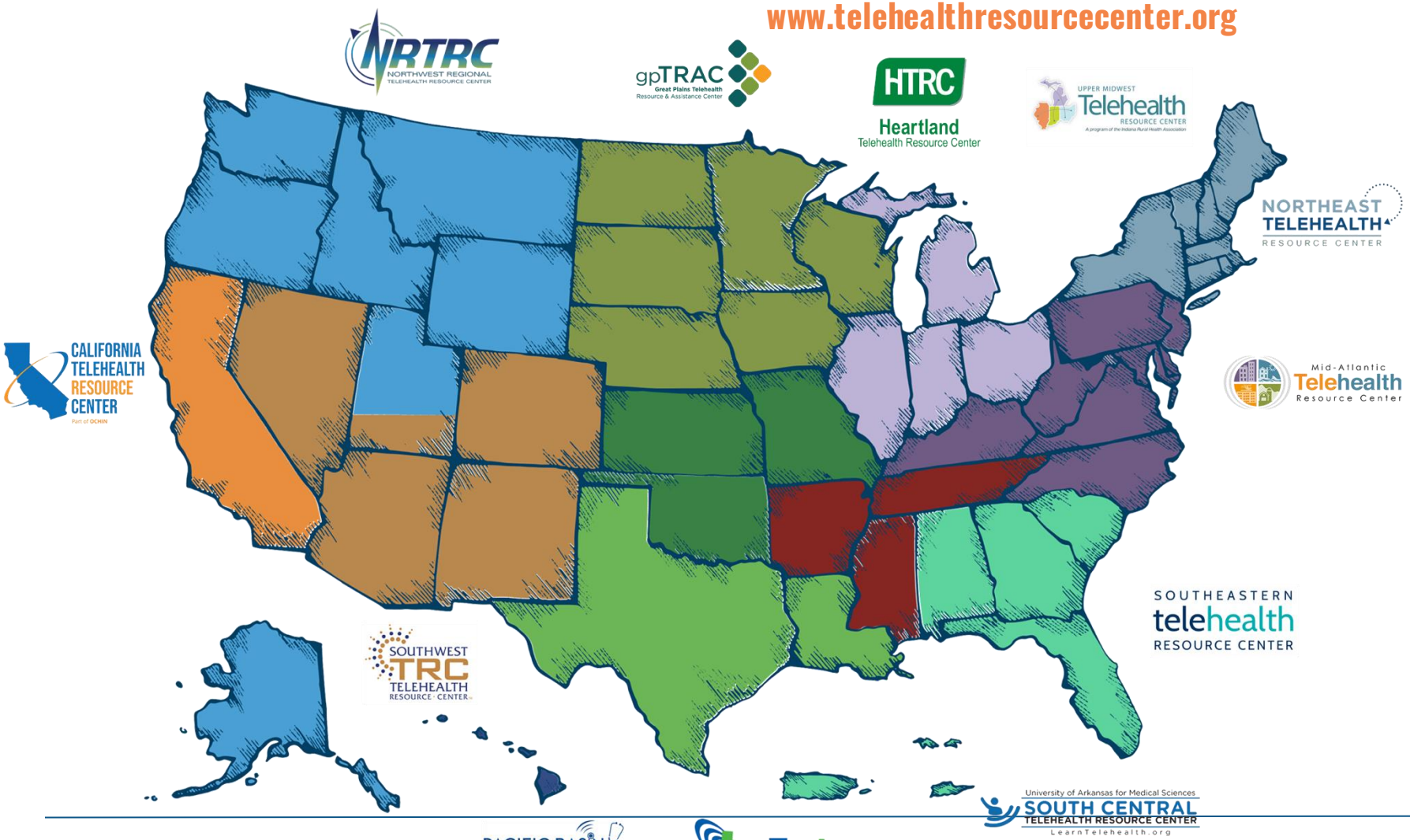
NATIONAL CONSORTIUM OF
TELEHEALTH
RESOURCE CENTERS

The Future of Telemedicine and Digital Health to Catalyze Care Delivery

June 12, 2025

HRSA Funded Telehealth Resource Centers

www.telehealthresourcecenter.org



NRTRC	gpTRAC	NETRC
CTRC	HTRC	UMTRC
SWTRC	SCTRC	MATRC
PBTRC	TexLa	SETRC

12 REGIONAL RESOURCE CENTERS

TTAC TelehealthTechnology.org

CCHP

2 NATIONAL RESOURCE CENTERS

Webinar Tips and Notes

- Your phone &/or computer microphone has been muted.
- If we do not reach your question, please contact your regional TRC. There may be delays in response time: https://telehealthresourcecenter.org/contact-us/
- Please fill out the post-webinar survey.
- Closed Captioning is available.
- Please submit your questions using the Q&A function.
- The webinar is being **recorded**.
- Recordings will be posted to our YouTube Channel:

  https://www.youtube.com/c/nctrc

Future of Telemedicine and Digital Health to Catalyze Care Delivery

Joseph Finkelstein, MD, PhD, FAMIA, FACMI

Arizona Telemedicine Program

DISCLOSURE

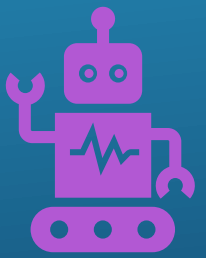
- NIH / National Library of Medicine (NLM)
- New York Center of Advanced Technology
- NIH / National Heart, Lung and Blood Institute (NHLBI)
- American Lung Association
- Alpha-1 Foundation
- AHRQ
- NIH / National Institute of Mental Health (NIMH)
- Department of Veterans Affairs
- CMS / Delmarva Foundation
- NIH / National Institute of Aging (NIA)
- Department of Defense
- HRSA

FACTORS AFFECTING FUTURE OF TELEMEDICINE AND DIGITAL HEALTH

ARIZONA TELEMEDICINE PROGRAM

State of Health and Disease in the United States

Fusion of telemedicine and digital health

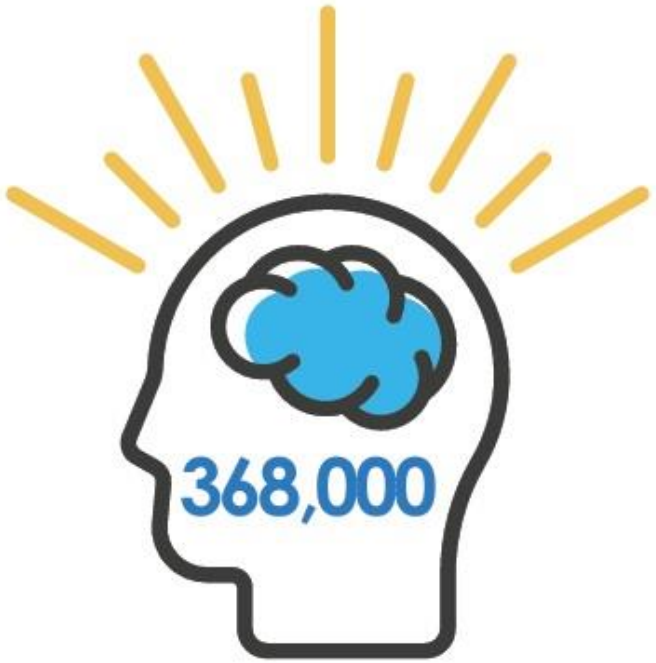


Big data analytics and AI

STATE OF HEALTH AND DISEASE

- Chronic diseases are the leading causes of death and disability, costing $4.5 trillion in annual health care expenditures.
- The US lags behind peer countries in average life expectancy (78.4 years compared with 82.5years).
- More than 40% of adults and 20% of children are classified as obese, placing them at risk for heart disease, type 2 diabetes, and certain types of cancer.
- Nonmedical risk factors such as poor nutrition, physical inactivity, and alcohol and tobacco use contribute to high rates of chronic diseases.

HEALTH AND DISEASE IN AZ

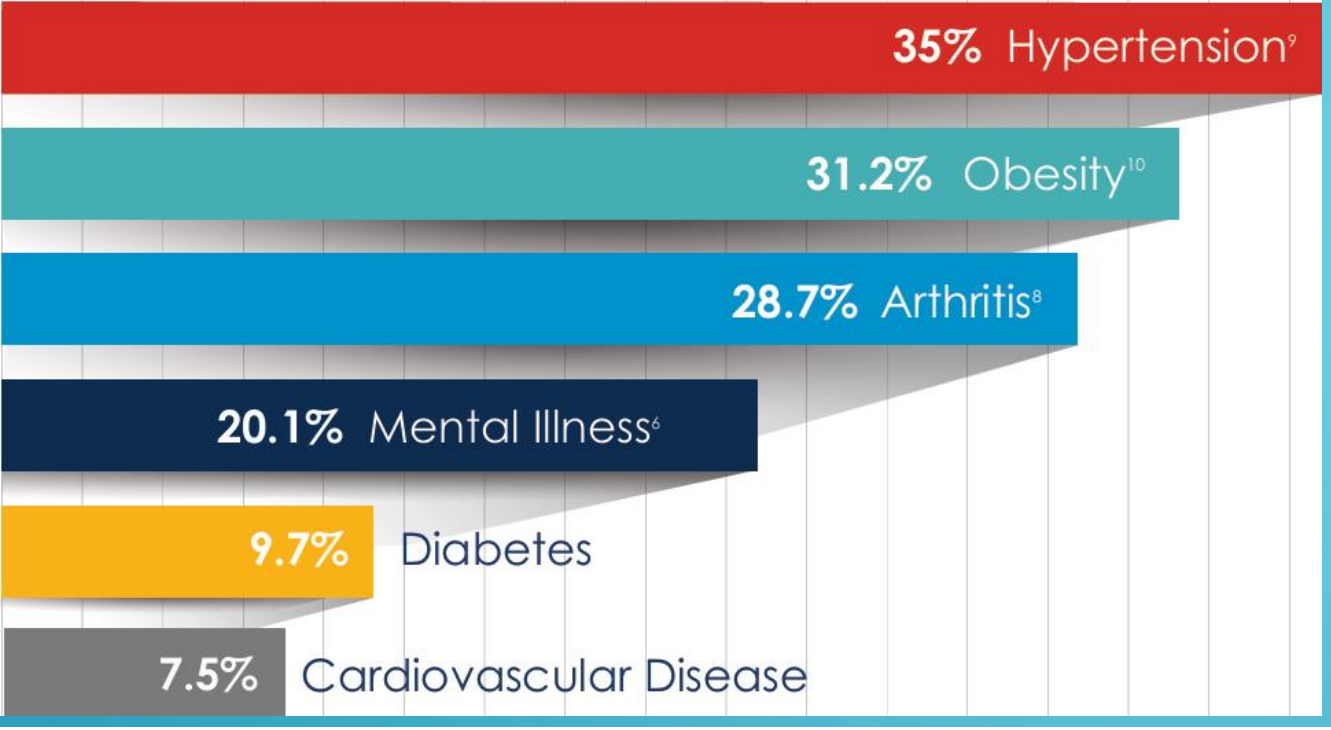


6.8% of adults in Arizona (368,000) reported an unmet need for mental health treatment, compared to **6.2%** nationally

10.6% of Arizona's population is uninsured, compared to **9.2%** nationally

9.2% of Arizonians reported needing to see a doctor but couldn't because of cost, compared to **9.7%** nationally

Chronic Care Policy Alliance (CCPA)

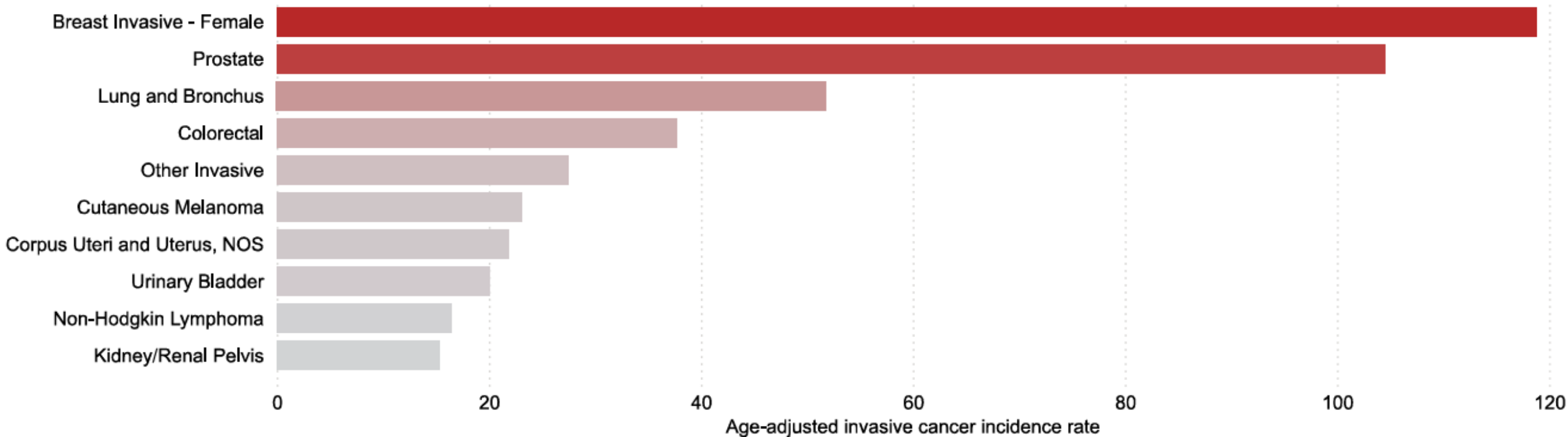


Arizona
76.3 years

Life expectancy for the Arizona population in 2020 was 76.3 years, a **decrease of 2.5 years** from 2019.

United States
77.0 years

Life expectancy for the U.S. population in 2020 was 77.0 years, a **decrease of 1.8 years** from 2019.



FUSION OF TELEMEDICINE, DIGITAL HEALTH & AI

MARCH 31, 2025
IN THE NEWS
SOURCE: ATA AND ATA ACTION

ATA ACTION ACQUIRES DIGITAL THERAPEUTICS ALLIANCE, LAUNCHES NEW ADVANCING DIGITAL HEALTH COALITION

WASHINGTON, DC, MARCH 31, 2025 – ATA Action, the advocacy arm of the American Telemedicine Association (ATA), today announced it has acquired the Digital Therapeutics Alliance (DTA). DTA is the leading international organization focused on expanding access to digital therapeutics (DTx). The combined organization creates a strong platform for policy and advocacy, focused on advancing innovative technologies that are transforming patient care. The Boards of Directors of the ATA, ATA Action and DTA unanimously approved this transaction.

DIGITAL THERAPEUTICS (DTx): A SPECIALIZED BRANCH OF DIGITAL HEALTH THAT USE EVIDENCE-BASED SOFTWARE INTERVENTIONS TO PREVENT, MANAGE, OR TREAT MEDICAL DISORDERS AND DISEASES.

