Expanding Pediatric Care with Telemedicine

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Live tweet - #telehealth2016
Disclosures

I have no financial relationships or conflicts of interest to disclose
Goals of this presentation...

• We are all members of the choir....
• Share opportunities from our Pediatric Telehealth Program...
• UC Davis Telemedicine
  >40,000 Total
  > 6,000 Pediatric

• >85 sites/year (of 125 sites)

• Pediatric Telehealth recognized as “Strategic Priority”
Applications in Pediatrics

- Outpatient consultations
- Inpatient & ICU consultations
- ED-Trauma consultations
- Procedure-Study interpretation (Echo, EEG)
- Home monitoring (DM, Asthma, CHF)
- International medicine
- Chronic care facilities
- Palliative care & Hospice
- School & daycare centers
UC Davis Pediatric Telemedicine

18 Clinical Services

- Cardiology (Inpatient)
- Cardiology (Outpatient)
- Critical Care
- Dermatology - Store and Forward
- Emergency Medicine
- Endocrinology
- Gastroenterology
- Genomic Medicine
- Hematology/Oncology
- Infectious Disease
- Nephrology
- Neurology
- Neuromuscular Disease Medicine
- Otolaryngology Cleft and Craniofacial
- Psychology - Medical Health and Behavior
- Psychiatry - Mental Health and Evaluations
- Pulmonary

Additional Services

- Behavior pediatrics (PCIT)
- Tele-audiology (audiologists)
- Cleft lip/palate – lactation
- PM&R – PT/OT/SLP
- Family Link and Tele-Baby
Outpatient Telemedicine

• Patient & Provider centered
  – 4 Rooms - 3 Staff in clinic
  – All use referral guidelines

• Outreach Team
  – Contracted vs FFS
  – Implementation team

• Opportunities
  – Referral process
Inpatient Telemedicine

- Inpatient wards
  - Seven pediatric subspecialty groups
- Newborn Nurseries and NICU
  - PEANUT: Pediatric Emergency Assistance to Newborns Using Telemedicine
  - Six pediatric subspecialty groups
- Variety of Contracted Service
# PEANUT: Nursery - NICU

## Peanut Program Map

<table>
<thead>
<tr>
<th>List of Peanut Intervention and Control Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 views</td>
</tr>
<tr>
<td>SHARE</td>
</tr>
</tbody>
</table>

- Colusa Regional Medical Center
- Barton Memorial Hospital
- Sonora Regional Medical Center
- Oroville Hospital
- Ukiah Valley Medical Center
- Marshall Medical Center
- Lodi Memorial Hospital
- Plumas District Hospital
- UC Davis Medical Center
- St. Helena Clearlake Hospital
- Feather River Hospital
- Tahoe Forest Hospital
- St. Elizabeth Community Hospital

![Map of Peanut Program Sites](image-url)
NICU Telemedicine
Pediatric Tele-Emergency

• Began in 2000
• 32 sites – Largest in USA
• Integrated into process flows
• >400 consults to date
• Our docs WANT TO USE IT
Impact of Telemedicine Consultations

• Parent Satisfaction

![Parent Satisfaction Chart]

• Impact On Care

![Impact On Care Chart]
Impact of Telemedicine Consultations

• Quality of Care

• Medication Errors


Impact of Telemedicine Consultations

• More appropriate admission versus discharge
  –10-20% fewer transports using telemedicine
  –Reduced Observed to Expected Admission Ratios

• Lower costs of care
  –cost reduction of $4,662 per child/ED/year


Example...
Importance of Receiving Care in Local Community

The graph shows the percentage of respondents who find receiving care in their local community extremely important, important, and not important. The categories are shaded in gray, orange, and yellow, respectively. The graph indicates that RNs, RTs, Parents, and Referring Physicians have varying opinions on the importance of receiving care in their local community.
UC Davis Pediatric Telemedicine Program

