Prevalence of Philippine Prescribing, Dispensing, and Use Behavior in Relation to Generic Drugs and their Risk Factors

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ABSTRACT
This study was designed to address the question of physicians’ and drugstores’ compliance with the provisions of the Generics Act of 1988. Furthermore, it aimed to explore consumer awareness of generic medicines and to explain current trends and practices in drug prescribing, dispensing, and use.

The study utilized a cross-sectional design. It is a descriptive study that assessed four variables: generic drug prescription, generic drug substitution/dispensing, price menu cards, and use of generic drugs.

The country was divided into six zones; namely, North Luzon, South Luzon, National Capital Region, Visayas, Mindanao, and Autonomous Region in Muslim Mindanao. Stratified cluster random sampling was used to identify the provinces and cities to be included in the study. Data collection techniques used were the following: a survey among consumers coming out of a drugstore (a total of 1,160 respondents), key informant interviews with 30 physicians, and focus group discussions with 6–11 patients/watchers per zone.

The survey revealed that five out of six drugs were written with generic names, with doctors in the public sector prescribing generics significantly more often than those in the private sector.

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Factors that positively affected generics prescribing behavior are: patient’s welfare, compliance, patient’s financial situation, and fear of punishment. Quality concerns, lack of regulation by the Food and Drug Administration, poor recall of generics’ name, patient’s preference, and personal experience are factors that negatively affected generics prescribing behavior. Less than half of the consumers were offered with generic alternatives, and an even smaller number actually asked for such alternative. There is consumer preference for branded medicines over generics. Consumers more likely to purchase generic medicines were those who consulted a public facility, knew that physicians were required to write down generic names in their prescriptions, and were influenced by friends and relatives. Because there is already high compliance among drug prescribers, government efforts should now be redirected toward drugstores and consumers. Drugstore compliance should be regularly monitored. Consumers need to be aware of their right to be informed about generic alternatives. Lastly, bioequivalence tests should be done to put an end to quality concerns over generic medicines.

INTRODUCTION
The US Food and Drug Administration (FDA) defines a generic drug as “a drug product that is comparable to a brand/reference listed drug product in dosage form, strength, route of administration, quality and performance characteristics, and intended use.” Generic drugs can be marketed after patent and exclusivity protection ends, or once the patent owner waives its rights and FDA requirements are met. A generic drug is considered to be a bioequivalent to a brand name drug if (1) the rate and extent of absorption do not show a significant difference from the listed drug; or (2) only the extent of absorption does not show a significant difference while any difference in rate of absorption is intentional or not medically significant. Ultimately, the use of generic drugs should result in reduced drug costs, increased access to drug use, and prevention of drug shortage (US FDA 2014).

Generic use, prescribing, and dispensing
Generic drug use is influenced by many factors, including the perception of consumers, physicians, and pharmacists. A national survey among commercially insured adults was conducted in the United States to evaluate their perceptions on generic drugs (Shrank et al. 2009). Majority of respondents (94%) believed that generic drugs are less expensive than brand-name drugs and only 10 percent believe generics cause more side effects than brand-name drugs. It is interesting
to note that a higher percentage agreed that “Americans should use more generic drugs” (56%) than those who actually preferred to use generic drugs over brand-name medications (37.6%). Although views on generic drugs are favorable, insurers and the government still face a problem in promoting the use of generics. According to the authors, further education and the adoption of more patient-friendly programs may help in this endeavor.

A qualitative study (Sewell et al. 2011) in the United States revealed that generic drug use is still hindered by beliefs that generic drugs are not as safe and effective as brand-name drugs. Furthermore, use of generic drugs is hindered by deep feelings of mistrust in the medical system. The study then explained how health education may provide consumers with accurate information regarding the efficacy and safety of generic medications.

A similar study was done in Iraq (Sharrad and Hassali 2011). Five key findings in the use of generics were identified: The first was that the term “generic medicine” was not widely used and understood. Second, preference for generics was highly influenced by the lower cost of these medicines. Generics’ widespread availability, recommendations from friends, and trust in the health-care provider and manufacturers of generic drugs increased the likelihood that participants would choose a generic drug. Third, respondents rejected generic medicines due to the following factors: physicians’ tendency to prescribe branded or innovator drugs, confusion with other brands, and comfort with innovator drugs. Fourth, most patients depend on their physician’s recommendation more than that of their pharmacists regarding generics substitution. Lastly, the combined influence of both the physician and the pharmacist may result in a more favorable attitude toward generics use.

Generics prescribing behavior has also been studied globally. A prospective study in France (Chu et al. 2011) on generic drug prescription in hospitals showed that only 5.6 percent (23 out of 413) of drugs prescribed on admission and 1 percent (5 out of 488) of drugs prescribed upon discharge were generics. The authors recommended “sensitizing physicians” to prescribe generics, using electronic software programs that support generic drug prescription, and providing positive incentives for physicians who prescribe generics. A study in Iraq, Sharrad et al. (2008), identified that physician belief that generics were not equivalent to branded counterparts was the biggest barrier to generics prescribing behavior.

Generics dispensing behavior studies have also been conducted worldwide. According to Shrank et al.’s survey (2009), one-third of the respondents asked either their doctor or pharmacist to substitute generics for brand-name medications. About two-thirds of respondents were comfortable in asking their doctors to substitute generics for a branded drug while 61 percent were
comfortable asking their pharmacists. A cross-sectional national descriptive research on generics dispensing conducted with Australian community pharmacists (Chong et al. 2011) showed that the generics substitution recommendation rate in remote areas (91.6%) was significantly lower than in urban (98.7%) and rural areas (98%). Pharmacists demonstrated a significantly higher tendency to offer generics substitution to low-income patients (97.4%) compared to general patients (94.4%). Another study on the role of pharmacists in generics dispensing was conducted in Iraq (Sharrad et al. 2010). Interviews with pharmacists revealed that they were positively inclined toward generics substitution because it gives them an expanded role in the education and health care of patients. They agreed that the regulatory and professional bodies should educate pharmacists on bioequivalence requirements as this was a cause of confusion among them.

