

# Drugstores in Bangkok, Thailand: The business of responsibility for people

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## Keywords

drugstores, responsibility, Thailand

## Abstract

*The purpose of this research are 1) to survey the number of drugstores that unlawfully dispensed of asthma prescription drugs, in form of a poly-pharmacy (drug set), in 7 districts of Bangkok, Wangthonglang, Dindaeng, Huaikhwang, Pranakorn, Phayathai, Pomprapsattruphai and Samphanthawong 2) to find the steroid contained in that polypharmacy, 3) to find means for informing general public about the danger of the drugs and for conduct a campaign for stop dispensing them.*

*Researcher collected polypharmacies from 614 drugstores in Wangthonglang, Dindaeng, Huaikhwang, Pranakorn, Phayathai, Pomprapsattruphai and Samphanthawong from July 1, 2016 to December 31, 2016. The survey found 10.1 %, or 62 drug stores, sold asthma polypharmacy drug to customers without the prescription and the collected samples were tested for steroid contamination by using Immunochromatography test kits. Twenty eight samples, or 45.2%, were found contaminated with steroids. It should also tightly control and closely inspect the practices of drugstores in the distribution of steroid medications. . It could be concluded that the drugstores had no social responsibility and no regard for customer safety. To improve the knowledge of self health maintenance and drug usage among public, Thai Government and Department of Public Health should educate people about the side effects of using polypharmacy and steroids.*

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## 1. Introduction

The problem of using polypharmacy still persists in both Bangkok and other provinces. In provincial area, polypharmacy can be purchased from any drugstore, grocery or even coffee shop. Most of polypharmacies found from sampling were intended to cure flu, to relieve body aches and pain or to lower weight. Each of them made up of painkillers, linking to mental side effects, anti inflammatory drugs, vitamins and acid reducing medicines. And almost of polypharmacy includes some form of steroid drug because pharmacists believe that steroid is potent to treat a wide range of medical conditions (Charoenphol, 1996; and Clayton, Stock, and Harroum, 2007). Steroid is a controlled substance according to Notification of Public Health, Subject: Special Controlled Drug. This means steroid distribution is restricted under Drug Act. B.E. 2510, section 4 which states that steroid can only be prescribed by licensed medical practitioner, veterinarian, or a drugstore that has a licensed pharmacist on duty at all time. Thailand's legal principle pertaining to the dispensing of polypharmacy (drug set) under Drug Act. B.E. 2510 section 75 bi amended by Drug Act. B.E. 2530 prohibits any person from dispensing a mixing of medications as one prescription intending to cure, to treat or to prevent one particular condition. The prohibition does not apply to licensed pharmacist, medical profession or licensed dentist who prescribes only to their patients or veterinarian who dispenses only for their patients (Drug Act. B.E. 2510., 2016). However, the problem of using drug set still persists in both Bangkok and other provinces. In provincial area, drug set can be purchased from any drugstore, grocery or even coffee shop. Most of drug sets obtained from sampling were intended to cure flu, to relieve body aches and pain or to lower weight. Each of them made up of painkillers, linking to mental side effects, anti inflammatory drugs, vitamins and acid reducing medicines. And almost every drug set includes some form of steroid drug because drug sets believe that steroid is potent to treat a wide range of medical conditions (Charoenphol, 1996).

Asthma was thought to be a disease mainly of impaired autonomic control of the airway lumen diameter, but it is now recognized that many physiological mediators are involved in the

