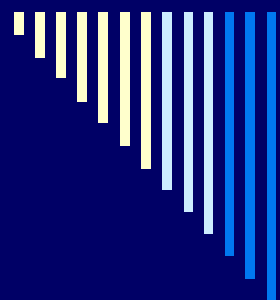



Overview of Telemental Health

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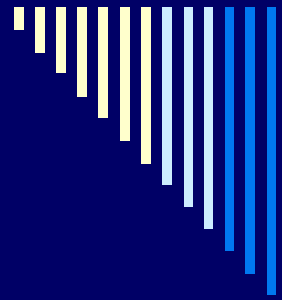


What is TMH?



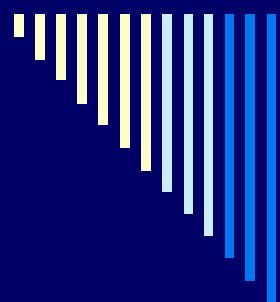
It's all in your head.

I keep hearing voices
and seeing things.



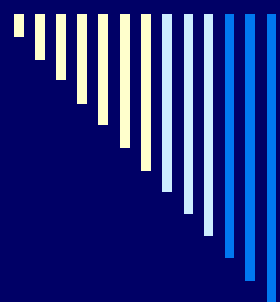
Background

- Cecil Wittson (psychiatrist) et al
 - 1961: Compared effectiveness of FTF psychotherapy with that delivered via two-way television



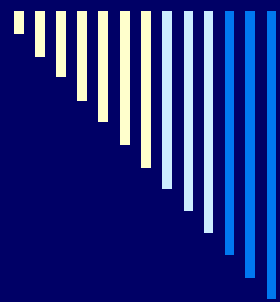
Wittson et al

- Found choice of therapist and selection of group members was more important than how therapy was delivered
- This is the first published application of telemedicine



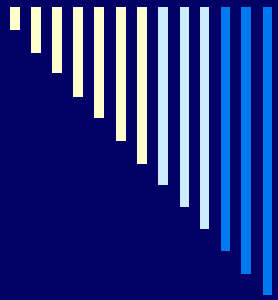
Benschoter et al 1965

Used two-way television system between Nebraska Psychiatric Institute and Norfolk State Mental Hospital, 112 miles apart, for joint conferences



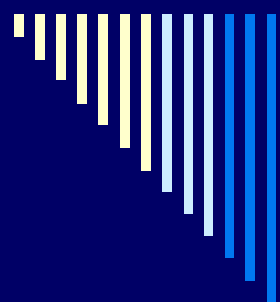
Pluses

- Lessening the need for travel
- Increased number of staff members for consultation at State hospital
- Improved interpersonal and institutional relations



