Taking House Calls to a New Level: The Role of Telemedicine in Transplantation

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Disclosures

- None

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Overview

- Definitions of Telemedicine
- Published research in transplantation
- Preliminary data on actual use
- Barriers to implementation and ideas of how to overcome barriers

Definitions

- **Telemedicine** - Delivery of health care services at a distance using electronic means for the “diagnosis, treatment, prevention of disease and injuries, research and evaluation, and education of health care providers” to improve health

- **Telehealth** - Umbrella term that includes education, research, public health in addition to healthcare, but often used interchangeably

Serper M, Volk ML. Clin Gastroenterol Hepatol. 2018, Feb;16(2):157-161.e8.

A Very Brief History

- Telemedicine is not new
- Used since the 50s to transmit radiologic images and in the 60s by the military, by NASA, and in medicine
  - Psychiatric care, military personnel
- Used by Kaiser Permanente in the 70s
- Increased adoption in the 90’s with availability of the internet
- Very rapid growth since 2009-2010
  - ARRA, HITECH Act, ACA

Types of Telemedicine

Televisits

Telesupervision

Telemonitoring

Tele-interpretation

Teleconsultation

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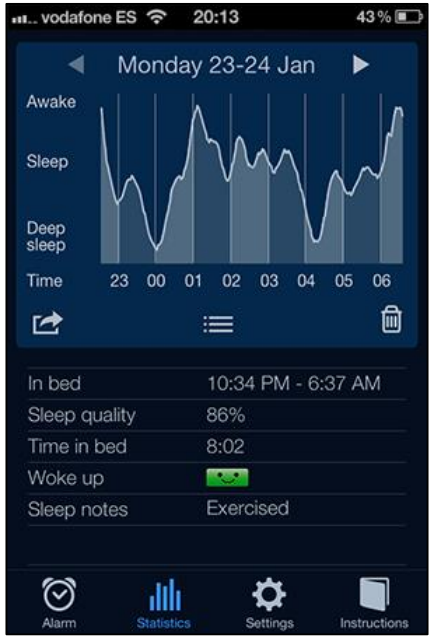
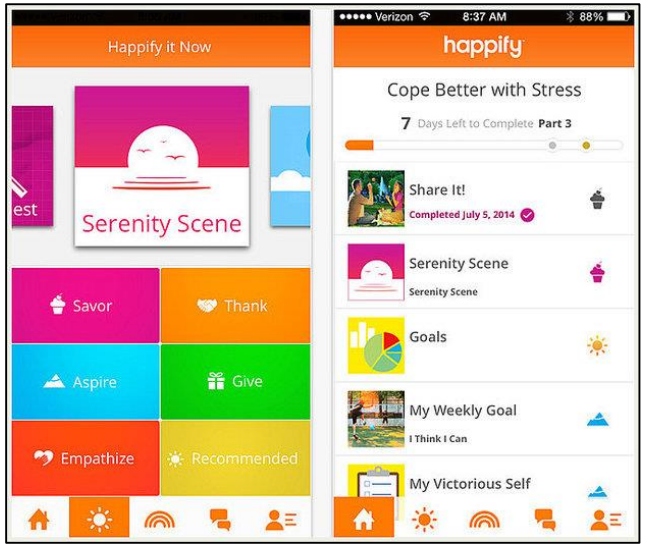
What is NOT Telemedicine

- Remote education (CME)
- Remote technology used for research
  - Questionnaires
- Social media (no patient-provider relationship)
- *mHealth (often app-based, no patient-provider relationship)*

