AHRQ National Web Conference on the Role of Telehealth to Increase Access to Care and Improve Healthcare Quality

Presented by:
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Kenneth McConnochie, MD, MPH

Moderated by:
Commander Derrick L. Wyatt
Agency for Healthcare Research and Quality

June 09, 2020
Agenda

• Welcome and Introductions
• Presentations
• Q&A Session With Presenters
• Instructions for Obtaining CME Credits

Note: After today’s webinar, a copy of the slides will be emailed to all participants.
This continuing education activity is managed and accredited by AffinityCE, in cooperation with AHRQ and TISTA.

- AffinityCE, AHRQ, and TISTA staff, as well as planners and reviewers, have no financial interests to disclose.
- Commercial support was not received for this activity.
- Dr. Xiong has financial affiliations with Wolters Kluwer, BCBS FEP, Doctor on Demand, and SafelyYou.
- Dr. Ferucci has no financial interests to disclose.
- Dr. McConnochie has no financial interests to disclose.
How to Submit a Question

• At any time during the presentation, type your question into the “Q&A” section of your WebEx Q&A panel.

• Please address your questions to “All Panelists” in the drop-down menu.

• Select “Send” to submit your question to the moderator.

• Questions will be read aloud by the moderator.
At the conclusion of this web conference, participants should be able to:

1. Discuss the effectiveness of telepsychiatry
2. Evaluate the impact of telemedicine on the management of a chronic systemic disease
3. Identify facilitators and barriers to urban telemedicine adoption
4. Discuss how telemedicine can impact care during public health emergencies
Comparison of Asynchronous Telepsychiatry vs. Synchronous Telepsychiatry in Skilled Nursing Facilities (CATeleST): A Preview

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Department of Neurology, Alzheimer’s Disease Center
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- Glen Xiong (PI)
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Research Staff
- Michelle Parish
- Christi Candido
- Alvaro Gonzalez
- Mario Hernandez
- Nidhi Mundada

Funding by: Agency for Healthcare Research and Quality
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Background and Methods
Background (Telepsychiatry)


• 86 reported on satisfaction with telepsychiatry
  ▶ Providers concerns about impaired therapeutic relationship
  ▶ Patients tend to report higher satisfaction than providers

• 32 Randomized Controlled Trials (13 examined clinical outcomes)
  ▶ Telepsychiatry appears to be better than usual care (except depression in primary care) and equivalent to face-to-face treatment
  ▶ When non-inferiority designs were appropriately used, telepsychiatry performed as well as, if not better than, face-to-face delivery of mental health services
  ▶ No differences in the patterns of findings for the delivery of pharmacotherapy or psychotherapy delivered via telepsychiatry
  ▶ One study (Fortney et al, JAMA Psych 2015) showed participants were 18x more likely to initiate psychotherapy
Rapid Conversion of an Outpatient Psychiatric Clinic to a 100% Virtual Telepsychiatry Clinic in Response to COVID-19

Peter Yellowlees, M.B.B.S., M.D., Keisuke Nakagawa, M.D., Murat Pakyurek, M.D., Angel Hanson, Jerry Elder, Helen C. Kales, M.D.

In anticipation of a surge of COVID-19 cases in Northern California, the outpatient psychiatric clinic at UC Davis Health, in which 98% of visits initially occurred in person, was converted to a telepsychiatry clinic, with all visits changed to virtual appointments within 3 business days. The clinic had 73 virtual appointments on its first day after full conversion.

This column describes the process, challenges, and lessons learned from this rapid conversion. Patients were generally grateful, providers learned rapidly how to work from home, and the clinic remained financially viable with no immediate losses.

*Psychiatric Services 2020; 0:1–4; doi: 10.1176/appi.ps.202000230*
Background

• Psychiatric disorders occur in up to 65-90% of long-term care or skilled nursing facility (SNF) populations\(^1\text{-}^2\)

• Less than one-fifth of SNF residents with diagnosable psychiatric disorders receive treatment from a mental health clinician\(^2,^3\)

• Synchronous telepsychiatry (STP) has logistical barriers:
  ▶ a. Need to coordinate appointment times on both ends
  ▶ b. Need to reimburse for blocks of time
Telepsychiatric Methods of Providing Care

Synchronous Telepsychiatry (STP)

• Live, simultaneous, and interactive videoconferencing between patient and psychiatrist
• Well-known method of providing medical care – over 30 years of use
• Underutilized due to administrative and cost barriers

Asynchronous Telepsychiatry (ATP)

• Previously video-recorded psychiatric interviews performed with mental health clinician, later sent to psychiatrist for review
• Relatively new method of providing medical care, *never used or studied in the skilled nursing facility setting*
• More cost-effective when compared to STP
Background: Telepsychiatry

Synchronous Telepsychiatry (STP)

Asynchronous Telepsychiatry (ATP)
ATP Process: Step 1 of 3

Clinician/Interviewer Nurse, Counselor, and other Therapist

Patient

Video is routed to psychiatrist.

