



TELEREHABILITATION: CURRENT SERVICES AND THE BENEFITS OF TELEHEALTH IN PHYSICAL THERAPY

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- My comments are based on my own clinical experience as a physical therapist and do not represent the policy or views of the Department of Veterans Affairs.



Tele-PT Service Delivery model

- Virtual care can be adapted to meet the changing needs of our Veterans. Applications may include the following:
 - A supplement to an in-person visit, both inpatient and outpatient.
 - A hybrid model of both virtual and in-person sessions.
 - Pre-admission training and education.
 - Post-transition to home follow up.
 - Interdisciplinary visits.
 - Group education classes.
 - Home exercise instruction, either 1:1 or exercise groups.
 - Assistive device assessment and training*.
 - Modality and self-care equipment assessment and training*.
 - Tele- Emergency Care consultation.

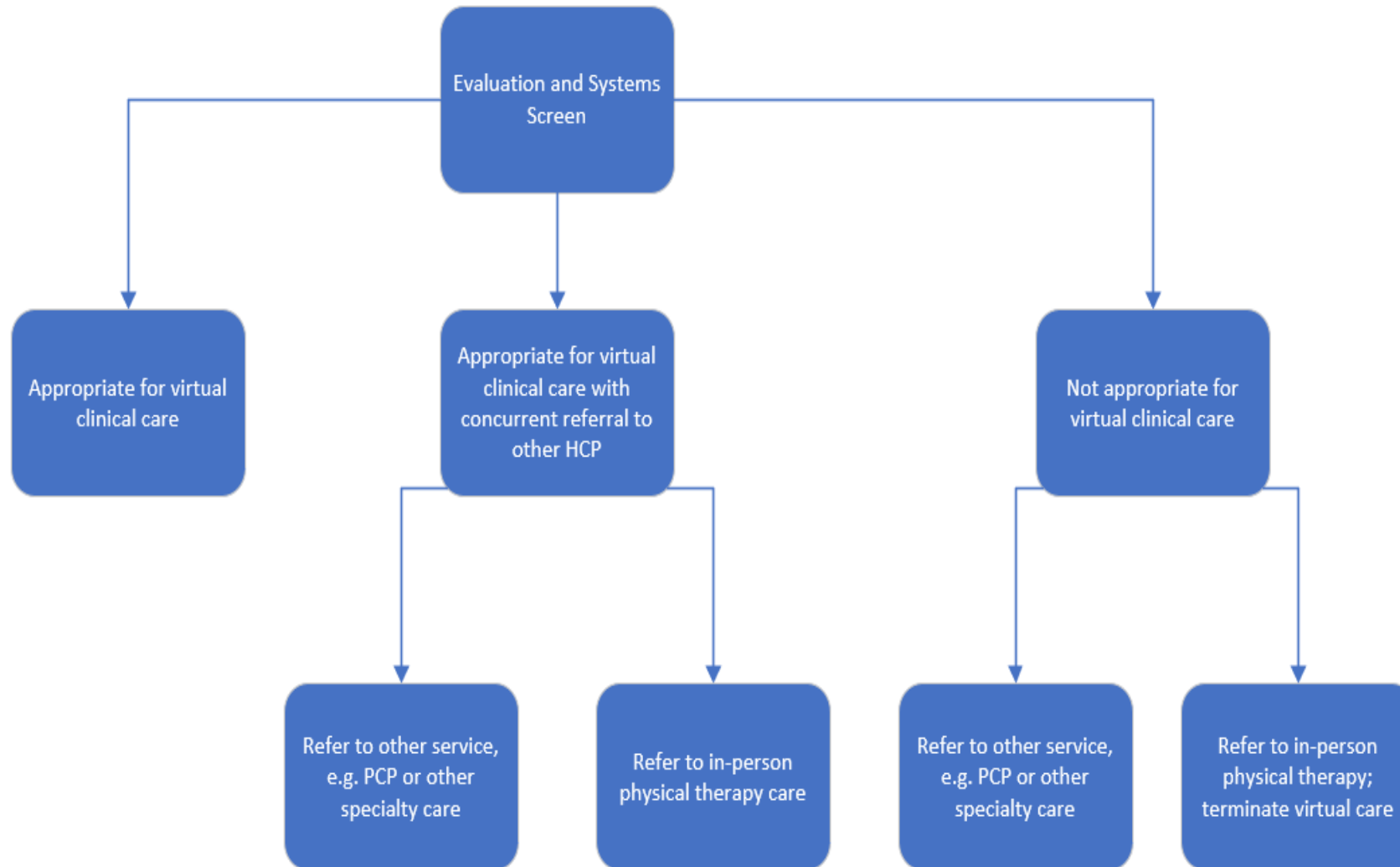


Who is appropriate for telerehabilitation?