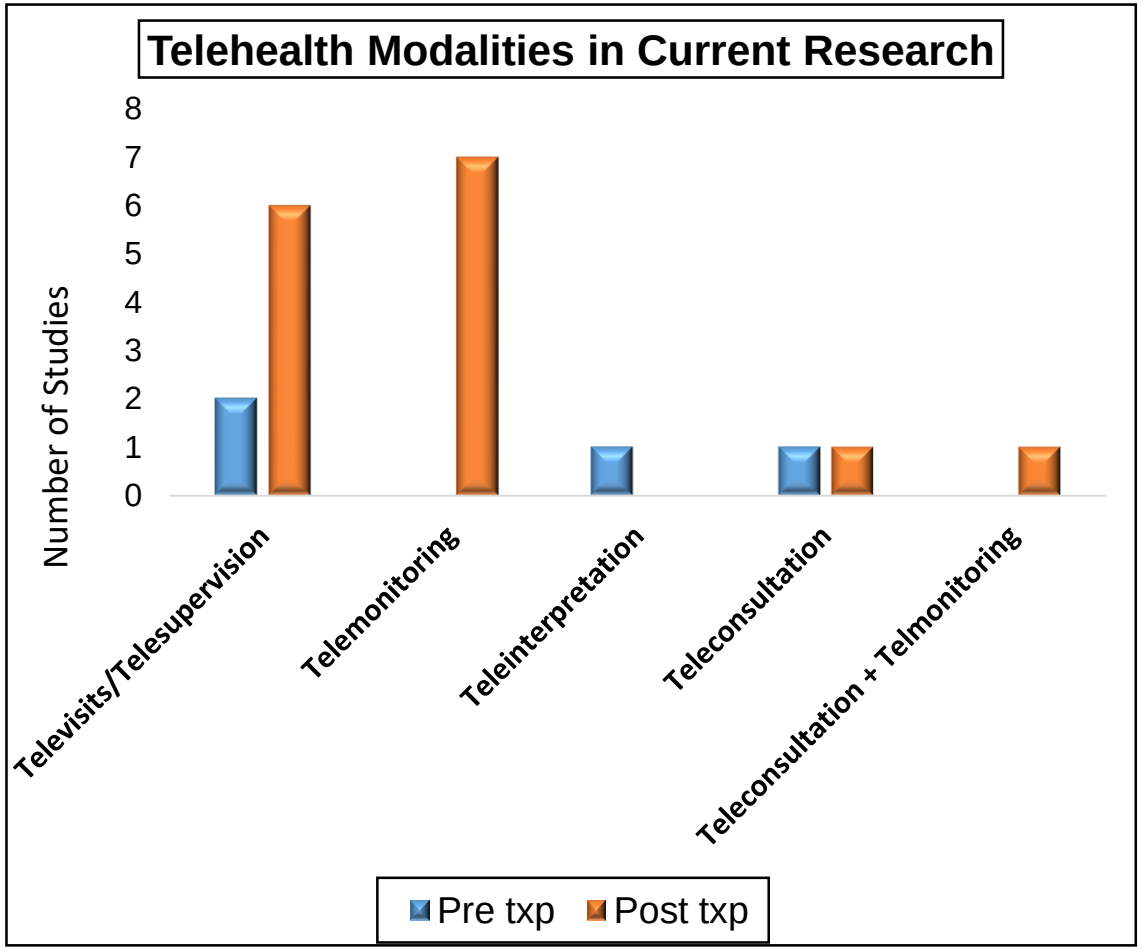


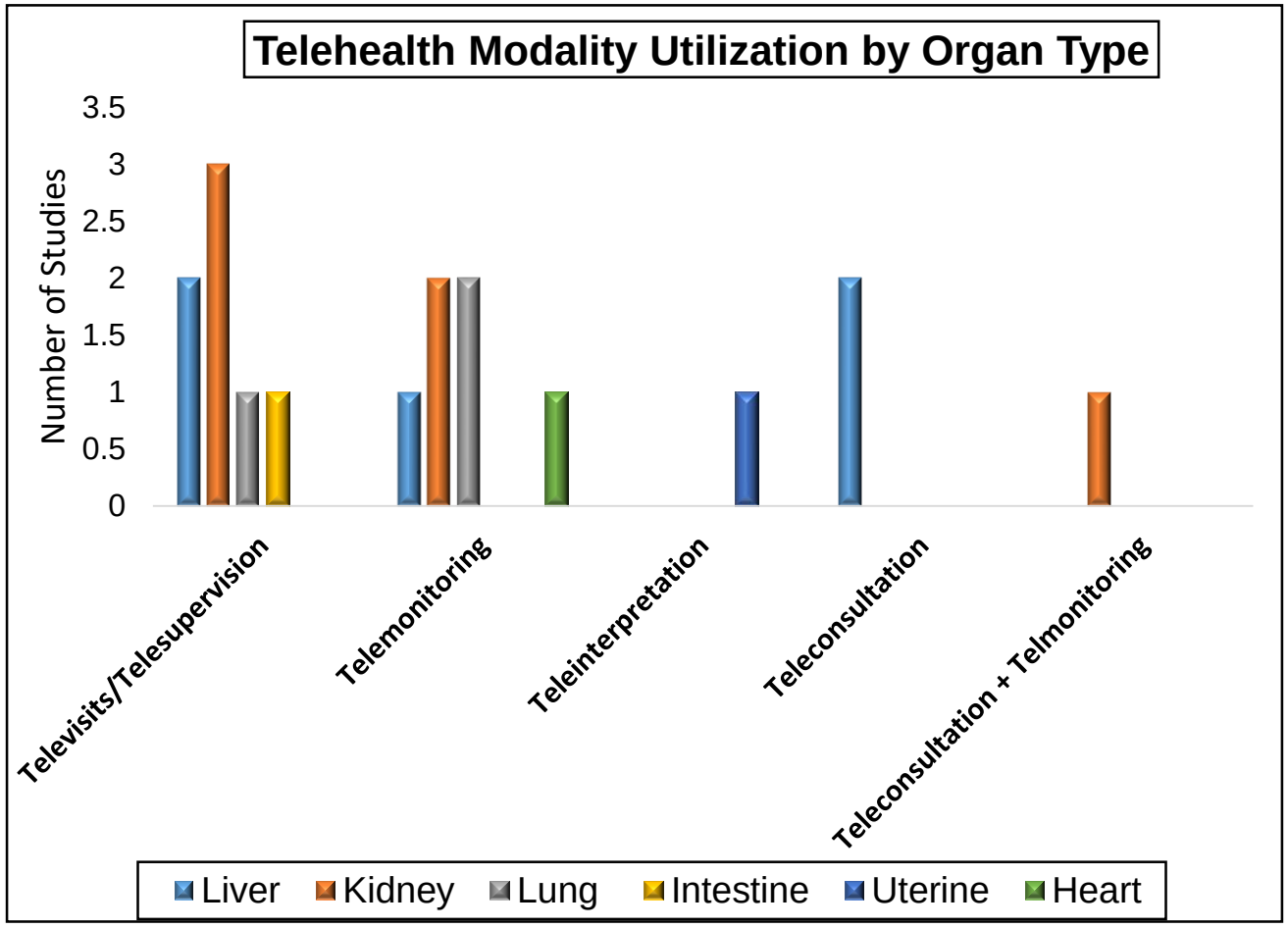


“Telemedicine” in Transplantation: Published Research

- Literature review of recent research resulted in 19 studies (15 adults, 4 pediatric)
- ***Remote monitoring*** **most common modality**
- **Promising early results:**
  - Increased access to clinicians
