

Biocon Foundation

A Diona Solution Case Study

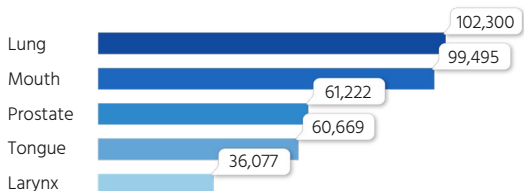
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Who is Biocon Foundation?

Biocon Foundation, based in Bengaluru, India is engaged in providing sustainable solutions to address the many complex developmental challenges in India. Started in 2004, Biocon Foundation is focused on four key thematic areas of intervention; healthcare, education, environmental sustainability and rural development.

The Challenge

Cancer is one of the most common causes of morbidity and mortality today with more than 14 million new cases worldwide. Oral cancer is the eighth most common cancer worldwide. Each year approximately 1 million people in India are diagnosed with oral cancers. India has a peculiarity in harboring the world's highest number, nearly 20% of oral cancers. The following graphic shows the projected burden of cancers among males by the year 2020 in India.



The overall survival of Indian patients with cancer is about 30% lower than the developed countries and its economic fallout is devastating. Data from regional cancer centers in India suggest that lower survival is primarily due to delayed diagnosis and presentation in late stages. More than two-thirds of patients report the cancer in an advanced stage. It is evident that most of the oral cancers are largely preventable, if detected early. But often there is a delay in diagnosis due to lack of awareness, inadequate diagnostic services, and lack of trained specialists. This results in low treatment outcomes and higher cost to patients.

Early detection by screening is an important intervention in cancer control, especially in low and middle-income countries. There is an evidence that direct visual examination of the oral cavity is a cost-effective method for oral cancer screening in resource-constrained settings. Frontline healthcare providers can help in down-staging oral cancer and play a key role in motivating patients to quit deleterious habits for a healthy lifestyle.

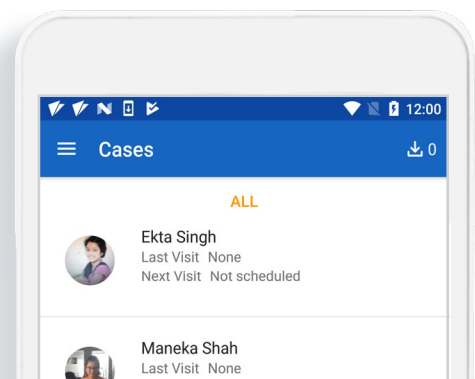
However, conventional screening has some limitations. Poor patient compliance for follow up is one of the main drawbacks. Rigid follow up to monitor the progression of Oral Potentially Malignant Disorders (OPMD) is very critical in oral cancer surveillance program. The other limitations include lack of permanent portable record of data after screening, slow rates of information transfer, poor communication between primary provider and specialist.

The Solution

To address the shortcomings in conventional screening, Biocon Foundation introduced a mobile health (mHealth) program. The Foundation implemented a mobile phone-based management platform for cancer screening and surveillance that enables the creation of electronic health records and facilitates targeted screening for Oral Cancer. The program empowers front-line healthcare providers with mobile phones equipped with a decision-based algorithm for early detection of oral cancer.

This mHealth program allows Electronic Data Capture (EDC) that provides a platform to connect specialists with rural populations for diagnosis. It also creates an opportunity for follow up and referrals. The screening process is evidence-based, as every patient has a unique patient identity correlated with their habit history and clinically-relevant photographs. The program aims at reducing the oral cancer burden and financial liabilities for the patients and improving the treatment outcome.

Diona Visits for NGOs was selected as the technology platform to implement the Oral Cancer Screening and surveillance mHealth program. Frontline healthcare providers can now use Diona Visits





mobile solution to capture patient details as well as assess each patient for potential symptoms of oral cancer. Functionality to capture audio and text notes now enables frontline workers to provide patients with ways to express their views/ articulate their health condition directly to the remote specialists.

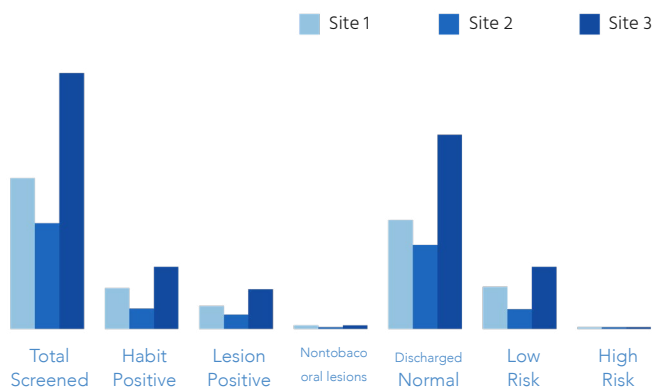
This data is then securely transmitted and stored on the Diona Server hosted on Microsoft Azure® cloud platform. Remote specialists and supervisors utilize Diona Data Manager portal to provide specialist diagnosis and treatment recommendations and to access analytics/reports related to the screening program.

During the development phase, the Diona team extended their full cooperation to our medical experts to ensure that the mHealth solution conformed to specifications and leveraged technology for best outcomes, bearing in mind the constrained field settings.

Ms. Pratima Rao,
Mission Director, Biocon Foundation

The Results

After implementing Diona Visits for NGOs, Biocon Foundation's Oral Cancer Screen & Treat program teams are able to carry out screening at various sites across India using local healthcare workers. Specialist diagnosis is being carried out



remotely. Initial results show that the remote diagnosis success rate is at 96% when compared to on-site diagnosis. As each patient is tracked using a unique case file, long term follow-up assessments, diagnosis and treatment are now possible, to achieve the stated outcome. The chart depicts screening results from one of the initial screening sites.

What's Next?

With the key aim of down staging oral cancer, Biocon Foundation is intending to roll out the OCS program and the mHealth solution based on Diona Visits across India. The solution has also been extended to breast and cervical cancer screening programs.

About Diona

Diona provides innovative systems of engagement solutions to government Health and Human Services, Social Care, and Social Security agencies and NGOs around the world. Diona's family of social program engagement solutions, turn mobile devices—such as smartphones and tablets—into tools to achieve better business and social outcomes by helping agencies serve people more effectively, while improving how their employees work and collaborate. Diona solutions extend organizational systems of record and deliver real-time data directly into the field for clients and workers. Diona solutions are secure, robust, scalable, and reliable and feature flexible cloud-based or on-premise deployment options. With deep domain expertise and a user-centered design philosophy, Diona delivers digital solutions that help government agencies and NGOs solve real-world problems for their clients and employees.

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