

Digital Health

Spring 2025

UNIVERSIDAD POLITÉCNICA DE MADRID



Digital Health Overview

Agenda

Welcome

Introductions: Name, where are you from, what are you studying?

Icebreaker: What does it mean to be healthy?

5 Digital Health Cases

Definitions of Digital Health, Components, Goals

Digital Health Ecosystem Worldwide

The Future

Syllabus review: outcomes and course expectations

➤ Readings, Assignments, Guests

Ticket out the door

Next week – comparing health systems around the globe (2 readings and review report)

Digital Health Case Study



- **Woebot** (Woebot video 13 minutes) <https://www.youtube.com/watch?v=j8BilZIZBsU>
- (Complete DigHealthWoebotDQ) www.woebothealth.com)
- An evidence-based, AI-powered digital companion that delivers personalized, in-the-moment support through chat-based conversations and techniques informed by clinicians.
- From their promo, Woebot is the world's first relational agent to create a bond with people that is comparable to that achieved by human therapists. It digitizes concepts based on cognitive behavioral therapy.

Kardia Mobile



- AliveCor® KardiaMobile EKG Monitor
| FDA-Cleared | Wireless Personal
EKG | Works with Smartphone |
Detects AFib Bradycardia and
Tachycardia in 30 Seconds *4.0 out of 5
stars*
- \$79, FREE Shipping by **Amazon**

Digital Health Case Study

- Kardia Mobile (promo video and how it works video)
- https://www.youtube.com/watch?v=1GHR-tWU_S4 (7 min)
- <https://www.youtube.com/watch?v=8I9xosgA-Ig> (2min)
- (Complete DigHealthKardiaMobileDQsREV)
- Product of AliveCor, a company that develops ECG (electrocardiogram) hardware and software compatible with consumer mobile devices to monitor heart rhythms and detect abnormal rhythms

