

Rush System for Health

Digital Health in Cancer

Mia Levy, MD, PhD

Director, Rush University Cancer Center

Disclosures

No disclosures relevant to the content of this presentation

- **Research funding:** Pfizer, BMS, GenomOncology, Komen, NIH/NCI
- **Consulting/Advisory:** GenomOncology, Personalis, Roche
- **Equity:** GenomOncology, Personalis



What is Digital Health?

Digital health is the convergence of digital technologies with health, healthcare, living, and society to enhance the efficiency of healthcare delivery and make medicine more personalized and precise.

https://en.wikipedia.org/wiki/Digital_health



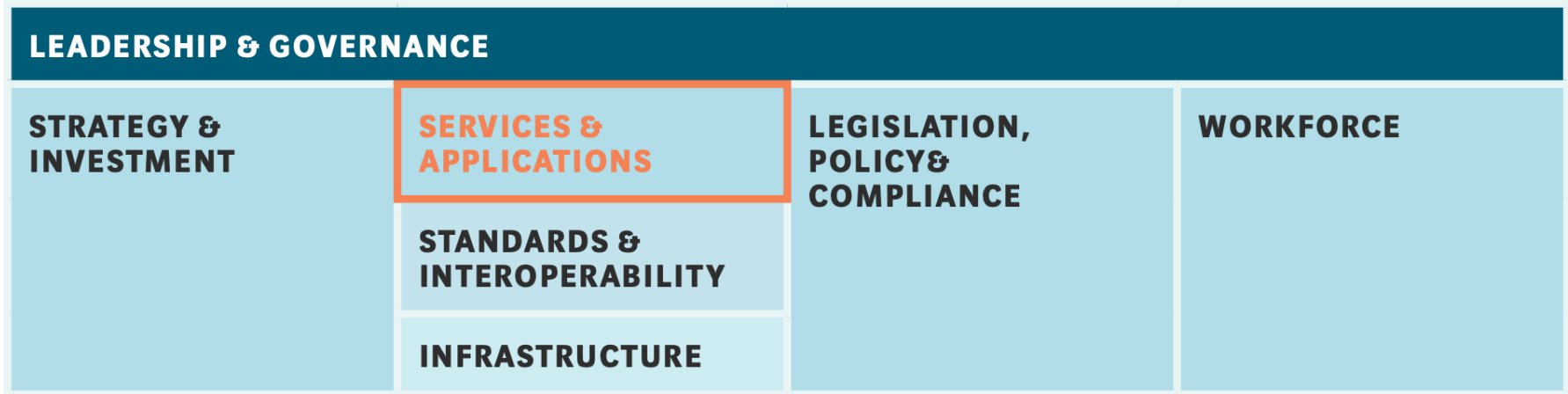
Digital health intervention: A discrete functionality of digital technology applied to achieve health objectives and implemented within digital health applications and information and communications technology (ICT) systems, including communication channels such as text messages.

WHO: Components contributing to digital health implementation

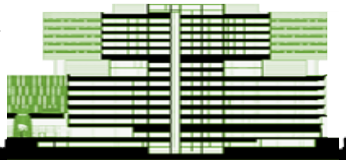
https://www.aidsdatahub.org/sites/default/files/toolanguide/document/WHO_Guideline_on_digital_interventions_for_health_system_strengthening_2019_Summary.pdf



FOUNDATIONAL LAYER: *ICT and Enabling Environment*



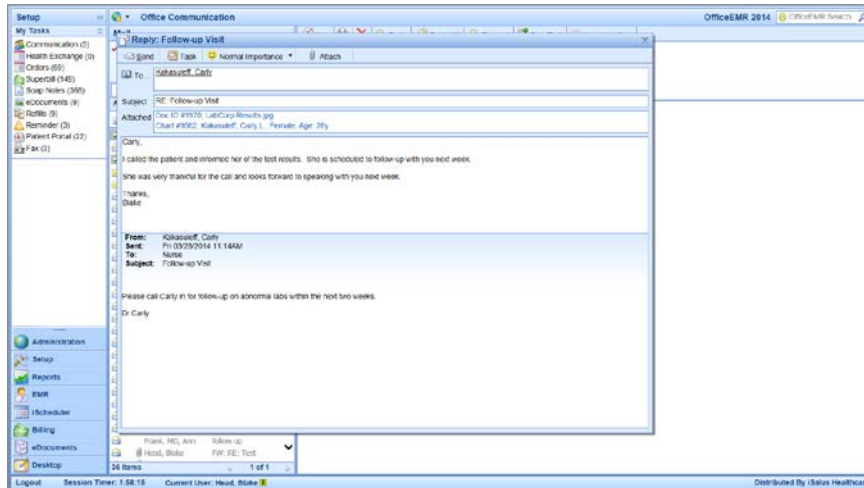
Trends in Digital Health for the Cancer Care Continuum



