

## Digitalization of Medical Records

Safwaan Solanki<sup>1</sup> Devesh Bhatia<sup>2</sup> Harsh Patanwadia<sup>3</sup> Mrinmayi Prabhughate<sup>4</sup> Ms Nilam Parmar<sup>5</sup>  
<sup>1,2,3,4</sup>Student <sup>5</sup>Guide

<sup>1,2,3,4,5</sup>Department of Computer Engineering

<sup>1,2,3,4,5</sup>Thakur Polytechnic, Kandivali, Mumbai, Maharashtra, India

**Abstract**— This paper illustrates the need for the digitalization of medical records. The main purpose of our website is to make it easier to keep a track of the medical records of your whole family and to alleviate the workload of the medical personnel. The objective of our research is to emphasize on the importance of the health records of family members in the medical field. This paper also describes various services in which the website operates as well as many advantages of this website.

**Keywords:** COVID-19, Website, Healthcare, Management, Reports, Family Members, Safety, Globally Accessible

### I. INTRODUCTION

The concept behind this website is the track of medical records of your whole family at one place with all the test reminders for each individual member as well as medical help such as doctors and pharmacies for your surroundings. To create and manage the medical records of every individual member of the family and have access to it from anywhere around the world is one of the most important features of this website.

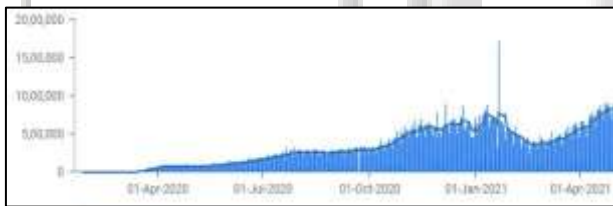


Fig. 1: Medical Cases at Gap of 3 Months

### II. SOFTWARE REQUIRED

A. The different software's that were used for the building of this webpage are:

- 1) XAMPP
- 2) phpMyAdmin

B. There had been diverse languages used for the improvement of this internet site such as:

- 1) JavaScript
- 2) Cascading Style Sheets (CSS)
- 3) Hypertext Markup Language (HTML)
- 4) Hypertext Processor (PHP)

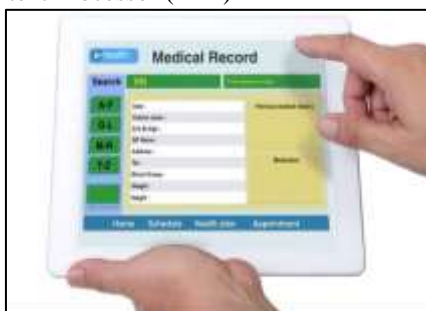


Fig. 2: Online Medical Records

### III. SYSTEM WORKING

In the prototype built by us, we made a Hospital Management system that can be used locally. The system has three main panels, each dedicated to the concerned category. The main categories here are the admin login, the doctor login and lastly, user login which is solely built for patients. The admin login will be exclusively accessible to only the management staff. The management of the particular will be able to make dedicated changes only when required. For instance, when the hospital hires a new doctor, the management has to feed it in the system to make that doctor visible to patients. Admins will also be able to view user and doctor login sessions. Not only has that but the admin panel had the most rights than any other user. The data of an existing doctor can also be removed from the system, a new department can be added to the hospital wing, staff allocation and a lot more can be systematically managed through the admin panel. The admin panel will require credentials which will only be granted to the concerned staff. The next panel is the doctor login. Here all the doctors will be able to login using their login id and password. From the doctor panel, doctors can check the list of patients that have made an appointment with them. It also gives the doctors the freedom to reschedule or even cancel the appointment booked by the patient. They will also have a 'Appointment History' tab to view their past appointments, cancelled appointments, and also their upcoming appointments with the patient's name and details. If the doctor wishes to change his or her contact details, consultation fee, they have the access to append that from their profile. Lastly, we have the patient login panel. Patients can create a new account or login into an existing one. Once a patient is logged in, he or she can book an appointment by first specifying the doctor specialization. Once that is specified by the user/patient, the system will accordingly filter the doctors in that category that are available to book an appointment with. Once the appointment is booked, the user will get a notification saying that their appointment has been confirmed. This appointment will instantly appear on the doctor's profile for them to view. The patient will still have the liberty to reschedule or even cancel the appointment even after the confirmation. If the patient chooses to cancel the appointment, a cancelled update will accordingly be visible to the doctor. This Hospital management system has been built to make appointment booking hassle free for both the patients and doctors. This will also make the patient history more organised and easy to track. This kind of tracking has been proved very useful in the early diagnosis of chronic diseases.

