

# Innovative Applications of Video Telehealth in Veteran Healthcare: Two Projects

CORE Cyberseminar Series

May 4, 2022

**CONNECTED CARE**

**Virtual Care CORE**



# Announcements

1. Virtual Care CORE and Office of Connected Care Resources for Grant Proposals
  - Updated 4/2022
  - Sent out with May Newsletter
  - To join the VC CORE Listserv, email [VHAVirtualCareCORE@va.gov](mailto:VHAVirtualCareCORE@va.gov)

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U.S. Department  
of Veterans Affairs

# **Efficacy of Tele-Home Sleep Apnea Testing and Tele-Initiation of Positive Airway Pressure in Obstructive Sleep Apnea**

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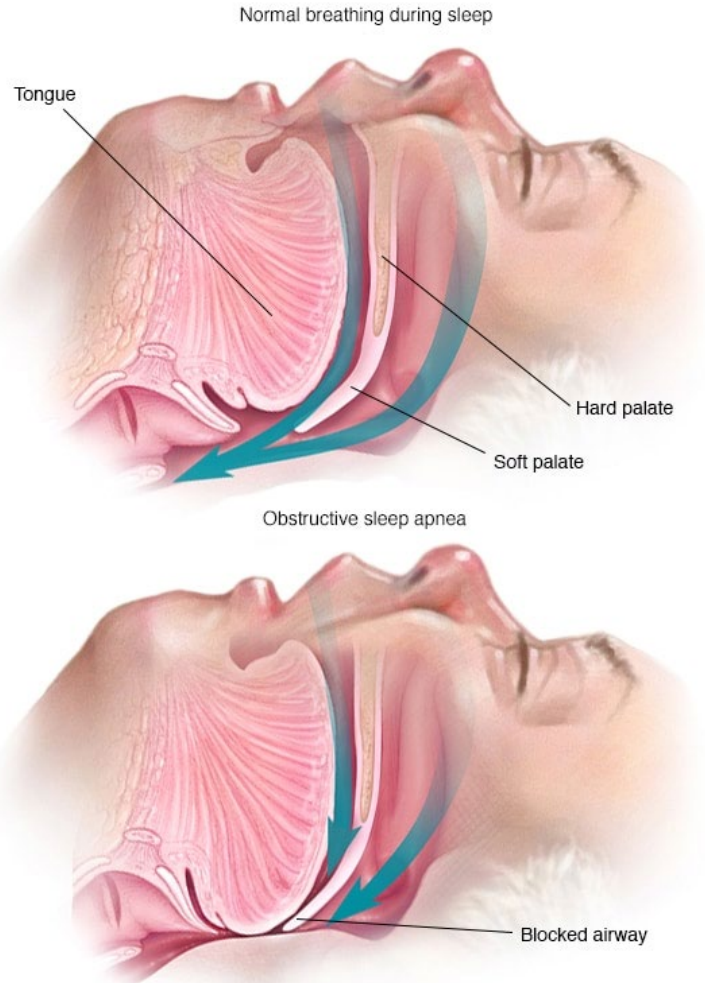
Jennifer Martin, PhD

Armand Ryden, MD

May 4, 2022



# BACKGROUND - OSA



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## The Consequences of Obstructive Sleep Apnea

What other problems arise for OSA patients?

**STROKE**  
Men with moderate to severe OSA were nearly 3x more likely to have a stroke.  
OSA is often found in patients following a stroke.  
Risk of stroke rises with severity of the disease.

**STRESS ON THE HEART**

**HYPERTENSION**  
Sleep apnea is an identifiable cause of high blood pressure.  
OSA is the leading cause of secondary hypertension.

**CORONARY ARTERY DISEASE**

**CARDIAC ARRHYTHMIAS**  
4x as likely to have atrial fibrillation.

**CONGESTIVE HEART FAILURE**  
Moderate OSA have increased mortality rates.

**HEART DISEASE**

**SUDDEN DEATH**  
OSA sufferers have a 30% higher risk of heart attack or premature death.

More than 50% of sudden deaths from OSA occur between 10 pm and 6 am.

**POOR SLEEP**  
Many people may not be aware of their poor sleep quality.

**MOOD DISTURBANCE**  
Depression  
Anxiety  
Loss of motivation  
Shortened attention span  
Moodiness and bad temper  
Poorer judgement.

**DAYTIME SLEEPINESS**  
6-fold increased risk of car accidents  
Impaired concentration and memory loss  
Reduced work-efficiency  
Reduced alertness  
Slower reaction time.

**LOUD SNORING**  
Relationship discord  
Morning headaches caused by oxygen deprivation.

**DIABETES TYPE II**  
Lack of insulin control and poorly controlled blood sugars  
58% have OSA.

**OBESITY**  
As sleep shortens or diminishes in quality, appetite for high-calorie food increases.  
Obesity is the best documented risk factor for OSA. It is estimated that 90% of obese males and 50% of obese females have OSA.  
The prevalence of OSA increases with body mass index(BMI)  
Approximately 80% of OSA patients weigh 130% or more of their ideal body weight.

