Future Outlook For Drug Eluting Stents

#drug eluting stents future #DES market outlook #stent technology trends #interventional cardiology future #coronary stent innovation

Explore the evolving landscape and future outlook for drug-eluting stents (DES) within interventional cardiology. This comprehensive analysis delves into upcoming market projections, key technological advancements, and the critical trends shaping the next generation of coronary artery disease treatment, providing insights into the innovations and challenges ahead for stent technology.

Handbook of Drug-eluting Stents: Drug-stent programs

Over the past few years, the focus in interventional cardiology research has centered on reducing restenosis with the use of antiproliferative pharmacological agents. The use of these drugs, hitherto, has failed, most probably because of low active drug levels at the target site. This problem led to the development of local drug delivery using stents, since they can serve as a reservoir for local drug administration and are in immediate contract with the coronary artery wall, thus ensuring maximum delivery of the pharmacological agent. Drug-eluting stents provide an entirely new spectrum of potential therapies for restenosis.Handbook of Drug-Eluting Stents, under the editorial direction of Patrick Serruys, one of the world's leading interventional cardiologists, and Tony Gershlick, a pioneer in the field of drug-eluting stents, provides the reader with up-to-date information on which stents and pharmacological agents in use or about to be launched, the kinetics of the drugs involved, and what the future may hold.Short Contents

Handbook of Drug-Eluting Stents

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Drug-Eluting Stents

The cure for restenosis has been the Holy Grail of interventional cardiology since the advent of coronary angioplasty in the late 1970s. The development of stents improved the durability of angioplasty, but in-stent restenosis was a major problem for patients and the physicians. To deliver drugs locally on stents that prevent restenosis is a revolutionary advance. Percutaneous revascularization technology has leaped forward, dramatically altering clinical practices, with what may be the single most important advance in the history of cardiology. There are new delivery platforms and new drugs currently being tested. Despite the continuing advancement, there was a need to collate in a single text, information on drug eluting stents for coronary disease. Chris White and colleagues have put together a logically organized text that progresses from theory to practice, and addresses pharmacologic, technical and strategic issues as they relate to the placement of coronary drug-eluting stents.

Drug-eluting Stents

Make optimal use of the latest coronary stenting techniques and adjunctive devices with well-rounded guidance from Coronary Stenting, a companion volume to Dr. Topol’s Textbook of Interventional Cardiology. This comprehensive, up-to-date interventional cardiology book keeps you abreast of the latest trial data on efficacy and safety as well as cutting-edge clinical applications in coronary stenting. Achieve optimal outcomes and minimize complications with expert guidance from the foremost teachers and writers in the field of interventional cardiology. Implement the latest knowledge on cutting-edge topics such as drug-eluting stent design; appropriate interpretation of randomized clinical trials and comparative effectiveness studies of coronary stents; the use of fractional flow reserve, intravascular ultrasound and optical coherence tomography to optimize lesion selection and stent implantation; anterograde and retrograde approaches to chronic total occlusions; and percutaneous revascularization of diabetics and patients with left main or multivessel disease. Quickly and easily find the coronary stenting information you need thanks to highly templated chapters and high-quality full-color illustrations that incorporate the latest clinical trial data into recommendations for proper patient and device selection.

Coronary Stenting: A Companion to Topol's Textbook of Interventional Cardiology E-Book

Stents are used to re-open and maintain flow in diseased coronary arteries in patients suffering from coronary heart disease. Drug-eluting stents are now the preferred choice of stent but their performance is still limited by delayed healing of the important endothelial cell layer that lines the artery wall (Capodanno et al, 2011). It is very important that the endothelial cells that are damaged following the implantation of the stent are regenerated. Much research has been carried out to monitor endothelialisation of the stent-tissue interface using invasive methods, but such methods are commonly only suitable for in vitro studies (Prasad et al, 2005), meaning they cannot be practically used clinically and can only provide information at a limited number of time points. The technique of impedance spectroscopy may allow the non-invasive measurement of endothelial cell growth on coronary stents. This project therefore sought to measure the in vitro impedance of a range of coronary stents. Impedance values were recorded from stainless steel wires, bare metal and drug-eluting stents in an in vitro experimental set up, where the stent itself acted as an electrode. The effects of temperature, magnetic agitation, medium, time and various different stent types on impedance were evaluated. It was found that each of the variables examined had an effect on the system impedance. The highest impedance was observed with the Cypher drug-eluting stent group, followed by a novel polypyrrole coated stent, whilst the bare metal stents displayed relatively low impedance levels. In most stent materials examined, the impedance characteristics varied with time. These findings provide the basis for future investigation of the non-invasive measurement of endothelial cell growth on coronary stents.