CREDIT: ATA 2018 “Asynchronous Telepsychiatry” Yellowlees et al.
ATP Process: Step 2 of 3

Review video and note on server

Chart in EMR

CREDIT: ATA 2018 "Asynchronous Telepsychiatry" Yellowlees et al.
ATP Process: Step 3 of 3

PCP Care
- **ATP** may result in **more recommendations** than **STP**
  - Psychiatrists may have more time while writing the consult note in ATP
- **Profiles** of these recommendations are **similar**
  - Psychiatrists feel comfortable making medication changes using ATP
- **No statistical difference in adherence**
  - Evidence that ATP is not worse than STP in Primary Care
OBJECTIVE:
To assess the acceptability and feasibility of two telepsychiatry models designed to improve access to psychiatric services for residents living in SNFs.
Participants:

• Forty-three participants (22 ATP, 21 STP) were randomized
• 40 (21 ATP, 19 STP) completed baseline visits
• Mean age was 72.9 ± 13.3 (ATP) and 75.5 ± 11.1 years (STP)
• Primary diagnoses were
  ▶ Dementia (52% vs 53%)
  ▶ Depression (29% vs 21%)
  ▶ Bipolar disorders (10% vs 26%), and
  ▶ Schizophrenia/primary psychotic disorder (10% vs 0% in ATP vs STP, respectively)
Telepsychiatry in Nursing Facilities: A Pilot Study

- 43 participants (22 ATP, 21 STP) were randomized
- 40 (21 ATP, 19 STP) completed baseline visits
- 25 (62.5%) completed 6-month follow-up visit
- 18 (45%) completed the final visit after 12 months
Results
Both groups improved significantly from baseline to 6-month follow-up regardless of group assignment (p-values all ≤ 0.01).

There were no significant ATP vs. STP differences in either 6- or 12-month CGI (p-values all > 0.70).

Figure 1. Primary outcome measure for asynchronous telepsychiatry (ATP) and synchronous telepsychiatry (STP) arms at baseline and follow-up.
Telepsychiatry in Nursing Facilities: A Pilot Study • Outcomes

At the baseline visit:
26 (65%) were taking antipsychotics 
26 (65%) were taking antidepressants, and 
18 (45%) were taking mood stabilizers 
There were no significant differences between the two groups

After the baseline visit:
8 (57%) in the ATP group were recommended antipsychotics reductions. 
9 (75%) in the STP group were recommended antipsychotics reductions.
Eighteen patients (10 ATP, 8 STP) provided satisfaction data

- 60% in the ATP and 63% in STP group reported being completely satisfied
- The remaining participants reported being somewhat satisfied with the experience in the program
- Fifteen patients (8 ATP, 7 STP), felt comfortable with the care by video
- Twelve patients (5 ATP, 7 STP) were willing to recommend the video visit to a friend or family member
Pilot Study • Conclusion

• We found significant improvement in CGI from baseline to 6-month follow-up, regardless of group assignment

• With our findings and successful completion of the pilot study, we demonstrated the acceptability, feasibility, and impact of both forms of telepsychiatry in the SNF setting

• These results provided preliminary data to support a large, multi-site non-inferiority randomized controlled trial, which is currently ongoing (2017-2022) funded by the Agency for Healthcare Research and Quality (NCT03264560)
CATeleST Design

• Randomized controlled trial to ATP or STP at a 1:1 ratio.
• Target enrollment: n=250; 9 SNF sites
• Follow-up STP and ATP visits occurred at 1, 2, 3, 6 and 12 months.
• Primary outcome was the psychiatrist-completed Clinical Global Impressions (CGI) severity (6 months)
• Secondary outcomes: PHQ-9; BIMS; ED/hospitalization rates
### Baseline Characteristics of 188 Participants who Completed Baseline Visits

