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July, 2026.

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Dear Members,

It is a matter of great satisfaction and pride to revive the quarterly Newsletter of the Indian Society of Anaesthesiologists, Andhra Pradesh State Chapter.

The rapid advances in the field of Anaesthesiology and the ever changing spectrum of clinical practice throws up new challenges, making it imperative for us to remain connected and share our expertise and experiences. This Newsletter will be an ideal platform for all of us to share not only clinical knowledge but also the activities of the ISA at all levels, particularly those of the City branches.

It will also feature articles and guidance aimed at helping the young Anaesthesiologists to blossom into successful practitioners. I request all members, senior and junior alike to contribute actively towards achieving this objective.

I commend the editorial team, headed by Dr. Nori Venugopal, for taking up this challenging yet noble task. I also express my gratitude to the past National Presidents from our State Dr. Tagore KRN, Dr. Chakra Rao SSC, Dr. Kameswara Rao AS, Dr. Kuchela Babu V, Dr. Bhimeswar MV and to the past and present office bearers of ISA AP State and ISA National, for their support and encouragement.

I sincerely wish this endeavor great success.

Long Live ISA

**Dr. Durga Prasada Rao Posani,
President, ISA, AP State**



July, 2026.

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Message from the Editor

Dear Colleagues,

It is my pleasure to present this edition of the **Anaesthesia Andhra Pradesh Newsletter**. Our specialty continues to evolve rapidly, driven by innovation, research, and an unwavering commitment to patient safety. This newsletter reflects the dedication, knowledge, and achievements of our members across the state.

In this issue, you will find updates on academic activities, clinical advancements, conference highlights, society initiatives, and inspiring contributions from colleagues. We hope these articles encourage learning, stimulate discussion, and strengthen professional collaboration.

As anaesthesiologists, we play a pivotal role in perioperative care, critical care, pain management, and emergency medicine. Let us continue to uphold the highest standards of clinical excellence, ethical practice, and compassionate patient care while embracing lifelong learning.

I extend my sincere gratitude to all authors, reviewers, contributors, and the editorial team whose efforts have made this publication possible. I also encourage every member to actively participate by sharing original articles, clinical experiences, innovations, and achievements in future editions.

Together, let us continue to advance the science and art of anaesthesiology while fostering a vibrant and supportive professional community across Andhra Pradesh.

Wishing you enjoyable reading and continued success in your professional journey.

With warm regards,

Editor

Dr. Nori Venkata Venu Gopal

Past President ISA, Andhra Pradesh



ISA AP E – NEWS LETTER



July, 2026.

Volume-1

My best wishes on inauguration of ISA AP E newsletter.

Dr Madan Mohan Reddy

Hon.Secretary,ISAAP

My best wishes on inauguration of ISA AP E newsletter.

Dr. Malleswara Rao

Vice-President, ISAAP

HEARTY congratulations and best wishes on the occasion of ISA AP e newsletter

Dr. Srinivas Yadav

Treasurer ISA AP.

Happy to see our ISA AP e newsletter again ,congratulations editorial board.

Dr. Suriseti Srinivas

Past President ISA AP.

My best wishes

Dr. Atchutramayya.

President Elect, ISA AP,

My best wishes

Dr. Taraka Prasad

Past president ISA AP

Hearty Congratulations to Editorial Board

Dr. Prashanti Alla

Past president ISA AP

Hearty Congratulations to Editorial Board

Dr. Reddy Prasad

Past President ISA AP



ISA AP E – NEWS LETTER



July, 2026.

Volume-1

My best wishes to editorial board for restarting ISA AP E newsletter after a gap of 2 years. my greetings and wish you all success

Dr M V Bheemeshwar

Past president ISA National

Happy to hear that ISA AP starting e newsletter, congratulations and my best wishes.

Dr Kuchela babu

Past president ISA National.

Board member WFSA .

Best wishes to the editorial board for coming up with ISA AP E newsletter,

Dr SSC Chakra Rao.

Chairman IRCF, past president ISA national.

Congratulations for ISA AP for restarting E newsletter.

Dr A S Kameswa Rao

Past president ISA .



ISA AP E – NEWS LETTER



July, 2026.

Volume-1

Dear esteemed members of ISA AP

Greetings from ISA National Headquarters !

It is with great pride and enthusiasm that I extend my heartfelt greetings on the launch of the ISA Andhra Pradesh

It gives me immense pleasure to extend my warmest wishes to the editorial team on the publication.

In the rapidly evolving field of anesthesiology, perioperative care, and pain management, staying updated with the latest clinical evidence and practices is vital. This newsletter serves as a commendable initiative to bridge knowledge, share clinical insights, and promote excellence in patient safety.

I congratulate the editorial board, contributors, and the entire department for their dedication and hard work in bringing this edition to fruition.

Wishing the newsletter great success in all its future editions!

Warm regards,

Dr. Naveen Malhotra
President, ISA National



July, 2026.

Volume-1

Dear esteemed members of ISA AP

Greetings from ISA National Headquarters !

It is with great pride and enthusiasm that I extend my heartfelt greetings on the launch of the ISA Andhra Pradesh

E-Newsletter.

This landmark initiative represents a powerful step forward in advancing academic exchange, strengthening professional communication, and fostering deeper collaboration among members of the Indian Society of Anaesthesiologists. I am confident that this E-Newsletter will emerge as a vibrant and influential platform—showcasing knowledge, celebrating achievements, highlighting innovations, and keeping our community connected and inspired across the state.

I extend my sincere congratulations to the entire ISA Andhra Pradesh team, especially the editorial board, whose vision, dedication, and tireless efforts have brought this commendable initiative to life.

I wish the ISA Andhra Pradesh E-Newsletter resounding success and a lasting legacy of meaningful contribution to our fraternity. May it continue to grow into a dynamic and impactful forum that drives excellence, nurtures innovation, and strengthens the bonds within our professional community for years to come.

Long live ISA, Long live ISA AP

With warm regards and best wishes,

Dr. Rajiv Gupta

Honorary Secretary ISA National

FELICITATION MESSAGE



It gives me immense pleasure to learn that the Indian Society of Anaesthesiologists, Andhra Pradesh State Branch is restarting its official newsletter. I extend my heartfelt congratulations to the State President, Secretary, Editor, Editorial Board and all the members who have taken the initiative to revive this important academic platform.

A newsletter is much more than a compilation of events. It serves as a vibrant medium for sharing scientific knowledge, highlighting innovations in anaesthesiology, showcasing research, documenting state branch activities, and fostering meaningful academic interaction among members. It also provides an excellent opportunity for young anaesthesiologists to contribute their ideas, experiences and scholarly work.

I am confident that this newsletter will become a valuable source of scientific updates, thought-provoking articles, clinical insights, and professional news, thereby strengthen the academic culture of our society and promote continuous learning.

As President Elect, ISA National, I convey my best wishes to the editorial team for the successful publication of the newsletter. May this initiative grow from strength to strength and inspire excellence in academics, research, education, and patient care.

With my sincere compliments and best wishes for a successful and enduring journey

(Dr.AL.Meenakshi Sundaram)



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From
Dr. C. Radha Kishan Rao
Vice President
ISA National, Hyderabad

Message

I am happy to send my best wishes to the editor of news letter ISA Andhra Pradesh State Branch.

It unfolds another scientific program. It will help all Anaesthesiologists of Andhra Pradesh State Branch.

I congratulate Prof. Dr. N Venugopal, Editor Anaesthesiology news letter for taking big task to spread scientific knowledge.

Dr. C. Radha Kishan Rao
Vice President ISA National, Hyderabad



July, 2026.

