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Telepharmacy: The Future of Pharmacy Services

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Disclosures

The author of this presentation has no relevant financial or non-financial relationships to the products or applications described and reviewed in this presentation.

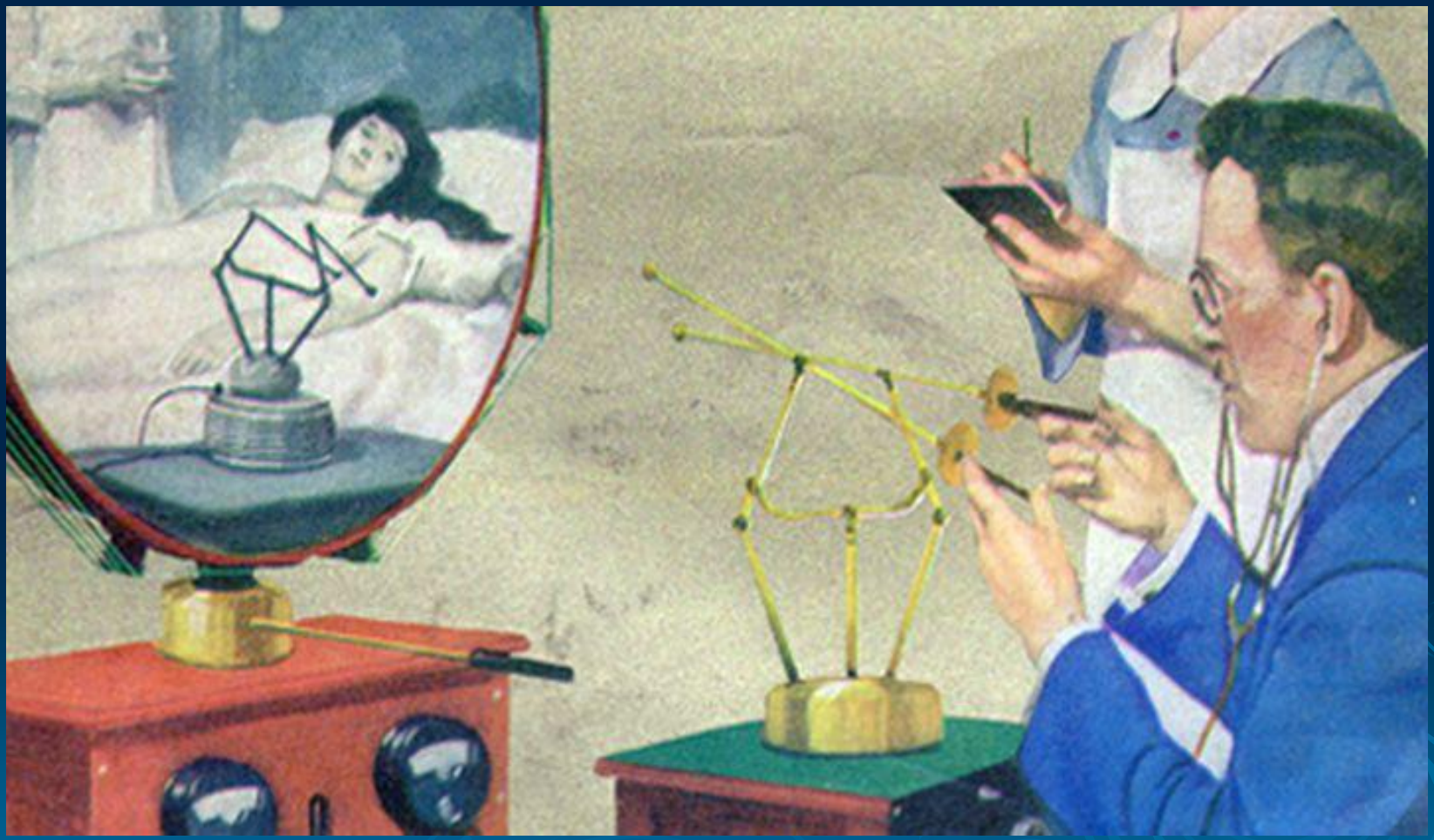
Objectives

- Compare and contrast telehealth, telemedicine, and telepharmacy
- Describe the applications of telepharmacy in current pharmacy practice
- Evaluate the impact of telemedicine and telepharmacy services

Abbreviations

- Apps: Applications
- CMS: Center for Medicare and Medicaid Services
- CPT: Current procedural terminology
- FDA = Food and drug administration
- HCP: Health care professional
- HCPCS: Healthcare common procedure coding system
- HIPAA: Health Insurance Portability and Accountability Act
- mHealth = Mobile health
- MTM: Medication therapy management
- PCP: Primary care provider
- ROI: Return on investment
- TH: Telehealth
- TM: Telemedicine
- TP: Telepharmacy

