

Kenric B. Ware. (2017). What's in a Name? Student Pharmacists' Novel Extracurricular Process of Drug Therapy Reinforcement. *Journal of Education and Learning*. Vol. 11 (2) pp. 138-145. DOI: 10.11591/edulearn.v11i2.5616

What's in a Name? Student Pharmacists' Novel Extracurricular Process of Drug Therapy Reinforcement

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Abstract

Fostering excitement in pharmacy student learning can be achieved through reinforcing drug therapies in curricular and extracurricular endeavors. This paper described an extracurricular initiative that elevated awareness of drug therapy in its current, future, and past members. This process occurred on an annual basis. Upon invitation, participants were expected to attend meetings with current and graduate organizational members. These settings provided opportunities for recognition and remembrance of organizational history and drug therapies. Checkpoints were inserted to verify progression towards full membership. The primary role of graduate members in this process was the yielding of their professional insights. A student – led, peer – facilitated model of drug therapy exposure along these lines resonates with calls for increased innovative learning strategies.

Keywords: *Drug Therapy Name (DTN); Kappa Psi Pharmaceutical Fraternity, Incorporated; extracurricular; student pharmacists*

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Introduction

The rigor of pursuing a doctorate of pharmacy (PharmD) degree often manifests as attempts to absorb voluminous amounts of material in relatively short time periods. To increase the likelihood of success, information acquisition should serve as a prelude to evaluation and application of significance. Predicated upon a student's pre-existing educational strengths and areas requiring improvement prior to entry into professional school, these analytical skills may be deficient and result in suboptimal scholastic performances. The challenge of pharmacy curricula navigation is further compounded when allotting for personal concerns that may compound stress levels. Surmounting the multifaceted demands that predestine pharmacy school survival may necessitate embracing peer support groups or organizational involvement that ideally supply academic and emotional stability.

Corporate accountability among pharmacy students should extend to both academic and non-academic sectors. In fact, some teachable moments rely more heavily upon interpersonal interactions that transcend the classroom setting. Student involvement in extracurricular activities at various stages in the educational process has been shown to foster more robust learning experiences.

Participation demands a healthy level of commitment while challenging time management skills. Students are charged to work with peers in a largely self-governance capacity. These undertakings often encompass navigating personal and professional misgivings that can surface in different settings.

A sizeable portion of pharmacy students' extracurricular pursuits originate from student organizations featured at schools and colleges of pharmacy. The bulk of their activities are engineered to sustain community viability wherein the institution is housed. While attention to external edification is encouraged, there is a paucity of literature detailing student organizational attempts to enact longitudinal scholastic modalities internally. The purpose of this paper is to describe a student pharmacy organization's novel approach to continual drug therapy reinforcement and to elaborate upon implications of its innovation.

Methods

Kappa Psi Pharmaceutical Fraternity, Incorporated (Kappa Psi) is an international pharmacy organization that features institutional – specific offerings, denoted as chapters, at selected schools and colleges of pharmacy. Kappa Psi membership is normally available to pharmacy students seeking entry into the chapter described herein within their first or second professional year of matriculation. The minimal grade point average (GPA) threshold for participation is traditionally 2.5 on a 4.0 scale. A general depiction of the steps that precede participation in the membership intake process can be found in Figure 1. The membership intake process, which can also be referred to as pledging, at the chapter described herein, often involves querying of past and present accomplishments of the organization. This approach is accompanied by requests of pledges (aspiring members) to compare and contrast attributes of current chapter members. A mark of distinction for chapter members is the receipt of specific pledge class names acquired during their pledging process. While the assigning of pledge class names is not exclusive to the Kappa Psi chapter being described here, the nature of the names is unique.

The intake process, typically occurring once per academic year, and approximating 90 days in duration, is arranged by invitation only and can be summarized in Figure 2. This timeframe reflects calendar days, as opposed to working business days. Receipt of a predetermined pledge name is a ritual that signifies pledging termination. The yielded nomenclature also cements the legacy of newly added members in the annals of the chapter's history. Subsequent Kappa Psi pledges, in turn, are charged to learn the pledge class names that preceded them and the rationales behind their rendering.