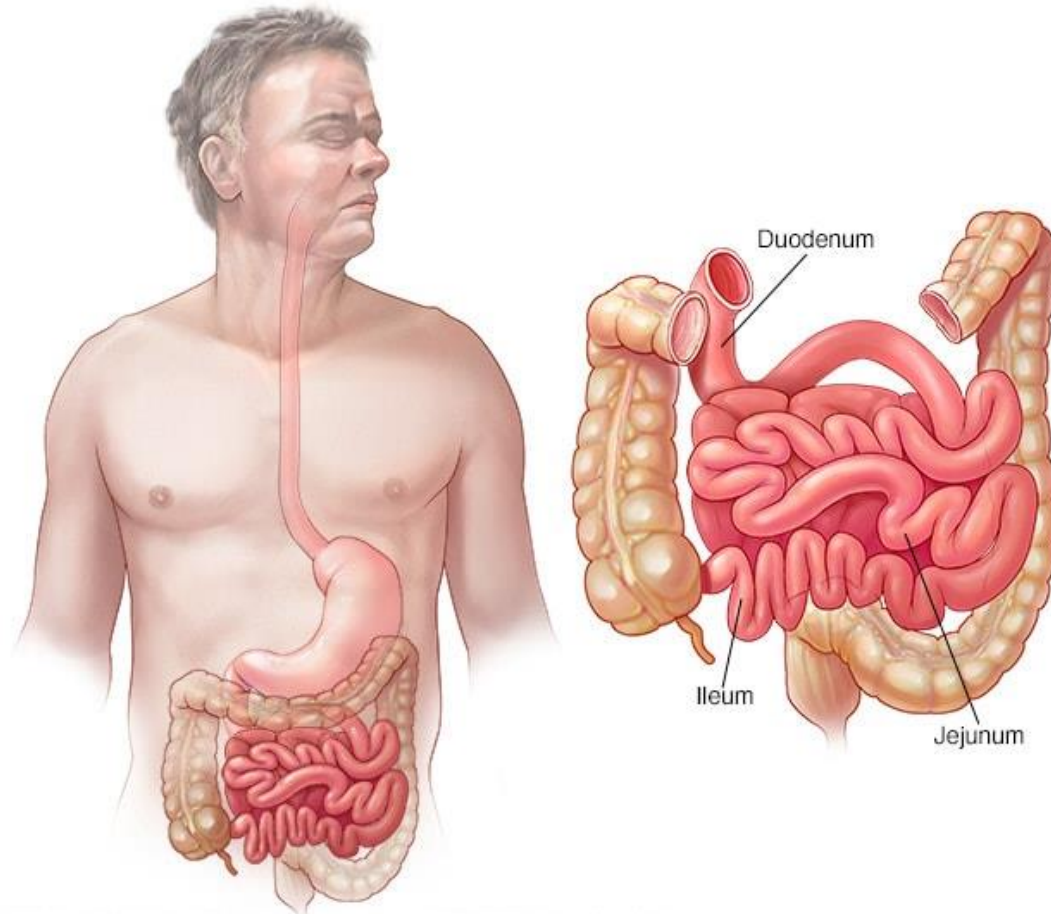


Digital Health Case Study

- GoCheckkids – Pediatric eye screening tool
 - [Watch video \(2.5 min\) www.gocheckkids.com](http://www.gocheckkids.com)
 - [GoCheck Kids - Advancing Early Detection for Better Outcomes](#)
 - (Complete the DigHealthGoCheckKidsDQ)
-
- Screening preschool-aged kids to rule out risk factors that can result in eye disorders to help prevent vision impairment and blindness.
 - Uses an iphone with connectivity to medical records



Digital Health Case Study



© MAYO FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH. ALL RIGHTS RESERVED.



Digital Health Case Study: Capsule Endoscopy

- Watch the physician describe the procedure (3 min)
- [Bing Videos](#)
- https://www.google.com/search?sca_esv=2f61a0c390a4d1ff&sca_upv=1&rlz=1C1JZAP_enUS848US849&sxsrf=ACQVn08lse_q-0ssLFicVSGDigrmY0ISRA:1714529951911&q=digital+pill+colonoscopy&tbm=vid&source=lnms&prmd=isvnbmtz&sa=X&ved=2ahUKEwis6vXlseuFAxVZODQIHZt1ACIQ0pQJegQIDRAB&biw=1280&bih=585&dpr=3#fpstate=ive&vld=cid:35d780c5,vid:zD_lhi1eaQI,st:0
- (Complete the DigHealthCapsuleDQ)

Digital Health Case Study: Smartphone sign



- A physician will decide if a patient is healthy enough to be discharged from the hospital; if he or she is using their mobile phone, they are healthy enough to go home.
- A small study in Australia showed that patients on their smartphone were five (5) times more likely to be sent home than patients not on their phone.
 - Clinical decision-making: Observing the smartphone user: An Observational Study in Predicting Acute Surgical Patients' Suitability for Discharge
 - J. Hosp. Med. 2018 January 13(1):21-25. Published online first August 23, 2017
 - <http://www.journalofhospitalmedicine.com/jhospmed/article/145025/hospital-medicine/clinical-decision-making-observing-smartphone-useran>

Digital Health Definition

- The use of information and communications technology to transform medicine and manage illness and injury, reduce health risks, and promote wellness.



Foggy definition...



- **Broad multidisciplinary concept that includes the intersection between technology and healthcare.**
- Ambiguity in the definition of digital health is a hurdle for research, policy, and practice in this field, and makes collaboration more difficult.

Components of Digital Health

- Telemedicine
- Electronic Medical Records
- Patient Monitoring
- Handheld Devices
- Virtual reality
- Social media
- Wearables
- Medical devices
- AI Tools
- Data Analytics
- Gamification
- Healthcare Enterprise Systems
- Drug discovery
- Biomedical informatics
- Fitness apps
- Personalized medicine

Goals of Digital Health

- Improving patient **outcomes**
 - 14 Randomized control trials with 4264 heart failure patients found remote monitoring decreased hospital readmission by 21% and mortality by 20% (Clark, Br Med J 2007; 334)
- Increasing the **access and quality** of health care delivery
- Provide more **personalized** health care for **patients**
- Improving the health **professional experience**
 - MyGI Health digital health platform compiles gastrointestinal symptoms before a visit with a physician reducing visit time (<https://mygi.health>)
- Reducing **costs** of health care delivery
- Enhancing the **wellness** of individuals
 - Headspace is a user-friendly app that features a variety of different guided meditations and mindfulness exercises, available on the Apple store; over 70 million users in 190 countries
- Improving the well being of the **population**
 - Think Covid (more later)

Digital Health is Worldwide and BIG!

ESTONIAN HEALTH TECH WEEK 21-25 AUGUST 2023

ESTONIAN
HEALTH
TECH
WEEK 2023

PARTNERS:



Gene Forum

TARTU



For over 15 years, more than 99% of the data generated by hospitals in Estonia has been digital. Citizens can access their own medical records through a secure online portal.