Telemedicine Predicted in 1925



Evolution of Health Technology

1950's

- Medical staff at 2 health centers in Pennsylvania 24 miles apart transmitted radiologic images via telephone; in late 1950's a Canadian doctor developed a teleradiology system that was used in Montreal

1959

- MDs at the University of Nebraska transmitted neurological exams to medical students across campus via a two-way interactive television; by 1964, they created a telemedicine link to provide health services at Norfolk State

1960's

- Heavy investments from the U.S. government drove research and innovation in telemedicine

eVisit. What is Telemedicine. Accessed November, 22nd, 2018.

Current Landscape

- > 50% of U.S. hospitals have a telemedicine program
- 200 telemedicine networks & 3,500 service sites in the US
- Global telemedicine technologies market was valued @ $17.8 billion in 2014
  - Predicted to grow @ a compound annual rate of 18.4% from 2014-2020
- # of patients using telemedicine services has ↑ to 7 million in 2018

American Telemedicine Association. About Telemedicine. Accessed November 21st, 2018.
Chiron Health. What is Telemedicine? Accessed November 21st, 2018.

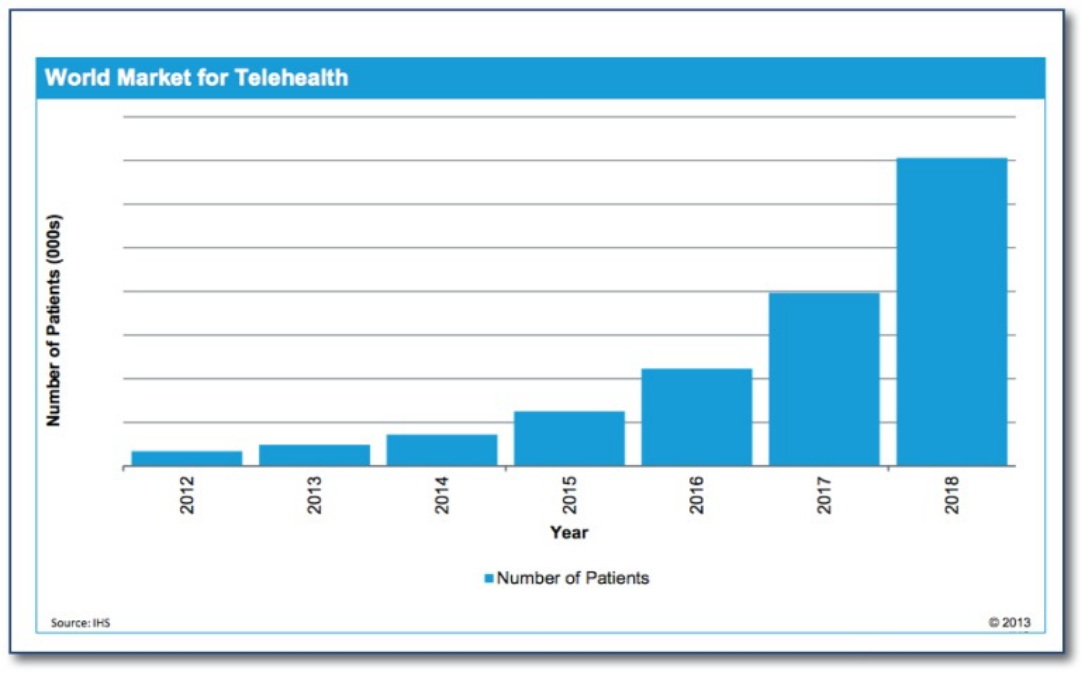
Compare & Contrast: Telehealth, Telemedicine & Telepharmacy

Terminology

What's the difference?

Telehealth

- Use of electronic information & telecommunication technology to promote **long-distance** healthcare, patient & professional health-related **education**, **public health** and health **administration**
- Broader than telemedicine
- Includes non-clinical services



HealthIT. Telemedicine and Telehealth. Health IT website. Accessed December 11th, 2018.
eVisit. What is Telemedicine. Accessed November, 22nd, 2018.
Mo Med. 2015; 112(2): 129-35.

