

Virtual Patients: An International Perspective

Professor Lester AH Critchley
Dept. Anaesthesia & Intensive Care
Faculty of Medicine
The Chinese University of Hong Kong

Teaching & Learning Resource Centre: Reception & Office / Seminar room



FACS

Formative Assessment Case Studies

- Software System:
 - Interactive Patient Case Studies
- Web-based

CARDIOLOGY ECG
ECG - Case 29

ECG CASE 29
A 28 y.o. lady complained of "palpitations". She suffered from thyrotoxicosis and recently stopped her treatment.

What's the ECG Dx?

☐ Normal
☐ Normal ECG


Axis
☐ Normal
☐ Right axis deviation (RAD)
☐ Left axis deviation (LAD)
☐ Undetermined

Intraventricular Conduction Abnormalities
☐ Right bundle branch block (RBBB)
☐ Left bundle branch block (LBBB)
☐ Left anterior fascicular block (LAFB)
☐ Left posterior fascicular block (LPFB)
☐ Bifascicular block (RBBB+LAFB)
☐ Non-specific intraventricular block
☐ Low ECG Voltage

ST and T Abnormalities
☐ Non-specific ST abnormality
☐ Pericarditis

Chamber Enlargements
☐ Left ventricular hypertrophy (LVH)
☐ Right ventricular hypertrophy (RVH)
☐ Left atrial enlargement (LAE)

☐ With ☐ W/o strain pattern
☐ With ☐ W/o strain pattern



ANAESTHESIA FACS CASES
FACS Med5 Two-Week Module - Logout

FACS
Home
FACS Cases
Feedback to Us
Contact Us

Anaesthesia Topics
Supplementary Material

Anaesthesia FACS Cases

Pre-operative assessment A 43-year-old man is admitted for retinal detachment surgery. To be done first	Diabetes A 49-year-old diabetic man is admitted with a back abscess. To be done in week 2
Heart Disease A 25-year-old woman is admitted with sudden onset of lower abdominal pain. To be done in week 2	Laboratory data An elderly woman has a traumatic hip fracture. To be done in week 1
Spinal Anaesthesia An elderly hypertensive man with BPH requires TURP under Spinal Anaesthesia. To be done in week 1	Chronic Lung Disease An elderly man with chronic bronchitis is scheduled for a total abdominal gastrectomy. To be done in week 2

Department of Orthopaedics & Traumatology

General examination shows a well built young adult with no stigmata of medical diseases.

The general body posture is normal except some sluggishness over his right shoulder when he takes off his T-shirt for examination. Otherwise, there is no abnormality detected on inspection.

One of the differential diagnosis is rotator cuff pathology such as tendinitis or tear.

If that is the case, what physical finding will you expect on palpation?

- ☐ tenderness over the coracoid process
- ☐ tenderness over the bicipital tendon
- ☐ tenderness over the supraclavicular fossa
- ☐ tenderness over the greater tuberosity
- ☐ tenderness over the ACJ

