

Healthcare Simulation

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What is Simulation ?

*The term « medical simulation » means the use of **a device**, such as a mannequin, a task trainer, virtual and augmented reality, or a **standardized patient**, to emulate a real device, patient, or patient care situation or environment **to teach** therapeutic and diagnostic **procedures**, processes, medical concepts, and **decisionmaking** to one or a **team** of healthcare professionals.*

House of representatives USA – 111th congress 02.2009

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Simulation and risk activities



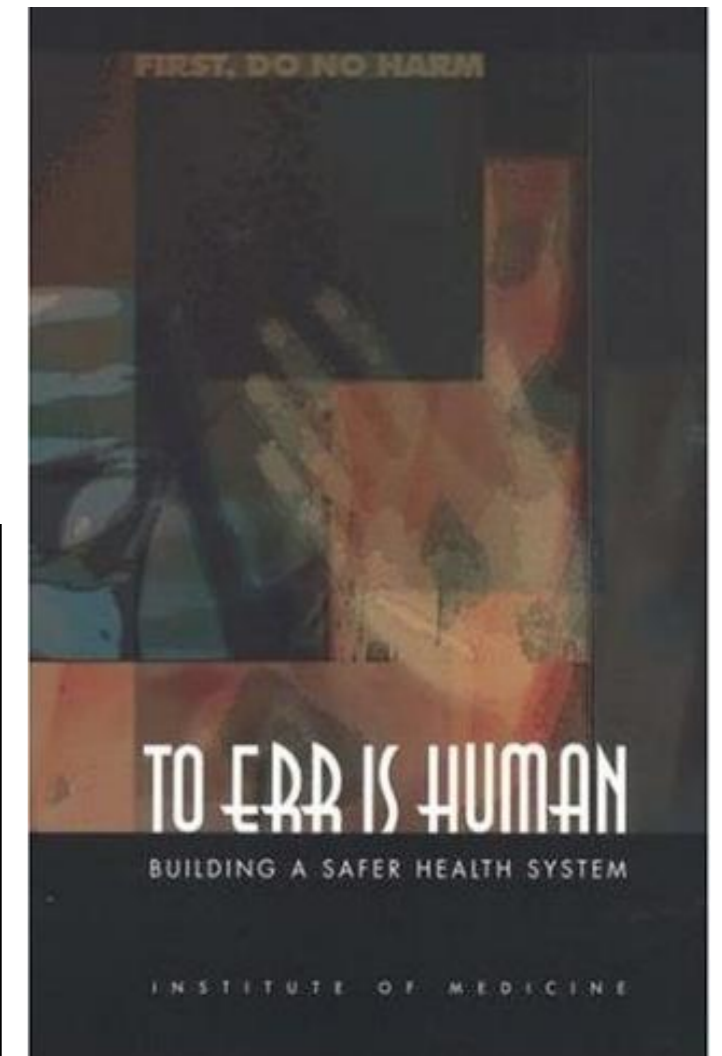
- **Improve training**
- **Manage risks**

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To Err is Human ...