  - Decreased time to transplant referral and fewer unnecessary transplant workups for non-candidates
  - Lower utilization of emergency or after-hours phone calls
  - High patient satisfaction

“Telemedicine” in Transplantation: Published Research



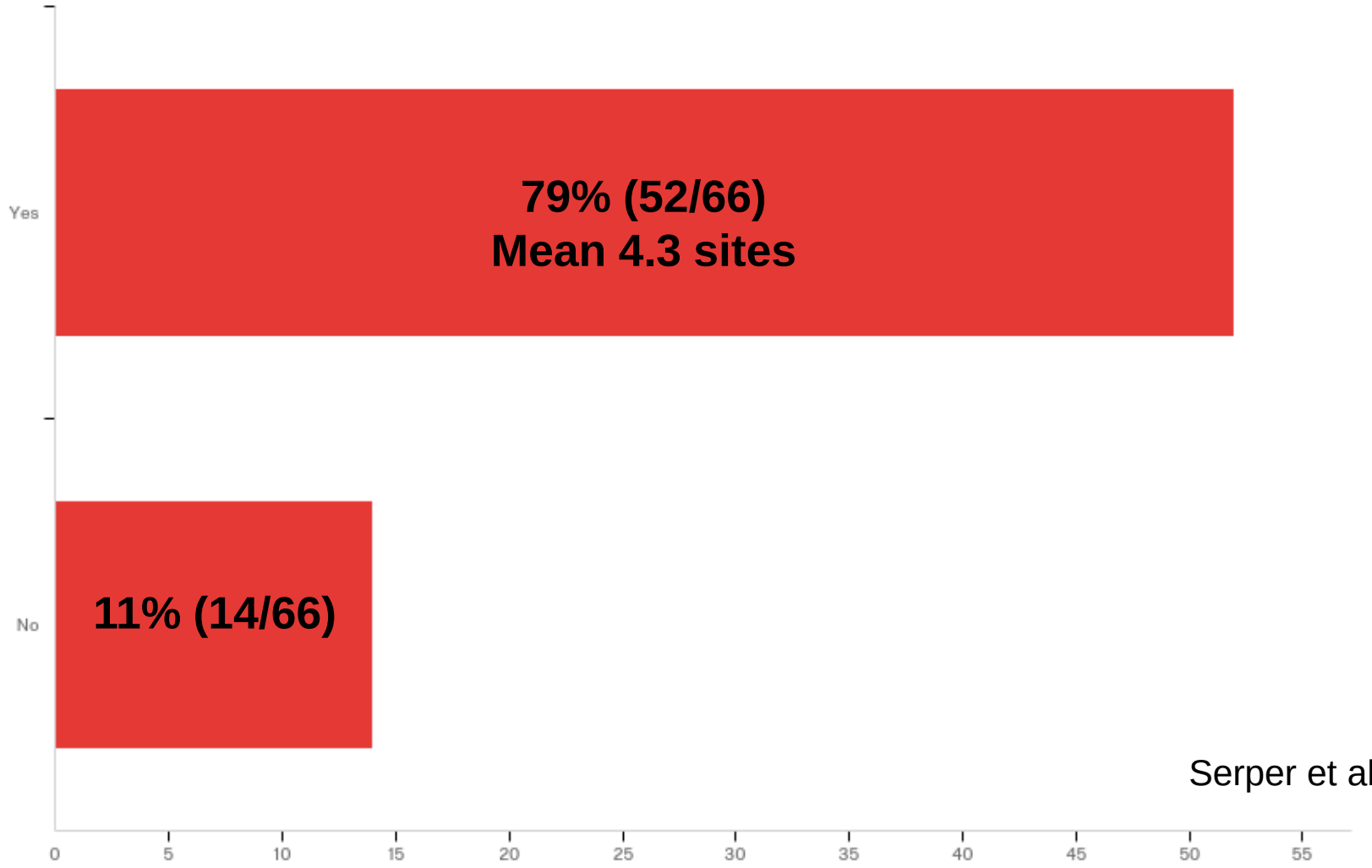


Preliminary Data: National Survey of Clinical Outreach and Telemedicine Use in Liver and Intestinal Transplantation

