Simulation-based Training as a Cultural Change Vehicle in Healthcare Quality & Patient Safety Education

Prof. Amitai Ziv MD, MHA
Deputy Director, Sheba Medical Center (SMC)
Director, Patient Safety and Risk Management
Director, Israel Center for Medical Simulation (MSR)
Associate Dean for Medical Education, SMC
School of Medicine, Tel-Aviv University
An Opportunity to **Err** and to **Reflect**…

...הדמונות לטועות ולתהתו...
Aviation and Medicine

• **Similarities**
  – Broad-spectrum simulation modalities
  – High-risk and high-tech industries
  – Low tolerance to errors
  – **Intolerance to not learning from errors**
  – Diverse skills/personality characteristics

• **Differences**
  – Admission and screening culture
  – Training and certification culture
  – Reporting and debriefing culture

**Assessment & Safety Culture**
The Epidemic

1999 ~ 100,000 annual deaths from medical errors - IOM

Medical errors are the 5th cause of death

1 x 747 Crashing daily
The Epidemic

2013 > $400,000$ annual deaths from medical errors - NASA

Medical errors are the $3^{rd}$ cause of death
It’s About Our Systems
The (educational) Swiss Cheese Model

Inadequate Screening & Selection Process
Sub-optimal Training & Formative Assessment
Competency Assessment & Licensing Paradigm
Recertification / Maintenance of Competency (MOC & MOL)

Continuum of Education & Practice
Safety, Quality and Equality

A call for a

Cultural Change

Educational Revolution

Paradigmatic Shift
Why Simulation?

• Safe environment - mistake forgiving
  – **Error driven education**

• Proactive and controlled training
  – **Nightmare driven education / Receptiveness**
  – **Just in Time / Transitions = Increased Motivation**

• Trainee/ Team / System Centered Education
  – **Experiential / Emotional learning - IPE**

• Feedback and debriefing-based education
  – **Reflective/Narrative learners / Process-based education**
  – **The message: Apply in & as Life Long Learners**

• Reproducible, standardized, objective (CSA)
  – **Assessment driven education**
  – **Shift from “easy to measure” to “important to measure”**
Higher Order Competencies / Skills

• **Safety Skills** *(Error = Unasked Question)*
  – Handover, Adherence to Guidelines, Error Recovery, Calling for Help, Documentation, EMR: Doc/Pat/Comp Skills

• **Team Work Skills**
  – CRM, Leadership, Followership, IPE: Inter-professional Skills

• **Multi-Cultural and Communication Skills**
  – Cultural Humility, Patient Centered skills, Use of Interpreter Skills…

• **Reflective Skills**
  – Debriefing, Self assessment, Feedback Provision Skills

• **Personal Traits**
  – Integrity, Motivation, Capacity, Humility, Risk Taking Traits
The Good News - Driving Forces of Simulation and Patient Safety Education

- **Patient safety (and simulation) movement**
  - NPSF, CPSI…
- **Accountability of Medical Education (BMJ 2009)**
  - Competency-based education
- **Ethics - Patient (& animal) Rights movements**
  - Patient Centered Concept
- **Accreditation bodies / professional boards**
  - Performance Assessment
- **Global migration of health professionals**
  - Proficiency & Gate-keeping needs
- **Liability and Mal-Practice**
- **Simulation industry** – more mature…
Simulation Modalities – High-Tech & High-Touch
Simulation Centers - Models

- **Multiple Sim-centers** worldwide – multiple models
  - Single Profession / Single Modality
  - Networks of Silos *(e.g. - Sim1 - GTA)*
  - Institutional *(e.g. - Mayo Clinic)*
  - National Model *(e.g. - MSR)*
MSR – The Israeli Vision

National resource for comprehensive inter-disciplinary, multimodality medical simulation center dedicated to:

• Patient safety and quality care
• Hands-on training
• Readiness to clinical practice
• Performance assessment

Cultural Change Vehicle
MSR - Virtual Medical Environment

• Broad-spectrum simulation modalities
  – Simulated patients / Hybrids
  – High-tech simulators
  – Task trainers / Skills lab

• Clinical environments
  – Home, Field, ER, OR, clinic
  – Customized - EMR

• Debriefing capabilities
  – One-way mirrors
  – Digital A-V equipment
  – Debriefing software

• Multidisciplinary staff
Guidelines and Principles

• National exposure / collaboration
  – Involve Regulators - national needs (IMA, MOH, IDF, HMO) – **Certification**

• Link with RM and Patient Safety database / “real world”
  – Stress error reduction / adherence to guidelines / communication skills

• Non profit - fee for service – operationally balanced
  – Financial stability (autonomy) – Business Model

• Focus on debriefing / assessment /
  – “Train the Trainer / Rater” – **Bottom-up & top-down** approach

• Assessment - Expertise in testing and evaluation
  – Strategic partnership with **NITE** (‘Israel’s ETS’)

MSR 15 Years of Activity

- >190,000 Trainees / Examinees
  - Medicine, nursing, para-medicine - >40% as organic teams
- Multimodality courses
  - >100 national programs
  - >150 SPs / >100 simulators / models
- Dedicated Multidisciplinary staff (>45 = >32 FTEs)
  - >2200 trained Trainers
  - >2800 trained Raters
- “MSR on Wheels” – Mobile Sim-arm (serves Israel’s periphery)
- Research – publications
  - 8 PhDs
  - >70 Basic science fellowships
National (higher-order skills) Programs (Sample)

