Innovative Approaches to Urologic Care

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Disclosures

• Consultant, MDxHealth
Innovation in Urology

• Harness technology to take better care of patients
  » Improve patient access
    • Telemedicine (mHealth)
  » Improve training
    • myTIP online evaluation tool
    • Google glass project
    • VR immersion education project
Healthcare is the last “pre-digital” industry
Consumers are demanding better access......

But alternative settings lack continuity of care & compete with local providers

- **Urgent Care Providers**
  - 9,000 urgent care centers

- **Retail Health Clinics**
  - 1,743 retail health clinics

- **Virtual Acute Care Providers**
  - >20 virtual acute care companies

Wouldn’t providers prefer to connect to their own patients?
Mobile Health

- Connectivity is changing finance, education, marketing, and education
  - 2 billion smartphone users worldwide
  - 65% of Americans have smartphones

- Why is healthcare moving to do this?
  - Patients
    - access, convenience
  - Providers
    - increase compliance, improve outcomes
  - Payers
    - Improve population health, reduce ER visits
Mobile Health

• **Concerns**
  » HIPAA
  » Fragmentation of care
  » Incomplete evaluation

• **Solutions**
  » NC Medical Board policy
    • Recognizes improved access, decreased cost
    • Need to properly identify pt and location
    • Can prescribe medication (not controlled ones)
    • Same standard of care as in-person
Mobile Health

- AMA and BCBS NC have policies
  - [https://www.bcbsnc.com/assets/services/public/pdfs/medicalpolicy/evisits_online_medical_evaluation.pdf](https://www.bcbsnc.com/assets/services/public/pdfs/medicalpolicy/evisits_online_medical_evaluation.pdf)
  - HIPAA compliance
  - Established relationship with patient
  - Not more than 1x/7d
  - Documentation
  - Location (must be in state of licensure)
  - Not for: education, scheduling, refills, reminders, normal test results

- Billing and Coding (~$40)
  - BCBS NC CPT 99444 MD
  - BCBS NC CPT 98969 NP/PA
  - CMS CPT 99490
  - See the website above for details
Mobile Health

- **Established uses**
  - Low acuity illnesses
    - URI, rash, conjunctivitis, constipation etc
  - Follow up
    - Global postop
    - Non-global procedural
    - Chronic illnesses (DM, obesity, asthma, ADHD)
    - Postpartum neonatal check-in
    - Cardiology
  - Education and RN checks (not paid, prob should be)
    - Medication checks
    - Nutrition
Mobile Health

- UNC urology piloting (TouchCare)
  - Global f/u
  - Urolithiasis: 24 hr urine appointment

- UNC ED follow ups
- UNC CHF, obgyn, ortho
- UNC employee health

- Concierge medicine groups
- Pediatric practices

- Much more to come…worth considering how this will become part of your practice
mHealth Numbers

• 100,000 smartphone apps
• Deloitte, Brookings estimate $25B industry by 2017
• 75-100M eHealth visits in US 2014
mHealth Guidelines

• FDA guidelines for app developers (2/9/15)
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Train Better: Technology Enhances Education

• Improve quality and quantity of feedback
  » Residents want it
  » Part of more detailed evaluation needed under new ACGME rules
  » Already using 360, patient, and peer evaluations
  » Now piloting an online tool for real-time feedback after procedures and clinic experiences to track improvements over course of residency
### Surgical Skills: Home

<table>
<thead>
<tr>
<th>Name</th>
<th>Activity</th>
<th>Last Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abram McBride</td>
<td>0 cards</td>
<td>-</td>
</tr>
<tr>
<td>David Johnson</td>
<td>0 cards</td>
<td>-</td>
</tr>
<tr>
<td>Ian Udell</td>
<td>3 cards</td>
<td>5/1/2015</td>
</tr>
<tr>
<td>Jed Ferguson</td>
<td>0 cards</td>
<td>-</td>
</tr>
<tr>
<td>Josip Vukina</td>
<td>1 cards</td>
<td>4/10/2015</td>
</tr>
<tr>
<td>Matt Lyons</td>
<td>3 cards</td>
<td>5/28/2015</td>
</tr>
<tr>
<td>Max McKibben</td>
<td>2 cards</td>
<td>6/4/2015</td>
</tr>
<tr>
<td>Peter Greene</td>
<td>2 cards</td>
<td>4/24/2015</td>
</tr>
<tr>
<td>Raj Kurpad</td>
<td>3 cards</td>
<td>5/7/2015</td>
</tr>
<tr>
<td>Sophie Spencer</td>
<td>4 cards</td>
<td>5/21/2015</td>
</tr>
<tr>
<td>Will Kirby</td>
<td>1 cards</td>
<td>6/2/2015</td>
</tr>
</tbody>
</table>

