



Oxford  
Medical  
Simulation

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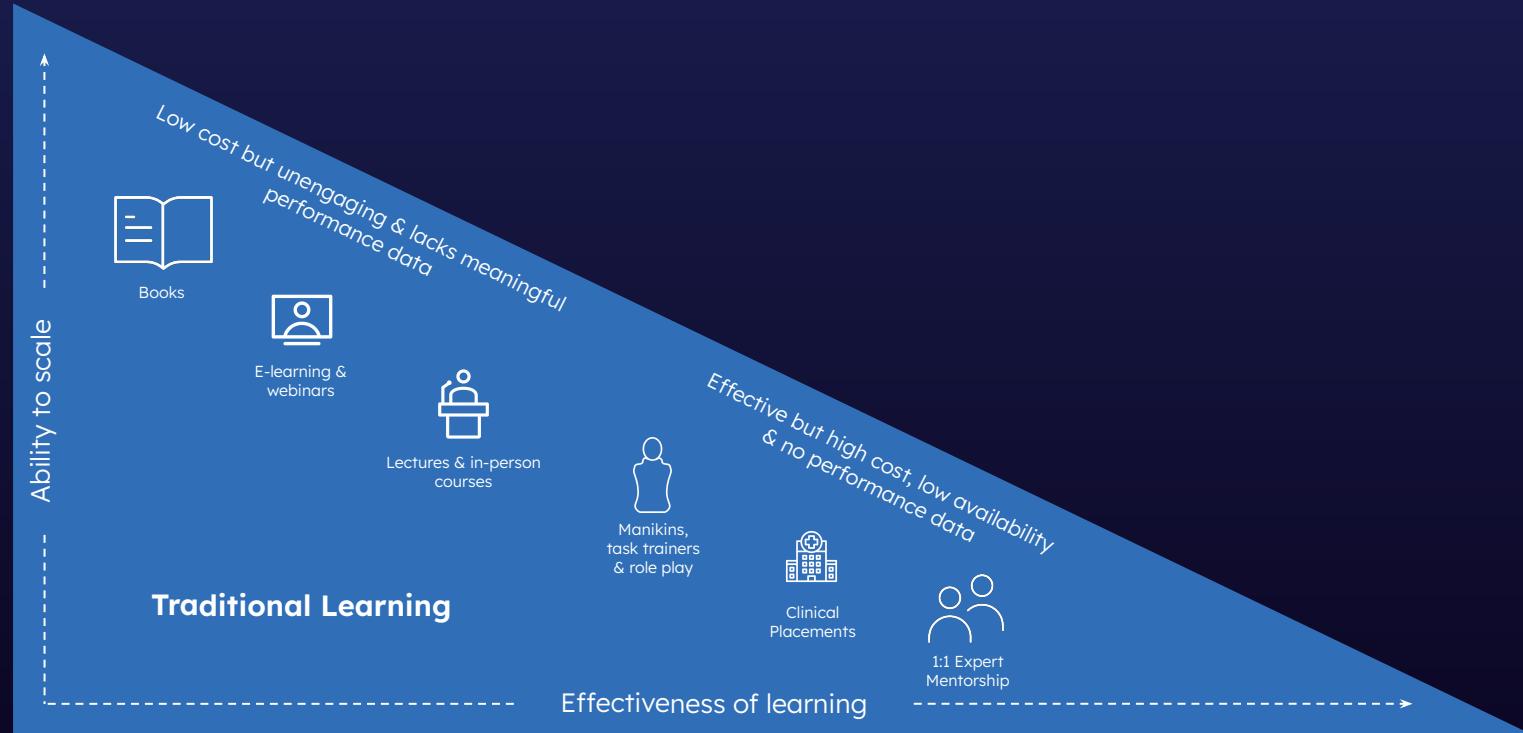
## California Community Colleges Rebuilding Nursing Infrastructure

Clinical experience on demand  
VR & on-screen simulation

Oxford Medical Simulation  
helps transform education  
using virtual reality to improve  
patient care and safety.



