

# Ψηφιακή μεταρρύθμιση στη Χειρουργική

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- Ελάχιστα επεμβατική

- Big Data

- Στερεολιθογραφία (3D printing)

- Νανοχειρουργική

- Ρομποτική

- Απεικόνιση

- Προσομοίωση

- .....

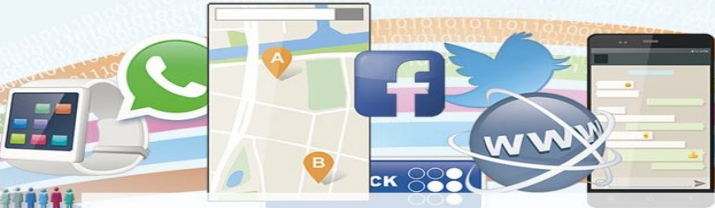




# Big Data in Healthcare

**Day-to-day data**

**World population**



**Data archive**

**Data analysis**

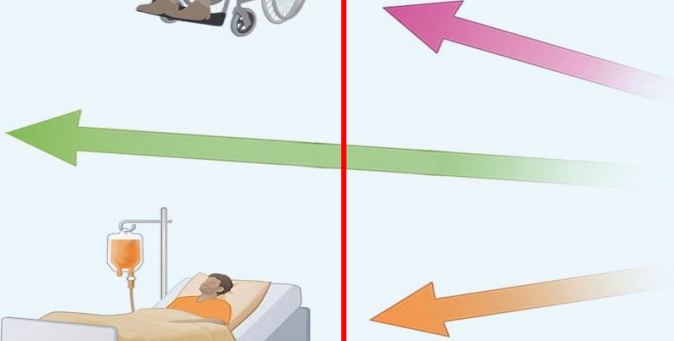
A red-bordered box containing an illustration of server racks and a computer monitor, representing data storage and analysis.

**Medical data**

A red-bordered box containing various medical data icons: a blood bag, an X-ray of a knee, an ECG waveform, a chest X-ray, and three brain scan images.

A red-bordered box containing icons for patient care: a pill, an elderly person, a person in a wheelchair, and a person in a hospital bed with an IV drip.

**New knowledge**

A red-bordered box showing a doctor in a white coat sitting at a desk with a laptop, surrounded by various data charts and graphs.



