



**Berlin, 26 June 2015**

# Simulation training in infection control

**Pierre Parneix**

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@peyo3319

# Conflict of interest



# Never the first time on a real patient !



## Impact of a simulation training curriculum on technical and nontechnical skills in colonoscopy: a randomized trial

Samir C. Grover, MD, MEd, FRCPC,<sup>1,2</sup> Ankit Garg, BSc,<sup>1,2</sup> Michael A. Scaffidi, BSc(Hon), MEd,<sup>1,2</sup>  
Jeffrey J. Yu, BSc,<sup>3</sup> Ian S. Plener, MD,<sup>1,2</sup> Elaine Yong, MD, FRCPC,<sup>2,4</sup> Maria Cino, MD, MSc, FRCPC,<sup>2,5</sup>  
Teodor P. Grantcharov, MD, PhD, FRCSC,<sup>6</sup> Catharine M. Walsh, MD, MEd, PhD, FRCPC<sup>3,7,8</sup>

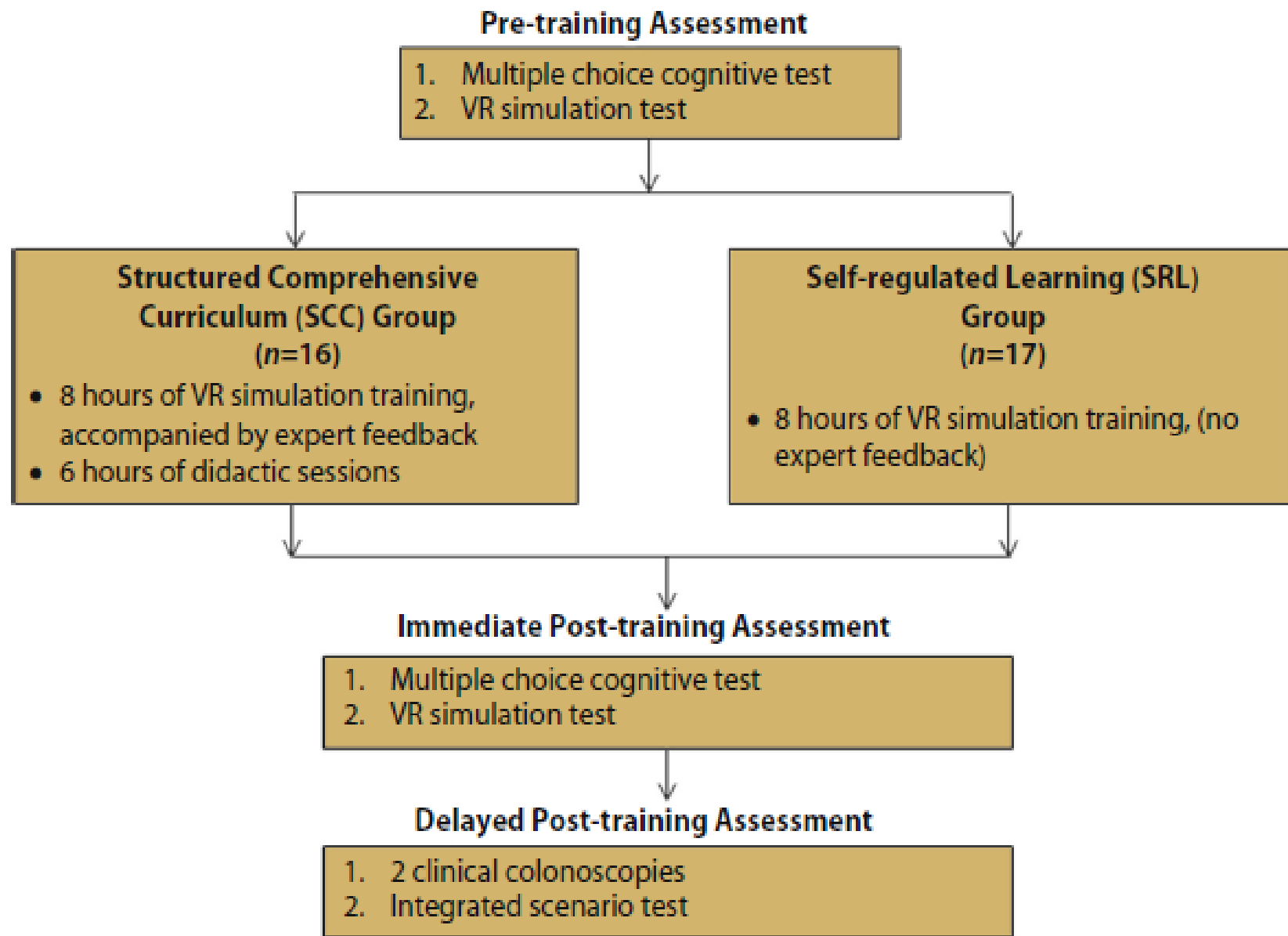
Toronto, Ontario, Canada

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0016-5107/\$36.00

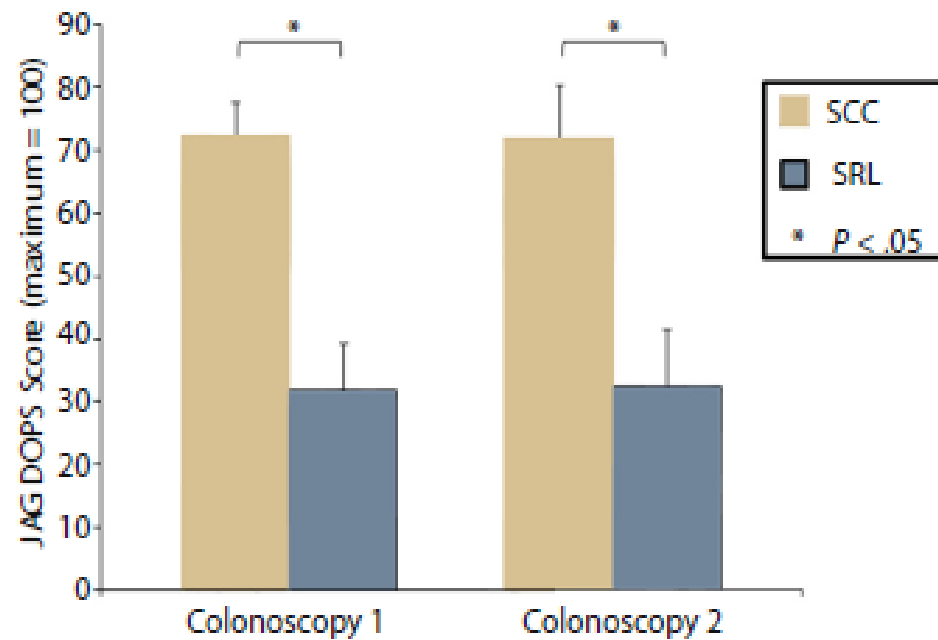
<http://dx.doi.org/10.1016/j.gie.2015.04.008>

Received February 24, 2015. Accepted April 2, 2015.

