

Using mobile phones

to improve health management information systems

The challenge: incomplete or late forms

Obtaining monthly reports from rural facilities on services delivered, especially immunisation and maternal health services, has been a major challenge. Traditionally, monthly summary reports from registers track health worker and patient interactions. These contain around 150 data elements, and are submitted to the Local Government Primary Health Care coordinator who either inputs them into the District Health Information System (DHIS) software, or sends them on to the state level for data capture.

However, some states struggle to reach data completeness of 50% and, in general, only 50% of facilities report within 45 days of the end of the reporting period. Key issues are the lack of time to manually transcribe data from registers to health management information system (HMIS) forms, plus the cost and time required to transport the data from health facilities to LGA headquarters.

Key messages: Mobile phones are changing the way health workers are recording essential data.

- 1 Monthly data submitted manually from health facilities to the local government areas (LGAs) in Nigeria is often incomplete and late.
- 2 PRRINN-MNCH has tested user-friendly mobile phone applications linked to the web-based District Health Information System (DHIS2) and achieved impressive improvements in data completeness and timeliness at relatively low cost.
- 3 There is huge potential for this initiative to help transform data management in health.

The response: mobiles are quicker and cheaper

As part of the PRRINN-MNCH initiative to strengthen the HMIS in the Northern Nigerian states of Yobe, Katsina and Zamfara, mobile technology was used to improve reporting completeness and timeliness from selected health facilities. Mobile data submission was also expected to reduce costs since no travel was involved.

Rapid mobile technology advances in Nigeria have enabled these pilot studies to be taken to a higher level in a short time with the introduction of GPRS (General Packet Radio Service) and EDGE (Enhanced Data rates for GSM Evolution) connectivity. This has reduced the cost of sending data significantly. Furthermore, the DHIS2 software – a web-based upgrading of the original DHIS – includes a mobile module that allows users to capture a

defined dataset on a mobile phone.

After testing mobile phones in health facilities and LGAs in Yobe and Katsina, PRRINN-MNCH experimented with mobiles in hard-to-reach health facilities in Zamfara state with persistently low reporting rates. The mobile phone used in the Zamfara pilot was a Nokia ASHA 200, which costs about \$85 (NGN14,000), and proved to be the most stable and user-friendly phone of those surveyed.

The results: more complete reports on time

Ease of use: All the users (100%) described the DHIS mobile as being very easy to use and user friendly. The whole process of accessing the internet, loading the dataset, data capture and report submission took just 10-15 minutes. However, in many facilities this was partly due to the fact that they do



not offer some of the services and skip those reporting sections.

Preference: All the users (100%) preferred the mobile phone to submit data as it saves them the time and cost of taking the data to the LGA headquarters before the 5th of each month.

Cost: Interestingly, it cost next to nothing to submit the data as most of the GSM networks have promotions that offer free data bundles for airtime purchased.

Completeness: The completeness of data submission was 100% from Aug 2012 to Dec 2013: ie all the 96 expected reports were received compared to a submission rate of between 12.5%-37.5% in the seven months preceding the study.

Timeliness: The overall timeliness of report submission before the 5th of each month was 57%, rising to 100% by the 8th. This was in part due to some challenges with the server, when the users could not upload their completed data in time.

Data quality: Comparison between a sample of data captured directly by the LGA and those captured by the health facilities showed the accuracy of the reporting was good.

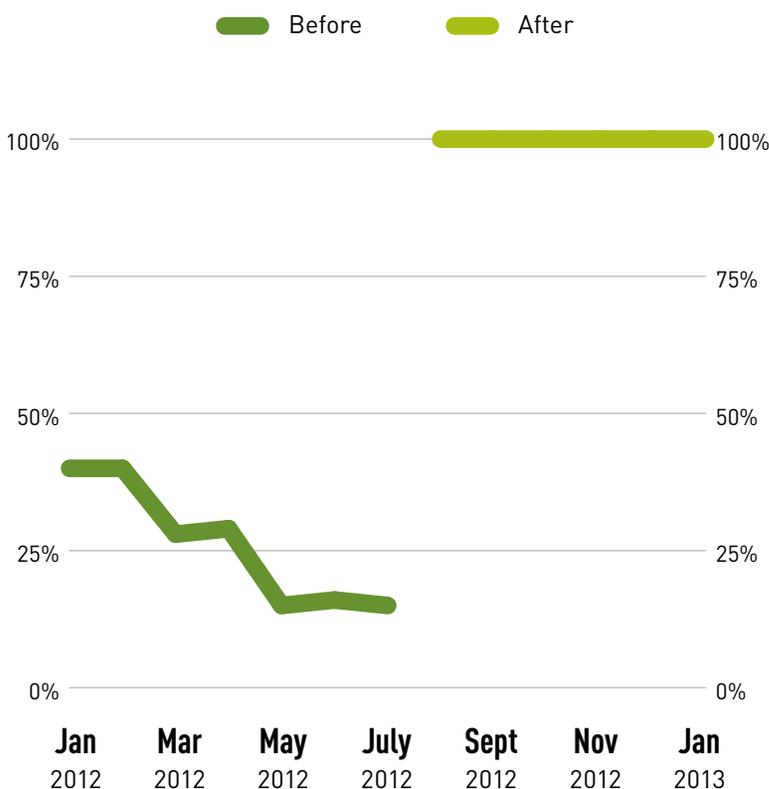
Policy implications

1. The use of mobiles for reporting has obvious cost-saving benefits. Not only are travel costs eliminated, but the time spent travelling to and from facilities to submit data is significantly reduced.

2. The capturing of data at the health facility level allows the LGA to concentrate on data analysis, address data quality, provide feedback to the health facilities, disseminate information to policy makers and promote the use of information.

Fig 1: Submission rates before (Jan 12-Jul 12) and after (Aug 12-Jan 13) the study

Use of mobile phones for submission grew from less than 40% to 100%.



3. While the data submission in these pilots has been restricted to the NHMIS001 form, or a subset of this data, the potential is for mobiles to be used for other reporting priorities, such as maternal and neonatal deaths, disease surveillance data or priority communicable diseases.

Conclusion

There are numerous examples in Nigeria where mobile phones are used to submit health service data. However, most of these rely on donor-funded support, which carries the risk of the initiative folding when the donor support ends.

The initiatives in Yobe and Katsina, and more recently in Zamfara, have sought to build sustainable systems. The

introduction of the DHIS2 in Nigeria has radically changed the potential for the sustainable deployment of mobile information systems. Though the initial pilot system was heavily dependent on a national consultant, the mobile module of the DHIS2 can be easily managed by advanced DHIS2 users. In addition, users in health facilities appear to have very little difficulty in using the application.



The PRINN-MNCH programme works with federal, state and local governments and local communities to improve the quality and availability of maternal, newborn and child health services.

www.prrinn-mnch.org
Email: info@prinn-mnch.org

Partnership for Reviving Routine Immunisation in Northern Nigeria; Maternal Newborn and Child Health Initiative



The PRINN-MNCH programme is funded and supported by UK aid from the UK Government and the State Department of the Norwegian Government. The programme is managed by a consortium of Health Partners International, Save the Children and GRID Consulting, Nigeria.