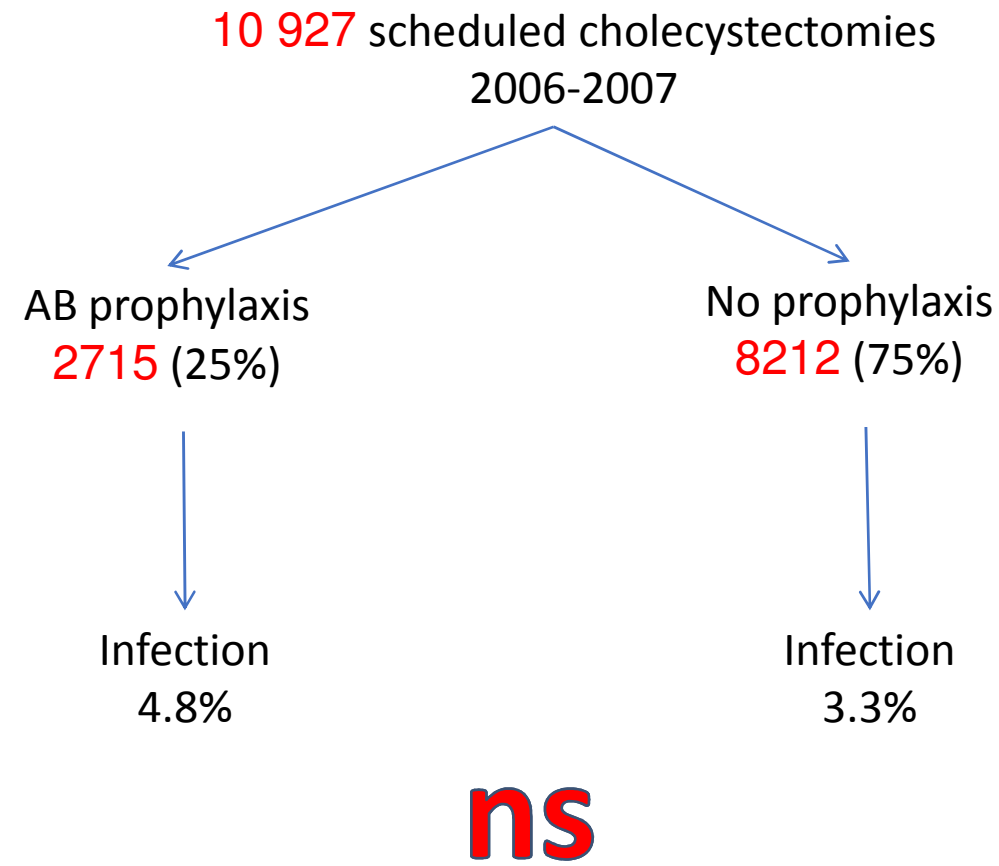


test Surg (2010) 14:329–334  
007/s11605-009-1056-7

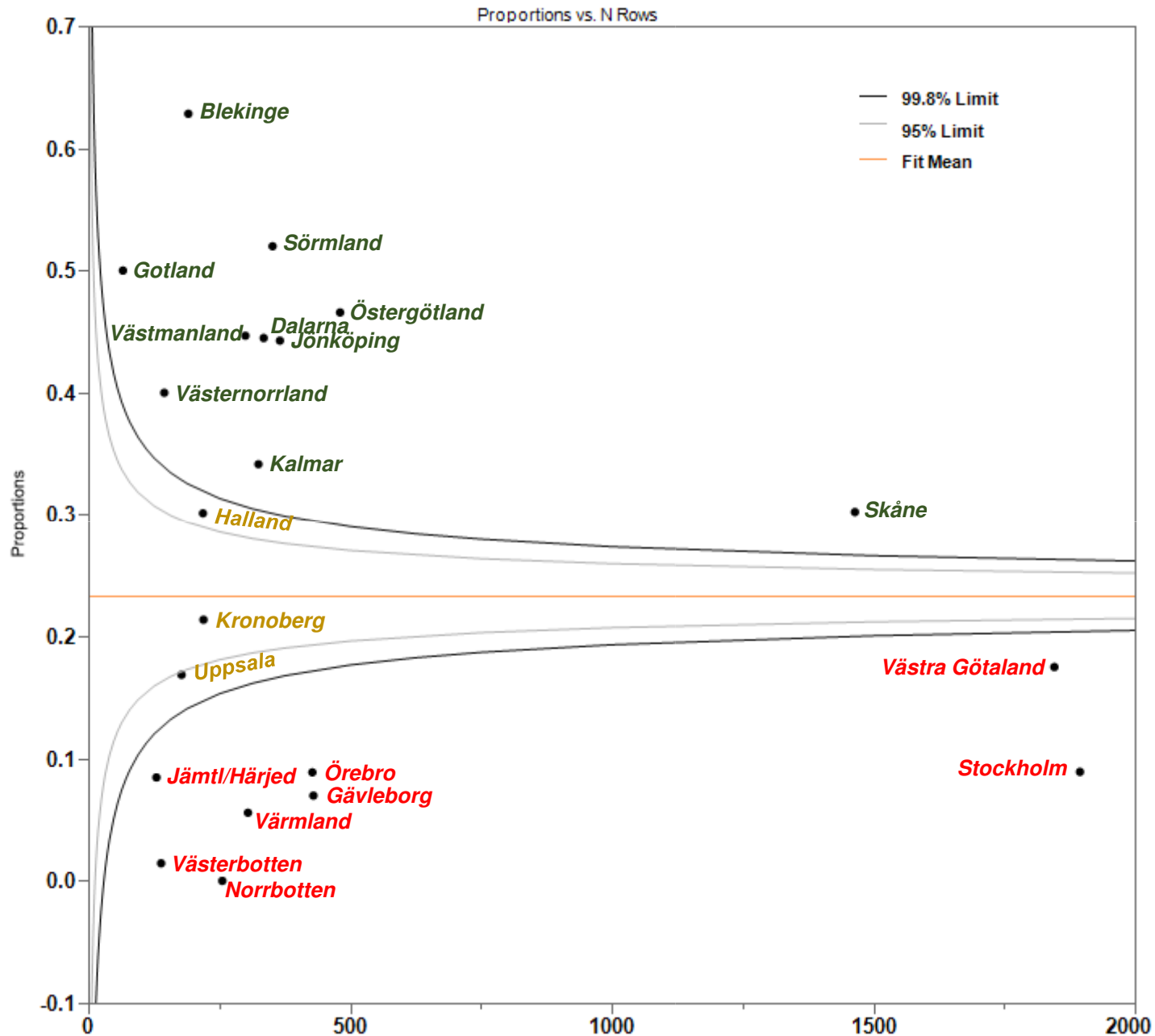
ORIGINAL ARTICLE

## Effectiveness of Prophylactic Antibiotics in a Population-Based Cohort of Patients Undergoing Scheduled Cholecystectomy

Lundström • Gabriel Sandblom •  
Österberg • Bodil Svennblad • Gunnar Persson







Παγκρεατίτιδα  
 με ή χωρίς προφύλαξη  
 με NSAID σε CBDS

A cinematic rendering of a human torso showing the abdominal cavity. The liver is the central focus, with a large, dark, irregular mass (tumor) visible on its surface. The surrounding anatomy, including the stomach, pancreas, and various blood vessels, is rendered in a realistic, slightly desaturated style. The background is dark, making the anatomical structures stand out.