• National medical Preparedness programs
  – Military/Civilian;
• MSR on Wheels
  – Pre-hospital/In-hospital
• Simulation as a Bridge for Peace
  – Trauma Skills Training for Palestinians
  – Opening of new Maternity Ward – St. Joseph
• National Patient Centered Ethical Programs
  – Transparency / Apology / error disclosure / informed consent
  – Cultural Competence - translator
  – Risk Management – Pharmacists
  – Role Modeling - Conveying bad News
  – “End of Life” Skills
Multiple National Mandatory Programs (Sample)

- **Interns** – transition into hospitals *(Job Analysis Driven)*
  - 4 d “nightmare course” > 1000 interns annually (> 11000 tot)
- **Conscious Sedation** for Non-Anesthesiologists
- **Improving Teamwork in ORs and ICUs**
  - CRM – Crew/Crisis Resource Management
- **OB-Gyn - Organic Delivery Team Training**
- **Emergency Medicine - Mandatory Residents’ Training**
- **Physician / Patient / Computer Skills**
  - HMO & Hospital-based staff - Customized EMR
Additional National Sim-Programs at MSR

• Domestic abuse
  – Old age, women, children, cognitive-challenges
• Adolescent Medicine (Med / SW/ RNs, Teachers etc).
  – Military recruitment centers screening: Patient Experience
• Improving “Client & Family Experience” in Populations with Special Needs
  – Cognitively Challenged - Kids Rehab (Holland Bloorview - Toronto)
• Medical Clowns Training
• Schools’ Principles and Pedagogic Consultants
  – In collaboration with the Ministry of Education
• Court Judges Workshops
National Simulation-Based High-Stakes Assessment at MSR
In Collaboration with NITE

- **Anesthesiology board exams** (since 2003)
  - In collaboration with the Israel Board of Anesthesia

- **Emergency Medicine board exams** (since 2012)
  - In collaboration with the Israel Board of Emergency Medicine

- **Paramedics certification exams** (since 2004)
  - In collaboration with Magen David Adom

- **Advanced nursing licensing exams** (since 2008)
  - 15 different clinical domains
  - In collaboration with the Israel MOH Nursing Authority

- **MOR - Screening of medical school candidates** (since 2005)
  - In collaboration with TAU, Technion, HU, Bar-Ilan
National (Cultural) Impact

- High penetration rate
  - **Vertical** - MDs: Admission / MS / Interns / Residents / Seniors
  - **Horizontal** - RNs / Dieticians / Pharma / SW / ST / OT
  - **Health care institutions** – HMOs / Hospitals / Prof. Schools

- Multiple sectors experience **High-Stakes SBT**
  - All interns / paramedics / military docs / advanced nurses / > 80% MS candidates
  - All residents in Anesthesiology, Emergency Medicine, Cardiology, Radiotherapy…
  - Senior Paramedics / Nurses / Physicians / Med School faculty (as Raters!)

- **Significant increase in SBME implementation**
  - Multiple peripheral sim-initiatives (in collaboration with MSR)
International Activities

• **Institutional Consulting**
  – Albert Einstein Sao-Paulo (Brazil), NYP-Columbia University (US)
  – McGill, Ottawa
  – International training courses – Italy, Ethiopia, Senegal (Brith Mila, HIV), Ghana, Russia, Kazakhstan, Kenya…
  – **Train the Trainer** (on/off-site) – Faculty Development courses:
    • Toronto - Michener, Sick-Kids, Kansas, U. Mass, Holy Name Hospital, Tulsa, Vietnam, India, Riga, Spain, Hong Kong, Singapore, Shanghai…

• **Curriculum partnerships:**
  – Mayo Clinic (ICU curriculum), Case Western (Surgical curriculum)
  – Holland Bloorview and Alyn – Kids Rehab
Simulation-based Safety Training: Patient Centered Paradigm Shift

**Traditional approach**
- Safety - Personal Value
- Secret / Close Guild
- Inaccessible Information
- Reactive System
- Professional Autonomy
- High Variability
- Assessment of Knowledge
- Duration-based education
- Apprentice-based learning

**21st Century Cultural Shift**
- Safety - System Value
- Transparency - Debriefing
- Free Flow of Information
- Proactive Approach
- Pt. Autonomy/Empowerment
- Evidence-based Norms
- Performance/Readiness Ass.
- Proficiency-based education
- Simulation-based Training

Education & Practice as one Continuum
Lessons / Challenges / New Frontiers

- **Transition from “Wow” to “Mature” Phase**
  - Link Sim-based training with Patient Safety & RM & Patient Experience Data
  - Systematic Incorporation into Continuum of Medical Education & Practice

- **Educational Challenges - Leadership**
  - Train the Trainers / Raters
  - Apply debriefing / self reflection in real practice
  - Develop the pre & post simulation components

- **Performance Assessment Measures of Skills**
  - Apply Preparedness / Readiness Concepts
  - Set new proficiency standards / Measuring “the important”…
Lessons / Challenges / New Frontiers

• **Delivery Model / Cost Effectiveness / Funding**
  – Fee for Service / Financial Stability
  – Sustainable Philanthropy
  – Alliance with Commercial World
  – Centralized site + Peripheral Satellites + Mobile
  – Distant Simulation-based Education

Recognition by Regulators: RM / QA / Boards

Accreditation / Licensure / Certification
The Patient Safety Message

Humility

Saves lives.....