

Problem Based Learning (PBL) How To

Description

A broad definition of PBL is: using a clinical problem (ie, case study that is somewhat controversial) that creates a learning environment in which the problem itself drives the learning with the participants. The purposes of the PBL sessions are two fold:

1. To provide participants the experience of a mini-problem-based learning (PBL) exercise that correlates with a higher order of cognitive skills essential to the practice of assessment and interpretation of imaging cases.
2. To identify the key factors that support or challenge participants of these sessions in their abilities to use mini-PBL exercises in an annual conference environment.

The role of "problems" in problem-based learning is largely to serve as a stimulus or focus for students to direct their learning. Participants will be limited. A total session size will be no more than 24 individuals who will be placed in three sub-groups with seven participants in each subgroup.

TASK:

To develop PBL exercises from cases provided by content workgroups. Facilitators of these sessions is to create a clinical problem under one domain (ie Lung Cancer, Stage III) where the content of the problem has information or a data element that is controversial. This could create a problem solving analysis of the group to discuss or propose different pathways of patient assessment and treatment based upon the information provided and their own personal experiences.

Facilitators will need content to explain the clinical problem and to identify available resources that are present during the session (i.e. web sites, chapters from books, articles from medical journals, etc) that each subgroup can utilize to prepare and present an evidence-based approach to solving the problem. Because each group will come from different settings, their way of approaching the problem might be slightly different from another person at a different institution. They will have to quickly work through these discrepancies and agree upon a unified response in their presentation to the other two groups. The facilitator will have to go between each of the three subgroups to keep them on task and to make sure everyone end their problem-solving time to allow for group presentations and feedback.

A typical PBL session at the CHEST annual meeting includes the following:

- 15 minute overview and assignment to three sub-groups

- 30 minutes for each sub-group to review case and resources in their respective assigned group (ie, 7 participants per sub-group)
- 10 minutes – Group A presentation
- 10 minutes – Group B presentation
- 10 minutes – Group C presentation
- 15 minute debriefing – Facilitator answering questions or finalizing dialogue with groups.

SAMPLE PBL EXERCISE

BREATHLESS PROBLEM BASED LEARNING EXAMPLE

Kim Sung is a 26-year-old oboist who is practicing for an international competition to be held in Seville in a few months time. He had been an asthmatic since he was 2-years old. He had been treated throughout his childhood with a variety of drugs -- theophylline, salbutamol and even prednisone. He had been hospitalized several times during his secondary school years. Matters had improved at the university with fewer exacerbations. The episodes when they did occur, were treatable with salbutamol inhalation. He came to carry inhalers around wherever he went since attacks could still be precipitated by cold, exercise and exposure to cats and dogs. Although he was an excellent oboist, Kim suddenly became extremely tentative in his playing and had breathing difficulties and coordination problems. Relaxation techniques failed, and he was seriously concerned about his performance. A violinist friend of his suggested that he should try a small dose of nadolol, which appeared to work wonders by reducing palpitations and nervousness. Initially reluctant, Kim was assured by his friend that a number of musicians were using beta-blockers regularly. Kim got the tablets and decided to take them.

The following is a chronology of events that occurred on January 3, 2009:

02:15 – First dose of nadolol taken.

02:21 – Kim noticed a tightness in his chest and used his inhaler.

02:22 – The chest tightening became worse, and he took more puffs of his inhaler

02:23 – His wife tried to call the physician and had to leave a message on the answering machine.

02:25 – Kim was in agony and his wife decided to drive him to the hospital

03:00 - He was brought to emergency and pronounced dead on arrival.

PBL EXAMPLE Comments: This problem served to introduce participants to drug interactions, this time at a pharmacodynamic level. Participants need to obtain

background information about the drugs and the disease to "solve" the problem. Further, the issues of drug abuse and self-medication emerge as components.

HOW TO DEVELOP A PBL EXERCISE:

1. Before beginning to write any problem, set down a few specific content elements that must be covered. To ensure that these cannot be avoided, you might want to include key words, phrases in either the problem or the data provided. Then try to dress up the problem so that participants can explore other issues if they so choose. Try to avoid inordinately lengthy problems; you could consider a case that is written in stages. Even then it may be better to keep individual sections brief. The open-endedness of any problem depends on the overall objectives of the session and the degree of sophistication of the participants.
2. Identification of why it is a problem - the severity of the problem - who is affected by the problem
3. Identification of possible solutions - potential outcomes of the possible solutions – controversies associated with possible solutions
4. Roles of the physician in the possible solutions
5. Sources available to help solve the problem presented and to help groups justify their strategy.