 School of Medicine

**Year 1 student guide**

2012 - 13

**Doctor and Patient Course**



**Problem Based Learning**

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<https://education.med.imperial.ac.uk>

**Year 1 Problem Based Learning  
Student Guide 2012 - 13**

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***Disclaimer***

It should be noted that, although every effort has been made to ensure that the information in this document is correct at the time of going to press, information may be subject to change. You will be informed of any changes that affect the curriculum or your progress through the course.

[*https://education.med.imperial.ac.uk*](https://education.med.imperial.ac.uk)

**SOLE FEEDBACK – About the PBL process overall**

The following pages provide you with templates on which you can record your thoughts as the course proceeds. At the end of the term you can enter your views onto SOLE. There will be an opportunity to comment on your PBL Tutor on the following page.

**Please answer all questions by selecting the response which best reflects your view.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Strongly Agree** | **Agree** | **Neutral** | **Disagree** | **Strongly Disagree** |
| The content of this course is useful. |  |  |  |  |  |
| The support materials available for this course (e.g. guide) is helpful. |  |  |  |  |  |
| Overall, I am satisfied with this course. |  |  |  |  |  |

Please use this box for constructive feedback and suggestions for improvement.

|  |
| --- |
|  |

**Tutor/s Evaluation**

**Please answer all questions by selecting the response which best reflects your view.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| The Tutor encouraged participation  by all members. |  |  |  |  |  |
| The Tutor encouraged students to share prior knowledge. |  |  |  |  |  |
| The Tutor encouraged constructive conflict in group discussions. |  |  |  |  |  |
| The Tutor led constructive feedback on individual performance. |  |  |  |  |  |
| The Tutor guided the learning process well. |  |  |  |  |  |

**Please give us your specific comments about your tutor’s skills.**

|  |
| --- |
|  |

**Introduction to the Problem Based Learning Course (PBL) Year 1**

The Problem Based Learning (PBL) Course for Imperial College medical students is designed around sets of cases studied with tutor support in Years 1 and 2. Students are assessed on their ability to use the PBL process – formatively in both Years 1 and 2 and summatively in Year 1. Numerous cases are provided for personal use by students in the clinical years of the Course so that they are skilled and confident in the use of PBL in their professional lives.

**Aims of the course**

The ‘Imperial style of PBL’ will enable students to **integrate learning across the themes** of the whole curriculum and **develop professional skills**. The skills acquired include teamworking, analysing cases, gathering relevant information and critically appraising it, evaluating the use of data in evidence based practice and medical decision-making and teaching.

This PBL Course aims to help students develop life-long learning skills and to encourage them to show **creativity**, work in **collaboration** with their peers and develop ways to **cope** with uncertainty.

PBL is an educational strategy based on research into how adults learn most effectively. Students will explore a series of cases which are based on the type of clinical cases which will be faced in professional life. Students will discuss the cases in groups with guidance when necessary from the tutor. The cases are designed to act as challenges to stimulate students to go and gather information for themselves and to apply it to understanding the underlying principles involved in the case. During the Course they will therefore develop skills which can be directly transferred to understanding and managing real patients and clinical situations.

**PBL objectives**

The objectives outlined below are those which students will have achieved by the end of the first two years of the PBL course. In addition to these general objectives, each case will have specific knowledge based objectives, which should be achieved.

|  |  |  |  |
| --- | --- | --- | --- |
| **1 Case analysis** | **2 Accessing information** | **3 Critical appraisal and evidence-based medicine** | **4 Team working and teaching** |
| a. Utilises prior knowledge  b. Asks questions of peers  c. Evaluates and challenges arguments  d. Takes responsibility for roles e.g. group leader or scribe | a. Accesses information from reliable, varied and original sources  b. Shares correctly referenced material | a. Challenges the quality and pertinence of material  b. Offers constructive feedback to peers and tutor  c. Demonstrates an understanding of the principles and limitations of evidence-based medicine (EBM) | a. Participates actively in discussions  b. Respects others in group  c. Takes responsibility for own learning  d. Actively contributes to setting learning objectives  e. Makes effective presentations that aid learning |

**Course Structure**

**Imperial 10-step PBL process:**

|  |
| --- |
| **First tutorial of each case**   1. In the first step – identify leader/ chairman and scribe for the session\*-see Tasks. 2. Clarification of the case. The case is read out aloud. Students clarify any unknown words or phrases contained in it, even the most basic e.g. what is fever? 3. Identify the important events/issues. Students list all the events and issues they consider important.   4. Propose mechanisms. Students attempt to explain why and how these events or issues take place. They should attempt to come up with their own hypotheses.  5. List areas of uncertainty and ignorance, the learning goals, as specific questions  **Experienced tutors suggest checking that all students have each other’s e.mail addresses and telephone numbers + contact details of the Tutor at the end of the 1st session.**  **Work alone session**  6. Attempt to resolve these areas of uncertainty and ignorance. Students will be  expected to use the time between the tutorials to investigate the areas they have  listed above. (‘Purists’ suggest that all students should investigate all the questions arising from Step 5. Practically most tutors find that students divide up these questions and allocate each to a pair of students).  Ideally, students should prepare succinct typed summaries of their ‘homework’ (highlighting key information) for distribution to their colleagues and tutor, together with a list of the resources accessed with detailed references. A single A4 sheet should suffice. These sheets can be emailed to the Group + Tutor in advance of the session.  **Second tutorial: presentations/ discussions/evaluations**  7. Students discuss their findings with the rest of the group. During the second tutorial the students attempt once again to explain the events and issues they identified earlier.  8. Identify new learning goals. Scribe to write up.  9. Give feedback to the leader and scribe and tutor – see guidelines and the appendices about feedback in all tutorials and assessment during the last session each term or at the end of the Spring term.  10. Evaluate the tutorials. One of the process objectives is for students to learn about teamwork, an objective which is helped if the students have an opportunity to talk about what has happened. Scribe to complete the form.  Evaluate the tutor: at the end of term/ course (SOLE). |

**The PBL process**

**A theoretical background.**

* PBL has been demonstrated to do a number of things which have been shown to improve learning.
* PBL mobilises the students’ **prior knowledge**. All students entering the medical school will have some prior knowledge, gleaned from personal experience, from newspapers or from previous studies, about the events taking place in the cases they are presented with.
* Learning appears to be more effective if new learning is attached to previous learning, as happens when their prior learning is activated and used. A second advantage is that very often misconceptions come to the surface which can be challenged, something which rarely happens in a lecture, and not often enough in other types of tutorial.
* PBL allows **’constructive conflict’**. By having the students discuss amongst themselves the possible explanations for events, there is a certain amount of conflict, which if constructive and positive, increases motivation for learning.
* PBL allows discussion around the subject. Learning appears to be enhanced when the learners have the opportunity to discuss it freely.
* PBL allows the students to identify their **own learning goals**. Students should be more motivated to learn if they set their own goals.

PBL allows students to learn at their own speed and in their own style. Students differ very much in how they learn, and often in ways that conflict with the way they are taught.

***The tutorials.***

PBL is focused upon the clinical details of ‘real’ cases organised into two tutorials for each case, with time for the students to search for information in between. In the first tutorial the students should examine the case/problem, identify the important factors or events taking place and speculate about the mechanisms behind these events. In the process of doing this they should identify the areas in which they are uncertain or ignorant and list these as learning goals, and return to the second tutorial equipped to be able to discuss their findings (and perhaps identify new learning goals in this subject).

***The case/problem****.*

This is the scenario/abstract which is presented to the students at the beginning of the first tutorial and given in this course guide. It is probably better called a case rather then a problem. PBL is **not about problem solving** but about students discovering and learning the theoretical background behind the events described. This having been said, there is no reason why a case should not include a question for the students to answer, as long as in answering it, the students will achieve the educational objectives desired. The cases are drawn from real life, and are written to direct the students towards the objectives agreed on in advance (rather than the other way round). Each case is presented to the students as an abstract with a broad aim/aims. A variety of ‘voices’ and settings are used to present the cases.

