Information Technology for the Health Professions
To our families, for their inspiration, understanding, patience, faith in us, and love.

*Molly and Harry, Richard, Andrea and Jason, and Sadie, Daniel and Mandy*
—L.B.

*Hazel and Rob, Mike, Buffy and Jon and Mikey, Joanne and Melissa and Sarah and Emma*
—B.W.
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Preface: An Introductory Note on Computers

*Information Technology for the Health Professions* is not a book about computers, but rather a look at the myriad uses of computers and information technology in health care. A brief overview of a few basic computer terms will be helpful in understanding these concepts.

Today, computers are used in every aspect of our lives. You have a small computer called a smartphone or a tablet in your pocket or a larger desktop computer on your desk. Whatever their size be and whatever they look like, all computers have some things in common. The tangible parts of the computer you can touch are called hardware: Input devices (a mouse, keyboard, touch screen, or microphone) let you enter data into your computer; output devices (a screen, printer, or speaker) let you get information from your computer. Inside your computer is some processing hardware (a central processing unit or CPU in a desktop computer), which turns the data into information, that is, adds 3 plus 4 and gets 7 as an answer. All computers have some storage to hold information and instructions and some memory to hold current work. On a desktop computer, the storage is called a hard drive. All computers need instructions to tell them how to perform tasks. These instructions are called software programs and are usually stored in the computer. The instructions that tell the computer how to run are called system software. The most important system software is the operating system. Application software tells the computer how to perform specific tasks. Word processing software for text, spreadsheets for numbers, database management software for organized lists, graphics software that allows you to create presentations using images, and communications software that allows you to connect to the Internet are common examples of application software.

Almost all computers are connected to a large World Wide Web of interconnected computers called the Internet. Some computers, such as the Chromebook, use the Internet to store much of its software, information, and data. But all of us, if we use a smartphone, are connected. We use a wireless connection like Wi-Fi. When you access data and programs from the Internet and save information on the Internet, that is called cloud computing. The part of the Internet that is easiest to navigate is called the World Wide Web and is organized as pages and stored on websites. The Internet of Things (IoT) refers to interconnected devices. Devices can refer to almost anything that can electronically share data. They include cars, smart TVs, heart monitors, and buildings, to name a few.

**NEW TO THIS EDITION**

**Chapter 1**

- Updated material regarding the administrative uses of computers in health care that includes: administrative tasks in medical offices and hospitals, computers storing electronic medical records, doctors’ notes, and creating bills
- Updated material regarding the American Recovery and Reinvestment Act, HITECH, and the Patient Protection and Affordable Care Act (ACA)
• Updated information regarding medical office practice management software, which describes patient and professional scheduling, accounting, and insurance
• New article for “In the News”

Chapter 2
• Updated studies on the effectiveness of telemedicine
• Updated material on the myriad health-related applications used with smartphones and tablet computers
• New article for “In the News”

Chapter 3
• New material on the Ebola virus
• New material on the Zika virus
• New material on the current epidemic of opioid addiction
• New article for “In the News”
  “Why the Menace of Mosquitoes Will Only Get Worse,” by Maryn McKenna published on April 20, 2017 in *The New York Times*

Chapter 4
• New material on light imaging technology used in radiology
• New article for “In the News”

Chapter 5
• New material on the negative effects of robotic surgery
• New article for “In the News”

Chapter 6
• New material regarding CRISPR, a technology that makes gene editing easier
• New article for “In the News”

Chapter 7
• Updated material regarding teledentistry
• New article for “In the News”
  “The Unexpected Political Power of Dentists,” by Mary Jordan published in the *Washington Post* on July 1, 2017

Chapter 8
• Updated material regarding informational resources available on the Internet and the many health-related apps available for smartphones and tablet computers
New article for “In the News”

Chapter 9

- New material regarding developments in computerized devices
- New article for “In the News”

Chapter 10

- New information pertaining to new laws about security, ransomware, and other issues
- New article for “In the News”

A note on our point of view: Over the last several years, politics and science have clashed over many issues including climate change and whether human action is responsible. This is not a debate within the scientific community, which has achieved consensus. We take the consensus of the scientific community as our point of view.

STUDENT SUPPLEMENTS

To access the student resources that accompany this book, visit www.pearsonhighered.com/healthprofessionsresources. Simply select Health Information Technology from the choice of disciplines. Find this book and you will find the complimentary study materials.

This book has the following student resources.

- Self-Study Assessment
- Flashcards
- Glossary

INSTRUCTOR SUPPLEMENTS

To access supplementary materials online from Pearson’s Instructor Resource Center (IRC), instructors will need to use their IRC login credentials. If they don’t have IRC login credentials they will need to request an instructor access code. Go to www.pearsonhighered.com/irc to register for an instructor access code. Within 48 hours of registering, you will receive a confirming e-mail including an instructor access code. Once you have received your code, locate your book in the online catalog and click on the Instructor Resources button on the left side of the catalog product page. Select a supplement, and a login page will appear. Once you have logged in, you can access instructor material for all Pearson textbooks. If you have any difficulties accessing the site or downloading a supplement, please contact Customer Service at http://support.pearson.com/getsupport.

This book has the following instructor’s resources.

- Instructor’s manual with lesson plans
- PowerPoint™ lecture slides
- TestGen™
## Reviewers

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### Reviewers of Previous Editions

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