To Err Is Human:
Building a Safer Health System
Institute of Medicine - 1999

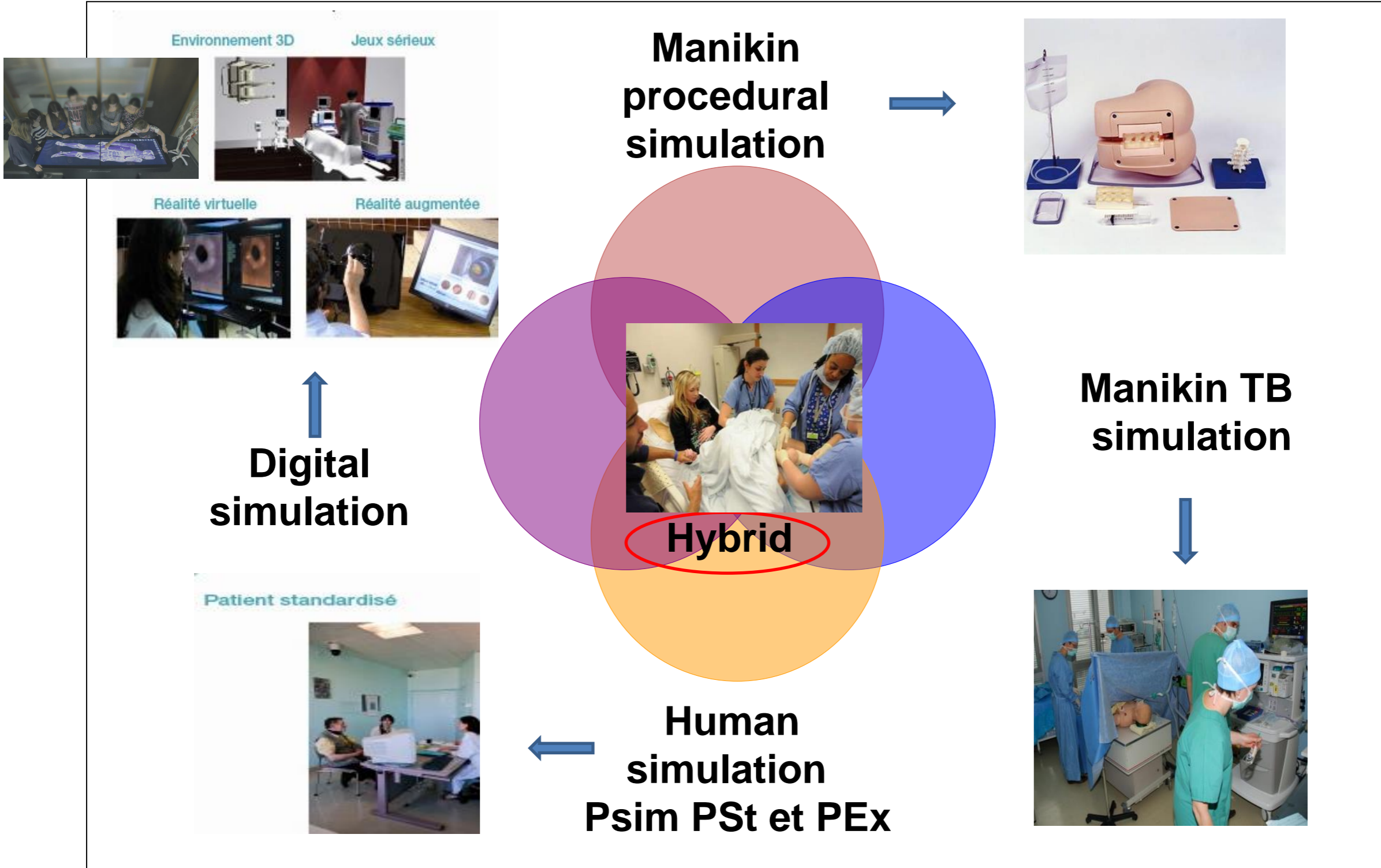
44 000 - 98 000 deaths /year



RECOMMENDATION 8.1:

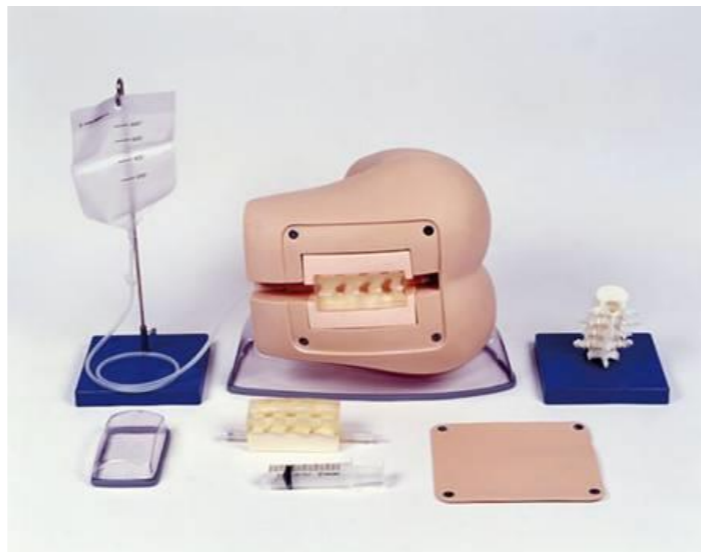
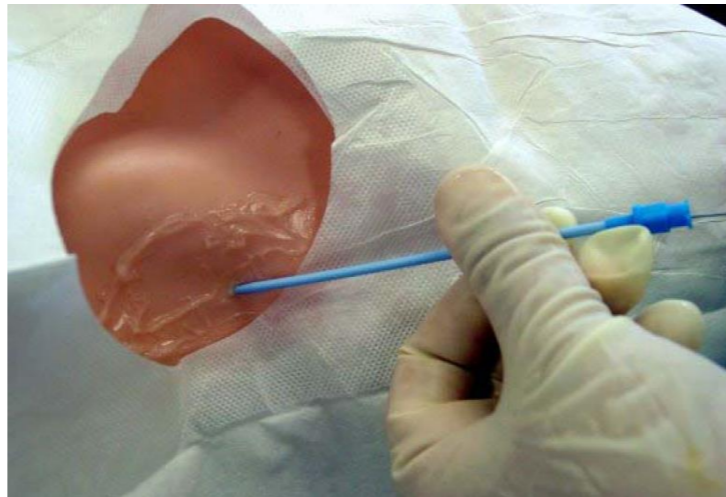
Patient safety programs should: ... establish interdisciplinary team training programs, such as simulation ...