***The tutor as facilitator****.*

The role of the facilitator is NOT to teach but to ensure that the group works towards its goals, achieving the objectives, by examining the case as described above, and does not go up blind alleys, or become dysfunctional, and allows all students to take part. During the tutorial the facilitator ensures that the group is heading in the right direction to achieve the objectives and process. The facilitator will do this by intervening with comments about the process, or with questions which will redirect, or concentrate, the students’ thoughts, rather than by providing the answers. Ideally, each student could send detailed information in advance by e.mail and bring to the follow-up tutorial a succinct typed handout of their ‘homework’ (highlighting key information) for distribution to their colleagues and the tutor, together with a list of the resources accessed, with detailed references.

***Ground rules***

Groups that do not agree their ‘ground rules’ tend to work less effectively and skills such as challenging a colleague and constructive feedback are not developed.

***The tutorial process:*** the Imperial ’10 step’ approach . The tutorials should follow the steps described below which are developed from the original Maastricht 7 Jump model.

**Tasks/roles**

\*To help the PBL process along, the students will elect /choose (e.g. by spinning a bottle) a group leader/chair who will chair the discussion and a scribe to write up on the white board/flip chart the points that are raised in the group’s discussions. The scribe can then provide detailed information by e.mail to all (including the Tutor).

These jobs should rotate among the students, and no one should miss his/her turn.

The chairman leads the discussion (and is not expected to provide the answers) whilst the facilitator guides where necessary (but should not provide the answers).

Everyone present has a role to play – see Process Map.

**Roles in the second session**

Groups need to discuss the roles of the chairman in the second session: is it as an organiser of the presentations; timekeeper; enabler of questions? Who takes on these roles whilst the chairman is presenting?

What should the scribe do during the second session? S/he could record matters of contention or ignorance and take responsibility for the evaluation of the case.

**Presentations**

The group must decide how it wishes to share information in the 2nd session. These PBL sessions provide opportunities to practice presentation skills and experiment with different styles. **Tutors are recommended to suggest that the style is varied from session to session.** The group should also practice giving feedback about the style and content of the presentations.

Examples include:

Role play

Quizzes and games

Sheets with words missing

+/- the use of audio-visual aids

Presentations should be brief- 5-10 minutes.

**Information in Student Guide**

It is helpful to develop the skill of summarizing information – you will need to do so in the years ahead, for example, when describing your patients on the First Clinical Attachment Course to your colleagues, when sharing details about your patients with other medical professionals, on the 4th year course and when presenting at meetings or conferences.

You have a session on the Communication Programme about Presentations in October of Year 1. You are expected to practice your skills in the PBL sessions. See Appendix E.

**Critical appraisal of sources of information.**

You should refer to the Year 1 Epidemiology in Practice Course- details on the Intranet. The Course is taught in the autumn term of Year 1. This aspect of PBL is emphasized in the Year 2 cases and we hope that our Case 3 in Year 1 will emphasise this skill.

**Feedback**

You are expected to develop and practise feedback skills during Year 1 on the Communication Programme (teaching in November); First Clinical Attachment Course and the PBL Course. See Appendix A.

**Student Concerns**

Tutors are asked to share any concerns about a student with the Lead Academic Co-ordinator for the Year concerned (Jane Currie for Year 1). In addition, it is recommended that the autumn term tutor for a group inform the spring term tutor of any issues that are affecting the function of the group. This is best done by e-mail or via the FEO Administrator.

**Expected Behaviour**

Any lateness or absence should be explained, in writing.

The Tutor may need to send an e-mail to the student concerned to prompt this.

Failure to respond should be notified to the FEO Administrator.

Only students registered for the Course should attend no siblings or friends!

**Expectations of students – professional behaviour**

Whilst on problem based learning courses students are expected to behave in ways which are consistent with membership of the medical profession.

For example, they are expected to attend **all** scheduled sessions, punctually and to complete any tasks agreed by the group and the tutor.

In particular, during PBL sessions we expect students to demonstrate:

* a willingness to participate in group discussions
* a willingness to take increasing responsibility for their own learning
* a commitment to the attainment of group goals as well as a realisation of their own personal learning objectives
* respect for other members of the group, by responding positively to their contributions, even when questioning their ideas
* concern for the efficiency of the learning process by expressing any reservations they might have about the level and direction of the group effort.

PBL Process Map

All Participants have a role to play in\*\*

Critical Appraisal

Case Analysis

Accessing Information

Teamwork

Tutor

Chairman

Group member

Scribe

* Encourage all group members to participate
* Assist chair with group dynamics and keeping to time
* Check scribe keeps an accurate record
* Prevent sidetracking
* Ensure group achieves appropriate learning objectives
* Check understanding
* Prompt feedback and evaluation
* Assess performance
* Follow the steps of the process in sequence
* Participate in discussion
* Listen to and respect contributions

of others

* Ask open questions
* Research all the learning objectives
* Share information with others
* Share feedback
* Assess self
* Evaluate case and tutor
* Record points

by group

* Help group order their thoughts
* Participate in discussion
* Record resources used by group
* Summarise outstanding learning objectives at end of 2nd tutorial
* Record all learning objectives on Case Evaluation Sheet
* Lead the group through the process
* Encourage all members to participate
* Maintain group dynamics
* Keep to time
* Ensure group keeps to task in hand
* Ensure scribe can keep up and is making an accurate record
* Lead feedback and case and tutor evaluations

\*\*See Student Assessment

Appendix B

(BMJ Vol 236 Feb.03 Diana F. Wood) Amended version

**Assessment Details**

Assessment in PBL is closely aligned with the PBL objectives.

* Formative assessment occurs throughout the course, but is emphasised in term 1.
* Summative assessment occurs in term 2 once students are familiar with the PBL process. It is called the **PBL In-Course Assessment** and is in four parts:

1. Attendance and punctuality
2. One-to-one assessment with PBL tutor
3. Written reflection
4. Independent PBL exercise

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **PBL Objective** | **1 Case analysis** | **2 Accessing information** | **3 Critical appraisal and evidence-based medicine** | **4 Team working and teaching** |
| Detailed learning objectives | a. Utilises prior knowledge  b. Asks questions of peers  c. Evaluates and challenges arguments  d. Takes responsibility for roles e.g. group leader or scribe | a. Accesses information from reliable, varied and original sources  b. Shares correctly referenced material | a. Challenges the quality and pertinence of material  b. Offers constructive feedback to peers and tutor  c. Demonstrates an understanding of the principles and limitations of evidence-based medicine (EBM) | a. Participates actively in discussions  b. Respects others in group  c. Takes responsibility for own learning  d. Actively contributes to setting learning objectives  e. Makes effective presentations that aid learning |
| Where will it be assessed? | Part 2, Part 3, Part 4 | Part 2, Part 3, Part 4 | Part 2, Part 3, Part 4 | Part 1, Part 2, Part 3, Part 4 |

Detailed information about the PBL In-course assessment is available in another document entitled *PBL In-Course Assessment – Student Guide* (which will be available on the intranet).

Tips to help you understand the assessment better have been distributed throughout the course guide, to help you develop your skills over the course of the year. These tips are denoted by the assessment icon:

PBL ICA

Part 1

Part 2

Part 3

Part 4

**You have been given a self –assessment form (B1) and the following advice:**

During each term you should complete the Student’s self-assessment notes, session by session. This can be done using the form on the Intranet.

Bring a copy of your self-assessment form to the one-to-one meeting with your tutor at the end of each term.

**At the end of each term**, **tutors will complete an assessment form (Appendix B2)** for each student, a copy of which will be put in the student’s personal file kept in the Faculty Education Office. Please give each student the top copy at the end of your one –to –one meeting.

As students will be assessing themselves as well as being assessed by the tutor it is recommended that any discrepancies are discussed at the final tutorial session each term and a note added to explain the differences.

**Prize**

We have a prize for the Summative assessment from the Worshipful Company of Apothecaries. This will be awarded to the best performing candidate in the PBL In-Course Assessment. S/he will be invited to the Hall of Apothecaries to receive the prize.

**Course evaluation**

The cases will be evaluated by each group of students with their tutor through completion of evaluation forms (Appendix D).

Tutor’s facilitating skills will also be evaluated by each student confidentially (Appendix C) – this will be submitted via SOLE (Student On-Line Evaluation).