**GASTROESOPHAGEAL REFLUX DISEASE (GERD)**

**SEXUAL DYSFUNCTION**  
80% of middle aged men  
Loss of libido  
Impotence

**NOCTURIA**  
Frequent urination at night.

**Sleep Disorders Australia**



# BACKGROUND - OSA

- OSA is highly prevalent in VA (22%)
  - >1.4 million veterans with OSA
  - prevalence increasing from 5.5% in 2012 to 22.2% in 2018
  - OSA is the most commonly diagnosed sleep disorder within the VA
- Demand for sleep apnea evaluations exceeds resourcing
- Rural Veterans are disproportionately impacted by limited access to sleep services

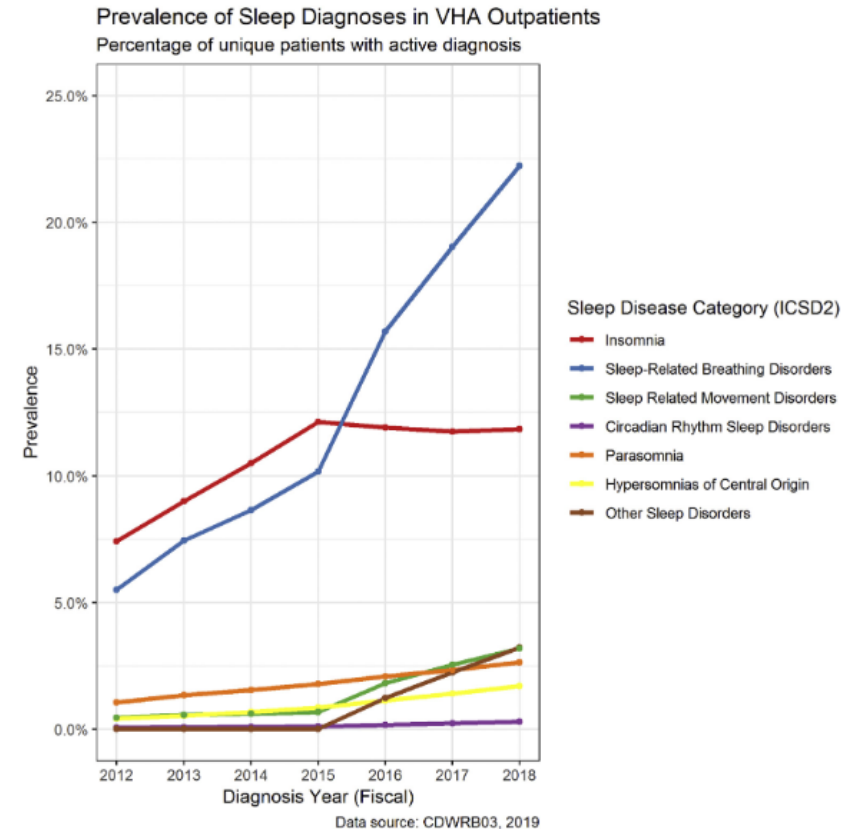


Fig. 1. Prevalence of sleep disorder diagnoses for Veterans who received medical care at VA facilities from FY2012-FY2018.

Folmer, Smith, et al, Sleep Med Review, 2020



# BACKGROUND - TESTING

## Polysomnography

- Facility-based
- Resource-intensive



## Home Sleep Apnea Testing

- Low-intensity resourcing
- Widely accessible





# BACKGROUND - TESTING

- HSAT Efficacy
  - Diagnostic vs non-diagnostic study







# LITERATURE – TELE-HSAT

- TELE-HSAT

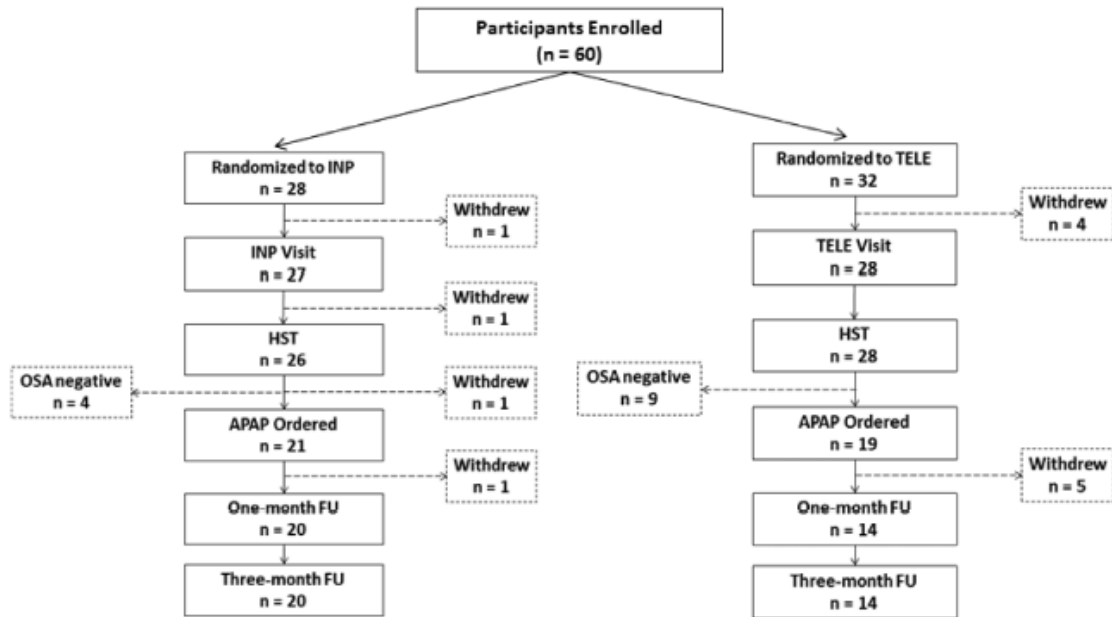


Figure 1—Cohort diagram of participants randomized to in-person versus telemedicine-based pathways. APAP, automatically-adjusting positive airway pressure; FU, follow-up; HST, home sleep testing; INP, in-person; OSA, obstructive sleep apnea; TELE, telemedicine.