Israeli Digital Healthcare Landscape

UPDATED SEP 2018

Created by

vertex
VENTURES

NEXT-GEN IMAGING

aidoc DIA IBEX IM@dis
maxQ nucleai ORCA
iz.ai zebra

DATA PLATFORM

dbMotion DocBoxMD
emerge G MED iMDsoft
MIDclone PROOF.WORK

GENOMICS

ClearGenetics emedgene
FDNA Genoox igentify
KOLGENE NovellusDx
NUCLEIX variantyx

CYBER SECURITY

MDX Cynerio
DoMed MEDIGATE

REIMBURSEMENT

MAVERICK
nym Simplee
TAILORMED

PATIENT ENGAGEMENT

carebox helparound
MEDORION
RMDY Well-Beat

PATIENT SELF-CARE

6 over 6
SALIGNOSTICS
theranica

PREDICTIVE ANALYTICS

CLAW CytoReason
HEALTHY MIZE K Health
OpissoftCare iMedial EarlySign
PerSimo PROFILITY

PREVENTIVE CARE

DAY TWO swatch

EMERGENCY CARE

CVAid ENDOVITECH

DIGITAL THERAPY

Intendu Myndliff
AmplioSpeech NOVOTALK
talkspace VRHealth wisdo

PGHD

Platform	Sensor
Datos	biopbeat ContinUse Biometrics
dreamed	EarlySense sensifree
LIFEGRAPH	spry

REAL WORLD EVIDENCE

Data2Life
Stuff That Works

BRAIN TECH

brainmarc
BrainQ
elminda

WELLNESS

CoachAI
LifeBEAM
lumen
Physimax

ELDERLY CARE

assuredallies ECHO CARE
intuition robotics kytera
MyndYou UNIPER

DRUG ADHERENCE

MedAware
Medisafe
Telesofia

TELEHEALTH

American Well
Healthy.io
tytocare

DIAGNOSTICS

Diagnostics Robotics
One Cell medical

European Health Data Space (April 2024)

https://health.ec.europa.eu/ehealth-digital-health-and-care_en



Euros 5.5 billion in savings over 10 years from better access and exchange of health data in healthcare
20-30% growth anticipated in the digital health market.

WHO Global Strategy 2020-2025



**World Health
Organization**

Four Goals:

Acknowledge that institutionalization of digital health in the national health system requires a decision and **commitment** by countries.

Recognize that successful digital health initiatives require an **integrated** strategy.

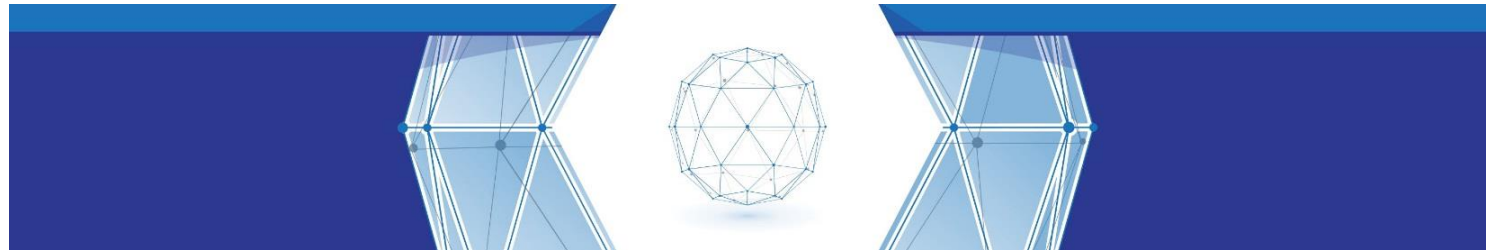
Promote the **appropriate** use of digital technologies for health.

Recognize the urgent need to address the major **impediments** faced by least-developed countries implementing digital health technologies.

<https://www.who.int/docs/default-source/documents/gs4dhdaa2a9f352b0445bafbc79ca799dce4d.pdf>

Digital Health involves many countries!

- Global Digital Health Partnership
 - Australia and India – leaders in this Digital Health Agency and **25 countries**
 - Vision: Support governments and health system reformers to improve the health and well-being of their citizens through the best use of evidence-based digital technologies.
 - <https://www.gdhp.org/our-vision>



Digital Health is Worldwide!

- What is happening in the field of digital health in your country?