**Case 1: Fodder for thought**

*(Tutor notes: FOD = fatty acid oxidation disorders)*

**Author:** Dr Jane Currie ([j.currie@imperial.ac.uk](mailto:j.currie@imperial.ac.uk)), Clinical Education Fellow ICSM

**Molecules, Cells and Disease Theme**

**Introduction**

This is a short first case related to the MCD theme to allow time for the tutor and students in each PBL Group to make introductions and discuss their understanding of the PBL process. The MCD course begins in October and includes sessions on cells, metabolism, nucleic acids and genetics. The library and IT teams have already given the students a series of three induction sessions about the library, database searching and critical appraisal and also plagiarism and referencing.

**Part 1 (introductions and PBL process)**

This is where you should cover:

* 1. Introductions and ‘Icebreaker’
  2. Students’ (and tutor’s!) expectations of PBL
  3. Agree the group’s ‘ground’ rules
  4. Consider ‘process’- go through steps 1-10 and the PBL process map

**Part 2 (PBL Case 1)**

Monday

Imagine you are visiting Jess Sørensen at home; you have been following her through her pregnancy on your first clinical attachment. She gave birth to baby Maya 17 days ago. She receives a phone call while you are there; you can only hear her side of the conversation:

“Yes, this is Jessica Sørensen.”

“Yes, I remember Maya having the heel prick test. It made her cry so loudly!”

“Sorry, I don’t really remember what it was testing for. Wasn’t it genetic problems? Something about rare things that we might not find out about otherwise?”

“Oh my goodness. I don’t think I’ve ever heard of that condition.”

“So what does that mean for Maya? Is it dangerous? Will she be ... disabled?”

“Yes, I can come in tomorrow to the clinic. I’ll see you at 11, thank you.”

Jess tells you what the test has shown, and asks if you can end your session now, as she needs to Google it to make sense of what is going on. You arrange to meet the following week.

Later that night you do a search yourself. You find something interesting from a hospital website about how research into this condition led to it being added to the national newborn screening programme. You wonder how it would be picked up without the screening test.

Tuesday next week

You sit down together whilst Jess breastfeeds Maya. “It’s really important that I make sure she eats well and often, I think that’s the most important thing Dr Crick, the consultant, said. If Maya goes without food for too long she could get very unwell.”

You listen to her, allowing her to talk and get it off her chest.

“Dr Crick wanted to go through all my history again, including my family history. I don’t really know my father’s side of the family as they’re all in Denmark, so that wasn’t very helpful, but she was really interested in my husband’s cousin, whose little girl died aged one. She then explained the inheritance. When I said I was hoping to have more children, she started talking about how they might get it too, and how you could predict the risk of them being affected. Do you think it would affect my sister? She’s just started trying for a baby too.

“Then she told me lots about the condition. She went through lots of detail that I couldn’t really follow. There was a medical student in with her, a bit like you, so she was trying to explain some stuff about recessive genes and enzymes and fats and metabolic pathways, but to be honest I couldn’t follow any of it. I just couldn’t take it in. Maybe you can explain it to me next time we meet?”

“She said the thing about eating, that if Maya doesn’t eat, or gets sick, she won’t be able to get any energy, and that could cause low blood sugar, or seizures, or liver problems, or even ... even ... oh my gosh, I can’t take this.” She starts to cry. “That’s what I was reading on the internet, all the bad stuff. Like, there’s no cure, but we can prevent problems as long as we’re careful ... I’m going to have to protect her forever.

“After all this, she did some tests on Maya, on her blood and urine, to make sure it’s the right diagnosis. We’re waiting for the results. Gosh, I hope they’ve got it wrong.”

**PBL Case aims:**

1. For students to revise the mode of inheritance in genetic diseases.
2. For students to appreciate how an alteration in gene sequence can lead to significant effects in the protein structure and finally on the level of protein function, metabolism and overall health.
3. For students to practice their clinical communications with patients:
   * How to talk to patients and describe simple Mendelian inheritance to them.

How to explain to them about the molecular side of the disease and how this causes the clinical symptoms observed.

**References (for student guide)**

Leonard JV, Dezateux C (2009). *Archives of Disease in Childhood* 94: 235-238 (Title not given; students should use their library skills to find the article.)

<http://www.fodsupport.org/family_stories.htm>

<http://newbornbloodspot.screening.nhs.uk>

<http://www.geneticseducation.nhs.uk/media/16236/Family_History_Series.pdf>

**Links to other parts of the course**

MCD

Genetics

Clinical communications

Medical ethics (Year 2)

Paediatrics (Year 5)

**Tips for preparing for the PBL in course assessment – Understand how you will be assessed!**

Although the PBL assessment is a long way off, you will probably be curious about it already.

The assessment has four parts and is designed to match the overall learning objectives for PBL (see page 3)

Part 1 – Attendance and punctuality – *formative in term 1, summative in term 2*

You are expected to attend all PBL sessions punctually. If you are late or absent you will need to report it in the usual way; any unexcused absences or lateness may mean your tutor cannot pass you (and is also disruptive for the PBL group).

Part 2 – Individual assessment with PBL tutor – *formative end term 1, summative end term 2*

You and your tutor should discuss your performance in PBL sessions, using the overall learning objectives as a guide. This is an opportunity for one-to-one feedback that students really value.

Part 3 – Written reflection *– to be submitted in February 2013 (date TBC)*

This is an opportunity for you to reflect on the process of PBL and your learning. It is 500 words where you have the freedom to describe your strengths and weaknesses, to analyse them, and to make a plan for improving in the future.

**Parts 1, 2 and 3 have to be passed.**

Part 4 – Independent PBL Exercise *– formative in January 2013, summative in March 2013 (dates TBC)*

This is an individual piece of work based on a very short PBL case, testing your ability to derive clear researchable learning objectives, to use a varied and appropriate range of references, to critically appraise those references, and to write a 500 word report on your research**. It is marked on a scale and the marks will contribute to your overall mark in year 1, including merits and distinctions.**

There is a PBL prize for the student(s) with the highest mark in the Independent PBL Exercise and the best overall performance in parts 1, 2 and 3.

**Case 2: ‘It’s just a virus’**

**Foundations of Clinical Practice Theme**

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**Setting: General Practice, West London. It is a few years from now and you are training to be a GP and have just started your attachment as a Registrar.**

**Aims**

* To explore the nature of upper respiratory tract infections by comparing and contrasting a range of similar symptoms which have a variety of causes, thereby practising the arts of differential diagnosis and patient management.
* To debate how health beliefs influence the understanding of symptoms by lay people and by health professionals.

**Abstract: role play**

**Characters**

* **Narrator**
* **GP trainee/registrar**
* **Mrs Hernandez (Scenario 1)**
  + **Carmel, daughter of Mrs Hernandez**
* **Mr Jones (Scenario 2)**
  + **Amelia, daughter of Mr Jones**
* **Mrs Gorada (Scenario 3)**
* **Miss Wilkinson (Scenario 4)**
* **Mr Brown (Scenario 5)**
* **Dr Helman (Principal and Trainer)**

Narrator: During the course of a single evening surgery in Autumn you see a number of patients with ‘colds’.

Scenario 1:

Narrator: Mrs. Hernandez, whose family migrated from Colombia, has brought her two year old daughter Carmel. Carmel is playful and running around the consulting room.

GP trainee: “Hello, what can we do for you today?”

Mrs Hernandez: “I‘m worried that Carmel is ill, she’s feverish, coughing and sneezing and she sounds wheezy in her chest. She’s been keeping everyone awake with the coughing at night. I don’t understand how she can be ill - I never let her walk bare foot on cold floors. I’ve made sure that she is wearing many layers of clothes now.”

Narrator: You examine the child and then explain your findings.

GP trainee: ‘I can hear the wheeze but it’s not serious- just a bit of a virus. She’ll be better soon but I’d want to see her again if she got worse.

Scenario 2:

Narrator: Mr. Jones has brought his seven year old daughter, Amelia, to the surgery again this week.

Mr. Jones: “Amelia is off school with a sore throat and vomiting yet again. This is the eighth time this year. Our previous doctor always gave her antibiotics.”

GP trainee: “Hmm, Ican see that she is flushed, really quite pyrexial, very quiet for her and has red, swollen tonsils.

