E-Generics: a Mobile Application

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Abstract— Patients believe that branded medicines are more effective than generic ones, but due to high cost of branded ones, patients learned to patronize the generic counterparts due to its cheaper cost and with the belief that it has the same effects in curing ailments. Since medical prescriptions are written by doctors with the branded names, patients tend to ask for the generic counterpart to the salesclerk or pharmacists when buying in the drugstores or pharmacies. In the process, a reference manual is to be consulted by the salesclerk for the proper generic name equivalent of the medicines. It is this context that this study had put into a very handy gadget, the cell phone a mobile application that can be installed and used offline for reference. An algorithm was used to guide the development of the mobile application for easy location of the data from a database using search functions. That is, a ternary search tree algorithm was used to search the database developed through SQLite and the mobile application was developed using Java Android SDK.

Therefore, e-Generics will provide patients or anyone who always buy medicines an easy, fast, reliable and handy reference as it can be easily installed in android cell phones.

Index Terms— e-health, medical informatics, medical prescriptions, mobile application, ternary search tree algortihm

I. INTRODUCTION

Many believe that branded medicines are more effective than a generic one but according to Dr. Melissa Guerrero, Head of the Department of Health's National Center for Pharmaceutical Access and Management (DOH-NCPAM), they both undergo the same process at the Food and

Drug Administration. When it passes through FDA, whether it is generic or branded, it has the same quality and they just differ in prices and formulation. People prefer to buy a generic drug because it can save as much as 85% over their brand-name counterparts as mentioned by Blue Cross and Shield Association [10]. According to Depression and Bipolar Support Alliance (DBSA) [3], not all medications have a generic form available. Some doctors might not be aware of recently approved generics. Doctors also differ in their beliefs towards, and experiences with different medications. Medical histories, insurance and personal preferences may also influence the doctor's decision. It is important to consult doctors before deciding if a generic drug is right to use.

Generic drugs are as good as their branded counterpart and the process of finding it is not difficult. There are many resources online to help find generic drugs. Health professionals ranging from doctors or pharmacists, to the staff at health insurance provider can also be easy as well.

Instead of referring to experts, the researchers developed an application that lists the branded and generic names of the most commonly used drugs that can be accessed through mobile phones. formats for your particular conference.

II. OBJECTIVES OF THE STUDY

This research is conducted to meet the following objectives:
1). to provide patients who need to buy medicines a handy source of information on the generic counterpart of branded medicines; 2). to develop an accessible form of information dissemination on generic drugs using a developed mobile application.; and 3). to provide information about the similarities and differences between generic and branded drugs as well as the benefits of using a generic drug over a branded one.

III. REVIEW OF LITERATURE

A. Issues on Generic Drugs

There are many issues today whether generic drugs are as good as their brand-name counterparts. Stoppler [8] explained in her article that many people become concerned because generic drugs are often substantially cheaper than the brand-name versions. They wonder if the quality and effectiveness have been compromised to make the less expensive products. The FDA (U.SA. Food and Drug Administration) requires that generic drugs be as safe and effective as brand-name drugs. Actually, generic drugs are only cheaper because the manufacturers have not had the expenses of developing and marketing a new drug. When a company brings a new drug onto the market, the firm has already spent substantial money on research, development, marketing and promotion of the drug. Same as what Stoppler has said, Blue Cross and Shield Association [10] enumerated reasons why generic drugs are used. First, generic drug is made with the same active ingredients and is available in the same strength and dosage as the equivalent brand-name drug. Second, before a generic drug can be labeled as equivalent to the brand-name drug, it must meet stringent standards set by the Food and Drug Administration (FDA). Third, generic drug provides the same therapeutic effects as its brand-name counterpart. Fourth, based on average ingredient cost, generics can save as much as 85% over their brand-name counterparts. And fifth, the average price of a generic drug is around $15. The average price of a brand-name prescription is between $80 and $100. Another issue is whether people are willing to pay more for branded drugs. As stated in the article from Pharmaco Economics and Outcomes News stated that most individuals are not willing to pay more for branded drugs than they would pay for generic drugs. According to results of a study published in the journal of Applied Health Economics and Health Policy. A questionnaire was used to determine individuals' preferences for branded drugs compared with generic drugs for treating four acute and four

chronic conditions (acute conditions included: antibacterials for ten days for acute bronchitis, NSAIDs for seven days for a twisted ankle,proton pump inhibitors for thirty days for heartburn, and antibacterials for seven days for acute urinary tract infection. Chronic conditions included: antihypertensives per month, NSAIDs per month for knee arthritis, proton pump inhibitors per month for heartburn resulting from NSAIDs taken for knee arthritis, and statins per month for hypercholesterolaemia. Sutton [9] stated in her article that the expenditure on generic medicines is expected to reach $400-430 billion by 2015, compared with $234 billion in 2010 and $124 billion in 2005. A large portion of this growth will be attributable to increased generic competition, as well as incentives from many markets for greater generic usage, in Spain and Italy. For payers in the developed markets as a whole, the increased use of generic products will translate into net savings of approximately $98 billion in the lead up to 2015. The US is expected to see the largest expansion in spending on generic medicines, which will largely come from new generics as US pharmacists already dispense generic products in most instances. In Europe, France, Germany and the UK will also experience significant increases in generics market spend.

