

# Telehealth in Peritoneal Dialysis Patient Management

Susie Lew, MD  
George Washington University  
March 3, 2018

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## Disclosures

- CareFirst Foundation: grant
- ACT/ The App Association: Steering committee member
- Baxter: Renal Medical Board member

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## Objectives

- Define terms used in telehealth
- Describe the aims of telehealth
- Provide some examples of ESRD telehealth projects
- Describe some lessons learned and barriers to telehealth
- Describe some future goals in telehealth

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### Telehealth vs Telemedicine

- **Telehealth** is a collection of means or methods for enhancing health care, public health, and health education delivery and support using telecommunication technologies. It encompasses a broad variety of technologies and tactics to deliver virtual medical, health, and education services.
- **Telemedicine** is the use of medical information exchanged from one site to another via electronic communications to improve a patient's clinical health status.

Center for Connected Health Policy, American Telemedicine Association

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### Telemedicine

- Data from these facilities are transmitted to health care professionals:
  - Primary care settings
  - Hospitals
  - Intensive care units
  - Skilled nursing facilities
  - Centralized off-site case management programs



- Health professionals monitor these patients remotely and act on the information received as part of the treatment plan

American Telemedicine Association

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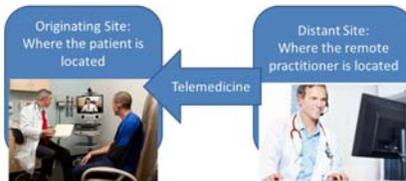
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### Telemedicine - Generally




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### Technologies

- **Store and Forward:** Allow for the electronic transmission of medical information, such as digital images, documents, and pre-recorded videos through a secure transmission.
- **Remote Patient Monitoring:** Uses digital technologies to collect medical and other forms of health data from individuals in one location and electronically transmit that information securely to health care providers in a different location for assessment and recommendations.
- **Video Conferencing:** Uses two-way interactive audio-video technology to connect users when a live, face-to-face interaction is necessary.
- **Mobile Health or mHealth:** A relatively new and rapidly evolving aspect of technology-enabled health care, is the provision of health care services and personal health data via mobile devices.

Center for Connected Health Policy

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### What are the Aims of Telemedicine?

- ✓ Keep people healthy
- ✓ Allow older and disabled individuals to live at home longer and avoid having to move into skilled nursing facilities
- ✓ Reduce the number of hospitalizations
- ✓ Reduce the number of readmissions
- ✓ Reduce length of stay in hospitals
- ✓ Improve quality of life
- ✓ Contain cost

American Telemedicine Association

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### Aims for Home Dialysis Modalities: PD and HHD

- ✓ Increase home dialysis uptake
- ✓ Enhance patient supervision
- ✓ Improve communication: visual and audio
- ✓ Improve patient health
- ✓ Improve patient quality of life
- ✓ Reduce unscheduled clinic visits
- ✓ Reduce ED visits
- ✓ Reduce hospitalization
- ✓ Reduce hospital length of stay
- ✓ Reduce cost

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### Using Telemedicine in Peritoneal Dialysis to Improve Patient Adherence and Outcomes While Reducing Overall Cost of Care



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Neal Sikka, MD  
Associate Professor, Emergency Medicine  
Director, Section of Innovative Practice and Telemedicine

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### George Washington University

- 269 PD patients from 10 Davita PD units in the Mid-Atlantic area
- Remote monitoring: daily blood pressure, pulse, weight
- Interactive video conferencing
- Educational modules

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### George Washington University

➤ Metrics:

- ✓ Uptake
- ✓ Adherence
- ✓ Satisfaction
- Cost

➤ Other findings:

- Reliable data
- Nurse engagement was vital for patient participation

Lew SQ. Perit Dial Int 2017;37:576-578  
Magnus M. Appl Clin Inform 2017;8:214-225

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### DaVita Remote Monitoring Objectives

