Northwest Regional Telehealth Resource Center
and the Telehealth Alliance of Oregon

Welcome You

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Pacific Northwest University of Health Sciences
University of Utah Health Clinical Neuroscience
VIRTUAL SESSION INSTRUCTIONS

• Audio and video are muted for all participants
• Use the Q&A feature to ask questions
• Moderator will read questions to the speaker
• Presentation slides are posted at https://nrtrc.org/sessions. Recordings will be posted after the conference.
Added Cost or Value Add?: Exploring the financial impact of a discounted, direct-to-consumer telehealth program

• Moderator: Matt McCullough
• Presenter:
  – Tim Lovell, Director, Telehealth Operations, Intermountain Healthcare
Virtual Visits: Added Cost or Value Add?

In an Integrated Health System

Tim Lovell, MBA
Operations Director, Connect Care

Intermountain Healthcare
Healing for Life®
Intermountain Scope & Stewardship

>200 Clinics (UT / NV)
9 States, 40+ sites
23 Hospitals
+1 Virtual Hospital

39,800 Caregivers
(includes Nevada)
900,000+ SelectHealth Members
$250M Financial Assistance

30+ Acute Care Services
>800,000 telehealth Interactions
10 Out-Patient / DTC Services

>800,000 telehealth Interactions
### Telehealth at Intermountain

#### Acute Care Services (24/7)

**Critical Care Services**
- ICU patient management
- 170 beds monitored daily

**Hospitalist Services**
- MedSurg, Nocturnal, Post Acute Care

**Hybrid Services**
- Critical Care and Hospitalist model

**Medical Oncology**
- Care planning, treatment and management

**Crisis Care Services**
- Emergency Behavioural Health

#### Neuro Stroke
- Real time evals and tPA recommendations
- Over 5,000 consults

#### Neuro Consults
- On-demand, in-patient consults
- Post stroke / ICU care management

#### Infectious Disease
- Asynchronous and Synchronous
- On-demand, out / in-patient consults

#### Antibiotics Stewardship Program
- Review and management of program

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### Pediatric Trauma
- ER Trauma consults

### Newborn Critical Care
- Newborn emergency consults

### Craniofacial Consults
- Integrated Staffing with multiple specialties: Plastic Surgeon, Otolaryngology, Craniofacial Orthodontics, Speech Therapy, Social Work, Nursing and Audiology

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### Acute Care, Pediatrics

### Pediatric Trauma
- ER Trauma consults

### Newborn Critical Care
- Newborn emergency consults

### Craniofacial Consults
- Integrated Staffing with multiple specialties: Plastic Surgeon, Otolaryngology, Craniofacial Orthodontics, Speech Therapy, Social Work, Nursing and Audiology

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## Telehealth at Intermountain

<table>
<thead>
<tr>
<th>DIRECT TO CONSUMER</th>
<th>DIRECT TO CONSUMER</th>
<th>DIRECT TO CONSUMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect Care Urgent Care</td>
<td>Scheduled Video Visits</td>
<td>SPECIALTY CONSULT (2020 / 2021)</td>
</tr>
<tr>
<td>• Low acuity care management</td>
<td>• Scheduled follow up consults</td>
<td>Neurology Consults</td>
</tr>
<tr>
<td>• Largest System Urgent Care ~55K visits in 2020</td>
<td>• Primary Care and Specialty Care</td>
<td>• Low Back Pain and Migraine Headache management</td>
</tr>
<tr>
<td>• On-demand 24 x 365</td>
<td>• EAP Service and Workman Comp</td>
<td>Endocrinology Consults</td>
</tr>
<tr>
<td>• $59 price point</td>
<td>• Visits integrated with iCentra EMR</td>
<td>• Standardize A1c management</td>
</tr>
<tr>
<td>• APP staffed</td>
<td></td>
<td>Rheumatology Consults</td>
</tr>
<tr>
<td>• Nationwide coverage</td>
<td></td>
<td>• Reduce inappropriate pharmacy spend</td>
</tr>
<tr>
<td>• Integrated Amwell and Cerner platforms</td>
<td></td>
<td>• Nephrology Consults</td>
</tr>
<tr>
<td>• Local Rapid Strep and COVID-19 testing</td>
<td></td>
<td>• Home care management</td>
</tr>
</tbody>
</table>

### Remote Patient Monitoring
- Hospital charged and readmission prevention

### Post Acute
- Skilled Nursing Facility after hours follow ups

### Scheduled Video Visits
- Scheduled follow up consults
- Primary Care and Specialty Care
- EAP Service and Workman Comp
What I'll Cover Today:

1. Virtual Visit Claims Study
2. Model For Defining Virtual Visit Value
Acknowledgements

Jordan Albritton, PhD, MPH, Statistics and Research
William Daines, MD – Medical Director
Cheryl Ledward, MBA, MTech - Project management
Doug Elmer, FSA, MAAA, SelectHealth – Claims data and analysis
Conrad Daley, SelectHealth, – Claims data and analysis
Tammy Christiansen, Intermountain – BI
Claims Value Study

Virtual vs traditional care settings for low-acuity urgent conditions: An economic analysis of cost and utilization using claims data

2019 July publication in Journal of Telemedicine and Telecare
Background

- Little research on online urgent care or ‘virtual care’ (VC) visits.
- Mixed results on impact to overall cost of care.\textsuperscript{1,2}
- Motivation: retrospective claims study by Gordon, et al (2017).\textsuperscript{1}
- Conduct similar study with unique perspective of an integrated health system.

