

STEPS PROFESSIONAL ACTIVITIES

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STEPS Professional Activities

Purpose of this Document

This document provides an overview of the core and elective Professional Activities (PAs) performed by Simulation Operations Specialists (SOS) within their scope of practice. These PAs will be directly mapped to the STEPS competency framework and will inform the structure of the Entrustable Professional Activity (EPA)-based curriculum and assessment framework.

Output Format

The SOS PAs are organized under the following functional groups:

1. Curriculum Management
2. Simulation Design and Facilitation Support
3. Realism and Authenticity
4. Audiovisual
5. Hardware and Software Operations and Troubleshooting
6. Simulation Centre Operations
7. Health and safety
8. Program and Research Support
9. Advanced Digital Simulation

The PAs are grouped in two categories which indicate their priority for training and assessment purposes:

Core PAs: Tasks essential for SOS to perform in practice, and successful graduation from the STEPS minor.

Elective PAs: Non-essential, specialized, or rarely performed tasks that can be pursued by trainees who demonstrate competence in core PAs .

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Functional Group 1: Curriculum Management



Priority	PAs
CORE	Developing and managing calendars to coordinate lab availability, personnel, resource allocation, and room readiness.
CORE	Using various tools (e.g., learning management systems) to schedule simulation sessions, upload and manage course materials, and track learner attendance, progression, and assessment data.
CORE	Compiling, updating, and managing active simulation documentation before and after simulation training for future reference.
CORE	Orienting facilitators to the simulation centre.
CORE	Coordinating with facilitators before simulations to confirm room set up and other training and assessment needs.
CORE	Exporting, cleaning, and performing backups of learner performance and interaction data after simulation training for assessment and quality improvement purposes.

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Functional Group 2:

Simulation Design and Facilitation Support



Priority	PAs
CORE	Working with clinicians and facilitators to identify training needs/gaps in clinical environments.
CORE	Working with clinicians and facilitators to design and develop simulation scenario scripts, learning objectives, and facilitation guides using various tools (e.g., AI), aligned with training needs.
CORE	Providing recommendations for simulation scenario design elements aligned with training needs, learning objectives, centre capacity etc.
CORE	Providing recommendations for the appropriate simulation modality (e.g., XR, task trainer, standardized patients) aligned with training needs, learning objectives, financial constraints etc.
CORE	Providing recommendations to operationalize assessment in simulation-based education (e.g., suggesting mechanisms for data collection, synthesis, management, reporting), aligned with training needs, learning objectives, centre capacity etc.
CORE	Interpreting and activating scenarios and course booking forms before simulation training.
CORE	Setting-up and organizing pre-briefing, briefing and debriefing spaces with the appropriate materials and softwares (e.g., video clips, case notes, performance data, performance analysis software) before simulation training.
CORE	Securing in-situ and non-hospital based environments, equipment, and supplies before simulation training to notify staff and public that a simulation is in progress.

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Functional Group 3: Realism and Authenticity



Priority	PAs
CORE	Staging simulation environments to match the environmental or practice setting according to the case scenario.
CORE	Applying medical equipment and devices to simulators (e.g., IV, ECG, O2, fetal heart simulator) according to the case scenario.
CORE	Applying and removing moulage to simulate different injuries, burns, wounds etc. according to manufacturer guidelines and the case scenario.
CORE	Using variable art mediums (e.g., silicone, ballistic gel, simulated blood, paint), materials (e.g., chemicals, antiseptic solutions), and equipment (e.g., speakers) to enhance environmental realism in simulated environments (e.g., visual, auditory, olfactory, tactile) aligned with learning objectives and financial constraints.
CORE	Designing, building, and preparing task trainers using various materials, equipment, and digital technologies (e.g., locally-sourced items, cadaveric tissue, animal and meat products, CAD design, 3D printing, additive manufacturing) aligned with learning objectives and financial constraints.
CORE	Evaluating and refining task trainer prototypes through iterative testing with facilitators and educators.

