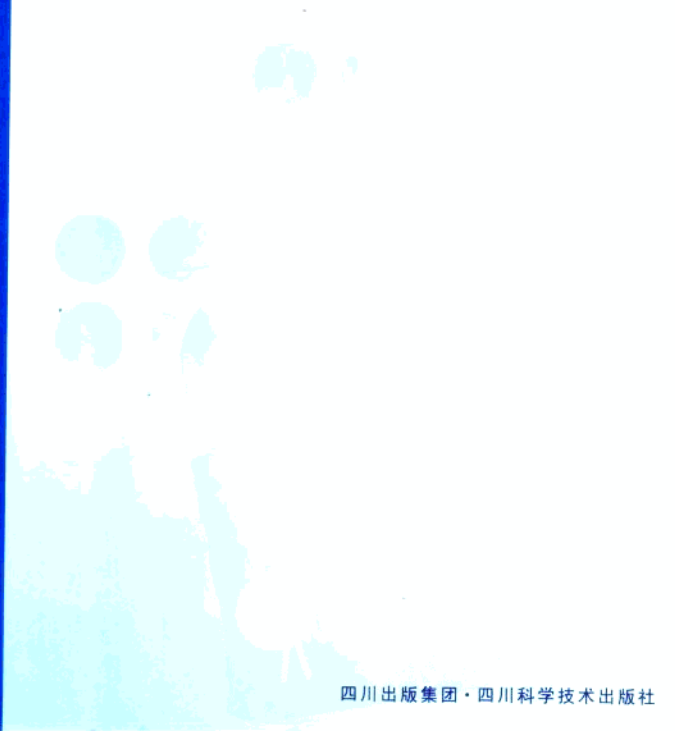




Advanced Medical English for Postgraduates

研究生医学英语

● 主编 张 秦 副主编 凌梅生



四川出版集团·四川科学技术出版社

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**To Professor Bob Ke
for his 38 years of dedication to English teaching**

谨以此书献给柯吉贵教授
感谢他 38 年来为英语教学所作出的贡献

序

经过四川大学外语学院张秦等诸位老师近两年的努力,这本为医学专业研究生所编写的高级医学英语教材问世了。这是我所读到的一本极好的医学教材。我谨以一个研究生导师的名义,向本书的编者表示衷心的祝贺,对他们为此所付出的艰辛表示深深的敬意。

本书的选材十分考究,可谓用心良苦。它不仅照顾到了医学领域众多不同专业的研究生的专业兴趣,也为拓宽研究生的专业知识面做了精心安排。教材既有选自 Nature 杂志,反应医学研究领域内最新进展的述评和综述,也有经典医学原著中的精彩章节。其中,Merck 手册就是一本有 100 年历史跨度、再版 17 次的医学宝典。本书精心选材的目的不仅在于提高读者医学专业英语水平,也让我们能领略到医学大师们的文采、严谨的逻辑和高超的专业英语表达技巧。本书在课后练习的设计上也别具一格,这将有助于我们掌握医学专业英语的表达规律。口头练习和汉译英对提高研究生们直接对外交流十分重要。写作练习,特别是文章摘要的写作练习,将会使研究生们受益匪浅。

美国著名历史学家 Charles A. Beard 教授在谈到正确的学习态度和方法时曾引用了一个生动的比喻:“The bee that robs the

flower also fertilizes it.”(蜜蜂从花朵中汲取养分,也同时滋养着花朵的生长。)我深信,研究生们在从这本教材中获取养分,充实和提高自己专业英语水平的同时,也将为这本书的再版和修订,为医学英语教学方式的探索和改进做出积极的贡献。

愿与外语学院老师们和研究生们在医学英语教学中共勉。

黄德嘉

2004 年中秋

Preface

Advanced Medical English is intended for two kinds of readers—the medical students who wish to enhance their skills in understanding and using English for their academic purpose and the English learners who are interested in acquiring some knowledge of medicine.

This book consists of 10 chapters, all together 31 units. The readings cover a wide range of subjects in medical sciences, all of which are selected from the latest medical releases of *Nature*, *Science*, *WHO Fact Sheet* and *The Merck Manual*, the established guidebook for doctors. In the exercises, particular attention is given to word formation and connotation, especially medical terminologies, which serve as the basic element of medical English. In the guided writing practice following each chapter, students may get some ideas of various medical writings such as research paper, review, abstract, case report, medical history and grant proposal etc.