pathogenesis of an asthma attack, including interleukins, histamine, leukotrienes, prostaglandins and other cytokines and nitric oxide, as well as autonomic neurotransmitters (Bryant, and Knights, 2015, p.611). The environmental is important to reduce exposure to dust mites and cockroaches, to which many patients with asthma are sensitive. To limit exposure to dust mites, especially in the bedroom where they are most common, one should enclose pillows and mattresses in airtight polyurethane covers or use fiberfill products instead of down or foam pillows, remove carpeting (hardwood or linoleum floor is better) and curtains, wash sheets and stuffed toys (for pediatric patients) in hot water every week, and clean bedrooms frequently with a vacuum that has a high-efficiency particulate air filter (Rakel, 2007, p.348). Corticosteroids are commonly used in the treatment of asthma because of their anti-inflammatory effects. In addition, corticosteroids increase the effects of adrenergic bronchodilators to prevent or treat bronchoconstriction and bronchospasm. In acute asthma or status asthmaticus unrelieved by inhaled beta-adrenergic bronchodilators, high dose of systemic corticosteroids are given orally or intravenously with bronchodilators for approximately 5-10 day (Frandsen, and Pennington, 2014, p.279-280).

The survey of drugstores' distribution of polypharmacy for body aches and pain dispensed in Ratchathewi district founded 6 of 95 samples contained steroid. Ratchathewi district is located in the heart of Bangkok, there should be no case of illegal distribution of steroid (Thongmuang, and Sudjaroen, 2011). The similar survey was conducted in Dusit district and founded 12 out of 38 drugstores illegally dispensed ace and pain polypharmacy containing steroid. These results are unexpected because both Ratchathewi and Dusit districts are located in the center of Bangkok where there should be no case of illegal steroid distribution left and there are many of department stores and markets that people came to shopping goods and take the medicines (Thongmuang, and Sudjaroen, 2012).

The effects of steroids in human can cause give risk to diabetes mellitus, immune reaction suppression, perforation of the ulcer occurs, reduce bone production and may develop cataract or glaucoma (Clayton, Stock, and Harroum, 2007; Greenstein, 2004,; and Karch, 2008). There are several methods to determined for the quantity of steroid (Dexamethasone and Prednisolone) such as; High Performance Liquid Chromatography or Thin Layer Chromatography (Thongyindee, 2004) in the form of Dexamethasone or Prednisolone tablet following pharmacopoeia (The United States Pharmacopoeial Convention, 2009) or analyzing using Fourier transform infrared spectrophotometer and UV-visible spectrophotometer (Ruaysup, 2004) and this research was qualitative determined dexamethasone and prednisolone by immunochromatographic test kit from Bureau of Drug and Narcotic, Department of Medical Science, Ministry of Public Health, Thailand which was rapid and simply to perform with no prerequisite regarding laboratory equipments or laboratory skills (Karch, 2008).

This objective of this research were to surveillance the dispensing of steroids in asthma polypharmacy dispensed for asthma relief from drugstores in 7 districts of Bangkok, Wangthonglang, Dindaeng, Huaikhwang, Pranakorn, Phayathai, Pomprapsattruphai and Samphanthawong, and evaluate situation of polypharmacy with steroid drug dispensing.

## **2. Materials and Methods**

### **2.1 Sample collection**

The polypharmacies were collected by 10 volunteers who studied in Department of Aesthetic Health Science and Department of Aesthetic Health Sciences, Colleague of Allied Health Science, Suan Sunandha Rajabhat University from 614 drugstores in 7 districts of Bangkok, Wangthonglang, Dindaeng, Huaikhwang, Pranakorn, Phayathai, Pomprapsattruphai and Samphanthawong on July to December 2016. Number name and location of 614 drugstores in 7 districts were provided from Food and Drug Administration, Ministry of Public Health. All volunteers were trained explained asthma symptom, price, number of drug, patient and common data of drug stores including pharmacist duty.

The polypharmacies were brought and collected by students whom study in Department of Aesthetic Health Science, Colleague of Allied Health Science, Suan Suandha Rajabhat University. Price of each is 5-10 Baht and buy 5 sets for time.

The samples of polypharmacy with steroid dispended was asking for prescribed were photo and labeled as individual data (Figure 1-7).



