

医学教育改革系列教材



临床药学英语

主编 谢晓慧 陈瑞玲

高等教育出版社

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LINCHUANG YAOXUE YINGYU

主 编：谢晓慧 陈瑞玲

副主编：李 俊 陶 骅 刘治军

编 者：（按姓氏拼音排序）

陈瑞玲（首都医科大学附属北京天坛医院）

杜 光（华中科技大学同济医学院附属同济医院）

李 达（北京国际（SOS）救援中心）

李 俊（北京大学医学人文研究院）

林 阳（首都医科大学附属北京安贞医院）

刘文芳（首都医科大学附属北京安贞医院）

刘治军（首都医科大学附属北京安贞医院）

陆 浩（青岛和睦家医院）

聂小燕（北京大学药学院）

陶 骅（北京和睦家医院）

王天晟（北京大学药学院）

吴 迪（昆明医科大学第一附属医院）

谢晓慧（北京大学药学院）

徐 蓓（首都医科大学附属北京天坛医院）

张 峻（昆明医科大学第一附属医院）

张 杨（华中科技大学同济医学院附属同济医院）

高等教育出版社·北京

内容简介

本教材根据临床药学工作中文献阅读、英文会话、英文论文书写、国际交流等的需要,从最新版的书籍、期刊、指南及会议资料中选取了不同类型、不同内容的文献,使读者熟悉不同类型文献的行文格式、写作方法和查阅方法,并学习到相关的英文专业词汇和表达。本教材中的大部分内容来自英文原文,少部分内容经过编者的改写或缩写,目的是让读者学习原汁原味的英语。

本教材适用于全国高等医药院校临床药学专业,同时也可供临床医师、药师和护理人员学习和工作参考。

图书在版编目(CIP)数据

临床药英语 / 谢晓慧, 陈瑞玲主编. -- 北京: 高等教育出版社, 2016.11

医学教育改革系列教材. 临床药学专业用

ISBN 978-7-04-046136-7

I. ①临… II. ①谢… ②陈… III. ①临床药 - 英语 - 医学院校 - 教材 IV. ①H31

中国版本图书馆 CIP 数据核字 (2016) 第 189299 号

策划编辑 瞿德兹 责任编辑 瞿德兹 封面设计 张楠 责任校对 刘丽娟
责任印制 韩刚

出版发行	高等教育出版社	网 址	http://www.hep.edu.cn
社 址	北京市西城区德外大街4号		http://www.hep.com.cn
邮政编码	100120	网上订购	http://www.hepmall.com.cn
印 刷	涿州市星河印刷有限公司		http://www.hepmall.com
开 本	850mm × 1168mm 1/16		http://www.hepmall.cn
印 张	18.5	版 次	2016年11月第1版
字 数	550千字	印 次	2016年11月第1次印刷
购书热线	010-58581118	定 价	38.00元
咨询电话	400-810-0598		

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秘书处设在教务处、化学生物学与药学院

这是一套专门为临床药学专业五年制本科学生临床培养阶段编写的教科书。为了准确描述我组织众多专家编写这套教科书的初衷，有必要提到我国古代四部医学名著，它们是《伤寒杂病论》《金匱要略》《黄帝内经》和《温病条辨》。从著作质量的角度应当提到它们，因为这四部经典著作一直是我国医学和药学书籍的开拓性的典范、特色性的典范和严谨性的典范；从历史沿革的角度应当提到它们，因为这四部经典著作一直潜移默化地影响着我国医学和药学教育；从专业渊源的角度应当提到它们，因为这四部经典著作在医药融合、六经辨证和名方加减中孕育了临床药学。正是这四部经典著作让我有足够的理由相信，传统临床药学在传统医学中发展了不止一千年。

为了区别于刚刚说到的四部经典著作反映的传统临床药学，我把下面要讨论的临床药学称为现代临床药学。从表面上看，现代临床药学似乎起因于药品不良反应。例如，20世纪50年代，美国发展现代临床药学是因氯霉素事件而起。又例如，20世纪60年代，英国、法国和瑞典等欧洲国家发展现代临床药学是因反应停事件而起。20世纪70年代，现代临床药学逐渐在日本、新加坡、中国台湾和香港等亚洲国家和地区传播。20世纪80年代初，我国北京、上海、南京、长沙、广州、武汉、成都和哈尔滨的12家教学医院也曾探索过临床药学。即使从20世纪50年代算起，现代临床药学比传统临床药学也不止晚了一千年。

