

# iEXCEL at the University of Nebraska Medical Center (UNMC)

## Global leadership in transforming human performance and effectiveness in health care

### The iEXCEL<sup>SM</sup> Program

iEXCEL (Interprofessional Experiential Center for Enduring Learning) at the University of Nebraska Medical Center (UNMC) is a program developed to ensure that healthcare practitioners safely learn new professional skills as well as refresh and continuously hone these skills through the adoption of interprofessional simulation activities. While the iEXCEL program is intended to have global reach, its headquarters are located on the UNMC campus in Omaha, Nebraska.

In 2018, the iEXCEL program will expand to a new facility on the UNMC campus called the Global Center for Advanced Interprofessional Learning (Global Center). The Global Center is a multi-level and highly advanced clinical simulation facility being purposefully designed to foster the practice of caring for patients in highly functioning and effective interprofessional teams. Since transitions throughout the care continuum have been identified as events when patients are most vulnerable to medical errors - largely due to faulty communication between teams - the Global Center provides realistic replicated healthcare settings in which teams can practice the safe management of patient hand-offs from one echelon of care to the next. Working closely with allied healthcare facilities, iEXCEL also provides in situ simulations in real patient care settings as well as expertise in Live Virtual Constructive, emergency management and disaster preparedness exercises.



Architectural Rendering of the Global Center (July 2016)

### Remote and Distributed Training

Tasked with the mission of creating a statewide network of interconnected simulation centers with the aim of sharing valuable resources and achieving consistency for healthcare training across Nebraska, iEXCEL incorporates highly advanced and integrated visualization technologies that facilitate remote and distributed training opportunities. The overarching goal is to incorporate state-of-the-art modeling and simulation technologies in order to accelerate the adoption of experiential learning for all disciplines in health care, at all levels of training. Developing a model for the assessment of professional and procedural competencies is also a major focus for iEXCEL.



iEXCEL's Statewide Network Spans Nebraska

Forming the hub for this statewide simulation network and beyond, the Global Center will have outreach capabilities strengthened by a strong emphasis on technology integration to ensure optimal connectivity of the multiple technologies involved. For example, iEXCEL will implement interactive touch screen walls and Augmented/Virtual Reality (AR/VR) technologies with the capability of transferring media and data across distances thus enhancing the collaborative nature of the network.

**iEXCEL supports the Triple Aim of Health Care<sup>1</sup> by working to:**

- Reduce medical errors and avoidable deaths
- Transform an outmoded educational model
- Prepare for a new generation of digital learners
- Address healthcare workforce shortages



The technological integration initiative will support telepresence and telementoring, and allow expanded connectivity for telehealth in partnership with UNMC's primary clinical partner, Nebraska Medicine. Additionally, deployable mobile simulation units will partner with iEXCEL so that first responders and healthcare personnel can conduct remote simulation training exercises.

This collective of advanced visualization and clinical simulation technologies, along with subject matter expertise from the University of Nebraska, will make iEXCEL an important asset for healthcare training within its network and beyond.



The Global Center for Advanced Interprofessional Learning, housing the widest range of simulation technologies, will serve as a training center and clinical test bed for:

- iEXCEL Visualization & Virtual Reality
- iEXCEL Interprofessional Simulation
- iEXCEL Surgical & Interventional Skills
- National Center for Health Security & Biopreparedness

### **Collaborative Relationships: Military, Industry and Government**

Supporting the armed services in improving human performance and effectiveness through training exercises, such as Live Virtual Constructive Exercises (LVCEs) and joint research opportunities is a high priority for UNMC. In cooperation with industry and military collaborators, iEXCEL will also facilitate research and development for new clinical products, training modules, 3D content and relevant learning methods, including interactive e-learning and experiential learning.

Mutually benefiting from strong military, industry and government relationships, iEXCEL and compatible collaborators will contribute to the provision of better health, better care and lower cost through identifying more efficient, effective processes and applications of evolving technologies.

### **Workforce Development Opportunities**

In conjunction with the Nebraska simulation network and industry collaborators, iEXCEL will create opportunities

for new jobs, thereby contributing to the state's economic development. This includes the training and hiring of military veterans for positions such as simulation technology experts, computer programmers, 3D/VR and holographic technology specialists, software developers, hardware management and technology maintenance. Specialized training opportunities in simulation technology and 3D/AR/VR content development will be offered in partnership with select industry collaborators.



Students Work Together at the Interactive Digital iWall

The iEXCEL program within the Global Center will promote further interdisciplinary engagement by offering unique research opportunities - engaging fields such as engineering, instructional design, graphic design, 2D/3D animation, computer programming and information technology. Due to a workforce shortage of 3D/AR/VR technicians and software developers, the Global Center will house a certificate program for training this emerging workforce as it relates to health care. Thus, in addition to serving as a hub that stimulates innovation in education, training and research, iEXCEL will contribute to workforce development for Nebraska and nationwide.

### **Summary**

The Global Center will house and support the iEXCEL program and the associated clinical entities, and function as a fully integrated, interprofessional and interdisciplinary center for transforming education and research for healthcare professionals. The Global Center will also be capable of connectivity to remote sites in Nebraska and broadcasting across the US and around the globe. The emphasis for training will be on improving the outcomes of care for Nebraska and beyond by enhancing human performance and effectiveness through conducting rigorous and challenging team training activities.

#### Reference:

<sup>1</sup>. Bisognano M, Kenney C. Pursuing the Triple Aim: Seven Innovators Show the Way to Better Care, Better Health, and Lower Costs. San Francisco: Jossey-Bass Publishers; 2012.

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