- Questions about outreach modalities, frequency, provider participation, and reimbursement
- Surveyed 66/145 (~**46%)** of programs thus far
  - 20 pediatric or adult/pediatric, 8 with liver/intestine
  - **All** UNOS regions and **29** states represented

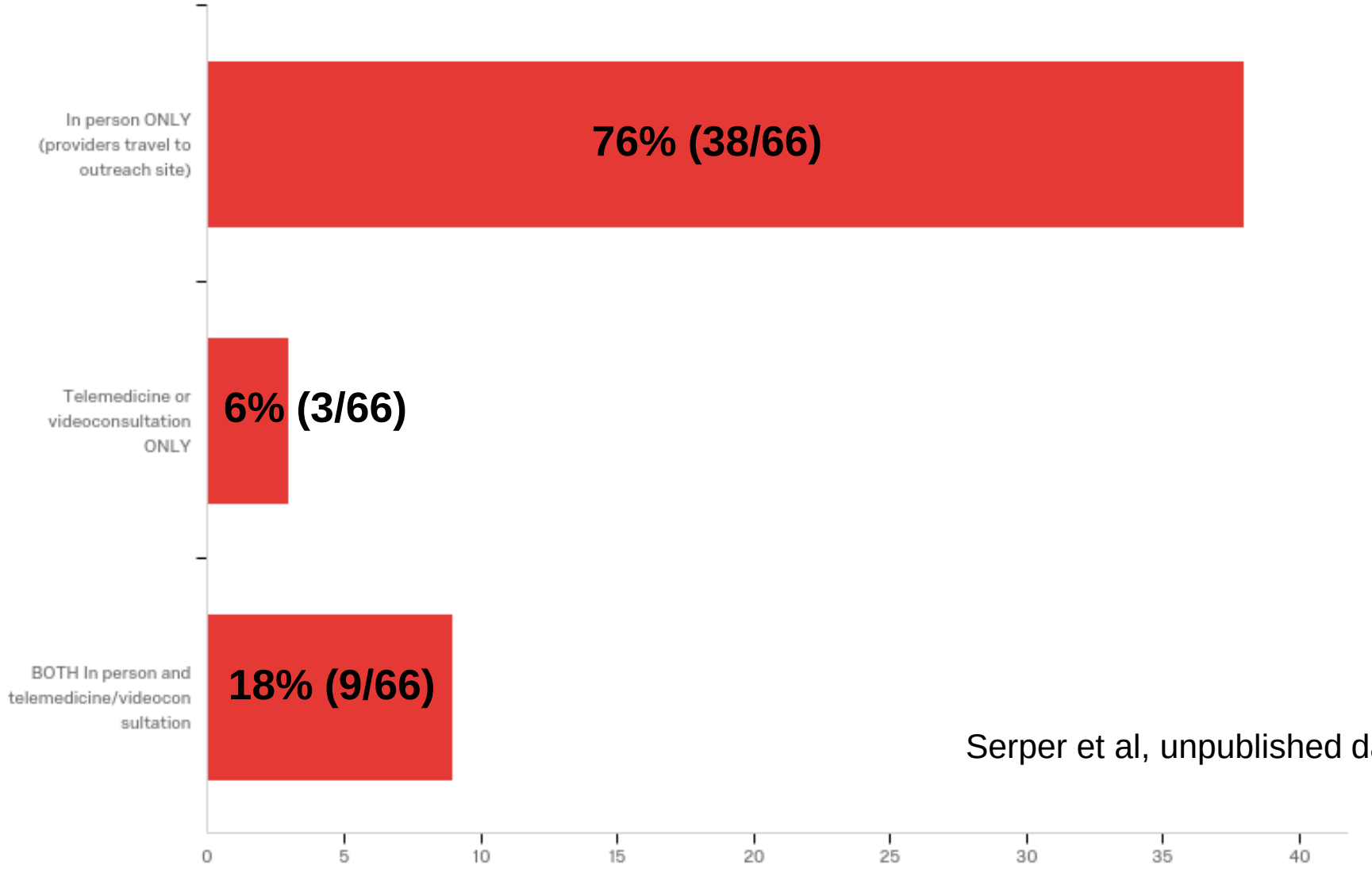
Serper et al, unpublished data

Does your transplant center perform outreach (clinical visits at sites remote from transplant center) either in-person or via telemedicine?



