FORMATION OF HIPAA FOR WEB BASED MEDICAL PLATFORM

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ABSTRACT

With a growing acceptance and adoption of smart phone technology among healthcare professionals and patience, Web/mobile apps could be a potential platform for healthcare education. Healthcare students are generally not exposed in to the working of Electronic Health Records (EHRs) and types of Patient Health Information (PHI) from EHRs that are relevant to clinical practices. EHR is a digital version of a patient's paper chart. EHRs are real-time, patient centered records that make information available instantly and securely to authorized users. While EHR does contain the medical and treatment histories of patients. Our proposed system will be an app/website to simplify the way patient can keep on hand their medical records and list of medicines as it will be a Complete Medical Wallet and will also make a great way to access all doctors, pharmacies, labs and hospitals etc. in any chosen area in the world which will follow all HIPAA compliance for medical data.

Index Terms – Intelligent Assistant, EHR (Electronic Health Record), PHI (Patient Health Information), E-commerce

1. INTRODUCTION

Smartphones and mobile apps have increasingly been adopted by healthcare professionals in their clinical practices, giving rise to the domain of mobile health (m-health).The wireless capabilities of smartphones, their ease of use, portability, and ability to incorporate many different technical features have made these devices attractive to both healthcare professionals and patients. [4] There are over 38,000 healthcare and fitness apps and 24,000 medical apps available on the Apple iTunes and Android app stores, and it is

expected that approximately 500 million smartphone users worldwide will be using a healthcare app by the end of 2015. As more clinicians use smartphones and mobile apps as digital assistants, the process of health communication and access to various health information systems and clinical tools has become more enhanced at the point of care. In addition, the use of web/mobile apps by patients has also encouraged them to participate in their own health by improving their knowledge on health and diseases, medications and treatment.

In 2009, the Obama administration passed the Health Information Technology for Economic and Clinical Health Act, committing up to $27 billion of incentive payments to clinicians and hospitals over 10 years to encourage greater adoption and use of electronic health records (EHRs). Although the benefits of EHRs, such as increased completeness and accuracy of patient information, better clinical decision support and electronic prescribing, and greater medical practice efficiency, were well documented, the same could not be said for its adoption and acceptance. The poor adoption of EHR technology in clinical practice could be due to healthcare professionals not being trained to use them when they were students. Many clinicians had difficulty extracting relevant and accurate patient information from EHRs during the time allocated for a clinic visit by a patient. The implementation of EHRs disrupted the usual workflow processes in clinical environments instead. Although some apps had been developed as educational tools for healthcare students, none had any EHR features. Need for developing platform to handle this type of business/commercial and healthcare has emerged. Our proposed system is an app/website will simplify the way patients can order their medications via uploading the script just like a check deposit mechanism on their smartphones.

The app includes these steps: the patient signs up as an individual or family and they can also add their pets. The process start by uploading a face photo, photo id, address, birthday, height, weight, provides medical insurance info, and credit card info to charge for co pay or cancelation. This step will have to be done for each person as a group (family) or once a single user. patient's doctor can upload patient's medical records, lab results and MRI or X Ray into patient's profile so patient can have total access to it at all time as it will be his own medical wallet and can also be shared by patient when needed to seek other doctors as it will be a lifesaving information and it will save insurance companies lots of money as no need for new tests and no wait time to get results every time a patient sees new doctor for any procedure. Doctors will save plenty of time as they will have all info of patient before he/she steps a foot physically in the lobby as they will be allowed access by patient prior to his/her first visit and once patient allows access it will continue until patient cancels access and stop using that Doctor. The Patient will have notifications when refill for medicine is due and when doctor uploads any new info into his/her profile. Patient can select any doctor that accepts his insurance and make an appointment with them via app/web and doctor will have to confirm the appointment only. the app/web will be multi language as it will speak most languages so this will be used abroad and globally when patient is travelling.

Cancer ,HIV and other sever disease patients will not be asked about medications and allergies when checked into emergency and no mistakes can be made by patient due to heavily consumed pain killer drugs as they won't be concentrated or focused so that will be a life saver also a very important issue this will stop opioids when it's used by patients as Doctors will see when the last prescription was. This will be a screening for Opioids App will provide search by cheapest price available for Medicine, lab work ETC.

2. LITERATURE REVIEW

Review of online pharmaceutical market and counterfeit medicines

Specifically, we define the legitimate supply chain as "any supply chain that is either regulated/ licensed by a ministry of health or other regulatory body [or] any supply chain where a patient would reasonably expect to obtain authentic product, supplied via a controlled supply chain, from the manufacturer of the product to the point of dispensing." [1, 2].