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>ATP (N = 92)</th>
<th>STP (N = 96)</th>
<th>P-value</th>
</tr>
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<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td>N = 92</td>
<td>N = 96</td>
<td>.66</td>
</tr>
<tr>
<td>Age</td>
<td>72.7 ± 11.9</td>
<td>71.7 ± 12.4</td>
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<tr>
<td>CGI Severity</td>
<td>3.8 ± 1.3</td>
<td>4.1 ± 1.2</td>
<td>.11</td>
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<tr>
<td>BIMS Scorea</td>
<td>10.6 ± 4.4</td>
<td>9.6 ± 5.3</td>
<td>.54</td>
</tr>
<tr>
<td>PHQ-9b</td>
<td>1.1 ± 2.8</td>
<td>1.2 ± 2.8</td>
<td>.86</td>
</tr>
<tr>
<td>Female</td>
<td>66 (71.7%)</td>
<td>54 (56.3%)</td>
<td>.03</td>
</tr>
<tr>
<td><strong>Racec</strong></td>
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<tr>
<td>Asian</td>
<td>4 (4.3%)</td>
<td>2 (2.2%)</td>
<td>.34</td>
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<tr>
<td>White</td>
<td>72 (78.3%)</td>
<td>81 (87.1%)</td>
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<tr>
<td>African-American</td>
<td>9 (9.8%)</td>
<td>8 (8.6%)</td>
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</tr>
<tr>
<td>Other</td>
<td>5 (5.4%)</td>
<td>2 (2.2%)</td>
<td></td>
</tr>
<tr>
<td>Declined to State</td>
<td>2 (2.2%)</td>
<td>0 (0.0%)</td>
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<tr>
<td>Hispanic Ethnicityd</td>
<td>7 (7.8%)</td>
<td>7 (7.5%)</td>
<td>.95</td>
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<tr>
<td>Taking psychiatric medication</td>
<td>83 (90.2%)</td>
<td>83 (86.5%)</td>
<td>.42</td>
</tr>
<tr>
<td>Taking antipsychotic medication</td>
<td>39 (42.4%)</td>
<td>33 (34.4%)</td>
<td>.26</td>
</tr>
<tr>
<td>Taking antidepressant medication</td>
<td>55 (59.8%)</td>
<td>55 (57.3%)</td>
<td>.73</td>
</tr>
<tr>
<td>Taking mood stabilizer medication</td>
<td>30 (32.6%)</td>
<td>33 (34.4%)</td>
<td>.80</td>
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<tr>
<td>Taking benzo medication</td>
<td>22 (23.9%)</td>
<td>22 (22.9%)</td>
<td>.87</td>
</tr>
<tr>
<td>Taking other medication</td>
<td>28 (30.4%)</td>
<td>30 (31.3%)</td>
<td>.90</td>
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<tr>
<td><strong>Primary Diagnosise</strong> (N=160)</td>
<td></td>
<td></td>
<td>.69</td>
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<tr>
<td>Depression</td>
<td>22 (23.9%)</td>
<td>22 (23.2%)</td>
<td></td>
</tr>
<tr>
<td>Bipolar Disorder</td>
<td>9 (9.8%)</td>
<td>12 (12.6%)</td>
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</tr>
<tr>
<td>Schizophrenia Related Psychotic</td>
<td>6 (6.5%)</td>
<td>6 (6.3%)</td>
<td></td>
</tr>
<tr>
<td>Dementia/Neurological/Neocognitive Disorder</td>
<td>33 (35.9%)</td>
<td>34 (35.8%)</td>
<td></td>
</tr>
<tr>
<td>Parkinson’s Related Spectrum</td>
<td>4 (4.3%)</td>
<td>4 (4.2%)</td>
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</table>
Acknowledgements

• Peter Yellowlees (co-PI)
• Michelle Burke Parish
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Impact of Telemedicine on a Chronic Disease:
Rheumatoid Arthritis

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Clinical Rheumatologist and Researcher
Alaska Native Tribal Health Consortium
Rheumatoid Arthritis

- Chronic autoimmune disease
- Risk of disability and mortality
- Treat-to-target strategy associated with improved outcomes
- Disease activity monitoring is complex
- Requires access to rheumatologists
- More common in AI/AN populations
Alaska Tribal Health System

Same Scale Comparison - Alaska Area to Lower 48 States
Rheumatology Care in the ATHS

Field clinic sites
Telehealth in the ATHS

Store and Forward Consults

Live Video Visits
• 20 studies identified through 2015
  ➤ 49% prior to 2010

• 1 randomized controlled trial

• Follow-up phase of care most common
  ➤ 60% of studies

• Synchronous more common than asynchronous
  ➤ Often with trained presenter

Tele-Rheumatology in the ATHS*

- **Phase of care:** follow-up
- **Diseases:** any, but rheumatoid arthritis is most common
- **Method of communication:** synchronous video visits
- **Presenters:** not trained in rheumatology or joint exam
- **Other unique features:**
  - Patient is in a remote clinic, not at home or on mobile device
  - Multiple remote clinic sites
  - Integrate video visits in regular clinic day schedule
  - Alternate with in-person visits at field clinic or hospital clinic
  - Emphasis on continuity (usual rheumatologist, usual site of primary care)