B. Similarities and Differences of Generic and Branded Drugs

Depression and Bipolar Support Alliance [3] presented the similarities and differences of generic and branded drugs: The similarities of generic and branded drugs are: (1) it must contain the same active ingredients (the chemical substance that makes the drug work); (2) must have the same dosage strength (the amount of active ingredients, for example 20 mg or 40 mg); (3) must be the same dosage form (that is, it needs to be available in the same form as the original—for example, as a liquid, pill, etc.); (4) must have the same route of administration, the way the medication is introduced into the body; (5) must deliver similar amounts of the drug to the bloodstream (that is, it needs to deliver a comparable amount of the drug into the bloodstream within a similar time period as the brand name drug). While the differences are generic and branded drugs look different because they could have different sizes, shapes, colors or markings and may also have different names, might have different inactive ingredients, generic costs less than the brand name drug and generics vary by manufacturer, which means you could receive different versions based on where you purchase your medications and what type of generic they dispense.

C. Importance of Using Electronic Drug References

According to Rothschild [7] and her colleagues as identified in their article, the problems involving drug knowledge are one of the most common causes of serious medication errors. Although the information that clinicians need is often available somewhere, retrieving it expeditiously has been problematic. At the same time, clinicians are faced with an ever-expanding pharmacology knowledge base. Recently, point-of-care technology has become more widely available and more practical with the advent of handheld, or palmtop computing. Drug information databases that are available on handheld devices, such as palmtop computers, improve perceptions about practice efficiency, improve drug knowledge, and may decrease medication errors.

Pollock et al. [6] mentioned that using prescribing software and having access to electronic drug references on a desktop or handheld computer can also improve the legibility and accuracy of prescriptions and help physicians avoid errors.

IV. METHODS

The researchers used Ternary Search Tree Algorithm that is suitable in finding the generic counterpart of a drug as it combines storage efficiency with fast lookups and ability to perform a prefix search in developing the mobile application.

SQLite was used as its database management system. SQLite is a software with library that implements a self-contained, serverless, zero-configuration, transactional SQL database engine. SQLite is the most widely deployed SQL database engine in the world.

A survey was primarily conducted to determine the consumers preferred information in buying a medicine. Also, experts who knowledgeable in medical terms, database management and the technical side of the study were consulted. The graphical user interfaces for their application were designed that using theTernary Search Tree Algorithm. The mobile application was developed using Java Android SDK.

V. RESULTS AND DISCUSSION

The mobile application was supported using Eclipse as the IDE and SQLite as the database. The software is all about how to find a drugs' generic counterpart easily. It consists of several parts such as text box for searching, buttons (search, about) which has their own functions, and lastly, label for displaying the output.

The mobile application provides information about medicine. The researchers come up with several highlights. The limitations of e-Generics Mobile Application is that it can only be used in the Philippines and the number of medicines in the database is limited to the most commonly prescribed medicines.
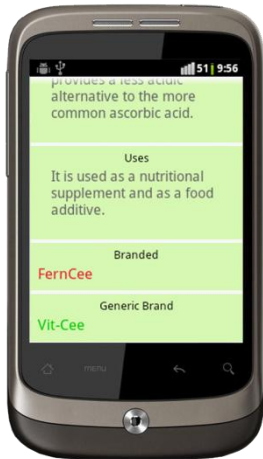
VI. CONCLUSIONS

The mobile application will be of great help to people especially to patients who always buy medicines and needs to consider the advantages of buying the generic ones since it provides an easy way in finding the generic counterpart of a medicine.

This provides a wide range of information that can be accessed offline. This brings simple user interface, fast searching and portability. Some other applications that have the same purpose are Web-based, PC-based and can only be accessed using the internet.
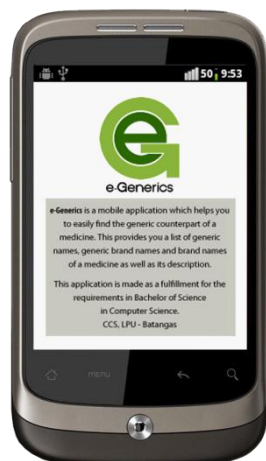
VII. RECOMMENDATIONS

The researchers recommend this mobile application for use by people especially those patients who need to buy medicine and those pharmacists who wanted to have a very handy reference on the generic counterpart of a branded medicine and its details.

APPENDIX

e-Generics Drug Information Screen

e-Generics Main Screen

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