Table 5—Adherence to automatically-adjusting positive airway pressure 3 mo after its initiation.

Variable	In-Person Care (n = 20)	Telemedicine Care (n = 14)	P
% days with device usage	54 ± 8	65 ± 8	0.493
% days ≥ 4 h	39 ± 8	47 ± 9	0.493
Use, min (all days)	175.6 ± 36.8	220.8 ± 37.5	0.301
Use, min (days used)	268.9 ± 32.1	305.7 ± 29.9	0.426

Values presented as mean ± standard error.

Table 6—Percentage of time that signals on technically adequate home sleep testing were able to be scored.

Signal	In-Person Care (n = 25)	Telemedicine Care (n = 30)
Pulse oximetry	90.6 ± 5.2	86.7 ± 4.4
Nasal pressure	87.5 ± 5.5	87.8 ± 4.0
Thoracic excursion	86.6 ± 6.0	92.3 ± 5.7
Abdominal excursion	94.4 ± 4.0	95.8 ± 3.3

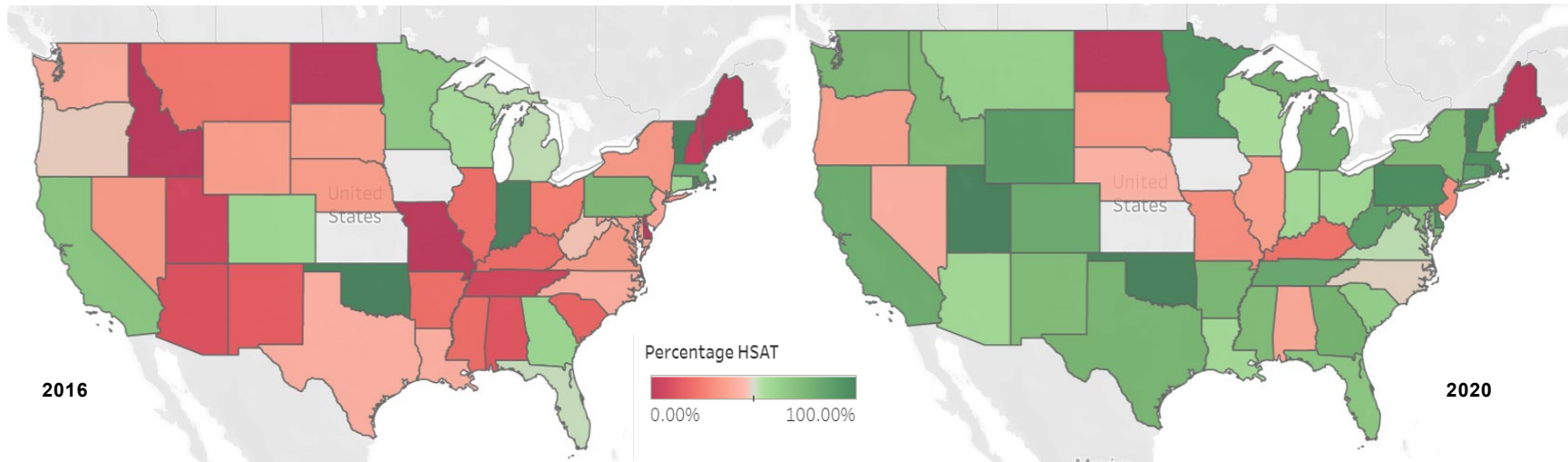
Values presented as mean percent of time scoreable ± standard error.



# OUTCOMES: OVERALL

Resourcing has improved access to sleep care in rural areas

**Use of HSAT in rural locations 2016 vs. 2020**





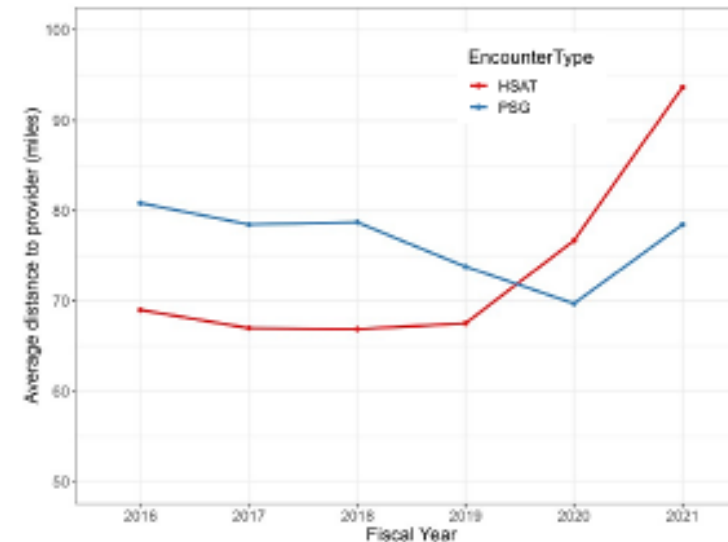
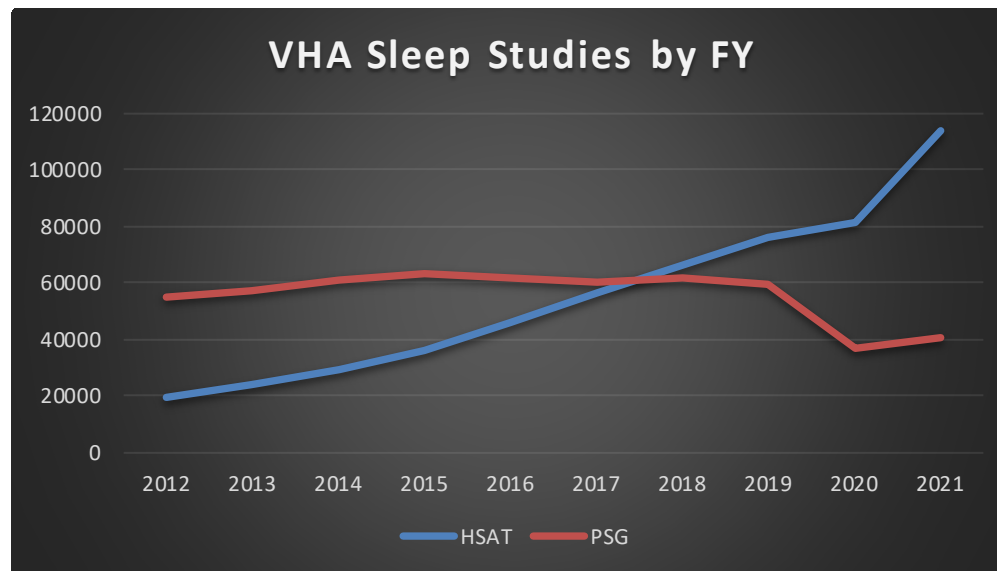
# OUTCOMES: OVERALL

