

# JSGS 858 – Enterprise Information Management

	UNIVERSITY OF SASKATCHEWAN CAMPUS	UNIVERSITY OF REGINA CAMPUS
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OFFICE LOCATION:		Room 334.7, 2155 College Avenue (CB)
TERM:		Winter 2022
ROOM:		Online
DATE AND TIME:		Bi-Weekly, Saturdays 10:00 – 11:30 AM (CST)

The syllabus for this course is comprised of this document plus the document titled “JSGS Common Syllabus 2021-22.”

## INTELLECTUAL PROPERTY ACKNOWLEDGEMENT

This course was developed by Ramona Kyabaggu.

## CALENDAR DESCRIPTION

An in-depth analysis of the health information critical to health care operations, the administration of enterprise information governance with a focus on information as a strategic asset, and the important functions of health information professionals in enterprise management. Learn about strategy and project management to lead the implementation of health information systems and design processes, policies and procedures that govern the use of such systems and technologies. This course is explicit in its focus on implementation, context and complexity and the uses of data, information and knowledge for health systems, organization and individual planning and decision-making.

## LEARNING OBJECTIVES

JSGS has developed a set of four competencies that all graduates of the MHA-HIIM will be able to demonstrate. The specific readings, assignments and activities in JSGS 856 will help you both acquire and demonstrate the ability to:

- Improve the capture, quality, and use of information to support the Canadian health care system.
- Understand the value, importance and influence of health information in policy, strategy and

decision making, and to advance the use of information to inform and evaluate health policy and management decisions.

- Apply methods, techniques, and tools to analyze health care data and transform it into actionable business and clinical intelligence.
- Demonstrate cross functional leadership and develop solutions to address the diverse needs and priorities in complex and rapidly changing healthcare systems.

Module-specific objectives are listed under their respective sections.

## **COURSE CONTENT AND APPROACH**

Each module consists of a seminar covering the module readings and in-class discussion about major themes. Students are expected to complete readings before and every student will be assigned to a subset of readings, which they will informally present to the class once during the semester. Live classes will be recorded for students who are unable to attend in person.

## **REQUIRED READINGS**

Abdelhak, M., & In Hanken, M. A. (2016). Health information: Management of a strategic resource. <https://www.elsevier.ca/ca/product.jsp?isbn=9780323263481>

## **COURSE OUTLINE**

### **Module 1 – eHealth and Health Information Services in Canada – January 5<sup>th</sup> -14<sup>th</sup>**

A digital health strategy should be informed by, align with, and support and be supported by a jurisdiction's current governance structures (including policy and financing) and health strategy. Misalignment often results in misinvestment, poor outcomes and reduced efficiency of service delivery. In this module we will look at the role of governance in digital health adoption and maturity with a focus on P/T governments (Alberta's pandemic response) and the pan-Canadian mandate of Canada Health Infoway. We will also examine digital health adoption patterns globally.

#### **Module Objectives:**

- Explain the broader context of digital health, including the current state and landscape of digital health policy in Canada and globally
- Identify the main actors shaping national-provincial eHealth policy, their roles and relationships, and the strategic aims of institutional and organizational initiatives

#### **Live Seminar:**

Saturday, January 8<sup>th</sup>, 2022 – 10:00 – 11:00 am (SK time) – orientation

Saturday January 15<sup>th</sup>, 2022 – 10:00 – 11:30 am

**Pre-work:**

- Briefly introduce yourself and share your personal learning objectives for JSJS 858 on Flipgrid.
- Watch Dr. Robert Bell, Deputy Minister of Health & Long-Term Care, Ontario's presentation on developing a digital health for Patients First: <https://youtu.be/8BHgenP8Jr0>

**Discussion Forum #1: (answer one) – Due Jan 14<sup>th</sup> @ 11:59 pm, SK time**

- Consider the essential services and information that health information organizations (defined by CIHI as ministries and departments of health, health agencies and authorities, health delivery organizations and research organizations) provide to the Canadian health care system. What supports do Canada Health Infoway and CIHI provide to these organizations? Where might there be gaps or needs within these organizations that CHI and CIHI are well-positioned to address?
- In Oh et al, 2005, the authors argue that it is unclear how eHealth will change relationships, understandings, and interactions within the health care system. More than a decade has passed since their article, how do you think digital health/eHealth has reshaped the health care system during this time?
- How might governance structures influence whether a jurisdiction builds their supporting health service infrastructures to be more or less centralized or decentralized? Compare two different jurisdictions and explain how their governance models are manifest (or not) in systems architecture(s).
- Describe the role of health system governance on digital health adoption in developing contexts. Why have some low and middle-income countries been more or less successful in the adoption of digital health building blocks such as electronic health records and health information exchange?