0%

This site is powered by FACS, Dept. O&T, CUHK
<http://facs.med.cuhk.edu.hk/>

Left modified: 2005/06/06
by FACS Team at Teaching and Learning Resource Centre

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[Case Management](#)
[Admin Management](#)
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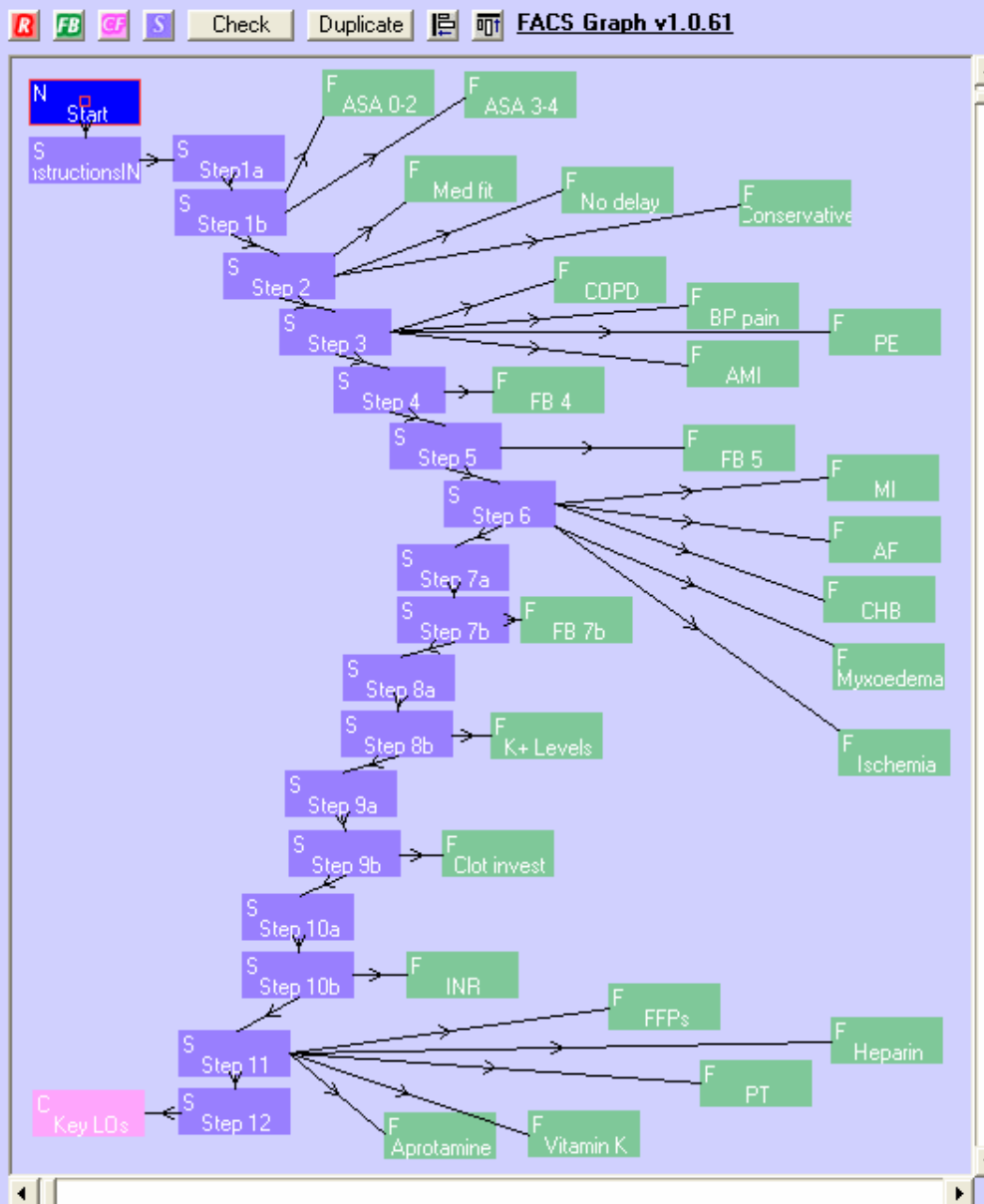
[Help](#)

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Welcome Lester!
System Administrator