Parky app uses Apple's Movement Disorder API to track Parkinson's symptoms (FDA)

Dreem 3 Neuroband EEG device collects data & calculates sleep endpoints (FDA)

Epihunter EEG headband triggers recording and logs absence seizures in real-time (CE)

REMI system and Vigilenz AI single channel EEG head patch to detect seizures (FDA)

Nuvo's INVU abdomen-worn monitor of uterine activity, contractions, fetal heart rate (FDA)

Continuous sensor-based data monitoring

Event alerts from wearables

Overwatch Seizure Detection uses Apple Watch to monitor seizures with real-time alerts

EpiMonitor Seizure prediction, alerts (FDA)

CardiacSense app/watch to detect and alert of arrhythmias and monitor vital signs (FDA)

Moovcare app digital symptom questionnaire to detect relapse & complications, alert HCPs (FR)

Oleena aids self-management of symptoms and enables remote monitoring by care teams (FDA)

CANKADO autonomously analyzes symptoms and recommends whether to contact HCPs (CE)

Elekta Kaiku monitoring app for personalized cancer care, RWD collection, clinical trials (FDA)

Cureety to monitor cancer patients undergoing systemic treatment/ radiotherapy (PECAN, FR)

OWise Breast Cancer / Prostate cancer - support apps for care coordination with personal care plan and self-reported symptoms

CareLoop Psychosis app to predict psychosis relapse (UK EVA)

App-based PRO tracking

Digitized Functional Assessments (Tests, Exercises, Games)

Home Vision Monitor (HVM) tracks visual distortion for macular degeneration & diabetic retinopathy via home-based activity (FDA)

BeCare Link delivers quantifiable neurological assessments to detect and monitor neurological dysfunction like Timed up and go, resting tremor, eye movements, memory

Tali Detect serious games to assess and track attention function in children (TGA)

KeySense analyzes the rhythm and cadence of keystrokes typed on a computer keyboard to assess risk of Parkinson's disease

Sound Life Sciences (now Google) app uses sonar to monitor patient chest movement, breathing, and ID cardiac arrest (FDA Rx)

Microphone-based

Image analysis using phone camera

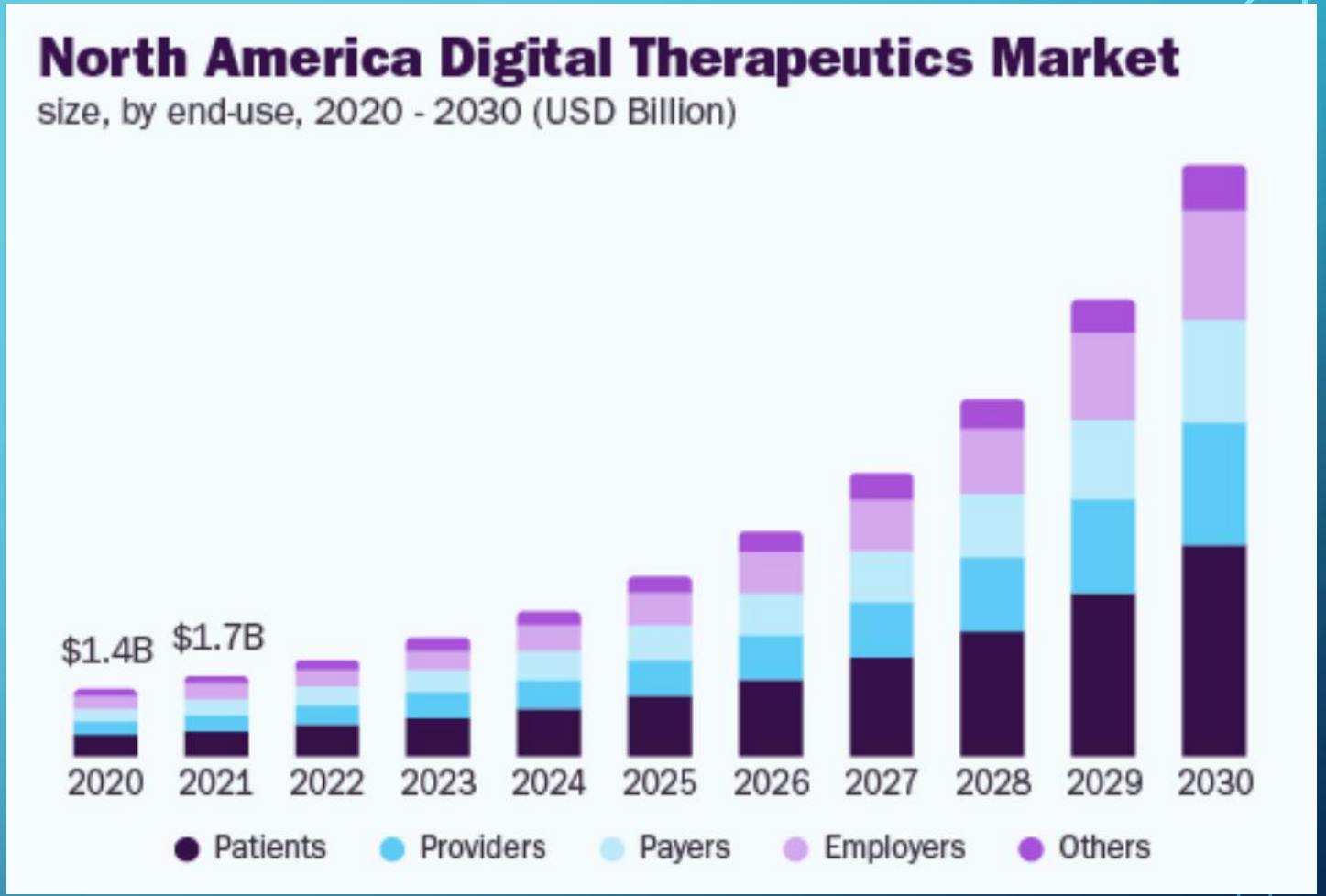
Miiskin AI-based dermatology app to track and document changes in skin marks and moles

PainChek app assessment of pain via AI-analysis of facial expressions for dementia patients and preverbal children (TGA, CE)

Momentum Spine app – assesses postural asymmetries including scoliosis by detecting degrees of Spinal Curvature (FDA)

DTx MARKET

- The global DTx Market size
  - **$4.20** billion in 2022.
- Estimated to grow at a compound annual growth rate (CAGR) of 26.1% from 2022 to 2030.
- The revenue forecast in 2030
  - **$32.51** billion



- Unlike general wellness apps, digital therapeutics undergo rigorous clinical trials to prove their efficacy and safety, often receiving regulatory approval much like traditional medical treatments.

Roles and Capabilities of DTx Solutions

Collection of preventative care measures:

- For individuals at high risk of chronic or severe illnesses, such as providing weight management and exercise guidance for diabetes patients.

Sources of health information:

- For guiding diagnostic and treatment decisions, such as daily reports submitted by patients with depression.

Solo or combined treatments:

- Or those combined with conventional therapy, such as digital smoking cessation programs.

Monitoring and recording symptoms:

- Approaches for continuously enhancing treatment plans and health conditions, such as managing blood pressure in individuals with hypertension..

Prescription Drug Use-Related Software (PDURS)

PDURS	Non-PDURS Software	PDURS Promotional Software	PDURS FDA-Required Labeling	Drug-Software Combination
Description of Software	• Various intended uses or patient support functions • Can be used with general classes of drugs	• Disseminated with Rx drug • No added clinical effect to the drug or potential for harm	• Disseminated with Rx drug • Provides meaningful clinical benefit to Rx drug • Software is included on drug labeling (in clinical studies section)	• FDA approved as part of a drug-led combination product • The software is essential to the intended use of the drug • Software is included on labeling (in the drug/device description)
Sponsor	• Software or drug manufacturer	• Drug manufacturer	• Drug manufacturer	• Drug manufacturer
Regulatory Considerations	• No drug labeling considerations • Software subject to CDRH regulatory framework for SaMD	• Software output subject to promotional labeling requirements for Rx drugs • Software subject to CDRH regulatory framework for SaMD	• Software output subject to CDER/CBER FDA-required labeling regulations for prescription drugs • CDRH is consulted for review	• Drug-led combination product reviewed by CDER/CBER • CDRH is consulted for review
Regulatory Submission	• 510(k) or De Novo may be required if medical device	• Submit screen shots to OPDP prior to dissemination of software	• NDA or BLA Supplement	• New NDA or BLA
Clinical Evidence	• Clinical evidence may be required by CDRH if medical device	• Clinical evidence may be required by CDRH if medical device	• Adequate and well-controlled study required by CDER/CBER	• Phase 3 RCT generally required by CDER/CBER
Examples	• Unbranded companion apps • Insulin dosing calculator software • Digital therapeutics for MDD in patients on anti-depressants and OUD on buprenorphine	• Branded companion apps • Disease self-management • Medication/injection support	• Dose optimization • Side effect management • Behavioral support • Flare prediction	• No combos with “pure software” • Many drug-device combos with device-connected software (e.g., infusion pumps, autoinjectors)

FDA Regulations on DTx, AI, and CDS

Clinical Decision Support Software

Guidance for Industry and Food and Drug Administration Staff

Artificial Intelligence/Machine Learning (AI/ML)-Based Software as a Medical Device (SaMD) Action Plan

January 2021

FDA U.S. FOOD & DRUG ADMINISTRATION
CENTER FOR DEVICES & RADIOLOGICAL HEALTH

https://www.fda.gov/medical-devices/digital-health-center-excellence/guidances-digital-health-content

Non-device CDS

- not intended to acquire, process, or analyze a medical image or a signal from an in vitro diagnostic device or a pattern or signal from a signal acquisition system
- is intended for the purpose of displaying, analyzing, or printing medical information about a patient or other medical information
- function is intended for the purpose of supporting or providing recommendations to a healthcare professional about prevention, diagnosis, or treatment of a disease or condition
- is intended for the purpose of enabling the healthcare professional to independently review the basis for such recommendations

AI USE CASES: DIAGNOSIS & TREATMENT PLANS

Diagnosis

- To assist in the diagnosis of patients by providing recommendations based on symptoms and medical history
- To analyze images, such as X-rays, CT scans, diagnostic test results, etc.
- Patients can upload the images to a secure server, and the AI system will provide recommendations to the physician.

Treatment Plans

- To develop personalized treatment plans for patients based on their individual needs and medical history
- Can take into account the patient's preferences, such as type of treatment, location, etc
- To identify which treatments are most effective for each patient

AI USE CASES: TELEMONITORING & PATIENT ENGAGEMENT

Telemonitoring

- To monitor patients remotely, checking their vital signs and providing early detection of potential health problems
- To identify which patients are at risk of certain conditions and need further monitoring
- To use a combination of self-reported and device-generate data

Patient Engagement

- To improve patient engagement by providing reminders for appointments, medication adherence, and follow-up care
- AI chatbots can provide answers to common questions and help to schedule appointments.

AI USE CASES: DISEASE MANAGEMENT & TRAINING

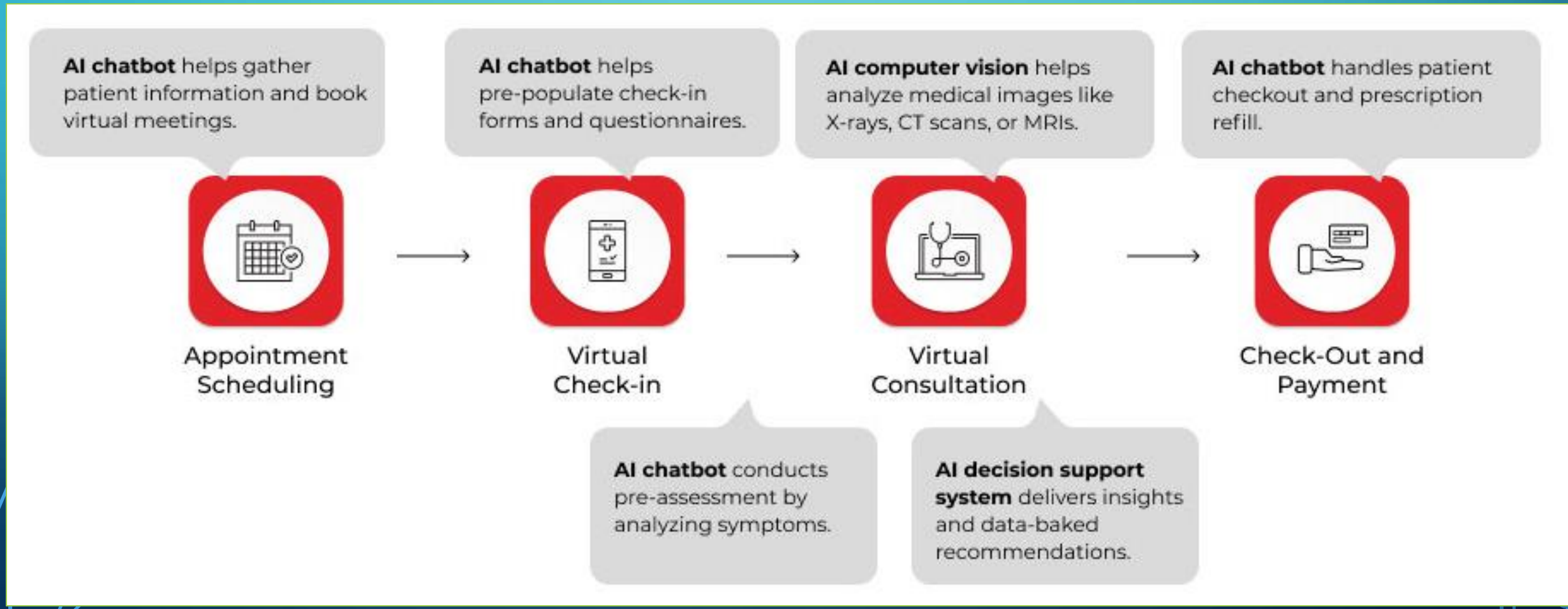
Chronic Disease Management

- To support the management of chronic diseases such as diabetes, hypertension, and heart disease
- To provide personalized care plans and reminders, track progress, and offer feedback to patients
- To predict patient outcomes, such as the likelihood of developing complications, and to identify early warning signs.

