Behavioral Health Institute (BHI)

Training, Workforce and Policy Innovation Center

TeleBehavioral Health 401 Training Series

Behavioral Health Telehealth Resource
Website: https://bhinstitute.uw.edu
Email: bhinstitute@uw.edu

May 19, 2023

Behavioral Health Institute (BHI)

Training, Workforce and Policy Innovation Center

The Behavioral Health Institute is a Center of Excellence where innovation, research and clinical practice come together to improve mental health and addiction treatment. BHI established initial priority programs which include:

- Improving care for youth and young adults with early psychosis
- Behavioral Health Urgent Care Walk in Clinic
- Behavioral Health Training, Workforce and Policy Innovation Center
- Expanded Digital and Telehealth Services

Speaker Disclosures

None of the series speakers have any relevant conflicts of interest to disclose.

Planner disclosures

The following series planners and team have no relevant conflicts of interest to disclose:

Brad Felker MD
Cara Towle MSN RN
Melody McKee SUDP MS
Michele Patience Staal
Topher Jerome

DISCLAIMER

Any information provided in today's talk is not to be regarded as legal advice. Today's talk is purely for informational purposes.

Always consult with legal counsel.

We gratefully acknowledge the support from

Washington State Health Care Authority

NRTRC NORTHWEST REGIONAL TELEHEALTH RESOURCE CENTER

AHECWW
AREA HEALTH EDUCATION CENTER
FOR WESTERN WASHINGTON AT WHATCOM COMMUNITY COLLEGE

BUILDING TELEHEALTH CAPACITY for BEHAVIORAL HEALTH

TeleBehavioral Health 401

TITLE:

CHRISTINA ARMSTRONG, PH.D.
LICENSED CLINICAL PSYCHOLOGIST (WA LICENSE #PY60216629, CA LICENSE #PY28310)

OFFICE OF CONNECTED CARE, U.S. DEPARTMENT OF VETERANS AFFAIRS (CENTRAL OFFICE), WASHINGTON DC
WWW.CONNECTEDHEALTH.VA.GOV

ASSOCIATE EDITOR, JOURNAL OF TECHNOLOGY IN BEHAVIORAL SCIENCE, SPRINGER PUBLISHING, NEW YORK CITY, NEW YORK
HTTPS://WWW.SPRINGER.COM/PSYCHOLOGY/JOURNAL/41347

ADJUNCT PROFESSOR, GRADUATE SCHOOL OF EDUCATION AND PSYCHOLOGY, PEPPERDINE UNIVERSITY, MALIBU, CA

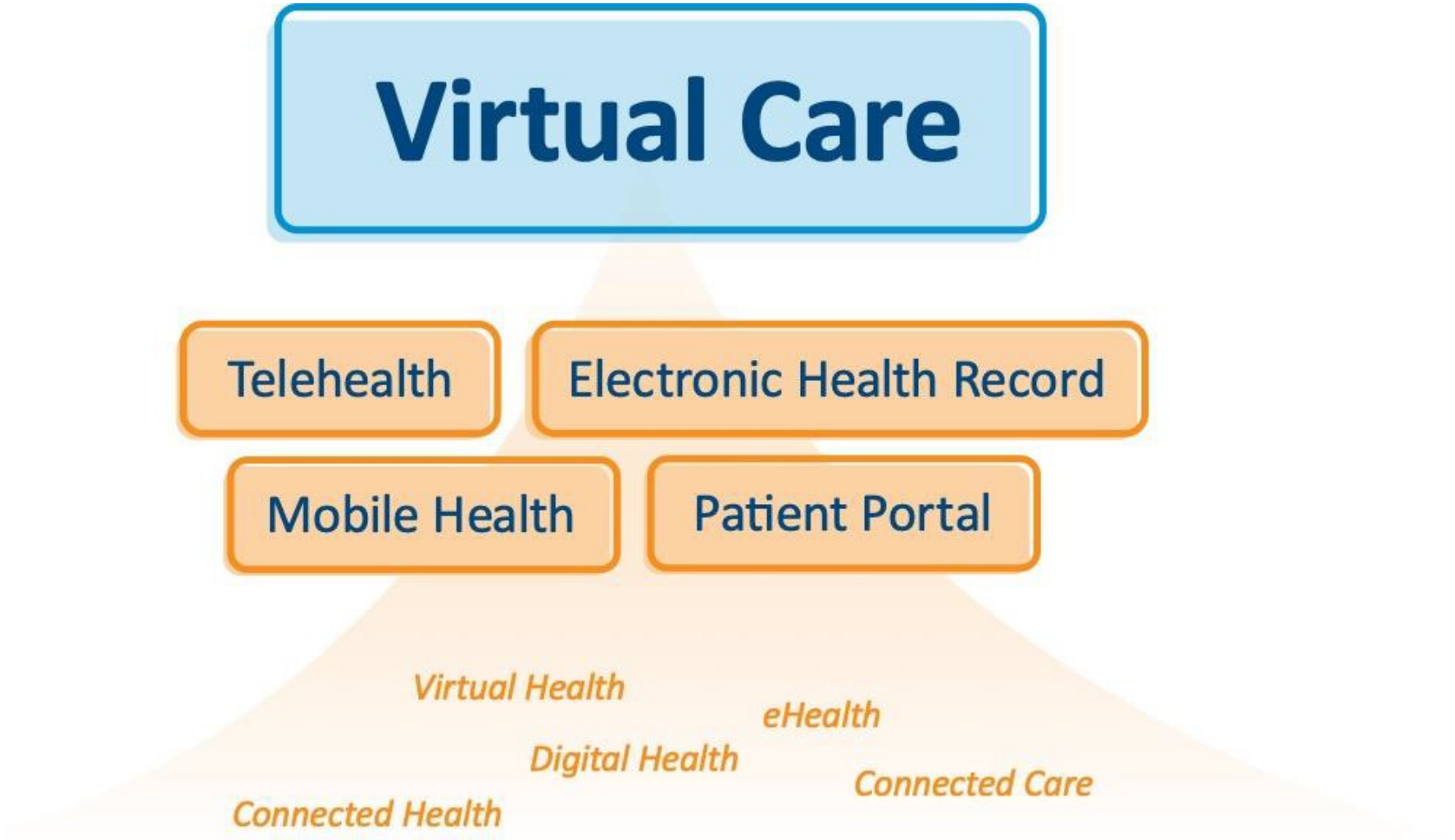
MAY 19, 2023

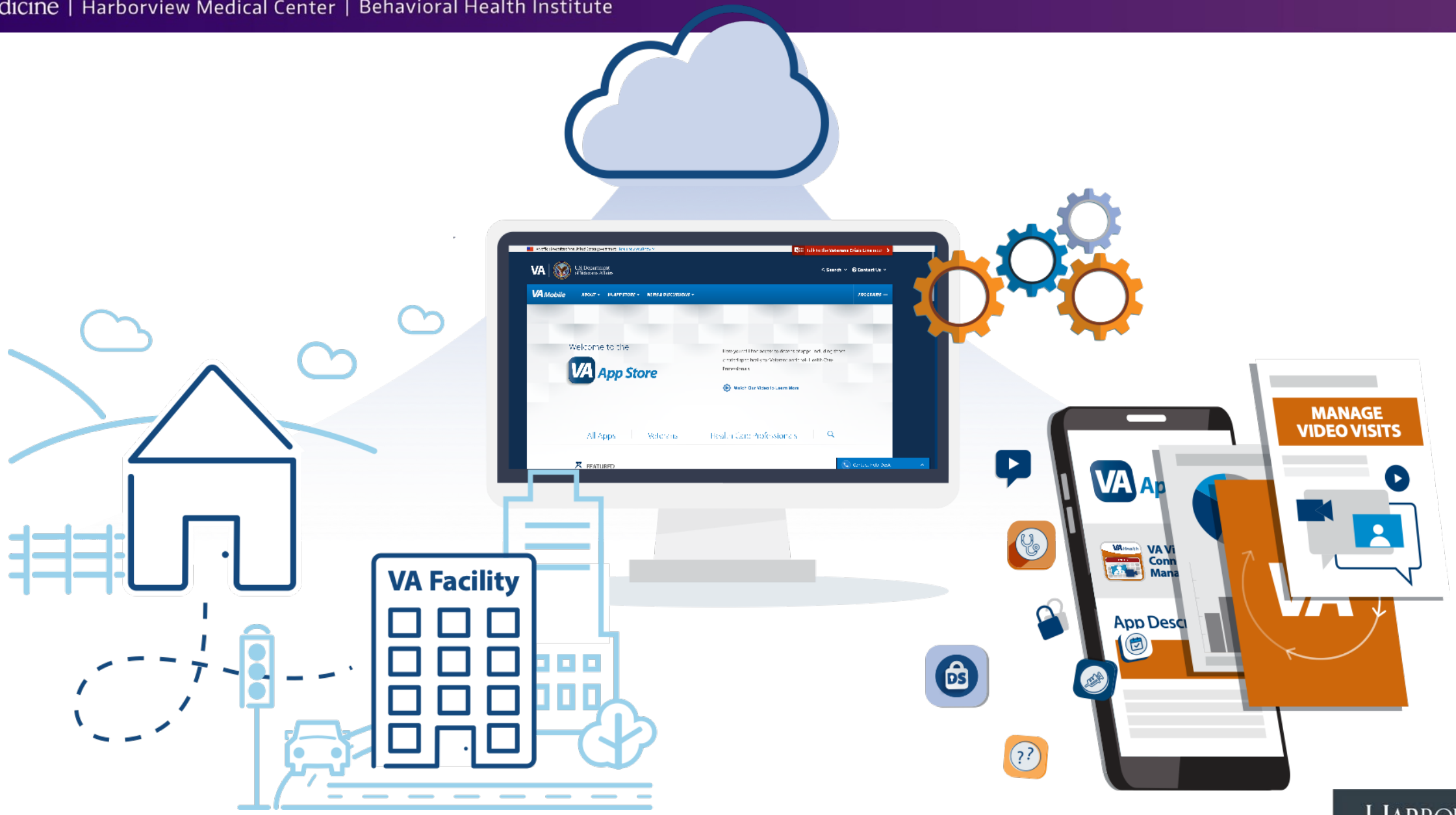
Learning Objectives:

1. Be familiar with common definitions of health technologies and components of virtual care and patient-generated health data (PGHD).
2. Describe the benefits of using virtual care and PGHD to support clinical care.
3. Demonstrate how virtual care and PGHD can support clinical management and decision making in a model of continuous care.

