

A Survey on the Current Status of Nonprescription Drug Course Instruction in U.S. Undergraduate Pharmacy Schools

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INTRODUCTION

Major growth in self-care and self-medication can be expected to continue as cost-containment pressures increase (health insurance, HMOs, Medicaid) and consumers assume active roles in their own health care. Home health care costs are one-third to one-half of hospital costs; self-care and self-medication represent an even better buy for the health care dollar. This transition from acute hospital care to home and self-care will have a dramatic impact on the health care system and, more specifically, on how schools of pharmacy prepare graduates of the 1990s to enter practice for the next 40+ years. One of the primary goals of the American Council on Pharmaceutical Education (ACPE) in its proposed revision of accreditation standards for the year 2000 is for the pharmacist "to educate and motivate patients to assume an appropriate and active role in

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self-care and the management of their drug therapy as related to their particular medical conditions" (1).

The frequency of self-care illnesses or symptoms was reported in the 1982-83 Heller report, which also surveyed consumer behavior in self-medication practices (2). The survey population reported 4.5 health problems (or symptoms) per person per 2-week period; 35% of these consumers used over-the-counter (OTC) medications (and 14% used home remedies) to self-treat their problems.

Six of every ten medicines purchased today are nonprescription drugs to cost-effectively self-treat minor medical problems. There are more than 200 nonprescription products on the market today that were available by prescription only before 1980. Over the next 3-5 years, the Food and Drug Administration (FDA) will receive petitions to switch 57 more prescription drugs to nonprescription status (3).

What is being taught in nonprescription (OTC) drug courses in our colleges of pharmacy? Is the self-care movement involving OTC drugs, home diagnostic kits, and home health care products and services being adequately addressed in the curriculum? Are patient assessment and communication skills being incorporated?

In 1975, the American Association of Colleges of Pharmacy (AACP) Academic Affairs Committee and the American Pharmaceutical Association (APhA) Academy of General Practice published behavioral objectives in the area of OTC drug products (4). Have these learning objectives been incorporated into pharmacy curriculums? In light of the recent growth and expected future advancement in self-care, including more prescription-to-OTC switches and increased availability of diagnostic kits, an evaluation of the current status of nonprescription instruction at schools and colleges of pharmacy was undertaken.

METHODOLOGY

In March 1990, a cover letter was mailed from the AACP offices to the deans of all 74 U.S. colleges of pharmacy requesting the submission of nonprescription products course syllabi in the curricula to establish a baseline and to assess current content in this area of instruction. A follow-up telephone call in July 1990 to nonre-

sponders increased the final sample size. For nonresponders, basic course information, such as title and credit hour allocation, was obtained from the AACP National Curriculum Database.

The status of the content (required versus elective) and how it was offered (as a separate course or as a component of another class) was recorded. Syllabi were reviewed for both content (specific lectures) and credit hour allocation in an attempt to assess breadth and depth. Overall course content was compared with chapter headings of the *APhA Handbook of Nonprescription Drugs* (9th ed.) to minimize variability of major subject areas during the analyses.

The use of teaching methodologies such as case study discussions or student presentations was also evaluated during the review of the syllabi submitted. In this preliminary survey, no attempt was made to assess nonprescription drug or home health care learning objectives in other courses, laboratories, or experiential programs.

RESULTS

Syllabi were received from 62 of the 74 colleges of pharmacy, 61 of which could be further analyzed for course content (82.4%). Additional information on course title and credit hour allocation was obtained from the AACP National Curriculum Database.

Of 69 colleges of pharmacy, 55 (79.7%) have a distinct course in nonprescription drugs (or similar nomenclature), with a vast majority (>90%) offering a required course. Several schools had recently converted from an elective to a required course. For those few schools with only an elective course, nonprescription drugs is reported to be a very popular choice, with nearly 95% of the total students enrolling in the class. In one program, the OTC course is required only for students in a community pharmacy career track.

In terms of alternate teaching methodologies to enhance either problem-solving or presentation skills, a review of syllabi and course outlines indicated that only 30.5% (18 of 59 usable syllabi) use case discussions, guided design, or student group presentations in their course. Thus, a majority use a standard didactic lecture format. Nearly every school with a separate course used the APhA

Handbook on Nonprescription Drugs as a required or recommended text.

Table 1 illustrates apparent gaps in *breadth* of course content, with fewer than 25% of the courses evaluated containing information on enteral formulae, antipyretics, anthelmintics, and diaper rash/prickly heat. It is interesting to note that anthelmintics, which were considered prescription-only drugs not long ago, are covered in only 16.4% of the OTC courses.