- Expansion of HSAT programs has reduced CITC

National Summary	FY19	FY20	FY21
Paid Claims	\$45,294,705	\$44,337,193	\$38,061,677

[PyramidAnalytics \(va.gov\)](https://www.pyramidanalytics.com/)

- HSAT reaches Veterans living further from VA facilities, reducing travel burden



**Figure 3.** Average Euclidean distance ("as the crow flies") from patient's home to nearest VA facility among patients who completed HSAT (red line) and PSG (blue line) sleep testing during FY16-21.



# BACKGROUND – POSITIVE AIRWAY PRESSURE

- PAP is the cornerstone of OSA treatment

VADOD Clinical Practice Guidelines 2019

- The standard of care for initiation of PAP therapy is a face-to-face visit during which education and instruction is provided.
- PAP devices are aerosol generating
- Prior to the pandemic, Veterans with OSA, many with excessive daytime sleepiness, were required to drive long distances to undergo PAP set up





# BACKGROUND – POSITIVE AIRWAY PRESSURE

- PAP Efficacy

  - Compliance

    - Days used

    - Hours used

- Residual events/hour

  - AHI = apnea/hypopnea index





# LITERATURE – TELE- PAP

- TELE-PAP



# BACKGROUND - IMPACT OF COVID

- Sleep labs closed for 6mo, 3/2020-9/2020
  - Sleep staff realigned to ICU/inpatient care (physicians with critical care background, nursing, RTs)
  - In-laboratory testing closed due to aerosol generating procedures and PPE shortage
  - HSAT programs shut down due to limited PPE
- Only 50% of VISNs have fully recovered to pre-COVID testing volumes 2yrs later



# BACKGROUND

## Timeliness of care is impacted by method of sleep testing

- Long wait times and travel burden for in-lab studies influence the choice to use CITC
- Wait times are not necessarily shorter (and may be longer) in the community; delays in initiation of treatment are significant

**TABLE 3.** Number of Days From Referral to Treatment of Obstructive Sleep Apnea

Mean (SD)	VA		Community Care		<i>P</i>	
	Unmatched, N = 1347	Matched, N = 176	Fee Basis, N = 37	Choice, N = 51	VA (Matched) vs. Community Care	Fee Basis vs. Choice
Referral to sleep study (T0 to T1)	105.0 (77.3)	105.2 (62.2)	234.8 (147.7)	97.2 (76.3)	<0.001	<0.001
Sleep study to CPAP (T1 to T2)	29.2 (71.1)	24.4 (59.2)	73.4 (71.0)	113.9 (123.3)	<0.001	0.077
Referral to CPAP (T0 to T2)	134.2 (102.1)	129.6 (82.8)	308.2 (166.1)	211.1 (141.3)	<0.001	0.004

*P*-values are from *t* tests.

CPAP indicates continuous positive airway pressure; VA, Veterans Affairs.





# SPECIFIC AIMS

- **Aim 1:** Compare efficacy of tele-HSAT vs FTF HSAT for diagnosis of OSA and using remote monitoring data from PAP devices, compare 30- and 90-day PAP adherence and efficacy among patients who completed a PAP set up visit using telehealth compared to patients who completed a PAP set up visit using a traditional face-to-face encounter (prior to COVID-19).
- **Hypothesis 1a:** Tele-PAP set up will be non-inferior to face-to-face set up in 30d and 90d pap adherence.  
**Hypothesis 1b:** Tele-PAP set up will be non-inferior to face-to-face set up in residual apnea-hypopnea index.
- 2 sites – GLA VA and SF VA
- Modified to include efficacy of tele-HSAT to diagnose OSA



# SPECIFIC AIMS

- **Aim 2:** Evaluate patient-level factors (age, race/ethnicity, sleepiness, insomnia symptoms, distance from medical center, rurality, level of education, and diagnosed psychiatric conditions) that may predict HSAT diagnosis of OSA and PAP adherence at 30 and 90 days after the tele-PAP set up visit.
- **Hypothesis 2:** Factors that affect compliance after tele-PAP set up will mirror those seen in face to face set up including presence of insomnia, sleepiness and race.