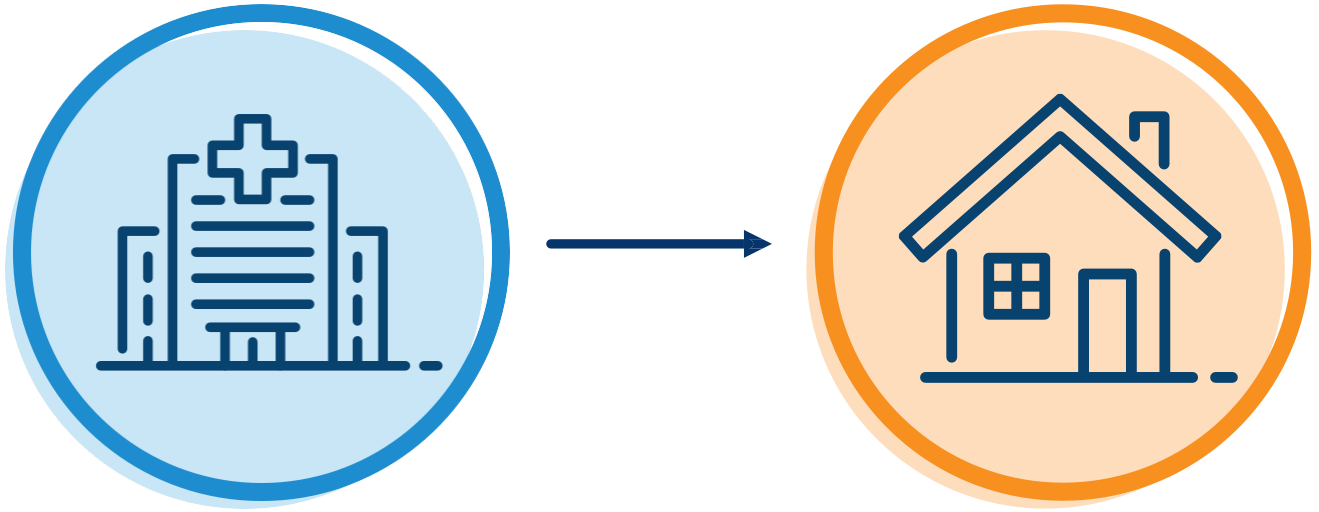
SECTION 1

Overview of Virtual Care and PGHD


Virtual Care
Telehealth
Electronic Health Record
Mobile Health
Patient Portal
Virtual Health
eHealth
Digital Health
Connected Care
Connected Health


VA
VA Mobile
Welcome to the
VA App Store
VA Facility
MANAGE
VIDEO VISITS
App Desc
DS

Care Transformation in Healthcare



Traditional –> Transitional –> Transformed

Use Virtual Care Tools Anywhere Along the Care Continuum

Very high level of need

Lower levels of need

My healthevet

VA Mobile

VA Telehealth

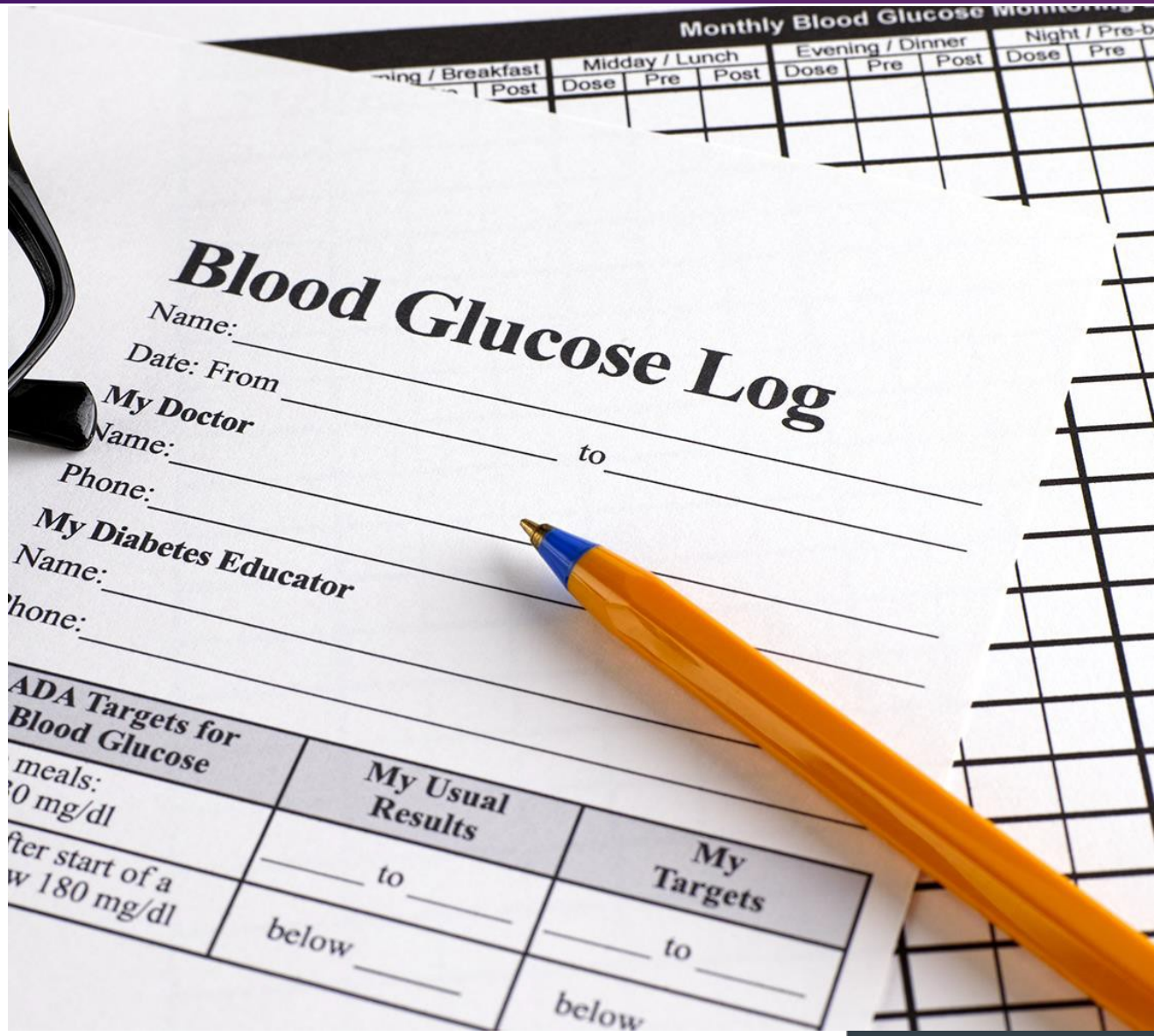
Definition of PGHD

Patient-generated health data, or PGHD, is health-related data created, recorded, or gathered by or for patients (or their family members or other caregivers) outside the clinical health care setting to promote health and wellness or to help address a health concern.

For more information on PGHD, read the VHA Directive 6506.

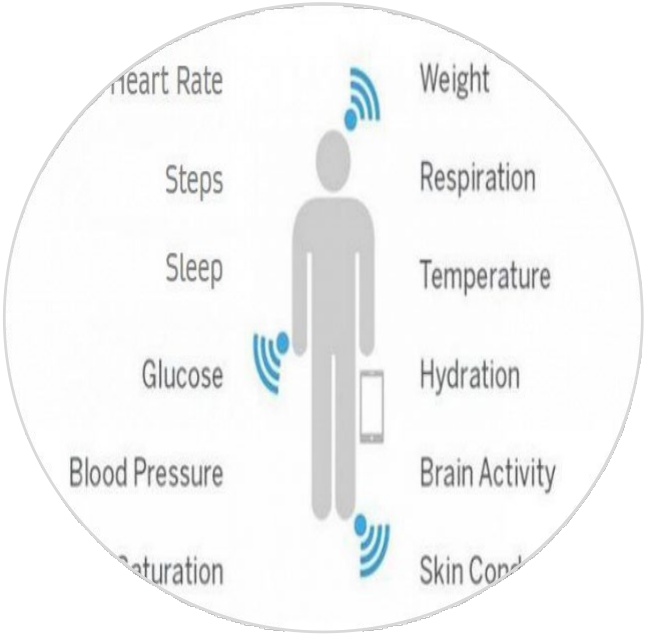
Fundamentals of PGHD

PGHD has
always existed.



Fundamentals of PGHD

New tools have emerged.



Examples of PGHD

Vital signs

Lab data

Lifestyle data

Quality of life data

Other health data

EHR Data

EHR data informs episodic care.

The EHR and PGHD informs comprehensive and personalized care.

For more information on EHRs, visit the Office of National Coordinator for Health Information Technology (ONC) website.

SECTION 2

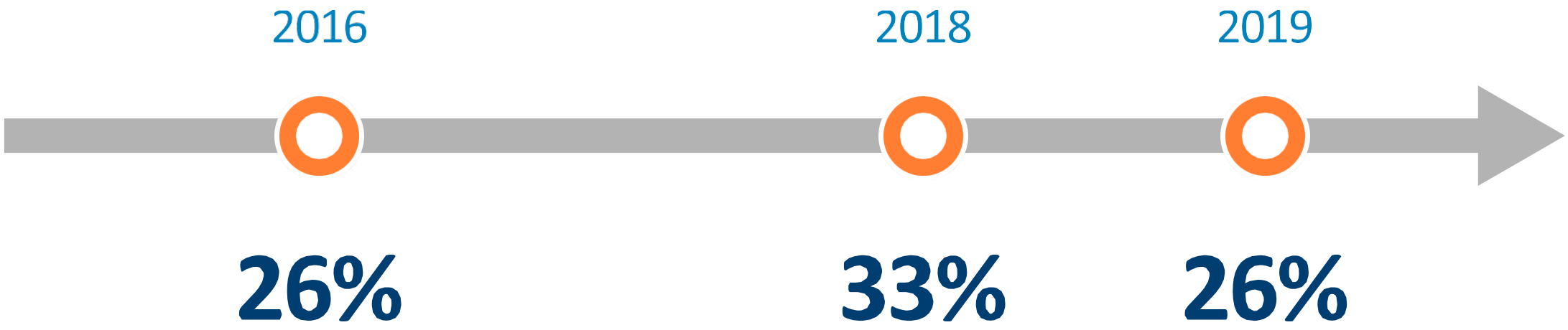
Virtual Care Trends, Use, and Opportunities

Population Trends in Virtual Care

- Websites
- Mobile phones and tablets
- EHRs
- Patient portals
- Remote patient monitoring

Reference: Accenture, 2018; Safavi & Kalis, 2020.

