

Contents

Series Preface	v
Preface	vii
1 Philosophical and Social Framework of Electronic Medicines	
Management	1
Introduction.....	1
Definitions and Terminology	3
The Benefits of Automated Systems.....	5
EP and the Individual.....	7
EP and the Organisation.....	10
EP and the State	12
Legal Requirements for EP Systems.....	15
EP Systems and Professional Liability	16
Confidentiality and Consent.....	17
Ethical Issues	18
Conclusion	19
Notes and References.....	19
2 History and Context of Electronic Prescribing	
in the US and UK	21
The Development of Information Technology in Healthcare.....	21
Development of EP Systems in the United States	23
Development of EP Systems in the United Kingdom.....	25
Case Study 2.1	26
The Winchester & Eastleigh NHS Trust.....	26
Case Study 2.2	30
Shrewsbury & Telford NHS Trust.....	30
Development of EP Systems: A European Perspective	32
Integration of EP Systems with Pharmacy Systems	32
Development of Medicines Information Services and Their	
Integration with EP Systems.....	34

EP Systems and Oncology Systems.....	35
The Development of Consolidated Electronic Medicines Management Systems in Hospitals	36
Barriers to Implementation of EP Systems.....	36
Conclusion	39
Notes and References.....	39
3 Organisation Benefits of Electronic Prescribing	41
Principles of Business Process Redesign.....	41
Medicines Management in Hospitals: Existing Business Processes.....	44
Organisational Benefits of EP.....	47
Workflow Management for Clinical users of EP Systems.....	48
Prescribing Workflow Design.....	48
Medicines Administration Workflow Design	50
Facilitation of a Seamless Pharmaceutical Supply Chain.....	52
Reduced Use of Paper and Consumables.....	54
Clinical System Intraoperability	54
Improvement in Hospital Business Processes due to Electronic Dissemination of Prescriptions	55
Contribution of Workflow Improvement to Professional Practice Development.....	56
Conclusion	57
Notes and References.....	57
4 EP Systems as a Risk Management Tool	59
Principles of Risk Management in Therapeutics	59
Reduction in Medication Error Rates With EP Systems: Experience From US Implementations.....	63
Reduction in Medication Error Rates With EP Systems: Experience From UK Implementations	65
Increases in Medication Errors Due To the Introduction of EP Systems	69
Reduction of Medication Errors Due To the Availability of Electronic Decision Support Tools At the Point of Prescribing.....	70
Problems With Evaluating Risk Reduction Aspects of EP Systems	74
Conclusion	75
Notes and References.....	75
5 Data Support for Electronic Medicines Management	77
Coding Systems for EP Concepts	78
The Development of Medicines Information Reference Sources.....	82
Sources of Drug Databases, and Their Implementation Within EP Systems	84

Requirements of Drug Databases for Supporting EP Systems	86
Medicine Nomenclature.....	87
Synonyms.....	88
Product Mapping.....	88
Pharmaceutical Forms.....	88
Routes of Administration.....	89
Dose Information Management	89
Admixtures.....	90
Non-indexed Products.....	90
Data for Decision Support Tools	91
Legal Issues with EP Data	93
Conclusion	93
References.....	94
6 Electronic Medicines Management: Support for Professional Practice.....	95
Modernisation of Healthcare Working Practices.....	95
EP Systems: Support for Professional Practice	97
Audit Logs in EP Systems	101
Use of EP Systems for Clinical Audit.....	102
EP Systems and Patient-Centred Medicines Reviews	105
Involvement of EP Systems in Clinical Research.....	108
EP Systems: Support for Continuing Professional Development (CPD) ...	109
Integrated Care Pathways and Clinical Guidelines.....	111
EP Systems: A Gateway to Medicines Information Reference Sources.....	111
Conclusion	112
References.....	113
7 Electronic Medicines Management and Non-medical Prescribing.....	115
Background to Non-medical Prescribing.....	115
Experience of Non-medical Prescribing	117
Benefits and Risks of Non-medical Prescribing	117
Patient Safety	118
Training of Non-medical Prescribers.....	118
Clinical Governance.....	119
Role of EP Systems in the Management and Support of Non-medical Prescriber-Led Services	119
EP Systems and Role-Based Access (RBAC)	120
Records Management and Multi-user Systems.....	121
Workflow for Different Prescriber Types	123
Prescribing Permissions	123
Structured Prescribing and Care Plans.....	124
Specialist Formulations.....	124

- Information Support for Different Non-medical Prescriber Types..... 125
- Support for Patient Group Directions (PGDs) 126
- Support for Training and CPD for Non-medical Prescribers..... 127
- Adverse Drug Event (ADE) Reporting..... 128
- Non-medical Prescribing: Management and Clinical Governance..... 130
- Conclusion 131
- References..... 131

- 8 Electronic Prescribing and Future Priorities 133**
 - The Challenge of Device Integration 133
 - Hardware Platforms and Infrastructure..... 137
 - Assistive Technology 139
 - Identification and Communications Technologies..... 143
 - Issues and Limitations with Quantitative Research on EP Systems 145
 - Political Issues with EP..... 146
 - Notes and References..... 148
 - Conclusion 148

- Appendix Worldwide Experience of Hospital
Electronic Prescribing 151**

- Index..... 153**