Narrator: You happen to notice on the bookshelf a box-file containing:

* Annals of Family Medicine article from 2007 “Differences among international pharyngitis guidelines: not just academic” <http://www.annfammed.org/cgi/content/full/5/5/436>
* JAMA article from 2004 “Empirical validation of guidelines for the management of pharyngitis in children and adults” <http://jama.ama-assn.org/content/291/13/1587.full>

Clinical Infectious Diseases article from 2002 “Practice guidelines for the diagnosis and management of Group A streptococcal pharyngitis” <http://cid.oxfordjournals.org/content/35/2/113.full>

GP trainee: “Let me just consider what best to do - a throat swab might be good, before any antibiotics. I’ll just check how to get all that organised”.

Narrator: There is a pause while you look in the box-file. Then you print out a prescription.

Mr. Jones: Thank you, most helpful. I must say I’m impressed - last time we were in, your colleague went on and on about antibiotics being no use for virus infections but he gave us a prescription anyhow.

Scenario 3:

Narrator: Mrs. Gorada is seventy-five years of age and is complaining that she has a ‘common cold’.

Mrs. Gorada: “It started as a head cold but now I have a cough and a chill which came on suddenly two days ago. I think I may have caught this from my husband. I normally receive an influenza vaccination every year, but I’ve not had it yet.”

GP trainee: “I see from your medical records that you are on a strong immunosuppressant tablet, for rheumatoid arthritis. You look as if you are quite unwell, you’re pale and your blood pressure is quite low; it’s 85/50. I’m sure that you need some treatment but perhaps we need to get the hospital to see you too?”

Mrs Gorada: I’m not going back there. You can catch all sorts of things in hospital. I want you to look after me- you sound as if you know what’s wrong.

GP trainee: I think that you may have a chest infection involving your lower airways that is making you ill. It would be best to have some investigations at the hospital today. Please let me refer you now and as soon as you are home again, in a few days, I can continue to look after you.

Narrator: you take some time calling the Medical Registrar and writing the referral letter. You are now running late and there are more patients to see.

Scenario 4:

Narrator: Miss Wilkinson wants something to help with her 2 year history of a persistently blocked nose.

Miss Wilkinson: “It is not a cold. It comes on when I eat a lot of dairy products. My nutritionist has recommended changes to my diet and wants you to refer me for patch testing at the allergy clinic.”

GP trainee: “What have you tried for this blocked nose so far?”

Miss Wilkinson: “I have already tried homoeopathy and acupuncture.”

GP trainee: “May I examine you…. *pause as you look up her nose…* ah, I have just the treatments for you & no need to refer you. We can do some tests here.”

Scenario 5:

Narrator: Mr. Brown doesn’t attend often. He has had tender neck glands and took to his bed last week after he came back from Romania.

GP trainee: “Tell me what’s made you come in today.”

Mr Brown (with a very soft voice): “When I came back from Romania I felt exhausted and my neck hurt. Now, one week later, my voice has changed and liquid seems to come out of my nose when I swallow. My shirt collar feels tight. Is this normal for ‘flu, because I have been taking ibuprofen and paracetamol but they aren’t helping. I bought some antibiotics in Romania but in the end wasn’t sure about taking them, so I didn’t.”

Narrator: You are worried about this story - it is unusual.

GP trainee: “Do excuse me but I think Dr. Helman might like to see you too today.”

Narrator: You send a message to your Trainer, Dr Helman and he comes in very promptly.

Dr Helman examines Mr. Brown with you.

Dr. Helman: “Well, Mr Brown, this may surprise you, but my colleague and I feel you need to have some more tests done and these should be done today. We’d like to send you up to the hospital now.”

After surgery:

Narrator: “After the surgery, you talk to your Trainer, Dr. Helman, about these patients.”

GP trainee to Dr Helman: “Where did they get their ideas from? How can I deal with all these odd notions and make accurate diagnoses in order to treat them properly? How can a doctor be sure when to do tests and when to prescribe antibiotics, and when to refer patients? How do I know when they have something serious or even life-threatening?”

Dr Helman to GP trainee: “I thought you did rather well today, despite running late you listened carefully to Mr. Brown and trusted your instinct about him. Calling me in was entirely appropriate- his problem is rare but getting more common. For the other people you saw, I suggest that you consider what the doctor’s role is when faced with such presentations.”

GP trainee to Dr Helman: “At least once a day I struggle to explain to patients the cause of the ‘common cold’, especially when they are from such a variety of cultural backgrounds Mind you, I’m not even sure just how common is the ‘common cold’? I do remember something about incidence and prevalence for a whole variety of respiratory infections from student days.”

Dr Helman: “You know I’m not going to just tell you. Where could you look up about all these queries?”

Narrator: Later that night, feeling a bit snuffly, you pour yourself a stiff whisky and turn up the electric blanket before getting into bed.

**References we recommend that you use these and find others of your own.**

1. NHS Direct: health and symptom checkers and other resources

2. Hopcroft K and Forte V. Symptom sorter Radcliffe. 2nd ed. 2003

3. NICE – National Institute for Health and Clinical Excellence. Prescribing of antibiotics for self limiting respiratory tract infections in adults and children in primary care. 2008 (Clinical Guideline 69)

London:NICE, 2008 www.nice.org/CG69

4. Butler C, Francis N. Commentary: NICE guidance on antibiotic prescribing for self limiting respiratory infections in primary care. BMJ 2008: 337;a656

5. Akkerman AE, Wouden JC van der, Kuyvenhoven MM, Dieleman JP, Verheij TJM:

Antibiotic prescribing for respiratory tract infections in Dutch primary care in relations to patient age clinical entities. Journal of Antimicrobial Chemotherapy (2004) 54, 1116-1121

6. Arroll B, Antibiotics for upper respiratory tract infections: an overview of Cochrane Reviews. Resp. Med 2005 Mar; 99(3):255-61

7. Helman C: Culture, health and illness. 4th ed. 2000. London: Wright.

8. Kai J. Parents’ difficulties and information needs in coping with acute illness in preschool children: a quantitative study. BMJ 1996; 313: 987-990.

9. Roberts H. Listen to the parents. BMJ 1996; 313: 954-955.

10. Radley A: Making sense of illness (especially chapter 4). 1994. London: Sage.

11. Williams G.‘Common sense Beliefs about Illness: A mediating role for the doctor.’ 1986. Lancet 27.

Information on “sore throat” can be found at:

<http://www.patient.co.uk/showdoc/563/>

Data on influenza and other seasonal diseases can be found at: Health Protection Agency

[http://www.hpa.org.uk/infections/topics az/seasonal/menu.htm](http://www.hpa.org.uk/infections/topics%20az/seasonal/menu.htm)

Data on antibiotic resistance can be found at: <http://www.rivm.nl/earss/>

Resistance to antibiotics and other antimicrobial agents:

<http://www.parliament.the-stationery-office.co.uk/pa/ld199798/ldselect/ldsctech/081vii/st0701.htm>

Background reading on rates of disease can be found in one of the basic public health textbooks- see Epidemiology in Practice Course Guide.

Background on Respiratory tract infections generally

**Infectious Disease.** Bannister BA, Begg NT, Gillespie SH. Oxford: Blackwell Science, 2000(second edition).

**Links with other parts of the course**

Year 1:

Foundations of Clinical Practice:

Sociology course

Clinical Communication Course- Years 1 and 2

Year 1 First Clinical Attachment

Evidence Based Medicine

**Tips for preparing for the Independent PBL Exercise – writing useful learning objectives**

This first case is an opportunity to start writing good learning objectives.

It is important that your research begins with a clear focus. Think carefully about your initial question(s) or issue(s) and specify these clearly. Remember, PBL is about understanding ‘how’ and ‘why’, and linking basic sciences with clinical practice; the way you phrase your objectives will help you do both these things.

Compare the two following learning objectives:

(1) recessive inheritance

(2) explain to a patient how recessive gene disorders are inherited

The first is just the title of a topic. How would anyone know where to begin, or what level of information you need to research? The second one is far more practical – after A levels your group should be comfortable drawing out inheritance patterns, but can you explain it to a patient? Note the verb at the start of the sentence – *explain*. It should be clear what you should be able to do once you have researched the objective

Here are some more examples:

(3) heel prick test

(4) describe how the heel prick test is carried out, and what problems it tests for

(5) discuss ethical problems arising from the heel prick test

Number 3 is again just a topic title. You could *Google* it and come up with some information, but how will it help you understand the case? You need to specify a bit more detail to help you understand the case better, and you need to include a verb that makes it clear what you will be able to do with the information.