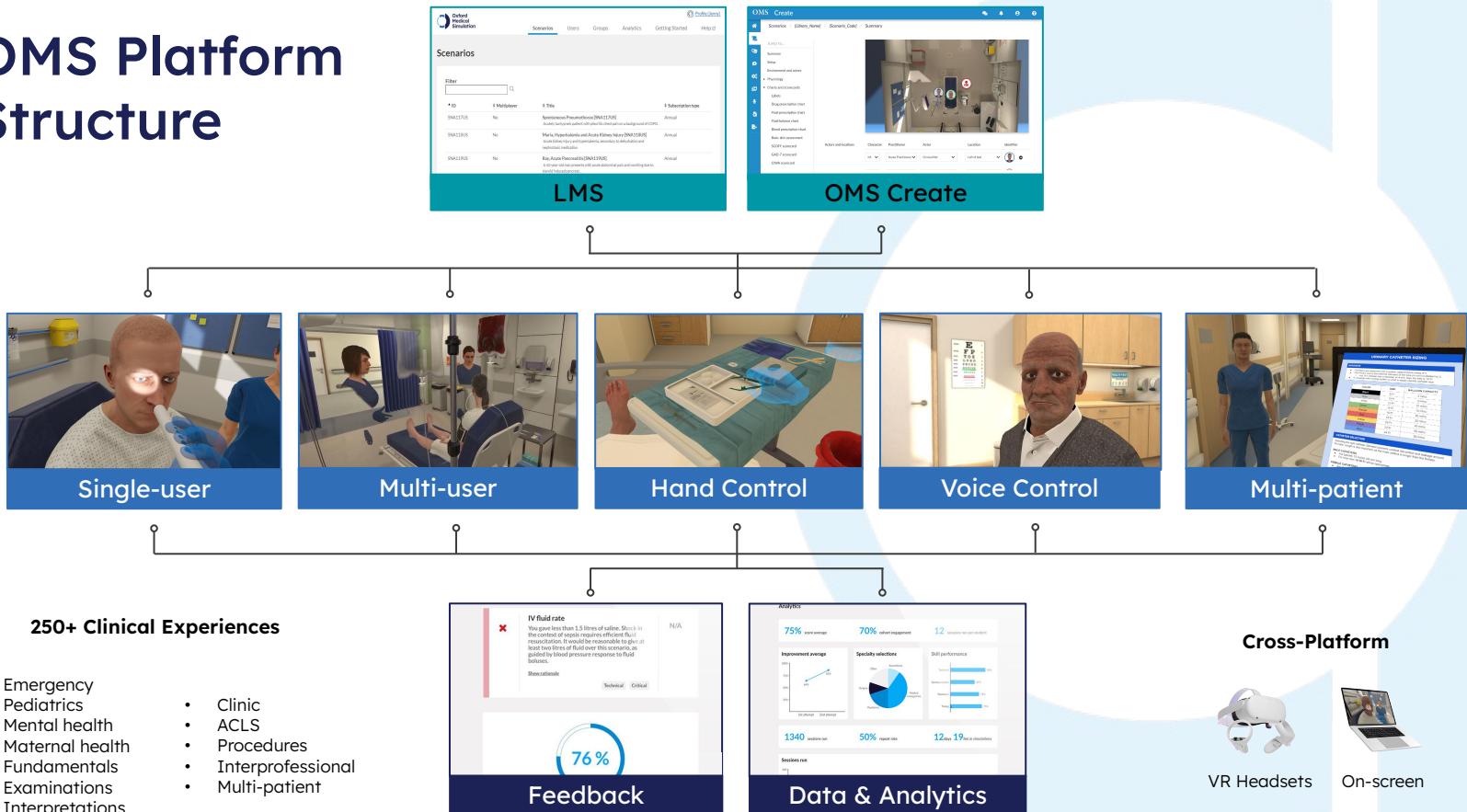
With OMS, education is no longer a trade-off between effectiveness & scale



# Challenges in clinical simulation

	VR Immersion	ELearning
○ Capable of delivering fully immersive 3D, computer-generated, interactive simulated clinical experience	✓	
○ Learners can use without a VR headset	✓	✓
○ Fully interactive, automated patients & team members (i.e. can be run without moderators or faculty)	✓	✓
○ Dynamism of interactions & physiology including	✓	
○ Basic reporting tools (e.g. basic scored and actions)	✓	✓
○ Competency-based analytics platform	✓	

