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## Registries for Evaluating Patient Outcomes

### A User's Guide

**Government Printing Office** This User's Guide is intended to support the design, implementation, analysis, interpretation, and quality evaluation of registries created to increase understanding of patient outcomes. For the purposes of this guide, a patient registry is an organized system that uses observational study methods to collect uniform data (clinical and other) to evaluate specified outcomes for a population defined by a particular disease, condition, or exposure, and that serves one or more predetermined scientific, clinical, or policy purposes. A registry database is a file (or files) derived from the registry. Although registries can serve many purposes, this guide focuses on registries created for one or more of the following purposes: to describe the natural history of disease, to determine clinical effectiveness or cost-effectiveness of health care products and services, to measure or monitor safety and harm, and/or to measure quality of care. Registries are classified according to how their populations are defined. For example, product registries include patients who have been exposed to biopharmaceutical products or medical devices. Health services registries consist of patients who have had a common procedure, clinical encounter, or hospitalization. Disease or condition registries are defined by patients having the same diagnosis, such as cystic fibrosis or heart failure. The User's Guide was created by researchers affiliated with AHRQ's Effective Health Care Program, particularly those who participated in AHRQ's DEcIDE (Developing Evidence to Inform Decisions About Effectiveness) program. Chapters were subject to multiple internal and external independent reviews.

## Clinical Informatics Study Guide

### Text and Review

Springer Nature

## Practitioner's Guide to Health Informatics

Springer "This book will be a terrific introduction to the field of clinical IT and clinical informatics" -- Kevin Johnson "Dr. Braunstein has done a wonderful job of exploring a number of key trends in technology in the context of the transformations that are occurring in our health care system" -- Bob Greenes "This insightful book is a perfect primer for technologists entering the health tech field." -- Deb Estrin "This book should be read by everyone." -- David Kibbe This book provides care providers and other non-technical readers with a broad, practical overview of the changing US healthcare system and the contemporary health informatics systems and tools that are increasingly critical to its new financial and clinical care paradigms. US healthcare delivery is dramatically transforming and informatics is at the center of the changes. Increasingly care providers must be skilled users of informatics tools to meet federal mandates and succeed under value-based contracts that demand higher quality and increased patient satisfaction but at lower cost. Yet, most have little formal training in these systems and technologies. Providers face system selection issues with little unbiased and insightful information to guide them. Patient engagement to promote wellness, prevention and improved outcomes is a requirement of Meaningful Use Stage 2 and is increasingly supported by mobile devices, apps, sensors and other technologies. Care providers need to provide guidance and advice to their patients and know how to incorporated as they generate into their care. The one-patient-at-a-time care model is being rapidly supplemented by new team-, population- and public health-based models of care. As digital data becomes ubiquitous, medicine is changing as research based on that data reveals new methods for earlier diagnosis, improved treatment and disease management and prevention. This book is clearly written, up-to-date and uses real world examples extensively to explain the tools and technologies and illustrate their practical role and potential impact on providers, patients, researchers, and society as a whole.

# Key Capabilities of an Electronic Health Record System

## Letter Report

**National Academies Press Commissioned by the Department of Health and Human Services, Key Capabilities of an Electronic Health Record System provides guidance on the most significant care delivery-related capabilities of electronic health record (EHR) systems. There is a great deal of interest in both the public and private sectors in encouraging all health care providers to migrate from paper-based health records to a system that stores health information electronically and employs computer-aided decision support systems. In part, this interest is due to a growing recognition that a stronger information technology infrastructure is integral to addressing national concerns such as the need to improve the safety and the quality of health care, rising health care costs, and matters of homeland security related to the health sector. Key Capabilities of an Electronic Health Record System provides a set of basic functionalities that an EHR system must employ to promote patient safety, including detailed patient data (e.g., diagnoses, allergies, laboratory results), as well as decision-support capabilities (e.g., the ability to alert providers to potential drug-drug interactions). The book examines care delivery functions, such as database management and the use of health care data standards to better advance the safety, quality, and efficiency of health care in the United States.**

## Secondary Analysis of Electronic Health Records

**Springer This book trains the next generation of scientists representing different disciplines to leverage the data generated during routine patient care. It formulates a more complete lexicon of evidence-based recommendations and support shared, ethical decision making by doctors with their patients. Diagnostic and therapeutic technologies continue to evolve rapidly, and both individual practitioners and clinical teams face increasingly complex ethical decisions. Unfortunately, the current state of medical knowledge does not provide the guidance to make the majority of clinical decisions on the basis of evidence. The present research infrastructure is inefficient and frequently produces unreliable results that cannot be replicated. Even randomized controlled trials (RCTs), the traditional gold standards of the research reliability hierarchy, are not without limitations. They can be costly, labor intensive, and slow, and can return results that are seldom generalizable to every patient population. Furthermore, many pertinent but unresolved clinical and medical systems issues do not seem to have attracted the interest of the research enterprise, which has come to focus instead on cellular and molecular investigations and single-agent (e.g., a drug or device) effects. For clinicians, the end result is a bit of a “data desert” when it comes to making decisions. The new research infrastructure proposed in this book will help the medical profession to make ethically sound and well informed decisions for their patients.**

