Preface

There has been a growing concern for the improvement of pharmaceutical services provided by healthcare institutions. This concern is also shared by other stakeholders including patients, regulatory organizations (such as Food and Drug Authorities and their pharmacovigilance centers), pharmaceutical companies, insurance companies and research institutions. While the concerns held by companies tend to be driven by financial drivers, the attention of healthcare institutions stems from their social and institutional obligations towards the provision of patient-oriented pharmaceutical services. While such drivers tend to significantly shape the processes adopted by each stakeholder, their collective effort is the main critical success factor for effective planning and provision of pharmaceutical care services at local and national settings. Within this context, interventions tend to be oriented toward the following areas:

1. Medication-specific Pharmacoinformatics tools that aim at enhancing interactions as well as cooperation between physicians and pharmacists. While such tools are basically oriented towards improving information accessibility and sharing among healthcare professionals, they also play significant roles in improving patient outcomes and patient-physician interactions. The functionality and usefulness of the entire tools are contingent upon medication processes as well the technological platforms adopted.

2. Institutional and organizational dimensions directed towards examining policy and decision making and supporting strategic interventions.

This contributions included in this handbook reflects these two areas. Leong Chan and Dan Liu focused on the roles to be played by policy planning in supporting technological innovations in the pharmaceutical industry. The growing attention being made for planning originates from the intensive competitiveness experienced in the Chinese pharmaceutical sector, the high R&D investments and the imperativeness of using advanced biotechnologies. By focusing on the prospective “prioritized” technology areas and innovation resources, the authors discussed potential technology development strategies, innovation pathways and biosimilars.

Chakravarty analyzed the main open Access Initiatives in Medical Biology by studying Institutional Repositories in India. By focusing on the roles to be played by new information technologies and related access frameworks, the author discussed the importance of developing innovative models that enhance harvesting of scholarly information. The shared literature may include research papers, primary data and other evidence, creative activity and other products of research and scholarship including across institutions and audiences. The author’s recommendation to use open access information in medical biology
domains has been driven by the high cost of subscription to international databases, research-specific complications and access-related difficulties. Angelo Jesus & Maria João Gomes examined and reviewed the use of web 2.0 in pharmaceutical education.

Dinah M. Mande and Rolf T. Wigand examined the context of major information quality issues and dimensions in the identification and tracking of drugs within the pharmaceutical industry. They used two technologies (mainly Radio Frequency Identification [RFID] and the Electronic Product Code Information System [EPCIS]) as tools to develop a framework that aims to the improvement of needed drug track-ability and traceability capabilities in the Pharmaceutical Industry (PI).

The work of Marco Spruit et al examined the complications faced by polypharmacy patients who use multiple drugs and proposed the use of STRIPA as a tool to perform a structured medication review in The Netherlands. The authors focused on examining the drivers and functionalities of the tool in relation with other tools and collected some data to prove its usefulness and acceptability by healthcare professionals.

Eduardo Contreras and Gustavo Puente examined the context of identifying Rheumatic diseases by general physicians (Rheumatology specialty) and pointed out the main challenges being faced. The authors conceptualized the context of disease identification by coupling “Clinical Semiology” and “software agents’ technologies”. The overall functionality and design pathways of the diagnostic tool proposed by the authors is based on the heuristic compilation of the tacit knowledge of rheumatologists. Such knowledge is taken as a key element in identifying and designing necessary rheumatic inflammatory and non-inflammatory conditions.

The work of Gasmelseid focused on the use of intelligent agent-based Pharmacoinformatics frameworks for the improvement of pharmaceutical care in response to the expansion of drug-related problems especially adverse drug reactions (ADRs). Such frameworks have the potential in providing necessary decision support for the identification, analysis and reporting of ADRs. The author proposed an intelligent multi-agent decision support system that includes a process model, a multi-agent architecture and an integrated data processing model with clear description of agent functionalities. The model reflects three main modules: a data capture and update module, diagnosis module and a pharmaceutical care and drug monitoring module. The study also reflected on the practical and managerial environment of the model and the basic considerations to be taken into account.

Francisco Torrens and Gloria Castellano addressed the clusters origin of solvation features of C-nanostructures in organic solvents. Their use of different mathematical computations shed light on the approaches that can be used in handling pharmaceutical integration.

Anna Ursyn discussed the possibilities of making visualizations about connection between science, computing, and art. The author proposed two projects about science-related themes:

1. Symmetry and pattern in animal world – geometry and art, and
2. Crystals and crystal caves.

Projects are aimed at supporting the readers’ skills in visualization and scientific illustration for the purpose of medicine and pharmacology applications.