Healthcare simulation



Simulation : some examples

- Central venous catheter
(Barsuk JH 2009)
- Tracheal intubation
(Mayo PH 2004)
- Pleural drainage
(Wayne DB 2008)
- Endoscopy
(Blum MG 2004)
- Laparoscopic surgery
(Andreatta PB 2006)





ECMO Simulation
Eye tracking



Simroid
"simulator humanoid"

Nippon Dental University in Tokyo

Breaking bad news and simulation

- Cancer announcement
- Announcement of a death
- Announcement of a disability...

*Patients look to us for
knowledge, guidance,
reassurance, hope, meaning,
and compassion...*







Etapes de la visite



Consultation 2



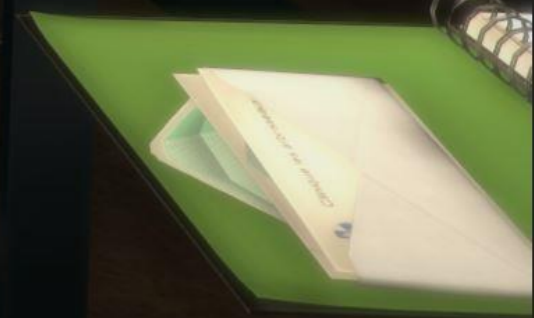
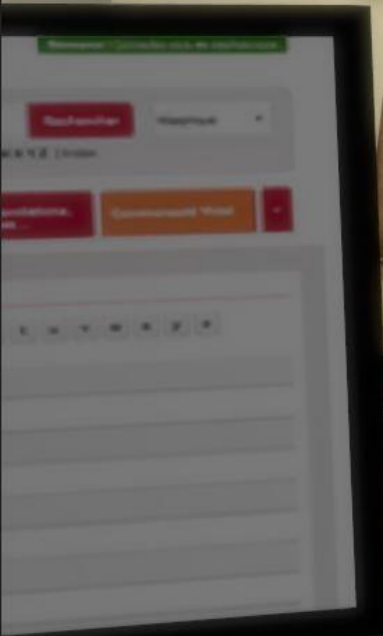
Dossier médical



Annexes



Dialogue patient



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Telehealth and simulation



- Teleconsultation, teleexpertise...
- Training in virtual contact doctor-patient
- Training in health connected objects



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Simulation and team training



CHEST

Original Research

EXPERIENTIAL LEARNING

Simulation-Based Education Improves Quality of Care During Cardiac Arrest Team Responses at an Academic Teaching Hospital*

A Case-Control Study

Diane B. Wayne, MD; Aashish Didwania, MD; Joe Feinglass, PhD; Monica J. Fudala, BA; Jeffrey H. Barsuk, MD; and William C. McGaghie, PhD