**The Philippine situation**
The Generics Act of 1988, also known as Republic Act (RA) 6675, seeks “to promote, require, and ensure the production of an adequate supply, distribution, use, and acceptance of drugs and medicines identified by the generics names.” This law was written to ensure sufficient supply of medicines in the country at the lowest possible cost. In 2008, RA 9502 (Universally Accessible and Quality Medicines Act of 2008) amended the Generics Act by prescribing more severe penalties to those who fail to comply with Section 6 of the law. Drug manufacturers were also required to include prominent labeling regarding equivalent therapeutic efficacy of generics.

Twenty-five years since RA 6675’s inception, follow-up studies are notably lacking. There is still a paucity of studies on generic drug prescribing, dispensing, and use in the country.

According to the Social Weather Stations (SWS) surveys conducted from 1999 to 2008, generics prescribing has been decreasing. More physicians have been prescribing drugs using brand names exclusively (41% in 1999 to 47% in 2008). Less physicians have been prescribing drugs using generic names only (34% in 1999 to 32% in 2008), and even less adopt the proper prescribing practice of generics plus branded drugs (25% in 1999 to 21% in 2008). In a 2000 SWS survey, only 48 percent of respondents had generic names in their prescription (either alone or in combination with brand names).

As for generics dispensing, the same 2000 SWS survey showed that among respondents who had generic names in their prescriptions, 51 percent were offered a generic drug by the drugstore; 24 percent, a branded drug; and 23 percent, both generic and branded drugs. What respondents actually bought
(either generics or brand-name drugs only, or both) matched those that were offered to them.

Furthermore, comparing the 2006 to the 2008 SWS surveys, there was only minimal change in the purchasing behavior of respondents. More respondents bought generic medicines only (44% in 2006 vs. 50% in 2008) compared to branded only (24% vs. 29%) or both (16% vs. 19%) for the year 2008. And while there were more people buying generics, 58 percent of the respondents still find the prices of medicines somewhat or very expensive.

As for respondent perception on generics, the 2000 survey showed that 27 percent believed that generic medicines were more effective than their branded counterparts, 24 percent believed that branded medicines were more effective than generics, 24 percent believed both have the same efficacy, and 26 percent were unaware about generic medicines. In the same survey, it was revealed that the main sources of information regarding generic drugs were television (37%), doctor or nurse (22%), radio (15%), health centers (14%), drugstores (5%), magazines and newspapers (3%), and posters (2%).

In 2006, 18 years after the implementation of Generics Act of 1988, respondents were asked if they had heard or read of government programs for cheaper medicines; 72 percent answered “No”. In the same year, the Department of Health (DOH) published a report assessing compliance to specific provisions of RA 6675 (The Generics Act of 1988). In its report, the department noted that certain provisions were not strictly followed or implemented due to factors such as lack of budget, lack of human resources, and poor monitoring of prescribing and dispensing behaviors. This gap in implementation is worrisome, as it may have affected Filipinos’ access to affordable quality medicines.

Thus, this study aims to assess compliance with the provisions of the Generics Act. It focuses on the following questions: What is the level of compliance with the provisions of the Generics Act among prescribers, dispensers, and consumers? What factors are associated with the expected behaviors on prescribing, dispensing, and using generic drugs? How can the behavior of prescribers, dispensers, and consumers be changed?

In this regard, the specific objectives are: (1) to measure how doctors in private and public hospitals comply with the generics prescribing provision; (2) to measure compliance of public and private drugstores in implementing generics substitution and price menu cards; (3) to measure patients and consumers’ awareness on generic medicines, the Generics Act, and their right to exercise their choice when buying medicines from pharmacies; and (4) to explore factors that explain the current trends and practices in the prescription, dispensing, and use of generic medicines.
Social Marketing conceptual framework
It is well known that strategic marketing is a proven method for solving problems in the commercial sector by focusing on two key questions: (1) Who are the consumers?; and (2) What do they need? Social marketing extrapolates from this concept by attempting to solve problems in the social sector. The main goal that drives social marketing is to increase the audience’s perception that the benefits of a new behavior outweigh the costs of adopting it.

The Social Marketing framework is a systematic process consisting of 10 steps:
- clarifying the plan’s purpose
- analyzing the current situation and environment
- identifying target audiences
- establishing marketing objectives and goals
- understanding the target population’s position
- determining a desired positioning for the offer
- designing a strategic marketing mix (the Four Ps: Product, Price, Place, Promotion)
- developing an evaluation system
- budgeting, and
- implementing plans

Social marketing paves the way for the implementation of programs designed to meet fundamental and basic human needs. The commonly cited factors that cause poverty are health, the environment, and the economy. Health as a factor here is affected by issues such as lack of access to affordable health care, inadequate nutrition, and chronic diseases.

Generic medication plays a role in improving the Human Poverty Index by providing affordable medication for a host of diseases—one of which is maintenance medication for chronic illnesses. Compliance with prescribed medications is reflected in the increasing survival rate of the population. Philippine households spend a significant percentage of medical care on drugs: The poorest households spend 59 percent of their medical care cost on drugs while the richest households spend only 41 percent. Thus, relative to their income and medical care costs, it is the poor who bear a heavier burden on drug costs.

