The Health Informatics Guide: A Beginner's Guide to Systems

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KAREN CLARK

Contents

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Introduction

WORLD OF DATA, SYSTEMS INTERACTIONS, AND THE INTERACTIVITY OF PROFESSIONALS

We are in a time of explosive technology throughout the world. Artificial Intelligence **(AI)** is making decisions with or without input from expert healthcare providers and **ChatGPT** is rapidly impacting other aspects of healthcare, as well. Tremendous shortages exist

in access to healthcare based on many factors, including worker shortages. Technology is one aspect of informatics in our digital age for interprofessional practitioners to employ as a mechanism to address access to care. We hear more and more the depth of the thread of technology, science, communication, and knowledge in many realms identified as 'informatics'.

'**Informatics**' is coined as an umbrella concept connecting much of what our digital native students experience yet, do not necessarily understand the meaning and impact of in everything they do. A basic definition of informatics is using information systems, processing information, using computer science to interface, and then gaining new knowledge to apply. Yet, it is so much more when we recognize how it interfaces with so many disciplines and even in our daily lives. Informatics for health care is defined as "the integration of health-care sciences, computer science, information science, and cognitive science to assist in the management of healthcare information" (Saba & McCormick, 2015, p. 232). We can see from this definition, informatics is much more than just information systems, processing, and computer science. It is important to recognize that now informatics covers a plethora of concepts, and to meet the needs of interdisciplinary engagement and collaboration, an understanding of the basics of computer operations and computer science is necessary. All that we see, such as searching the internet, working with databases, and many other social apps are based in the latter definition of informatics. Much of this is crucial in how we learn **systems thinking** leading to gain critical thinking skills. Richmond (2018) describes what is necessary to develop critical thinking. We must see the larger problem (can be a concept) and break it down into steps to be able to understand what we need to do to address that concept or problem. Once we can do this, we can then not only act, but anticipate future issues that might arise.

This book contains three chapters to bring forward how integral

systems thinking in our digital age is as we think of the world of data, system interactions, and interactivity of professionals.

As interprofessionals we work collaboratively and use informatics as our foundation, the interconnectivity for delivery of care.

The following is an overview of the content of this book:

Chapter 1 covers the importance of **epidemiology**

Chapter 2 covers data analysis and visualization

Chapter 3 covers hardware and software of information systems and generative AI

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Chapter 1: The Importance of Epidemiology

OVERVIEW

Most of us do not know a lot about what the term **epidemiology** means or how far reaching it is. When news focuses on new illnesses, infections, or unidentified causes for outbreaks, we start to remember what we have read, experienced, or heard about from other sources. A frame of reference is the evolving mutation

of COVID we see throughout the world. Other diseases we thought were eradicated are showing up sporadically such as Polio, Measles and even Chickenpox. At one point, the World Health Organization (WHO) thought Ebola was stopped, yet it continues to resurface.

Tracking is critical to identifying infections, pandemics, epidemics, endemic illnesses, and even local transmission of illnesses to protect populations by studying and taking measures to reduce spread of diseases that then mutate to more **virulent** forms.

How do we track, collect data, communicate, manage, and make decisions to respond?

We generally do not associate **informatics**, **interprofessional education and practice** , and **systems thinking** with each other, yet all are closely intertwined in digital information. This chapter will discuss the importance of this as crucial to collaboration and effective engagement across disciplines.

Learning Objectives for This Chapter

- Recognize, access, and interact with informatics tools that are data driven.
- Conceptualize ways in which informatics tools make a difference in educating patients, community, and to prepare for community acquired diseases or infections from a systems approach.
- Explore the roles and communication methods of an interprofessional team.

ACTIVITY 1

Epidemiology

Watch the video below.

After watching the video, review the PowerPoint slides provided below the video.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://shadygrove.pressbooks.pub/informatics/?p=33#oembed-1

Epdemiology PPTX

Once you have reviewed the slides, you can fill in the blanks in the statements below.

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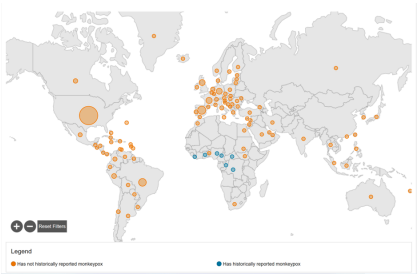
can view it online here:

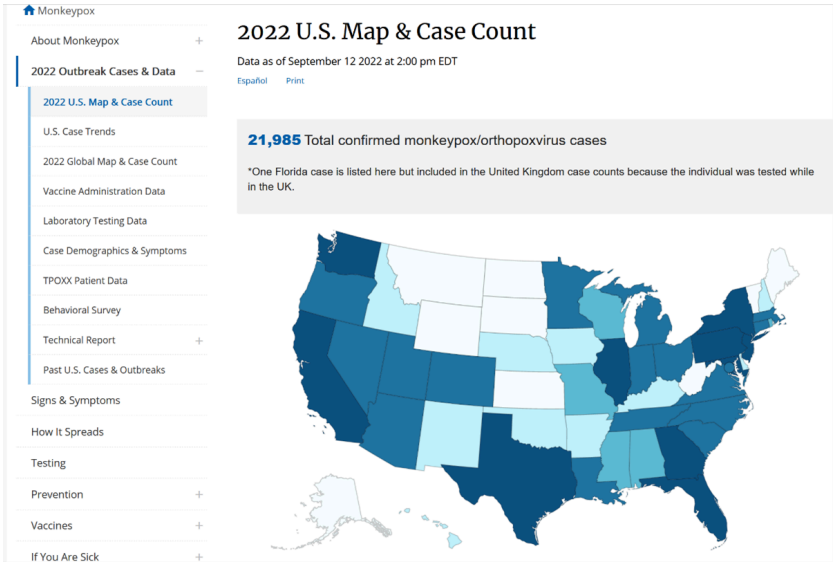
https://shadygrove.pressbooks.pub/informatics/?p=33#h5p-9

ACTIVITY 2

Mpox

Click on the images for the two Mpox (formerly known as monkeypox) maps and case counts. One is global and the other focuses on the U.S. Once you have explored the maps, work through the “Mpox Prevention & Control Tool” found below.





