“Computers are magnificent tools for the realization of our dreams, but no machine can replace the human spark of spirit, compassion, love, and understanding.” ----Louis Gerstner
Problem and Solution

**Problem**

Mental health service provision in rural areas or frontier areas is critical challenge

Smith & Allison, 1998

**Solution**

Telecommunication technology
Definitions

- **Telemedicine**— “the delivery health care with the patient and health care professional at different locations, and is facilitated through the use of information and communication technologies” (Leonard, 2004, p. 463)

- **Telehealth**— “the use of electronic communications and information technology to provide and support health care when distance separates the provider from the patient” (Morland, Greene, Rosen, Mauldin, & Frueh, 2009, p. 514)

- **Telepsychiatry**— is a branch of telemedicine that focuses on mental health applications (Leonard, 2004).

- **Telemental Health**— refers to behavioral health services that are provided using communication technology (Morland, Greene, Rosen, Mauldin, & Frueh, 2009)
What is This Technology?

• Delivered via remote videoconferencing technology:

• High powered videoconferencing equipment

• Desktop video equipment

• Videophones or personal video stations and bandwidth

Center for School Mental Health, 2009; Egede, Frueh, Richardson, Acierno, Mauldin, Knapp, et al., 2009
History of Telemedicine and Telemental health

- 1920—First documented use of telecommunications technology at Haukeland Hospital in Norway
- 1950s—Telemedicine used in field of mental health at the Nebraska Psychiatric Institute (NPI)
- 1956—an interactive audio link between NPI to seven hospitals in Nebraska, Iowa, and North/South Dakota

Smith & Allison, 1998
History of Telemedicine and Telemental health

- 1959– First use of audio-visual interactive system
- 1964-- Use of microwave technology to open link with Norfolk State Hospital
- 1960s-- Nebraska project linked Veteran’s Administration hospitals in Omaha, Lincoln, and Grand Island into existing network

Smith & Allison, 1998
1968--Developed a closed circuit link using two microwave relay stations between Department of Psychiatry at Dartmouth Medical School and a rural hospital in Claremont, New Hampshire

1968--Expanded an existing telemedicine project at Massachusetts General Hospital to provide emergency psychiatric consults to staff at Boston Logan Airport Medical State

Smith & Allison, 1998
History of Telemedicine and Telemental health

- 1993- 1999– An increase from 9 telmedicine programs to 100

- 1998-1999– Over 61 programs in 35 states delivering telemental health services

Smith & Allison, 1998
Settings using Telemental Health Services

- Rural primary care clinics
- Hospital emergency rooms
- Community mental health centers
- Schools
- Nursing homes
- Homes
- On board Navy ships
- Jails
- State and federal prisons

Smith & Allison, 1998
Applications of Telemental Health Services

- Pre-admission and pre-discharge planning
- Cognitive and mental status assessments
- Case management
- Medication management
- Family visit/family consultations
- Psychotherapy
- Court commitment hearings
- Family and consumer support groups

Frueh, Deitsch, Santos, Gold, Johnson, Meisler, et al., 2000; Smith & Allison, 1998
Applications of Telemental Health Services

- Crisis response
- Case conferences
- Patient and clinician education
- Staff training
- Clinician supervision

Benefits of Telemental Health Services

- Increases access to mental health care
- Extends scarce resources into geographic areas of service
- Reduces cost for transportation
- Eliminates or shortens patient waiting lists for appointments
- Improves existing services

Benefits of Telemental Health Services

- Provides immediate availability of emergency mental health assessments
- Improves continuity of care for rural consumers
- Creates “virtual support groups”
- Increases family and consumer involvement in treatment
- Reduces lengths of stay and readmission rates to state psychiatric facilities
- Promotes cost-effective mental health care

Center for School Mental Health, 2009; Frueh, Deitsch, Santos, Gold, Johnson, & Meisler, et al., 2000; Center for School of Mental Health, 2009; Smith & Allison, 1998.
Limitations and Weaknesses of Telemental Health Services

- Costly equipment, maintenance and fees for videoconferences
- Need of clinicians to be trained
- Cost of technical personnel and other infrastructure
- Technical malfunctions
- Inability to manage crises such as suicidal thoughts/aggressions