Based on the Social Marketing framework, this study is on the second step of the above framework, as it now attempts to analyze the current situation on generic medications.

METHODOLOGY

Study type, variables, data collection techniques
This is a descriptive cross-sectional study that assessed four variables: generic
drug prescription, generic drug substitution/dispensing, price menu cards, and use of generic drugs.

Data collection techniques used include: a survey of consumers coming out of a drugstore, key informant interview of physicians, and focus group discussions with patients/watchers (see Data collection section below for specifics).

**Sampling**

*Surveys*

The study divided the country into six zones; namely, North Luzon, South Luzon, National Capital Region (NCR), Visayas, Mindanao, and Autonomous Region in Muslim Mindanao (ARMM). Stratified cluster random sampling was used to identify the provinces and cities that would be included in the study. The number of provinces selected per zone was dependent on the population size of the zone. For chain drugstores, random sampling was then performed to identify which particular drugstores would be included. Two primary drugstores and a list of up to 10 back-up drugstores were identified. A shift could be made from primary drugstores to the other primary drugstore or to any of the back-up drugstores for reasons such as logistical problems or low foot traffic. In NCR, if two of the same chain drugstores were present in the same intersection (i.e., one drugstore across another), both drugstores were used to recruit participants so as to maximize data collection in the area. After the random sampling, it was found that all drugstores, and consequently, survey respondents included in the study happened to belong to the Mercury Drugstore chain.

Free-standing drugstores were chosen from among those located near prominent hospitals in each of the identified city/municipality. Only those drugstores, whether free-standing or chain types, that offer both branded and generic medications were included in the study. Generic drugstores were excluded because they only dispense generic medications and consumers coming to these drugstores would already be biased toward buying generic medications.

*Key informant interviews*

A total of 30 physicians were interviewed. The distribution of physicians interviewed per zone was based on the number of doctors in each zone and the ratio of private-to-public physicians. Convenience sampling was done to select participants in each zone.
Focus group discussion
Approximately 6–11 watchers were chosen from one hospital per zone to participate in the focus group discussion.

Data collection
Three data collection techniques were used in the study.

The first was a survey of drug consumers coming out of a drugstore. Administered by trained data collectors, the survey consists of a questionnaire of 28 items, all pertaining to the consumer’s place of consult and experience inside the drugstore (including generic drug substitution, perceptions, beliefs and preferences about generic drugs, and actual use/purchase of generic drugs). No differentiation was made between consumers who bought medications for inpatients and those for outpatients. Therefore, a subanalysis of consumer behaviors for inpatients and outpatients cannot be done. It cannot be assumed that participants only bought medications for outpatients, as consumers buying medications for inpatients may also purchase them from out-of-hospital pharmacies (including both free-standing and chain drugstores). Additionally, free-standing drugstores chosen were specifically those located near hospitals. This makes it probable for inpatients’ relatives to buy medications from said pharmacies.

The second collection technique was key informant interviews with 30 physicians from different zones, except ARMM where the sample size of physicians was found to be zero. The interviews covered questions on perceptions regarding generic drugs, obstacles and barriers to prescribing generic drugs, and recommendations regarding the law and its implementation.

Lastly, focus group discussion was conducted with patients/watchers in hospitals chosen from each of the zones. The discussion involved perceptions and beliefs regarding generic drugs and factors affecting the use and purchase of generic drugs.

Data processing and analysis
Analytical techniques include the computation of proportions with the corresponding confidence intervals and cross-tabulation of estimates according to zones, types of drugstores, and private/government sector. Logistic regression analysis was performed to identify factors associated with the three behavioral outcomes: generics prescribing, generics dispensing, and generic use. Lastly, qualitative data from the key informant interviews and focus group discussion were presented as themes.
**Ethical considerations**

This study was approved by the DOH Research Ethics Committee (Approval No. DREC 2013-14). Informed consent was taken from all the participants, including those from the survey, key informant interviews, and focus group discussions. Confidentiality was maintained.

**Pre-test**

The pre-test was done in a city in South Luzon that was not part of the study sample. Chain and free-standing drugstores were chosen to test the recruitment strategy and the questionnaire. Thirty participants were recruited and surveyed. Modifications to the recruitment strategies and questionnaires were made based on the feedback of participants and data collectors.

**RESEARCH FINDINGS**

**Survey results**

*Descriptive*

Sample characteristics

The survey involved a total of 1,160 respondents, more than two-thirds (67.47%) of which were female. The mean age of respondents was 41 years with a standard deviation of 16.24 years and a range of 13–90 years. Figure 1 shows the age distribution of the respondents, while Figure 2 demonstrates the age distribution per zone.

Of the 1,160 respondents, 65 percent were buying medicines for others, while 33 percent were buying for themselves. Approximately 55 percent (635 out of 1,159) of the respondents said that they consulted a physician in the hospital, while the rest consulted in a clinic. Figure 3 shows the distribution of the place of consultation per zone.

More than three-fifths (62.44% or 723 out of 1,158) of the respondents said that they consulted a medical practitioner in a private health facility. The rest consulted in a government health facility. The distribution of the type of facility where the respondents consulted per zone is shown in Figure 4.