- Provide better insight into patient data between clinic visits
- Help patients avoid unnecessary hospitalizations
- Help patients stay on home therapy longer



Martin Schreiber, MD  
VP, Clinical Affairs-Home Dialysis



Piloted with ~100 patients in 8 facilities to evaluate impact

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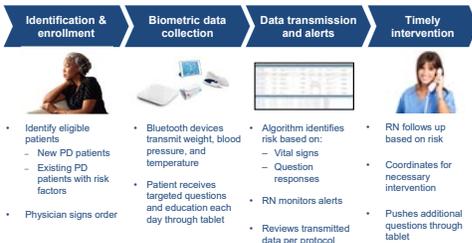
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### How does it work?




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### Key lessons from remote monitoring

- Remote monitoring has beneficial impact on hospitalizations and extending patient time on therapy
- Integration into nurse system and workflow is essential
  - Alert thresholds should allow patient customization
  - Quality equipment is essential; equipment issues can impact clinician and patient trust in the system
  - Using external vendor for logistics and support is key for mitigating impact on nurse burden
- Instigating action through automated education messages can help reduce burden
- Patients generally appreciate nurses keeping a closer eye on them
  - New patients are more receptive than existing patients

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### University of Virginia

- Used an iPad-based platform that connects patients to the dialysis center
- Enrolled 14 patients to assess acceptability, usage and feasibility



Mitchell Rosner, MD (USA)



Claudio Ronco, MD (Italy)



KS Nayak, MD (India)

Nayak KS. Perit Dial Int 2016;36:362-6

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### University of Virginia

- Function
  - Troubleshoot problems
  - Monthly assessments
  - Treatment monitoring/compliance
  - Vital sign monitoring
  - Laboratory assessment
  - Automated collection of treatment data
  - Video conferencing
  - Monthly visit
  - Monitor technique and education/training
  - Platform: iPad used by patient and web modules by providers

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### University of Virginia

- Clinical outcomes
  - Increased patient independence
  - Improvement in the quality of life
  - Increased acceptance of home modalities (PD, HHD)

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### University of Iowa Children’s Hospital

- Operates the only pediatric dialysis unit in Iowa.
- Aims:
  - 1) Improve access to affordable, high quality, safe patient care
  - 2) Demonstrate the feasibility of assessing nursing /patient competency via remote technology.
- iPads provided for patient and care team
- Sponsored by Heartland ESRD Network
- Quarterly in-person visits. Other visits via Skype



Patrick Brophy, MD

Brophy PD. Adv Chronic Kidney Dis 2017;24:17-21

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### Benefits

#### Patient benefits

- Fewer cancelled appointments due to weather and travel conditions.
- Allows other caregivers to participate in Skype
- Family costs markedly less per year
- Decrease school and work absences for patient and family.

#### Provider benefits

- Improves continuity of care
- Allows other professionals and caregivers to be present
- Enhanced communication
- Reduced staffing cost

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## University of Alabama

- In partnership with the Alabama Department of Public Health aimed to improve the health of the residents of Alabama
  - County Health Department: Shelby-23, Selma-88, Montgomery-92, Sheffield-115, Troy-144 miles from UAB
- Use telehealth to replace comprehensive face-to-face visit for home dialysis patients
- Pilot program funded by Baxter Healthcare Corp



Eric L. Wallace, MD

Krishna VN. Adv Chronic Kidney Dis 2017;24:12-6

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## University of Alabama

- Primary endpoint:
  - Improvement in the KDQOL 36 and illness intrusiveness ratings scale
- Secondary endpoints:
  - Cost saving to the patient
  - Hospitalization rate
  - Physician time
  - Peritonitis rate
  - Lab results

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Video place holder

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## Policy and Legal Barriers

- **Licensure:** Practitioner must have a license from the STATE of the ORIGINATING site.
- **Credentialing and Privileging:** The originating site must 'credential' every remote practitioner.
- **Online Prescribing:** Most states require a physical examination of the patient to prescribe medication (establishment of the doctor-patient relationship).
- **Malpractice:** Liability insurers differ in their coverage of telemedicine.
- **Interstate Differences:** State laws provide most of the governance for telemedicine