Minuses

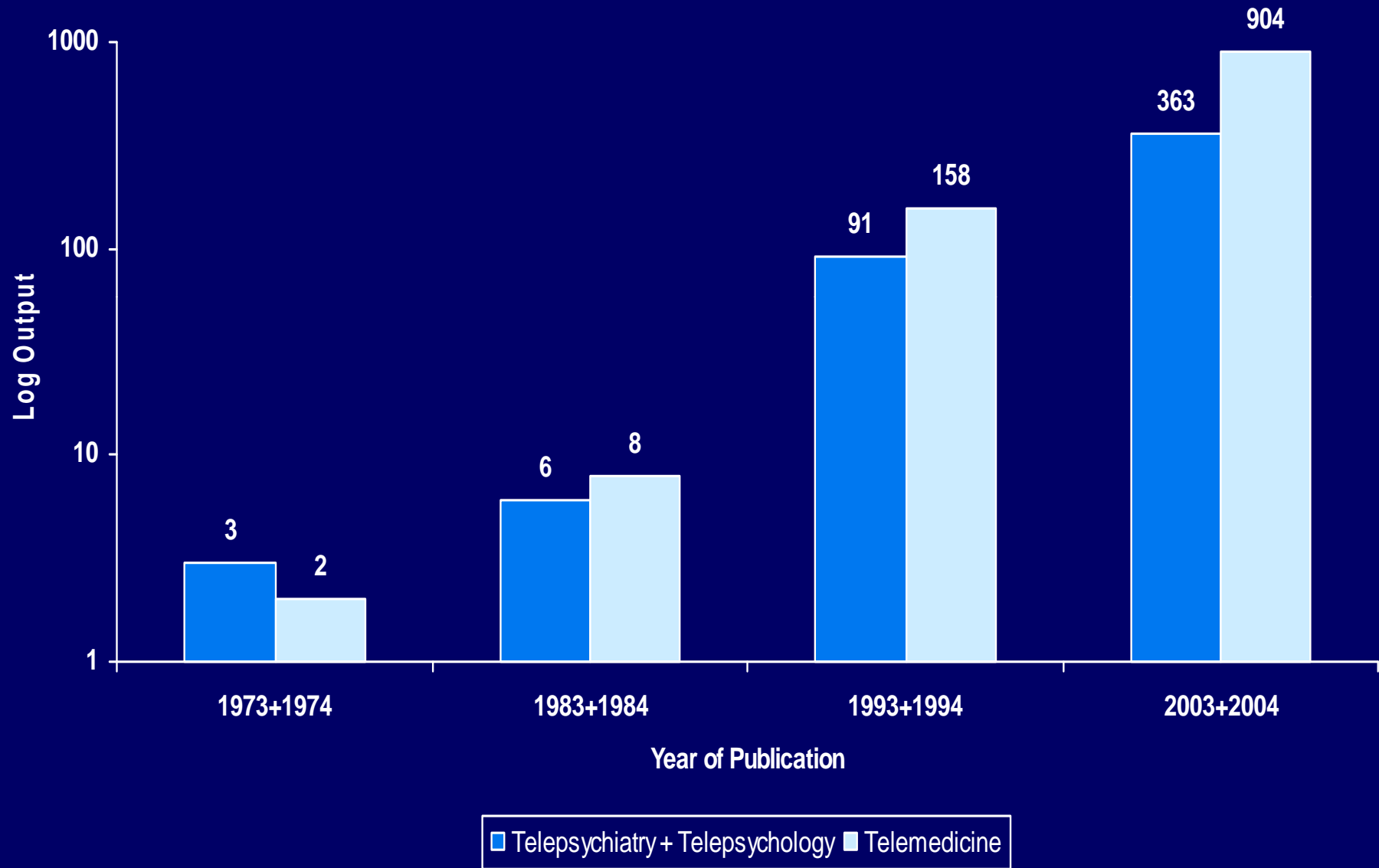
- Initial hesitance to use system
- Problems with sound pick-up and camera operation
- High cost of transmission

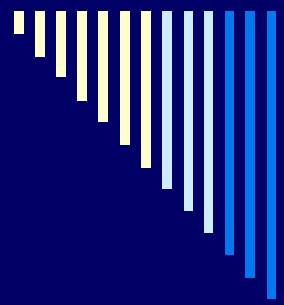


Publication Output in Telemedicine (Moser et al 2004)

- Searched MEDLINE 1964-2003
 - 5911 citations from 42 countries
 - Telemedicine comprised .05% of all medical publications
-

OUTPUT in TELEMEDICINE and TELEMENTAL HEALTH



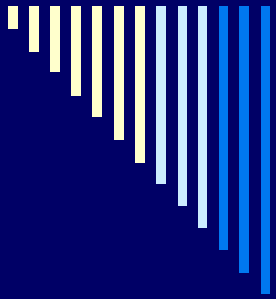


Early Telemental (TMH) Health Studies and Applications

[adapted from Grady 2002]