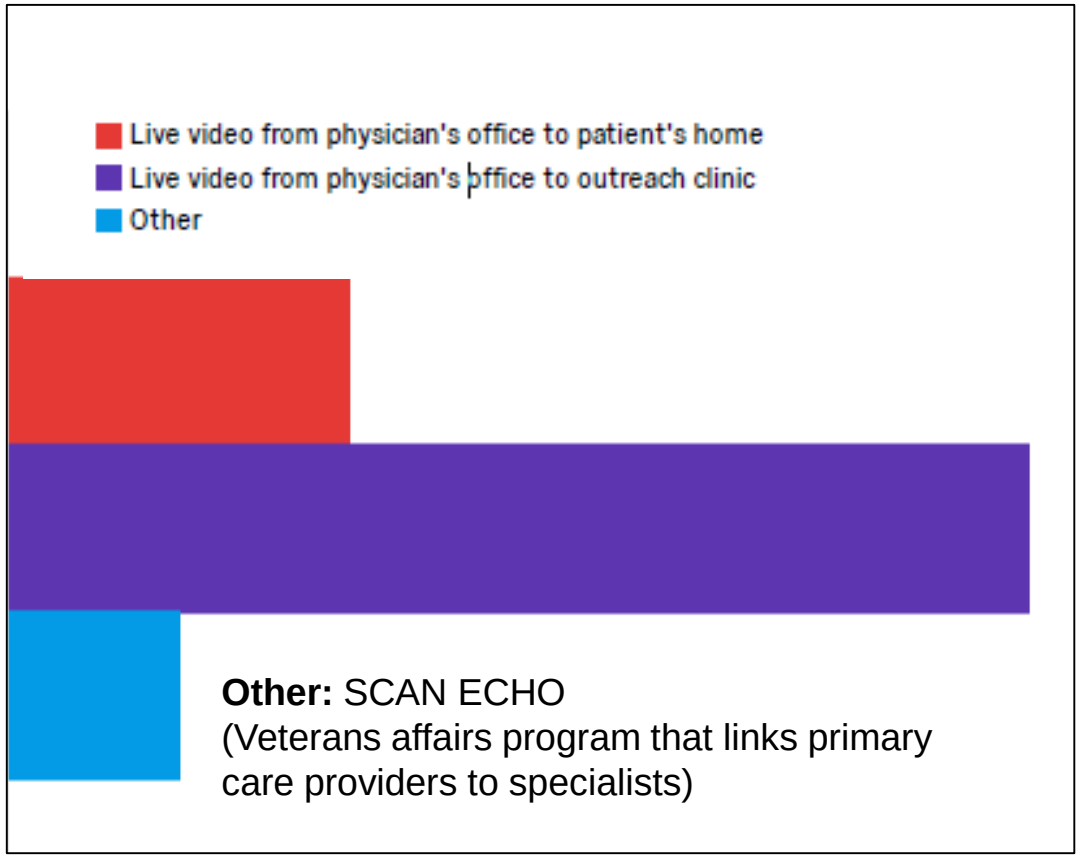
Serper et al, unpublished data

Outreach visits are performed in what modalities?