Many additional areas that do not receive a sufficient number of mentions in a majority of the syllabi include: skin problems (poison ivy/poison oak), infant formulae, diabetic care, ostomy care products, asthma, menstrual and personal care products, and home diagnostic tests. Home health care topics may not represent a deficiency in nonprescription courses, since several schools have a separate elective course in this area of instruction. In addition, many frequently reported symptoms or illnesses were covered in only 50% of the OTC courses surveyed. In some syllabi it was difficult, especially under the general topic of dermatology, to determine what specific areas are being covered. Other topics, such as acne or diabetic care, may be covered in therapeutics courses.

The frequency of lecture mentions in the OTC course syllabi was then compared with the frequency data on the broad categories of symptoms or problems from the Heller study (2). The problems in the Heller report identified as most likely to be treated with an OTC medication were compared with course content, as shown in Table 2. Lecture coverage of treatments for the common cold and headache matched the Heller survey; however, the frequency of gastrointestinal problems covered in OTC courses did not match the frequency in the Heller study. Various skin problems, which had the highest overall frequency in the Heller survey, did not appear to be covered as thoroughly in course work.

The credit hour allocation was converted to a semester hour equivalent for comparison. The frequency of total credit hours is reported in Table 3. The average total course credit hours for the 51 colleges that reported a separate course (in 4 schools the credits were not stated in the syllabus) was 2.52 semester credit hours, with a mean of 2.0 credits.

The *depth* of coverage could not be quantified in this study due to

TABLE 1. Lecture Mentions from Syllabi of Nonprescription Drugs in Schools of Pharmacy (62 of 74 Schools Reporting, 61 Usable Syllabi)

	% Responders
Introduction	
FDA's OTC review	42.6
Patient assessment and consultation	37.7
Self-care and self-medication	6.6
Rx-to-OTC switch	3.3
Pharmacy laws	6.6
OTCs--pediatric patient	1.6
OTCs--geriatric patient	3.3
Dermatology	
Dermatitis, dry skin, dandruff, seborrheic dermatitis and psoriasis	70.5
Acne	54.1
Topical anti-infectives	59.0
Poison ivy and poison oak	26.2
Insect sting and bites	39.3
Burn and sunburn	49.2
Sunscreen and suntan	60.7
Hemorrhoidal products	49.2
Foot care	47.5
Diaper rash and prickly heat	24.6
Pain	
Internal analgesics	72.1
External analgesics	47.5
General Well-Being	
Weight control	55.7
Sleep aid and stimulants	54.1
Nutritional supplements/minerals and vitamins	50.8
Infant formulas	26.2
Enteral formulas	14.8
Diabetic care products	31.1
Contraceptive methods and products	49.2
Respiratory	
Cold, cough, and allergy	82.0
Asthma	29.5
Antipyretics	23.0
Home supplies	11.5
Eye/Ear/Mouth	
Ophthalmics	57.4
Contact lens	50.8
Otics	47.5
Oral care	52.5
Digestive System	
Antacids	77.0
Anthelmintics	16.4
Antidiarrheals	77.0
Laxatives	80.3
Emetics/antiemetics	50.8
Ostomy care/products	34.4
Feminine	
Menstrual products	32.8

TABLE 1 (continued)

Miscellaneous	
Personal care	32.8
Home diagnostic tests	27.9
Infant care	6.6
Toxicology	1.6
Pet care	1.6
Quackery	1.6

TABLE 2. Self-Medicating Problems in Heller Study Versus OTC Content

Heller Study	OTC Courses
1. Lip problems	1. Common cold
2. Headache	2. Constipation
3. Athlete's foot	3. Diarrhea
4. Chronic dandruff	3. Indigestion
5. Common cold	4. Headache/migraine
6. Painful dry skin	5. Misc. skin problem
7. Migraine headache	6. Sunscreen/suntan

the lack of standardization of course syllabi. In addition, it was not uncommon to have 2 or 3 major content areas covered in one 50-minute lecture. With the possible exception of cough and cold remedies, laxatives, antacids, and antidiarrheals, most areas appear to require more emphasis than the syllabi show.

DISCUSSION

The role of the pharmacist as a self-care consultant has been defined by Srnka to include being a health care information provider to consumers on safe and effective product selection and appropriate product use, counseling on nondrug self-care, assisting in triaging illnesses, and counseling on health assessments (5). Are schools of pharmacy adequately preparing graduates to assume this role?

The standard reference for pharmacists in terms of OTC instruction has always been the APhA *Handbook of Nonprescription Drugs*. The new ninth edition was released in fall 1990 and includes 37 chapters and over 1,000 pages of information on the various major OTC drug categories. While any text has its limitations, is it feasible to expect all of this material to be taught in a two- or three-

TABLE 3. Frequency Analysis of Semester Hour Allocation of OTC Courses (51 Schools with Separate Courses Using Semester Hour Equivalents)

2 semester hrs.	51.0%
3 semester hrs.	33.3%
4 semester hrs.	5.9%
2.67 semester hrs.	3.9%
3.33 semester hrs.	3.9%
1.33 semester hrs.	1.9%

semester-hour course? The importance of this core content, along with OTC patient assessment and communication (and problem-solving) skills must be reevaluated by each school.