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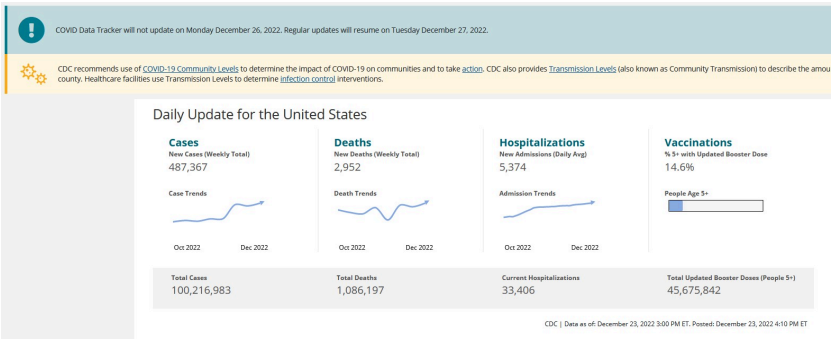
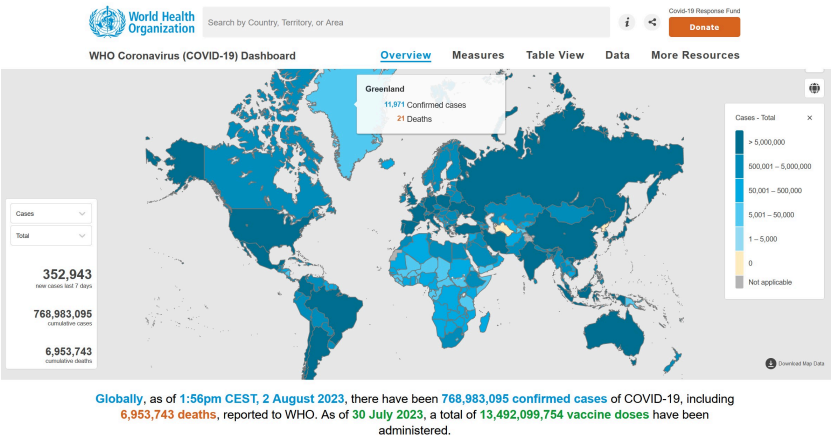
https://shadygrove.pressbooks.pub/informatics/?p=33#h5p-13

COVID-19

The following are two images with COVID-19 data. The first image provides COVID-19 data in 2022.



This image is from July 2023, reported by the World Health Organization.



Globally, as of 1:56pm CEST, 2 August 2023, there have been 768,983,095 confirmed cases of COVID-19, including 6,953,743 deaths, reported to WHO. As of 30 July 2023, a total of 13,492,099,754 vaccine doses have been administered.

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https://shadygrove.pressbooks.pub/informatics/?p=33#h5p-25

ACTIVITY 3

Interprofessional Teams

Explore the activities section of the World Health Professions Alliance (WHPA) website to see who makes up the interprofessional team and its importance.

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https://shadygrove.pressbooks.pub/informatics/?p=33#h5p-8

What are the levels of providers in our workforce?

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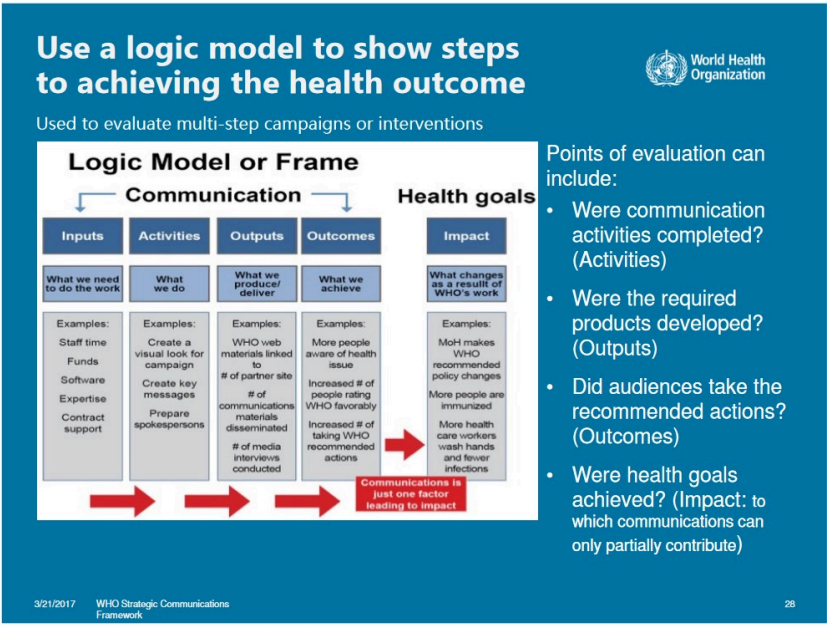
https://shadygrove.pressbooks.pub/informatics/?p=33#h5p-10

ACTIVITY 4

Communication & Interprofessional Teams

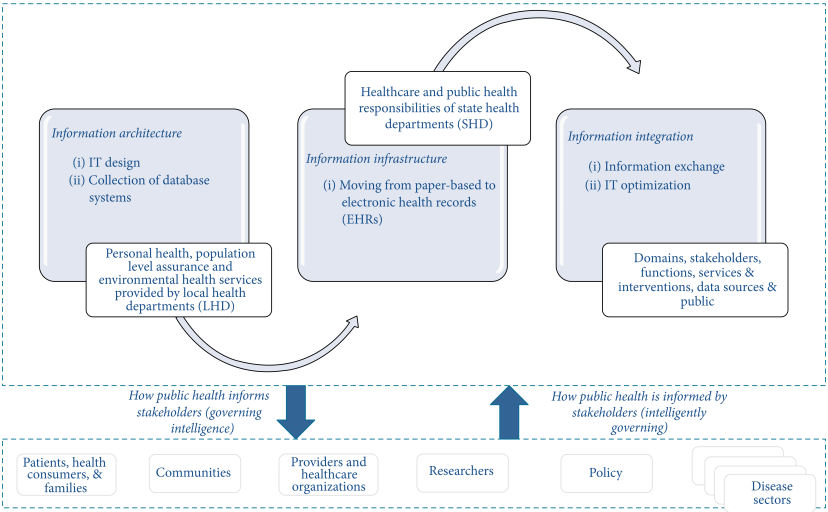
WHO employs a logic model or frame for the ways it communicates. We must also consider the technology that it uses to reach across the world in varied venues.



WHO Framework at a Glance PowerPoint Slides

How do they communicate across the world and within particular countries?

Each provider has a scope of practice and roles that in some cases overlap and for all cases complement each member of the interprofessional team. The goal is for all to work in coordination respecting and valuing each members' expertise and contribution. In the public health arena we work with foundational systems for digital information which is communicated to all providers and stakeholders. In tracking diseases and illnesses informatics concepts are critical to the accuracy of data collection and transmission, as we can see from the activities above.