Examples of Telehealth

- Telephones, facsimile machines & e-mail systems that collect & transmit pt data
- Public health Apps
- Video-conferencing education
- mHealth Apps

Apps = applications
mHealth = mobile health

Medicaid.gov. Telemedicine. Medicaid.gov. Accessed November 4th, 2018.

mHealth

- Mobile health = type of telehealth
- Apps & online services sold directly to pts
  - Can be wearable devices
- Used to track health & wellness
- Example: Apple Health App

App = application

Trendwatch. American Hospital Association. 2015.

Telehealth Scenario

- Diabetes population

Upload food logs, medications, & blood sugar levels to an App to store info for HCP's

Mobile App counts carbs & estimates diet & exercise level to determine pt's insulin needs

Online portal to view test results, schedule appointments, request prescription refills & order testing supplies

App = application
HCP = health care professional

Mayo Clinic. Telehealth: Technology meets health care. Accessed November 22nd, 2018.

Telemedicine

- **American Telemedicine Association**: "the use of medical information exchanged from one site to another via electronic communications to improve a patient's clinical health"
- Allows HCPs to evaluate, diagnose & treat patients at a distance
- A subset of telehealth

HCP = health care professional

American Telemedicine Association. About Telemedicine. Accessed November 21st, 2018.
Chiron Health. What is Telemedicine? Accessed November 21st, 2018.

Telemedicine

- **CMS**: "Use of electronic communications and software to provide clinical services to patients without an in-person visit"
  - **Medicaid** reimbursement limits coverage to "two-way, real-time interactive communication between the patient and the physician or practitioner at the distant site"
- Minimum requirements = audio & video equipment

Chiron Health. What is Telemedicine? Accessed November 21st, 2018.
Global Med. What is Telemedicine? Accessed November 25th. 2018.
Medicaid.gov. Telemedicine. Medicaid.gov. Accessed November 4th, 2018.

Why Telemedicine?

THEN

- Pts located in remote places with little access to healthcare facilities
- Areas with shortage of HCP's

NOW

- More convenience, productivity & efficiency
- Increase competitiveness in current landscape

HCP = health care professional

eVisit. What is Telemedicine. Accessed November, 22nd, 2018.

Telemedicine Modalities

Real-Time	• Live video-conferencing
Store & Forward	• Digital images, video, audio, clinical data are captured & stored, then transmitted securely to a provider • Asynchronous
Remote Monitoring	• System feeds data from sensors & monitoring equipment to an external monitoring center

Trendwatch. American Hospital Association. 2015.

Evidence vs. Symptoms-Based TM

- Evidence-based
  - Clinicians evaluate, diagnose, & treat using store & forward or real-time technology
  - Practitioners may transmit data to share with peers & specialists

- Symptoms-based
  - Clinicians diagnose based on symptoms pt provides

TM = telemedicine

Global Med. What is Telemedicine? Accessed November 25th. 2018.

Examples of Telemedicine

- Mobile App that lets physicians treat pts remotely via video-chat
- Software that allows PCP's to send photo to specialists for a diagnosis
- **Example**: Gynecologist provides birth control counseling via live video-chat with pt to discuss recent lab results

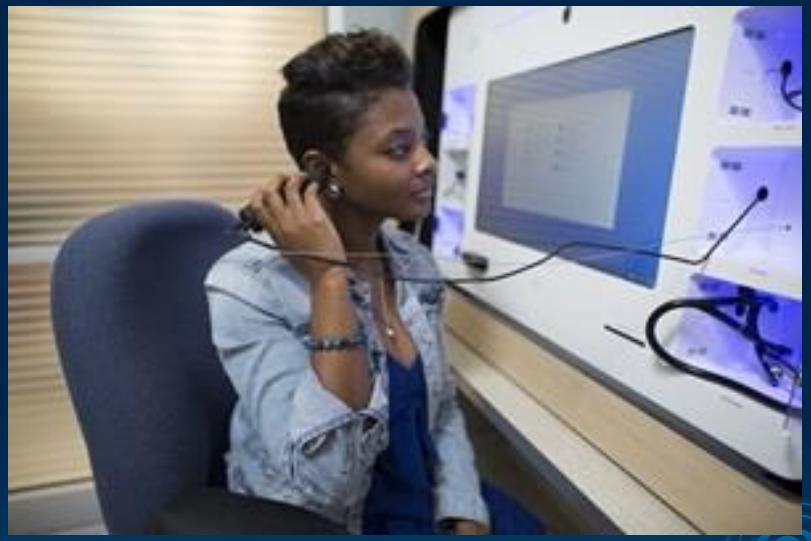
Conditions treated via TM
Allergies/sinusitis
Arthritic pain/sprains & strains/sport injuries
Asthma
Bronchitis
Colds/Flu/Pharyngitis
Diarrhea/vomiting
Infections
Insect bites
Conjunctivitis
Rashes/skin inflammations/ cellulitis
Bladder infections/UTI

App = application
PCP = primary care physician
TM = telemedicine

eVisit. What is Telemedicine. Accessed November, 22nd, 2018.

