ISA
Indian Society of Anaesthesiologists
Delhi Branch

Eternal Vigilance

# ISA DELHI

Monthly Bulletin of Indian Society of Anaesthesiologists (Delhi Branch)

**Theme:** Diversity & Inclusion in Anaesthesia

**ISSUE 04, MARCH 2025**

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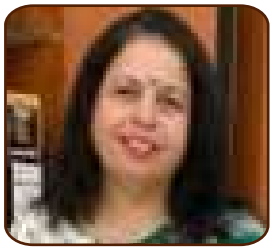

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# **President** (ISA Delhi)

Dear ISA Delhi members

March....the month which heralds the beginning of spring..... when the whole city is draped in a multicoloured veil with vibrant colours of blooming flowers, the bright hues of "Holi", testament to feelings of love, devotion and new beginnings. Intertwined with all this are the holy days of "Ramadan", the month of blessings and forgiveness.

The academic session of February was devoted to Pediatric Anaesthesia and was very well attended and appreciated both by residents and consultants within and outside Delhi. Our monthly theme based newsletter is also being read by anaesthesiologists far and wide. I request all the readers to contribute actively to the newsletter in form of case reports, review articles and other articles and make the newsletter a high yielding collection of information.

Requesting all Delhi ISAians to "MARCH" forward with all new fervour and gaiety to embrace themselves wholeheartedly in preparations for forthcoming YUVACON 2025 on 19th & 20th April and participate in the upcoming "Sports Day" of YUVACON 2025 on 23rd March at Gymkhana AIIMS.

Long live ISA
Warm Greetings

**Dr Munisha Agarwal**
President
ISA Delhi

# **Vice President** (ISA Delhi)

Dear Delhi ISA Members,

Warm greetings
The colorful and vibrant flowers in Delhi over the last fortnight has set the mood for celebrating Holi the festival of colors. Wishing everyone a joyous and enjoyable Holi.

The 3rd ISA clinical meet was very well organized by Dr Neerja Banerjee and her team at ABVIMS & Dr RML Hospital, Delhi. The clinical presentations were excellent. The winners of the 1st ISA-NPL were felicitated and it was a very happy occasion. The quiz was well conducted with enthusiastic participation.

The 2nd session of the ISA Delhi Academic series on 'Perioperative management of hydrocephalus' on 7th March had eminent faculty, experienced speakers and moderators with very good academic discussion. It was very well attended.

It is very heartening to see enthusiasm amongst our Young Anaesthesiologists to participate in the upcoming ISA Delhi Sports day on 23rd march and YUVACON on 19th and 20th April. We request more residents and Senior members from various Institutes to participate and make both the events a grand success.

Long live ISA

Best wishes,

**Dr Sonia Wadhawan**
Vice President
ISA Delhi

# **Honorary Secretary** (ISA Delhi)

Dear Delhi ISAians,

Greetings from ISA Delhi Headquarters !

Month of march marks a period of transition in which spirits are filled with hope and whispers of spring awaken dormant landscapes. It's indeed a time to embrace change, celebrate growth and breathe in air filled with energy of new possibilities.

On 8th March every year we celebrate International Womens day. Someone rightly said “Women are the dreamers,the doers,the changemakers—celebrate them, empower them, and watch them shine.” They are like lord shiva, both creator of a man and destroyer of a man.

ISA Delhi wishes all its members a very happy Holi. May all the negativity burn in the bonfire and we all spread happiness along with vibrant shades of Dulhendi.

I take privilege to invite you all to our Annual event "YUVACON 2025" on 19th and 20th of April 2025 at Maulana Azad Medical College and our annual sports meet on 23 march 2025 at AIIMS Gymkhana. It is a Youth festival so as to celebrate the spirit of Yuva ISAians. Like previous years, in addition to academics there will be enough platform to showcase our talents during art, literary, cultural and photography sessions. I request you all to join the celebration in large numbers.

I congratulate our EIC Dr Nishkarsh Gupta and this months editors Dr Preeti Varshney and Dr Nitin Choudhary for this amazing edition. I also congratulate GC Member Dr Geetanjali T Chilkoti for a very engaging session of ISA Delhi academic series on perioperative management of hydrocephalus. It was very well attended by delegates accross the country.

I congratulate Team ABVIMS and RML Hospital led by Dr Neerja Banerjee for a very successful conduct of third monthly clinical meeting. It was largely attended by senior anaesthesiologists and resident doctors from institutions across the city. There were amazing topics, engaging discussions followed by lipsmackimg dilli ki chaat.

I once again request my seniors and teachers to keep patronizing us with your experienced suggestions and motivate youngsters to join ISA Delhi YUVACON, our annual youth festival as the success of any event lies in wider and varied participation.

Long live ISA Delhi

**Dr Amit Kohli**
Honorary Secretary
ISA Delhi

# **Honorary Treasurer** (ISA Delhi)

Dear ISA Delhi members,

Greetings from the treasurer's desk.

Wishing all the fellow ISAians a vibrant and joyous Holi. With the wrap of this festival of colours and exuberant happiness, **ISA Delhi YUVACON 2025** is ready to knock at our doors. You all are cordially invited to wholeheartedly participate in the upcoming extravaganza.

This much-anticipated event promises to be a remarkable blend of engaging sessions and impactful collaborations, showcasing the pinnacle of what we can achieve together as a community. Your wholehearted participation, boundless energy, and valuable contributions will be instrumental in making this event a resounding success. Let us come together to make the event an unforgettable experience, reflecting the strength and unity of our shared vision.

On behalf of the ISA Delhi branch, my heartfelt gratitude goes out to all those who have attended the ISA monthly clinical meets in massive numbers. Please keep the spirits high and participate in the forthcoming ISA Delhi activities with similar ardor.

Before I conclude, I would like to remind you that the ISA Delhi branch has its own YouTube channel where you can revisit the recorded versions of newly launched academic series, and soon, we will be expanding to other social media platforms as well. Please subscribe and maximize your engagement there as well.

Thank you all for being valuable members of ISA Delhi.

Long live ISA.
Jai Hind.
With regards,

**Dr Abhijit Kumar**
Honorary Treasurer
ISA Delhi

# **Editor** (ISA Delhi)

Dear ISA Delhi Members,

Warm greetings from ISA Delhi. Wishing all my fellow ISAians a vibrant and joyous Holi. It is with immense pleasure that we present the March issue of our ISA Delhi monthly newsletter. This year, we have planned to have a theme-based newsletter. The theme for this month is diversity and inclusion. We have included articles on gender equality and inclusivity in this newsletter. We continue to have Quick Research Scan, to provide a snapshot of handpicked interesting articles published across leading anesthesia and critical care journals. Our regular picture quiz and a crossword have been well appreciated by readers and have received many responses from various Delhi ISAians. We have ISA Delhi YUVACON 2025 coming up in March and April 2025. I would take this opportunity to invite you all to participate in these events in large numbers.

We invite all the readers of various hospitals to submit case reports, review articles, and other articles for potential inclusion in the newsletter. We will communicate this and encourage active participation from all members to diversify the content.

We request active suggestions for continuous improvement in our newsletter.

Best wishes,
Long live ISA,

**Dr Nishkarsh Gupta**
Professor, Department of Onco-Anesthesiology and Palliative Medicine
Editor ISA Delhi

# Green OT: Sustainable Anaesthesia, Our Practices

The World Health Organization defines an environmentally sustainable health system as one which 'would improve, maintain or restore health, while minimising negative impacts on the environment'.

Human activities in every sphere are causing unsustainable environmental crisis and health care sector is one of the major contributors. According to a data in 2019, health care sector contributed to 5.2% of total global greenhouse gas emissions of which 3.0% is accounted by inhaled anaesthetics. However, focusing only on carbon emission is perilous as healthcare practices lead to smog formation, acidification, the release of carcinogenic and non-carcinogenic air toxins, and waste production. 30% of daily medical waste is produced in operating rooms; anaesthesia practice is responsible for approximately 25% of it, of which 40% is potentially recyclable

Therefore anaesthesia providers have critical roles to play in reducing the environmental impact of their practice. In order to guide the anaesthesiologists world wide in transforming to greener practices, The World Federation of Societies of Anaesthesiologists has outlined certain core principles:

1. Practices that minimise daily adverse impact on environment
2. Use of environment friendly medications and equipment
3. Energy conservation and prevention of waste of material
4. Education on environment sustainability
5. Activities on environment sustainability
6. Industrial collaboration for environmental sustainability

Another step in the area is recognition of areas ( medication use, energy use and circularity in processes and waste) that would lead to greener environment by the declaration of the European Society of Anaesthesiology and Intensive Care (ESAIC) that aims to achieve climate neutrality by 2050.

India is the third largest emitter of greenhouse gases, and it targets to achieve net zero carbon emission by 2070. Therefore, we the Department of Anaesthesia at ABVIMS and Dr. RML Hospital have taken our own small steps in our pledge towards a greener and sustainable environment.

In our bid to minimise adverse impact on environment and wastage of medications, we have been consistently reducing our volatile anaesthetic use especially the use of desflurane and nitrous oxide. Infact the newer machines installed in our department are devoid of desflurane vaporiser. We use low flow anaesthesia with air-oxygen

# Green OT: Sustainable Anaesthesia, Our Practices

mixture as the driving gas, rebreathing circle system with carbondioxide absorber. We use leak free anaesthesia especially during induction of paediatric cases. Regional anaesthesia is given preference wherever possible, and we are extensively using peripheral and fascial nerve blocks. Due to high Persistence-bioaccumulation-toxicity (PBT) index of propofol we try using a combination of drugs eg. propofol-dexmedetomidine, or propofol-ketamine. Syringes are loaded only with the necessary amount of drugs, and emergency or other drugs are loaded only when required. Other environment sustainable practices followed in our operation theatre are using reusable equipments as laryngoscopes, masks, circuits, laryngeal mask airways, syringes. We try to eliminate unnecessary items from equipment packs, use linen for OT table, and packing trays, switch off lights, air conditioning, and electronic equipment such as anaesthetic machines when the OT is not in use. We encourage the use of sterilized paper towels in surgical gown sets for wiping and cleaning surfaces as well as using washable, theatre-only caps and shoes by the staff. It is mandatory to dispose off the waste generated as per the biomedical waste guidelines.

We are not behind in educating our staff about the climate change, waste management, segregation and recycling. The postgraduate students are taught about our contribution to climate change, and environment sustainability practices as per the 6 R principle- Reduce, Reuse, Recycle, Refuse, Rethink and Repair

The new OTs that are being constructed are equipped with LED lights, hand water sensors and have provision for natural sources of light. We are also getting the anaesthesia gas scavenging system installed in these OTs. Certain proposals that have been floated are recycling of plastics in collaboration with local industry, sustainable procurement of equipment, installation of renewable sources of energy and spreading awareness about climate change and adoption of various green measures for environment sustainability.

Exceeding a mean 1.5°C rise by 2050 will make global adaptation to the consequences of climate change less possible. So considering our direct involvement in green hose gas emission, procurement, use and waste of drugs and disposables it becomes our responsibility in choosing less environment damaging but clinically effective interventions.

Dr. Itishri
Professor
Department of Anaesthesiology
ABVIMS and Dr. RML Hospital
New Delhi

# Monthly Clinical Meet

The 3rd clinical monthly meet of Delhi state chapter of ISA was organised by the ABVIMS and Dr RML hospital, Delhi on 28th February 2025. The podium coordination was done by Dr Aanchal Kakkar. First we welcomed and felicitated the office bearers of ISA Delhi chapter namely, Dr Munisha Agarwal, President ISA Delhi; Dr Amit Kohli, Honourary secretary ISA Delhi and Dr Neerja Banerjee, Head of Anaesthesia Department, ABVIMS and Dr RML Hospital. All the senior faculty members and GC members were also felicitated, followed by ISA national flag hosting. The event started with Saraswati Vandana and Lamp lightening. Thereafter Dr Munisha Agarwal and Dr Amit Kohli addressed the gathering and shared their vision and progress about the ISA Delhi chapter. Dr Neerja Banerjee welcomed all the guest and started the academic presentations of clinical meet. The abstracts of the presentations are given below.

1. Green OT: Sustainable Anesthesia, Our Practices
   Presenter: Dr ItiShri, Professor Department of Anesthesia

2. Anaesthetic Concerns and Management of Nasofrontal Encephalocoele For Excision And Repair
   Presenter: Dr Ankita (Senior Resident), Dr Dhanush M (Post graduate)
   Moderators: Dr Nang Sujali Choupoo (Professor), Dr Namita Saraswat (Professor)

One year girl child, diagnosed with anterior encephalocele with bilateral base frontal lobes as the content, for excision and flap cover.

Anaesthesia concerns include Pediatric age group, Anticipated difficult bag mask ventilation and difficult intubation

Conclusion

- A multidisciplinary surgical approach and meticulous planning for difficult bag mask ventilation, airway management is required in case of frontonasal encephalocele.
- Patency of nasal cavities should be checked.
- Compression of mass must be prevented.
- Blood loss is another intraoperative concern.
- Invasive hemodynamic monitoring and blood conservative and fluid management strategies are helpful.
- Associated congenital anomalies must be ruled out.

3. Original Study: Comparison of Upper Incisor Pull Back Technique with Anterior Jaw Lift Maneuver on laryngeal view for assisting fiberoptic orotracheal intubation in adult patients under general anesthesia.

