

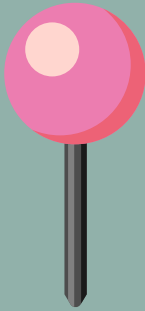
my ehealth 724

Portfolio

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12th December 2024



WHERE I STARTED (GOAL SETTING)



01

REDISCOVERING MY LEARNING STYLE AND CONFIDENCE

When I started this course, my goal was to grow not just academically, but personally. I struggled with imposter syndrome, often feeling intimidated by others' knowledge, which led me to undervalue myself. My goal was to overcome these feelings, contribute actively in discussions, and develop effective learning strategies, particularly focusing on understanding rather than cramming.



02

DEVELOPING SUSTAINABLE LEARNING HABITS

One of my main goals was to increase my attention span for studying over extended periods and to rely less on cramming.

03

BUILDING CONFIDENCE TO CONTRIBUTE AND SPEAK UP

Another goal was to build confidence to contribute in class and reduce panic when speaking in large groups.

04

GAINING KNOWLEDGE OF THE CANADIAN HEALTHCARE SYSTEM

A key academic goal for me was to gain a deeper understanding of the Canadian healthcare system.



The **BEGINNING**

I found out about **digital health** at a time that I was trying to figure out what I wanted to do for my master's. It was fascinating to me and I wondered what digital health or eHealth is ???

So, I started reading more about it and came up with a definition as to how I understood it.

What is
eHealth?

SO WHEN PEOPLE (STARTING WITH MY FAMILY), WOULD ASK ME "WHAT IS DIGITAL HEALTH OR EHEALTH?" AND I WOULD SAY

Digital health or eHealth is an interdisciplinary field that leverages technology to improve healthcare.



"Ehealth is an interdisciplinary field that combines health information, some insight from business like change management and leverages on the use of technology to improve overall healthcare"

AFTER A YEAR OF TAKING THE GRAD CERT PROGRAM AT MOHAWK, MY THINKING CHANGED AND I GOT AN UPDATE DEFINITION, SO NOW WHEN PEOPLE ASK ME, WHAT IS EHEALTH? I SAY

REFLECTION This week introduced me to the complexity of the Canadian healthcare system. Although I had prior knowledge from my studies in digital health at Mohawk College, revisiting these concepts helped me understand how interconnected and layered the system truly is. One key takeaway was the complexity of public and private funding layers within the system. For example, while essential hospital and physician services are publicly funded, other services, like prescription drugs and dental care, often rely on private insurance or out-of-pocket payments. This patchwork system raises critical questions about equity and access, particularly for underserved populations.

WEEK ONE

INTRODUCTION TO THE CANADIAN HEALTHCARE SYSTEM

IMPACT

My prior knowledge served as a foundation, but the Lecture made me think critically about the gaps in Canada's healthcare system, particularly in ensuring equity for all populations. The introduction of concepts like OHTs and virtual care sparked my curiosity about how these innovations can reshape patient experiences and outcomes while addressing systemic inefficiencies.

CONNECTION

The lecture directly connected to reading on the Canada Health Act, providing a deeper understanding of its role in shaping healthcare delivery and its limitations, such as the exclusion of certain services. It also complemented the readings on integrated care models, particularly the discussion on Ontario Health Teams (OHTs) and their potential to improve care coordination through patient-centered approaches.

WEEK 2 DEFINING EHEALTH AND THE FLOW OF HEALTH INFORMATION



This week focused on defining eHealth and understanding the flow of health information within the healthcare system. Building on my prior knowledge from Mohawk College, where I explored digital health tools and interoperability, I felt a sense of familiarity with some of the concepts. However, the lecture expanded my understanding by introducing the systemic complexities of health information flow, including the interconnected roles of patients, providers, and policymakers. What stood out was the nuanced emphasis on eHealth as more than technology—it is an enabler of patient-centered care and system-wide efficiencies.



