



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



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MSR/מסר = A Value Message

An Opportunity to **Err** and to **Reflect**...

הזדמנות ל**טעות ולתהות**...

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

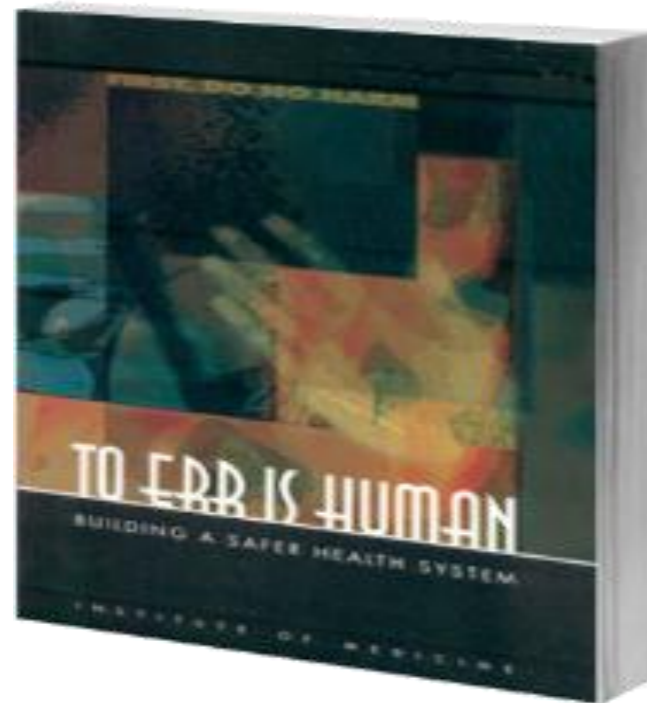


Assessment & Safety Culture



The Epidemic

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



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1 x 747 Crashing daily

Medical errors are the **5th** cause of death



The Epidemic

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



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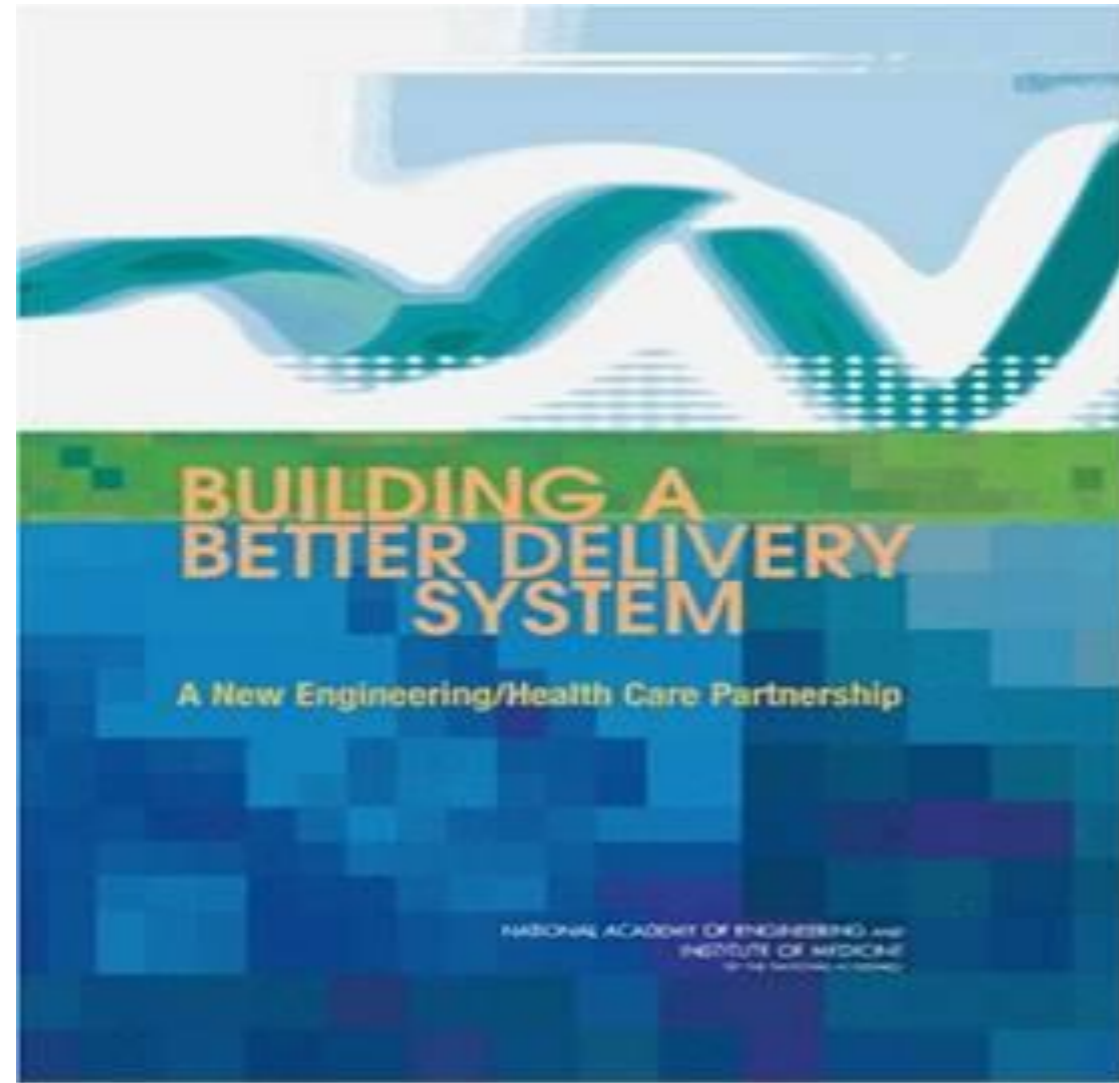