Volume-1

Editor-in-Chief
Indian Journal of Anaesthesia



Dear Editor and Members of ISA Andhra Pradesh State branch,

Warm Greetings!

Please accept my heartfelt congratulations on the launch of the **ISA Andhra Pradesh e-newsletter**. This initiative will serve as an important platform for academic discussion as well as strengthen professional connections across the state. I commend the editorial team for their vision and effort in creating this newsletter that will support continuing education, highlight regional achievements, and encourage scholarly contributions from both trainees and seasoned practitioners.

I wish the inaugural issue and all future editions great success and wide readership. May the newsletter continue to inspire excellence in anaesthesiology, promote collaboration, and advance patient care in Andhra Pradesh.

Thank you.
Long Live ISA!
Dr Madhuri Kurdi
Editor-in-Chief
Indian Journal of Anaesthesia



July, 2026.

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Dear Colleagues,

I extend my heartfelt congratulations on the launch of the inaugural issue of the ISA AP E-Newsletter. Congratulations to the entire ISA AP team on this wonderful initiative.

This newsletter marks the beginning of a valuable platform for sharing knowledge, achievements, academic updates, innovations, and the remarkable activities of our society. Effective communication is the cornerstone of a vibrant professional organization, and this initiative will undoubtedly strengthen the bond among members while promoting learning and collaboration.

I commend the editorial team and all those who have worked diligently to bring this vision to fruition. May this newsletter continue to inspire, inform, and connect anesthesiologists across the state, reflecting the excellence and spirit of ISA AP.

Wishing the E-Newsletter great success and a bright future.

With warm regards and best wishes,

Dr. Manjusha Shah

Governing Council Member

Indian Society of Anaesthesiologists (ISA) National



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I am very much privileged to write this message for ISA AP E Newsletter.

I am sure this E Newsletter will be informative. It has academic updates, ISA events in AP and non-academic contents like art and literary.

ISA is growing fast, now reaching total membership nearly 52,000. State chapters are doing excellent job and contributing in all aspects. My best wishes to ISA AP State.

Longlive ISA.

Dr M. RAMA KRISHNA REDDY

GC Member, ISA National

Dean, College of ISA

Program Head, ISA National Quiz.

Medical Superintendent & Professor

PMRIMS, Hyderabad.



July, 2026.

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Best Wishes ISAAP Executive & Editorial Board ISSAP E-News Letter

Dr. Srinivas

G C Member

ISA National

Bellary

Congratulations on the Anesthesia Newsletter!

Sending my best wishes to the entire editorial team and contributors on the release.

Thank you for creating a wonderful platform to share clinical knowledge, patient safety insights, and recent advances in anesthesiology. Wishing you continuous success and smooth publishing for all upcoming editions!

With regards

Bala Venkata Subrahmanian J.

Academic Chair

ISA National

Reasons for varied responses in terms of levels achieved with the same amount of local anaesthetic drug in pregnant patients posted for LSCS.

We are all aware of the anatomical and physiological changes that occur during full term pregnancy and have an impact on the dosage required for spinal anaesthesia for LSCS. To name the few - increased lordosis, decreased volume of CSF as compared to non pregnant women, congestion of epidural veins, compression of the thecal space, progesterone induced increased sensitivity to LA, slightly lower density of CSF etc etc.

But mostly there are the technical factors which leads to varied responses with the same drug and dose in different patients.

1) Identification of the required interspace for giving spinal- it is not consistent and not correctly identified by landmark guided techniques. In one study it was found that only 29% of the anaesthesiologist were found to be correctly identifying the required space for spinal. Even with USG the margin of error is about one space but with landmark techniques it always 2 to 3 spaces higher than desired.

2) level of giving spinal- most important factor for variability in levels achieved in spite of adequate doses. There is lardotic curve and the tip of lardotic curve lies at L3, spinal injection below the tip of lardotic curve leads to most of the drug going to lumbosacral roots and adequate level may not be achieved inspite of using even 2.5ml of drug. While if we use space above the lardotic tip then even 1.5ml of drug can provide adequate levels or very high levels if more dose is used. So we need to adjust the dose according to space or space according to dose (in short statured patients).

3) Positioning after spinal- many times after giving spinal in sitting position the patient is made to lie down in haste and patient inadvertently lifting pelvis leading to higher spread of hyperbaric drugs.

4) Use of different baricity drug (other than hyperbaric) - as the density of CSF is lower in pregnant women, isobaric drugs may behave like slightly hyperbaric drug (theoretically possible) .



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Recognising high spinal is not very difficult and if we can keep a watch on haemodynamic and respiratory patterns and keep on talking to the patient helps. Once adequate levels achieved, tilt of the table can be adjusted. Earliest sign of warning is change in patient's voice quality but mostly supportive measures in the form of O₂ supplementation, encouragement of patient to take deep breaths, keeping haemodynamic in control is enough. Levels usually recede in 10/15 minutes to make patient comfortable.

There are so many options for LSCS patients in central Neuraxial blocks, specially for high risk patients that we can tailor our regional anaesthesia according to need and that's where NADS is ! 🙏🙏

Dr Naresh Paliwal MD

* * * * *



Anaesthesia for Interventional Pulmonology: Principles and Contemporary Practice

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Associate Consultant, Department of Anaesthesiology, Apollo Hospitals, Bangalore

Dr Murali Thondebhavi MD, FRCA, FFPMRCA, CCT, MBA,

Senior Consultant, Department of Anaesthesiology and Pain Medicine, Apollo Hospitals, Bangalore

Abstract

Interventional pulmonology has evolved into a rapidly expanding subspecialty encompassing a wide spectrum of diagnostic and therapeutic procedures involving the tracheobronchial tree and pleural cavity. Increasing procedural complexity has transformed the role of the anaesthesiologist from that of a provider of procedural sedation to an integral member of a multidisciplinary team responsible for airway management, ventilation, haemodynamic stability and crisis management. The defining feature of these procedures is the "shared airway", where simultaneous access by the anaesthesiologist and bronchoscopist demands meticulous planning and seamless communication. Anaesthetic management must be individualised according to the planned intervention, patient comorbidities and anticipated airway challenges. Contemporary practice has also witnessed the emergence of robotic bronchoscopy, advanced navigational techniques, bronchoscopic lung volume reduction and increasingly sophisticated therapeutic interventions, all of which require refined anaesthetic strategies. This review discusses the principles of pre-procedural assessment, airway management, sedation, ventilation techniques and procedure-specific considerations in interventional pulmonology while highlighting recent advances and current evidence that influence modern anaesthetic practice.

Keywords: Interventional pulmonology, bronchoscopy, rigid bronchoscopy, anaesthesia, jet ventilation, airway management, EBUS.



Introduction

Interventional pulmonology has undergone remarkable evolution over the past two decades. Procedures that were once confined to diagnostic bronchoscopy have expanded to include advanced imaging, tumour debulking, airway stenting, bronchoscopic lung volume reduction, cryobiopsy, bronchial thermoplasty and minimally invasive pleural interventions. These procedures are increasingly performed outside the conventional operating theatre in dedicated interventional pulmonary suites equipped with fluoroscopy, endobronchial ultrasound (EBUS) and navigation systems.

From an anaesthetic perspective, interventional pulmonology represents perhaps the quintessential example of a shared airway. The airway simultaneously serves as the patient's lifeline, the surgical field and the route for ventilation. Consequently, successful outcomes depend not only on technical expertise but also on effective communication and close coordination between the bronchoscopist and anaesthesiologist. The objectives of anaesthesia extend beyond patient comfort. They include maintenance of oxygenation and ventilation despite an open airway, provision of optimal procedural conditions, suppression of airway reflexes, rapid recovery and preparedness for potentially catastrophic complications such as airway obstruction, massive haemorrhage and cardiovascular collapse.