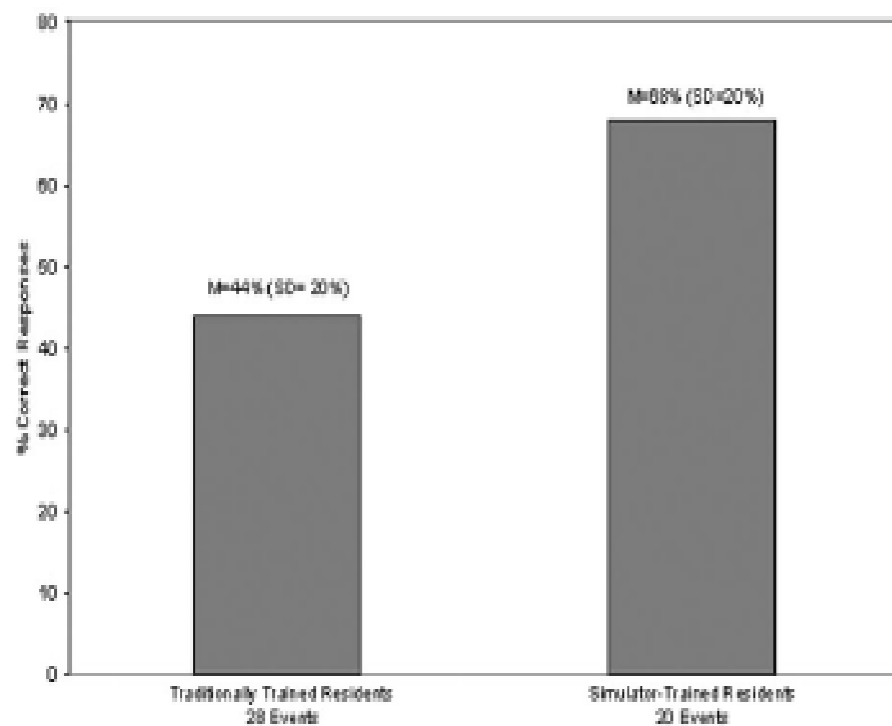


FIGURE 2. Adherence to AHA guidelines for 48 ACLS events ($p = 0.001$).

Acta Anaesthesiol Scand 2009; 53: 143–151
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ACTA ANAESTHESIOLOGICA SCANDINAVICA
doi: 10.1111/j.1399-6576.2008.01717.x

Review Article

Teamwork and patient safety in dynamic domains of healthcare: a review of the literature

T. MANSER
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Contents lists available at ScienceDirect

Resuscitation

journal homepage: www.elsevier.com/locate/resuscitation



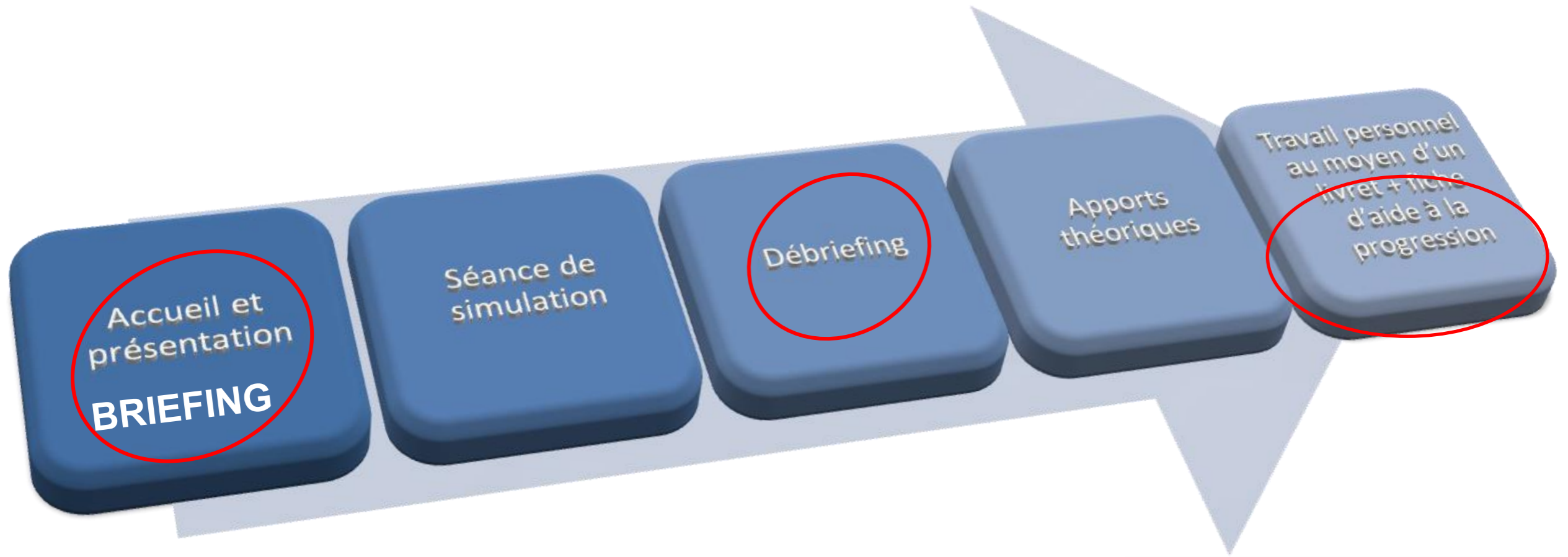
Simulation and education

The management of a simulated emergency: Better teamwork, better performance^{☆,☆☆}

Dimitrios Siassakos^{a,*}, Robert Fox^b, Joanna F. Crofts^a, Linda P. Hunt^c, Catherine Winter^a, Timothy J. Draycott^a

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What is a simulation session ?...