## Electronic Health Records For Dummies

**John Wiley & Sons The straight scoop on choosing and implementing an electronic health records (EHR) system Doctors, nurses, and hospital and clinic administrators are interested in learning the best ways to implement and use an electronic health records system so that they can be shared across different health care settings via a network-connected information system. This helpful, plain-English guide provides need-to-know information on how to choose the right system, assure patients of the security of their records, and implement an EHR in such a way that it causes minimal disruption to the daily demands of a hospital or clinic. Offers a plain-English guide to the many electronic health records (EHR) systems from which to choose Authors are a duo of EHR experts who provide clear, easy-to-understand information on how to choose the right EHR system and implement it effectively Addresses the benefits of implementing an EHR system so that critical information (such as medication, allergies, medical history, lab results, radiology images, etc.) can be shared across different health care settings Discusses ways to talk to patients about the security of their electronic health records Electronic Health Records For Dummies walks you through all the necessary steps to successfully choose the right EHR system, keep it current, and use it effectively.**

## Learning Management Systems and Instructional Design

### Best Practices in Online Education

**IGI Global The technical resources, budgets, curriculum, and profile of the student body are all factors that play in implementing course design. Learning management systems administrate these aspects for the development of new methods for course delivery and corresponding instructional design. Learning Management Systems and Instructional Design: Best Practices in Online Education provides an overview on the connection between learning management systems and the variety of instructional design models and methods of course delivery. This book is a useful source for administrators, faculty, instructional designers, course developers, and businesses interested in the technological solutions and methods of online education.**

# Collecting Sexual Orientation and Gender Identity Data in Electronic Health Records

## Workshop Summary

**National Academies Press Collecting Sexual Orientation and Gender Identity Data in Electronic Health Records: Workshop Summary** reviews the statement of task set to the committee which required them to collect sexual orientation and gender identity data in electronic health records. This report summarizes the invited presentations and facilitated discussions about current practices around sexual orientation and gender identity data collection, the challenges in collecting these data, and ways in which these challenges can be overcome. Areas of focus for the workshop include the clinical rationale behind collecting these data, standardized questions that can be used to collect these data, mechanisms for supporting providers and patients in the collection of these data, technical specifications involved in creating standards for sexual orientation and gender identity data collection and exchange, and policy considerations related to the health information technology (HIT) Meaningful Use process being overseen by the Department of Health and Human Services. This report summarizes the workshop agenda, select invited speakers and discussants, and moderate the discussions. Invited participants will include lesbian, gay, bisexual, and transgender (LGBT) health care consumer advocates, providers with experience working with LGBT populations, HIT vendors and other HIT specialists, health care administrators, and policy makers.

## The Computer-Based Patient Record

### An Essential Technology for Health Care, Revised Edition

**National Academies Press Most industries have plunged into data automation, but health care organizations have lagged in moving patients' medical records from paper to computers. In its first edition, this book presented a blueprint for introducing the computer-based patient record (CPR). The revised edition adds new information to the original book. One section describes recent developments, including the creation of a computer-based patient record institute. An international chapter highlights what is new in this still-emerging technology. An expert committee explores the potential of machine-readable CPRs to improve diagnostic and care decisions, provide a database for policymaking, and much more, addressing these key questions: Who uses patient records? What technology is available and what further research is necessary to meet users' needs? What should government, medical organizations, and others do to make the transition to CPRs? The volume also explores such issues as privacy and confidentiality, costs, the need for training, legal barriers to CPRs, and other key topics.**

## Health IT and Patient Safety

### Building Safer Systems for Better Care

**National Academies Press IOM's 1999 landmark study To Err is Human estimated that between 44,000 and 98,000 lives are lost every year due to medical errors. This call to action has led to a number of efforts to reduce errors and provide safe and effective health care. Information technology (IT) has been identified as a way to enhance the safety and effectiveness of care. In an effort to catalyze its implementation, the U.S. government has invested billions of dollars toward the development and meaningful use of effective health IT. Designed and properly applied, health IT can be a positive transformative force for delivering safe health care, particularly with computerized prescribing and medication safety. However, if it is designed and applied inappropriately, health IT can add an additional layer of complexity to the already complex delivery of health care. Poorly designed IT can introduce risks that may lead to unsafe conditions, serious injury, or even death. Poor human-computer interactions could result in wrong dosing decisions and wrong diagnoses. Safe implementation of health IT is a complex, dynamic process that requires a shared responsibility between vendors and health care organizations. Health IT and Patient Safety makes recommendations for developing a framework for patient safety and health IT. This book focuses on finding ways to mitigate the risks of health IT-assisted care and identifies areas of concern so that the nation is in a better position to realize the potential benefits of health IT. Health IT and Patient Safety is both comprehensive and specific in terms of recommended options and opportunities for public and private interventions that may improve the safety of care that incorporates the use of health IT. This book will be of interest to the health IT industry, the federal government, healthcare providers and other users of health IT, and patient advocacy groups.**

## Factors Affecting Physician Professional Satisfaction and

## Their Implications for Patient Care, Health Systems, and Health Policy

**Rand Corporation** This report presents the results of a series of surveys and semistructured interviews intended to identify and characterize determinants of physician professional satisfaction.