Telemedicine Case-in-Point

- **BayCareAnywhere at Publix**
  - Walk-in virtual MD visit
  - Audio & video interaction
  - Area contains special devices that MD may instruct pt to use on self
  - Facilitated by pharmacy team members
  - At end of visit, prescriptions can be sent to pharmacy



Baycare. Walk-in Care. Accessed January 6th, 2019.

Telemedicine Case-in-Point

- **Baptist Health tele-ICU**
  - Centralized remote monitoring of critical pts by interdisciplinary team of RPh's, RN's, and MD's
  - Two-way interactive audio & video

  - Study of 24,656 adult pts treated via tele-ICU
    - 14% ↓ in LOS at hospital
    - 13% ↓ in LOS in ICU
    - 23% ↓ in relative risk of hospital death

Crit Care Med. 2012;40(2):450-4

Hospital-based Telemedicine

Platform	Description
Telestroke	Remote evaluations, diagnoses & treatment transmitted to MD's in the ER
Teleradiology	Images & data transmitted between locations for primary interpretation or consultation & clinical review
Tele-ICU	Audiovisual communication & computer systems linked with critical care MD's and RNs to ICU's in remote hospitals
Telemental health	Mental health & substance abuse services from a distance
Telepathology	Use of video cameras, monitors & remote-controlled microscope to practice pathology
Cybersurgery	Use of surgical techniques with a telecommunication conduit connected to a robotic instrument to operate on a remote pt
Remote monitoring	Patients receive continuous or frequent periodic clinical monitoring
Consultations	Remote consults conducted with remote specialists, PCP's, counselors, social workers & other HCP's
Telepharmacy	Pharmaceutical care for pts or supervision to technicians provided at a distance

PCP = primary care physician

Trendwatch. American Hospital Association. 2015.

Telepharmacy

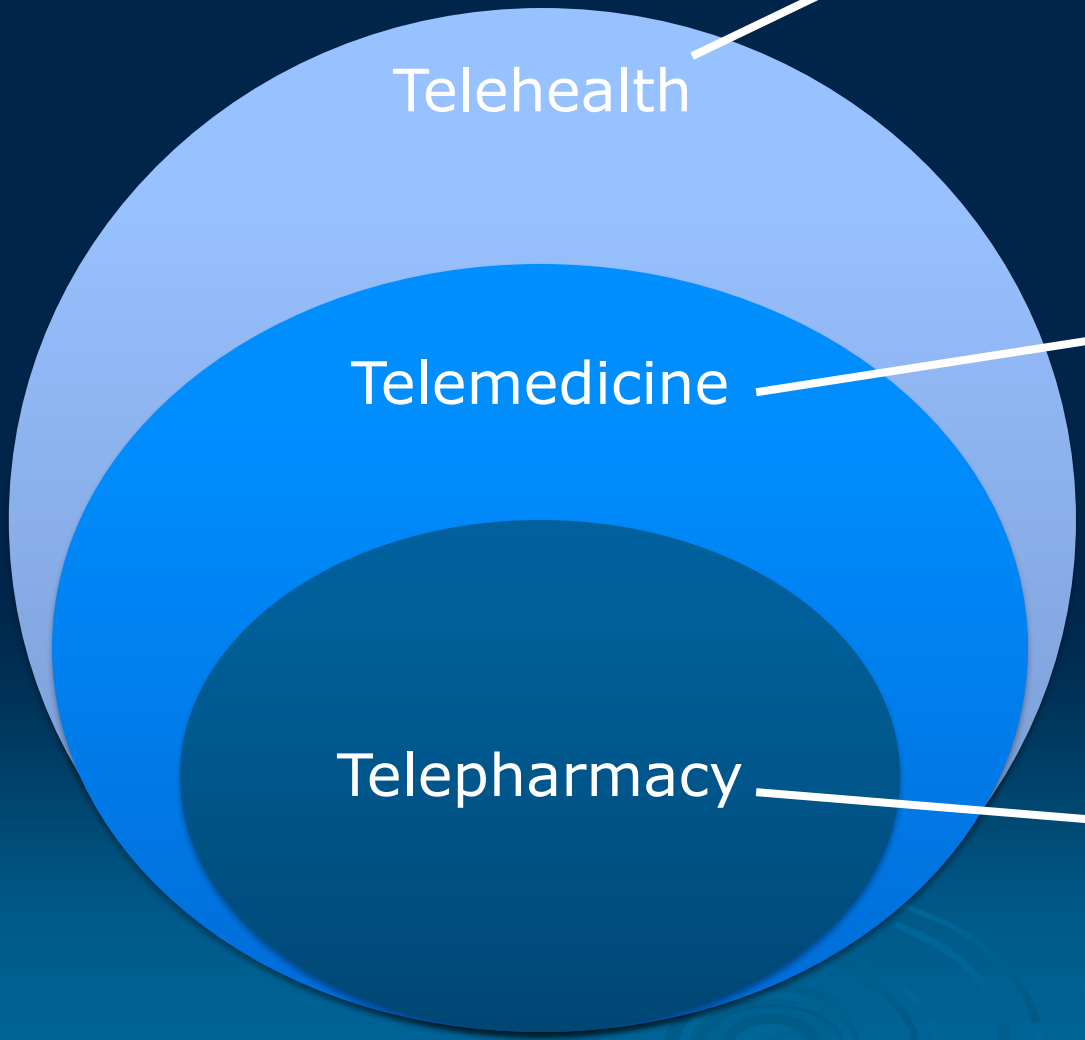
- RPh utilizes telecommunication technology to oversee aspects of pharmacy operations or provide pt-care services