CONCLUSION:

The world of **epidemiology** is embedded in every aspect of what we know as informatics, which provides the technological tools with data, science, and computing power to recognize and interact with interprofessionals throughout the world to improve healthcare (HIMSS, 2023).

Education is key to informing our patients, community, healthcare workers, and policymakers of the necessity o fund and support a systems approaches in preparing for community acquired disease.

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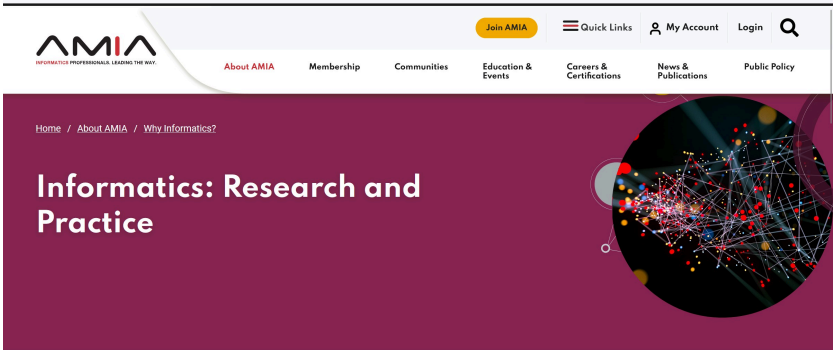
Chapter 2: Data Analysis and Visualization

INTRODUCTION

Working with and in interprofessional teams entering accurate data, communicating with digital information, and retrieving data uses skill sets of health informatics. It is important to recognize and understand what informatics is all about.



According to the American Medical Informatics Association, informatics is applying principles of computer science and information science to advance new knowledge and apply it to research and healthcare delivery. It is used in education and public health as well as for patient care. It is a multidisciplinary or interprofessional methodology, focusing on health information technology (HIT) using computers (think of entering data and retrieving it), and employing cognitive skills with knowledge of social sciences ("Informatics", 2023). As nurses and all healthcare providers, we use these skills and knowledge every day in just about every decision we make.

We deal with data in nearly every aspect of our work and daily living. In healthcare, nurses, providers, and the entire interprofessional team use data to make critical clinical decisions. If the data is incomplete or not available, decisions based on what is available could lead to poor outcomes. Understanding how data is collected, entered, stored, and retrieved requires hands on experience, recognizing what it is communicating and how to apply the results of what is retrieved. Entering, retrieving, analyzing, and visualizing data to make decisions is using informatics and technology skills for decision making in large disease outbreaks, delivering care, and even working within the parameters of a budget in a hospital unit.

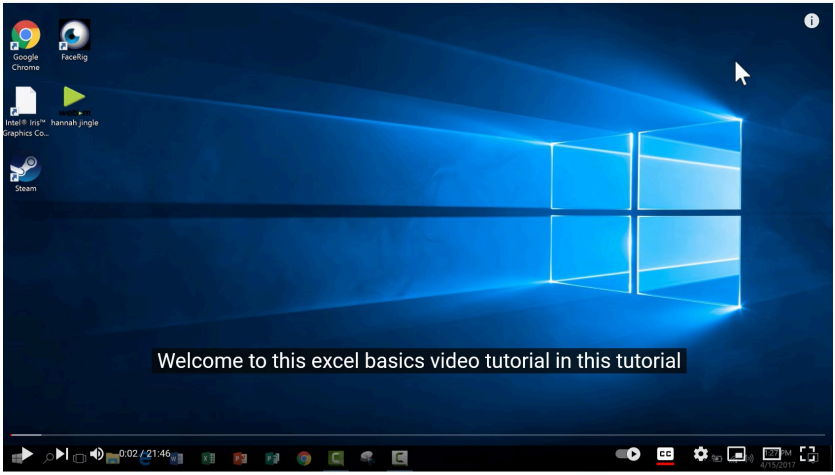
Learning Objectives for this Chapter

- Demonstrate entering and retrieving data from a spreadsheet program.
- Create tables, bar graphs, and trend lines with the data from the spreadsheet.
- Interpret results of data and how they apply to patient care.
- Compare results of the data analysis and why they are important.
- Effectively communicate results to the interprofessional team using informatics and technology skills.

Healthcare data is extremely valuable for making clinical decisions. Another process that involves data that all nurses should understand is the importance of budgeting. These practice exercises will provide experiences to recognize and work with data elements to analyze several different scenarios.

There are many tools that can be used for data management, analysis, and visualization. For our exercises we are using Excel. For the exercises data are provided to insert into your Excel file and analyze to obtain graphic representation of the data. For each exercise steps are provided on what to do to achieve the required results, followed by questions to interpret the meaning of the results and applications for each context.

To assist in working with the basics of Excel watch the short YouTube video below.



ACTIVITY 1

GPAs, SATS, and Exam Grades from First Semester Pathopharmacology Nursing Course

Using data from SATs, and science GPAs from prerequisite courses for admission to professional programs is important to the nursing profession. This data is quantitative information about preparation for successful completion of a nursing degree. Generic student data provided includes SATs, GPAs, and first semester pathopharmacology final grades.

After watching the video above and opening a blank Excel sheet/file, use the data provided to create your own Excel file with three column headings, 1) nursing final test scores, 2) SAT scores, and 3) Science GPAs.

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https://shadygrove.pressbooks.pub/informatics/?p=45#h5p-11

Step 1: Build the table column by column with the respective variables for each column with a clean Excel sheet (see the tables above).

Step 2: In each row insert the data elements specific to the corresponding column.

Step 3: Review the provided instructions (see below) on how to create a table, bar chart, scatter plot and trend line for two to three variables that will answer the questions posed for this exercise.

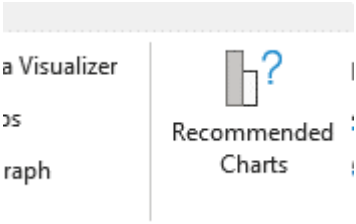
Step 4: Study the resulting data to answer the questions and provide insights as to what you interpret and what interventions might reduce untoward reportable incidences.

Type in the scores in each column for the three variables into the Excel spreadsheet. Two of the variables are listed as a visual representation to follow.

