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Sustainable operating room

Quirófano sustentable

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Climate change will define the health crisis of the 21st century and represent a global health challenge. The scope of problems resulting from climate change is immense, including sea level rise, extreme weather, and increased carbon dioxide in the atmosphere.[1]

Anesthetic gases have been compared to other greenhouse gases; for example, desflurane emissions in a 2-hour surgery are equivalent to driving a car 608 km, compared to sevoflurane, which is equivalent to driving 26 km, which translates to more carbon footprint than neuroaxial or intravenous anesthesia.[1] Some alternative strategies include low-flow anesthesia of blue zone technologies that capture, recover, and purify halogenated agents.[2]

Some hospitals have systems for capturing these gases to destroy, deposit, or purify them before they reach the environment.[1]

There is a significant waste of medicines because the ampoules are opened, and only some of the contents are used; it needs to be indicated that they should be reused. Therefore, this content ends up polluting the environment. Each hospital has its policies for the disposal of these drugs by the regulations; for example, the regulation on hazardous waste published in 2020.[1]

Therefore, it is crucial to ensure that the medicines are delivered with the dosage required by the patient; the sterile mixture standard in our country must do this. Unfortunately, not all institutions have these spaces and trained personnel.[1]

In the UK, it is estimated that the healthcare system is responsible for 4 to 5% of the country's carbon footprint, producing more carbon emissions than all the planes taking off from Heathrow Airport simultaneously.[2]

According to the Global Report on Surgery 2030, 143 million additional surgical interventions are needed yearly to save lives and prevent disabilities, so we must consider making surgical practice more sustainable.[2]

The COVID-19 pandemic has taught us to adapt in surgical practice in response to a global crisis. The operating room of the past needs to change, bed turnover in hospitals is inefficient, measures must be taken to have fewer days of stay, outpatient management, and others.[2]

Recent evidence suggests that traditional scrubbing is not necessary, and there is no significant difference in the rate of surgical site infection when using antiseptics such as chlorhexidine and iodopovidone.[2,3]

The surgeon will have to assess whether the surgical procedure is appropriate for all, such as salvage surgery or palliative procedures in advanced malignancies.[2]

The surgical team should reduce waste in the operating room by recycling, reducing, reusing, and reprocessing. Some materials used in the operating room can be recycled, such as dialysis solution bags, intravenous solutions, oxygen masks, ventilation circuits, all medication vials (glass), and cardboard packaging of medications, to name a few.[3]

Therefore, containers must be available to separate these wastes so that they can be put to other uses.[3]

Change the lights to LEDs; if any area of the operating room is not being used, turn off

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the lights, and change the air recycling times per hour.[3]

We will encounter barriers to instituting a sustainable operating room, including lack of leadership, lack of education, negative team attitudes, seeing it as a workload, misconceptions regarding infection risk, and resistance to change. It is possible to mitigate the negative impacts in the OR by educating the entire multidisciplinary team.[3]

Obesity contributes to the risk of cholecystitis and osteoarthritis. Therefore, health programs should focus on healthy eating and exercise, reducing 250,000 emergency room admissions and 700,000 cholecystectomies annually in the United States, 1 in 5,000 patients requiring hip replacements, and many bariatric surgery procedures.[4]

It would help if health personnel considered returning to reusable equipment or instruments, some of which do not require sterilization but only washing with soap and water.[4]

There is much work to be done. Carbon emissions are each surgeon's responsibility. We must work together with surgeons from other countries to exchange solutions.

In this sense, the Mexican Association of General Surgery, with Dr. Eduardo Moreno Paquentín, has begun some actions in this regard since 2018, and the associates are invited to join us.

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