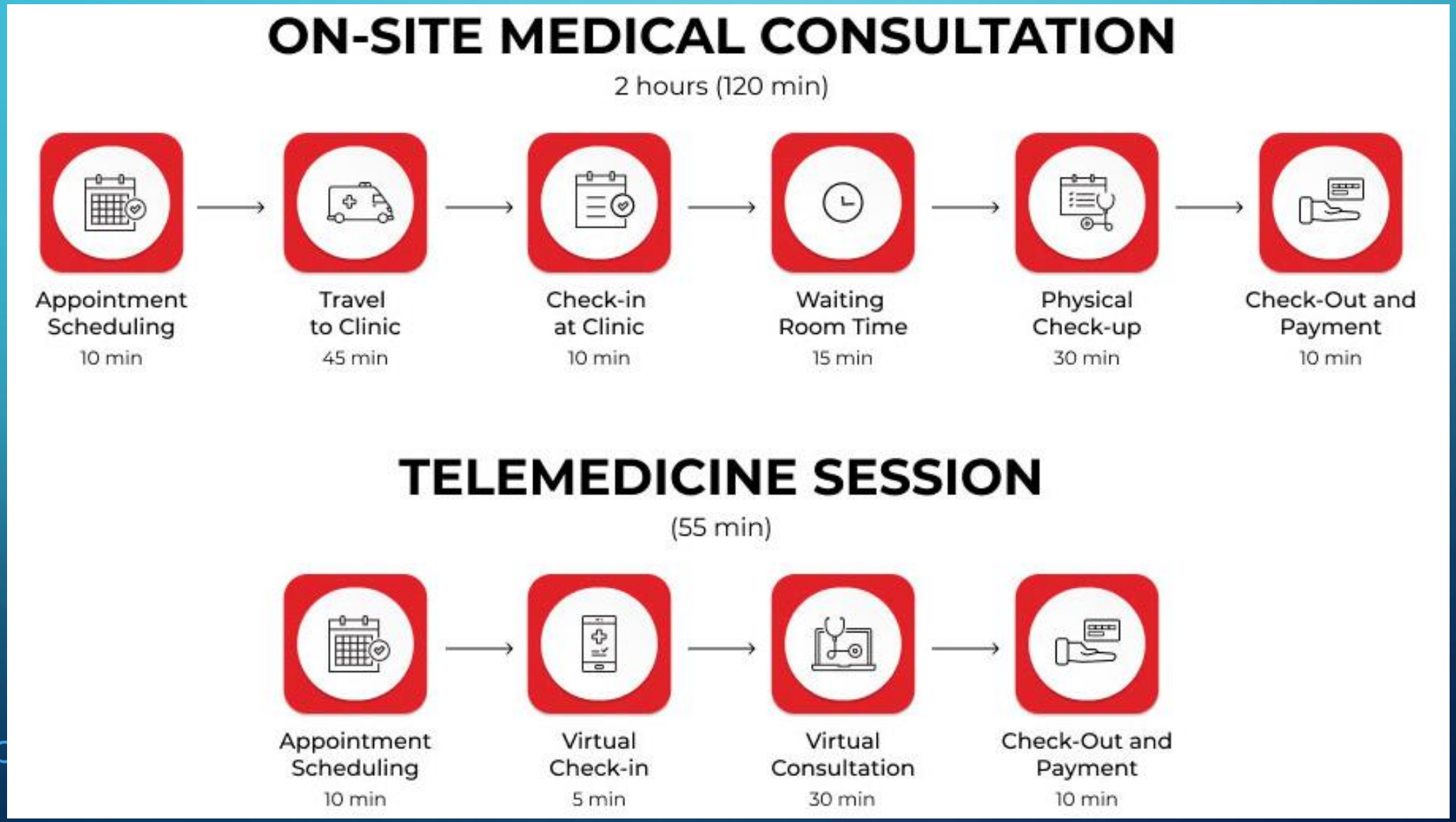
Medical training

- To customize clinician training through personalized online courses
- To focus on individual improvement areas
- To generate synthetic content
- To simulate real-world scenarios
- To integrate AR/VR into training

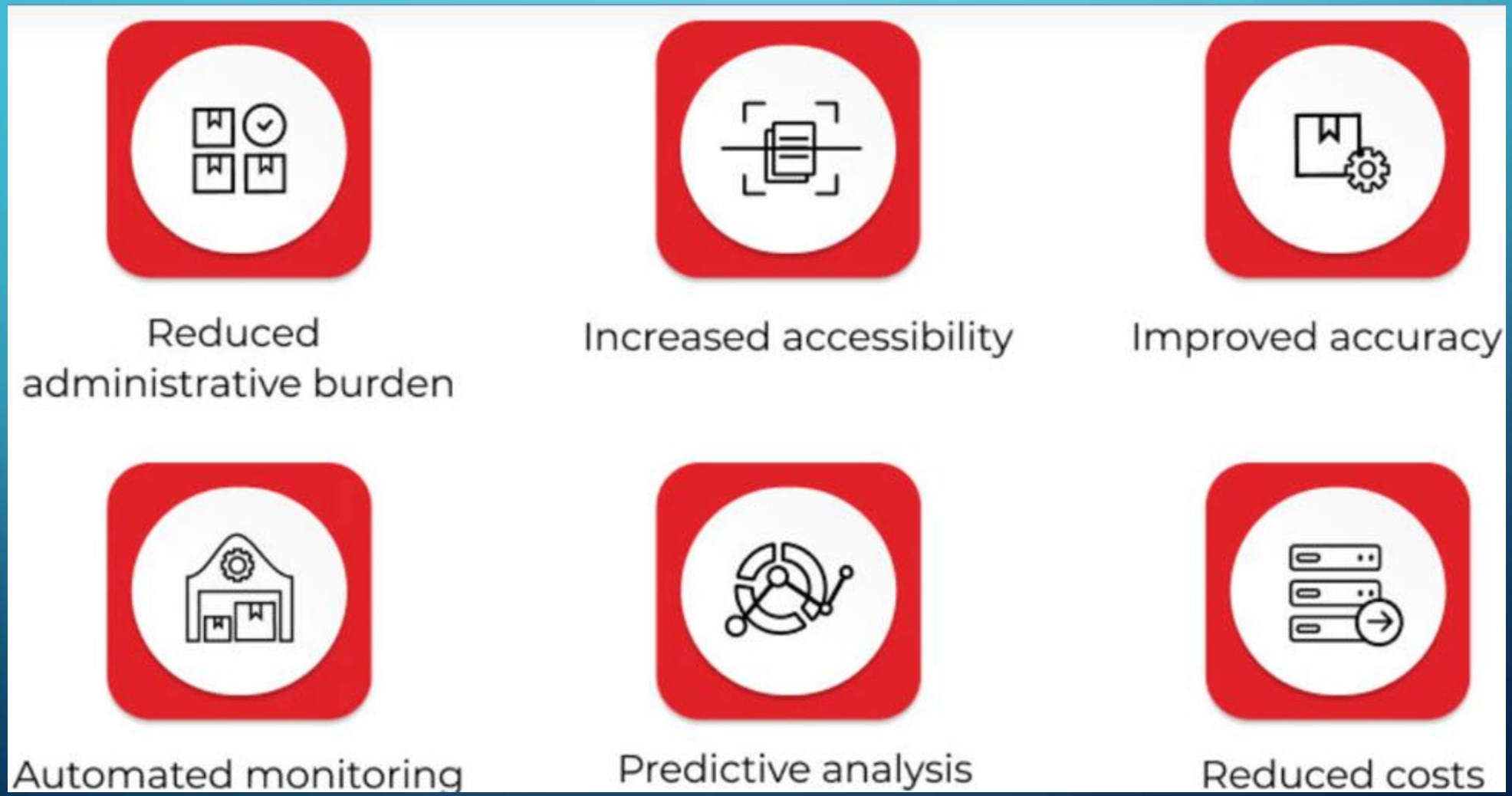
AI-ASSISTED TELEMEDICINE SESSION



GEN AI CAN SAVE TIME AND MONEY



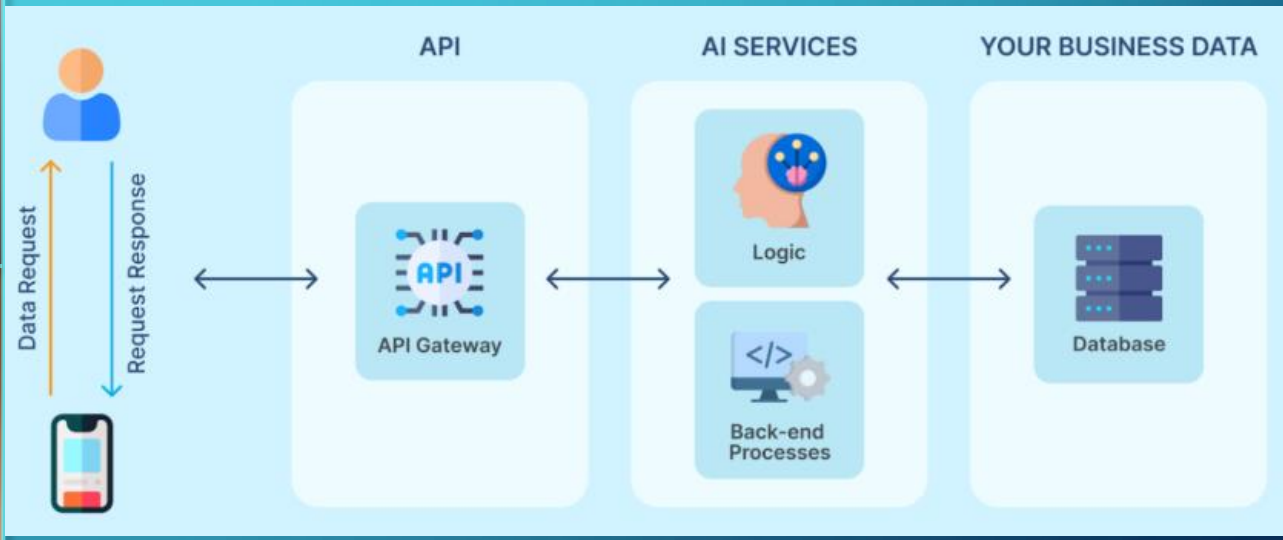
BENEFITS OF AI IN TELEMEDICINE AND DIGITAL HEALTH



AI CHALLENGES

- Augmented or Autonomous mode
- AI explainability
- AI governance
- Data security, compliance & regulation

EXAMPLES OF TELEMEDICINE AI APPLICATIONS



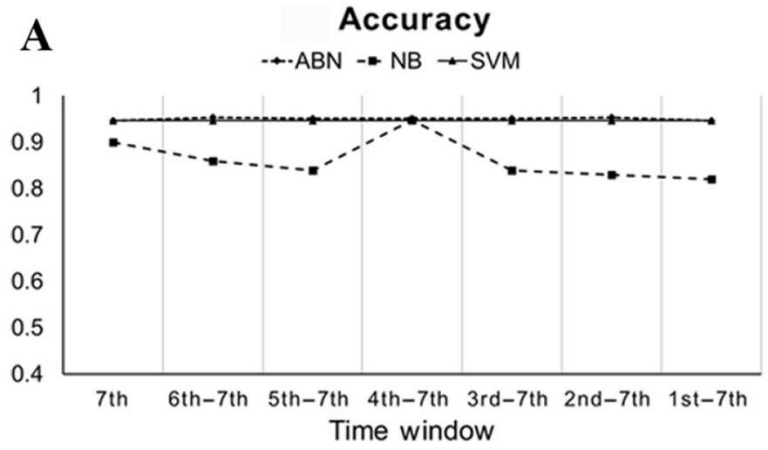
- Patient level
- Provider Level
- System Level

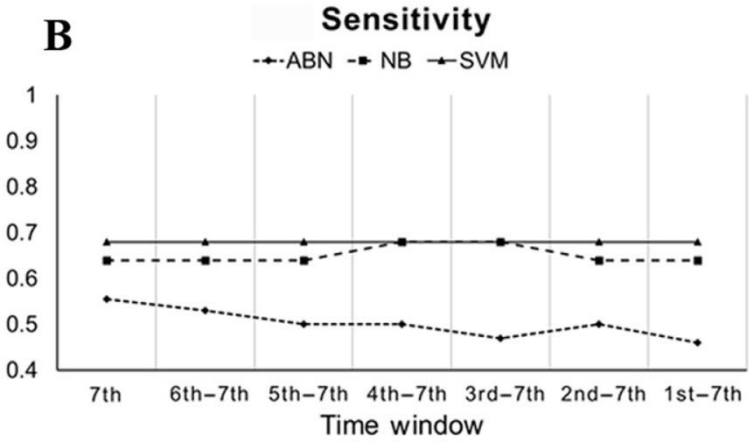
PREDICTION OF ASTHMA EXACERBATION USING TELEMONITORING DATA

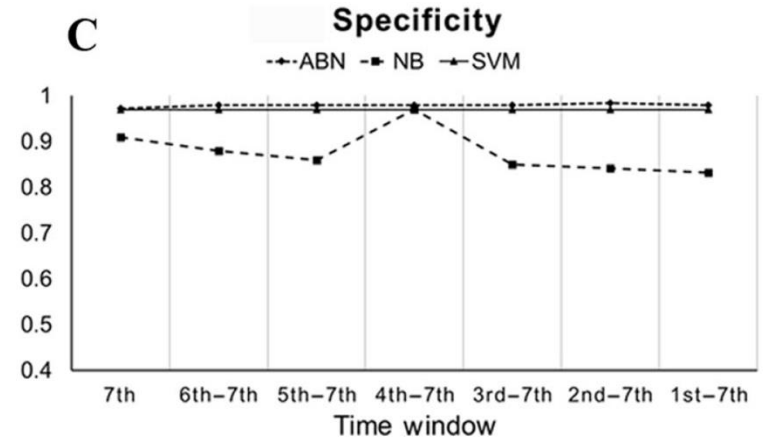
N	Diary Question
1	Wheeze
2	Cough
3	Sputum production
4	Chest tightness
5	Shortness of breath
6	Limitation of physical activity
7	Over-all use of quick-relief inhaler
8	Exposure to your asthma triggers
9	Over-all estimate of your asthma today
10	Do you have a cold?
11	How many puffs of quick-relief inhaler did you take during last 24 hours?
12	How many puffs of preventive medicine did you take during last 24 hours?
13	Did asthma bother your sleep?
14	How many times did asthma wake you up last night?
15	How many puffs of quick-relief inhaler did you take during last night?
16	How many times did you use quick-relief inhaler during last 24 hours?
17	How many tablets of prednisone did you take during last 24 hours?
18	How many times did you use nebulizer during last 24 hours?
19	When did you use quick-relief inhaler last time?
20	How many puffs of the second controller medicine did you take during last 24 hours?