STUDENTE	SCIENCEGP
89	3
92	3.8
86	2.8
92	3
90	3.7
93	3.7
98	4
95	3.8
88	3.7
95	4

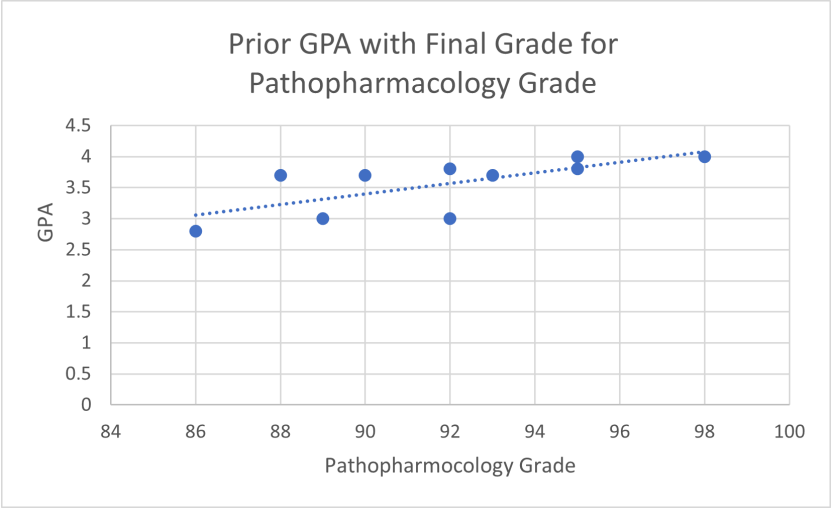
Select with the mouse the above two columns and highlight them to start creating a chart. Click on 'insert' in the menu next to 'home'. You will see the icon below. Several options will be provided as examples for you to click on.

Use the option below



Click on the icon for recommended charts. Review the options and practice analyzing the data provided with different visual results using the data on the spreadsheet.

One example is to analyze and create a line chart (see image below). See if you can recreate the image below that compares GPA with pathopharmacology grades.



We can see from the example above that GPAs are highly correlated with the final scores for a first semester pathopharmacology grade.

Analyze the data with the other variables in different combinations and consider what the results are communicating.

Study the resulting data to answer the questions and provide insights as to what you interpret and what interventions might reduce untoward reportable incidences.

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can view it online here:

https://shadygrove.pressbooks.pub/informatics/?p=45#h5p-14

Next consider how you would answer the following questions:

- What does this tell you when seeing the results in the table?
- What do you conclude about the relationships?
- How can it make a difference in knowledge, skill, and application for critical thinking as a nurse?

ACTIVITY 2

Budgets

Budgets are necessary for any organization whether for profit or non-profit. In this exercise use the data provided to input into an Excel spreadsheet.

For the columns create titles for six months:

- Column 1: Staff or commodity
- Column 2: January
- Column 3: February
- Column 4: March

- Column 5: April
- Column 6: May
- Column 7: June

Then enter the data below into each row under the corresponding column.

4 RNs at $80,000 per RN per year = 320,000

5 LPNS at $50,000 per LPN per year = 250000

10 CNAs at $40,000 per CNA per year 400,000

2 Environmental services $30,000 per year = 60,000

Electricity per year $12,000 per year

Computers maintenance, repair, replace $10,000 per year

Use the table below as a guide to enter the information in an Excel spreadsheet.

Staff or Commodity	January	Feb	March	April	May	June
4RNS	$26,666.00	$26,666.00	$26,666.00	$26,666.00	$26,666.00	$26,666.00
3LPNS	$20,833.00	$20,833.00	$20,833.00	$20,833.00	$20,833.00	$20,833.00
10 CNAs	$33,333.00	$33,333.00	$33,333.00	$33,333.00	$33,333.00	$33,333.00
EnviroServe	$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00
Computers	$833.00	$833.00	$833.00	$833.00	$833.00	$833.00
Electrical	$1,000.00	$1,000.00	$1,000.00	$1,000.00	$1,000.00	$1,000.00

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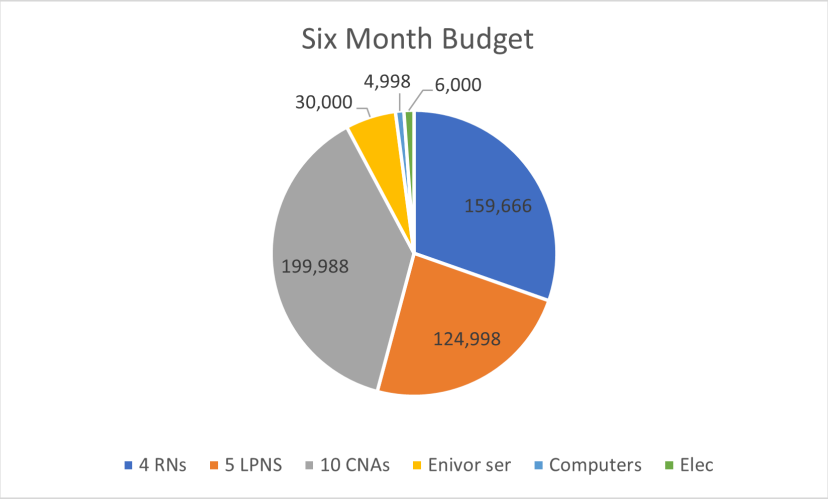
https://shadygrove.pressbooks.pub/informatics/?p=45#h5p-12

Next:

1. Type in the word Total in the column of Staff or Commodity
2. Add each column for total budget for each month
3. To calculate the total budget of the six months add the total row for each month which should be $525,990.00
4. Calculate what the monthly salary or charge is for each line item above for a six-month period. You can do this in Excel by clicking on a cell, typing =320000/12 click enter. Use the result to then enter for the six variables above for six months. The resulting table should look like the table below (after step 5).
5. Create a pie chart with the data in the table below after entering it in Excel. Follow the steps to find the recommended charts and choose pie chart to create a visual representation of the table below. Your pie chart should look similar to what is pictured below.

Six Month Budget	
4 RNs	159,666
5 LPNS	124,998
10 CNAs	199,988
Enivor ser	30,000
Computers	4,998
Elec	6,000



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can view it online here:

https://shadygrove.pressbooks.pub/informatics/?p=45#h5p-15

If any computers need to be replaced with new ones, how could you manage this, while staying within budget? When we search for information to discover how budgets are impacted, the cost to keep technology current and on the cutting edge is critical. The impact from COVID 19 led to innovative changes and interventions. Other areas of concern that technology faces in delivering care as well as across many areas is cybersecurity. To stay on top of security it requires investing in technology, maintaining and staying current and up to date to protect sensitive data. This comes with a cost. When we search on the web we see a great deal of information regarding the necessity to upgrade systems, replace legacy systems due to the many technological advances requiring faster computing time, and more hardware and memory to interface and be interoperable with other systems without compromising the privacy of patient data.