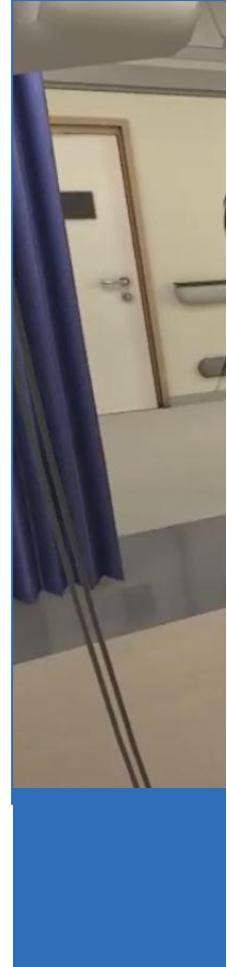
# OMS Platform Structure





## Individual

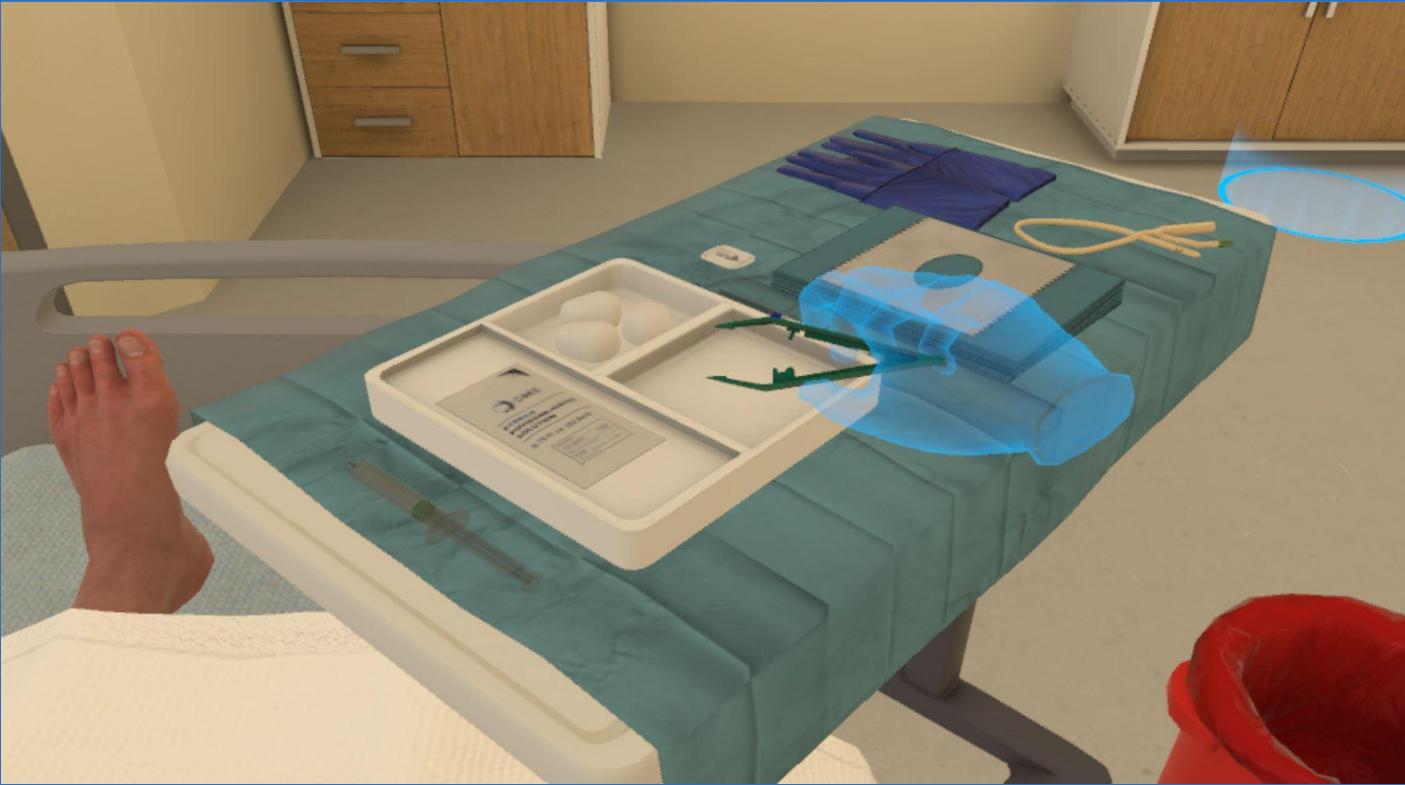
Individual training scenarios allow practice any time, any place  
- focus on decision-making and critical thinking