*Pre-COVID-19*
Specific Aims – AHRQ R21

• The overall goal of this study was to evaluate the impact of telemedicine rheumatology follow-up on outcomes and quality of care in rheumatoid arthritis (RA).
  ► Offered as part of usual care

• Specific Aims:
  ► Aim 1: Impact on RA disease activity
  ► Aim 2: Impact on access to care and quality of care for RA
Methods

• Individuals with an established diagnosis of RA seeing a rheumatologist for follow-up in the ATHS either in-person or by telemedicine were invited to participate

• Baseline:
  ▶ Patient-reported RA disease activity (RAPID3) and telemedicine perception survey
  ▶ Medical record review for disease characteristics and quality measures

• Follow-up:
  ▶ Telephone follow-up surveys at 6 and 12 months
  ▶ Medical record review for quality measures at 12 months

• Recruitment completed March 2018
• Followed until March 2019
## Factors Associated with Telemedicine Use in RA

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Telemedicine (n=56)</th>
<th>In-person only (n=66)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, year, mean (SD)</td>
<td>52.2 (12.2)</td>
<td>52.2 (13.9)</td>
<td>0.971</td>
</tr>
<tr>
<td>Female, n (%)</td>
<td>45 (80%)</td>
<td>57 (86%)</td>
<td>0.372</td>
</tr>
<tr>
<td>RA disease duration, years, mean (SD)</td>
<td>10.0 (8.8)</td>
<td>10.2 (10.9)</td>
<td>0.421</td>
</tr>
<tr>
<td>RAPID3 score (0-30 scale), mean (SD)</td>
<td>12.63 (5.4)</td>
<td>10.43 (5.5)</td>
<td>0.037*</td>
</tr>
<tr>
<td>Number of rheumatology visits in past year, mean (SD)</td>
<td>2.95 (1.35)</td>
<td>2.39 (1.32)</td>
<td>0.011*</td>
</tr>
<tr>
<td>Rheumatologist telemedicine rate, mean (SD)</td>
<td>0.196 (0.064)</td>
<td>0.115 (0.094)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Telemedicine survey score (possible range -2 to +2), mean (SD)</td>
<td>0.547 (0.625)</td>
<td>0.238 (0.597)</td>
<td>0.001*</td>
</tr>
<tr>
<td>Ever seen by telemedicine by another provider, n (%)</td>
<td>9 (16%)</td>
<td>4 (6%)</td>
<td>0.074</td>
</tr>
</tbody>
</table>

Not shown and not associated: autoantibodies, erosions, smoking, comorbidity index, DMARD prescribed, distance

Outcomes of RA with Telemedicine

• Disease activity (RAPID3)
  ▶ No significant change over time

• Multivariate model
  ▶ Associated with telemedicine group and age

• No difference in proportion in low disease activity or remission or in functional status over time

Ferucci ED, et al. Manuscript under review
## Quality of Care for RA with Telemedicine

### Quality Measure

<table>
<thead>
<tr>
<th>Quality Measure</th>
<th>Telemedicine (n=63 patients with 114 visits)</th>
<th>In-Person Only (n=59 patients with 103 visits)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of rheumatologist visits in year after study enrollment, mean (SD)</td>
<td>1.8 (1.2)</td>
<td>1.7 (1.4)</td>
<td>0.67</td>
</tr>
<tr>
<td>At least one visit to a rheumatologist in the study year, n (%)</td>
<td>56 (89)</td>
<td>45 (76)</td>
<td>0.06</td>
</tr>
<tr>
<td>Proportion of visits in which disease activity is documented (% of visits)</td>
<td>28 (25)</td>
<td>41 (40)</td>
<td>0.02*</td>
</tr>
<tr>
<td>Proportion of visits with moderate or high disease activity documented in which a change in medications is prescribed (% of visits)</td>
<td>19/23 (83)</td>
<td>17/23 (74)</td>
<td>0.47</td>
</tr>
<tr>
<td>Proportion of visits in which functional status assessment is documented (% of visits)</td>
<td>28 (25)</td>
<td>30 (29)</td>
<td>0.45</td>
</tr>
<tr>
<td>DMARD prescribed in past year (% of patients)</td>
<td>61 (97)</td>
<td>58 (98)</td>
<td>0.6</td>
</tr>
</tbody>
</table>

