Course Title	Clinical Systems Management				
Course Code	HSA-521				
Course Type	Required				
Level	2nd Cycle				
Year / Semester	1 / 2				
Teacher's Name	Dr Christina Orphanidou				
ECTS	10	Lectures	14	Interactive learning activities	46
Course Purpose and Objectives	The main objectives of the course are to: • Analyse the increasing need for incorporating innovative processes in clinical management and the challenges to do so. • Formulate the disruptive innovation concept and how to utilize it in your daily life as a clinical manager. • Discuss the challenges and barriers in patients-centred care, understand the use and importance of PROMs. • Discuss the transition from functional structure in healthcare to patient-centred IPU and analyse the economic benefits of the IPU system. • Discuss the definition and the different components of precision medicine, get familiar with the implications of implementing precision medicine. • Discuss the use clinical managers and healthcare providers in general can do from the use of mobile applications by patients and how it contributed to population health management. • Formulate the changes the HIT is going through and the challenges clinical manager face while digitising workflows. • Understand the use of big data and its implications on predicting and preventive medicine. • Understand the potential, challenges and limitation of full-scale digital integration in large healthcare providers. • Understand how recycling of available clinical data may improve preventive medicine in health providers. • Analyse the process of transforming a health care organization, integrating patient-centred approach and multidisciplinary care. • Assess the changes the hospital business model is going through: the need for these changes, the challenges, the barriers and the added value. • Examine the trends in medicine and understand what kind of changes need to be made today in clinical management and in patients' participation in order to preparer healthcare organizations for these changes. • Understand how to integrate the knowledge, different stakeholder forces, technological abilities and a vision in clinical management.				
Learning Outcomes	After completion of the course students are expected to be able to: 1. Understand the rapidly changing environment in healthcare and the forces that participate in these changes. 2. Analyse the challenges clinical management is facing while trying to				

	innovate within a healthcare organization and understand the different actions that can be taken in order to overcome them. 3. Assess processes and workflows in clinical management using the concept of disruptive innovation. 4. Apply these concepts in upcoming challenges as a clinical manager 5. Understand the role of technology and business model innovation in leading valuable clinical management processes. 6. Define and design clinical management processes around patient-centred care. 7. Get familiar with PROMs and its extensive use. 8. Formulate the structure of patient-centred medical homes. 9. Understand the principles of IPU structure and how to shift to this model 10. Analyse the practice unit management skills. 11. Assess the IPU as a platform to create value and to reduce cost. 12. Understand the concept and the components of precision medicine on the its benefits. 13. Analyse the implication of precision medicine on the way we manage healthcare. 14. Discuss the shift from managing a chronic disease to managing population health. 15. Analyse the changes in clinical management as patients use mobile applications. 16. Assess the contribution and the challenges of the expanding use of mobile applications. 17. Understand the use of data science as a clinical manager. 18. Analyse the needs and challenges of digitising workflows; incorporating data science within the clinical management world. 19. Familiar yourself with the concept of data-driven decision making 20. Understand the implications and benefits for integrating analytical models in healthcare. 21. Analyse data-driven decision support system in clinical management 22. Apply data-driven tools to improve healthcare delivery. 23. Understand the unique attributes of big data in medicine. 24. Evaluate how providers can effectively utilize advanced analytics for improving quality and effectiveness of their services. 25. Assess whether novel big data initiatives are consistent, feasible and relevant for implementation. 26. Understand the principals of Big Data algorithmics and required datasets. 27. Evaluate how accuracy of results is measured and interpreted. 28. Recognize threats and limitations of Big Data algorithmics. 29. Formulate the participating forces in the process of transforming a healthcare organization. 30. Analyse a transforming business model of a healthcare organization 31. Address culture issues around the digital transformation of healthcare 32. Assess priorities and set definite goals while making a change. 33. Analyse the disruptive hospital business model and the redefinition of care delivery. 34. Assess the characteristics of the future hospital and the role of digital technology in this model. 35. Formulate the challenges and barriers of hospital at home model.