A System for Impedance Characterization of Coronary Stents

Drug delivery systems represent a vast area of research and development within biomaterials and medicine and the demand for sophisticated drug delivery devices continues to drive novel product development. Advanced drug delivery devices can offer significant advantages over conventional drugs and devices alone, such as increased efficiency, improved performance and convenience. The purpose of this book is to illustrate how effective drug delivery can be achieved by means other than tablets. The book will provide a thorough analysis of the fundamentals, applications and new technologies of drug-device combination products for use throughout the human body. Part one provides readers with an introduction and background to the field. Chapters in Part two discuss areas of application

such as catheter based products, drug eluting stents and beads and anti-biotic loaded cements. Part three covers the development of drug device combination products with chapters on such topics as pre-clinical testing, sterilisation, patent issues and regulation of drug device combination products. With its distinguished editor and team of international contributors, Drug-device combination products: delivery technologies and applications is an invaluable reference for product development specialists, materials scientists and engineers in the biomedical industry and academia as well as those concerned with drug delivery. Illustrates how effective drug delivery can be achieved by means other than tablets providing readers with a comprehensive introduction and background to the field Provides a thorough analysis of the fundamentals, applications and new technologies of drug device combination products Discusses areas of application such as catheter based products and reviews the development of drug device combination products including pre-clinical testing and sterilisation

Drug-Device Combination Products

Engineered Biomaterials: Progress and Prospects presents state-of-the-art developments in the area of biomaterials research exemplified by experts in the fields of tissue engineering, wound healing, bio-diagnostics, novel therapeutics and advanced drug delivery systems.It provides a comprehensive account of preparation, characterisation, properties, processing, biological and clinical evaluation of a large variety of materials for specific biomedical applications. Basic concepts related to wound healing, tissue engineering and drug delivery systems, and the principal role played by macro, micro and nano scaled structures in biomaterials are presented in a clear manner. Developments in the area of conventional and advanced wound care strategies, materials for periodontal therapeutics, in-situ gelling tissue adhesives, biodegradable composites etc are illustrated in a lucid manner. Advanced processing techniques explored for the fabrication of micro-needles for vaccine delivery, 3D printing of personalized pharmaceuticals, bio-resorbable coatings, metallosurfactants and surface engineering of nanosystems are depicted in a straightforward and reasonable way.This book also discusses various advanced therapeutic and diagnostic systems such as magnetic nanoparticle based hyperthermia and their surface functionalization techniques. Lipid-based nano delivery systems for psoriasis, irritable bowel syndrome and pain management, polyrotaxane polymers, wearable devices for sensing etc are also depicted in this book. The contents are designed in a manner that will be highly suited for academic researchers, clinicians and industrialists who wish to explore in the versatile field of biomaterials as it contains a wealth of valuable information that will be equally useful to both beginners as well as established researchers.

Engineered Biomaterials: Progress And Prospects

Combination products are therapeutic and diagnostic products that combine drugs, devices, and/or biological products. According to the US Food and Drug Administration (FDA), “a combination product is one composed of any combination of a drug and a device; a biological product and a device; a drug and a biological product; or a drug, device and a biological product.” Examples include prefilled syringes, pen injectors, autoinjectors, inhalers, transdermal delivery systems, drug-eluting stents, and kits containing drug administration devices co-packaged with drugs and/or biological products. This handbook provides the most up-to-date information on the development of combination products, from the technology involved to successful delivery to market. The authors present important and up-to-the-minute pre- and post-market reviews of international combination product regulations, guidance, considerations, and best practices. This handbook: Brings clarity of understanding for global combination products guidance and regulations Reviews the current state-of-the-art considerations and best practices spanning the combination product lifecycle, pre-market through post-market Reviews medical product classification and assignment issues faced by global regulatory authorities and industry The editor is a recognized international Combination Products and Medical Device expert with over 35 years of industry experience and has an outstanding team of contributors. Endorsed by AAMI – Association for the Advancement of Medical Instrumentation.