Scope of Interventional Pulmonology

Bronchoscopic procedures may broadly be categorised into diagnostic and therapeutic interventions.

Diagnostic procedures include flexible bronchoscopy, bronchoalveolar lavage, endobronchial biopsy, transbronchial biopsy, EBUS-guided transbronchial needle aspiration, radial EBUS, electromagnetic and robotic navigational bronchoscopy, and transbronchial cryobiopsy.

Therapeutic procedures encompass rigid bronchoscopy, management of central airway obstruction, airway stenting, tumour debulking, laser therapy, argon plasma coagulation, electrocautery, cryotherapy, foreign body removal, bronchial thermoplasty and endobronchial valve placement.

Thoracoscopic procedures, both diagnostic and therapeutic, further expand the spectrum of interventional pulmonology by facilitating pleural biopsy, talc pleurodesis, management of recurrent pleural effusions and treatment of empyema.



Fig 1: Interventional Pulmonology Suite

The increasing complexity and duration of these procedures have shifted contemporary practice towards deep sedation or general anaesthesia, particularly for advanced interventions.

Pre-procedural Assessment

Thorough preoperative evaluation is essential because many patients present with advanced pulmonary disease, malignancy or significant cardiopulmonary comorbidities.

Evaluation should include:

- Detailed history with emphasis on respiratory symptoms, exercise tolerance and previous airway interventions.
- Review of computed tomography to understand airway anatomy, degree of obstruction and relationship of lesions to major vessels.
- Pulmonary function tests whenever feasible.
- Baseline oxygenation and arterial blood gas analysis in selected patients.
- Echocardiography in suspected pulmonary hypertension or cardiac disease.
- Assessment of coagulation profile before biopsy procedures.

Equally important is discussion with the bronchoscopist regarding procedural objectives, anticipated duration, expected bleeding risk, requirement for fluoroscopy or laser therapy, and the preferred ventilation strategy.

Airway Management

Selection of the airway device should be dictated by the procedure rather than personal preference.

Supraglottic airway devices are well suited for EBUS, flexible bronchoscopy and many diagnostic procedures. Their large internal diameter facilitates repeated passage of the bronchoscope while minimising airway trauma. Modern second-generation devices, particularly those incorporating an integrated bite block, have become increasingly popular.

Endotracheal intubation offers a secure airway in patients at increased aspiration risk, severe obesity, pulmonary hypertension or prolonged procedures. Larger internal diameter tubes permit simultaneous ventilation and bronchoscopic access while minimising airway resistance.

Rigid bronchoscopy remains indispensable for therapeutic interventions involving central airway obstruction, foreign body retrieval, tumour debulking and airway stenting. Besides providing the largest working channel, it serves as both an airway and a surgical instrument. However, the open ventilation circuit presents unique challenges requiring considerable anaesthetic expertise. Adequate mouth packing to minimise air leak, protection of dentition and careful patient positioning significantly improve ventilation efficiency.



Fig 2: Rigid Bronchoscope with various ports



Double-lumen tubes are primarily reserved for thoracoscopic procedures requiring one-lung ventilation or whole lung lavage. Bronchial blockers are used regularly for thoracoscopic procedures.

The contemporary trend, particularly in robotic and navigational bronchoscopy, favours larger endotracheal tubes under general anaesthesia to facilitate stable ventilation and improve procedural precision.

Sedation and Anaesthetic Techniques

The depth of anaesthesia should match procedural complexity.

Awake bronchoscopy is now relatively uncommon and is largely confined to dynamic airway assessment or evaluation of vocal cord function. Nevertheless, generous topical airway anaesthesia remains fundamental regardless of the anaesthetic technique employed.

Moderate sedation using combinations of midazolam, fentanyl and carefully titrated propofol continues to be appropriate for short diagnostic procedures. Deep sedation is increasingly preferred for advanced flexible bronchoscopy because it improves procedural conditions and minimises coughing.

General anaesthesia has become the standard of care for rigid bronchoscopy, airway interventions, cryobiopsy, navigational bronchoscopy and thoracoscopy.

Total intravenous anaesthesia (TIVA) with propofol, combined with a short-acting opioid such as remifentanyl or fentanyl, remains the preferred technique. Unlike inhalational anaesthesia, TIVA is unaffected by interruptions in ventilation and minimises contamination of the bronchoscopy suite. Neuromuscular blockade improves procedural precision and suppresses coughing during complex interventions.

Recent literature has highlighted growing interest in dexmedetomidine and remimazolam for selected bronchoscopic procedures. Dexmedetomidine provides cooperative sedation with minimal respiratory depression, while remimazolam offers rapid onset and recovery with haemodynamic stability. Their precise role in advanced interventional pulmonology continues to evolve.



Ventilation Strategies

Maintenance of oxygenation and ventilation remains one of the greatest challenges during bronchoscopy.

Transient hypoxaemia is common because the bronchoscope occupies a substantial proportion of the airway lumen. Hypercapnia is almost inevitable during prolonged procedures and cannot be reliably detected using pulse oximetry alone.

Conventional positive-pressure ventilation through an endotracheal tube or rigid bronchoscope offers the advantage of controlled tidal volumes and airway pressures. Pressure-controlled ventilation is generally preferred because it compensates better for leaks around the bronchoscope.

Jet ventilation has become an established technique during rigid bronchoscopy owing to excellent surgical exposure and unobstructed access. Both manual and high-frequency jet ventilation (HFJV) are widely employed. Successful use requires careful attention to chest movement, adequate time for passive expiration and avoidance of dynamic hyperinflation.

* * * * *



MENTORING ANESTHESIOLOGISTS

ABSTRACT

Excellence in the medical profession cannot be achieved with just knowledge. Multiple nuances and skills can only be acquired through good guidance and handholding. Mentoring plays a crucial role in the development and success of healthcare professionals. Mentorship is essential for training and career advancement in academic medicine today. Anesthesiology is a specialized field that requires a high level of skill, knowledge, and expertise. Mentoring junior doctors is vital for transitioning from medical school to clinical practice. Mentoring works beyond the curriculum content and conveys nonclinical aspects of training such as professionalism, networking, values, clinical judgment, and other soft skills that need to be taught in a structured curriculum format. Effective mentoring can help them navigate the complexities of the specialty, develop clinical competencies, and excel in their careers.

Keywords: Mentoring; Anesthesiologists; Mentor; Mentee; Training

KEY POINTS

- Mentoring plays a crucial role in the development and success of healthcare professionals.
- Mentoring junior anesthesiologists is vital for transitioning from medical school to clinical practice.
- A mentor must be a teacher, elder, sponsor, advisor, agent, role model, coach, and confidante of the mentee.
- Mentoring in anesthesiology can provide benefits such as job satisfaction, clinical skill development, professional growth, career guidance, well-being and resilience, enhanced research, networking, faculty retention, inspiration to excel, and improved patient care.
- Mentoring is needed at different times of an individual's career, especially during career growth.
- Mentorship programs must be monitored to ensure that their objectives are achieved.
- Communication with all participants must be constantly maintained, and feedback must be solicited.