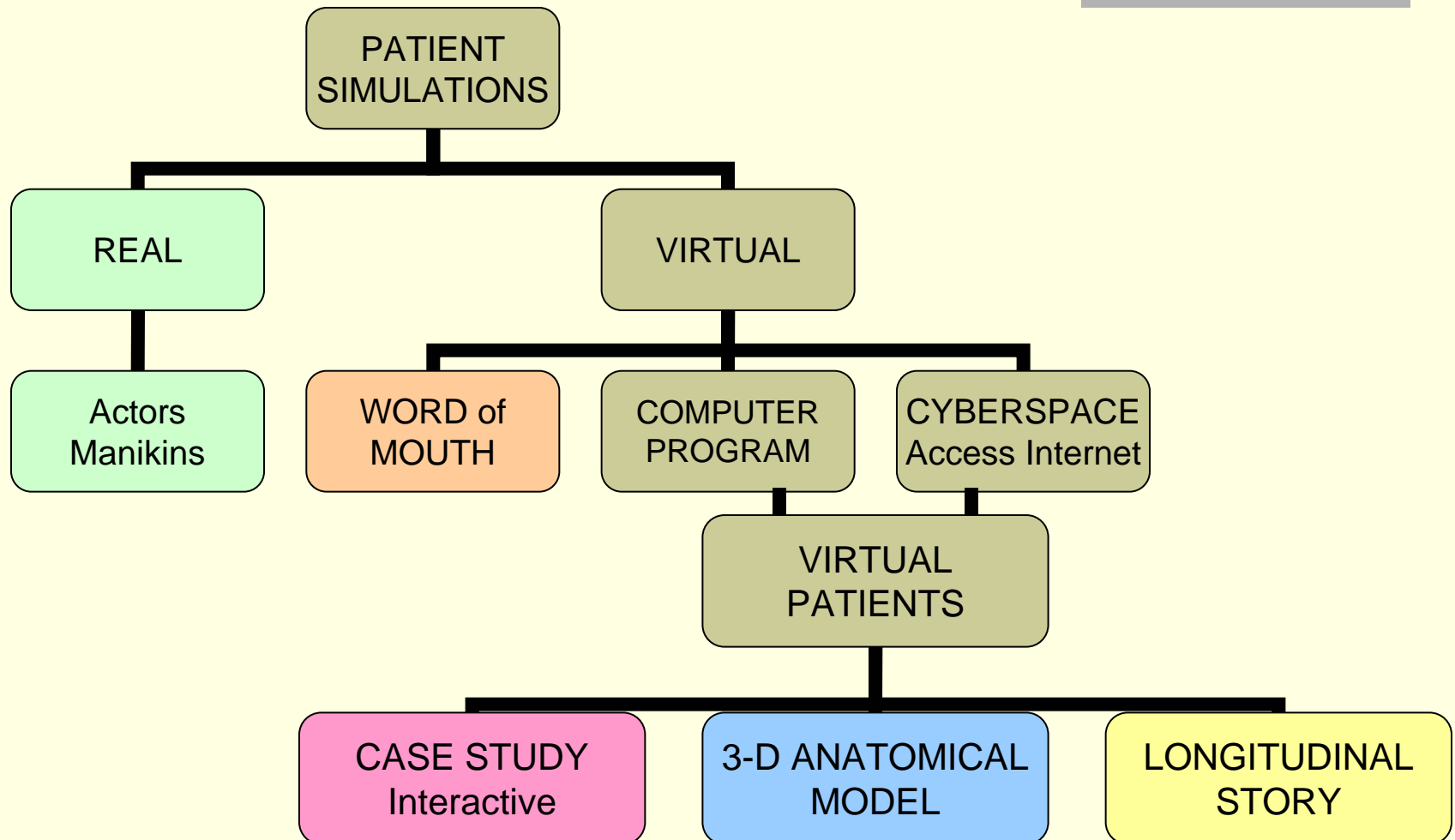
5/14/2009 2:41:33 PM

FACS v1.0.47



Start	
Case ID	157
Case Name	Laboratory data
Category	Anaesthesia
Description	An elderly woman has a traumatic hip fracture. <div style="color: blue;">To be done in week 1</div>
Activated	<input checked="" type="checkbox"/>
	<input type="checkbox"/> Workshop Group <input type="checkbox"/> Surgery C - Group 4 <input type="checkbox"/> Group 8 <input type="checkbox"/> Surgery B - 8AB <input type="checkbox"/> Surgery B - 8CD <input type="checkbox"/> Guests <input type="checkbox"/> Test <input type="checkbox"/> Med5210WBSA <input type="checkbox"/> DemoGroup <input type="checkbox"/> Virtual AE <input type="checkbox"/> Workshop Virtual AE <input type="checkbox"/> ENT - Med 5 <input type="checkbox"/> Public <input type="checkbox"/> Traditional Chinese Medicine <input type="checkbox"/> FACS Tour <input type="checkbox"/> Student Result Logging <input type="checkbox"/> ORT

What is a Virtual Patient?