# SPECIFIC AIMS

- **Aim 3:** Evaluate patient satisfaction and explore barriers and facilitators to tele-PAP set up process to inform dissemination to and adoption by other sleep disorders centers.
- **Hypothesis 3:** Patients undergoing tele-PAP set up will express satisfaction with the process. Technical and other challenges (e.g., devices that are lost or damaged during delivery) will be summarized and adjustments made to facilitate future adoption by other VA centers.



# SPECIFIC AIMS

- **Aim 4:** Evaluate the costs associated with the tele-PAP set up process compared to the face to face set up. We will summarize the differences in costs associated between the tele-PAP and face to face set-up visits, including shipping of device, travel cost for patients, time provider spends with patient on the initial set up as well as follow up calls.
- **Hypothesis 4:** Due to decreased travel fees the tele-PAP set up will be less than the face to face visits.



# SPECIFIC AIMS

- **Aim 5:** Disseminate best practices of tele-PAP set up to additional sleep centers in the VA system with attention to adjustments needed for rural patients and patients with disparities in access to care and access to digital technology.



# RESULTS – TELE-PAP

- PAP initiation

- 89 individuals in-person
- 95 individuals via telehealth

	In Person	Tele-Health	P value
Age	54±15	54±14	NS
BMI	31.4±4.8	32.4±5.6	NS
AHI	25±19/hr	27±24/hr	NS
Days PAP use 30d	14.5±11.1	15.7±11.8	NS
Days PAP use 90d	9.7±11.6	11.3±12.4	NS
Hours PAP used 30d	2.3±2.4	2.8±2.8	NS
Hours PAP used 90d	1.7±2.5	2.2±2	NS



# RESULTS – COST ANALYSIS

- **Cost analysis of telehealth versus in-person set-up of PAP**
  - Newly diagnosed OSA
  - GLA-VAHS between March and October 2021 (n = 2,662 PAP set-ups).
  - Average of 16 PAP set-ups per day
    - 68.75% via telehealth
    - 31.25% in person.
  - Bottom-up analysis which includes only variable direct costs and factors out the high costs of healthcare infrastructure.

	In Person	Tele-Health
Cost	\$49.85 per patient	\$98.87 per patient

- Tele-PAP increased costs due to:
  - Mailing cost
  - Respiratory therapist time spent 31.2% more time with tele-PAP
  - After initial PAP set-up, a larger subset of tele- PAP patients required additional troubleshooting help from RTs (5% versus 1%)



# RESULTS – NEXT STEPS

- Nearing completion of data entry for HSAT and PSG data for GLA and SF
- Cost analysis data collection completed for SF
- Initiating patient interviews





# CONCLUSION

- Tele-sleep pathways for sleep testing and treatment are needed to reduce the rural-urban disparity in access and to improve care coordination, quality, and timeliness of sleep apnea care.



# CONCLUSION

- The TeleSleep Program initiated several efforts to expand the use of home sleep apnea testing (HSAT) in VA to address these challenges.
  - Centralized resourcing of devices
  - Standardizing national workflows and coding
  - Implementation toolkits and support
  - Provider and patient qualitative assessments
- Same pathway needed for PAP initiation VA population



Increasing Use of  
VA Video Connect among  
Veterans Experiencing Homelessness  
– During COVID 19 and Beyond

## HSR&D Cyberseminar

May 4, 2022

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# Study Team

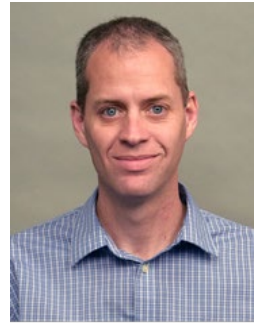
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The views expressed are those of the authors and do not necessarily reflect the views of the US Department of Veterans Affairs or the US Government.

***A manuscript of this study is under review. Please do not duplicate or disseminate this research content without written permission of the corresponding author.***

# Learning Objectives

1. Identify the barriers faced by Veterans experiencing homelessness and substance use disorder in using video telehealth for their mental health, primary care and some specialty care.
2. Describe the process to develop and assess novel intervention candidates to increase use of video telehealth among these priority Veterans, producing a final candidate for future piloting.

## Access is an overarching priority for VA

Yet many Veterans experience access barriers...

- Rural location (~1/3 Veterans)
- Transportation difficulties
- Socioeconomic stressors (especially during Covid-19 pandemic)
- Competing demands: Work, education, caregiving



# VA's Video Telehealth Tablet Initiative

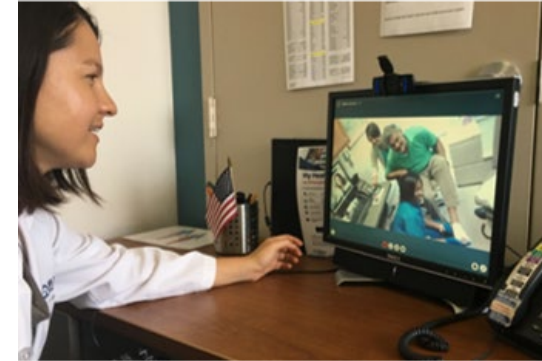
Supported by VA's Office of Rural Health and Office of Connected Care, providers refer VA Video Connect (VVC-enabled) tablets and phones via Digital Divide consult.