Finkelstein, 2007, 2013, 2017

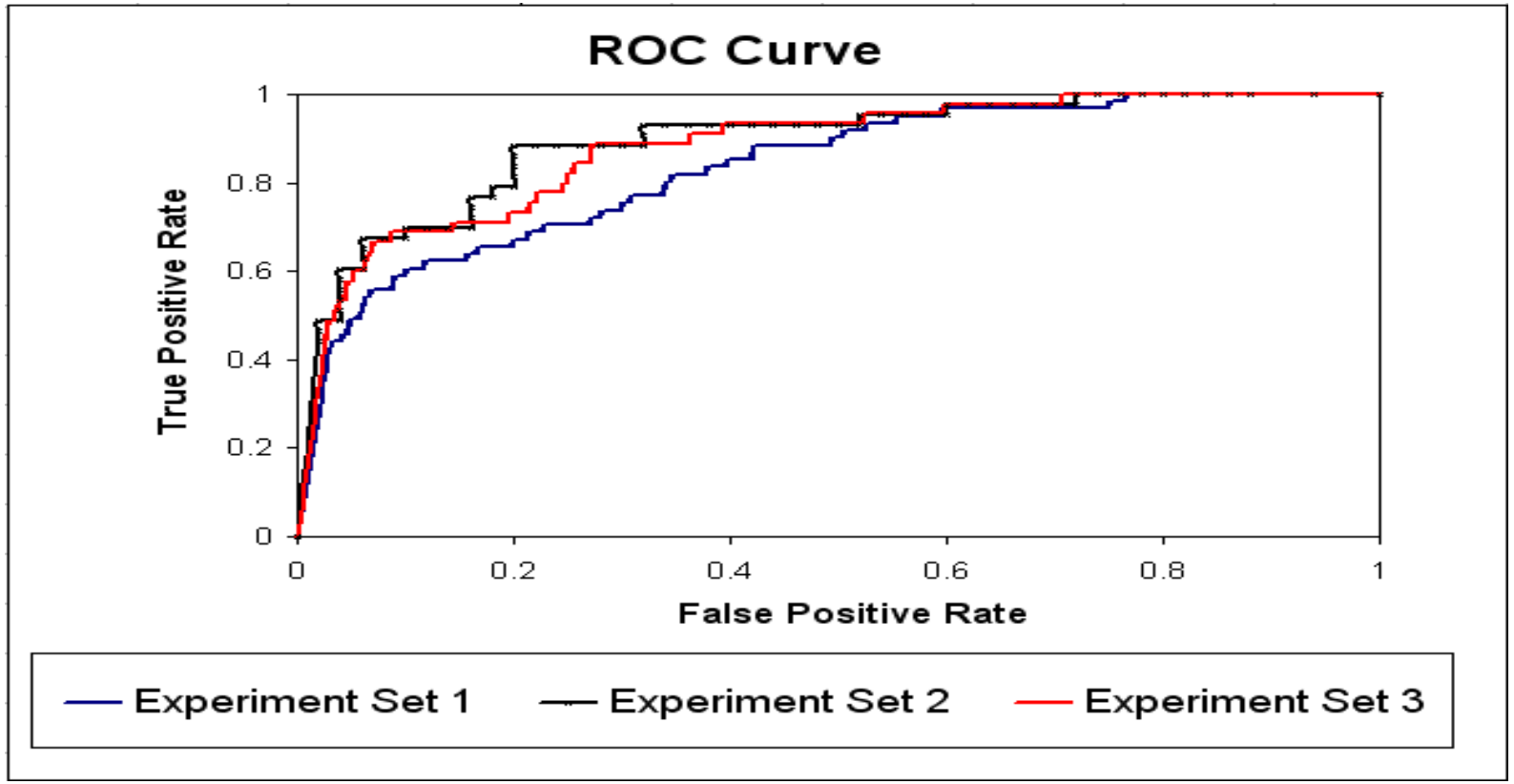
TIME WINDOWS IN THE PREDICTION MODEL



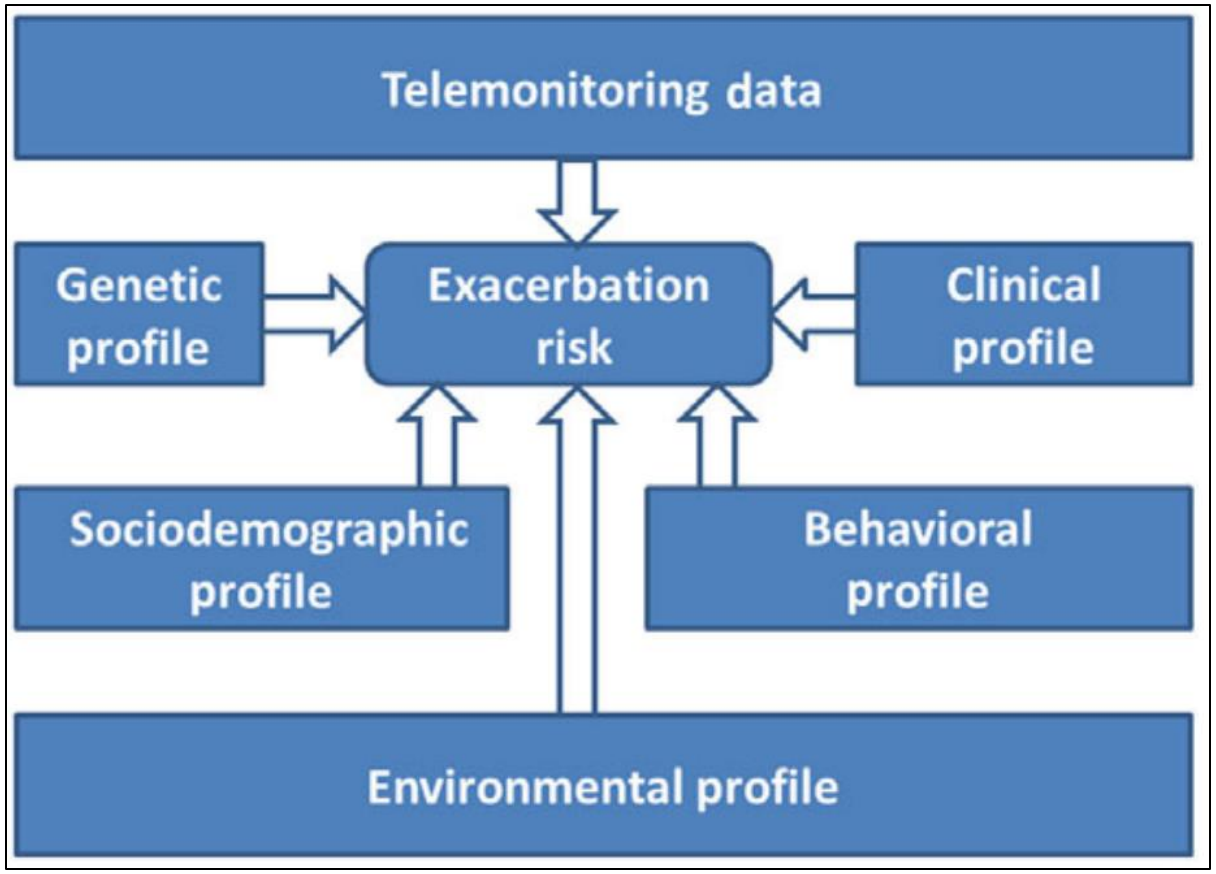


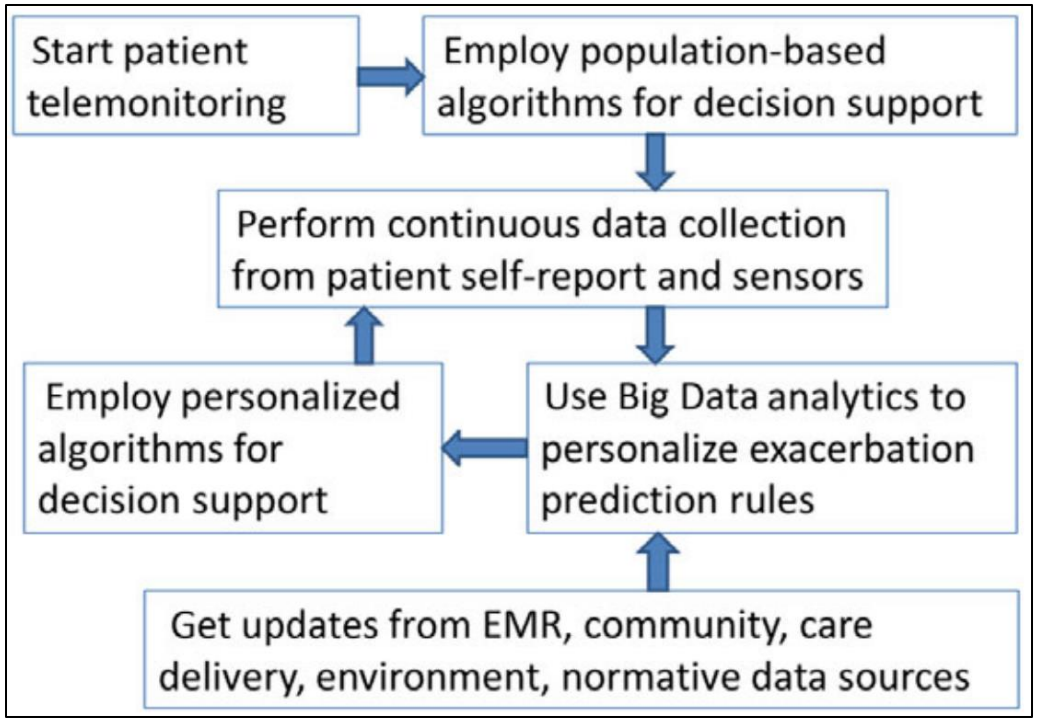


	Type of classifier								
	Adaptive Bayesian Network			Naïve Bayesian Classifier			Support Vector Machine		
Dataset	1	2	3	1	2	3	1	2	3
Accuracy	0.949	1.000	1.000	0.823	0.807	0.772	0.952	0.817	0.803
Sensitivity	**0.672**	**1.000**	**1.000**	**0.639**	0.797	**0.800**	**0.455**	0.860	**0.844**
Specificity	0.968	1.000	1.000	0.835	0.820	0.771	0.982	0.780	0.802



COMPREHENSIVE PREDICTIVE FRAMEWORK FOR ADVANCED EXACERBATION FORECAST





ANNALS OF THE NEW YORK ACADEMY OF SCIENCES
Issue: *Data Science, Learning, and Applications to Biomedical and Health Sciences*

Machine learning approaches to personalize early prediction of asthma exacerbations

Joseph Finkelstein[1] and In cheol Jeong[2]

[1]Department of Biomedical Informatics, Columbia University, New York, New York. [2]Chronic Disease Informatics Johns Hopkins University, Baltimore, Maryland

Leveraging Convolutional Neural Networks for Predicting Symptom Escalation in Chemotherapy Patients

IMPORTANCE OF SYMPTOM MANAGEMENT: ESSENTIAL FOR IMPROVING THE QUALITY OF LIFE IN CANCER CARE.

COMMON SYMPTOMS: PAIN, FATIGUE, NAUSEA, ETC., SIGNIFICANTLY IMPACT TREATMENT ADHERENCE AND PATIENT COMFORT.

ROLE OF ML: MACHINE LEARNING ENABLES EARLY PREDICTION, AIDING IN TIMELY INTERVENTIONS FOR SYMPTOM MANAGEMENT.

PERFORMANCE METRICS OF THE CNN MODEL FOR VARYING INTERVAL LENGTHS (N) FROM 3 TO 7 DAYS

n	Accuracy	Precision	Recall	F1 Score	AUC
3	0.79	0.85	0.79	0.82	0.84
4	0.78	0.85	0.79	0.82	0.83
5	0.75	0.83	0.78	0.80	0.79
6	0.77	0.84	0.82	0.83	0.81
7	0.75	0.84	0.78	0.81	0.79

Bioengineering 2024;11(11):1172.

Deep Learning algorithms for the automated prediction of cycling exercise exertion levels

10	Maximal (Like my hardest race)
9	Really, Really, Hard
8	Really Hard
7	Very Hard
6	Hard
5	Challenging
4	Moderate
3	Easy
2	Really Easy
1	Rest

Features:

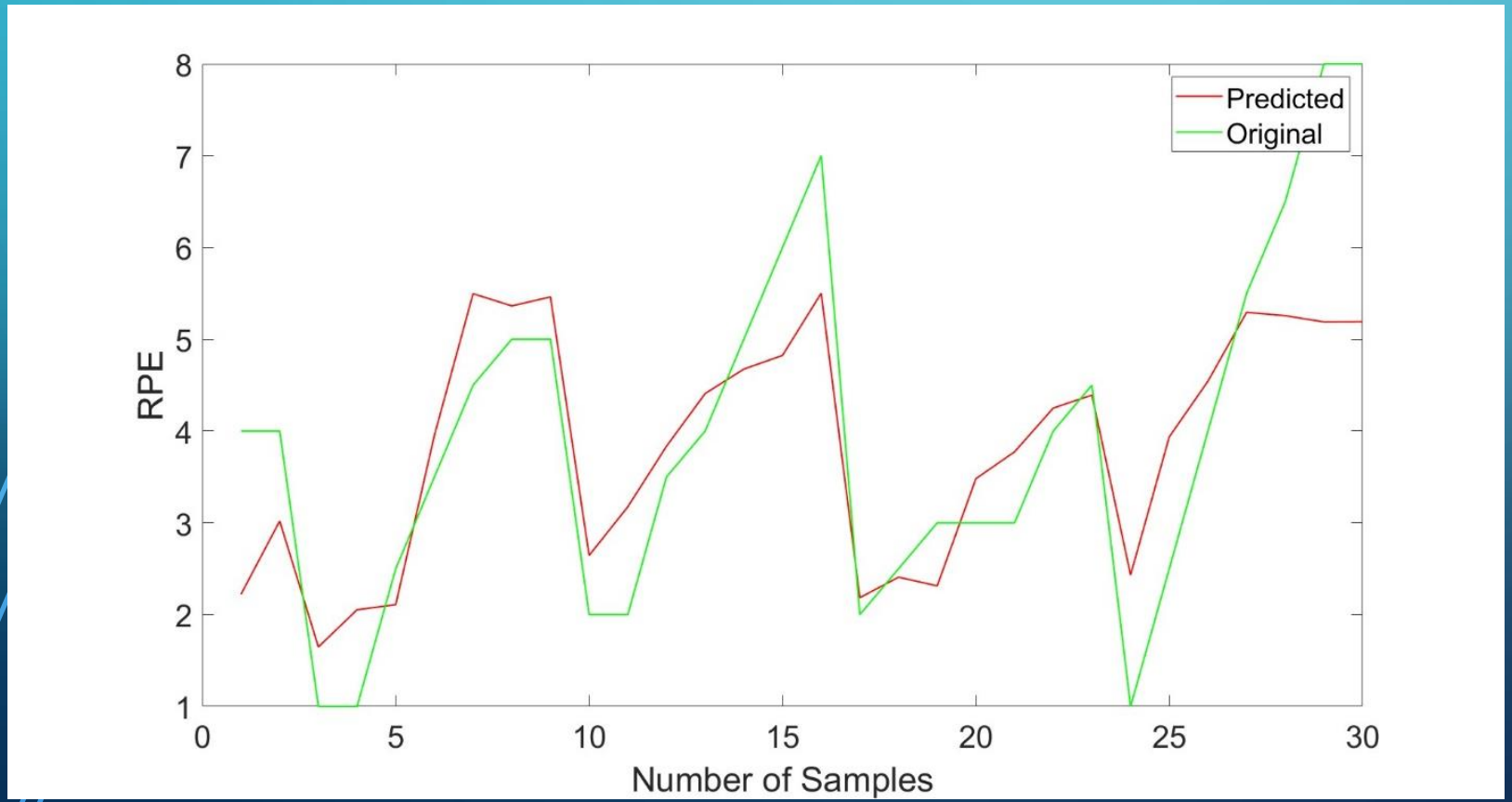
- iBikE: RPM
- Wearables: ECG, Pulse rate, and blood oxygen saturation

Response:

- high exertion *(RPE >= 3.5)*
- low exertion *(RPE < 3.5)*

Class	Precision	Recall	F1 Score
Class I (RPE < 3.5)	0.83	0.9	0.87
Class II (RPE >= 3.5)	0.94	0.89	0.92

LSTM CLASSIFICATION MODEL

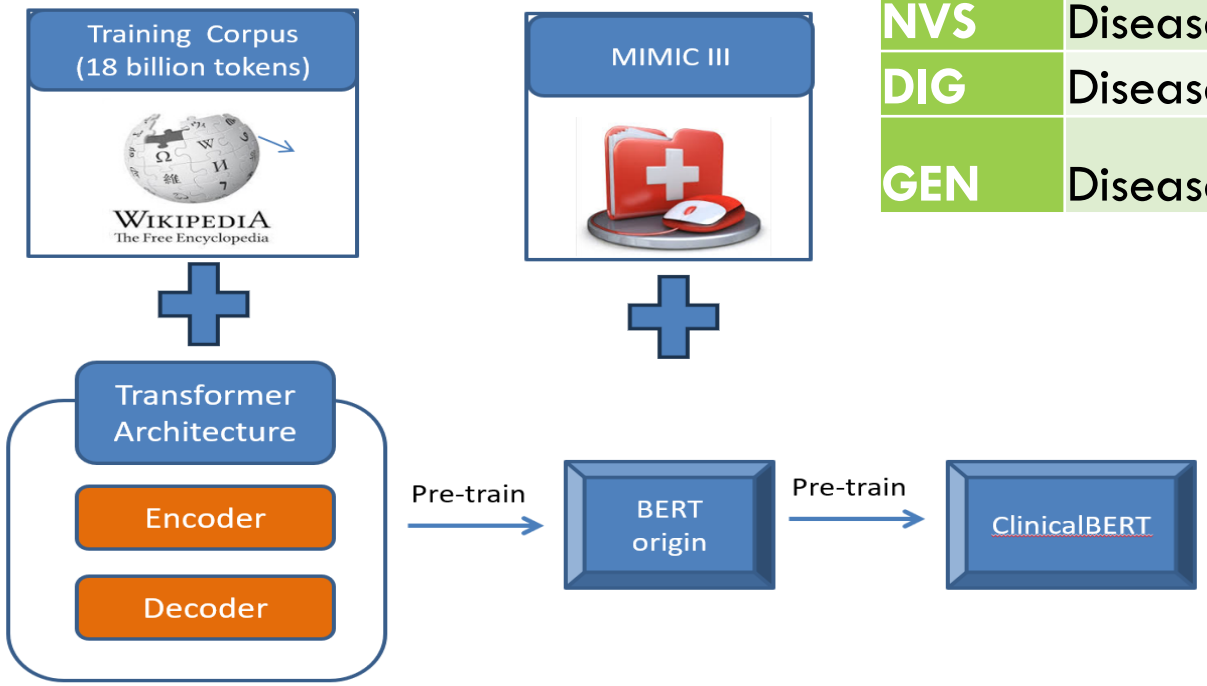


LSTM REGRESSION MODEL

Diagnostics 2024;15(1):52.