All we hope to accomplish in this book is to help Chinese students get the fishing-rod in learning medical English and provide an access to their further study. If the book might by any chance render any help in any way, we would feel more than gratified. Since this is our first edition, mistakes and errors can hardly be avoided. Any advice or com-

ment concerning the book will thus be warmly welcome and highly valued. We do hope every reader will become our collaborator in the making of this book.

No doubt this book is a product of teamwork and here we would like to thank every member of our team for their selfless contribution and joint efforts. We also want to express our sincere appreciation for all those who have offered support and suggestion to this book. In particular, we would acknowledge the assistance of Professor Shijian, Dean of Foreign Language Department, Sichuan University, whose support and brilliant advices are vital in shaping this book. We are also much obliged to Professor Chen Zhongrong who has offered his expertise in biomedical writing and served as an invaluable resource person. In addition, we are also indebted to Dr. Steven Liu, Mr. Zhujiang and Mr. Peng Weikai who generously shared with us their notes and opinions in learning medical English.

Our special acknowledgement should be given to Professor Huang De-jia, the renowned cardiologist in China and vice president of Huaxi Hospital of Sichuan University, for the inspiring "Foreword" which he kindly spares time, out of his tight schedule, to write for this book.

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Chapter 1 Public Health

Unit 1 Public Health Programs¹

Orientation

Public Health refers to protection and improvement of the health of entire populations through community-wide action, primarily by governmental agencies. The goals of public health are to prevent human disease, injury, and disability; protect people from environmental health hazards; promote behaviors that lead to good physical and mental health; educate the public about health; and assure availability of high-quality health services.

Public health systems vary in different parts of the world, depending upon the prevalent health problems. In the developing world, where sanitation problems and limited medical resources persist, infectious diseases are the most significant threat to public health. Public health officials devote resources to establish sanitation systems and immunization programs to curb the spread of infectious diseases, and provide routine medical care to rural and isolated populations. In industrialized nations, sanitary food and water supplies and excellent medical resources have reduced rates of infectious disease. Instead, accidents and diseases such as lung cancer, heart attacks, and strokes are among the leading causes of death. In these areas, public health goals include education programs on how to prevent accidents and lessen their risk for disease, and the maintenance of the excellent disease prevention systems already established.

Public health workers may engage in activities outside the scope of ordinary medical practice. These include inspecting and licensing restaurants; conducting rodent and insect control programs; and checking the safety of housing, water, and food supplies. In assuring overall community health, public health officials also act as advocates for laws and regulations—such as drug licensing or product labeling requirements. Some public health officials are epidemiologists, who use sophisticated computer and mathematical models to track the incidence of communicable diseases and to identify new diseases and health trends. Others conduct state-of-the-art medical research² to find new prevention and treatment methods.

Most people think of public health workers as physicians and nurses, but a wide variety of other professionals work in public health, including veterinarians, sanitary engineers, microbiologists, laboratory technicians, statisticians, economists, administrators, attorneys, industrial safety and hygiene specialists, psychologists, sociologists, and educators.

Public Health Program

A. Immunization

One of public health's greatest success stories, immunization is one of the most effective weapons available to combat the spread of infectious disease. Immunization is the process of making the body resistant to a specific disease by using a vaccine, a chemical that stimulates the body to create antibodies to fight a specific infectious organism. In industrialized nations, vaccination programs protect children against measles, mumps, diphtheria, and other childhood infectious diseases. In the United States, public health agencies provide these immunizations free of charge to children from low-income families.

When small outbreaks of infectious disease threaten to grow into epidemics, public health officials may initiate new vaccination programs. For example, in the late 1980s outbreaks of measles erupted in young adults who had been immunized once as infants. Public health officials recognized that these people may have lost their immunity and established a new vaccination program requiring a measles vaccination at 15 months and also at 4 to 6 years of age to boost immunity.

Several infectious diseases have been virtually eradicated by immunization programs. By 1979 a worldwide vaccination program had eliminated smallpox, a viral disease once responsible for more than 2 million deaths a year. Poliomyelitis, commonly known as polio, has been eliminated from most of the world, and the incidence of tetanus, whooping cough, and diphtheria has been drastically reduced.