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<tr><td></td><td colspan="3">36. Understand the trends in healthcare that will influence clinical management.
37. Assess the contribution of new technologies to clinical management.
38. Summarize the objectives of the course.</td></tr>
<tr><td>Prerequisites</td><td>None</td><td>Required</td><td>None</td></tr>
<tr><td>Course Content</td><td colspan="3">1. Introduction to Innovation in Clinical Management
2. Disruptive Innovation in Clinical Management
3. Patient-focused Approach 1 in Clinical Management: PROMs
4. Patient-focused Approach 2 in Clinical Management: IPU
5. Introduction to Precision Medicine
6. The New Era of Chronic Disease Management
7. The HIT Transformation and Data-driven Clinical Management
8. How Big Data Saves Lives
9. Big Data Analytics and Artificial Intelligence in Primary Care: VISENSIA
10. Algorithms in the Service of Preventive Medicine: The Case of Colonflag
11. How to Transform a Healthcare Organisation
12. The Hospital of the Future is at home
13. Introducing a culture of innovation in healthcare
14. Revision and Integration of the Learned Objectives</td></tr>
<tr><td>Teaching Methodology</td><td colspan="3">It is expected that students will demonstrate initiative in seeking learning experiences that will enable them to achieve the course objectives. This includes reviewing all modules, reading required readings, participating in on-line discussions and completing all requirements by the assigned dates.

Educational material includes recorded PowerPoint presentations, online tutorials, exercises, such as case study analysis, articles, online videos and book chapters, as indicated for each lecture in the interactive internet-based platform of the course (Moodle). Students are advised to start their studying by the recorded course lecture for each topic, in order to take full benefit of the additional activities as listed in the current guide and described in detail on the Moodle page of the course.</td></tr>
<tr><td>Bibliography</td><td colspan="3">Required Textbooks / Reading:

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<tr><th>Title</th><th>Author(s)</th><th>Publisher</th><th>Year</th><th>ISBN</th></tr>
<tr><td>The Innovator’s prescription</td><td>Christensen Clayton, Grossman Jerome, Hwang Jason</td><td>McGrawHill</td><td>2009</td><td></td></tr>
<tr><td>Why innovation in Healthcare is</td><td>Herzlinger R.</td><td></td><td>May 2016</td><td></td></tr>
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	so hard *Harvard Business Review*				
	Problems and promises of innovation: why healthcare needs to rethink its love/hate relationship with the new. *BMJ Qual Saf*	Woods M.D. et al		April 2011	
	Health Care Information Systems: A Practical Approach for Health Care Management 4th Edition	Karen A. Wager , Frances W. Lee , John P. Glaser		Dec 2020	
	Innovating in Healthcare – Framework *Harvard Business Review*	Herzlinger R.		July 2015	
	New Marketplace survey: The sources of healthcare Innovation. *Catalyst NEJM.*	Dafny L. and Seth-Mohta N.		Feb 2017	
	Redefining Healthcare *Harvard Business*	Porter M., Teisberg E.		2006	

	Review				
	Mobile Health in Diabetes: MySugr's Monster Approach	Rose KJ, Chick S.		2016	
	The IT transformation the healthcare needs *Harvard Business Review*	Sahni N., Huckman R., Chignurupati A. and Cutler D.		Nov-Dec 2017	
	How Geisinger Health System Uses Big Data to Save Lives	Erskine A. et al.		2016	
	Big data analytics: Understanding its capabilities and potential benefits for healthcare organizations *Technological Forecasting and Social Change*	Wang, Yichuan, LeeAnn Kung, and Terry Anthony Byrd		2018	
	Cleveland Clinic: Transformation and growth	Porter M., Teisberg EO.		2015	
	The Catalyst	Liedtka J, Rosen R, Wiltbank R	Crown Business	2009	978-0-307-40949-2
	Thought Leader Interview: Eric Topol	Christensen K.		2016	

Recommended Textbooks / Reading:

Title	Author(s)	Publisher	Year	ISBN
Building client centered systems of care: choosing a process direction for the next century. *Health care management review*	McLaughlin, C.P. and Kaluzny, A.D.		2000	
Big data, big knowledge: big data for personalized healthcare *IEEE Journal of Biomedical and Health Informatics*	Viceconti, Marco, Peter Hunter, and Rod Hose		2015	
“Big data” and the electronic health record *Yearbook of medical informatics*	Ross, M. K., Wei Wei, and L. Ohno-Machado		2014	
Early Colorectal Cancer Detected by Machine Learning Model Using Gender, Age, and Complete Blood Count Data *Digestive diseases and sciences*	Hornbrook, Mark C., et al.		2017	

	Performance analysis of a machine learning flagging system used to identify a group of individuals at a high risk for colorectal cancer PloS	Kinar, Yaron, et al.		2017	
Assessment	Online quiz (formative) Participation (10%) Coursework: weekly assignments (30%) Final Written Exam (60%)				
Language	English				