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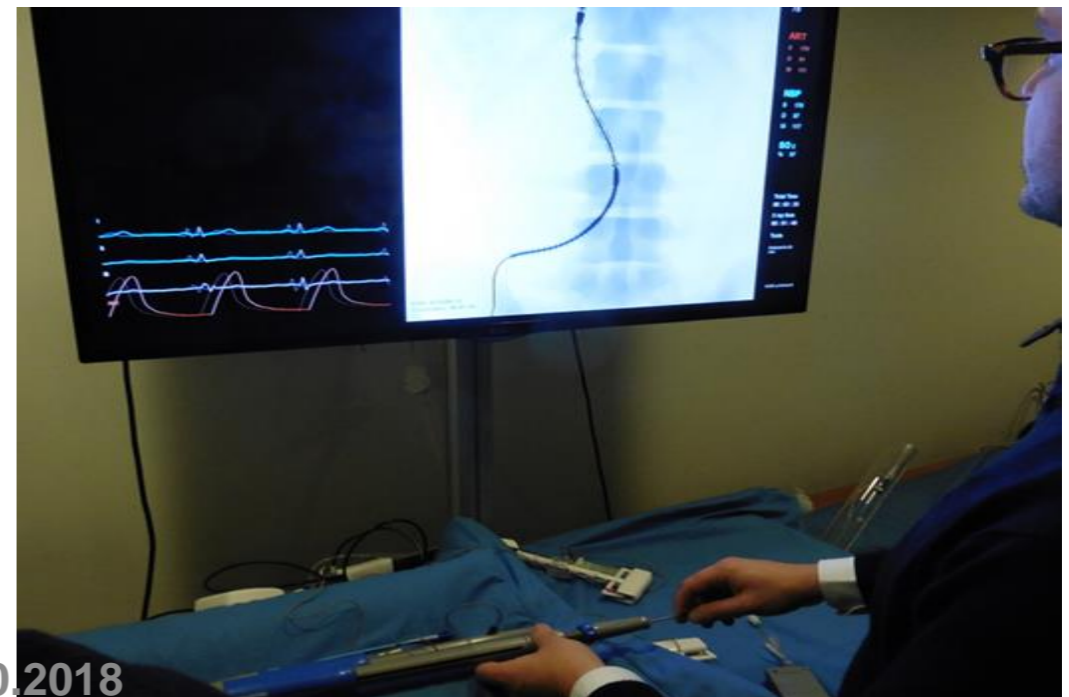
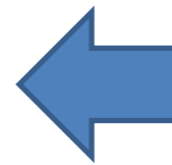
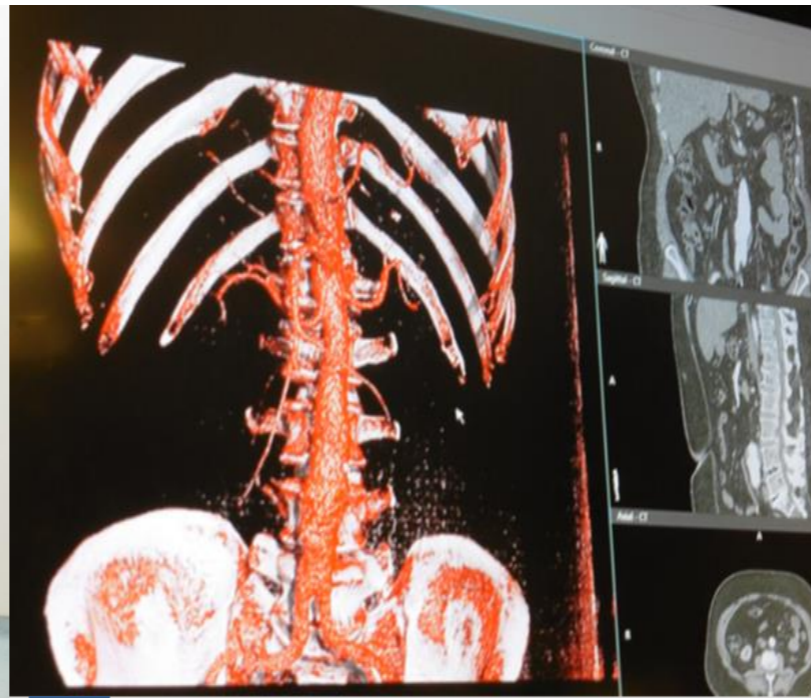