The Combination Products Handbook

Cardiovascular diseases are the leading cause of death in Western countries. In non-fatal cases, they are associated with a decreased quality of life as well as a substantial economic burden to society. Most sudden cardiac events are related to the complications of a non-stenosing marginal plaque. For this reason, the ability to properly identify the atherosclerotic plaque with a rapid, non-invasive technique is of utmost clinical interest in therapeutic planning. Coronary CT angiography produces high-quality

images of the coronary arteries, in addition to defining their location and the extent of the atherosclerotic involvement. Proper knowledge of the equipment, adequate preparation of the patient, and accurate evaluation of the images are essential to obtaining a consistent clinical diagnosis in every case. With its clear and concise presentation of CT imaging of the coronary arteries, this volume provides general practitioners and cardiologists with a basic understanding of the technique. For radiologists with no direct experience in cardiac imaging, the book serves as an important source of information on coronary pathophysiology and anatomy.

CT Evaluation of Coronary Artery Disease

The enchanting and worthy world of PU beckoned to bring forth the book titled "Polyurethane". The book is divided into three sections: structures, properties and characterization of PU, applications of PU and a separate section on Biobased PU, covering the research and development in these areas. Each contributed chapter handles new and interesting topics introducing the reader to the wider known and unknown applications of PU such as PU for grouting technologies, fuel binder, extraction of metals, treatment of industry wastewater, alkanolamide PU coatings and foams, and others. The book aims to cater a larger audience comprising of readers from polymer chemistry, materials chemistry, and industrial chemistry.

Polyurethane

Comprehensive Biomaterials brings together the myriad facets of biomaterials into one, major series of six edited volumes that would cover the field of biomaterials in a major, extensive fashion: Volume 1: Metallic, Ceramic and Polymeric Biomaterials Volume 2: Biologically Inspired and Biomolecular Materials Volume 3: Methods of Analysis Volume 4: Biocompatibility, Surface Engineering, and Delivery Of Drugs, Genes and Other Molecules Volume 5: Tissue and Organ Engineering Volume 6: Biomaterials and Clinical Use Experts from around the world in hundreds of related biomaterials areas have contributed to this publication, resulting in a continuum of rich information appropriate for many audiences. The work addresses the current status of nearly all biomaterials in the field, their strengths and weaknesses, their future prospects, appropriate analytical methods and testing, device applications and performance, emerging candidate materials as competitors and disruptive technologies, and strategic insights for those entering and operational in diverse biomaterials applications, research and development, regulatory management, and commercial aspects. From the outset, the goal was to review materials in the context of medical devices and tissue properties, biocompatibility and surface analysis, tissue engineering and controlled release. It was also the intent both, to focus on material properties from the perspectives of therapeutic and diagnostic use, and to address questions relevant to state-of-the-art research endeavors. Reviews the current status of nearly all biomaterials in the field by analyzing their strengths and weaknesses, performance as well as future prospects Presents appropriate analytical methods and testing procedures in addition to potential device applications Provides strategic insights for those working on diverse application areas such as R&D, regulatory management, and commercial development

Health System of the Future

The book discusses in a detailed manner various nanomaterials used for biomedical applications, including clinical applications, diagnosis and tissue engineering. After the presentation of an overview of biomedical nanomaterials, including their classification and applications, the first part of the book is devoted to biomedical nanomaterials for therapy applications. For example, polymer micelles, dendrimers, polymer-drug conjugates as well as antibody-drug conjugates are discussed with respect to their cancer drug delivery properties. The next parts discuss biomedical nanomaterials that are used for imaging, diagnosis and sensors, as well as for tissue engineering. In the final section, the safety of biomedical nanomaterials is elaborated.

Outlook Profit

The interventional cardiologist has to tackle a diverse and complex range of coronary lesions. For this reason, the experts who compiled this volume contribute the best practices for overcoming plaque and thrombus in the coronary arteries. From simple to complicated anatomy, the direct approach to achieving optimal results is clearly described and illustrated. Each chapter focuses on a specific problem, and top quality angiograms illustrate the various coronary lesions. The editors, all experts and pioneers in the field of interventional cardiology, from stenting to myocardial revascularization, have

assembled a team of internationally renowned contributors to offer their practical advice on how to approach lesions in a straight-forward, pragmatic fashion. This guide is indispensable for cardiologists and students of the field, as well as for general practitioners.

