

SENE PDA PROJECT- AN eHEALTH INITIATIVE IN GHANA

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Abstract: The Pocket Digital Assistant (PDA) EPI data capture project in the Sene District was started in 2004 as a collaborative work between the Berekum Health Directorate initially and later Sene District Health Directorate and Access to Health an NGO from the United states .The aim of the project is to use information technology to improve service delivery at the lowest level of service delivery – Community-based Health Planning and Services (CHPS) zones. It is one of the pioneer mobile health projects in Ghana.

Objectives of the project are:

1. To use appropriate technology to generate more accurate reports that can be used to make decisions by the Community Health Officers (CHO) and the District Health Managers.
2. To use current technology to reduce the time CHO's spent to generate monthly report on services.
3. Improve the follow up of children/mothers registered for services and reduce the drop- out rate for immunization and safe motherhood services

The project uses customized software created on a java platform and installed on the PDA to collect the individual clients' data. Recently the project has started using smart phones to run the application. The project has resulted in improvement of reportage of immunization coverage in the District.

Keywords.

Information Technology, eHealth, Pocket Digital Assistants (PDA), mobile Health, Community Service delivery, Immunization data, Smart phones.

1. INTRODUCTION

The use of mobile devices in the health sector in Ghana has been increasing over the past five years. There are various pilot projects in Ghana where mobile devices are being used to solve the problem of poor data collection and improve timeliness in reporting.

The PDA EPI data capture project in the Sene District was started initially in 2004 as a collaborative work between the Berekum Health Directorate and Access to Health an NGO from the United States [1]. It was improved upon and started in Sene District in 2006.

It is one of the pioneer mobile health projects in Ghana and indeed the very first mobile project within the Ghana Health Service.

The Sene District PDA Project involves the use of Pocket Digital Assistants (PDAs) to collect public health service data at the lowest level of service delivery in Ghana – Community-based Health Planning and Services (CHPS) zones. It is in the form of medical records to aid in following up clients to ensure continuity of care. The project also aims to produce accurate service data and reduce the time

spent by service providers to compile inaccurate monthly data. The project has reached an advance stage in collecting Expanded Programme on Immunization (EPI) data and use of EPI data collected to ensure that every registered child completes his/her immunization. The Safe motherhood aspect of data collection i.e. Antenatal care supervised delivery and postnatal care has been started but it is still in the rudimentary phase.

Data is collected by the Community Health Officers at the CHPS zones by registering each child who receives immunization service. The demographic details of the children are taken using the PDA. The children are given unique identification numbers generated by the community health nurse. Address of the child is captured so that the child can be traced for home visits.

Every month this register is used to follow up children who are due for immunization in the communities. For each community visit that the community health officer makes for an outreach clinic, she queries the database and has the names of the children who are due to be vaccinated and the type of vaccines they will be taking. This helps in the preparation in getting adequate vaccines for an outreach and also ensuring that she identifies and vaccinate every child in the community who is due to be vaccinated. This same data is synchronized with a computer at the District Health Directorate and an interface is used to generate the monthly immunization facility report as required by the EPI program. The generation of this electronic monthly immunization reports has been estimated to save the community health nurse about five working days every month of report preparation, which can be used for service delivery [2]. District Health Management Teams also gets immunization reports promptly in order to make decisions on which community health nurses need extra support to reach their target populations.

2. THE AIMS AND OBJECTIVES OF THE PROJECT

Aim of the project is to use Information Technology (IT) to improve service delivery at the lowest level of service delivery – Community Based Health Planning and Services (CHPS) zones

Objectives are: Using the current IT tools to:

- Reduce the time Community Health Officers spend to generate monthly report on services
- Generate more accurate reports that can be used to make decisions by the Community Health Officers and the District Health Management Team.
- Improve the follow up of children/mothers registered for services and reduce the drop- out rate for immunization and safe motherhood services.