The distribution of respondents from the different zones is as follows: 19 percent from Visayas, 19 percent from Mindanao, 18 percent from Northern Luzon, 18 percent from Southern Luzon, 17 percent from NCR, and 9 percent from ARMM. In the six zones, the researchers were able to cover 43 drugstores (35% of which were free-standing drugstores and 65% were chain drugstores). Figure 5 shows the distribution of the drugstore type per zone.
Figure 1. Age distribution of the respondents (N=1,156)

Source: Authors’ compilation based on the survey responses

Figure 2. Age distribution of the respondents per zone

Source: Authors’ compilation based on the survey responses
Figure 3. Distribution of respondents by place of consultation per zone

Source: Authors’ compilation based on the survey responses

Figure 4. Distribution of respondents by type of facility per zone

Source: Authors’ compilation based on the survey responses
Benefits
The study looked into how several factors affect the choice of medication. Factors included in the survey were: price, drug effectiveness, patient tendency to follow what the doctor wrote on the prescription, recommendation by the pharmacist, buying of the drug that one is used to, and recommendation by family members, friends, or neighbors. Consumers rated the importance of these factors on a scale of 1 (not important) to 6 (very important). Table 1 shows the responses.

Barriers
Only 7.17 percent (983 out of 1,157) of the respondents were fully knowledgeable on the correct definition of generic drug, while 71.31 percent (825 out of 1,157) were partially correct in their definitions. Among those who are partially knowledgeable, 10.06 percent (83 out of 825) mentioned drug quality only in their definition, while 89.94 percent (742 out of 825) mentioned the price advantage of the generics only.

When asked to identify which drugs were generic or branded from a group of four drug samples, 33.71 percent (388 out of 1,151) were able to correctly identify two out of the four medications shown to them as either generic or branded drugs. Only 18.85 percent (217 out of 388) of the respondents were able to correctly identify all the medications. More importantly, only 10.77 percent
Table 1. Factors that affect consumers’ choice of drug

<table>
<thead>
<tr>
<th>Factors</th>
<th>N</th>
<th>Median</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>1,159</td>
<td>6</td>
<td>5.47</td>
<td>1.04</td>
<td>1–6</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>1,159</td>
<td>6</td>
<td>5.77</td>
<td>0.68</td>
<td>1–6</td>
</tr>
<tr>
<td>Following what the doctor wrote on the prescription</td>
<td>1,159</td>
<td>6</td>
<td>5.62</td>
<td>0.85</td>
<td>1–6</td>
</tr>
<tr>
<td>Recommendation of the pharmacist</td>
<td>1,155</td>
<td>5</td>
<td>4.38</td>
<td>1.52</td>
<td>1–6</td>
</tr>
<tr>
<td>Buying the drug that you are used to</td>
<td>1,150</td>
<td>5</td>
<td>4.64</td>
<td>1.42</td>
<td>1–6</td>
</tr>
<tr>
<td>Recommendation of friends, family, or neighbors</td>
<td>1,142</td>
<td>5</td>
<td>3.13</td>
<td>1.81</td>
<td>1–6</td>
</tr>
</tbody>
</table>

Source: Authors’ compilation based on the survey responses

(124 out of 1,151) of the respondents were unable to tell whether a drug was branded or generic. Figure 6 demonstrates the scores of the respondents per zone.

As for respondents’ awareness of the Generics Law, only 55 percent (634 out of 1,156) were aware that a law mandates writing the generic name on prescriptions. Meanwhile, 53 percent (619 out of 1,156) of the respondents were either unaware or said that there was no such law requiring drugstores to offer generic alternatives. Relatedly, only 48.92 percent (565 out of 1,155) of respondents said that they were aware of a law requiring drugstores to inform their customers of the prices of generics. Lastly, 83.88 percent (968 out of 1,154) of the respondents knew that they had the right to choose between generic and branded version of their medicines.

Competition
The purchase of branded drugs is considered as the main competitive behavior against the use of generic medications in this study. Hence, the study looked into respondents’ perceptions on generic drugs as compared to branded medicines. When asked what they knew about the prices of generic drugs, 91.71 percent (1,062 out of 1,158) of the respondents said that generics were cheaper compared to branded medicines.

In terms of efficacy, 48.44 percent (560 out of 1,156) of the respondents said that generics were less effective compared to branded medicines, 32.87 percent (380 out of 1,156) believed that generics had similar effectiveness, and 4.76 percent (55 out of 1,156) viewed generics as more effective than their branded counterparts.

Respondents were also asked if they would prefer generic or branded medicines if prices were equal. Fifteen percent (176 out of 1,159) would choose
generics, 70.32 percent (815 out of 1,159) would choose the branded medicines, and 14.5 percent (168 out of 1,159) did not have any preference.

Meanwhile, on the assumption that both generic and branded medicines had the same effectiveness, 41.23 percent (477 out of 1,157) would choose generics, 39.76 percent (460 out of 1,157) would prefer branded medicines, and 19.01 percent (220 out of 1,157) did not have any preference.

Influences
The study also asked respondents to choose one or more persons who could convince them that generic drugs are effective. The results are presented in Figure 7.

Because generics menu cards may influence the use of generic drugs, this study did a survey among drugstores. Of the drugstores surveyed, 83.7 percent (36 out of 43) had price menu cards. However, only 44.33 percent of the respondents (512 out of 1,155) noticed a generics menu card. The breakdown of the presence of generics menu cards per type of drugstore is shown in Figure 8.