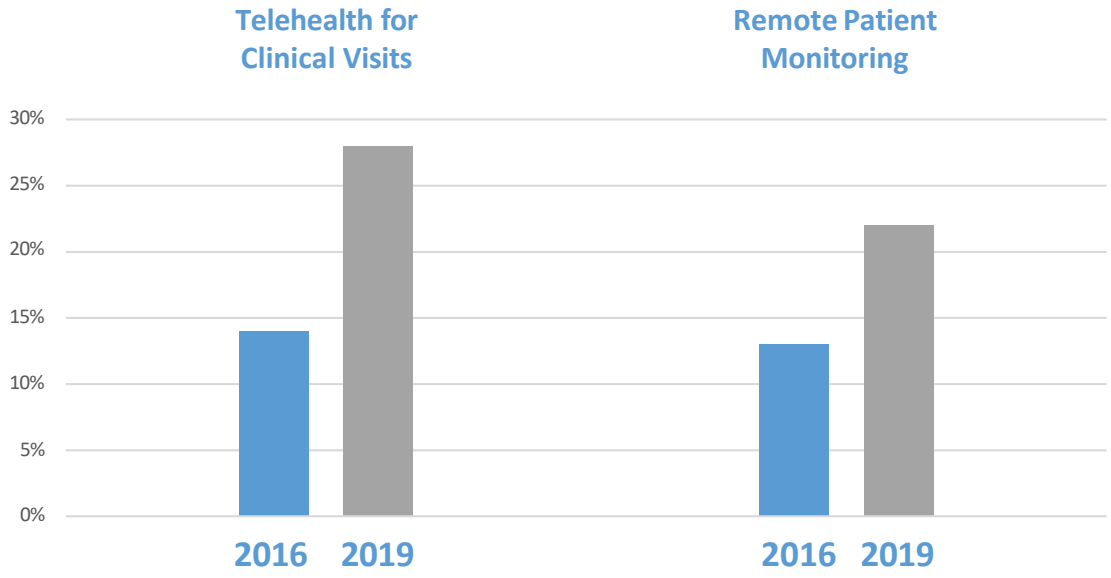
Wearable in Virtual Care



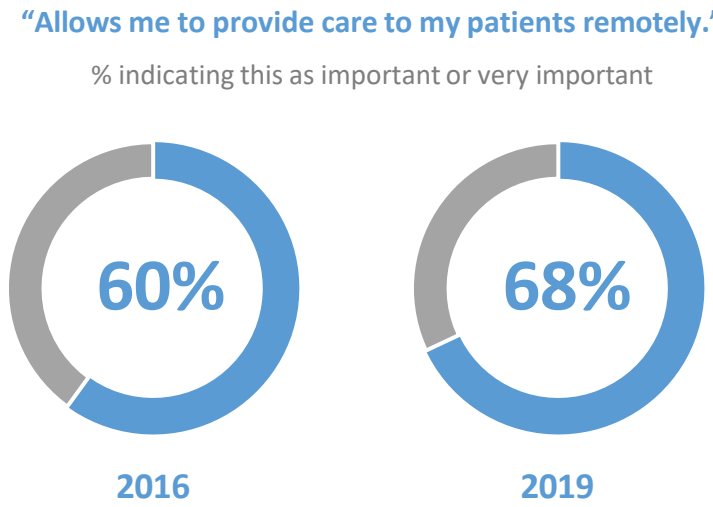
Reference: Safavi & Kalis, 2020.

Population Trends in Virtual Care

Physicians Using:



Motivation for Using Sensors and Wearable Devices

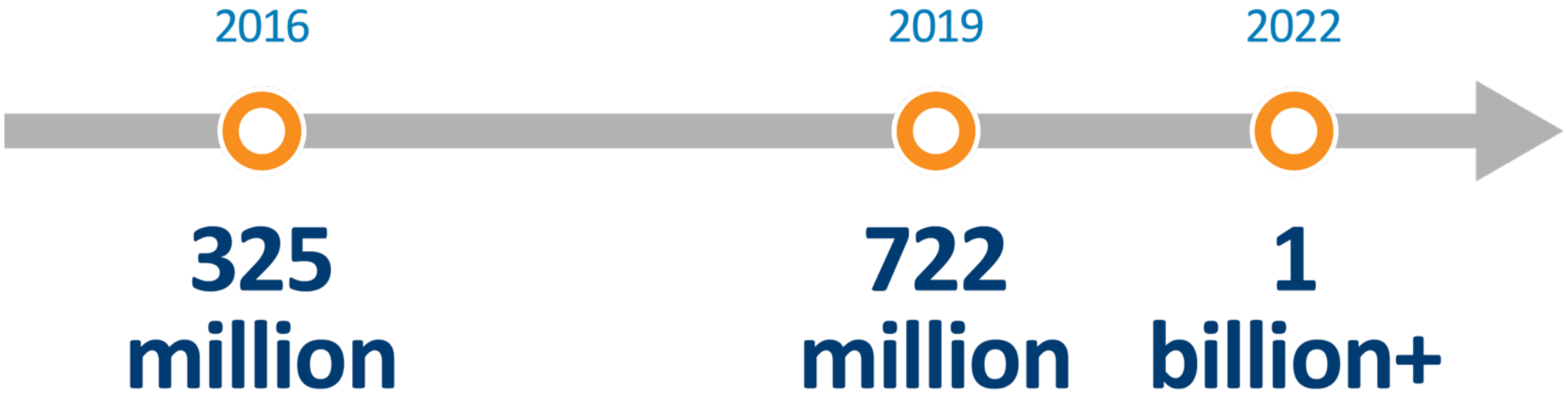


Reference: American Medical Association, 2020.

Wearable Sensors

- Steps taken
- Calories burnt
- Heart rate
- Sleep metrics
- Atrial fibrillation

Wearable Devices



References: Piwek et al., 2016; Vailshery, 2021.

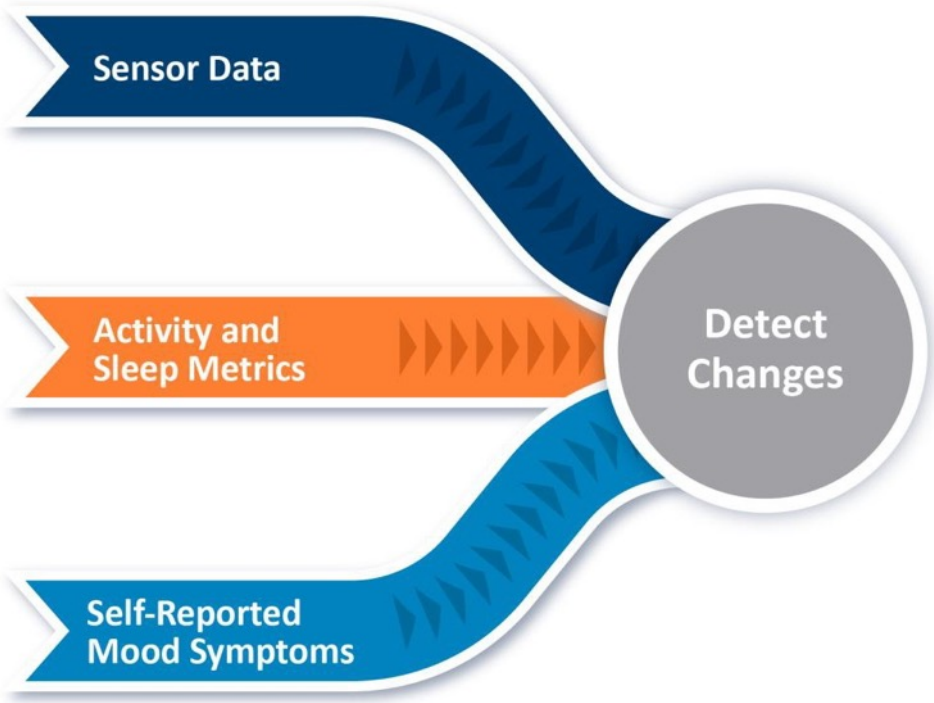
Wearable Devices

Sensors

Wearables

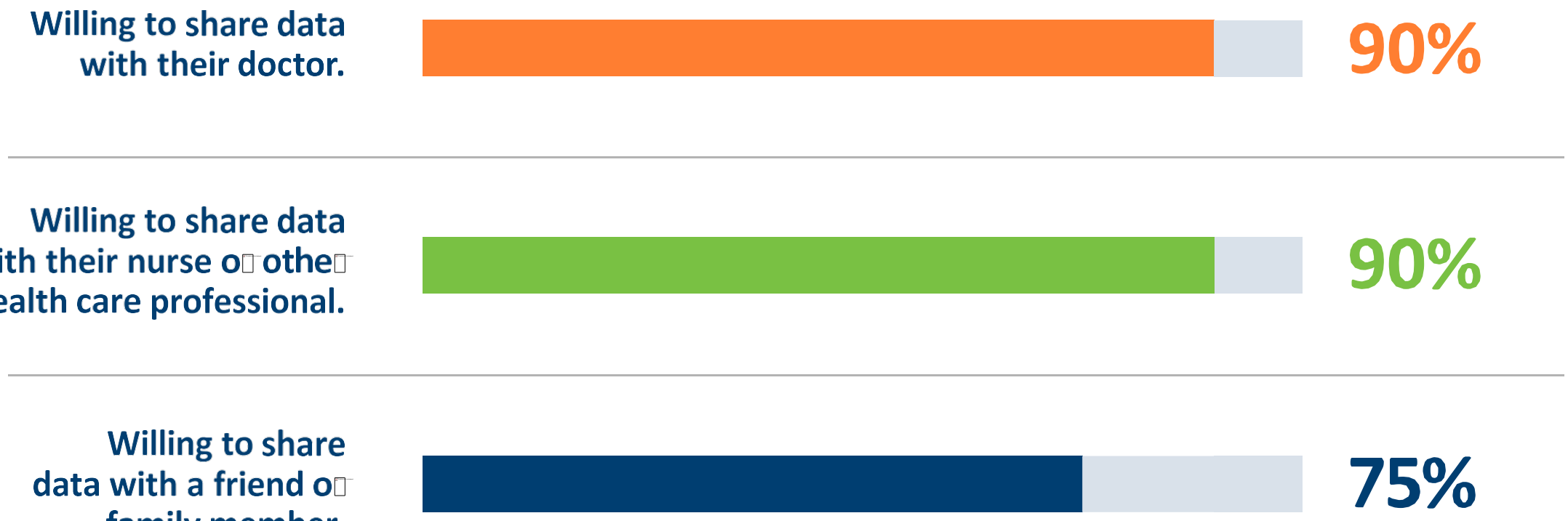
Remote Patient Monitoring

Wearable Devices

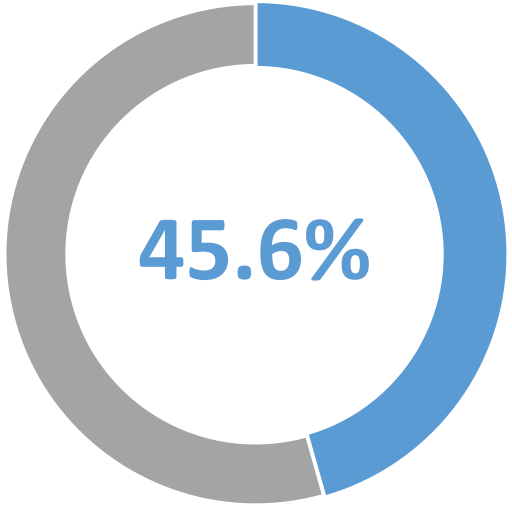


References: Garcia-Ceja et al., 2018; Greenes et al., 2018; Rohani et al., 2018.

