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# Patient Simulation in Canada: Current State Findings



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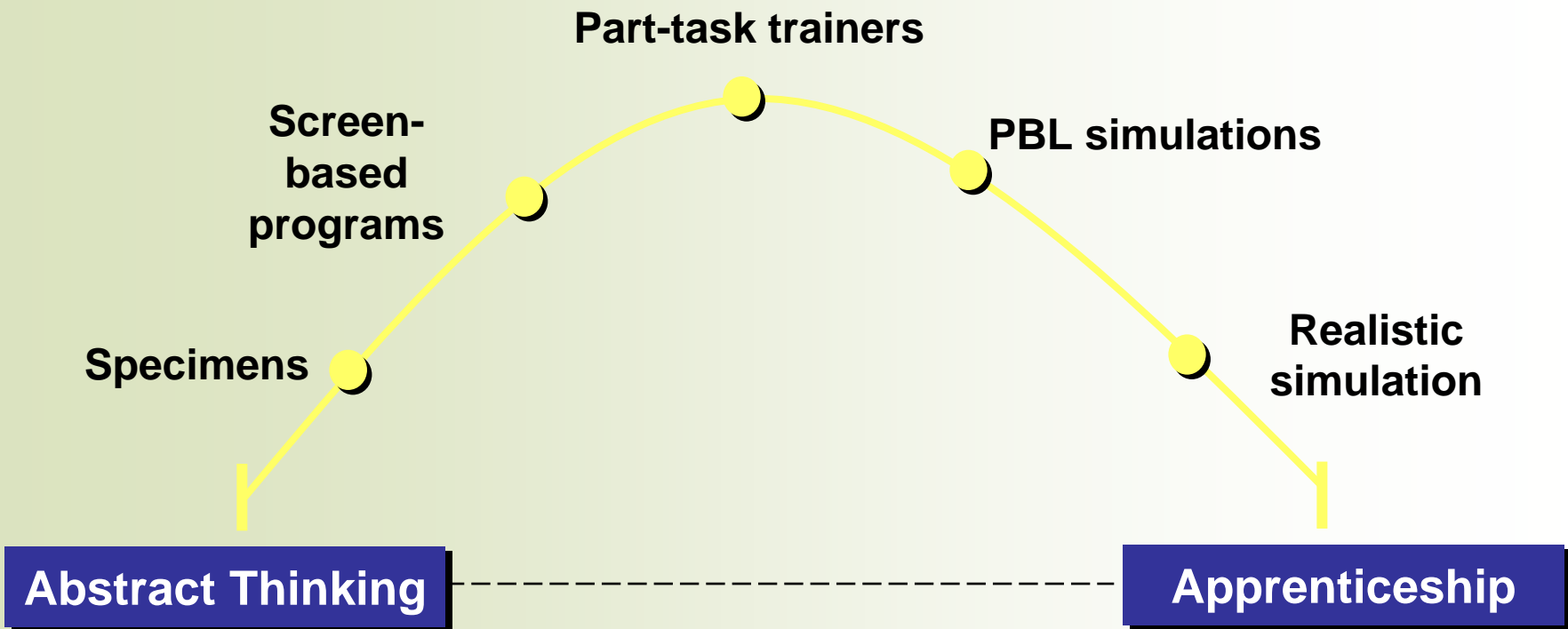
# PRESENTATION OVERVIEW

- Patient Simulation in Canada: An Overview
- Survey and Key Findings
- Common Themes from Surveys and Interview
  - Benefits
  - Barriers
  - Critical Success Factors
  - National Simulation Efforts
  - Future Vision for Simulation
- Wrap-Up
  - Reflect on Report
  - What's Missing?