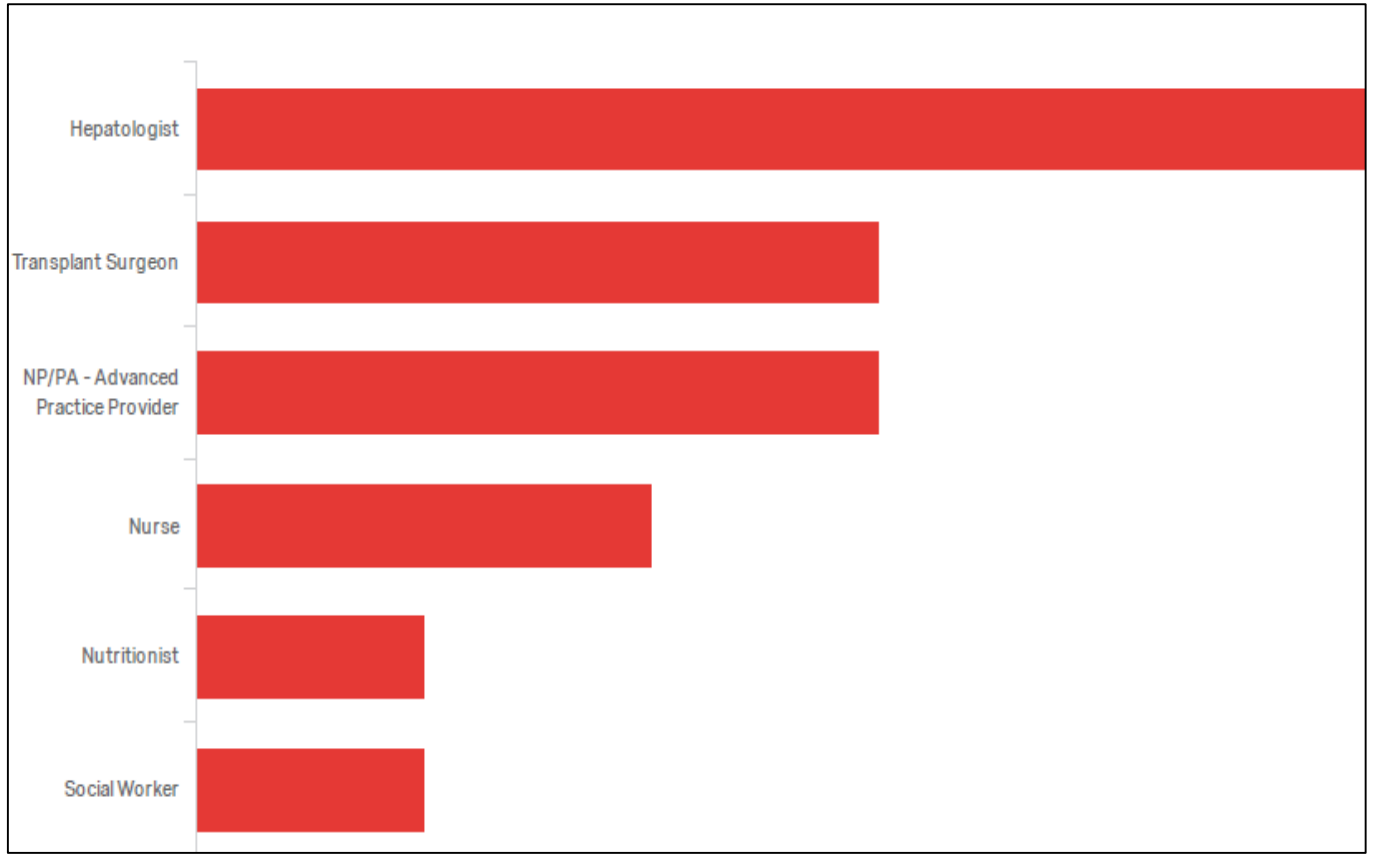


Serper et al, unpublished data

Types of telemedicine and utilizing providers

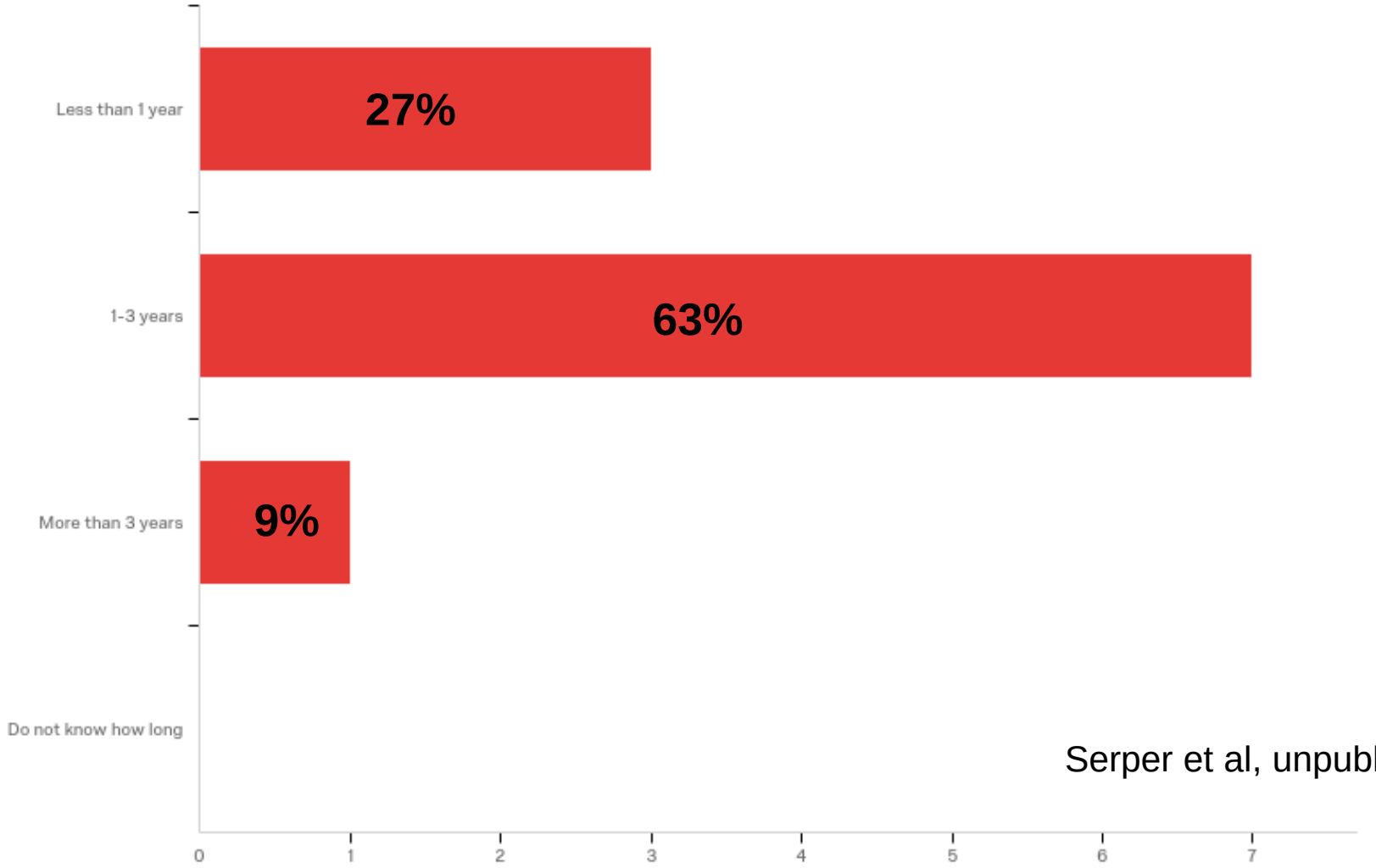


Other: SCAN ECHO
(Veterans affairs program that links primary care providers to specialists)