Figure 1: PolypharmaciesWith Steroid From Drugstores in the WangthonglangDistrict, Bangkok, Thailand



Figure 2: PolypharmaciesWith Steroid from Drugstores in the DindaengDistrict, Bangkok, Thailand



Figure 3: PolypharmaciesWith Steroid from Drugstores in the HuaikhwangDistrict, Bangkok, Thailand



Figure 4: Polypharmacies With Steroid from Drugstores in the Pranakorn District, Bangkok, Thailand



Figure 5: Polypharmacies With Steroid from Drugstores in the Phayathai District, Bangkok, Thailand



Fig.6 Polypharmacies With Steroid from Drugstores in the Pomprapsattruphai District, Bangkok, Thailand



Fig.7 Polypharmacies With Steroid from Drugstores in the Samphanthawong District, Bangkok, Thailand

2.2 Sample preparation and determination

This research was qualitative determined dexamethasone and prednisolone by immunochromatographic test kit from Bureau of Drug and Narcotic, Department of Medical Science, Ministry of Public Health, Thailand (Figure 8). Each tablets of drug set were gridded and filled until met the blue line of the test tube. Reagent was dropped into tube with sample contained until met the red line of the test tube (Figure 9).



Figure 8: Test kit



Figure 9: Test tube

Each 1/2 tablets from polypharmacy were gridded and filled until met the blue line of the test tube. Reagent was dropped into tube with sample contained until met the red line of the test tube. The suspending were mixed at list 3 minutes by vortex mixer homogeneously and standing for precipitated. The supernatant was dropped (4 drops) into the test well of Immunochrographic test kit (DMSc Steroid Test Kit, Thailand) and read the result rapidly and not longer than 10 minutes. The positive result was presented as one band at "C" region and negative result was presented as two bands at "T" and "C" region. Prednisolone and dexamethasone were used as positive control (Figure 10).



Figure 10A: Negative Control



Figure 10B: Positive Control

### 3. Results and Discussion

The sampling was collected between July to December 2016 by role played, a research staff member acted as a customer who wanted to buy five asthma polypharmacies, without prescription, for a friend who had asthma symptoms; wheezing, coughing up sputum and chest pressure, waiting for her or his at the dormitory. Their friends reported that they previously experienced asthma polypharmacies, from nearby drugstore or some drugstore in other district and it was fast and effective for asthma relief. Some of drugstore denied to dispensed polypharmacies and told to research staff for side effect of overdose using or toxic with polypharmacies usage because of steroid contamination in polypharmacies. But the research staff were try to came back to the drugstore and take polypharmacies again.

The findings were presented 331 drugstores (53.9%) denied to dispensed polypharmacies. Sixty two drugstores (10.1%) were dispensed polypharmacies to our volunteers (Table 1) and 28 samples (45.2%), were contained with steroids. One hundred and sixty seven drugstores (27.2%) were out of Service and fifty four drugstores(8.8%) were drug companies business.

The sample of positive results were present as only one band (Figure 11). This results were corresponded with previous study (Thongmuang, and Sudjaroen, 2011; Thongmuang, and Sudjaroen, 2012), which showed steroid contained in polypharmacies and dispensed for relief asthma symptom. It may implied that steroids were still used for other symptom, i.e. asthma rather than pain relief.

**Table 1: Behavior of polypharmacy dispensed from drugstores**

Dispensing of polypharmacy	Number of drugstores (%)
Denied to dispensed polypharmacy	331 (53.9)
Dispensed polypharmacy	62 (10.1)
Out of Service	167 (27.2)
Drug company	54 (8.8)
<b>Total</b>	<b>614 (100.0)</b>

From 614 Drugstores in 7 Districts, Bangkok, Thailand



Figure 11: Sample Positive Results

The number of tablets for each dispensed from drugstores in 7 districts were various number (Table 2). Three tablets were most dispensed from 29 drugstores have 14 positive result, two tablets dispensed from 17 drugstores have 5 positive result, four tablets dispensed from 13 drugstores have 8 positive result, six tablets as maximum number of drugs in each polypharmacy dispensed from 2 drugstores have 1 positive result and only one was dispensed 5 tablets but have negative result.