# PATIENT SIMULATION: AN INTRODUCTION

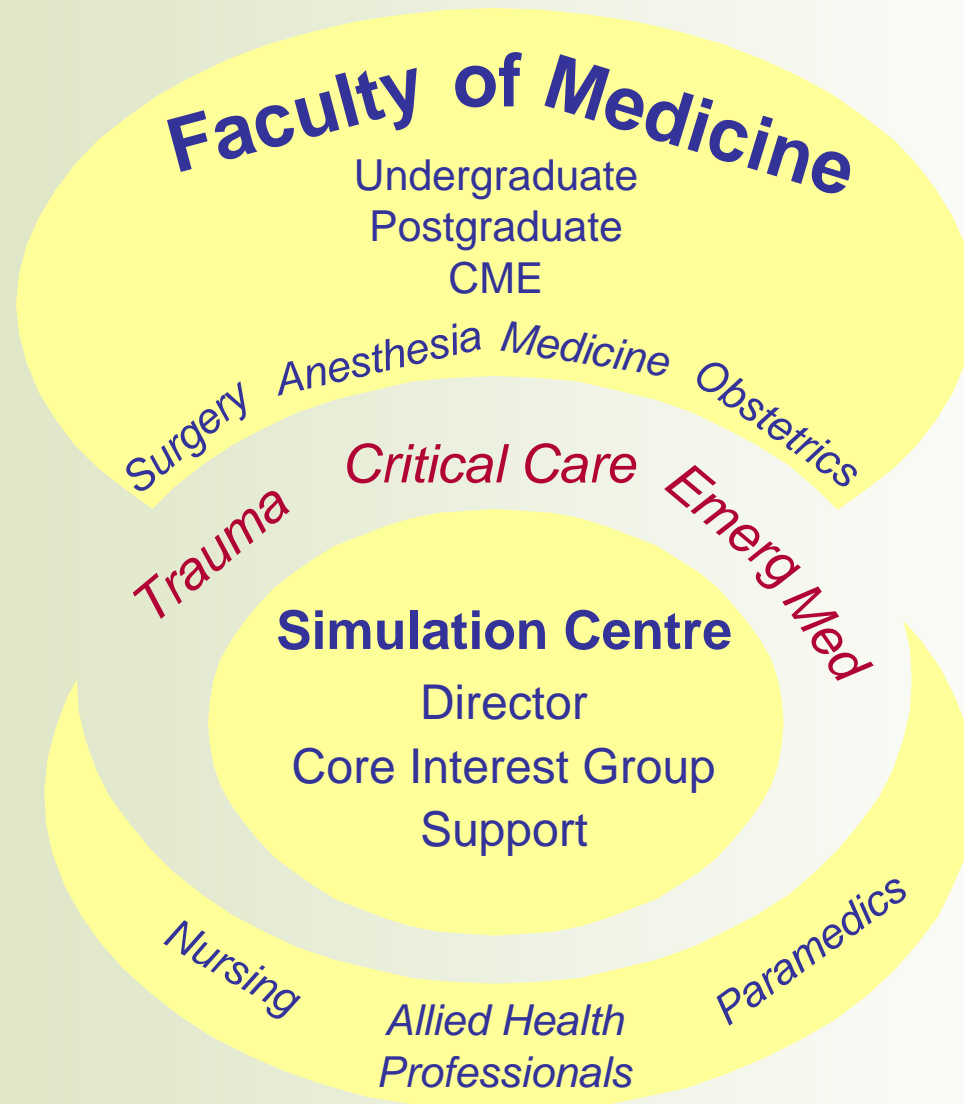
- Apprenticeship Model (“learning by doing”) is becoming less acceptable
  - Awareness of adverse events
  - Demographics of aging patients
  - Increasing acuity and complexity
  - High cost of teaching in the clinical environment
- Simulation is an innovative approach to experiential education
- Evolution of Simulation
  - Users
  - Applications
  - Acceptance