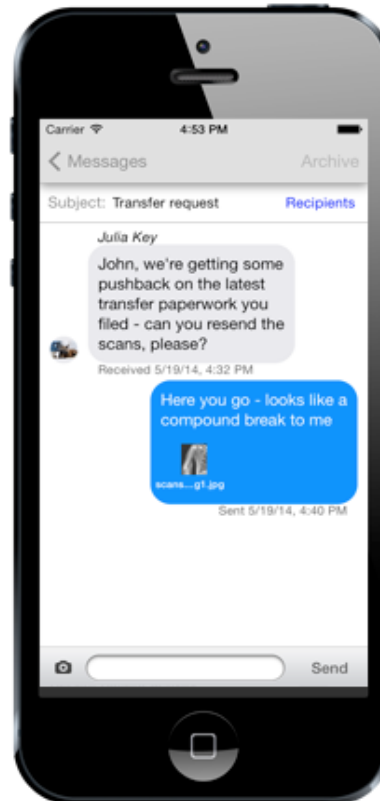
Communication Trends

Rapid telehealth adoption with COVID-19

Asynchronous Communication



Secure Email within
EHR/Patient Portal

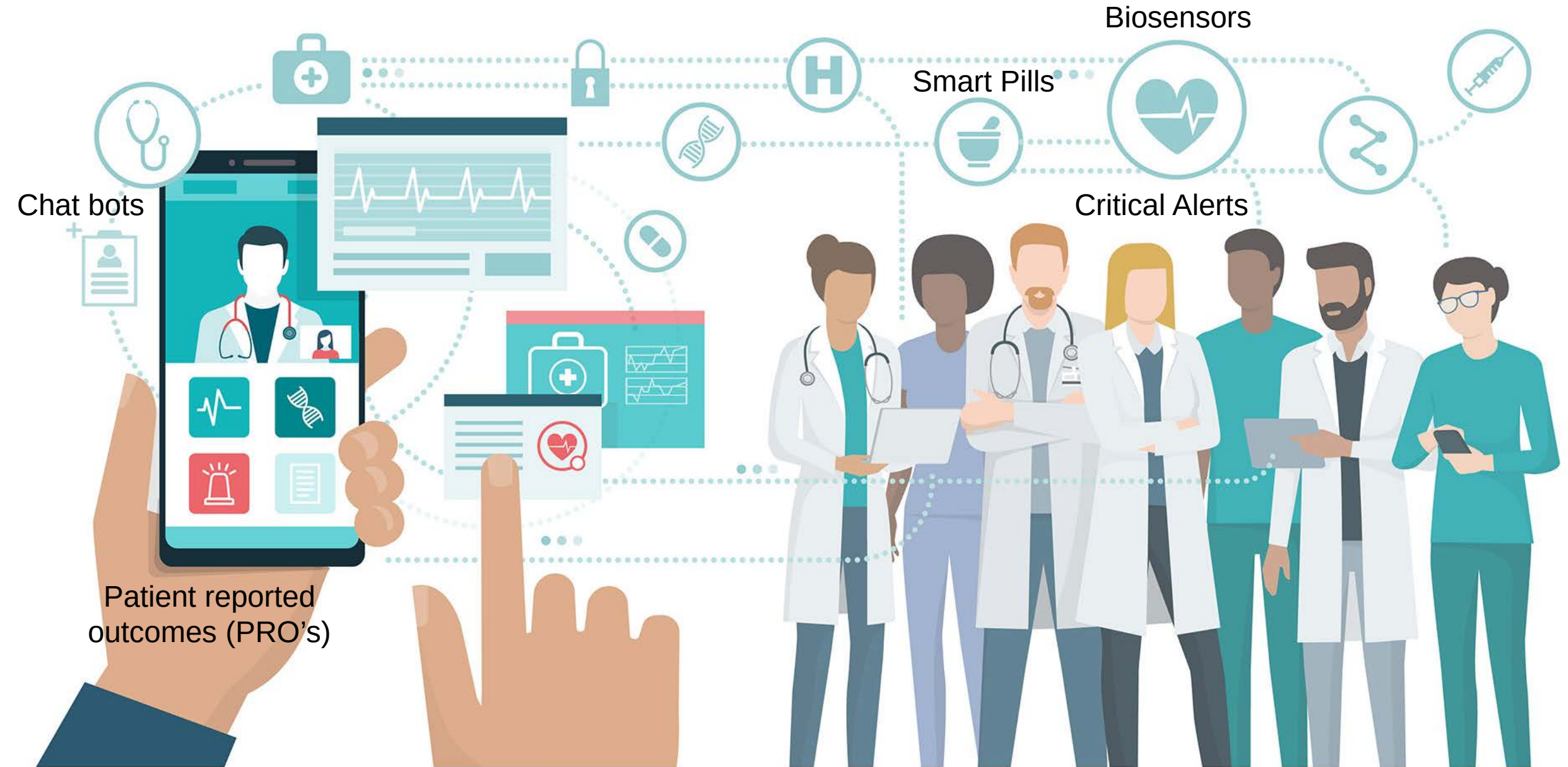


Synchronous Communication



Text, Chat, Video Chat

Remote Monitoring



Health Information Exchange



Blue Button
**Download
My Data**®

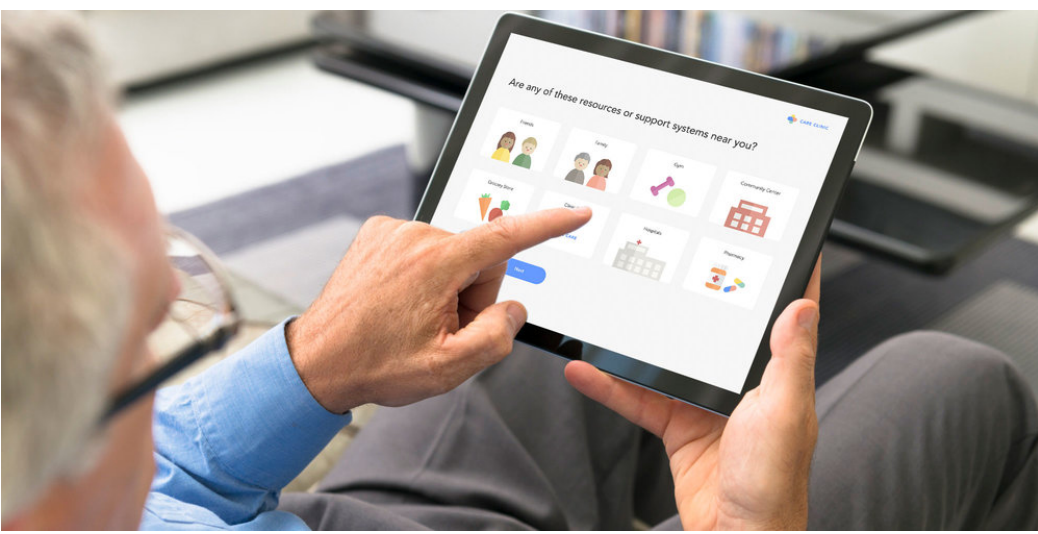


Evolution to touchless workflows with COVID-19

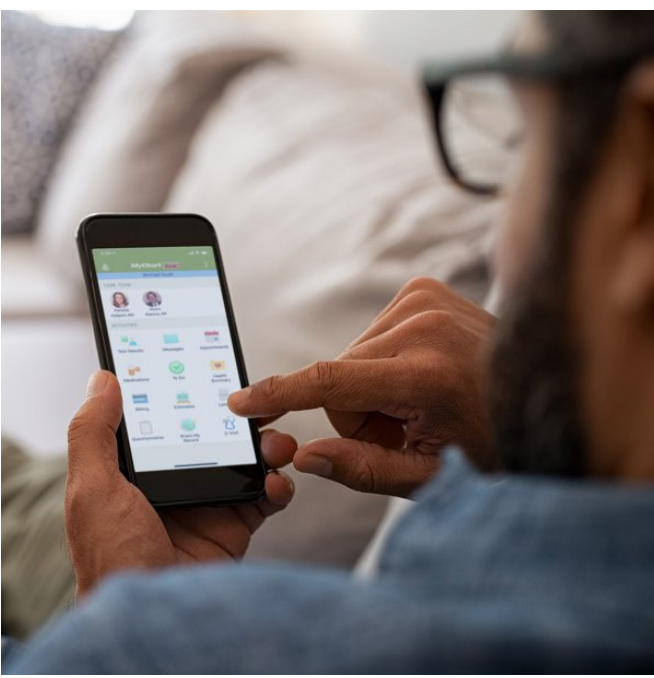
Paper form completion



Clinic provided tablet for electronic form completion



Use your own device to complete forms in advance of appointment

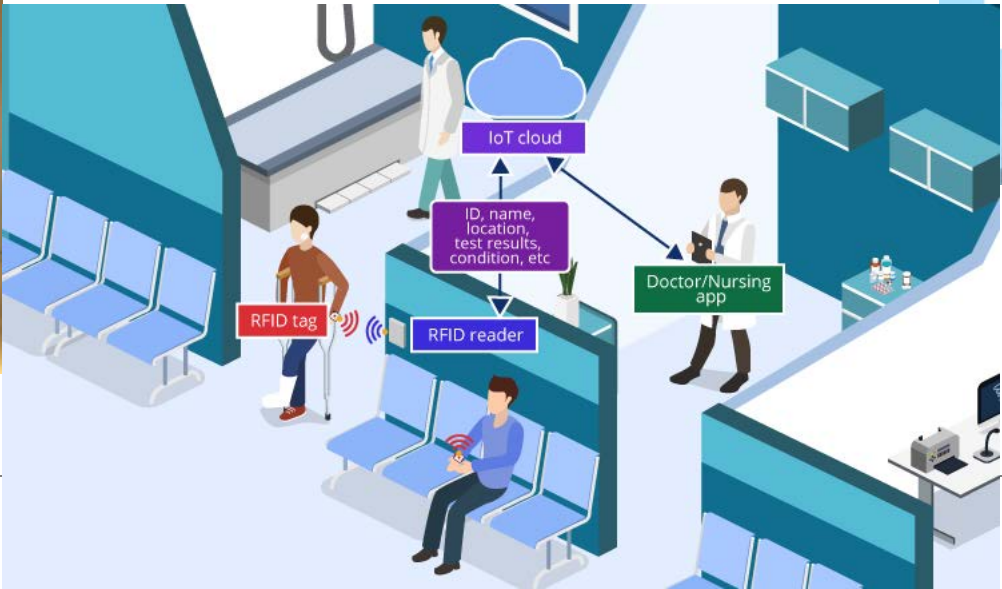


Evolution to touchless workflows with COVID-19