*No longer associated on multivariate analysis

Ferucci ED, et al. Manuscript under review
Limitations of the Study

• Observational study of existing practice
  ► Unable to randomize
  ► Challenging to design a study in the setting of possible changes in practice over time

• Short duration

• Small number of patients
Study Conclusions

• Telemedicine can be useful in management of RA

• More likely to be used when:
  ► More active disease
  ► Patients have favorable opinions of telemedicine
  ► Physician uses telemedicine more often

• No clear difference in disease activity or quality of care vs. in-person only care in the short term

• Ability to see patients more often may improve long term disease outcomes
Lessons Learned: Patient and Provider Perspectives

- Avoid travel
- Save money
- More frequent visits
- Improve communication
- Improve access to care

- No physical exam
- Privacy concerns
- Technical difficulties
- Need for trained presenter
- Scheduling complexity
The Future of Telehealth in Clinical Practice

**Benefits**
- Access to care
- Save money
- Avoid travel

**Barriers**
- Scheduling
- Regulations
- Logistics
- Acceptance

Pre-COVID-19
The Future of Telehealth in Clinical Practice

Benefits
- Access to care
- Save money
- Avoid travel
- Safety

Barriers
- Scheduling
- Logistics
- Acceptance

Post-COVID-19
Future Research: Impact of Telemedicine on Chronic Disease

• AHRQ-funded R01 study focuses on broader set of chronic diseases

• Specific Aims:
  1. Determine the predictors of receiving care by video telemedicine for chronic disease
  2. Investigate the relationship between video telemedicine and clinical outcomes of chronic diseases
  3. Perform a cost comparison of video telemedicine and in-person visits for chronic disease specialty care
Future Research: Impact of Telemedicine on Chronic Disease

- Mixed-methods study
- Changes in telehealth use patterns will affect predictors, outcomes, and cost analysis
- Dramatic increase during pandemic likely to persist over time
- Future plans include re-assessment of predictors and outcomes over time
Acknowledgements

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The content is solely the responsibility of the authors and does not necessarily represent the official views of the Agency for Healthcare Research and Quality.

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Telemedicine to Reduce Disparities in Primary Care

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University of Rochester Medical Center
Agenda

• Examine the capacity and limitations of different telemedicine models.

• Describe our model (Information-Rich Connected Care).

• Review evidence supporting effectiveness and efficiency of the Information-Rich Connected Care model as used in primary care.
Effectiveness: Absence from Child Care Due to Illness

Net impact of telemed:
63% reduction
*Pediatrics* May 2005

* Absence due to illness in mean days per week per 100 registered child-days.
Effectiveness and Efficiency: Summary

- Visits completed > 14,000
- In child care, schools, center for special needs children, neighborhood/after-hours sites > 70 child sites
- Completion rate: 97% (3% referred to higher level of care)
- Would otherwise have gone to ED, Urgent Care or office: 94%
- Allowed parent to stay at work/school: 93% (estimated time saved = 4.5hr/visit)
Effectiveness and Efficiency: Summary

• Continuity with Primary Care Medical Home: 83%

• Provider participation:
  ► Primary care practices = 10
  ► Providers > 70

• Local payer reimbursement:
  90% City children covered (Medicaid managed care, Commercial)
  6% Not yet paying: FFS Medicaid
  4% Uninsured
  100%

• Observed reduction in Emergency Department visits:
  ► Among children in regular city elementary schools and childcare: at least 22% fewer
  ► At a child development center serving special needs children: 50% fewer
Potential

• Pediatric primary care acute care office visits appropriate for telemedicine = 85%

• Pediatric emergency department visits appropriate for telemedicine = 40%
But Is It Safe?

• Acute Illness Observation Scale (AIOS)
  ► Quality of cry
  ► Reaction to parent stimulation
  ► State variation
  ► Color
  ► Hydration
  ► Response to social overtures

• Respiratory Observation Checklist
  ► Tachypnea
  ► Retractions
  ► Impression of respiratory distress

• In-person vs. Video (independent evaluations)
• Excellent inter-observer agreement
Illness Utilization Before and After Telemed Access: Change in Visit Rates* for Suburban, Rest-of-City and Inner-City Children

Primary Comparisons: Suburban vs. Inner City groups before and after telemedicine

Visit Site:
- Telemedicine
- ED
- Office

<table>
<thead>
<tr>
<th>Visits/100 Child-Years*</th>
<th>Suburbs</th>
<th>Rest-of-City</th>
<th>Inner-City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before</td>
<td>412</td>
<td>291</td>
<td>239</td>
</tr>
<tr>
<td>After</td>
<td>377</td>
<td>232</td>
<td>268</td>
</tr>
<tr>
<td>Total illness visit rates</td>
<td>449</td>
<td>435</td>
<td>519</td>
</tr>
</tbody>
</table>

* Rates as visits per 100 child-months.
1. True or False?