## Interprofessional

Multiplayer and interprofessional scenarios to foster communication & teamwork



## Procedures

Procedural scenarios to build muscle memory  
in clinical skills



⚠ Critical





## Communication skills

Prioritizing empathetic, culturally sensitive communication

**URINARY CATHETER SIZING**

**OVERVIEW**

- Catheters are measured with a system called French sizing (Fr).
- The French size is the external diameter of the tube (in mm) multiplied by 3.
  - e.g. If a catheter has a diameter of 4 mm, then the size is 12 Fr.
- A universal color-coding system is used to easily identify catheter size:

COLOR	SIZE	BALLOON CAPACITY
Black	8 Fr	3 ml/cc
Grey	10 Fr	3 ml/cc
White	12 Fr	10 ml/cc
Green	14 Fr	10 ml/cc
Orange	16 Fr	20 ml/cc
Red	18 Fr	20 ml/cc
Yellow	20 Fr	20 ml/cc
Purple	22 Fr	50 ml/cc
Blue	24 Fr	50 ml/cc

**CATHETER SELECTION**

Selecting the right catheter diameter prevents urethral discomfort and leakage around the tube. Length is also important, as the male urethra is longer than the female.

**MALE CATHETERS**

- Are typically 12 inches (40 cm) long.
- For most men 14-16 Fr will be appropriate.

**FEMALE CATHETERS**

- Are short.

## Multi-patient

Opportunity to manage multiple patients at one time - focused on prioritization, delegation and task switching

# Emphasis on Diversity

Our AI characters represent diverse identities:

- Characters include those who primarily speak different languages and represent a variety of cultures, gender identities and ages.
- Health care providers in scenarios have a diverse backgrounds. This fosters a sense of inclusion.





## Use Cases & Demo



## Feedback, Data & Analytics



## Check blood glucose

You correctly checked Wilfred's blood glucose

10:28

[Show rationale ▾](#)

⚠ Critical

Evidence-Based Practice

Patient-Centered Care



## Inspect facial symmetry

You assessed Wilfred for facial symmetry

13:09

[Hide rationale ▲](#)

### Rationale

Motor function of the facial nerve, cranial nerve VII, was assessed appropriately. Wilfred clearly displayed facial asymmetry when he smiled. Other methods to test motor function of cranial nerve VII are asking the patient to close both eyes, puff their cheeks, frown or raise their eyebrows.

Reference: Checklist for Neurological Assessment [↗](#)

## Feedback

Immediate, evidence-based performance feedback written by clinicians, for clinicians

# Data & analytics

- Objective & standardized system
- Clinically-weighted scoring
- Individual & group performance metrics
- Learner, faculty and administrator levels of access
- Inbuilt learning management system with integration capabilities



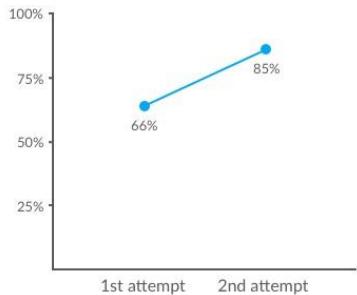
10:28

75% score average

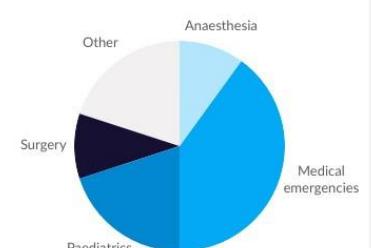
70% cohort engagement

12 sessions run per student

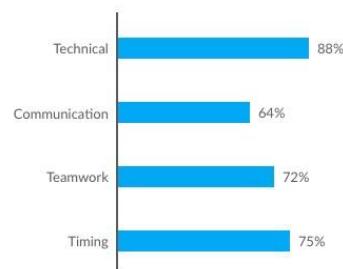
## Improvement average



## Specialty selections



## Skill performance



13:09

1340 sessions run

50% repeat rate

12 days 19 hrs in simulations

## Sessions run

## Analytics

Track progress, identify trends, and remediate issues with objective performance data

Emma Wilkinson [SNR106US] [edit]

[Save](#) [Change Template](#)

**Diagnosis**

Sepsis secondary to cellulitis.

**Case Summary**

Intavenous drug user with sepsis, cellulitis abscess from injection site.