**Readings:**

Baumgart, D.C. (2020) Digital advantage in the COVID-19 response: perspective from Canada's largest integrated digitalized healthcare system. *npj Digit. Med.* 3, 114.

Broomhead, S.C., Mars, M., Scott, R.E. et al. Applicability of the five case model to African eHealth investment decisions. *BMC Health Serv Res* 20, 666 (2020). <https://doi.org/10.1186/s12913-020-05526-6>

Coiera E. (2009). Building a national health IT system from the middle out. *Journal of the American Medical Informatics Association : JAMIA*, 16(3), 271–273.

Daniels T. 2014. Implementing e-Health through CHI: A Very Canadian Solution to a Very Canadian Problem. *Health Reform Observer - Observatoire des Réformes de Santé* 2 (3): Article 1.

Forest P, Martin D. Fit for purpose: findings and recommendations of the external review of the pan-Canadian health organizations. Ottawa: Health Canada; 2018.

Global Digital Health Index (GDHI) [website]. World Map. <http://index.digitalhealthindex.org/map>

Holmgren, JA & Ford EW. (2018). Assessing the impact of health system organizational structure on hospital electronic data sharing, *Journal of the American Medical Informatics Association*, Volume 25, Issue 9, , Pages 1147–1152

Kierkegaard, P. (2015). Governance structures impact on eHealth, *Health Policy and Technology*, Volume 4, Issue 1, Pages 39-46,

Neufeld, D. (2011.). *Canada Health Infoway*. Ivey ID: 9B10E019. London, Canada: Ivey Publishing.

- Noseworthy, T. (2015). We Thought We Were on Top: A Commentary on “Implementing e-Health through Canada Health Infoway” by Tom Daniels. Health Reform Observer - Observatoire des Réformes de Santé3 (1): Article 5.
- Oh, H., Rizo, C., Enkin, M., & Jadad, A. (2005). What is eHealth (3): a systematic review of published definitions. Journal of medical Internet research, 7(1), e1.
- Vogel, L. (2015). Infoway is shifting, not shuttering: Alvarez. CMAJ Feb 2015, 187 (2) E59-E60.
- Zimlich E, Rosenblum R, Salzberg CA, et al. Lessons from the Canadian national health information technology plan for the United States: opinions of key Canadian experts. J Am Med Inform Assoc 2012;19:453–9 .

## **Module 2 –Data and Information Governance– January 17<sup>th</sup> – 30<sup>th</sup>**

In this module we explore the notion of information as an asset and examine the imperative for data and information governance. Canada’s progress on digital governance objectives is discussed.

### **Module Objectives:**

- Identify the data, information and knowledge management needs of the health enterprises, align functional requirements with business needs, and assess impacts of changes on the organization
- Design governance models to enhance health information services and delivery
- Describe the volume, complexity and variety of data and information collected and exchanged within the health sector and the strategic imperative for enterprise information management of health data and information assets

### **Live Seminar:**

Saturday, January 22<sup>nd</sup>, 2022 – 10:00 – 11:30 am (SK time)

### **Readings:**

- Self-directed module: ‘Data and Information Governance’
- Health information: Management of a strategic resource. Chapter 4 (Health Data Concepts & Information Governance)

### **Other Readings:**

- Adler-Milstein, J., and Jha, A. (2012). Sharing clinical data electronically: a critical challenge for fixing the health care system. JAMA, 307(16): 1695-1696.
- Borek, Alexander. (2014). Data and Information Assets (Chap 1). In Total Information Risk Management Maximizing the Value of Data and Information Assets (1 Ed.). Waltham, MA: Morgan Kaufmann.
- Byerring, AK, Brownell, M, El Emam, K, Fortier, I, Henry, D, Knoppers, BM, Laurie, G, Lemmens, T, Morgan, M, Noseworthy, TW, Saunders, S, Wolfson, M & Zelmer, J 2015, Accessing Health and Health-Related Data in Canada: The Expert Panel on Timely Access to Health and Social Data for Health Research and Health System Innovation. Council of Canadian Academies
- Digital Health Canada. (2018). Canada and Shared Information Governance: Expanding on Governance Standards - Steps Enabling Canada’s Digital Health EcoSystem.