很难说，在这一千多年现代临床药学没有从传统临床药学那里学到点什么。不过，现代临床药学有它自己的基本目标。那就是以患者为中心，制订合理的给药方案，谋取最佳的治疗效果，使药物不良反应趋零，改善患者生活质量。可以肯定，即使在这一千多年间从传统临床药学学到很多，现代临床药学自身的特色也无法掩盖。我想强调，西方人创建现代临床药学时充分考虑了它们的国情，根本没有照搬传统临床药学模式。同样，我国建设现代临床药学也不能照搬西方模式。

目前，教育部批准了不到10所医药院校设置临床药学专业，招收大学本科生。因为各自的办学条件不同，所以各自的办学方略也不同。首都医科大学在临床药学专业招收五年制本科生之前，就确立了要培养懂得临床医学的临床药师

II 序

的基本目标。要实现这个目标，既不能走药学加生物学的道路，也不能走生物学加药学的道路，更不能走化学加生物学的道路。我想，只能走药学、生物学和临床医学高度融合的道路。显然，贯通这条道路需要一套全新的教材。我校的临床药学五年制本科，采取了3+2的培养模式。前三年在校本部接受大药学式的基础教育，后两年在医院接受临床医学支撑的医院药学教育。学生接受后两年医院药学教育时，将使用这套全新教材。

在药学、生物学和临床医学高度融合培养合乎国情的临床药师的道路上，充满挑战和探索。为贯通这条道路，撰写一套全新教材同样充满挑战和探索。正是这种挑战和探索，使得目前出版的这套教材不会很完美，修改和完善的空间肯定存在。不过，这种境况丝毫不会影响它们的价值，更不会影响它们攀登我国古代四部医学名著代表的高峰的决心。作为这套全新教材的总主编，我知道作者们贡献的智慧和付出的艰辛；作为这套全新教材的总主编，我欣赏作者们付出所形成的智慧财产的价值；作为这套全新教材的总主编，我相信学生们会喜欢这套全新教材并从中得益。

吕兆丰

2013年2月

于首都医科大学

前 言

近 10 年来,中国的临床药学无论是在教育、科研还是实践领域都有了较快的发展,越来越多的专业人员以前所未有的热情投入到临床药学的工作中。在工作中人们需要经常查阅英文文献,但是那些不认识的药名、病名以及症状等专业英语词汇严重影响了阅读速度;随着国际学术交流机会的逐渐增多,人们发现在交流过程中很多专业词汇既听不懂也不会说,写英文摘要和制作英文幻灯片也很困难;随着临床药学科研水平的提高,研究结果需要在有影响力的英文期刊发表,对许多专业人员来说写英文论文更是力不从心。临床药学专业人员所碰到的上述听、说、读、写、译的语言障碍,即使是通过大学英语六级考试者,甚至 TOEFL 或 GRE 成绩不错者也一样会面临。专业英语水平偏低,影响了相当一部分临床药学专业人员专业知识水平的提高和学术交流的质量。

在临床药学工作中,我们经常会查阅英文的期刊论文、书籍、各种疾病的诊疗指南、药品说明书等,通过查阅这些文献寻找和分析有关药物治疗、药物不良反应和临床评价、药物相互作用、特殊人群的用药信息等内容;在涉外医疗机构工作的药师还要熟练掌握医疗文书的常用英文词汇和专业的英文会话;在撰写英文论文的过程中,需要熟悉研究论文的格式和表达;在国际交流中需要看懂会议通知、征文要求和会议日程,熟悉英文幻灯片和壁报的制作,具备一定的听、说能力,还需要会写英文电子邮件和个人简历等;临床药学教育和药师的职业发展也是我们一直关注的问题。本教材将上述内容编排在 8 个章节中。

