ISSN (Print) : 2320 – 3765
ISSN (Online): 2278 – 8875

International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

An ISO 3297: 2007 Certified Organization *Volume 8, Special Issue 1, March 2019*

A Two Days National Conference on Emerging Trends in Electronic and Instrumentation Engineering (NCETEIE 19)

12th & 13th March 2k19

Organized by

Department of Electronics and Instrumentation Engineering, Adhiyamaan College of Engineering, Hosur, Tamilnadu, India

A Review on Medicine Reminder and Adherence System

Bagyalakshmi.N[1], Sai Adhitya.B.S[2], Youvashree.K.M[3]

Assistant Professor, Department of EIE, Adhiyamaan College of Engineering, Hosur, Tamilnadu, India[1]

UG Student, Department of EIE, Adhiyamaan College of Engineering, Hosur, Tamilnadu, India[2,3]

ABSTRACT: Healthcare is free for those, who are below the scantiness line. The public health sector comprehends 18% of total outpatient care and 44% of total inpatient care overall. The anticipated system is best suited for elderly persons and those who're very busy, as this device will now not most effective remind them of their drug treatments with a buzzer sound however also shows the call of the medication to be taken at that time and sometime a people may be an independent living for them taking of medications will be more important as such there are various systems for taking the medicines in time. The natural decline in physical function with aging ends up in a rise in incidences of varied chronic diseases in elderly personages; most patients with chronic diseases have to be compelled to take medications over a prolonged amount of time so as to stabilize their conditions ensuring that the patients consume the correct medication at the fitting time becomes crucial. The detailed view on medication system has to be known for the properusage. This paper reviews on several types of medical reminder and adherence system.

KEYWORDS: Personal Health Records(PHR), Alarm Reminders, Tattle Tale Pill, Electronic Pill Dispenser, Magnetrace

I. INTRODUCTION

As the population is increasing rapidly and as people grow older they develop memory complications. So, older people might forget to take their pills on time, or forget that they have already taken their drugs. Consequently, they miss doses of medicines, or they take overdoses. To solve this problem, various electronic system are proposed, which can be useful for a particular person to take medications. Those system scales are as follows (a) low cost, (b) ease of use, (c) reliability, and (d) time maintenance. Moreover, those proposed work provides methods and systems for managing a person's healthcare with respect to time. [1] If the patient stays at home then he or she might get someone to look after him/her but when one is not at home, is out of the city or state away from home then it is hard for the family members to call them and recap them their measured quantity timings every time. [2] Many methods to improve medication observance have been studied. Most methods attempt to change patient behavior by using reminders, counseling, reinforcement, education, dosage simplification, or a combination of these methods. [3] Personal health records (PHR) and emergent user-adopted communication toolspromisetochangethebackgroundofmedicationmanagement;however,noresearchhasbeen done to demonstrate how these tools might be constructed to support elderly and independent living with special healthcare needs. [4] The smart medication distributer corrects a patient's medication state and transmits the corrected data to the medication-monitoring server. When an abnormal state is detected the message is automatically sent to the doctor and ambulance. [5] To improve medication observance, various methods based on information technology are being carried out. The method we have found in our survey can be categorized into three types: application-level medication reminders, sensor-based intake trackers, or electronic medication distributers. [6] Data store is a physical memory installed in the smooth medication which is stored in microcontroller. [7] The literature provides some perception into the challenges pharmacy would face if it widely adopted social media as a channel for working and caring for patients and the public. [8] Most medication running errors were made when patients acquired prescribed and over-the-counter medicines from several drug stores and use them at home without proper control.