B. Rural and Urban Health Clinics

Public health agencies operate local clinics that provide free or reduced-cost medical services to individuals, especially infants and children, pregnant and nursing women, migrant farm workers, and people with drug abuse problems, physical disabilities, and other conditions. These clinics provide prenatal and pediatric care for children who have no regular access to medical care. The clinics may provide visiting nurse and other home health care services for the elderly. Public health clinics may also offer rehabilitation programs for people addicted to drugs or alcohol.

Public health clinics routinely screen patients for a number of infectious diseases, such as sexually transmitted diseases, and may provide free treatment if patients test positive. Each clinic tracks the incidence of certain communicable diseases in its area, and reports this information to national and international public health offices. Public

health clinics may also track down past sexual partners of STD patients, inform them that they may have been infected with an STD, and urge them to come in to a clinic to be tested.

C. Disease Tracking and Epidemiology

One branch of public health, epidemiology, studies the incidence of disease in large populations. Epidemiologists study data from public health clinics and private physicians who are required by law to report cases of certain diseases and deaths to public health officials. Using clues about the patterns in which deaths and diseases occur, epidemiologists are able to identify emerging disease patterns that may indicate environmental health hazards, potential outbreaks of existing diseases, or emergence of new infectious diseases. In the early 1980s a few doctors in New York and California reported an unusually high number of deaths from opportunistic infection.³ These early reports prompted epidemiologists and medical researchers to investigate this new vulnerability to opportunistic infections, called acquired immunodeficiency syndrome (AIDS). These efforts led to the identification of the previously unknown human immunodeficiency virus (HIV), the virus that causes AIDS.

Threats to public health concerns change over time and epidemiologists and other officials continuously evaluate epidemiological trends to determine how best to meet future public health needs. For example, recent epidemiological reports show that tuberculosis, an infectious disease believed to be under control just 30 years ago, is now responsible for more deaths worldwide than any other infectious disease, killing more people per year than AIDS and malaria combined. This resurgence is due to new drug-resistant strains of the bacteria that cause tuberculosis. The tuberculosis epidemic, or

pandemic, has been declared a global public health emergency, prompting intensive international public health efforts to curb its spread.

Epidemiologists and other public health officials attempt to break the chain of disease transmission by notifying people who may be at risk for contracting an infectious disease.

D. Sanitation and Pollution Control

Disease-causing organisms are often transmitted through contaminated drinking water. The United Nations estimates that between 5 and 10 million people die each year from water-borne diseases such as cholera. The single most effective way to limit water-borne diseases is to ensure that drinking water is clean and not contaminated by sewage. In many parts of the world, public health officials establish sewage disposal⁴ and solid waste disposal⁵ systems, and regularly test water supplies to ensure they are safe.

Many diseases, such as hepatitis A and those caused by the Salmonella bacteria, are transmitted through food. When food is not washed or thoroughly cooked, or when food is stored at temperatures that are hospitable to disease-causing organisms, people who eat the food are subject to infection. Public health programs establish and enforce laws for safe food storage and preparation. For example, in most nations, food-processing plants, restaurants, and grocery stores are legally required to follow strict food-safety guidelines established by public health officials.

Public health officials also establish and oversee programs to control flies, rats, and other animals that spread disease-causing microbes. For example, pesticide programs in parts of Africa significantly reduced rates of trypanosomiasis, a sometimes fatal

disease commonly known as sleeping sickness that is transmitted by the African tsetse fly⁶. Several often deadly diseases are transmitted by rodents. Hantaviruses⁷ transmitted by mice, for example, can cause a deadly type of severe respiratory disease. Humans are infected when they inhale dust containing virus-infected rodent feces. By preventing rodents from living in or near human dwellings, public health officials seek to reduce rates of these types of infections.

Environmental pollution is another preventable cause of disease and disability, and in most countries public health officials address the adverse health effects of air pollution and water pollution. Public health officials may work in conjunction with pollution control organizations to establish and enforce pollution limits and advise the general population when pollution levels exceed safe limits.

E. Medical Research

Another component of public health is scientific and medical research. A cadre of doctors and scientists are working in laboratories around the world to establish new ways to prevent, diagnose, treat, and cure disease and disability. For example, over 30,000 different biomedical research projects are underway in the United States to investigate diseases such as AIDS, cancer, Alzheimer's disease, and even the common cold. Other projects investigate the safety and effectiveness of existing pharmaceuticals and treatment programs, and test the safety of hundreds of the products that we use everyday, such as new food products, household cleaners, and nonpolluting forms of gasoline.

F. Public Education Campaigns

Many diseases are preventable through healthy living, and a