- Hovenega, E.J. & Grain, H. Health data and data governance. *Studies in Health Technology and Informatics*, 2013; 193:67-92
- Stambaugh, R. (2018). Data governance has an inextricable link to information governance. *Journal of AHIMA*. 2018
- Standards Council of Canada. (2021). Canadian Data Governance Standardization Roadmap. [https://www.scc.ca/en/system/files/publications/SCC\\_Data\\_Gov\\_Roadmap\\_EN.pdf](https://www.scc.ca/en/system/files/publications/SCC_Data_Gov_Roadmap_EN.pdf)
- Vayena, E., Dzenowagis, J., Brownstein, J., and Sheikh, A. (2018). Policy implications of big data in the health sector. *Bulletin of the World Health Organization*, 96: 66-68.

<b>Module 3 – Workflow Analysis and Process Redesign – January 31st – February 6<sup>th</sup></b>
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In this module, the impact of workflow and business process on health care outcomes is explored. Workflow analysis and business process redesign as a means to improve the integration of digital health innovation is discussed. Students will work in small groups to map a clinical scenario as a precursor for their independent assignment.

**Module Objectives:**

- Identify the data, information and knowledge management needs of the health enterprises, align functional requirements with business needs, and assess impacts of changes on the organization
- Monitor and evaluate information continuity in health care and apply various techniques for modelling workflow and processes within health care enterprises
- Use service design methodology to improve patient flow, care coordination, and integration of services

**Live Seminar:**

Saturday, February 5<sup>th</sup>, 2022 – 10:00 – 11:30 am (SK time) - Create a Data Flow Diagram (Groups)

**Discussion Forum #2: (answer one) – Due Feb 6<sup>th</sup> @ 11:59 pm, SK time**

- Explain interdependencies across the four levels of interoperability (foundational, structural, semantic, and organizational). Provide an example relevant to health care for each type of interoperability.
- Explain the influence of process within the “data, people, process, technology” framework.
- Go to the Integrating the Healthcare Enterprise website [<https://www.ihe.net/>]. How are their clinical and operational profiles being used to improve digital health productivity and workflow?
- How might the Donabedian model of structure, process, outcome be useful for comprehensively evaluating digital health services?

**Readings:**

- Health information: Management of a strategic resource. Chapter 9 (Business Process Redesign pp. 343 – pp. 353); Chapter 12 (Process Improvement Tools pp. 458 – pp. 465)

- University of Victoria. EHealth Observatory: Workflow Modelling Tools: <https://ehealth.uvic.ca/resources/tools/WorkflowModeling/WorkflowModeling.php>
- Workflow assessment for health IT toolkit. (2015). <https://digital.ahrq.gov/health-it-tools-and-resources/evaluation-resources/workflow-assessment-health-it-toolkit>