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II. VIEW ON MEDICATION REMINDERSYSTEM

Not enchanting recommended medication refusal can have serious health concerns. The causes why people forget or don't take capsules are varied. Maybe the doctor didn't explain how to take it accurately. Maybe they sense better and think they don't need the medicine any longer. Maybe they just forgot. Anyone who cares for someone with a chronic illness for very long will soon recognize there is much to be cultured about how to organize medications. There are sundry ways to remind patients which medications to take when. The types of medicine reminder systems are

1. Pill pets 2.Alarm Reminders 3.Tattle-tale pill 4.Magnetrace 5.Electronic PillDispensers.

2.1 PILLPETS

Pill pets come with a computerized screen which displays a special instruction for each medication.[12] A person can note whether a pill has to be taken with food or if it has any side effects to look out for it. Pill pet robots are fun solution for someone who wants their gadgets to be on the cuttingedge.

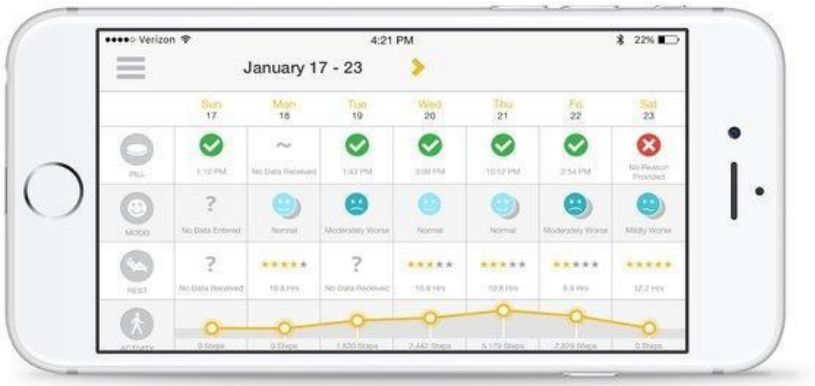

Fig2.1 Pill Pets

2.2 ALARMREMINDERS

There is a diversity of prompt alarms on the market today.[6] These can range from a watch that the patient or caregiver garbs with alarms that sound at various times throughout the day to computer software that can be programmed to let individuals know when it is time to take the medication.Watches can be programmed with specific medication statistics, patient's name, doctor's name, and a variety of other information depending on the type of watch ordered. Alarms can be set to vibrate or emanate an electronic alarm when it is time to take a new medicine.

Patients who may have toil seeing smaller print may have difficulty with this type of reminder. In addition, the elderly are sometimes bothered by electronic beeps emitted by some of these watches, so this may be a factor when making thisverdict.[8]Other electronic alarms can look analogous to an alarm clock and have settings for several different medications. These need to be programmed in advance by the caregiver so that the patient is not easily disorganized by the device. One alarm vibrates strong enough when placed inside a pillowcase that it will wake the patient to recap them that they need to take medication.

Fig 2.2 Alarm Reminders

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2.3 TATTE-TALEPILL

The name gives away its most basic function; it tells on those people when they forgot to take their pills. The Tattletale pill is not necessarily a pill, but a capsule that contains a tiny digestible antennas and a microchip the size of a period. The user must wear a small electronic device which signals a cellphone or laptop and powers the pill through faint bursts of extremely low voltage electricity.[12] As time passes, the antenna breakdown from user's stomach acid, and the microchip is passed along out of the digestive system. Some challenges of this pill include there is no way to tell if the pill was swallowed by pet or someoneelse**.**

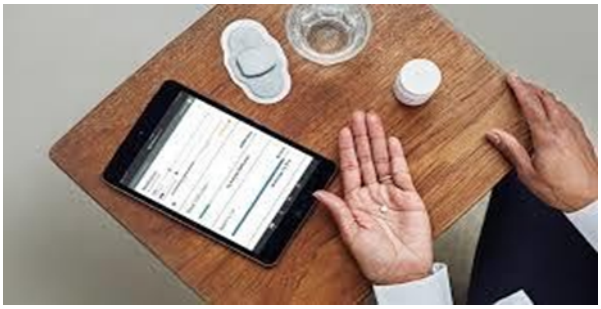

Fig 2.3 Tattle Tale pill

2.4 MAGNETRACE

MagneTrace, the second most advanced medication reminder. It is a sensor necklace which records the exact time and date when specially designed pills are swallowed. [5]It also reminds the user if any doses are being missed. The necklace has an array of magnetic sensors to detect when pill has passed through a person's esophagus. It is also accessible in the form of capsules. It is covered with a coat of indigestible polymers to prevent magnetic absorption and aggregation.