It is well known that the pharmaceutical supply chain is a very complex and tightly regulated network where the pharmaceuticals must be delivered at the right time to right place in a standard condition. The availability and accessibility of pharmaceuticals is crucial for every health care system and government, and if there is a minimal incompliance with the standards of production and distribution (Good Manufacturing Practice, Good Distribution Practice) it is highly likely that it will negatively effect individuals and the public as well.

The globalization of the pharmaceutical supply chain, the reduction of trade barriers and the augmentation of parallel pharmaceutical trade (PPT) practice have led to an extremely complex European pharmaceutical supply chain with many actors and participants. These include full line European level distributors, European-level parallel distributors, national full-line distributors, European- and national-level short-line distributors, national-level parallel distributors, pharmacy distributors, distributor manufacturers, and micro-distributors (e.g.: short-line wholesalers, secondary wholesalers and wholesaling retailers, small import/export firms). The situation is even more complicated when processes like horizontal and vertical integration are taken into consideration. The supply chain now can be characterized as a transnational, interconnected and digital platform with various participants from all over the World [4-7].

As the complexity of the supply chain grows the medical products undergo multiple transactions from the manufacturing until the end-user patients. Consequently, the risk of falsification and substandard product penetration is increasing [8]. However, not all of the countries are exposed to the same risk, as in high-income countries the regulation of the drug supply chain ensures that most of the patients are receiving authentic and safe products compared to low- and middle-income countries (e.g.: Southeast Asia and sub-Saharan Africa) [6, 9].

Every EU Member State has a different regulation regarding pharmacy ownerships and chains. However these liberalization processes mentioned above serve consumer benefits (e.g.: greater product portfolio and price reduction), the regulatory authorities are struggling to track and control cross-European drug distribution as beside the central regulations of European Union regarding Good Trade and Distribution Practice (GTDP), there are several jurisdiction within the member state borders. Although there is a Parallel Trader Association Good Distribution and Manufacturing Practice Guidance published by the European Association of EuroPharmaceutical Companies (EAEPC), this document does not replace central legislation. This structure of the European drug distribution system is highly susceptible to the entrance of illegal and criminal actors/distributors. With the increasing complexity the practice of multiple repackaging and relabeling is growing. Not all EU countries implement regulation regarding these procedures and this practice is not consistent across Europe [7, 10].

These tendencies show similarities with the pharmaceutical supply chain of the United States which is a highly multi-layered system without consistent regulations between the different states and leading to the appearance of counterfeit medicines (e.g.: bevacizumab) with potential public health threat [10-13]. The challenge of providing effective and safe pharmaceutical distribution system in Europe is now further complicated by the rapid growth of internet and mail order pharmacy services [13]. Other unexpected complication to the European drug supply chain is the possible consequences of the fact that the United Kingdom (UK) will leave the European Union in March 2019. (This will happen 1 month after the realization of the Falsified Medicines Directive.) The phenomenon called BREXIT will impact the whole European drug supply chain with the potential threats of drug shortages and illegal counterfeiters that will hit UK citizens [14].

Table I: Overview of the regulations against counterfeit medicines in the European Union [17, 18]

Safety features	Interpretation	Legislation
Safety features of medicines to guarantee medicine authenticity	A unique identifier (a 2-dimension barcode) and an anti-tampering device. Marketing authorization holders must place these on the Packaging of most prescription medicines and certain non-prescription medicines no later than 9 February 2019.	Commission Delegated Regulation (EU) 2016/161
Supply chain and good distribution practice standards	New responsibilities for wholesalers and companies practicing brokering activities*. The EudraGMDP database includes information on good distribution practice (GDP).	Guidelines of 7 March 2013 on Good Distribution Practice of Medicinal Products for Human Use (2013/C 68/01)

GMP standards to active substances and excipients	From July 2013, all active substances manufactured outside the EU and imported into the EU have to be accompanied by a written confirmation from the regulatory authority of the exporting country. The EudraGMDP database includes information on good manufacturing practice (GMP).	Directive 2001/83/EC of the European parliament and of the council
Regulation of internet sale – common logo for authorized online pharmacies and approved retailers	The Directive has introduced from July 2015 an obligatory logo that will appear on the websites of legally operating online pharmacies and approved retailers in the EU. Clicking on the logo will link to the national regulatory authority websites, where all legally operating online pharmacies and approved retailers in their respective countries will be listed.	Directive 2011/62/EU of the European parliament and of the council

