Delivery of Obstetric Telemedicine Services

Terry Harper, MD
Division Chief
Maternal Fetal Medicine
University of Colorado

Acknowledgements: Dr Bettina Cuneo, Children’s Hospital Colorado and Dr Curtis Lowery, University of Arkansas

1

WHAT IS TELEMEDICINE? 
The use of electronic information and telecommunications technology to support the delivery of health

Telemedicine is a remote clinical services, telehealth is delivery of remote non-clinical services (CME, provider training) etc

2

COMMON USES OF TELEMEDICINE
Bridging the distance for rural areas far from centers of excellence

- Mental health consults
- Home monitoring of blood pressure, blood glucoses
- Retinopathy screening for diabetes
- Teledermatology
- Otoscope that connects to iPhone
- Telepathology
- Telestroke programs
- Teleradiology
- MFM consult and High risk ultrasound services

3
LESS COMMON USES!!!!

GOALS OF PRACTICES START TELEMEDICINE

- Increased access for patients
- Increased markets for providers
- Reduced costs
- Improved health outcomes
- Improve patient satisfaction
- Improve provider satisfaction

Are you the hub or the spoke or both?!

HOW IS TELEMEDICINE DELIVERED?

- MFM Consult with Ultrasound
- OB Providers/ MFM
- MFM Remote Ob Ultrasound reads
- Appointment reminders, behavioral reminders
USES IN OBGYN

- mHealth
- Excessive weight gain prevention
- Preterm labor home monitoring
- Preeclampsia home monitoring
- Diabetes blood glucose monitoring
- Obstetrical ultrasound and MFM consultative services
- Postpartum Visits—Mood disorder screen, Breastfeeding support

IMAGING SERVICES FROM A DISTANCE

<table>
<thead>
<tr>
<th>Store and Forward</th>
<th>Live and Real-time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any ultrasound machine, designated location with experienced sonographer</td>
<td>Any ultrasound machine, designated location with experienced sonographer</td>
</tr>
<tr>
<td>Anatomic survey with suspected abnormality</td>
<td>Anatomic survey with suspected abnormality</td>
</tr>
<tr>
<td>Physician reviews at convenient time for MD</td>
<td>Physician reviews at time of visit</td>
</tr>
<tr>
<td>Direct interaction with sonographer and patient; if images are not of diagnostic quality, patient has to return</td>
<td>Direct interaction with sonographer and patient, scanning done under supervision of physician, diagnosis and consult at time of visit</td>
</tr>
<tr>
<td>Hours to days between study and diagnosis/management</td>
<td>Real time diagnosis and management</td>
</tr>
<tr>
<td>Giving bad news remotely (or by referring provider)</td>
<td>Giving bad news by specialist “in person”</td>
</tr>
<tr>
<td>Can bill for ultrasound read but not consult</td>
<td>Can bill for read and consult</td>
</tr>
<tr>
<td>Equipment cost minimal</td>
<td>Equipment cost decreasing but currently additional cost to site</td>
</tr>
</tbody>
</table>

DENVER TO GRAND JUNCTION: ONE EXAMPLE OF TELEMEDICINE
### VIDEO OF FETAL ECHO
TELEMED APPOINTMENT

### CHALLENGES

- Reimbursement (prior auths occasionally required - Aetna)
- Technology infrastructure and support
- Providers must be licensed in the state where the patient is receiving care
- Patient and provider acceptance
- Malpractice coverage
- Medical records/documentation

### REIMBURSEMENT

<table>
<thead>
<tr>
<th>Test</th>
<th>Equipment</th>
<th>Name</th>
<th>ICN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wand</td>
<td>Ultrasound imaging machine</td>
<td>12345</td>
<td>98765</td>
</tr>
<tr>
<td>Cables</td>
<td>Ultrasound imaging device</td>
<td>23456</td>
<td>65432</td>
</tr>
<tr>
<td>Screen</td>
<td>Ultrasound imaging monitor</td>
<td>34567</td>
<td>76543</td>
</tr>
</tbody>
</table>

A complete list and details of all equipment and ICNs are included in the medical records/documentation.
PATIENT SATISFACTION

- 2019 metaanalysis reviewed 36 studies from many specialties
- System experience: High levels of satisfaction
- Information sharing: Confidence in communication and confidentiality
- Patient centered professional and emotional support was high
- Overall satisfaction: 81\% by participants
The Bottom Line
The average price of regular and premium gas in Denver, CO is $2.38 & $2.07/gallon ([www.pumppriceswatch.com](http://www.pumppriceswatch.com)).

Average cost per mile: $0.50 (gas) + $0.25 (toll) + $0.10 (parking) = $0.85/mile.

- Total cost: $85/mile 
- 250 miles: $21,250


Average cost per mile for lost wages: $1,515 ($1,515 - $1,515).

Total cost: $21,250 + $1,515 + $1,515 = $23,380.

The Real Value of Telemedicine
- Drive > 500 miles round trip with your (darling) kids (“are we there yet?”)
  - $100-150 + gas
  - $150-200 hotel
  - $120-150 on food
- Cross Vail Pass twice in the snow
- Drive the big city with all that traffic

Get the same information in one hour without leaving town? Priceless!

Mastercard
([www.mastercard.com](http://www.mastercard.com))
HOW TO START A PROGRAM?

Here are some questions you can answer to assist with program implementation:

1. What problem are you trying to solve with a telemedicine project or program?
2. What is the scope of the project or program?
3. What is the duration of the project or program?
4. What is the timeline for the project or program?
5. What is the target audience for the project or program?
6. What is the goal of the project or program?
7. What is the budget for the project or program?
8. What is the expected impact of the project or program?
9. What is the timeline for the project or program?
10. What is the expected return on investment for the project or program?

REFERENCES