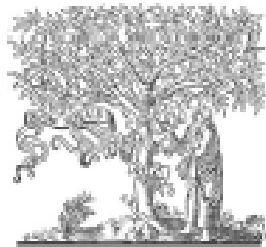


**TABLE 1. Summary of the structured comprehensive curriculum**

	Competency domain		
	Cognitive (6 hr)	Technical (8 hr)	Integrative
Content	Theory of colonoscopy, including anatomy, pathophysiology, indications, risks, and benefits of the procedures	Practice of simulated colonoscopy, biopsy sampling, and polypectomy cases Feedback and teaching by an experienced endoscopist Access to simulator metrics	Feedback from experienced endoscopists during training
Method of delivery	Interactive small-group lectures	Simulation-based training, with mentorship by an experienced endoscopist	
Assessment	Knowledge test (multiple choice)	Performance of a simulated colonoscopy	Performance during an integrated scenario and 2 clinical colonoscopies



**Figure 2.** Participants' JAG DOPS scores (expressed as mean ± standard deviation) during their first and second clinical colonoscopies for the SCC and SRL groups. *SCC*, structured comprehensive curriculum; *SRL*, self-regulated learning.



ELSEVIER

Contents lists available at ScienceDirect

## American Journal of Infection Control

journal homepage: [www.ajicjournal.org](http://www.ajicjournal.org)

### Major article

# A multitiered strategy of simulation training, kit consolidation, and electronic documentation is associated with a reduction in central line–associated bloodstream infections

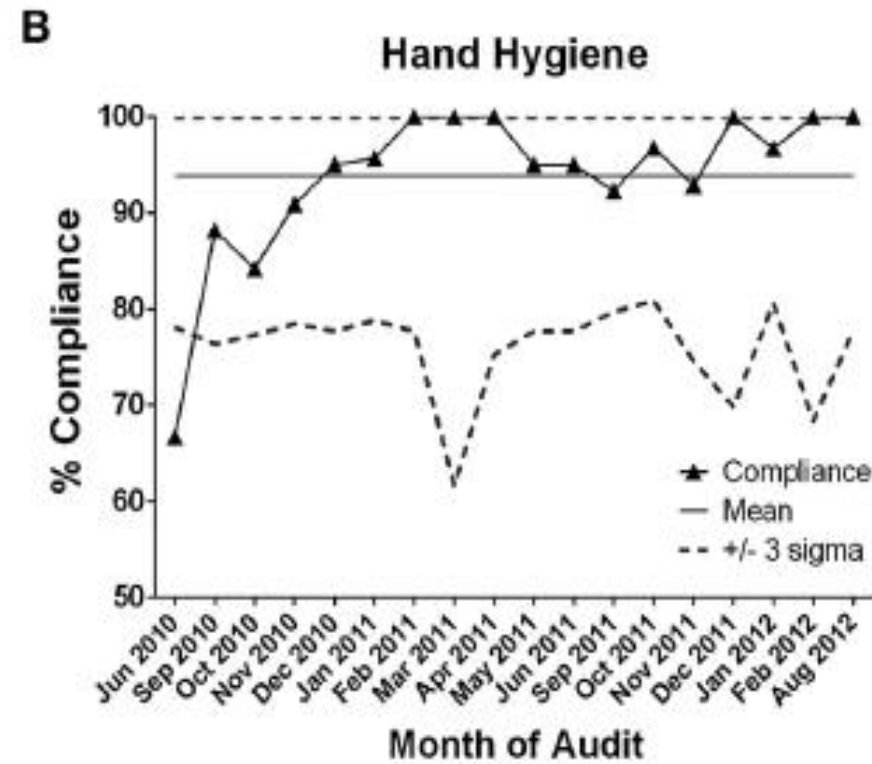
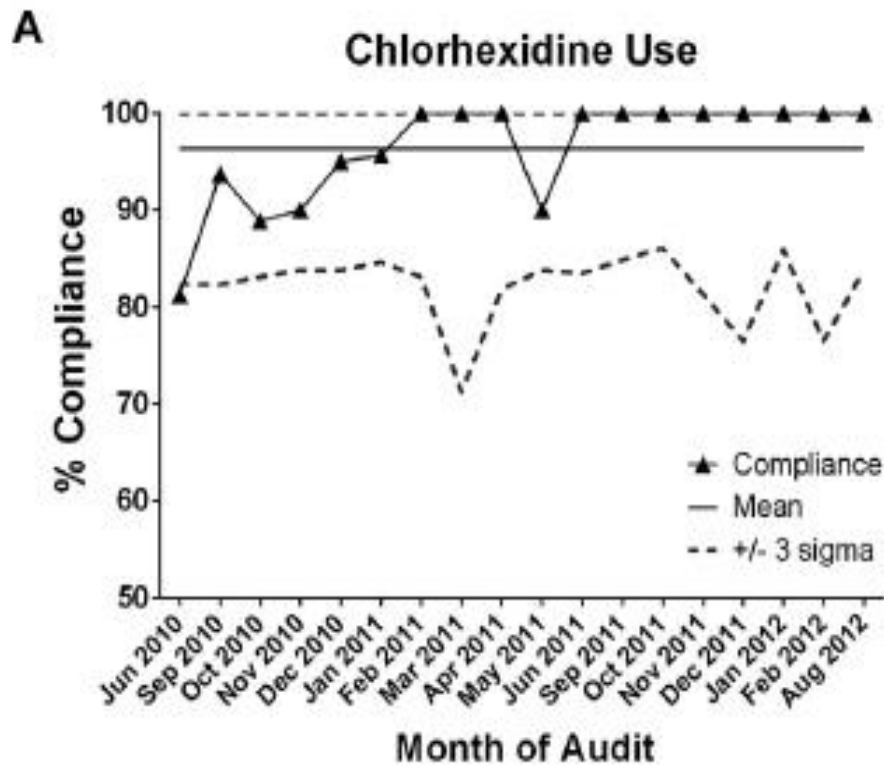
Gilman B. Allen MD<sup>a,b,c,\*</sup>, Vincent Miller MD<sup>b,d</sup>, Cate Nicholas MS, PA, EdD<sup>c,e</sup>,  
Sally Hess CIC, MPH<sup>f</sup>, Mari K. Cordes RN, VA-BC<sup>g</sup>, John B. Fortune MD<sup>b,h</sup>,  
Joan Blondin RRT, MBA<sup>f</sup>, Takamaru Ashikaga PhD<sup>i</sup>, Michael Ricci MD<sup>b,c,h,j</sup>

<sup>a</sup> Department of Medicine, College of Medicine, University of Vermont, Burlington, VT