**Table 2: Number of tablets dispensed from drugstores**

Number of tablets	Number of drugstores	Number of positive
2	17	5
3	29	14
4	13	8
5	1	0
6	2	1
<b>Total</b>	<b>62</b>	<b>28</b>

From 62 Drugstores Dispensed Polypharmacies

The important reason to denied for polypharmacies dispensing were presented 151 drugstores (45.6%) denied to dispensed polypharmacies as the reason for legal not allow to dispensed polypharmacies. Therefore, 85 drugstores (25.7%) denied to dispensed polypharmacies as the reason for will be dispended for only patient who have symptom, 3 drugstores (0.9%) denied to dispensed polypharmacies as the reason for they can dispensed if have the prescription from the doctor (Table 3) 58 drugstores (17.5%) denied to dispensed polypharmacies as the reason for polypharmacies usage is harmful to human system, 30 drugstores (9.1%) denied to dispensed polypharmacies as the reason for patient should be visit the doctor and 4 drugstores (1.2%) denied to dispensed polypharmacies as the reason for out of medicine.

**Table 3: Reason to denied for polypharmacies dispensing from drugstores**

<b>Reason to denied</b>	<b>Number of drugstores(%)</b>
Legal not allow to dispensed polypharmacies	151 (45.6)
Dispended for patient who have symptom	85 (25.7)
Can be dispensed polypharmacies if have the prescription from doctor	3 (0.9)
Polypharmacies usage is harmful to human system	58 (17.5)
Should be visit the doctor	30 (9.1)
Out of medicine	4 (1.2)
<b>Total</b>	<b>331 (100.0)</b>

#### 4. Conclusion

The study found 62 drugstores in 7 districts dispensed polypharmacies to demand of customer without asking for prescription from the doctor. However, 331 drugstores denied to dispensing polypharmacies because they know that the legal not allow to dispensed drug sets. Some pharmacists even further informed the staff about steroid content and its side effect in polypharmacies. This indicated that most of drugstores awarded of an inappropriateness of polypharmacies dispensing and concerned about the safety of public in drug consumption. Some pharmacists informed the staff about the danger of polypharmacies which should not be used to relief asthma. They recommended using to the counter tablet or nasal spray instead. Some pharmacists told the staff to come for brought his or her friend back to the drugstore and they will give the medicine. Out of Service and fifty four drugstores means that the drugstores business in Bangkok have decrease number maybe cause of economic situation slow down. This indicated that most of drugstores aware of an inappropriateness of drug set dispensing and concerned about the safety of public in drug consumption. In case of factors affecting to use drug sets of rural people in Pasaknoi Village Choengdoi Sub-district, Doi Saket District, Chiang Mai Province on 1995 collected data from 11 people by informal interviewing. The results showed that affecting usage of polypharmacies were the easiness and convenience of usage, including confidence and satisfaction in the efficacy of drug sets. Also they had heard about the good qualities of drug sets more than the adverse effects from neighbors, relatives and their past experiences. Drug set was easy to buy from the stores in village and the price was cheap and appropriate to their income (Kamai, 1995, p.49-52).

Even though the drugstores on this study were located on the central districts in Bangkok which is the capital and the most civilized city in the country of Thailand. There still exist a number of cases of asthma polypharmacies dispensing as evidenced by drugstores in 7 districts in Bangkok. The important point is the finding of the behavior to dispensing of polypharmacies containing steroid, a controlled substance, without prescription from the doctor. It is an inappropriate usage of steroid drug; unnecessary use and for wrong purpose of treatment.

For this reason, the Government and Department of Public Health should be more tightly enforcing the steroid regulation, especially, to prevent a case of polypharmacies dispensing from the drugstore operating without a pharmacist on duty and a case of steroid dispensing without

prescription. To improve the safety of drug usage among public and also to increase the public awareness of risk and harm from steroid in polypharmacies, the Government and Department of Public Health should publish and advertise to educate public about the side effects of steroids. And also at university undergraduate level, a health related class should be required for graduation in order to strengthen the knowledge in this field for young people who are the future of our country. And the most important in the behavior to dispensing of polypharmacies containing steroid is the responsibility of the sellers or pharmacists to social. The sellers or pharmacists must be trained every year for increase the responsibility on themselves.

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