CAPABILITY FRAMEWORK
FOR HEALTHCARE SIMULATION TECHNOLOGY SPECIALISTS
INTRODUCTION

Healthcare simulation is a teaching and quality improvement tool that reproduces healthcare settings and encounters to train students, health professionals, health industry workers, patients, caregivers, and family members.

Healthcare Simulation Technology Specialists (HSTS) are employed in simulation programs and are responsible for the set-up, operation, and maintenance of the simulation environment. The HSTS may also be known as a simulation operator, a simulation technologist, an educational technologist, and many other related terms.

This framework has been developed in response to a need in the healthcare simulation community for better role definition, and to support those working in HSTS roles to determine training and progression pathways. It has been informed by analysis of hundreds of position descriptions for HSTS-related roles collected from recruitment websites in the USA, UK, Canada, and Australia in 2018.

This capability framework provides a contemporary and comprehensive set of competencies required for HSTS roles. It also describes three levels of responsibility within the HSTS role and the eight domains of practice that exist within the HSTS role, as defined by SimGHOSTS in 2014.
HOW TO USE THIS FRAMEWORK

The SimGHOSTS Capability Framework can be used by both the HSTS and employers for activities such as:
- Career Planning
- Learning and Development
- Workforce Planning
- Recruitment and Selection
- Performance Management
- Mentorship and Coaching

The framework is informed by data collected from the USA, UK, Canada, and Australia, but is applicable to many other countries. The competencies apply at all levels, however, not all roles are dedicated HSTS roles. For example, many educator or senior management roles include HSTS responsibilities as part of a broader or hybrid role. In this case, the framework should be used only to address the HSTS portion of the overall role.

By evaluating the core competencies in the context of each domain, employment level, and the employment setting it is possible to define individual role capabilities or descriptors. This document contains sample role descriptors for each domain. These have been provided only to demonstrate application of competencies at each employment level and are not an exhaustive list. Sample job titles are included in the appendix, as are verbs for descriptors.

If using this framework for recruiting and selection:
A job analysis is needed to inform the position level and capability requirements. The framework can be used to define specific competencies required for entry or promotion to a position. Competencies in the framework can be turned into key selection criteria by stating them as behaviors and describing them in the workplace context.
HEALTHCARE SIMULATION TECHNOLOGY SPECIALIST
DOMAINS OF PRACTICE

Audio-Visual Technology:
Understanding of how best to design, operate, maintain, manage, and upgrade audio-visual systems to meet the needs of a simulation center or program.

Education:
Understanding of adult education principles, instructional design, interprofessional education, and simulation methodology.

Healthcare:
Understanding of healthcare settings, professions and practices, and general principles of patient care, including privacy and safety.

Information Technology:
Understanding of how best to design, operate, maintain, manage, and upgrade information technology systems to meet the needs of a simulation center or program.

Management & Operations:
The ability to establish and manage systems and processes to coordinate, direct and control resources.

Research & Evaluation:
Understanding of research and evaluation practices and protocols, how to manage and analyze data, and communicate findings.

Simulation:
Understanding of the process of planning, developing, and delivering a simulation activity that accurately reproduces key elements for learning.

Theatrics & Staging:
The ability to reproduce human and/or environmental aspects of a healthcare encounter with an appropriate level of realism.
EMPLOYMENT LEVELS

Employment level descriptors provide insight into the cognitive and technical abilities of individuals and guide the qualifications and experience required to meet the needs of the role.

**Foundation**
Performs routine and non-routine tasks.
Solves predictable and sometimes unpredictable problems.
Exhibits autonomy, judgement, and responsibility within established parameters.
Has broad knowledge and skills with some specialization.
Recommended qualification level - High School Diploma +/- vocational training

**Intermediate**
Analyzes and solves unpredictable and sometimes complex problems.
Provides specialized advice and functions.
Is self-directed and able to work autonomously.
Well developed judgement and broad responsibility.
Knowledge and skills are specialized in one or more disciplines.
Recommend qualification level - Bachelor degree or equivalent combination of qualifications and experience.

**Senior**
Applies analysis, reflection and synthesis of complex information to problems, concepts and theories.
Demonstrates expert judgement and has a high degree of autonomy and responsibility.
Has an advanced understanding of a complex body of knowledge in one or more disciplines and is able to integrate knowledge from other disciplines.
Recommend qualification level - Masters degree or equivalent combination of qualifications and experience.
# Core Competencies for Healthcare Simulation Technology Specialists

## Audio-Visual Technology:
- Operate a range of audiovisual hardware and software.
- Provide technical support and troubleshooting to others.
- Source, install, update, maintain and repair equipment.
- Use expertise in audiovisual technologies to achieve organization objectives.