### Surgical Skills: Procedures

#### Activity Feed

- Botox Injection
- Interstim / Sacral Neuromodulation
- Orchidectomy
- Percutaneous Nephrolithotomy
- PICC Cystogram / Deflux Injection
- Placement of 5-piece Inflatable Penile Prosthesis (IPP)
- Placement of Artificial Urinary Sphincter (AUS)
- Pyeloplasty (Robotic / Lap / Open)
- Radical Cystectomy / Ileal Conduit Formation / Pelvic Lymph Node Dissection
- Radical Orchectomy
- Robotic Assisted Laparoscopic Radical / Partial Nephrectomy
- Robotic Assisted Radical Prostatectomy
- Transurethral Resection / Vaporization of the Prostate
- Transurethral Resection of Bladder Tumor
- Ureteroscopic Stone Extraction
- Urethoplasty
- Urodynamics
- Vasectomy
**surgical skills :: activity feed**

**Robotic Assisted Laparoscopic Radical / Partial Nephrectomy**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Matthew Raynor / Ian Udell</th>
<th>Surgical Skills Evaluation - Apr 21, 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissect Hilum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position the fatty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know when to switch hands pure lap and use instruments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Closing fascia in the fatty</td>
<td></td>
<td></td>
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<tr>
<td>Plane identification</td>
<td></td>
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<tr>
<td>Kidney mobilization and countertraction with non-dominant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switching instruments between hands for upper pole dissection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Eric Wollen / Ian Udell** | Surgical Skills Evaluation - Apr 03, 2015 |

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Overall Resident Self Rating</th>
<th>Overall Faculty Rating</th>
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<tbody>
<tr>
<td>Dissecting kidney</td>
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</table>

**Insights**

<table>
<thead>
<tr>
<th>Port Placement</th>
<th>N</th>
<th>AN</th>
<th>A</th>
<th>C</th>
<th>E</th>
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</thead>
<tbody>
<tr>
<td>Line of Toldt / Colon</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Mobilization of Ureter</td>
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<td></td>
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<tr>
<td>Dissection of hilum</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dissection</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Drain / specimen extraction / closure</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Procedure Level</th>
<th>N</th>
<th>AN</th>
<th>A</th>
<th>C</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self rating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Faculty rating</td>
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</tbody>
</table>
myTIPreport.org

- Facilitates feedback and evaluation
  » Unlimited number of situations, residents, faculty, procedures, and other professional activity
- Rapid adoption underway
  » Will become standard in training
  » Available on desktops
  » Mobile platform/app coming soon
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Google Glass Project

Remember “see one, do one, teach one”? We can train better than that

Initially a learner reads and observes, then performs part of a procedure

Next the learner does the entire procedure with direct supervision a finite number of times

Then the learner does the procedure with increasing amounts of autonomy, with the faculty absent, and logs cases to meet minimum numbers required by the ABU/other governing body

But is the learner competent?

Meaningful assessment of competence that is less obtrusive
Google Glass Project

• **Objective:** Assess learners (PA, NP, residents) in procedural competence after an initial period of training

• **Methods:** Assess competency in prostate biopsy
  » Identify key elements of biopsy
  » RN and learner wear google glass
  » Wall mounted cameras and ultrasound monitor record as well
  » Post processing in computer science department (facial pixelation, voice and gesture recognition, indexing of procedure) generates a series of video segments for each learner (5-10 cases)
  » Faculty review and feedback
# Google Glass Project

## Identify Key Elements of Biopsy

<table>
<thead>
<tr>
<th>Step</th>
<th>ACGME competency or QI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro, handshake, questions</td>
<td>P, ICS, MK</td>
</tr>
<tr>
<td>Positioning</td>
<td>PC, ICS,</td>
</tr>
<tr>
<td>Time out</td>
<td>PS, QI</td>
</tr>
<tr>
<td>PE (DRE)</td>
<td>PC, ICS</td>
</tr>
<tr>
<td>US Probe insertion</td>
<td>PC, ICS</td>
</tr>
<tr>
<td>Placement of local anesthetic</td>
<td>PC, ICS</td>
</tr>
<tr>
<td>US prostate/SV</td>
<td>PC, ICS, MK</td>
</tr>
<tr>
<td>Biopsies</td>
<td>PC, ICS, MK</td>
</tr>
<tr>
<td>Conclusion (probe removal, discussion)</td>
<td>PC, ICS, MK, SBM</td>
</tr>
<tr>
<td>Departure</td>
<td></td>
</tr>
</tbody>
</table>
Sample videos
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Augmented and Virtual Reality Education

Intersection of technology and education

Technology continues to progress: Entertainment value

- Oculus Rift, MS Hololens VR headsets

VR Education: Immersive experience by creation of a virtual situation in which to practice and assess responses

- Value increased by getting very close to the real thing
- PTSD has been assessed and treated in VR
- VR experience can decrease patient anxiety prior to having a procedure
VR Education

• Already done to a degree
  » Robotic simulator
  » Laparoscopic trainer
  » Ureteroscopic trainers
  » Laser prostatectomy trainers
VR Education

• The next level
  » Virtual procedures
    • Create an entire procedure
    • Learner does it in virtual environment before attempting with patient
    • Can be used for patient, for nursing, for QI too
  » Designing for cystoscopy and prostate biopsy
    • Build room mockup
    • Collect video from 10+ locations
    • Collect procedural video
    • 3D mouse for scope and probe control