Eligibility Criteria:

- Clinical Need
- Technology/Connectivity Need
- Access Barriers- distance/geography, transportation, homebound

Growth in Program

- 5,000 tablets distributed during pilot (2016-2017)
- >97,000 tablets distributed from (10/2019 – 06/2021)



**Clinician in clinic or other setting (e.g., home)**

VA desktop/laptop/tablet



**Veteran at home/work**

VA issued tablet



# VA Video Visits During COVID-19

## Video visits ↑:

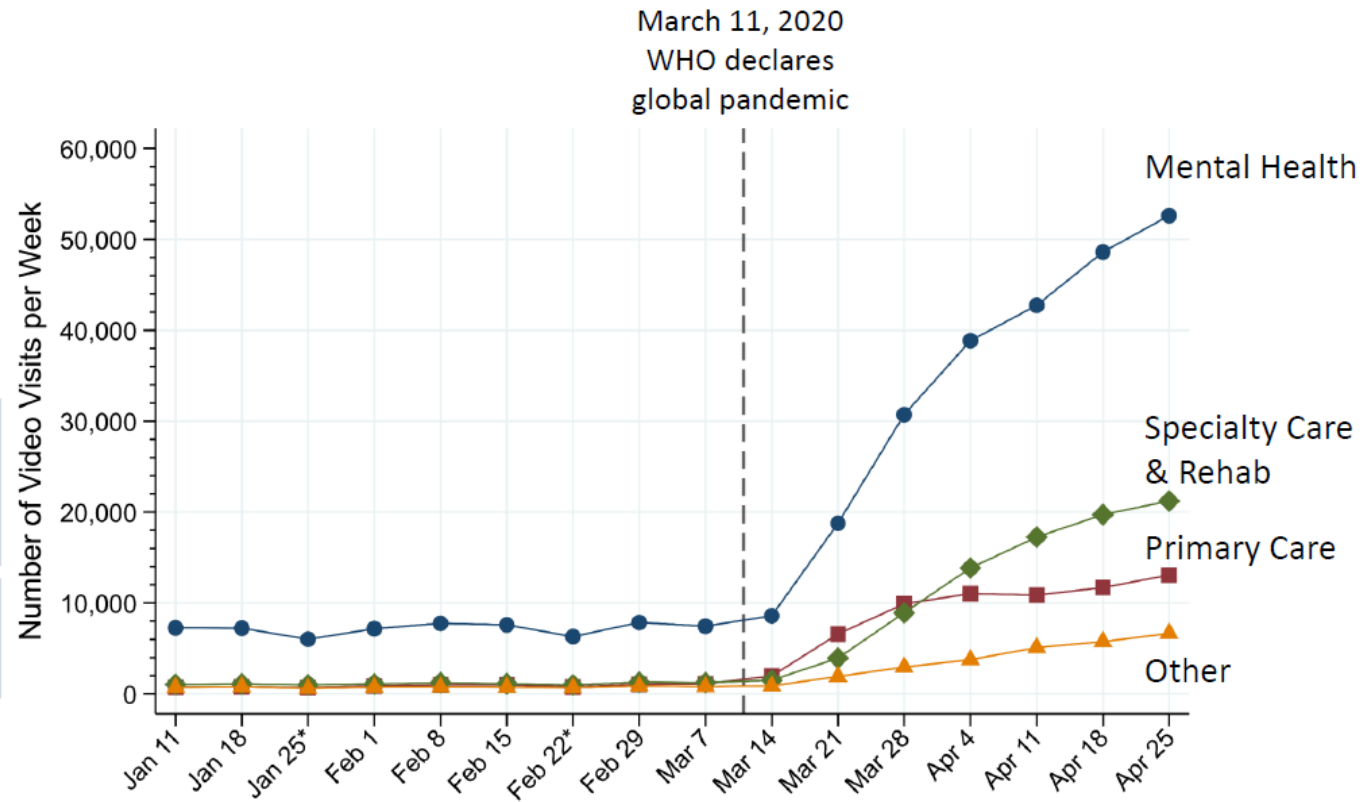
- Low income
- Disability
- Homelessness
- Multiple chronic conditions
- Mental health conditions

## Video visits ↓:

- Older adults
- Rural Veterans

## No Difference:

- Race/ethnicity



1. L Heyworth et al, 2020  
2. SL Connolly et al, 2021

## HPO and OCC Programs to onboard Veterans

- Office of Connected Care and Homeless Program Office have been working over the past 2 years to support Veterans and staff in incorporating the virtual care modalities.
- The Connected Device Support Program provides Veterans with a “White Glove” setup service. VA contractor, IronBow, attempts up to 3 calls to the Veteran after his/her tablet receipt to ask if the Veteran has successfully set up VVC.
- OCC Help Desk: 866-651-3180



## Study Background

- 37,000 Veterans experience homelessness and 1.4 million Veterans considered “at risk.”<sup>3</sup>
- Recipients in VA’s video telehealth tablet program<sup>3</sup> included homeless Veterans who could benefit from clinical services.<sup>4</sup>
- Our FY20 NCHAV study found that fewer than half (46%) of all homeless Veterans who received a VA-loaned VVC tablet (enabled with data plans and Wi-Fi connectivity) completed a telehealth visit within 6 months of tablet receipt.<sup>5,6</sup> Having a substance use disorder (SUD) was associated with an additional 41% reduced likelihood of telehealth use.