Good VPs are difficult to create.

- Time consuming
- Experts in content
- Skill / Experience to write
- Expensive

Plan material & layout

Write Script for FACS

Add Clinical Data

Upload to Engine
(text to webpage)

Test on Student groups
Revise content

FACS-Pain Case B Jan 2009 IV PCA - Acute Pain Service on Ward

FACS-Pain Case B January 2009
IV PCA - Acute pain service on Ward

Student instructions

This Acute Pain Management FACS is one of three that will introduce you to the main issues involved in providing acute pain management to a patient undergoing major surgery. It follows the standard FACS format of a series of decision steps with feedback based around a clinical case.

Please feel free to explore the FACS, rather than aiming for the highest possible score or completing the FACS as fast as possible. It is important that you understand why some of your answers are incorrect.

Our objective in writing these three FACS scenarios is to improve your understanding of post-operative pain management, so the more time spent reading and thinking about each case, the better.

These FACS have links to supplementary material on acute pain management. A list of learning objectives is provided at the end of each FACS. Your performance is also scored.

We would suggest you work through each FACS twice. The first time you try the FACS, you should explore its contents, reading all sections (a feedback and supplementary material) and don't worry yourself about your performance score. You should spend at least 10 to 15 minutes exploring the FACS. The second time you try the FACS, you should aim to answer all the decision steps correctly, based on what you have learnt from your first attempt at the FACS.

Step 1

Mr. Tong is a 52-year-old Hong Kong man who has been newly diagnosed with bowel cancer. He has just returned to the surgical ward following an operation to remove a large tumour from his descending colon. The surgery was uneventful and involved a lower abdominal midline incision. There was no obvious evidence of any metastatic spread.

The anaesthetist had chosen to use IV PCA morphine for post-operative pain relief. The PCA pump was prepared by the anaesthetist during the operation, and was later connected to the patient in the recovery room. The morphine syringe was attached via an extension set and one-way anti-siphon valve to a dedicated 20 gauge IV cannula sited in the patient's left forearm. The recovery nurse had shown the patient how to use the PCA pump and hand piece once he was awake enough to understand instructions. Responsibility for the patient's pain management had been taken over by the Acute Pain Service (APS), which consists of a senior anaesthetist, medical officer (anaesthesia MO) and pain nurse. After hours service (after 4pm) is provided by the on-call obstetric and pain anaesthesia MO.

View supplementary material
ACUTE PAIN SERVICE
Add links

Mr. Tong is now back on the surgical ward and recovering from his operation.

PICTURES - SET UP: PCA pump (Drasby) / Hand piece / Anti-siphon valve / Acute Pain Service team

- 1 -

FACS-Pain Case B Jan 2009 IV PCA - Acute Pain Service on Ward

Question
When should the APS pain nurse or MO first visit Mr. Tong (select one)?

Choices

- Before the operation (10)
- Whilst still in recovery (10)
- When he arrives on ward (10)
- 2-3h after his arrival on ward (20)
- During the evening after surgery (5)
- Next morning after surgery (0)

[Only score first attempt]

Feed back

Before the operation
Ideally all patients receiving IV PCA, or any other method of post-operative pain relief, should have been seen by the pain service before surgery to educate them on its use. However, the hospital's demand for pain services is now so great that such visits are seldom possible. There is simply not enough time. Very often the last anaesthetist will tell the patient about the use of IV PCA as part of the pre-operative visit, especially if he has pain service training and can speak Cantonese.

Whilst still in the recovery room
The initial education of the patient on how to use the PCA pump and hand piece is usually performed by the recovery nurse, once the patient has recovered sufficiently from the anaesthetic and operation to understand her instructions. However, assessment of the quality of pain relief can only be performed after the IV PCA has been used for several hours.

On arrival in the general ward
When the patient has just arrived back on the main ward is a bad time to visit the patient, as he will have had insufficient time to use the IV PCA pump and hand piece. Furthermore, the ward nurses may still be busy with the patient as he has only just arrived on the ward.

However, the pain nurse does at some point need to visit Mr. Tong at some point to assess the quality of pain relief, whether the pump is set up properly, and whether IV PCA pump and hand piece are functioning properly.

During the evening after surgery and the next day
By the evening and next day the patient should have been using the IV PCA for some time. If there is any problem with the pump set up or the patient's use of the hand piece, he may be receiving insufficient morphine and inadequate pain relief, or alternatively excessive morphine and developed an overdose. In either case the acute pain service should have been involved earlier.

LEARNING OBJECTIVES:
Student understands that IV PCA needs continuous supervision and that the acute pain service supervises pain management on the wards.

Step 2a

Mr. Tong's IV PCA was prepared in theatre by the anaesthetist. It was connected up and started only once Mr. Tong had recovered sufficiently from his anaesthetic to understand how to use the hand piece.

- 2 -

One Solution:

- To share cases with other medical schools

Who are using Virtual Patients?

- Europe – 4 well developed systems

- CASUS Player
- CAMPUS
- WebSP
- Open Labyrinth



- North America – 3 or 4 systems

- McGill University, VP
- Maryland VP
- Pittsburgh University, vpSim
- NetWoRM (CASUS / multicenter / occupational M)

- SE Asia – Hong Kong (FACS & VP) & Taiwan VP

CACUS Player

Munich, Germany

- Since 1993
- Linear design
 - Series of web-pages
 - 9 different question types
 - Scoring system
 - 6 different languages
- 1000 cases
 - Including 125 Law Schools cases

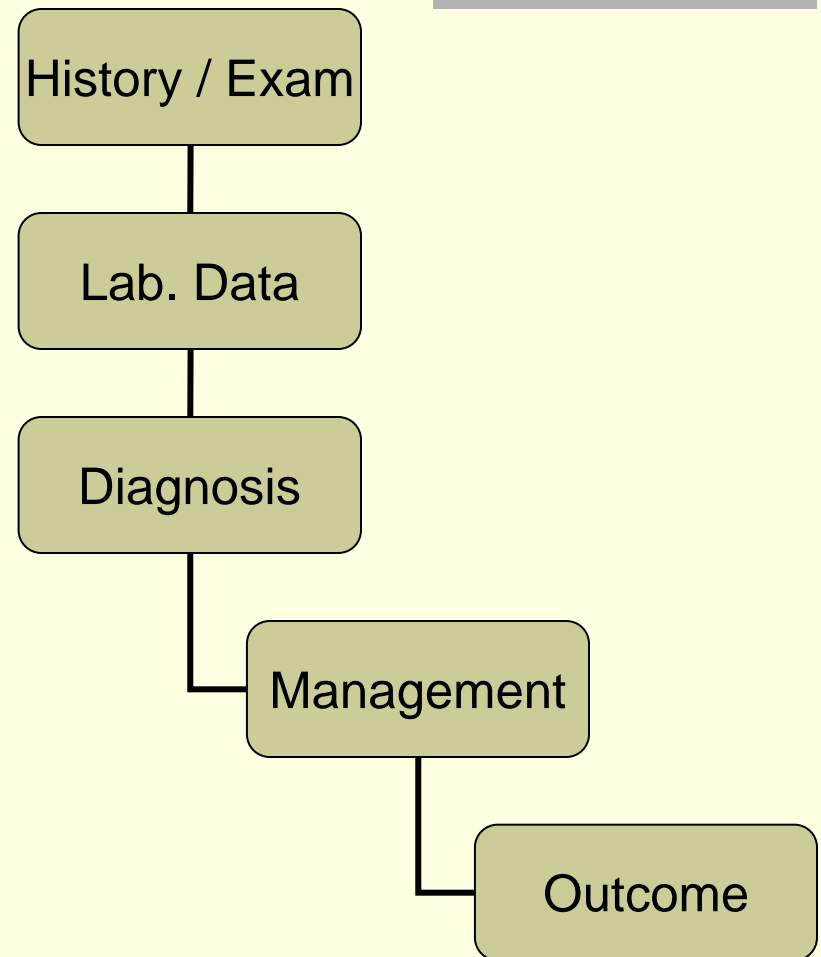
CAMPUS

Heidelberg, Germany

- Since 1997
- Clinical Case Design / Linear
 - Classic-Player & Card-Player
 - Case Diagnosis
- Non- Commercial / University funded
- Major users
 - Paediatrics