The discussion tied in well with my past experiences. At Mohawk, I learned about creating prototypes for user-centered eHealth solutions, like the one for sexual and mental health support for new parents. This week's lecture reinforced the need for such tools to address not only individual user needs but also larger systemic goals such as interoperability and data sharing. The emphasis on integrating eHealth into learning health systems connected directly with previous discussions I have encountered on improving workflows and achieving the quadruple aim in healthcare. These concepts also aligned with the broader themes of design thinking and problem-solving I practiced in my capstone project.

Connecting those foundational projects to this week's content helped solidify my understanding of how eHealth extends beyond theory into practical applications. It highlighted how even basic tools like Arduino can lay the groundwork for larger, more complex systems in healthcare. Reflecting on that time, I see how those projects were not just technical exercises but a way to cultivate problem-solving skills that align closely with the goals of modern eHealth—interoperability, data-driven decision-making, and patient empowerment.

Concepts such as the quadruple aim—improving patient experience, provider experience, population health, and reducing costs—aligned with discussions I've had in previous courses about balancing innovation with practicality. It also reminded me of the hands-on experience I gained during my time at Mohawk College, particularly through our Arduino-based projects. Those projects were a creative introduction to integrating technology and healthcare, where we designed basic prototypes to address health challenges. For example, we worked on solutions like monitoring patient vitals or creating simple alert systems using Arduino sensors.

REFLECTION

One key insight from this week's lecture was the 6 A's of EBM framework, which simplifies the evidence-based process: ask, acquire, appraise, apply, act, and assess. This approach ensures clinicians can integrate research findings into practice effectively. The lecture also emphasized the role of eHealth in supporting EBM, particularly through tools like computerized decision support systems (CDSS), which provide clinicians with evidence-based guidance at the point of care. Additionally, the emphasis on CASP as a critical appraisal tool helped me recognize the importance of questioning research quality rather than just accepting results at face value..

THIS WEEK MADE ME REFLECT ON MY ACADEMIC HABITS. I OFTEN FOCUSED ON QUANTITY OVER QUALITY IN MY RESEARCH, WHICH MIRRORED MY TENDENCY TO CRAM.

PUBMED

WEEK 3 EBM

The PICO framework really stood out for me as a practical and straightforward way to frame clinical research questions. Breaking down scenarios into patient concerns, interventions, comparisons, and outcomes made easier to draft research questions from research topics

CONNECTION

The Hersch textbook (Chapter 20) helped me understand why EBM isn't just about ranking evidence but using it in the right context. The pyramid of evidence mentioned in the Eric Strong video made it clear why systematic reviews and meta-analyses are considered the gold standard—they synthesize so much more data than a single study. The CASP tools were practical and straightforward, and they got me thinking critically about what makes a study valid or applicable. The PICO framework video also stood out because it simplified how to turn clinical problems into research questions. It's something I can see myself using not just academically but in any eHealth-related project.

IMPACT

This week really changed how I approach research. Instead of just reading articles and assuming they're credible, I'm starting to think more critically about how they were done, what biases might be there, and whether the findings even make sense. It also reinforced how important it is for eHealth solutions to be based on strong evidence and constantly evaluated, so they're actually improving care instead of causing new problems.

THIS WEEK'S LESSONS MOTIVATED ME TO APPROACH RESEARCH WITH MORE SCRUTINY, A SKILL I PLAN TO APPLY IN FUTURE ACADEMIC AND PROFESSIONAL SETTINGS.

Week 4 EHR

01.

One of the key takeaways from class was how EHRs aim to unify diverse data types—clinical notes, test results, imaging, and medications—into a single, accessible system to improve patient care and support public health initiatives.

The lecture also highlighted the challenges of EHR implementation, including data quality issues, interoperability barriers, and the administrative burden placed on clinicians. A particularly interesting point was the discussion of how poorly designed systems can disrupt clinical workflows, leading to inefficiencies and potential burnout among providers. By improving EHR usability, the goal is to optimize care delivery while reducing clinician frustrations

These studies made me reflect on Nigeria's healthcare system, where EHR adoption is still in its early stages and largely limited to private healthcare facilities.

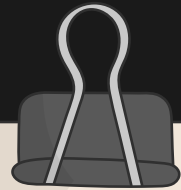


One of the most striking points from the article in the reading was the impact of EHR systems on physicians' time. The mention of "pajama time," where physicians work on EHRs after hours, highlighted just how significant these systems are in shaping their work-life balance. It reinforced the importance of designing systems that work for users, not just for data collection.