□ Period I (1920s-1980s)— Interactive Television

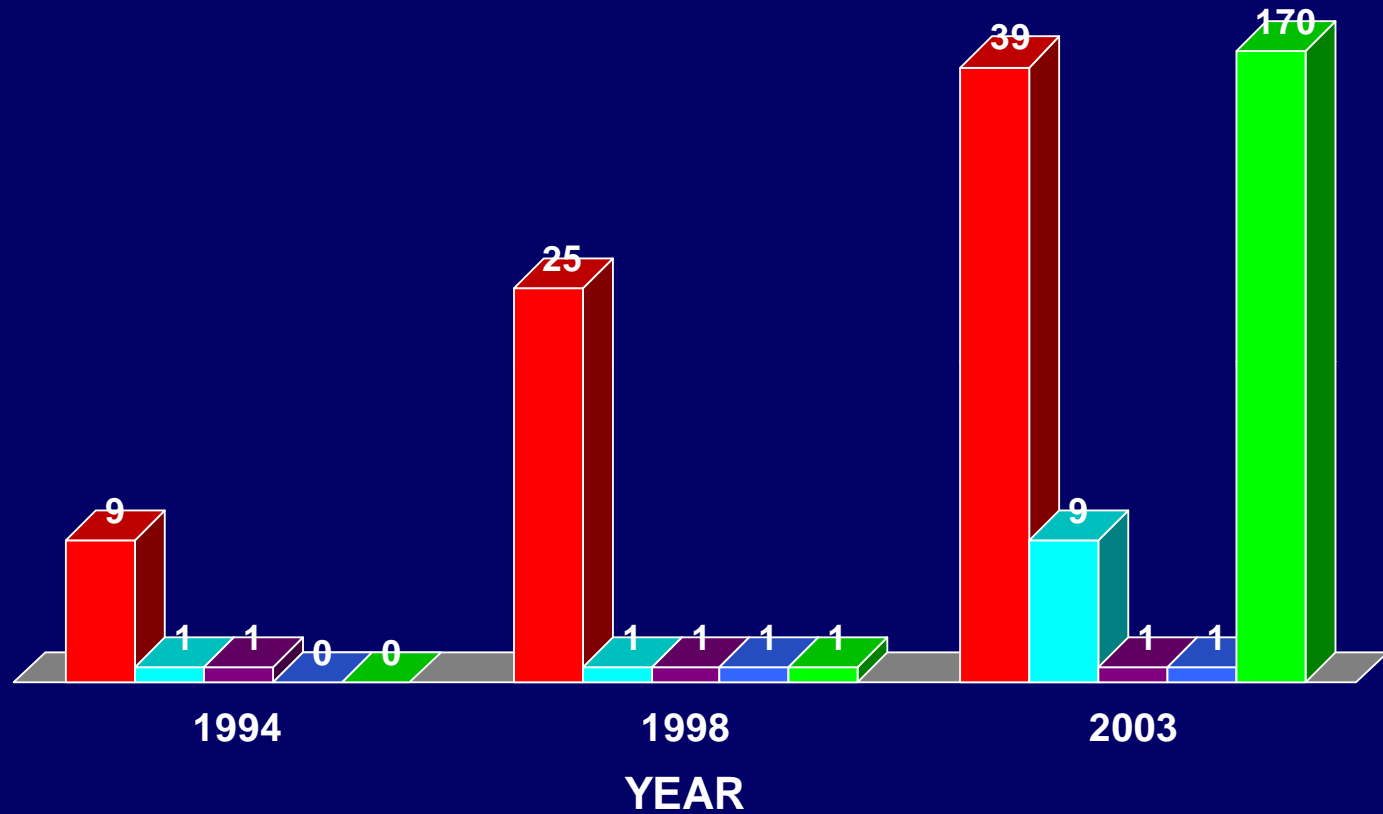
- Established potential of two-way television for direct patient care, administration, and education
 - High costs stalled research