Sharing Wearable Device Data



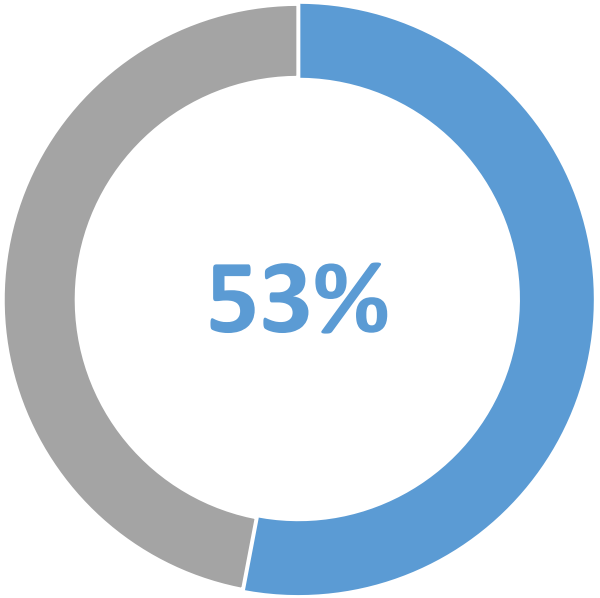
Older Adults Sharing Wearable Device Data



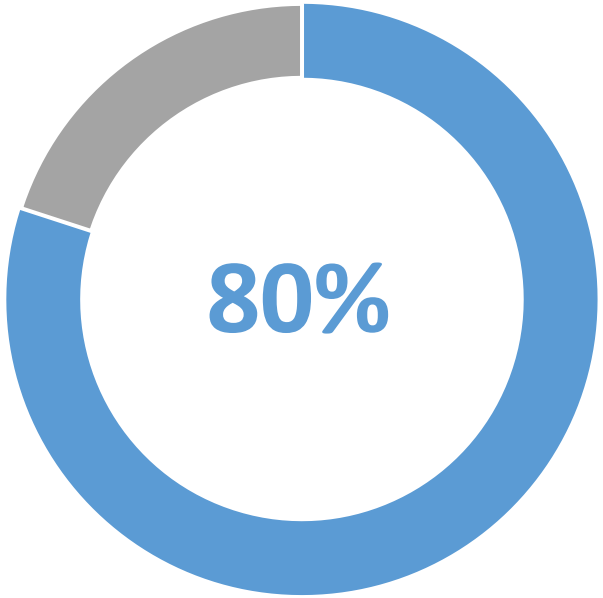
Older adults willing to share data with staff and hospitals

Reference: Seifert & Vandelanotte, 2021.

Sharing Wearable Device Data



Fitness, vital signs, and lifestyle data



Fitness data or vital signs and lifestyle data

SECTION 3

PGHD Benefits and Barriers

PGHD Benefits to Patients

Patient Benefits

- Gain greater understanding of their health and wellness.
- Control their PGHD.
- Provide opportunity for shared decision making.

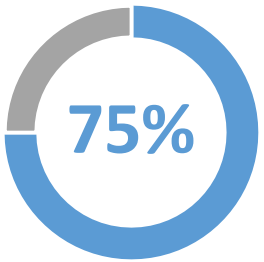
PGHD Benefits to Patients

Additional monitoring improves:

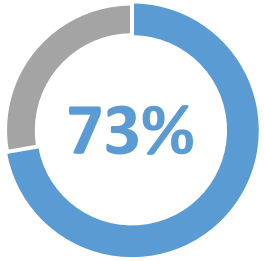
- Communication
- Quality of life
- Rates of survival

References: Basch et al., 2016; Detmar et al., 2002; Ishaque et al., 2019; Jim et al., 2020; Karnon et al., 2019; Lordon et al., 2020.

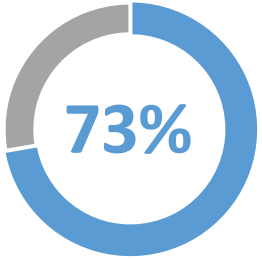
Patient Attitudes



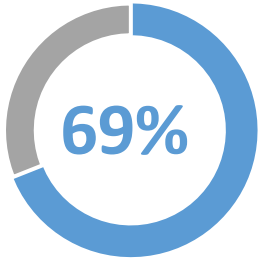
Understanding your health condition



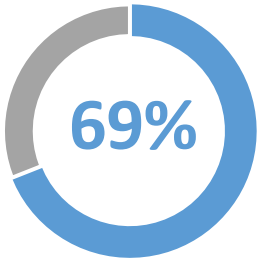
Engaging in your health



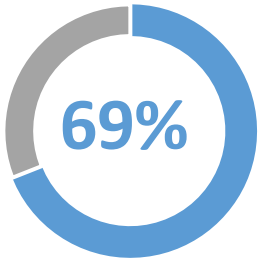
Monitoring the health of a loved one



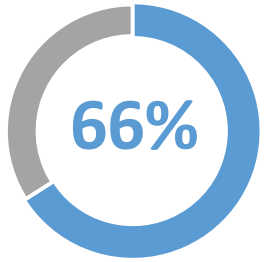
Improving overall quality of care



Improving patient-clinician communication



Ensuring accuracy of the medical record



Ensuring patient satisfaction

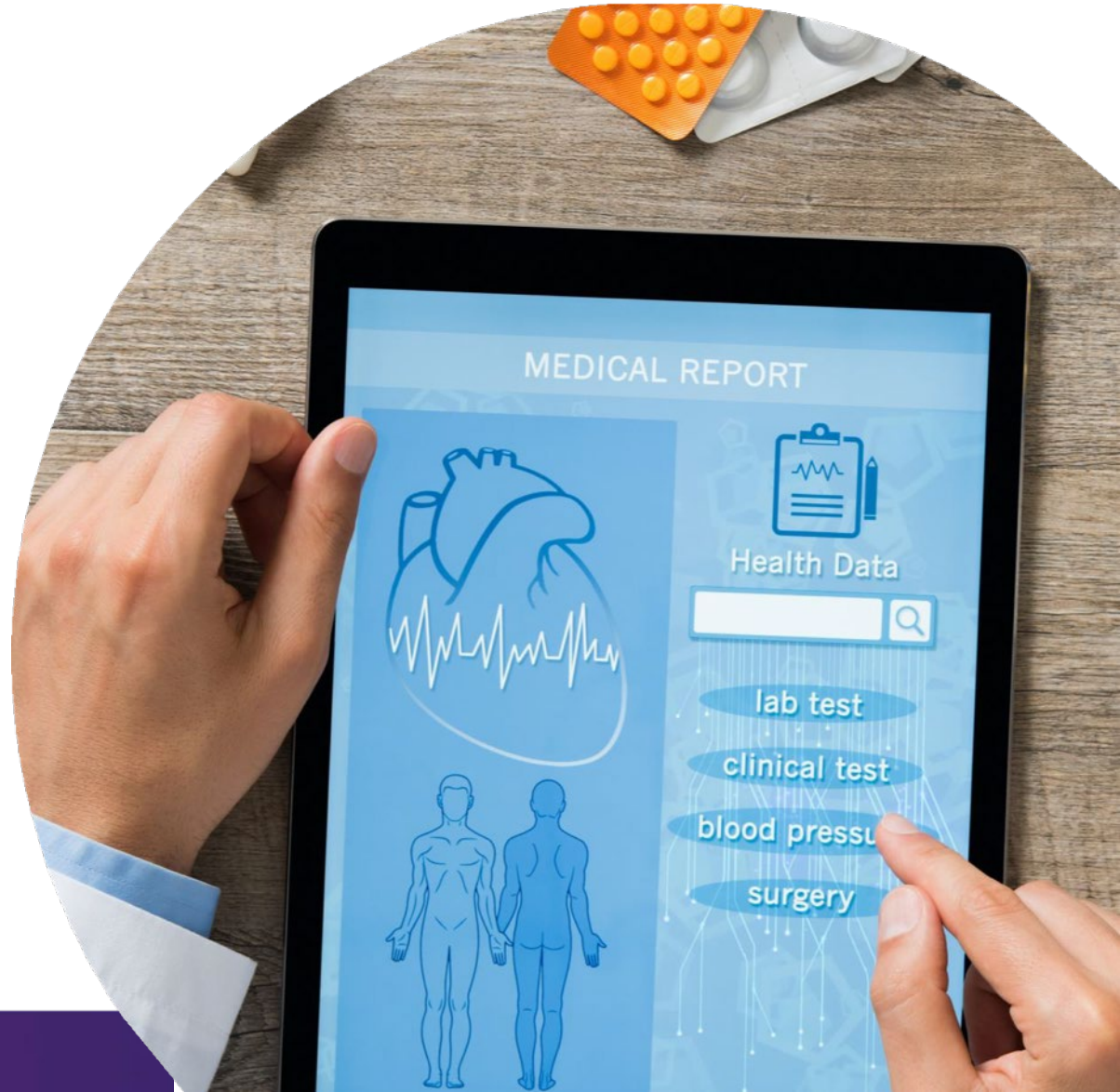
For more information, check out the 2018 Consumer Survey on Digital Health.

PGHD Benefits to Staff

- Provides insight into the white space between visits.
- Supports clinical decision making and delivery of care.

PGHD Benefits to Staff

- Identifies trends.
- Augments understanding of patient.
- Improves diagnosis.
- Improves patient-clinician relationship.



Knowledge Barriers

- Data definitions
- Policies
- Competency-based training

References: Hilty, Armstrong, et al., 2021; U.S. Department of Veterans Affairs, 2021.