## Health Informatics: Practical Guide for Healthcare and Information Technology Professionals (Sixth Edition)

**Lulu.com** Health Informatics (HI) focuses on the application of Information Technology (IT) to the field of medicine to improve individual and population healthcare delivery, education and research. This extensively updated fifth edition reflects the current knowledge in Health Informatics and provides learning objectives, key points, case studies and references.

## What Matters Most

## Patient Outcomes and the Transformation of Health Care

Value-based health care is no longer merely an aspirational goal or an academic concept to be defined and debated. It is happening now, and evidence shows that it is working: driving improved outcomes for patients and reducing costs. The stories, articles, and case studies in the pages that follow attest this new reality, providing rich examples of individuals and institutions around the world that are leading the way. The cases in these pages show that outcomes measurement is needed (the "why"), feasible (the "how"), and that, once available, outcomes data have huge potential to improve care and curb costs (the "what").

## Practical Guide to Clinical Computing Systems

## Design, Operations, and Infrastructure

**Academic Press** Although informatics trainees and practitioners who assume operational computing roles in their organization may have reasonably advanced understanding of theoretical informatics, many are unfamiliar with the practical topics - such as downtime procedures, interface engines, user support, JCAHO compliance, and budgets - which will become the mainstay of their working lives. Practical Guide to Clinical Computing Systems 2nd edition helps prepare these individuals for the electronic age of health care delivery. It is also designed for those who migrate into clinical computing operations roles from within their health care organization. A new group of people interested in this book are those preparing for Clinical Informatics board certification in the US. The work provides particular differentiation from the popular first edition in four areas: 40% more content detailing the many practical aspects of clinical informatics. Addresses the specific needs of the Clinical Informatics board certification course - for which it is presently recommended by the ABPM Focus on new tech paradigms including cloud computing and concurrency - for this rapidly changing field. Focuses on the practical aspects of operating clinical computing systems in medical centers rather than abstruse theory. Provides deepened and broadened authorship with a global panel of contributors providing new wisdom and new perspectives - reflecting inclusion of the first edition on the clinical informatics study guide materials. Presents a practical treatment of workday but often unfamiliar issues - downtime procedures, interface engines, user support, JCAHO compliance, and budgets.

## SAFER Electronic Health Records

## Safety Assurance Factors for EHR Resilience

**CRC Press** This important volume provide a one-stop resource on the SAFER Guides along with the guides themselves and information on their use, development, and evaluation. The Safety Assurance Factors for EHR Resilience (SAFER) guides, developed by the editors of this book, identify recommended practices to optimize the safety and safe use of electronic health records (EHRs). These guides are designed to help organizations self-assess the safety and effectiveness of their EHR implementations, identify specific areas of vulnerability, and change their cultures and practices to mitigate risks. This book provides EHR designers, developers, implementers, users, and policymakers with the requisite historical context, clinical informatics knowledge, and real-world, practical guidance to enable them to utilize the SAFER Guides to proactively assess the safety and effectiveness of their electronic health records EHR implementations. The first five chapters are designed to provide readers with the conceptual knowledge required to understand why and how the guides were developed. The next nine chapters focus on the underlying informatics concepts, key research activities, and methods used to develop each of the guides. Each of these chapters concludes

with a copy of the guide itself. The final chapter provides a vision for the future and the work required to ensure that future generations of EHRs are designed, developed, implemented, and used to improve the overall safety of the EHR-enabled healthcare system. Taken together, the information provided in this book should help any organization, whether large or small, implement its EHR program and improve the safety and effectiveness of its existing EHR-enabled healthcare systems. This volume will be extremely valuable to small, ambulatory physician practices and larger outpatient settings as well as for hospitals and professors and instructors charged with teaching safe and effective implementation and use of EHRs. It will also be highly useful for health information technology professionals responsible for maintaining a safe and effective EHR and for clinical and administrative staff working in EHR-enabled healthcare systems.

## Better EHR

# Usability, Workflow and Cognitive Support in Electronic Health Records

Electronic Health Records (EHR) offer great potential to increase healthcare efficiency, improve patient safety, and reduce health costs. The adoption of EHRs among office-based physicians in the US has increased from 20% ten years ago to over 80% in 2014. Among acute care hospitals in US, the adoption rate today is approaching 100%. Finding relevant patient information in electronic health records' (EHRs) large datasets is difficult, especially when organized only by data type and time. Automated clinical summarization creates condition-specific displays, promising improved clinician efficiency. However, automated summarization requires new kinds of clinical knowledge (e.g., problem-medication relationships).