Play systems

- Design:
 - LINEAR (serial)
 - CACUS, CAMPUS
 - BRANCHING
 - Open Labyrinth
- Navigate the system
 - forward only
 - back & forth
 - loops / network
- *Similarities to FACS*



Patient Presentation



OPEN LABARYNTH NETWORK DESIGN

Branching

St. George's Medical School,
London, UK

Mrs Pat Hurst enters the consulting room of her General Practitioner's surgery. Below is a transcript of the initial conversation between her and her GP:

GP: How old are you Pat?

Pat: I am 65.

GP: What's the problem?

Pat: Terrible backache! Really, really bad.

GP: How long have you had this for?

Pat: I've had it for quite a while. I keep thinking that it's because I've done too much work. It's so persistent now, getting out of bed is a bit difficult.

GP: You've had it for a while. Can you put some kind of estimate on that? Months? Weeks?

Pat: I've had it for months and months. It's just one of those things.

GP: As much as a year?

Pat: Could be over a year.

GP: You say it's persistent?

Pat: Yes.

GP: Day and night?

Pat: Yes.

GP: Is it enough to keep you awake at night?

Pat: Yes, very often.

GP: Is it worse when you're walking or carrying shopping?

Pat: Yes, definitely, yes.

Case Information

Case: Pat Hurst Tutorial 1
(enriched) (501)
ID: 13478

[Restart Case](#)

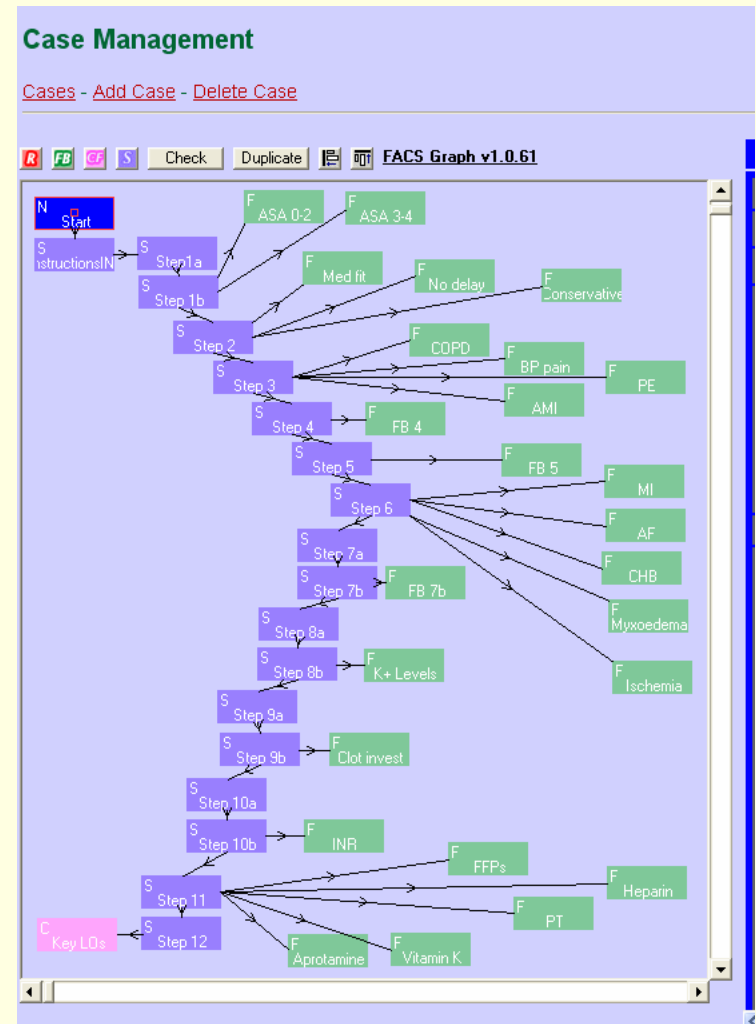
Case Pathway

[Review your pathway](#)

Case Score

Can they be shared?