2. What’s value, quality?
Objectives: **Triple Aim**

- Improve Health
- Lower Costs
- Better Care
Three Pillars of the Sustainability

- Sustainable Innovation/Solution
- Technology
- Aligned Incentives
- Governance/Laws
Care via Telemed vs. In-Person

**Equivalent to In-Person**
- Diagnose as accurately
- Manage as effectively

**Better than In-Person**
- More convenient
- Less costly, especially versus Emergency Department
Age 10 mo., dropped off at childcare, 7:30 this morning.

Waking from nap, temp 104

Diagnosis: acute otitis media
Health-e-Access Telemedicine Model

Child site

Clinician site

secure web connection

Video conference window - view at clinician site

Video conference window - view at child site

Waiting Room
Normal Tympanic Membrane
Acute Otitis Media:
Like You’ve Never Seen It
Acute Otitis Media: Like You’ve Never Seen It
Otitis Media with Effusion
# 13-Year Experience

## Visits by Type of Access Site by Year: May 2001 thru June 2013

<table>
<thead>
<tr>
<th>Sites:</th>
<th>City Child Care</th>
<th>Suburban Child Care</th>
<th>City Elementary</th>
<th>Child Development Center</th>
<th>Suburban Elementary</th>
<th>Neighborhood After-Hours</th>
<th>City High and Junior High</th>
<th>Row Total</th>
</tr>
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<tbody>
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<td>2001(^1) N</td>
<td>173</td>
<td>100</td>
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<td>173</td>
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<td>4.2%</td>
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<td>597</td>
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<td></td>
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<td>1906</td>
</tr>
<tr>
<td>%</td>
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<td></td>
<td></td>
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<td>14.2%</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>1584</td>
</tr>
<tr>
<td>%</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>11.7%</td>
</tr>
<tr>
<td>2013(^2) N</td>
<td>119</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>631</td>
</tr>
<tr>
<td>%</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>4.7%</td>
</tr>
<tr>
<td>Total N</td>
<td>7771</td>
<td>100</td>
<td></td>
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<td></td>
<td>13560</td>
</tr>
<tr>
<td>%</td>
<td>57.3</td>
<td>1.4%</td>
<td>25.4</td>
<td>3.7%</td>
<td>0.7%</td>
<td>10.2%</td>
<td>1.4%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

---

*Highlighted numbers (gray background) indicate the year that service was initiated at a particular type of site.*

\(^{1}\) Indicated city school district, charter and parochial schools.  \(^{2}\) Last 6 months of 2013 only.

\(^{3}\) Row percent.  \(^{4}\) First 6 months of 2013 only.
### Table 2. Distribution of Primary Diagnosis for 13,560 Completed Visits

<table>
<thead>
<tr>
<th>RANK</th>
<th>Top 20 Primary Diagnoses(^{A})</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>acute otitis media</td>
<td>19.5</td>
</tr>
<tr>
<td>2</td>
<td>upper respiratory tract infection</td>
<td>9.9</td>
</tr>
<tr>
<td>3</td>
<td>pharyngitis, not otherwise specified</td>
<td>7.8</td>
</tr>
<tr>
<td>4</td>
<td>conjunctivitis</td>
<td>6.0</td>
</tr>
<tr>
<td>5</td>
<td>Streptococcal pharyngitis</td>
<td>5.7</td>
</tr>
<tr>
<td>6</td>
<td>otitis media with effusion</td>
<td>4.4</td>
</tr>
<tr>
<td>7</td>
<td>viral illnesss, not otherwise specified</td>
<td>4.0</td>
</tr>
<tr>
<td>8</td>
<td>ear pain</td>
<td>3.8</td>
</tr>
<tr>
<td>9</td>
<td>conjunctivitis, unspecified</td>
<td>3.8</td>
</tr>
<tr>
<td>10</td>
<td>tinea corporis</td>
<td>2.8</td>
</tr>
<tr>
<td>11</td>
<td>atopic dermatitis</td>
<td>2.3</td>
</tr>
<tr>
<td>12</td>
<td>dermatitis, not otherwise specified</td>
<td>2.0</td>
</tr>
<tr>
<td>13</td>
<td>tinea capitis</td>
<td>1.9</td>
</tr>
<tr>
<td>14</td>
<td>diaper dermatitis</td>
<td>1.7</td>
</tr>
<tr>
<td>15</td>
<td>rash, etiology unknown</td>
<td>1.7</td>
</tr>
<tr>
<td>16</td>
<td>insect bite</td>
<td>1.4</td>
</tr>
<tr>
<td>17</td>
<td>impetigo</td>
<td>1.2</td>
</tr>
<tr>
<td>18</td>
<td>allergic rhinitis</td>
<td>1.2</td>
</tr>
<tr>
<td>19</td>
<td>cerumen impaction</td>
<td>1.1</td>
</tr>
<tr>
<td>20</td>
<td>cellulitis</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>all other</td>
<td>16.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0</td>
</tr>
</tbody>
</table>