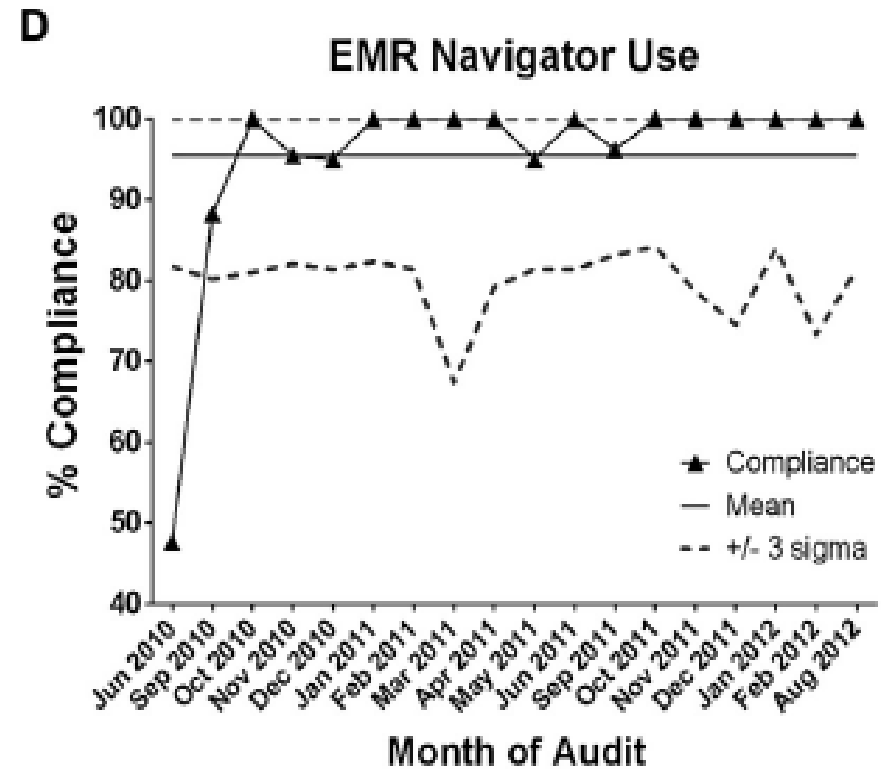
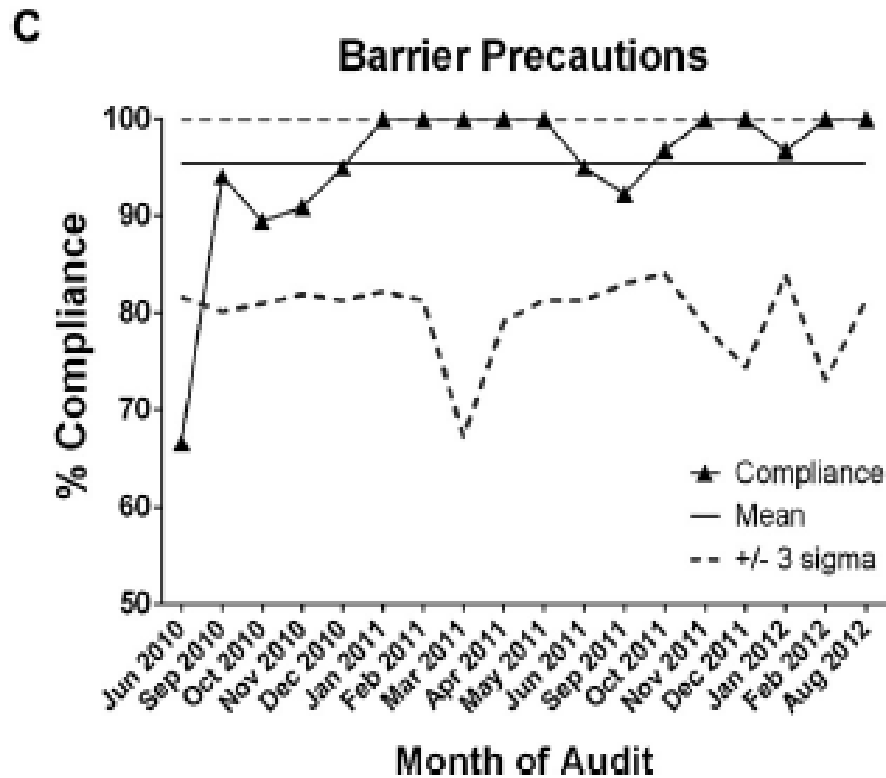
<sup>b</sup> Fletcher Allen Health Care, Burlington, VT

<sup>c</sup> Fletcher Allen/University of Vermont Clinical Simulation Laboratory, University of Vermont, Burlington, VT