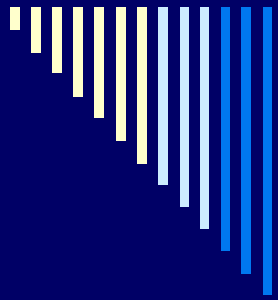
- Period II (1990s)—Affordable videoconferencing
 - Aided by digital data compression (coding) and decompression (decoding)
 - Led to more TMH programs

GROWTH of TELEMENTAL HEALTH PROGRAMS

NUMBER of PROGRAMS



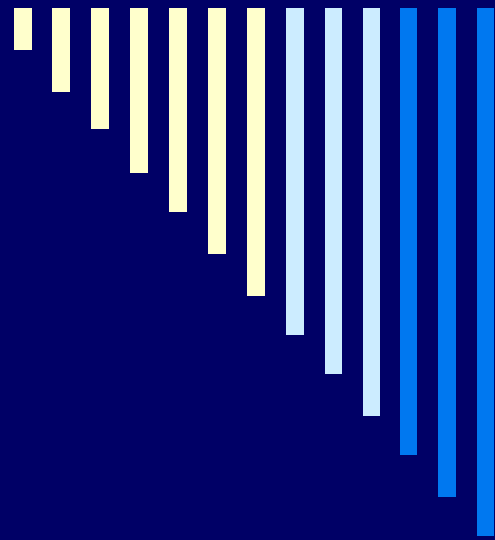
United States Canada Norway England Australia



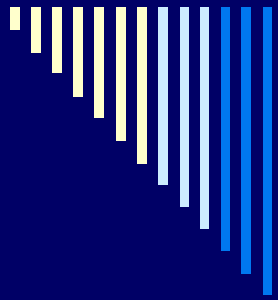
- Period III (2000-) — Evidence-Based TMH
 - Focusing on cost-effective and outcome-based deployment



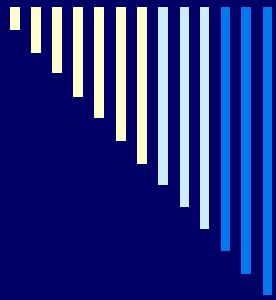
Areas of Enquiry



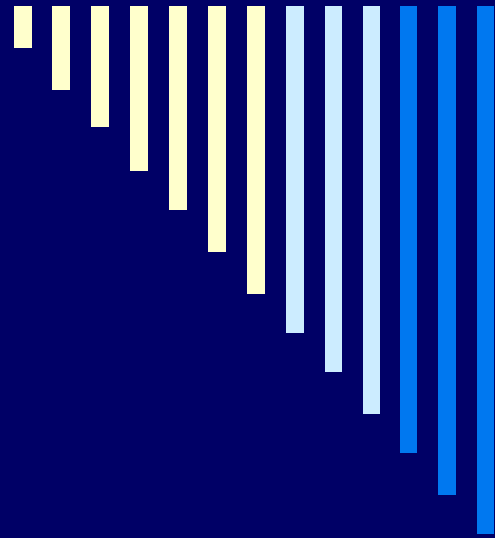
Relationships



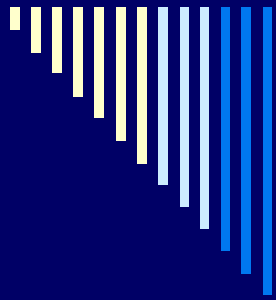
- Picture quality
- Bandwidth
- Evaluation
- Cost



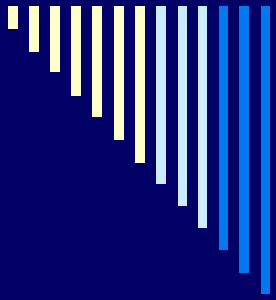
- Zarate et al 1977
 - Differences in reliability of tests of schizophrenia sx with FTF vs. High BW (384 kbps) vs. Low BW (128 kbps)
- Cruz et al 2004
 - Affect recognition differed based on camera resolution and bandwidth