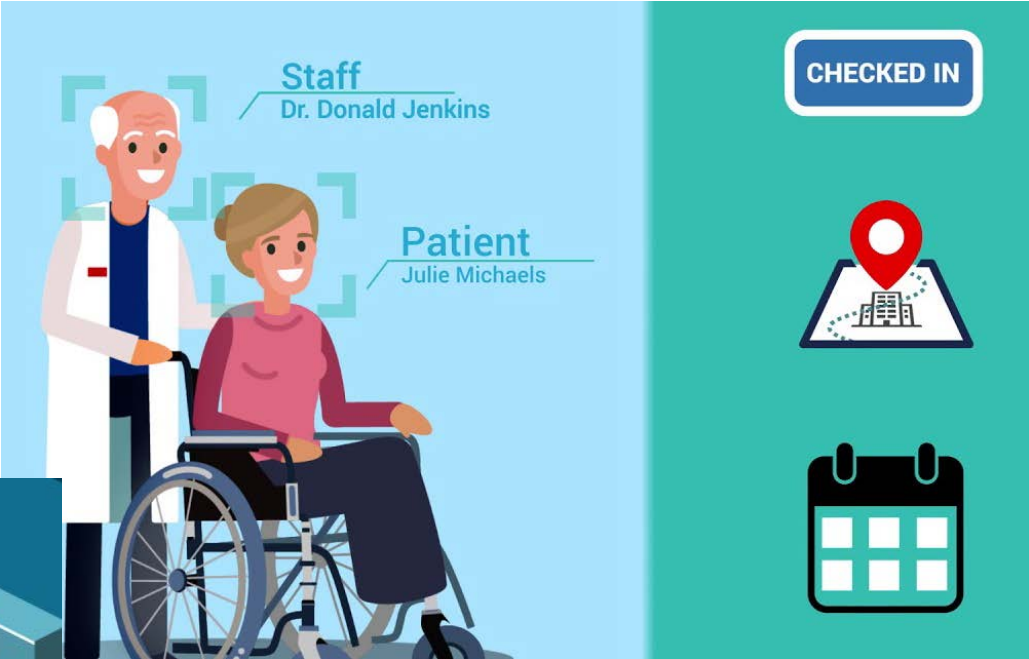
Self Check-in Kiosk



RFID for patient tracking and navigation



Facial recognition



Evolution to touchless workflows with COVID-19

Paper Consent



Digital Signature Pads



Remote Consent



Trends in digital health with COVID-19

Temperature screens



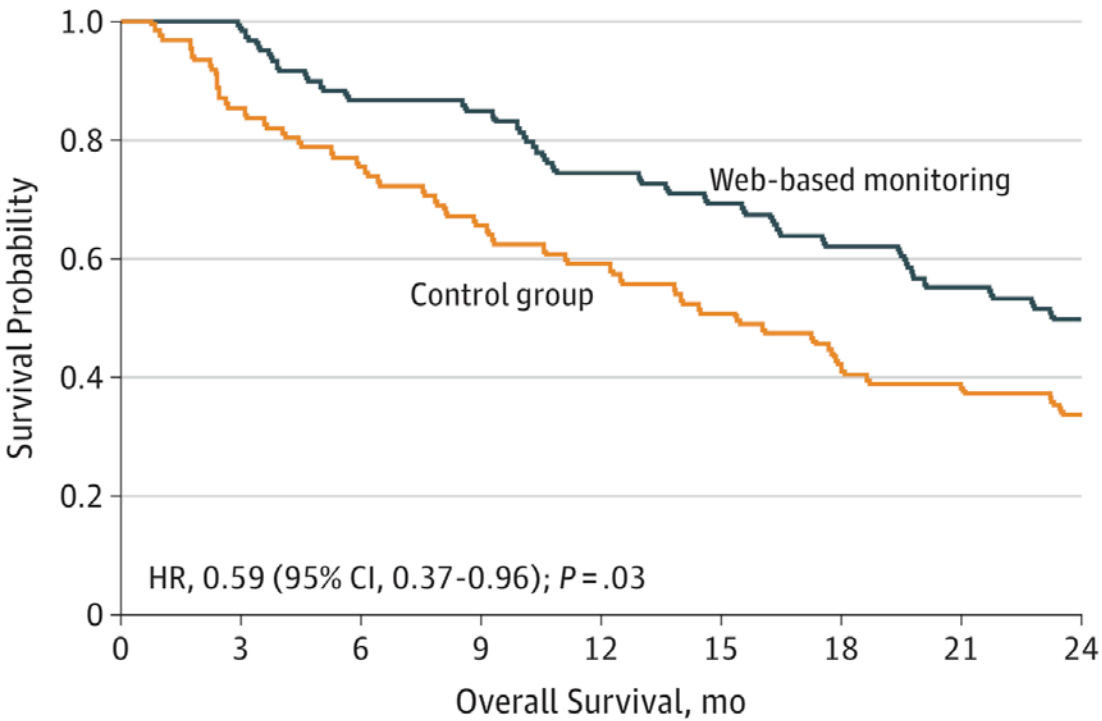
How do we measure the impact of digital health interventions?

Clinical Outcome Measures

- Survival
- Disease control endpoints
- Avoidance of adverse outcomes – early diagnosis
- Adherence measures



A Intention-to-treat analysis



No. at risk

Web-based monitoring	60	60	51	48	43	39	35	31	27
Control	61	52	45	38	34	29	24	22	19

Source	Median OS	12-mo OS, %	24-mo OS, %