**Clinical Findings**

- In pain and unwell
- Febrile, tachycardic, hypotensive
- Erythematous, tender abscess on right thigh

■ Actions/Responses ■ Playlist Components

■ Search...

■ Documents

- Request
- Notes
- Visual
- Documents
- Controls
- Character
- Test sheet
- Monitor

■ HTML Chart

■ Patient chart

■ Medical record

■ Prescription record

■ Static (Image)

■ Guideline (HTML)

■ Guideline (Image)



## Competency Mapping

# Tags & Competencies

- An educational system allowing clients to easily link their curriculum competency framework with OMS scenarios
- 10 inbuilt competency frameworks
  - US Nursing
    - AANP; AACN Essentials; C-CEI; NCLEX; QSEN
  - US Medicine
    - EPA; ACGME
  - UK Nursing
    - NMC
  - UK Medicine
    - GMC Foundation
  - OMS Legacy
- Ability to add own frameworks



*Client ability to add own frameworks in collaboration with OMS*



## Edit Customisation

### Customise:

#### Competency Framework

Baccalaureate Essentials

- AANP
- ACGME
- Baccalaureate Essentials
- CCEI**
- C-CEI
- EPA
- Essentials
- GMC
- GMC Foundation
- NCLEX
- NMC
- OMS Legacy
- OMS Legacy
- QSEN