## Education:
- Knowledge of adult education principles, methodologies, regulations, and standards.
- Support all aspects of the learning environment.
- Support the learning experience of all simulation center users.
- Document learner participation and progress.

## Healthcare:
- Knowledge of healthcare professions, procedures, and environments.
- Knowledge of principles of patient care.
- Knowledge of medical terminology, anatomy, and physiology.
- Knowledge of principles of quality and safety in healthcare.

## Information Technology:
- Operate a range of information technology hardware and software.
- Provide technical support and troubleshooting to others.
- Source, install, update, maintain, and repair equipment.
- Use expertise in information technologies to achieve organization objectives.

## Management & Operations:
- Establish and maintain systems and processes for resource management.
- Plan and manage projects.
- Comply with internal and external policies, standards, and regulations.
- Document and report on program operations.

## Research & Evaluation:
- Facilitate the use of simulation for research and evaluation.
- Establish and maintain systems for data management.
- Analyze data and disseminate findings.
- Knowledge of research methodology.

## Simulation:
- Operate a range of simulation technologies.
- Provide technical support and troubleshooting to others.
- Source, install, update, maintain and repair equipment.
- Use expertise in simulation to achieve organization objectives.

## Theatrics & Staging:
- Create moulage to model physiological responses to the scenario events.
- Prepare the simulation environment to represent the clinical setting.
- Support the use of simulated participants within the simulation program.

## Theatrics & Staging:
- Knowledge of adult education principles, methodologies, regulations, and standards.
- Support all aspects of the learning environment.
- Support the learning experience of all simulation center users.
- Document learner participation and progress.
**AUDIOVISUAL TECHNOLOGY**

**Core competencies:**
Operate a range of audiovisual hardware and software.
Provide technical support and troubleshooting to others.
Source, install, update, maintain, and repair equipment.
Use expertise in audiovisual technologies to achieve organization objectives.

<table>
<thead>
<tr>
<th>Sample Role Descriptors</th>
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<tbody>
<tr>
<td><strong>FOUNDATION</strong></td>
</tr>
<tr>
<td>Demonstrate working knowledge of a range of common AV hardware and software.</td>
</tr>
<tr>
<td>Provide general technical support and troubleshooting for the AV system.</td>
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<tr>
<td>Set up, operate, and store audiovisual equipment.</td>
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<tr>
<td>Demonstrate safe and effective operation of the AV system.</td>
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<tr>
<th><strong>INTERMEDIATE</strong></th>
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<tbody>
<tr>
<td>Maintain proficiency with a specialized range of AV technologies and systems.</td>
</tr>
<tr>
<td>Install, configure, operate, maintain, and repair AV equipment.</td>
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<tr>
<td>Provide specialized technical support and troubleshooting for AV technologies.</td>
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<tr>
<td>Serve as an internal consultant for support, planning and design of AV services.</td>
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<tr>
<th><strong>SENIOR</strong></th>
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<tbody>
<tr>
<td>Maintain advanced understanding of audiovisual technologies and systems.</td>
</tr>
<tr>
<td>Manage the simulation center’s audiovisual support service.</td>
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<tr>
<td>Maintain, troubleshoot, and repair audiovisual technology assets.</td>
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<tr>
<td>Responsible for oversight of entire AV systems and assets of the program/center.</td>
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</tbody>
</table>
**Core competencies:**
Knowledge of adult education principles, methodologies, regulations, and standards.
Support all aspects of the learning environment.
Support the learning experience of all simulation center users.
Document learner participation and progress.

### Sample Role Descriptors

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<tr>
<td><strong>FOUNDATION</strong></td>
<td>Demonstrate a general knowledge of adult education theory. Prepare, operate, and store practical teaching apparatus and equipment. Support simulation center users in the use of instructional media and equipment. Provide pre-briefing and/or orientation to learning environment for learners, faculty, and other staff.</td>
</tr>
<tr>
<td><strong>INTERMEDIATE</strong></td>
<td>Maintain an understanding of education principles, regulations, and standards/best practices. Support all simulation center users in the safe and appropriate use of specialized equipment and resources within the center. Serve as an internal consultant for integration of the simulation environment and technologies into the education program. Assist with examinations, assessments and testing.</td>
</tr>
<tr>
<td><strong>SENIOR</strong></td>
<td>Maintain knowledge of best practice, technology trends, measurement systems, and legislation related to the delivery of curriculum. Responsible for the development, distribution, and utilization of instructional support materials. Serve as an internal consultant on the pedagogical and technical aspects of simulation scenarios across all delivery formats. Research, recommend, design, implement, and evaluate new educational experiences to enhance learners' simulation experience.</td>
</tr>
</tbody>
</table>
## Core competencies:
Knowledge of healthcare professions, procedures, and environments. 
Knowledge of principles of patient care. 
Knowledge of medical terminology, anatomy, and physiology. 
Knowledge of principles of quality and safety in healthcare.