03.

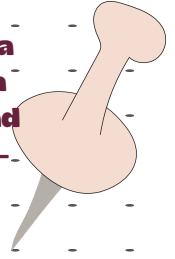
My personal experiences with healthcare inefficiencies in Nigeria brought the theory to life. This week made me realize that while EHRs are vital to modern healthcare, they are far from perfect. The discussions and readings reinforced that effective EHR design must prioritize both users (healthcare providers and patients) and broader system goals, like interoperability and care coordination.

The Glaser (2020) and Sterrett et al. (2022) articles explored the future of EHR innovation, offering exciting possibilities like better data visualization and AI integration. However, they also made me think about the potential risks, such as over-reliance on automated systems or the business-driven focus of EHR development, which might prioritize profitability over usability.





It also reminded me of the design principles I learned during my Figma capstone course at Mohawk College, where I created a prototype for a company called Ozex. The project focused on supporting the sexual and mental health of new parents. The iterative nature of design thinking—starting with understanding the user, creating prototypes, and refining based on feedback—felt familiar and tied back to my experiences with Ozex.



The Health Design Thinking textbook mirrored my capstone experience, especially the sections on empathy and co-design, which were central to developing the Ozex prototype. The emphasis on prototyping and storytelling directly aligned with my work on creating a user-first narrative for new parents navigating sensitive health topics.

Devlin et al. (2024) article showcased the practical application of design thinking in a telemedicine program, reinforcing how involving users throughout the process ensures real-world applicability.

This week's lecture, led by Dr. Sahr Wali, emphasized the importance of incorporating user context into digital health design. The concept of "Nothing About Us Without Us" stood out as a powerful reminder that effective healthcare tools must reflect the lived experiences of the communities they serve. By engaging users throughout the design process through needs assessments, co-development, and prototyping the lecture demonstrated how digital health interventions could achieve meaningful, sustainable impact.

Richardson et al. (2022) framework expanded on this by emphasizing digital health equity, a principle I found crucial in designing tools that cater to different socioeconomic and cultural backgrounds, much like the inclusivity focus of my capstone project.

Facilitating the tutorial this week allowed me to explore these concepts in depth with my peers. Guiding discussions around the design process and leading the group through activities like brainstorming and prototyping was an interesting challenge. Watching the group ideate solutions to real healthcare problems reinforced the power of collaboration in generating creative, practical ideas. The inclusive conversations where everyone's voice contributes to the final solution was a big push out of my comfort zone.

This week built on my past experiences and strengthened my understanding of how design thinking applies to eHealth. As someone aspiring to build a career focused on design thinking in healthcare, I gained a deeper appreciation for its potential to drive meaningful innovation.



WEEK 6

SEMANTIC STANDARDS: STANDARD VOCABULARIES AND NOMENCLATURES IN HEALTH



Reflection

The Lecture on SNOMED CT, ICD-10/11, and MeSH was particularly impactful as I began to appreciate how these tools form the backbone of effective data sharing in healthcare. We also discussed issues like data ambiguity, evolving terminology, and the complexity of integrating new codes into existing workflows.

I found it fascinating how coding, when done correctly, supports everything from clinical decision-making to research and analytics. It was particularly insightful to learn how tools like HL7 FHIR are transforming healthcare by enabling real-time data exchange across platforms while maintaining semantic integrity.



Mesh Vocabulary Search

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What stood out most was how discharge summaries, an everyday document in healthcare, are encoded with information that influences billing, research, and patient care. This highlighted the importance of accurate and standardized coding. It was also eye-opening for me to learn about the challenges coders face, from navigating complex terminologies to using AI tools that are not yet perfected.

”



Tutorial Takehome

The Dong et al. (2022) paper introduced automated coding using machine learning, which felt particularly relevant given the growing reliance on AI in health informatics. It addressed the potential for AI to support coders while also acknowledging the technical and ethical challenges of implementation. The MeSH browser activity was another practical connection, helping me see how indexing terms can improve the efficiency and accuracy of literature searches, much like how coding systems enhance the utility of clinical data.