Comprehensive Biomaterials

This book aims to provide comprehensive pictures of airway stenting technology in interventional radiology to clinical practitioners. The highlight of this book is that design concept and structure of stent are described in detail for readers to choose suitable stents for different airway diseases. The first part of the book introduces readers to airway foundation on basic ideas of trachea anatomy, common symptoms and imaging signs of respiratory system. The second part provides a broad overview of clinical application of interventional radiology in airway diseases, while the third part presents detailed interventional treatment of common airway diseases with case studies alongside in-depth analysis for each technique with comprehensive pictures. For each airway disease, a brief introduction, diagnosis, stent design, treatment plan as well as internal stent interventional operation procedures are offered to the readers. With the illustrative figures, this book is a useful reference to interventional radiologists, pulmonologists, thoracic surgeons, professional clinical staff, and medical students.

Emerging Micro- and Nanotechnologies for Medical and Pharmacological Applications

This book provides a comprehensive, up-to-date summary of drug-coated balloon (DCB) technology and the role of DCBs in the treatment of coronary and peripheral arterial disease. In addition to clear explanation of how DCBs works, readers will find an enlightening analysis of the mistakes and successes of the past decade and the emergence of the latest delivery systems, which combine a more deliverable device with much improved drug delivery to the vessel wall. The full range of current applications of DCBs are reviewed in detail, drawing on the latest scientific evidence. Due attention is paid to newer devices, with provision of technical insights and documentation of the available clinical data. Ongoing research projects, remaining technical challenges, likely future directions, and reimbursement issues are also carefully considered. This book will be a useful tool for any interventional cardiologist, interventional radiologist, or vascular surgeon who wishes to acquire a deep knowledge of this technology and its application in both coronary and peripheral interventions.

Biomedical Nanomaterials

Computed tomography of the heart has become a highly accurate diagnostic modality that is attracting increasing attention. This extensively illustrated book aims to assist the reader in integrating cardiac CT into daily clinical practice, while also reviewing its current technical status and applications. Clear guidance is provided on the performance and interpretation of imaging using the latest technology, which offers greater coverage, better spatial resolution, and faster imaging. The specific features of scanners from all four main vendors, including those that have only recently become available, are presented. Among the wide range of applications and issues to be discussed are coronary artery bypass grafts, stents, plaques, and anomalies, cardiac valves, congenital and acquired heart disease, and radiation exposure. Upcoming clinical uses of cardiac CT, such as plaque imaging and functional assessment, are also explored.

Coronary Lesions

This book focuses on the coronary bioresorbable scaffold, a new interventional treatment for coronary artery disease, differentiated from a permanent metallic stent. The book provides an overview of the technology including non-clinical studies and clinical evidences in order to help clinicians understand the appropriate application of the technology and the optimal techniques of implantation. It covers the basics of bioresorbable scaffolds; bench test results; preclinical studies; clinical evidences; and tips and tricks of implantation.

Airway Stenting in Interventional Radiology

Indian mycologists have extensively studied various groups of fungi such as soil fungi, aquatic fungi, marine fungi, endophytic fungi, fungi associated with man and animals. Though several books on various aspects of fungi are published, this is the first account of the history and development in mycology in India. This book is the second volume of the two-volume book "Progress in Mycology: An Indian Perspective". While volume 1 contains the historical aspects, taxonomy and information

about the various groups of fungi, this volume focuses majorly on the biotechnological applications of the different groups of fungi. It discusses topics such as the extremophilic fungi, the history and development in Candida research, progress of mycotoxin research in India etc. It provides a detailed account of the various enzymes and bio-active molecules derived from fungi. India shows a very high biodiversity of fungi, and this book discusses these different group of fungi and their industrial and biotechnological applications. This book is useful to students, teachers and researchers in botany, microbiology, biotechnology and life sciences, agriculture and industries using fungi to produce various valuable products.