4 x 747 Crashing daily

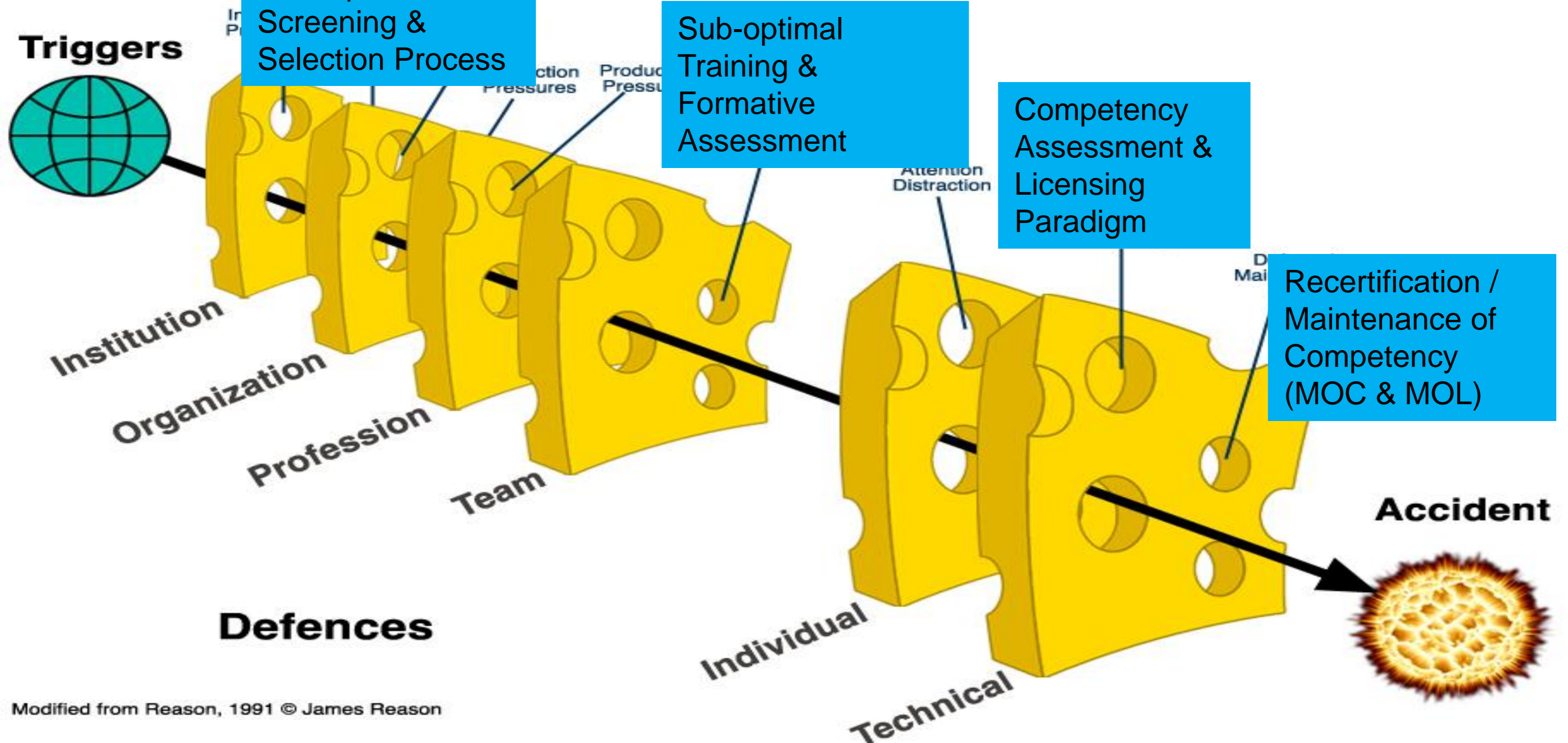
Medical errors are the **3rd** cause of death