## Health Informatics on FHIR: How HL7's New API is Transforming Healthcare

Springer This textbook begins with an introduction to the US healthcare delivery system, its many systemic challenges and the prior efforts to develop and deploy informatics tools to help overcome those problems. It goes on to discuss health informatics from an historical perspective, its current state and its likely future state now that electronic health record systems are widely deployed, the HL7 Fast Healthcare Interoperability standard is being rapidly accepted as the means to access the data stored in those systems and analytics is increasing being used to gain new knowledge from that aggregated clinical data. It then turns to some of the important and evolving areas of informatics including population and public health, mHealth and big data and analytics. Use cases and case studies are used in all of these discussions to help readers connect the technologies to real world challenges. Effective use of informatics systems and tools by providers and their patients is key to improving the quality, safety and cost of healthcare. With health records now digital, no effective means has existed for sharing them with patients, among the multiple providers who may care for them and for important secondary uses such as public/population health and research. This problem is a topic of congressional discussion and is addressed by the 21st Century Cures Act of 2016 that mandates that electronic health record (EHR) systems offer a patient-facing API. HL7's Fast Healthcare Interoperability Resources (FHIR) is that API and this is the first comprehensive treatment of the technology and the many ways it is already being used. FHIR is based on web technologies and is thus a far more facile, easy to implement approach that is rapidly gaining acceptance. It is also the basis for a 'universal health app platform' that literally has the potential to foster innovation around the data in patient records similar to the app ecosystems smartphones created around the data they store. FHIR app stores have already been opened by Epic and Cerner, the two largest enterprise EHR vendors. Provider facing apps are already being explored to improve EHR usability and support personalized medicine. Medicare and the Veteran's Administration have announced FHIR app platforms for their patients. Apple's new IOS 11.3 features the ability for consumers to aggregate their health records on their iPhone using FHIR. Health insurance companies are exploring applications of FHIR to improve service and communication with their providers and patients. SureScripts, the national e-Prescribing network, is using FHIR to help doctors know if their patients are complying with prescriptions. This textbook is for introductory health informatics courses for computer science and health sciences students (e.g. doctors, nurses, PhDs), the current health informatics community, IT professionals interested in learning about the field and practicing healthcare providers. Though this textbook covers an important new technology, it is accessible to non-technical readers including healthcare providers, their patients or anyone interested in the use of healthcare data for improved care, public/population health or research.

## Change Rx for Healthcare

# Your Prescription for Leading Change

CRC Press Everywhere you look in healthcare, disruptive changes are emerging, yet the pressure to keep productivity up is ever-present. There are ways to minimize disruption and make adoption stick. Change Rx for Healthcare: Your

Prescription for Leading Change showcases a case study of a large, transformational change implementing an electronic health record platform, as well as a collection of best-practice tools for leading through change or adopting change successfully. The author also includes hints on how to take learning and applying the contents to the next level and provides a detailed review of the science and profession of change adoption. This book will help any executive, physician, leader, consultant, project member, or change management professional become more familiar with the science of change and tools that make it faster and easier.

## Implementing an Electronic Health Record System

Springer Science & Business Media - Practical in its scope and coverage, the authors have provided a tool-kit for the medical professional in the often complex field of medical informatics - All editors are from the Geisinger Health System, which has one of the largest Electron Health systmes in the USA, and is high in the list of the AMIA "100 Most Wire" healthcare systems - Describes the latest successes and pitfalls

## Miller's Anesthesia, 2-Volume Set E-Book

Elsevier Health Sciences Covering everything from historical and international perspectives to basic science and current clinical practice, Miller's Anesthesia, 9th Edition, remains the preeminent reference in the field. Dr. Michael Gropper leads a team of global experts who bring you the most up-to-date information available on the technical, scientific, and clinical issues you face each day - whether you're preparing for the boards, studying for recertification, or managing a challenging patient care situation in your practice. Includes four new chapters: Clinical Care in Extreme Environments: High Pressure, Immersion, and Hypo- and Hyperthermia; Immediate and Long-Term Complications; Clinical Research; and Interpreting the Medical Literature. Addresses timely topics such as neurotoxicity, palliation, and sleep/wake disorders. Streamlines several topics into single chapters with fresh perspectives from new authors, making the material more readable and actionable. Features the knowledge and expertise of former lead editor Dr. Ronald Miller, as well as new editor Dr. Kate Leslie of the University of Melbourne and Royal Melbourne Hospital. Provides state-of-the-art coverage of anesthetic drugs, guidelines for anesthetic practice and patient safety, new techniques, step-by-step instructions for patient management, the unique needs of pediatric patients, and much more - all highlighted by more than 1,500 full-color illustrations for enhanced visual clarity.

