GARTNER TELECONFERENCE

Healthcare

The Present and Future of Telemedicine

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From Pilots to Services

- Stop piloting telemedicine
- We've played with it for long enough
- Now let's put in the hard work to make it viable
Key Issues

1. What is the definition, and what are the drivers and inhibitors of telemedicine?

2. What is the status of telemedicine applications?

3. What are examples of successful implementations, solutions and business models?
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Definition of Telemedicine

Telemedicine (or telehealth)

- Delivery of healthcare services when the clinician and patient are at different locations
- Data, images, audio, video
- Excludes tele-education
- Excludes CPR, EMR, HIE and phone calls

Telemedicine covers five healthcare processes

- Monitoring
- Diagnosis
- Triage
- Consultation
- Procedure

Telemedicine is part of telecare: 
patient safety at home

- Fall detectors, bed monitors, panic alarms

CPR = computer-based patient record
EMR = electronic medical record
HIE = health information exchange
Telemedicine Drivers and Inhibitors

**Drivers**

*Patients*
- Keep patients at home, avoid admission to nursing homes
- Easier access to specialist care

*Staff*
- Use scarce resources more effectively
- Skills transfer

*Organization*
- Reduce travel costs
- Make money by offering new services/reaching more patients

**Inhibitors**

*Financial*
- Reimbursement
- Financial justification
- Perverse incentives

*Staff*
- Clinician resistance
- Staffing
- Legal and licensing

*Technical*
- Integrating data with EMRs
- Cost and availability of infrastructure and connectivity
The Business Case for Telemedicine

- The evidence base for telemedicine is weak

  - AHRQ study
    - Store-and-forward services: "the evidence for their efficacy is mixed"
    - Home monitoring: "required additional resources and dedicated staff"
    - VTC: "most effective for verbal interactions"

  - JAMIA study
    - Effects on patients' conditions: inconclusive
    - Patient compliance is high
    - Effect on resource utilization is mixed
    - Minimal evidence of economic benefit

- Emphasize soft benefits (quality, patient satisfaction, access)
- Emphasize indirect economic benefits
- Involve end users intimately in planning and implementation

AHRQ – Agency for Healthcare Research and Quality
JAMIA = Journal of the American Medical Informatics Association
VTC = videoteleconferencing
Telemedicine Processes and Applications

**Monitoring**
- Homebound and mobile health monitoring
- Remote intensive care unit

**Diagnosis (store-and-forward imaging)**
- Teleradiology, telepathology, teledermatology, telecardiology, teleophthalmology

**Triage**
- Call centers

**Consultation**
- Videoconferencing
- E-visits
- Self-service kiosks

**Procedure**
- Telesurgery
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How Gartner Evaluates Telemedicine Applications

**Adoption and Readiness for Adoption**
- Market penetration
- Patient readiness
- Clinician readiness
- Market readiness
- Technological readiness
- Vendor maturity

**Potential Impact**
- Potential financial impact
- Potential clinical impact

**Time to Value**
- How soon is the application likely to provide a return on investment?
Hype Cycle for Telemedicine

Technologies and services included in the Hype Cycle for Telemedicine include:

- Mobile Health Monitoring
- Telepathology
- Clinical Kiosks
- Telesurgery
- Home Health Monitoring (Wired)
- E-visits
- Teledermatology
- Remote ICU
- Videoconferencing
- Teleretinal Imaging
- Telecardiology
- Call Centers
- Teleradiology

Years to mainstream adoption:
- less than 2 years
- 2 to 5 years
- 5 to 10 years
- more than 10 years
- obsolete before plateau
## Priority Matrix

<table>
<thead>
<tr>
<th>benefit</th>
<th>years to mainstream adoption</th>
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<tbody>
<tr>
<td></td>
<td>less than 2 years</td>
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<tr>
<td>transformational</td>
<td>Invest aggressively if not already adopted</td>
</tr>
<tr>
<td>high</td>
<td>Conservative (Type C) investment profile</td>
</tr>
<tr>
<td>moderate</td>
<td>Moderate (Type B) investment profile</td>
</tr>
<tr>
<td>low</td>
<td>Aggressive (Type A) investment profile</td>
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Priority Matrix (Continued)

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   - Monitoring, diagnosis, telecardiology, videoconferencing, e-visits, continua, veterans
Out-Patient Monitoring: Present and Future

<table>
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<tr>
<th>Devices</th>
<th>Present</th>
<th>Future</th>
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<tbody>
<tr>
<td>Wired</td>
<td></td>
<td>Wireless</td>
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<tr>
<td>Patients</td>
<td>Homebound</td>
<td>Mobile and active</td>
</tr>
<tr>
<td>Market Potential</td>
<td>Limited</td>
<td>Unlimited</td>
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Remote Diagnosis: Opportunities and Risks

Digital imaging + Network Connectivity

A new market for remote diagnoses and second opinions

- Teleradiology
- Telepathology
- Teledermatology
- Teleretinal imaging

Opportunity/Risk
- Revenue, patient base, staff, brand recognition

Recommendations
- Make a business plan for each specialist service
- Consider multiple options: offer in-house, outsource to CDOs or third-party vendors
- Prepare for a future where you offer remote diagnoses directly to patients

CDO = care delivery organization
Telecardiology: Remote ECGs

**Doctor**
- Involvement is limited
- Portal access only

**Patient**
- Mobile
- Constantly monitored

**Provider**
- Third-party vendor
- Reimbursed by payers
Making Videoconferencing Viable

State Legislation Mandating Reimbursement

Medicaid and Medicare Reimbursement

Federal Subsidies for Connectivity

New Business Models Enable Better Allocation of Resources

Regional Telemedicine Networks
E-Visits: CDOs Speak

Key Points
- E-mails are structured, secure messages
- Will become as common as office visits
- CDOs must adopt policies now
A Bellweather of Progress: Continua Health Alliance

- A consortium of large CDOs, device manufacturers, IT vendors
  - Sample vendors include Cisco, Intel, Motorola, Panasonic, Philips Medical Systems, Samsung Electronics, Sharp, Welch Allyn
- Creating guidelines for how to build interfaces to connect devices to computing platforms
- Creating standards to enable use cases
  - Health and fitness
  - Chronic disease monitoring
  - Elderly monitoring
- Reimbursement working group is collecting evidence and will lobby payers

**Recommendations**
- Expect release of Continua standards in 2008
- Continua certification of devices starting in 2009
- Widespread availability of Continua devices in 2010
- Purchase devices with Continua logo
- Consider joining Continua so you can influence their work
Telemedicine Case Study: U.S. Veterans Administration

How Many Patients?
- Home Telehealth (monitoring): 21,000 patients
- General Telehealth (VTC): 17,000 patients
- Store and Forward (diagnosis): 7,600 patients

But their total eligible population is 70 million. What if they extended this to active patients?

Benefits Reported?
- Fewer bed days
- Fewer outpatient visits
- Better access to care in remote areas
- Lower travel costs
- Better sharing of expertise

How Did They Do It?
- Care coordination program
- Enterprisewide CPR system
- Telemedicine incorporated in existing health services
- Financially self-sustaining in each local network
- Standard processes for implementation and treatment
- National contracts for devices and applications
- "Federal supremacy"
Recommendations

• Treat telemedicine as a business opportunity and assess the business viability of each telemedicine application:
  - Telemedicine isn't just a clinical opportunity, it's a business growth opportunity
  - Nominate a business lead for telemedicine services and ensure that person has the backing of clinicians
  - Ensure that your telemedicine projects include a business case to ensure long-term funding

• Understand that telemedicine isn't just throwing technology at an existing process. You need to understand the different roles and relationships that it requires — different salary structures, training, workflows.

• Create a road map for telemedicine applications that assesses them according to their adoption potential, impact and time to value.