### **Other Readings:**

- Cain C, Haque S. (2008). Organizational workflow and its impact on work quality. In: Hughes RG, ed. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Advances in Patient Safety. Rockville, MD: Agency for Healthcare Research and Quality (US); 217-244.
- Cusack CM, Hook JM, McGowan J, Poon EG, Zafar A. Evaluation Toolkit—Health Information Exchange Projects: 2009 Update (Prepared for the AHRQ National Resource Center for Health Information Technology under Contract No. 290-04-0016.) AHRQ Publication No. 10-0056-EF. Rockville, MD: Agency for Healthcare Research and Quality. March 2010.
- Electronic Health Record Deployment Techniques: Workflow Analysis: EHR Deployment Techniques: <https://www.chcf.org/publication/electronic-health-record-deployment-techniques/>
- Finnell, J., & Dixon, B. (2016). Clinical Workflow Analysis, Process Redesign, and Quality Improvement. In Clinical Informatics Study Guide Text and Review (1st ed. 2016. ed.).
- Gardner, K., Banfield, M., McRae, I. et al. (2014). Improving coordination through information continuity: a framework for translational research. BMC Health Serv Res 14, 590.
- Kuziemsky, CE & Peyton, L. (2016). A framework for understanding process interoperability and health information technology, Health Policy and Technology, Volume 5, Issue 2, 196-203.
- Ozkaynak, M., Unertl, K., Johnson SA, Brixey JJ, Haque SN. (2016). Clinical workflow analysis, process redesign and quality improvement: Case Vignette In Clinical Informatics Study Guide
- Patey, C, Asghari, S, Norman, P, Hurley, O. (2020). Redesign of a rural emergency department to prepare for the COVID-19 pandemic. CMAJ, 192 (19) E518-E520;
- Rotter, T., Kinsman, L., James, E.L., Machotta, A., Gothe, H., Willis, J., Snow, P., and Kugler, J. (2010). Clinical pathways: effects on professional practice, patient outcomes, length of stay and hospital costs. Cochrane Database of Systematic Reviews, 3.
- Singh, R., Singh, A., Singh, D. R., & Singh, G. (2013). Improvement of workflow and processes to ease and enrich meaningful use of health information technology. Advances in medical education and practice, 4, 231–236. <https://doi.org/10.2147/AMEP.S53307er> International Publishing Switzerland.
- Tolentino, DA. (2020). Subbian, Vignesh4; Gephart, Sheila M.5 Applying Computational Ethnography to Examine Nurses’ Workflow Within Electronic Health Records, Nursing Research
- Unertl, K. M., Novak, L. L., Johnson, K. B., & Lorenzi, N. M. (2010). Traversing the many paths of workflow research: developing a conceptual framework of workflow terminology through a systematic literature review. Journal of the American Medical Informatics Association : JAMIA, 17(3), 265–273.

<b>Module 4 – Human Resources Management – February 7<sup>th</sup> – 13<sup>th</sup></b>
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This module is about the health information workforce - who they are, what they do, and why they are so important for the future of health systems. The module will also touch on the need for health information leaders and managers.

### Module Objectives:

- Identify health information workforce trends
- Explain the drivers for change and new and emergent roles and functions within the HIIM field, including that of the chief health information management officer
- Understand what is involved in the operational management of HIM departments and health information services, employee education and the evaluation of service productivity and quality
- Apply leadership theory and methods, including the demonstration of multidisciplinary and cross-functional leadership, communication and stakeholder management

### Live Seminar:

Saturday, February 6<sup>th</sup>, 2022 – 10:00 – 11:30 am (SK time)

### Discussion Forum #3: (Choose one) – Due Feb 13<sup>th</sup> @ 11:59 pm, SK time

- Review the major professional competency frameworks for health information and clinical professionals — e.g., Tiger 1.0, Tiger 2.0, AHIMA Career Map, Digital Health Canada professional career matrix, IFHIMA global competencies, HITCOMP, IAPP, etc (there may be some overlap between the frameworks so try to focus on one framework that resonates with you the most). Identify specific activities or functions within a given role or roles that you want to perform in your career. What specific skills will be important for you to develop or reinforce to perform the activities/functions? Consider the kinds of opportunities that you can get involved in to develop these competencies?
- Watch the video posted on UR Courses from the Canadian College of Health Leadership. Have you considered getting LEADS certification through JSGS' streamlined certification process? How might LEADS certification be helpful for health information professionals or enthusiasts who want to provide leadership and champion health system transformation through the better use of information and technology?

### Readings:

- Health information: Management of a strategic resource. Chapter 16 (Human Resource Management); Chapter 17 (Operational Management)

### Other Readings:

Abrams KJ. Leadership and Health Information Management in Canada (unpublished doctoral dissertation). 2016. (Browse this reading)

Bossen C, Pine KH, Cabitza F, Ellingsen G, Piras EM. (2019). Data work in healthcare: An Introduction. Health Informatics Journal 25(3):465-474. **(Read the introduction and one article of interest from the data work in healthcare special issue)**

Butler-Henderson K, Gray K, Greenfield D, et al. (2017). The Development of a National Census of the Health Information Workforce: Expert Panel Recommendations. Stud Health Technol Inform;239:8–13

Canada Health Infoway, COACH: Canada's Health Informatics Association, Information and Communications Technology Council, Canadian Health Information Management Association, and ITAC Health. (2019). "Health Informatics & Health Information Management Human Resources -