# Cinematic Rendering Animation of An Hepatobiliary Tumor

JAMA Surgery

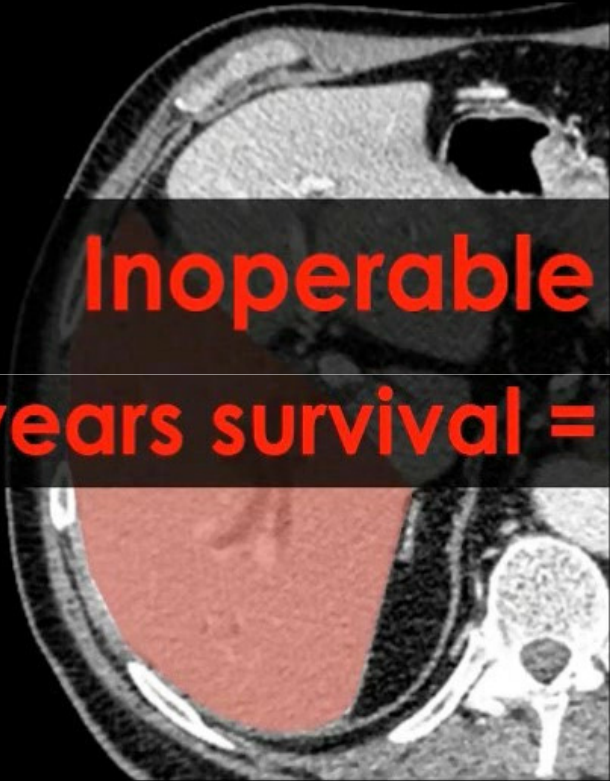




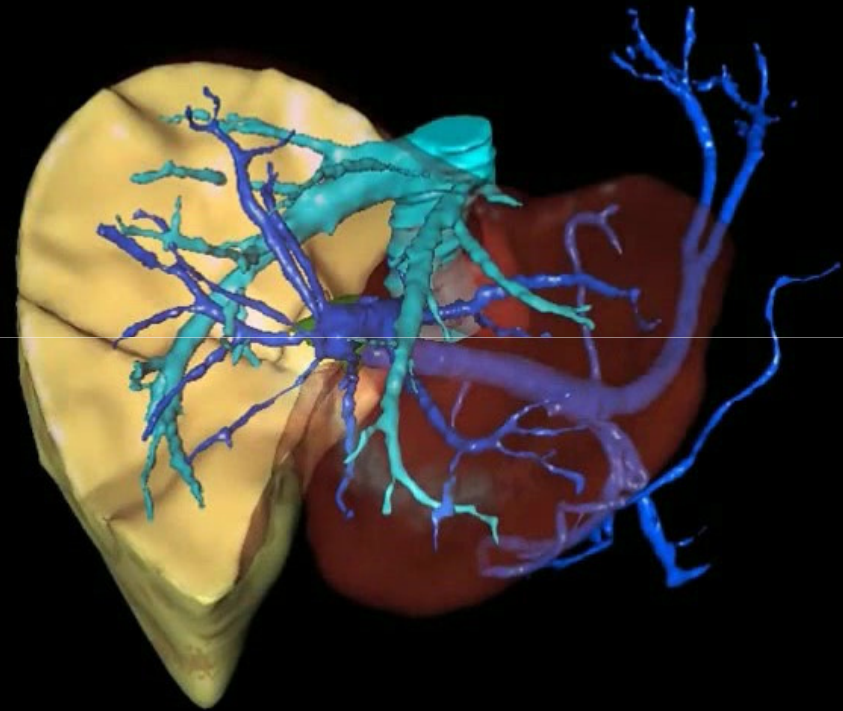
**WITHOUT** Visible Patient :  
**Resected Liver = 80%**

**Inoperable**

**5 years survival = 20%**



**WITH** Visible Patient :  
**Resected Liver = 55%**



**Improve your planning: >20% of case**

18 m deaths/yr

# Γιατί προσομοίωση στη Χειρουργική?

Η Χειρ/κή αναγκάστηκε να αντιμετωπίσει την πραγματικότητα & να πρωτοπορήσει σε νέες μεθόδους εκπαίδευσης

**There is no excuse for the surgeon  
to learn on the patient**

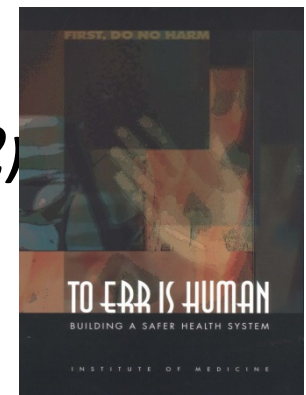
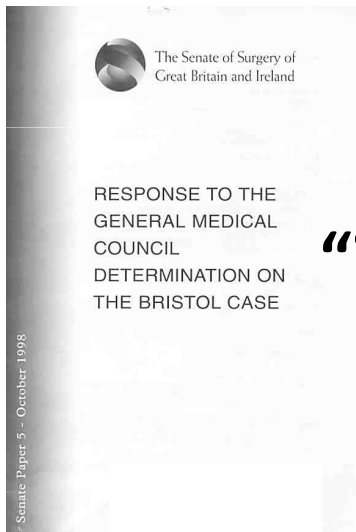
*William H. Mayo M.D. (1927)*

**“There can be no more learning curve  
on patients.”**

*Bristol Inquiry (1998)*

**Improving Medical Outcome: Zero Tolerance (2012)**

28 m deaths/yr can be prevented



# “Classical” educational model



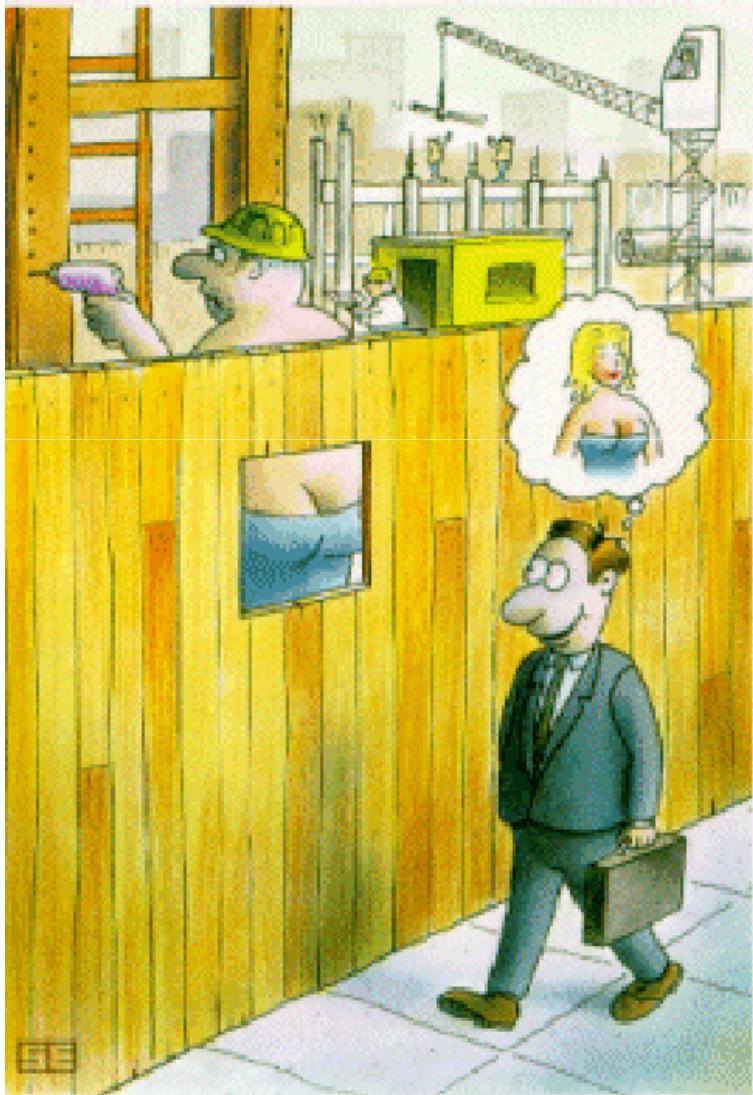
Traditional lesson  
(Chalk & talk)



Book study



Observation



Observation alone can result to the wrong conclusions...