- Willing to participate in telerehabilitation
- Telerehabilitation is appropriate for patient goals and plan of care
- Has the following skills:
 - Appropriate communication ability*
 - Appropriate cognitive ability*
 - Technical skills*
 - *or family/caregiver is available to assist



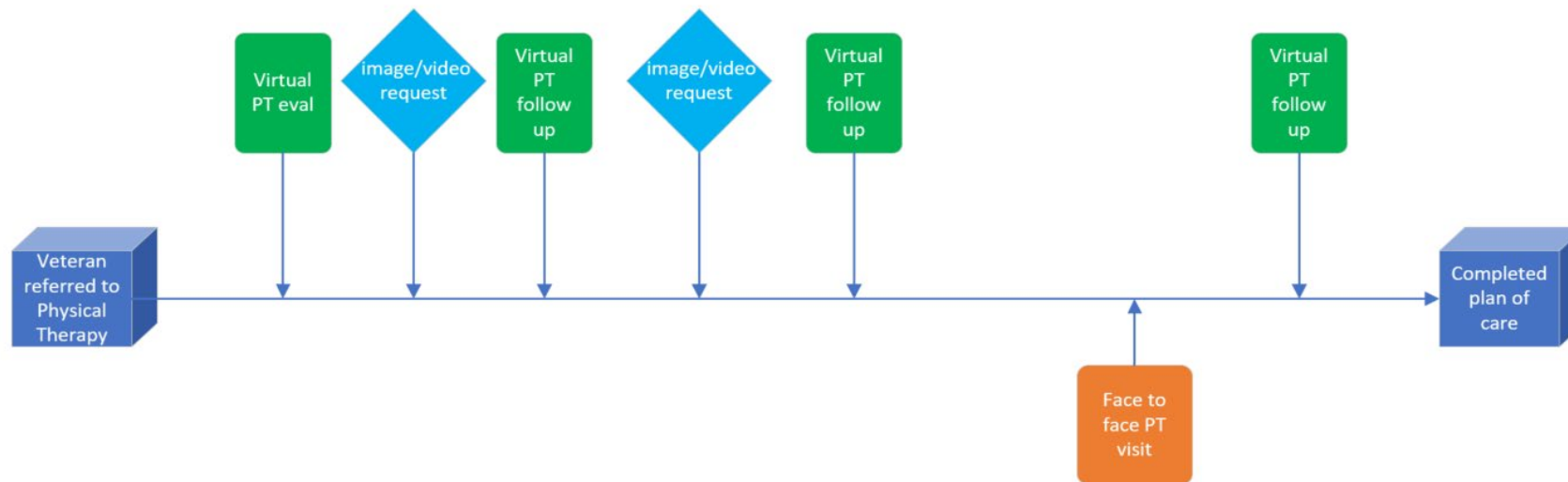
Telerehabilitation Physical Therapy





PT episode of care

- Multi-modal approach to meet our Veteran's needs





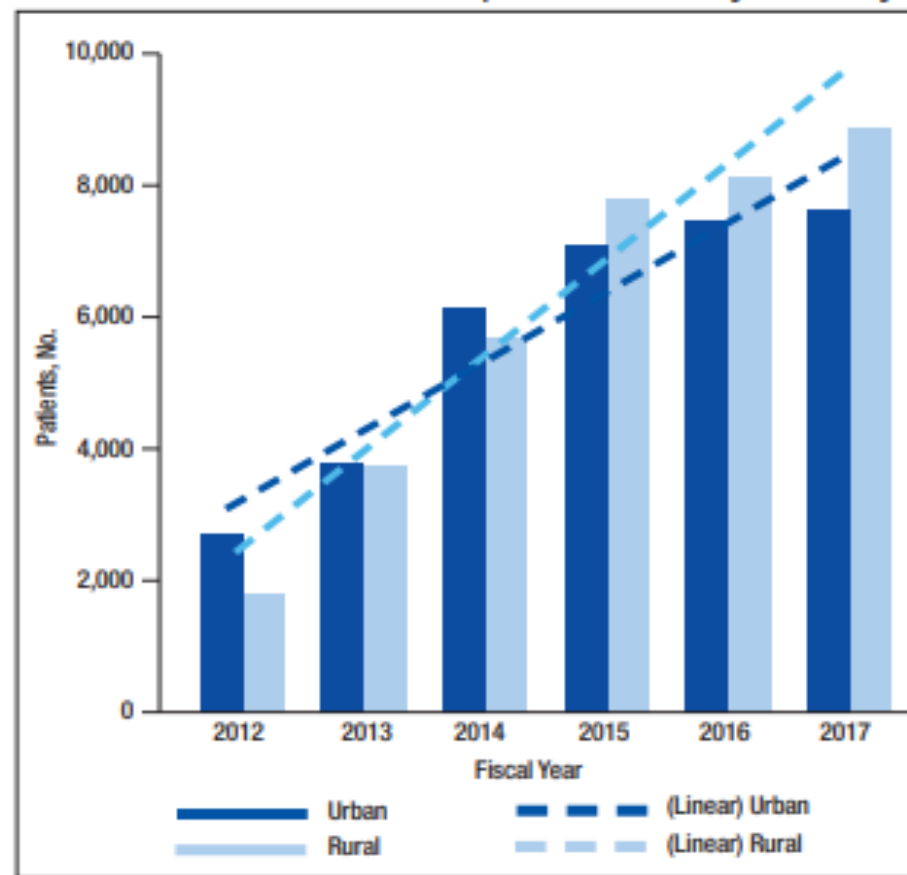
Telerehabilitation History & Trends

Rural Veterans Telerehabilitation Initiative

- Established 2009
- Funding from the VA Office of Rural Health.



FIGURE 3 Number of Unique Patients by Rurality



Cowper-Ripley, D. C., Jia, H., Wang, X., Freytes, I. M., Hale-Gallardo, J., Castaneda, G., ... Romero, S. (2019). Trends in VA Telerehabilitation



U.S. Department
of Veterans Affairs

VISN 22: Desert Pacific Healthcare Network

8 VA Healthcare System locations

- Greater Los Angeles
- Loma Linda
- Long Beach
- San Diego
- Northern Arizona
- Phoenix
- Southern Arizona
- New Mexico

60 Community Based Outpatient Clinics

- Telehealth clinical technicians (TCT)



VA
HEALTH
CARE

Defining
EXCELLENCE
in the 21st Century



MODES OF TELEREHABILITATION

- Synchronous Clinic to clinic
 - clinical video telehealth (CVT)
- Synchronous Clinic to home
 - VA Video Connect (VVC)
- Asynchronous
 - My VA Images



Benefits of Clinic-to-Clinic Connection

➤ **Provider**

- Can more readily include family/caregivers in teaching/education
- Attracts new patients
- Reduces No-Shows
- Ease of set-up/clean-up in-between
- Optimizes space of a smaller clinics

➤ **Veteran**

- Convenient - Frequently occurs after working with primary care provider
- Reduce resource burden (e.g. time - long commute)
- Improved remote access to a specialist
- Provides timely follow-up to facilitate carry-over
- Co-Pay exempt



Clinic-to-Clinic Connection - Clinical Video Telehealth (CVT)

- Schools – one time education class
- Group exercise classes
- One-on-one appointment
 - Durable medical equipment assessment
 - Assistive device assessment
 - Pain management and modulation treatment options
 - Follow-up from prior appointment
 - Guide primary care provider for specialized referral