Table II: Overview of the major provisions of the Drug Supply Chain Security Act (USA) [20, 21]

Name of the provision	Explanation
Product identification	Manufacturers and repackagers are obliged to put a unique product identifier on certain prescription drug packages, for example, using a bar code that can be easily read electronically.
Product tracing	Manufacturers, wholesaler drug distributors, repackagers, and many dispensers (primarily pharmacies) in the drug supply chain to provide Information about a drug and who handled it each time it is sold in the U.S. market.
Product verification	Manufacturers, wholesaler drug distributors, repackagers, and many dispensers (primarily Pharmacies) to establish systems and processes to be able to verify the product identifier on certain prescription drug packages.
Detection and response	Manufacturers, wholesaler drug distributors, repackagers, and many dispensers (primarily pharmacies) to quarantine and promptly Investigate a drug that has been identified as suspect, meaning that it may be counterfeit, unapproved, or potentially dangerous.
Notification	Manufacturers, wholesaler drug distributors, repackagers, and many dispensers (primarily Pharmacies) to establish systems and processes to notify FDA and other stakeholders if an illegitimate drug is found.
Wholesaler licensing	Wholesale drug distributors to report their licensing status and contact information to FDA. This information will then be made available in a public database.
Third-party logistics provider licensing	Third-party logistics providers, those who provide storage and logistical operations related to drug distribution, to obtain a state or federal license.

3. PROPOSED WORK:

3.1 PROBLEM DEFINITION

With a growing acceptance and adoption of smartphone technology among healthcare professionals and patience, Web/mobile apps could be a potential platform for healthcare education. Healthcare students are generally not exposed in to the workings of electronic health records (EHRs) and the types of patient health information (PHI) from EHRs that are relevant to clinical practices. Proposed system will be An app/website to simplify the way patient can keep on hand their medical records and list of medicines as it will be a Complete Medical Wallet and will also make a great way to access all doctors, pharmacies, labs and hospitals etc. in any chosen area in the world which will follow all HIPAA compliance for medical data.

3.2 NEED FOR SYSTEM

Smartphones and mobile apps have increasingly been adopted by healthcare professionals in their clinical practices, giving rise to the domain of mobile health (m-health). The wireless capabilities of smartphones, their ease of use, portability, and ability to incorporate many different technical features have made these devices attractive to both healthcare professionals and patients. [4] There are over 38,000 healthcare and fitness apps and 24,000 medical apps available on the Apple iTunes and Android app stores, and it is expected that approximately 500 million smartphone users worldwide will be using a healthcare app by the end of 2015. As more clinicians use smartphones and mobile apps as digital assistants, the process of health communication and access to various health information systems and clinical tools has become more enhanced at the point of care. In addition, the use of web/mobile apps by patients has also encouraged them to participate in their own health by improving their knowledge on health and diseases, medications and treatment.

3.3 PROPOSED SYSTEM

- Doctors can request permission from the patients to access their records. Once permission is granted, it will stay that way until patient cancels it through their settings.
- Select the record to hide
- Pharmacies can only see prescriptions from themselves or other pharmacies with permission from patient.
- Patients can allow and disallow his or her records to access.
- Doctors can access chat history with their patients.
- Should iRx have blogs feature? This will allow patients, doctors, and pharmacists to interact with one another regarding health, medical, and medicine topics and issues.
- How to generate prescription numbers? Should iRx be responsible to create them in order and keep track of how many prescriptions are filled by all doctors?
- When a prescription needs to be refilled, who gets to be notified? Patient, Doctor, or both?

- Patient Information available to pharmacists is centered around allergies and other medications that the patient is currently taken from other pharmacies.

- Patients can only view their medical records. They can't change it. But they can hide it from new doctors or new pharmacies that are not involved in the creation of the existing records

- For a doctor to access a patient's record, the patient will go into the personal profile and permissions to the new doctor or pharmacists

- Once a patient registers, send notifications to his doctor and pharmacist to sign up with iRx.

- Have an option to delete/discontinue a medicine by the patient. Send pharmacist notification to cancel.