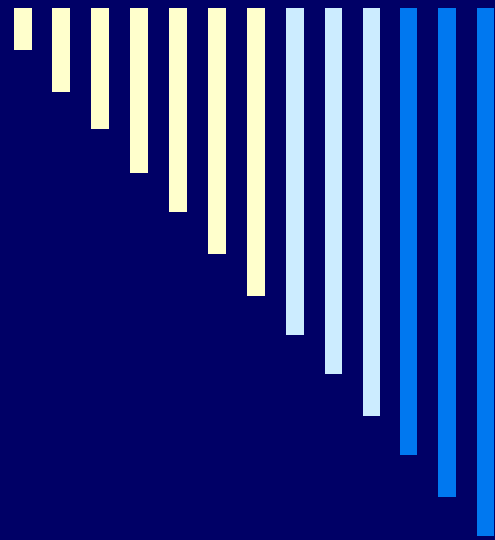
Instruments and Assessments



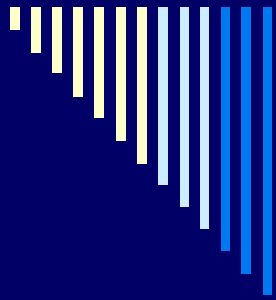
- Elford et al 2000
 - Adequate alternative to FTF assessments of children
- Jacobsen et al 2003
 - Administration format has no affect on reliability of neuropsychological tests



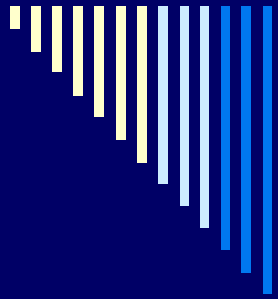
- Shores et al 2004; Montani et al 1997
 - Diagnosing dementia and depression as accurate as FTF
- Loh et al 2004
 - Assessments with MMSE and GDS similar to FTF



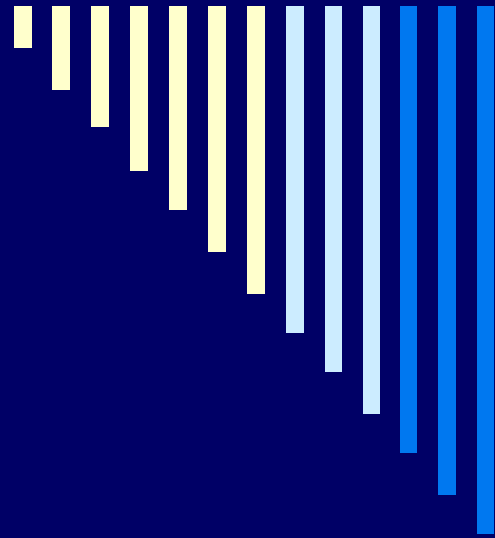
Service Delivery



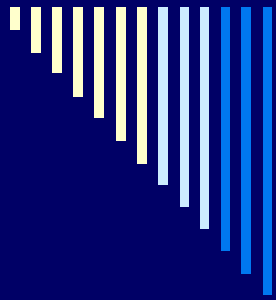
- D'Souza et al 2002 — rural patients c/w FTF
 - Fewer medication side effects
 - Better adherence with tx
 - Lower readmission rates



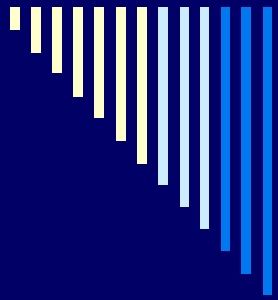
- Goldfield & Boachie 2003
 - Family therapy via TC aided recovery in anorexia nervosa
- Rabinowitz et al 2004
 - Consultations to NH residents facilitated by MDS