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## Operational Barriers

- **Geography:** *urban vs. rural.*
- **Originating Site**
  - Approved originating site: A medical facility, located in a rural area defined as being outside of a metropolitan statistical area unless it is designated as a healthcare provider shortage area
  - *Unapproved originating sites: Home and dialysis facility*
- **Electronic Health Records:** Originating site and remote site use different EHR packages making it difficult to read each other's notes.
- **Clinical Benefit:** Only limited evidence supports the assumption that telemedicine improves health and health care.
- **Cost, Cost-benefit:** Only limited evidence supports the assumption that telemedicine increases efficiency in health care delivery.

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## Technical Barriers

- **Infrastructure:** US has limited infrastructure and low adoption compared to other developed countries.
- **Two-way video requirements:** bandwidth, resolution, frame rate
- **Security:** Public has concerns about data breaches
- **Intrusiveness:** Public has concerns regarding the data collected with remote monitoring.
- **Operational:** Delay in set up time and access.
- **Practitioner downtime between patients.**
- **Reimbursement:** Multiple payers have different policies and standards for what constitutes telemedicine.

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The originating sites authorized by law are:

- ❖ The offices of physicians or practitioners;
- ❖ Hospitals;
- ❖ Critical Access Hospitals (CAHs);
- ❖ Rural Health Clinics;
- ❖ Federally Qualified Health Centers;
- ❖ Hospital-based or CAH-based Renal Dialysis Centers (including satellites);
- ❖ Skilled Nursing Facilities (SNFs); and
- ❖ Community Mental Health Centers (CMHCs).

Note: Independent Renal Dialysis Facilities are not eligible originating sites.

**DISTANT SITE PRACTITIONERS**

Practitioners at the distant site who may furnish and receive payment for covered telehealth services (subject to State law) are:

- ❖ Physicians;
- ❖ Nurse practitioners (NPs);
- ❖ Physician assistants (PAs);
- ❖ Nurse-midwives;
- ❖ Clinical nurse specialists (CNSs);
- ❖ Certified registered nurse anesthetists;



- ❖ Clinical psychologists (CPs) and clinical social workers (CSWs). CPs and CSWs cannot bill for psychiatric diagnostic interview examinations with medical services or medical evaluation and management services under Medicare. These practitioners may not bill or receive payment for Current Procedural Terminology (CPT) codes 90792, 90833, 90836, and 90838; and
- ❖ Registered dietitians or nutrition professionals.

**TELEHEALTH SERVICES**

As a condition of payment, you must use an interactive audio and video telecommunications system that permits real-time communication between you, at the distant site, and the beneficiary, at the originating site. Asynchronous "store and forward" technology is permitted only in Federal telemedicine demonstration programs in Alaska or Hawaii.

The chart on pages 3–4 provides the CY 2016 list of

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**ORIGINATING SITES**

An originating site is the location of an eligible Medicare beneficiary at the time the service furnished via a telecommunications system occurs. Medicare beneficiaries are eligible for telehealth services only if they are presented from an originating site located in:

- A county outside of a Metropolitan Statistical Area (MSA) or
- A rural Health Professional Shortage Area (HPSA) located in a rural census tract

The originating sites authorized by law are:

- The offices of physicians or practitioners
- Hospitals
- Critical Access Hospitals (CAHs)
- Rural Health Clinics
- Federally Qualified Health Centers
- Hospital-based or CAH-based Renal Dialysis Centers (including satellites)
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TELEHEALTH SERVICES

As a condition of payment, you must use an interactive audio and video telecommunications system that permits real-time communication between you, at the distant site, and the beneficiary, at the originating site. Asynchronous "store and forward" technology, the transmission of medical information the physician or practitioner at the distant site reviews at a later time, is permitted only in Federal telemedicine demonstration programs in Alaska or Hawaii.