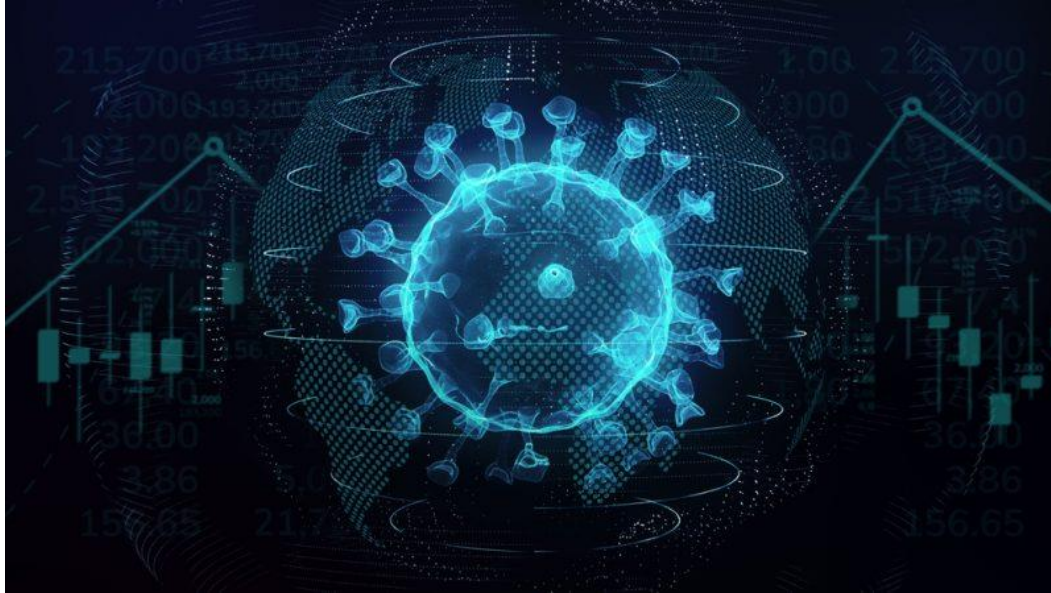
<https://www.infoway-inforoute.ca/en/>

Digital Health Came Alive with Covid-19.

- Digital Health Uses:
 - Contact tracing (30/53 European WHO countries)
 - Telemedicine - 2% to 7% of doctors offered video-consultations (prior to the pandemic), but 60% did during Covid (Federal Ministry of Health, Germany)
 - ICU Registry
 - Online health information
 - Remote patient monitoring
- <https://www.healthcareitnews.com/news/emea/covid-19-has-pushed-digital-health-forward-challenges-still-persist>



German COVID-19 Hackathon delivers more than 800 projects



Called #WirVsVirus (#WeVsVirus), centered on finding solutions to social challenges related to the Covid-19 crisis. Over 42,000 people registered.

<https://purl.stanford.edu/db516dt1286>

Digital Health involves so many people!



Patients, physicians, nurses, dentists, therapists, other care givers, administrators, policy makers, regulators, ethicists, technologists, inventors, pharmaceutical and device industry professionals, communicators, business executives, government and association colleagues



Let's imagine
the future!

Digital health is the future!

- Think about your digital health care invention that could become a reality in the future?
- <https://www.youtube.com/watch?v=zC6x4AAUc08> (2 minutes)
- <https://www.youtube.com/watch?v=W0li-PI6yWo> (3 minutes)

Digital health is the future!

- EIT Health Flagship competition
- [EIT Health Flagship Call 2025 - EIT Health](#)
- What is happening in Portugal and Germany?
Medica 2025 in Dusseldorf
 - [Bing Videos](#)

RockHealth, Venture Fund dedicated to digital health

(www.rockhealth.com)

- A seed fund that supports startups working in digital health, and offers funding and access to medical, venture, legal and corporate partners
- 18 categories of Digital Health ranging from health infrastructure to remote monitoring to patient apps to public health innovation
- Sign up for their weekly newsletter
- Advice: <https://rockhealth.com/insights/growing-with-creativity-and-authenticity-lessons-from-digital-health-ceo-summit-2024/>
- Which one of their investments in their portfolio has a good chance of success?



Summary Things to Know

- Definition of digital health
- Components and goals of digital health
- Examples of digital health around the world
- Imagine the future



summary

Digital Health Syllabus Review

- Learning outcomes
- Course expectations
- Review assignments
- Reading list
- Guest lectures



Next Session: Health around the globe

- Homework: Read reports and review documents
- Read report on wealthy nations <https://www.commonwealthfund.org/publications/issue-briefs/2023/jan/us-health-care-global-perspective-2022>
- Read WHO Report on developing nations <https://www.who.int/news-room/spotlight/global-health-achievements-2023>
- Review health systems in other countries
- <https://www.commonwealthfund.org/international-health-policy-center/system-profiles>



Exercise: Ticket out the door

- Write responses to these questions
- Did you learn something new today?
- What do you hope to learn in this class?
- How does this class fit with your career direction?
- Anything else you would like the instructor to know?
- Tell me one interesting fact about you or your hobbies, your favorite music, your family, your travel.