Week 7

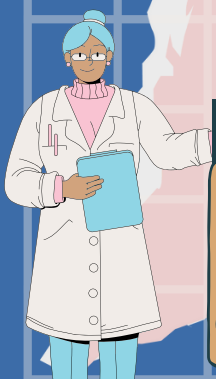
Public Health Informatics

The lecture emphasized how data from local, provincial, federal, and global levels intersect to support public health functions like disease surveillance, prevention, and response. Learning about tools like syndromic surveillance systems highlighted their importance in detecting early signs of disease outbreaks.

The integration of social determinants of health into public health data highlighted a crucial point: informatics isn't just about numbers—it's about addressing systemic inequities that leave some populations more vulnerable than others. Also while the potential of public health informatics is immense, it also comes with significant challenges. Issues like data accuracy, bias, and privacy risks must be addressed to ensure trust in these systems.

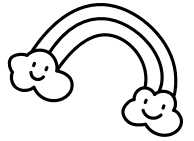
The Public Health Ontario interactive tools and the ON-Marg dashboard demonstrated how data can identify disparities across communities, aligning with the lecture's focus on using SDOH data to drive equitable health interventions.

The global perspective introduced by the WHO and GOARN highlighted the collaborative efforts required to tackle cross-border health crises, like pandemics



Week 8

Virtual Care



I was particularly interested in the discussion about setting up a “therapeutic frame” during virtual visits. This highlighted the need for clinicians to assist patients in creating private, secure, and effective virtual spaces. It’s a small but crucial step toward maintaining the integrity and effectiveness of clinical interactions in a virtual setting.

This week’s lecture focused on virtual care, including its evolution, benefits, and challenges. One of the most significant takeaways was how virtual care has transformed the accessibility of healthcare. The lecture highlighted its role in bridging gaps for underserved populations, facilitating transitional care, and enabling specialists to extend their expertise to primary care providers. The COVID-19 pandemic was a major catalyst for virtual care adoption, but as the lecture emphasized, this shift also revealed critical issues, such as privacy, technology literacy, and the regulatory barriers that impact its scalability.

The McLeod et al. studies (2023) offered insights into virtual urgent care, demonstrating its accessibility benefits while revealing its limitations, such as the lack of significant reductions in overall healthcare utilization. One standout design case from the Health Design Thinking book was the augmented reality telehealth platform, which demonstrated how advanced technologies can enhance clinician-patient interactions. By focusing on usability and patient needs, it showed the potential to make virtual care more effective and engaging.

This week highlighted virtual care’s potential to transform healthcare by reducing barriers for underserved populations and bridging geographic gaps, especially in rural areas. However, challenges like licensing, privacy, and technology limitations, along with Ontario’s billing policy changes that was mentioned during lecture, show the need for thoughtful policies to ensure virtual care remains an equitable and effective complement to in-person care.

WEEK 9

ARTIFICIAL INTELLIGENCE IN MEDICINE

LECTURE



This week's lecture introduced the evolving role of artificial intelligence (AI) in healthcare, providing foundational definitions of data science, machine learning, and predictive analytics. A highlight of the session was the demonstration of SOAP-AI, a tool designed to assist physicians in creating structured clinical notes by using natural language processing and predictive algorithms. Seeing how SOAP-AI integrates seamlessly into clinical workflows and helps reduce documentation burdens while maintaining accuracy was eye-opening.

The guest speaker emphasized how tools like SOAP-AI not only streamline administrative tasks but also enhance clinical decision-making by providing relevant insights in real-time. This hands-on example made the potential of AI feel tangible and practical, especially in addressing challenges like physician burnout and inefficiencies in healthcare documentation



READINGS



The readings on machine learning and systematic barriers to implementing AI in hospitals complemented the lecture perfectly. Hersh's chapter on data science underscored the importance of data quality and system interoperability, aligning with the challenges highlighted in implementing tools like SOAP-AI. Kamel Rahimi et al.'s review also provided valuable context on the cultural and technical hurdles in achieving AI integration, which resonated with the guest speaker's insights on how adoption depends on clinician trust and usability.

