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# Automatic Follow-up Actions for Medical Treatment

[1] Mohamed Esoof, [2] Mohamed Raseen
[1] Senior Consultant (Public Health, HIV/AIDS, Hospital management), Tamil Nadu, India
[2] Technical Consultant

*Abstract*— **A system to automate the follow-up actions for medical treatment is proposed in this paper. This system uses the existing that uses Aadhaar based authentication to access the centrally stored medical records. Diseases can be classified as Communicable diseases and Non-Communicable diseases. They can be classified also as Chronic and Non-chronic. Follow-up and treatment for chronic disease is very important since the disease extends to the complete life. The proposed system is very helpful in chronic disease where patient needs constant and periodic treatment. The proposed system use the same Centralized records but also provides time alerts to the Patient and Doctors automatically when the follow-up time is due.**

***Index Terms*— Medical Treatment, Chronic Diseases, Medical Records, Health Service.**

## I. INTRODUCTION

Health services include all services dealing with the diagnosis and treatment of disease, or the promotion, maintenance and restoration of health. They include personal and non-personal health services [1].Health services are the most visible functions of any health system, both to users and the general public. Service provision refers to the way inputs such as money, staff, equipment and drugs are combined to allow the delivery of health interventions [1]. Improving access, coverage and quality of services depends on these key resources being available; and how services are organized and managed. Equity in health outcome is the ultimate aim [1].

Health system service delivery is people- centric and integrated health services are critical for reaching universal health coverage [2].People-centric care is care that is focused and organized around the health needs and expectations of people and communities, rather than on diseases [2].

e-Health is the use of information and communication technologies (ICT) for health. The e-Health unit works with partners at the global, regional and country level to promote and strengthen the use of ICT in health development, from applications in the field to global governance [3]. E-Health helps to deliver heath system services to the public in a more reliable method.

The Unique Identification Authority of India (UIDAI) is a statutory authority established under the provisions of the Aadhaar Act, 2016 by the Government of India, under the Ministry of Electronics and Information Technology (MeitY) [4].UIDAI was created with the objective to issue Unique Identification numbers (UID), named as "Aadhaar", to all residents of India that is robust enough to eliminate duplicate and fake identities, and can be verified and authenticated in an easy, cost-effective way [4]. Front and back of a sample Aadhaar card is shown in Figure 1 and 2 respectively. As seen in Figure 1, the front of the Aadhaar card has the holder's picture, name, date of birth, sex (gender) and the Aadhaar card number. The back of the Aadhar card has just the address and card number (Figure 2). The Aadhaar card holder's finger prints are stored in the UIDAI database that can be accessed to fetch the finger prints any time. [5] propose to store all medical records of all Indians in State level databases.


***Fig.1. Sample Aadhaar Card – Front***

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***Fig.2. Sample Aadhaar Card – Back***

A communicable disease is one that is spread from one person to another through a variety of ways that include: contact with blood and bodily fluids; breathing in an airborne virus; or by being bitten by an insect [6]. Communicable disease spread by physical contact with an infected person, such as through touch (staphylococcus), sexual intercourse (gonorrhea, HIV), fecal/oral transmission (hepatitis A), or droplets (influenza, TB) contact with a contaminated surface or object (Norwalk virus), food (salmonella, E. coli), blood (HIV, hepatitis B), or water (cholera); bites from insects or animals capable of transmitting the disease (mosquito: malaria and yellow fever; flea: plague); and travel through the air, such as tuberculosis or measles [6].

A non-communicable disease (NCD) is a medical condition or disease that is not caused by infectious agents (non-infectious or non-transmissible). NCDs can refer to chronic diseases which last for long periods of time and progress slowly. Sometimes, NCDs result in rapid deaths such as seen in certain diseases such as autoimmune diseases, heart diseases, stroke, cancers, diabetes, chronic kidney disease, osteoporosis, Alzheimer's disease, cataracts, and others. While sometimes referred to as synonymous with "chronic diseases", NCDs are distinguished only by their non-infectious cause, not necessarily by their duration, though some chronic diseases of long duration may be caused by infections. Chronic diseases require chronic care management, as do all diseases that are slow to develop and of long duration. [7]

A chronic condition is a human health condition or disease that is persistent or otherwise long-lasting in its effects or a disease that comes with time. The term chronic is often applied when the course of the disease lasts for more than three months. Common chronic diseases include arthritis, asthma, cancer, COPD, diabetes and viral diseases such as hepatitis C and HIV/AIDS [8].

This paper introduces a novel system to automatically generate follow-up reminders for patients with chronic diseases. Section 2 explains the proposed system. Final section concludes the paper.

## II. PROPOSED SYSTEM

Figure 1 [5], shows the network of computers in the proposed system. In the proposed system all the computing resources are interconnected. Currently when the patient checks out, a note is placed in his prescription for the next follow-up date. In the proposed system a note is also made in the computer that is stored in the patient's records in the state level database.

Once the follow-up date is reached an email or an SMS is sent from the State level database to the Patient and the health service center. This makes sure that the patient follows-up regularly on the treatment.

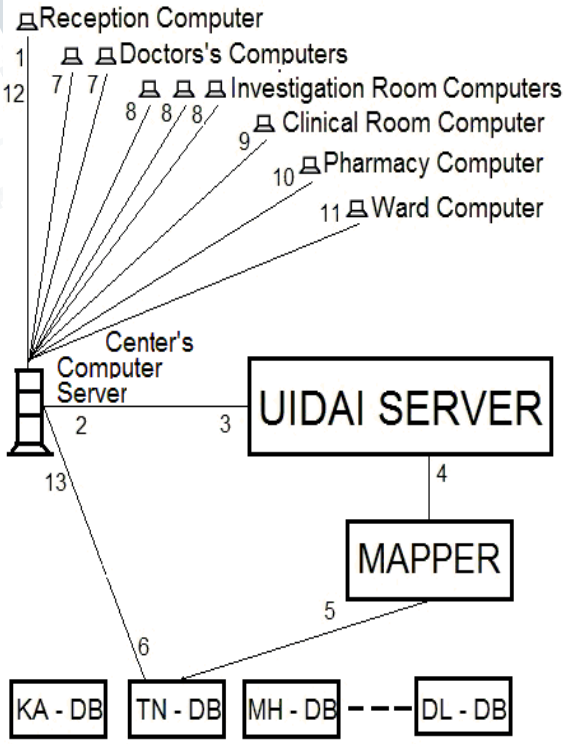


***Fig.1. Network of Computing Resources in Proposed System***

## III . CONCLUSION

A novel system to follow-up for medical treatment is proposed in this paper. In this system both the patient and the Health service center is reminded about the treatment appointment that needs to be considered.

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