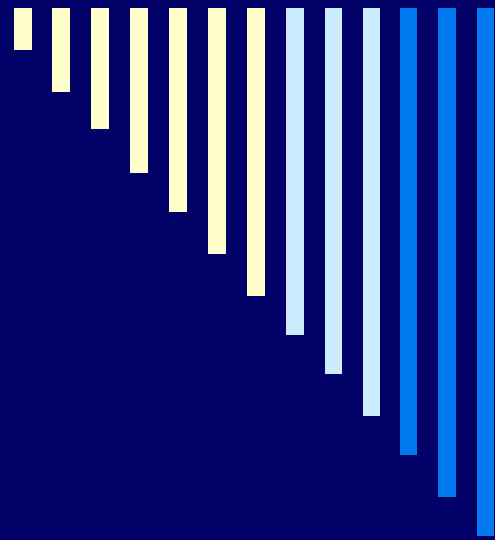
Satisfaction



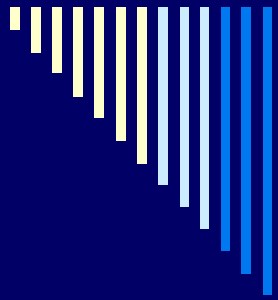
- Mair et al 2000 — Reviewed 32 telemedicine satisfaction studies
 - TM accepted by many types of pts including psychiatric
 - *All* studies had methodological problems with small sample sizes



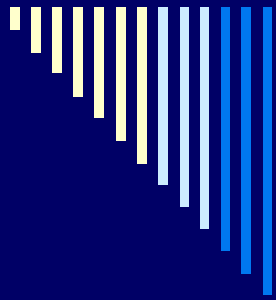
- Aoki et al 2003 — 104 telemedicine evaluation studies published from 1966 to 2000
 - Acceptable reports of diagnostic accuracy, satisfaction, and technological evaluation



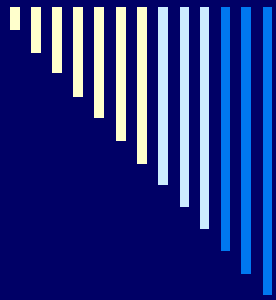
Outcomes



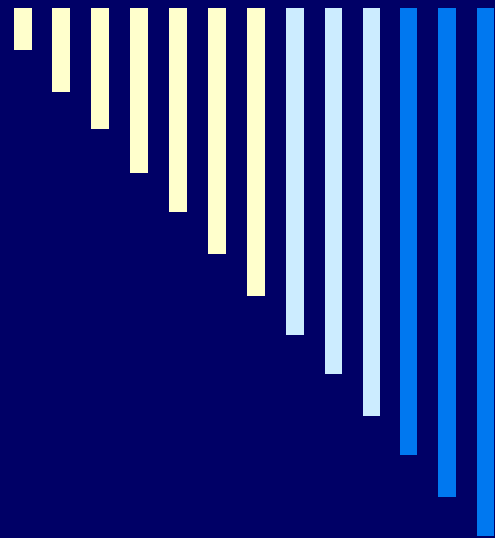
- Kennedy & Yellowlees 2003 —
32/124 pts receiving TMH care
 - HoNOS and MHI to measure health status
 - TMH as effective as FTF



- Ruskin et al (2004) — RCT of 119 depressed veterans
 - tx w/ meds, counseling, education
 - No diff b/t tx outcomes, satisfaction, adherence, or costs of treatment in TMH vs FTF

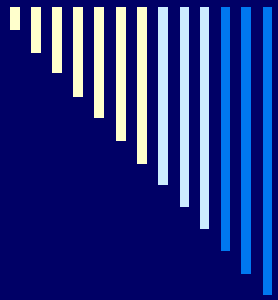


- Leonard 2004 — Successful TMH service for prisoners with low-cost, PC-based videoconferencing system via ISDN lines at 128 kbps