# Γιατί προσομοίωση στη Χειρουργική?

**FACT**

Αξιολογημένη

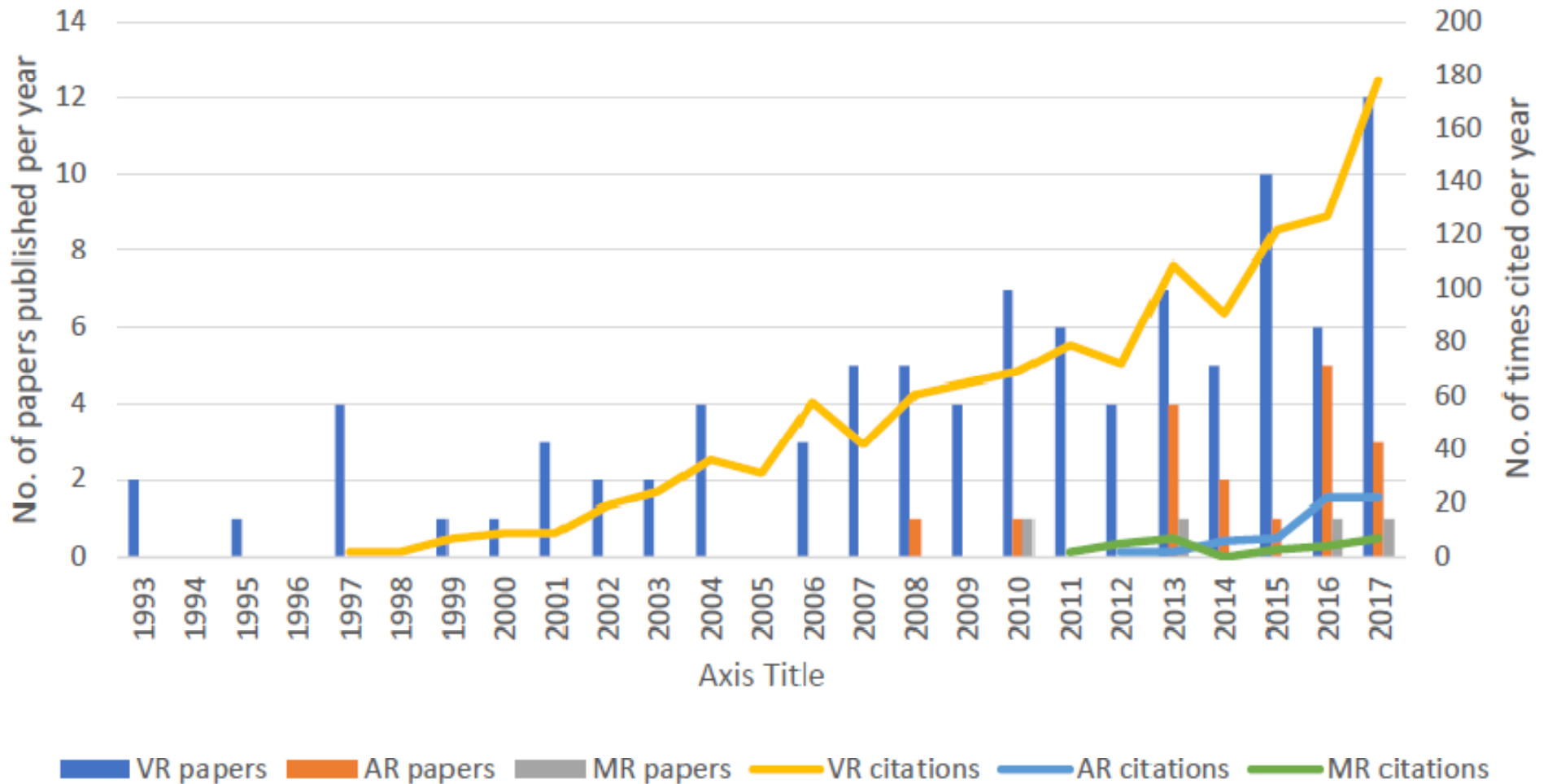
Ασφαλές περιβάλλον εκμάθησης

Διαθέσιμος χρόνος εκπαίδευσης

Αντικειμενική μέτρηση επιδόσεων

Οικονομικά συμφέρουσα

No. of papers published and no. of times cited per year for VR, AR & MR



100 documents for VR, 22 for AR, 5 for MR and 0 for AVR.