USE OF LARGE LANGUAGE MODELS TO IDENTIFY DISEASE CATEGORY AND ORGAN SYSTEMS BASED ON TRIAGE NOTES

Body System	Description	Precision	Recall	F1	Accuracy
CIR	Disease of the circulatory system	0.83	0.95	0.88	0.86
INF	Certain infectious and parasitic diseases	0.88	0.87	0.88	0.88
NEO	Neoplasms	0.93	0.79	0.85	0.87
RSP	Diseases of the respiratory system	0.83	0.84	0.84	0.83
NVS	Diseases of the nervous system	0.84	0.81	0.82	0.83
DIG	Diseases of the digestive system	0.83	0.78	0.8	0.81
GEN	Diseases of the genitourinary system	0.9	0.71	0.8	0.81



Finkelstein, 2024

Using Machine Learning to Identify No-Show Telemedicine Encounters

Patient profiles from "No-Show" and "Present" encounters

	No-Show Encounters			Present Encounters	
	N	percent		count	percent
Previous no show					
0 times	4171	81.4%		245999	97.6%
1-2 times	605	**11.8%**		5142	**2.0%**
3 or more times	348	6.8%		1028	0.4%
Race					
Asian	269	5.2%		15126	6.0%
Black	1077	**21.0%**		31392	**12.4%**
Others	2253	44.0%		87517	34.7%
White	1525	29.8%		118134	46.8%
Borough					
Bronx	658	**12.8%**		18916	**7.5%**
Brooklyn	757	14.8%		42537	16.9%
Manhattan	2155	42.1%		87279	34.6%
Others	923	18.0%		75508	29.9%
Queens	631	12.3%		27929	11.1%

Patient profiles from telehealth encounters before and during pandemic

	Prior	During
Count	1727	135,604
Age	**40.70**	**49.46**
Comorbidities	**0.50**	**1.24**

Sex	**Prior**	**During**
Female	65.4%	60.7%
Male	34.6%	39.4%
Race		
Asian	6. 9%	5.8%
Black	**6.7%**	**11.2%**
Others	30.4%	36.6%
White	56.1%	46.4%

"No-Show" prediction accuracy

Model	AUC	Accuracy
SVM	0.70	0.75
RF	0.68	0.81
XGB	0.68	0.74

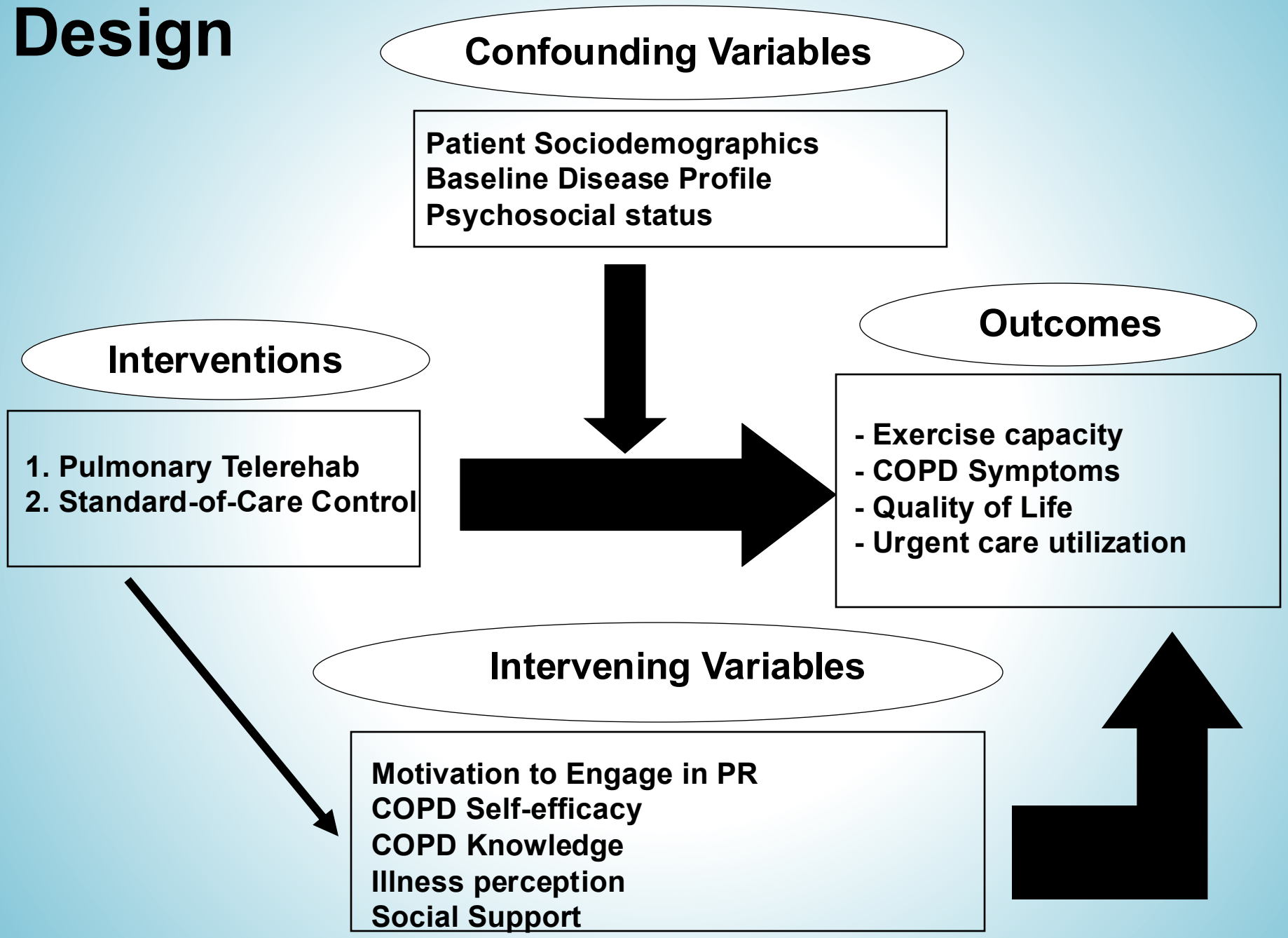
RCT: Impact of Pulmonary Telerehabilitation After Acute COPD Exacerbation

N=120	Intervention		Control	
Variable	*Mean*	*SD*	*Mean*	*SD*
Age	69.3	14.1	70.8	10.2
Time at school	14.8	3.7	12.8	3.6

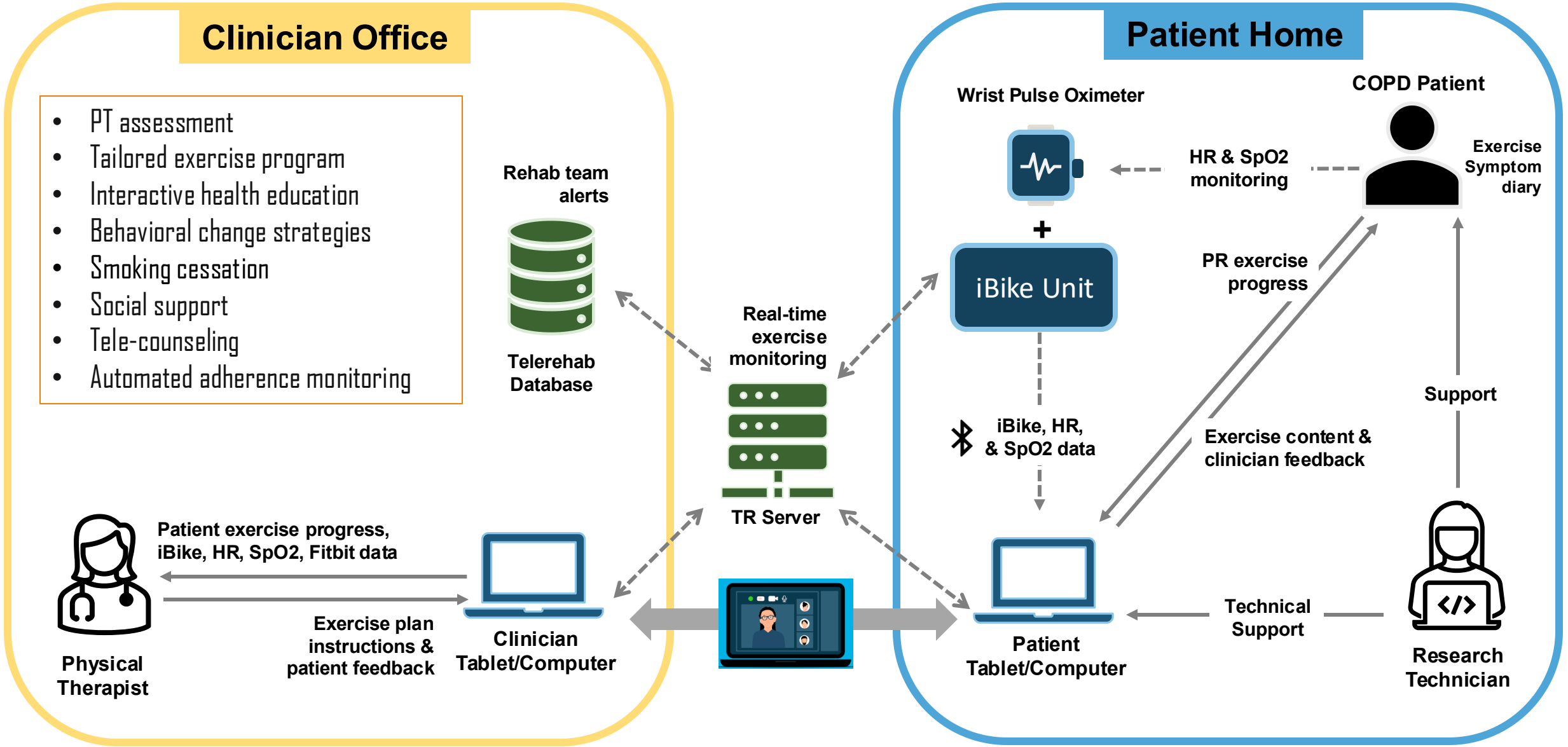
N = 120		Intervention	Control
Variable		*Percent*	*Percent*
Gender	*Female*	56	56
	Male	44	44
Race	*AA*	27	38
	Asian	5	3
	White	68	59
Hispanic	*0=No*	79	62
	1=Yes	21	38

R61HL143317, R33HL143317

Study Design



Pulmonary Telerehabilitation



INDIVIDUALIZED EXERCISE PRESCRIPTION

Current Exercise Plan:

Exercise	Duration(Sec)	Reps	Sets	Weights	Personalized Instruction	Del/Edit
Arm bike	300	1	1	0.00	do not go over a heart rate of 115 or a speed of	Del Edit
Breathing with trunk flexion and extension	10	3	3	0.00	3-4 reps in the morning, afternoon and evening	Del Edit
Deep breathing	10	3	3	0.00	3-4 reps in the morning, afternoon and evening	Del Edit
stand to sit	10	3	3	0.00	3-4 reps in the morning, afternoon and evening	Del Edit

Use the Table Below to Create a New Exercise Plan:

Exercise	Duration(Sec)	Reps	Sets	Weights	Personalized Instruction	Add
COPD_BREATHING						
Active cycle of breathing (ACB)						
Deep breathing						
Diaphragmatic breathing						
Huffing						
Lateral costal expansion						
Purse lipped breathing						
Segmental breathing						

Home-Based Pulmonary Telerehabilitation Unit

Pulse Oximeter

Portable Bike

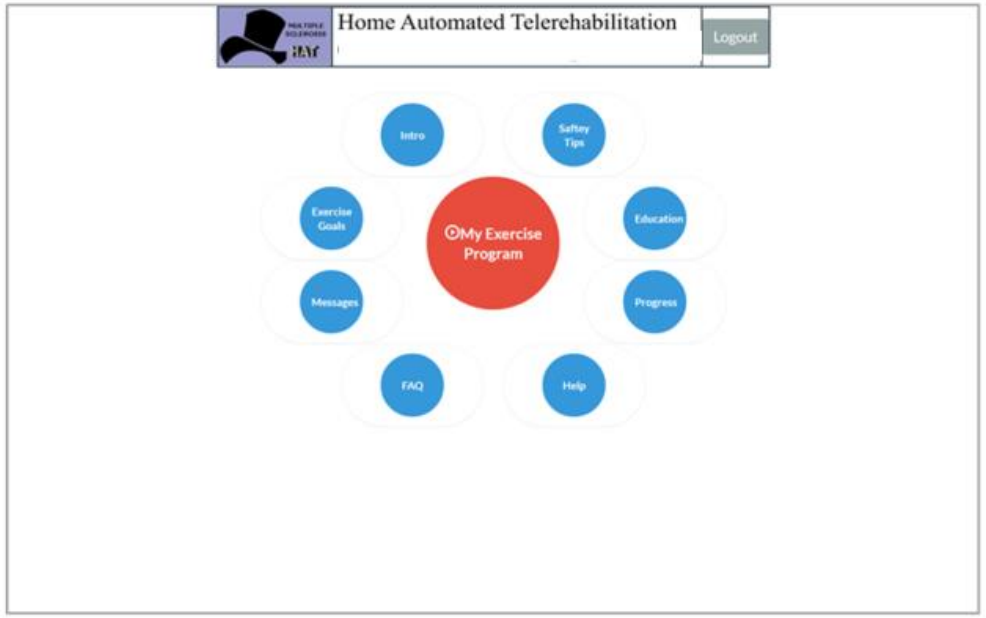
Central Server with Clinical Decision Support