Writing useful, researchable objectives is a skill that develops over time – which is why you need to start doing it now.

**Case 3: In case of emergency**

**Author: Dr Chris John (**[**c.john@imperial.ac.uk**](mailto:c.john@imperial.ac.uk)**), Dr Elizabeth Muir**

**Life Cycle and Regulatory Systems**

**Aim**

To examine the presentation of acute medical emergencies, and explore the causes, assessment and treatment of these cases.

**Scenario**

You have successfully negotiated your first term at Medical school and you are currently packing your bags with all the dirty clothes you can manage and looking forward on your return home to the first decent meal you have eaten in three months. Whilst packing, you receive a ‘phone call, with the caller identifying herself as a paramedic. She is currently attending to your best friend, Evan Levy, at St. Mary’s hospital. From what the team can gather, Evan had a bad fall and received a significant blow to the head whilst skating at the Natural History Museum rink. Staff at the rink stated that he initially seemed fine, and stayed to have lunch in the café. Just over an hour later he stated that he felt very unwell. After another 30 minutes he attempted to leave, and at this point he collapsed. He is currently conscious but drowsy and unresponsive. They have obtained your details from his phone where you are listed as his ICE contact. The paramedic asks if you can make to the hospital as soon as possible to help with any information they might require.

You jump straight in a taxi and arrive at Paddington 10 minutes later. You make yourself known to the A&E staff, and spend several minutes providing them with the information they require and you also mention that Evan had asked you for a couple of aspirin this morning as he was getting some pain from a muscle sprain he picked up playing rugby on Wednesday. You are allowed to see Evan, and are shocked to see him pale and unconscious. You are told by the attending nurse that his GCS was 14 and his observations were stable. However, on repeating the GCS, the score has dropped to 10 and an immediate CT head scan is ordered. You are told that you can wait in the visitors’ room, where you sit worrying and trying to figure out what the problem might be.

**References:**

**Books**

1. Rang, Dale, Ritter & Flower, ‘Rang & Dale’s Pharmacology’, 6th edition, 2007, Churchill Livingstone

2. MJT FITZGERALD & FOLAN: Clinical neuroanatomy and related neuroscience (W B Saunders Co Ltd, 2002)

**Tips for preparing for the Independent PBL Exercise – critical appraisal of your sources**

Some things to think about:

How do you assess the quality of the information you find? Do you use reliable and unbiased sources? What is reliable? What is unbiased?

What is a peer-reviewed journal? How do they maintain reliability?

What is a review article in a journal? How do you know the information isn’t biased?

What goes into patient information on the web? Who decides what to include? Are their references or sources included? How do you know you can trust it?

Is the information on Wikipedia trustworthy? Do you check the information you find on general search engines?

Medical text books - are they up-to-date? Are they written by an expert or do they include their references? If they do neither, how do you know you can trust the information?

**Tips for improving feedback in PBL sessions**

Students often find giving feedback to the rest of their group very difficult. They do not want to offend their friends, and they want to boost people’s confidence. However when they themselves receive only feedback such as ‘yeah, that was really good’ they realise they do not find it so useful.

What is the most useful feedback you have received? What did the person giving feedback do that was so useful?

If you think someone’s presentation is very good – do tell them that, but also explain why. Was it the way they made a difficult concept clearer, or that they spoke clearly, or that they made you think about something you hadn’t thought about before? Did they make good use of diagrams, or use excellent resources?

Even if it was excellent, you can usually think of something that could make it even better – more interactivity, more focus on the case, more creativity, more confidence in speaking up … there are many possibilities!

Make it easy for your group to give you feedback by inviting it. If you found something difficult, or had tried something new, ask for specific feedback on that part along with suggestions for improvement.

If everyone gets used to giving and receiving feedback it will be a lot more constructive and useful and you will all benefit.

Case 4 – Counterblaste

Authors: Alex Presland ([alex.presland10@imperial.ac.uk](mailto:alex.presland10@imperial.ac.uk)) and Aliya Bryce ([aliya.bryce10@imperial.ac.uk](mailto:aliya.bryce10@imperial.ac.uk)), Imperial College Graduate Entry Medicine students 2014.

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**STUDENT NOTES**

“*A custome loathsome to the eye, hatefull to the nose, harmfull to the braine, dangerous to the lungs, and in the blacke stinking fume thereof nearest resembling the horrible Stigian smoake of the pit that is bottomless*” Counterblaste to tobacco by King James I of England, Jamie the Saxt of the Scots, 1604.

**Cases:**

1. December, present day  
You are a GP in the East End of London. Your next patient, Mr Robinson, is a 50 year old well-travelled businessman, who comes in complaining of a cough. He is accompanied by his wife. On questioning, he reveals that he has had this cough for the last 6 months, and he tells you that it was initially dry but that he has recently started coughing up a small amount of blood. He has been feeling generally tired for this time, and might have lost a bit of weight as his appetite seems to have gone. He is worried that he might have picked up an infection on one of his many business trips to India.

You find out that he is a heavy smoker, having smoked since he was 16. His wife has been urging him to stop, but there is never ‘a good time’ to do so; besides, he believes that, since he has already been smoking from such a young age, there is no benefit towards stopping now. You find out that his grandmother and father both died of a breathing problem, although Mr Robinson is not sure of the details.

He tells you that, aside from longstanding, well-controlled asthma, he is healthy.

On examination you are surprised to find possible abnormalities of percussion note and breath sounds at the left apex.

You mention that, as an asthmatic, Mr Robinson should be getting a ‘flu jab every year, but he replies that he has never had any vaccinations since his parents didn’t believe in it, and he used to consider it unnecessary and unsafe. However, he notes that he is beginning to reconsider this, after reading a recent article about the effectiveness of the TB vaccination.

You explain to Mr Robinson that you need to run some tests to confirm the diagnosis, before you can start treatment. As you suspected, Mr Robinson’s chest radiograph shows a left apical lesion. A bronchoscopy is performed and a biopsy is taken. Histology confirms the diagnosis, and you give him some information about the possible treatment options available.

***PAUSE HERE FOR DISCUSSION***

2. December, 1953  
You are a family doctor in the East End of London, working in the new NHS. Your next patient, Mr Robinson, is a 40 year old gentleman, who comes in complaining of a cough. He is accompanied by his young son. Naturally, you share a pipe together as you discuss his complaint. He tells you that he has had this cough for the last 6 months, it was dry but he has recently started coughing up a small amount of blood. He has been feeling generally tired for this time, and might have lost a bit of weight as his appetite seems to have gone. His wife died of a lung infection, and he is worried that he might have to go to a sanitorium, or to be placed inside one of those metal boxes.

He tells you that, aside from the last 6 months, he has been healthy.

On examination you note abnormalities of percussion note and breath sounds at the left apex.

During your consultation, you also mention that, as a young child, his son is entitled to one of the new TB vaccinations. Mr Robinson is wary of injecting his son with bacteria, and refuses.

You explain to Mr Robinson that you need to run some scans before you can start treatment. Mr Robinson is a somewhat expert patient in these matters as the Central Office for Information have been screening a campaign film, “Defeat TB”, prior to the start of the new Fred Astaire motion picture.

You arrange a radiograph to confirm the diagnosis. As you suspected, Mr Robinson’s chest x-ray shows a left apical lesion. Later, you give him some information about the possible treatment options available.

***Setting:***

You have been asked to produce a media item related to one or both of the cases below. This could be, for example, a newspaper or magazine article, website, museum exhibit, poster, or short drama/role-play, radio advert or television commercial. You must nominate a target audience, which may be lay (for example, one of the patients above), or professional. Within your group presentations, explore how medicine and medical practice has changed in recent history.

At least three presentations must include a critical appraisal of an item of scientific literature or media; for example, one of those mentioned in the case above, or another item – some examples are listed at the end of this case.