THOUGHTS



Seeing SOAP-AI in action showed me how AI can directly address one of healthcare's biggest pain points: the administrative burden on clinicians. It made me think about how these tools, if implemented thoughtfully, could free up valuable time for physicians to focus on patient care rather than paperwork. However, it also raised questions about equity—will all clinics and hospitals have access to tools like this? What happens if data privacy concerns slow down adoption?

Week 10

Privacy in Health/eHealth

This week's lecture by Diana Kulpa provided a comprehensive overview of the complexities surrounding privacy in eHealth, particularly in the Canadian healthcare context.

Another particularly striking part of the lecture was the emphasis on "circle of care" and the concept of implied versus express consent. This distinction clarified how healthcare providers navigate legal and ethical considerations in accessing and sharing patient data.

The "cyberattack quartet" framework also stood out as a structured approach to understanding the life cycle of cybersecurity threats in healthcare, from initial detection to resolution.

The lecture's focus on the details of privacy laws, like PHIPA and PIPEDA, connected directly to the readings and gave me a clearer understanding of how these laws shape the way healthcare organizations manage and protect PHI while still supporting data sharing. The Canada Health Infoway primer really stood out because it provided practical examples of how privacy laws can make secure data sharing possible, aligning perfectly with the lecture's emphasis on the importance of protecting data within interconnected system

CLASS TAKEAWAY

The most impactful part of the lecture was the case study of a privacy breach involving an emergency department physician who misused patient data for personal gain. This example demonstrated the severe consequences of privacy violations, from loss of trust to potential legal repercussions, and highlighted the necessity of stringent policies and regular training for healthcare staff.

The privacy breach scenario was eye-opening, showing how systemic failures can lead to serious repercussions, including legal action and loss of public trust. The integration of big data and AI was also intriguing, as it demonstrated the dual nature of technology—both as an enabler of innovation and a potential risk to privacy.

Impact

This week's lecture and tutorial session deepened my understanding of privacy's role in fostering trust between patients and providers. It reminded me of how easily breaches, even unintentional ones, can erode public confidence in healthcare systems. Learning about PHIPA's legal framework and privacy principles helped me see the broader responsibilities of eHealth professionals in maintaining data security. Also learning about Indigenous data sovereignty through the OCAP® principles was particularly eye-opening, as it expanded my perspective on the need for culturally sensitive and equitable data practices. The session also connected to previous discussions about interoperability by addressing how privacy legislation enables, rather than hinders, effective data sharing when appropriately implemented..

WEEK 11

IMPLEMENTATION AND USE IN EHEALTH

LECTURE REFLECTION



The case study on online appointment booking systems underscored the tangible benefits of seemingly simple digital tools, such as reducing no-shows and improving patient access, while also showcasing the layers of planning needed for effective adoption.

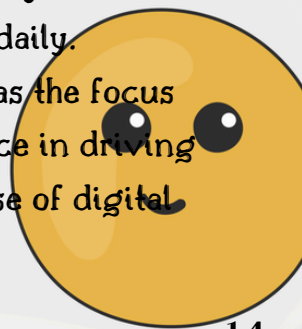
The lecture this week provided a comprehensive overview of the complexities involved in selecting, implementing, and optimizing digital health tools, particularly EHRs. **What stood out to me** was the emphasis on aligning technical, business, and clinical needs during the planning phase. The concept of workflow redesign and the AMA Telehealth Implementation Framework resonated as practical tools for ensuring smooth transitions when adopting new technologies. Additionally, the focus on user-centric design and understanding the lived experiences of healthcare providers using digital tools, as explored in the Wosny et al. study, added depth to the session.

NOTE :

The Digital Health Playbook was another useful resource, offering real-world guidance for Ontario Health Teams. This document's catalog of tools reinforced the importance of aligning digital health solutions with organizational goals and patient needs. The integration of quality improvement concepts, like using data from EHRs to drive changes, tied back to the Health Quality Ontario (HQO) mandate, emphasizing how these systems are foundational to enhancing care quality.