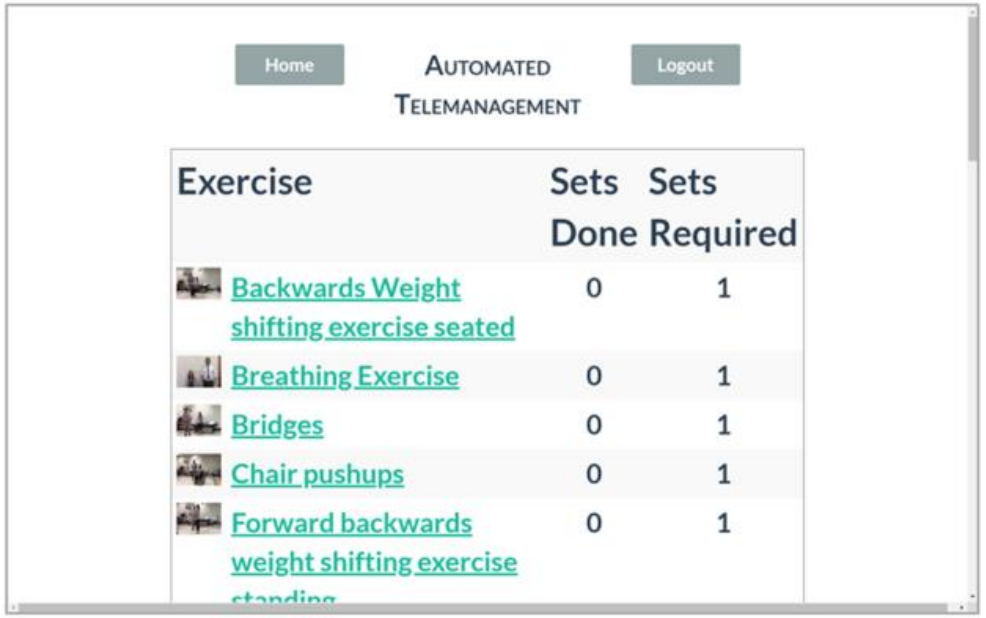
Fitbit

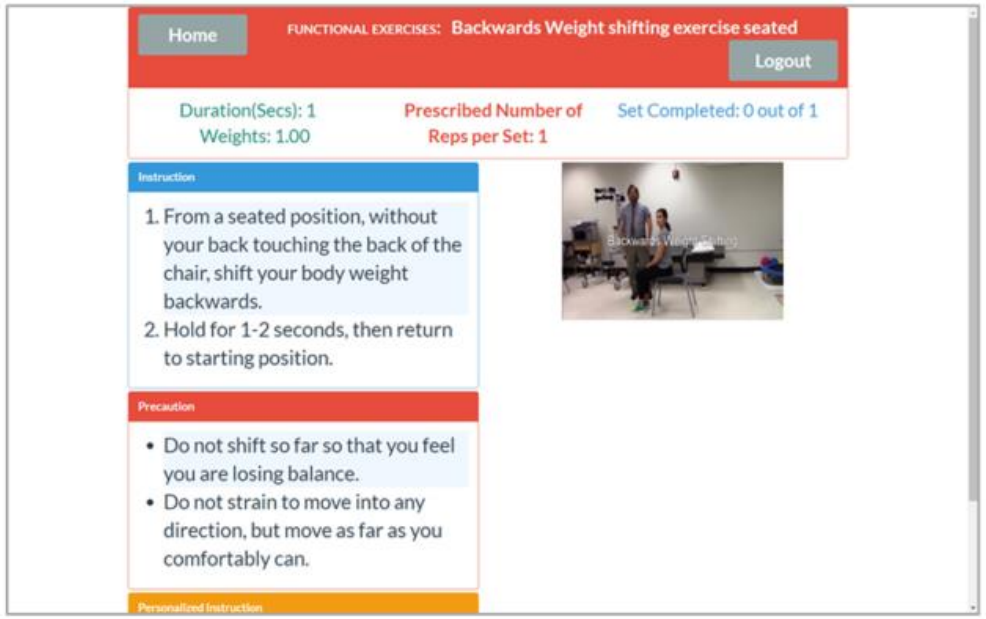
Patient Tablet

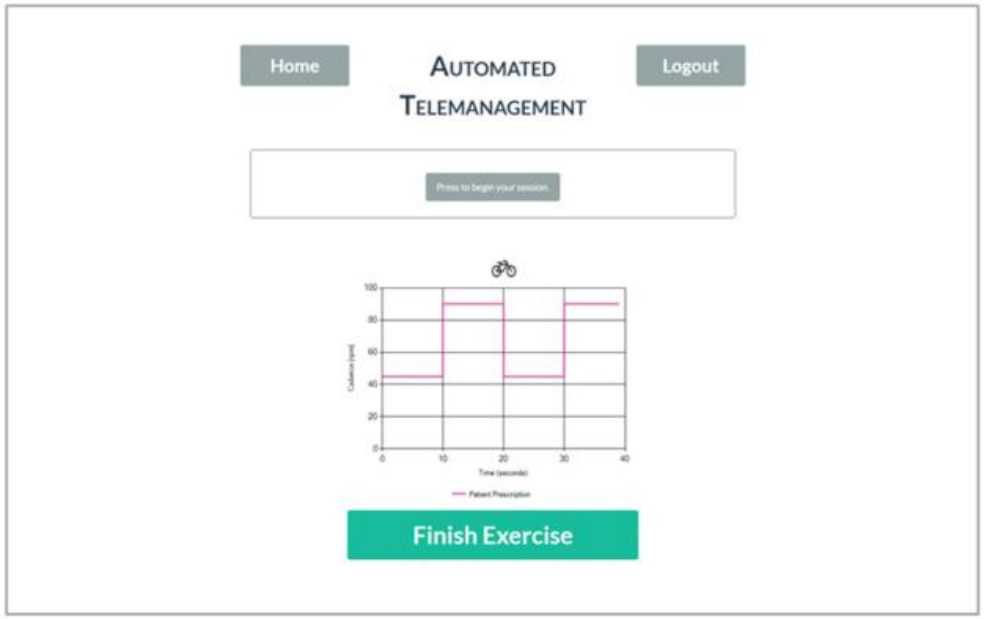
VR Headset

USER INTERFACE









Exercises – Explanation, Start, and Finish Options

Home | COPD_STRENGTHENING: Breathing with trunk flexion and extension | Logout

Duration(Secs): 3 | Prescribed Number of Reps per Set: 3 | Set Completed: 0 out of 3

Instruction

1. Standing or seated, lace your fingers and place them behind you head.
2. Lean back, opening up the front of your neck and chest.
3. Hold the breath for 3-4 seconds
4. Slowly begin to exhale and lean forward while

Precaution

- If you are standing and feel like you are losing balance, try it seated.

Personalized Instruction

- 3

Explain Exercise | Start Exercise | Finish Exercise

Home | COPD Home Automated Telemanagement | Logout

Congratulations!
You completed 1 sets(s) out of required 3 sets.

Would you like to start the next set?

.Yes
.No

Next

Home | COPD Home Automated Telemanagement

How many times did you do the exercise?

3

Next

Home | COPD Home Automated Telemanagement

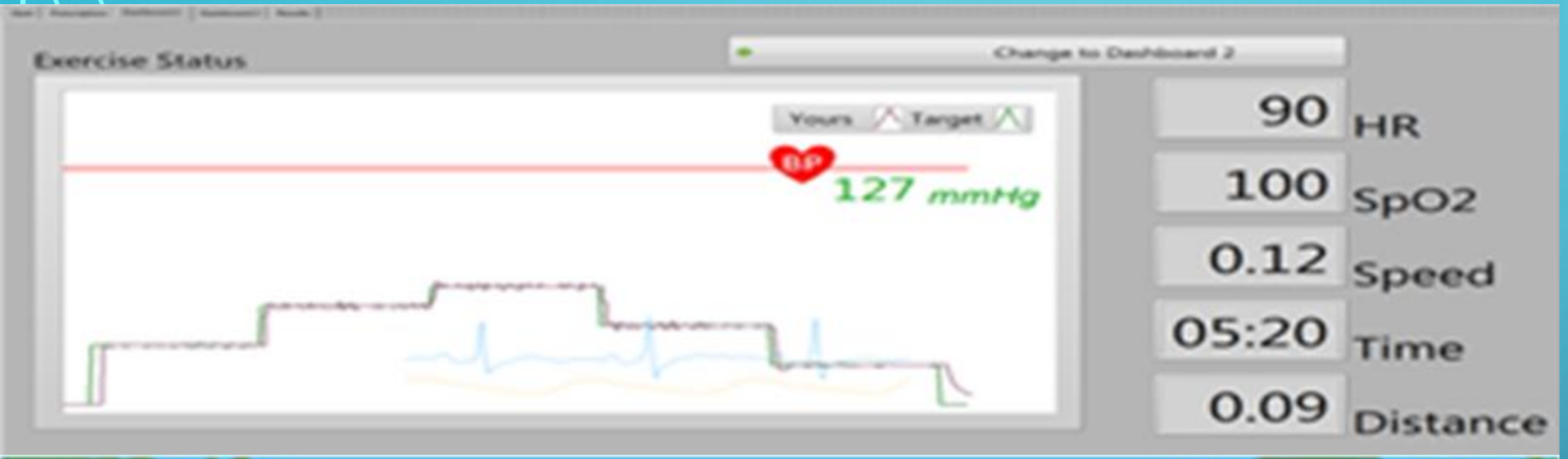
Did you place your hands in front of you and behind your head?

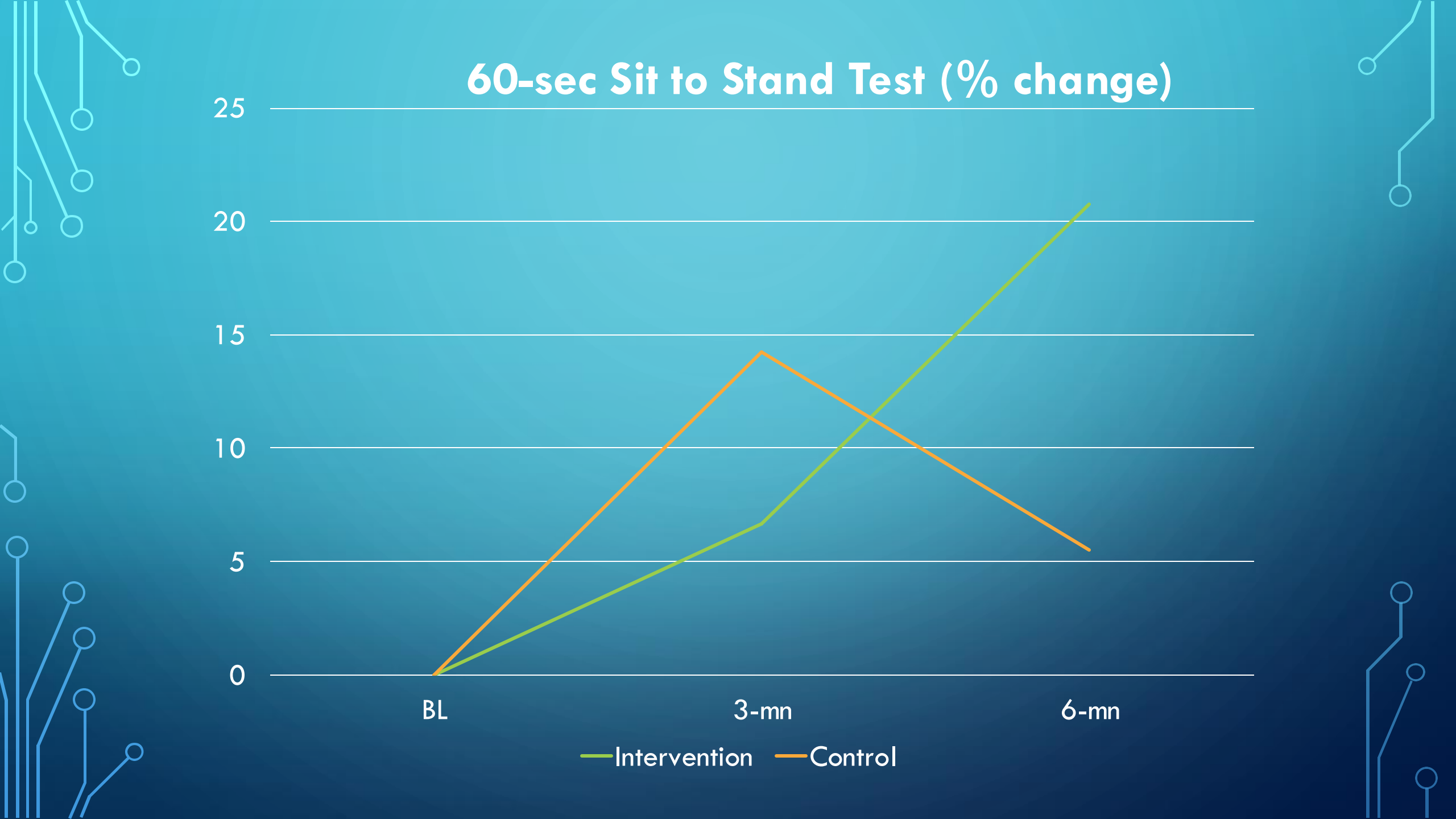
Yes
No

Next

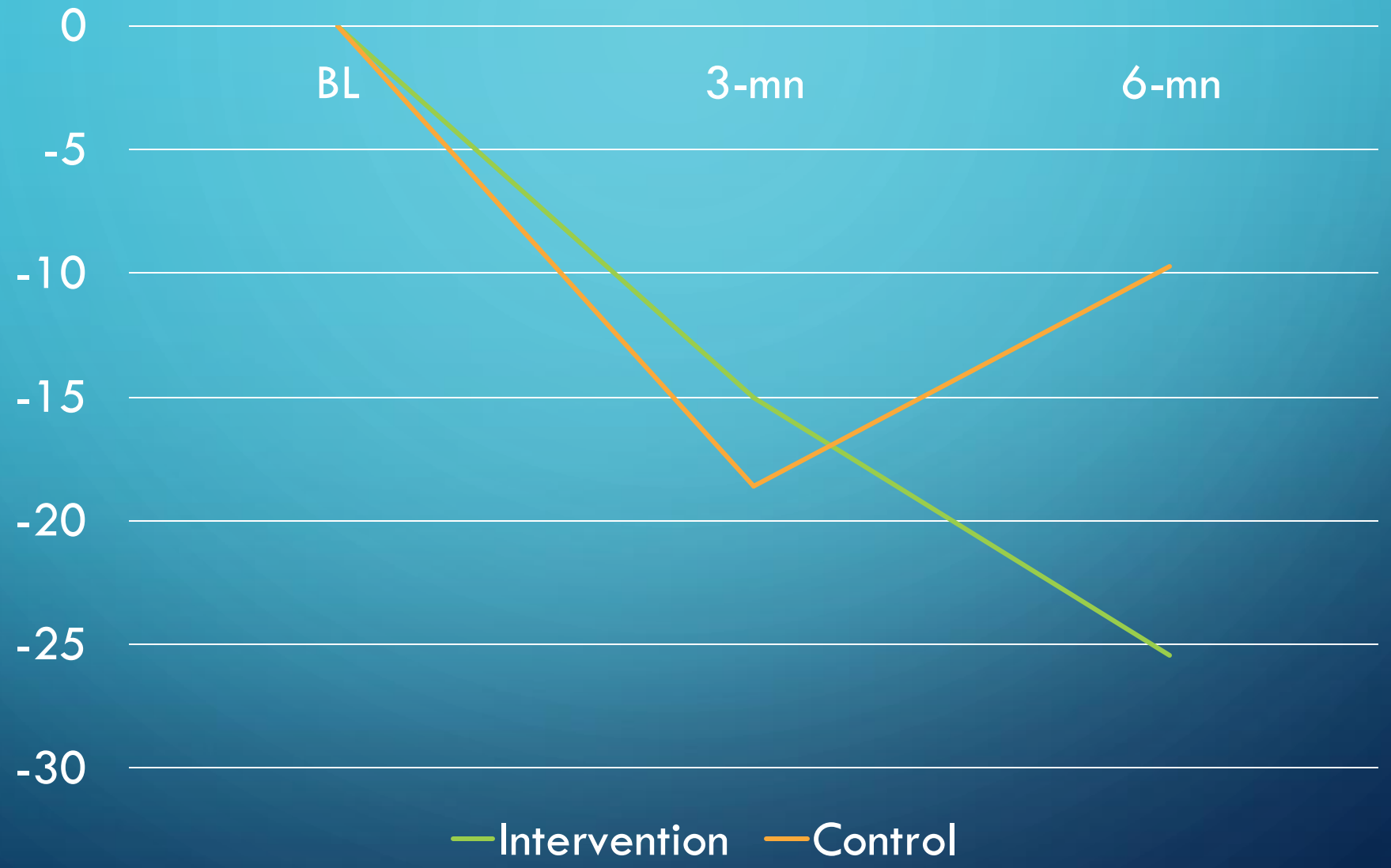
The patient is able to select any of the prescribed exercises and complete all recommended sessions.