Staying Active & Staying Connected



<https://www.youtube.com/watch?v=l7z9FBDALvk&feature=youtu.be>



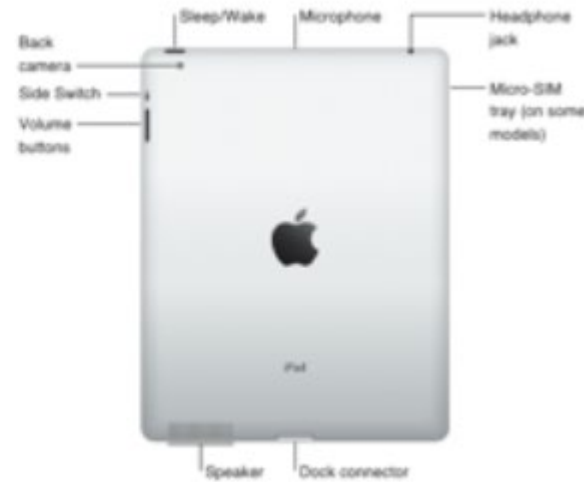
Benefits of Video-to-Home Telehealth

- Improved access and reduced no shows
- Improve continuity of care
- Convenient
- Home Environment
 - Able to assess function and mobility in patient's home
 - Inclusion of family and caregivers
- Optimize use of resources
 - Co-Pay exempt
 - No transportation needed
 - Time





Video-to-Home Telehealth Services – VA Video Connect



“Anywhere to Anywhere”



Video-to-Home Telehealth Services

- **Specialty PT Providers available:**
 - Amputee, Chronic Pain, Geriatrics, Orthopedic, Neurologic, Pelvic Floor, and Vestibular
- **PT Telehealth services:**
 - AD training or retraining
 - Pain management or modality training
 - Home exercise program review or progression
 - Fall recovery in home and education
 - Post discharge follow-up (example: TKA)
 - Patient and family education
 - Consult with home primary care team





Asynchronous tele-imaging application – My VA Images

My VA Images application

- Provider can request photos/videos
- View patient submissions
- Send messages about their photos/videos
- Write progress notes in electronic medical record (CPRS)
- Save media in the medical record

Benefits

- Veterans access health care remotely from home, saving them time and travel.
- High quality images, submitted securely, and at Veteran's convenience.
- Enhances flexibility in providing patient care.
- Review of images and follow-up with the patient when convenient for the Veteran and provider.





Influencers of Telehealth Utilization



Barriers

- Slow Internet speed
- Poor audio/video quality
- Internet access and wireless coverage
- Low provider communication skills
- Resistance to use or perceptions
- Difficulty with camera position
- Security and privacy concerns
- Reimbursement issues
- Policy and laws

Facilitators

- Cost savings
- Reduced wait time
- No travel time
- Easy to use
- Motivation and engagement
- Family involvement
- Convenience
- Privacy
- Better management



Telerehabilitation for patients with COVID-19

2022 Systematic Review
& Meta-Analysis -
Telerehabilitation was
found to be...

- Effective to improve:
 - physical function
 - Exercise perception
 - Level of dyspnea
- Seid, Aychiluhm, & Mohammed, 2022

2022 meta-analysis of
randomized controlled trials –
Telerehabilitation was found
to be...

- Superior to no treatment or usual care for dyspnea, muscle strength, ambulation capacity.
- No significant difference in anxiety or quality of life.
- Haung, Fan, Zhao, Yang, Zhau, Chen, Yang, Wang, & Qu 2022



Cardiac Telerehabilitation

2022 Systematic review and meta-analysis-Telerehabilitation as an alternative to phase 2 cardiac rehab of coronary heart disease was found to be...

- Associated with an increase in functional capacity, physical activity (PA) behavior, and improvement in depression when compared with usual care (UC).
- When compared to Center based cardiac rehab (CBCR), an equivalent effect on functional capacity, PA behavior, QoL, medication adherence, smoking behavior, physiological risk factors, depression, and cardiac-related hospitalization was observed.
- Ramachandran, Jiang, Tam, Yeo, & Wang, 2022

2023 Systematic Review & meta-Analysis - Telerehabilitation following percutaneous coronary intervention – “one of the promisingly effective cardiac rehabilitation strategies that improve cardiorespiratory fitness and reduce cardiovascular disease risk factors.”

- Statistically significant difference between HBCTR and the control group in 6MWT
- No significant difference Quality of life.
- Significant improvements in triglycerides and in low density lipoprotein cholesterol
- No significant differences in diastolic blood pressure, total cholesterol or high-density lipoprotein cholesterol
- Zhong, Fu ,Xu, Sun, Wang, He, & Wei, 2023



2020 Systematic
Review -
Telerehabilitation
was found to
be...

- As effective as traditional in-person rehabilitation for older adult patients:
 - After stroke, chronic obstructive pulmonary disease (COPD), and Total Knee Replacement (TKR)
 - With comorbidity of COPD and Chronic Heart Failure
- Velayati, Ayatollahi, & Hemmat, 2020