Methods

• Episode defined as an index visit with no claims in preceding 21 days and included all claims ≤21 days after index visit.

• Outcomes
  o Total cost of episode (includes visits, Rx, labs, and imaging)
  o Follow-up rate
  o Utilization rate for labs, imaging, and antibiotics

• Analytic methods
  o Total cost of episode: generalized linear model with gamma distribution and log link
  o Follow-up and utilization rate: generalized linear model with binomial distribution and logit link

• Aggregated patient survey responses from VC for analysis of projected savings and added costs.
Sample Selection

• 1531 Virtual Care visits
  o Matched 1:3 with UC, PCP, and ED visits

Inclusion Criteria:
• 10 diagnoses of interest
• Deyo-Charlson score <=2
• No visit in previous 21 days
• Age <65

SelectHealth Completed VC Visits (Apr 1, 2016-Mar 31, 2017):
4,063

VC visits meeting inclusion criteria:
1,531

UC, PCP, ED visits meeting inclusion criteria (Apr 1, 2016-Mar 31, 2017):
• 45,344 UC
• 126,932 PCP
• 9,046 ED

Matched visits from UC, PCP, ED:
• 4,377 UC
• 4,388 PCP
• 2,285 ED

Final Sample
Limitations

• Results apply only to patients that met our inclusion criteria
• Only patients insured by SelectHealth.
• Unable to complete 3:1 match for ED.
• Unable to completely control for acuity.
• Insufficiently powered to show significance in Dx comparisons.
Sample Characteristics

• Demographics
  o Similar distribution for gender and pediatric (age <18) versus adult (age 18-65) across care settings.

• Comorbidities
  o Similar rates of DM, hypertension, CHF, COPD, and asthma across care settings.

• Diagnoses
  o Similar rates for VC, UC, PCP.
  o ED rates different than VC.
  o For VC bronchitis, conjunctivitis, URI, and UTI constitute 84% of all visits.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>VC (N=1531)</th>
<th>UC (N=4377)</th>
<th>PCP (N=4388)</th>
<th>ED (N=2285)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronchitis</td>
<td>3.6%</td>
<td>3.7%</td>
<td>3.7%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Conjunctivitis</td>
<td>17.0%</td>
<td>17.1%</td>
<td>17.1%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Cough</td>
<td>1.5%</td>
<td>1.6%</td>
<td>1.5%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Dermatitis / eczema</td>
<td>2.5%</td>
<td>2.4%</td>
<td>2.5%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Digestive symptoms</td>
<td>1.7%</td>
<td>1.8%</td>
<td>1.8%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Ear pain</td>
<td>2.1%</td>
<td>2.2%</td>
<td>2.2%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Influenza / pneumonia</td>
<td>4.6%</td>
<td>4.8%</td>
<td>4.8%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Sinusitis</td>
<td>39.7%</td>
<td>39.0%</td>
<td>39.1%</td>
<td>9.5%</td>
</tr>
<tr>
<td>URI</td>
<td>12.8%</td>
<td>13.2%</td>
<td>13.2%</td>
<td>24.9%</td>
</tr>
<tr>
<td>UTI</td>
<td>14.5%</td>
<td>14.2%</td>
<td>14.2%</td>
<td>25.4%</td>
</tr>
</tbody>
</table>
## 21 Day Follow-up Rates

<table>
<thead>
<tr>
<th></th>
<th>VC (N=1531)</th>
<th>UC (^1) (N=4377)</th>
<th>PCP (^1) (N=4388)</th>
<th>ED (^1) (N=2285)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any follow-up medical visit</td>
<td>35.3%</td>
<td>35.6%</td>
<td>35.7%</td>
<td>73.0%***</td>
</tr>
<tr>
<td>Evaluation &amp; Management</td>
<td>26.6%</td>
<td>24.5%</td>
<td>22.6%***</td>
<td>39.8%***</td>
</tr>
<tr>
<td>Emergency Department</td>
<td>1.8%</td>
<td>2.3%</td>
<td>2.6%</td>
<td>9.7%***</td>
</tr>
<tr>
<td>Inpatient</td>
<td>0.4%</td>
<td>0.6%</td>
<td>0.7%</td>
<td>2.6%*</td>
</tr>
</tbody>
</table>

1 UC, PCP, and ED visits adjusted for VC distribution of comorbidities, age, sex, and diagnosis
Significance compared to VC: *p<.05; **p<.01; ***p<.001
# Lab, Imaging, and Antibiotic Use