Presenter: Dr Sugam Bhola (Post Graduate Student)
Moderator: Dr Ashok Kumar (Dir. Professor)

UIPB manoeuvre is an unmarred, quick and single anaesthesiologist based technique that resulted in excellent laryngeal view helping successful fibreoptic orotracheal intubation in a single attempt with stable haemodynamics and without any injury as compared to anterior jaw lift.

Our experience of this study suggests that UIPB maneuver is a novel, simple and better technique for oral fibreoptic intubation, gaining expertise & confidence, for teaching-learning purposes & managing anticipated/unanticipated difficult airway as well.

4. Case Report: Role of Epidural patch in Low Pressure Headache caused by Spontaneous Intracranial Hypotension
Presentor: Dr Pallavi Priyadarshani (Senior Resident), Dr Anshuman Ghidyal (Postgraduate Student)
Moderator: Dr Akhilesh Gupta (Dir Professor), Dr Nidhi Pathak (Assistant Professor)

Alterations in CSF pressure can lead to neurologic symptoms, most common of which is headache. Spontaneous Intracranial Hypotension is one of the causes of headache which is caused by CSF leak. Etiologies can be congenital tissue disorders, osteophyte protrusions, herniation of spinal disc, arachnoid diverticula, trauma, surgery, over drainage of CSF shunt or idiopathic. Diagnosis is done by ruling out other causes of headache clinically and by radiological findings. It can be managed conservatively with bed rest, hydration, caffeine, NSAIDs and opioids. Next line of management is Epidural Blood Patch which should be offered within 2 weeks of symptom onset and has greater likelihood of treatment response. It is indicated before proceeding to any surgery because if site of CSF leak is not sealed there will be recurrence of surgically drained subdural hematoma. In low pressure headache, as the site of CSF leak is unknown, greater volume of blood (range 20- 40 ml) is required. The blood spreads throughout the entire epidural space and can successfully treat spinal CSF leak even if they are in cervical level. Our patient was also managed with 20ml of Epidural Blood Patch after he failed to respond to one week of conservative treatment. On follow up, we found out that the patient not only improved symptomatically but radiologically also.

5. Changing Trends in Obstertric Patients- Our Experience in Anesthesia and ICU.
Presenter: Dr Jyoti Gupta (Assistant Professor), Dr Anupama G Sharma (Professor)

# Monthly Clinical Meet

Over a period of last 2 decades the causes of morbidity in Obstetric patients has been changed. Although haemorrhage is still the leading cause, the other miscellaneous causes in which the patient have some pre-existing co-morbidities are increasing. In all these patients, not only intraoperative care but multidisciplinary approach with pre-operative optimization and good post-operative care is essential. Early recognition, Rapid intervention &coordinated collaborative multidisciplinary approaches involving obstetricians, anesthesiologists, intensivists, and other specialized care providers can decrease maternal morbidity & mortality.

The presentations were followed by quiz which was conducted by Dr Sangeeta Yadav and prizes were distributed to the winners of the quiz. Dr Amit Kohli felicitated the Cricket team of ISA Delhi chapter who won the tournament at the National level. The clinical meet was graced by many senior faculties and attended by large number of anaesthesiologists. At the end Dr Nisha Kachru thanks all the members for joining the members and invited for high tea.


# My Journey in Anaesthesia

**Prof. Jayashree Sood**
Emeritus Consultant & Advisor
Institute of Anaesthesiology, Pain and Perioperative Medicine
Sir Ganga Ram Hospital, New Delhi

A journey of a thousand miles begins with a one step and my journey in anaesthesia started exactly 50 years ago (half a century!) in January 1975.

My marks in surgery in final MBBS were very good and I could get admission in any postgraduate course in Poona (now known as Pune), but since I always strived for excellence I was bent upon studying in Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh.

I was indeed very fortunate to clear the entrance examination and was able to get admission for MD anaesthesia and 'it was a dream come true.'

It was a cold morning when I arrived at the Chandigarh airport to go to the PGI and join as a resident in anaesthesia. The PGI was huge spread in acres and the Department of Anaesthesia was very big one too. I was overwhelmed by the operation theatres which were very large and had the latest anaesthesia machines and monitors. We had a very little exposure to anaesthesia during our undergraduate postings so this was a completely new experience. Our head of department, Dr Hariwir Singh, was very humble and polite person and our new batch of 4 students was made comfortable in the new and impressive environment.

I soon realised that this specialty was possibly the toughest amongst all. We required knowledge of anatomy, physiology, and pharmacology and also understand the steps of surgery from head to toe, as good anaesthetic management was completely dependent on the above knowledge and expertise.

Three years of vigorous training were tough but memorable. During training saw blind nasal intubation and open ether technique, never to be seen now. We got an exposure to all that is essential – thesis, publications, attending conferences and presenting papers. After completing MD, in my desire to pursue and earn the prestigious FFARCS degree, I went to Royal Victoria Hospital, Belfast, Northern Ireland (UK). I was indeed very fortunate to work with the doyen of Anaesthesia, Prof John Dundee whose name resonates with thiopentone sodium. The FFARCS had II parts, The Part I was very tough with advanced physics (a new learning about its application in anaesthesia). It was again a challenging and new environment but the training in the PGI was very helpful affirming my feeling that no learning goes waste as I cleared both the parts in the first attempt which was very uncommon in those days. I can say with satisfaction that very few anaesthesiologists have earned this degree, which is now known as FRCA. I returned to India after completing my registrarship and from 1984 till today it has been a fascinating journey in the Sir Ganga Ram

# My Journey in Anaesthesia

Hospital, New Delhi. It was the impressive CV with reputed degrees including MD from PGI Chandigarh and FFARCS from UK that made it possible for me to get entry into this hospital. I joined as a young junior consultant in the department of anaesthesia. Our Chief was Dr Faqir Chand a very passionate anaesthesiologist who was a workaholic. I was the only woman in the department of eight consultants and had to work harder than others to prove my worth (as is always). Those were tough days and we as consultants had to stay physically on night duties.

Since our hospital was also very keen on academics, besides providing ethical patient care, I got an opportunity to embark on my academics as well.

I had a keen interest in pain management and therefore travelled several times to UK and Australia for training in the specialized centres. The first 'Pain Relief Clinic' was started in our hospital in 1990.

Diplomate of National Board (DNB) began in our hospital in 1981 and we got our first student in DNB Anaesthesia in 1984. This started the never ending and satisfying journey of mentor student relationship, which is still continuing.

In 1994 I was promoted as a Senior consultant. In this period of 10 years, I got the opportunity to attend and host conferences and further enhance the academic excellence of our hospital. I was one of the first anaesthesiologist to practise laparoscopic anaesthesia and edited a book on “Anaesthesia in Laparoscopic Surgery”.

Time passed by and when I reflect back, I can see a lot of hard work and dedication. There have been no short cuts in my journey. In 2003 I was given the responsibility of being the Chairperson of the department. We were 40 consultants with 12 DNB students and few senior residents. Being the chairperson of anaesthesia brought about administrative responsibilities as chairperson of OT Committee as well and it was a momentous task.

Since the surgical specialities were also increasing. I introduced the concept of subspecialty groups and gradually we began to have a few consultants dedicated to each sub-specialty – neuroanaesthesia, spine, joint, obstetric, paediatric, GI surgery and transplant to name a few.

In 2003 we started an annual “Anaesthesia Update” with a different theme each year which is continuing. The department further grew and with the help of the departmental colleagues we were able to edit more books including one on 'Anaesthesia for Transplant Surgery' and 'Clinical Thoracic Anaesthesia'.

Along with this journey of anaesthesia also began my administrative journey and I got involved in the Board of Management of our hospital. Of course my clinical duties remained paramount and administration was done only in the afternoons and evenings.
I can recollect important milestones, which I crossed in this journey.

# My Journey in Anaesthesia

I received **Life Time Achievement Award** by Indian Society of Anaesthesiologists (ISA National), 2023.

I became Founder member, trustee & CEO of the Indian College of Anaesthesiologists in 2008. Now **PRESIDENT** since 2022.

I was awarded **'IMA Mediko Healthcare Excellence Award 2019'** for 'Excellence in Anaesthesia Management' at Hyderabad

Served as **PRESIDENT** in 'Indian Society for Study of Pain' (ISSP Delhi), 2005 and **PRESIDENT** in 'Indian Society of Anaesthesiologists' (ISA Delhi), 2006.

It was heartening to be considered amongst **Among Top 5 Female Innovators Anaesthesia in India** by World Federation of Societies of Anaesthesiologists (WFSA), 2023

Reaffirming my belief, that if one devotes oneself to their passion with zeal then recognition is a rule and not an exception.

In 2023 I became an **"Emeritus Consultant and Advisor"** of the department.

Looking back, it has been a long journey and I still continue to learn as I firmly believe that learning is a never ending process.

This journey has been possible only due to the unstinted support of my husband who has always supported me.

**To students/younger colleagues**

Your entire focus should be on completing your education. Try to attain as many degrees as you can early on in your career while you are still young and have the zeal to study. Always work hard and remember, sincerity and honesty will go a long way in helping you scale new heights.

- Be punctual. Always reach before your consultant and check your anaesthesia machine and prepare the drugs and label them. A student who is early to arrive, is labelled as the 'best' and 'sincere'.
- Know your subject thoroughly so that no one can challenge you.
- As an undergraduate, our aim is to clear the exam. So ensure that you read daily.
- Know your patient listed for that day. You should do the PAC, study the case and be ready to discuss in the intraoperative period.
- Always make it a habit to see your patients postoperatively even on the following day.
- In case of an high risk cases, always keep the relatives informed about their patient and follow-up your patients.
- In case of anaesthetic complication, inform the relatives and be in communication with them. They will understand how much their kin is being cared for.

- Be polite, humble to all your colleagues and helpers.
- Practice communication skills. Soft skills and other non-technical skills are as important as technical ones.
- Continue reading and updating your knowledge. We remain student always – even as HOD.
- Find a mentor who can help to pave the right path for you, for the right inspiration can go a long way in shaping your career and personality.

Although working hours are very long, but make it a habit to read daily. Your seniors will recommend a text book which is considered as 'Ramayana'. Read from first to last page thoroughly. Other books should be read as reference books, since they have certain aspects well covered in them.

There are no short cuts in life, so embark on this journey with vigour and I am sure you will enjoy the path as much as I do even today.

Finally have a good work – life balance.

# Anesthetic Considerations for Transgenders

**Author: Dr. Mahima Gupta**
Associate Professor, Department of Anaesthesia, Pain & Critical Care
Hamdard Institute of Medical Sciences & Research & Associated, HAHC Hospital
Jamia Hamdard University, New Delhi

The incidence of transgender individuals is approximately 0.1%-2% of the global population.1 Anaesthesiologists may be involved in caring for these patients for different surgeries. It is essential to know the anesthetic implications about this population, as gender-reaffirming surgeries can lead to changes in anatomy, hormonal therapy can lead to altered drug pharmacology, and also cater to their emotional and psychological needs.

Caring for these patients is quite challenging and requires good knowledge for their safe perioperative management. The General Medical Council does provide some guidelines for their management to the health care providers.2 To understand the terminology of transgender and gender diverse individuals (TGDIs), the relevant terms 'sex' and gender need to be understood first. They are often used interchangeably but they are completely different. The World Health Organisation (WHO) defines sex as characteristics that are biologically defined.3 For TGDIs, sex, refers to the sex that is assigned at birth, but it's very challenging for the people born with external genitalia that does not fit binary male/female phenotypes.

Gender, on the other hand, refers to gender identity, which is an individual's deep-seated, inherent sense of their gender or its expression. It is how an individual identifies himself in everyday life. Some of the terminologies defined by the World Professional Association for Transgender Health (WPATH)4 (Table – 1 of Ref A).

| **Terminology** | **Description** |
|---|---|
| **AFAB** | Assigned female at birth |
| **AMAB** | Assigned male at birth |
| **Gender Affirmation Surgery** | Used to describe surgery to change primary, secondary, or both sex characteristics to affirm a person's gender identity. |
| **Gender diverse** | A term used to describe people with gender identities/expressions/or both different from social and cultural expectations attributed to their s ex assigned at birth |
| **Transg ender** | Transgender/Trans is an umbrella term used to describe individuals whose gender identities, gender expressions, or both are not what is typically expected for the sex to which they were assigned at birth. |

**Anaesthetic considerations**

The anesthetic considerations for these patients arise due to the transitional process resulting from gender-affirming surgeries or hormonal therapy or in a few cases physical measures. Hormonal therapy and gender affirmation surgeries are important for the anaesthesiologist as they can modify the perioperative course in these individuals for any subsequent surgical procedure.

# Anesthetic Considerations for Transgenders

**Author: Dr. Mahima Gupta**
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**Effects of hormonal therapy**

**1. Oestradiol**
The agenda of oestradiol is to let the development of female secondary sexual characteristics.

**2. Oestrogen**
This can be oral/transdermal or topical. It is used in higher than conventional doses. Historically, estrogen therapy has been associated with an increased risk of venous thromboembolism, but stopping it also leads to autonomic hyperactivity and reduced seizure threshold. Though the recent WPATH guidelines don't recommend stopping estrogen therapy for the risk of VTE, other risk factors for the same should be considered. Topical applications in the form of patches should be cared for by the placement of warming devices or fever preoperatively which may alter the absorption.

Drug interactions
Sugammadex can bind to estrogen and progesterone and reduce their action. High concentrations of oestrogen can reduce albumin affecting the drugs with high protein binding. The free fraction of these drugs (eg morphine/diazepam) is increased. Estrogen reduces plasma cholinesterase in cis-gender females, theoretically increasing the duration of action of succinylcholine.