Prevalence of outcomes
The survey results showed that 83.92 percent of all prescriptions from doctors included generic names (Table 2). Drugstores only offered 40.61 percent of the respondents the generic alternative for the prescribed medications. Of all the drugs bought by consumers, only 29.9 percent were generics; the rest were branded medications.
Figure 7. Persons that influence a consumer’s perception on the efficacy of generic drugs

<table>
<thead>
<tr>
<th>Influential Persons</th>
<th>Percentage of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Others (N=1,159)</td>
<td>1.55%</td>
</tr>
<tr>
<td>Friends, relatives, neighbors (N=1,159)</td>
<td>9.32%</td>
</tr>
<tr>
<td>Commercials (N=1,158)</td>
<td>16.06%</td>
</tr>
<tr>
<td>Drug companies (N=1,159)</td>
<td>20.02%</td>
</tr>
<tr>
<td>Government agencies (e.g. DOH, FDA, PDEA, etc.) (N=1,159)</td>
<td>44.61%</td>
</tr>
<tr>
<td>Pharmacist (N=1,159)</td>
<td>45.93%</td>
</tr>
<tr>
<td>Doctors (N=1,159)</td>
<td>94.94%</td>
</tr>
</tbody>
</table>

Source: Authors’ compilation based on the survey responses

Figure 8. Distribution of drugstores by presence of generics menu card

- With Generics Menu Card: 31.77%
- Without Generics Menu Card: 68.23%

Source: Authors’ compilation based on the survey responses

Generics prescribing
Figure 9 shows the generics prescribing behavior of physicians in the public and private sectors. About 90 percent of drugs prescribed by public sector physicians were generics compared to 80.93 percent for physicians in private practice. Such difference was statistically significant (p<0.001).
Figure 10 presents the generics prescribing behavior of physicians per zone. The highest compliance with generics prescribing was found in ARMM, but the difference in the proportion of drugs prescribed in the generic format across all zones was not significant.

Generics substitution
Only 40.61 percent (467 out of 1,150) of the respondents said that they were offered generic alternatives by the drugstore staff. The breakdown of results by zone is presented in Figure 11.

Figure 12 shows the prevalence of generics substitution based on the type of drugstore. Compliance is low for both chain and free-standing drugstores.
Figure 10. Generics prescribing by zone

![Bar chart showing generics prescribing by zone](chart1.png)

Source: Authors’ compilation based on the survey responses

Figure 11. Proportion of patients offered generic alternatives by drugstores, by zone

![Bar chart showing proportion of patients offered generic alternatives](chart2.png)

Source: Authors’ compilation based on the survey responses

since only 39.97 percent of chain drugstores and 41.94 percent of free-standing drugstores offered generics.

Generics substitution varies across zones. The highest and lowest frequencies were observed in Southern Luzon (71%) and Northern Luzon...
Figure 12. Generics substitution by type of drugstore

<table>
<thead>
<tr>
<th>Type of drugstore</th>
<th>% consumers offered with generic alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chain (N=788)</td>
<td>40%</td>
</tr>
<tr>
<td>Freestanding (N=360)</td>
<td>42%</td>
</tr>
</tbody>
</table>

Source: Authors’ compilation based on the survey responses

(24%), respectively. Figure 13 depicts the frequency of generics substitution per zone.

Meanwhile, only 25 percent (183 out of 743) of the respondents who were not offered generics had requested for a generic alternative. Among the zones in this study, the NCR and ARMM had the highest prevalence for this behavior. Results for both were significantly higher than those of other zones (Figure 14).

The breakdown of the reasons why respondents did or did not ask for generics per zone is shown in Figures 15 and 16. Approximately 78 percent requested for the generic alternative because it was cheaper. Among those who did not ask for the generic alternative, 77 percent said it was because they wanted to be faithful to their doctor’s prescription.

Majority (86.78% or 525 out of 605) of the respondents who asked for a generic alternative for their medication said that they were informed of their drugs’ prices. Of those who did not receive information about drug prices, only 39 percent (30 out of 77) asked about the price of the alternative. There were no significant differences among zones for this behavior (p>0.05).

The reasons that respondents per zone asked or did not ask for the price of generic alternatives are shown in Figures 17 and 18. Results show that 67 percent of those who asked for the price of the generic alternative did so because they wanted cheaper medicines, while 10 percent needed to know what alternatives were available. For those who did not ask for the price of
the generic alternative, 47 percent said they were faithful to their prescription, 19 percent were not interested, 13 percent did not know that they could ask for the prices of the generic alternative, and 23 percent had other reasons for not asking.
Generics use

The total national prevalence of actual generics use or purchase is only 29.9 percent of the total drug items purchased; the highest prevalence was found in ARMM (55%) while the lowest was in Mindanao (18%). Figure 19 details the extent of the generics use per zone.

Although for many of the variables, there may be apparent differences across geographic areas, none of these areas are statistical outliers when compared to the
mean of the variables. In other words, none of the “extreme” areas are beyond three standard deviations from their respective means.

The information on generics prescribing, dispensing, and use is summarized in Figure 20. All prescriptions given were classified into either those that contained predominantly branded drugs or those that contained predominantly generics. Replies from the two groups were further analyzed based on whether
Figure 19. Generics use by zone

![Bar chart showing generics use by zone](chart)

Source: Authors’ compilation based on the survey responses

Figure 20. Summary of generics prescribing, dispensing, and use

![Flowchart showing generics prescribing, dispensing, and use](chart)

Note: Predominant is defined as > 50 percent of drugs prescribed is generic/branded.
Source: Authors’ compilation based on the survey responses
respondents were offered generics by the drugstore personnel and whether they bought predominantly generic or branded drugs.

**Analytics**

Risk factors associated with generics prescribing
Factors associated with generics prescribing will be discussed in the Results section of the key informant interviews with physicians.

Risk factors associated with generics dispensing
Note that of the factors associated with generics dispensing (as presented in Table 3 and Figure 21), the only significant ones are the zones, where drugstores in Southern Luzon and Mindanao are shown to be more likely to offer generics to consumers (where $p<0.001$).

The factors associated with the information dissemination process on the prices of generic drugs are shown in Table 4 and Figure 22. Results show that the only significant factor was the location – i.e., drugstores in Southern Luzon and Visayas were more likely to inform their customers about the prices of generic drugs ($p<0.001$).