A suggested syllabus with content and sequencing on nonprescription drugs is included for review in the Appendix. This syllabus is based on projected industry and government trends for the self-care, self-medication movement in the 1990s. Included under each topic are approved OTC indications on consumer labeling and, in some cases, indications on professional labeling for OTC drugs with indications for self-care and care under supervision of a health professional.

This syllabus is not meant to meet every school's needs, but is provided to serve as an initial focus for discussion. This draft syllabus may be used by college curriculum committees to determine if these areas of self-care and self-medication are being covered (breadth) and if they are being covered adequately (depth). Learning objectives must be developed for each topic to assure appropriate depth of coverage. The content is the equivalent of a four-semester-hour course that exists in very few schools. Included in the course outline are recommended recitation times for small group discussion and enhancement of student problem-solving and patient assessment skills.

There are several areas of potential duplication that would influence the final credit hour allocation:

1. If your school has a required course in nutrition and these subject areas are covered, some lectures (4-5) can be eliminated.
2. If home diagnostic tests are adequately covered in a separate required course, dispensing lab, or on clerkship for all students, some lectures and a lab (1-2) can be eliminated.

3. Are diabetic products, acne, contraceptive methods and products, and IV drugs adequately covered in therapeutics (reduce 2-3 lectures)? A multisystem approach may be considered for diabetes which would include the insulins, urine and blood glucose monitoring, foot care, eye care, etc.
4. If your school has a course in home health care (required versus elective?), the lectures in ostomy care, IV drugs, home supplies (thermometers, vaporizers, etc.) could be shortened or eliminated.
5. If you must reduce core courses, are there elective courses in your curriculum that could address lecture material on pediatrics, geriatrics, and dermatology (most frequent symptom reported in the Heller study)?
6. If space and/or resources do not exist for small group interaction, do alternative forums exist on externship or clerkship, such as discussions with faculty and preceptors in community pharmacy, medicine (ulcer disease), ambulatory (diabetes), pediatrics (fever, infant formula), geriatrics (laxatives), nutritional support (enteral formula), etc.? Recitation discussions, if available, could be of 1-2 hours' (i.e., lab) duration.
7. Is your school using (or considering) a guided model design course with student interaction or computer-assisted instruction or access to other self-learning programs?
8. Does your school offer an elective in patient assessment that is oriented to the community pharmacy practitioner assisting the patient in making an accurate self-diagnosis?

It is suggested that faculty critically review their curriculum to assure that students will have the necessary knowledge, competency, and communication skills to assume a more clinical practice in community pharmacy, including the self-care/self-medication area. Opportunities to review curriculum may exist in long-term strategic planning, ACPE self-study, conversion from quarter to semester system, identification of course overlap, and/or planning for an all-Pharm.D. program.

Coverage of nonprescription drugs in other courses, laboratories, and training programs must be assessed in future studies. It may be that deficiencies or gaps identified in this study are remedied in other areas of the curriculum. Further studies are also needed to

determine coverage of home health care and patient assessment in the didactic and experiential portions of the programs.

In 1950, nearly 100% of nonprescription products were purchased from a pharmacy. In 1970, nearly two-thirds of OTC purchases took place in a pharmacy. In 1990, only a little more than one-third of these purchases were in a pharmacy. Are we adequately preparing our graduates for a shift to ambulatory care requiring specialty clinical expertise? A case could be made that this trend cannot be reversed and that instruction in nonprescription courses should be deemphasized or even eliminated. The profession, as well as schools of pharmacy, must reexamine the role of the pharmacist as a primary care provider in the selection of and counseling on OTC medications.

CONCLUSION

A majority of colleges of pharmacy offer a separate required course in nonprescription drugs, but the teaching format, credit hour allocation, and course content vary considerably among schools. The average credit hour allocation was found to be 2.52 semester hours. Comparison of the analysis of syllabi to industry trends and consumer surveys indicates the need for significant expansion of core material in several areas, preferably in a problem-solving format with additional emphasis on patient assessment and communication skills. It is strongly suggested that knowledge and competency in the growing field of self-medication and home diagnostic testing should be required of all pharmacy students, regardless of career path or degree. Additional emphasis in nonprescription instruction in the curriculum may better prepare pharmacy graduates to practice in a changing ambulatory health care environment.