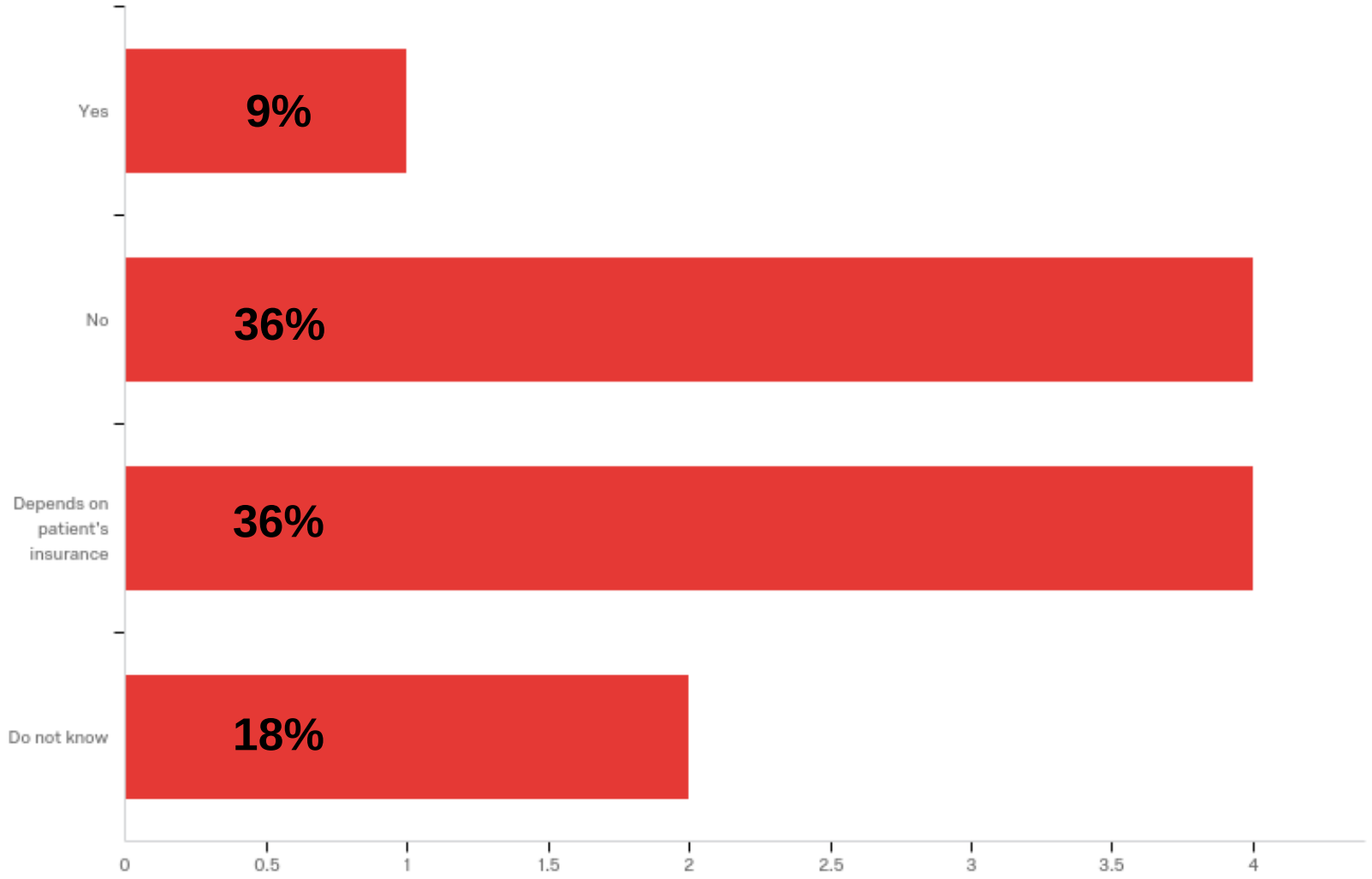
Serper et al, unpublished data

How long has your center used telemedicine (11 centers)



Serper et al, unpublished data

Telemedicine care is reimbursed (11 centers)



Serper et al, unpublished data

Penn Telehepatology Program

- In 2017 partnered with large gastroenterology group in Lancaster, PA (about 60 miles from Philadelphia)

- Group with clinical need for hepatology
  - 36 GI practitioners
  - Retirement of the only part-time hepatologist

- **Original program intent** – recruit patients within 2 weeks of liver-related hospitalization to help manage complications

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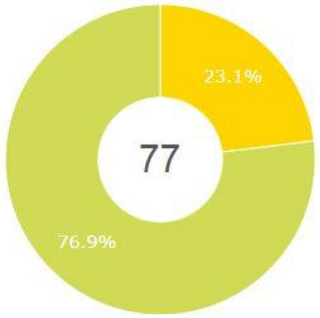
Early Data - Patient/Visit Characteristics