- Patient has the option to upload a prescription securely

- Doctor can send messages to patient or pharmacist

- Have the option to add spouse, kids, and pets

- Add Labs

- Add Medical History

- Patient can review medical history submitted

- Multiple language support

- If primary doctor is NONE, enter search to find a new doctor

- Search new pharmacies and doctors; have the option to replace existing primary doctor or pharmacy
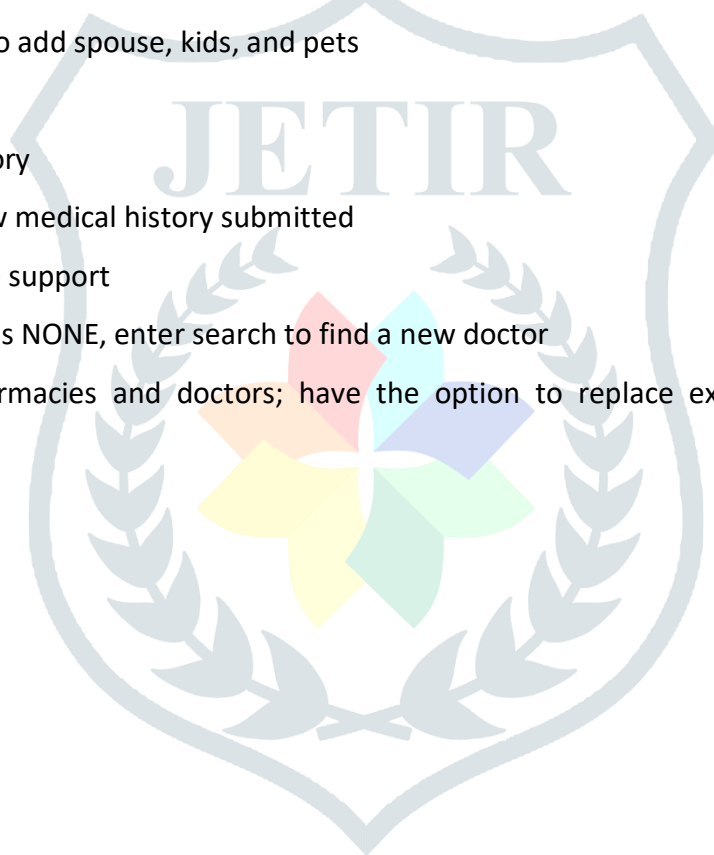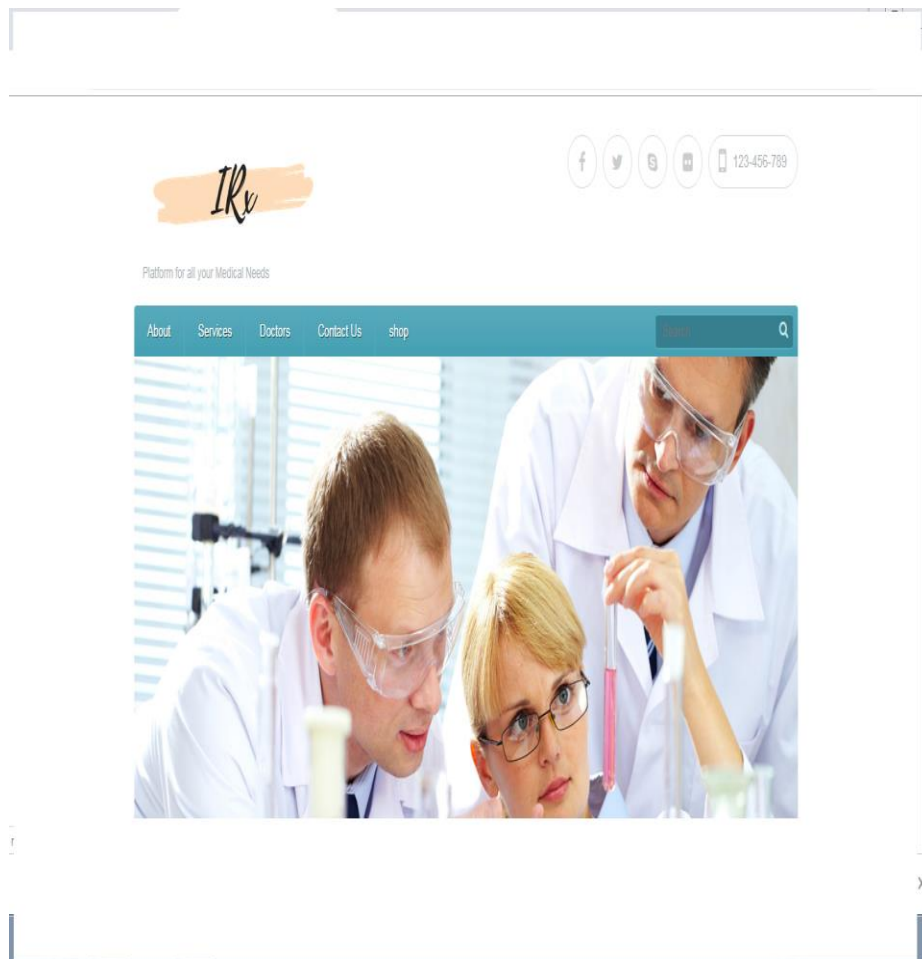
DOCTORS APPOINTMENT:

Fig. (1)

Fig. (2)

Dr. John C.

