CAMH: Towards a Multilingual platform facilitate & Cultural competence

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Abstract: *Cultural competence has gained attention as a potential strategy to improve quality and eliminate racial/ethnic disparities in health care. Yet the motivations for advancing cultural competence and approaches taken vary depending on mission, goals, and sphere of influence. In this paper we discuss about why we need the multilingual system, proposed CAMH multilingual system, and how CAMH will become a cultural competence.*

Keywords*— ehealth, CAMH, Gynecology, health informatics, EMR*

I. INTRODUCTION

eHealth, as a term, encompasses "not only a technical development, but also a state-of-mind, a way of thinking, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology"[1]. Information and Communication Technologies (ICTs) have an ever-growing impact on our working and private lives, and the healthcare sector is no exception [2]. Cultural competence has gained attention from health care policymakers, providers, insurers, and educators as a strategy to improve quality and eliminate racial/ethnic disparities in health care. The goal of cultural competence is to create a health care system and workforce that are capable of delivering the highest-quality care to every patient regardless of race, ethnicity, culture, or language proficiency. Bringing this to fruition requires action by various health care sectors, each with different motivations, approaches, and leverage points for advancing this field. Health System (CAMH) [3] for fast clinical assistance in Gynecology and Obstetrics in the hard to reach places is described which may be extended across most of the disciplines of medical sciences. The model of medical health system described here is hoped to provide a solution to much of the health problems faced by rural populous. Since the system is designed for hard to reach places the computer operator would know patients language, so that he can select symptoms and description in patient's language.

II. WHY MULTILINGUAL SYSTEM

A. Problem

Over the years development planning in India has focused on reducing the burden of illness and mortality among women and children. A large number of development and public health programmes such as the Integrated Child Development Services (ICDS) have been geared towards this, since a long time. This multilingual application aims to create awareness by providing useful healthcare related information to the rural communities, with a special focus on women and child health.

B. Motivation

More often that, doctors and patients come from entirely different cultural backgrounds, and too often, they are unable to communicate well in each other's language. This can pose a serious barrier to providing/receiving healthcare in rural areas. Keeping this in mind we have develop an application which is design in 3 languages i.e. English, Hindi and Marathi. This multilingual application is a part of larger project CAMH (Computer Assistant Medical Health system), which has been designed to promote intercultural understanding and facilitate communication between healthcare providers and patients from different multicultural backgrounds.

III. THE PROPOSED SOLUTION

CAMH allows healthcare professionals to perform live and interactive medical examinations on patients in remote locations. This System includes integrated diagnostic devices and a complete management application for managing patient data as shown in figure 1.
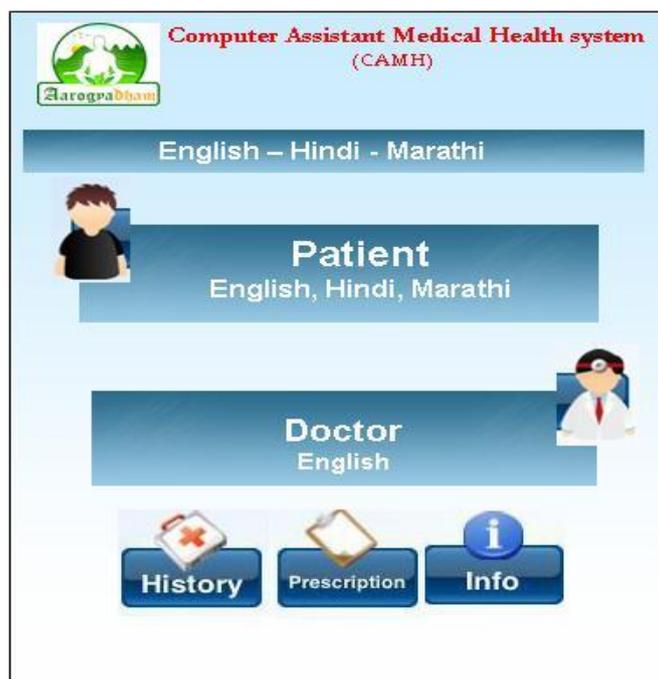
Fig 1: Block Diagram of CAMH

C. Architecture

Technically, the project combines a knowledge management platform, in order to support information exchange and bridge the language gap. The system architecture approach aims at providing an open platform, based on open standards, which is extensible and scalable.