It's About Our Systems



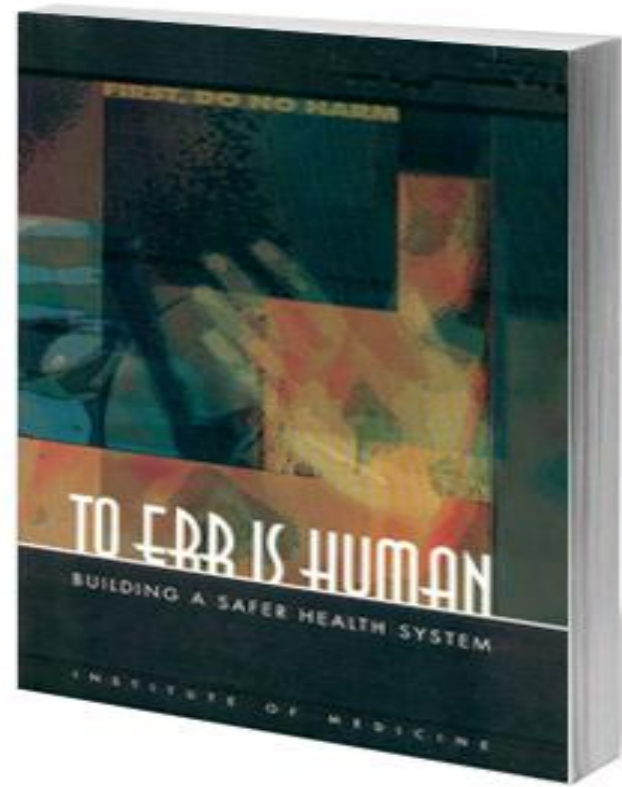
The (educational) Swiss Cheese Model



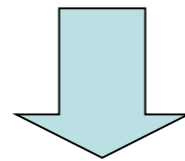
Modified from Reason, 1991 © James Reason