# Role of Simulation in Education

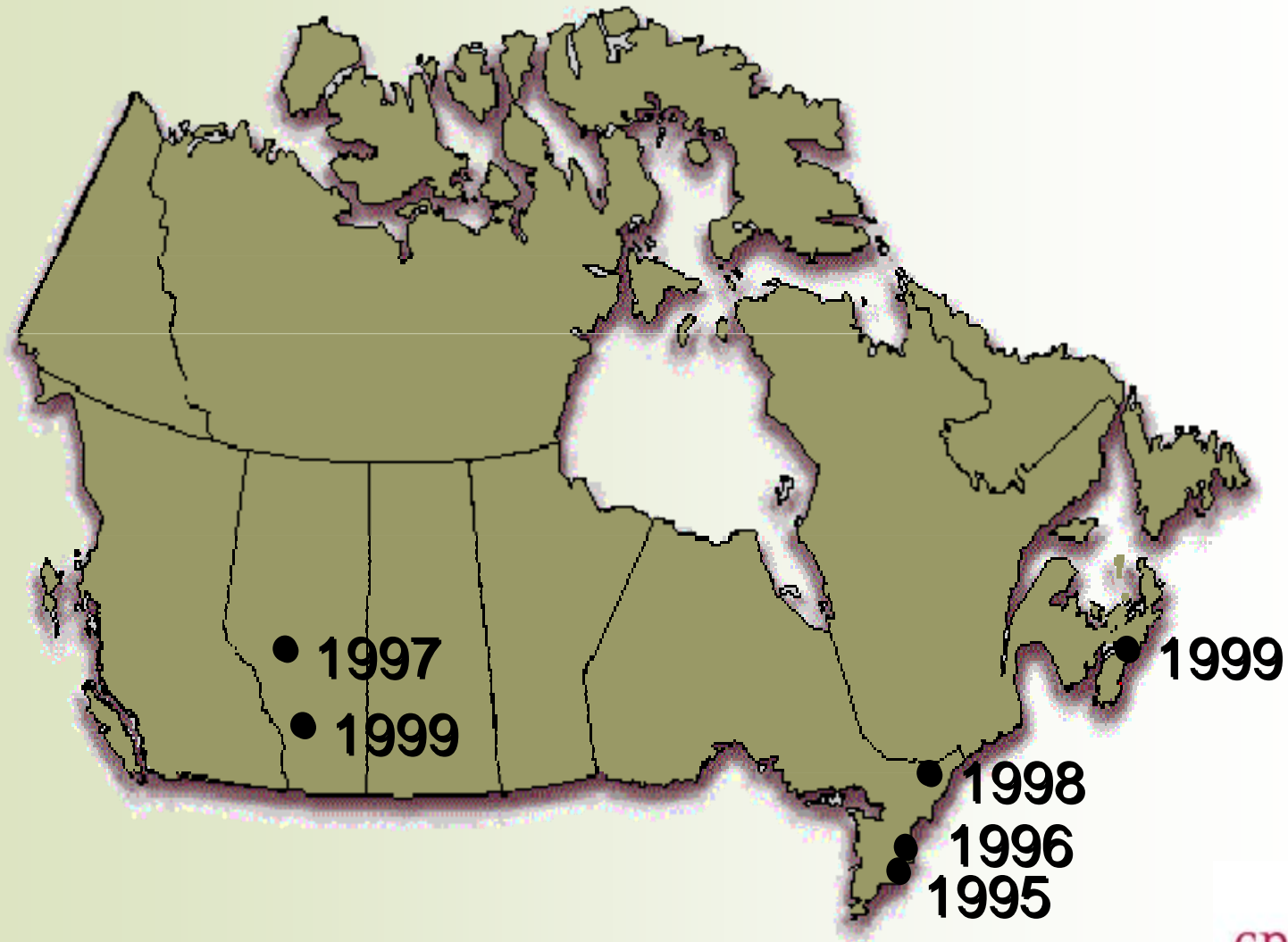


Multi-Modal Learning Resource Centre

# The Academic Model



# History of Simulation-Based Education in Canada



## Costs of Construction (1994-1995)

<b>Simulator Purchase</b>	<b>\$250,000</b>
<b>OR Equipment</b>	<b>\$250,000</b>
<b>Room Renovation</b>	<b>\$50,000</b>
<b>Audiovisual Equipment</b>	<b>\$25,000</b>
<b>FTE - Fellow</b>	<b>\$90,000</b>
<hr/>	
<b>Total</b>	<b>\$665,000</b>

*Source: Can J Anaesth 1997;44:1191-5*

# Operating Costs & Personnel Requirements (July 1995 – June 1996)

- Administration

– Director	15% FTE	\$82,437
– Secretary	75% FTE	
– Simulator upgrades		
– Research		
– Salary	20% FTE	\$45,800
– RT	36% FTE	

*Source: Can J Anaesth 1997;44:1191*

# THE SURVEY: Methodology

## Current State Report

- Review of key simulation literature and websites.
- Online survey completed by representatives of 14 patient simulation centres
- Telephone interviews with 6 international leaders in patient simulation and 3 members of the CPSI Simulation Advisory Panel.