***Other sources of information:***

***C:\temp\Temporary Internet Files\Content.IE5\D1NSOJJ9\MC900351992[1].wmf***

* It is strongly recommended that you make use of one or more of the museums across London in researching for this case.In particular:
  + The Science Museum in South Kensington – level 3, ‘Health Matters’.
  + The Pathology museum at Charing Cross Hospital - 9th floor, pathology block building. Please e-mail the curator Mr Vin Chauhan (v.chauhan@imperial.ac.uk) to notify him if you intend to visit.
  + In addition, the Natural History Museum in South Kensington has a large exhibit on human biology, and the Wellcome Collection Museum in Euston Road may be of interest.
* Article about the effectiveness of the TB vaccination (case 1 above). <http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/newssummary/news_15-8-2012-14-11-37>
* ‘Defeat TB’ Ministry of Health video (case 2 above). <http://www.youtube.com/watch?v=luYsfYaad_s>

***Other references:***

* TB papers, relating to the BCG vaccine:
  + Kaufmann (2011). *Fact and fiction in tuberculosis vaccine research: 10 years later*.

<http://www.ncbi.nlm.nih.gov/pubmed/21798463>

* + Zodpey (2004). *The BCG controversy: a reappraisal of the protective effect against tuberculosis and leprosy.* <http://www.ncbi.nlm.nih.gov/pubmed/15709589>
* BBC news articles on TB vaccine.
  + *Tuberculosis relative could be new vaccine.* <http://www.bbc.co.uk/news/health-14761366>. And the Nature article related to this above. <http://www.ncbi.nlm.nih.gov/pubmed/21892180>
  + *Tuberculosis vaccine target found.* <http://www.bbc.co.uk/news/health-12789022>
* UK Immunisation programme: <http://immunisation.dh.gov.uk/>
  + Green Book: <http://immunisation.dh.gov.uk/category/the-green-book/>
* Lung cancer, and links with smoking.
  + Original article. Doll & Hill (1950). *Smoking and carcinoma of the lung; preliminary report*. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2038856/?tool=pubmed>
  + Spiro & Silvestri (2005). *One hundred years of lung cancer.* <http://www.ncbi.nlm.nih.gov/pubmed/15961694>
  + Evidence for Smoking Causing Lung Cancer. Discussion paper prepared for The Workplace Safety and Insurance Appeals Tribunal June 2008 by Dr Norman L. Jones: <http://www.wsiat.on.ca/english/mlo/smoking.htm>

**Tips for preparing for the Independent PBL Exercise – choosing good sources**

Where do you get your information from? Is it from general resources such as Wikipedia? Can you trust the information on Wikipedia?

Do you get your information from patient resources such as patient.co.uk? This can help give you a perspective on what patients understand – however you should also be using medical and scientific sources to give you a professional perspective on the problem.

This might mean using an up-to-date textbook. It might also mean doing a search using PubMed, or finding review articles that have been published in the BMJ or other high-impact peer-reviewed journal.

## Case 5: Written on the Cusp of Mortality

## Author: Dr Markus Sikkel ([m.sikkel@imperial.ac.uk](mailto:m.sikkel@imperial.ac.uk))

**Life Support Systems**

## Setting: The Diary of an Elderly Relative

You are helping your parents clear out the house of your great uncle, who has recently died.

He was always a stoical man. He rarely went to see his doctor, even though his health had been deteriorating over the last 6 years, and when his doctor told him the condition was serious and he would need an operation, he point-blank refused to go back. He was happy though, with friends and relatives by his side until his last breath, which was in his own bed at home.

You find some diaries on the shelf next to his bed and start to read. You have already seen the older ones – last Christmas you sat with him while he read selected bits from his older diaries spanning the war and just after when he met his wife Anni. However what catches your attention today are some of his newer diaries. As a medical student you cannot help but notice his detailed descriptions of the symptoms of his illness. You would like to work out what the illness was and how exactly it caused these symptoms. The following entries are the most revealing:

January 3rd 2006

... I am aware, for the first time in my life, that something is not right inside me. At the age of 84 I feel fatigued, constantly, and it is not the fatigue of old age – it is something more than that. There is an ache inside my chest when I walk up the steep hill in Deer park. I know it must have something to do with the murmur in my chest that Dr Smisthson diagnosed almost 20 years ago. I know I should have returned to see him but I am not afraid. I have had a good life and Anni is now gone anyway. I do look forward to seeing her again...

## Discuss your initial thoughts regarding the possible causes of your great uncle’s condition using the PBL process and then read on.

June 15th 2008

...Although I saw Jim today, whose company I usually enjoy immensely, this evening I am not content. Over the last 2 years I have become used to the ache in my chest and often just walk it off, but today a new symptom surfaced. I don’t know whether it is related to the same condition or whether it is a new one – and I hope I will never find out. I detest seeing doctors as you well ought to know by now diary!

I was trying to keep up with him. I never like to lose face with Jim. So, perhaps we were walking a little too briskly around the lake when suddenly I felt like I was about to pass out. I had to lie down for a moment on the footpath, which was exceedingly undignified of course...

12/08/2011

...I think I am near the end now diary - and to be honest, when my time comes I will be relieved. I will miss my friends and family of course, but the last two years have been difficult. I am breathless... always so breathless. I woke up last night gasping for air – even though I now sleep in the armchair which used to take that problem away. And I am so swollen – my legs were too heavy for me to walk properly last month and I had to make a rare trip to see the new doctor - she’s awful by the way...come back Dr Smithson, all is forgiven! The young upstart tried to get me to go in to hospital which I refused of course but she gave me a prescription for water tablets which make me pee day and night...

## Using the new symptoms that have emerged adjust your proposed differential diagnosis if necessary, using the PBL process, and then read on.

After reading about your great uncle’s condition your suspicions regarding its cause are confirmed when your mother shows you the death certificate.

You go away and research what could have been done differently. After researching the current therapies available, you realise that there are some more modern therapies being researched at your university. The following podcast and website particularly interest you:

* <http://www2.imperial.ac.uk/imedia/content/view/1550/extract-3-of-4-from-the-imperial-college-podcast-18-may-2011/>
* <http://circ.ahajournals.org/content/124/3/304.full?sid=27f5f72d-1a5a-46bb-b7c9-a862e649af6b>

## Aims

## To revise some anatomical and physiological aspects of the year 1 LSS curriculum pertaining to the symptoms caused by a common cardiovascular disorder.

**Links to related courses**

LSS, year 1

Ethics, year 2

Pharmacology, year 2

Clinical skills, year 3

Cardiology, year 6

**Tips for improving your teaching skills in PBL sessions**

Think about your colleagues’ presentations in PBL. Which did you find most interesting? Which ones do you remember? Which ones did you learn most from?

Now think about the best university teaching you have had so far. What did the tutor do to help you learn?

Use engaging presentation methods – prepare a role play, find a video that illustrates a concept, draw a diagram that links ideas

Make your presentation interactive – you can ask your group questions, you can give them a handout to fill in, you can give them a quiz

Help your group link what you have researched to what they already know – remind them what they said when you first discussed the case, or ask them what they can remember about it from their A levels / recent lectures

**Tips for improving your critical appraisal skills in PBL sessions**

How do you know where your colleagues got their information? Is it a good source of information (reliable, likely to be unbiased)?

Do you understand everything they are saying? If not, ask questions. Don’t worry about looking stupid – it is far better to ask than stay in ignorance. It is useful for the student who is presenting as it helps them learn which parts they could explain better – and also shows them you are listening! Active listening will help you remember what they are saying, too.

**Case 6: Olympic Dreams: citius, altius, fortius**

**Dr Kevin Murphy (k.g.murphy@imperial.ac.uk)**

**Life Support Systems Theme**

**Setting**

Imagine that you have already qualified…..

**Abstract**

Miss Joan Eugenides is a woman in her early twenties presenting at a local GP surgery. She is concerned at her lack of periods. Following questioning, she reveals to her GP she has never had a period. The GP takes a blood sample and sends it for analysis. She finds that Miss Eugenides’ circulating gonadotrophin levels are high and her estradiol levels relatively low. However, her prolactin levels are normal. She therefore refers Miss Eugenides to your Endocrine Clinic at Hammersmith Hospital.