**3. Spironolactone**
An antiandrogenic drug. Pharmacologically, it is an aldosterone antagonist. It can cause acute kidney injury, hyperkalemia, volume depletion, thrombocytopenia, and hepatic dysfunction. It can lead to hypotension, so it is withheld before surgery.

**4. Bicalutamide**
Another antiandrogen drug, which inhibits cytochrome P-450 affects the metabolism of drugs such as midazolam leading to increased plasma concentration. It displaces warfarin from protein binding sites, leading to increased plasma concentration and increased risk of bleeding, so a coagulation profile preoperatively is necessary. Other side effects relevant to anaesthesiologists are – prolonged QT interval, gastrointestinal discomfort, interstitial lung disease, and angioedema.

**5. Testosterone**
Sometimes exogenous testosterone is given for the development of male secondary sexual characteristics. It can cause hypertension, excessive weight gain, and dyslipidemia.

**6. Cyproterone acetate**
It is a synthetic progesterone, with anti-androgenic activity. It can lead to adrenocortical suppression, anemia, and fulminant liver failure. A liver profile, serum electrolytes, and hematological profile preoperatively is warranted.

**Physical measures**
The use of restraints/chest binders to flatten the chest may result in a restrictive pattern of ventilation.

# Anesthetic Considerations for Transgenders

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**Anesthetic implications of gender-affirming surgery**

WPATH recommends that these individuals undergoing gonadectomy should be stable on their gender-affirming hormonal regimen which is at least 6 months. Surgeries targeted at the enhancement of facial feminization involve mandible angle reduction, and taper, chin augmentation surgery (genioplasty) and thyroid shaving. Mandibular reduction surgeries can pose a challenge during airway management as it leads to crowding of the oropharyngeal structures and genioplasty can alter the thyromental distance.

**1. Chondrolaryngoplasty – (thyroid reduction surgery)**

Decreases the size of the laryngeal prominence. If the surgical scar is at the service-mental crease, it can distort the anatomy and can make identification of the cricothyroid membrane difficult, an important site for emergency airway access. For a feminine tone to the voice, surgical procedures are advised. The feminine voice is high pitched which includes increasing vocal cord tension and shortening the vocal cord length, this is achieved by repositioning of cricoid cartilage and thyroid cartilage, posterosuperiorly and and anteroinferiorly respectively, completely diminishing the cricothyroid membrane.

Feminisation of the voice involves resection of the anterior thyroid cartilage, decreasing the laryngeal aperture necessitating the use of smaller size tubes.

**2. Male masculinization surgery**

Transgender men may choose to retain their uterus and ovaries, so should be tested for pregnancy if the history warrants. Phalloplasty requires free flap harvest from different donor sites like radial forearm flap, thoracodorsal artery perforator flap, and superficial circumflex iliac artery, so arterial lines site should be carefully chosen.

Modification of facial features for a masculine look involves mandibular angle, augmentation, bone grafts and implants, and genioplasty to achieve a wider chin. All these procedures can lead to distorted anatomy and again an airway challenge.

Thyroid augmentation surgery is performed using a cartilaginous rib. An inframmary crease incision is made, and there can be laryngeal and recurrent laryngeal damage during these procedures, which should be kept in mind. Airway handling should be avoided, if there is a recent airway surgery, as it can affect the healing.

**Other medical disorders**

1. Mental health issues

TGDs can have a variety of mental health disorders like anxiety and depression. The knowledge of the interaction of drugs with therapies such as selective serotonin reuptake inhibitors (SSRIs), serotonin and noradrenaline reuptake inhibitors (SNRIs) & monoamine oxidase inhibitors (MAO) inhibitors.

2. Smoking and Substance abuse

Smoking and substance abuse are more common in this group, which can lead to airway and pulmonary complications.

# Anesthetic Considerations for Transgenders

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3. Human immunodeficiency virus (HIV)
The incidence of HIV is higher in TGDIs is 19.1% as compared to 0.7% of the general population.5 Antiretroviral medications especially protease inhibitors, inhibit the CYP450 enzyme system, which is involved in the metabolism of drugs like Fentanyl and midazolam.

4. Adjustment of drug dosing
Estrogen therapy redistributes fat in a more feminine way, affecting the distribution of fat-soluble drugs. In the administration of total intravenous anesthesia (TIVA), adjustments are required in both minto and schenider models as they require entry of gender and weight on the target control infusion (TCI) pump.

5. Other perioperative concerns
Transgender males have a high incidence of myocardial infarction, as compared to cis-gender males and females. Similarly, transgender females are at higher risk as compared to cisgender men.

**Conclusion**
In recent times, there has been more societal acceptance of transgender individuals, leading to their increased accessibility to health care services, so their perioperative needs and anesthetic implications have to be understood.

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# Ethical Considerations in Providing Equitable Anesthesia Care: Focusing on Patient Diversity

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Equitable care means that the quality of healthcare should not change based on personal characteristics like gender, ethnicity, location, financial and social status. In other words, everyone should get the same high-quality care, no matter who they are. Equity in healthcare is a cornerstone of ethical medical practice, and anesthesia care is no exception.

The Indian Society of Anesthesiologists (ISA) has recommended ethical guidelines for the profession. Below are some fundamental principles of medical ethics.[1]

**Nonmaleficence:** Anaesthesiologists follow the principle of "do no harm" to patients.
**Autonomy:** Patients have the right to make informed decisions about their healthcare, free from coercion.
**Justice:** Anaesthesiologists must provide fair and equitable care to all surgical patients.
**Beneficence:** Physicians are obligated to act in the best interest of patients, promoting well-being in every situation

Providing equitable anesthesia care requires acknowledging and addressing this diversity while adhering to these core ethical principles. This article explores the ethical considerations in providing equitable anesthesia care to a diverse patient population and offers strategies to improve inclusivity and patient-centered care.

First & foremost, in order to ensure that anesthesia care is equitable and ethically sound, it is essential to respect and uphold the principles of autonomy and informed consent for every patient, regardless of their background. Autonomy empowers patients to make healthcare decisions based on their personal values, beliefs, and preferences, which may vary due to cultural, religious, or socioeconomic factors. It is critical for anesthesia providers to engage in clear, culturally sensitive communication, ensuring that all patients understand the risks, benefits, and alternatives to anesthesia options. This process must be free from any coercion, allowing individuals to make fully informed choices that align with their values and preferences. By prioritizing respect for autonomy and ensuring that the informed consent process is accessible and transparent, anesthesiologists can provide care that is not only technically proficient but also ethically responsible, fostering trust and inclusivity in diverse patient populations.

The challenges posed by language barriers, varying health literacy levels, and cultural beliefs can complicate the process of clear communication. Efforts need to be made to ensure that information is conveyed in a manner that respects the individual's background and abilities to understand. For instance, non-native speakers may struggle with medical terminology, and patients with limited health literacy may not fully comprehend the implications of their choices. Moreover, cultural and religious beliefs may influence how patients perceive anesthesia and surgery. To overcome these challenges, it is crucial to implement ethical solutions that promote effective communication such as providing interpreters and translation services. Trained medical interpreters, materials written in multiple languages, helps bridge language barriers and ensures that patients fully understand their healthcare options. Additionally, communication can be simplified by using visual aids, local language, and teach-back

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techniques for better understanding and decision making. It is also essential to ensure cultural sensitivity by tailoring discussions to accommodate patients' cultural perspectives on health, decision-making and treatment.[2]

While respecting autonomy and ensuring informed consent are fundamental in providing equitable anesthesia care, it is equally essential to address disparities in access to care, particularly in regions with socioeconomic and geographic challenges. In India, there are significant socioeconomic and geographic disparities in anesthesia care, due to unequal distribution of anesthesia services, infrastructure, and professionals across different regions. This creates disparities in access and care outcomes, particularly in rural and underserved areas. Patients from lower socio-economic background or remote locations often experience delays in accessing anesthesia or receive substandard care due to a variety of barriers. [3][4]

- **Unequal Distribution of Anesthesiologists:** Most anesthesiologists are concentrated in urban areas as compared to rural areas. The healthcare professionals migrate to urban centers for better opportunities and career development, higher salaries leaving rural areas with fewer specialists.
- **Limited Access to Anesthesia Services:** Rural areas often face a lack of essential anesthesia services, making it challenging for patients to receive timely and safe surgical care. Many rural hospitals do not have modern anesthesia equipment, proper maintenance of machine putting patient safety at risk. Anaesthetist struggle to safely administer anesthesia in these areas due to poorly equipped facilities, especially for complex surgeries. High-risk cases requiring specialized anesthesia may not be performed in these areas, forcing patients to travel long distances for treatment. Delay in accessing anesthesia can lead to postponed surgeries, and emergency cases may not be handled with proper preparation, increasing the risk of complications.
- **Poor Infrastructure and Quality of Care:** In rural areas, anesthesia services may be provided by non-specialists, increasing the risk of complications or insufficient pain management.
- **Lack of Health Literacy:** Patients in rural or underserved areas may have low literacy levels, making it difficult for them to understand pre-anesthesia instructions or post-anesthesia care, which can affect their recovery and overall outcomes.
- **Financial Constraints:** The high costs of anesthesia services can be a barrier, especially for low-income patients. In addition, a lack of insurance or inadequate reimbursement policies further limits access to necessary care.
- **Inadequate Postoperative Care:** Insufficient follow-up care in rural areas can lead to undiagnosed or untreated postoperative complications, affecting recovery and patient outcomes.

**Ethical Solutions to Overcome Barriers**

To improve access to quality anesthesia care, several key strategies need to be implemented. First, improving health literacy is crucial. This can be done by creating simple, illustrated materials and audiovisual aids to help patients understand anesthesia procedures. Resource allocation must focus on distributing anesthesia services fairly across all socioeconomic

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groups, ensuring everyone has access to the care they need. Policies should be advocated that ensure equal distribution of services and funding, along with establishing clear standards to guarantee the safety and quality of care. Additionally, there should be increased efforts to raise awareness about the importance of equitable anesthesia care among policymakers, healthcare professionals, and the public.

Education and training are also critical. Standardized training programs for anesthesiologists, technicians, and nurses should be developed, alongside continuing education and simulation-based training to enhance skills. Government or NGO programs can help subsidize anesthesia services for low-income patients, ensuring financial barriers are reduced.

Infrastructure improvements are necessary, especially in low-resource hospitals. Investing in better equipment, improving supply chains, and developing mobile anesthesia teams and telemedicine programs can ensure remote areas receive adequate care. Workforce development should include increasing the number of anesthesiologists, encouraging more students to pursue this career, and supporting task-sharing models where trained non-physician anesthetists provide care under supervision. Anesthesia technicians should also receive proper training to assist anesthesiologists.

Finally, financial aid programs such as expanding health insurance coverage and using telemedicine for preoperative consultations can help increase accessibility to anesthesia care. Public-private partnerships should be fostered to improve the quality and availability of anesthesia services in public settings. By focusing on these strategies, we can work toward ensuring that anesthesia care is accessible, safe, and equitable for all patients, regardless of their background or location.

**Other Factors Contributing to Unbiased Anesthesia Care**

**1. Implicit Bias in Anesthesia Care**

Implicit bias can significantly impact clinical decision-making, leading to disparities in pain management and treatment outcomes. Research has shown that ethnic minorities, women, and children are often at risk for under-treated pain or having their concerns overlooked, resulting in inadequate anesthesia care.[5]

Strategies to reduce these biases:

- **Bias Training:** Regular training sessions for anesthesia providers should focus on raising awareness about implicit biases, particularly those related to gender and ethnicity. These sessions can help medical professionals recognize and address biases in their practice, promoting more equitable care for all patients.
- **Standardized Protocols: T**he use of evidence-based, objective protocols for anesthesia and pain management helps reduce the potential influence of personal biases. Clear, consistent guidelines ensure that every patient receives appropriate care based on their clinical needs rather than subjective judgments.

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- **2. Gender Identity Sensitivity**

Gender identity and expression affect patients' comfort and experiences with anesthesia care. Transgender and non-binary patients may face additional barriers, such as discrimination or lack of understanding.[6] Ethical solutions include:

- **Gender-Inclusive Language:** Use patients' chosen names and pronouns to foster respect and trust.
- **Staff Training:** Educate staff on gender sensitivity and inclusive healthcare practices.
- **Privacy and Dignity:** Ensure private spaces for discussions and respect patients' bodily autonomy and modesty during anesthesia preparation.

**3. Religious and Cultural Sensitivity**

Religious and cultural beliefs shape patients' attitudes toward anesthesia, pain management and medical interventions. Healthcare providers must be sensitive to these beliefs and adapt care to meet patients' needs. Specific considerations include:[7]

- **Jehovah's Witnesses:** These patients may refuse blood transfusions, requiring alternative anesthesia approaches.
- **Fasting Practices:** Adjust preoperative and postoperative care for patients observing religious fasting.
- **Traditional Beliefs:** Respect cultural rituals that influence anesthesia and surgery.

Ethical Solutions: Tailor anesthesia plans to accommodate religious and cultural preferences, while ensuring patient safety. Involve community leaders when necessary and employ Shared Decision Making (SDM) to build trust and improve understanding.

**4. Age-Specific Considerations**

- **Pediatric Patients:** Involve parents or guardians in decision-making and use age-appropriate communication.
- **Geriatric Patients:** Account for cognitive impairments, drug sensitivity, and age-related physiological changes when planning anesthesia.