ACTIVITY 3

PATIENT FALLS

Watch this short video: “Fallsafe – Put the patient first. Preventing falls in Hospital.”

As a nurse you would be presenting this data to your supervisor as evidence to move forward to implement evidence based measures to reduce incidences of falls. What did you glean from the video to answer the question below?

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https://shadygrove.pressbooks.pub/informatics/?p=45#h5p-16

After viewing the video on hospital falls, open up an Excel file to enter 'Patient Falls' for the three units listed below.

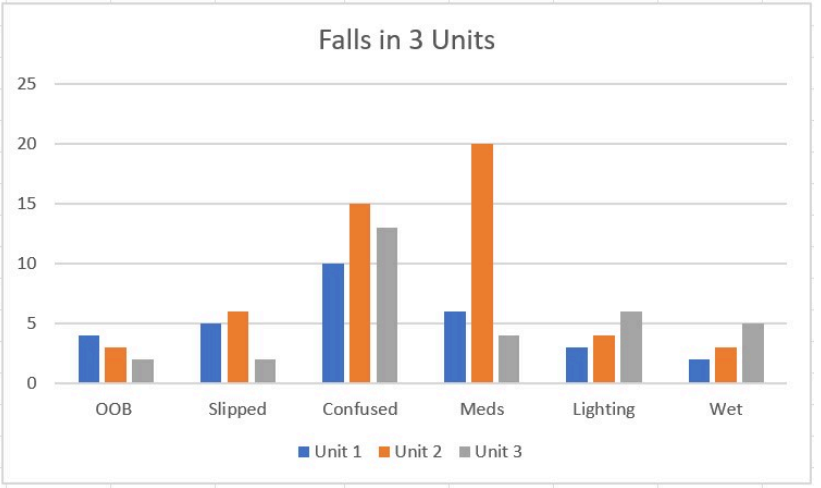
This exercise highlights issues for patients falls whether in a healthcare facility or at home.

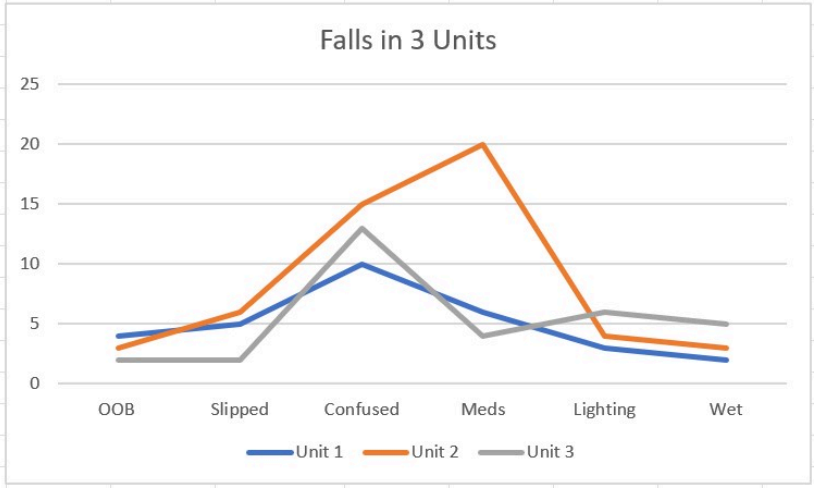
Work at extracting and examining healthcare data elements from a spreadsheet.

Exercise for Patient Falls

Pt Fall Type	Unit 1	Unit 2	Unit 3
OOB	4	3	2
Slipped	5	6	2
Confused	10	15	13
Meds	6	20	4
Lighting	3	4	6
Wet	2	3	5

Use the data in your Excel sheet as you did earlier to design charts. Work with the options for charts to recreate the bar and line graphs shown below.





Based on the graphics above:

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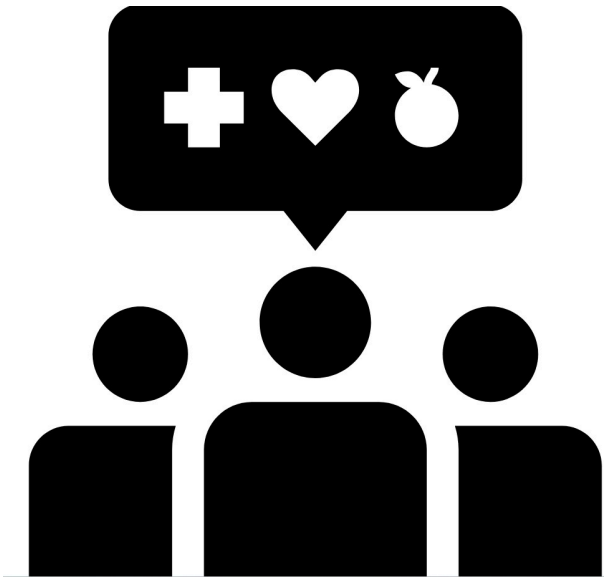
https://shadygrove.pressbooks.pub/informatics/?p=45#h5p-17

ACTIVITY 4

Patient Data Snapshot



Several disciplines enter different types of patient data based on their involvement in delivering patient care. We also see where more than one discipline can enter specific data. Generally what we find is:

- Respiratory Therapists enter O2 data from vents and vent settings.
- Nurses and CNAs enter vital signs and nursing specific interventions.
- Physicians enter orders and interventions, as well as results of interventions and more.
- Dieticians enter recommendations for diet interventions based on lab work and patient conditions.
- Social Workers enter information from their assessment of disparities for patients and families, needs for services after discharge, and work to help locate coverage for needed care and in many cases financial help. An example of financial help could be helping family and patients apply for Medicaid coverage.