Number of Patients Scheduled	23
Number of Patients Seen (including e-consults)	20
Number of E-consults	2
Median Time from Referral to Visit	8 days
Average Visit Time	31 min
Average Charting Time	47 min
Average Patient Rating of Telemedicine Service (out of 10 maximum points)	9.3 points
Male	70%
Mean Age	56
New Tests Ordered	45%
Medication Changes	55%
New Transplant Referrals	20%

Serper et al, unpublished data

Penn Telehepatology Program

- 13 Patients surveyed to date - **10 Promoters**, 3 Passives
- Patient Feedback
  - All agree that the service is a good addition to their regular care
  - Most felt the visit allowed for better understanding of their illness and care
  - Some patients felt they had more independence with ease of travel
- **The NPS for the telemedicine service is 77**
  - A positive NPS is considered good, a score over 30 is great, and **a score above 70 is excellent**



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Barriers to telemedicine implementation

- Lack of reimbursement
- “Institutional inertia”
- Concern about loss of revenue from in-person visits
- Legal concerns
- Patient/physician beliefs about telemedicine visits
  - Lower quality
  - Loss of privacy

University of Pennsylvania Telemedicine Infrastructure

Legal / Regulatory

Reviews all Connected Health contracts prior to piloting. Regular engagement with OGC over legal/ regulatory/ licensing questions.

Clinical

Clinical program leads, BAs, and COOs are critical for program development and integrating connected health activities into the clinical programs.

Business Development

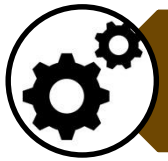
Business development can help to develop the business model, identify value propositions and overcoming hurdles. Created a marketing presence.

Technologies (Video/Epic)

Organizational commitment and IT support to a video solution that is HIPAA compliant and integrated into Epic.

Payer

Understand opportunities for reimbursement. Facilitated the ability to charge patients in Epic and identifying which patients we can bill either directly or to the insurance company.



Administration

Formalizing the program development process and connecting the program leads to other parts of the organization. Helps to standardize Connected Health programs across Penn Medicine and actively looking for new opportunities to scale select programs.

Courtesy of Liz Deleener

Telemedicine Value Propositions

Reducing readmissions and low-value care

- Reduces readmissions and avoidable emergency department utilization
- Better chronic patient management that leads to better outcomes and lower costs
- Low-cost monitoring provides information between visits that can alert to problems sooner

Improving patient access and convenience

- Extends convenience access to health care services
- Reduces travel time and costs for patients

Capture market share

- Improves patient satisfaction and retention
- Increases referrals of high-acuity transfers
- Increases provider capacity and productivity

Differentiation and “stickiness”

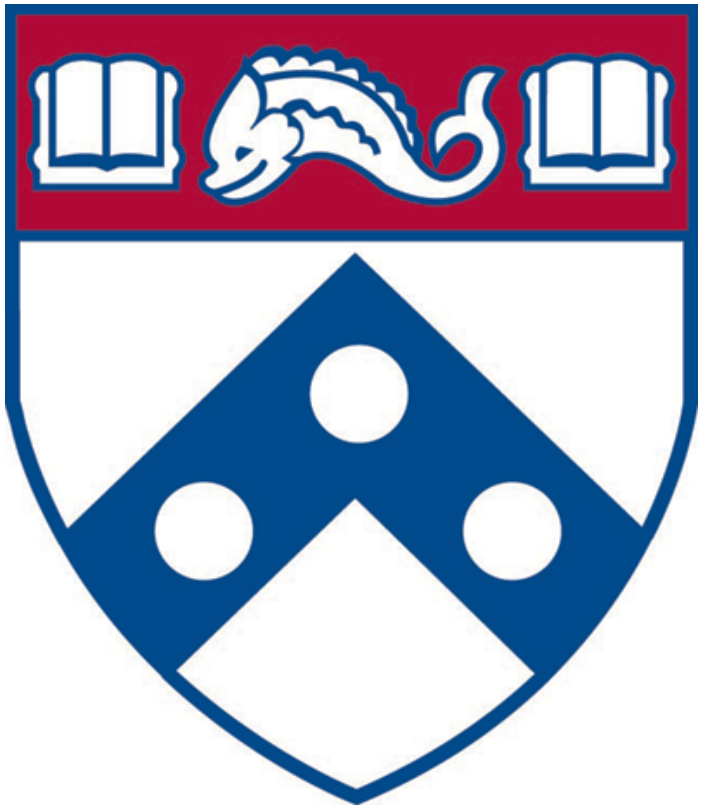
- More connectivity with Transplant Center over the care continuum
- Meets patient demands for convenient care options in the face of market disruptors
- Extends the reach of Transplant Center beyond brick and mortars

Courtesy of Liz Deleener

Future Directions for Telemedicine in Transplantation

- Continued national expansion with increased reimbursement
- Great potential as adjunct to community outreach and to improve continuum of pre- to post-transplant care
- Ripe area for future research in how to optimize its delivery, organization and payment structure

Questions?



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