Telepharmacy services	
Drug review and monitoring	Dispensing
Sterile and nonsterile compounding verification	MTM
Patient assessment	Patient counseling
Clinical consultation	Outcomes assessment
Decision support	Drug information
Pharmacogenomics	Chronic disease management

MTM = medication therapy management

ASHP statement on telepharmacy. Accessed November 20th, 2018.

Bringing It All Together



Broader use of technology in healthcare (e.g. Public health, medical education, non-clinical services)

Narrowed to clinician provides a service from afar (e.g. Online consultations, virtual visits)

Pharmacist provides a service from afar (e.g. MTM, remote verification)

Applying Telepharmacy to Current Practice

Inpatient Setting

- Automated dispensing cabinets
- Order review/verification when staffing in specialty areas (oncology, pediatrics) is limited
- Extend to 24 hour pharmacy coverage in hospital
  - Remotely review & enter new orders
  - Remotely release medication from an automated dispensing cabinet
  - Supervise technicians electronically

ASHP statement on telepharmacy. Accessed November 20th, 2018.

Inpatient Setting

- IV admixture areas
  - Remote verification by RPh viewing images of the preparation process
  - E.g. DoseEdge
- Remote monitoring programs for post-discharge follow up
  - E.g. Web-based telepharmacy service to manage cardiovascular pts via BP telemonitoring

ASHP statement on telepharmacy. Accessed November 20th, 2018.
Trends Cardiovasc Med. 2018 Jul 12. pii: S1050-1738(18)30131-2.
Trendwatch. American Hospital Association. 2015.

Outpatient Setting

- Central processing
  - RPh reviews and processes a prescription virtually so that a technician can fill and dispense it
- Mail order pharmacies
- Pt counseling by video
- Video-chat MTM & medication kiosks with 24/7 RPh counseling
- Texting programs by pharmacies to pts
- Prescription imaging

ASHP statement on telepharmacy. Accessed November 20th, 2018.

Cost-utility & Cost-effectiveness

- US spends > $2.9 trillion on healthcare
  - $200 billion are avoidable
- Telemedicine reduces costs associated with:
  - Medication-related issues
  - Unnecessary ER visits
- Makes typical doctor visits more efficient

Case-in-point

Geisinger Health Plan Telemedicine program generated 11% in cost savings with estimated ROI of about $3.30 in cost savings for every $1 spent on program implementation

ROI = return on investment

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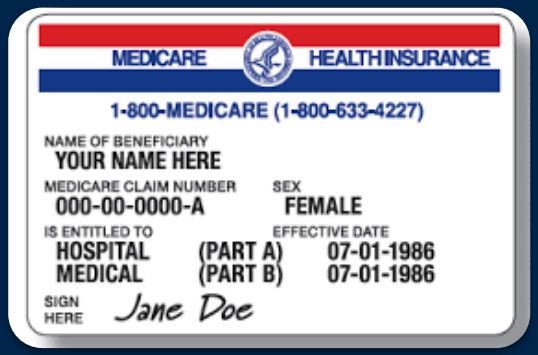
Trendwatch. American Hospital Association. 2015.

Reimbursement Opportunities



Medicaid Medicare Private Payer

- Coverage *varies* from state to state

Chiron Health. What is Telemedicine? Accessed November 21st, 2018.
Medicaid.gov. Telemedicine. Medicaid.gov. Accessed November 4th, 2018.

