International Conference on Medicine, Pharmacy, Nursing and Allied Health Sciences

MediSphere 2026

Organized by
Annai College & Jiadhal College

In collaboration with: Genovasi University College ,Petaling Jaya, Selangor, Malaysia & University of Malaya, Malaysia.

Editors
Dr.S. Balamuralitharan
Dr.R.Shanthi devi
Dr. Sindhura Kannappan
Dr. K. Sujith

MediSphere Research Excellence Awards 2026

International Conference on Medicine, Pharmacy, Nursing and Allied Health Sciences

MediSphere 2026

August 01 - 02, 2026

(virtual mode)

Editors

Dr. S. Balamuralitharan

Dr. Sindhura Kannappan

Dr. K. Sujith

Dr. R. Santhi devi

International Conference on Medicine, Pharmacy, Nursing and Allied Health Sciences

Copyrights @Chendur Publishing House

ISBN Number : 978-81-69388-17-7

Edited by

Dr.S. Balamuralitharan

Dr. Sindhura Kannappan

Dr. K. Sujith

Dr. R. SANTHI DEVI

Contact Us

Mobile: +91-88387 02557

Email Id: conferences_events@annaicollege.com

INDEX

S.No	Items
1	Preface
2	About
3	Messages
4	Conference committees
5	Keynote Speakers & Invited Talks
6	List of Papers Presented
7	Abstracts
8	Journal partners
9	Acknowledgements

PREFACE

Founded with a commitment to promoting academic excellence, research, and professional collaboration, Chendur Research Foundation (CRF) continues to provide meaningful platforms for knowledge exchange and innovation across diverse disciplines. In this spirit, we are pleased to present the International Conference on Medicine, Pharmacy, Nursing and Allied Health Sciences – MediSphere 2026, to be held in Virtual Mode on August 01–02, 2026. The conference brings together academicians, researchers, healthcare professionals, practitioners, students, and industry experts to share their knowledge, experiences, research findings, and innovative ideas in the rapidly evolving fields of medicine, pharmacy, nursing, and allied health sciences.

MediSphere 2026 provides an interdisciplinary forum for exploring recent developments, emerging technologies, evidence-based practices, and innovative approaches that are shaping the future of healthcare and allied health services. The conference aims to encourage meaningful discussions on contemporary healthcare challenges, advances in medical and pharmaceutical sciences, nursing innovations, healthcare technologies, patient-centred care, public health, and other emerging areas.

The conference also emphasizes the importance of research, innovation, and knowledge translation in improving healthcare outcomes and addressing emerging global health challenges. The virtual mode further enables wider participation and promotes the dissemination of knowledge beyond geographical boundaries.

We gratefully acknowledge the valuable contributions and support of the associating institutions, distinguished experts, invited speakers, delegates, researchers, participants, and members of the conference organizing committee. Their cooperation and dedication have been instrumental in making MediSphere 2026 a platform for meaningful academic interaction, professional development, and the advancement of healthcare knowledge.

We warmly welcome all participants to MediSphere 2026 and look forward to a productive, engaging, and enriching conference that inspires new ideas, encourages interdisciplinary collaboration, and contributes to the continued advancement of medicine, pharmacy, nursing, and allied health sciences.

Best Wishes.

EDITORS

DR.S. BALAMURALITHARAN

Message

We are pleased to invite you to participate in the International Conference on Medicine, Pharmacy, Nursing and Allied Health Sciences – MediSphere 2026, to be held in Virtual Mode on August 01–02, 2026. The conference is organized by Annai College and Jiadhal College, in collaboration with Genovasi University College, Petaling Jaya, Selangor, Malaysia, and the University of Malaya, Malaysia. The primary goal of this conference is to bring together healthcare professionals, academicians, researchers, practitioners, and experts from various disciplines to share their knowledge, research findings, innovations, and best practices in medicine, pharmacy, nursing, and allied health sciences. The conference aims to provide an international platform for meaningful academic exchange, interdisciplinary collaboration, and the development of innovative approaches to address emerging challenges in healthcare. We believe that MediSphere 2026 will serve as a valuable platform for young researchers, students, faculty members, and professionals to showcase their research, exchange ideas, and build meaningful academic and professional networks.

DR. K. SUJITH

We are pleased to invite you to participate in the International Conference on Medicine, Pharmacy, Nursing and Allied Health Sciences – MediSphere 2026, to be held in Virtual Mode on August 01–02, 2026. The conference is organized by Annai College and Jiadhal College, in collaboration with Genovasi University College, Petaling Jaya, Selangor, Malaysia, and the University of Malaya, Malaysia. The primary goal of this conference is to bring together healthcare professionals, academicians, researchers, practitioners, and experts from various disciplines to share their knowledge, research findings, innovations, and best practices in medicine, pharmacy, nursing, and allied health sciences. The conference aims to provide an international platform for meaningful academic exchange, interdisciplinary collaboration, and the development of innovative approaches to address emerging challenges in healthcare. We believe that MediSphere 2026 will serve as a valuable platform for young researchers, students, faculty members, and professionals to showcase their research, exchange ideas, and build meaningful academic and professional networks.

Message

We are pleased to invite you to participate in the International Conference on Medicine, Pharmacy, Nursing and Allied Health Sciences – MediSphere 2026, to be held in Virtual Mode on August 01–02, 2026. The conference is organized by Annai College and Jiadhal College, in collaboration with Genovasi University College, Petaling Jaya, Selangor, Malaysia, and the University of Malaya, Malaysia. The primary goal of this conference is to bring together healthcare professionals, academicians, researchers, practitioners, and experts from various disciplines to share their knowledge, research findings, innovations, and best practices in medicine, pharmacy, nursing, and allied health sciences. The conference aims to provide an international platform for meaningful academic exchange, interdisciplinary collaboration, and the development of innovative approaches to address emerging challenges in healthcare. We believe that MediSphere 2026 will serve as a valuable platform for young researchers, students, faculty members, and professionals to showcase their research, exchange ideas, and build meaningful academic and professional networks.

Conference Committees

Convener

Conference Chair:

Dr. S. Balamuralitharan, Annai College

Convenors:

Dr. K Sujith (Dean, Annai College)

Dr. R. Shanthi Devi (Bharathi Women's College)

Conveners:

Dr. Sindhura Kannappan MEASI, Chennai

Dr. D. Veera Nagendra Kumar, Associate Professor

MediSphere 2026

Invited / Keynote Speakers

Dr. MUCHUKOTA SUSHMA

Department of Pharmacy Practice
Aditya Bangalore Institute of Pharmacy
Education & Research, Bangalore.

Dr.NEELIMA.P, MD, FGO,(MBA)

Principal, Maharaja Institute of Medical
Sciences Nellimarla Vizianagaram
Andhra Pradesh, Dr.NTR University of
Health Sciences

Dr Mekkanti Manasa Rekha

Department of Pharmacy Practice
Aditya Bangalore Institute of Pharmacy
Education & Research, Bangalore.

Dr Vishwesh Nagamalla

Sanjivani University, Maharastra, India

Dr. Harishchander Anandaram

School of Artificial Intelligence,
Coimbatore

Mr. Pramod

HOD of Pharmaceutical Chemistry
Harsha college of Pharmacy
Nelamangala, Bangalore

MediSphere 2026

International Conference on Medicine, Pharmacy, Nursing and Allied Health Sciences

website: https://chendurph.com/conferences/MEDISPHERE-2026/

August 01 - 02, 2026 (virtual mode)

Organized by
Annai College & Jiadhai College

In collaboration with: Genovasi University College ,Petaling Jaya, Selangor, Malaysia & University of Malaya, Malaysia.

MediSphere Research Excellence Awards 2026

All accepted and presented papers will be published in Scopus indexed Conference proceedings after additional review process and publication charges.

All Accepted and Presented Papers will be Published in the Conference Proceedings with ISBN.

SUBMISSION OF ABSTRACT/ Full paper
All full Papers/Abstracts should be submitted electronically to
conferences_events@annaicollege.com

Scopus

Last date for registration: July 31, 2026
Students / Research Scholars :₹300 (Life Members: 10% discount)
Faculty / Academicians / Industry : ₹500 (Life Members: 10% discount)

Organizing Secretary
Prof. Dr. S.Balamuralitharan
Contact Us
Mobile : +91-88387 02557

CALL FOR
INTERNATIONAL RESEARCH EXCELLENCE AND INNOVATION AWARDS – 2026

Individual Awards		Industry/Organization
Online ₹1500	Online ₹2500	Online ₹5000
Offline ₹3000	Offline ₹5000	Offline ₹10000
Medium quality & Normal size	High quality & Big size	High quality & Big size

Eligibility: Any citizen of India may apply for these prestigious awards.
Note: All awardees will receive a medal, a memento (trophy), and Award certificate through India Post. They will also receive soft copies of the memento and certificate via email. At the end of every month, the updated list of awardees, along with photographs, will be published on the website.

Benefits:
- Public recognition
- Professional validation
- API Score
- Motivational boost

Requirements:
- Photo, Name, Affilation, email id and cell number.

Award Categories : https://chendurph.com/awards/
Awards Nomination Link : https://docs.google.com/form
Acceptance and review processing time : 7 days
Award receiving duration : 15 days (every month end will update in website with your photo)

MediSphere 2026

Conference Theme

This theme emphasizes the convergence of medicine, pharmacy, nursing, and allied health sciences to improve patient outcomes, strengthen healthcare systems, and foster multidisciplinary research and innovation. It reflects current trends in healthcare innovation, digital health, patient-centered care, and interprofessional collaboration.

Key Areas of MediSphere 2026

Medicine & Clinical Sciences

* Internal Medicine and Clinical Practice
* Surgery and Surgical Innovations
* Emergency and Critical Care Medicine
* Public Health and Preventive Medicine
* Infectious Diseases and Epidemiology
* Oncology and Cancer Research
* Cardiology, Neurology, and Specialized Care

Pharmacy & Pharmaceutical Sciences

* Clinical Pharmacy Practice
* Pharmacology and Therapeutics
* Drug Discovery and Development
* Pharmaceutical Biotechnology
* Pharmacovigilance and Drug Safety
* Personalized and Precision Medicine
* Regulatory Affairs and Pharmaceutical Policy

Nursing Sciences

* Advanced Nursing Practice
* Critical Care and Emergency Nursing
* Community and Public Health Nursing
* Nursing Education and Leadership
* Patient Safety and Quality Care
* Evidence-Based Nursing Practice
* Mental Health and Psychiatric Nursing

Allied Health Sciences

* Medical Laboratory Technology
* Physiotherapy and Rehabilitation Sciences
* Radiology and Medical Imaging
* Nutrition and Dietetics
* Occupational Therapy
* Respiratory Therapy
* Health Informatics and Healthcare Technology

Research & Academic Development

* Clinical Research Methodology
* Translational Medicine
* Evidence-Based Healthcare
* Multidisciplinary Research Collaborations
* Research Ethics and Publication Practices
* Innovations in Medical Education and Training

Emerging Healthcare Innovations

* Artificial Intelligence in Healthcare
* Telemedicine and Digital Health
* Medical Devices and Health Technology
* Healthcare Data Analytics
* Precision Health and Genomics
* Sustainable Healthcare Systems

Global Health & Healthcare Management

* Health Policy and Administration
* Healthcare Quality Improvement
* Global Health Challenges
* Health Equity and Accessibility
* Pandemic Preparedness and Response
* Interdisciplinary Healthcare Collaboration

These topics are consistent with the major focus areas commonly featured in international conferences covering medicine, pharmacy, nursing, and allied health sciences.

CONFERENCE CHAIR

Prof.Dr.S.Balamuralitharan
PhD,(PDF),(LLB) Honors
Post Doctoral Research Fellow, Lincoln University College, Malaysia.
Professor of Mathematics, Annai College of Arts & Science, Kumbakonam.
Adjunct Faculty, SIMATS, Saveetha University, Chennai.
Email id:
conferences_events@annaicollege.com
Cell : 8838702557

CONFERENCE CONVENERS

Dr.Sindhura Kannappan
Dr. K. Sujith
Dr. R. SANTHI DEVI
Dr. Sheik Saidhbi

IMPORTANT LINKS

Conference Website
https://chendurph.com/conferences/

Conference Mail id
aisbp2026@chendurph.com

Conference Whatsapp Group
https://chat.whatsapp.com/KhumPg8UbPO8R6H3HmoOH4

Registration Link
https://forms.gle/ghuA9hC8JdahNyKM6

IMPORTANT DATES

Last date for registration: 16.05.2026
Intimation regarding acceptance: 2 DAYS (AFTER SUBMISSION)
Last date for submission of full paper: 16.05.2026
Conference dates: May 16 & 17, 2026

MediSphere 2026

National Advisory Board

Dr. G. PUTHILIBAI
Professor,
Department of Chemistry,
Sri Sairam Engineering College (Autonomous), Chennai.
National IP, WIPO, ISTE, IEEE Awardee

Mr. Prajval V
Independent researcher and
freelancer Trainer

Dr. K. Sujith
Dean & HoD, PG & Research Dept. of Computer Science,
Annai College of Arts & Science

Dr. R. Santhi Devi
Associate Professor of Geography,
Specialization in Remote Sensing &
GIS in Coastal Studies and Environmental Studies

Prof. