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

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Disclosures

• None
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

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

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

Telehealth Modalities in Current Research

Telehealth Modality Utilization by Organ Type

Televisits/Telesupervision

- Pre txp
- Post txp

Telemonitoring

- Liver
- Kidney
- Lung
- Intestine
- Uterine
- Heart

Teleconsultation

Teleinterpretation

Teleconsultation + Telemonitoring
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?

79% (52/66) Mean 4.3 sites

11% (14/66)

Serper et al, unpublished data
Outreach visits are performed in what modalities?

- **76% (38/66)**: In person ONLY (providers travel to outreach site)
- **6% (3/66)**: Telemedicine or videoconsultation ONLY
- **18% (9/66)**: BOTH in person and telemedicine/videoconsultation

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)

- Less than 1 year: 27%
- 1-3 years: 63%
- More than 3 years: 9%
- Do not know how long: 0%

Serper et al, unpublished data
Telemedicine care is reimbursed (11 centers)

- Yes: 9%
- No: 36%
- Depends on patient's insurance: 36%
- Do not know: 18%

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
# Early Data - Patient/Visit Characteristics

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<tbody>
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<td>Number of Patients Scheduled</td>
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<td>Number of Patients Seen</td>
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<tr>
<td>Number of E-consults</td>
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<td>Visit</td>
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<td>Average Charting Time</td>
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<tr>
<td>Medication Changes</td>
<td>55%</td>
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<tr>
<td>New Transplant Referrals</td>
<td>20%</td>
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</tbody>
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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

Serper et al, unpublished data
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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