本教材在编写过程中根据内容选取不同的文献类型,使读者熟悉不同类型的文献的行文格式、写法和查阅方法;在不同的文献类型和内容中选取不同的病种,目的是让读者在有限的篇幅中学习更多的英文专业词汇和表达。本教材的绝大部分内容来自英文原文,少部分内容经过编者的改写或缩写,目的是让读者学习原汁原味的英语。为了保证专业知识的准确性和时效性,本教材在编写过程中选取了最新版的书籍、期刊、指南及会议资料中的内容。在此,我们对各位原文的作者表示诚挚的敬意和衷心的感谢!如果您对引用作品有任何意见,恳请您尽快与我们联系,以便做出妥善处理。

本教材是首都医科大学临床药学专业系列教材之一,不仅可供临床药学专业

IV 前 言

的本科生、研究生和教师使用，也可以供广大医生、护士和药师提高专业英语水平使用。

本教材的全体编者精心选取和编写所有内容，目的是抛砖引玉，引导读者学习相关内容，使读者具备一定的临床药学专业英语水平，为进一步提高医学专业英语水平打下基础。

本教材在编写过程中，得到了首都医科大学各级领导的关注，以及临床药学系在资料、经费等方面的大力支持，同时得到了高等教育出版社在出版方面的关照，在此一并表示衷心的感谢！

本教材内容难免存在错误、疏漏之处，欢迎读者批评指正。另外，在文献选取、内容编排以及难易程度的把握等方面还存在许多有待改进的地方，衷心希望广大读者提出宝贵意见。

谢晓慧 陈瑞玲
2015年3月

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Chapter 1

Clinical Pharmacy and Clinical Pharmacist

1.1 Pharmacy Education and Pharmacy Career in the United States

1.1.1 Overview

1.1.2 The Doctor of Pharmacy Program

1.1.3 The MS and PhD Programs

1.2 Clinical Pharmacy in the United States

1.3 Clinical Pharmacy Education and Clinical Pharmacist Practice in China

1.3.1 Clinical Pharmacy Education in
China

1.3.2 Development of Clinical Pharmacy
Services in China

1.1 Pharmacy Education and Pharmacy Career in the United States

| 学习目标 |

1. 了解美国药学教育。
2. 了解美国药师的工作。

| 核心概念 |

1. [**Doctor of Pharmacy**] Doctor of Pharmacy is the professional doctor degree in pharmacy, the core curriculums include courses on pharmaceutical sciences, pharmacotherapy, and pharmacy practice.

2. [**Clinical Pharmacist**] Clinical pharmacist is a health care professional who has knowledge of pharmacotherapy and skills of pharmaceutical care, works with doctors, other health professionals, and patients to ensure that the medication prescribed for patients contribute to the best possible health outcome.

| 引言 |

本文节选自美国药学院协会官方发布的2013—2014年药学院介绍。通过学习本课内容可以了解美国药学教育的学制、学位和课程设置等情况，还可以了解美国药师的工作内容等。

1.1.1 Overview

Pharmacy is a key player in primary and preventive health care and

is defined as the science of the composition, use and dispensing of drugs. The study and practice of Pharmacy has evolved and expanded considerably over the years due to the exponential growth of the health care and pharmaceutical industry. Pharmacy practice is committed to achieving optimum results from medication therapies in the interest of building a healthier society. United States pharmacy schools offers three kinds of programs: Doctor of Pharmacy (PharmD degree), M.S., and PhD degree.

1.1.2 The Doctor of Pharmacy Program

The Doctor of Pharmacy (PharmD degree) is a four-year entry level graduate professional program preparing students for practice in pharmacy. Applicants are required to complete at least two years of pre-pharmacy course work from an accredited college/university to qualify for admission. Some pharmacy schools may prefer to enroll students with an undergraduate degree while others may not. Pre-requisite course work may cover chemistry, biology, anatomy and physiology, humanities, social and behavioral sciences, English, organic chemistry, microbiology, physics, calculus, statistics, macro/ micro economics along with lab work.

The key areas in the PharmD curriculum may include pharmacology, pharmaceutical chemistry, pharmacognosy, pharmacotherapy, pharmaceutical care, disease-state management, social sciences, pharmacy law and policy, pharmacy administration with supervised practice training.

1.1.3 The MS and PhD Programs

Schools of pharmacy offering the traditional MS and PhD programs prepare students for teaching and research careers. Areas of study include but are not limited to pharmaceutical sciences, pharmacology and toxicology experimental and clinical pharmacology, pharmaceuticals, medicinal chemistry, pharmacodynamics, pharmacognosy, and pharmacy administration.