Drug-Coated Balloons

Given that for centuries, the standard tool to understand diseases in tissues was the microscope and that its major limitation was that only excised tissue could be used, recent technology now permits the examination of diseased tissue in vivo. Optical coherence tomography (OCT) has promising potential when applied to coronary artery disease. OCT h

Cardiac CT

Critical Care of Children with Heart Disease will summarize the comprehensive medical and surgical management of the acutely-ill patient with congenital and acquired cardiac disease. The aim of the book is to teach bedside physicians, nurses and other caregivers, basic and practical concepts of anatomy, pathophysiology, surgical techniques and peri-operative management of critically ill children and adults with congenital heart disease, allowing these professionals to anticipate, prevent or else treat such pathologies. The book will cover specific cardiac lesions, review their anatomy, pathophysiology, current preoperative, intraoperative and postoperative assessment and management; medical and surgical complications will be briefly described with each lesion further discussed in specific chapters. In addition, the book will have dedicated chapters to management of cardiac patients on extracorporeal membrane oxygenation, hemofiltration, hemo or peritoneal dialysis and plasma exchange. Practical guidelines for cardiovascular nursing care will be also included.

Bioresorbable Scaffolds

This issue of Medical Clinics of North America provides the latest essential updates on COPD. The following topics are covered: pathobiological mechanisms; genes and the disease (alpha-l-antitrypsin); the environment, phenotype, and comorbidity; the role and potential of imaging; pulmonary function and its importance; exercise in testing and therapy; patients' perception and quality of life; exacerbations, causes, prevention, and treatment; an integrated approach to the medical treatment; meducal pneumoplasty, surgical resection, or lung transplant; and smoking cessation and environmental hygiene.

Progress in Mycology

This sixth edition is enriched by over 300 figures, 150 tables and a video-companion collecting more than 100 cases also presented in the format of short movies and teaching cartoons. This extensively revised and enlarged edition of this long-seller documents the very significant advances made since the fifth (2009) edition and is entirely written by Eugenio Picano, a pioneer in the field sharing his lifetime experience with the help of an international panel of 50 contributors from 22 countries representing some of the best available knowledge and expertise in their respective field. In a societal and economic climate of increasing pressure for appropriate, justified and optimized imaging, stress echocardiography offers the great advantages of being radiation-free, relatively low cost, and with a staggering versatility: we can get more (information) with less (cost and risk). For a long time, the scope and application of stress echo remained focused on coronary artery disease. In the last ten years, it has exploded in its breadth and variety of applications. From a black-and-white, one-fits-all approach (wall motion by 2D-echo in the patient with known or suspected coronary artery disease) now we have moved on to a omnivorous, next-generation laboratory employing a variety of technologies (from M-Mode to 2D and pulsed, continuous, color and tissue Doppler, to lung ultrasound and real time 3D echo, 2D speckle tracking and myocardial contrast echo) on patients covering the entire spectrum of severity (from elite athletes to patients with end-stage heart failure) and ages (from children with congenital heart disease to the elderly with low-flow, low-gradient aortic stenosis).

Outlook Profit

An overview of nanotechnology and its potential The field of nanotechnology is undergoing rapid developments on many fronts. This reference provides a comprehensive review of various nanotechnologies with a view to their biomedical applications. With chapters contributed by distinguished scientists from diverse disciplines, Biomedical Applications of Nanotechnology : Reviews recent advances in the designing of various nanotechnologies based on nucleic acids, polymers, biomaterials, and metals Discusses biomedical nanotechnology in areas such as drug and gene delivery Covers advanced aspects of imaging and diagnostics Includes a chapter on the issue of nanotoxicology Complete with figures and tables, this is a practical, hands-on reference book for researchers in pharmaceutical and biotech industries, biomedical engineers, pharmaceutical scientists, pharmacologists, and materials scientists as well as for the policymakers who need to understand the potential of nanotechnology. It is also an excellent resource book for graduate-level students in pharmaceutical sciences, biomedical engineering, and other fields in which nanotechnology is playing an increasingly important role.

Optical Coherence Tomography in Cardiovascular Research

The 3rd Edition of this respected resource provides a comprehensive, detailed, up-to-date, and clinically oriented discussion of all aspects of percutaneous coronary revascularization. More than 60 international pioneers and leaders in the field offer practical, evidence-based guidance on treating a full range of coronary lesions. They discuss the very latest techniques, devices, and adjunctive therapies, and offer critical appraisals of emerging therapeutic approaches.