REFERENCES

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Appendix. Proposed OTC Course Content

Lecture

Introduction

- | | |
|---|--|
| 1 | Course introduction/FDA's OTC review |
| 2 | Overview of self-care and self-medication |
| 3 | Rx-to-OTC switch/pharmacy law |
| 4 | Overview of patient assessment and consultation |
| 5 | OTCs for at-risk patient populations--pregnant, pediatric, and geriatric patient |

Gastrointestinal

- | | |
|-----|--|
| 6-7 | Antacid products
Gastric hyperacidity, hiatal hernia, peptic esophagitis, peptic ulcer, duodenal ulcer |
| 8 | Anthelmintic products
Emetic and antiemetic products
Pinworm (assessment), worm infestation, nausea, motion sickness, poison treatment, radiation sickness |
| 9 | Antidiarrheal and other GI products
Diarrhea, gastric hyperacidity, intestinal gas, diverticulosis (irritable bowel syndrome) |
| 10 | Laxative products
Constipation, preparation for gall bladder X-rays |
| 11 | Ostomy care products
Ostomy-related odor |
| 12* | Recitation case discussions--GI |

Respiratory

- | | |
|-------|--|
| 13 | Antipyretics
Fever (adult, pediatric, infant), appropriate thermometer, use, product comparisons |
| 14-16 | Cold and allergy products
(Antihistamines, decongestants, antitussives, expectorants, and home supplies--vaporizers, humidifiers)
Allergic rhinitis (hay fever), common cold symptoms, congestion, cough, flu, sinusitis |
| 17 | Asthma products
Asthma, bronchitis, reversible bronchospasm associated with emphysema |
| 18* | Recitation case discussions--respiratory |

Pain

- | | |
|-------|--|
| 19-20 | Internal analgesics
Arthritis and rheumatic conditions, bursitis, headache, nocturnal leg muscle cramps, rheumatoid arthritis, secondary prevention of MI in unstable angina, stroke, transient ischemic attack |
|-------|--|

- 21 External analgesics (sports medicine)
Bruises and other inflammation or swelling, muscle strain and sprains (hot versus cold compresses)
- 22 Hemorrhoidal products
Hemorrhoids, perianal cleansing
- 23* Recitation case discussions--pain

Nutrition

- 24-25 Nutritional supplements, mineral and vitamin products
Anemia, calcium supplements for osteoporosis, oral electrolyte imbalance, vitamin and mineral deficiencies, hypophosphotemia and hyperphosphotemia, exocrine pancreatic insufficiency
- 26 Infant formula products
- 27 Enteral formula products
- 28 Weight control products
Overweight
- 29-30 Diabetes care products
Diabetes (insulins, syringes, insulin mixing/storage, urine/blood sugar testing, infusion devices, sugar containing Rx/OTCs)
- 31-32 Foot care products
Corns, calluses, ingrown toenails

Diagnostic Home Tests

- 33 Home diagnostic tests
- 34** Hands-on lab on testing blood/urine glucose, pregnancy, ovulation, occult blood, UTI, etc.
Assure skill competency
- 35* Recitation case discussions--nutrition/home tests

General Well-Being

- 36 Sleep aid and stimulants
- 37 Contraceptive methods and related products
Prevention of pregnancy, premature ejaculation (condoms, AIDS prevention)
- 38 Menstrual products
Dysmenorrhea, vaginal irritation, vaginal odor, vaginal infection (?), premenstrual syndrome
- 39 Personal care products
Age spots, allergy, feminine hygiene, hangover, perspiration odor, smoking, chafed and chapped skin, windburn, fatigue, overindulgence in food and drink, nail biting and thumb sucking, razor cuts and irritations
- 40* Recitation case discussions--general well-being

Eye, Ear, Nose, Throat (Mouth)

- 41 Otic products
Ear wax, swimmers ear
- 42 Ophthalmics
Allergic conjunctivitis, dry eyes, eye irritation (redness, itchy, watery eyes), sties
- 43 Contact lens products
- 44-45 Oral health products
Canker sores, cold sores, fever blisters, prevention of dental caries, denture irritation, toothache, tooth hypersensitivity, teething pain, xerostomia, gum inflammation, oral malodor, plaque and tartar control
- 46* Recitation case discussions--EENT

APPENDIX (continued)

Dermatology

- 47 Insect sting and bites (pediculosis and scabies)
Insect sting and bites, head and body lice, hives
- 48 Burn and sunburn products
Burns, sunburn
- 49 Sunscreen and suntan products
Prevention of skin cancer, sun sensitive skin
- 50-51 Topical anti-infective products
Athlete's foot, biologic infections, boils, cuts, scrapes and
scratches, fungal infections, ringworm, herpes, jock itch
- 52 Acne products
Acne
- 53* Recitation case discussions--dermatology #1
- 54-56 Dermatitis, dry skin, dandruff, seborrheic dermatitis and
psoriasis products
Dandruff and seborrhea, dry skin, dermatitis and eczema,
cradle cap, external itching, psoriasis, warts
- 57 Poison ivy and poison oak products
Diaper rash and prickly heat products
- 58* Diaper rash, prickly heat, poison ivy and poison oak
Recitation case discussions--dermatology #2