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Editorial

My OR goes green: Surgery and sustainability

Mi sala de operaciones se vuelve verde: cirugía y sostenibilidad

Introduction

Pandemics are nothing new. According to historians, over the centuries they have often forced people to break with the past and imagine the future ahead with new eyes.¹ This one makes no exception, and as vaccines appear to be slowing the spread of Covid-19 infection, we now have the chance to look into the distance to imagine what the world – and the practice of surgery – will be in the coming years, and how we want to shape our future. Some anticipations are bad news, as yearly vaccination and viral screening would probably become part of our profession and life, just like airport security measures after 9/11. At the same time, we will hopefully treasure the most relevant lesson from Covid-19: the importance of working together on the global challenges that still affect the entire humanity: global access to safe healthcare, diversity equality and climate change, to mention a few. For sure this pandemic has proven that united we are much stronger than divided² and perhaps it's time, also for surgeons, to take action and contribute to adopt new strategies to build healthcare systems capable to deliver more inclusive, sustainable and equal care for all. But how would surgeons be part of this change?

The following are some reflections on the relationship between our profession and its unexpected negative effect on the environment and on the climate. There is a black elephant in the room: the operating room while delivering the most advanced technological care, is also a considerable source of environmental pollution. Can we better manage this paradox?

Background

The United Nations 2030 Agenda for a Sustainable Development calls for urgent action on climate change, for the benefit of present and future generations.³ That is likely to be our most important next global challenge. Many countries

and international organizations are beginning to recognize and address environmental issues as a top priority for the planet through sustainable consumption and production of goods.⁴ However, despite continuous warning on climate change, we have so far been unable to reduce the greenhouse gas emissions in line with scientific advice, and the next decade will tell if we will succeed, or not, in avoiding this devastating threat. Post-pandemic world needs a vision of development that puts equal access to healthcare and climate change at its center. We all know that over the past decades hospitals administrations have largely focused and implemented business models with great attention to cost-effectiveness. Is there an extra-charge if we also pay attention to sustainability? Or, at the opposite, will that open new opportunities for cost-containment? The health care sector accounts for eight per cent of the world's total greenhouse gas emissions.⁵ Hospitals are by far the largest contributors of carbon emissions, so that a greener health care delivery will have a large positive impact on our environment. Today's leaders in surgery have witnessed the quick transformation that occurred in the late 1980 from re-usable to disposable devices, and the consequent exponential increase in the generation of OR waste.⁶ Today, almost every item in the OR is labeled “single use” and disposed accordingly as bio-hazard waste. That happened under the understandable pressure of the bio-medical industry but also with the moral complicity and collective guilt of surgeons: nobody has so far paid enough attention to the environmental issue generated by this quick shift. No surprise that the operating room scores as top producer of bio-hazard hospital waste. It has been calculated that each surgical patient, generates an average of 5 kilograms a day of waste that is disposed through incineration or landfilling.⁷ On top of that, Hospitals have to pay significant charges for the disposal of this special waste. For all these reasons, going green in your hospital is a win/win situation. It makes good financial sense for hospitals to go green and it's an ethical responsibility for surgeons to acknowledge the need to make a change, without further delay. Surgeons are key-

positioned to be pro-active in triggering this transformation and engaging other players into the new shift.

The hospital Green Team

How can you start the change? The most important step to be undertaken is the creation of your hospital's Green Team. The Green Team is a collaborative support network that involves surgeons, anesthetists, scrub and circulating nurses, residents, clinical engineerings and administrative staff.⁸ It will discuss and implement green behaviour in the workplace while providing hospital executives and clinicians with measurable results by circulating periodical reports on the achieved targets. Involving junior staff members and residents is key to accelerate this process and spread the green awareness that is needed towards this cultural transformation. Fortunately enough, our young colleagues have more insight on sustainability and environmental issues when compared to previous generations and show enthusiasm when offered the chance to participate to and lead green projects.

A Green Team's agenda should be based on five pillars, or "5Rs": Reduce, Reuse, Recycle, Rethink, and Research.⁹ Reducing the adoption of disposable devices is possible through careful standardization of operative packs and trays and with the wise adoption of reusable tools, when this practice is safe for the patient. Recycling disposable medical devices is not legal in most EU countries: still, surgeons can exert pressure on producers to manufacture and commercialize tools that will be forwarded to a second life after their use and dismantling (plastic and metal components could be separated and recycled). European Union regulations impose that any waste generated in the OR, after the patient enters the room, must be disposed through incineration or landfilling. However, surgeons and OR personned can modify the flow of waste production by introducing waste segregation before the patient enters the OR. The routine sorting of packaging will spare up to 40% of OR waste from being mislabeled as bio-hazard. This should be labeled as: "Pre-Incision Waste",⁷ indicating that it is free from bio-contamination. Blue wrapping, paper and plastic trays can easily be collected and forwarded to a second life. Significant cost-savings can derive from this practice and even some major-players in the single-use device market are now paying increasing attention to new ways to keep under control the whole life-cycle of disposable items. Also surgical societies can and should do more to engage with their members and industrial partners to encourage the diffusion of good practices and support a joint effort into this direction. Establishing a sustainable waste management program and eventually advocating for green-friendly purchasing practices should be among the priorities of a Hospital Green Team's agenda.

Conclusion

Surgeons care for their patients and care for people. We are passionate in doing our best to achieve set goals and should

not miss the chance to contribute to the global fight to mitigate climate change. We need to build a culture of respect for the environment in the hospital and in the OR and to partner with producers of medical devices. We call on everyone to work together to protect the nature that supports us all. Perhaps the measurable effect of these actions in the OR can be seen as minimal, when compared to the huge size of the problem. However we should not underestimate the educational value of the cultural transformation triggered by the creation of a Hospital Green Team. It is through the passion and joint effort of our junior colleagues working together in an Hospital Green Team that we can clearly see a brighter future for our profession and for our planet.

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