\(^{A}\) includes all diagnoses comprising 0.9% of the total or greater.
### Table 3. Distribution of Telemedicine Visits by Key Resource Requirement

<table>
<thead>
<tr>
<th>Resource Requirements</th>
<th>Total</th>
<th>Column %</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ear exam&lt;sup&gt;A&lt;/sup&gt;</td>
<td>4313</td>
<td>31.8</td>
<td>31.8</td>
</tr>
<tr>
<td>Other upper respiratory exam</td>
<td>4265</td>
<td>31.5</td>
<td>63.3</td>
</tr>
<tr>
<td>Skin, scalp exam</td>
<td>2775</td>
<td>20.5</td>
<td>83.7</td>
</tr>
<tr>
<td>Eye exam&lt;sup&gt;B&lt;/sup&gt;</td>
<td>1560</td>
<td>11.5</td>
<td>95.2</td>
</tr>
<tr>
<td>Lower respiratory exam&lt;sup&gt;C&lt;/sup&gt;</td>
<td>341</td>
<td>2.5</td>
<td>97.7</td>
</tr>
<tr>
<td>Hands-on exam&lt;sup&gt;D&lt;/sup&gt;</td>
<td>218</td>
<td>1.6</td>
<td>99.4</td>
</tr>
<tr>
<td>Behavioral evaluation</td>
<td>68</td>
<td>0.5</td>
<td>99.9</td>
</tr>
<tr>
<td>Technology not in model</td>
<td>11</td>
<td>0.1</td>
<td>99.9</td>
</tr>
<tr>
<td>Subspecialist evaluation</td>
<td>7</td>
<td>0.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Specialized history&lt;sup&gt;E&lt;/sup&gt;</td>
<td>2</td>
<td>0.0</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>13560</td>
<td></td>
<td>100.0</td>
</tr>
</tbody>
</table>

---

<sup>A</sup> Often requiring cerumen removal.

<sup>B</sup> Excluding retinal exam.

<sup>C</sup> Auscultation of lungs.

<sup>D</sup> May require clinician to palpate, manipulate, or perform neurologic exam.

<sup>E</sup> Such as evaluation for child abuse or neglect.

<sup>F</sup> Ten diagnoses accounted for 75.8% of these 306 (diarrhea/gastroenteritis, laceration, attention deficit disorder, adjustment reaction, headache, abdominal pain, medication reaction, fussy infant/toddler, sebaceous cyst, allergic reaction).
Usefulness Is Determined by Capacity to Acquire Information that Meets Requirements for Information

Level 9: Major Medical Center
Level 5: Primary Care Office
Level 4: Information Rich
Level 3: Videoconference
Level 2: Telemed
Level 1: Text only

Scope and quality of information required for:
1. Patient and provider engagement
2. Diagnosis and management decisions

Traditional Services

Telemed Models

Capacity to acquire and exchange information: Scope and quality

Avoidable expense

Value Zone (Zone of efficiency)

Avoidable risk

Abundant Capacity

Abundant Requirements

Scope and quality of information required for:
1. Patient and provider engagement
2. Diagnosis and management decisions
Why is Real-Time Video Interaction Important?

• Much of the time, the most valuable service you offer as a clinician is reassurance.

• Capacity to reassure depends on trust.

• Trust in diagnostic decisions and treatment recommendations is strongly influenced by communication skills.

• Critical communication skills qualities include capacity to convey genuine concern and accurate empathy.
Reading the Mind in the Eyes

Playful

Irritated

Comforting

Bored

Playful
Reading the Mind in the Eyes

Distrustful

Aghast  Baffled

Distrustful  Terrified
Reading the Mind in the Eyes

Embarrassed

Guilty

Concerned

Fantasizing

Concerned
The “Reading the Mind in the Eyes” Test Revised Version:
A Study with Normal Adults, and Adults with Asperger Syndrome
Or High-functioning Autism

Simon Baron-Cohen, Sally Wheelright, Jacqueline Hill, Yogini Raste, and Ian Plumb
University of Cambridge, U.K.