#### A. Coding

The EMR website is made by scripting languages like HTML, CSS3, JavaScript and Bootstrap. This mark-up language makes the website more attractive, practical and

user-friendly. Mark-up languages help make things look more attractive and imaginative.

#### B. HTML

HTML is a Hypertext Mark-up Language. This is a new technology that cascades style sheets and eliminates most of the HTML tables that can be used to control the layout of web pages. Web designers can put the title, text, and sidebar of the web page in separate cells to separate them. In addition, web designers can place each link button in a separate cell in the title and sidebar to define unique properties for each button. Then, web designers can split the text and graphic elements into different cells in the main part of the page, with custom spacing and other attributes.

#### C. CSS3

CSS can be the formatting language you want to add to the page. This can be done by linking the CSS document to your HTML page. This page has selectors and attributes that affect tags in HTML documents. CSS was introduced in 1996 to save people from having to repeat a lot. For example, if someone wants to change the text of a paragraph, they must have sex every time they want to change its attributes. Since then, CSS has been further adjusted to provide more features. For example, now we will use tools and change the background to various colours.

#### D. JAVASCRIPT

JavaScript is a powerful client-side scripting language. JavaScript is mainly used for improvement. User interaction with web pages. You can use JavaScript to make your web content more vivid and interactive. In addition, JavaScript is widely used in mobile application and game development

#### E. BOOTSTRAP

Bootstrap can be a web framework that focuses on simplifying information page events. The main purpose of adding to the Internet project is to use Bootstrap's background and colour options. Project effect, portability size, font and layout. Therefore, the main factor is whether responsive developers will find these options the way they want. Once added to the project, Bootstrap will provide basic style definitions for all HTML elements. The appearance of text, tables, and form elements is the same in all web browsers. In addition, developers can customize the appearance of their content tools using the CSS classes defined in Bootstrap. Bootstrap is used for light and dark tables, more prominent quotes, page titles and emphasized text.

#### F. PHP

PHP is a server-side scripting language embedded in HTML. It is used for dynamic content management, database, session tracking, and even for building a complete e-commerce website. PHP can process forms, that is, collect data from files, store data in files, send data via email, and return data to users.

### IV. SUGGESTIONS FOR RESEARCH AND IMPLEMENTATION

Online access to information may also subtly alternate the affected person-doctor relationship. Patients are an increasing number signing up for online offerings which can

be greater convenient. Patients may also not see the scientific file as being beneath the only provenance in their doctor; as an alternative as something, they could view and print. This seems to be empowering. The drawback is that equipped get admission may also make it simpler to continually seek advice in place of self-manage, and actions to online get admission to provision may also bring about versions in carrier utilization via means of precise populace groups. Clinicians discover that they've to write down greater cautiously taking into consideration information which can be greater informative for his or her sufferers to read, in place of being an aide-memoire for the health practitioner and the medical team. Medical offerings may also adapt to satisfy this new requirement and executives will examine what fashions of transport boom usual workload, and what tactics would possibly manage it.

Willingness to pay for research display on line gets admission to be valued little by way of means of US studies participants. In the United Kingdom's NHS willingness to pay is probably much less relevant. However, few paintings have been undertaken with inside the UK on appropriately assessing the fee sufferers would possibly locate on precise online offerings. Given this, it could be viable to adopt in addition studies as to whether or not there may be an area for price paying as compared with the United Kingdom norm of publicly funded fitness care.

Encouraging sufferers to get admission to online EHR and offerings is a promising manner to beautify safety. Further studies are likewise wanted into how sufferers use their get admission to EHR, and the way affected person-introduced information are used, and the way they'll enhance care via means of presenting perception into fitness ideals and their expertise in their condition.

While there were some trials performed within the US, such proof from the United Kingdom is scarce. Further studies into the feasibility of enforcing entire online get admission to (file get admission to and transactional offerings) throughout the United Kingdom, or in a whole-machine demonstrator, might offer precious perception into the way to put in force this kind of carrier.

Research into online get admission to and offerings have but to illustrate how fitness effects may be improved. Research is likewise wanted for sufferers with precise long-time period conditions, together with diabetes, which may also provide extra insights concerning facilitating higher fitness effects.

Other regions in addition take a look at encompassing prevention and privations troubles concerned in presenting online get admission to and offerings; how practices can facilitate sufferers' use of technology that combine into their present infrastructure; and to what quantity online offerings can update or supplement present care. A very last location is whether or not such structures are green and cost-powerful. The 2nd article from this systematic evaluation specializes in the breadth of know-how on this location and attracts collectively how online files get admission to and offerings may also affect the wider commercial enterprise procedure in number one care.

Initiatives to broaden coverage and exercise are persevering through the NHS England Patient Online program and the Royal College of General Practitioners. The

findings from this evaluation are well-timed and immediately relate to those initiatives, as they spotlight affected person perspectives, together with satisfaction, safety, prevention, and privations issues; and clinicians' perspectives, together with workload issues.