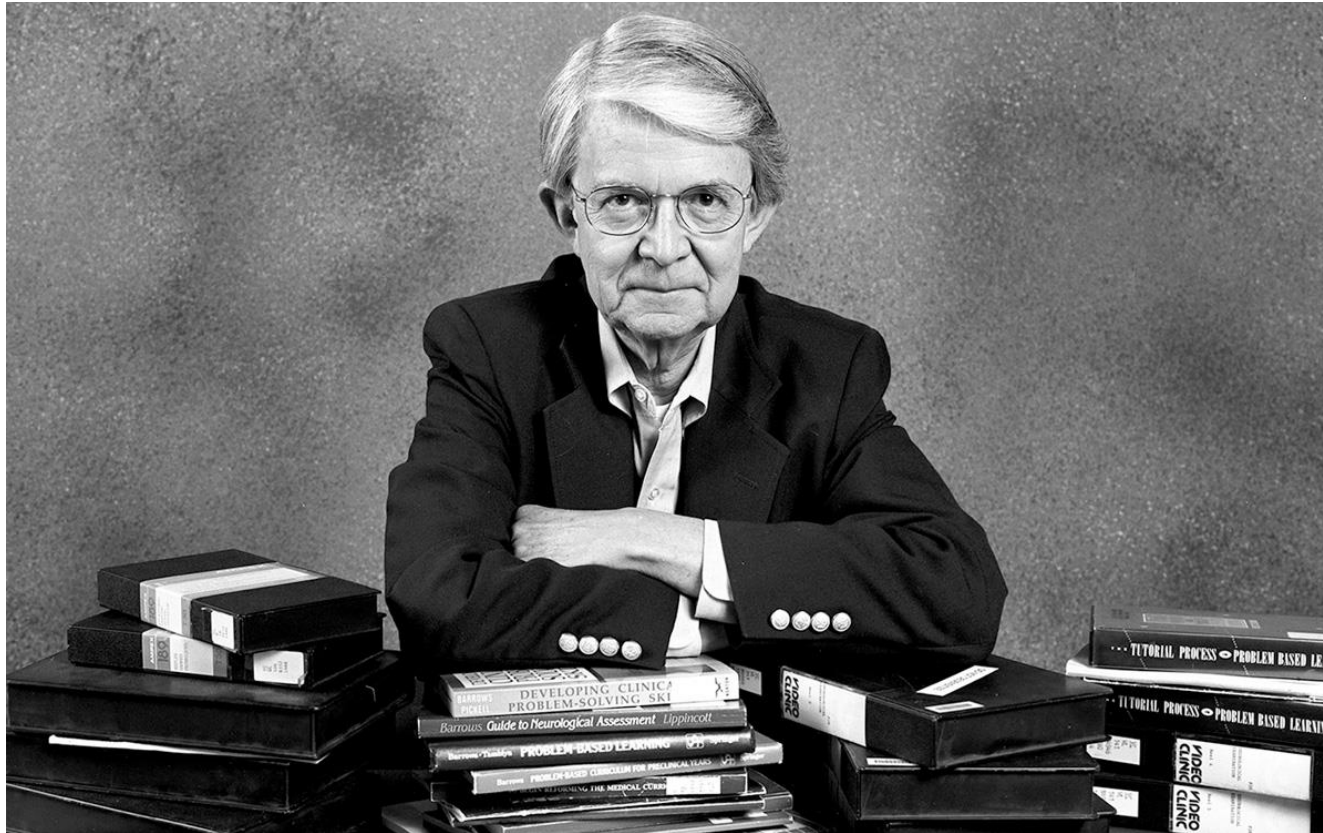


G.B. Allen et al / American Journal of Infection Control 42 (2014) 643-8



G.B. Allen et al / American Journal of Infection Control 42 (2014) 643-8

## From the 20<sup>th</sup> century

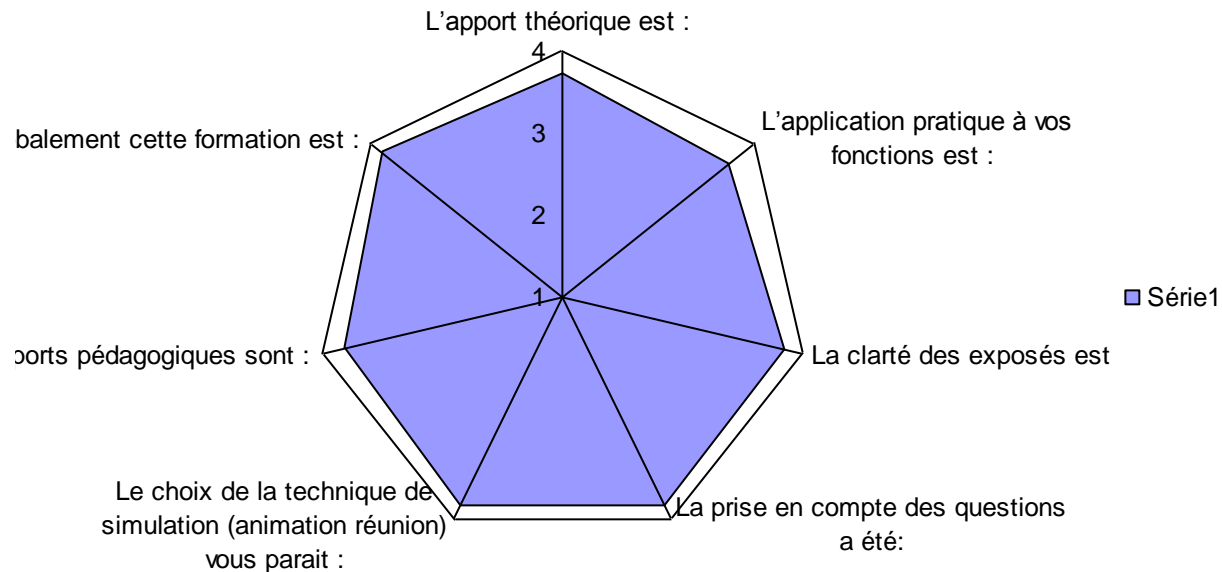


Howard S. Barrows (1928- 2011)

# To the 21<sup>th</sup> century

## Simulation session for ICPs

### A 2 hour role-play session to mimic a root cause analysis



# Medical education

**Jennifer M Weller**  
MD, MClInEd, FANZCA,  
Associate Professor<sup>1</sup>

**Debra Nestel**  
PhD, Professor<sup>2</sup>

**Stuart D Marshall**  
MHumanFact, MRCS,  
FANZCA,  
Lead Researcher and  
Instructor<sup>3</sup>

**Peter M Brooks**  
MD, FRACP,  
Director<sup>4</sup>

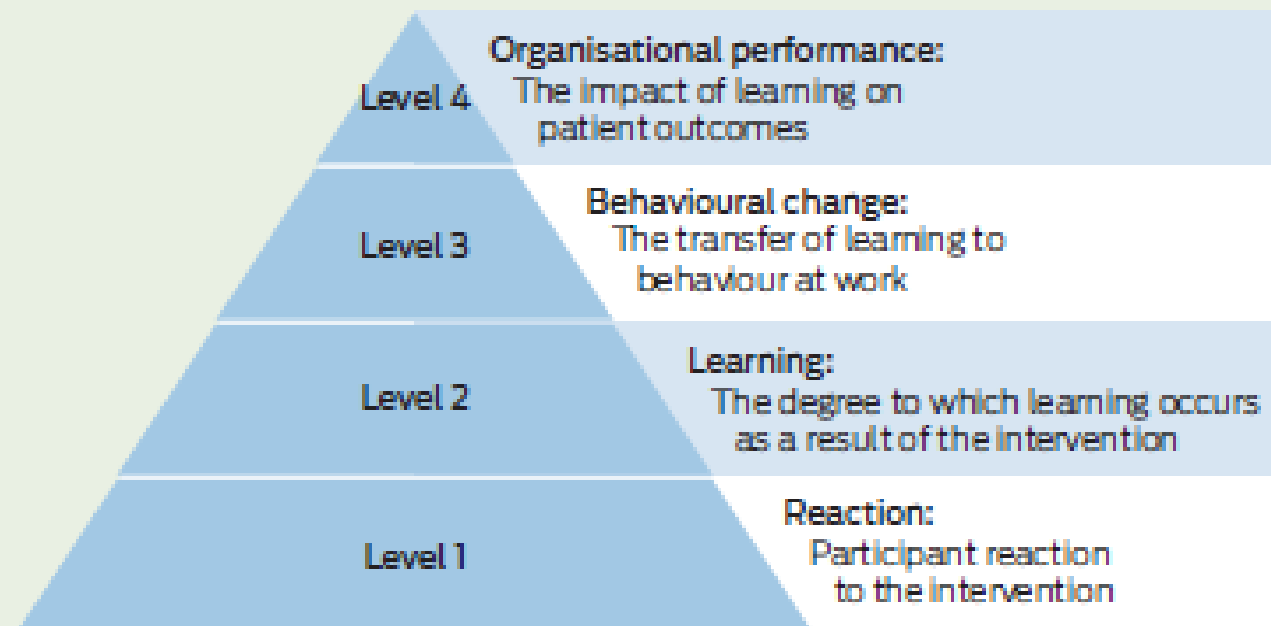
**Jennifer J Conn**  
FRACP, MClInEd,  
BSc(Hons),  
Senior Lecturer<sup>3</sup>

<sup>1</sup> Centre for Medical and  
Health Sciences Education,  
University of Auckland,  
Auckland, NZ.