CMS Terminology Regarding TM

- Originating sites: location of an eligible Medicare beneficiary at the time the service furnished
- Distant site practitioners:
  - Physicians
  - Nurse practitioners
  - Physician assistants
  - Nurse-midwives
  - Clinical nurse specialists
  - Certified registered nurse anesthetists
  - Clinical psychologists & clinical social workers
  - Registered dietitians
- RPhs not recognized as distant site practitioners

CMS = Center for Medicare and Medicaid Services
TM = telemedicine

CMS. Telehealth Services. February 2018.

Medicaid Reimbursement

- Federal Medicaid statute does not recognize telemedicine as a distinct service
- Requires that providers practice within scope of their State Practice Act
- Medicaid reimbursement across the U.S.:
  - 46 states cover live video
  - 9 states cover store & forward
  - 14 states cover remote patient monitoring
  - Only 3 states (AK, MN, MS) cover all three types

eVisit. What is Telemedicine. Accessed November, 22nd, 2018.
Medicaid.gov. Telemedicine. Medicaid.gov. Accessed November 4th, 2018.

Medicare Reimbursement

- Traditional Medicare places restrictions on patient location & services provided
  - Coverage mainly for live telemedicine services via interactive audio & video
  - Only reimburse when patient is in a health professional shortage area
  - Service must have a covered CPT/HCPCS code
    - Examples: smoking cessation, annual depression screening, kidney disease education services, annual wellness visit
  - Pays 80% of the physician fee

CPT = current procedural terminology
HCPCS = healthcare common procedure coding system

Chiron Health. What is Telemedicine? Accessed November 21st, 2018.
CMS. Telehealth Services. February 2018.
eVisit. What is Telemedicine. Accessed November, 22nd, 2018.

Medicare Exceptions

- **Medicare Chronic Care Management Program:** a national policy that has no restrictions on practicing telemedicine

- **Medicare Shared Savings Program (MSSP):** Focus on improving quality of care for Medicare beneficiaries & reduce unnecessary costs
  - **Accountable Care Organizations (ACO)** are encouraged to use telehealth technologies
    - Must include in ACO application how technologies will be incorporated to improve care coordination

Trendwatch. American Hospital Association. 2015.

Medicare Changes Coming Up

- **The Creating Opportunities Now for Necessary and Effective Care Technologies for Health Act (CONNECT)**
  - ↑ scope of Medicare reimbursement of telehealth services
- **The Creating High-Quality Results and Outcomes Necessary to Improve Chronic Care Act of 2016 (CHRONIC)**
  - Revise Medicare payment protocols for telehealth-delivered treatment of chronic medical conditions

Chiron Health. What is Telemedicine? Accessed November 21st, 2018.

Medicare Changes Coming Up

- **HR 766**
  - Telehealth pilot program for Medicare patients residing in public housing

- **The Furthering Access to Stroke Telemedicine Act (FAST)**
  - ↑ Medicare beneficiaries' access to telestroke resources

Chiron Health. What is Telemedicine? Accessed November 21st, 2018.

Private Payer Reimbursement

- **Parity laws**: mandate private payers pay for TM services at same rate as in-person visits
  - Passed in 34 states & Washington, DC

- Employers offer TM services to employees
  - Example: United Healthcare expanded coverage for 24/7 on-demand virtual visits for pts in employer health plans

TM = telemedicine

American Telemedicine Association. About Telemedicine. Accessed November 21st, 2018.
eVisit. What is Telemedicine. Accessed November, 22nd, 2018.