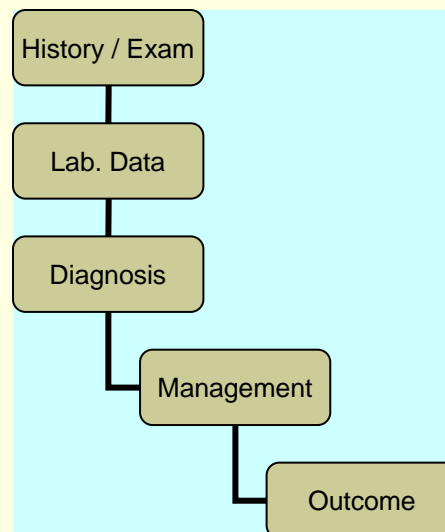
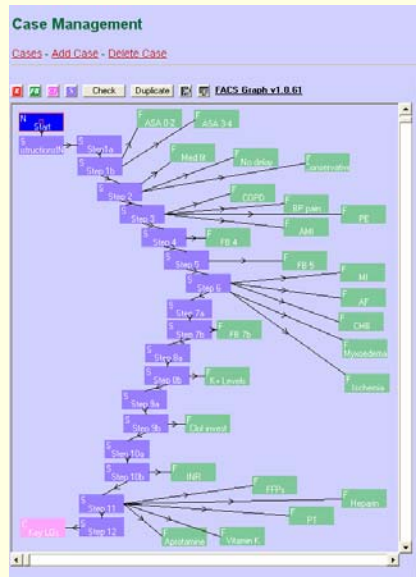
- YES,
 - *but there are problems:*
- Need a compatible software system:
- Other issues:
 - Language
 - Cultural differences
 - Ownership
 - Patient confidentiality



Current situation:

Quote by Rachel Ellaway

- Developing Virtual Patients is like a cottage industry with many tribes and many designs



OpenLabyrinth HOME MY ACCOUNT HELP LOGOFF

Patient Presentation

The screenshot shows a software interface for patient presentation. It features a header bar with 'OpenLabyrinth HOME MY ACCOUNT HELP LOGOFF'. The main area is titled 'Patient Presentation' and contains a large image of a building. To the right of the image is the text 'NETWORK Branching'. Below the image is a paragraph of text: 'It is 1916. Private Sean O'Shea (19 yrs old), fighting in Northern France with the Irish Regiment, gradually becomes weaker with mild fevers and night-time sweats, although with so much mud, disease and tiredness in the trenches little notice is taken by the Sergeant Major and Sean struggles on. He is able to persuade the Sergeant Major to refer him to the Medical Officer who is unsure of Sean's condition. (Stop and discuss before progressing)'. On the right side of the interface is a sidebar with 'Case Information' (Case: Edward Payne, Tutorial 1(h) (704), ID: 22044, Restart Case), 'Case Pathway' (Review your pathway), and 'Case Score'.

Case Information

Case: Edward Payne
Tutorial 1(h) (704)
ID: 22044
[Restart Case](#)

Case Pathway

[Review your pathway](#)

Case Score

electronic VirtualPatients

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Welcome to eViP

Welcome the eViP website! This site is dedicated to bringing you information about the eViP programme, a collaboration between nine universities and MedBiquitous Europe.

eViP aims to create a bank of 320 repurposed and enriched virtual patients. These virtual patients will be available under a Creative Commons Licence.

All virtual patients are repurposed using MedBiquitous Virtual Patient Technical Standards.