## Patient Safety

### Achieving a New Standard for Care

National Academies Press Americans should be able to count on receiving health care that is safe. To achieve this, a new health care delivery system is needed - a system that both prevents errors from occurring, and learns from them when they do occur. The development of such a system requires a commitment by all stakeholders to a culture of safety and to the development of improved information systems for the delivery of health care. This national health information infrastructure is needed to provide immediate access to complete patient information and decision-support tools for clinicians and their patients. In addition, this infrastructure must capture patient safety information as a by-product of care and use this information to design even safer delivery systems. Health data standards are both a critical and time-sensitive building block of the national health information infrastructure. Building on the Institute of Medicine reports To Err Is Human and Crossing the Quality Chasm, Patient Safety puts forward a road map for the development and adoption of key health care data standards to support both information exchange and the reporting and analysis of patient safety data.

## The Project Manager's Guide to Health Information Technology Implementation

CRC Press This book focuses on providing information on project management specific for software implementations within the healthcare industry. It can be used as a guide for beginners as well as a reference for current project managers who might be new to software implementations. Utilizing the Project Management Institute's (PMI) methodology, process groups and knowledge areas are defined as they relate to implementing custom and commercial off-the-shelf (COTS) software. The Software Development Life Cycle (SDLC) is a standard for developing custom software, but can also be followed for implementing COTS applications as well. How will the system be set up from an architecture and hardware standpoint? What environments will be needed and why? How are changes managed throughout the project and after? These questions and more will be reviewed. The differences between types of testing are defined as well as when each are utilized. Planning for the activation and measuring the success of the project and how well the strategic need has been met are key activities that are often not given the time and effort as the other parts of the implementation project. This new edition updates the current content to better align with the newest version of the PMI's Project Management Body of Knowledge (PMBOK), as well as the latest technology and concepts. In addition, this new edition includes additional chapters on agile management, stakeholder management, and choosing the right methodology.

# Capturing Social and Behavioral Domains and Measures in Electronic Health Records

## Phase 2

National Academies Press Determinants of health - like physical activity levels and living conditions - have traditionally been the concern of public health and have not been linked closely to clinical practice. However, if standardized social and behavioral data can be incorporated into patient electronic health records (EHRs), those data can provide crucial information about factors that influence health and the effectiveness of treatment. Such information is useful for diagnosis, treatment choices, policy, health care system design, and innovations to improve health outcomes and reduce health care costs. **Capturing Social and Behavioral Domains and Measures in Electronic Health Records: Phase 2** identifies domains and measures that capture the social determinants of health to inform the development of recommendations for the meaningful use of EHRs. This report is the second part of a two-part study. The Phase 1 report identified 17 domains for inclusion in EHRs. This report pinpoints 12 measures related to 11 of the initial domains and considers the implications of incorporating them into all EHRs. This book includes three chapters from the Phase 1 report in addition to the new Phase 2 material. Standardized use of EHRs that include social and behavioral domains could provide better patient care, improve population health, and enable more informative research. The recommendations of **Capturing Social and Behavioral Domains and Measures in Electronic Health Records: Phase 2** will provide valuable information on which to base problem identification, clinical diagnoses, patient treatment, outcomes assessment, and population health measurement.

## Digital Personalized Health and Medicine

### Proceedings of MIE 2020

IOS Press Digital health and medical informatics have grown in importance in recent years, and have now become central to the provision of effective healthcare around the world. This book presents the proceedings of the 30th Medical Informatics Europe conference (MIE). This edition of the conference, hosted by the European Federation for Medical Informatics (EFMI) since the 1970s, was due to be held in Geneva, Switzerland in April 2020, but as a result of measures to prevent the spread of the Covid19 pandemic, the conference itself had to be cancelled. Nevertheless, because this collection of papers offers a wealth of knowledge and experience across the full spectrum of digital health and medicine, it was decided to publish the submissions accepted in the review process and confirmed by the Scientific Program Committee for publication, and these are published here as planned. The 232 papers are themed under 6 section headings: biomedical data, tools and methods; supporting care delivery; health and prevention; precision medicine and public health; human factors and citizen centered digital health; and ethics, legal and societal aspects. A 7th section deals with the Swiss personalized health network, and section 8 includes the 125 posters accepted for the conference. Offering an overview of current trends and developments in digital health and medical informatics, the book provides a valuable information resource for researchers and health practitioners alike.

## Redirecting Innovation in U.S. Health Care

## Options to Decrease Spending and Increase Value

Rand Corporation This report identifies promising policy options to spur the creation of new medical technologies that will reduce total U.S. health care spending or will provide health benefits that justify any increase in spending.