Continuum of Education & Practice

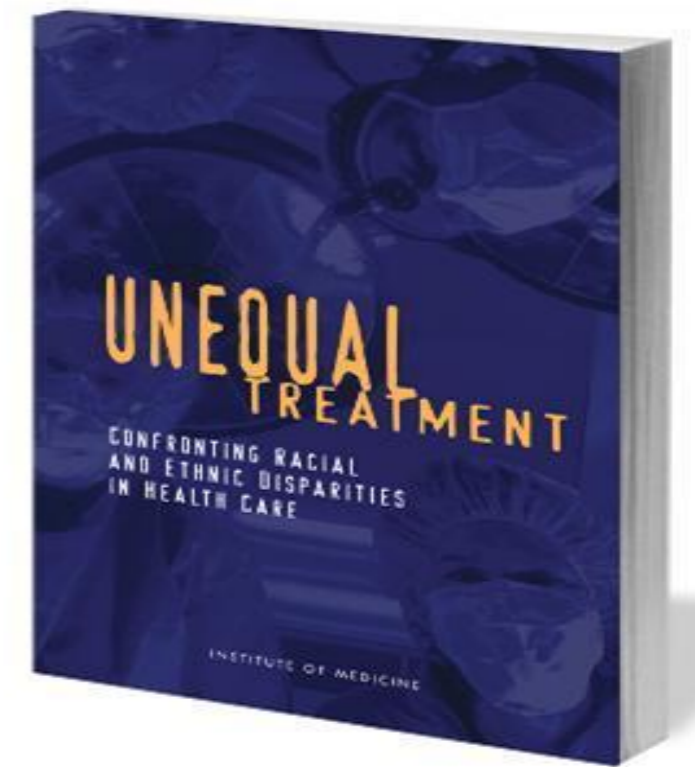
Safety, Quality and Equality



A call for a



Cultural Change



Educational Revolution

Paradigmatic Shift



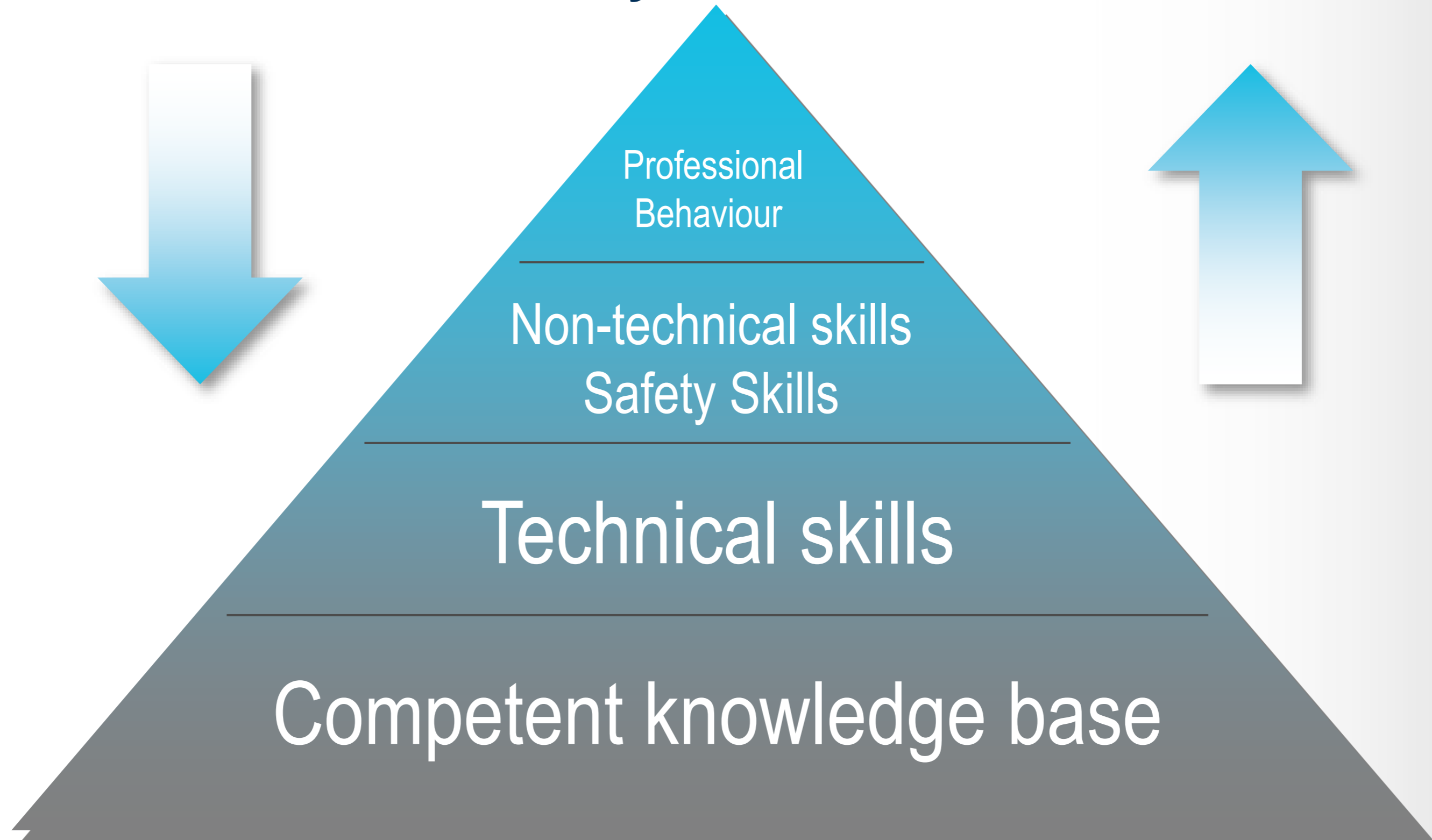
Why Simulation?