Healthcare simulation principles

- **Ethical imperative**
- **Training of trainers**
- **Safety care**
- **Political and financial issues**
- **Evaluation**
- **Research....**

Patient specific medicine

Medicine is reaching a turning point: Experts believe that in just a few years, artificial intelligence will greatly help doctors make diagnostic decisions and plan treatments. In addition, patients are expected to benefit from increasingly personalized approaches and better care.

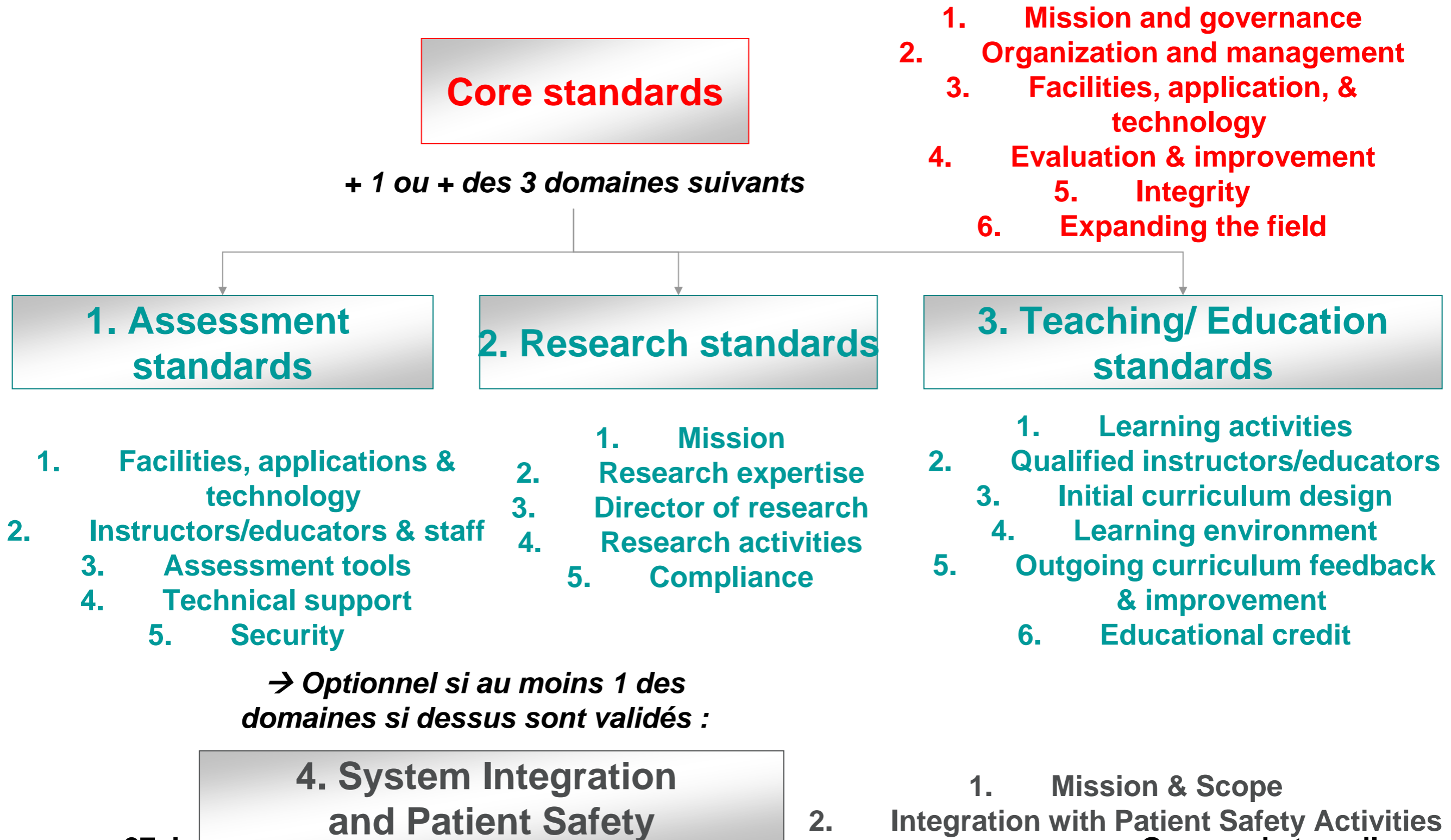




Debriefing and patient safety

- Debriefing must be confidential
- Debriefing must be non-threatening
- Debriefing must be structured
- Debriefing must be timely
- Between health care givers
- But also with patients and their family...

