



Online Nuclear Dilemma-2

Organized by: Information Center on Nuclear Energy, Dhaka & Public Information
Center on Nuclear, Ishwardi

Nuclear dilemma is a contest on critical thinking and problem solving on a theoretical or real scenario. It is a role playing team activity. After getting the problem statement, discuss among your team members about the purpose of your team's role and how to build an answer to the question that have been asked on this particular dilemma. Read the problem statement well and present your opinions in a Powerpoint presentation in not more than 6 slides including the team members' name. The presentation should be very brief. Your problem statement starts from next page of this document.

1. You can use graphs, pie chart or other data to support your position.
2. You can use pictures.
3. Long descriptions are highly discouraged in slides for the preliminary round.
4. The file must be submitted within 12 hours after receiving the problem statement.
4. After evaluation of your work submitted online, we will select top 4 teams to participate in the final round in front of our judges to be held at October 31.

POSITRON EMISSION TOMOGRAPHY

The world market for nuclear medicine services is growing rapidly. Tens of thousands of hospitals use radioactive isotopes to treat tens of millions of patients. According to experts, the volume of nuclear medicine services in the world will reach \$ 300 billion by 2020. Nuclear technology allows us to determine the diagnosis faster and more accurately than traditional methods. In particular, positron emission tomography (PET) is able to detect the tumour or its **metastases** when other methods fail to do so. PET works the following way: physicians intravenously inject the patient with a pharmaceutical solution carrying a radioactive isotope. The 2-deoxy-2-fluoro-D-glucose isotope accumulates in **malignant** cells of the tumour, which can be indicated by a gamma camera. Radiation intensity is the basis for the diagnosis. Medical isotopes have a short half-life, so the dose of radiation that the patient receives is minimal, and its effect disappears in a few days. At the same time, isotope studies sometimes produce false positive results.

Radiopharmaceuticals can accumulate in tissues where there was recently **inflammation, trauma** or surgical procedures. Therefore, PET scan results of a patient should be studied in detail by the doctor and only after that, final conclusions can be drawn. There are few medical centres that are capable of conducting positron emission tomography in Bangladesh: the equipment for such studies is expensive and is unlikely to pay off, given that population incomes aren't the highest. The cost of the procedures themselves exceeds the average monthly salary of most Bangladeshi people.

The dilemma: “Is it worth to introduce expensive PET technology massively when there are more affordable and reliable diagnostic methods?”

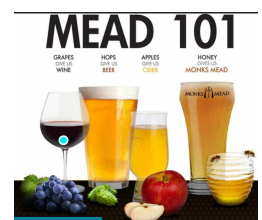
Read the description of the dilemma and your role; share your opinion with brief description with scientific reasoning and most importantly, supporting the position of your role (Given in the next page). Finally, answer the dilemma question according to your argument.

In your presentation, be sure to mention your role that you have been assigned. And also, show how your opinions/solution supports your role's point of interest.

Chamomile



Clotsfoot



YOUR TEAM ROLE: RURAL AREA TURNER

You've solved the issue of healthcare for yourself radically: **folk** remedies will cure any **sore**. A **decoction** of **chamomile**, a **coltsfoot infusion**, of course, **mead** known for its antiseptic properties; this is the main arsenal in your personal first aid kit. Urban up-and-coming things are for academics, the common folks do not need them.

Your goal:

- To prove the superiority of traditional medicine.

You are insulted by the three letters that people in your region can't seem to stop talking about. What is this PET thing? What kind of radiation?! Who'd ever voluntarily put their head into this thing? Never in my life! Let the doctors irradiate themselves, and you will be treated the old-fashioned way, the way your grandfathers did.

According to the abovementioned role and goals that you have been given, present your ideas on the central question that the dilemma is all about.

Note: you can go beyond the information given in the description and use other sources.

PET Video: https://youtu.be/SOE_fIPeocE