ENT

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Dr. John P. DiMarco

Cardiac electrophysiology. Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

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Dr. Suzanne Holroyd

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Geriatric Psychiatry. Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

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Dr. Paula M. Fracasso

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Fig. (3)

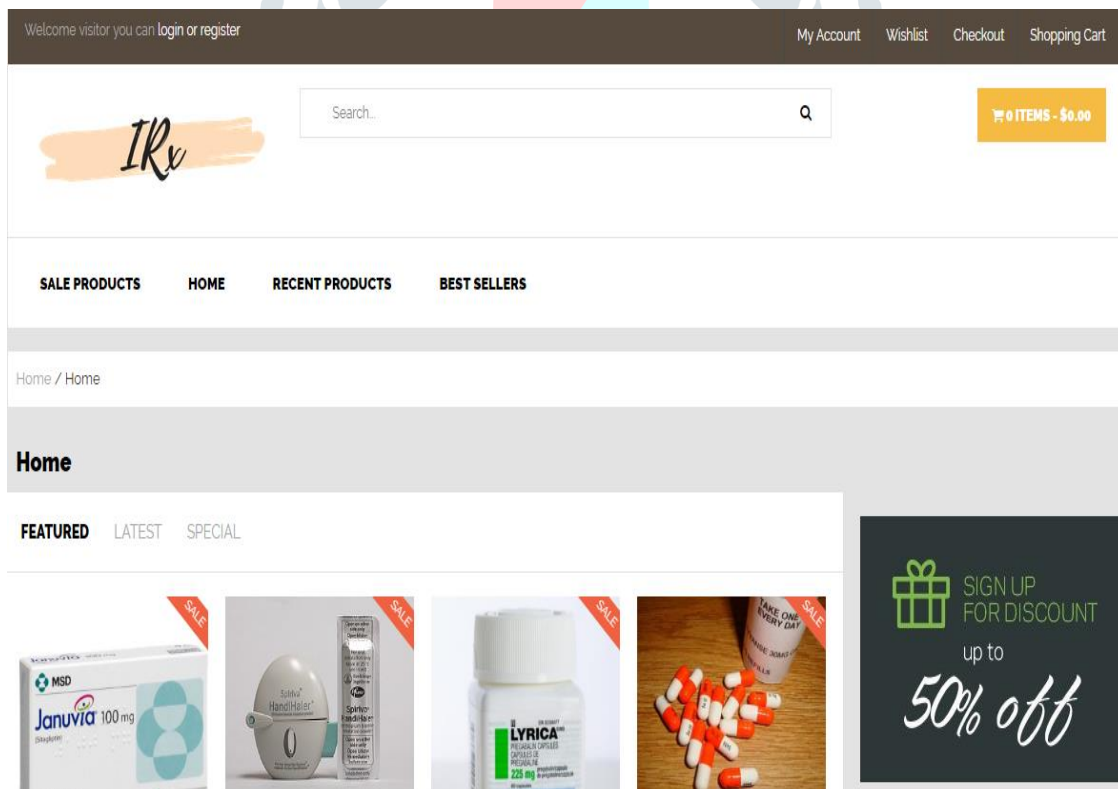**PHARMACY:**

Welcome visitor you can login or register

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IRx

Search...

0 ITEMS - $0.00

SALE PRODUCTS   HOME   RECENT PRODUCTS   BEST SELLERS

Home / Home

Home

FEATURED   LATEST   SPECIAL

SIGN UP FOR DISCOUNT up to *50% off*

Fig. (1)

Home / My Account

My Account

Login

Username or email address *

Password *

LOGIN

☐ Remember me

Lost your password?

Fig. (2)

CONCLUSION

Proposed system will simplify the way patient can keep on hand their medical records and list of medicines as it will be a Complete Medical Wallet and will also make a great way to access all doctors, pharmacies, labs and hospitals etc. In any chosen area in the world. Our work will simplify the way patients can order their medications via uploading the script just like a check deposit mechanism.

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