<sup>2</sup> Gippsland Medical  
School, Monash University,  
Churchill, VIC.

## Simulation in clinical teaching and learning

2 Kirkpatrick's four levels of education evaluation<sup>10</sup>



<http://www>

## *Full-body mannequins*



## *Part-task trainers*



*Simulated patients,*



*Computer-generated simulators*



## *Hybrid simulators*

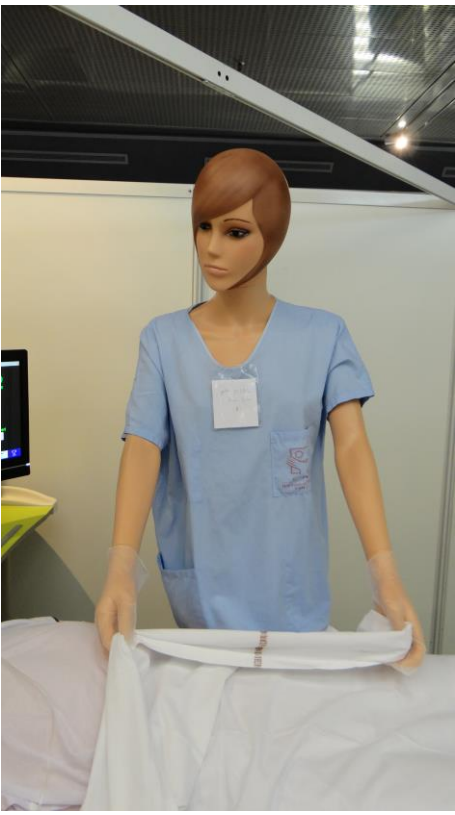




# Simulation session chronology



# The error room



PRESCRIPTION				EXECUTION	
DATE	HEURE	NOM DU PRESCRIPTEUR	RÉSULTAT DU PRESCRIPTEUR	PRESCRIPTION	HEURES
<b>SURVEILLANCES SPECIQUES</b>					
14/11	10h30	DR	Temp. 38.5	Temp. 38.5	
14/11	11h30	DR	Temp. 38.5	Temp. 38.5	
<b>ALIMENTATION</b>					
14/11	12h00	DR	Normal		
<b>CONSIGNES</b>					
HEURES					
HEURES					



# Why?

The Congress finds as follows:

**(1) Simulation-based education and training in medicine, nursing, allied health, podiatry, osteopathy, dentistry, and emergency response teams can enhance procedural skills and reinforce best practices by allowing students, experienced clinicians, and health care professionals to practice procedures in a realistic setting.**

**H.R.855 - Enhancing Safety in Medicine Utilizing Leading Advanced Simulation Technologies to Improve Outcomes Now Act of 2009**

<https://www.congress.gov/bill/111th-congress/house-bill/855/text>

## Why?

**(2) The enhanced clinical skill development provided by simulation-based training benefits patients and health care consumers in the form of improved health outcomes, patient safety, and quality; reduced medical errors and deaths; and reduced costs associated with providing patient care.**

**(4) The creation of medical simulation centers of excellence to provide guidance and leadership to educational institutions and health care entities will facilitate the deployment of medical simulation technologies and the commercialization of cutting-edge medical simulation research.**

<https://www.congress.gov/bill/111th-congress/house-bill/855/text>



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# Simulation accouchement

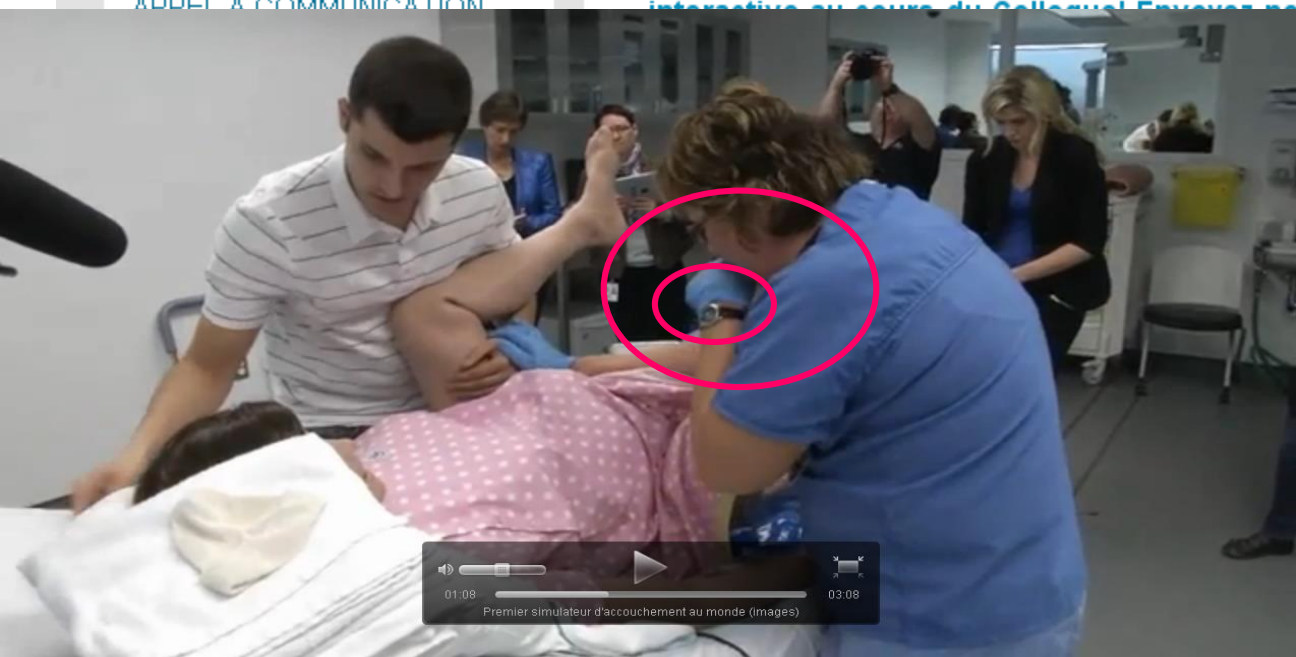
ADJUT  
D'UN CENTRE DE SIMULATION

ACCU

PROGRAMME SCIENTIFIQUE

APPEL À COMMUNICATION

Réalisez une visite guidée de votre Centre de Simulation et participez à une session interactive au cours du Colloquiel. Envoyez nous, avant le 1er février 2015 au plus tard, vos [simulation@mci-group.com](mailto:simulation@mci-group.com)



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## Les Précautions standard



HARRY SALTZMAN and ALBERT R. BROCCOLI  
present

**ROGER  
MOORE**  
**7**  
as  
**JAMES  
BOND**

in IAN FLEMING'S  
**"LIVE AND  
LET DIE"**

with YAPHET KOTTO · JANE SEYMOUR  
Produced by HARRY SALTZMAN and ALBERT R. BROCCOLI  
Directed by GUY HAMILTON · Screenplay by TOM MANKIEWICZ  
Title Song Composed by PAUL and LINDA MCCARTNEY  
and Performed by PAUL MCCARTNEY and WINGS  
Music Score by GEORGE MARTIN

Original Motion Picture Soundtrack Available on United Artists Records and Tapes **United Artists**



<http://www.sofrasims.fr/>

## Conseil Administration

NOM Prénom	Titre et Organisme	Bureau
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Dr Marie-Christine MOLL	Société Française de Gestion des Risques en Etablissement de Santé (SoFGRES)	Secrétaire

## Adhésion

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## Évènements à venir

**ESCP International  
Workshop 2015 In  
Collaboration with SFPC**

 22/06/2015 au 23/06/2015

## Agenda

Assemblées Générales

Évènements



The logo for HAS (Haute Autorité de Santé) features the letters 'HAS' in a blue serif font. A red and blue swoosh underline is positioned beneath the 'A'.