Occupations in Pharmacy include hospital pharmacist, public health sector pharmacist, community pharmacist, industry-based pharmacist, managed care pharmacist, drug developer, consultant, researcher, professor, etc. Career options depend on the nature of the pharmacy degree earned and the post-graduate training (residency, post-doc training, etc).

This is an extraordinary time to be considering a career in pharmacy in the United States. American health care system is in the process of making some of the most significant changes in decades. Patient-centered care that is delivered by teams of professionals working together is now the recognized solution to improving how health care works. The thousands of medications, including prescription, nonprescription and other health-related products, used to prevent and treat illness today must be managed by a medication use specialist. That is what pharmacy education prepares pharmacy students to become and the possibilities to use that knowledge are limitless. Patient care roles in a wide variety of settings as well as unique roles in management, research and consulting are all within the reach of today's pharmacy graduate.

The recognition that patients need help managing their medication therapy is growing and pharmacists' roles are changing. Colleges and schools of pharmacy prepare students to deliver patient-centered care as part of teams of health care providers. As an integral team member, pharmacy students will draw upon a vast

knowledge of medications and learn how to use them properly. Pharmacists will provide patient education and medication monitoring activities. By providing immunizations and health screenings, pharmacists contribute to improving the public's health. As a medication use specialist, pharmacists help reduce the incidence of medication errors and patient harm. Pharmacists work in their communities and around the world as leaders and agents of change to improve access to quality health care for all.

WORDS AND EXPRESSIONS

prescription 处方

health care system 医疗系统

pharmacy administration 药事管理

chain drug store 连锁药店

immunization 免疫

小 结

美国的药学院可以提供 PharmD, MS, PhD 等教育项目, 但只有 PharmD (药学博士) 学位获得者才具备考取执业药师的资格。PharmD 项目以培养合理用药人才为主要宗旨, 其核心课程是药物治疗学和药学服务等。美国药学院的毕业生可以从事药师、药品研发、教育和研究等工作。美国药师在医院、社区等不同的环境工作, 其主要职责是提供以患者为中心的药学服务, 特别是在为患者提供安全、合理的个体化用药方案的过程中发挥重要作用。

复 习 题

1. Questions

(1) What are the programs offered by United States pharmacy school?

Answer: Doctor of Pharmacy, PhD, MS.

(2) What's career path for pharmacy students in United States?

Answer: Hospital pharmacist, public health sector pharmacist, community pharmacist, industry-based pharmacist, managed care pharmacist, drug developer, consultant, researcher, professor, etc.

2. True or False

(1) In United States, applicants are required to complete at least 4 years of pre-pharmacy course work from an accredited college/university to qualify for admission.

Answer: F

(2) In United States, patient-centered care that is delivered by a medication use specialist: qualified clinical pharmacist.

Answer: F

3. Translate the following sentences into Chinese

(1) The key areas in the PharmD curriculum may include pharmacology, pharmaceutical chemistry,

pharmacognosy, pharmacotherapy, pharmaceutical care, disease-state management, social sciences, pharmacy law and policy, pharmacy administration with supervised practice training.

Answer: PharmD 的核心课程包括药理学、药物化学、生药学、药物治疗学、药学服务、疾病状态管理、社会科学、药学法律法规、药事管理以及导师指导下的药学实践。

(2) Colleges and schools of pharmacy prepare students to deliver patient-centered care as part of teams of health care providers. As an integral team member, pharmacy students will draw upon a vast knowledge of medications and learn how to use them properly.

Answer: 药学院将学生培养成为能够提供以患者为中心的药学服务的医疗团队成员。作为整个医疗团队中的一员,药学生将利用自身丰富的药物知识,并学习如何在临床中正确使用药物。

4. Translate the following sentences into English

(1) 这是一个在美国从事药师工作的非凡时期。在未来几十年,美国医疗系统将发生显著的变化。

Answer: This is an extraordinary time to be considering a career in pharmacy in the United States. American health care system is in the process of making some of the most significant changes in decades.

(2) 通过提供免疫和健康检查,药师可以在提高公众健康方面做出贡献。作为用药专家,药师可以帮助公众减少用药错误和患者受伤害的风险。

Answer: By providing immunizations and health screenings, pharmacists contribute to improving the public's health. As a medication use specialist, pharmacists help reduce the incidence of medication errors and patient harm.