The novelty of the pledge names generated by the chapter described herein is that they primarily assume drug therapy names (DTNs). In a minority of cases, actual DTNs are not assigned but rather drug therapy aspects. The decision as to whether to issue a brand or generic name is often made indiscriminately. These DTNs are supplied to each pledge class member at the conclusion of the intake process based largely upon the characteristics he or she exhibited during the specified time period. Current members of the chapter often have pre-existing knowledge of pledges' personas prior to official interest in membership being declared. Therefore, these anecdotes may also factor into the selection of pledge names.

An example of the significance associated with a DTN can be observed by the receipt of phenobarbital. It can be decided by the current members of the chapter that the pledge exhibited sedating properties (boring and unenthused) initially during the pledge process. However, progression was made which was evinced by his or her contributions as an antiepileptic (stabilizing) force for fellow pledge class members. After receiving approval from the faculty advisor to the organization, the DTNs are dispensed on behalf of the current members without any consultation with the targeted individuals.

Disagreements regarding the merits of the assigned DTN on behalf of the recipient (new members) are silenced by the prerogatives of the current members (older members).

Traditionally, a maximum or minimum number of pledges are not imposed upon the intake process. A list of the DTNs generated from 2004 through 2014 can be found in Table 1 and Table 2. The order of the DTNs as they appear in the pledge class lists are not based upon perceived clinical importance. Rather, officers of the pledge class, i.e., president, vice-president, secretary, treasurer, which are elected by their pledge class peers, are represented at the beginning. The sequencing of the balance of the DTNs is determined by height considerations in an ascending fashion. Occurrences where slots are missing associated DTNs (denoted by ----) are indicative of individuals that discontinued the intake process early.

Weekly reviews, typically approximating 60 to 90 minutes in length, are incorporated by the current membership as recurring showcases for pledges to display mastery of the previously assigned DTNs, rationales, and history of the organization. Graduate members of the organization are also encouraged to return to the weekly sessions and actively participate in the proceedings. In preparation for the weekly meetings, pledge class members often coordinate independent study periods where greater opportunities for reiteration take place. The time designated to these study periods outside of the weekly meetings is loosely regulated by the current membership. Striking a balance between rehearsing for weekly sessions and accommodating other compelling demands, e.g., employment, studying for didactic examinations, is entrusted to the discretion of the aspiring members.

Results

The 165 pledge class names spanning from 2004 – 2014 can be found in Table 1 and Table 2. Twelve pledges did not complete the process and therefore weren't assigned DTNs. Thirteen duplicate and two triplicate representations of DTNs featured during the 10 year period were observed. A drug information software product¹³ was used to aid in the detection of redundancies through the identification of the same brand names, drug therapies having their brand and generic names portrayed, and different brand names corresponding to a common generic designation. No repeated references to drug therapies were isolated within a specific pledge class. As a result, 145 (87.9%) reflects the summation of pledge class names appearing only once.

The total number of brand and generic names observed among the listings were 78 and 65, respectively. No more than one therapeutic class was shown to be represented within each pledge class. A lack of certainty did accompany some therapeutic appellations assigned. For example, instances of nonspecific titles such as “vaccine” or “multivitamins” did surface (Table 1 and Table 2). Agents possessing controlled release properties were in the minority. Four drug products were associated with extended release properties.

Eight names were found to be non-medicinal products (Table 1 and Table 2). One therapeutic agent was provided as a DTN five years after its removal from the market (Table 1). Two additional names are not approved for use within the United States of America (Table 2). Notable trends in the provision of drug names over time were undetectable.

Discussion

Immersion of pharmacy students in medication inquiry through extracurricular means offers promising considerations. Perpetual exposure to therapeutic knowledge is in concert with the “improve my professional knowledge and competence” clause admonished in the “Oath of a Pharmacist”. Trainings that expand beyond classroom confinements can be regarded as influential encounters. Learning in these instances has the tendency to lose a degree of inhibition and stimulate creative approaches for delivery and reception.

Peer facilitated efforts often amplify the fulfilment derived from educational exchanges and may venture to establish fondness among participating parties.

Kappa Psi Pharmaceutical Incorporation commonly touts its affinity for internal sustainment and external appeal. Intricacies of the intake process described here help to substantiate these interests. Conveyances by student members of DTNs to recipients along with their accompanying rationales are fruitful. A platform exists for greater acquaintance with prospective members and more exposure to drug therapy information. Serendipitously, study sessions emerge from efforts to bestow creative names upon future members.