The following figure 2 shows the architecture of the CAMH system.
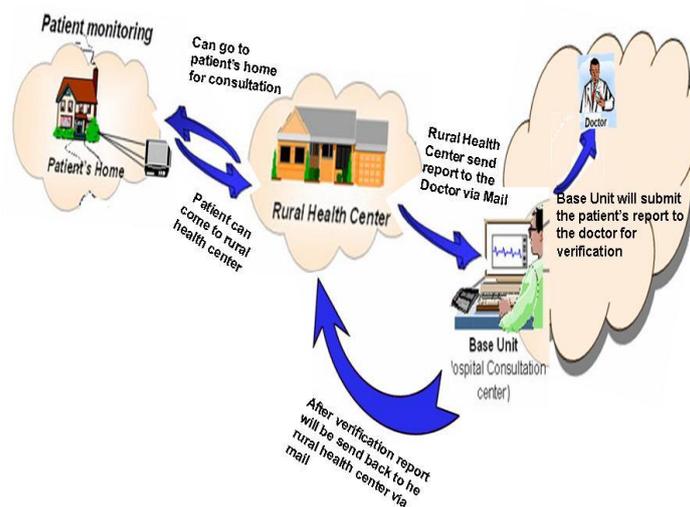
Fig 2: CAMH Architecture

As shown in the figure there is a rural health center (RHC) where the patent will come for consultation. Then the person who is working at RHC will ask for the patient's language, then he will ask about the patient's complaint depending on patient's complaint system will prompt questions patient will give answer and patients answers will be recorded in the system.

After this question answer session one report will generate, now this report will first transfer to the base unit vial mail using SMTP protocol who will submit that report to the doctor, Doctor will examine that report and give suggestions and can ask some more questions to the patient if required. At last doctor will prescribe the medicine and give suggestion that what the patient can do and forward that report to the RHC & RHC will give that report to the patient

D. SMTP Protocol

SMTP is the protocol used to send email over the Internet. When we send an email it gets sent to SMTP server, which then forwards it to the recipient of email. The communication between these two mail servers are basically the same as the communication between computer and SMTP server.

IV. SYSTEM DESIGN AND PROCEDURAL IMPLEMENTATION

As mentioned above, the system consists of two separate modules: the unit located at the patient's site called "Rural Health Center" and the unit located at doctor's site called "Base Unit".
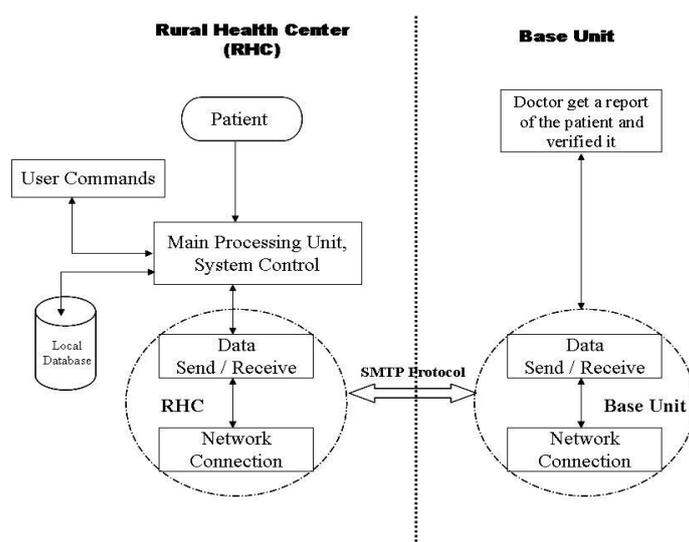
Fig 3: Information flow of CAMH system

The above figure 3 shows the information flow of the CAMH system. Information about the patient will collect at the RHC centers, this information of the patient will sent to the doctor in report format for verification. After verification the doctor will revert back that report to the RHC center. Then, whatever suggestions and prescription the doctor has been suggested is finally given to the patient.

VI. RELATED WORK

The CAMH model used in developing computer programme can be extremely useful in providing medical help to people of hard to reach area. The system can be handled by the semiskilled/paramedics so that the patients get immediate medical assistance. Doctor based in the city area will offer diagnosis and treatment to the patient. Such a system can be extended across all specialties of medical sciences.

Currently we are working on the Gynecology software. At first we have created an application depending on the different gynecological symptoms, now we designing a multilingual gynecological application as shown below:


1. Main Screen with different symptotic options

2.
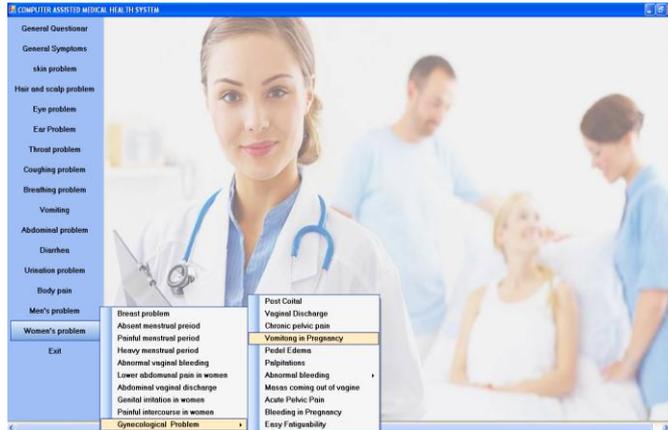
2. Gynecology Symptoms
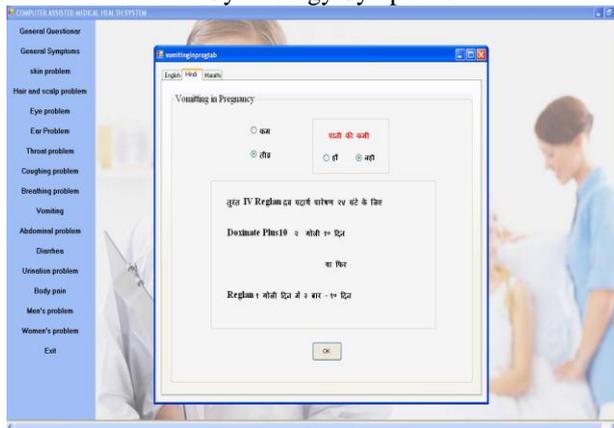
3. Gynecological Multilingual Problem's Symptoms
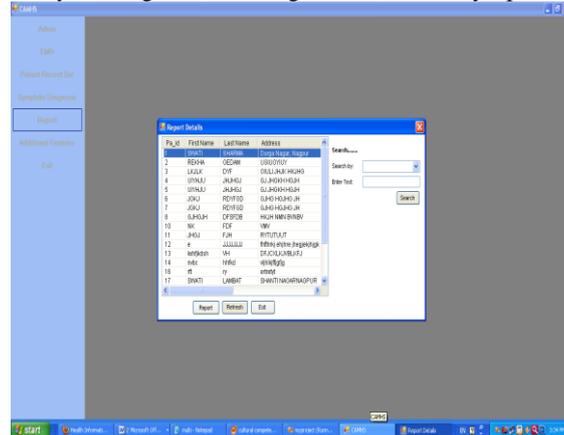
4. Generate report
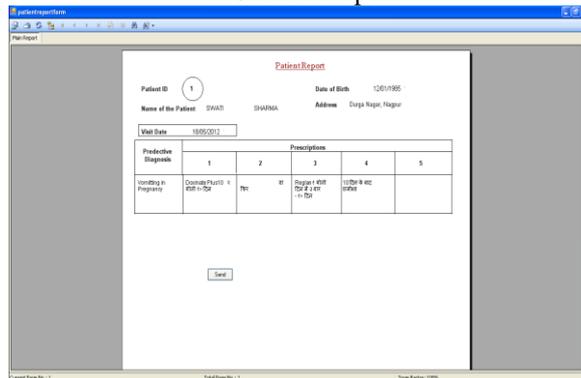
5. Patient's Report
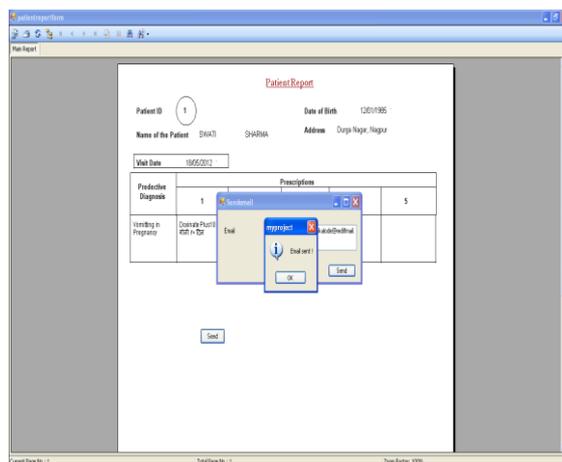
6. Send a report to the Base Unit

VII. CAMH THE CULTURAL COMPETENCE

The healthcare industry is growing at a rapid pace and undergoing some of its most significant changes as the use of electronic health records increase. Designed for technologists or medical practitioners seeking to gain entry into the field of healthcare information systems, the fundamentals of healthcare IT (HIT). It takes an in-depth and comprehensive view of HIT by examining healthcare regulatory requirements, the functions of a healthcare organization and its medical business operations in addition to IT hardware, software, networking, and security.

VIII. CONCLUSION

To collaborate and exchange information will be a motivating aspect of the CAMH project from a social point of view. In this paper we have introduced CAMH as the multilingual system it is expected that dispersed user groups with similar interests will be brought closer and also it will be useful for educational purpose and can recover the patient doctor bonding in rural areas by removing language barriers in some extent.

The research challenges in CAMH lie in employing efficient techniques for translation of the content and the community-enriched nomenclature, as well as exploring options for effective information retrieval of multilingual content and targeted information push methods.

REFERENCES

[1] Eysenbach G. (2001) What is e-health. J Med Internet Res 3(2):e20
[2] Europe's Information Society
[3] Priti Kalode, Onkar Kemkar and D.A.Deshpande, "International Journal Of Computational Engineering Research" ISSN: 2250–3005, Mar-Apr 2012 | Vol. 2 | Issue No.2 |254-259