Next:

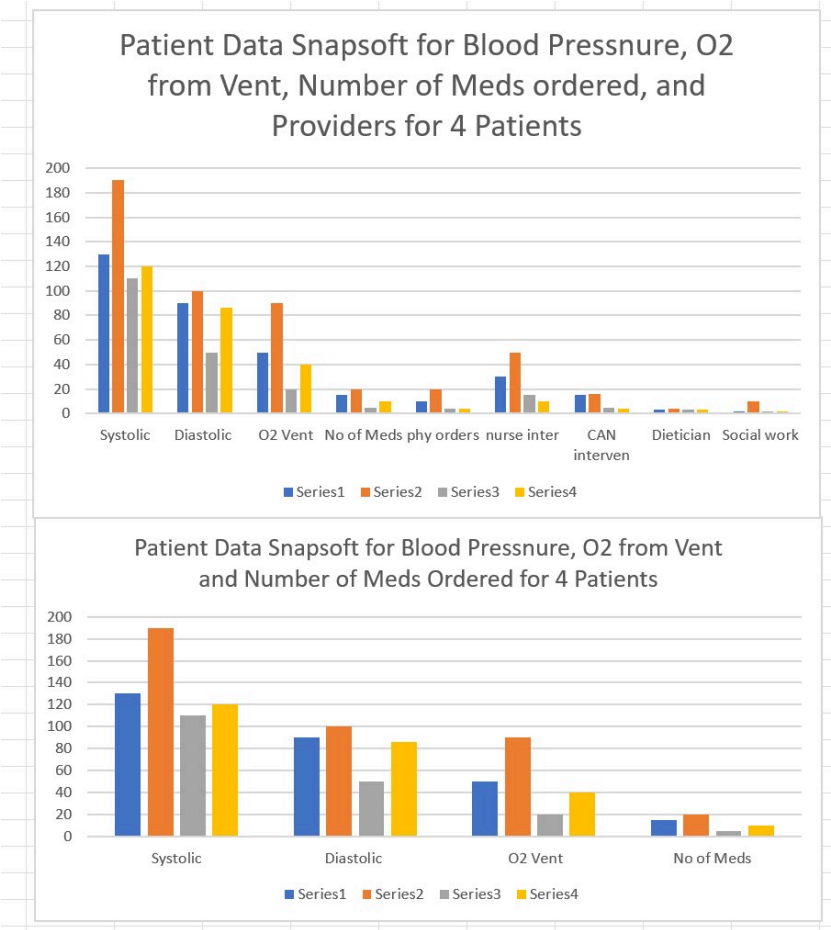
Open your Excel spreadsheet to a new sheet and enter the data as you see in the table below into the spreadsheet.

The variables to enter as columns in the Excel spreadsheet are:

Systolic, diastolic, O2 Vent, Number of Medications, Physician orders, Nurse interactions, CNA interactions, Dietician interactions, and Social Worker interactions.

PATIENT DATA SNAPSHOT				
Exercise for Patient Data				
Patients	Systolic	Diastolic	O2 Vent/ input by Respiratory Therapy	No of Meds
1	130	90	50	15
2	190	100	90	20
3	110	50	20	5
4	120	86	40	10

Review the prior steps as to how to find the options to create charts using the data above to generate two different bar charts, examples of which are shown below. One should provide a patient data snapshot for blood pressure, O2 from vent, number of meds ordered and providers for the 4 patients. The other should just have the patient data snapshot that includes blood pressure, O2 from vent, and number of meds ordered.



Look at that data and determine which disciplines were involved in inputting the data. Think about how the interprofessional team collaborates and communicates using technology and information to later make clinical decisions.

This highlights the many disciplines involved in patient care and inputting data into a computerized database such as, physicians, social workers, respiratory therapists, physical therapists, nurses, CNAs, and even other technicians.

Answer the following questions:

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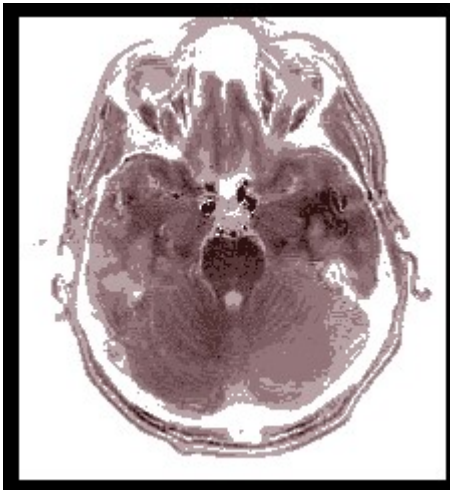
https://shadygrove.pressbooks.pub/informatics/?p=45#h5p-18

After reviewing the bar chart showing the four patients with data entered for each variable having access to that data from all of the disciplines is critical in communication and collaboration within and between the members of the interprofessional team for critical clinical decision making.

Interoperability

With electronic medical records (EMRs) and interoperability of systems providers can open up results of CT Scans of brains within the EMR at a given workstation or computer. Click on the image below or this link to watch a 3d graphic of a CT Scan of a brain.



After viewing the 3d image above look at the image below:

Review both images and then answer the questions below.

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https://shadygrove.pressbooks.pub/informatics/?p=45#h5p-19

CONCLUSION

In this short chapter data generation, input, retrieval, and review are presented and discussed. There is a great deal that each exercise provides in recognizing the value of using data for budgets and to make clinical decisions. Being able to manage, analyze, and interpret data is critical for all healthcare, particularly within interprofessional teams.

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Chapter 3: Hardware, Software, and Generative AI

INTRODUCTION

Informatics uses technology, information systems, and researching skills to glean new knowledge for decision making. It is important to have knowledge of the makeup of computer systems, software, peripheral devices, both input and output devices, computer components, hard drives, motherboards, CPUs, RAM, what utility software is, how it applies for use and how it is applicable to

outcomes. We must also have a basic understanding of how information is stored, inputted, retrieved, and secured.

With the advent and increasing availability and use of artificial intelligence (**AI**), in particular, generative AI (**ChatGPT**), we are seeing the use of technology in this realm exploding more than was thought possible, thus greatly impacting the delivery of healthcare.

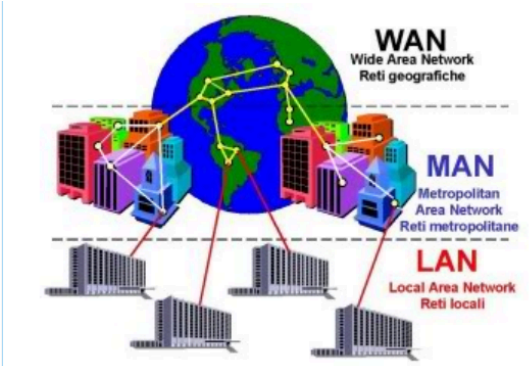
Learning Objectives for This Chapter

- Introduce in detail communication and collaboration of different information systems and associated personnel.
- Define and apply interoperability through a virtual, hands-on exercise.
- Review and practice with critical information systems via interoperability that are foundational to exploring the concept of interoperability on a theoretical level (i.e., how and why systems do or do not work).