**5. Disability and Neurodiversity**

Patients with disabilities or neurodivergent conditions may have unique needs during anesthesia care.

Solutions to accommodate them include:

- **Accessible Communication:** Use formats like large print or visual aids for consent and information.
- **Environmental Modifications:** Create a calm environment for neurodivergent patients to minimize sensory triggers.
- **Individualized Care:** Tailor anesthesia plans to meet the physical or cognitive needs of patients with disabilities.

**6. Equitable Pain Management**

Disparities in pain management are a significant issue in anesthesia care. Certain groups may experience under-treated pain.[8] To address this:

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- **Comprehensive Pain Assessment:** Use validated pain scales that consider individual differences in pain expression.
- **Non-Opioid Options:** Provide multimodal pain management, including regional anesthesia or non-opioid analgesics.
- **Patient Empowerment:** Encourage open communication about pain levels and advocate for appropriate relief.

**Conclusion**

In conclusion, delivering fair and effective anesthesia care involves recognizing and valuing each patient's individual needs. By overcoming language barriers, promoting equal access, and considering cultural differences, anesthesia providers can ensure all patients receive respectful and supportive care. With continuous education, advocating for better policies, and focusing on patient-centered practices, the field of anesthesia can progress towards greater equity and inclusion for everyone.

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# Breaking Boundaries: Struggle of a Budding Anaesthesiologist

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*"Anaesthesia is the art of balancing pain and awareness, risk and benefit, science and compassion. It is a privilege to be an anaesthesiologist and to serve humanity in this way."* – Dr. Jannicke Mellin-Olsen, Ex-President of WFSA.

It's another typical day in the operating theatre. A milky white liquid is administered, along with a few additional injections, as the patient drifts into the deepest, most peaceful sleep they have ever experienced. Standing beside the patient is a junior resident, freshly clad in a brand new set of scrubs, sporting a pristine pair of crocs and a shiny Littmann stethoscope around their neck. Despite the external appearance of readiness, the resident is just as anxious as the patient who is about to undergo surgery, feeling the weight of their responsibility and the nerves that come with being at the start of their medical journey.

Residency is an intense and transformative journey that tests both professional competence and personal resilience.

It's a well-known fact that anaesthesia is rarely considered a dream specialty by aspiring postgraduate (PG) students. The reason for this is largely attributed to the MCQ heavy nature of the PG entrance exam system. As part of the curriculum, there are just 15 days of internship spent in the anaesthesia department. During this brief period, most students focus primarily on getting their logbooks signed quickly, with little attention given to truly understanding the field, as the main priority becomes rushing to the library to solve more MCQs. In most medical colleges, undergraduate students rarely have the opportunity to delve into the work and responsibilities of an anaesthesiologist. However, it is equally true that many individuals who have chosen to pursue anaesthesia as their specialty have never regretted their decision. Despite the initial challenges, those who continue in the field often discover a fulfilling and rewarding career.

The first major challenge when entering the field of anaesthesia is explaining to society what exactly it is that you do. You constantly face questions like, "Do we really need a separate doctor just for one injection?" or "What exactly does that doctor even do?". These common reactions can make it difficult to clarify the importance of your specialty. Explaining your role to family, friends, and relatives who do not have a medical background can be especially tough. It takes patience to help them understand what you actually do and how crucial your work is within the healthcare system, despite the often-overlooked nature of the field.

Despite the crucial role anaesthesiologists play, you often remain the "behind-the-curtain" doctor, with the patient unaware of your presence. After the procedure, many patients walk out of the hospital without even knowing your name, let alone understanding the significant responsibility you carried in managing their body systems throughout one of the most vulnerable and traumatic experiences of their life. This, however, is the essence of anaesthesia. It teaches you to be humble, patient, and courteous, as you work silently but crucially to ensure the well-being of your patient, without ever seeking recognition.

Alongside understanding this all-new field and its working, the journey of starting a residency as

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an aspiring anesthesiologist, particularly when moving from one end of the country to the other, is filled with numerous challenges.

The transition can be overwhelming, especially when adjusting to life in a completely new state, far from home. Being in an entirely different environment, where the language, culture, and customs are unfamiliar, adds to the complexity of settling in.

Securing accommodation near the hospital is another pressing challenge before a hostel room becomes available. The rental prices around hospital campuses are often exorbitantly high, making it a financial burden for residents, many of whom are on a tight budget and coming from middle-class backgrounds.

Moreover, landlords and property owners in these areas are often aware of the plight of resident doctors who work long hours and are unable to travel far. Consequently, they take advantage of this by imposing exploitative terms and unreasonable rules, knowing that their tenants have limited options.

Navigating a new environment and ensuring personal safety can be a constant source of anxiety, whether it's a local autorickshaw driver or a fruit vendor or anyone around. This sense of apprehension is often heightened for female residents, who may face additional concerns about their safety in a new city.

The residency period is followed with some financial struggles as well. The stipend provided to resident doctors in most places is incredibly low, often barely enough to cover basic monthly expenses. This financial strain is compounded by the bond services required in many states across the country. These bonds, which residents are obligated to fulfill after completing their training, delay their financial growth and hinder their ability to support their families effectively. Additionally, as medical students and residents, we often have little to no financial knowledge. This lack of understanding about managing money further complicates our financial struggles. The financial problems have far more consequences for a student from a foreign country as they have to work without any stipend for the entire period of residency. While somehow they manage to navigate the years with money sent from home they are unable to take part in any academic events organised by the scientific organizations of the country of residency as they are unable to pay the registration amount which is a prerequisite for taking part in any activity.

Another major challenge is adapting to new food habits. The food options available nearby are typically not the healthiest. In most places, the quality of food in government hostels is extremely poor on nutrition quotient and is far from being balanced. As a result, most resident doctors find themselves relying heavily on online food delivery apps to get their meals. This leads to a common practice of consuming junk food on daily basis. The lack of natural sunlight, which is common during these extended shifts, not only contributes to Vitamin D deficiency but also has a significant impact on your mental well-being.

Emotional resilience is another critical test in this field. Working in the ICU, managing critically ill

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patients, and making high-stakes decisions under immense pressure, often while witnessing intense suffering, takes a profound emotional toll. The loss of a patient, despite our best efforts and relentless dedication, is always heartbreaking and yet, sometimes, inevitable. It's a difficult reality to face. Learning to process grief and cope with the emotional weight of such losses while still maintaining professional composure is one of the most significant challenges in this profession. Balancing compassion with emotional detachment, so that we can continue providing the best care for our patients, is a skill that takes time and immense strength to develop.

Several unexpected acute emergencies, such as laryngospasm, bronchospasm, and anaphylaxis, serve as stark reminders of how crucial it is to remain alert and focused while in the operating room. These situations often trigger a surge of adrenaline, which can be overwhelming and leave a lasting impact on your physical and emotional state for days to come. One of the most valuable lessons to learn from experienced seniors is the importance of maintaining calmness during these high-stress moments. Staying composed is essential, as it allows your mind to function clearly, make accurate diagnoses, and implement appropriate treatment. While this skill comes with time and practice, it's important not to be too hard on yourself in the early stages of your career. Learning to stay calm and focused under pressure is a gradual process, but it's key to ensuring the best possible care for the patient.

But let's not forget there are moments of dopamine too, such as when administering epidural top-ups during pain rounds and seeing patients pain-free after major surgeries. These moments reaffirm why I chose this specialty, where my skills directly impact patient well-being and make recovery smoother.

One of the most incredible aspects of anaesthesiology is the role we play in managing the most stressful and intense labor pains during childbirth. Providing pain relief with epidural analgesia and support during such a monumental life event is truly one of the most fulfilling and rewarding aspects of this specialty.

Pre anaesthetic checkup clinic postings hold a special significance in our lives as anaesthesiologists. In these clinics, patients of all ages, ranging from infants to elderly individuals with walking sticks come in for their pre-operative assessments. They often have various health conditions affecting different parts of their bodies, and it can be overwhelming to witness the sheer number of challenges some of them face. This experience, fosters a deep sense of gratitude for our own lives. It makes us acutely aware of the difficulties others endure, whether it's a parent caring for a child with cerebral palsy or a 60-year-old diagnosed with a life-threatening tumor. These moments remind us how easily we take our own health, life, and time for granted.

The path to becoming an anaesthesiologist is challenging, demanding skill, perseverance, and emotional responsibility. It involves quick, decisive actions and ensuring patient safety and comfort. Overcoming these obstacles provides invaluable experience, highlighting the importance of flexibility, patience, and teamwork.

# Diversifying Leadership in Anaesthesia: A Path to Inclusive Patient Care

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Anaesthesia is a critical field of medicine, yet leadership roles within anaesthesia have historically been dominated by a homogenous group. As the healthcare landscape evolves, it becomes imperative to diversify leadership in anaesthesia.

Identity (gender, ethnicity, race, sexual orientation, religious affiliation), cognitive or intellectual diversity help overcome complex problems by providing different perspectives and solutions. Thus, improve patient care, increase empathy, and provide culturally competent service.
Leadership encompasses a wide range of qualities and skills that enable an individual to guide, inspire, and influence others.

**Vision:** A leader needs to have a clear sense of direction and the ability to communicate that vision to others, inspiring the team toward a common goal.

**Communication:** Effective communication is crucial for any leader. This involves not only clearly conveying ideas but also being a good listener to understand the needs, concerns, and feedback of others.

**Empathy:** Leaders who demonstrate empathy are able to understand and relate to the feelings and experiences of others, building trust and strong relationships.

**Integrity:** Trustworthiness and ethical behavior are fundamental to effective leadership. Leaders with integrity are consistent in their actions and decisions.

**Adaptability:** The ability to navigate change and adjust to new circumstances is important; hence, remain flexible and resilient in the face of challenges.

**Decision-Making:** Leaders are often tasked with making tough decisions. The ability to assess situations, weigh options, and choose the best course of action is essential.

**Delegation:** Good leaders know how to delegate tasks effectively. They understand the strengths and weaknesses of their team members and assign responsibilities accordingly to ensure the success of the group.

**Inspiration and Motivation:** A strong leader motivates their team by setting an example, encouraging development, and fostering a positive environment that drives people to perform at their best.

**Emotional Intelligence:** Leaders with emotional intelligence can manage their own emotions, understand the emotions of others, and respond to situations thoughtfully. This is crucial for resolving conflicts and maintaining a harmonious work environment.

**Accountability:** A leader must hold themselves and their team members accountable for their actions and outcomes.

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**Collaboration:** Effective leaders promote teamwork, encourage diverse perspectives, and create a collaborative environment that benefits from everyone's strengths.

Thus, diversity in leadership not only enhances the decision-making process but also reflects the demographic realities of the patient population.

A homogeneous group, often characterized by limited representation of women and racial and ethnic minorities, has historically dominated anaesthesiology. According to recent studies, women and minority groups remain underrepresented in leadership positions within anaesthesiology departments across medical institutions. This lack of representation can lead to feelings of isolation among minority staff and discourage them from pursuing leadership opportunities.

Anesthesiologists often lead in a variety of specialized areas, each requiring specific leadership skills.

**Cardiothoracic Anaesthesia** requires high-level coordination, they must ensure the team is in sync during procedures that involve complex patient monitoring and life-threatening situations. Crisis management, requires a calm demeanor and the ability to make high-stakes decisions quickly. Also, leaders in this field mentor junior staff so should have expert knowledge and education regarding it.

**Neuroanaesthesia** requires, complex leadership with multidisciplinary collaboration requiring deep understanding of brain physiology and advanced monitoring as they work closely with neurosurgeons, neurologists, and other specialists to ensure optimal outcomes for patients undergoing delicate neurological surgeries.

**Paediatric Anaesthesia** requires patient and family-centered leadership, as anesthesiologists working with children must provide leadership in both clinical decision-making and in reassuring patients and their families. The ability to communicate clearly and compassionately with parents is a key leadership trait. Anaesthesiologists in this speciality need to have in-depth knowledge as they direct teams to tailor anesthesia for children's specific needs while simultaneously providing mentorship to residents and fellow anesthesiologists who are developing expertise in pediatric care.

**Obstetric Anaesthesia** leaders must know crisis management, have effective decision making along with team coordination.

**Pain Medicine/Chronic Pain Anaesthesia** requires leaders to have multidisciplinary team in designing and overseeing pain treatment plans. This involves managing patient expectations and coordinating care with other specialists like physiotherapists, psychologists, and primary care physicians along with educating patients and their families about long-term management strategies. Leaders in pain medicine are often at the forefront of research into

# Diversifying Leadership in Anaesthesia: A Path to Inclusive Patient Care

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new pain management therapies and techniques, ensuring that the team is up to date with cutting-edge treatments.

As the complexity of healthcare continues to grow, the need for strong, diverse leadership in anesthesia has never been more pressing. Key leadership qualities across all anesthesia specialties require, clinical expertise, crisis management and problem solving, collaboration and team leadership, patient safety and advocacy and education and mentorship. Hence, diversifying leadership is essential not only for fostering an inclusive and equitable workplace but also for improving patient outcomes in a multicultural society.

Research indicates that a diverse leadership team is better equipped to understand the needs of all patients, leading to improved health outcomes. Creating a more inclusive leadership structure in anaesthesia involves recognizing the importance of varied perspectives, addressing systemic barriers, and implementing strategic initiatives.