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Ajit K. Sachdeva, MD, FACS, FRCSC  
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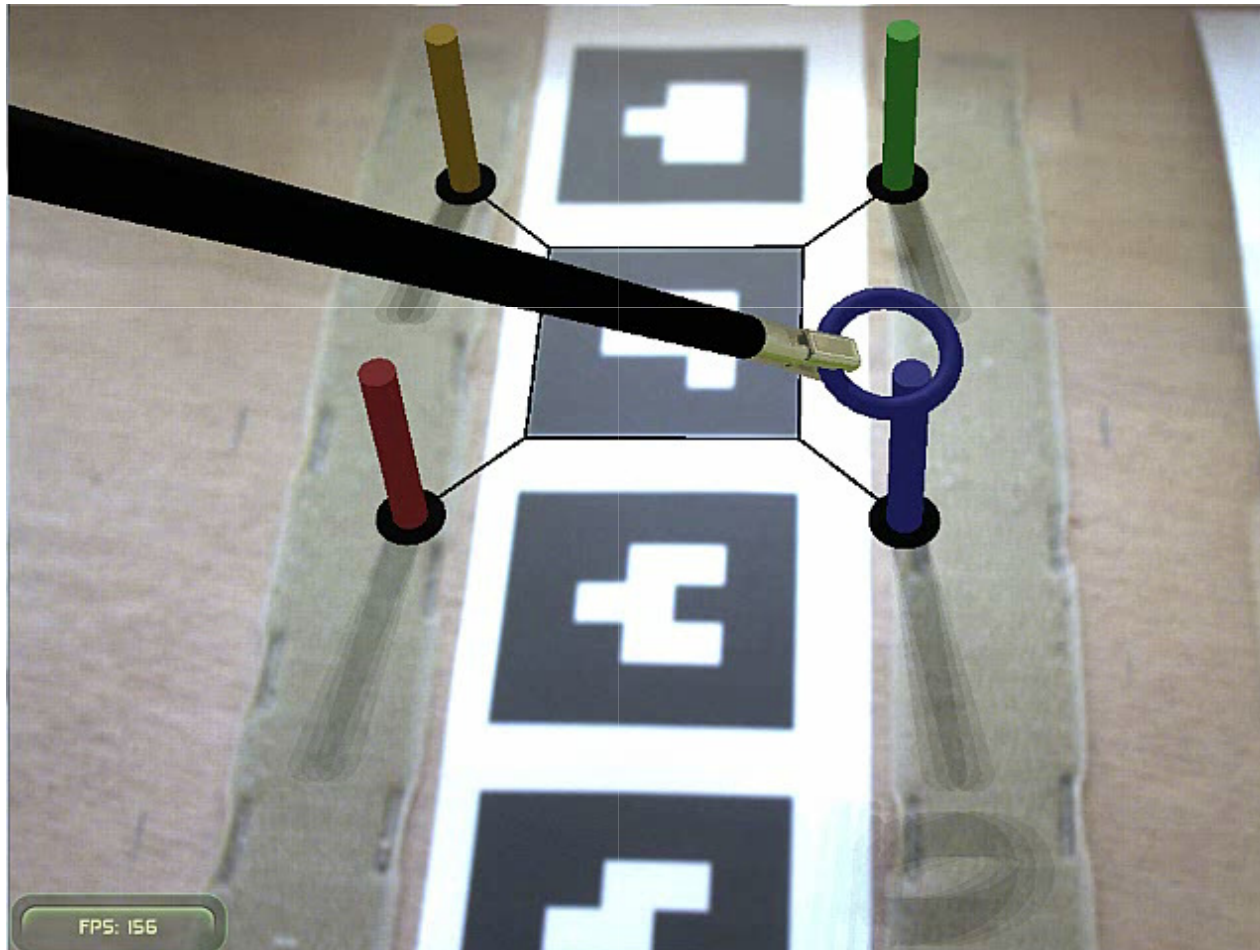
# Poor man's solution: Tractography

© MPLSC, Athens University Medical School

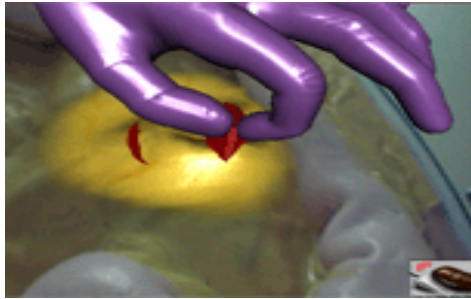


# Poor man's solution: Augmented Reality

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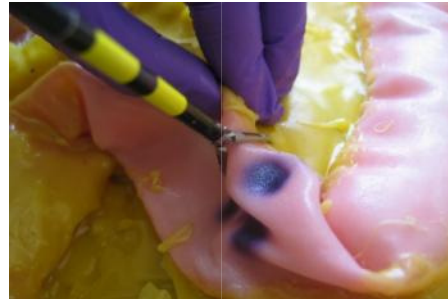


# The «teaching room» of the future



## 1. Demo

- AR/VR reality
- Graphics
- Video Games
- Advice, education



## 2. Practice

- Haptic feed-back
- Real instruments



## 3. Measurements

- Objective measurements
- Professional competence indices
- Self evaluation
- Data base

**Incorporation of simulation into  
medical schools curriculae**

**<http://mplsc.med.uoa.gr>**

**Delivering professional skills is not an easy task:  
Patience & Persistence are needed....  
See one, **practice many**, do one**





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WONDERLAND  
&  
THROUGH THE LOOKING-GLASS

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προβλήματα,  
η άγνοια σίγουρα δεν  
μπορεί να τα λύσει.***