Risk factors associated with generics use
Generics use was significantly associated with the following factors: (1) type of health facility consulted; (2) influence of friends, relatives, and neighbors; (3) generic format in prescriptions; (4) knowledge of the law requiring the generic name to be written in prescriptions; and (5) knowledge of generic drugs’ effectiveness (Figure 23).

On the type of health facility as a factor, the odds that individuals who consulted in a public facility would purchase the generic alternative are 2.84 times higher compared to those who consulted in a private facility.

Meanwhile, the odds that individuals whose medical decisions are influenced by friends and relatives would purchase the generic alternative are 2.12 times higher compared to those who are not influenced by friends and relatives.

In terms of the effect of a prescription’s generic format, the odds that individuals will purchase the generic alternative whenever a prescription had at least one medication written in the generic format are 65 percent less compared to those who were given a prescription that did not follow the generic format.

On the other hand, the odds that the generic alternative will be purchased by individuals who know that physicians are required to write the generic name in
Table 3. Association of certain factors with the likelihood of offering generics

<table>
<thead>
<tr>
<th>Factors</th>
<th>Odds Ratio</th>
<th>Confidence Interval</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of menu cards</td>
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<td></td>
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</tr>
<tr>
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<td>1.00</td>
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</tr>
<tr>
<td>Present</td>
<td>1.20</td>
<td>0.85, 1.7</td>
<td>0.291</td>
</tr>
<tr>
<td>Type of drugstore</td>
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<tr>
<td>Mercury</td>
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<tr>
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<td>0.515</td>
</tr>
<tr>
<td>Zone</td>
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<tr>
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<td>--</td>
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<tr>
<td>Southern Luzon</td>
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<td>5.02, 12.00</td>
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<td>0.89, 2.14</td>
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<tr>
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<td>1.50, 3.47</td>
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</tr>
<tr>
<td>ARMM</td>
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<td>1.35, 3.69</td>
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Source: Authors’ compilation based on the survey responses

Figure 21. Association of certain factors with offering of generics

Source: Authors’ compilation based on the survey responses
### Table 4. Factors associated with the information dissemination of generic drug prices

<table>
<thead>
<tr>
<th>Factors</th>
<th>Odds Ratio</th>
<th>Confidence Interval</th>
<th>p-value</th>
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</tr>
<tr>
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</tbody>
</table>

Source: Authors’ compilation based on the survey responses

**Figure 22. Association of certain factors on the information dissemination of prices of generics**

Source: Authors’ compilation based on the survey responses
the prescription form are 1.68 times higher compared to those who do not know much about this law.

Lastly, the odds that the generic alternative will be purchased by individuals who perceive generic drugs to be less effective are 61 percent less compared to those who perceive generic drugs to be of the same efficacy as branded drugs.

Key informant interviews (physicians)
No key informant interview was conducted in ARMM since the calculated sample size in the area turned out to be zero.

Knowledge about the Generics Act of 1988
Physicians were also asked about what they knew about the Generics Act of 1988. There were two opinions on what the law requires physicians to do: The first view is that it is illegal to write the brand name; the other view is that doctors can prescribe a brand name provided that the generic name is also written down. Some themes that came out from the interviews include (1) goals of the law (i.e., to lower drug prices, empower patients, reduce doctors’ bias toward branded drugs);
(2) what is required of the doctor (i.e., include generic names, write brand names in parenthesis); (3) disillusionment with the law (i.e., failed implementation).

Generics Act and physicians
When physicians were asked what they think the law requires from them, replies mirrored the answers given to the first question above. That is, two answers emerged: That doctors are required to prescribe generics only; and that doctors can prescribe their preferred brand as long as they indicate the generic name as well. Some physicians also emphasized the need for a complete prescription, with instructions to the patient and the doctor’s license number.

Opinion on the generics prescribing provision
Physicians were asked what they thought of the generics prescribing provision of the law and whether or not they favored it. Table 5 breaks down the number of physicians per zone according to their sentiments toward the said provision. Those who favored the provision reasoned that it was better for the patient’s welfare. None of the physicians directly said that they were not in favor of the provision, although some were not entirely supportive. Those who did not favor it entirely had concerns about the quality of generic drugs and personal experiences with the use of generic drugs (i.e., used by physicians and their patients). Two private physicians remarked on the dispensing side of the process, sharing their reservations: They mentioned that drugstore personnel may be motivated to dispense branded drugs due to incentives provided by drug companies.

One physician shared his preference for “branded” generics. Other physicians voiced out their concerns over the implementation and regulation of the law as a whole.

Practice of generics prescribing
On a scale of 1–10, physicians were asked to rate how often they prescribe generics, with 1 being “never” and 10 being “always”. The frequency count of physicians’ self-rating of their generics prescribing behavior is shown per zone in Table 6. They were then asked why they do or do not prescribe generics. Those who gave a rating of 10 did so because it was required by the law and punishable if not followed, especially in government hospitals. One physician mentioned that if they needed to specify the brand, they do so verbally without writing it down on the prescription to avoid penalties. Others scored themselves less than 10 because of concerns over generic drugs’ quality and the better name recall for branded medications.
Perception on generic drug prices

The physicians were also asked what they thought of generic drug prices and reasons why they think some generics are less expensive. These respondents were found to view generic drugs as cheaper because of the following: poorer quality; less marketing, advertising, research, manufacturing, taxation costs; and generics are off patent.

Perception on generic drugs’ quality

Results on the question on generic drugs’ quality were heterogeneous. Most believed generics are of poor quality. Only a few said that generics are of equal quality as branded drugs while some answered that only selected generic drugs are of good quality. The physicians attributed generic drugs’ poor quality to impure additives, increased side effects, shady manufacturers, slow action of the drug, and regulation problems. It is important to note that a recurring observation across all questions is that respondents prefer branded medications for severe illnesses and generic drugs for benign conditions.