Musculoskeletal Telerehabilitation

2021 Systematic review and meta-analysis of RCTs- Technology-supported exercise programs were found to be...

- Associated with significant improvements in knee pain and quality of life, improvement in physical function dependent on program features
- Chen, Or, & Chen 2021

2017 Systematic Review & Meta-Analysis - Telerehabilitation was found to be...

- Effective to improve physical function and pain
- More favorable than in-person care alone
- Equivalent to in-person care
 - Cottrell, Galea, O'Leary, Hill, & Russell, 2017

2016 Systematic Review - Telehealth PT assessment - "feasible with overall good concurrent validity and excellent reliability"

- Assessment of pain, swelling, range of motion, muscle strength, balance, gait and functional assessment.
 - Mani, Sharma, Omar, Paungmali, & Joseph, 2016



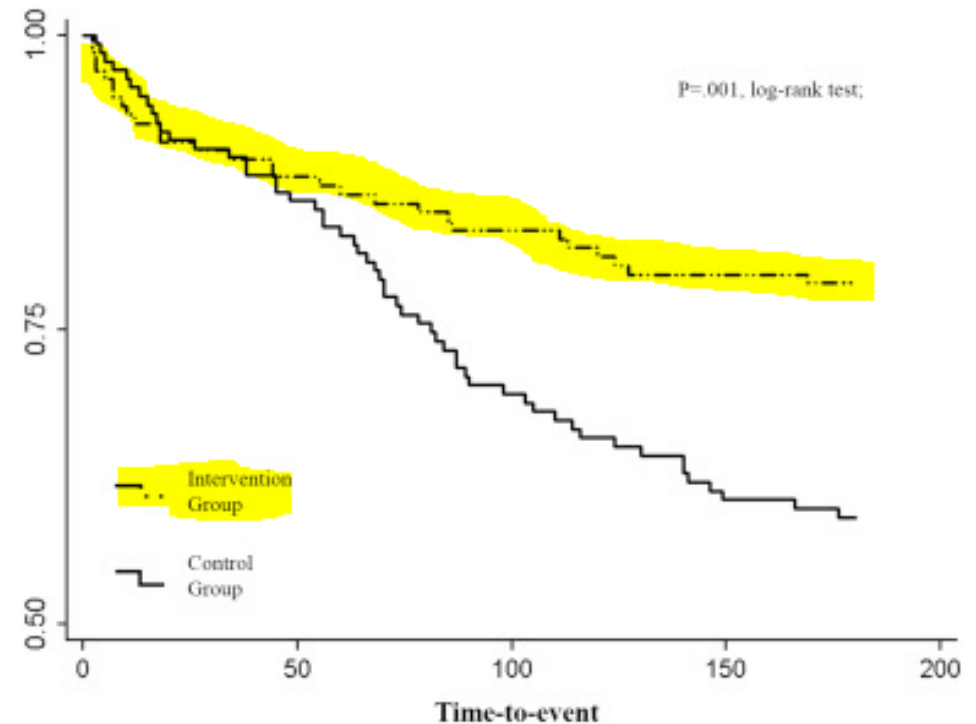
Fall Prevention Telehealth Program

Participants with 1 fall

- Telehealth group 20.6%
- Conventional 39.4%

Participants with 2 or more falls

- Telehealth group 8%
- Conventional group 17%



Bernocchi et al., 2019



Total Joint Arthroplasty

- 2020 Systematic Review –
Telerehabilitation for post-op lower limb
total joint
 - Improved physical function, similar to
that of in-person outpatient physical
therapy, without an increase in adverse
events or resource utilization.
–Jansson, Rantala, Miettunen, Puhto, &
Pikkarainen, 2020
- Is there acceptance of telehealth after
surgery?
 - 44% preferred a virtual visit
 - Satisfaction associated with feeling heard
 - Helpful for self management
 - Clear communication pathway
 - Parkes, Palmer, Wingham, & Williams, 2019

April 26, 2019

Assessment of Outcomes of Inpatient or Clinic-Based vs Home-Based Rehabilitation After Total Knee Arthroplasty A Systematic Review and Met- a-analysis