### Sample Role Descriptors

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<th>Foundation</th>
<th>Intermediate</th>
<th>Senior</th>
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| Demonstrate knowledge of relevant health professions principles and practices. 
Communicate using medical terminology. 
Demonstrate safe operation of common medical equipment and associated resources. 
Understand and apply universal precautions when working with biological materials. | Demonstrate comprehensive knowledge of medical terminology and procedures. 
Provide general support, troubleshooting, maintenance, and repair to clinical equipment used in the simulation center. 
Prepare and maintain simulated patient electronic health records. 
Develop, provide, and oversee instruction and/or assessment in clinical skills and use of specialist clinical equipment. | Apply knowledge of human anatomy, physiology and clinical nomenclature. 
Maintain knowledge of current clinical practice and evidence-based research in human patient simulation and clinical skills education. 
Support the design and implementation of interprofessional learning experiences. 
Comprehensive understanding of, or experience in healthcare delivery. |
Core competencies:
Operate a range of information technology hardware and software. Provide technical support and troubleshooting to others. Source, install, update, maintain, and repair equipment. Use expertise in information technologies to achieve organization objectives.

Sample Role Descriptors

**FOUNDATION**
Set up, install, operate and store IT equipment. Demonstrate correct use and provide general support and troubleshooting for all IT equipment. Install updates and perform scheduled maintenance to all IT assets. Undertake inspections of IT equipment to monitor condition and report failures.

**INTERMEDIATE**
Demonstrate proficiency in the operation of a general and specialized range of IT hardware and software. Provide specialized technical support and troubleshooting on IT-related equipment and services. Ensure optimal functioning of technology and systems via testing, updates, preventive maintenance, and corrective maintenance. Safeguard privacy and security of simulation center data and technology assets.

**SENIOR**
Demonstrated ability to quickly and independently acquire new technological skills. Oversee technical systems design, planning, policies, and support for all IT-related needs. Implement, manage and maintain servers for storage and backup of all program data. Maintain knowledge of emerging technologies and act as an internal consultant on all IT-related issues.
# SIMGHOSTS CAPABILITY FRAMEWORK

## MANAGEMENT & OPERATIONS

**Core competencies:**
Establish and maintain systems and processes for resource management.
Plan and manage projects.
Comply with internal and external policies, standards, and regulations.
Document and report on program operations.

### Sample Role Descriptors

| FOUNDATION | Coordinate (or assist to coordinate) access, availability and scheduling of simulation spaces and resources. Undertake stock control, ensuring adequate security and levels of consumables and equipment are maintained. Ensure preparation and storage areas are maintained in a clean, safe and orderly manner and comply with health and safety regulations. Maintain documents and records in support of simulation center operations. |
| INTERMEDIATE | Recruit, train, schedule, manage, and evaluate personnel within the simulation program. Manage or assist with planning, coordinating, and executing all simulation activities and services in alignment with the organization strategic plan. Maintain knowledge of and compliance with institution and industry policies, standards and regulations. Manage or contribute to the simulation center business activity, budget development, administration and reporting. |
| SENIOR | Responsible for business development, income generation, and financial management of simulation center. Lead and manage a high performing team. Maintain understanding of and compliance with all relevant institution, industry and government standards, regulations, and legislation. Establish, implement, and administer systems, policies and procedures, and protocol to support the strategic goals and sustainable growth of the simulation center and program. |
# RESEARCH & EVALUATION

**Core competencies:**
Facilitate the use of simulation for research and evaluation. Establish and maintain systems for data management. Analyze data and disseminate findings. Knowledge of research methodology.