Critical Care of Children with Heart Disease

Design and Development of New Nanocarriers focuses on the design and development of new nanocarriers used in pharmaceutical applications that have emerged in recent years. In particular, the pharmaceutical uses of microfluidic techniques, supramolecular design of nanocapsules, smart hydrogels, polymeric micelles, exosomes and metal nanoparticles are discussed in detail. Written by a diverse group of international researchers, this book is a valuable reference resource for those working in both biomaterials science and the pharmaceutical industry. Shows how nanomanufacturing techniques can help to create more effective, cheaper pharmaceutical products Explores how nanofabrication techniques developed in the lab have been translated to commercial applications in recent years Explains safety and regulatory aspects of the use of nanomanufacturing processes in the pharmaceutical industry

Theranostic Applications of Nanotechnology in Neurological Disorders

Valuable information on corrosion fundamentals and applications of aluminum and magnesium Aluminum and magnesium alloys are receiving increased attention due to their light weight, abundance, and resistance to corrosion. In particular, when used in automobile manufacturing, these alloys promise reduced car weights, lower fuel consumption, and resulting environmental benefits. Meeting the need for a single source on this subject, Corrosion Resistance of Aluminum and Magnesium Alloys gives scientists, engineers, and students a one-stop reference for understanding both the corrosion fundamentals and applications relevant to these important light metals. Written by a world leader in the field, the text considers corrosion phenomena for the two metals in a systematic and parallel fashion. The coverage includes: The essentials of corrosion for aqueous, high temperature corrosion, and active-passive behavior of aluminum and magnesium alloys The performance and corrosion forms of aluminum alloys The performance and corrosion forms of magnesium alloys Corrosion prevention methods such as coatings for aluminum and magnesium Electrochemical methods of corrosion investigation and their application to aluminum and magnesium alloys Offering case studies and detailed references, Corrosion Resistance of Aluminum and Magnesium Alloys provides an essential, up-to-date resource for graduate-level study, as well as a working reference for professionals using aluminum, magnesium, and their alloys.

COPD, An Issue of Medical Clinics - E-Book

Recent developments in the field of percutaneous coronary intervention and encouraging data relating to feasibility and safety have led to a renewed interest in left main angioplasty. Interventional cardiologists are faced with the challenge represented by this complex subset of lesions. The first part of this practical handbook specifically deals with the development of the anatomical classification and gives an overview of the frequency of different anatomic phenotypes. The second part provides a comprehensive knowledge on the techniques and approach to left main coronary artery disease and

discuss the potential complications. The authors draw on their practical experience to look at expected or potential morbidity from percutaneous coronary intervention. The aim of this book is to provide interventional cardiologists with useful tips and tricks for percutaneous coronary intervention of the left main coronary artery.

Stress Echocardiography

Vols. for 1963- include as pt. 2 of the Jan. issue: Medical subject headings.

Biomedical Applications of Nanotechnology

Part of the renowned Braunwald family of references, Cardiovascular Intervention: A Companion to Braunwald's Heart Disease provides today's clinicians with clear, authoritative guidance on every aspect of catheterization of the heart and vasculature and the latest imaging technologies. This practical reference on interventional cardiology is organized from a procedural perspective, with chapters focused exclusively on how to manage complex cardiovascular disease. Now fully updated from cover to cover, the 2nd Edition offers authoritative and current point-of-care coverage of this highly complex, technology-driven specialty—an ideal resource for practitioners at all levels of experience. Offers concise, focused coverage of all aspects of managing interventional cardiology patients, highlighting cautions, procedural nuances and tips, and outcomes. Covers all the newest catheterization techniques and equipment, including new-generation stents, mechanical support devices, imaging technology, and closure devices. Offers complete coverage of structural heart disease and new developments in heart valve disease, including TAVI and mitral valve procedures. Provides updates on the latest procedures, devices, and clinical guidelines for evidence-based practice. Uses a clear, easy-to-follow organization with separate sections on coronary artery interventions, peripheral artery interventions, cerebrovascular interventions, venous interventions, structural heart interventions, and congenital heart disease. Features more than 506 high-quality illustrations and access to 176 procedural videos. Any additional digital ancillary content may publish up to 6 weeks following the publication date.