INTRODUCTION

The medical profession is an amalgam of science and art. Excellence in the profession cannot be achieved with just knowledge. Multiple nuances and skills can only be acquired through good guidance and handholding. Mentoring plays a crucial role in the development and success of healthcare professionals. Mentorship is essential for training and career advancement in academic medicine today.¹ There is a significant variation in the prevalence of mentorship in the medical field, and it has been reported to vary from 19 to 93%, depending on the medical discipline.² The General Medical Council of the United Kingdom recommends regular mentoring of doctors, particularly during changes in their career roles.³

The Standing Committee on Postgraduate Medical and Dental Education of the United Kingdom recommended mentoring as part of the residents' "stress support system." However, a survey in the United Kingdom found that only 20% of anesthesia trainees knew who their mentor was; of them, only 38% had met with their mentor.⁴ Anesthesiology is a specialized field that requires a high level of skill, knowledge, and expertise. Mentoring junior doctors is vital for transitioning from medical school to clinical practice. Mentoring young anesthesiologists is essential for their professional growth and development. Effective mentoring can help them navigate the complexities of the specialty, develop clinical competencies, and excel in their careers. Mentorship benefits include better education, better pay, faster climbing the ladder, and more career satisfaction.⁵

What is mentorship?

The Oxford Dictionary defines a mentor as "an experienced person who advises and helps somebody with less experience over time" and a mentee as "a person who is advised, trained, or counseled by a mentor." The concept of mentorship has been practiced through the ages, and we find its mention in ancient literature worldwide. Ancient Indian literature used the term "guru-shishya" while Western literature referred to it as "chaperoning," "fostering," and "godfathering." A classic example of mentorship followed in the early 20th century was sending girls to "finishing schools"

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or assigning them a companion to instruct them on household management, social skills, and social grace. Mentorship is a mutually beneficial relationship between a mentor and a mentee.

■ ATTRIBUTES OF A MENTOR

A mentor must be a teacher, elder, sponsor, advisor, agent, role model, coach, and confidante of the mentee. Essential attributes of a mentor include seniority, compassion, amiability, motivation, accessibility, patience, and honesty.^{6,7} The qualities of a good mentor⁸ have been defined as follows:

- Relevant expertise, skill, and knowledge
- Enthusiasm for sharing expertise
- Respectful attitude
- Eagerness to invest in the development of others
- Ability to give honest and direct feedback
- Reflective listening and empathy
- Willingness to be a sponsor

■ NEED FOR MENTORSHIP

Postgraduate medical education is a period of intense learning and growth during which doctors transition from students to independent practitioners. Over the last few decades, postgraduate teaching programs have moved from an intimate guide-student relationship to a more scientific knowledge-sharing and knowledge-acquiring program. In India, the number of doctoral students assigned to a senior guide also increased, reducing the time that could be allocated to mentor them. A disconnect between the postgraduate guide and the student became quite evident. There is an inescapable requirement to foster these students, as effective mentoring during this phase can significantly impact the future careers of these doctors. Increased use of mentorship is critical to developing the next generation of leaders in medicine.⁹ Following a mentorship culture is essential for a center's success and should be treated as a strategic priority.⁹

The education process and the evaluation of knowledge and competence in Anesthesiology and its subspecialties are constantly changing. The emergence of training and the conduct of assessments on cadavers, computers, or simulators has



changed in anesthesiology. Technology, medications, and procedures, once considered not very important, have evolved. Ultrasound, fluoroscopy-guided pain procedures, and transesophageal echocardiography have significantly changed how we practice anesthesia. Elaborate ultrasound-guided regional anesthesia techniques in all patient populations, transesophageal real-time views of the heart in cardiovascular surgery, and the development of electronic medical records and computer technology have dramatically changed our practices.

■ BENEFITS OF MENTORSHIP

Mentorship benefits the mentor, mentee, organization, specialty, patients, and the nation. The mentee benefits from job satisfaction, improved personalized academic training, career advancement, and enhanced research opportunities and publications. The mentor benefits through personal fulfillment, development, leadership and coaching skills, and career advancements.¹⁰ The institution benefits from improved work performance and output, professional development of employees, and accelerated training. The specialty benefits from improved standards of care and research. The patients benefit by receiving compassionate care from dedicated, competent, and righteous professionals—the nation benefits by achieving high healthcare standards. Mentorship extends the faculty's legacies and ensures the next-generation physicians' professional longevity.⁹

Benefits of Mentoring in Anesthesia Programs

Some benefits of mentoring in anesthesia post-graduate programs are as follows:

- **Clinical skill development:** Anesthesia residents require guidance and support to develop proficiency in administering anesthesia, managing perioperative care, and handling critical situations. An accomplished mentor can guide the mentee to follow the proper steps and teach them to be meticulous. Mentoring helps residents acquire the necessary skills and knowledge to deliver safe and effective patient anesthesia care.
- **Professional growth:** Mentors play a crucial role in shaping the professional identity of anesthesia residents, instilling values of professionalism, ethics, and patient-centered care. Professional identity plays a significant role in clinicians'



social and professional standing. Mentoring provides residents with guidance on career pathways, opportunities for specialization, and networking connections within anesthesiology. Mentoring facilitates professional growth by offering insights, advice, and opportunities for development.

- **Career guidance:** Mentors provide valuable insights into anesthesiology career pathways, subspecialization opportunities, and career advancement strategies. They educate residents about the benefits and pitfalls of different career options and can help them choose the path best suited for them. Mentors play a crucial role in shaping the professional identity of residents, instilling values of compassion, integrity, and excellence in practice.
- **Well-being and resilience:** The demanding nature of anesthesia practice can affect residents' physical, social, and mental well-being. Mentors offer emotional support and stress management strategies and promote work-life balance. They make the mentees work hard to learn and look after their personal and social interests. Mentors support residents in building resilience to cope with the demands of anesthesia practice.
- **Research and scholarly activity:** Mentoring can foster residents' interest in research, quality improvement projects, and scholarly activities, enhancing their academic profile. Mentors are the best guides for teaching the methodology of a research project and writing projects to seek grants.¹¹



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- **Networking:** Professional networking is vital in research and attaining social standing. Mentoring often leads to interactions within the medical community, opening doors to research collaborations, job opportunities, and professional growth.¹²
- **Faculty retention:** Academic faculty retention increases with the implementation of faculty mentorship programs. One study showed that the quality of mentoring influences the probability of continuing an academic career.¹³
- **Inspire to excel:** A mentor with exceptional achievements is a source of inspiration for the mentee. He always remains an icon for the mentee, and mentees tend to follow the mentor's path to success.
- **Improved patient care:** Mentored doctors are better equipped to provide high-quality patient care, as the mentoring program aims to guide and support them in enhancing their professional development and facilitating a successful transition to independent practice.

Strategies for Effective Mentoring in Anesthesia Programs

- **Clear goals:** Clear learning objectives and goals for the mentoring relationship must be defined to ensure the mentor and mentee are aligned on expectations.
- **Individualized learning plans:** Every mentee is different, including their competence and interests. Mentoring experiences must be tailored to each anesthesia resident's needs and goals. Individualized learning plans tailored for a mentee need to be developed to address areas of strength and areas for improvement.