EXERGAMING TO SUPPORT HOME-BASED REHABILITATION

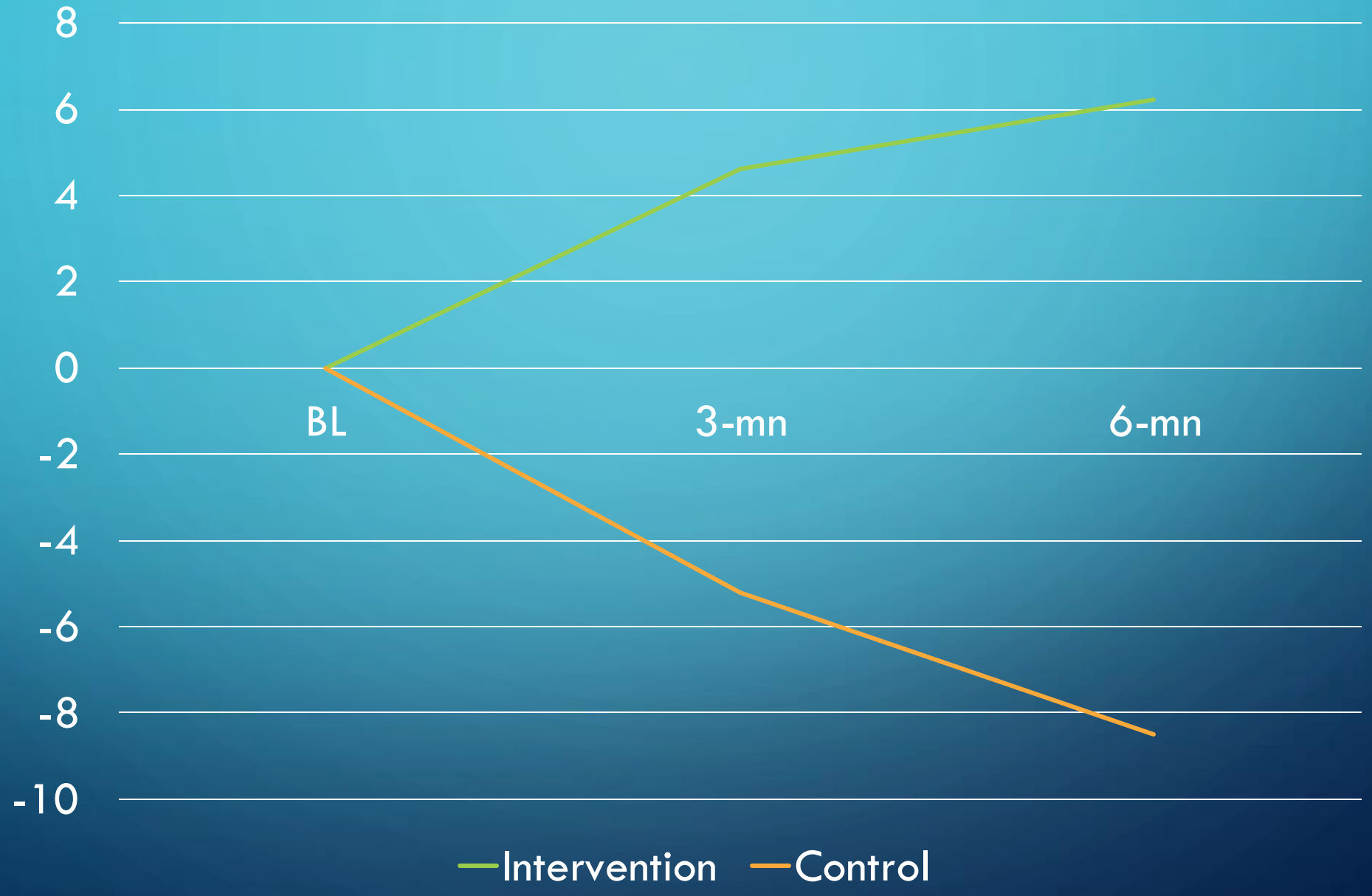



60-sec Sit to Stand Test (% change)
25
20
15
10
5
0
BL
3-mn
6-mn
Intervention
Control

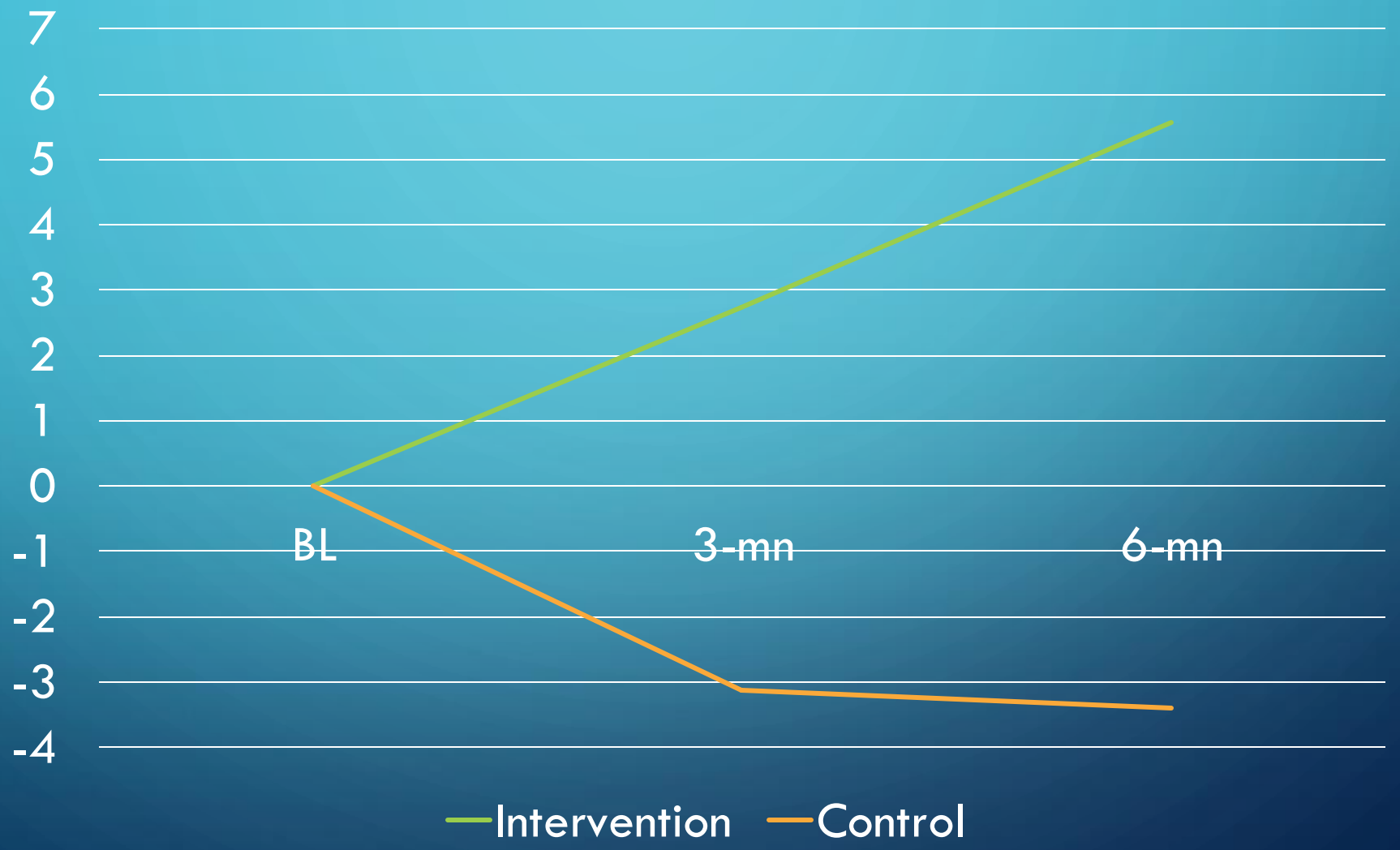
Dyspnea-12 (% change)



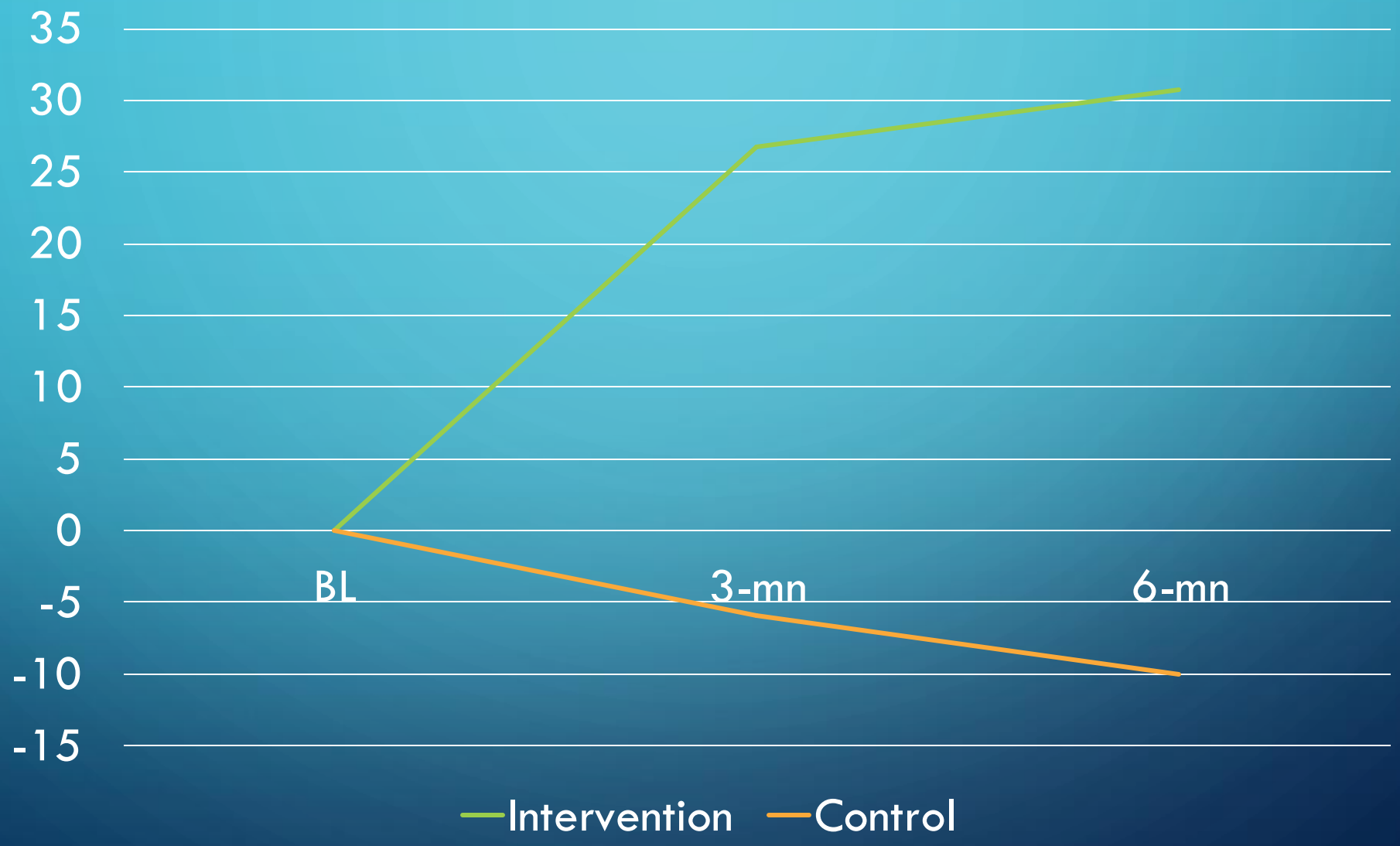
COPD Self-Efficacy (% change)

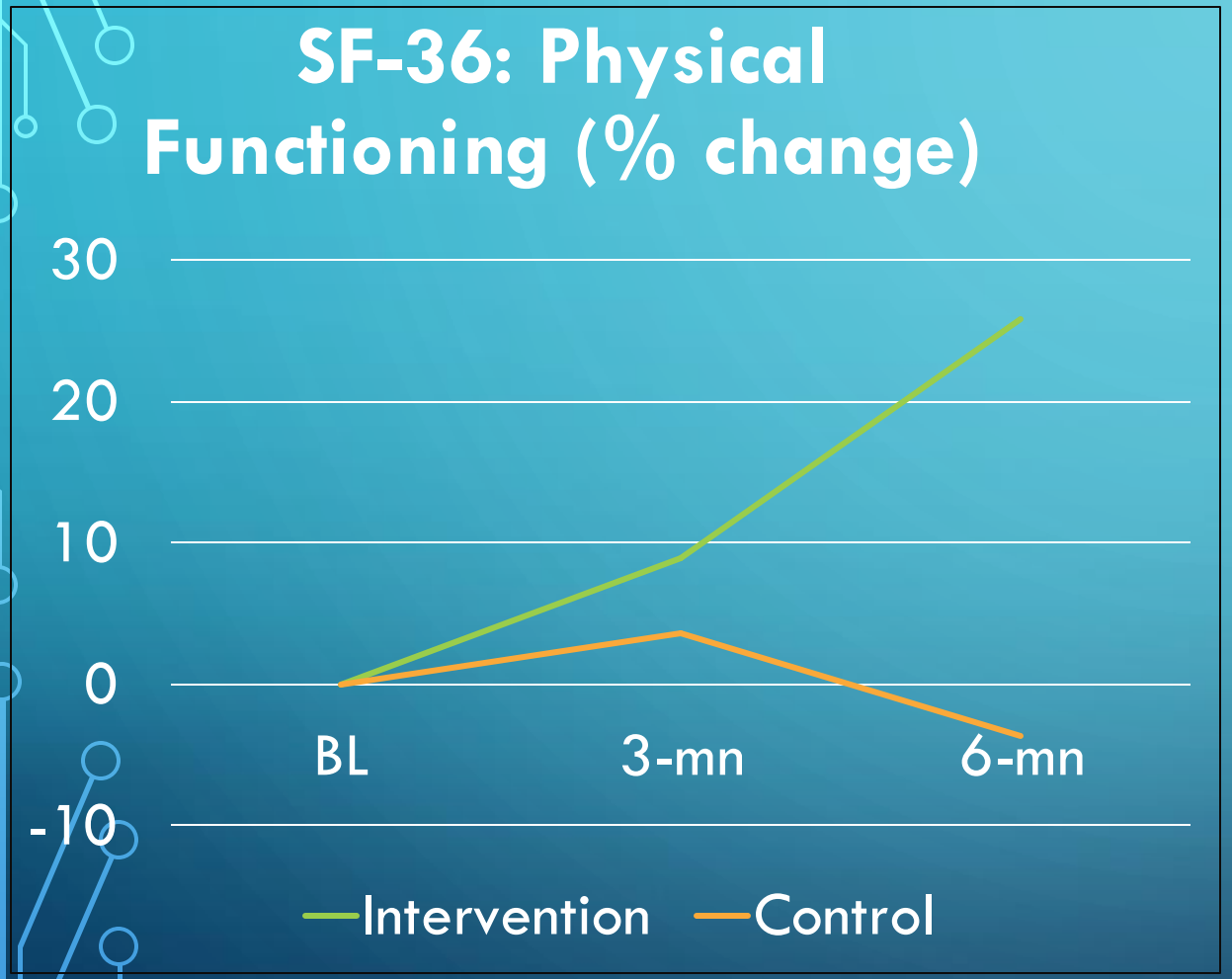


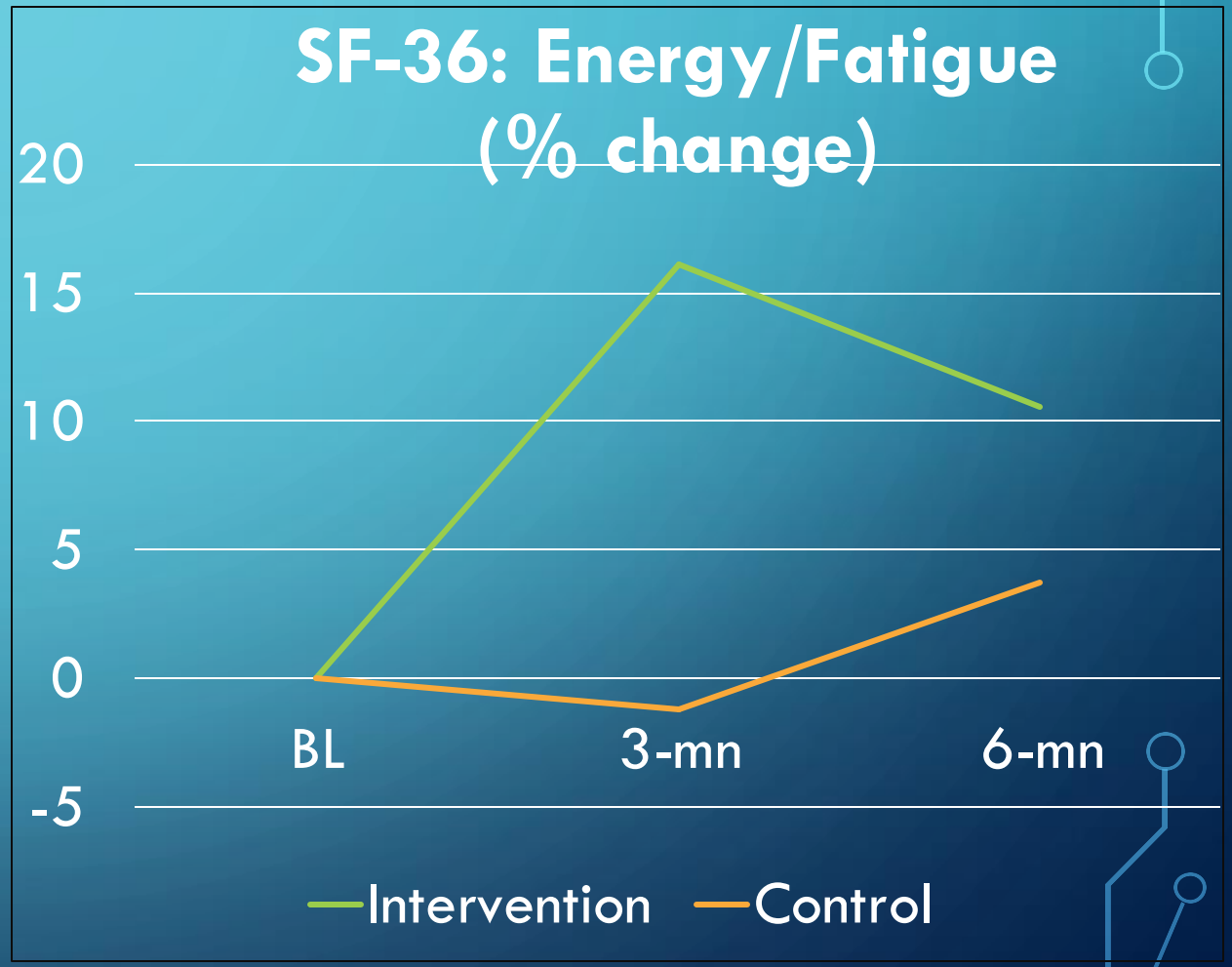
Behavioral Regulation in Exercise: BREQ-3 (% change)



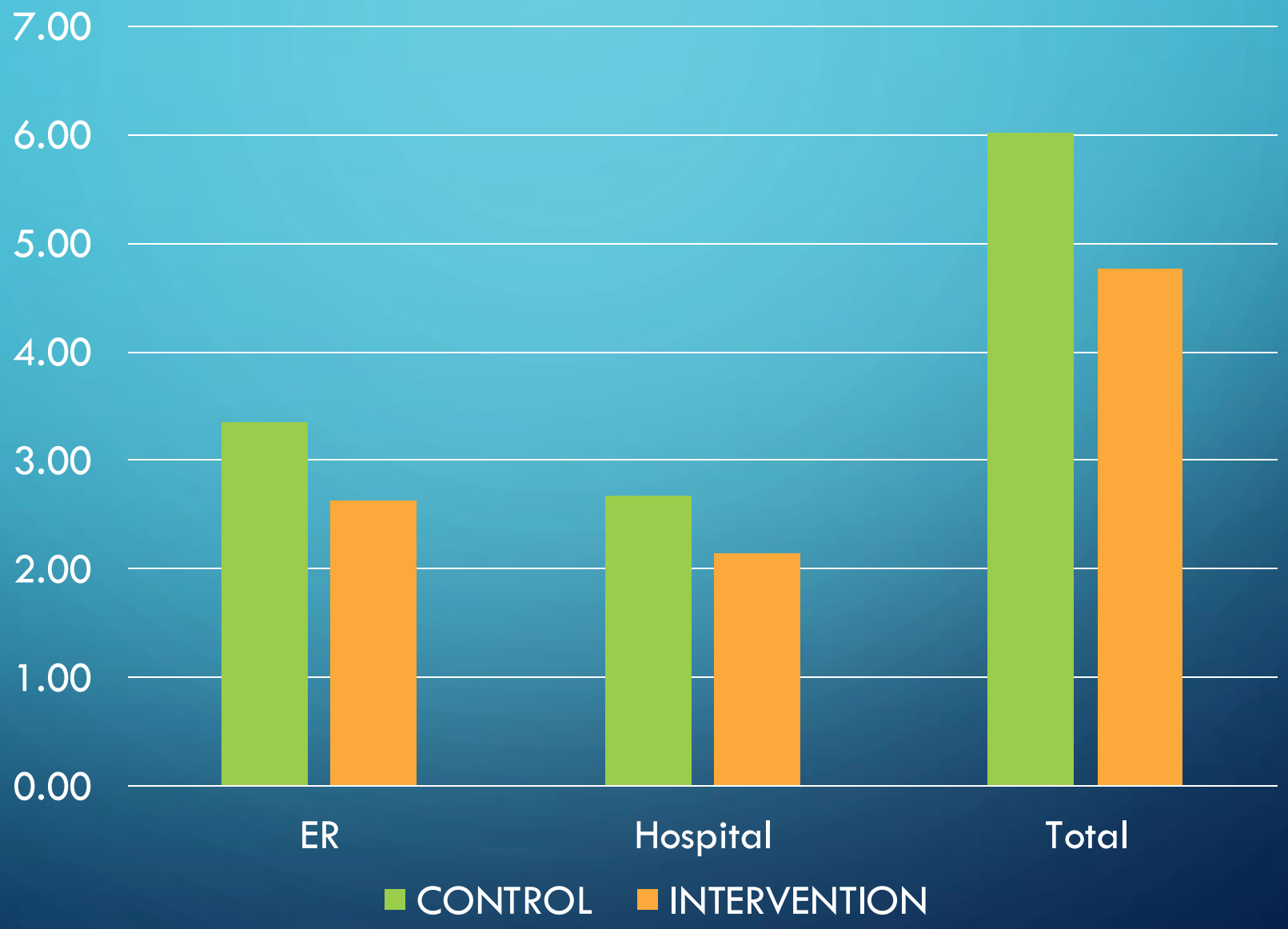
UCOPD: Pulmonary Rehab Satisfaction (% change)




SF-36: Physical Functioning (% change)
30
20
10
0
-10
BL
3-mn
6-mn
Intervention
Control


SF-36: Energy/Fatigue (% change)
20
15
10
5
0
-5
BL
3-mn
6-mn
Intervention
Control

Annual Urgent Care Utilization



PATIENT VOICES

- "Doing the exercises with visuals helps me to focus on my breathing and how to do the exercises and helps me function a little better."

- "I think it is good because it gives me more structure about what to do, not just picking up a piece of paper and reading it. It gives me purpose"

- "The major benefit is that you feel that there is someone there helping you. I felt that there was a person there helping me."

TELEHEALTH: LOOKING TOWARDS THE FUTURE

Opportunities

- Address Barriers in Rural Health Care
- Reverse America's Chronic Disease Crisis
- Reduce Expensive and Unnecessary Trips to the ER
- Make Specialty Care Faster and More Efficient
- Provide Access to the Best Clinical Care

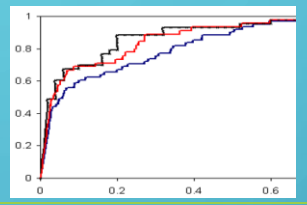
Trends

- Hybrid Care Models
- AI Integration
- Expanded Specialized Services (mental health/stigma, surgery, ophthalmology, rehabilitation, etc)
- Wearable Technologies, RPM, IoT
- LLM Chatbots

Areas of Research Innovation

AI Integration

- Predictive Analytics
- Large Language Models
- NLP-based Chatbots
- Digital Twins



Wearables & Sensors

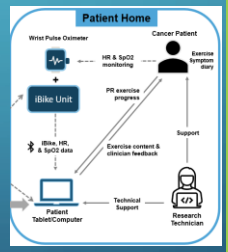
- Contactless monitors
- Body Area Networks (BAN)
- Internet of Things
- EHR Integration

Virtual/Augmented Reality

- Education
- Counseling
- Rehabilitation
- Simulation

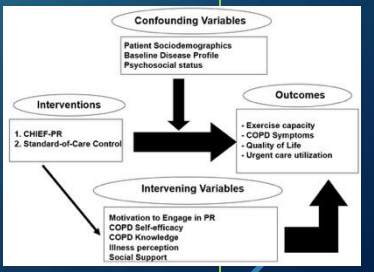
Care Delivery Models

- Testing
- Implementation
- Pragmatic Clinical Trials
- Dissemination

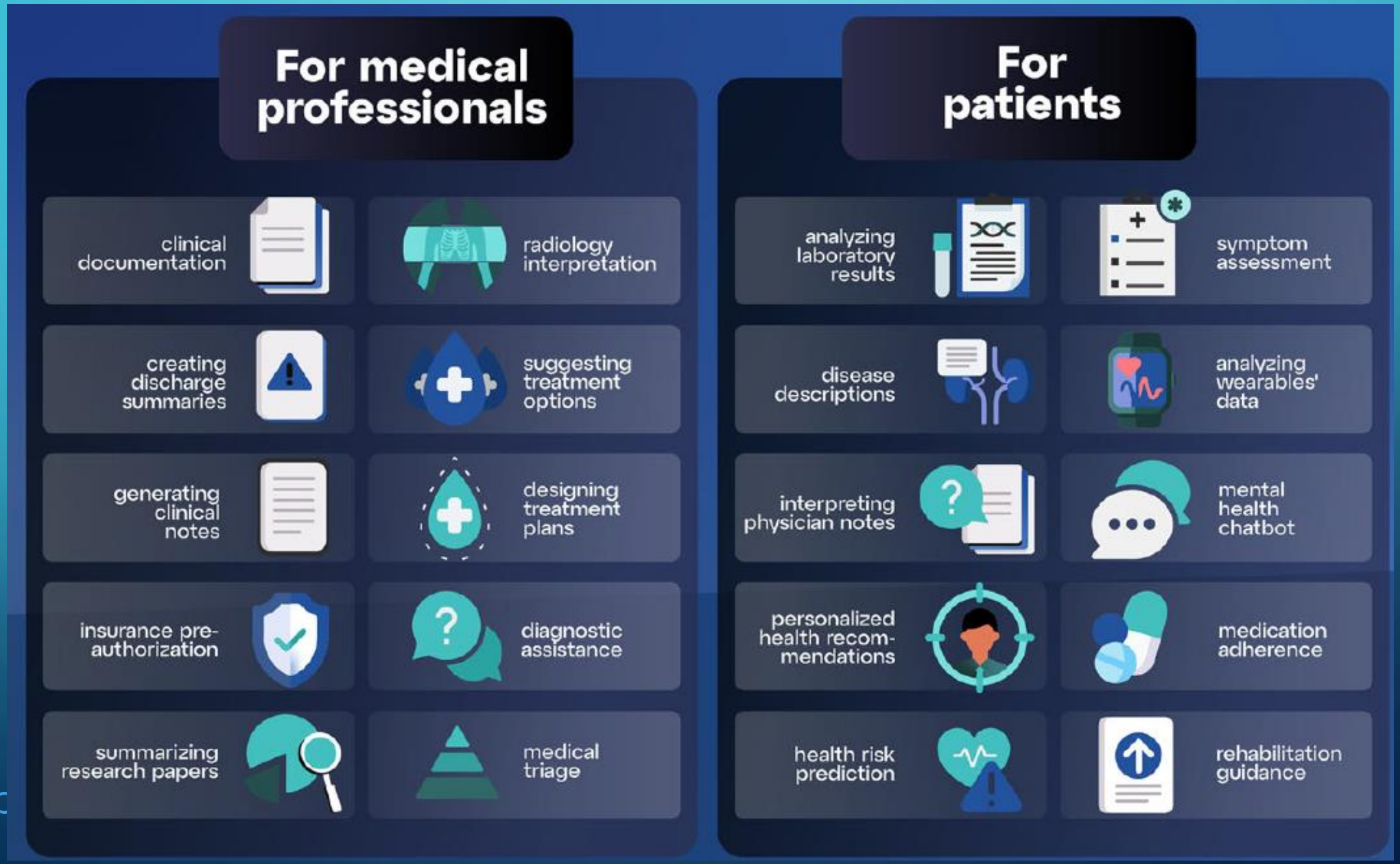


Decentralized Clinical Trials

- Enrollment
- Consenting
- Survey administration
- Vital sign/test collection



FUTURE AI-ENHANCED TELEMEDICINE AND DIGITAL HEALTH



TIME TO ADOPT NEW CLINICAL INTERVENTION?

- The first observation that citrus cures scurvy in the British Navy occurred in **1601**, with the first randomized controlled trial of citrus to treat scurvy conducted in **1747**
- Yet the British Navy did not adopt routine use of citrus to prevent scurvy until **1795**, and the British Merchant marine in **1865**
- Average adoption time in current literature is about **17** years

THANK YOU!

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Our Next Webinar

The NCTRC Webinar Series

Occurs 3rd Thursday of every month.

Hosting TRC: Northeast Telehealth Resource Center (NETRC)
Telehealth Topic: Leveraging Telehealth in Pediatric Obesity Care: A Multidisciplinary Model with Big Impact
Date: July 23, 2025
Times: 11 AM – 12 PM (PT)

Please Complete Our Survey

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Please participate in this brief perception survey (will also open after webinar):

https://www.surveymonkey.com/r/XK7R72F