## Focus on the use of high- and intermediate-fidelity simulation tools:

**High Fidelity:** *Dynamic, integrated systems that combine highly sophisticated, life-like mannequins with computer programs driven by complex models of respiratory and cardiovascular physiology and extensive pharmacological modelling of drugs. Examples include both model-driven simulators (e.g. METI HPS) and instructor-driven simulators (e.g. Laerdal SimMan).*

**Intermediate Fidelity:** *Replicates only part of the environment, enabling simulation of a subset of functionality. This category includes virtual reality and haptic systems as well as part task trainers that are used to train both basic and complex technique related to psychomotor skills. Examples include the MedSim UltraSim, AccuTouch endoscopy simulator, laparoscopic simulators, and the 'Harvey' cardiology simulator. Note that this category does not include basic mechanical models that lack functionality for feedback or varying of scenarios.*

# PATIENT SIMULATION IN CANADA: OVERVIEW

- **2005: 17 simulation centres identified across Canada**

Centre of Excellence for Surgical Education and Innovation (CESEI), Vancouver	Canadian Simulation Centre for Human Performance and Crisis Management Training, Toronto
STARS Centre for Education and Research in Transport and Emergency Medicine, Calgary & Edmonton	Department of Anesthesiology at Queen's University, Kingston
Capital Health Regional Simulation Program, Edmonton	Clinical Learning Centre, Hamilton
Clinical Learning Centre, Winnipeg	Clinical Skills and Simulation Centre, Ottawa
Ontario Air Ambulance Simulator Program, Toronto	Algonquin College Simulation Project, Ottawa
Mt.Sinai Hospital Program for Resuscitation Education and Patient Safety (PREP), Toronto	McGill Medical Simulation Centre, Montreal (Jan. 2005)
Patient Simulation Centre at St. Michael's Hospital, Toronto	Urgences-Sante EMS Training Centre, Montreal
The Michener Institute, Toronto	Atlantic Health Training and Simulation Centre, Halifax
	Memorial University of Newfoundland, St. John's

# KEY SURVEY FINDINGS (1)

- **Program Type:**
  - Undergraduate (93%) and post-graduate (100%) students
  - Continuing professional education (86%) programs
- **Simulation Tools:**
  - 93% use high-fidelity tools
  - 43% use intermediate-fidelity tools (36% use both)
- **Practical Applications: (Beyond training and education)**
  - Competency assessments: 71%
  - Certification maintenance (primarily BLS & ACLS): 50%
  - Equipment/instrument/device testing: 57%
- **Primary User Groups:**
  - **Medical:** Anesthetists & Residents (71%), ER Physicians (57%) & Residents (71%), ICU Physicians (57%) & Residents (71%)
  - **Surgical Residents** (43%)
  - **Nursing:** ICU (71%), ER (50%), OR (50%), CCU (43%)
  - **Other Professional:** Respiratory Therapists (71%), EMS (64%), Inter-professional transport teams (50%)

## KEY SURVEY FINDINGS (2)

- **Interdisciplinary:** 79% of centres offer opportunities for interdisciplinary or cross-departmental training.
  - Obstetric labour and delivery teams
  - Inter-hospital transport teams
  - ICU, OR and ER teams
  - Respiratory therapy with ICU or OR teams
  - CRM training for cardiac arrest/code blue teams
  - Airway/trauma training for military medical teams
- **Promotional Efforts:** 79% of centres are currently undertaking efforts to promote and expand use of their centre to
  - Other healthcare educators
  - Allied health professionals
  - Pharmacy and Nursing schools
  - Canadian Forces Health Services Group
  - Industry members (equipment demonstration)
- **Efficacy of Simulation Tools:**
  - 14% stated that simulation tools *do not* meet their needs,
  - 71% stated they *somewhat* meet their needs
  - 14% stated they *exceed* their needs.

# KEY SURVEY FINDINGS (3)

- **Primary Simulation Funding Sources:**

Primary Funding Source	Capital Costs	Fixed Operating Costs	Program Delivery
Provincial government	31%	15%	0%
Educational institution	31%	31%	31%
Healthcare institution	23%	38%	31%
Private/Donor support	15%	8%	8%
Cost-sharing (Educational and Healthcare institution)	0%	8%	15%
Cost Recovery from Participants	0%	0%	8%
Other	0%	0%	8%

- **Program Evaluation:** 71% of survey participants stated that their centre has not conducted an evaluation, 14% stated that they have conducted an evaluation (the remaining 14% were unsure).

# TEAM TRAINING = PATIENT SAFETY



# COMMON THEMES: BENEFITS OF SIMULATION

- **Skill Development / Assessment**
  - Valuable: to enhance and enrich clinical skills practice in a safe environment
  - Efficient and effective means for evaluating performance of individuals and teams
  - Encourages self-assessment
  - Opportunities for consistency and objectivity in credentialing or certification of healthcare professionals.
- **Culture/Team Development**
  - Focus on crisis resource management in a team environment
  - Enabling a multi-disciplinary, problem-solving approach
- **Safety**
  - Opportunities for controlled exposure to high acuity, low frequency
  - Detailed debriefing
  - Patient safety
  - Potential for standardization of care and directives: protocols and procedures.
  - Potential as a research tool: to examine ways to improve education, error reduction, infection control, etc.