Benefits of prescribing generics

Prescribing generics brings with it certain benefits such as (1) better patient compliance because drugs are affordable and more widely available; (2) support for the local economy; and (3) better communication among patients, medical staff, and physicians (especially when endorsing patients from institution to institution). A few doctors said that prescribing generics is “better than nothing” for patients who are less financially capable. An added benefit in prescribing...
generic drugs is its alignment with the law’s requirement; thus, doctors avoid being penalized.

**Barriers to generics prescribing**
Quality and regulation issues were brought up as possible barriers to generics prescribing. The respondents also shared some reservation over the dispensing behavior of pharmacies. Other possible barriers to generics prescribing are the aggressive marketing of branded drugs, patients’ preference, and doctors’ previous experience with certain drugs. Only a few respondents did not find any barriers to generics prescribing.

**Influences on generics prescribing**
Physicians in this study enumerated the following sources of influences on generics prescribing: government through the Bureau of Food and Drugs or the FDA, patients’ status, their senior colleagues, training instructors, consultants, their conscience, and medical representatives. A few stated that nothing could influence them to prescribe generics.

**Recommendations for improvement of the Generics Act of 1988**
Almost all physicians agreed that improved quality testing and regulation would increase their trust in the generics in the market. This would consequently enhance generics prescribing behaviors. One doctor mentioned that, “you have to make doctors see the benefits of prescribing generics, or they’ll continue prescribing branded drugs because they are getting something from it.”

**Focus group discussion (consumers)**

**Knowledge about the Generics Act**
When asked what they knew about the Generics Act of 1988, most of the consumer-participants responded with what they knew about generic drugs in general, and not about the generics law itself. Responses ranged from the inexpensive nature of generic drugs, the efficacy of generic drugs compared to branded medicines, and the belief that generic drugs were made specifically for the poor. When probed further on what they knew about the law itself, a number of respondents from the different zones confirmed that they did not know such law existed.

**Perceptions on the price of generic drugs**
When queried on their thoughts on the price of generic drugs, respondents gave varied responses. The most common response pertained to how less expensive generics were compared to their branded counterparts. There were some who
confirmed that a few generic drugs had the same price as the branded drugs. A few respondents mentioned some generic drugs that turned out to be more expensive in the long run.

When asked why generic drugs were thought to be less expensive, the respondents mentioned that generics were made for the poor, subsidized by the government, made locally, from a less popular manufacturer, and had quality and patent issues.

Perceptions about the quality of generic drugs
Several themes emerged when participants were asked about their perception on the quality of generics. These themes include the following: the quality of generic drugs are either as equal as or lower than that of branded drugs; generic drugs are only used for minor ailments; and the use of generic drugs yielded inconsistent results.

Benefits of generic drug use
Participants enumerated a number of benefits from using generic drugs. These are: generic drugs are inexpensive, effective, more accessible, and recommended by doctors.

Barriers to generic drug use
Barriers to the use of generic drugs mentioned were: (1) some drug combinations are not available in generics; (2) pharmacy personnel who prefer to offer branded drugs; (3) doctors who recommend branded medications and prefer branded drugs for severe illnesses. When participants were then asked about what they would do when they encounter such barriers, they answered that they could either consult the doctor, the health center personnel, or the pharmacist for an alternative or find ways to purchase generic medicines.

Competition
Although the focus group discussion guide did not mention branded medicines, the participants used the latter as a point of comparison for most of the questions on generic drugs. Opinions on branded medicine touched on quality (branded drugs being better than generics for severe illnesses, having faster onset of action) and price comparisons (branded ones being either more expensive, as expensive as or less expensive than the generics in the long run).

Influences
Participants were asked who or what could possibly influence them to buy generics. The three most common answers were advertisements, doctors, and past experience.
Recommendations
Many recommendations were given to improve the law. Respondents suggested better implementation of the following provisions of the law: price menu cards, generics dispensing and substitution, and penalties for noncompliance. They also mentioned that a wider information campaign might be beneficial. Others recommended the need to improve the quality and types of generic drugs.

DISCUSSION

Generics prescribing
This study reveals good compliance to generics prescribing in the country, showing that five out of six drugs are written with generic names. This is significantly higher compared to past data gathered by the SWS. Doctors in the public sector prescribe generics significantly more than do physicians in the private sector. This difference could be attributed to the fact that generics prescribing is strictly implemented in public hospitals and clinics compared to private ones.

Results of the key informant interviews with physicians show that the prescribing behavior is mostly driven by patient-oriented concerns. There is also the physicians’ fear of punishment when the law is violated, especially now that penalties have been scaled up in the recent amendment of the law. However, despite the high compliance to generics prescribing, doctors remain concerned about the quality of generic medicines and lack of regular FDA monitoring. Past experiences with poor-quality generic drugs cause physicians to hesitate to prescribe it. This is similar to the study in Slovenia (2006) where, although aware of the benefits of generic drugs, physicians still needed reassurance regarding quality issues. This view is consistent with the global literature as seen in the studies of Sharrad et al. (2008) in Iraq and of Sewell (2011) in the United States. However, an issue not discussed in this study is the incentive given by pharmaceutical companies to physicians to prescribe branded drugs.