Outlook 2014 - 2019. Available at: <https://www.echima.ca/uploaded/pdf/reports/HI-HIM-HR-Outlook-Report-Final-w-design.pdf>

- Hersh W. (2010). The health information technology workforce: estimations of demands and a framework for requirements. *Appl Clin Inform*;1:197–212.
- Ingebrigtsen T, Georgiou A, Clay-Williams R, Magrabi F, Hordern A, Prgomet M, Li J, Westbrook J, Braithwaite J. The impact of clinical leadership on health information technology adoption: systematic review. *Int J Med Inform*;83(6):393-405.
- Marc D, Butler-Henderson K, Dua P, et al. (2019). Global Workforce Trends in Health Informatics & Information Management. *Stud Health Technol Inform*;264:1273–7.
- Stanfill MH, Marc DT. (2019). Health Information Management: Implications of Artificial Intelligence on Healthcare Data and Information Management. *Yearb Med Inform*;28:56–64.
- Zahraa, A. (2017). Data Analytics of Codified Patient Data: Identifying Factors Influencing Coding Trends, Productivity, and Quality. University of Pittsburgh (**Read Abstract Only**).

<b>Reimbursement Methodologies/Methods of Funding – February 14<sup>th</sup> – 27<sup>th</sup> (Reading Week: February 22<sup>nd</sup> – 26<sup>th</sup>)</b>
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**Module Objectives:**

- Understand the role of the health information professional in revenue cycle and financial management
- Examine the financial and administrative information health care facilities report through the Management Information System and how health information professionals can support the process
- Describe the types of information health systems need to generate and manage to enable the adoption of modern funding methodologies

**Live Seminar:**

Saturday, February 19<sup>th</sup>, 2022 – 10:00 – 11:30 am (SK time)

**Readings:**

- Health information: Management of a strategic resource. Chapter 18 (Revenue Cycle and Financial Management) \* some concepts in this chapter are specific to the US context only.

**Other Readings:**

- Böcking, W., Ahrens, U., Kirch, W. et al. First results of the introduction of DRGs in Germany and overview of experience from other DRG countries. *J Public Health* 13, 128–137 (2005).  
<https://doi.org/10.1007/s10389-005-0103-4>
- Britton J. R. (2015). Healthcare Reimbursement and Quality Improvement: Integration Using the Electronic Medical Record Comment on "Fee-for-Service Payment--an Evil Practice That Must Be Stamped Out?". *International journal of health policy and management*, 4(8), 549–551.
- Burau, V, Dahl, HM, Jensen, LG, Lou, S. (2018). Beyond Activity Based Funding. An experiment in Denmark, *Health Policy*, Volume 122, Issue 7, Pages 714-721.



- Camillo, C. (2016). CHIP Data in the Medicaid Statistical Information System (MSIS): Availability and Uses. 10.13140/RG.2.1.1945.1926.
- Canadian Patient Cost Database Technical Document: MIS Patient Costing Methodology, January 2019
- Chum F, Ohinmaa, A, Kaul, P. (2016). Canadian Case Mixed Groups (CMG+) Costing Proxy for Acute Myocardial Infarction. Journal of Health & Medical Economics: <https://health-medical-economics.imedpub.com/canadian-case-mixed-groups-cmg-costing-proxy-for-acute-myocardial-infarction.php?aid=9466>
- CIHI: The why, the What and the How of Activity-Based Funding in Canada: A Resource for Health System Funders and Hospital Managers
- Finnell, J., & Dixon, B. (2016). Strategic and Financial Planning for Clinical Information Systems. In Clinical Informatics Study Guide Text and Review (1st ed. 2016.. ed.).
- Heslop, L. (2019). Activity-based funding for safety and quality: A policy discussion of issues and directions for nursing-focused health services outcomes research. International Journal of Nursing Practice, 25(5).
- Palmer, K. S., Agoritsas, T., Martin, D., Scott, T., Mulla, S. M., Miller, A. P., Agarwal, A., Bresnahan, A., Hazzan, A. A., Jeffery, R. A., Merglen, A., Negm, A., Siemieniuk, R. A., Bhatnagar, N., Dhalla, I. A., Lavis, J. N., You, J. J., Duckett, S. J., & Guyatt, G. H. (2014). Activity-based funding of hospitals and its impact on mortality, readmission, discharge destination, severity of illness, and volume of care: a systematic review and meta-analysis. PloS one, 9(10)
- Patient Classification Systems International: 2011 Case Mix Conference: Meeting abstracts. Available at <https://bmchealthservres.biomedcentral.com/articles/supplements/volume-11-supplement-1>
- Porter, M.E., and Teisberg, E.O. (2006). Redefining Health Care: Creating Value-based Competition on Results. Boston: Harvard Business School Press.
- Sutherland JM, Botz CK (2006) The effect of misclassification errors on case mix measurement. Health Policy 79:195-202.
- Sutherland JM, Liu G, Crump RT, Law M. Paying for volume: British Columbia's experiment with funding hospitals based on activity. Health Policy. 2016 Nov;120(11):1322-1328.
- Tan JY, Senko C, Hughes B, Lwin Z, Bennett R, Power J, Thomson L. (2020). Weighted activity unit effect: evaluating the cost of diagnosis-related group coding. Intern Med J.
- Trenaman L, Sutherland JM. (2020). Moving from Volume to Value with Hospital Funding Policies in Canada. Healthc Pap. 2020 May;19(2):24-35.
- University of British Columbia: Evidence and Perspectives on Funding Healthcare in Canada: <https://healthcarefunding.ca/> (Browse)