参 考 文 献

[1] http://www.educationusa.info/5_steps_to_study/Pharmacy.pdf

[2] <http://www.aacp.org/resources/student/pharmacyforyou/admissions/admissionrequirements/Documents/introduction.pdf>

1.2 Clinical Pharmacy in the United States

| 学习目标 |

了解美国药师工作职能的转变,即由以药品调配为中心到以患者为中心的药学服务的转变。

| 引 言 |

本文节选自在美国药学院协会成立 30 周年的年会上,美国医药专业网站 Medscape 对 *Clinical Pharmacy in the United States: Transformation of a Profession* 一书作者 Dennis B. Worthen 博士的采访记录。Worthen 博士简要谈论了临床药学在美国的发展历程和未来的方向。

Medscape: Over the past few decades, pharmacy has evolved from a product-oriented to a patient-oriented profession. How did that come out?

Dr. Worthen: Pharmacists used to be responsible mainly for the preparation and distribution of

medicinal agents on the prescription of a physician. There was a time when the pharmacists' code of ethics forbade them from even telling the patient what the product was. Meanwhile, medicines were becoming more potent and physician education was starting to include less information about the drugs themselves, so their training in that area was not as good as the training pharmacists received.

The change really started in the 1960s and 1970s, when it was discovered that adverse drug reactions and inappropriate dosing were making a significant contribution to the costs of medical care. So pharmacists started becoming more involved in patient education about the products themselves.

Medscape: What do you think are some of the most important developments in the history of clinical pharmacy in the United States?

Dr. Worthen: One of the important factors was moving pharmacy education away from chemistry. When I was a student, pharmacy was predominantly 5 years of chemistry. That evolved to more of an emphasis on biological responses, and asking questions such as, if you've got a chemical agent, what is that doing to the organism.

Until the early 1960s, one differentiation between pharmacy, nursing, and medicine was that doctors and nurses practiced with patients. Part of their education was clinical — they were on the **wards**, they were on the floors, they touched people. Pharmacists did not do that; pharmacists played with products.

In the 1960s, this started changing, and pharmacists started to be put on the floor where they could touch patients. They started doing rounds with physicians. They started adding services, such as drug information centers, that were on patient floors and they were initially responsible for answering doctors' and nurses' questions about how agents were affecting patients. That transformation to making the pharmacist part of the healthcare delivery system on a patient-oriented floor represented the biggest break with the past.

As pharmaceutical products became more toxic, or as we began to understand more about their toxicity, such as the anticoagulant warfarin, which has a very narrow therapeutic window, or the kinetics of certain antibiotics, we could no longer simply say: "Take this 3 times a day for 10 days and you'll be fine." Dosing became much more complex, especially figuring out the most effective doses for a patient whose renal or hepatic system might be challenged. That was one area where clinical pharmacy started making a difference, and making the case for a very valued and valuable service.

Medscape: As you know, polypharmacy is a big problem today among the growing population of elderly patients. Is that one of the situations you feel has resulted from doctors' relative lack of pharmaceutical expertise?

Dr. Worthen: There's no question that polypharmacy is a big problem. Frequently, what the literature indicates is that when a patient has an adverse reaction, or when they're not deriving optimal benefit from the product, a physician might add another product to counterbalance those effects, without necessarily stopping to think about what might happen if they stop a medication or use something different.

What compounds the problem is that patients don't always take their medicines as they should. If I decide I'm going to take my hypertension medication only on weekdays and I don't tell my physician, and my blood pressure isn't coming down, and when my doctor asks if I'm taking my medication the way I'm supposed to and I answer, "of course," he or she will add another antihypertensive or another beta blocker to my regimen. So the patient frequently is the problem. Then the issue becomes how physicians, pharmacists,

and nurses can best communicate with that patient so that they can understand what the patient is doing.

Medscape: What, if any, solutions do you see?

Dr. Worthen: Over the past 20 years, patients have been encouraged to talk to their practitioners more, and I think practitioners in many settings are now being trained to ask more open-ended questions, such as, “tell me what you’re doing.” Certainly the pharmacists engaged in clinical practice are asking these questions, although unfortunately we’re not seeing it as much in the large chain drugstores. But it has become the norm in clinical practice.