The absence of limitations on the number of pharmacy students invited to participate in the intake process is compelling. Directly proportional relationships between the number of students invited to participate and the corresponding drug names dispensed are prone to equate to improved familiarity with medication therapies. While multiple occurrences of repetitive drug names were identified, an estimation is that these redundancies evolve into reinforcement strategies that translate positively on formative

assessments. Students enrolling in pharmacy school and subsequently joining the organization later perceivably have an advantage from a drug knowledge acquisition standpoint due to an increased volume of therapies encountered. While parameters on the timeframe that pharmacy student pledges are required to learn previous members' drug names is not routinely established for the administering institution, adoption in other environments may elect to narrow the scope.

Engagement by graduate members in the weekly sessions is also impactful. Their presence affords expanded capacity for mentorship to current students in dual respects. First, their anecdotes surrounding optimally navigating the pharmacy curriculum are often well received. Secondly, primarily functioning as practicing pharmacists, their professional experiences usually place the myriad of drug names that are disseminated and memorized into appropriate clinical contexts. Equally as important, graduate members are invariably employed in numerous facets of the profession of pharmacy. Therefore, diversity in scopes of practice may not allow for frequent utilization of each drug therapy discussed at the weekly meetings. As a result, graduate member attendance at the weekly meetings can serve as informal and ostensible continuing education reciprocities.

Opportunities exist to augment this process at other institutions aspiring to replicate this model. In addition to seeking approval of the DTNs, student members can appeal to their faculty advisors to craft a review session to further discuss therapeutic value of the agents in view. Limitations to this arrangement do exist.

The faculty advisor may lack the comfort to coordinate a session along these lines. Moreover, considering approaches to therapy selection, modification, and maintenance can be largely experience – based, faculty members responsible for formal delivery of the drug therapy information and the faculty advisor (if the individual is different) may present viewpoints that are in conflict.

Attempts could be made to provide names that are prone to drug interactions to account for foreseeable friction among pledge class members. This initiative would likely afford students (givers and receivers of DTNs) more practice in recognizing drug interaction potential. Deviations can also be made from primarily focusing upon drug names, to broadening the field to notable monitoring parameters, e.g., laboratory markers, and commonly reported side effects to drug therapies. These variations could presumably compel students to further investigate why these manifestations are likely to occur. Lastly, research could be devised to evaluate outcomes of interest, e.g., academic performances within pharmacy curriculums, between pharmacy students that are members of this organization operating within this drug climate versus those without such affiliation.

Conclusion

Extracurricular processes have the tendency to impart life skills that translate into memorable learning experiences for pharmacy students. Coupling societal practicalities with educational precepts can lead to satisfying self-discoveries. Engineering activities that empower pharmacy students to be catalysts in their own scholastic fulfillment epitomizes a routine that gives rise to success. Invoking widespread collaboration among pharmacy students through longitudinal investments in each other's academic prowess will retain a pharmacy profession galvanized by individual and collective advancement.

Acknowledgement

The author would like to acknowledge a member of the Kappa Psi Pharmaceutical Fraternity, Incorporated for assistance with retrieval and distribution of the list of drug therapy names. The author was initiated into the Kappa Psi Pharmaceutical Fraternity, Incorporated through the student pharmacy chapter's process described herein.