3. J Tsai, L Trevisan, M Huang, and R Pietrzak, 2018

4. D Zulman, E Wong, C Slightam et al, 2019

5. DK Mcinnes and S Cutrona, 2018

6. L Garvin, J Hu, C Slightam, et al, 2021

## Objectives

- The objective of our FY21 NCHAV study was to identify barriers to telehealth tablet use by homeless Veterans with a SUD, and to develop and assess several interventions to improve these Veterans' tablet use and telehealth experience.



## Methods

- Mixed-method study guided by the Unified Theory of Acceptance and Use of Technology (UTAUT) model.<sup>7</sup>
- **Phase 1:** Conducted 28 one-hour semi-structured qualitative interviews via phone with homeless Veterans with a SUD.<sup>8</sup>
- **Phase 2:** Engaged MD/PhD clinician-research leaders from the VA Office of Mental Health and Suicide Prevention (OMHSP) and VA's Center of Excellence in Substance Addiction Treatment and Education (CESATE) to further advise on digital needs and intervention goals.
- **Phase 3:** Conducted a 1-hour virtual focus group with Veterans who had experienced homelessness and/or mental/behavioral health treatment to assess Phase 2 intervention candidates on: usability (ease of use), acceptability (appeals to participants), and feasibility (can be implemented) and to select the best candidate.<sup>9,10</sup>
- We used intervention mapping (IM) to design an intervention prototype based on Veterans' needs and interests to support their trial and use of VVC tablets for telehealth visits.<sup>11</sup>

7. V Venkatesh et al, 2003

8. V Braun and V Clarke 2014

9. J Vaughn et al, 2019

10. KA Pyke-Grimm et al, 2011






11. C Crowe et al, 2020

# Results – Aim 1 Veteran Interviews

BENEFITS	Quotes from Homeless Veterans with a SUD on use of VA Video Connect Tablets
Reduces isolation	“The iPad was good for me because...I haven’t had a job in years, ...I’m 55 years old...I got so many dad-gum problems, wearing diapers, mental problems... it made me isolated and not really want to go around people.”
Access	“I have PTSD...I also am an adult ADHD person with bipolar and then of course I talk to my psychiatrist and my psychologist, so it’s [iPad] being put to good use. I also used it for the MOVE Program.”
Convenient	“If I’m at work and I have a visit that I have to do...at two o’clock, I just go out and take my little break and sit in my car and I got my doctor on my tablet. It’s easy-peasy.”
BARRIERS	
Modest digital skills	“I’m like - I can’t figure out how to work it [tablet] as far as setting it up.”
Lack of training	“I think it arrived in the mail and I think I was told to call a number. This lady kind of explained a brief overview of some of the apps that were on there and that was it.”
Unaware of support	“If they don’t have anybody [to provide phone support], the only other thing I could say is...maybe you can [call] Veterans Affairs...maybe they can walk you through.”
SOLUTION	
Peer specialists offer digital training	“When you’re dealin’ with people that are somewhat ignorant to technology...then they are lost... I think we need more peer support....[The peers] need to be out and about in the community...you’re gonna trust it if you’re hearing it from one of your peers.”
Training / support	“...after it [using tablet] was explained to me again [by local VA Telehealth Clinical Technician] - how to use it, how to attach my email, so I could see my

# Results – Aim 2 Intervention Options

## Aim 3 Focus Group Assessment

	Intervention	Description	Purpose
	<b>1. Motivational interviewing</b>	Motivational interviewing (MI) is a directive, patient-centered counselling approach. It helps patients explore their goals and resolve ambivalence.	Motivation, based on intrinsic (personal) goals, to try VVC
	<b>2. Contingency management</b>	Contingency management (CM), also known as “motivational incentives” uses tangible rewards (cash, store gift card, etc.) to help patients change behaviors.	Motivation, based on extrinsic (external) rewards, to try VVC
	<b>3. Annie text messaging</b>	VA's Annie program sends automated text messages to remind Veterans of their VVC appointments, offer reminders for how to log on, etc.	When and how to use the VVC technology
	<b>4. Peer-led digital training &amp; support</b>	VA-employed peer specialists (who themselves have overcome homelessness and/or a SUD) can facilitate the adoption of VVC through in-person group sessions or individual visits with Veterans.	Confidence, motivation, instruction in how to use VVC
	<b>5. Smartphone App</b>	An app could be developed that could be as simple as tips for using VVC, to more advanced digital coach app that uses MI techniques to encourage VVC video visits.	Varies depending on what app is developed.

Aim 3 Veteran focus group members rated intervention options on usability, acceptability, and feasibility.

They then voted to combine two intervention candidates: peer-led digital training with motivational interviewing.

## Results – Aim 3 Intervention Mapping

- We integrated peer-led digital training with motivational interviewing through intervention mapping, a protocol to develop theory- and evidence-based health promotion interventions.<sup>9-12</sup>
- We followed 6 process steps that build on Veteran-expressed needs:
  - Step 1. Logic model of the problem
  - Step 2. Logic model of change
  - Step 3. Intervention design
  - Step 4. Intervention development
  - Step 5. Implementation plan
  - Step 6. Evaluation plan