Barriers to diversification can be implicit bias and stereotypes against leadership capabilities, thus affecting hiring, promotions and mentorship. Leadership roles often demand significant time and commitment, which can disproportionately affect individuals with caregiving responsibilities, a demographic that includes many women. Other barriers can be lack of mentorship, especially of underrepresented groups and certain institutional cultures, which follow age-old leadership models, hence non-inclusive of fresh ideas with regard to management of scenarios in anaesthesia. Lack of collaboration with the surgical specialties also hinders the overall growth in the field of anaesthesiology.

Now the question we address is how to promote this diversity!

As is often stated, " Leadership sets the tone, so change starts at the top". Hence, institutional leaders must commit to diversity in their hiring and promotion practices. This includes setting measurable goals for increasing diversity in leadership roles.

Recruitment strategies should actively seek candidates from diverse backgrounds.

Moreover, providing training on implicit bias for those involved in hiring and promotions can help create a more equitable selection process. Awareness of these biases can lead to more informed decision-making.

Institutions should consider more flexible models for leadership roles that accommodate diverse lifestyles and responsibilities as per the specialty of anaesthesiology one is dealing. This can include part-time leadership roles or job-sharing arrangements. Implementing mentorship, leadership training, and workplace flexibility can be a key to ensuring more women can thrive in leadership roles. Hence, one of the most crucial aspects in managing diversification is creating supportive environment by building an inclusive culture where diverse voices are heard and valued. Encouraging open discussions about diversity and inclusion can empower individuals to speak up and share their experiences. Similarly

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promoting collaboration between anaesthetists and surgeons can help build stronger teams and foster a more inclusive environment in various departments. This essentially involves equal representation of anaesthetist in surgical decision-making process for improving teamwork and leadership, eventually improving outcomes.

In the new media age, highlighting the stories of diverse leaders, can provide inspiration for younger professionals. This can help create role models who encourage others to pursue leadership roles. Last but foremost; regular assessments of diversity in leadership positions, along with transparency regarding metrics, can hold institutions accountable for their diversity initiatives.

It is imperative to acknowledge that diversity fosters innovation and creativity. Different backgrounds and perspectives contribute to a broader range of ideas and approaches to problem solving. This is particularly vital in anesthesia, where the field continuously evolves with new technologies and methodologies. An inclusive leadership team can drive advancements that may not emerge in homogenous environments.

Each specialty in anesthesia requires a specific set of leadership skills tailored to the patient population and the unique challenges of the procedures involved. Anesthesiologists in leadership roles must combine technical expertise with strong interpersonal skills, commitment to patient care, and the ability to manage and inspire their teams.

Furthermore, diverse leadership serves as a powerful symbol for the next generation of anesthesia professionals. Role models from varied backgrounds can inspire aspiring anesthesiologists, particularly those from underrepresented groups, to pursue careers in this crucial field. This mentorship is vital for creating pathways to leadership that have historically been blocked due to systemic barriers.

In an era where healthcare must be adaptable and responsive to the needs of an increasingly diverse population, the push for inclusive leadership in anaesthesiology should be viewed as a fundamental necessity rather than a luxury. As more diverse leaders emerge in key positions, the benefits will ripple throughout the field, ultimately leading to better outcomes for patients and communities alike.

# GENDER EQUALITY OR EQUITY – ARE WE THERE YET?

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As much as these two words sound synonymous, there is a humongous challenge in achieving the latter. Equality stands for equal resources or opportunities to all, whereas equity aims at providing resources or opportunities according to the need or circumstances in order to achieve equality. Women have been given a higher, even celestial status in our Indian society, calling them "Devi", yet gender bias is one thing that no one can say for sure it does not exist, be it any field. Medical profession is no different. In the past, there have been issues like under-representation of females in medicine which has been surpassed by predicaments like gender imbalances in leadership roles, academic and research opportunities and even financial reimbursements.

In 2019, a World Health Organization (WHO) report laid out vast gender inequalities affecting leadership roles across health systems. As per the report, women constitute 70% of the global health workforce but hold only 25% of senior roles.[1] A survey conducted in 2020 in the United States reported that women currently make up around 36-37% of the anaesthesia workforce in the United States, which is a significant increase from previous years. But a gender gap still exists, particularly at higher academic ranks where women are underrepresented as department heads. Hence, women comprised a larger portion of residents than senior faculty positions within the field of anesthesiology.[2]

According to the Association of American Medical Colleges (AAMC), women represent 24% of all full-time faculty in academic anaesthesiology in the USA.[3] Similarly, women represent 33% of Canadian anaesthesiologists as faculty[4] and 32% of consultants in the UK[5] in 2018 and 2015, respectively. All these studies indicate there is a long way to go in achieving gender equity in the field of anaesthesiology across the world.

These global trends are reflected in India, where only 24% of women participate in the formal work force[6], 14.2% of medical doctors are female, and 28% of leadership roles across national health organisations are held by women.[7] In India, male medical doctors dominate health leadership despite a scarcity of evidence demonstrating their suitability for guiding healthcare organisations.[7]

Gender equity is still a long way to go in medical profession. Several push-backs contributing to this are inbuilt cultural biases, patriarchal society framework and women being major workforce in the unpaid caregiver sector. Women in anaesthesiology, like in any other field have been under tremendous stress attributed to the continuing gender inequity. Several reports have tried to analyze the causes, factors responsible for its prevalence in today's so called modern society. Explicit and implicit biases are realised as the main culprits along with the dwindling, yet refusing to leave the mindsets of millions of women, the 'Imposter Syndrome'. [8]
Although women make up a substantial proportion of the physician workforce, they are consistently under-represented in important governance positions. Over the last decade, the representation of women has increased at the undergraduate and postgraduate level, but their percentage in higher rank positions remains thin. They are less likely to achieve academic promotion, submit and be successful in grant applications and research funding, and achieve key leadership positions. This concept has been described as the 'leaky pipeline'. [8] Anaesthesiology mirrors these broader trends.

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Societal stereotypes about women being unable to do justice to the position of authority is still a deterrent that we are unable to get across. Positions of authority are required to have masculine characteristics. Women, even after acquiring the status of authority are judged due to lack of these characteristics. Moreover, display of masculine traits of authority, competitiveness and assertiveness is seen as hostile behaviour in women leaders. This creates an unsupportive environment which acts as a hindrance to productivity and growth and also a discouraging factor for future women aspirants.

Similar picture is seen in area of academics and research. It is evident in the current world in the form of predominance of men in editorial boards of multiple anaesthesia journals. The Indian Society of Anaesthesiologists (ISA) has had only six lady anaesthesiologists as national Presidents since its inception in 1947 and one lady Editor-in-Chief of the IJA since 1953.[9] A recent study concluded that although the incidence of female authorship has significantly increased from 2010 to 2018, women represent less than a third of first authors and less than a fifth of last authors of original research papers published in three international anaesthesiology journals with high impact factors—the British Journal of Anaesthesia, Anesthesiology, and Anaesthesia.[10]

Both the genders share their aspirations in terms of clinical progress, academic growth and excellence in research. However, women have to align these aspirations in terms of collaboration, consensus building, work-life integration, whereas men focus more towards research and career advancement. The networking required for achieving several of these goals is also a hindrance for women. Women are unable to spare after-office hours in networking and relationship building due to family constraints.

Our Indian society hasn't yet grown above the mentality that pushes Indian women to prioritise marriage and family over careers. This at a subconscious level alters the mindset of female doctors making them either leave medicine or take on less challenging or less time consuming roles. Their choice of speciality and nature of job are questioned and judged at various levels whether it will allow them to combine family responsibilities with work. They take a back-step in this field due to the burden of unpaid care-work expected of women in our society. As per a survey, women in India spend 335 minutes a day on unpaid care work while men spend 40 minutes a day.[9] This gendered division of labour influences women's access to and control over resources, shaping their decision making power. On the other hand, women who have proven themselves in the field dominated by men in terms of leadership roles and positions of authority, emphasize the importance of team work, spouse support and flexible schedule.

In a survey of 1607 female dental teachers employed in the 205 dental colleges in India, family commitments were seen as a barrier to career progression by 63.5% and 64.7% believed that for a happy marriage, husband's career trajectory holds superioriority. Similarly, female oncologists report difficulties in networking after office hours because of family commitments, constraining their career progression.[9]

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In a review by Bosco and colleagues, they explored gender issues in anaesthesiology and concluded that women are under-represented in academic positions, in journal authorship, as editorial board members, and as award recipients, and that in some countries women are remunerated at a lesser rate than their male colleagues.[11]

Another kind of bias affecting the gender inequity in anaesthesiology is the "explicit bias" or "motherhood penalty".[8] Anaesthesia, being a demanding branch, requires years of training to achieve excellence. Maternity leaves during residency are not appreciated. There is always a conflict between personal and professional growth. Program directors are prone to thinking that women residents will not be devoting as much time for scholarly activities, training experience and discipline maintainance.

Women, who chose to be in position of authority or leadership have to have a different lifestyle. This may entail delaying marriage, childbirth or dedicating less on personal and family time. These have a different set of consequences like issue of infertility, marital discord, loneliness etc. Imposter syndrome is a newly recognised and accepted term which stands for a sense of low self-esteem and inability to give oneself the due credit. It is supposed to be the result of generations of societal biases, medical culture and often an extension of family ingrained values. Female anaesthesiologists often report being undermined and mistreated in the operating room by their surgery counterparts.[8] This further enhances the feelings of imposter syndrome. Consequent to the above, women anaesthesiologists also report a higher rate of burn-out.

Gender equity has to be dealt with at multiple levels. Government policies, organisational structures along with societies dealing with women empowerment will have to come together to break the shackles and set free the principles of open-mindedness and inclusivity.

The American college of physicians recently released a list of the top 10 things to do to reach gender equity [12]. These include creating awareness about gender equity, sponsorship programs for female residents, allowing flexibility in schedules, promoting paternity leaves, discouraging biases based on gender by policy making and regular checks to assess policy implementation. Encouraging women to take on research and acknowledging their achievements will inspire younger generations too. Equal participation in positions of authority and leadership allows a balanced growth of the whole department. Regular checks to ensure the implementation of these policies are also mandated.

Sixteen defining moments for gender equality were published by UN Women in 2021. [13] These included reserving positions for females in leadership boards, making work-space more congenial for females by creating nurseries, feeding rooms etc, penalising discrepancy in remunerations based on gender and allowing a flexible schedule to meet their personal responsibilities.

Gender equity is the need of the hour in our health care system. We need to make it more inclusive, not only for the sake of equality but also in order to achieve a balance between clinical

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and academic excellence. The ethos of competitiveness and leadership alone cannot take a department forward without compassion and flexibility. Steps have been taken and newer policy decisions are in process to make work place equitable and comfortable for both genders. The United Nations has started programs like "Women in Global Health" and "Women Lift Health" that are being implemented world over including India to uplift the status of women and increase their inclusivity in leadership roles. These programs need to be implemented at various organisational levels and existing policies need to be revised and newer formed which are in line with the goal of achieving gender equity. Last but not the least, the existing social biases need to be confronted and dealt with to achieve a more uniform growth of the society as a whole and to have healthy and inclusive environment for our future generations.

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# Diversity, a fact; Inclusion, an ac(r)t!

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# Short Stature and Learning

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Short stature of patient (<150 cm) has been a cause of concern during anaesthesia practice due to associated multiple anomalies.1, 2 But, can there be any relation of short stature of the anaesthetist with the work efficiency? We enumerate some of the problems faced by these personnels in operating room (OR) and intensive care unit (ICU) and their potential solutions to avoid the inconvenience so as to improve the work efficiency of a short statured anaesthetist.

To begin the day in operating room, a short statured anaesthetist may face initial hurdles with the non availability of proper size OR dress and footwear. This not only results in an uncomfortable person with loose fitting clothes and big slippers but also increases the risk of soiling of clothes and transmitting infection. Similarly gloves of appropriate size (size 6.0) may not be available as they have smaller hands. Wearing bigger gloves may decrease the work efficiency while performing a skilled anaesthetic procedure.3,4 OR staff should have special provision for having smaller size dress, slippers and gloves to avoid the inconvenience caused to the short statured personnel.

While inducing general anaesthesia, it may be difficult for a small handed anaesthetist especially female residents5 to do effective bag and mask ventilation. Small fingers and short span of hand may impair the ability to effectively hold the mask over face. Although, it might not be evident for a paediatric patient but may be more problematic in obese patients with heavy jaw. Using both hands to hold the mask and asking the assistant to do bag ventilation may be helpful in such cases.

Combined spinal epidural (CSE) using needle through needle technique is a technically difficult procedure which requires to fix the long spinal needle through the epidural needle while injecting spinal drug.6 This might be more problematic for a person with smaller hands. However, repeated practice helps in acquiring the skill and mastering the technique of stabilizing the long needle assembly.

Fibreoptic bronchoscopy (FOB) is another procedure which requires special preparation such as a high foot stool with lowest table height to perform successful fibreoptic bronchoscopy without damaging the bronchoscope. This becomes less troublesome with the introduction of newer generation of single use flexible bronchoscopes utilizing the technology of metal oxide semiconductor.

All these procedures of mask holding, FOB and CSE may become a struggle not only for a short statured learning anaesthetist, but also the instructor may face difficulty while teaching these procedures to them.

Once the surgery is started, operating table height is adjusted according to the surgeon's convenience. Intraoperative nasogastric tube insertion or performing oral/endotracheal suction often leads to a struggling anaesthetist or may require lowering the table height.7 This disturbs the surgeon as well as may also affect invasive monitoring requiring transducers such as arterial or central venous pressure monitoring. Foot stool or platforms of variable height

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should be readily available in OR to prevent frequent alteration of table height. This will also help them to have a proper view of surgical field over the screen, so as to judge the surgical progress and to estimate blood loss at the surgical site.