COMPUTERS AND COMMUNICATION

A personal computer is one that we think about to use at home or even one in an office or other setting that is connected to many other computers, servers, and even systems within an organization, to other organizations using the Internet and even Cloud servers. It is important to know about how systems can integrate and communicate. We do not see how they work in the clinical setting, we just depend on them to work correctly.

Many of the components you see in the picture are present in the clinical setting and in most organizational settings, even with your own PC or laptop you use. Creating, inputting, and retrieving information and data are ways we use computer systems. In a clinical settings there are systems that are interoperable and interactive–communicating within and between systems. We think of WIFI as how our smart phones work seamlessly from one location to another. In many settings WIFI is the connector for communicating over distance as well as interfacing with systems within a hospital and between healthcare systems. We use the Internet of Things (IoT) everyday with external servers and cloud servers connected through systems via networks. Several are within settings and others connect over distance.



We see Local Area Networks (LAN) in a single building connecting devices users access to do their work. This is also the case in our own home such as having a private network. WIFI provides access for wireless information and with technology where networks use radio waves for high-speed internet access. There are standards that govern how transmissions work and are regulated.

Other types of networks Include MAN or metropolitan area networks with physical connections over or between several existing structures. A communication system in a university with multiple buildings is an example.

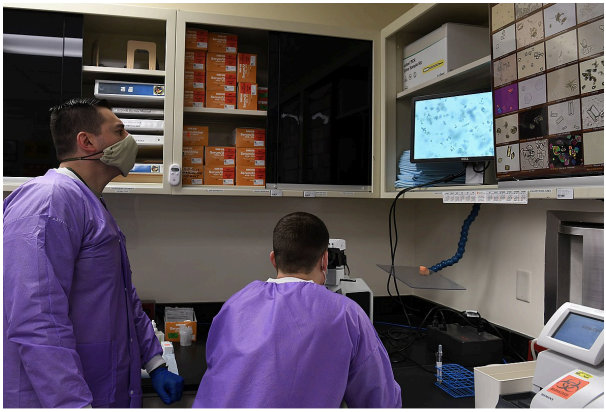
The largest and most far reaching is the Wide Area Network (WAN) or what we know as the internet. We also have increasing use of satellites for communication systems including over the internet.

When we think of the internet we see ourselves doing searches on topics, accessing databases for articles, blogs, government organizations, and more. There are several versions such as Web 1.0, 2.0, 3.0, 4.0 and coming is 5.0.

The sophistication of Web 5.0 is in development, and it includes versions 2 and 3. It ultimately is expected to provide users the ability to connect with web sources fully protecting their identity. Two words are used to envision how it will work, telepathic web and symbionet web. It essentially is designed to provide users with control of their own data and protect their identity.

Let's start with Web 1.0 which provides read only access. This allows us to search and read however, we cannot change any of what we see in the content. We see this when we log into a store and use what is setup as a shopping cart. We can add or delete in the shopping cart but what we click to add, that content cannot change.Web 2.0 is more interactive. We can create, add, and change content with tools such as writing a blog, adding content to a wiki, and even doing presentations with YouTube.

Interprofessionals in healthcare work hand in hand in many different venues across rooms, units, facilities, cities, regions, distances, space and even time. Many disciplines work together across distance synchronously or asynchronously. We can see this in remote connections between critical access hospitals reaching out to diverse specialties in real time such as when there is no internet available in a rural hospital and with the technology connecting to help manage and make clinical decisions.



As was described above it is important to have a foundational understanding of how we use technology, including a basic knowledge of computer components that work with the IoT.

ACTIVITY 1

Computer Components

In the image below go to the website by clicking on the image or the link and find all 16 computer parts listed matching each number.

Each of the 16 computer parts (or most) are critical in the operation of the computer terminal in the hospital and personal computers (PCs) including laptops, smart phones, tablets, and other devices for personal use as well as those used in providing healthcare. The smaller and more sophisticated the device we see microprocessors.

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File:Personal computer, exploded 6.svg – Wikimedia Commons

Once you have reviewed each item listed, click on each one in the picture then fill in the blanks below to see how many you get correct.

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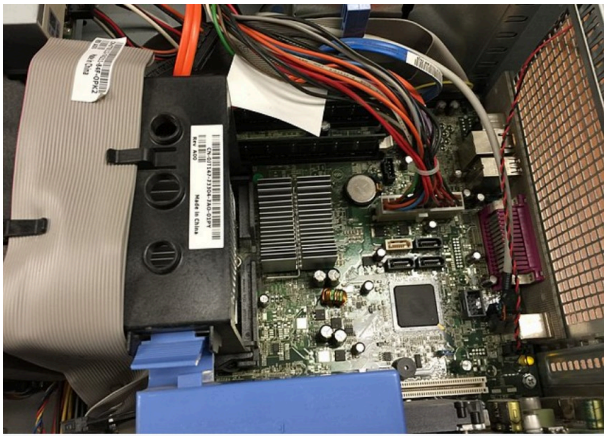

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ACTIVITY 2

Artificial Intelligence

In the beginning of this book both AI and ChatGPT were mentioned. We would be remiss without inclusion here as much of what we see with the growth, development, and rapid innovative disruption in technology drives more now and going forward. Watch this short video:

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What do you think about this video and where technology is leading us?

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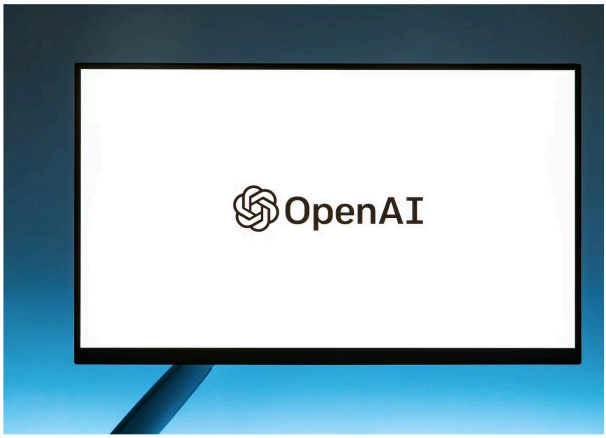


Artificial Intelligence (AI) has been around for many years, but more recently moved into the headlines. Machines thinking like humans is the fundamental point of AI, and often it is built on **machine learning**. Think about how AI computer systems can analyze millions of data to find patterns, themes, connections, and relationships. The computer then uses that data to make decisions, drive healthcare research, as well as diagnosing disease or stages of disease, which would be difficult to do otherwise. Two types of machine learning are basic supervised learning, where algorithms guide for correct predictive output, and unsupervised learning with