Value of Care to the Community

Usual Care

- Child seen 4 hr later, at best
- First med dose 6 hr later

Health-e-Access (Information Rich Telemed)

- Child seen now
- First pain medication now
- First antibiotic ~ 1 hr later
**Usual Care**

- Office, Urgent Care or ED exam room space
- Personnel costs: nurses and med-techs
- Parent misses ½ day of work
- Transportation costs, often ambulance
- Parking cost
- Payment for ED visit $600
- Medication costs
- Provider cost

**Information Rich Telemedicine**

- Little or no cost for patient exam room space
- Patient-end equipment and connectivity
- No incremental cost for provider space and equipment
- Personnel costs: med-tech (telemed assistant) and scheduler
- No transportation or parking cost
- Parent misses no work
- Payment for telemed visit ($90)
- Medication costs (equal)
- Provider cost (equal or less)
Value (Bang for Buck): Societal Perspective

Telemedicine >> Usual Care
Is this a patient-oriented care system of care?

- **Dominant Insurer** is working with **Video-Only Inc. #1** to achieve consistency among insurer affiliates nationwide.
- The goal is to reduce both the emergency department and urgent care visits.
- Insurer believes the prime sites for patients using the system will be home and work. Insurer is "agnostic" to site. Work site availability of telemedicine is very important to local employers.
- Consumer focus groups conducted by the insurer indicates that patients want their own doctors to be participating. Video-Only #1 will, however, have a backup virtual network that can be accessed by Insurer’s patients if the patient's own physician does not sign up.
Video-Only #1 efforts are also targeted towards minor acute illness.

Major Insurer believes that most local physicians will participate.

Major Insurer stresses that in the Kaiser system there are more virtual than face-to-face visits (well, in dermatology anyway).

Major supermarket chain (whose pharmacy is a major profit center) has formed an alliance with Video-Only Inc. #2

Major medical center (same community) has been approached by major supermarket chain
To be determined …

• Will technology components be “enriched” to meet information requirements beyond those of video interaction?
• Who staffs access sites, and what is the organizational architecture?
• Is service exclusive to patients of participating provider organizations?
• Will all insurance organizations pay for telemed visits?
• What sites will be used as access points?
Is this payer promoting telemedicine?

Important Information for Our Health Care Provider Partners

TO: Physicians, Health Care Practitioners, Facilities and Hospitals
DATE: April 29, 2016
SUBJECT: Telemedicine Coverage Mandate and Use of Modifiers GT and GQ

Modifiers:

- GT (via interactive audio and video telecommunications system); and
- GQ ("Store and Forward Technology," which is "Asynchronous" electronic transmission of a patient’s health information in the form of patient-specific digital images and/or prerecorded videos from a provider at an originating site to a telemedicine provider at a distant site.)

Effective August 1, 2016, covered services reported with modifiers “GT” or “GQ” will be reimbursed at 50 percent of the rate payable when these services are performed on a face-to-face basis for all programs, except Medicare Advantage.
Why isn’t everyone using it in primary care?

“… even though it could save money, that's not what's happening. It tends to be an addition. You do the telemedicine; it leads to more tests. It leads to more follow-up visits”

“… when you look at the data, it turns out that telemedicine overall is not necessarily a big cost saver."
Disruptive Innovations* and Their Dissemination

4 Elements

- Technology that simplifies – IT
- Value network - All dominant stakeholders must have a piece of the action = “economically coherent” (When herding cats move their food.)
- Low-cost business model
- Standards
  ✓ clinical guidelines
  ✓ regulations

* Joseph Schumpeter

Implementation and Dissemination in Primary Care Practice

• Understand state-specific regulations
• Identify a HIPAA-compliant technology platform
• Identify access sites – office hours, after hours
• Articulate phone triage guidelines – what parent concerns are appropriate for telemedicine?
• Establish appropriate financing
• Promote to patients - process, payment
STAY HOME.
STAY SAFE.
TRY TELEMEDICINE FIRST!
Kenneth M. McConnochie, MD, MPH
University of Rochester Medical Center
kmccconnoc@gmail.com
How to Submit a Question

• At any time during the presentation, type your question into the “Q&A” section of your WebEx Q&A panel.

• Please address your questions to “All Panelists” in the drop-down menu.

• Select “Send” to submit your question to the moderator.

• Questions will be read aloud by the moderator.
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