Effective chest compressions being an important part of resuscitation require the shoulders over the victim with arm and forearm extended. One can imagine the difficulty faced by a short statured anaesthetist while performing cardiac compressions on a patient on OR table or the ICU bed. This is even more evident during shock delivery. Approaching and handling the monitors, which are generally mounted high on the walls in ICU and PACU (Post anaesthesia care unit) is another commonly seen inconvenience faced by a short statured anaesthetist.
To summarize, short stature may pose problems while practicing anaesthesia but most of these can be circumvented by antecedent preparation, practicing skills and the cordial work atmosphere. Short stature should not limit the budding anaesthetists from learning and working efficiently.

PS: This article summarizes the commonly faced problems in the OR with the intention to identify them and improve the working conditions, and not to hurt the sentiments of anyone.

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# Superspecialisation in Anaesthesia: A Quality Improvement Initiative?

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**Introduction**

The field of anaesthesiology has seen phenomenal evolution in recent years, fueled by the growing complexity of surgical procedures and the need for specialized perioperative care.1 Superspecialisation in anaesthesia has emerged as a means to improve patient outcomes, enhance safety, and optimize resource utilization. While general anaesthesiologists possess a diverse and multifaceted skill set, superspecialised training enables practitioners to develop expertise in niche areas, enhancing their ability to drive quality improvement initiatives. This article explores the benefits, challenges, and impact of superspecialisation in various field of anaesthesiology, highlighting its role in improving healthcare delivery.

**The Evolution of Superspecialisation in Anaesthesia**

Anaesthesia has evolved into multiple subspecialties due to medical advancements, technological progress, and increasing surgical intricacies. Initially, anaesthesiologists managed all perioperative cases, but as surgeries became more sophisticated, the demand for highly specialized care led to the emergence of formal training programs in distinct subspecialties.2

The shift towards superspecialisation has been largely influenced by a multitude of factors like technological advancements, increased patient challenges and need for improved patient safety and outcomes.3 Modern anaesthesiology has expanded with innovations in monitoring, imaging, and precision techniques, requiring anaesthesiologists to develop expertise in specialized areas to optimize patient care.

The increasing complexity of patient populations—aging demographics, comorbidities, and personalized medicine—has triggered the need for advanced expertise. Superspecialisation ensures that anaesthetic care is tailored to individual needs, improving safety, perioperative management, and long-term recovery.

Research highlights that specialist care leads to better perioperative outcomes, fewer complications, and greater patient satisfaction.4 Specialists have in-depth knowledge of specific procedures and patient groups, enabling early risk identification and management of complication. Patients receiving care from highly skilled subspecialists report greater satisfaction and improved surgical experiences.

By advancing precision care, safety, and patient-centered approaches, superspecialization has become an essential component of modern anaesthesia, transforming perioperative management and enhancing surgical success and quality of life.

**The Need for Superspecialisation**

The increasing complexity of modern surgical and interventional procedures has necessitated superspecialization in anaesthesiology, as anaesthesiologists must navigate complex physiological challenges and develop a deeper understanding of specific patient populations. Advancements in surgical techniques, demand precise anaesthetic management and specialized expertise. Additionally, the diversity of patient demographics, including neonates,

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elderly, and those with multiple comorbidities, requires tailored anaesthetic approaches to optimize outcomes. The integration of state of art technologies, has further transformed anaesthetic care, enhancing precision and safety. Moreover, the growing need for multidisciplinary collaboration in complex cases has reinforced the role of anaesthesiologists in coordinating care with surgeons, intensivists, and pain specialists, ensuring comprehensive perioperative management. These factors have expanded the scope of perioperative care, necessitating dedicated expertise in highly specialized areas.5

**Superspecialised Fields in Anaesthesia and Their Role in Quality Improvement**

**1. Cardiac Anaesthesia**

Superspecialization in cardiac anaesthesiology has significantly improved patient care by integrating advanced techniques, technology-driven decision-making, and tailored management strategies for complex cardiac procedures. The evolving demands of cardiac surgery—ranging from routine coronary artery bypass grafting (CABG) to high-risk heart transplants and mechanical circulatory support—have necessitated the development of highly trained anaesthesiologists with expertise in cardiovascular physiology, advanced monitoring, and perioperative optimization.5 This has led to greater precision, improved surgical outcomes, and reduced perioperative complications, reinforcing the critical role of highly trained cardiac anaesthesiologists in modern cardiac care.

**2. Neuroanaesthesiology**

Neuroanaesthesiologists specialize in managing anesthesia for neurosurgical procedures, ensuring optimal brain and spinal cord protection. Intraoperative neuromonitoring (IONM) has significantly reduced neurological deficits. Advances in pharmacological management and cerebrovascular autoregulation have enhanced neuroprotection and minimized complications. The refinement of awake craniotomy techniques has improved surgical precision and patient safety. Additionally, neuroanaesthesiologists play a crucial role in neurocritical care, managing traumatic brain injury, subarachnoid haemorrhage, and status epilepticus. Superspecialization in neuroanaesthesia6 has enhanced surgical outcomes, improved neurological recovery, and strengthened perioperative management, making it an essential component of modern neurosurgical care.

**3. Obstetric Anaesthesia**

Superspecialization in obstetric anaesthesiology has significantly improved maternal and fetal care7 by advancing pain management, perioperative safety, and anesthesia for high-risk pregnancies. Patient-controlled epidural analgesia (PCEA) allows individualized labor pain relief, while multimodal analgesia and regional nerve blocks enhance post-caesarean recovery with reduced opioid use. Enhanced Recovery After Surgery (ERAS) protocols promote faster recovery and fewer complications. Specialized training enables the safe management of preeclampsia, placenta accreta, and maternal cardiac disease, optimizing cardiovascular stability during delivery. Obstetric anaesthesiologists play a key role in multidisciplinary perinatal teams, improving outcomes in emergency situations ensuring safer and patient-centered maternity care.

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**4. Paediatric Anaesthesia**

Paediatric anaesthesiologists ensure safe, tailored anaesthesia for neonates, infants, and children, enhancing perioperative care, safety, and outcomes.8 Specialized expertise in age-appropriate anaesthetic agents minimizes adverse effects like emergence delirium and neurotoxicity, particularly in neonates. Advanced airway management and regional anaesthesia improve outcomes in congenital heart disease, neonatal surgeries, and airway abnormalities. Multimodal analgesia and non-pharmacological techniques like virtual reality-assisted distraction reduce perioperative anxiety. Collaboration with paediatric surgeons, neonatologists, and intensivists optimizes care for high-risk cases. Superspecialization has improved perioperative risk assessment, survival rates, and recovery protocols, ensuring a child-centered, multidisciplinary approach to anaesthesia, enhancing both safety and patient comfort.

**5. Pain Medicine**

Superspecialization in pain medicine has revolutionized treatment by advancing opioid-sparing strategies, neuromodulation, and regenerative medicine. Techniques like regional anaesthesia, nerve blocks, and multimodal analgesia enhance pain control while minimizing opioid dependence. Innovations such as spinal cord stimulation, intrathecal drug delivery, and radiofrequency ablation provide long-term relief for chronic pain syndromes. Regenerative therapies like PRP and stem cell therapy promote healing in musculoskeletal conditions. Fluoroscopy and ultrasound-guided interventions improve precision and safety. Additionally, multidisciplinary pain management integrates physiotherapy, psychology, and rehabilitation, offering personalised care. Superspecialization has shifted pain care from symptom management to minimally invasive, precision-guided, and regenerative solutions, improving patient outcomes and quality of life.9

**6. Critical Care Medicine**

Superspecialization in critical care medicine has significantly enhanced the management of critically ill patients, improving survival rates, reducing complications, and optimizing recovery.10 Specialized critical care anaesthesiologists play a crucial role in organ support, sedation strategies, and managing life-threatening conditions like sepsis, ARDS, and multi-organ failure. Sepsis protocols, ECMO advancements, and personalized ICU sedation strategies have reduced mortality and ventilator-associated complications. Innovations in hemodynamic monitoring, POCUS, and organ support therapies allow for precise, individualized interventions. Additionally, multidisciplinary collaboration with intensivists, pulmonologists, and nephrologists ensures comprehensive, protocol-driven care. These advancements have transformed critical care medicine, making it safer, more effective, and evidence-based, ultimately improving long-term patient outcomes.

**7. Regional Anaesthesia**

Superspecialization in regional anaesthesiology has revolutionized perioperative pain management by enhancing precision, safety, and recovery outcomes.1,2 The widespread use of ultrasound-guided regional anesthesia (UGRA) has improved the accuracy of nerve blocks

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and neuraxial techniques, reducing complications such as vascular punctures and nerve injuries. Multimodal analgesia protocols, integrating regional techniques with non-opioid analgesics, have minimized opioid use, benefiting procedures like joint replacements, abdominal surgeries, and C-sections. Regional anaesthesiologists have also driven ERAS implementation, promoting preemptive analgesia, early mobilization, and shorter hospital stays. Additionally, advanced techniques like continuous nerve catheters have expanded regional anesthesia into chronic pain management and trauma care, ensuring superior pain relief, fewer complications, and faster recovery.

**8. Oncoanaesthesia**

Superspecialization in oncoanaesthesia has enhanced perioperative care for cancer patients by addressing tumor-related physiological changes, immunosuppression, and treatment effects. Oncoanaesthesiologists use tailored anaesthetic techniques to improve surgical precision, reduce complications, and optimize outcomes.2 They collaborate with surgical, critical care, and pain teams, integrating ERAS protocols for faster recovery and better quality of life. Research on anaesthesia's role in tumor biology and recurrence underscores its growing importance, transforming cancer care through advanced techniques, personalized pain management, and interdisciplinary collaboration.

**Impact on Quality Improvement**

Superspecialization in anaesthesiology serves as a key quality improvement initiative, aligning with core healthcare principles such as safety, effectiveness, efficiency, and patient-centered care.1,2,3 By developing expertise in niche areas, superspecialists enhance patient safety and outcomes, effectively managing complex conditions while reducing perioperative morbidity and mortality. Their role in standardizing care pathways and protocols ensures consistent, evidence-based decision-making, particularly in high-risk settings. Additionally, superspecialists contribute to multidisciplinary collaboration, working closely with surgeons, intensivists, and other specialists to optimize perioperative planning and management. Their involvement in training and education ensures that future anaesthesiologists are proficient in novel and innovative techniques and best practices. Superspecialists foster research and innovation, contributing to advancements in precision medicine, goal-directed therapy, and diverse anesthesia techniques. From a healthcare economics perspective, their expertise contributes to cost efficiency by reducing complications, ICU admissions, and hospital stays, while optimizing the use of advanced monitoring and pharmacological interventions. Ultimately, superspecialization enhances the quality, safety, and sustainability of anaesthetic care, ensuring improved patient outcomes and more efficient healthcare delivery.2

**Challenges of Superspecialisation**

Despite its numerous benefits, superspecialization in anaesthesiology comes with several challenges. The extended training duration required for these programs can delay the entry of specialists into the workforce, impacting overall availability. 1,2 Additionally, workforce distribution remains uneven, with specialized anaesthesiologists often concentrated in tertiary care centres, leaving smaller hospitals and rural areas underserved. The implementation of

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advanced technologies and specialized training programs also demands significant financial investment. Furthermore, a highly focused subspecialty practice may lead to a decline in general anesthesia proficiency, potentially limiting a specialist's ability to manage a broad range of cases. Addressing these challenges is essential to ensuring a balanced and effective anaesthetic workforce.

**Future Directions and Recommendations**

To maximize the benefits of superspecialization in anaesthesiology, several strategic measures can be implemented. Expanding access to structured training programs worldwide will help standardize training and ensure consistent expertise across regions.2,3 Encouraging multidisciplinary collaboration by fostering teamwork between anaesthesiologists, surgeons, intensivists, and pain specialists can enhance comprehensive patient care. Additionally, investing in advanced technologies such as AI, robotics, and real-time monitoring tools can significantly improve efficiency, precision, and patient outcomes. To mitigate workforce imbalances, outreach initiatives can provide general anaesthesiologists with essential superspecialization training, empowering them to handle specialized cases in smaller healthcare facilities and underserved regions. These initiatives collectively strengthen the impact of superspecialized anaesthetic care while ensuring broader accessibility and improved healthcare outcomes.

**Conclusion**

Superspecialisation in anaesthesia represents a significant quality improvement initiative, ensuring that high-risk patient populations receive expert care tailored to their needs. Superspecialised anaesthesiologists contribute to enhanced patient safety, reduced complications, and improved clinical outcomes. While challenges exist, the continuous evolution of anaesthesia subspecialties promises to revolutionize perioperative care, ultimately advancing the quality of healthcare delivery worldwide.

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# The Impact of Ethnic Diversity on Anaesthetic Pharmacology: A Comprehensive Review

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## Introduction

The modern-day provision of surgical care would not be possible without anaesthetic pharmacology, which remains a fundamental aspect of medicine aimed at achieving both patient safety and comfort during surgical procedures. The efficacy and safety of anaesthetic agents are influenced by various factors, including genetic variations among individuals and populations. Ethnic diversity, in particular, has emerged as a significant consideration in anaesthetic pharmacology. This review addresses the impact of ethnic diversity on anaesthetic drug responses, highlighting the importance of understanding these differences for best and optimal patient care.