HAUTE AUTORITÉ DE SANTÉ

ÉVALUATION ET AMÉLIORATION DES PRATIQUES

Guide de bonnes pratiques  
en matière de simulation en santé

Décembre 2012

## Evaluation of simulation centres

- 1) Training sessions design should associate ICPs
- 2) IC materials (Gloves, gowns, hand rub products...) should be available in the centres

# Gamification du quotidien et des tâches



# LETTER

doi:10.1038/nature12486

## Video game training enhances cognitive control in older adults

J. A. Anguera<sup>1,2,3</sup>, J. Boccanfuso<sup>1,3</sup>, J. L. Rintoul<sup>1,3</sup>, O. Al-Hashimi<sup>1,2,3</sup>, F. Faraji<sup>1,3</sup>, J. Janowich<sup>1,3</sup>, E. Kong<sup>1,3</sup>, Y. Larraburo<sup>1,3</sup>, C. Rolle<sup>1,3</sup>, E. Johnston<sup>1</sup> & A. Gazzaley<sup>1,2,3,4</sup>

### Respond to relevant signs



No response




# Serious game

## Impact

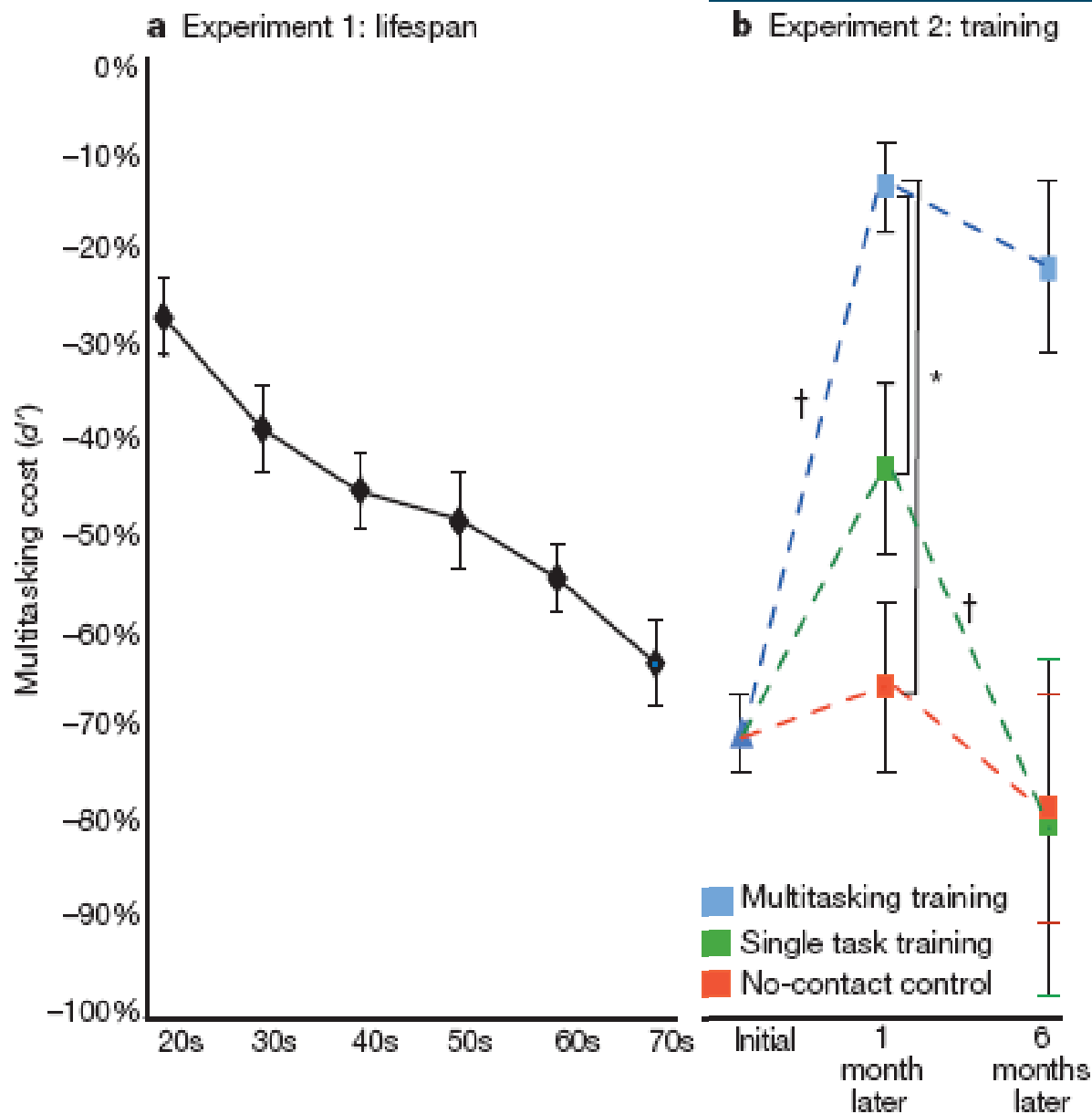
**Amélioration du contrôle cognitif par les jeux vidéo  
(Anguera et al, 2013) :**

**Trois groupes de personnes de plus de 60 ans comparés :**

- 📄 **Tâche simple (15 sujets),**
- 📄 **Tâche multiple (15 sujets),**
- 📄 **Groupe contrôle (15 sujets).**

**Entraînement et évaluation via NeuroRacer :**

- 📄 **1 heure par jour, 3 fois par semaine pendant 4 semaines**
- 📄 **Performances immédiates puis à 1 mois et 6 mois post intervention.**





<http://www.ardeaarts.org/birthBeta/>

This is a playable prototype of the *Emergency Birth!* game.  
Created by the Engender Games Group Lab at UWW.

Project funded by a Strategic Initiative Grant from the University of Wisconsin at Whitewater.