Drug dispensing
Drug price menu cards, although present in most drugstores, do little to influence the behavior of both the pharmacist and the consumer. Only two of five consumers were offered generic alternatives by drugstores. This finding is similar to the results of the 2008 SWS survey, where only 45 percent of consumers were offered generic alternatives. Consumers only requested information on generics because they wanted a cheaper alternative. The low compliance to generics dispensing calls for stricter implementation and regulation of the law. It is possible that drugstores have been complacent in following the Generics Act over the years due to the lack of regular monitoring by the FDA.
Generic drug use
Knowledge of the existence of generic medications is the first step toward its use. Only 7.17 percent correctly defined generic drugs, while 64 percent of the respondents defined generic drug in terms of its price advantage. Twenty-five years after its passing, there is still low awareness of the Generics Act of 1988. Only 55 percent of respondents were aware of a law that requires physicians to include the generic name in their prescriptions. Less than 50 percent knew that the same law required pharmacists to offer generic alternatives and to notify users on the prices of generic alternatives. In this study’s survey, effectiveness was found to be of utmost importance to consumers. Other important factors for generics use were patients’ faithfulness to doctors’ prescription, price, and familiarity with a drug. Recommendations by pharmacists and suggestions by family, friends, and neighbors also affect, although minimally, the respondents’ decision to use generic medicines.

Despite being offered generic alternatives, only 30 percent actually bought generics. Those who were more likely to purchase generics knew about the requirement for physicians to write down generic names, had consulted a public facility, and were influenced by friends and relatives. Any concerns over a generic drug’s effectiveness did not affect the decision to buy generics. On the other hand, factors that may impact the buyers’ decision include their faithfulness to the prescription and advice of the doctor and past experiences of friends and relatives on the use of generics. Public sector doctors, too, are more likely to prescribe generics than their private sector counterparts.

Limitations
This study did not measure several variables that may affect responses such as the respondents’ socioeconomic status and educational attainment. Also, drugs that respondents bought were not classified as either for inpatient or outpatient use. This, however, may have been an important factor because the dynamics for generic drug use is different for outpatient care compared to inpatient care. The duration of the treatment is another important factor. Price might be an important consideration if the drug is to be taken for maintenance and may be less significant for a short-course treatment.

Biases
This study excluded drugstores that exclusively sell generic medicines because there are no branded alternatives that the consumer can choose from. However, this exclusion may have led to the following: (1) lower percentage of consumers who bought or asked for generics since individuals who intend to buy generics are likely to proceed to a generic drugstore located in their
area; and (2) lower percentage of consumers who are knowledgeable about generics.

Sampled nonchain drugstores in all zones were replaced with another nonchain drugstore in front of a hospital for better foot traffic. This replacement did not cause any bias since the reason for the replacement was not associated with any variables for generic drug prescribing, dispensing, and use.

Surveys for this study were done in different parts of the country and in different dialects. Translated questionnaires were validated. The data collector’s proficiency in speaking and understanding the local dialect affects his correct interpretation of the respondent’s answers.

The small number of respondents who were able to answer the question on the price of the generic alternative decreased the power of the test. A statistical test with low power has a poor ability to identify significant predictors of an outcome. Consequently, only sex was found to be a significant predictor of generics use relative to the price of a generic alternative.

RECOMMENDATIONS

Results show higher compliance among prescribers compared to dispensers and consumers. Thus, the government’s regulatory and social marketing efforts should now refocus from physicians to drugstores and consumers. A more effective use of limited government resources is to target drugstore and consumer compliance. PhilHealth can also play a role in driving generic drug use: By providing a ceiling amount for medications equivalent to that of generic medicines, PhilHealth can influence utilization patterns. Also, limiting reimbursements of drugs up to the cost of generic medicines can significantly increase generic drug prescribing, dispensing, and patient “ask” behavior.

The government should consider subjecting generic drugs to bioequivalence tests. Despite the costs, bioequivalence tests can put to rest the persistent questions related to the quality of generic drugs. Generic drugs need to be rebranded to emphasize effectiveness rather than lower cost since a lower-cost market positioning associates them with lower quality. There should be a shift in the narrative to one in which the accessibility of generic drugs is linked to positive health outcomes. The FDA's monitoring of drugstores can be expanded by collaborating with civil society using a “mystery shopper” approach. Monitoring of key indicators, such as generics substitution and menu card visibility, is simple and can be done by minimally trained observers. Consumers should also be taught to ask for generic alternatives every time they purchase drugs. Because social connections influence purchase behavior, “generics supporters” can be encouraged to convince friends, family, and neighbors to ask for and to buy generics.
An agenda for continuing research on generic drug behavior should include:

- A health technology assessment of the cost effectiveness of bioequivalence tests for generic drugs;
- Application of the tools of social marketing and behavioral economics to influence prescribing, dispensing, and use behavior. Behavioral economics is a new science that applies the principles of cognitive psychology, social psychology, and economics to understand human behavior and to influence the target audience toward positive outcomes.
- Community trial on the effectiveness of the “mystery shopper” technique in improving drugstore compliance with the generics dispensing provisions of the Generic Law.
- Review of the impact of limited reimbursements up to cost of generic drugs used.

CONCLUSIONS

This survey revealed that five out of six drugs were written with generic names, with doctors in the public sector prescribing generics significantly more often than those in the private sector. Factors that positively affect generics prescribing behavior are patient’s welfare, compliance, patient’s financial situation, and fear of punishment. Quality concerns, lack of FDA regulation, poor generic name recall, patient’s preference, and personal experience are factors that negatively affect generics prescribing behavior. Less than half of the consumers were offered with generic alternatives, and an even smaller number asked for the alternative.

There is preference for branded medicines over generics in the country. Consumers who were more likely to purchase generic medicines (1) had consulted a public facility; (2) knew that generic names are required in prescriptions; and (3) were influenced by friends and relatives. Government efforts to promote the Generics Law should focus on drugstores and consumers. Bioequivalence tests should be done to finally put an end to concerns over the quality of generic medicines.

REFERENCES


