Real Time Robotic Assisted Telemedicine Surgical Collaboration Between Ukraine and the US.

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Disclosures

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• Software generously donated for the project by

  InTouch Health, Santa Barbara CA
  www.intouchhealth.com
Introduction

• Surgical collaboration is essential to learning.
• Visiting is interactive by time consuming and expensive.
• Recorded video is efficient by not interactive.

8 hour time difference
5500 miles, 9000 km
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Purpose

• Report our initial experience using high definition robotic camera system to provide real time remote surgical collaboration among experienced surgeons.
Methods

• Long standing relationship had been established between the Kharkiv Ukraine (Sytenko Institute Spine and Joint Pathology) and Children’s Mercy Hospital spine team.
• All SRS members.
• CMH has established telemedicine program with remote robotic camera capability
• RP-Vantage system (InTouch Health, Santa Barbara CA www.intouchhealth.com)
Remote surgeon controls in real time Room camera and boom camera

Gives full view of surgical site and room

Can do S video plug-ins.
Remote Site Screen View
Looking at Camera in Mirror
Boom Camera View.
This is what remote surgeon controls and sees
Centering boom camera near patient
Zoom in with red curser
S Video View of TEE
Results

- 5 cases summer 2014.
- 8 hour time difference. Case starting 0830 in Kansas City is viewed at 16:30 in Kharkiv.
<table>
<thead>
<tr>
<th>Age</th>
<th>Diagnosis</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 ym</td>
<td>Basilar invagination, C1 stenosis, deformity</td>
<td>Decompression, Occiput C4 PSFI</td>
</tr>
<tr>
<td>5 ym</td>
<td>C4 aneurismal bone cyst</td>
<td>Excision. C3-C4 PSFI</td>
</tr>
<tr>
<td>18 ym</td>
<td>Kyphoscoliosisosis, Prune Belly syndrome</td>
<td>PSFI T4 L3</td>
</tr>
<tr>
<td>6ym</td>
<td>EOS idiopathic</td>
<td>HG traction GR Rib1,2,3,4 to L3</td>
</tr>
<tr>
<td>13yf</td>
<td>EOS atypical</td>
<td>Ponte, PSFI T2-L3</td>
</tr>
<tr>
<td>Age</td>
<td>Diagnosis</td>
<td></td>
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<tr>
<td>------</td>
<td>-----------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>6 ym</td>
<td>EOS failed casting and bracing due to distance from hospital</td>
<td></td>
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<tr>
<td>Age</td>
<td>Procedure</td>
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</tr>
<tr>
<td>6 ym</td>
<td>6 weeks HG traction. R2,3,4,5 to L3 GR</td>
<td></td>
</tr>
</tbody>
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A Different Case

View from near the head
View from the side
Boom camera overhead view
Room camera can look around at same time
Movie Clip
Conclusion

• Cost effective, efficient and safe for surgeons to interact and collaborate on surgical cases in real time.
Significance

• Potential for real time interaction among experienced surgeons.

• May be effective for mentoring and proctoring spine surgery remotely from any distance.
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