AMEE 2009

Malaga, Spain

[Click here for news, commentary & analysis](#)

eViP Partners

eViP is a collaboration between nine universities located across Northern Europe and [MedBiq \(Europe\)](#) who lead the field of technical standards and specifications for e-based healthcare. Click on the institution logo for more information.



Universitätsklinikum Heidelberg



eViP Associates

eViP also works closely with MedBiquitous (Europe), the University of Northern Ontario in Canada, and is co-funded by the European Union. Click on the logos below for more information.



Aims of eViP

- Create a bank 320 reusable VPs
 - Develop **Technical standards**
 - **Repurpose** existing cases

- Contact *“like minded”* centers
 - 1st International Conference
 - Krakow, Poland - June 2009
 - London, England - April 2010

>>> Virtual Patient Working Group

Mission

The mission of the MedBiquitous Virtual Patients Working Group is to develop XML standards and Web services requirements to enable interoperability, accessibility and reusability of Web-based virtual patient learning content.

Discussion List

[Virtual Patient Discussion List](#)

Workspace

[Virtual Patient Working Group Wiki](#)

Documents

- [Virtual Patient Data Draft Specification](#) (PDF, 2 MB)
- [Virtual Patient Player Draft Specification](#) (PDF 787 KB)
- [Virtual Patient Schemas](#) (ZIP 5 KB)
- [Working Group Charter](#) (PDF, 31 KB)

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**US Organization that sets:
Technical Standards in Health Care
*Virtual Patient Standards**

Developing reusable cases

Repurpose & Enrichment

- Dr. A in country B has a case that I would like to use on my course to teach my students

- *BUT PROBLEMS*
 - The case is written in German not English
 - Some of the histology slides need improving
 - The picture with a religious cross may be offensive to my muslim students
 - Should I be using pictures that identify the patient?

Repurpose & Enrichment

Strip the CASE down to basic structure & contents

Enrich it with new pictures & laboratory data

Depersonalize & remove any cultural aspects

Translate into different languages

Make it available in a bank of cases / VPs

Conforms to MedBiquitous standards format

I can now import the case into my system and use it

Ownership of cases:

- I have put a lot of time and effort into developing my VP cases.
- How do I get credit for all my hard work?
- Do I want someone overseas claiming credit for my case?

Authoring Virtual Patients:

Association of American Medical Colleges

- **MedEdPORTAL**

(www.aamc.org/mededportal) is a free **peer-reviewed publication service** and **repository** for medical and oral health teaching materials, assessment tools, and faculty development resources.

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News

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MedEdPORTAL strives to maintain a comprehensive pool of expert reviewers. At this time MedEdPORTAL is asking the community to nominate reviewers for the following specialty areas: Pediatrics, Anesthesiology, Neurology, General Surgery, Dermatology, and Psychiatry.

[MedEdPORTAL Recognizes Published Authors and Peer Reviewers](#)

In the summer of 2008, MedEdPORTAL mailed formal thank you letters to each reviewer who had completed a review within the prior academic year. Based on the positive feedback that was received from this effort, MedEdPORTAL decided to repeat this annually to recognize these individuals and their invaluable contributions to the program. MedEdPORTAL would like to extend our thanks to our reviewers once again for volunteering their time and expertise in order to ensure the quality of each and every MedEdPORTAL publication.

[AAMC 2009 Annual Meeting: The MedEdPORTAL Agenda](#)

The Association of American Medical Colleges (AAMC) will host its 2009 annual meeting in Boston, MA from November 6-11, 2009. These sponsored sessions will be held at the Hynes Convention Center, Marriott Copley Place, and Sheraton Boston. MedEdPORTAL® will conduct sessions which will take place on Saturday, November 7, 2009, in the Hynes Convention Center.

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University of Massachusetts

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Angelika Rampal, MD
University of California Los Angeles David Geffen SOM



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University of Manitoba Faculty of Dentistry



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Thank you

Why do we need Virtual Patients?

STUDENTS LIKE BOOKS!!

What do VPs provide
that books don't?

Interactive
Multi-media presentation
Informative

Accessed any-time,
any-place, any-where