After this week's lecture, I realized that successful implementation is not just about choosing the right tools but about ensuring they integrate seamlessly into existing workflows while minimizing disruption. The discussion on user-centered design and stakeholder engagement made me reflect on the human element in technology adoption how systems can succeed or fail based on how well they meet the needs of those who use them daily.

Another thing that stuck with me was the focus on maturity models and their relevance in driving not just adoption but meaningful use of digital tools.





Week 12 Future of eHealth



1

Reflection

This week's lecture by Dr. Darren Larsen emphasized the interconnected nature of eHealth systems and the importance of a patient-centered approach in the future of healthcare. A key point that stood out to me was the role of learning health systems (LHS) in creating a feedback loop between data collection, analysis, and actionable insights. A standout point for me was the vision of patient-centered care being enhanced by interoperable systems, generative AI, and predictive analytics, aligning with concepts we've encountered throughout the semester.

2

Lectures

The vision of using generative AI to address chronic diseases and support preventive care inspired me to think about how AI could proactively guide health decisions rather than reactively responding to illnesses. His example of the CarePod demonstrated the possibilities of integrating technology into care delivery in a way that's both innovative and empathetic.

4

Impact

This week solidified my belief that the future of eHealth depends on our ability to balance technological advancements with the human side of healthcare. The lecture and readings highlighted the importance of designing systems that don't just collect data but use it to create actionable insights that benefit everyone, regardless of their socioeconomic or geographic status. It's inspiring to envision a future where patients are not just passive recipients of care but active participants in their health journey. However, achieving this vision requires addressing systemic barriers, such as disparities in access to technology and digital literacy.

3

Reading and Tutorial

The 1945 article by Vannevar Bush, "As We May Think," provided an interesting historical perspective on how far we've come in using technology to manage and disseminate information. It was fascinating to connect Bush's vision of the "Memex" with today's eHealth tools and consider how we're just beginning to realize the potential he envisioned.

WHAT'S NEXT?

PubMed

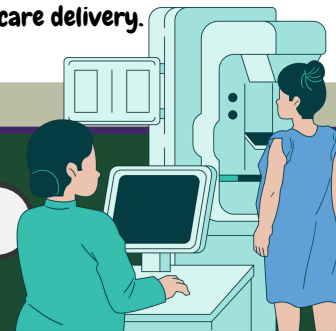


Looking back on this course, I realize how much my understanding of eHealth and healthcare systems has grown. At the start, I set goals to improve how I approached learning—moving away from cramming and focusing more on understanding. This shift was challenging at first, but the structure of the course and the critical appraisal assignment helped me make tangible progress. By learning to break down research papers, assess their validity using CASP tools, and frame clinical questions with the PICO method, I developed a more analytical and structured way of thinking. It wasn't just about memorizing content anymore—it was about truly understanding and applying what I learned. The critical appraisal assignment was a turning point for me. It taught me how to evaluate the quality of evidence critically, which is an essential skill for anyone working in healthcare. Framing questions with the PICO method gave me clarity in identifying key components of research, which I've already started using in other areas of my academic and professional life. It was empowering to feel confident in navigating complex research and extracting the information that mattered most.

Another highlight was the group design thinking assignment, where we tackled the issue of appointment delays in mammograms. Collaborating with my peers to brainstorm solutions was both exciting and challenging. It was fascinating to see how different perspectives enriched our ideas. Together, we developed a practical and patient-centered solution, which not only deepened my understanding of design thinking but also emphasized the importance of teamwork in addressing real-world healthcare problems. This assignment showed me the value of creativity and empathy when designing tools and workflows that improve care delivery.



Mesh Vocabulary Search



DEFINE

PROTOTYPE

EMPHATIZE

IDEATE

TEST

THANK YOU



As I reflect on the past 12 weeks, I can confidently say that each topic we covered added a new layer to my knowledge. From understanding the foundations of eHealth and privacy laws to exploring advanced applications like AI and learning health systems, the course broadened my perspective on the complexities and opportunities in healthcare. More importantly, This course has not only expanded my knowledge but also improved how I approach problems and make decisions ,it also sharpened my critical thinking skills and strengthened my ability to analyze issues and propose meaningful solutions