

# Health Informatics

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Kathryn J. Hannah • Pamela Hussey  
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Editors

# Introduction to Nursing Informatics

Fourth Edition

 Springer

ISCP   
International Society of Cardiovascular Pharmacotherapy

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*The authors of this book share many passions and values. The strongest of these is the incomparable value of family and friends. We dedicate this new edition to our family, friends, and wonderful colleagues for their generosity of support and inspiration.*



# Series Preface

The Health Informatics Series is directed to healthcare professionals who are leading the transformation of health care by using information and knowledge. Launched in 1988 as “Computers in Health Care”, to offer a broad range of titles: some addressed to specific professions such as nursing, medicine, and health administration; others to special areas of practice such as trauma and radiology; still other books in the series focused on interdisciplinary issues, such as the computer based patient record, electronic health records, and networked healthcare systems.

Renamed “Health Informatics” in 1998 to reflect the rapid evolution in the discipline known as health informatics, the series continues to add titles that contribute to the evolution of the field. In the series, eminent experts, serving as editors or authors, offer their accounts of innovations in health informatics. Increasingly, these accounts go beyond hardware and software to address the role of information in influencing the transformation of healthcare delivery systems around the world. The series also increasingly focuses on the users of the information and systems: the organizational, behavioral, and societal changes that accompany the diffusion of information technology in health services environments.

Developments in healthcare delivery are constant; most recently developments in proteomics and genomics are increasingly becoming relevant to clinical decision making and emerging standards of care. The data resources emerging from molecular biology are beyond the capacity of the human brain to integrate and beyond the scope of paper-based decision trees. Thus, bioinformatics has emerged as a new field in health informatics to support emerging and ongoing developments in molecular biology. Translational informatics supports acceleration, from bench to bedside, i.e. the appropriate use of molecular biology research findings and bioinformatics in clinical care of patients.

At the same time, further continual evolution of the field of health informatics is reflected in the introduction of concepts at the macro or health systems delivery level with major national initiatives in many countries related to concepts such as electronic health records (EHRs) and personal health records; public health informatics; and data analytics, eHealth and digital health with the associated data, terminology and messaging standards essential to clinical interoperability.

We have consciously retained the series title Health Informatics as the single umbrella term that encompasses both the microscopic elements of bioinformatics and the macroscopic aspects of large national health information systems. Ongoing changes to both the micro and macro perspectives on health informatics will continue to shape health services in the twenty-first century. By making full and creative use of the technology to tame data and to transform information, Health Informatics will foster the development and use of new knowledge in health care. As coeditors, we pledge to support our professional colleagues and the series readers as they share advances in the emerging and exciting field of health informatics.

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# Preface

The publication of this 4th edition of *An Introduction to Nursing Informatics* is timely. Its core purpose is to act as primer for nurses searching for basic information on the topic of nursing informatics. Interest in health informatics and its relevance to eHealth is expanding at a dynamic pace. The commitment of funding by the World Health Organization (WHO), Pan American Health Organization (PAHO), European Union (EU) and United States (USA) indicates that the integration of informatics competencies and its associated role in eHealth service delivery is a key priority. As a profession, nursing is accountable for a significant contribution to health care service provision. Contemporary nursing practice is changing and, at the same time, facing a number of critical challenges. For example, two global issues that the profession is striving to address include high staff turnover and nursing skill mix shortages. Articulating the nursing contribution to holistic care is therefore as important now as ever. Nursing informatics continues to be an essential aspect not only in providing information about the profession but also in helping nurse leaders in their quest for the expansion of nursing knowledge and theory development.

Twenty-first-century medicine offers exciting opportunities for the nursing profession to engage with and develop within. An example includes the opportunity to contribute to the design of emerging eHealth models of care. Additionally, concepts relating to health ecosystems which can be used to transform and enhance health and social care in society are seeking nurses' expertise and imagination. There is a need to ensure that resources such as electronic health records and mobile technology (mTechnology) applications are pragmatic and fit for purpose. Nurses, often described as context experts, understand the flow of health care processes and are key agents in requirements identification and evaluation of systems under development.

In this edition, the editors have collected the best available evidence to inspire and support nurses to think critically about both current and future practice. This book is presented in such a manner as to encourage the reader to pause and reflect upon key concepts presented from the perspective of their existing practice domain. Starting with the fundamental concepts of nursing practice, information management and its relationship to informatics, this edition includes a number of

contributions from leading experts who have practised in the field of informatics over a number of years. Preparing nurses for engagement with initiatives relating to eHealth transformational programmes locally, regionally or nationally is supported with additional files for downloading from [extras.springer.com](https://extras.springer.com). There is a strong emphasis on both education and continuous professional development, and the pedagogical framework used to devise the core learning activities is explained in Chapter 1. This book builds on previous editions and provides readers with a basic primer for searching information on the topic of nursing informatics. It includes online resources and tools to support the acquisition of informatics skills for future professional development. We hope you enjoy this 4th edition.

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# List of Electronic Supplementary Material

Extra material available from Springer Extras page ([extras.springer.com](https://extras.springer.com))

## Chapter 1

Educational Template (PDF 235 kb)

Educational Template (PPTX 263 kb)

Learning Plan (PDF 445 kb)

Learning Plan (DOCX 98 kb)

Audio 1.1 Podcast discussing the overall design of this new edition (MP3 1886 kb)

Glossary for Introduction to Nursing Informatics (XLSX 46 kb)

## Chapter 2

Educational Template (PDF 108 kb)

Educational Template (PPTX 120 kb)

## Chapter 3

Educational Template (PDF 110 kb)

Educational Template (PPTX 133 kb)

## Chapter 4

Educational Template (PDF 7160 kb)

Educational Template (PPTX 3625 kb)

Audio 4.1 Marion Ball: Naming Nursing Informatics as Specialist Area (MP3 6801 kb)

Presentation 4.1 History of computing and technology (PPTX 3527 kb)

## Chapter 5

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**Chapter 6**

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**Chapter 7**

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**Chapter 8**

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**Chapter 9**

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**Chapter 10**

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Educational Template (PPTX 115 kb)  
Video 10.1 GRASP (Grace Reynolds Application and Study of PETO). An example of a popular administrative solution used for workload management. With permission from GRASP Systems International, Inc (MP4 50378 kb)

**Chapter 11**

Educational Template (PDF 98 kb)  
Educational Template (PPTX 114 kb)

**Chapter 12**

Educational Template (PDF 103 kb)  
Educational Template (PPTX 123 kb)  
Audio 12.1 The role of the informatics nurse by Roy Simpson, RN, C, CMAC, FNAP, FAAN, current role Vice President, Nursing Informatics, at Cerner Corporation (MP3 17564 kb)  
Audio 12.2 The role of the informatics nurse by Cheryl Stephens-Lee, RN, BScN, MScNI, Clinical Applications Consultant, Markham Stouffville Hospital, Markham, Ontario, Canada (M4A 11840 kb)  
Audio 12.3 The role of the informatics nurse by Suzanne Brown, RGN, RM, BNs, MScHealth Informatics, Assistant Nurse Coordinator Computer Services, Mater Misericordiae University Hospital, Information Management Services Department, Dublin, Ireland (MP3 4834 kb)  
Audio 12.4 The role of the informatics nurse by Dairin Hines, RGN, RCN, BSc, HSM, MScHealth Informatics, Clinical Informatics Manager, Temple Street Children's University Hospital, ICT Department, Dublin, Ireland (MP3 4567 kb)  
Audio 12.3 Transcript (PDF 300 kb)  
Audio 12.4 Transcript (PDF 37 kb)



### **Chapter 13**

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