<table>
<thead>
<tr>
<th></th>
<th>VC (N=1531)</th>
<th>UC ¹ (N=4377)</th>
<th>PCP ¹ (N=4388)</th>
<th>ED ¹ (N=2285)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outpatient lab use, 21-day</strong></td>
<td>9.0%</td>
<td>27.5%***</td>
<td>25.7%***</td>
<td>11.5%*</td>
</tr>
<tr>
<td><strong>Imaging, 21-day</strong></td>
<td>3.9%</td>
<td>7.2%***</td>
<td>5.5%*</td>
<td>27.8%***</td>
</tr>
<tr>
<td><strong>Antibiotic Rx Claim, 3-day</strong></td>
<td>69.8%</td>
<td>70.0%</td>
<td>69.8%</td>
<td>62.3%***</td>
</tr>
</tbody>
</table>

¹ UC, PCP, and ED visits adjusted for VC distribution of comorbidities, age, sex, and diagnosis
Significance compared to VC: *p<.05; **p<.01; ***p<.001
## Cost Analysis

<table>
<thead>
<tr>
<th></th>
<th>VC (N=1531)</th>
<th>UC¹ (N=4377)</th>
<th>PCP¹ (N=4388)</th>
<th>ED¹ (N=2285)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Index Cost</strong></td>
<td>$45</td>
<td>$136***</td>
<td>$114***</td>
<td>$1384***</td>
</tr>
<tr>
<td><strong>Pharmacy Cost</strong></td>
<td>$111</td>
<td>$114</td>
<td>$117</td>
<td>$153*</td>
</tr>
<tr>
<td><strong>Follow-up Cost</strong></td>
<td>$288</td>
<td>$413</td>
<td>$490*</td>
<td>$1782***</td>
</tr>
<tr>
<td><strong>Total Cost</strong></td>
<td>$429</td>
<td>$661***</td>
<td>$707**</td>
<td>$3403***</td>
</tr>
</tbody>
</table>

¹ UC, PCP, and ED visits adjusted for VC distribution of comorbidities, age, sex, and diagnosis
Significance compared to VC: *p<.05; ** p<.01; *** p<.001
Cost Analysis by Diagnosis

Average Total Claims Cost Per Episode by Venue - Top 4 VC Diagnosis

- Sinusitis
- Conjunctivitis
- UTI
- URI

Legend:
- VC
- UC
- PCP
- ED
Discussion

- Significantly lower cost for VC vs all other care venues.
- Reaffirms results from Gordon et al, 2017 for an integrated health system.
- Higher total cost in non-VC venues is driven by cost of index visit and follow up care cost.
- Treatment of common VC conditions in EDs represent substantially higher costs for both system and patient.
- No significant difference in overall follow up rates between VC, UC, and PCP.
- No significant difference in antibiotic claim rates between VC, UC, and PCP.
Virtual Visit Value – Implications for an Integrated System

• Directing of patients with applicable conditions to virtual care...
  o can lower overall health plan cost.
  o is not associated with higher rates of antibiotic claims or follow-up care.

• Health plan savings should be considered as part of overall value proposition to the integrated health system.
Defining the Value of Virtual Visits

Claims Cost Reduction

+ 

Patient Value

+ 

System Value

= 

Overall Value
Demonstrating SelectHealth Value

Total Treatment Costs
(initial visit and all care costs within 21 days)

- Virtual Visit
- PCP
- Urgent Care
- ED

$0 $1,500 $3,000 $4,500

Redirect Patient Survey Response
(post Visit)

- 58%
- 25%
- 11%
- 4%

ED
Urgent Care
PCP
Virtual Visit

Done Nothing

2019

- SelectHealth Savings Per Claim: $258
- SelectHealth Connect Care Claims: 15,342
- Total SelectHealth Savings: $3.31 MM

Total Treatment Costs

- ED
- Urgent Care
- PCP
- Virtual Visit

- Emergency Department
- Urgent Care
- PCP
- Done Nothing
Demonstrating Patient Value

<table>
<thead>
<tr>
<th></th>
<th>Per Visit</th>
<th>$ Savings Per Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced Time Waiting and Traveling</td>
<td>43.5 minutes</td>
<td>$16.63¹</td>
</tr>
<tr>
<td>Reduced Travel</td>
<td>14.2 miles</td>
<td>$8.24²</td>
</tr>
<tr>
<td>Reduced Visit Cost</td>
<td></td>
<td>$127</td>
</tr>
<tr>
<td>Total Patient Savings</td>
<td></td>
<td><strong>$151.87</strong></td>
</tr>
</tbody>
</table>

$5.7M
Patient Savings in first 4 years

1. Based on Media Hourly Wage of $17.14 for Utah workers: [https://www.bls.gov/oes/2017/may/oes_ut.htm#00-0000](https://www.bls.gov/oes/2017/may/oes_ut.htm#00-0000)
Integrated System Value

Total Value
Less Operating and Marketing Expenses
Net Value: $3.3MM (2019)

- 26,325 Billed Visits
- $126 / Billed visit

For Patients not seen in prior 3 years, system visit revenue post the virtual visit for the next year.

Health Plan Claim Savings
Health plan portion of per visit claims savings

Budget Contribution Margin
Revenue - expenses for VC
Thank You.

Questions?

Contact me at Tim.lovell@imail.org