<b>Module 6 – Business Intelligence/Utilization Management – February 28<sup>th</sup> – March 13<sup>th</sup></b>
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### Module Objectives

- Generate business intelligence on utilization management and other health care issues using open data

### Live Seminar

Saturday, March 5<sup>th</sup>, 2022 – 10:00 – 11:30 am (SK time)

Saturday March 12, 2022 – 10:00 – 11:30 am (SK time)

- Group Work: Creating a dashboard in Tableau

### Readings:

- Health information: Management of a strategic resource. Chapter 18 (Revenue Cycle and Financial Management) \* some concepts in this chapter are specific to the US context only.

### Other Readings:

Ben-Assuli, Ofir, Shabtai, Itamar, & Leshno, Moshe. (2015). Using electronic health record systems to optimize admission decisions: The Creatinine case study. *Health Informatics Journal*, 21(1), 73-88.

Canada Institute for Health Information: Indicator Library:

[https://indicatorlibrary.cihi.ca/display/HSPIL/Indicator+Library?desktop=true&\\_ga=2.209954709.1261785772.1608318093-384899413.1598544363](https://indicatorlibrary.cihi.ca/display/HSPIL/Indicator+Library?desktop=true&_ga=2.209954709.1261785772.1608318093-384899413.1598544363)

Farmanova, E, Kirvan, C, Verma, J, Mukerji, G, Akunov, N, Phillips, K, Samis, S Triple Aim in Canada: developing capacity to lead to better health, care and cost, *International Journal for Quality in Health Care*, Volume 28, Issue 6, December 2016, Pages 830–837

Fekri O, Manukyan E, Klazinga N. Appropriateness, effectiveness and safety of care delivered in Canadian hospitals: a longitudinal assessment on the utility of publicly reported performance trend data between 2012–2013 and 2016–2017 *BMJ Open* 2020;10

Fertel, B. S., Hart, K. W., Lindsell, C. J., Ryan, R. J., & Lyons, M. S. (2012). Toward understanding the difference between using patients or encounters in the accounting of emergency department utilization. *Annals of emergency medicine*, 60(6), 693–698.

Health PEI: Emergency Health and Planning Services 2017 - 2020 Patient Flow and System Utilization Strategy. Available at

[https://www.princeedwardisland.ca/sites/default/files/publications/patient\\_flow\\_and\\_system\\_utilization\\_strategy\\_2017-2020.pdf](https://www.princeedwardisland.ca/sites/default/files/publications/patient_flow_and_system_utilization_strategy_2017-2020.pdf)

Kreindler SA. (2017). Six ways not to improve patient flow: a qualitative study. *BMJ Quality & Safety*; 26:388-394.

Kroneman M, Siegers JJ. The effect of hospital bed reduction on the use of beds: a comparative study of 10 European countries. *Soc Sci Med*. 2004 Oct;59(8):1731-40.

Mamdani, M, Laupacis A. (2018). Laying the digital and analytical foundations for Canada's future health care system. *CMAJ*, 190 (1) E1-E2.