Society for Simulation in Healthcare : simulation program in healthcare



27 Janvier 2011

Artificial intelligence in healthcare: past, present and future

Fei Jiang,¹ Yong Jiang,² Hui Zhi,³ Yi Dong,⁴ Hao Li,⁵ Sufeng Ma,⁶ Yilong Wang,⁷ Qiang Dong,⁴ Haipeng Shen,⁸ Yongjun Wang⁹

To cite: Jiang F, Jiang Y, Zhi H, et al. Artificial intelligence in healthcare: past, present and future. *Stroke and Vascular Neurology* 2017;2: e000101. doi:10.1136/svn-2017-000101

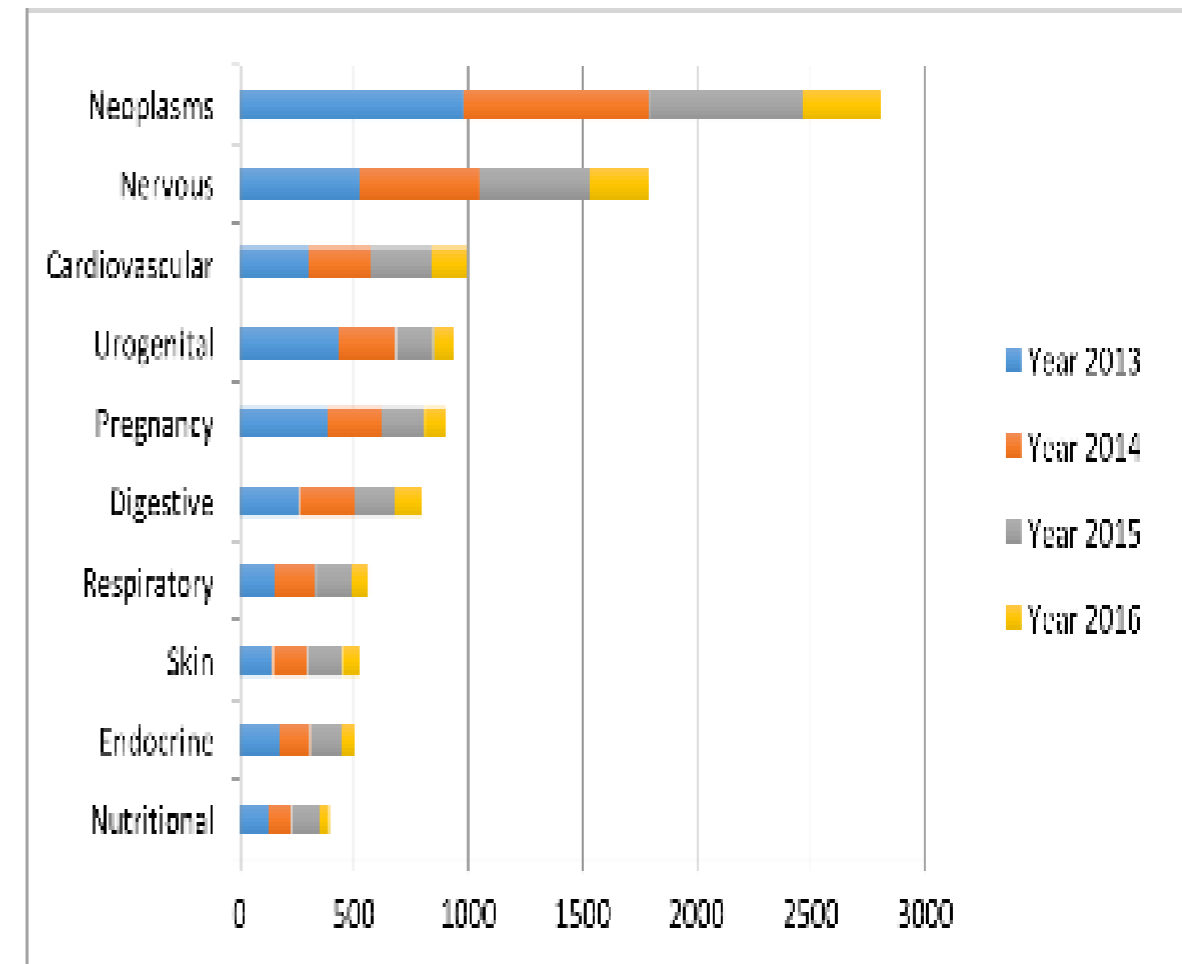
