

Knowledge, Attitudes, and Practices Regarding Green Anesthesia: A Multicentre Survey of Anesthesia Providers

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1. Background



Operating rooms generate a significant hospital carbon footprint, largely driven by volatile anesthetic gases and high fresh gas flows (FGF). Transitioning to “Green Anesthesia” – low-flow techniques, Total Intravenous Anesthesia (TIVA), and proper waste segregation, is vital for sustainability.

However, data from developing healthcare settings remain scarce. This study evaluated knowledge, attitudes, and practices (KAP) regarding green anesthesia among anesthesia providers in Lahore, Pakistan.

2. Methods



Study Design

Multicentre cross-sectional survey



Duration

May – July 2026



Setting

Anesthesia providers in Lahore, Pakistan



Sampling

Universal sampling (n = 126)



Data Collection

Online questionnaire adapted from the ANZCA Environmental Sustainability Audit Tool



Analysis

SPSS v23 – Independent samples t-tests and one-way ANOVA (by role and sector)

4. Key Knowledge Findings



TIVA's lower environmental impact

92.1%



Residual propofol disposal

83.3%



Desflurane's high global warming potential

55.6%

5. Conclusion



Anesthesia providers in Lahore display strong baseline awareness and positive attitudes toward green anesthesia, yet low-flow technique adoption remains low.



Key Recommendations

- Targeted educational interventions on agent-specific global warming potential.
- Updated institutional protocols.
- Focus on public sector facilities to bridge the knowledge-practice gap.

3. Results

Participant Characteristics(n = 126)



33.3%

Residents



32.5%

Consultants



16.7%

House Officers



17.5%

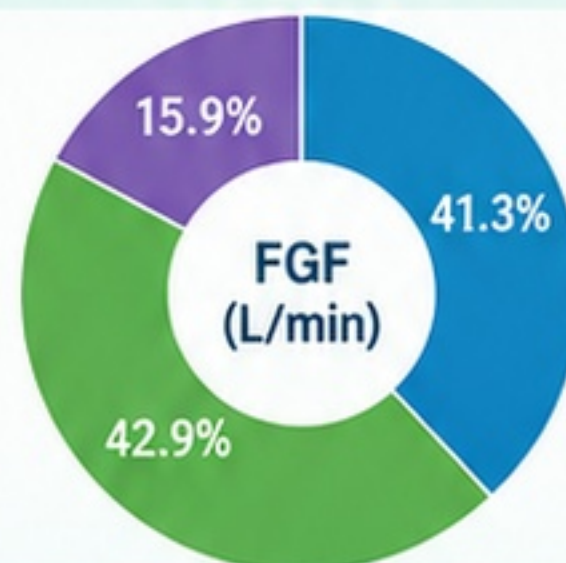
Technologists/
Technicians



64.3%

Public Sector

FGF Usage During General Anesthesia Maintenance



● > 2 L/min 41.3%

● 1 – 2 L/min 42.9%

● ≤ 1 L/min 15.9%

KAP Scores (Mean ± SD)



Knowledge

3.18 ± 0.95
/ 4



Attitude

9.48 ± 2.10
/ 14



Practices

16.42 ± 3.70
/ 24

Comparison of KAP Scores



By Professional Role

No significant difference in KAP scores across roles (p > 0.05).

Kruskal/ANOVA analysis showed no significant variation.



By Sector (Attitude Score)

Private Sector

10.44 ± 1.79

Public Sector

8.94 ± 2.08

Significantly higher in private sector (p < 0.001).