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- **Clinical preceptorship:** A mentor will have expertise in specific clinical skills—the mentee gains from observing and learning the skill from the mentor. Mentoring helps anesthesiologists develop the clinical skills, knowledge, and competencies required for their specialty. Apart from clinical skills, they also need to develop communication and leadership skills for their professional growth. Mentorship provides hands-on clinical preceptorship where residents work closely with experienced anesthesiologists to gain practical skills and exposure to diverse clinical challenges.
- **Case-based learning:** In anesthesia practice, case-based discussions enhance residents' clinical reasoning, decision-making, and critical thinking abilities. Mentors should make mentees present cases that are challenging to manage so that they develop critical and analytical patient management skills. Mentees must maintain a journal of their activities.
- **Creating a supportive environment:** Creating an environment that is supportive and inclusive, where juniors feel comfortable seeking guidance and asking questions. A culture of collaboration with the team must be encouraged to enhance their professional development.
- **Emotional support:** Medical training can be challenging and stressful. There have been multiple cases of resident doctors developing mental diseases and even committing suicide. Mentors offer emotional support and encouragement to help doctors navigate through difficult times.
- **Lead by example:** Mentors must demonstrate professionalism, integrity, and dedication to inspire their junior colleagues. Mentors must serve as role models, demonstrating professionalism, ethical behavior, and excellence in patient care. They should perform like icons whom the mentee emulates.
- **Personal touch:** The mentor and the mentee must connect personally. The mentor must see the mentee's qualities and flaws appropriate to their training level. A



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mentor needs to be emotionally engaged in the mentee's success. The mentor-mentee association is of two individuals who share a common goal, which can ultimately lead to success. The relationship must extend to the personal and family levels and include social interaction.

- **Simulation training:** Teaching management of challenging situations takes a lot of work. The advent of high-fidelity simulators has been a boon to practical teaching. Simulation training sessions must be incorporated to allow residents to practice anesthesia techniques, crisis management, and teamwork skills in a controlled environment. The mentor must guide the mentee during simulation sessions to teach the best practices.
- **Encourage continuous learning:** Mentees must be encouraged to pursue continuous learning opportunities, such as workshops, conferences, and further education. They must be coached to deliver talks/presentations. Along with the mentors, they must be actively involved in writing review articles, journal articles, and tutorials, and their contributions must be acknowledged.
- **Reflection:** Reflection is a powerful tool for learning and growth. Mentors must be encouraged to reflect on their experiences, challenges, successes. There should also be mutual respect and clear expectations from both parties.
- **Evaluation and monitoring:** The mentoring program should be evaluated periodically to assess effectiveness and identify areas for improvement. The mentees' progress must be monitored, and feedback must be provided to ensure that mentoring relationships are beneficial and supportive.
- **Feedback:** A culture of feedback must be followed in which mentors provide timely, constructive, and honest feedback on mentees' performance. Mentors must encourage mentees to reflect on their experiences and identify areas for growth.



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■ MENTORING NEEDS CHANGE WITH TIME

Mentoring needs differ at different phases of life and career. A mentee's developmental needs and processes vary according to an individual's life-career season. Most successful mentees need more than one mentor. They scan the horizon for leaders who embody their values or value their strengths throughout their careers. Mentorship during postgraduate training has different objectives from that during subspecialization.

Similarly, mentorship during the budding phase of a job should focus on career building. Once competent in their chosen field, mentees need guidance to take higher responsibility, status, and rewards. Midcareer mentorship trains someone to step up the ladder and become a leader. During your career's growth phase, you need someone guiding you and keeping you on the right course.¹⁴

■ THE MENTORSHIP JOURNEY

Identifying a mentor and working under their tutelage is just the beginning. The relationship must be consistently nurtured and periodically refreshed. Successful protégés understand that sustaining sponsorship looks a lot like earning it. They also find ways to support a mentor's passion or help build their legacy outside the organization. A mentor must be personally connected and emotionally engaged in the mentee's success. The best mentorships are more like the relationship between a parent and a child than between a boss and an employee. Mutual respect, trust, shared values, and good communication characterize them. A mentor gains stature and eminence if they successfully mentor someone. A person successfully mentored makes a good mentor later in life. Mentors derive personal satisfaction from knowing they are contributing to the growth and success of a fellow professional. The mentoring relationship echoes the relationship between a lawyer and a client and involves positive regard, setting boundaries, active listening, and ethical behavior.

Remote Mentoring

With technological advancements, distance, and remote mentoring have become increasingly prevalent in healthcare settings. The advent of distance and remote



mentoring has expanded and opened new avenues for learning and collaboration in healthcare settings. Distance mentoring sessions can be facilitated with telemedicine and virtual communication tools such as video conferencing, messaging applications, etc. Regular communication can be established by scheduling regular virtual meetings to maintain communication and provide ongoing support and guidance. Active participation and engagement are needed to maximize the benefits of distance mentoring. Remote mentoring helps share educational resources, best practices, and teaching tools to support their professional development. Mentees can engage in virtual workshops and online learning activities to gain expert knowledge and expertise from pioneers and established practitioners. However, a survey found that almost 80% of mentees undertaking long-distance mentoring felt it was less effective than onsite mentoring.¹⁵

Speed Mentoring

In some cultures, speed dating has been successful in traditional matchmaking. The same method has also been tried to facilitate matching mentors and mentees. A mentee spends about 10 minutes talking with each rotation mentor during speed mentoring. In a study, mentees felt that the event helped them expand their network and identify needed resources. Both mentees and mentors thought that this short interaction benefited them.¹⁶ Speed mentoring ensures that the expertise of a mentor benefits multiple mentees, and if the mentees need further help, they can interact again. Speed mentoring is a low-resource intervention requiring minimal time commitment for mentees and mentors. It has been successfully used to mentor women anesthesiology trainees.¹⁷

Reverse Mentorship

The current generation is very comfortable with information technology and is skilled at managing the hospital's electronic medical records. This enables cross-generational mentorship to introduce the concept of "reverse mentorship." Reverse mentorship may also help overcome gender-specific and ethnic barriers. Female physicians-in-training could mentor their faculty members in modern challenges specific to females. Reverse mentorship was particularly relevant to postgraduate medical education during the



coronavirus disease 2019 (COVID-19) pandemic.¹⁸ Junior anesthesiologists can also provide new perspectives on clinician management. They can help change the workplace culture and promote learning.¹⁹

PHASES OF A MENTORING PROGRAM

Matching phase: Potential mentees search for experienced, successful people they perceive as good role models. The program's proposed volunteer mentors/mentees are initially matched. Based on common goals/objectives, specialty interests, career goals, and personality compatibility, mentors are paired with mentees.

Initiation phase: An introductory meeting is conducted to understand and establish goals, expectations, and communication preferences.

Cultivation phase: This is the primary stage of learning and development. Periodic meetings between mentors and mentees are scheduled to discuss progress, challenges, and growth opportunities. The mentor shares lessons from the mentor's experience and expertise, new technologies, new methodologies, and emerging issues in the field with the mentee. Psychosocial mentoring begins after the mentor and mentee have established an interpersonal bond.

Feedback phase: A feedback mechanism for mentors and mentees is established to provide input on the effectiveness of the mentoring relationship.

Separation phase: The mentoring relationship may continue unless something is left to learn, or the mentee wants to establish an independent identity. It generally describes the end of a mentoring relationship.

Redefinition stage: After the mentoring relationship is completed, both mentor and mentee recognize that their relationship can continue as a collegial or social friendship, no longer focusing on the mentee's career development.



The suggested schedule for a 20-week mentoring program for anesthesiologists is discussed in **Table 1**.

■ SELECTION PROCESS FOR MENTORSHIP PROGRAM

- Publicize the mentor program through newsletters of professional and academic bodies, meeting announcements, letters to members of the associations, and personal contacts.
- Potential mentors must submit an enrollment form to indicate their interest in being a mentor.
- Senior practitioners who have trained students for other activities, such as fellowships or internships, must be approached and offered the opportunity to become mentors.
- Potential mentees must be provided with application forms.
- A system must be designed to match mentors and mentees based on professional interests and potential pairs identified.
- Interviews and meetings are held to clarify participants' areas of interest and commitment levels.
- Provide mentors and mentees with a brief biography of their potential mentor or mentee.
- If the participants accept joining the program and provisionally accept being mentors and mentees, a meeting of the two must be fixed.
- The mentorship program details must be scheduled after the final acceptance in the physical or a virtual platform-based face-to-face meeting between the mentor and the mentee.