3. SERVICES THAT ARE ADDRESSED

The project had focused mainly on the reporting of the Expanded Programme on Immunization (EPI) services with plans to expand to other services after the initial test period. From the introduction of the PDA in the Sene District in 2005, reported uptake of vaccines by children increased. Although there is an expected annual increase in the number of eligible children for vaccination, the increase seen from 2006 to 2007 when the community health nurses started using PDAs maximally cannot be attributed to just an increase in the number of the targeted children[3] (Fig 1)

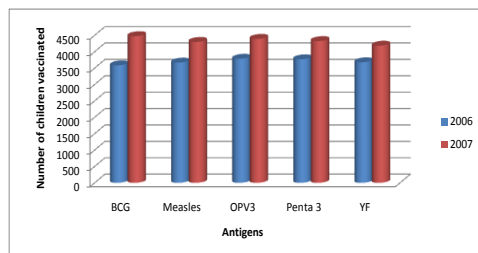


Fig 1: Total number of children vaccinated by antigens comparing 2006 to 2006

The introduction of the PDAs gave the community health officers more time for direct service delivery and gave them a tool to use to track and immunize children who defaulted. Looking at the data for the Pentavalent vaccine (against Diphtheria, whooping cough, Tetanus, Hepatitis B and H. Influenza infections) which is given at 6 weeks, 10 weeks and 14 weeks after birth, The drop-out rate for this vaccine in the Sene District, calculated by subtracting the coverage at 14 weeks from the coverage at 6 weeks, fell from 5.3% to 1.8% (Fig 2.) This is an indicator that shows how well children are followed up to ensure that they complete their immunization schedule according to schedule.

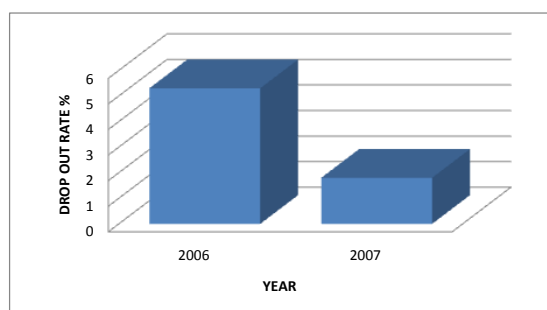


Fig 2: Pentavalent vaccine dropout rate comparing 2006 to 2007

More accurate and timely EPI data are now being generated by the community health offices than before when they were using the paper based system. The processes affected are the registration of the children, the collation of service data and reporting. These have now been automated freeing up valuable time for direct service delivery by the community health officer.

4. KEY TECHNICAL DETAILS AND ICT INFRASTRUCTURE INVOLVED

Pocket Digital Assistants (Palm OS 5 is used to run the java based software that is used to collect the data) PDAs are uniquely identified by facility of use. To reduce the cost of project implementation a dedicated computer at the District Health Management Team (DHMT) office serves as the server where data is collated and reports are generated. PDAs are synchronized with the computer anytime the community health officer comes to the District office. This is usually once or twice every week. Synchronization is by either wireless or USB connection. All the PDAs carry facility specific patient records which can be queried on the PDA by community, by child and by service rendered. The whole database of immunization data of all the children in the district sits on the dedicated District computer. The Sene District Health Directorate now holds a data base of immunization of close to 5,000 children.

5. HUMAN RESOURCE DEVELOPMENT IMPLICATIONS

There is the need to continuously train all the new Community Health Officers posted to the district in the use of the PDA for data collection. There was the need for a full time Health Information focal person to collate data from the PDAs, generate reports, provide feedback to Community Health Officers and solve small software and hardware problems for the Community Health Officers

6. EXTENT TO WHICH KEY STANDARDS HAVE BEEN MET

6.1 Data Security

All data on the PDA are backed up on the dedicated District Health Management Team office computer. The office computer is regularly backed up on an external drive which is not kept at the DHMT office.

6.2 Confidentiality

Data is accessible by only personnel of the Ghana Health Service who routinely deal with data. These are the Community Health Officers and the District Health Information Officer. The District Health Management Team is given the aggregated data on coverage for the various antigens. The district computer which store the data collate it and generate the report is password protected.

7. FUNDING ARRANGEMENT

Funding for the project has been provided mainly by an NGO partner based in Seattle in the US – Access to Health. The DHMT also supports supervision of CHOs through its district's government service budget allocation.

8. CONCLUSION

The project is still ongoing and there are plans to replicate this nationwide. It is currently being validated in two other districts in Ghana. With the improvement in mobile telephone networks in Ghana, there is an attempt to move from PDAs to smart phones. The project is now running five smart phones using the same application. It is envisaged that given the necessary consideration, mobile devices running relevant applications will become very important medical equipment for the delivery and support of health service in Ghana.

Reference

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