# COMMON THEMES: BARRIERS TO THE GROWTH OF SIMULATION

- **Under-funding and under-resourcing**
- **Overcoming traditional attitudes and practices**
- **Generating institutional, faculty and clinical support**
- **Slow growth of simulation technology**
  - Slow demand and overall lack of incentives for vendors has slowed the advancement of technology.
- **Lack of champions**
  - Simulation champions, as well as qualified and experienced educators, are required to drive change, spearhead new programs, and provide mentorship.
- **Other**
  - Incorporating evidence-based practice into simulation scenarios
  - Lack of 'hard' evidence of increased competency or improved patient outcomes.
  - Little support to date for the use of simulation for licensure and certification.
  - Funding for research is extremely limited.

# COMMON THEMES: CRITICAL SUCCESS FACTORS

- **Finance/Planning**
  - Long-term business planning.
  - Financial autonomy and institutional independence.
  - Securing institutional support (financial and time).
- **People/Culture**
  - Identifying and recruiting qualified and experienced educators and simulation champions.
  - Develop and nurture a culture of patient safety that supports learning & transparency.
  - Establish a venue for all professions and societies to foster multidisciplinary collaboration.
  - Clear messaging about simulation as a contribution to patient safety, focus on error reduction and humanistic aspects.
- **Tools/Technology**
  - Collaboration between simulation vendors and users to advance technology.
  - Clinical trials and ongoing research.
- **Critical support from other entities, including:**
  - Medical malpractice insurance system (insurance incentives related to simulation training).
  - Certification boards and provincial licensing authorities (simulation as an evaluative tool).
  - Medical device industry (use of simulation in design, assessment and training).

# COMMON THEMES: NATIONAL SIMULATION EFFORTS

## United States

- Coordinated simulation efforts are still largely specific to particular professional associations, however some quasi-national organizations are emerging, such as Advanced Initiatives in Medical Simulation (AIMS), and the Society for Medical Simulation (SIMS)

## United Kingdom

- National Association for Medical Simulators
- Scotland is initiating a 'hub & spoke' model comprising multiple disciplines from 5 medical schools working together to develop and evaluate simulation courses.

## Australia

- Federal health department is developing an eastern Australia synthetic teaching strategy that includes coordinated simulation activities.

## Israel

- All simulation activities are coordinated through the Israel Center for Medical Simulation.

# COMMON THEMES: FUTURE VISION FOR SIMULATION (1)

- **Financial Security**

- Increased number of independent simulation centres: operated (autonomous) and funded by government, private donors and/or industry partnerships.
- Sustained funding for ongoing research and clinical trials to assess the impact of simulation as an education modality that improved patient outcomes.

- **Curriculum / Process Integration**

- Simulation will be completely embedded into the fabric of education, from early students of sciences to medical residents and practitioners.
- Simulation will not be an add-on, but an integral part of our work, fully integrated into how we evaluate and certify healthcare professionals, as well as how we test medical devices and hospital systems or processes.
- Well-developed programs that offer truly multidisciplinary, team-oriented simulations as part of undergraduate, postgraduate, continuing medical and other professional healthcare education.

# COMMON THEMES: FUTURE VISION FOR SIMULATION (1)

- **Cultural Transformation**
  - Simulation is recognized broadly and supported as an innovative learning environment that offers significant and unique benefits.
  - Young professionals and educators are engaged by simulation and recognize the value of experiential learning.
  - Evolution of a culture of patient safety in which the stigma of testing is removed and people feel comfortable sharing mistakes made and lessons learned.
- **Advances in Technology**
  - Advanced simulation technology that enables seamless integration of multidisciplinary teams in immersive, multi-person simulations.
  - Simulation vendors actively engage and collaborate with users, recognizing the critical educational role of simulation and developing tools and resources to support simulation training.

# WRAP-UP

- Do the findings summarized here reflect your understanding of the current patient simulation landscape?
- Have certain ideas been under- or over-emphasized?
- What's missing?
  - Perspective of the 'non-converts', particularly other healthcare educators.
  - What else?
- The facilitated group sessions this afternoon will build on these findings and discuss ways that Canada's simulation community can collaborate to realize a shared vision for patient simulation.

**~ Thank You ~**