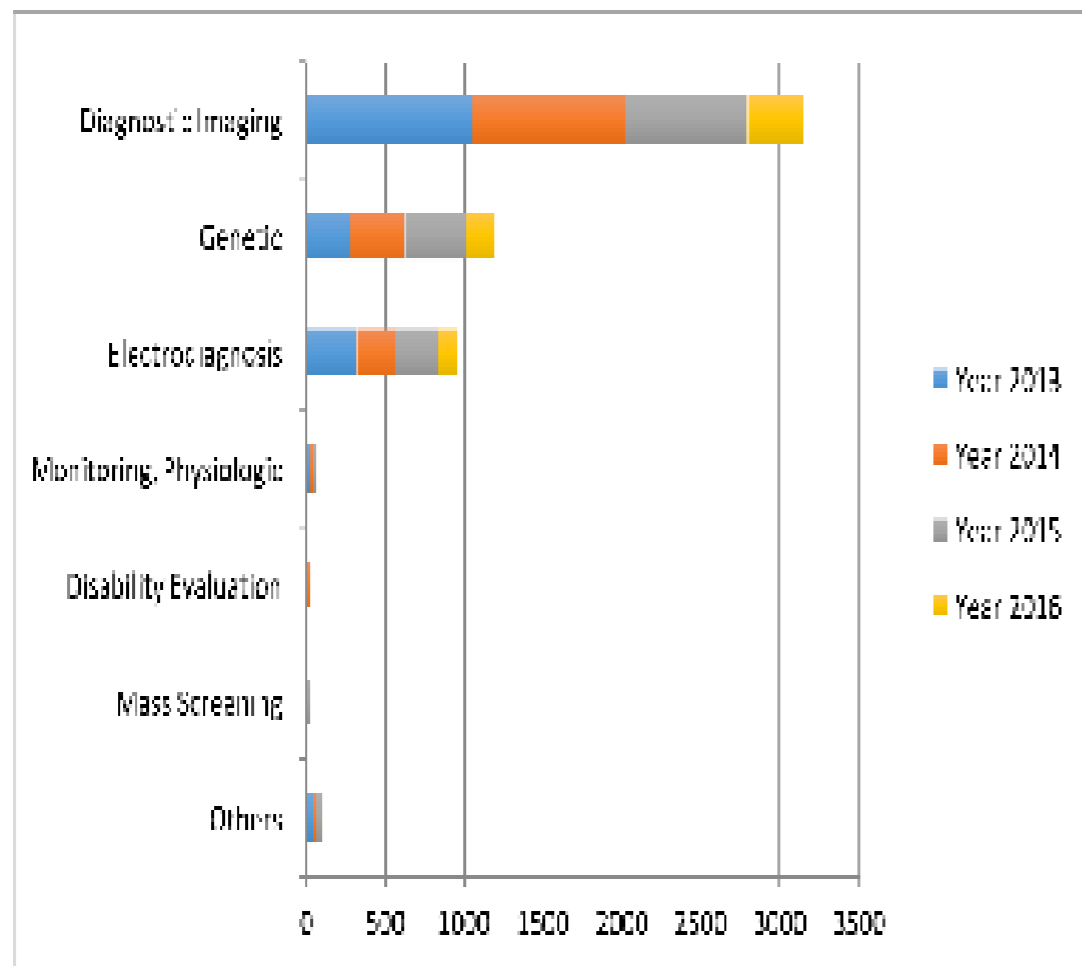


Figure 1 The data types considered in the artificial intelligence artificial (AI) literature. The comparison is obtained through searching the diagnosis techniques in the AI literature on the PubMed database.

Figure 3 The leading 10 disease types considered in the artificial intelligence (AI) literature. The first vocabularies in the disease names are displayed. The comparison is obtained through searching the disease types in the AI literature on PubMed.