Project Director and Programmer: Elena Bertozzi  
Consulting Physician: Dr. Dilys Walker  
Audio Lead: Jon Sorenson  
Graphic Design, Illustration: Moutafue Yang and Natalie Nguyen  
Animation: Natalie Nguyen  
Audio Engineer: Josh Bartels



## A need to improve Flu management in healthcare premises

- ❑ Annual outbreaks
- ❑ Good vision of our weaknesses
  - Knowledge
    - Interest and limits of flu vaccine
    - Symptoms of flu - diagnosis
    - Contagiousness
    - Treatment
    - Difference between seasonal flu and variant flu
  - Practices
    - Influenza rapid diagnostic test
    - Droplets precautions
    - Communication



## Difficult to change behaviors and beliefs

- **Classical methods exist but...**
  - Efficacy is limited
  - Time-consuming bundles are necessary
  
- **Need for a innovative tool!**





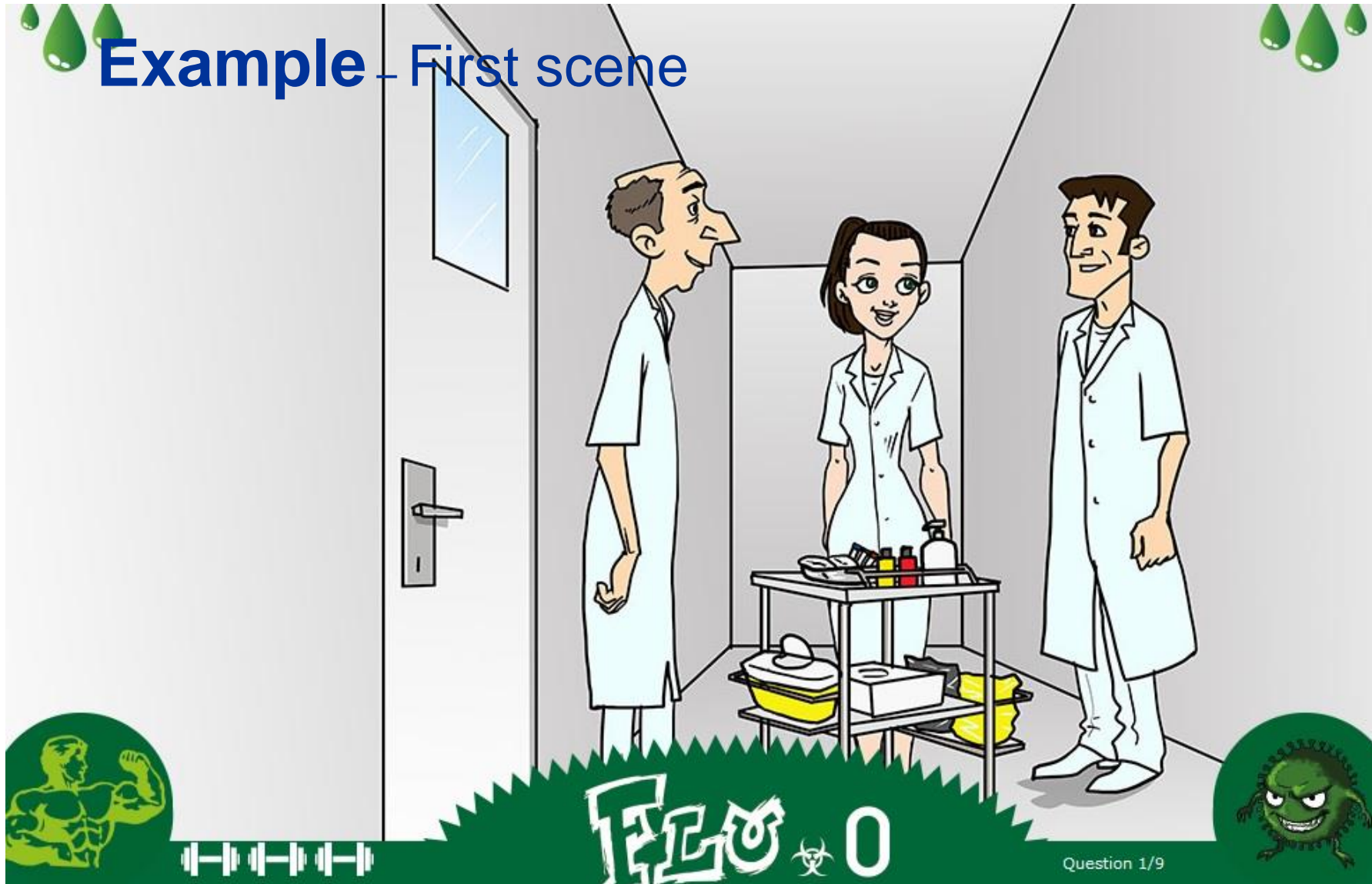
## Serious game: learn good practices with fun!

### □ Flu.0

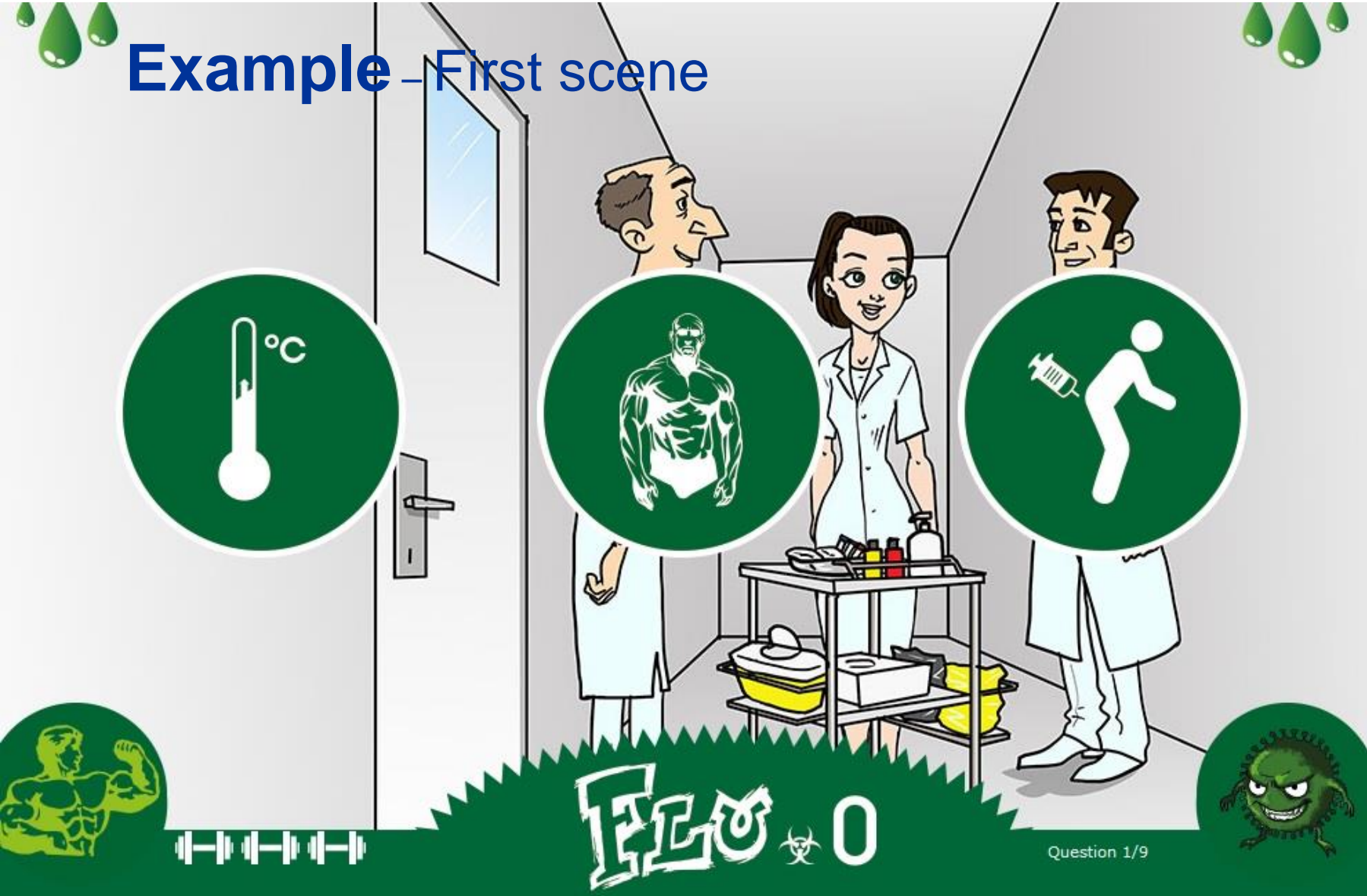
- 3rd serious game for Infection control of CCLIN Sud-Ouest
- French or English-speaking tool
- Free, can be used everywhere, online or downloaded
- Healthcare worker avatar - 9 scenes
  - 8 key point questions + 1 crazy question
  - 3 possible answers
  - explanation of why the answer is correct or not
- A final score evaluates the player's performance