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TABLE 1: Suggested schedule for mentoring in a 20-week anesthesia program.

Week 1-2	Orientation: • Introduce mentees to the program • Discuss expectations, goals, and objectives • Preinduction assessment to identify areas for development
Week 3-6	Clinical preceptorship: • Pair mentees with mentors for hands-on clinical experience • Rotate through different subspecialties to gain diverse clinical exposure • Debrief after clinical sessions to discuss cases, challenges, and learning points
Week 7-10	Case-based learning: • Facilitate case-based discussions on complex anesthesia scenarios • Analyze case studies to enhance clinical reasoning and decision-making skills • Encourage mentees to present cases and participate in group discussions

TABLE 1: Suggested schedule for mentoring in a 20-week anesthesia program.

Week 11-14	<i>Simulation training:</i> • Organize simulation sessions to practice anesthesia techniques and crisis management • Conduct debriefing sessions to review performance, provide feedback, and identify areas for improvement • Emphasize teamwork, communication skills, and leadership in simulated sessions
Week 15-18	<i>Research and scholarly activities:</i> • Support mentees in identifying research projects or quality improvement initiatives • Provide guidance on literature review, study design, data analysis, and manuscript preparation • Encourage mentees to present their work at conferences or publish in peer-reviewed journals
Week 19-20	<i>Reflection and goal setting:</i> • Reflect on the mentoring experience and discuss achievements, challenges, and lessons learned • Set goals for future professional development and career advancement • Evaluate the effectiveness of the mentoring program and provide feedback for improvement

■ MONITORING OF THE PROGRAM

The mentorship program must be monitored to ensure that its objectives are achieved. Communication with all participants must be constantly maintained, and feedback must be solicited on its efficacy. A written summary of the mentorship experience from all participants must be taken. Group meetings or socials must be regularly conducted to evaluate the program and to suggest ways to improve it. All participants must complete a program evaluation form at the end of the program. The proceedings of these meetings and the participants' feedback will help suggest



improving the mentor program for future mentors and mentees. The standard parameters to evaluate mentees attending the mentoring program are discussed in **Box 1**, and the parameters for assessing mentors are discussed in **Box 2**.

BOX 1: EVALUATION OF THE MENTEE—STANDARD PARAMETERS TO EVALUATE A MENTEE.²¹

- Publishing in peer-reviewed journals
- Receiving research-related internal/external awards or honors
- Preparing and securing extramural research grants
- Participating as a facilitator in a seminar series
- Achieving a position on an appropriate journal editorial board
- Participating in grant writing development workshops
- Leading session of national meetings
- Receiving an invitation to speak at an institution or conference

BOX 2: ASSESSMENT OF THE MENTOR BY THE MENTEE—STANDARD PARAMETERS TO EVALUATE A MENTOR.²¹

- Was your mentor available to you when needed?
- Did your mentor respond to you in a timely fashion?
- Did your mentor address your concerns?
- Was your mentor flexible?
- Was your mentor generous?
- Was your mentor respectful?
- Was your mentor well organized?
- Was your mentor well prepared?
- Did your mentor realistically devise the mentoring experience?
- Did your mentor advise appropriate reading material?
- Did your mentor advise you to meet relevant professionals?
- Did your mentor advise you to attend relevant workshops?
- Do you have a positive learning experience?



MENTORSHIP MALPRACTICE

Mentorship malpractice can be active or passive. Some examples of active mentorship malpractice are the mentor hijacking a mentee's idea, project, or grant for self-gain, the mentor acting like an exploiter who destroys a mentee's success by burdening them with low-yield activities, and the mentor dominating the mentee across various areas of collaboration. Some examples of passive mentorship malpractice are: The mentor is preoccupied with his priorities and does not have the time or the desire to attend to mentees, the mentor evades conflict and avoids difficult but necessary conversations, the mentor spends little time or effort on mentoring and instead exploits the mentee for self-promotion, and the mentor discourages mentees from seeking other mentors as it stokes the mentor's ego.²⁴

CONCLUSION

Mentorship is the partnership between a mentor, who acts as a guide, and a mentee, who acts as a learner. It works beyond the curriculum content and conveys nonclinical aspects of training such as professionalism, networking, values, clinical judgment, and other soft skills that need to be taught in a structured curriculum format. Mentoring is essential for personal and professional trainee growth. Mentoring enhances individual practice, well-being, and professional development of mentees and mentors and benefits patients' care. It is precious during change and when taking on new roles, such as for newly appointed consultants. It enhances job satisfaction, well-being, working relationships with patients and colleagues, confidence, problem-solving abilities, collegiality, organizational commitment, and job performance.



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Title. Beyond Intubation: Perioperative Airway and Extubation challenges in a Child undergoing Syngnathia Release surgery

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Background: Syngnathia is a rare congenital craniofacial anomaly characterized by fusion of the maxilla and mandible, resulting in significant airway management challenges. In paediatric patients, not only intubation, but extubation also can be particularly challenging because of restricted mouth opening, limited airway access, and rapid oxygen desaturation. While airway management strategies for securing the airway and intubation have been described, studies on postoperative airway care and safe extubation remain yet underreported. We present the perioperative anaesthetic management of a child with syngnathia undergoing osteotomy and release, highlighting the challenges encountered beyond intubation.

Case Presentation: A 5-year-old girl weighing 12 kg with recurrent left-sided syngnathia was scheduled for osteotomy and release under general anaesthesia. Anticipating a difficult airway, an uncuffed endotracheal tube was inserted through one nostril and used as a nasopharyngeal airway to facilitate oxygenation and delivery of sevoflurane while maintaining spontaneous ventilation. Flexible fiberoptic bronchoscope-guided nasal intubation was then successfully performed through the opposite nostril. The surgery proceeded uneventfully. Given the anticipated postoperative airway oedema following extensive surgical manipulation, the patient was electively shifted on mechanical ventilator support to the intensive care unit. Careful postoperative monitoring, airway assessment, and a posplanned extubation strategy enabled successful extubation on the following day without respiratory compromise.



Conclusion: Management of paediatric syngnathia extends beyond securing the airway. Meticulous planning for intubation, postoperative airway surveillance, and timely extubation are essential for favourable outcomes. A stepwise approach using inhalational induction, fiberoptic-guided nasal intubation under spontaneous ventilation, and elective postoperative ventilation can provide safe perioperative airway management in these challenging patients.

Keywords: Paediatric airway, Syngnathia, Difficult airway, Extubation, Fiberoptic bronchoscopy.