Technical Barriers

Patient access to hardware

Data volume

Interoperability

PGHD Adoption Curve

Bypassing Barriers by Increasing Knowledge

Evidence Base

Clinical Integration

Security and Privacy

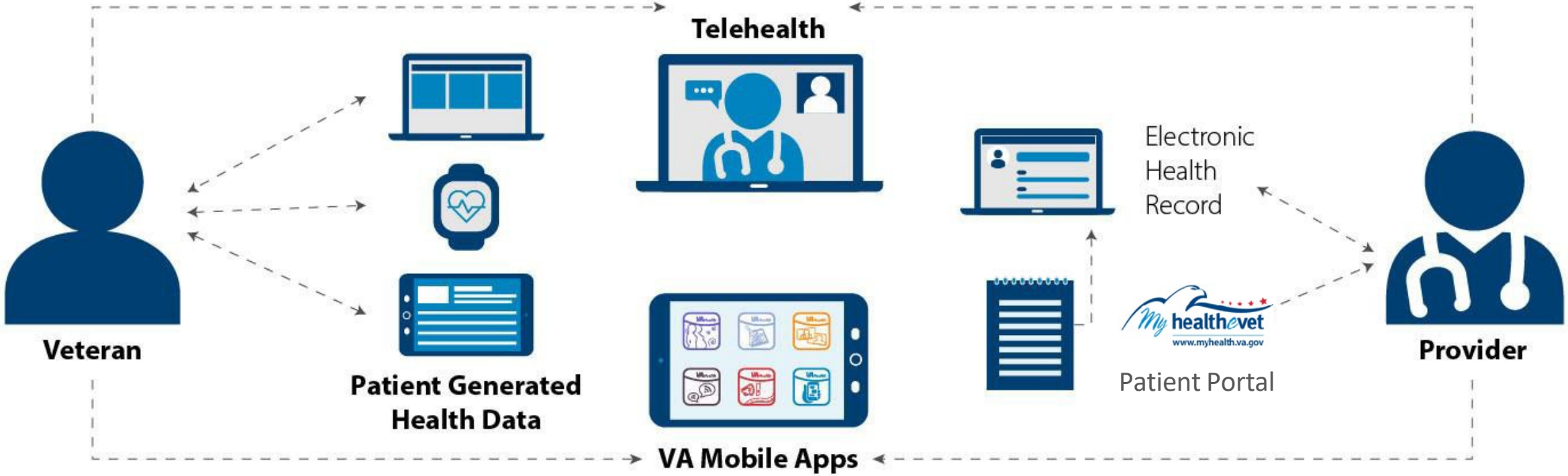
Ethical Issues

Cultural Considerations

SECTION 4

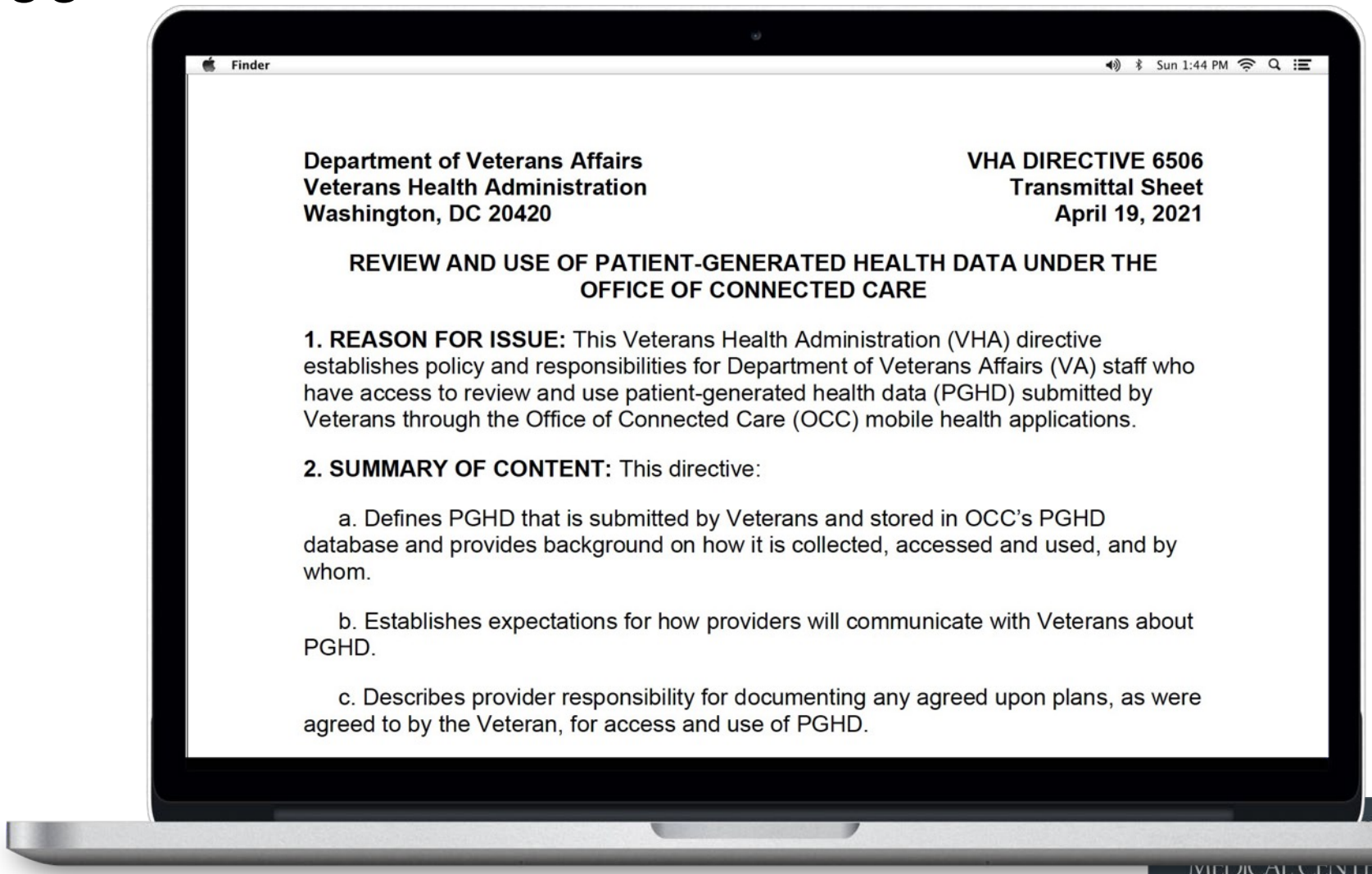
What Healthcare Staff Need To Know About PGHD

Integrating Virtual Care Tools and Programs



VHA Directive 6506

For more information, [download and read VHA Directive 6506.]



Staff Responsibilities

Discuss how patients should share PGHD with the care team.

Reference: U.S. Department of Veterans Affairs, 2021.

Staff Responsibilities

- View PGHD as needed.
- Document summary of discussion in the EHR.
  - *Include when PGHD has been used to inform medical decisions.*

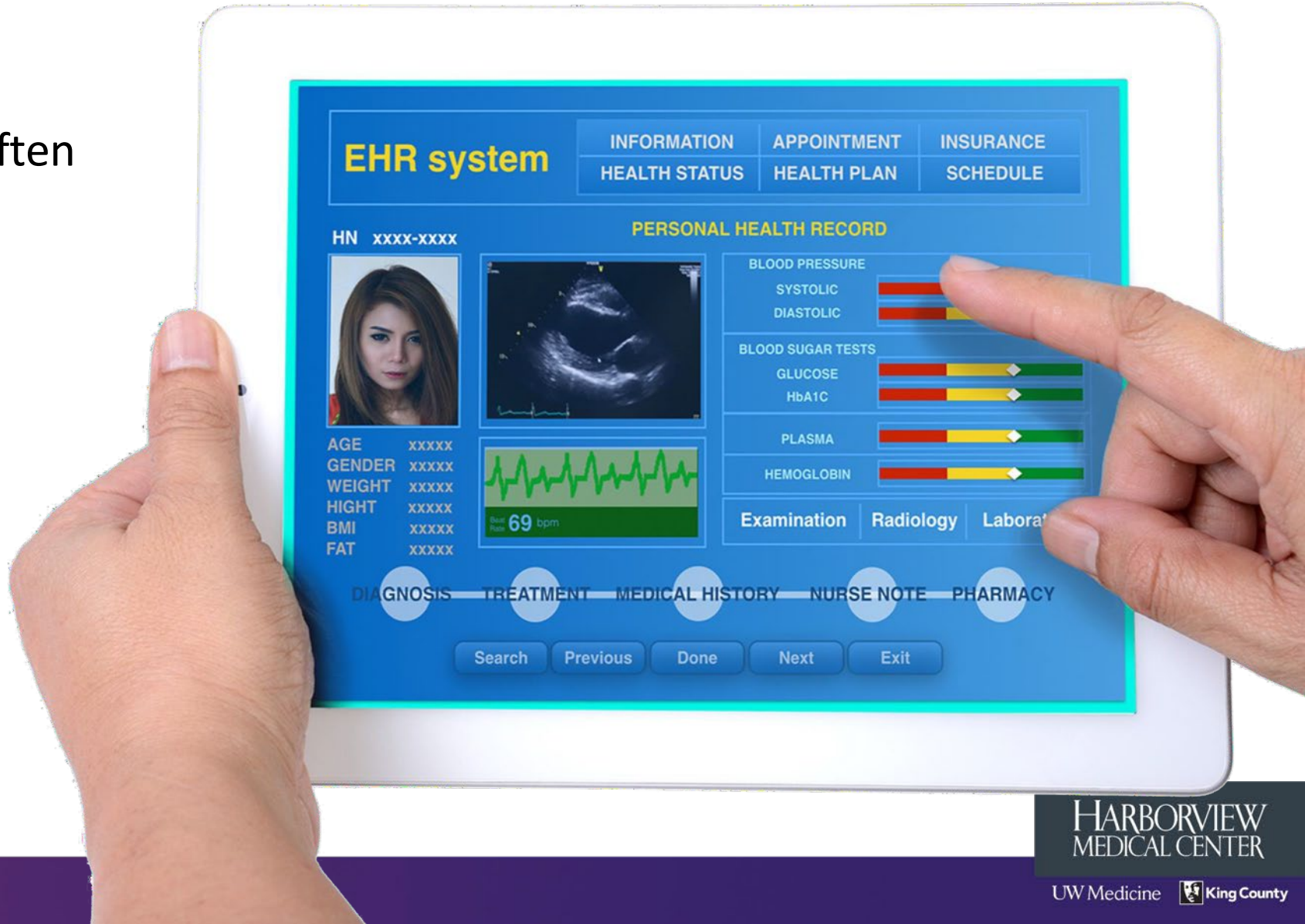
Data Security

- Patients choose which data is in the PGHD database.
- PGHD is maintained in a secure database.

For more information on SORN, visit the VA Privacy Service webpage.

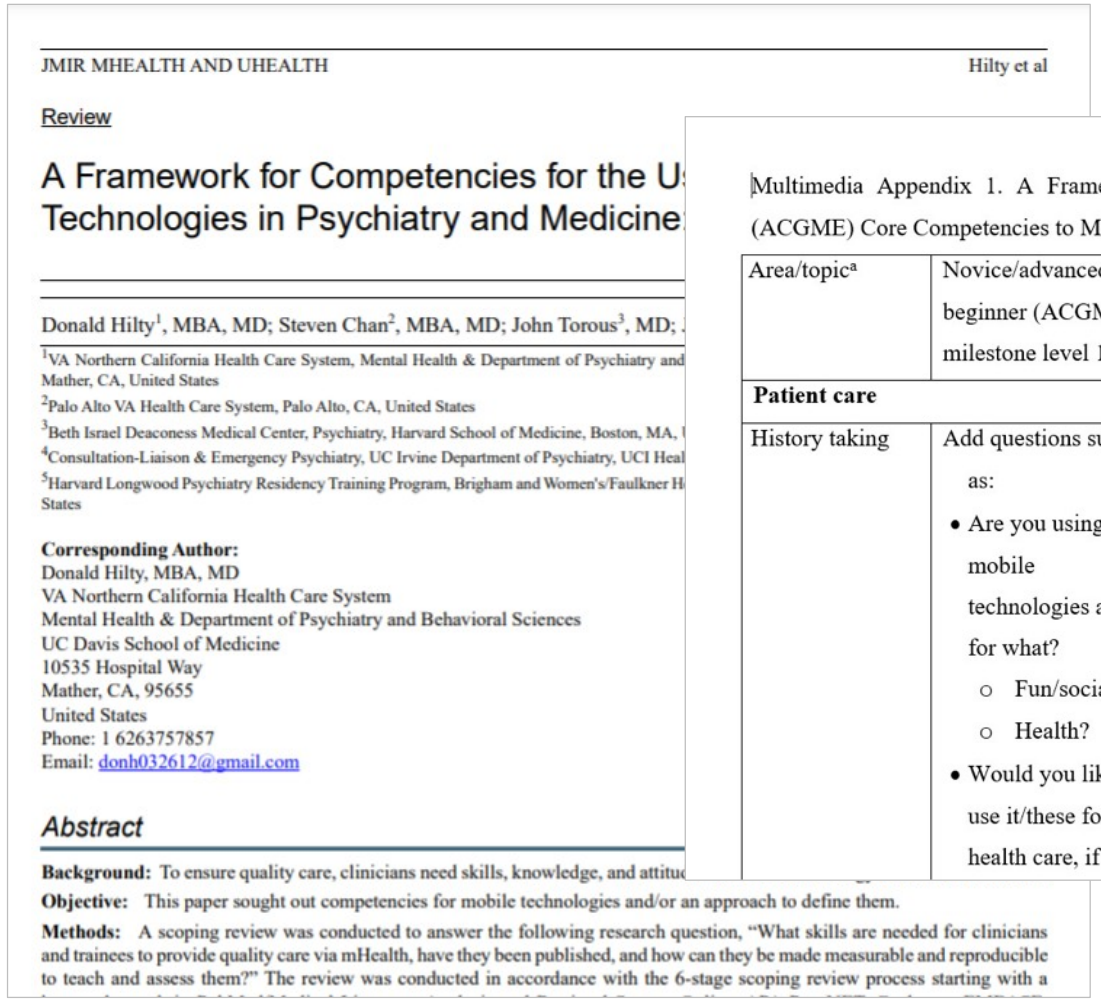
Data Security

- The PGHD database is often separate from the EHR.



Data Displays

Published Clinical Competencies



JMIR MHEALTH AND UHEALTH Hilty et al

Review

A Framework for Competencies for the U
Technologies in Psychiatry and Medicine

Donald Hilty[1], MBA, MD; Steven Chan[2], MBA, MD; John Torous[3], MD;

[1]VA Northern California Health Care System, Mental Health & Department of Psychiatry and Mather, CA, United States
[2]Palo Alto VA Health Care System, Palo Alto, CA, United States
[3]Beth Israel Deaconess Medical Center, Psychiatry, Harvard School of Medicine, Boston, MA,
[4]Consultation-Liaison & Emergency Psychiatry, UC Irvine Department of Psychiatry, UCI Heal
[5]Harvard Longwood Psychiatry Residency Training Program, Brigham and Women's/Faulkner H States

Corresponding Author:
Donald Hilty, MBA, MD
VA Northern California Health Care System
Mental Health & Department of Psychiatry and Behavioral Sciences
UC Davis School of Medicine
10535 Hospital Way
Mather, CA, 95655
United States
Phone: 1 6263757857
Email: donh032612@gmail.com

Abstract

Background: To ensure quality care, clinicians need skills, knowledge, and attitu

Objective: This paper sought out competencies for mobile technologies and/or an approach to define them.

Methods: A scoping review was conducted to answer the following research question, "What skills are needed for clinicians and trainees to provide quality care via mHealth, have they been published, and how can they be made measurable and reproducible to teach and assess them?" The review was conducted in accordance with the 6-stage scoping review process starting with a

Multimedia Appendix 1. A Framework to Adapt
(ACGME) Core Competencies to Mobile Technologi

Area/topic[a]	Novice/advanced beginner (ACGME milestone level 1-2)	Compete mileston
Patient care		
History taking	Add questions such as: • Are you using mobile technologies and for what? o Fun/social? o Health? • Would you like to use it/these for health care, if	Screen sy questio • Which do you enterta • For he o Co me nur o Dis issu

Journal of Technology in Behavioral Science
https://doi.org/10.1007/s41347-020-00190-3

Check for updates

Sensor, Wearable, and Remote Patient Monitoring Competencies for Clinical Care and Training: Scoping Review

Donald M. Hilty[1] · Christina M. Armstrong[2] · Amanda Edwards-Stewart[3] · Melanie T. Gentry[4] · David D. Luxton[5] · Elizabeth A. Krupinski[6]

Received: 31 July 2020 / Revised: 31 July 2020 / Accepted: 17 December 2020

Abstract
Sensor, wearable, and remote patient monitoring technologies are typically used in conjunction with video and/or in-person care for a variety of interventions and care outcomes. This scoping review identifies clinical skills (i.e., competencies) needed to ensure quality care and approaches for organizations to implement and evaluate these technologies. The literature search focused on four concept areas: (1) competencies; (2) sensors, wearables, and remote patient monitoring; (3) mobile, asynchronous, and synchronous technologies; and (4) behavioral health. From 2846 potential references, two authors assessed abstracts for 2828 and, full text for 521, with 111 papers directly relevant to the concept areas. These new technologies integrate health, lifestyle, and clinical care, and they contextually change the culture of care and training—with more time for engagement, continuity of experience, and dynamic data for decision-making for both patients and clinicians. This poses challenges for users (e.g., keeping up, education/training, skills) and healthcare organizations. Based on the clinical studies and informed by clinical informatics, video, social media, and mobile health, a framework of competencies is proposed with three learner levels (novice/advanced beginner, competent/proficient, advanced/expert). Examples are provided to apply the competencies to care, and suggestions are offered on curricular methodologies, faculty development, and institutional practices (e-culture, professionalism, change). Some academic health centers and health systems may naturally assume that clinicians and systems are adapting, but clinical, technological, and administrative workflow—much less skill development—lags. Competencies need to be discrete, measurable, implemented, and evaluated to ensure the quality of care and integrate missions.

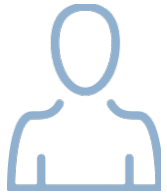
Keywords Competencies · Monitoring · Training · Sensor · Wearable · Mobile health · Education · Implementation

(Armstrong et al., 2021; Hilty, Armstrong, Luxton, Gentry, & Krupinski, 2021 Hilty, Chan, Torous, J., Luo, J., & Boland, 2020;)

Applicable Competency Domains Across Clinical Workflow

1

Person chooses to use wearable sensors for health.



2

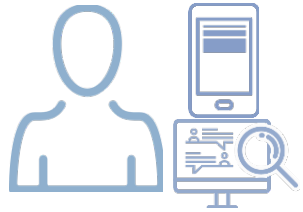
Person and clinician discuss use of sensors in treatment.

3

Data processing.

4

Person views data and makes health behavior changes based on results.



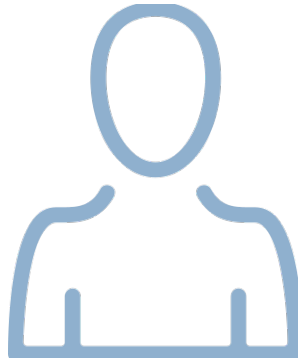
Data Display

5

Person and clinician view data and make treatment adjustments based on results.

Applicable Competency Domains Across Clinical Workflow

1 **Person chooses to use wearable sensors for health.**



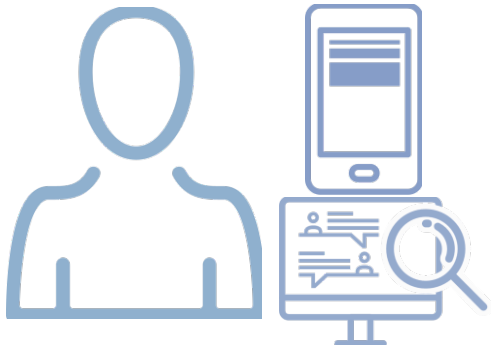
2 **Person and clinician discuss use of sensors in treatment.**

Applicable Competency Domains Across Clinical Workflow

3 **Data processing.**

Data Collection | Data Transmission | Data Storage | Data Analysis

4 **Person and clinician discuss use of sensors in treatment.**



Data Display

Applicable Competency Domains Across Clinical Workflow

5

Person and clinician view data and make treatment adjustments based on results.

Communication and PGHD

- Be aware of the potential benefits.
- Make patients aware of the benefits.

Case Scenario

- 58-year-old female patient
- Enrolled in VA care
- Diagnosed with high blood pressure
- 35 pounds overweight
- Blood pressure is 155/104

Case Scenario

- Praise Jacklyn for being engaged.
- Assess her willingness to share her PGHD.
- Discuss how apps and devices can be used.
- Make sure she understands the benefits and limitations.
- Let her know that the Office of Connected Care Help Desk is available to assist her.