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Functional Group 4:

Hardware and Software Operations and Troubleshooting



Priority	PA's
CORE	Setting up, calibrating, and operating simulators and task-trainers (e.g., XR headsets and controllers, manakins, task trainers, AI-powered simulations, game-based simulations) before, during and after simulation training.
CORE	Pre-programming simulators (e.g., XR headsets and controllers, manakins, task trainers, AI-powered simulations, game-based simulations) with the indicated physiological responses and vital signs from the simulation planning document.
CORE	Performing diagnostic functionality checks of simulators and task trainers (e.g., XR headsets and controllers, manakins, task trainers, AI-powered simulations, game-based simulations) before simulation training.
CORE	Troubleshooting and testing simulators and task trainers (e.g., XR headsets and controllers, manakins, task trainers, AI-powered simulations, game-based simulations), documenting accordingly.
CORE	Performing routine maintenance and repairs on simulators and task trainers (e.g., XR headsets and controllers, manakins, task trainers, AI-powered simulations, game-based simulations), including replacing worn-out parts, updating softwares etc.
CORE	Supporting adjustment of simulators (e.g., manakins) physiological parameters and vital signs in real time in collaboration with the facilitator.
CORE	Resetting simulators and task trainers post-simulation training (e.g., XR headsets and controllers, manakins, task trainers, AI-powered simulations, game-based simulations).
CORE	Cleaning and storing simulators and task trainers post-simulation training (e.g., XR headsets and controllers, manakins, task trainers, AI-powered simulations, game-based simulations), adhering to safety and security standards (e.g., JHSC standards).

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Functional Group 5: Audiovisual



Priority	PAs
CORE	Managing live video streaming for remote simulation training sessions.
CORE	Troubleshooting audio and video quality.
CORE	Organizing, deleting, and archiving audio and video recordings and data from simulation sessions in accordance with institutional policies and privacy standards.
CORE	Operating different web-based applications and information systems.
CORE	Providing real-time technical support to facilitators and learners with video recordings.

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Functional Group 6: Simulation Centre Operations



Priority	PAs
CORE	Provide recommendations for simulation equipment procurement and ongoing maintenance using cost-effective solutions (i.e., sourcing decommissioned equipment, replacement parts for equipment and simulators).
CORE	Ordering, maintaining, and storing simulation auxiliary equipment, task trainer fabrication materials, medical supplies, and drugs (e.g., crash carts, casting carts, ultrasound machines, cadaveric tissue, animal and meat products etc.).
CORE	Installing, updating, and maintaining payments for digital content, softwares, applications, and accessibility features across simulation platforms (e.g., XR applications, AI-powered platforms, LMS tools, serious games).
CORE	Tracking inventory and restocking equipment using the just-in-time process.
CORE	Managing and tracking donated supplies and equipment to ensure acceptability, usability, and equitable allocation across simulation settings.
CORE	Maintaining and updating a contact list of supply and equipment company representatives.
CORE	Planning, coordinating, and facilitating interprofessional simulation events.
CORE	Facilitating institutional promotional activities with internal audiences, donors, and the general public.
CORE	Assisting with facility and equipment upkeep, organization, maintenance, and warranties.

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Functional Group 7: Health and Safety



Priority	PAs
CORE	Providing recommendations for adjustments to simulations to accommodate learner stress, discomfort, accessibility needs, and cultural factors, ensuring inclusivity for all learners.
CORE	Providing recommendations for adjustments to simulations to ensure psychological safety for all learners.
CORE	Supporting safety culture within the simulation environment to promote EDI, respect, and psychological safety for all learners.
CORE	Adhering to and advocating for policies and procedures for simulation centre operations (i.e., managing simulator and electronic failures, following IPAC protocols)
CORE	Completing and submitting incident reports.
CORE	Safely disposing of potentially hazardous equipment and materials using WHIMIS and universal precaution guidelines.
CORE	Assessing risks and scope of responsibility and escalating technical or safety concerns to the appropriate personnel.

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Functional Group 8: Program and Research Support



Priority	PA
CORE	Assisting with program and course evaluation (i.e., data collection, synthesis, visualization, report generation) to identify trends and provide recommendations for ongoing quality improvement.
ELECTIVE	Developing post-simulation surveys to gather feedback from learners and facilitators to support future modifications.
ELECTIVE	Assisting with writing grants to secure funding for simulation research and development projects.
ELECTIVE	Assisting with field research in simulation-based education (i.e., interviews, recruitment, data collection and analysis, dissemination, and manuscript preparation)

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Functional Group 9: Advanced Digital Simulation



Priority	PA
ELECTIVE	Designing, developing, and uploading XR simulations in Animatage, Hurix etc.
ELECTIVE	Programming interactive learning scenarios (e.g., fire, agitated patient) in XR and AI-powered simulations and serious gaming engines (e.g., Unity).
ELECTIVE	Working with facilitators to train and configure AI chatbots and virtual standardized patients.
ELECTIVE	Modifying and refining XR, AI-powered simulations, and serious gaming elements and content (e.g., scenario design, avatars, scoring systems, feedback loops, difficulty levels, adaptive responses) based on user feedback, educational effectiveness, learner abilities and needs, and alignment with EDI principles and accessibility standards.