
Contents

Acknowledgments	xi
Preface	xiii
Part 1. Health Technology Coordination Approach	1
Introduction to Part 1	3
Chapter 1. Forward Vision of Technologies and Health Knowledge	5
Robert PICARD	
1.1. Issue: justifying the value of health technologies	6
1.2. Which technologies for which health knowledge?	7
1.3. Contribution of technologies to health knowledge	7
1.3.1. Facts and actions	7
1.3.2. Representations	8
1.3.3. Emotions and intersubjectivity	9
1.4. Learning transformations	9
1.5. Economic issues	10
1.6. The data question	10
1.6.1. Models versus data mining	10
1.6.2. Big Data	11
1.6.3. Open public data (Open Data)	12
1.6.4. Ecological data and Living Labs	13
1.6.5. Evaluation data: conditions for feedback	14
1.6.6. Data qualification	15
1.7. Conclusion	15
1.8. References	16

Chapter 2. Coordination Between Professionals: a Public Health Issue	17
G�rard MICK, Mario DEBELLIS, Marc WEISSMANN, Michel SABY and Alexandra GENTHON	
2.1. Circumscribing the notions of <i>coordination</i> , <i>pathways</i> and <i>complexity</i>	19
2.2. Identifying the structural elements of pathway coordination.	23
2.3. Mobilizing together	24
2.4. Coordinate around the person	26
2.5. An interpretation of reality.	29
2.5.1. Lack of sharing and exchanges between professionals	29
2.5.2. Versatility and overlay of “diagnostics”	30
2.5.3. Telescoping medical positions	30
2.6. References	32
Part 2. Optimization of Flows within a Hospital	35
Introduction to Part 2	37
Chapter 3. Decision Support Methods for Efficient Flow Management in Medical Device Sterilization Departments	39
Maria DI MASCOLO	
3.1. Context and motivation.	39
3.2. Sterilization departments for medical devices	41
3.3. Our contributions	43
3.3.1. Field study and performance evaluation of a sterilization department	43
3.3.2. Simulation model	45
3.3.3. Results	48
3.4. Our outlook.	58
3.5. References	58
Chapter 4. Prediction of Hospital Flows Based on Influenza Epidemics and Meteorological Factors	61
Radia SPIGA, Mireille BATTON-HUBERT and Marianne SARAZIN	
4.1. Introduction.	61
4.2. Method	63
4.2.1. The data	63

4.2.2. Data processing	64
4.2.3. Data analysis.	64
4.3. Results.	65
4.3.1. Description of the data.	66
4.3.2. Correlations between variables	66
4.3.3. ANOVA	67
4.3.4. Principal component analysis.	68
4.3.5. Classification	68
4.3.6. Discriminant factor analysis	69
4.3.7. Markov chain prediction.	70
4.4. Discussion	70
4.5. Conclusion	72
4.6. References	73
Part 3. Oncology and Technology	77
Introduction to Part 3	79
Chapter 5. Cancer Care Pathway: How Technological Advances are Helping to Address Coordination Challenges	81
Mario DI PALMA	
5.1. Contextual element: current management of cancer patients	81
5.2. Challenges of the development of ambulatory care	83
5.3. Care pathway.	83
5.4. Inter-functional coordination	84
5.5. Patient-reported outcome (PRO) information.	85
5.6. Limits of coordination and the place of communication tools	85
5.7. Specifications for communication tools?	86
5.8. What are the guidelines for connected tools?	86
5.9. Internet-connected tools and information systems	87
5.10. Digital tools and the human element	88
5.11. Coordinated follow-up, Internet-connected medicine and impact on patient survival	88
5.12. Conclusion	89
5.13. References.	89

Chapter 6. Optimization Issues in Chemotherapy Delivery	91
Jean-Charles BILLAUT, Virginie ANDRÉ, Yannick KERGOSIEN and Jean-François TOURNAMILLE	
6.1. Background presentation	91
6.2. Production planning issues	92
6.3. Modeling the scheduling problem	94
6.3.1. Complete model	94
6.3.2. Scale model used	96
6.3.3. Implementation and impact	99
6.4. Problem linked to the consideration of residues	100
6.4.1. Presentation of the problem	100
6.4.2. Special case: one machine and one product	102
6.4.3. General case	106
6.5. Consideration of distribution	108
6.5.1. Presentation of the problem	108
6.5.2. Special case: flow shop workshop and a single vehicle	110
6.5.3. General case	114
6.6. Conclusion	115
6.7. Acknowledgments	117
6.8. References	117
Part 4. Age-appropriate Technologies	119
Introduction to Part 4.	121
Chapter 7. Comparison of Two Hospitalization Admission Pathways in Geriatrics, Either Directly through a Telephone Line or Hotline or After a Visit to an Emergency Department	123
Laure MARTINEZ, Marie-Ange BLANCHON, Thomas CELARIER and Marianne SARAZIN	
7.1. Introduction	123
7.2. Materials and methodology	125
7.2.1. How the hotline works	125
7.2.2. Population studied	126
7.2.3. Variables studied	126
7.2.4. Comparison of the two types of pathways	127
7.2.5. Statistical analysis	127
7.3. Study results	127
7.3.1. Socio-demographic characteristics and care pathways of the population studied	128

7.3.2. Comparison of pathways according to the two hospitalization admission modes.	129
7.4. Discussion	131
7.4.1. Limits.	133
7.4.2. Additional work in progress.	134
7.5. Conclusion	134
7.6. References	135
Chapter 8. Therapeutic Education for the Patient over 75 Years Old Living at Home	139
Justine DIJON, Marianne SARAZIN, Vincent AUGUSTO, Thomas FRANCK and Régis GONTHIER	
8.1. Introduction.	139
8.2. Materials and methodology	141
8.2.1. Study type	141
8.2.2. Population studied	141
8.2.3. The study process.	143
8.2.4. Data collected	146
8.2.5. Economic evaluation.	146
8.2.6. Statistical tests.	147
8.2.7. Ethical considerations	147
8.3. Results.	148
8.3.1. Patient characteristics	148
8.3.2. Evaluation of inclusion criteria at 3 months and 6 months	150
8.3.3. Therapeutic reorientation and lost to follow-up	152
8.3.4. Cost evaluation for each branch of the study.	152
8.4. Discussion	153
8.5. Conclusion	155
8.6. References	155
Part 5. The Health Network.	159
Introduction to Part 5.	161
Chapter 9. The Evolution of the Economic Model of the Health Network in France: Challenges and Prospects	163
Aline LEMEUR	
9.1. Introduction.	163
9.2. Theoretical framework: resource dependence	166

9.2.1. Dependence-generating factors	167
9.2.2. Reducing factors of dependence	167
9.3. Empirical study: gerontological health networks in Île-de-France	168
9.3.1. Methodology	169
9.3.2. Interpretation of results	170
9.3.3. Dependence on the resources of the gerontological health network in Île-de-France	170
9.4. Conclusion	173
9.4.1. Avenues for reflection	175
9.5. References	176
Chapter 10. Primary Care Electronic Health Data: Good to the Last Byte	179
Richard BIRTHWHISTLE	
10.1. Introduction	179
10.2. The Canadian Primary Care Sentinel Surveillance Network (CPCSSN)	180
10.3. EMR data limitations	181
10.4. Chronic disease surveillance	182
10.5. Research	183
10.6. Quality improvement and practice feedback	183
10.7. References	184
Conclusion	187
List of Authors	189
Index	193