. A total of 85 *ShasthyaSenas* participated in the refresher trainings.

The mHealth service was marketed as 'eClinic24' by the mHealth company through personal visits to the *ShasthyaSenas*, the use of posters explaining the programme, and in meetings. Further incentive was provided at a later stage for the programme by offering a smartphone to those who made the highest number of calls per month. The marketing work was done mostly by icddr,b staff members. Four visits were made by the doctors from the call centre to familiarize themselves with the *ShasthyaSenas* when it was realized that *ShasthyaSenas* preferred talking to doctors whom they had met before.

Utilization of mHealth services

55 *ShasthyaSenas* registered with the programme and 39 made at least one call. A total of 415 calls were purchased and 215 calls were made. For 126 of the calls prescriptions were sent by SMS. Although there was a lot of enthusiasm among the *ShasthyaSenas* about the mHealth programme, as the numbers in the table indicates, the uptake was far below expectation. A major reason for the low uptake of mHealth services was the difficulty of accessing the call centre, which stemmed from a combination of the mHealth physicians not picking up the calls, long waiting time, and problems with the phones the *ShasthyaSenas* owned. Feedback about the mHealth services from the *ShasthyaSenas* obtained during the 12 months of the operation are presented below.

Strengths of the programme according to *ShasthyaSenas*

Using mHealth services gives financial benefit and enhances reputation

Many *ShasthyaSenas* thought that the cost of a Taka 30 consultation fee from an MBBS doctor through the mHealth programme was a very reasonable price to pay. In comparison, the usual price for getting an MBBS doctor's advice is Taka 200 to 300. Because the *ShasthyaSenas* participating in the intervention had access to the expertise of qualified doctors during consultation with patients, villagers who had previously been reluctant to pay for the *ShasthyaSenas*' services came prepared to pay. This access and association also enhanced the reputation of *ShasthyaSenas*.

Networking boosts confidence of *ShasthyaSenas*

Following the launch of the intervention, *ShasthyaSenas* were regularly visited in their chambers by representatives of the mHealth call centre and icddr,b staff for training and feedback, and they themselves visited the project offices for troubleshooting. This strengthened the

network between icddr,b, the mHealth company and the *ShasthyaSenas*, which boosted *ShasthyaSenas*' confidence to handle difficult health problems.

Learning and expertise increased through mHealth

Seeking assistance from the mHealth doctors to handle problems they did not have the capacity to handle gave *ShasthyaSenas* on-the-job training to handle such cases and served as a kind of apprenticeship. In this way, *ShasthyaSenas* increased their knowledge and gained the confidence to treat more types of illnesses.

ShasthyaSenas found community more satisfied with their services

Community satisfaction has increased the popularity of *ShasthyaSenas* among the villagers, as they are receiving the services of a formal doctor through them and getting prescriptions in a written form through text messages in their mobile phones. As such, they do not have to travel to a far away place for further treatment. Some people have also appreciated the interpreter role played by the *ShasthyaSenas* in communicating with the formal doctors who have a different urban dialect than the village people.

Village doctors find mHealth intervention gives easier access to formal doctors

ShasthyaSenas feel they can call on a formal doctor for help without any hesitation by using mHealth services. Due to the formal affiliation and the payment given for the mHealth services, the *ShasthyaSenas* feel they have the right to contact the formal doctors at any time on the phone. This is in contrast to the hesitation *ShasthyaSenas* may have felt in contacting the formal doctors they knew to ask for help without payment and at inconvenient times.

Patient's record keeping is useful for the treatment process

ShasthyaSenas found the database of patient case histories and general information very useful for identifying patient illnesses in shorter times.

Weaknesses of the programme according to *ShasthyaSenas*

Better training on using the mHealth services needed

Although the *ShasthyaSenas* received training on using mHealth at the beginning of the intervention, they faced difficulties in its use conceptually and practically since the training did not include practical exercises. Some of the problems faced included the inability to follow the mechanical instructions of the call centre, inability to explain symptoms to the mHealth doctors or to keep track of their cash credit on the mobile phone.

Intervention not well understood by community

The mHealth service lacked advocacy at the community-level. Because of this, *ShasthyaSenas* hesitated to consult with the mHealth doctors in front of patients, as this would indicate their incompetence to their clients.