Introduction

Syngnathia, a rare craniofacial congenital malformation, includes simple, soft tissue adhesions (synechiae) or complex bony fusion of the maxilla and mandible (synostosis).¹ The most common pathogenesis may include persistence of buccopharyngeal membrane.¹ Other contributing factors may include defect in the stapedia artery vascularisation or an early loss of neural crest cells or teratogenic agents.^{2, 3} It may be associated with other oral and maxillofacial anomalies like temporomandibular fusion, cleft lip, cleft palate bifid tongue, and syndromes of van-der-woude syndrome (VWS), popliteal-ptyerygium-syndrome (PPS).³ The restricted mouth opening can lead to difficulties with feeding, swallowing and respiration resulting in malnutrition, impaired masticatory function, aspiration and stunted growth. Early recognition and corrective surgery are necessary to ensure adequate growth and development. Airway management is challenging to the anaesthesiologist and needs a multidisciplinary approach of anaesthesiologists, otorhinologists and plastic surgeons. Preoperative physical examination supplemented with radiological Computerised Tomography imaging is essential for difficult airway assessment. Fiberoptic bronchoscopic (FOB) assisted intubation is considered the gold standard. However, the uncooperative paediatrics requiring sedation for FOB are more susceptible to hypoxia than adults with different airway anatomy and physiology. This demands unique expertise and methods of FOB for paediatrics in comparison with adults.⁴ Nasal airway employment can relieve the upper airway obstruction and can be dedicated to oxygenation and anaesthesia for FOB with spontaneous

respiration.⁵ Airway management in syngnathia extends beyond airway securement at induction and intubation. Extubation is also equally challenging because of restricted mouth opening, distorted airway anatomy, and limited options for rescue airway access. Furthermore postoperative airway oedema and bleeding following surgical release may increase the risk of extubation failure. Therefore, meticulous perioperative planning, vigilant postoperative monitoring, and a well-defined extubation strategy are essential. We report the perioperative anaesthetic management of a child with syngnathia undergoing osteotomy and release, highlighting the challenges of both airway securement and postoperative extubation.

Case Report

A 5-year-old female child weighing 12 kg presented with complaints of restricted mouth opening since childhood. She was born by caesarean section with trismus and had no associated congenital anomalies or comorbidities. Developmental milestones were normal except for delayed speech. Due to severe restriction of mouth opening, she was fed through a nasogastric tube until 9 months of age. She underwent her first syngnathia release at 9 months with blind nasal intubation, followed by a second maxillomandibular fusion release at 2 years of age, after which oral liquid feeding was initiated. She subsequently developed recurrence of jaw fusion and was scheduled for a third surgery involving osteotomy and release to improve mouth opening, facilitate oral feeding, and support adequate growth and development.

Airway examination revealed restricted mouth opening of one finger breadth, precluding Mallampati assessment, along with retrognathia, a thyromental distance of two finger breadths, disordered dentition, and absent temporomandibular joint movement. Computed tomography confirmed left-sided maxillomandibular syngnathia (Figure 1). Other systemic examinations and investigations were unremarkable.

After obtaining high-risk consent, standard ASA monitoring and difficult airway preparations, including emergency surgical airway equipment, were instituted. Fibreoptic-guided nasal intubation under spontaneous ventilation was planned. Following inhalational induction with sevoflurane and intravenous access,

xylometazoline nasal drops and 2% lignocaine jelly **were applied to nostril**. An uncuffed 4.0-mm endotracheal tube was inserted through one nostril as a nasopharyngeal airway for oxygenation and anaesthetic delivery. Sedation was supplemented with glycopyrrolate, fentanyl, and propofol. Fibreoptic-guided nasal intubation was successfully performed through the other nostril using a 5.0-mm cuffed flexometallic endotracheal tube (Figure 2). Anaesthesia was maintained with oxygen-air, isoflurane, atracurium, and fentanyl. Surgical release of the syngnathia restored adequate mouth opening (Figure 3). In anticipation of postoperative airway oedema, the child was electively ventilated overnight and successfully extubated the following day.

Discussion:

Literature review demonstrates a greater proclivity of syngnathia recurrence in congenital jaw bony fusion cases⁶. The child also came for repeat syngnathia release surgery despite two previous surgeries. This may be related to the underlying pathology and difficulty in maintaining postoperative oral exercises.. Anaesthesia for these repeat surgeries is challenging and airway management is the primary concern. Awake intubation with spontaneous ventilation is recommended, but is not feasible in an uncooperative child who demand sedation supplementation.⁷ However, sedation may lead to upper airway obstruction and difficulty with mask ventilation, increasing the risk of a cannot intubate-cannot ventilate (CICV) situation which may lead to bradycardia and arrest^{4,8} ⁹ Rescue devices such as Supraglottic airway regularly employed in CICV have no role in airway with inadequate mouth opening while emergency cricothyrotomy and tracheostomy are technically challenging in children.

In our patient, previous surgeries were performed using blind nasal intubation because of the unavailability of a suitably sized fibreoptic bronchoscope, resulting in significant airway trauma and prolonged postoperative ventilation. For the current procedure, a flexible fibreoptic bronchoscope (Ambu® Scope) was selected because it allowed easy railroading of a 5.0-mm endotracheal tube over the 3.5-mm scope and provided improved manoeuvrability through tip flexion and rotational control. To maintain oxygenation and spontaneous ventilation during intubation, an uncuffed



endotracheal tube was inserted through one nostril and used as a nasopharyngeal airway for delivery of oxygen and sevoflurane anaesthesia due to , lower nasal bleed, larygospasm and better ventilation.⁹ . While successful intubation is often the focus of airway management in syngnathia, postoperative airway care and extubation are equally important. Surgical release may result in airway oedema, bleeding, and soft-tissue swelling, increasing the risk of postoperative airway compromise and extubation failure. Reintubation in such patients can be extremely difficult because of distorted anatomy and restricted access to the airway. Anticipating these challenges, we elected to continue postoperative mechanical ventilation in the intensive care unit. Careful monitoring and delayed extubation after resolution of airway oedema resulted in a favourable outcome. This case highlights that airway management in syngnathia extends beyond successful intubation. A planned, stepwise approach incorporating maintenance of spontaneous ventilation, fiberoptic-guided nasal intubation, preparedness for emergency airway rescue, and vigilant postoperative airway management is essential to minimize perioperative morbidity and ensure safe extubation.

Conclusion:

Airway management in paediatric syngnathia extends beyond successful intubation and requires meticulous perioperative planning. The use of a nasopharyngeal endotracheal tube for oxygenation and inhalational anaesthesia, combined with fiberoptic-guided nasal intubation under spontaneous ventilation, provided safe airway control in this child. Anticipation of postoperative airway oedema, elective mechanical ventilation, and a planned extubation strategy were crucial for a favourable outcome. This case highlights the importance of a stepwise approach to both intubation and extubation in children with syngnathia undergoing surgical release.



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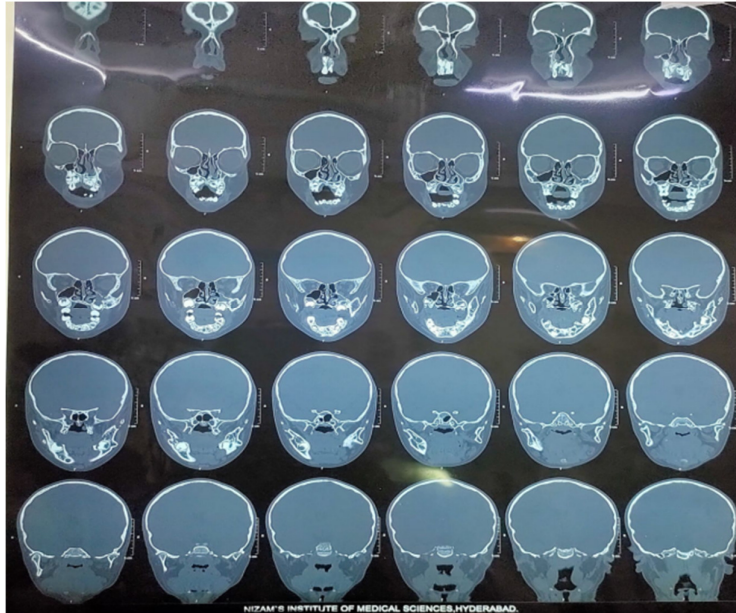


Figure 1: Illustrating CT scan of face of 5-year-old female child depicting fusion of the maxilla with mandible



Figure 2: Demonstrating fibroptic nasal intubation with 5.0 mm cuffed endotracheal tube in one nostril while securing airway with 4 mm uncuffed endotracheal tube as nasopharyngeal tube in other nostril.



