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The 5Ps as a compass in times of change: challenges and commitments for sustainable anesthesiology

Las 5P como brújula en tiempos de cambio: desafíos y compromisos de una anestesiología sostenible

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This August 2025, Colombia will become the epicenter of a global dialogue on the present and future of our specialty. The country will proudly host the 26th Colombian Congress of Anesthesiology alongside the 2nd World Congress of Obstetric Anesthesia. More than just a premier academic event, this gathering offers a symbolic and strategic opportunity to pause, reflect on our progress, and, most importantly, envision the path forward.

After 75 years of history as a scientific and professional society, we are living through a profound transformation. Clinical demands are deeply intertwined with social, economic, environmental, and emotional challenges, which shape modern professional practice. Within this framework, anesthesiology can no longer be confined to technical skill or isolated efficiency. Instead, we must embrace a broad vision of sustainability, defined as upholding equitable, long-term care, advancing medical knowledge, and safeguarding life under ethically and operationally viable conditions.

Sustainability in healthcare is neither a passing trend nor an afterthought - it is an urgent imperative. As a professional community, we are called to lead that conversation with an ethical, integrative, and forward-thinking vision. This editorial is intended to explore this horizon through the lens of the 5Ps of sustainable development—People, Planet, Prosperity, Peace, and Partnerships— as a roadmap to reimagine anesthesiology with a profoundly human, environmentally responsible, and socially transformative approach.

The concept of sustainability became increasingly powerful worldwide as a result of the Brundtland Report (1987), which

defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. (1) Initially focused on balancing economic growth, social equity, and environmental protection, this approach has evolved to encompass sectors such as education, labor, and health. In this regard, sustainability implies ensuring enduring health systems that promote population well-being, protect the environment, and guarantee dignified conditions for care providers. The United Nations' 2030 Agenda (2) and its 17 Sustainable Development Goals (SDGs) (3) consolidate this vision, positioning health as a cross-cutting axis for achieving a just, equitable, and viable future. This broad and multidimensional perspective bridges SDGs with concrete challenges in our specialty. Following are some considerations about some of the SDGs through the lens of anesthesiology.

- **SDG 3. Good health and well-being:** Although the Ministry of Health reports that over 99% of the Colombian population is affiliated with the General System of Social Security in Health (SGSSS) (4), this formal coverage does not necessarily translate into effective access or uniform quality. Deep territorial and social inequalities persist, especially in rural areas, ethnic communities, and regions with limited presence of healthcare professionals. In 2022, the National Health Authority (Superintendencia Nacional de Salud) received over 269,000 complaints about service access barriers, highlighting a critical gap between theoretical healthcare rights and the reality of obtaining timely, safe medical care. (5) In anesthesiology, this reality demands innovative

approaches to deliver safe, equitable care despite persistent limitations in infrastructure, resources, and skilled personnel.

• **SDG 4. Quality education:** Health education must be reimagined as a dynamic, bidirectional process: it demands both (1) sustained professional development for healthcare specialists and (2) systematic improvement of population-wide health literacy. In Colombia, this challenge is exacerbated by geographic disparities - specialized medical training remains urban-centric, while many regions face chronic shortages of anesthesiologists. As of 2023, the country's 36,600 medical specialists were distributed with stark inequity, creating parallel deficits in training opportunities and access to specialized healthcare services (6).

But beyond training more professionals, we need to educate communities better. Health literacy is not a luxury—it is a prerequisite for patient safety. The boom of platforms like TikTok, YouTube, and Instagram has turned social media into the primary source of medical information, often inaccurate or simply fake. Recent reports show that over 50% of adults under 30 obtain health information through social media, and many cannot distinguish evidence-based medicine from sensationalized healthcare narratives. In anesthesia, this has critical consequences: patients who reject neuraxial analgesia for fear of paralysis, who distrust the use of propofol or fentanyl due to media coverage, or who delay essential clinical decisions due to unfounded worries (7).

Such beliefs, driven by misinformation, led to anxiety, treatment delays, or avoidance of necessary care, directly affecting perioperative safety. Moreover, national studies have shown that less than 50% of patients fully understand medical instructions, increasing the risk of complications and reducing the effectiveness of interventions (8).