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End-Stage Renal Disease (ESRD)-related services included in the monthly capitation payment CPT codes 90951, 90952, 90954, 90955, 90957, 90958, 90960, and 90961  
End-Stage Renal Disease (ESRD)-related services for home dialysis per full month, for patients younger than 2 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents CPT code 90963  
End-Stage Renal Disease (ESRD)-related services for home dialysis per full month, for patients 2-11 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents CPT code 90964  
End-Stage Renal Disease (ESRD)-related services for home dialysis per full month, for patients 12-19 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents CPT code 90965  
End-Stage Renal Disease (ESRD)-related services for home dialysis per full month, for patients 20 years of age and older CPT code 90966  
End-Stage Renal Disease (ESRD)-related services for dialysis less than a full month of service, per day; for patients younger than 2 years of age (effective for services furnished on and after January 1, 2017) CPT code 90967  
End-Stage Renal Disease (ESRD)-related services for dialysis less than a full month of service, per day; for patients 2-11 years of age (effective for services furnished on and after January 1, 2017) CPT code 90968  
End-Stage Renal Disease (ESRD)-related services for dialysis less than a full month of service, per day; for patients 12-19 years of age (effective for services furnished on and after January 1, 2017) CPT code 90969  
End-Stage Renal Disease (ESRD)-related services for dialysis less than a full month of service, per day; for patients 20 years of age and older (effective for services furnished on and after January 1, 2017) CPT code 90970

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PD-specific telemedicine

- DOs
- ✓ Remote monitoring
- ✓ Remote education
- ✓ Remote video conferencing from authorized originating sites

- DON'Ts
- X Video conferencing from patient home
- X Independent Renal Dialysis Facilities are not eligible originating sites

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**CPT code: 90991  
(does not apply to ESRD)**

- Remote monitoring of physiologic data (e.g., EKG, BP, Glu)
- Digitally stored and/or transmitted by the patient and/or caregiver to the physician or other qualified health care professional
- Require a minimum of 30 minutes of time
- Bill only once in 30 days
- Must be an established patient with face-to-face encounter (E/M Level 2-5) within 1 year

November 2017

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**HR 1892 Sec. 50302  
Expanding access to home dialysis therapy**

- Individuals with ESRD receiving home dialysis
- Who receive monthly ESRD-related clinical assessments
- Start date January 1, 2019
- Geographic restriction goes away
- Monthly face-to-face visits for the initial 3 months of home dialysis  
And at least once every 3 consecutive months
- Originating site may be the Renal Dialysis Facility or the Home
- Can not bill for a facility fee if Home is the originating site
- Pending more details from CMS

February 9, 2018

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**Future**

- Projects to show
  - Enhance patient supervision
  - Improve communication: visual and audio
  - Improve patient health and satisfaction
  - Reduce unscheduled clinic visits
  - Reduce ED visits
  - Reduce hospitalization
  - Reduce hospital length of stay
  - Reduce cost

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### Future

- Overcome
  - Policy and legal barriers
  - Operational barriers
  - Technical barriers

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### Future

- Stakeholders
  - Patients (expectation, access, outcome, satisfaction, quality)
  - Healthcare providers (Physicians, Nurses, Dietitian, Social Workers)
  - Payers
  - Dialysis organizations (LDO)
  - Industry (Equipment manufacturers)
  - Regulators (Federal and State)

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### Telemedicine Websites

- CMS  
<https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/TelehealthSrvcsfctsh.pdf>
- American Telemedicine Association  
[www.americantelemed.org](http://www.americantelemed.org)
- Center for Connected Health Policy  
<http://cchpca.org/state-laws-and-reimbursement-policies>
- National Telehealth Resource Center  
<http://www.telehealthresourcecenter.org/legal-regulatory>
- International Society for Telemedicine  
<https://isfteh.org/>

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Thank you

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