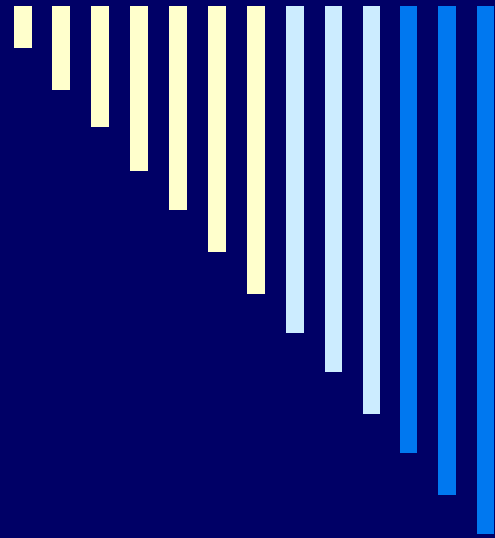
Clinical Implications

(adapted from Hilty et al 2004)



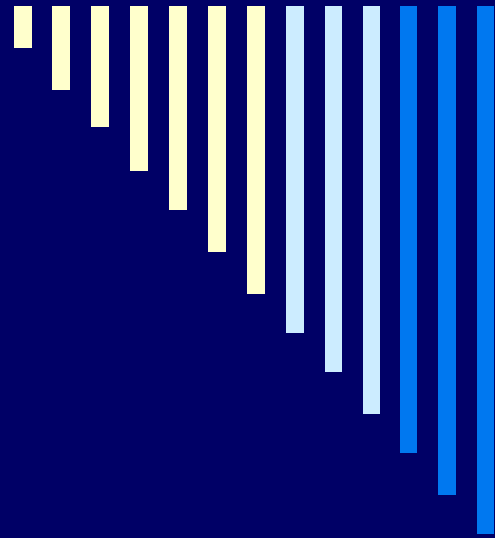
TMH

- Used successfully for many types of patients in many settings
- Well-received by patients, nurses, physicians, and family
- Compares favorably with FTF care in terms of validity, reliability, ability to communicate, and cost



Good News?!?!?!?

Maybe

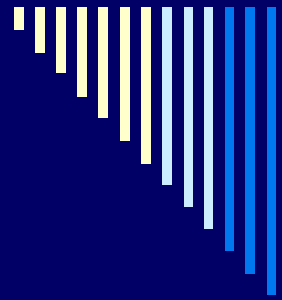


Limitations



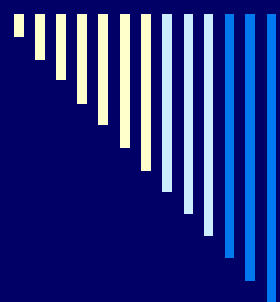
Mair and Whitten (2000)

- Review of TM satisfaction studies
 - Searched multiple electronic databases 1966-1998
 - Main outcome measure: Quality of evidence about patient satisfaction — N=32
-



Conclusions

“Methodological deficiencies (low sample sizes, context, and study designs) of the published research limit the generalizability of the findings.”



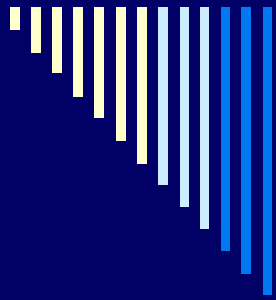
Pesamaa et al 2004

- TMH applications for children and adolescents in 27 papers
 - When classified by “Quality of Evidence” criteria, two studies were in category I (highest), one in category II (middle), and 24 in category III (lowest)