Policy & Regulatory Status

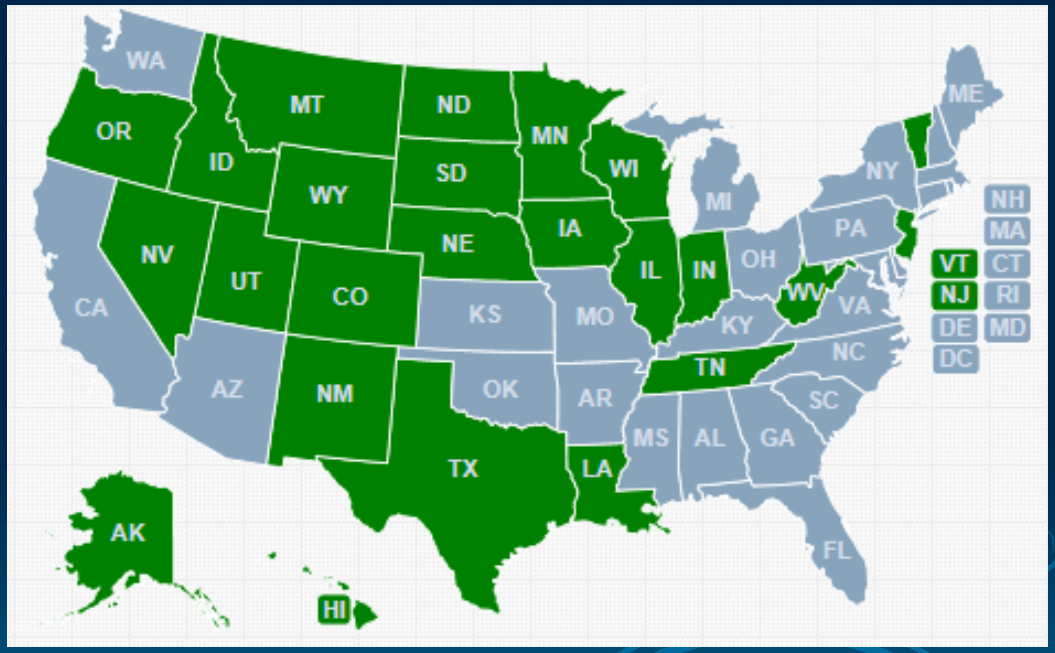
- **Federal Regulations**
  - CMS has established standards for telehealth
  - HIPAA has a clause for Health Information Technology for Economic and Clinical Health (HITECH) act to address privacy & security concerns
  - FDA has jurisdiction over medical software and equipment

CMS = Center for Medicare and Medicaid Services
HIPAA = Health Insurance Portability and Accountability Act
FDA = Food and drug administration

ASHP statement on telepharmacy. Accessed November 20th, 2018.

Policy & Regulatory Status

- **State Regulations**
  - The Model Act provides state boards with model language for laws or board rules
  - Vary based on the definition, licensing requirements, education/training, practice setting requirements, geographic limitations



  - TP & TM legislation passed in **24 states**

TM = telemedicine
TP = telepharmacy

ASHP statement on telepharmacy. Accessed November 20th, 2018.

What about Florida?

CS/SB 848: Telepharmacy

GENERAL BILL by Health Policy ; Grimsley ; (CO-INTRODUCERS) Broxson

Telepharmacy; Providing permit requirements for remote dispensing site pharmacies; requiring the prescription department manager or other pharmacist employed by the supervising pharmacy to visit the remote dispensing site pharmacy; authorizing a Florida licensed pharmacist to serve as the prescription drug manager at more than one remote dispensing site pharmacy under certain conditions, etc.

CS/CS/HB 679: Telepharmacy

GENERAL BILL by Health and Human Services Committee ; Health Quality Subcommittee ; Ponder

Telepharmacy; Authorizes registered pharmacy technicians to dispense drugs under certain circumstances; provides permit requirements for remote dispensing site pharmacies; provides requirements & prohibitions for remote dispensing site pharmacies; requires the prescription department manager or Florida licensed pharmacist to visit the remote dispensing site pharmacy; requires work experience for registered pharmacy techs; prohibits registered pharmacy techs to perform certain compounding & provides exception; authorizes Florida licensed pharmacists to be the prescription drug manager at more than one remote dispensing site pharmacy.

Effective Date: 7/1/2018

Last Action: 3/10/2018 House - Died on Calendar

Legislation was indefinitely postponed and withdrawn from consideration on 3/10/2018

www.flsenate.gov

Reimbursement in Florida

- FL Medicaid reimburses for real-time interactive telemedicine according to administrative code, but reimbursement only indicated in **Community Behavioral Health Services**

- Currently no parity laws

National Telehealth Policy Resource Center. CCHPCA website. Accessed November 25th, 2018.

Challenges to Telepharmacy Application in Current Practice

- Privacy and security
  - All solutions must be HIPAA compliant
- Limited evidence of clinical efficacy
- Costs of implementation and equipment
- Costs incurred by patient
- Legislation (restrictions)
  - Licensure for providers reaching across state lines
  - Online prescribing
- Reimbursement
- General awareness & tech savviness

Chiron Health. What is Telemedicine? Accessed November 21st, 2018.

Clinical Impact of Telemedicine & Telepharmacy

TM Studies : Exhibit A

- Impact on diabetes pts → meta-analysis (42 studies)
  - 8 studies used teleconsultation
  - 34 studies used telemonitoring (device based)
  - Average reduction in HbA1c was significantly ↑ in the telemedicine groups
  - Telemedicine programs lasting >6 months produced a significantly greater reduction in HbA1c levels

TM = telemedicine

Tchero H. Telemed J E Health. 2018.

