Oral Pre-Cancer Mobile App:
Easing Early Cancer Detection And Management

The innovative App is very useful for Doctors and Dental Assistants in the diagnosis process and management of oral cancer in its early stages. ICT thus helps improve the quality of life of the citizens and saving lives using the best that ICT has to offer.

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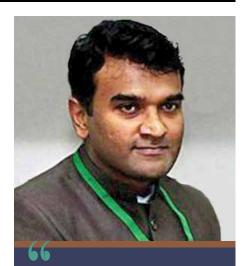Sr.TD & ASIO (Tamil Nadu)
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The State of Tamil Nadu has taken a unique and innovative initiative towards early diagnosis, rehabilitation, and management of cancer including palliative care. In order to carry out oral pre-cancer diagnosis in Tamil Nadu, a survey was planned using a hand held device capable of screening and examining the lesions inside the mouth for possible carcinoma. Relentless work of the expert advisors and officers of State Health Society, State Nodal Officer and NIC Officers has made Tamil Nadu Health Society, to come to the forefront with an innovative new approach to the health programme which offers a therapeutic window of opportunity to intervene and halt progression of the disease to carcinoma.

National Informatics Centre, Tamil Nadu has designed and developed the mobile app using Mobility Platform Services© NIC for oral pre-cancer screening, diagnosis and follow up. The mobile app allows the Medical Officer/ Assistant to register and record the information about patients such as photo of lesions, family details, habit details, symptoms, signs, classification, biopsy details, referrals and follow up.

The State level National Oral Cancer and Pre-Cancer Screening Programme training was organized after distributing a HP tablet to 4 pilot centres namely Anaicut-Vellore, Ammayanaikanur Dindugul, Tharamangalm-Salem and Eral-Thoothukudi during July 2015. After the successful testing of the mobile App at the field level in the pilot programme, the State level rollout was driven by Dr. Darez Ahmed, IAS, Mission Director, National Health Mission, Government of Tamil Nadu. The roll-out was taken up in full swing by Project Officer and HOD, Madras Dental College, Dr. Aswath

> Adopting novel tools such as the use of point-of-care diagnostics (PCD) or hand-held medical devices, integrated Electronic Health Records (EHRs) to monitor and evaluate health worker-patient interactions, and Management Information Systems (MIS) substantially improves the efficiency of delivering primary and preventive care within our communities
>
> **DR. DAREZ AHMED, IAS**
> **Mission Director, NHM**
> **Govt. of Tamil Nadu**

Narayanan and APO Dr. Mohana. A State level training was organized at Chennai and Madurai during June 2016 and a tablet was issued to each PHC covered under the programme.

ACTIVITIES UNDER THE ORAL CANCER PROGRAMME
Identification/ Suspected cases:
The Dental Surgeon/ Assistant is engaged in screening all adults between 20-60 years in the sub-centre villages. The

Dental Surgeon/ Assistant works on the Tablet loaded with the mobile app issued to the PHC. The Dental Surgeon/ Assistant has to authenticate using the user ID and password issued to the PHC. After Successful login, the following menu items are listed.

· Registration Details
· Family Details
· Photograph of lesion
· Habit Detail
· Symptoms
· Oral Hygiene Practices
· Diagnosis and Referral
· Follow up and Review
· Patient History
· Surveyed Village List

Screening in PHC Dental OP:

The Dental Surgeon/ Assistant first registers the family and all the members of the family with details such as name, age, gender, education, occupation, income, oral disorder etc.

Using the Photo capture option the lesions found are captured. The photograph along with latitude and longitude is captured. After taking the photograph of the lesion habit details such as type of

smoking tobacco, type of Non-smoking tobacco, type of alcohol and their frequencies are recorded. After recording the habits, symptoms such as non healing ulcer, painless swelling, difficulty in swallowing, hoarseness of voice, inability to open the mouth and loss of sensation are collected. In addition to the above oral hygiene practices such as cleaning method, cleaning items and their frequencies are captured.

The Dental Surgeon/ Assistant will identify and refer cases to GH/ Medical College after recording the suspected lesion type such as Leukoplakia, Lichen Planus, Erithroplakia, SMF, frank cancer etc. Toludiline blue stain/ Flouroscene staining methods, punch biopsy results are also recorded.

TREATMENT AND FOLLOW UP

At the Government Hospital/ Medical College, necessary treatment is carried out for the cases which were found positive amongst cases that were referred from PHC.

The case thus detected will be referred to higher institution for chemotherapy/ radiotherapy as the case may be. And follow-up will be done at PHC level also for further references as required. Provisions are available in the app to verify the case details and record follow up and references every time. The project officers, health officials, Dental Surgeons and Dental Assistants are part of the channel "NHM-NOHP" in telegram Mobile App with 260+ members and share cases, issues, policies and decisions very effectively.

As of Oct, 2016, the programme has covered 7000+ villages, the populations in 32 districts with the user based on 262

" The Dental Assistant working at the field level does examination of the Oral cavity, filling the case sheet using the hand held device and Toluidine Blue staining of suspected lesions. The Dental Surgeon at the PHC level verifies details in the hand held device & confirms with punch biopsy. The tertiary care worker takes over management (Chemotherapy, Radiotherapy, Surgical & Palliative care). The cases are followed up by the Dental Surgeon-end to end care"

DR. ASWATH NARAYANAN
Project Officer & HOD
Madras Dental College

Dental surgeons and 262 Dental Assistants. The number of family registrations has exceeded 1.3 lakhs and more than 2.5 lakhs were screened. The programme ensures that every individual of the population gains access to diagnosis, hysto- pathological conformation, treatment and palliative care. The Mobile App is acting as one of the key enablers to quicken the process of screening, diagnosis, follow up and treatment, which otherwise would have gone unnoticed ending up being fatal to citizens who are ignorant.

State level training at Chennai