We’re also seeing it more among younger practitioners. I think an awareness of how people are taking their medicines [and what’s happening] might not yet be the norm for everybody, but it is becoming more common.

Medscape: Moving on to the future, what do you see as the new trends in clinical pharmacy?

Dr. Worthen: When it began, clinical pharmacy was institutionally based. You never saw it other than on a patient floor. Healthcare is changing. We’re not keeping patients in the hospital as long. Many processes and procedures that used to take place only in the hospital are now being done on an outpatient basis and, as we get more and more into an ambulatory outpatient environment for a very sick population, clinical pharmacy is moving into the outpatient world as well. To me, one of the best examples of clinical pharmacy being practiced in a retail environment is immunization. As of this year, pharmacists are able to immunize in all 50 states. In fact, here in the Cincinnati area, flu shots and pneumococcal vaccines are delivered predominantly in the retail pharmacy setting. That’s what it’s like in large areas of the Midwest. I got my own flu shot at Walgreen’s a week ago.

There are areas where pharmacists in retail settings also are providing more services, such as cholesterol testing, and they’re doing more and more patient education for conditions such as asthma. That is how clinical pharmacy will continue to evolve — through the expansion of services that are being pioneered in institutions. If you’re looking for the future, that’s the type of change we’re seeing.

WORDS AND EXPRESSIONS

code of ethics 道德规范
 adverse drug reaction 药物不良反应
 anticoagulant 抗凝药
 ward-round 查房
 counterbalance 抵消
 antihypertensive 抗高血压的
 flu shot 流感疫苗
 pneumococcal vaccine 肺炎疫苗

小 结

很多年前，美国药师的职责也主要是调配药品，药学院的学制也曾经是5年，也是化学模式的本

科教育。美国 20 世纪六七十年代开始注意到药物不良反应和剂量不当使治疗成本显著增加，从此药师工作职责也开始转向临床工作（如向患者和医生提供咨询服务），药学教育也开始从化学模式转向临床模式。今后美国的临床药学工作将由面向住院患者拓展到同时面向门诊患者，比如血压、血脂的管理，疫苗的注射等都可在社区药房完成。

复 习 题

1. Questions

(1) What does “polypharmacy” mean?

Answer: It means patients get prescriptions filled at multiple pharmacies so that the medication list for this patient from any one of those pharmacies is not complete. In this situation, the pharmacist is unable to provide a good pharmaceutical care due to incomplete medication information.

(2) What are the best examples of clinical pharmacy being practiced in a retail environment in the United States?

Answer: It is the immunizations service. As of this year, pharmacists are able to immunize in all 50 states. In some states, flu shots and pneumococcal vaccines are delivered predominantly in the retail pharmacy setting.

2. True or False

(1) In United States, pharmacy has not evolved from a product-oriented to a patient-oriented profession until it was discovered that adverse drug reactions and inappropriate dosing were making a significant contribution to the costs of medical care.

Answer: T

(2) In the 1950s, the pharmacy program in United States was predominantly 5 years of chemistry.

Answer: T

3. Translate the following sentences into Chinese

(1) Pharmacists used to be responsible mainly for the preparation and distribution of medicinal agents on the prescription of a physician. There was a time when the pharmacists' code of ethics forbade them from even telling the patient what the product was.

Answer: 药师过去主要负责调配医生所开的处方药品。曾经有一段时间，药师的行业准则甚至不允许药师向患者介绍如何使用药品。

(2) One of the important factors was moving pharmacy education away from chemistry.

Answer: 其中最重要的一步是让药学教育从化学模式中脱离出来。

4. Translate the following sentences into English

(1) 剂量变得越来越复杂，特别是给肝肾功能不全的患者提供最有效的剂量。这是一个临床药学开始做出改变的领域，并正在使之成为一项非常有价值的服务。

Answer: Dosing became much more complex, especially figuring out the most effective doses for a patient whose renal or hepatic system might be challenged. That was one area where clinical pharmacy started making a difference, and making the case for a very valued and valuable service.

(2) 在零售药店的药师也提供多个方面的服务，比如检测胆固醇；他们正在从事越来越多的患者