## Improving Outcomes with Clinical Decision Support

### An Implementer's Guide

HIMSS Publishing Winner of the 2012 HIMSS Book of the Year Award! Co-published by HIMSS, the Scottsdale Institute, AMIA, AMDIS and SHM, this second edition of the authoritative guide to CDS implementation has been substantially enhanced with expanded and updated guidance on using CDS interventions to improve care delivery and outcomes. This edition has been reorganized into parts that help readers set up (or refine) a successful CDS program in a hospital, health system or physician practice; and configure and launch specific CDS interventions. Two detailed case studies illustrate how a "real-life" CDS program and specific CDS interventions might evolve in a hypothetical community hospital and small physician practice. This updated edition includes enhanced worksheets--with sample data--that help readers to document and use information needed for their CDS program and interventions. Sections in each chapter present considerations for health IT software suppliers to effectively support their CDS implementer clients.

## Informatics in Primary Care

### Strategies in Information Management for the Healthcare Provider

**Springer Science & Business Media** This book is designed to enhance patient care by providing the primary care practitioner with contemporary up-to-date information on the wide variety of topics they will confront in their practice. 47 illustrations.

## Making Healthcare Safe

### The Story of the Patient Safety Movement

**Springer Nature** This unique and engaging open access title provides a compelling and ground-breaking account of the patient safety movement in the United States, told from the perspective of one of its most prominent leaders, and arguably the movement's founder, Lucian L. Leape, MD. Covering the growth of the field from the late 1980s to 2015, Dr. Leape details the developments, actors, organizations, research, and policy-making activities that marked the evolution and major advances of patient safety in this time span. In addition, and perhaps most importantly, this book not only comprehensively details how and why human and systems errors too often occur in the process of providing health care, it also promotes an in-depth understanding of the principles and practices of patient safety, including how they were influenced by today's modern safety sciences and systems theory and design. Indeed, the book emphasizes how the growing awareness of systems-design thinking and the self-education and commitment to improving patient safety, by not only Dr. Leape but a wide range of other clinicians and health executives from both the private and public sectors, all converged to drive forward the patient safety movement in the US. Making Healthcare Safe is divided into four parts: I. In the Beginning describes the research and theory that defined patient safety and the early initiatives to enhance it. II. Institutional Responses tells the stories of the efforts of the major organizations that began to apply the new concepts and make patient safety a reality. Most of these stories have not been previously told, so this account becomes their histories as well. III. Getting to Work provides in-depth analyses of four key issues that cut across disciplinary lines impacting patient safety which required special attention. IV. Creating a Culture of Safety looks to the future, marshalling the best thinking about what it will take to achieve the safe care we all deserve. Captivatingly written with an "insider's" tone and a major contribution to the clinical literature, this title will be of immense value to health care professionals, to students in a range of academic disciplines, to medical trainees, to health administrators, to policymakers and even to lay readers with an interest in patient safety and in the critical quest to create safe care.

## Artificial Intelligence for COVID-19

**Springer Nature** This book presents a compilation of the most recent implementation of artificial intelligence methods for solving different problems generated by the COVID-19. The problems addressed came from different fields and not only from medicine. The information contained in the book explores different areas of machine and deep learning, advanced image processing, computational intelligence, IoT, robotics and automation, optimization, mathematical modeling, neural networks, information technology, big data, data processing, data mining, and likewise. Moreover, the chapters include the theory and methodologies used to provide an overview of applying these tools to the useful contribution to help to face the emerging disaster. The book is primarily intended for researchers, decision makers, practitioners, and readers interested in these subject matters. The book is useful also as rich case studies and project proposals for postgraduate courses in those specializations.

## Race, Ethnicity, and Language Data

### Standardization for Health Care Quality Improvement

**National Academies Press** The goal of eliminating disparities in health care in the United States remains elusive. Even as quality improves on specific measures, disparities often persist. Addressing these disparities must begin with the fundamental step of bringing the nature of the disparities and the groups at risk for those disparities to light by collecting health care quality information stratified by race, ethnicity and language data. Then attention can be focused on where interventions might be best applied, and on planning and evaluating those efforts to inform the development of policy and the application of resources. A lack of standardization of categories for race, ethnicity, and language data has been suggested as one obstacle to achieving more widespread collection and utilization of these data. Race, Ethnicity, and Language Data identifies current models for collecting and coding race, ethnicity, and language data; reviews challenges involved in obtaining these data, and makes recommendations for a nationally standardized approach for use in health care quality improvement.