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Appendix

Figure 1
Membership Recruitment Design

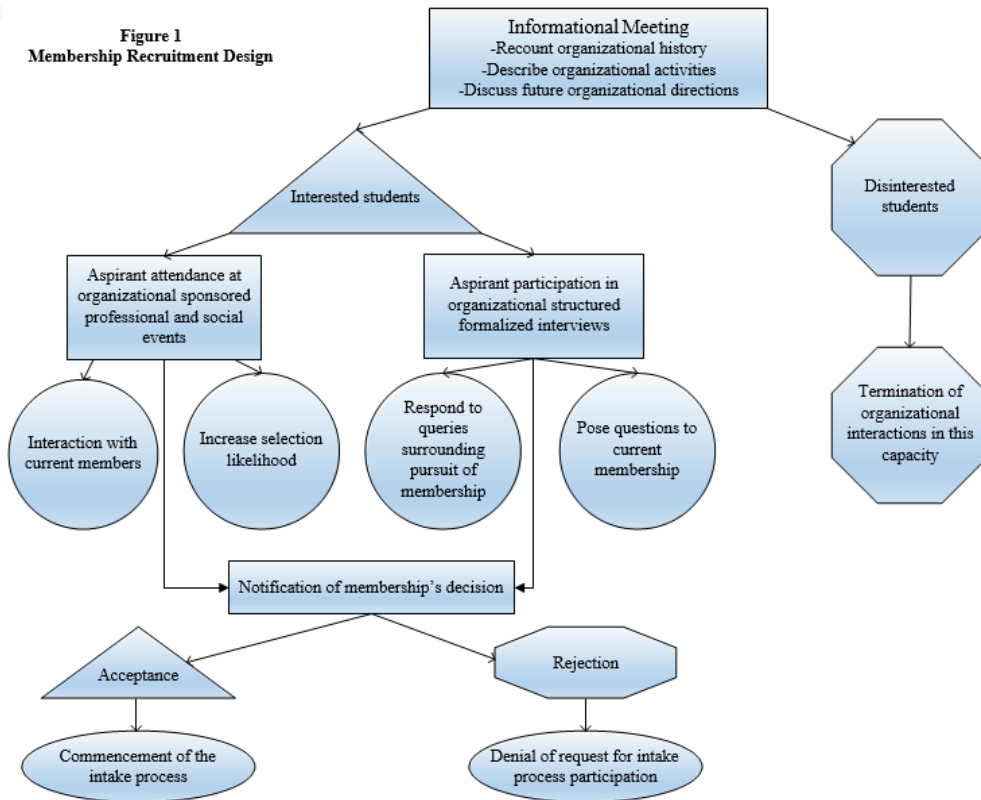


Figure 2
Intake Process Schematic

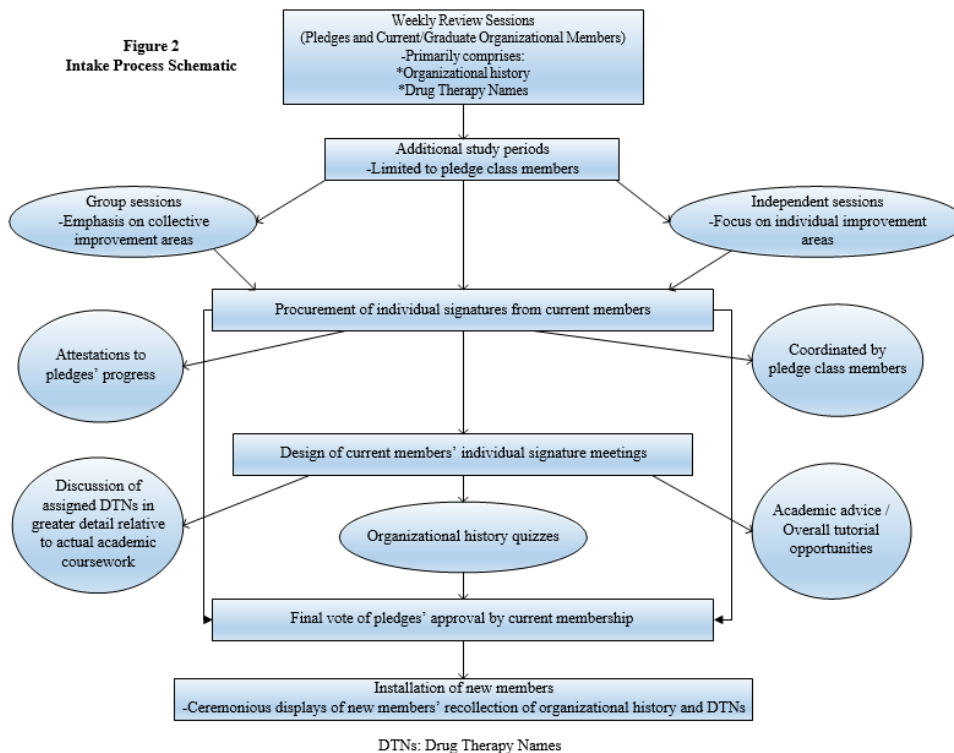


Table 1: Drug Therapy Names/Aspects (Spring 2004 – Spring 2008)