PGHD in Clinical Care

Best Practices for Integrating Virtual Care Tools and Programs

Training and education

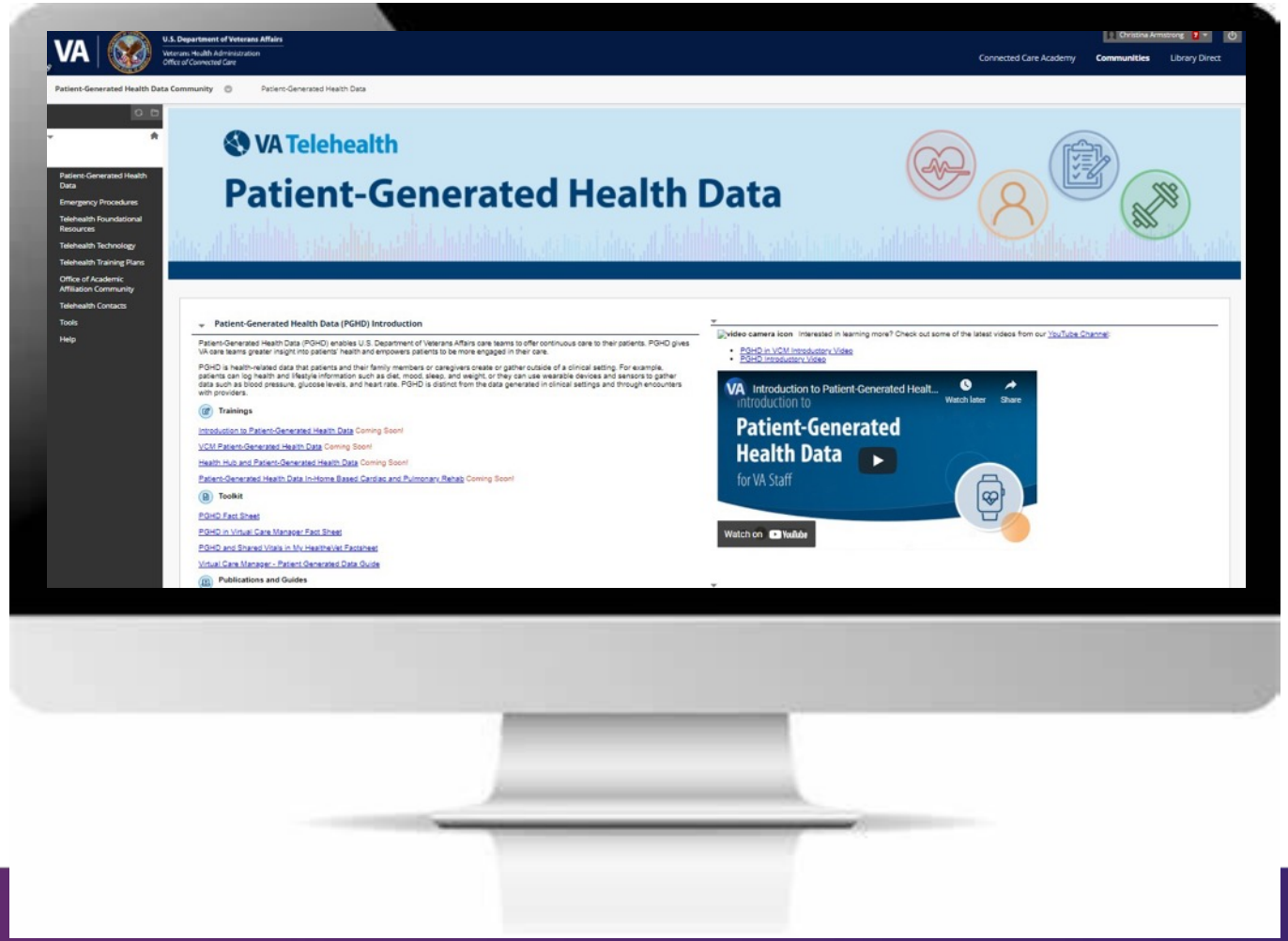
Ensure accessibility

Encourage patient engagement

Foster collaboration

Monitor and evaluate

“PGHD Community” in Connected Care Academy for VA Staff



PGHD Community QR Code

Materials available at Connected Care Academy in the Patient-Generated Health Data Community. To access, use QR code or go to: ***vaots.blackboard.com***, click on ‘Communities’, and join “Patient-Generated Health Data” Community

Virtual Care and PGHD Video Resources

Virtual Care

- VA Virtual Care Tools Clinician's Guide and Prescription Pad
- Introducing a Virtual Care: Right Way vs. Wrong Way
- Security and Privacy for VA Apps: Keeping Your Information Safe
- Protect Your Information with Multifactor Authentication
- Virtual Health Resource Centers for Veterans and VA Staff

PGHD

- Introduction to Patient-Generated Health Data for VA Staff
- My Health*e*Vet and Patient-Generated Health Data
- Virtual Care Manager and Patient-Generated Health Data for VA Staff
- Introduction to Patient-Generated Health Data for Veterans
- Introduction to VA Share My Health Data

Resources to Support PGHD Integration

PGHD Integration for Healthcare Staff and Researchers - Practice Guide

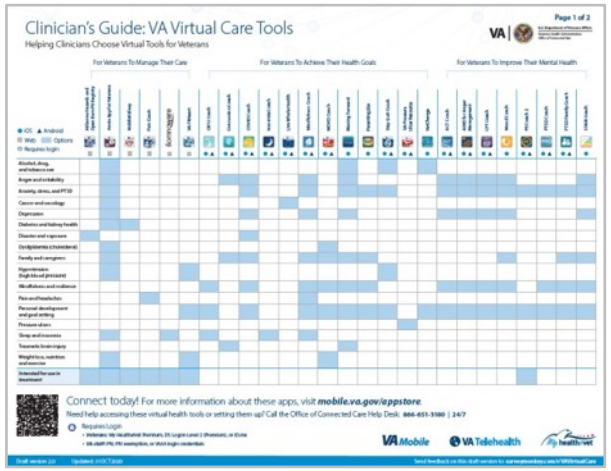
Integrating PGHD into EHR in Healthcare - Practice Guide

A Practical Approach To The Use of PGHD – Infographic

How to pair a Bluetooth accessory with your iPhone or iPad – Flyer

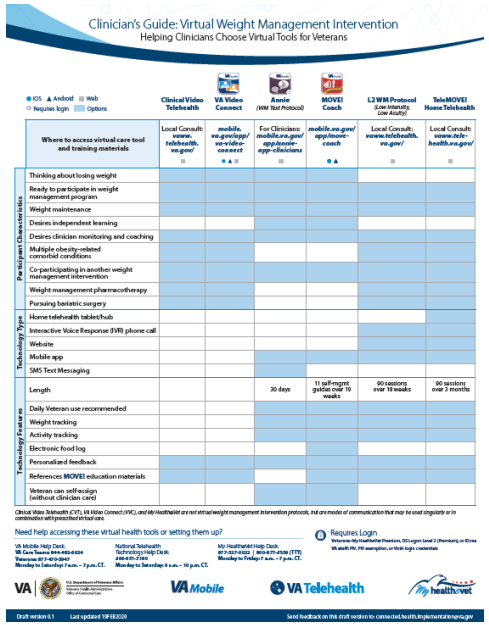
How to pair a Bluetooth accessory with your Android device - Flyer

Resources to Support Integration of Virtual Care Across Products

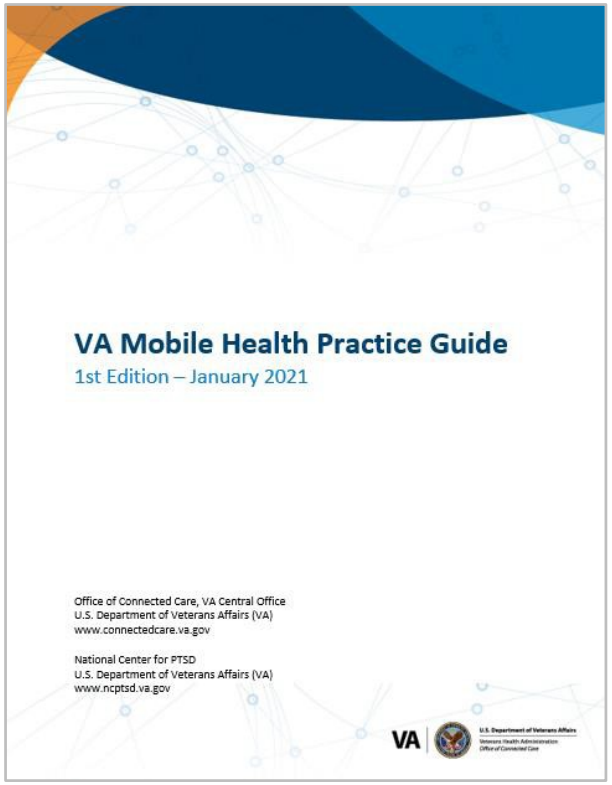


VA Virtual Care Clinicians Guide

VA Virtual Care Prescription Pad



Clinicians Guide for Virtual Care in Weight Management



VA Mobile Health Practice Guide

Clinicians Guide for Virtual Care in Pain Management

Clinicians Guide for TeleOncology

Clinicians Guide for Virtual Care in TeleOncology

Key Takeaways

- PGHD helps both patients and clinicians gain a greater understanding of patient health and wellness.
- Although PGHD does not replace standard medical care, it can provide supplementary information to help patients and their healthcare teams make care decisions together.
- Patients are primarily responsible for capturing and recording PGHD and for deciding whether to share this data with their healthcare teams.
- It’s the responsibility of staff members to inform patients about how PGHD will be used to inform the plan of care.

QUESTIONS & DISCUSSION

References

American Medical Association (2016). AMA Digital Health Study. ***https://www.ama-assn.org/sites/default/files/media-browser/specialty%20group/washington/ama-digital-health-report923.pdf***

Andrews, G., Cuijpers, P., Craske, M. G., et al. (2010). Computer therapy for the anxiety and depressive disorders is effective, acceptable and practical health care: a meta-analysis. *PLoS One 5*:e13196, Crossref, Medline.

Armstrong, C. M., McGee-Vincent, P., Juhasz, K., Owen, J., Avery, T., Jaworski, B., Jamison, A., Cone, W., Gould, C., Ramsey, K., Mackintosh, M. A., & Hilty, D. M. (2021). VA Mobile Health Practice Guide (1st ed.). U.S. Department of Veterans Affairs. Washington, DC. ***https://connectedcare.va.gov/sites/default/files/va-mobile-health-practice-guide.pdf***

Barak, A., Hen, L., Boniel-Nissim, M. and Shapira, N. (2008). A comprehensive review and a meta-analysis of the effectiveness of internet-based psychotherapeutic interventions. *Journal of Technology in Human Services, 26*, 109-160.