As healthcare professionals, we must champion two critical imperatives: (1) lifelong learning for care providers and (2) patient education through effective communication strategies. This dual educational approach – empowering both ends of the care continuum is a cornerstone for closing gaps and advancing toward safer, more equitable, and truly collaborative medicine.

• **SDGs 5 and 10. Gender equality and reduced inequalities:** Equity must be a guiding principle at all health system levels. However, gender gaps and structural disparities still persist, affecting both care providers and patients. In the professional domain, female anesthesiologists confront systemic barriers, including disproportionate underrepresentation in leadership roles, an increased burden of unpaid caregiving, and wage disparities, with women in healthcare earning 6.6% less than male colleagues for equivalent work in 2023. (8) Moreover, many professionals have experienced gender-based violence or discrimination at their workplace, which hinders their development and impacts their well-being.

On the other hand, geographic and social inequalities continue to undermine the quality of patient care. In rural, remote, or conflict-affected regions, access to safe and specialized anesthesia is limited or nonexistent. Recent data indicate that only three of the 520 municipalities surveyed had more than 100 physicians per 10,000 inhabitants (9,10), reflecting an inequitable concentration of healthcare professionals. As medical professionals we should strive to eliminate these gaps by making them visible and actively working to overcome such inequalities. Creating an anesthesiology specialty that is truly equitable, diverse, and accessible represents both our professional obligation and our societal responsibility.

• **SDG 13. Climate action:** The environmental impact of the healthcare

sector is an unescapable challenge, and anesthesiology plays a key role in this conversation. Volatile anesthetics such as desflurane and nitrous oxide have a high global warming potential, with effects that persist for decades in the atmosphere. It is estimated that one hour of desflurane use can generate a climate impact equivalent to driving 320 kilometers by car. (11) Studies in high-complexity hospitals in Latin America have shown that eliminating the routine use of desflurane can reduce annual emissions by up to 500 tons of CO₂, without compromising the quality of anesthetic care. (12)

While anesthetic gases contribute significantly to healthcare's environmental footprint, they represent just one dimension of the problem. Routine OR activities generate substantial biomedical waste—much of it non-recyclable—while everyday clinical decisions, from drug selection to disposable equipment use, represent a significant hidden environmental cost. Sustainability in anesthesia is not only possible but also necessary, and it requires reviewing protocols, reducing waste, transitioning to cleaner technologies, and fostering environmental awareness in the training of new generations.

We must acknowledge that the commitment to health also includes caring for the planet. As professional and scientific leaders, we have the capacity and responsibility to promote sustainable anesthetic practices, generate local evidence, demand more responsible regulatory frameworks, and be role models for other specialties. However, sustainability is not just a topic for institutional debate—it requires personal awareness that transcends the practice of administering anesthesia.

Every anesthesiologist and healthcare professional can contribute through their daily decisions. In the clinical setting,

choosing techniques with a lower environmental footprint, minimizing unnecessary use of desflurane and nitrous oxide, reducing gas flows, and optimizing disposable supplies are concrete actions with real impact. Likewise, sustainability must extend beyond hospital walls through concrete actions: using low-emission transportation, reducing single-use plastic consumption, saving energy, composting waste, practicing mindful consumption, and supporting local businesses. While individually modest, these collective efforts foster crucial alignment between our professional values and personal civic responsibility.

Sustainability begins at the individual level, is strengthened collectively, and is consolidated institutionally. Only then can we ensure that our specialty actively contributes to a viable, ethical, and future-oriented healthcare system.

Today's challenges invite us to rethink anesthesiology beyond the clinical action. In this sense, the 5Ps of sustainable development offer us a framework to reimagine a more humane, just, and sustainable practice. Our work is to care for people, but we are also responsible for protecting the environment, our working conditions, our relationships, and the possibility of collectively building a viable future.

As healthcare leaders, we must embody integrity through action, educating

with empathy, fighting inequality, mitigating our environmental impact, and strengthening partnerships to drive meaningful transformation. Sustainability is not merely an objective; it is the very foundation of ethical medical practice.

At the core of our profession is delivering the best possible care based on science, integrity, and unwavering commitment.

Conflicts of interest

The author is the Scientific Director at Sociedad Colombiana de Anestesiología y Reanimación (S.C.A.R.E.).

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None declared by the author.

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