TM Studies: Exhibit B

- VA cardiac care program
  - Hospital heart failure readmissions ↓ by 51%
  - Hospital readmissions ↓ by 44% for other illnesses
  - Pt satisfaction levels = 84%

TM = telemedicine

Trendwatch. American Hospital Association. 2015.

TM Studies: Exhibit C

- Impact of a telepsychiatry program
  - Length of stay for pts in ED ↓ from 48 to 22.5 hours
  - % of pts who had to return for treatment within 30 days ↓ from 20% to 8%
  - # of involuntary commitments ↓ by 33%
  - 88% of pts agreed or strongly agreed that they were satisfied with the services

TM = telemedicine

North Carolina Center for Policy Research. *Evaluating the Use of Telepsychiatry for Rural Mental Health Services.* March 31, 2014. Accessed January 3rd, 2019.

TP Studies: Exhibit A

- Impact of remote pharmacy review in 3 hospitals
  - # of times RNs obtained/administered medications without RPh review ↓ by 35.3%
  - RPh interventions ↑ from 15 to 98 per week
  - Estimated cost savings = $261,109 per hospital in total cost saved or avoided
  - RN survey scores reflected ↑ comfort with the medication-use system, patient safety & job satisfaction

TP = telepharmacy

Am J Health Syst Pharm. 2013; 70 (23): 2130-5.

TP Studies: Exhibit B

- Impact in a multihospital health system
  - Turnaround time <60 minutes for routine medication orders
    - Routine order processing ↓ from 26.8 to 14 min
    - Stat ordering processing ↓ from 11.8 to 8.8 min
  - # of clinical interventions ↑ by 42%
  - Significant improvement in RN global satisfaction with RPh availability
  - Net annual savings of $1,132,144

TP = telepharmacy

Am J Health Syst Pharm. 2010; 67(17): 1456-62.

TP Studies: Exhibit C

- Impact on HIV population (n=38)
  - 854 teleconsultations for pharmaceutical care
  - 100% treatment adherence
  - All HIV outpatients kept virally suppressed
  - Patient-perceived quality average score was >9.4 out of 10 in all items
    - Most valued factors: saving of direct costs, reconciliation with work commitments
    - Least valued attributes: payment for the shipment, having to adjust to a telephone appointment

TP = telepharmacy

Margusino-Framinan L, et al. Telemed J E Health. 2018.

Overall Benefits

- **For patients:**
  - Faster access to healthcare
  - ↓ time away from work
  - No travel expenses or time
  - ↓ interference with child or elder care responsibilities
  - ↑ privacy
  - ↓ exposure to other contagious pts
- **For practitioners:**
  - ↑ revenue
  - ↑ office efficiency
  - Better pt follow through & improved health outcomes
  - ↓ missed appointments and cancellations
  - Private payer reimbursement

Chiron Health. What is Telemedicine? Accessed November 21st, 2018.

Pros and Cons of Telemedicine/Telepharmacy

Pros

- Convenient
- Accessible
- Cost-saving
- More specialist consults
- ↑ quality of care
- Efficiency

Cons

- Technical training & equipment
- Cost to patient
- ↓ in-person interactions
- Changing policies & reimbursement
- ↓ care continuity

eVisit. What is Telemedicine. Accessed November, 22nd, 2018.

Conclusion

- Telehealth, telemedicine & telepharmacy allow for expanded coverage, improved patient safety/outcomes, & improved communication among patients, healthcare providers & pharmacists
- Variability in laws among states & evolving regulations must be closely monitored when implementing telemedicine & telepharmacy services
- Further research on the impact of telemedicine & telepharmacy services is needed

True or False?

- Telemedicine is only useful for the management of chronic conditions **F**
- An example of telemedicine is an app that alerts the public of an Ebola outbreak in the area **F**
- Examples of telepharmacy include remote order verification, IV admixture verification, and online medication therapy management **T**

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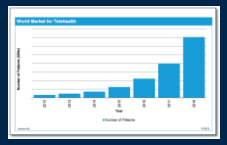

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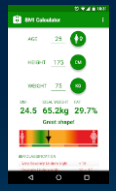

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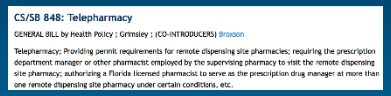

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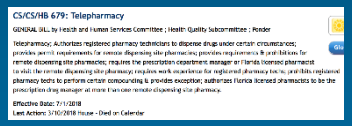

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