Web-based monitoring	22.5 mo	75	50
Control	14.9 mo	56	34

Web-base symptom monitoring improved overall survival in lung cancer cohort

Denis F, Basch E, Septans A-L, Bennouna J, Urban T, Dueck AC, et al. Two-Year Survival Comparing Web-Based Symptom Monitoring vs Routine Surveillance Following Treatment for Lung Cancer. JAMA. 2019 Jan 22;321(3):306–7.

Financial Outcome Measures

- Increase revenue
- Decreased cost
 - Decrease length of stay, readmissions
- Cost avoidance
 - Decrease ED and hospital admissions
- Increased efficiency
 - Decreased time to complete task



Patient Experience Measures

- Personalization and convenience
- Acquisition of medical knowledge
- Minimize number of in-person clinical encounters/missed days of employment
- Minimize wait time



THE US DIGITAL HEALTH ECOSYSTEM 2020

PAYERS



PROVIDERS



MANUFACTURERS



DISTRIBUTORS



<https://www.businessinsider.com/digital-health-ecosystem-report>

Complex ecosystem of stakeholders

How to define the value proposition?

Note: This graphic is illustrative, not exhaustive.

Policy Considerations of Digital Health

- Regulatory
 - FDA device/software approval
 - Services across state lines
 - Use in clinical research
- Reimbursement
 - Will telehealth reimbursement parity be sustained post COVID?
- Equitable access (devices, internet service)
- Privacy and security

Thank you.

mia_levy@rush.edu



Excellence is just the beginning.