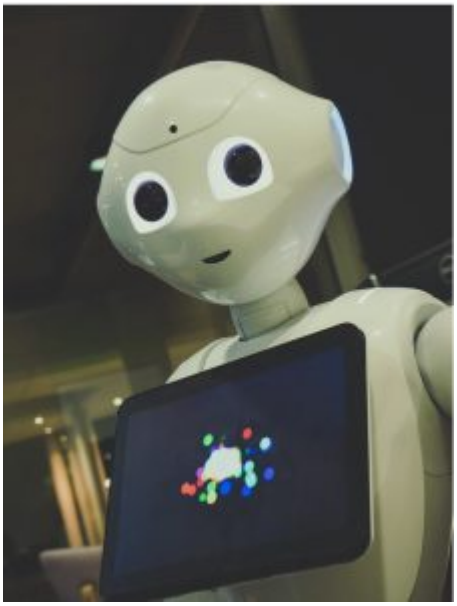
input of very complex data and the machine analyzes it for relationships, and then makes recommendations based on those relationships. Even more sophisticated is deep learning, performing much more complex tasks with much more data (Pattam, A., 2021). We now are hearing more and more about generative AI.

In healthcare there are differences of opinion about the validity of AI. According to Hudson (2023) the concern by some practitioners is perceptions of the validity of AI leads to misinformation about public health and could misrepresent physicians. Others consider it differently with the strength it brings in research or using generative AI to analyze large amounts of data to help users come up with questions to research or to quickly compare a patients' pathology to a database of images and be able to make a diagnosis. We can see innovation, disruption (new ways of what we are doing), and remarkable leaps forward with technology.

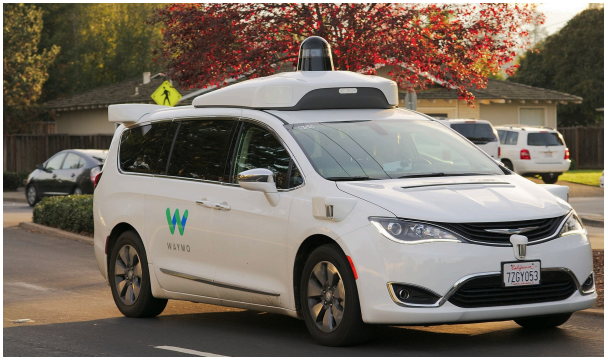
We are also hearing and seeing results of ChatGPT (versions increasing) and how it is impacting even everyday life. In late 2022, ChatGPT was introduced by Open AI as an intelligence-enabled chat feature. It is directly connected to generative AI. ChatGPT can converse with anyone and write summaries of topics requested. (Perna, 2023).

According to Cross (2023) there are pros and cons about the viability, safety, reliability, validity , risks and benefits of using ChatGPT. When writing, ChatGPT has volumes of information it can search in seconds and write a paper on a topic of request. A downside is the information it compiles and writes could be plagiarized or not valid information.

Therefore, in education it has pros and cons as well. There are many risks involved in doing so such as cyber crime, copyright, inaccuracies, privacy concerns, and what is generated can be biased, to list a few. If you are using it to collect information and review it closely to correct what might be inaccurate, then it can be quite helpful. Cross (2023) also includes the need to be cautious and there may be legal issues with lawsuits increasing. Yet, there are ways to use this disruptive technology to increase critical thinking skills.



Robots represent another common technology used in many different ways such as in healthcare settings, dangerous environments to prevent injury to people, rehab, social support, incorporating sophisticated AI to power autonomous driving vehicles,



monitoring patients, delivery duties, and much more.

Telepresence using robots is effective in direct communication with patients. It can be used when patients are in isolation to assist in preventing the spread of infection such as experienced with COVID cases. It provides a more human experience connecting remotely to receive stimuli and behave as if actually present in a meeting.

ACTIVITY 3

AI and ChatGPT

New innovate and disruptive technologies are emerging, such as AI and Chat GPT. As we see ChatGPT presently has two versions, GPT 3.5 and GPT 4. There are many tasks ChatGPT can do for and with us. They include creating checklists on a topic, writing music, generating new ideas, writing essays, and translating documents

into different languages. Generative AI and ChatGPT provides many opportunities to create, develop and grow, including developing critical thinking to improve skills and quality, safe, innovative, and effective decision making.

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CONCLUSION

Technology is developing new and exciting achievements at a rapid pace. Just a few short years ago some of what we see today was considered fiction. Generative AI is providing rapid breakthroughs in every aspect of even our daily lives. AI can search data banks and

databases to assist in healthcare research helping to discover new treatments. ChatGPT (version 3.5 [free] and version 4) is impacting all facets, as well. Both however, continue to benefit from human oversight to maintain and increase quality, safety, and improving diversity, ethics, integrity and social justice.

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Glossary

AI

Artificial intelligence (AI) is the intelligence of machines or software, as opposed to the intelligence of human beings or animals.

ChatGPT

ChatGPT (Chat Generative Pre-Trained Transformer) is a large language model-based chatbot developed by OpenAI and launched on November 30, 2022, notable for enabling users to refine and steer a conversation towards a desired length, format, style, level of detail, and language used.

epidemiology

The branch of medicine which deals with the incidence, distribution, and possible control of diseases and other factors relating to health.

informatics

At its core, informatics is the science of information and all its aspects – how it's stored, processed, communicated, and used. It is mainly thought of today as computerized information, but can also apply to information stored, communicated and used on paper, audio tape, or even in someone's brain.

Though a current informatics definition is now usually linked

with a scientific discipline such as medical informatics or healthcare informatics, the term also can apply to more diverse areas such as library informatics, financial, or even sports.

With the increase of electronic health records, the healthcare field has become one of the dominant users of informatics. As today's seemingly infinite amount of data continues growing, informatics is used to help process, analyze, and communicate large chunks of data while seeking clues to support and sustain public health and enhance the quality of care in the field of biomedical informatics.

interprofessional education and practice

Interprofessional learning involves students learning **from** and **with** students from other professions and learning about other professions. Interprofessional learning and teaching can take place at an academic institution but also regularly occurs in workplace environments, where students gain applicable and practical experience.

machine learning

"Machine learning is a branch of artificial intelligence (AI) and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy" (IBM, n.d.)

systems thinking

Systems thinking is a way of making sense of the complexity of the world by looking at it in terms of wholes and relationships rather than by splitting it down into its parts.

telepresence

This can provide experiences with technology necessary for human sensory elements such as vision, sound, and manipulation as well.

virulent
: severe and destructive course of a disease