## Genetic Variation and Anaesthetic Pharmacology

Variability in drug response to anaesthetic agents may be due to significant differences in the response of genetic polymorphisms in drug metabolizing enzymes, transporters, and receptors. Cytochrome P450 (CYP) enzymes are a superfamily of heme-containing proteins that play a crucial role in drug metabolism and other physiological processes. There is a significant genetic variation of this enzyme among different ethnic groups (Table 1).

The polymorphic expression of CYP2D6 is of particular importance since it metabolizes around 25% of prescribed drugs such as opioids (codeine, tramadol). These genetic variations can lead to differences in drug efficacy and toxicity. For instance, poor metabolizers would experience less analgesia while ultrarapid metabolizers can be at a higher risk of opioid related adverse effects.

Similarly, polymorphisms in the CYP3A4/5 genes affect the metabolism of fentanyl and other anaesthetics. A knowledge of such genetic variations is essential for determining the optimal anaesthetic drug choice and dosing in individual patients, potentially improving anaesthesia safety and efficacy.

| Enzyme | Function | Genetic Variations | Ethnic Variations | Specific Alleles | Effect on Anesthetics |
|---|---|---|---|---|---|
| **CYP2D6** | Metabolizes ~25% of prescribed drugs, including anesthetics | PM: Two non-functional alleles<br>IM: One non-functional allele<br>EM: Two functional alleles<br>UM: Multiple functional alleles | Caucasians: 7-10% PM, 2% UM<br>Asians/African-Americans: 2% PM<br>Middle Eastern/North African: Up to 30% UM<br>Ethiopian: 30% UM | *1: Wild-type, normal activity<br>*2: Normal activity<br>*4: No function (PM)<br>*10: Decreased function (IM)<br>*17: Decreased function (IM)<br>*41: Decreased function (IM) | PMs experience less pain relief from codeine and tramadol. Effect on oxycodone and hydrocodone is less clear. |

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| | | | | | |
|---|---|---|---|---|---|
| **CYP2C19** | Metabolizes various anesthetic agents | *2 and *3: Loss-of-function (PM)<br>*17: Gain-of-function (UM) | European: 3-5% *2 and *3<br>Asian: 15-20% *2 and *3<br>Arab: 5.45% *2 and *3 | | PMs may experience delayed emergence from propofol anesthesia.<br>Affects diazepam pharmacokinetics and emergence from general anesthesia. |
| **CYP2C9** | Metabolizes various drugs, including some anesthetics | *2 and *3: Reduced enzyme activity | Caucasians: 3.3-16.2% *3<br>African-Americans: ~2% *3<br>Asians: 1.1-3.6% *3 | | May affect metabolism of NSAIDs used in anesthesia.<br>Polymorphisms can increase adverse side effects of NSAIDs, especially those with longer half-lives. |
| **CYP3A4/5** | Metabolizes 45-60% of prescribed drugs, including fentanyl and other anesthetics | CYP3A4*1G: Decreased function<br>*CYP3A5*3: Decreased function<br>CYP3A5*6: Decreased function | CYP3A4*1G frequency: 0.188 in Chinese population | CYP3A4*1G*<br>*CYP3A5*3<br>CYP3A5*6 | CYP3A4*1G: Decreased fentanyl metabolism.*<br>*CYP3A5*3/*3, *3/*6, *6/*6: 24% reduction in fentanyl clearance compared to *1/* |

- **CYP:** Stands for Cytochrome P450, the name of the enzyme family.
- **2D6, 2C19, 2C9:** These are specific enzyme subtypes within the CYP family.
- *(Asterisk): This is the key. It indicates a specific variant or version of the gene that codes for that enzyme.
- Number following the asterisk (e.g., 4, 2, 17)**:** This number identifies a particular allele. Each number represents a specific combination of genetic variations (SNPs, insertions, deletions, etc.) within the gene sequence

Table1: Summarizing the genetic variations and ethnic differences for CYP2D6, CYP2C19, and CYP2C9

**Ethnic Differences in Anaesthetic Pharmacokinetics and Pharmacodynamics**

Ethnic differences in anaesthetic pharmacokinetics and pharmacodynamics have been observed in various studies. These differences may influence drug absorption, distribution, metabolism, elimination, receptor sensitivity, and overall drug response.

**Pharmacokinetic Differences:**

Anaesthetic drug pharmacokinetics may vary due to differences in body composition, organ function, and enzyme activity in ethnic groups. For example, anaesthetic agents that are more lipophilic than the opioids, like propofol, are more readily absorbed by fatty tissues, leading to prolonged effects in individuals with higher body fat.

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**Absorption and Distribution:** Genetic variation between ethnic groups can change the enzyme activity, which changes the rate of metabolizing drugs. For instance, some populations might metabolize drugs more quickly or slowly so that dosing needs to be adjusted. Moreover, fat and muscle mass in different body compositions can also affect the distribution volume of lipophilic and hydrophilic drugs. An example is codeine, where genetic variations in CYP2D6 enzyme activity cause some populations to metabolize it faster, leading to increased effects, while others metabolize it slowly, resulting in less pain relief. Additionally, body composition (fat vs. muscle mass) can alter the distribution and effectiveness of codeine.

**Metabolism:** Ethnic differences in liver enzyme activity, particularly those involving cytochrome P450 enzymes, can lead to variations in drug metabolism. For example, some ethnic groups may have genetic polymorphisms that cause slower metabolism of specific anesthetic agents with a resultant increased risk for prolonged sedation or toxicity. A study comparing recovery from anesthesia with propofol and fentanyl in Kenyan African blacks, Caucasians, and Brazilians revealed slower recovery in the Kenyan African blacks than in Caucasians, possibly due to ethnic differences in drug metabolism.

**Pharmacodynamic Differences:**

While a number of anaesthetic agents are known to have ethnic variations in receptor sensitivity and drug response, little is known about ethnic differences in the response to EC50 for immobility by volatile agents. A study by Ezri et al found that the minimum alveolar concentration (MAC) needed to prevent movement in response to surgical incision of desflurane was significantly less in Chinese women when compared to their Jewish counterparts. This suggests the possibility of ethnic differences in anaesthetic sensitivity.

**Receptor Sensitivity:** Different ethnic groups may have different density and function of receptors to anesthetic agents. For example, opioid receptor sensitivity may differ and this may impact analgesic requirements and pain management strategies.

**Cardiovascular Responses:** Ethnic differences in cardiovascular physiology may impact responses to anesthetic agents. For instance, certain populations may have a higher prevalence of hypertension or other cardiovascular conditions, which can alter the cardiovascular effects of anesthetics.

**Analgesic Response:** Ethnic differences have been seen in pain sensitivity and in efficacy of analgesics. Research indicates that Asians have different pain thresholds than Caucasians, which can influence postoperative pain management strategies. A study examining the analgesic efficacy of liposomal bupivacaine found that Asians had lower pain scores and opioid consumption compared to Caucasians, suggesting ethnic variations in analgesic response. This can be explained by the presence of genetic variations that influence drug metabolism, receptor sensitivity, and pain modulation (NMDA receptors and TRPV1 receptors). Genes such as OPRM1, CYP450 enzymes, and other pain related receptors may also be a genetic cause for the ethnic differences in analgesic response. Further studies would be needed to ascertain the exact mechanisms and confirm the findings.

**Clinical Implications of Ethnic Diversity in Anaesthetic Pharmacology**

The clinical implications for the selection, dosing and monitoring of drugs in anaesthetic pharmacology are important for understanding ethnic diversity. These factors must therefore be taken into account by anaesthesiologists to avoid adverse outcome and optimize patient care.

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For instance, CYP2D6 polymorphisms may be known to dictate opioid selection as well as dosing, minimizing the risk of inadequate analgesia or overdose. Similarly, awareness of ethnic differences in MAC values for volatile anaesthetics can help in tailoring anaesthetic depth to individual patients.

Moreover, ethnic differences in drug response can be used to guide development of more individualized anaesthetic protocols. This approach aligns with the growing emphasis on precision medicine in anaesthesiology.

**Anesthesia Management:** Anesthesiologists should be aware of these ethnic differences to tailor anesthetic plans appropriately. It includes taking those factors into account like genetic, body composition, and cultural that can impact patient's response to a drug and its metabolism. For example, understanding that Kenyan African blacks may have slower recovery times from propofol and fentanyl can inform dosing and monitoring strategies.

**Addressing Disparities:** Awareness of these differences is crucial in addressing healthcare disparities. For example, racial and ethnic minorities may be subject to receiving less comprehensive treatment options for acute and chronic pain when compared to other groups, according to a number of studies. These disparities can be recognized and allayed towards more equitable, effective anesthesia care.

**Future Directions and Research**

Despite substantial advances in understanding the effect of ethnic diversity on anaesthetic pharmacology, there is a lot more to be investigated. Future studies should focus on:

- **Expanding Pharmacogenomic Investigations:** Expand the spectrum of both ethnic groups and anesthetic agents to investigate pharmacogenomic effects on drug metabolism and anesthetic response. The scope of this approach is broader and may result in more personalized and effective anesthesia practices.
- **Developing Ethnicity-Specific Dosing Guidelines:** Designing and validating ethnic-specific dosing protocols based on ethnically specific efficacy and safety of the drug due to genetic and environmental factors. Such guidelines may optimize anesthetic outcomes and minimize adverse effects.
- **Investigating Gene-Environment Interactions:** Examine how genetic predispositions interact with environmental factors, such as diet, lifestyle, and exposure to substances, to influence anesthetic drug responses. Such interaction can be utilized to formulate comprehensive patient management strategies.
- **International collaboration and data sharing:** More detailed evaluations of the complex interplay between ethnicity and anaesthetic pharmacology can be obtained in large scale, multi ethnic studies. Knowledge in this field will be advanced by international collaboration and data sharing across the world.

**Conclusion**

Anaesthetic pharmacology is significantly influenced by ethnic diversity and drug metabolism, efficacy and safety. Understanding these differences is essential for providing optimal, personalized anaesthetic care. Ethnic factors should be taken into account when

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anaesthesiologists make their clinical decisions, while researchers should prioritize further investigation into this important area. By recognizing and accounting for the complexities of ethnic diversity in anaesthetic pharmacology, we can work towards more equitable, safe, and effective anaesthetic practices for all patients.

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# QUICK RESEARCH (QR) SCAN

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We are back with a quick digest analysis of topical articles, resonating with the monthly theme of Diversity and Inclusion in anaesthesia practice:-

**A. Association between anaesthesia-surgery team sex diversity and major morbidity.**
Hallet J, Sutradhar R, Flexman A, McIsaac DI, Carrier FM, Turgeon AF, McCartney C, Chan WC, Coburn N, Eskander A, Jerath A, Perez d'Empaire P, Lorello G.
***Br J Surg.*** 2024;111(5):znae097. doi: 10.1093/bjs/znae097.

**Study Setting and Objectives:** Perioperative team diversity is the talk of the town. The study, therefore, evaluated the association of the anaesthesia–surgery team sex diversity with the postoperative outcomes, involving adults undergoing major inpatient procedures from 2009 to 2019. The exposure herein was the hospital percentage of the female anaesthetists and surgeons in a year, with the outcome being 90-day major morbidity. With restricted cubic splines utilized for characterizing clinically-meaningful dichotomization of team sex diversity (35% female anaesthetists and surgeons signified higher diversity), the outcome-association was assessed employing multivariable logistic regression.
**Results and Main Findings:** Out of 7,09,899 index procedures performed at a total of 88 hospitals, 90-day major morbidity featured in 14.4%, where the median proportion of female anaesthetists and surgeons was 28 (interquartile range 25–31%) /hospital/year. *Of note, patient-care in hospitals with a higher prevailing sex diversity was associated with decreased odds of 90-day major morbidity (OR 0.97, 95%CI 0.95 to 0.99; p=0.02) following adjustment. Furthermore, the magnitude of association was greater for patients managed by female anaesthetists and female surgeons.*
**Interpretation and Contextual Significance:** The data goes on to suggest that there is a *diversity bonus in outcomes with more sex-diverse anaesthesia–surgery teams.*

**B. Gender and Race/Ethnicity dynamics in anesthesiology mentorship: results of a European survey.**
Gisselbaek M, Marsh B, Soriano L, Jackman S, Seidel L, Albert A, Matot I, Coppens S, Narouze S, Barreto Chang OL, Saxena S.
***BMC Anesthesiol.*** 2024;24(1):311. doi: 10.1186/s12871-024-02692-6.

**Study Setting and Objectives:** The study evaluated responses relating to preferences, facilitators, and barriers to mentorship relationships along with sociodemographic information. A open cross-sectional web-based survey was distributed by the European Society of Anesthesiology and Intensive Care and European Society of Regional Anesthesia to European anesthesiologists. Participation was anonymous with the consent being obtained. The study aimed to explore the dynamics of the anesthesia *mentor-mentee relationship.*
**Results and Main Findings:** In total, 543 anesthesiologists responded to the survey, and 406 (111 mentees, 49 mentors, 193 both, 53 neither) responded to questions regarding mentorship. 184

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anesthesiologists identified as woman and 22 as other genders (non-binary, transgender, gender-fluid, and self-described gender). Moreover, 250 anesthesiologists identified as white. Both mentors and mentees indicated that personal compatibility was the most important factor for successful mentorship. Barriers to mentorship included time consumption and perceived lack of interest from the mentor and mentee. Participants reported a preference for mentorship programs organized at the departmental level, offered at the start of the anesthesiology education curricula. Women were more likely to feel a 'lack of interest' in mentoring them as a barrier (OR=2.49, P=0.033). Gender was a barrier for mentors of other genders (OR=23.9, P=0.0027) and ethnicity (OR=48.0, P=0.0023). White mentees found gender (OR=0.14, P=0.021) and ethnicity (OR=0.11, P=0.048) to be less important barriers to successful mentorship relationship.