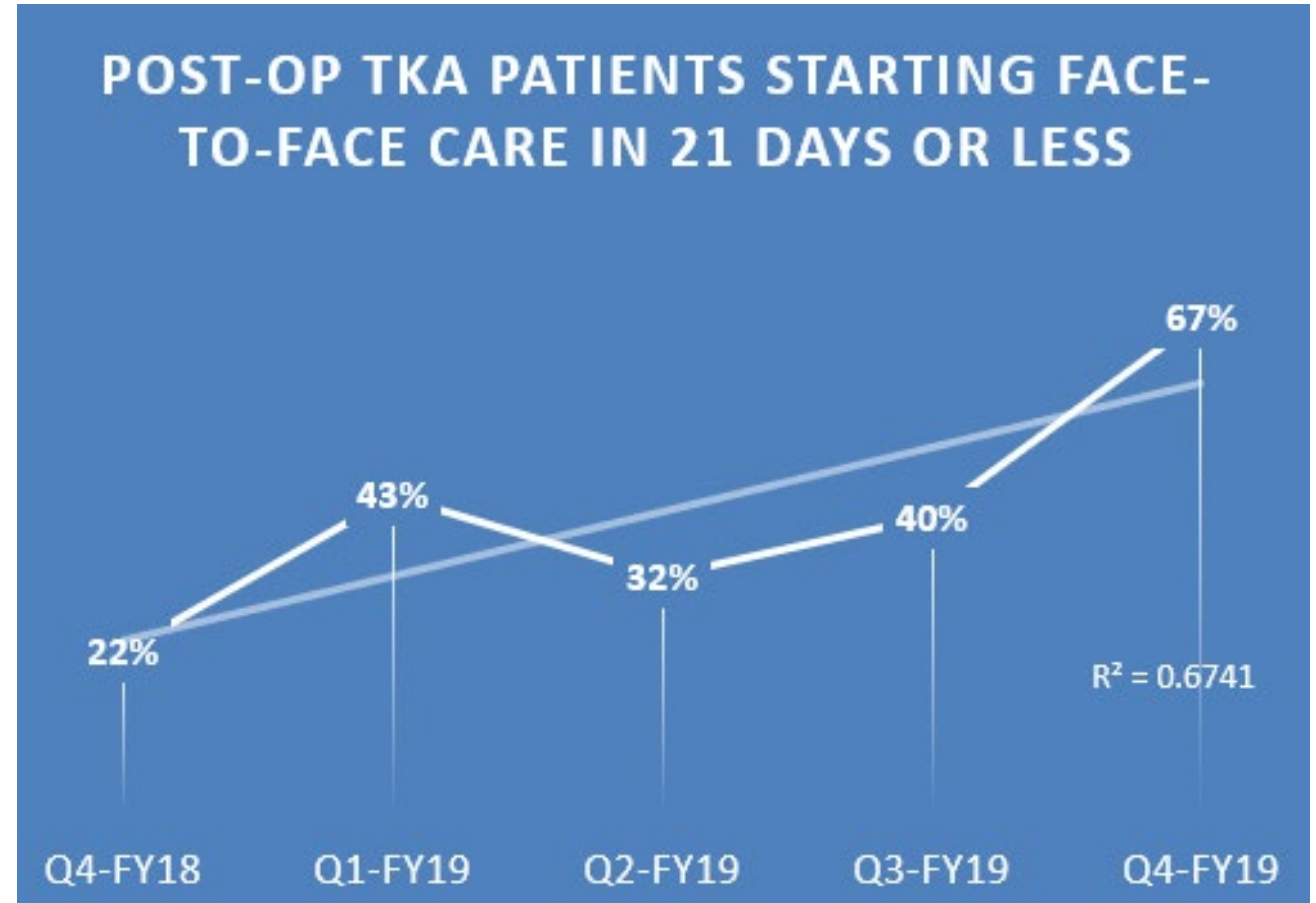
Mark A. Buhagiar, PhD, MHM, BAppSc^{1,2}; Justine M. Naylor, PhD, BAppSc^{2,3,4}; Ian A. Harris, MBBS, MMed, PhD, FRACS, FAHMS^{2,3,4}; [et al](#)



Total Joint Arthroplasty

Potential Telehealth Impact on Post-Op Care

- Connecting Phoenix VA Veterans that are post-operative total knee arthroplasty
 - Start conversation at pre-op
 - Facilitate access & connection
 - See virtual provider within 1 week from discharge
 - Significantly more patients started out-patient services in the recommended time.





“Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning.”

~Albert Einstein~

Thank you!