#### Baccalaureate Essentials Competencies

**89%** scenario repeat rate

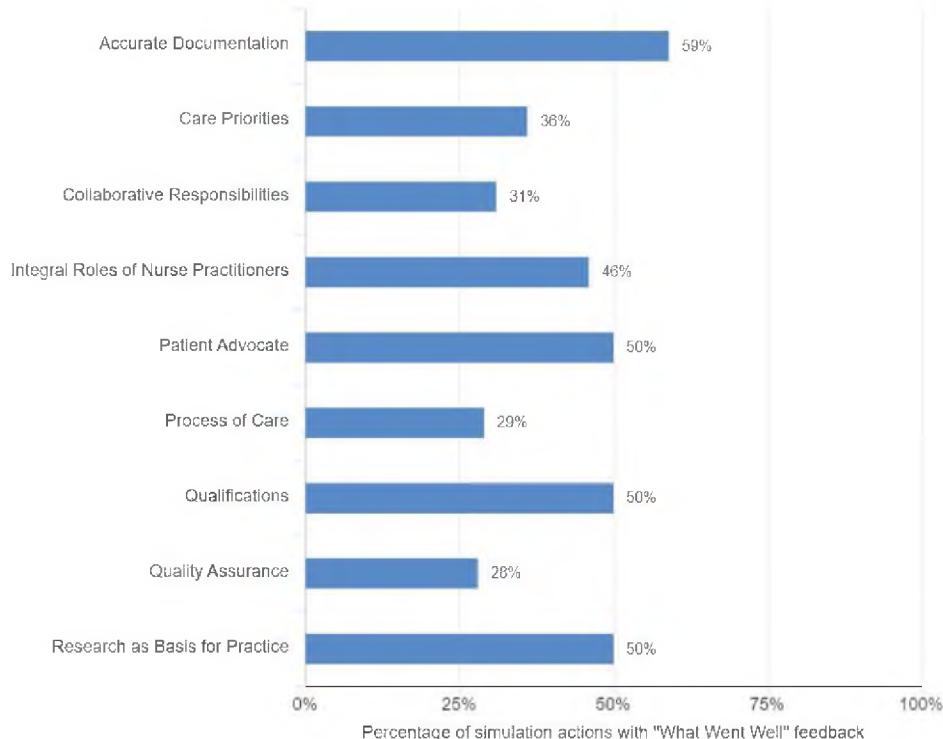
**69%** cohort engagement



## What To Improve On - Critical Aspects

	<b>IV access</b> You didn't secure IV access and critical management steps therefore could not be carried out <a href="#">Show rationale ▾</a>	N/A
Critical	<a href="#">Informatics</a> <a href="#">Safety</a> <a href="#">Evidence-Based Practice</a>	
	<b>Incomplete handover</b> You didn't complete your SBAR handover which delayed critical medical review and management for George <a href="#">Show rationale ▾</a>	N/A
Critical	<a href="#">Teamwork &amp; Collaboration</a> <a href="#">Patient-Centered Care</a> <a href="#">Safety</a>	
	<b>Incomplete EWS Score</b> Calculating a EWS score is important to help identify acutely unwell patients <a href="#">Show rationale ▾</a>	N/A
Critical	<a href="#">Teamwork &amp; Collaboration</a> <a href="#">Patient-Centered Care</a> <a href="#">Safety</a>	
	<b>No antibiotics</b> This patient had neutropenic sepsis and no antibiotics were given, increasing mortality <a href="#">Show rationale ▾</a>	N/A
Critical	<a href="#">Informatics</a> <a href="#">Safety</a> <a href="#">Evidence-Based Practice</a>	
	<b>IV fluids</b> You didn't give George any IV fluids. <a href="#">Show rationale ▾</a>	N/A
Critical	<a href="#">Patient-Centered Care</a> <a href="#">Safety</a> <a href="#">Evidence-Based Practice</a>	

## Competencies



# Competency Mapping & Tracking

- All scenarios link directly to competency frameworks
- Provides standardized, objective and unbiased assurance of clinical competence
- Competence can be measured at an individual, cohort or system level

Setup Pre Sim Compose Sim Post Sim More...

Preview

Wilfred Price | ALS001UK

Basic Info Learning Objectives Environment and Actors

# OMS Create

## Scenario authoring platform

Technical Skills

Learning Objective Paragraphs

Assessment

- Complete a full set of vital signs
- Establish a history of the patient's condition
- Establish medical history
- Establish medication history
- Establish history of IV drug use
- Ask allergy status
- Perform basic physical exam (auscultate lungs, check skin)

Initial Investigations

- Take labs (blood tests)
- Take blood gas
- Take blood cultures

Management

- Perform SBAR report and request urgent medical review
- Insert IV access
- Deliver oxygen (to maintain saturations above 94%)
- Administer all drugs, fluids, and antibiotics (prescribed by medical team)

Initial Investigations

Environment

Image Gallery

Island + Day Time

Video + Image Carousel

Click Locations

Click Points in Top View

Hospital Room

ACLS

CT

OB

BCH (restricted)

Pediatrics

Actions/Responses

Patients

Menus

Actions & Responses

Events

Search...

Documents

- HTML Chart
- Patient chart
- Medical record
- Prescription record
- Static (Image)
- Guideline (HTML)

Controls

Character

Text dialog

OMS Image Manager

Category:

- cxr\_adult\_postcompressions
- cxr\_adult\_pulmonaryoedemamale
- cxr\_adult\_rightbasalpneumoniemale
- cxr\_normal\_02
- cxr\_paed\_normalmale
- drugchart\_LSDM002uk
- Dropout Panel - F489312
- Maria Perez - 6489144

Directly create and edit scenarios to build exactly what you need

Edit patient history and physical, physiology, imaging & results, conversation, feedback and blended learning

Share scenarios across the OMS platform



# OMS Create

## Scenario authoring platform

Directly create and edit scenarios to build exactly what you need

---

Edit patient history and physical, physiology, imaging & results, conversation, feedback and blended learning

---

Share scenarios across the OMS platform



**Combining the tools:** Providing a bridge to continued education & practice



Hardware

# Hardware specifications



## Tethered Virtual Reality

### Headsets

- Oculus Rift and Rift S
- Meta Quest 2, 3 & Oculus Link

### Computer specifications

- NVIDIA GTX1080+
- Intel i7 with 16GB+ RAM
- Rift S - miniDisplayPort & USB 3.0
- Rift - HDMI & 2 x USB 3.0 ports



## Standalone Virtual Reality

### Headsets

- Meta Quest 2, Quest 3, Quest 3S
  - Available now
- Pico Neo 3
  - From Q2 2022
- Vive Focus 3
  - From Q2 2022



## On screen (laptop/desktop)

### Windows

- Intel i5 with 8GB+ RAM
- Integrated Graphics Chip

### Mac

- Intel i5 or Apple M1 with 8GB+ RAM
- Integrated Graphics Chip

### Browser

- Google Chrome



Research

# OMS platform

## Independent trials

Trials demonstrate significantly improved learner behavior in key areas affecting patient safety.

Further information available on request.

### Results Summary

#### Qualitative:

"The most important part was that it felt really life-like. Like it felt really, really real."