# Example – First scene



# Example - First scene



Question 1/9

## To evaluate the impact of Flu.0

- **Call for participation to play and evaluate the game**
  
- **Questionnaire before and after the game**
  - Opinion on sentences about flu
  - What players learnt thanks to the game
  - Rate the game
  - Main thing they would do differently after this game
  
- **Descriptive analysis – khi-square test for evolution**

# Impact of Flu.0 - Results

- 264 physicians (213 fellows), 62 Senior nurses, 577 nurses students

Rate given to the game: **7.9/10**

	Physicians / Senior nurses		Nurse students	
	Before the game	After the game	Before the game	After the game
Seasonal flu = benign disease	156 (48%)	113 (35%)	207 (36%)	68 (12%)
Flu vaccination of health care workers = useful	302 (93%)	322 (99%)	496 (86%)	567 (99%)
I know the indications of the antiviral treatment	201(62%)	280 (86%)	234 (41%)	423 (74%)
I feel well prepared to face a flu case	257 (79%)	309 (95%)	433 (75%)	556 (97%)
Well prepared to perform rapid flu diagnostic test	95 (29%)	280 (86%)	140 (24%)	433 (75%)

# Impact of Flu.0 - Results










 **95 % learnt at least one key point**

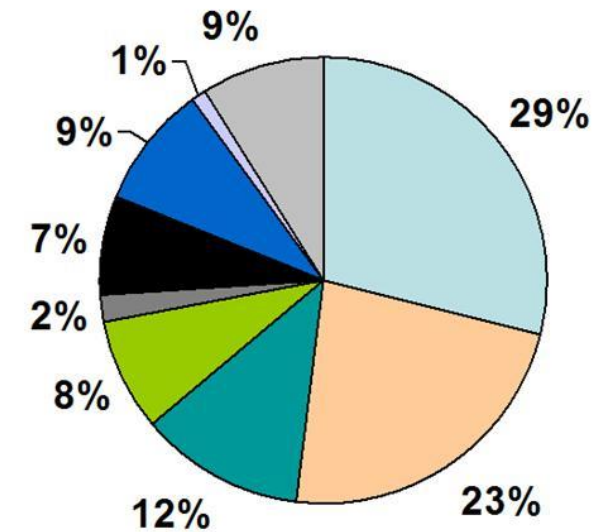
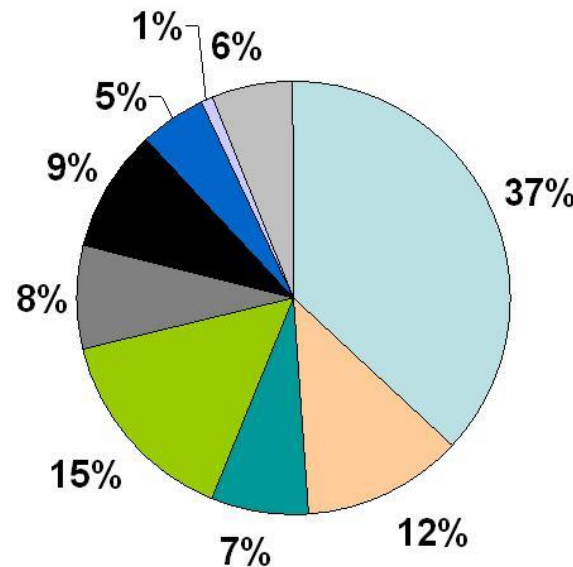
Two

52% Physicians/senior nurses,  
82% nurse students

Three

16% Physicians/senior nurses  
45% nurse students

-  Rapid flu diagnostic test
-  Infection control measures
-  Interests and limits of vaccination
-  Difference between seasonal flu and flu variant
-  Antiviral treatment
-  Contagiousness
-  Diagnosis and symptoms
-  Communication
-  Other



# Impact of Flu.0 - Results

 94 % would change their practices after the game

## – Better droplets precautions

- - Physicians / Senior nurses 47 %
- - Nurses students 80%

## – Better Flu diagnosis


- - Physicians/senior nurses 17 %



 No change of practices: 11% physicians/senior nurses, 4% nurses students.



# Conclusion

-  **Simulation training and infection control:**
  - **A fast and marvellous rising world,**
  - **Some basics to learn for us,**
  - **Collaborations to create :**
    - **Simulations centres, scientific societies,**
  - **A step not to miss in order to go forward!**



SOCIETY IN EUROPE FOR  
SIMULATION APPLIED TO MEDICINE



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### SESAM Belfast 2015

The SESAM Annual Meeting will take place from 24-26 June in Belfast. Click the image to register.

SESAM Belfast 2015



# SESAM

## BELFAST 2015

<http://www.sesam-web.org/>

## Welcome to the SESAM Website

A rich source of information for simulation enthusiasts from all over the world and from different professions and disciplines.

## SESAM Literature Highlights

For the second time, SESAM invited members to submit suggestions for reading material within specific topic areas. For the respective topics experts reviewed the literature...