# The Transformation of Academic Health Centers Meeting the Challenges of Healthcare's Changing Landscape

**Academic Press** **The Transformation of Academic Health Centers: The Institutional Challenge to Improve Health and Well-Being in Healthcare's Changing Landscape** presents the direct knowledge and vision of accomplished academic leaders whose unique positions as managers of some of the most complex academic and business enterprises make them expert contributors. Users will find invaluable insights and leadership perspectives on healthcare, health professions education, and bio-medical and clinical research that systematically explores the evolving role of global academic health centers with an eye focused on the transformation necessary to be successful in challenging environments. The book is divided into five sections moving from the broad perspective of the role of academic health centers to the role of education, training, and disruptive technologies. It then addresses the discovery processes, improving funding models, and research efficiency. Subsequent sections address the coming changes in healthcare delivery and future perspectives, providing a complete picture of the needs of the growing and influential healthcare sector. Outlines strategies for academic health centers to successfully adapt to the global changes in healthcare and delivery Offers forward-thinking and compelling professional and personal assessments of the evolving role of academic health centers by recognized outstanding academic healthcare leaders Includes case studies and personal reflections, providing lessons learned and new recommendations to challenge leaders Provides discussions on the discovery process, improving funding models, and research efficiency

## Healthcare Data Analytics

**CRC Press** At the intersection of computer science and healthcare, data analytics has emerged as a promising tool for solving problems across many healthcare-related disciplines. Supplying a comprehensive overview of recent healthcare analytics research, **Healthcare Data Analytics** provides a clear understanding of the analytical techniques currently available to solve healthcare problems. The book details novel techniques for acquiring, handling, retrieving, and making best use of healthcare data. It analyzes recent developments in healthcare computing and discusses emerging technologies that can help improve the health and well-being of patients. Written by prominent researchers and experts working in the healthcare domain, the book sheds light on many of the computational challenges in the field of medical informatics. Each chapter in the book is structured as a "survey-style" article discussing the prominent research issues and the advances made on that research topic. The book is divided into three major categories: **Healthcare Data Sources and Basic Analytics** - details the various healthcare data sources and analytical techniques used in the processing and analysis of such data **Advanced Data Analytics for Healthcare** - covers advanced analytical methods, including clinical prediction models, temporal pattern mining methods, and visual analytics **Applications and Practical Systems for Healthcare** - covers the applications of data analytics to pervasive healthcare, fraud detection, and drug discovery along with systems for medical imaging and decision support Computer scientists are usually not trained in domain-specific medical concepts, whereas medical practitioners and researchers have limited exposure to the data analytics area. The contents of this book will help to bring together these diverse communities by carefully and comprehensively discussing the most relevant contributions from each domain.

## Clinical Decision Support

### The Road to Broad Adoption

**Academic Press** With at least 40% new or updated content since the last edition, **Clinical Decision Support, 2nd Edition** explores the crucial new motivating factors poised to accelerate Clinical Decision Support (CDS) adoption. This book is mostly focused on the US perspective because of initiatives driving EHR adoption, the articulation of 'meaningful use', and new policy attention in process including the Office of the National Coordinator for Health Information Technology (ONC) and the Center for Medicare and Medicaid Services (CMS). A few chapters focus on the broader international perspective. **Clinical Decision Support, 2nd Edition** explores the technology, sources of knowledge, evolution of successful forms of CDS, and organizational and policy perspectives surrounding CDS. Exploring a roadmap for CDS, with all its efficacy benefits including reduced errors, improved quality, and cost savings, as well as the still substantial roadblocks needed to be overcome by policy-makers, clinicians, and clinical informatics experts, the field is poised anew on the brink of broad adoption. **Clinical Decision Support, 2nd Edition** provides an updated and pragmatic view of the methodological processes and implementation considerations. This book also considers advanced technologies and architectures, standards, and cooperative activities needed on a societal basis for truly large-scale adoption. At least 40% updated, and seven new chapters since the previous edition, with the new and revised content focused on new opportunities and challenges for clinical decision support at point of care, given changes in science, technology, regulatory policy, and healthcare finance Informs healthcare leaders and planners, health IT system developers, healthcare IT organization leaders and staff, clinical informatics professionals and researchers, and clinicians with an interest in the role of technology in shaping healthcare of the future

## Principles of Health Interoperability HL7 and SNOMED

Springer Science & Business Media Joined-up healthcare makes information available when and where it is needed to improve safety, efficiency and effectiveness. Politicians may take interoperability between healthcare computer systems for granted, but it is non-trivial. Healthcare integration projects are notoriously under-estimated and come in over-budget and over-time. Joined-up healthcare depends on standards. The two leading standards are the SNOMED CT, which is a clinical terminology (semantics) and HL7 Version 3, which is a specialised healthcare interoperability language (syntax). Both are new, complex and fit for purpose. Tim Benson believes there is an unmet need for a book on Healthcare Integration. Some health informatics textbooks include chapters on HL7 and/or SNOMED, but these are usually quite short and cannot provide even an adequate introduction. There is little of much value on the Internet, or in journals or conference proceedings.

## Optimizing Strategies for Clinical Decision Support

### Summary of a Meeting Series

The result of a collaboration between the National Academy of Medicine (NAM) and the Office of the National Coordinator for Health Information Technology, this NAM Special Publication summarizes and builds upon a meeting series in which a multistakeholder group of experts discussed the potential of clinical decision support (CDS) to transform care delivery by ameliorating the burden that expanding clinical knowledge and care and choice complexity place on the finite time and attention of clinicians, patients, and members of the care team. This summary also includes highlights from discussions about addressing the barriers to realizing the full benefits of CDS-facilitated value improvement. *Optimizing Strategies for Clinical Decision Support: Summary of Meeting Series* identifies the need for a continuously learning health system driven by the seamless and rapid generation, processing, and practical application of the best available evidence for clinical decision-making, and lays out a series of actionable, collaborative next steps to optimize strategies for adoption and use of clinical decision support.