Brown, W., Giguere, R., Ibitoye, M., Carballo-Diéguez, A., & Cranston, R. D. (2014). Successfully addressing challenges to implementing a multinational SMS-based reminder and data collection system in a biomedical HIV prevention trial. *AIDS Research and Human Retroviruses, 30*(S1), A87.

Bush, N., Skopp, N., Smolenski, D., Crumpton, R., & Fairall, J. (2013). Behavioral Screening Measures Delivered with a Smartphone App: Psychometric Properties and User Preference. *Journal of Nervous and Mental Disease, 201*(11), 991-995. ***https://doi.org/10.1097/nmd.0000000000000039***

Connolly, S. L., Miller, C.J., Koenig, C. J., et al. (2018). Veterans' attitudes toward smartphone app use for mental health care: qualitative study of rurality and age differences. *JMIR Mhealth Uhealth, 6*(8):e10748.

Coulon, S. M., Monroe, C. M., & West, D. S. (2016). A Systematic, Multi-domain Review of Mobile Smartphone Apps for Evidence-Based Stress Management. *American Journal of Preventive Medicine, 51*, 95-105. ***https://doi.org/10.1016/j.amepre.2016.01.026***

References (cont.)

Dale, O., & Hagen, K. (2007). Despite technical problems personal digital assistants outperform pen and paper when collecting patient diary data. *Journal of Clinical Epidemiology, 60*, 8-17. ***https://doi.org/10.1016/j.jclinepi.2006.04.005***

De La Torre-Diez, I., Lopez-Coronado, M., Vaca, C., Aguado, J. S., & De Castro, C. (2015). Cost-utility and cost-effectiveness studies of telemedicine, electronic, and mobile health systems in the literature: A systematic review. *Telemedicine and e-Health, 21*(2), 81-85. ***https://doi.org/10.1089/tmj.2014.0053***

Dennison, L., Morrison, L., Conway, G., & Yardley, L. (2013). Opportunities and challenges for smartphone applications in supporting health behavior change: qualitative study. *Journal of Medical Internet Research, 15*(4), e86. ***https://doi.org/10.2196/jmir.2583***

Donker, T., Petrie, K., Proudfoot, J., Clarke, J., Birch, M. R., & Christensen, H. (2013). Smartphones for smarter delivery of mental health programs: a systematic review. *Journal of Medical Internet Research, 15*(11), e247. ***https://doi.org/10.2196/jmir.2791***

Ekeland, A. G., Bowes, A., & Flottorp, S. (2010). Effectiveness of telemedicine: A systematic review of reviews. *International Journal of Medical Informatics, 79*(11), 736-771. ***https://doi.org/10.1016/j.ijmedinf.2010.08.006***

Epstein, R. (2011). Distance therapy comes of age. Scientific American Mind, May/June, 60-63.

Erbes, C. R., Stinson, R., Kuhn, E., et al. (2014). Access, utilization, and interest in mHealth applications among veterans receiving outpatient care for PTSD. *Mil Med, 179*(11): 1218-1222.

References (cont.)

Flodgren, G., Rachas, A., Farmer, A. J., Inzitari, M., Shepperd, S. (2015). Interactive telemedicine: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews, 9,* CD002098. ***https://doi.org/10.1002/14651858.CD002098.pub2***

Gaggioli, A., & Riva, G. (2013). From mobile mental health to mobile wellbeing: opportunities and challenges. *Studies in Health Technology and Informatics, 184*, 141-147. ***https://doi.org/10.3233/978-1-61499-209-7-141***

Gould, C. E., Loup, J., Kuhn, E., Beaudreau, S. A., Ma, F., Godlstein, M. K., Wetherell, J. L., Zapata, A. M. L., Choe, P., & O'hara, R. (2019). Technology use and preferences for mental health self-management interventions among older veterans. *Int J Geriatric Psychiatry.* ***https://doi.org/10.1002/gps.5252***

Grady, B., Myers, K., & Nelson, E., Belz, N., Bennett, L., Carnahan, L., Decker, V., Holden, D., Perry, G., Rosenthal, L., Rowe, N., Spaulding, R., Turvey, C. L., White, R., & Voyles, D. (2009). Evidence-based practice for telemental health: American Telemedicine Association guidelines. *Telemedicine and e-Health.* ***https://doi.org/10.1089/tmj.2010.0158***

Haily, D., Roine, R., & Ohinmaa, A. (2002). Systematic review of evidence for the benefits of telemedicine. *Journal of Telemedicine and Telecare, 8*(1). Hermes, E. D., Lyon, A. R., Schueller, S. M., & Glass, J. E. (2019). Measuring the implementation of behavioral intervention technologies: recharacterization of established outcomes. *J Med Internet Res, 21*(1), e11752. ***https://doi.org/10.1258%2F135763021937604***

Hilty, D. M., Armstrong, C. M., Luxton, D. D., Gentry, M. T., & Krupinski, E. A. (2021). Sensor, wearable, and remote patient monitoring competencies for clinical care and training: scoping review. [Special Issue: Clinical and Educational Interventions for Technologies]. Journal of Technology in Behavioral Science. ***https://link.springer.com/article/10.1007/s41347-020-00190-3***

Hilty, D., Yellowlees, P. M., Parrish, M. B., & Chan, S. (2015). Telepsychiatry: effective, evidence-based, and at tipping point in health care delivery. *Psychiatry Clin North Am, 38*, 559-592. ***https://doi.org/10.1016/j.psc.2015.05.006***

References (cont.)

Hilty, D. M., Maheu, M. M., Drude, K. P., Herlein, K. M, Wall, K., Long, R. P., Luoma, T. L. (2017). Telebehavioral health, telemental health, e-therapy and e-health competencies: the need for an interprofessional framework. *Journal of Technology in Behavioral Science, 2*, 171-189. ***https://doi.org/10.1007/s41347-017-0036-0***

Hilty, D. M., Chan, S., Torous, J., Luo, J., & Boland, R. J. (2019). Mobile health, smartphone/device, and apps for psychiatry and medicine: competencies, training, and faculty development issues. *Psychiatr Clin N Am, 42*, 513-534.

Hilty, D., Chan, S., Torous, J., Luo, J., & Boland, R. (2020). A framework for competencies for the use of mobile technologies in psychiatry and medicine: scoping review. *JMIR mHealth and uHealth*.

Keyworth, C., Hart, J., Armitage, C. J., & Tully, M. P. (2018). What maximizes the effectiveness and implementation of technology-based interventions to support healthcare professional practice? A systematic literature review. *BMC Med Inform Decis Mak, 18*(1), 93. ***https://doi.org/10.1186/s12911-018-0661-3***

Luxton, D., Mishkind, M., Crumpton, R., Ayers, T., & Mysliwiec, V. (2012). Usability and feasibility of smartphone video capabilities for telehealth care in the U.S. military. *Telemedicine and e-Health, 18*(6), 409-413. ***https://doi.org/10.1089/tmj.2011.0219***

Margolis, Karen L., et al. (2018, July). Long-term outcomes of the effects of home blood pressure telemonitoring and pharmacist management on blood pressure among adults with uncontrolled hypertension." *JAMA Network Open*, *1*(5). ***https://doi.org/10.1001/jamanetworkopen.2018.1617***

Miller, C. J., McInnes, D. K., Stolzmann, K., Bauer, M. S. (2016). Interest in use of technology for healthcare among veterans receiving treatment for mental health. *Telemed E-Health, 22*(10): 847-854.

References (cont.)

Pew Research Center. (2022). *Demographics of Mobile Device Ownership and Adoption in the United States.* Pew Research Center: Internet & Technology. ***https://www.pewinternet.org/fact-sheet/mobile/***

Poropatich, R., Lai, E., McVeigh, F., & Bashshur, R. (2013). The U.S. Army telemedicine and m-Health program: making a difference at home and abroad. *Telemedicine and e-Health, 19*(5), 380-386. ***https://doi.org/10.1089/tmj.2012.0297***

Poropatich, R., Pavliscsak, H., Tong, J., Little, J., & McVeigh, F. (2014). mCare: Using secure mobile technology to support soldier reintegration and rehabilitation. *Telemedicine and e-Health, 20*(6), 563-569. ***https://doi.org/10.1089/tmj.2013.0226***

Prentice, J., & Dobson, K. (2014). A review of the risks and benefits associated with mobile phone applications for psychological interventions. *Canadian Psychology, 55*(4), 282–290. ***https://psycnet.apa.org/doi/10.1037/a0038113***

Rathbone, A. L. & Prescott, J. (2017). The use of mobile apps and SMS messaging as physical and mental health interventions: systematic review. *Journal of Medical Internet Research, 19*, e295.

Reger, G. M., Harned, M., Stevens, E. S., Porter, S., Nguyen, J., & Norr, A. M. (2022). Mobile applications may be the future of veteran mental health support but do veterans know yet? A survey of app knowledge and use. Psychological Services, 19(3), 480-487. https://doi.org/10.1037/ser0000562

Reger, G. M., Hoffman, J., Riggs, D., Rothbaum, B. O., Ruzek, J., Holloway, K. M., & Kuhn, E. R. (2013). The “PE coach” smartphone application: An innovative approach to improving implementation, fidelity, and homework adherence during prolonged exposure. *Psychological Services, 10*(3), 342-349. ***https://doi.org/10.1037/a0032774***

Saleem, J. J., Moon, B., Bross, E., Anders, S., Conway, B., Wilck, N. R., Frisbee, K. L., & Herout, J. (2020). Understanding Veteran Attitudes, Interests, and Needs around Virtual Care Applications. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 64(1), 731–735. https://doi.org/10.1177/1071181320641169

Additional Free Resources for Washington State Behavioral Health Providers

EDUCATIONAL SERIES:

- UW Traumatic Brain Injury – Behavioral Health ECHO: 1st & 3rd Fridays 12-1.30pm PT
- UW Psychiatry & Addictions Case Conference ECHO: Thursdays 12-1.30pm PT
- UW TelePain series: Wednesdays 12-1.30pm PT

PROVIDER CONSULTATION LINES

- UW Pain & Opioid Provider Consultation Hotline
- Psychiatry Consultation Line
- Partnership Access Line (pediatric psychiatry)
- Perinatal Psychiatry Consultation Line

UW Medicine
DEPARTMENT OF PSYCHIATRY AND BEHAVIORAL SCIENCES

Washington State Health Care Authority

Seattle Children's
HOSPITAL · RESEARCH · FOUNDATION