Miss Eugenides visits your Clinic the following month. Upon examination you find that she has all the normal secondary sexual characteristics though scanty pubic hair. She has no facial hirsutism or acne. She tells you that she and her parents did worry about her lack of periods when she was younger. However, she has always been very sporty, and has assumed that it is because of her athletic frame. She is quite tall and lean, and her athletics career has really taken off; as long as she can hold her present form and doesn’t get injured she has a good chance of running the 1500 metres in the 2016 Olympics in Rio. She knows that many professional female athletes do not menstruate. Her aunt has a similar athletic build and so Miss Eugenides thinks it probably runs in her family. Her aunt never married, and Miss Eugenides used to worry that her own height made her intimidating and unattractive to the opposite sex. However, it has all worked out in the end because she has recently fallen in love with and become engaged to a fellow athlete. That’s really why she went to the surgery. They have discussed having children in a few years, and she thought it was good idea to check that there wouldn’t be any problems once she stopped training so hard.

You take a blood sample from Miss Eugenides and send it for analysis. You confirm that her estradiol levels are low, her luteinising hormone levels very high, and her follicle-stimulating hormone levels moderately raised. You also find that her testosterone levels are very high (though her testosterone: dihydrotestosterone ratio is not particularly high). You therefore decide to karyotype the blood sample.

The results return and confirm that Miss Eugenides has a 46 XY karyotype. You arrange another appointment to see Miss Eugenides and plan the issues you need to discuss with her.

**Aims**

1. To investigate the genetics, molecular basis, clinical presentation and diagnosis of a disorder of sexual development.
2. To explore the psychological, ethical and legal issues involved in the management of patients with a disorder of sexual development.
3. To understand the neuroendocrine regulation of reproduction and sex differentiation.
4. To reflect on your PBL experience this year and set learning goals for next year. Reflecting on the case you realise how PBL in your early years helped you to prepare for real clinical life.

**References**

**Papers and Reviews (all available online via pubmed)**

1. Conn J, Gillam L, Conway GS. (2005) *BMJ*, 331(7517):628-30.
2. Migeon CJ, Wisniewski AB, Brown TR, Rock JA, Meyer-Bahlburg HF, Money J, Berkovitz GD. (2002) 46,XY, *Pediatrics*, 110(3):e32.
3. Slijper FM, Frets PG, Boehmer AL, Drop SL, Niermeijer MF.(2000) , *Horm Res,* 53(1):9-15.
4. Viner RM, Teoh Y, Williams DM, Patterson MN, Hughes IA. (1997), Arch *Dis Child,*  77(4):305-9.

**Text books available online via pubmed.**

1. Developmental Biology. Gibert SF.(2006) 8th edn. In particular, the section on ‘Chromosomal sex determination in mammals.’
2. Endocrinology: An Integrated Approach. Nussey SS, Whitehead S A. In particular, the section on ‘Sexual differentiation of the gonads and internal reproductive tracts’.
3. Modern Genetic Analysis. Griffiths AJF, Gelbart WM, Miller JH, Lewontin RC. In particular, the section on ‘Human Pedigree Analysis’
4. Neuroscience. Purves D, Augustine GJ, Fitzpatrick D, Katz, L, LaMantia A, McNamara Jo, Mark William S. In particular, the section on ‘Sex, sexuality and the brain.’

**Library textbooks, for example:**

Kumar, P & Clark, M. (2009) *Clinical medicine*. 7th ed. W. B. Saunders, London.

**Websites**

1. <http://www.medhelp.org/ais/>
2. <http://www.genetests.org/query?dz=androgen>
3. <http://www.pfc.org.uk/node/294> an equality website

**Links with other parts of the medical course**

* Life Cycle & Regulatory Systems Theme in particular, Endocrinology and Human Life Cycle
* Medical Ethics and Law (Yr 2 and 3)

**Appendix A**

### Feedback skills

*Aim: Students should be aware of these guidelines for giving and receiving feedback*

Giving and receiving feedback are equally important skills and have relevance to the development of effective professional practice. As a professional you will give and receive feedback in different forms. For students and junior doctors, feedback is essential for the development of skills, knowledge and attitudes in clinical medicine. Increasingly, you will be involved in giving feedback so this activity provides some guidelines to get you thinking about helpful approaches.

**Feedback is important for learning because it:**

* Provides acknowledgement of trainees’ acquisition of correct knowledge, appropriate attitudes and mastery of skills
* Provides guidelines for areas that need to be developed
* Provides motivation
* Provides insight into personal style
* Can lead to improved clinical practice

**Preparation for giving feedback**

* What is the purpose of feedback in this situation?
* Is your colleague ready for feedback?
* Does your colleague want feedback?
* What does your colleague want feedback on?
* What does your colleague think s/he has done well?
* What does your colleague think s/he needs to improve?
* What do you want to say?
* How do you want to say it?

Giving feedback

* Consider giving feedback on what has been done well and areas that need developing
* Give feedback immediately
* Consider what has been done well first but be flexible too – respond to your colleague’s needs
* Describe specific knowledge, attitudes and skills and give examples
* Describe your experience of the behaviour
* When identifying weaknesses or deficits, work with your colleague to develop alternatives (e.g. “Can you think of different ways of…?” “Sometimes I find it helpful…” “When you did… I was wondering what would have happened if you’d done…”
* Confine feedback on areas that need developing to things that can be changed
* Be honest
* Be accurate
* Show empathy
* Use silence effectively
* Respond to your colleague’s verbal and non-verbal cues
* Do not overload with too much information
* Limit the use of generalisations

**Preparation for receiving feedback**

* Do you want feedback? If not, why?
* What is the purpose of feedback in this situation?
* Are you ready to receive feedback?
* What do you want feedback on?
* What do you think you have done well?
* What do you think you need to improve?

**Receiving feedback**

* Listen carefully
* Ask for feedback to be repeated if you did not hear it clearly
* Clarify feedback that is unclear or unsupported
* Assume the feedback is constructive until proven otherwise
* Use the elements of feedback that are helpful
* Pause and think before responding
* Consider the value of defending/arguing (return to the purpose)
* Ask for ways you might improve
* Separate your feelings from the content of feedback

**Guidelines for giving feedback. Extract from Clinical Communication Student Guide**

These are the guidelines we use in our tutor training. We thought it would be helpful for you to read about this approach to feedback. Please also revisit the introduction in this guide for an explanation to why feedback is so important to your professional development.

1. Remind yourself of the purpose of feedback in this situation – to support student learning in patient-centred communication
2. Think about what you want to say and how you want to say it
3. Try to address the learning needs/goals the student identifies - Time will preclude much further discussion
4. You might like to use a structural approach to interviewing – that is, the interview has a beginning, middle and end. Then think about something from each phase that you observed as working well or something to do differently
5. It is important to stick with the following sequence for giving feedback

Student interviewer, Patient, Tutor

1. Focus FIRST on what the student interviewer did well and then proceed to things that can be done differently
2. Always identify strengths that the student has demonstrated
3. Give your own experience of the communication For example:

*“It was very helpful when you entered the room to make eye contact and introduce yourself with your name, role and a clear statement of the purpose of the interview. I think you said that you would like to spend about 5 minutes talking with the patient about why they had come to hospital. This was clear, honest and focused. Well done.”*

*“When you said that you wanted to have a little chat, I thought you were trivialising your task. In some ways you were also being dishonest. What you are doing is asking several questions about why the patient has come into hospital. That is quite different to a little chat.”*

*“When you smiled at the patient right at the beginning of the interview, I thought you conveyed a sincere interest in the patient.”*

*“When you asked the patient about her smoking, alcohol and other drug use, I thought that your tone seemed judgmental. You also used multiple questions which are not very helpful for getting specific information.”*

*“I could not easily hear your name at the beginning of the interview. Even though you have a long name, it is important that you use your whole name right at the beginning. It is also important that you say this when the patient can hear you – not when you are in the process of sitting down and closing the door.”*

1. You might consider that when identifying weaknesses or areas for development, you can ask questions to help the student develop alternatives

*“Can you think of different ways of…?”*

*“Sometimes I find it helpful…What do you think about that?”*

*“When you did… I was wondering what would have happened if you’d done…Do you have any thoughts on this”*

*“I was interested in your questions about the impact of the symptoms on the patient’s work. It seemed to me that you really wanted to know about this but your patient was reluctant to share anything further. How else might you have managed this?”*

“Do you know why the patient was so anxious? … How might you have explored the reasons for his anxiety? It seemed to me that you assumed why he was anxious.”

1. Always confine “negative” feedback to things that can be changed.
2. Be honest – If you did not think that the student was patient-centred, try to specify what it was they did that led you to think this way.