## Crossing the Quality Chasm

### A New Health System for the 21st Century

National Academies Press Second in a series of publications from the Institute of Medicine's Quality of Health Care in America project Today's health care providers have more research findings and more technology available to them than ever before. Yet recent reports have raised serious doubts about the quality of health care in America. *Crossing the Quality Chasm* makes an urgent call for fundamental change to close the quality gap. This book recommends a sweeping redesign of the American health care system and provides overarching principles for specific direction for policymakers, health care leaders, clinicians, regulators, purchasers, and others. In this comprehensive volume the committee offers: A set of performance expectations for the 21st century health care system. A set of 10 new rules to guide patient-clinician relationships. A suggested organizing framework to better align the incentives inherent in payment and accountability with improvements in quality. Key steps to promote evidence-based practice and strengthen clinical information systems. Analyzing health care organizations as complex systems, *Crossing the Quality Chasm* also documents the causes of the quality gap, identifies current practices that impede quality care, and explores how systems approaches can be used to implement change.

## Global Status Report on Alcohol and Health 2018

World Health Organization The report provides an overview of alcohol consumption and harms in relation to the UN Sustainable Development Goals (Chapter 1), presents global strategies, action plans and monitoring frameworks (Chapter 2), gives detailed information on: the consumption of alcohol in populations (Chapter 3); the health consequences of alcohol consumption (Chapter 4); and policy responses at the national level (Chapter 5). In its final Chapter 6, the imperative for reducing harmful use of alcohol in a public health perspective is presented. In addition, the report contains country profiles for WHO Member States and appendices with statistical annexes, a description of the data sources and methods used to produce the estimates and references.

## Networking Health

### Prescriptions for the Internet

National Academies Press Consumer health websites have garnered considerable media attention, but only begin to scratch the surface of the more pervasive transformations the Internet could bring to health and health care. *Networking Health* examines ways in which the Internet may become a routine part of health care delivery and payment, public health, health education, and biomedical research. Building upon a series of site visits, this book: Weighs the role of the Internet versus private networks in uses ranging from the transfer of medical images to

providing video-based medical consultations at a distance. Reviews technical challenges in the areas of quality of service, security, reliability, and access, and looks at the potential utility of the next generation of online technologies. Discusses ways health care organizations can use the Internet to support their strategic interests and explores barriers to a broader deployment of the Internet. Recommends steps that private and public sector entities can take to enhance the capabilities of the Internet for health purposes and to prepare health care organizations to adopt new Internet-based applications.

## Preventing Medication Errors

**National Academies Press** In 1996 the Institute of Medicine launched the Quality Chasm Series, a series of reports focused on assessing and improving the nation's quality of health care. Preventing Medication Errors is the newest volume in the series. Responding to the key messages in earlier volumes of the series—"To Err Is Human (2000), Crossing the Quality Chasm (2001), and Patient Safety (2004)"—this book sets forth an agenda for improving the safety of medication use. It begins by providing an overview of the system for drug development, regulation, distribution, and use. Preventing Medication Errors also examines the peer-reviewed literature on the incidence and the cost of medication errors and the effectiveness of error prevention strategies. Presenting data that will foster the reduction of medication errors, the book provides action agendas detailing the measures needed to improve the safety of medication use in both the short- and long-term. Patients, primary health care providers, health care organizations, purchasers of group health care, legislators, and those affiliated with providing medications and medication-related products and services will benefit from this guide to reducing medication errors.

## Facilitating Patient Understanding of Discharge Instructions

### Workshop Summary

**National Academies Press** The Roundtable on Health Literacy brings together leaders from academia, industry, government, foundations, and associations and representatives of patient and consumer interests who work to improve health literacy. To achieve its mission, the roundtable discusses challenges facing health literacy practice and research and identifies approaches to promote health literacy through mechanisms and partnerships in both the public and private sectors. To explore the aspects of health literacy that impact the ability of patients to understand and follow discharge instructions and to learn from examples of how discharge instructions can be written to improve patient understanding of—and hence compliance with—discharge instructions, the Roundtable on Health Literacy held a public workshop. The workshop featured presentations and discussions that examined the implications of health literacy for discharge instructions for both ambulatory and inpatient facilities. Facilitating Patient Understanding of Discharge Instructions summarizes the presentations and discussions of the workshop. This report gives an overview of the impact of discharge instructions on outcomes, and discusses the specifics of inpatient discharge summaries and outpatient after-visit summaries. The report also contains case studies illustrating different approaches to improving discharge instructions.