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Telemedicine, Broadband, & the FCC's Health Care Connect Fund

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Telemedicine was Once a Dream

With broadband, it can be available everywhere and to everyone.

Benefits of Telemedicine

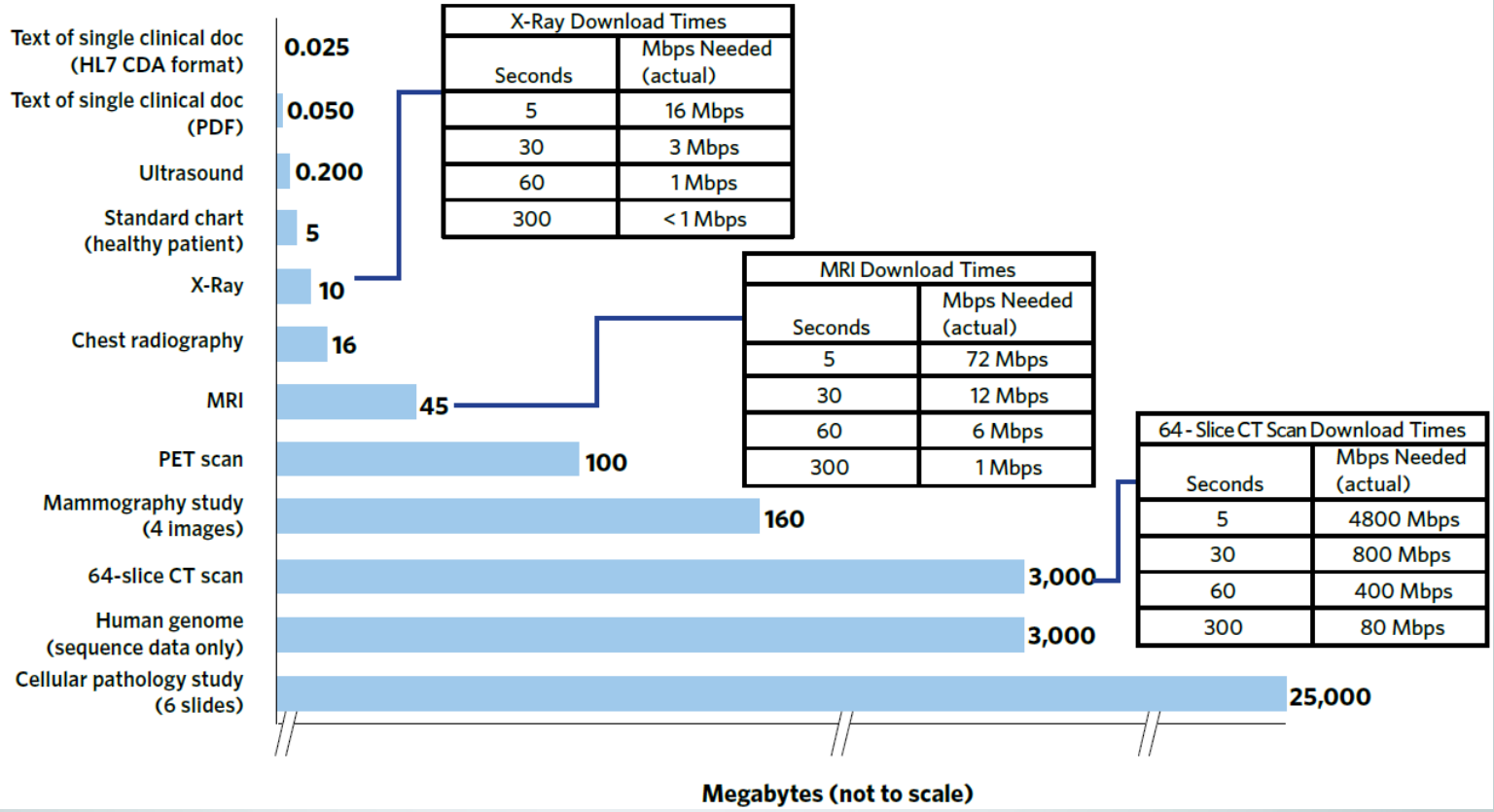
- Quicker, more accurate diagnosis and treatment
- Improves patient access to specialists, screening and follow-up
- More efficient use of resources
- Increases patient retention (fewer out-referrals)
- Electronic health records / Meaningful Use
- Rapid distribution of large images (X-rays, MRIs, and CT scans)
- Helps develop of health information exchanges
- Better training