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<td><strong>FOUNDATION</strong></td>
<td>Knowledge of common research methodologies. Assist in the maintenance of routine records, updating databases and analyzing routine data/information as required. Assist staff and students in the preparation of technical data/materials for future reference such as publication or teaching purposes. Support simulation-based patient safety and quality improvement projects.</td>
</tr>
<tr>
<td><strong>INTERMEDIATE</strong></td>
<td>Lead or support research and quality improvement activities within the simulation center/program. Collect, collate and analyze facility and equipment utilization data and participant evaluation data. Support the preparation, application, implementation, and reporting of research grants. Search and appraise simulation literature for relevance and quality. Support preparation of ethics/institutional review board (IRB) applications.</td>
</tr>
<tr>
<td><strong>SENIOR</strong></td>
<td>Facilitate the use of simulation for education/clinical research, performance improvement, and equipment evaluation. Collect, manage and report quality assurance and quality improvement data for simulation deliverables. Publish and/or present results of research and quality improvement projects in industry publications and at conferences. Prepare and submit research grant proposals and ethics/IRB applications.</td>
</tr>
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### SIMULATION

**Core competencies:**
Operate a range of simulation technologies.
Provide technical support and troubleshooting to others.
Source, install, update, maintain, and repair equipment.
Use expertise in simulation to achieve organization objectives.

**Sample Role Descriptors**

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<td><strong>FOUNDATION</strong></td>
<td>Set up, operate, store, maintain, and repair simulators, task trainers and other simulation equipment. Provide general support and troubleshooting for simulation technologies. Contribute to and maintain simulation technology-related documentation. Liaise with vendors to ensure current and future simulation technology needs are met.</td>
</tr>
<tr>
<td><strong>INTERMEDIATE</strong></td>
<td>Set up, program, operate, store, test, and calibrate simulators, task trainers, and other simulation equipment. Provide specialized technical support and troubleshooting. Ensure optimal functioning of simulation technology and systems via updates, preventive maintenance, corrective maintenance, and repair. Serve as an internal consultant and external liaison on all simulation technology matters.</td>
</tr>
<tr>
<td><strong>SENIOR</strong></td>
<td>Ensure that all simulation delivery is conducted in compliance with industry accreditation standards and standards of best practice. Develop and implement strategic initiatives to improve and expand the simulation operations and technologies. Oversee all simulation utilization, troubleshooting, user support, maintenance, and repair of simulation technology. Serve as an internal consultant and external liaison on all simulation technology matters.</td>
</tr>
</tbody>
</table>
SIMHOSTS CAPABILITY FRAMEWORK

THEATRICS & STAGING

**Core competencies:**
Create moulage to model physiological responses to the scenario events.
Prepare the simulation environment to represent the clinical setting.
Support the use of simulated participants within the simulation program.

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**Sample Role Descriptors**

**FOUNDATION**
Research, create, apply, and remove moulage/special effects appropriate to the scenario to increase realism.
Prepare simulation environment to accurately represent a clinical setting using real and simulated clinical supplies and equipment.
Portray the role of a patient, family member or other scenario participant as directed.

**INTERMEDIATE**
Research, create, apply, and remove moulage/special effects appropriate to the scenario to increase realism.
Provide comprehensive setup and implementation support for all simulation activities to create an immersive experience.
Implement, manage, schedule, and/or coordinate the simulated participant program.
Create and/or fabricate realistic simulators, scenario props and environments.

**SENIOR**
In collaboration with others, develop, evaluate, and refine scenarios for simulation experiences, utilizing role playing, props, and dialogue to create a realistic learning environment.
Plan, develop, instruct, and evaluate the use of simulated participants.
Evaluate simulated participant performance to ensure standardization and quality.
REFERENCES


### APPENDIX

### SAMPLE POSITION TITLES

#### FOUNDATION
- Simulation Technician Assistant
- Nursing Laboratory Assistant
- Simulation Center Assistant
- Clinical Simulation Technician
- Simulation Technician

#### INTERMEDIATE
- Clinical Simulation Technician
- Simulation Technology Coordinator
- Simulation Technology Specialist
- Simulation Operations Technician
- Simulation Operations Specialist

#### SENIOR
- Team Leader, Simulation
- Simulation Lab Manager
- Simulation Operations Manager
- Senior Simulation Specialist/Technician
- Director - Simulation

### SAMPLE POSITION DESCRIPTION VERBS

#### FOUNDATION
- Assist
- Support
- Operate
- Troubleshoot
- Utilize
- Prepare
- Maintain
- Monitor
- Provide

#### INTERMEDIATE
- Instruct
- Administer
- Coordinate
- Manage
- Advise
- Conduct
- Collaborate
- Plan
- Design

#### SENIOR
- Integrate
- Execute
- Manage
- Design
- Analyze
- Evaluate
- Oversee
- Lead
- Develop
SimGHOSTS is dedicated to supporting individuals and institutions operating medical simulation technology and spaces through hands-on training, online resources and professional development.

SimGHOSTS envisions a healthcare education culture where people are empowered to use simulation technology to improve learning and patient care outcomes.

www.simghosts.org