OUR TIME TODAY

What is AR VR
Why is AR VR important to healthcare
Where does AR VR create value
Evaluation AR VR projects
Questions and discussion
Disclaimer

- CEO of Health Scholars
- Third party objective evidence
- First hand experience and knowledge

<table>
<thead>
<tr>
<th>Augmented Reality</th>
<th>Virtual Reality</th>
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<tbody>
<tr>
<td>Phone AR</td>
<td>Low-cost VR</td>
</tr>
<tr>
<td>Headset AR</td>
<td>Consumer VR</td>
</tr>
<tr>
<td>Cost: n/a</td>
<td>Cost: $199</td>
</tr>
<tr>
<td>Cost: $5,000</td>
<td>Cost: $2,000</td>
</tr>
<tr>
<td></td>
<td>Cost: $3,500</td>
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Why will augmented and virtual reality will have a meaningful impact on healthcare?

Payroll
“I really think we bet the company when we made the move from a manual to an automated environment.”
Henry Taub, Founder - ADP

Virtualization
The act of a creating a virtual – rather than physical - representation of a process or resource allowing automation to improve operational efficiency.
Virtual reality is the next frontier in virtualization.
Danger

Repetition

Automation

Geo-scale

Safety

Tuning

Multi-user

Data

Experience
Experience into software

What is the meaningful use of VR?
Use case

Experience  Abstract  Size

Safety  Scale

What makes effective VR

Realism  Cognitive  Design  load

Bonus - DATA
A better way to train

<table>
<thead>
<tr>
<th>Compared to eLearning</th>
<th>Compared to Simulation</th>
<th>Better for Learner</th>
</tr>
</thead>
<tbody>
<tr>
<td>250%</td>
<td>50%</td>
<td>84%</td>
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</table>

**Performance improvement**
Group using VR had 70% correct performance compared to 20% for non-VR ($p=0.003$).¹

**Decrease in cost**
50% or more reduction in costs of using VR compared to traditional simulation.²

**Better Prepared**
Learners feel they are better prepared for a surgical fire after VR.³

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1 – Health Scholars internal analysis
2 – Sankaranarayanan et al. "Immersive virtual reality-based training improves response in a simulated operating room fire scenario." Surgical Endoscopy. January 2018
3 – UCHealth data from user trial of HS Fire in OR, October 2018.

What to look for in a VR project or product?
What makes a good project?

- Requires immersion
- Defined path - emerging complexity
- Reasonable scope – time in experience
- Workflow versus dexterity
- Choice of controls

What makes a good product?

- Tutorial
- Realism - uncanny valley
- Meaningful experience
- Minimized cognitive load
- Design
- Data
Questions

THANK YOU

Cole Sandau
CEO – HEALTH SCHOLARS

P 303-681-7799
E Cole.Sandau@HealthScholars.com
8471 Turnpike Drive, Suite 250
Westminster, CO 80031