



Problems for the first Pakistan Young Medicos Tournament

Problem#1: Non-abrasive dilators

During a D&C (Dilatation and Curettage) procedure most commonly after spontaneous abortions, repetitive insertion and removal of dilators leads to considerable abrasive damage. Devise a procedure or device to best combat this issue.

Brownie points: Out that the process of Curettage is also considered in the solution to the problem.

Problem formulator: Omaiyma Farida Khan

Problem #2: You need your gall bladder.

Cholelithiasis or “ stones within the gall bladder” are best treated via “cholecystectomy” i.e. ‘removal of the gall bladder’. Although it causes effective symptomatic removal, may lead to the development of longer-term side effects, usually caused by bile leaking into other organs such as the intestine as well as increased risks of hypercholesterolemia and associated disorders. Suggest a procedure or device that can facilitate “ lithotripsy “ within the gallbladder while also combating the lithogenic nature that might have developed as a result of cholelithiasis.

Brownie points: If the suggested procedure is as non-invasive as possible

Problem formulator: Omaiyma Farida Khan

Problem #3: No more accidental tags.

Every year newspapers report a tag/ gauze left inside a patient during a major surgery. To prevent this, often a nurse or OTA is deputed to keep track of the number of tags put in and taken out, thus engaging extra staff for a seemingly mundane task. Come up with an innovative idea to combat this problem.

Problem formulator: Omaiyma Farida Khan

Problem #4: The ETT place keeper.

January 2023, a patient reported to the surgical OPD of a hospital with a case of torticollis. She was advised of surgery and went into the operation Theater after being declared fit to undergo the required procedure. Soon after surgery, however, she developed severe cerebral edema and was declared to be in a vegetative state of health for the rest of her life. Investigation revealed that she had been in a state of hypoxia for exactly 3 minutes during surgery because her Endotracheal tube had dislodged. It was declared a case of medical negligence. Devise a device that ensures that the ETT is in the right place and sounds an alarm when it is dislodged from its place.

Problem formulator: Omaiyma Farida Khan





Problem #5: Colorectal cancer and the “toilet paper” industry.

According to a recent survey conducted by the WHO, incidence rates of colorectal cancers were highest in Europe, Australia, and New Zealand. Coincidentally, the major method of cleaning anal sphincters after defecation is the use of the toilet. Investigate how rectal hygiene and resultant infections are related to the use of toilet paper as opposed to the use of water as a primary cleaning method after defecation.

Problem formulator: Omaiyma Farida Khan

Problem #6: Fractal nature of blood and probable diagnostic applications

If a droplet of an ink-alcohol mixture is deposited onto diluted acrylic paint it exhibits a characteristic pattern known as “fractal fingers”. This phenomenon is theoretically true for all viscous fluids. Investigate the fractal nature of human blood and investigate probable diagnostic applications.

Brownie points: For investigating if and how different blood groups differ from each other in their fractal patterns.

Problem formulator: Omaiyma Farida Khan

Problem #7: Do we publish (a survey of research culture in Pakistan)

All of us, as medical professionals or those about to step into the medical field know someone or the other who is a great innovator in terms of new medical procedures or techniques. But the question is whether or not these methods or techniques see publication. Survey the doctors of your hospital who have come up with new techniques/ methods/ instruments and got them published as opposed to those who have not. Also, investigate relevant parameters that affect their inclinations to research and publications.

Problem #8: Bruise patterns

A bruise is a common skin injury that results in a discoloration of the skin. Blood from damaged blood cells deep beneath the skin collects near the surface of the skin, resulting in what we think of as a black and blue mark. Study different bruise patterns in subcutaneous minor bruises due to minor trauma.

Brownie points: For incorporating the healing pattern of these bruises into the study.

Problem #9: VKC and the eye-rubbing dilemma

Vernal keratoconjunctivitis is an allergic condition most common in school-going children in warm climates. It causes intense itching and watering of the eyes. Children are advised to not rub their eyes, and keep away from sunlight. In case of continuous rubbing, it may cause corneal ulceration. But a child is a child and rubbing at some point is inevitable. Devise an instrument, technique, or regimen to prevent this complication.