- 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”**







Professionalism- Hierarchy





Higher Order Competencies / Skills

- **Safety Skills (Error = Unmasked 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



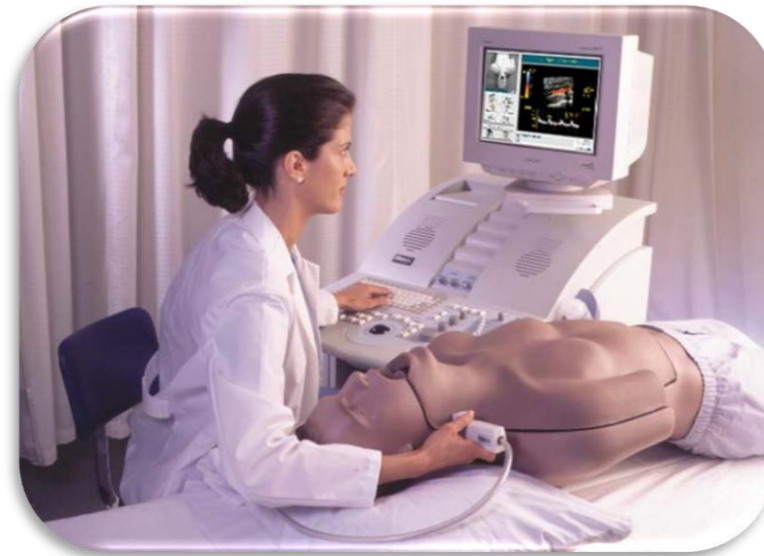
The Good News - Driving Forces of Simulation and Patient Safety Education

- **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

**Mandatory TTT/TTR Policy
National Change Agent**



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

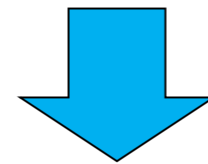
- **Transition from “Wow” to “Mature” Phase**
 - Link Sim-based training with Patient Safety & RM & Patient Experience Data
 - Systematic Incorporation into Continuum of Medical Education & Practice
- **Educational Challenges - Leadership**
 - Train the Trainers / Raters
 - Apply **debriefing / self 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.....