Telemedicine Broadband Needs

- Data file sizes vary widely
  - a standard patient chart - 5 Megabytes (MB)
  - an X-Ray - 10MB
  - a Magnetic Resonance Image (MRI) - 45 MB
  - a Positron Emission Tomography (PET) scan - 200 MB
  - a 64-slice Computerized Tomography (CT) scan - 3,000 MB
- File transmission time depends on available bandwidth
  - a 45 MB MRI - 6 minutes over a 1 megabit per second (Mbps) connection but only 5 seconds over a 72 Mbps connection.

Telemedicine Broadband Needs (Cont.)

Exhibit A: Health Data File Sizes and Bandwidth to Support Download Times[3]



X-Ray Download Times	
Seconds	Mbps Needed (actual)
5	16 Mbps
30	3 Mbps
60	1 Mbps
300	< 1 Mbps

MRI Download Times	
Seconds	Mbps Needed (actual)
5	72 Mbps
30	12 Mbps
60	6 Mbps
300	1 Mbps

64 - Slice CT Scan Download Times	
Seconds	Mbps Needed (actual)
5	4800 Mbps
30	800 Mbps
60	400 Mbps
300	80 Mbps

Telemedicine Broadband Needs (Cont.)

Delivery Setting	Use Profile	Use Assumptions	Minimum Bandwidth (Mbps)
Solo Primary Care Practice	- Supports practice management functions (billing, scheduling, etc.), email and web browsing - Allows simultaneous use of EHR and SD video consultations - Enables image downloads & remote monitoring	- Three total users per doctor for EHR and other general web-based activities - Image files (≤ 10MB) should download in less than 30 seconds	≥ 4
Small Primary Care Practice and Rural Health Clinics (2-4 physicians)	- Same as above, plus: - Enables HD video consultations and remote monitoring	- 2-3 users per doctor for EHR and other general web-based activities - Two simultaneous high-quality SD video consultations - Image files (~10MB) should download in less than 30 secs.	≥ 10
Clinic / Large Physician Practice (5-25 physicians)	Same, plus: - Enables multiple real-time image transfers - Allows simultaneous use of EHR and HD video consultations - Enables remote monitoring and consultations	- Specialty services provided - Three total users per practitioner for EHR and other general web-based activities - Large image files (~20MB) should transfer in less than 10 seconds - Five simultaneous high-quality SD video consultations	≥ 25
Medium Size (100-bed) Hospital	Same, plus: - Enables continuous, multiple remote monitoring - Multiple HD video consultations and data transmissions by treating doctors on-site	- PACS in place for real-time diagnostic imaging - Very large image files (~50MB) should transfer in less than 5 secs. - Supports multiple simultaneous high-quality video consultations	≥ 100

Universal Service Fund

- Established in 1996
  - USF Funded by users of communications services (phone, Internet)
    - ~16% tax
    - $9 billion fund
  - High-cost phone & broadband service (rural support)
  - Schools & Libraries Program
  - Lifeline Program
  - Health Care

Universal Service Health Care Programs

- 1996 Program:
  - Telecommunications Program
    - paid the "rural-urban differential" for supported services
    - Internet Access - 25% discount
  - Undersubscribed
    - Capped at $400M; only $80M used annually

USF Health Care (cont.)

- Pilot Program (2008 - 2012)
  - Provided funding for up to 85% of the costs of constructing state or regional health care broadband networks
  - Awarded 69 projects one-time funding for a defined period of time
  - $418 million committed
  - Currently supports 50 active projects in 38 states 3 territories

Pilot Program Success Stories

- Ranged in size from fewer than ten to over 150 HCP sites. 1/3 had over 50 HCP sites receiving support
- Average received $100,000 per HCP site over the award period
- $6 million average grant, up to $25 million.
- 5 largest - statewide networks in California, Colorado, Oregon, South Carolina, and West Virginia, connecting over 800 HCPs
- 65% of recipients are rural
- 2/3 of Pilot Program recipients included urban HCPs in consortia
- Leaders of Pilot Program projects often come from larger, urban medical institutions and universities, which serve as hubs for the network.
- Most Pilot Project participants purchased 10 Mbps or faster connections
- Most projects obtained service from commercial providers rather than construct their own networks. However, many did a mix of both.

Pilot Program Success Stories (cont'd)

- Rural Nebraska Healthcare Network (RNHN).
  - consortium consisting of a regional medical center, eight critical access hospitals, and 31 affiliated clinics
  - Built a 700 mile privately-owned fiber optic network
  - Allowed for creation of a video trauma system to provide immediate physician consultation,
  - Emergency Communications System (EMS) upgraded and migrated to the network

"Moving the EMS to our private fiber network has eliminated the recurring costs of maintaining leased phone lines. This one item alone has improved reliability while saving $20,000 per year in operating costs."

- Boni Carrell, Executive Director for RNHN

Pilot Program Success Stories (cont'd)

- UnityPoint Health (formerly Iowa Health System)
  - $7.8 million to connect 78 health care facilities to UnityPoint's private, 2170 route mile health care network
  - Enabled UnityPoint to expand its footprint to include more insular health care providers

    "The network provides a wide variety of instantaneous information exchange and tele-health applications for medical professionals working together to create efficiency through collaboration…. enables better health care by enabling providers to eliminate many physical distance issues between urban and rural locations."

    - UnityPoint Website

Healthcare Connect Fund

- Created in 2012
- Will provide support for 65% of the cost of:
  - broadband and other advanced services;
  - upgrading existing facilities to higher bandwidth;
  - equipment necessary to create networks of HCPs, and
  - construction of HCP-owned infrastructure where shown to be the most cost-effective option
- Replaces the Internet Access Program and Pilot Program
- Telecommunications program continues

Eligible Health Care Providers

- To be eligible, a HCP must be a public or not-for-profit
  - hospital
  - rural health clinic
  - community health center
  - health center serving migrants
  - community mental health center
  - local health department or agency
  - post-secondary educational institutions/teaching hospitals/medical schools
  - a consortia of the above
- Non-rural HCPs may participate as part of a consortium
- Support for large non-rural HCPs (400+ patient beds) is capped at ~$50K per year
- Ineligible entities (e.g., for-profit HCPs), may participate in consortia as long as they pay their "fair share" of undiscounted costs

Eligible Services and Service Providers

- Dark and Lit Fiber
- Advanced Services
- Connections to National LambdaRail / Internet2
- Reasonable and customary installation charges (up to $5,000)
- New construction
  - consortia applicants only
  - competitive bidding requirement
  - Must show that service is unavailable or that new construction is cost-effective option
  - Up-front, non-recurring costs for infrastructure capped at $150M annually

Ineligible Costs

- Administrative expenses
  - expenses that are not directly associated with network design, deployment, operations, and maintenance
    - E.g., training, marketing, billing, legal, etc.
- Personnel costs
  - Salaries, fringe benefits, and travel costs, except for consortium personnel costs that directly relate to designing, engineering, installing, constructing, and managing the dedicated broadband network

Eligible Sources for 35% Contribution

- Must come from "eligible source"
  - the applicant or eligible HCP participants
  - state grants, funding, or appropriations
  - federal funding, grants, loans, or appropriations
  - Tribal government funding
  - other grant funding, including private grants
  - Revenue from excess capacity ("Nebraska Model")
- Ineligible funding sources include:
  - in-kind or implied contributions
  - Payments from vendors or service providers
- Consortium applicants must identify funding source

Competitive Bidding Rules

- With some exceptions (*de minimus*, part of agency MSA), HCPs must seek competitive bids and select the most "cost effective" provider
- Non-discriminatory treatment of potential bidders
- Service providers that submit bids prohibited from:
  - serving as consortium leaders or other points of contacts on behalf of HCPs
  - being involved in setting bid evaluation criteria
  - participating in the bid evaluation or vendor selection
- Winning providers may not purchase excess capacity

What Should HCPs Do?

- Determine current and future broadband needs
- Conduct an inventory of current, in-place infrastructure
- Develop a plan for upgrading the plant
- Assess return-on-investment and sustainability
- Develop the approach to obtain funding, bearing in mind that the HCF can cover 65% of the cost

Questions?

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