2004
<p>□ DoC[∩] □ Strong Start □ Alteplase □ <i>Metamucil</i> □ LSD[†] □ ----- □ <i>Propranolol</i> □ Mellaril □ <i>Namenda</i> □ Zithromax □ <i>Miralax</i> □ <i>Aricept</i> □ Ambien □ <i>Clonidine</i> □ <i>Ziprasidone</i> □ Mylanta □ Depakote □ Rifampin □ Cialis □ Panax quinquefolius □ Lomotil □ Gentamicin □ <i>Cardizem LA</i>[‡] □ Colace □ Abilify</p>
2005
<p>□ ----- □ ADR* □ Nexium □ Loperamide □ <i>Miralax</i> □ ----- □ Haloperidol □ <i>Cyclobenzaprine</i> □ Compazine □ Digoxin □ Ritonavir □ J&J⁺ Baby Shampoo □ --- □ Dexedrin Spanules □ Strattera □ Ginseng</p>
2006
<p>□ Deltasone □ Rifabutin □ Aspirin □ Penicillin □ Yasmin □ Potassium Chloride □ Metoprolol ER □ Doxorubicin □ Robitussin □ No Doz □ Premarin □ Niacin □ Multivitamins □ Hydroxyzine □ <i>Nitrous Oxide</i> □ Mineral Oil □ Inspra □ Ginkgo bilboa □ Yohimbine □ Sertraline □ Cannabis □ ----- □ Lorazepam □ Naloxone □ Mucinex</p>
2007
<p>□ Placebo □ Vancomycin □ Byetta □ Camomile □ HCTZ[‡] □ Fosphenytoin □ <i>Inomax</i> □ Trizivir □ <i>Paxil</i> □ Crestor □ <i>Diltiazem</i> □ ----- □ <i>Inderal LA</i>[‡] □ Carafate</p>
2008
<p>□ Phenobarbital □ Norepinephrine □ ----- □ <i>Nitroquick</i> □ <i>Clonidine</i> □ Hydromorphone □ Valerian Root □ ----- □ Zidovudine □ Promethazine □ <i>Donepezil</i></p>

Key: ∩: Drug of Choice; †: Lysergic acid diethylamide; ‡: Long Acting; *: Adverse Drug Reaction +: Johnson & Johnson; ||: Extended Release; ‡: Hydrochlorothiazide; -----: Discontinued process; Italics: Recurrent drug therapies

Table 2: Drug Therapy Names/Aspects (Spring 2009 – Spring 2014)

2009
<p>□ Ultram □ Sumatriptan □ Vioxx[‡] □ Lantus □ Venlafaxine □ Epi Pen □ Kapidex □ Provigil</p> <p>□ Escitalopram □ Lavendar □ Tussionex □ Colgate □ Ecstasy MDMA[∩] □ <i>Methylphenidate</i></p> <p>□ Versed □ <i>Clonazepam</i> □ Methyldopa □ Vaccine □ <i>Konsyl</i> □ KY Jelly</p>
2010
<p>□ Atropine □ Skelaxin □ <i>Concerta</i> □ Thiamine □ <i>Zoloft</i> □ Lasix SR[‡] □ <i>Ziprasidone</i></p> <p>□ <i>Leucovorin</i> □ Nuvigil □ Chaste Berry □ Plavix □ Dopamine □ Actos □ Fluphenazine □ Prozac □ Risperidone</p>
2011
<p>□ Serotonin □ Vivarin □ Celexa □ <i>Nitroglycerin</i> □ Insulin □ Bambuterol[#] □ Librium</p> <p>□ Eskalith □ Grandaxin[#] □ <i>Fusilev</i> □ St. John's Wort □ Coumadin □ Diazepam</p>
2012
<p>□ Paroxetine □ <i>Klonopin</i> □ Cuprimine □ ----- □ Nudexta □ Intuniv □ ----- □ AndroFire</p>
2013
<p>□ Bromazepam □ <i>Focalin XR</i>[*] □ Seroquel □ <i>Daytrana</i> □ Oxytocin □ Tamiflu □ Zyprexa □ Ketamine □ <i>Psyllium</i> □ Forteo □ PRN[†] □ Medrol Dosepack □ ----- □ ----- □ <i>Kynamro</i></p>
2014
<p>□ Fioricet □ Cordarone □ Clozapine □ Romazicon □ Isoniazid □ <i>Catapres</i> □ Chloroquine</p> <p>□ Restasis □ Tagamet □ Viagra □ Ethanol □ Dexamethasone □ Flexeril □ <i>Namenda</i></p>

Key: ∩: 3,4-Methylenedioxymethamphetamine; ‡: Sustained Release; *: Extended Release;

†: As needed; -----: Discontinued process; Italics: Recurrent drug therapies; †: Removed from U.S.A. market; #: Not available in U.S.A. market