Textbook of Interventional Cardiology

Traditional cardiopulmonary bypass (CPB) techniques have suffered from a number of disadvantages including haemodilution, inflammation and post-operative bleeding. Minimised cardiopulmonary bypass techniques use developments in perfusion technology to significantly reduce foreign surface-blood interactions to make bypass simpler and safer. This important book reviews key developments and issues relating to this promising technology. Part one covers the broad range of CPB pathophysiology, including anticoagulant protocols, the impact of CPB circuit surfaces, optimal haemodilution levels, and the important issue of CPB-induced systemic inflammatory response syndrome. Part two focuses on the issues of the new equipment developed for mini-CPB, optimal myocardial protection protocols and CPB perfusate options. Part three discusses clinical issues, including patient selection, coronary and valve surgery protocols and, among others, paediatric patients. With its distinguished editors and international team of expert contributors, Minimized cardiopulmonary bypass techniques and technologies is a valuable reference for cardiac surgery teams and those researching this important technology. Covers a broad range of cardiopulmonary bypass (CPB) pathophysiology, including anti-coagulant protocols, the impact of CPB circuit surfaces and optimal haemodilution levels Focuses on new equipment specially developed for minimized-CPB and myocardial protection protocols Discusses clinical issues, including patient selection

Design and Development of New Nanocarriers

Nanotechnology is at the forefront of advances in medicine. Nanomedicine: Technologies and applications provides an important review of this exciting technology and its growing range of applications. After an introduction to nanomedicine, part one discusses key materials and their properties, including nanocrystalline metals and alloys, nanoporous gold and hydroxyapatite coatings. Part two goes on to review nanomedicine for therapeutics and imaging, before nanomedicine for soft tissue engineering is discussed in part three, including organ regeneration, skin grafts, nanotubes and self-assembled nanomaterials. Finally, nanomedicine for bone and cartilage tissue engineering is the focus of part four, with electrically active biocomposites as smart scaffolds investigated, as is cartilage and bone tissue engineering, regeneration and replacement. With its distinguished editor and international team of expert contributors, Nanomedicine: Technologies and applications is an indispensable guide for all those involved in the research, development and application of this exciting technology, whilst providing

a comprehensive introduction for students and academics interested in this field. Provides an important review of nanomedicine technology and its growing range of applications Discusses key nanomedicine materials and their properties, including nanocrystalline metals and alloys, nanoporous gold and hydroxyapatite coatings Reviews nanomedicine for therapeutics and imaging and nanomedicine for soft tissue engineering

Corrosion Resistance of Aluminum and Magnesium Alloys

New technologies with the potential to improve the health of populations are continuously being introduced. But not every technological development results in clear health gains. Health technology assessment provides evidence-based information on the coverage and usage of health technologies, enabling them to be evaluated properly and applied to health care efficaciously, promoting the most effective ones while also taking into account organizational, societal and ethical issues. This book reviews the relationship between health technology assessment and policy-making, and examines how to increase the contribution such research makes to policy- and decision-making processes. By communicating the value and potential of health technology assessment to a wider audience, both within and beyond decision-making and health care management, it aims ultimately to contribute to improve the health status of the population through the delivery of optimum health services.

Left Main Coronary Artery Disease

A step-by-step, full-color guide to successful medical technology innovation with a new focus on value-based innovation and global opportunities.

Index Medicus

Implant and device manufacturers are increasingly facing the challenge of proving that their products are safe and biocompatible, and that they will perform as expected. Biocompatibility and performance of medical devices provides an essential guide to the performance analysis of these vital devices. Part one introduces the key concepts and challenges faced in relation to biocompatibility in medical devices, with consideration of biological safety evaluation planning and biomechanical and biochemical compatibility in innovative biomaterials. Part two goes on to discuss the evaluation and characterisation of biocompatibility in medical devices. Topics covered include material and chemical characterisation, allowable limits for toxic leachables, in vivo and in vitro testing and blood compatibility assessment. Testing and interpreting medical device performance is the focus of part three, with chapters describing preclinical performance studies for bone, dental and soft tissue implants, and mechanical testing of soft and hard tissue implants. Part four provides information on the regulation of medical devices in the European Union, Japan and China, and the book concludes with part five, a review of histopathology principles for biocompatibility and performance studies. With its distinguished editor and international team of expert contributors, Biocompatibility and performance of medical devices is a vital tool for all those involved in the research, design, production and application of medical devices, including research directors, production companies and medical regulatory agencies, as well as industry professionals and academics. Examines the key concepts and challenges faced in relation to biocompatibility in medical devices Discusses evaluation and characterisation issues, including material and chemical characterization, allowable limits for toxic leachables, in vivo and in vitro testing, and blood compatibility assessment Delivers a comprehensive overview of testing and interpreting medical device performance

Cardiovascular Intervention

Minimized Cardiopulmonary Bypass Techniques and Technologies