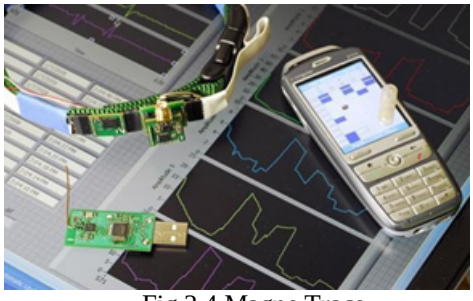

Fig 2.4 Magne Trace

2.5 ELECTRONIC PILLDISPENSER

Pill distributors are generally used to assist medical resolves, as well as to help individuals, be that the elderly or persistently ill, take their prescription medication, OTC medication or daily enhancements at a given date and time.[20] There are tele-health products in the health care industry such as automated or electronic pill boxes that function to alert the patients when it is time to take their medications.[12]When the time comes to take the suppository, the deviceroutinely releases the pre-measured dose into a small compartment that is easily opened and sounds a loud signal that it is time to take the medication.[13] If the patient doesn't take the medication out of the dispenser door, the pill dispenser will send a signal to a checking station who can contact the patient, family, or caregiver who can report thesituation.

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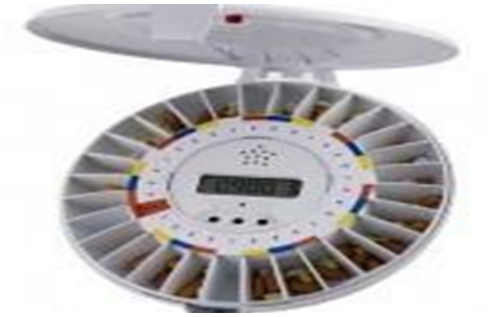

Fig 2.5 Electronic Pill Dispenser

2.6 WIZARD ANALOG REMINDER SYSTEM

This system was developed to deliver medication reminders through voice board casting. The automatic phone answering is performed using IVR software. The system can support 1-48 analog phone lines. The message "Medicine Time" can be a reminder that helps the individuals to take their medications in time while reminding them how much and what type of medication to take will be clearly processed in the system.

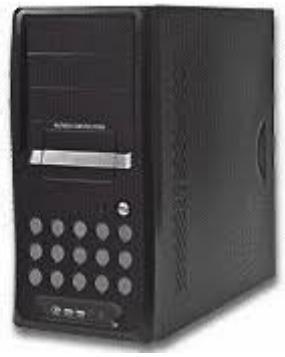

Fig 2.6 Wizard Analog Reminder System

2.7 PACER DIGITAL SYSTEM

The pacer digital system supports digital phone lines and is capable of addressing multiple TI's. The pacer system sends an alert message to patient to take pills at appropriate time. This system supports 12-480 digital phone lines.

Fig 2.7 Pacer Digital System

III. CONCLUSION

Sundry Medication Reminder Systems have been developed on different podiums. This study demonstrated the effectiveness of pharmacist-led medication review in improving the knowledge and adherence of primary care patients, especially the elderly, towards their chronic medications. This is important because adherence rates are typically lower among patients with chronic conditions, often dropping dramatically after the first six months of therapy. Medication non adherence is also likely to grow as the population ages, and as patients take more medications to treat chronic conditions. This study has shown that about 70% of the study population reported non-

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adherence to chronic medications at some point in time. This figure is higher than the rates (ranging from 30–60%) reported by the World Health Organization for developed countries, and it serves as an alert on the scale of the problem and the need for interventions to be put in place.

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