Non-touch technique of diagnosis limits accuracy

Some felt that diagnosis through mHealth services and based only on a narrative of symptoms without physically seeing the patient may not be accurate, which posed a limit on the utility of the mHealth services in its present form.

Cost of the calls

Most *ShasthyaSenas* often tried to shorten the conversations to save money without having communicated enough with the physicians. Some expected a return call from the call centre, which was against the company's operational design and the *ShasthyaSenas* were eventually disappointed.

No follow-up

The mHealth centre does not enable connectivity with the same doctor previously consulted. As a result, *ShasthyaSenas* who had discussed a case with a particular doctor were not able to follow up on the problem.

Problem with connectivity to the call centre

Initially, the call centre experience was a very friendly one for the *ShasthyaSenas*. However, later in the intervention, there were frequent problems such as dropped calls, not being able to connect to the dedicated number, not receiving a prescription, waiting for a prescription, etc. The problem was resolved on only a few occasions and the call centre remained unresponsive in most cases.

No provision for the poor

The mHealth centre did not have a different arrangement for the poor to avail its services. As it is often seen that some rural poor cannot pay BDT 30 at one time, the *ShasthyaSena* had to pay for them on occasion and this was inconvenient for the *ShasthyaSenas*.

Conclusion

- The low uptake of the mHealth programme was mainly due to the lack of responsiveness of the mHealth services to the needs of *ShasthyaSenas*, e.g. not being easily accessible, not picking up the calls, and not using easily understandable language in answering the calls. This can be overcome by improving the operation of the mHealth call centre.
- The problem with the telephone set of the *ShasthyaSenas* was mainly the small display not enabling easy reading of the text messages. This can also be overcome with more appropriate phones as their prices are coming down.
- The problem of inadequate community awareness can also be easily tackled through targeted information campaigns.

"Though the call centre doctor never mind if I call them for any help, but I have a shy feeling to call them in an odd time. I always thought before I call them that what they would think, still I called them because I have no other way. But I didn't feel any shy to call the mHealth call centre doctor because I am paying may be one taka still I am paying something for the services". – a ShashthyaSena

"This is a great benefit for us, we become experienced to treat some new illness, and we get confidence to serve the ill people at the same time people also have showed their confidence on us..... before that we didn't feel confident to give treatment but when they [mHealth doctors] give us direct assistance we feel confident to provide treatment" – a ShashthyaSena

"Initial year of the project provided lot of learning on importance of mHealth tools for village doctors and showed ways to meet implementation challenges. It is clear that there is a demand for consultation with physicians through call centre with a role for village doctors. Linking the village doctors with the physicians in the call centre with cash incentives has the potential to improve the quality of the services provided by the village doctors. Addition of telehealth technology based diagnostic items is likely to increase the utilization of the services significantly. Nevertheless, this will depend on improvement of the connectivity through 3G mobile internet, which Bangladesh has just introduced and is expected to become available in rural areas within next one year. The research results can also help raise regulatory issues related to definition of relationships between mHealth service providers and mobile operators, and to guide development of rural economy-friendly and cost-effective mobile voice and internet usage charges for emerging mHealth sector. Such regulatory supports will facilitate wider spread and will ensure greater acceptance of mHealth application tools both by village doctors as well as by formal health care service providers. Given the importance of mHealth in the context of Bangladesh funding for implementation research on mHealth is much needed". – CEO of the partner mHealth company

- The potential of mHealth to improve the quality of *ShasthyaSenas*' services is promising.

Training and participation in mHealth programme and utilization of services by *ShasthyaSenas* as of December 2012

Training of *ShasthyaSena*	Number
Number participated	110
Number participated in refreshers	85
Utilization	
Number registered	55
Number of calls purchased	415
Number of *ShasthyaSena* made a call	39
Number of calls made	215
Number of calls received a prescription	126

Related readings

Bhuiya A, editor (2009) Health for the Rural Masses: Insights from Chakaria. Dhaka: icddr,b. 125 p.

Wahed T, Rasheed S, Bhuiya A, editors (2012) Doctoring the Village Doctors: giving attention where it is due Dhaka: icddr,b. 73 p.

Mahmood SS, Iqbal M, Hanifi SM, Wahed T, Bhuiya A. (2010) Are 'Village Doctors' in Bangladesh a curse or a blessing? BMC Int Health Hum Rights 10:18.

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