Figure 3: Illustrating the release of syngnathia and restoration of adequate mouth opening.

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Research Waste in Anaesthesiology: Are We Generating Evidence or Publications?

Introduction

The advancement of anaesthesiology has always been closely linked to scientific inquiry. From the introduction of pulse oximetry and capnography to the evolution of regional anaesthesia, perioperative medicine, and critical care, research has played a pivotal role in improving patient outcomes. In today's academic environment, however, an important question deserves reflection: Are we generating evidence that advances patient care, or are we merely generating publications?

The pressure to publish has become a defining feature of modern academic medicine. Publications influence promotions, academic recognition, institutional rankings, grant opportunities, and career progression. While this emphasis has undoubtedly increased research output, it has also raised concerns regarding the quality, relevance, and impact of scientific investigations.

The challenge facing contemporary anaesthesiology is not a lack of research activity, but ensuring that research meaningfully contributes to patient care and scientific progress.

The Concept of Research Waste

Research waste refers to the avoidable loss of scientific value at any stage of the research process—from conception of a research question to dissemination and implementation of findings.

A landmark analysis by researchers suggested that a substantial proportion of biomedical research may ultimately contribute little to patient care because studies are poorly designed, inadequately reported, unnecessarily duplicated, or never translated into practice.



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Research waste occurs when:

- Questions lack clinical importance.
- Studies are methodologically flawed.
- Results remain unpublished.
- Reporting is incomplete.
- Findings are not implemented.
- Resources are consumed without meaningful knowledge generation.

In an era where research funding, time, and manpower are finite, research waste represents both a scientific and ethical concern.

The Publish-or-Perish Culture

Academic medicine increasingly operates within a "publish-or-perish" framework.

Faculty promotions, institutional assessments, postgraduate requirements, and academic recognition are often linked to publication metrics. Consequently, quantity may inadvertently become more valued than quality.

This environment can encourage:

- Fragmentation of data into multiple publications.
- Repetition of already answered questions.
- Preference for easily publishable projects.
- Emphasis on statistically significant results.
- Short-term academic gains over long-term scientific contribution.
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While publication itself is not problematic, the pursuit of publications without meaningful scientific purpose risks diverting attention from clinically relevant research.



Are We Asking the Right Questions?

The foundation of high-quality research lies in asking questions that matter.

Before initiating a study, investigators should consider:

- Does this question address a genuine knowledge gap?
- Will the answer influence clinical practice?
- Does it have relevance beyond a single institution?
- Will it improve patient outcomes, safety, or healthcare delivery?

Many studies answer questions that are technically researchable but clinically inconsequential.

For example, demonstrating a statistically significant reduction of a few seconds in intubation time may be academically interesting. However, unless this translates into improved safety or patient outcomes, its broader clinical significance may be limited. The ultimate purpose of research should be to improve care rather than simply add to publication numbers.

Quality Versus Quantity

Scientific progress depends far more on the quality of evidence than on the volume of publications.

Characteristics of high-quality research include:

- Clinically relevant objectives.
- Robust methodology.
- Appropriate sample size.
- Transparent reporting.
- Reproducibility.
- Meaningful outcomes.

A single well-designed multicentre randomized trial may contribute more to the specialty than dozens of underpowered studies addressing marginal questions. Academic success should therefore be measured not only by publication counts but also by scientific impact and influence on practice.



The Problem of Underpowered Studies

Many anaesthesia studies involve relatively small patient populations and single-centre designs. Although such studies may be valuable for generating hypotheses, they often lack sufficient power to detect clinically important outcomes.

Consequences include:

- Inconclusive results.
- Contradictory findings.
- Difficulty in translating evidence into practice.
- Repeated investigations addressing the same question.

Greater emphasis on multicentre collaboration can help overcome these limitations and generate stronger evidence.

Publication Bias: The Hidden Distortion

Scientific literature tends to favour positive findings. Studies reporting significant benefits are more likely to be published, cited, and discussed than those reporting neutral or negative outcomes. This publication bias creates an incomplete evidence base and may lead clinicians to overestimate treatment effectiveness.

Negative studies are not failures. They provide valuable information, prevent unnecessary duplication, and contribute to a balanced understanding of clinical interventions. A healthy research culture must value all well-conducted studies regardless of outcome.

Beyond P-Values: Focusing on Clinical Impact

Research should ultimately be judged by its contribution to patient care.

Clinicians must increasingly ask:

- Does this intervention improve outcomes?
- Does it enhance safety?
- Does it reduce complications?
- Does it improve patient experience?
- Is it cost-effective?

The future of research evaluation may require moving beyond publication counts and citation metrics toward measures that reflect genuine clinical impact.



Building a Responsible Research Culture

Reducing research waste requires cultural change at multiple levels.

For Researchers

- Prioritize clinically meaningful questions.
- Strengthen methodological rigor.
- Collaborate across institutions.
- Report findings transparently.
- Publish negative results.

For Institutions

- Reward research quality rather than quantity.
- Support protected research time.
- Encourage interdisciplinary collaboration.
- Invest in methodological and statistical support.

For Professional Societies

- Facilitate multicentre research networks.
- Promote research methodology training.
- Encourage responsible publication practices.
- Recognize impactful research rather than merely prolific publication.

The Role of Young Investigators

Postgraduate students and early-career researchers represent the future of academic anaesthesiology. Training should focus not only on conducting research but also on understanding:

- Why research is performed.
- How evidence influences practice.
- How to identify important clinical questions.
- How to critically appraise scientific literature.

Developing these skills early can foster a generation of researchers committed to producing meaningful evidence.



Conclusion

The success of academic anaesthesiology cannot be measured solely by the number of publications produced each year. Scientific progress depends on generating evidence that addresses important clinical questions, improves patient outcomes, and advances the specialty.

As researchers, educators, and clinicians, we must continually ask whether our efforts are contributing to knowledge or merely adding to literature. The future of anaesthesia research lies not in publishing more, but in publishing better. By prioritizing relevance, rigor, transparency, and collaboration, we can move from a culture of publication accumulation to one of genuine evidence generation.

The true measure of research is not how often it is published, but how effectively it changes practice and improves patient care.

It is important to acknowledge that every research study represents a significant investment of time, effort, resources, and commitment. Behind every publication are investigators striving to answer questions, improve practice, and contribute to scientific knowledge. The purpose of this discussion is not to diminish the value of existing research, but rather to encourage reflection on how future research can generate even greater impact.

As a specialty, anaesthesiology has made remarkable academic progress. The challenge before us is not whether we are publishing enough, but whether we are maximizing the value of what we publish. By focusing on clinically relevant questions, robust methodology, collaborative research, and meaningful patient-centred outcomes, we can ensure that every study contributes more effectively to the advancement of science and the improvement of patient care.

**IN MEMORY OF GREAT TEACHER
PROF. PHANEENDRA NATH THOTA**



11-11-1951 TO 29-11-2004

- **Teacher par excellence, exemplary clinical anaesthesiologist**
- **Thorough professional, left his indelible mark for meticulous planning.**
- **Popular speaker (state, national & international meetings)**
- **Invited speaker at the World Congress of Anaesthesiology 2000, Sydney, Australia**



Your body and mind will work and find fullest expression
only when you are joyful and peaceful....

Sadhguru...

Any Communication

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