Limitations and Weaknesses of Telemental Health Services

- Inability of clinicians to identify patients’ nonverbal cues such as psychomotor agitation or poor hygiene

- Inability of patients to perceive providers’ personability, warmth, and empathy

- Decreased effectiveness of influencing patients’ use of substance abuse, medical and mental health services

Monnier, Knapp, & Frueh, 2003; Morland, Greene, Rosen, Mauldin, & Frueh, 2009
Limitations and Weaknesses of Telemental Health Services

- Lack of universal guidelines, standards or regulations regarding reimbursement, legal and ethical practice of telemedicine
- Licensing issues relating to provision of care across state lines
- Liability and malpractice issues
- Privacy, confidentiality and consent issues

Leonard, 2004; Monnier, Knapp & Frueh, 2003
Project Management

Initiation

Closing

Planning

Monitoring/Controlling

Execution
Project Management Framework

Initiation Phase

- **Needs Identification**
  -Needs assessment
    - Target population
    - Disease/disorder of interest
    - Community to serve
  - Literature search (Lessons learned)
  - Potential problems/limitations

Project Management Framework

Initiation Phase

- **Infrastructure Survey**
  - Technological needs
    - Speed of transmission
    - Identification of local companies for installation

- **Contextual Sensitivity**
  - Cultural considerations
  - Geographical considerations
  - Community considerations

Program Management Framework
Planning Phase

- **Education**
  - Staff training
  - Educational seminars

- **Structure Configuration**
  - Preparation of room and equipment
  - Technical and clinical backup support
  - Optimizing video image

- **Written Protocol**

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Morland, Greene, Rosen, Mauldin, & Frueh, 2009
Program Management Framework

Execution Phase

- **Pilot Implementation**
  - Begin small scale trial
  - Expect delays
    - Extra time for troubleshooting
    - Possible staffing issues
  - Assess patient and staff feedback
    - Alter service based on feedback

Program Management Framework
Monitoring/Controlling Phase

- **Evaluating Contextual Sensitivity**
  - Sensitivity to users’ local cultural/geographical situation?
  - Recommendations reflect knowledge of community context?

- **Evaluating Access**
  - Barriers to access?
  - Services delivered in timely manner?
  - Access to care improved?

Barker, 2003; Boydell, Greenberg, & Volpe, 2004
Program Management Framework

Monitoring/Controlling Phase

• Evaluating Administration and Technology
  ✓ Participant’s comfort level?
  ✓ Comfortable physical setting?
  ✓ Consultation process explained adequately?
  ✓ Ability to integrate system?
  ✓ System upgradable?

Barker, 2003; Boydell, Greenberg, & Volpe, 2004
Program Management Framework

Monitoring/Controlling Phase

- **Evaluating Communication**
  - Voice heard/questions answered?
  - Key elements of satisfying/successful consultation?
  - Appropriate/feasible recommendations?
  - Follow-up?

- **Evaluating Overall Satisfaction**
  - Access to mental health services?
  - Travel time?
  - Feelings of professional/personal isolation?
  - System affordable?

Barker, 2003; Boydell, Greenberg, & Volpe, 2004
Project Management Framework

Closing Phase

- **Solidification**
  - Open clinical services to wider population
  - Lessons learned from pilot
  - Solicit feedback
Potential Problems Related to Project Management

- Lack of experience and inadequate staff training and support in use of new technologies
- Psychological resistance to change
- Fear of new technologies
- Program sustainability
- Privacy and confidentiality
- Ethical and legal considerations

Frueh, Deitsch, Santos, Gold, Johnson, Meisler, et al., 2000; Leonard, 2004
Datamonitor estimates that the annual spending on telehealth hardware, software, and other related services will increase from 2.4 billion in 2009 to 6.1 billion in 2012.

- High Powered Videoconferencing Equipment: approximately $4000-$10,000
- Desktop Video Equipment: approximately $400-$500 for camera
- Videophones or Personal Video Stations: approximately $300- $500

Baburajan, 2009; Center for School Mental Health, 2009
References


References