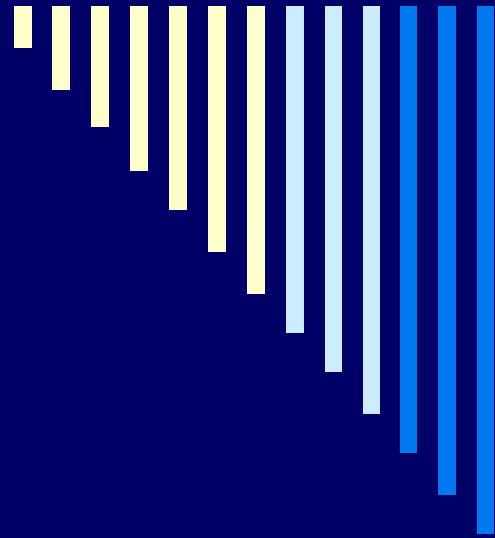


Conclusions

- TMH *seems* to offer several benefits, at least in sparsely populated regions
 - Well-designed and properly controlled trials are required to evaluate the value of this method in child psychiatry
-

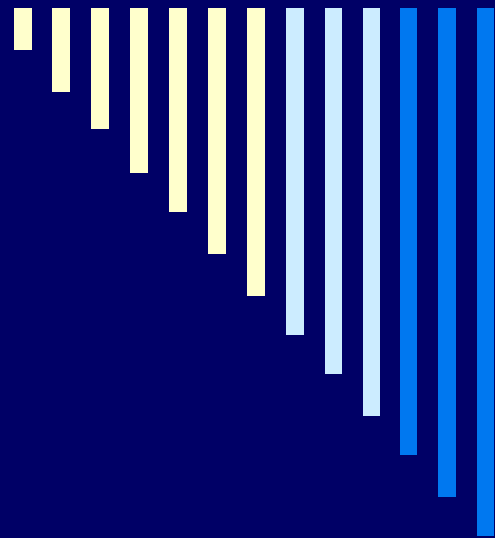


- Data limited RE: Patient outcomes and cost-effectiveness
- More RCTs of TMH are needed
- Qualitative and quantitative descriptions of TMH's impact on routine services are needed

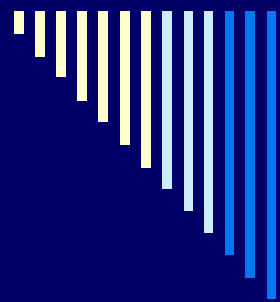


Next Steps

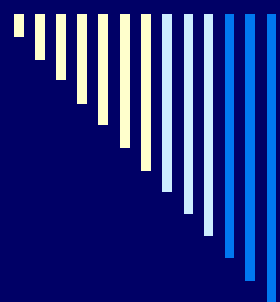




We Need Larger, More Diverse,
and Better-Controlled Studies
Works—Especially in Children and
Adolescents— Before We Can
Say TMH Works

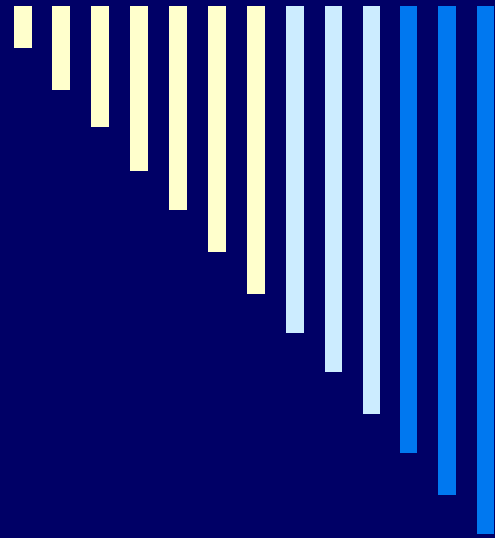


- Increase sample sizes
 - An opportunity for multi-site collaboration
- Treat more than depression, anxiety, and ADHD
 - What about PDD, ID, PDs, Substance Abuse, Psychotic Disorders?
- Get away from the notion that face-to-face is the “gold standard”
 - Why not compare two or more different TMH approaches for effectiveness, etc?



Facilitation

- Through OAT grant
 - Develop several regional telehealth resource centers
 - AIM is to offer assistance, guidance, and education to other existing and start-up telehealth programs
 - Northeast Telehealth Resource Center (NETRC) is one



Thanks!