“I didn’t think it was helpful when you spoke over the patient. Were you aware of doing this?”

*“I thought you distanced yourself from the patient when you used terms that the patient did not understand, your tone of voice was quite pompous and you did not make much eye contact.”*

*“I think you need to think about the way you present yourself – even in this simulated environment. The body position you adopted suggested you had little respect for the patient. Let’s have a look at the videotape and let me know what you think.”*

1. Be accurate
2. Limit the use of generalisations

*“That was good.” (State why it was “good” – You looked at the patient, you sat up, your tone of voice and the pace of your speech was friendly and engaging. You didn’t fidget and it seemed to me like you really listened…”*

**Support Challenge Model**

This model can help you think about the way you give feedback. Statements given as feedback can be graded in terms of support and challenge. The most effective feedback falls in the high support/high challenge quadrant.

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| Support | “That was obviously great – you are trying very hard” | “A good effort. I could see how you were drawing the feelings out. I wonder if you got to the crux of the matter?” |
| “Good, carry on, seems to be working” | “Well that could have been done better. Why didn’t you focus more earlier on?” |
| Challenge | | | |

Process of reflection and feedback- to apply to giving feedback in PBL sessions.

Each of you will be the observer once. Your role is to guide the interviewer through reflection and to give them some feedback on their performance.

* Use the checklist to identify which skills the interviewer used
* For providing feedback remember the guidelines from last year (see below)
* The following questions may be helpful in staying focused on your task and ensuring a balance
  + - **“What emotions were you feeling during the interview?”** [The purpose of this question is to raise your awareness of the link between feelings and behaviour]
    - **“And now describe two aspects of the interview that worked well?”**
* Observer asks the role-play patient:
  + - **“Can you please identify two communication skills that the interviewer used that were effective?”**
  + Observer provides specific feedback on two skills that s/he observed worked well
  + Observer asks the interviewer:
    - **“Now outline two aspects of the interview that you would do differently if you could repeat the interview?”**
  + Observer asks the role-play patient:
    - **“Can you identify two communication skills that the student could have used to improve the interview?”**
* Observer provides feedback on two skills that could have improved the interview
* Observer summarises the feedback on things that worked well and things to improve

Interviewer receives written feedback from observer and role-play patient

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| **Appendix B1 PBL student’s self-assessment notes** Year.......Group.....Student name.................................. | | | | | | | | | | | | | | | | |
| Case | Attendance and punctuality | **CA:** utilises prior knowledge | Asks questions | Evaluates & challenges arguments | Takes responsibility for tasks e.g. GL or scribe \*\* | **AI:** Accesses material  from reliable, varied  & original sources | Shares correctly referenced material | **CrA:** Challenges the  quality & pertinence of material | EBM: grasps impact and limitations | Offers constructive feedback to colleagues | **TW:** Participates actively in discussions | Respects others in Group | Takes responsibility  for own learning | Actively contributes to setting learning objectives | Makes effective presentations | CA:case analysis  AI:accessing information  Cr.A:critical appraisal  TW:teamworking |
| Key to performance:  M-merit;  S- satisfactory;  US- unsatisfactory  **Comments, including about roles\*\*** |
| 1.1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1.2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2.1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2.2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3.1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3.2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4.1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4.2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5.1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5.2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6.1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6.2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| **Appendix B2 PBL Student Assessment Year……… Term: Autumn/Spring Group:………… Student Name:…………………..**  **Key to Performance**: \*M – merit; S – satisfactory; US – unsatisfactory | | | | | | | | |
| **Part 1:**  **Professional Behaviour**  **Tutor please indicate:**  **Attendance:**  ( ) out of ( )  **Punctuality (please circle):**  Satisfactory/Unsatisfactory | **Part 2: One-to-one assessment of key skills developed in PBL** | | | | | | | |
| **Case analysis:**   1. Utilises prior knowledge. 2. Asks questions of peers. 3. Evaluates & challenges arguments. 4. Takes responsibilities for roles e.g. group lead or scribe. | | **Accessing information:**   1. Access information from reliable, varied and original resources. 2. Shares correctly referenced material. | | **Critical appraising and evidence-based medicine:**   1. Challenges the quality and pertinence of material. 2. Offers constructive feedback to peers and tutor. 3. Demonstrates an understanding of the principles and limitations of evidence-based medicine (EBM) | | **Team working and teaching:**   1. Participates actively in discussions. 2. Respects others in group . 3. Takes responsibility for own learning. 4. Actively contributes to setting learning objectives. 5. Makes effective presentations that aid learning. | |
|  | **Student**  **\*M/S/US** | **Tutor**  **\*M/S/US** | **Student**  **\*M/S/US** | **Tutor**  **\*M/S/US** | **Student**  **\*M/S/US** | **Tutor**  **\*M/S/US** | **Student**  **\*M/S/US** | **Tutor**  **\*M/S/US** |
| **Student opinions: Specific areas to improve, including roles (Group Leader and Scribe)** | | | | | | | | |
| **Tutor comments: General and about roles (Group Leader and Scribe)**  Please complete in **last session** and give **top copy to student** and return the carbon copy to Weng Teh, FEO (Medicine) SAFB, Imperial College, London  **12/13** | | | | | | | | |

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| **SCHOOL OF MEDICINE Appendix C** | | | | | | | |
| IMPERIAL COLLEGE LONDON | | | | | | | |
| **Doctor and Patient: Problem Based Learning - Year 1** | | | | | | | |
| **CASE [ ]** | | | | | | | |
| **CASE EVALUATION** | | | | | | | |
| (To be completed by students and tutor together at the end of each case.) | | | | | | | |
| Group................................................ Tutor’s Name ....................………………......................... | | | | | | | |
| Overall Evaluation of Case and Suitability for PBL | | | | | | | |
| **4** | | **3** | **2** | | **1** | | |
| **Excellent** | | **Good** | **Satisfactory** | | **Unsatisfactory** | | |
| Compare this list of objectives and mark degree of student achievement by ticking appropriate box. | | | | | | | |
|  | **Case Objectives** | | | **Identified by group** | | **Partially identified** | **Not identified** |
| **1** |  | | |  | |  |  |
| **2** |  | | |  | |  |  |
| **3** |  | | |  | |  |  |
| **4** |  | | |  | |  |  |
| **5** |  | | |  | |  |  |
| **6** |  | | |  | |  |  |
| **7** |  | | |  | |  |  |
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| **10** |  | | |  | |  |  |
| **11** |  | | |  | |  |  |
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| **Please list the additional objectives identified by your group and not the author. Please write out in full.** | | | | | | | |
| ***a*** |  | | | | | | |
| ***b*** |  | | | | | | |
| ***c*** |  | | | | | | |
| ***d*** |  | | | | | | |
| ***e*** |  | | | | | | |
| ***f*** |  | | | | | | |
| ***g*** |  | | | | | | |
| ***h*** |  | | | | | | |
| ***i*** |  | | | | | | |
| **Additional comments e.g. on this case, the PBL process or other issues. *[Please use other side of sheet for further comments]***  Please return to: Weng Teh, Faculty Education Office (Medicine), Imperial College London, Sir Alexander Fleming Building, South Kensington campus. | | | | | | | |

**Appendix D Making presentations**

***Summary sheet from the Clinical Communication Programme session in October.***

The features of effective presentations.

Students should be aware that in most presentations they should state who they are, what they are going to do, how they are going to do it, do it and then review what they did.

That is, there is a beginning, middle and an end.

**Beginning**

1. Introduce self
2. Introduce topic
3. State aims/goals
4. Outline structure
5. Outline time
6. Invite questions/interruptions (throughout? At end?)

Middle

1. Interesting
2. Stay with theme
3. Avoid jargon or explain it
4. Talk to basic level of group
5. Aids – e.g. overheads/power point –
6. Clear; not too much information (5-6 lines) i.e. main points; highlight.
7. Don’t read from slides
8. Don’t make them distracting

Closure

1. Summarise
2. Return to aims – have you met them?
3. Questions

Personal characteristics

1. Lively, enthusiastic
2. Interested
3. Audible
4. Pace and tone of voice
5. Confident
6. Knowledgeable
7. Appearance

Environment and Environment

1. Appropriate setting
2. Arrangement of seating
3. Equipment works
4. Lighting
5. Background noise