**Interpretation and Contextual Significance:** There is a paucity of evidence regarding their preferences for structured mentorship programs versus voluntary arrangements. When possible, programs should prioritize matching mentors and mentees based on personal compatibility and experience in the mentee's area of interest. *Addressing the perceived lack of interest in mentoring is essential for promoting diversity, equality, and inclusion within anesthesiology, as well as uplifting women and minorities.*

**C. Age, sex, race and ethnicity representativeness of randomised controlled trials in peri-operative medicine.**

Lindsay WA, Murphy MM, Almghairbi DS, Moppett IK.
***Anaesthesia.*** 2020;75(6):809-815. doi: 10.1111/anae.14967.

**Study Setting and Objectives:** The purposive sampling strategy in this analysis resulted in the identification of randomised controlled trials (RCTs) likely to have impacted clinical practice, and therefore of importance that their study populations were representative of. 224 RCTs were included, only if they investigated specific surgical populations for which registry data were available, allowing reliable comparisons to be made between the study and registry populations.

**Results and Main Findings:** These data were compared with national registry data for the relevant surgical populations. 224 peri-operative trials that were cited in 469 retrieved meta-analyses. Of these, 50 (22.3%) had an upper age limit to recruitment. The median (range [IQR]) difference in study population age from the registry population age was: -2.4 (6.2 to 1.0 [34.7 to 14.5]) years for all RCTs; 6.2 (9.4 to 2.8 [18.6 to 4.6]) years for RCTs of patients undergoing hip arthroplasty; and 3.4 (9.6 to 1.1 [34.7 to 2.9]) years for RCTs of patients undergoing hip fracture surgery. In 92 (41.1%) RCTs, the proportion of each sex in the study population was more than 25% different from the proportion in the registry population. Only 5 (2.2%) trials published data on the race or ethnicity of participants. *It was concluded that peri-operative RCTs are unlikely to be representative of the age and sex of clinically treated surgical populations.*

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**Interpretation and Contextual Significance:** This likely represents a deliberate effort by researchers to increase recruitment of older people. Despite this, the mean/median age of the population in >75% of these RCTs remains below the registry population mean age, highlighting the difficulty in achieving age representative recruitment. *Researchers must endeavour to ensure representative study populations are recruited to future clinical trials.*

**D. Differences in Acute Postoperative Opioid Use by English Proficiency, Race, and Ethnicity After Total Knee and Hip Arthroplasty.**

Joo H, Nguyen K, Kolodzie K, Chen LL, Kim MO, Manuel S.

***Anesth Analg.*** 2025;140(1):155-164. doi: 10.1213/ANE.0000000000007068.

**Study Setting and Objectives:** Studies exist to outline differential prescription patterns of opioids for racial-ethnic minority group and those with limited English proficiency (LEP), following arthroplasty. That said, knowledge gap prevails as to how the intersection of these sociodemographic factors relates to the immediate postoperative pain management. The retrospective cohort study included adult patients undergoing hip and knee arthroplasty from 2015–2019. The primary predictor included the LEP status and the racial-ethnic category, with the primary outcome being oral morphine equivalents (OMEs) during 2 postoperative periods: first 12h after surgery and from the end of surgery to postoperative day (POD) 1. An adjusted generalized estimating equation was employed to assess the effect of the intersection of LEP and racial-ethnic categories on the short-term postoperative opioid use expressed in mean ratios (MRs).

**Results and Main Findings:** Of a total of 4090 observations, 7.9% patients had LEP. Patients did report diverse racial-ethnic categories, with 72.7% non-Hispanic White, and minority-groups including non-Hispanic Asian and Pacific Islander (AAPI), Hispanic/Latinx, non-Hispanic Black/African American, and Others. Patients self-identifying as non-Hispanic AAPI happened to receive fewer OME, regardless of LEP status during the first 12h postoperatively (MR for English proficient [EP], 0.12 [95%CI, 0.08–0.18]; MR for LEP, 0.22 [95%CI, 0.13–0.37]) and from end of surgery to POD 1 (MR for EP, 0.24 [95% CI, 0.16–0.37]; MR for LEP, 0.42, [95% CI, 0.24–0.73]) than EP non-Hispanic White. Hispanic/Latinx patients with LEP received reduced amounts of OME during the first postoperative 12h (MR, 0.29; 95%CI, 0.17–0.53) and from end of surgery to POD 1 (MR, 0.42; 95% CI 0.23–0.79) than EP non-Hispanic White. Moreover, within the non-Hispanic White group, those with LEP received lower OME within the first 12h.

**Interpretation and Contextual Significance:** *The observed differences in the pattern of opioid utilization point towards the prevailing racial, ethnic alongside language disparities, as far as acute pain management and perioperative care, is concerned.*

# PHOTO QUIZ

**Dr. Nitin Choudhary[1] and Dr. Sakshi Duggal[2]**
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| | | |
|---|---|---|
| **Q.1** |  | **A) Identify this historical personality in anaesthesia?**<br>**B) What were her contributions in the field of anaesthesia?** |
| **Q.2** |  | **A) What is the significance of RADAR in anaesthesia?**<br>**B) Who is the source institution for launching RADAR?** |
| **Q.3** |  | **A) What is this signage and what is its purpose?**<br>**B) Who is the inventor of this signage?** |
| **Q.4** |  | **A) Identify this logo? What is the significance of this logo?**<br>**B) What is She-BOX, with context to the above logo?** |
| **Q.5** |  | **A) Identify this historical figure in the field of medicine?**<br>**B) How is he a personification of equity and inclusion in anaesthesia?** |

**Send entries to isadelhisecretariat@gmail.com before 20 April 2025**

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# CROSSWORD PUZZLE

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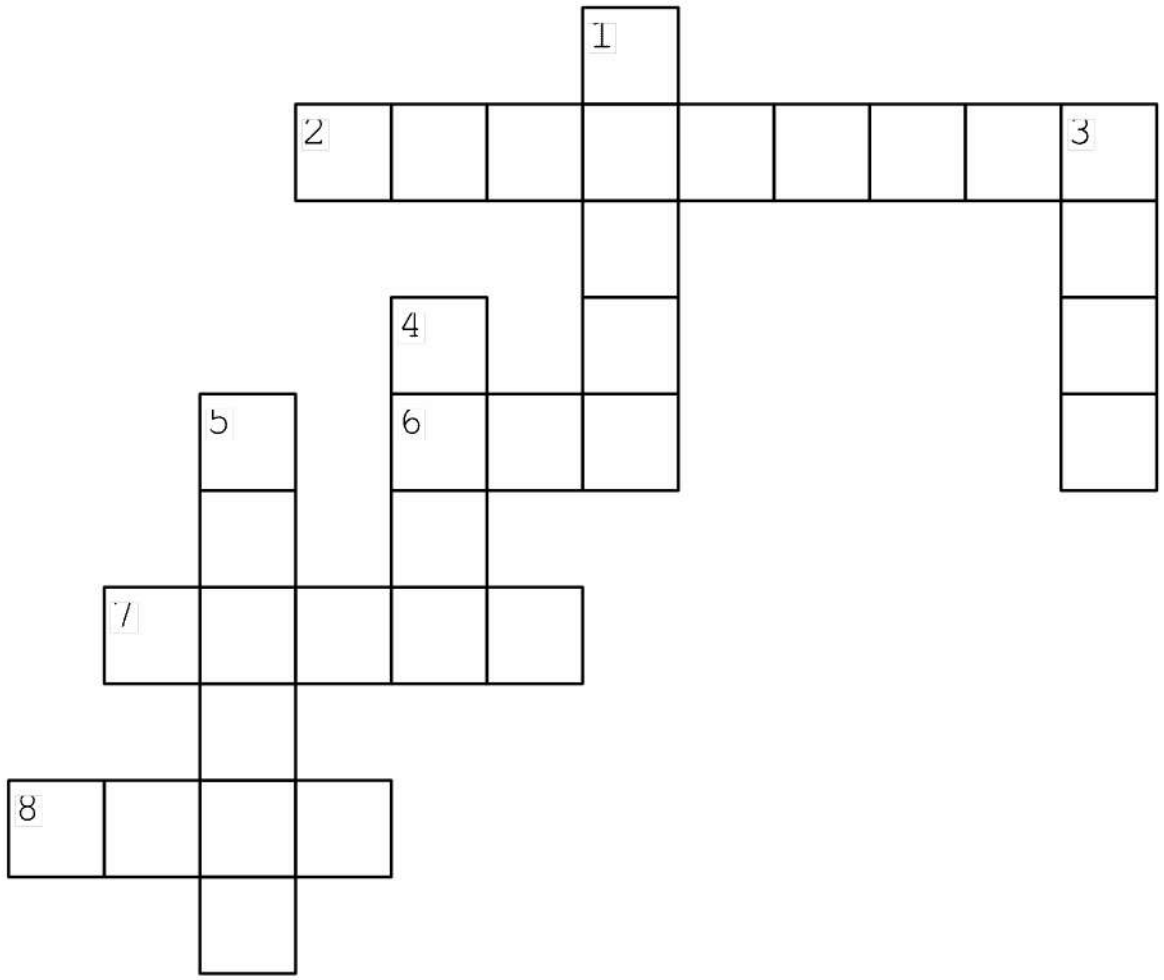


**Across**

2. This House of acts as the leadership group that holds the keys to decision making for the ASA as a whole
6. The ASA Committee on Professional Diversity has partnered with this association to hold the Doctors Back to School Program
7. This neuroanaesthesia society published a diversity initiative for their organization in 2017.
8. This actually of 1998 redesignated the authority for the Advisory Council as section 762 of The Public Health Service Act

**Down**

1. She established the Women in Anaesthesiology organization to promote the professional development of women physician anesthesiologists
3. a national organization formed in 1964 with local chapters at both allopathic and osteopathic medical schools
4. They define underrepresentation in medicine as "those racial and ethnic populations that are underrepresented in the medical profession relative to their number in the general population"
5. This program celebrates successful women in neuroanesthesia and aims to provide support, mentorship, and sponsorship for early-career and midcareer women in anesthesiology

**Send entries to isadelhisecretariat@gmail.com before 20 April 2025**

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**19th-20th April 2025**

*Venue*

**Auditorium, Maulana Azad Medical College New Delhi**

# ISA DELHI CME cum clinical meeting Calendar for 2024-2025

| S.No | Month | Institution / Venue |
|---|---|---|
| 1. | December, 2024 | Aakash Healthcare, Dwarka |
| 2. | January, 2025 | AIIMS, Delhi |
| 3. | February, 2025 | ABVIMS & RML Hospital |
| 4. | March, 2025 | VMMC & Safdarjung Hospital |
| 5. | April, 2025 | LHMC |
| 6. | May, 2025 | ESI group of hospitals |
| 7. | June, 2025 | Sir Ganga Ram Hospital |
| 8. | July, 2025 | R& R Hospital |
| 9. | August, 2025 | UCMS and GTB Hospital |
| 10. | September, 2025 | Hindu Rao Hospital |

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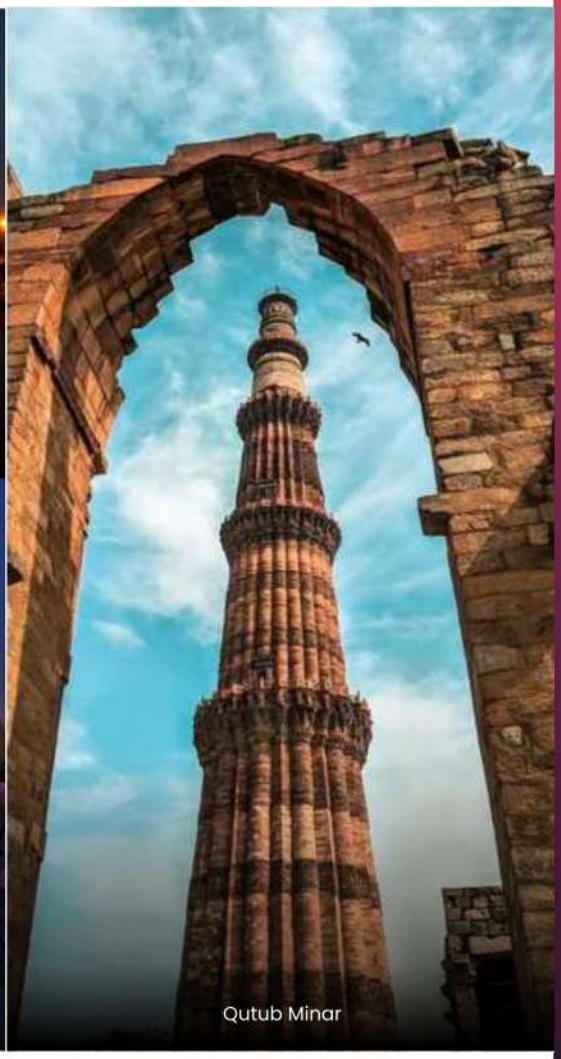
Lotus Temple


Red Fort


India Gate


Qutub Minar

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