## Results – Aim 3 Combined Intervention

- **“What” to Teach:**

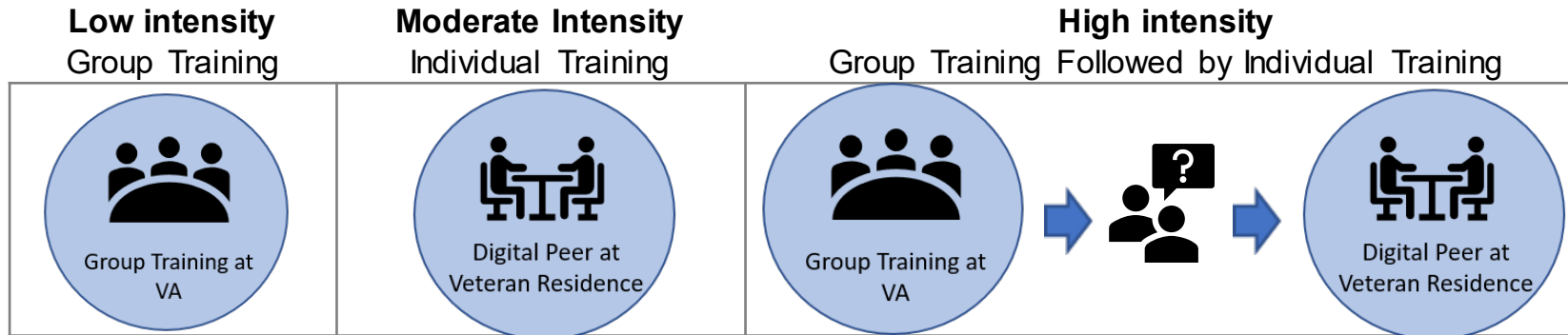
In Peer-led digital training, peers show Veterans how to set up their tablets, upload the VVC app and prepare for a clinical video visit.

- **“How” to Teach It:** Motivational Interviewing is a behavioral psychology approach to help patients change hazardous behaviors.

The peer will build Veterans’:

- Awareness of intrinsic health goals & positive attitude toward digital learning-writing a simple action plan (making VVC a routine).
  - Confidence and self-efficacy with VVC Telehealth
  - Ability to overcome resistance points
- Peers follow up with Veterans by phone after training to be sure they are using VVC.

# Results - Stepped Peer-Led Training Intervention Using Motivational Interviewing



This peer-led intervention offers flexible “stepped care” that can provide increasing levels of support based on Veterans’ needs.

- In-person individual and group training
- Phone or txt follow up

Intervention Assessment:

- Peer-led digital training elements were assessed with measures: usability, acceptability and feasibility.
- In future piloting, peers’ use of motivational interviewing practices can be assessed through the addition of the Motivational Interviewing Treatment Integrity (MITI) protocol.<sup>12</sup>

## Conclusions and Next Steps

This FY21 study laid the groundwork for 2 initiatives:

- FY22 NCHAV study to pilot test the stepped peer-led training intervention (currently at Aim 2 refinement of in-person training).



- IIR proposal in partnership with the Homeless Program Office, Office of Connected Care and Office of Mental Health and Suicide Prevention to advance targeted interventions for VVC tablet use by homeless Veterans.

# References

1. Heyworth, L, Kirsh, S, Zulman, DM, Ferguson, JM, and Kizer, KW. Expanding access through virtual care: The VA's early experience with Covid-19. *NEJM Catalyst Innovations in Care Delivery*, 2020;1(4).
2. Connolly, S. L., Stolzmann, K. L., Heyworth, L., Sullivan, J. L., Shimada, S. L., Weaver, K. R., ... & Miller, C. J. (2021). Patient and provider predictors of telemental health use prior to and during the COVID-19 pandemic within the Department of Veterans Affairs. *American Psychologist*.
3. Tsai, J, Trevisan, L, Huang, M, and Pietrzak, RH. Addressing veteran homelessness to prevent veteran suicides. *Psychiatric Services*. 2018:935-937.
4. Zulman DM, Wong EP, Slightam C, et al. Making connections: nationwide implementation of video telehealth tablets to address access barriers in veterans. *JAMIA Open*. 2019;2(3):323-329.
5. McInnes DK, Cutrona SL. Homeless Veterans and Use of Information Technology. *Homelessness Among US Veterans: Critical Perspectives*. 2018:245.
6. Garvin, LA, Hu, J, Slightam, C, McInnes, DK, and Zulman, DM. Use of Video Telehealth Tablets to Increase Access for Veterans Experiencing Homelessness. *J Gen Intern Med*. 2021:1-9.
7. Venkatesh V, Morris MG, Davis GB, Davis FD. User acceptance of information technology: Toward a unified view. *MIS quarterly*. 2003:425-478.
8. Braun V, Clarke V. What can "thematic analysis" offer health and wellbeing researchers? *International journal of qualitative studies on health and well-being*. 2014;9
9. Vaughn J, Summers-Goeckerman E, Shaw RJ, Shah N. A Protocol to Assess Feasibility, Acceptability, and Usability of Mobile Technology for Symptom Management in Pediatric Transplant Patients. *Nursing Research*. 2019;68(4):317-323.
10. Pyke-Grimm KA, Kelly KP, Stewart JL, Meza J. Feasibility, acceptability, and usability of web-based data collection in parents of children with cancer. *Oncol Nurs Forum*. Jul 2011;38(4):428-35.
11. Crowe C, Collie, C., Johnson, C., & Wiltsey Stirman, S. An intervention mapping process to increase evidence-based psychotherapy within a complex healthcare system. *American Psychologist*. 2020;75(8):1116.
12. Santa Ana EJ, LaRowe, S. D., Gebregziabher, M., Morgan-Lopez, A. A., Lamb, K., Beavis, K. A., ... & Martino, S. Randomized controlled trial of group motivational interviewing for veterans with substance use disorders. *Drug and Alcohol Dependence*. 2021;233:108716.



**Thank you**

**Questions?**

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THANK YOU!

## Questions

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