Patients the usage online get admission to their EHR and offerings pronounced expanded comfort and satisfaction, and those offerings impacted on affected person safety. Although sufferers document precise blessings of file to get admission to, together with allowing higher self-care and affected person-clinician communication, sufferers have been unwilling to pay for those offerings. Before the implementation of online structures, clinicians have been involved in approximately any viable workload rise. However, post-intervention paintings show clinicians' issues are in large part unrealized. The nature of the scientific file and the function of the clinician may also want to adapt to offer an extra fee to sufferers and to make certain extra fairness in uptake. The commercial enterprise version for number one care may want to alternate to allow greater powerful utilization of statistics generation in regular exercise.

- Benefits of Online Health Records
- Better diagnosis and treatment, fewer errors found in personal health records
- The ability to quickly transfer patient data from one department to another is a huge benefit.
- The advantage of saving space in a digital recording environment.
- This ultimately increases the ability to visit the number of patients per day, thereby improving patient workflow and increasing productivity.
- Better results management and better patient care, fewer doctor office errors.
- Customizable and extensible electronic health records can grow with your practice.
- Advanced electronic prescription and clinical record functions.
- In addition, health habits are improved through the ability to process patient accounts more accurately and efficiently.

## V. CONCLUSION

The use of the EMR in a clinical setting is increasing throughout all fields of medicine and in clinical practices, private or academic, large or small. As more academic centres begin to implement electronic systems, the question of how to handle clinical research in the electronic environment becomes increasingly important. There has been much discussion of how to integrate the EMR and EDC to facilitate research, and organizations like the Clinical Data Interchange Standards Consortium (CDISC) will be pushing for EMR and EDC technical development in the future. We have presented an example of a functional integration of EMR and EDC that eliminates transcription errors, facilitates retrospective study analysis, and serves as the primary resource for clinical care. Although our scenario may not work for all practices or centres, it is an example of a successful method of implementing an EMR designed for clinical research and of

integrating the EMR with an EDC system for research protocols and clinical trials.

## REFERENCES

- [1] "What is a personal health record?". HealthIT.gov. Office of the National Coordinator for Health IT. Retrieved 24 July 2015.
- [2] "EMR Software Information Exchange, January 25, 2011". EMR Software Pro. 2011.
- [3] "NEMESIS - National EMS Information System". nemsis.org. Archived from the original on 8 June 2017. Retrieved 31 May 2017.
- [4] Evidence on the costs and benefits of health information technology. Congressional Budget Office, May 2008.
- [5] Information Technology: Not a Cure for the High Cost of Health Care. Knowledge@Wharton, June 10, 2009.
- [6] Health informatics – Guidance on the management of clinical risk relating to the deployment and use of health software (formerly ISO/TR 29322:2008(E)). DSCN18/2009, Examples of potential harm presented by health software, Annex A, p. 38
- [7] "8 top challenges and solutions for making EHRs usable". American Medical Association. 16 September 2014. Retrieved 12 April 2020.
- [8] "Bigger focus on compliance needed in EMR marketplace". Health Imaging News. 5 February 2007.
- [9] "ISO/HL7 10781:2009". International Organization for Standardization. Retrieved 31 March 2012.
- [10] Burgos S. Medical information technologies can increase quality and reduce costs. *Clinics*. 2013;68(3):425, [http://dx.doi.org/10.6061/clinics/2013\(03\)LE04](http://dx.doi.org/10.6061/clinics/2013(03)LE04).
- [11] Murdoch TB, Detsky AS. The inevitable application of big data to health care. *JAMA*. 2013;309(13):1351-52, <http://dx.doi.org/10.1001/jama.2013.393>.
- [12] Murff HJ, FitzHenry F, Matheny ME, Gentry N, Kotter KL, Crimin K, et al. Automated identification of postoperative complications within an EDITORIAL electronic health record using natural language processing.
- [13] *JAMA*. 2011;306(8): 848-55, <http://dx.doi.org/10.1001/jama.2011.1204>.
- [14] Electronic Medical Records and Genomics (eMERGE) Network. National Human Genome Research Institute. <http://www.genome.gov/27540473>.
- [15] Jensen PB, Jensen LJ, Brunak S. Mining electronic health records: towards better research applications and clinical care. *Nat Rev Genet*. 2012;13(6): 395-405, <http://dx.doi.org/10.1038/nrg3208>.
- [16] Brown JL. The unasked question. *JAMA*. 2012;308(18): 1869-70, [http:// dx.doi.org/10.1001/jama.2012.14254](http://dx.doi.org/10.1001/jama.2012.14254).