Perry S, Homan C. Use of case mix tools for utilization management and planning. *Stud Health Technol Inform*. 2009;143:496-500.

OECD (2017), "Hospital beds", in *Health at a Glance 2017: OECD Indicators*, OECD Publishing, Paris. DOI:

[https://read.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-2017\\_health\\_glance-2017-en#page8](https://read.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-2017_health_glance-2017-en#page8) (read Chapters 5, 6 & 9).

Sheps SB, Anderson G, Cardiff K. Utilization management: a literature review for Canadian health care administrators. *Healthc Manage Forum*. 1991 Spring;4(1):34-9. doi: 10.1016/S0840-4704(10)61234-3.

Sutherland, J. M., & Crump, R. T. (2013). Alternative level of care: Canada's hospital beds, the evidence and options. *Healthcare policy / Politiques de sante*, 9(1), 26–34.

Tomzik, Kristine M. (2008). "Fraud, Waste and Abuse: What's Hiding in Your Utilization Data?." 2008 AHIMA Convention Proceedings, October 2008.

van de Vijssel, A.R., Heijink, R. & Schipper, M. Has variation in length of stay in acute hospitals decreased? Analysing trends in the variation in LOS between and within Dutch hospitals. *BMC Health Serv Res* 15, 438 (2015).

Weir, S, Steffler, M, Li, Y, Shaikh, A Wright, JG, Kantarevic J. (2020). Use of the Population Grouping Methodology of the Canadian Institute for Health Information to predict high-cost health system users in Ontario *CMAJ*, 192 (32) E907-E912

**Module 7 – Implementation Science – March 14<sup>nd</sup> – 27<sup>th</sup>****Module Objectives:**

- Apply implementation science to enterprise information management, including the strategic and tactical implementation of health information innovations in health service organizations
- Understand the notion of intervention complexity and the evaluation of complex, multifaceted health information innovations
- Evaluate criteria to determine the right digital health innovations to invest in

**Live Seminar:**

Saturday, March 19<sup>th</sup>, 2022 – 10:00 – 11:30 am (SK time) – Groups Presentations: Dashboards

Saturday, March 26<sup>th</sup>, 2022 – 10:00 – 11:30 am (SK time)

**Discussion Forum #4 (answer one): - Due Mar 27<sup>th</sup> @ 11:59 pm, SK time**

- What does the evidence say about the impacts of eHealth in Canada? What gaps in evidence exist? How can health technology assessment and benefits evaluation be used to guide investment in digital health innovation? How might HTA and benefits evaluation support decisions about whether to de-implement costly digital health innovations that have shown to be less effective? Why might it be necessary to consider systems maturity before making de-implementation decisions?
- Explain some of the challenges with integrating legacy information systems? How should health service organizations responsibly transition the use of legacy systems?
- Explain the concept of implementation failure? Why do you think large-scale digital health projects often fail? How can organizations identify barriers to implementation and tailor their implementation strategy to improve organizational readiness before, during, and after 'adopting' digital health innovations?
- Explain the differences between implementation effectiveness and intervention effectiveness and the relationship between implementation and intervention effects.
- Describe the stages of implementation. Why do you think the stage of sustainability is often overlooked? How can organizations move toward increasingly mature and meaningful use of health information and systems by planning and budgeting for longer-term scale-up and sustainability?
- In what ways can healthcare leaders champion and advocate for digital health? Why is health care leadership so critical to implementation success?

**Readings:**

- Health information: Management of a strategic resource. Chapter 12 (Utilization Management, pp. 470 – 474); Chapter 10 (Statistics & Data Presentation); Chapter 13 (Data Analytics, Reporting, Interpretation & Use)

### Other Readings:

- Abbott, PA, Foster, J, Marin, HF, Dykes, PC. (2014). Complexity and the science of implementation in health IT—Knowledge gaps and future visions, *International Journal of Medical Informatics*, Volume 83, Issue 7, Pages e12-e22
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<b>Module 8 – Learning Health Systems - March 28<sup>th</sup> – April 11<sup>th</sup></b>
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### Module Objectives

- Promote mature and sustainable uses of information
- Design information ecosystems with consideration for responsible health information exchange and learning

## Live Seminar

Saturday, April 2<sup>st</sup>, 2022 – 10:00 – 11:30 am (SK time)

## Readings:

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