Additional Services

• Behavior pediatrics (PCIT-MIND)
• Tele-audiology (audiologists)
• Cleft lip/palate – lactation
• PM&R – PT/OT/SLP
• Family Link and Tele-Baby
Parent Child Interaction Therapy

- 34 of 58 counties in CA
- 6 States in USA
- 4 Countries outside USA
- 50% of training done over telemedicine
Tele-Audiology Services

• Northern California:
  – 2012: ~20% LTFU
  – 2014: 0% LTFU

• Appointments:
  – External exam; Video otoscopy; Immittance; Tympanometry; Middle ear muscle reflexes; DPOAEs; ABR; and ASSR
Case Conferences

- Outpatient medical teams (cancer)
- Inpatient medical teams (cardiology)
- Primary Care Network – Mental Health
School Based Telehealth

• Telehealth Assistants at the school or child care center
• >40 Sites
  – Primary care offices
  – Child care centers
  – Elementary schools
  – Group homes
• >14,000 visits
23% fewer ED visits
Remote Patient Monitoring

- 25% of population = 75% of costs
- Children with special healthcare needs
  - Cyanotic CHD, DM, Asthma
  - Home ventilation
  - Palliative care
Telehealth: The Good...

POLICY STATEMENT Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of all Children

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

The Use of Telemedicine to Address Access and Physician Workforce Shortages

COMMITTEE ON PEDIATRIC WORKFORCE
Revenue for the Children’s Hospital

• Pre-Post Children’s Hospital Analysis:
  – Hospital-Physician payments: 16 hospitals (2003-10)
• 2,029 children transferred
  – 143 pre-telemedicine/year
  – 285 post-telemedicine/year
• Mean hospital revenue: $2.4 million to $4.0 million/yr
• Mean professional revenue: $313,977 to $688,443/yr
• Following telemedicine
  – Hospital revenue increased $101,744/year
  – Professional billing revenue increased $23,404/year
Barriers to Realizing Benefits

• Regulations
  – Hospital credentials-privileging
• Busy physicians-nurses
• Engaging the physicians
• Engaging the consumers
Barriers to Realizing Benefits

• Aligning investments with savings
  – Volume Based $\rightarrow$ Value Based
  – Who is saving the money?
  – Funding the equipment, telecommunications, personnel
Direct to Consumer Telemedicine
It’s all about cost savings...

<table>
<thead>
<tr>
<th>Insurance Provider</th>
<th>Online Doctor Consultation Vendor</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnitedHealthcare</td>
<td>Dr. On Demand &amp; AmWell</td>
</tr>
<tr>
<td>Anthem</td>
<td>Live Health (AmWell Platform)</td>
</tr>
<tr>
<td>Aetna</td>
<td>Teladoc</td>
</tr>
<tr>
<td>Cigna</td>
<td>MDLive</td>
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<tr>
<td>Medical Mutual</td>
<td>Teladoc</td>
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</table>
Is this “good” care?

• Medical Home
• Physician patient relationship
• Access to medical record
• Limited physical exam
• No diagnostic testing
• Quality & Safety
• Most records not delivered to PCP
Is this “fair” care?

• Addressing disparities?
  – Privately insured, employer based plans
  – Significant co-pay
• Equal payment to PCPs
• Increased utilization?
Is this “quality” care?

• Data is limited...
• UTI Symptoms
  – N=99 eVisits
  – N=2,855 PCP
• eVisit Cost: $74
• Office Cost: $93
Is this “quality” care?

• CalPERs data—HEIDIS measures
  – Avoiding antibiotics for acute bronchitis
    – 28% in person versus 17% of eVisits (p<0.01)
  – Avoiding imaging for low back pain
    – 79% in person versus 88% of eVisits (NS)
  – Testing for uncomplicated acute pharyngitis
    – 50% in person versus 3% of eVisits (p<0.01)
What I Hope Was Helpful...

• Opportunities to improve existing models
• Not just for physicians
• Often a great business model
• Barriers remain
• DTC - Consumers demanding it
• Threats to the medical home
😊 THANK YOU 😊

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