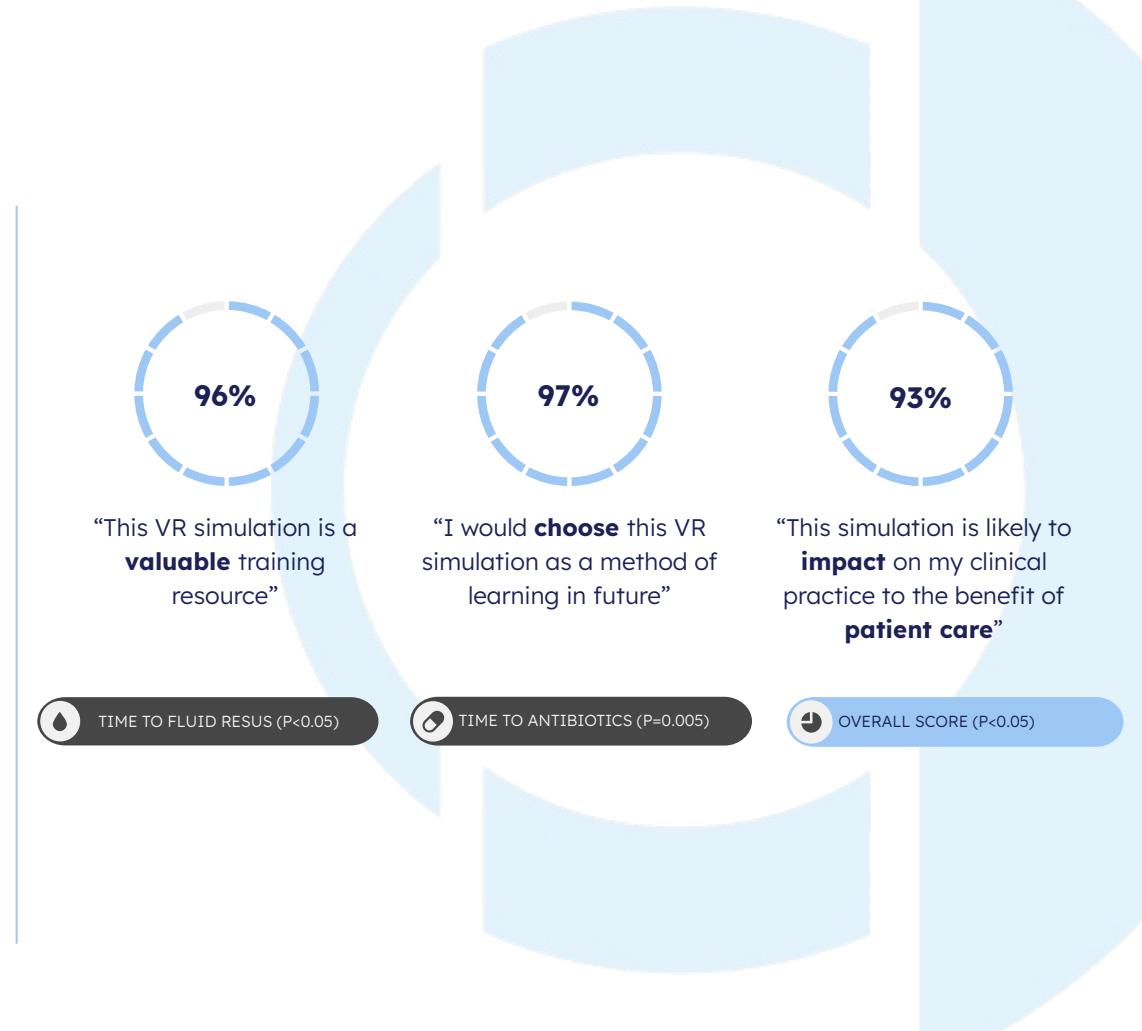
"I genuinely think it would definitely calm a lot of us down and allow us to make better decisions in real life."

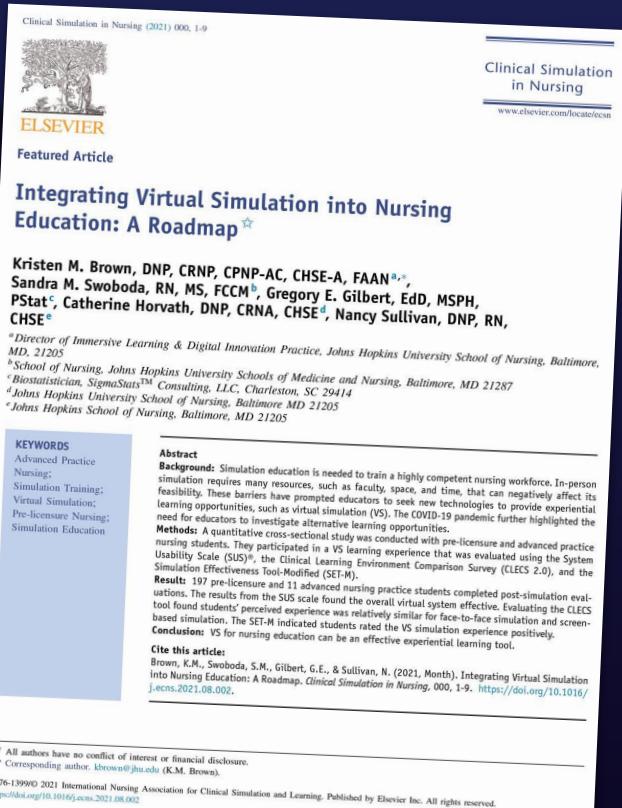
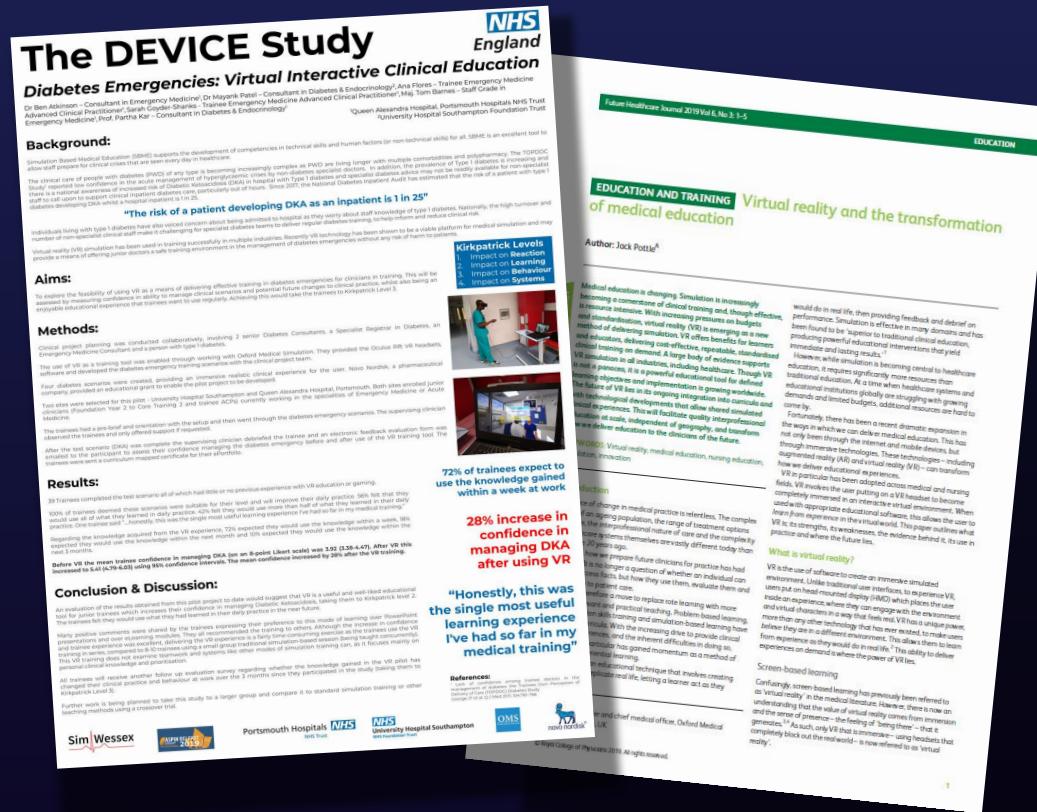
#### Quantitative:

Significant improvement in time to appropriate fluid resuscitation ( $p<0.005$ )

Significant improvement in time to correct antibiotics ( $p=0.014$ )

Significant improvement in overall score ( $p<0.005$ )





# Testimonials

**“It’s a brilliant simulation for practicing how to interact with patients.”**

**“Honestly, this is the single most useful experience I’ve had so far in my medical training.”**

**“It’s something I’d be happy to spend some time on doing a session each day.”**

**“It felt really life-like. Like it felt really, really real!”**

**“I genuinely think this will allow us to make better decisions in real life.”**



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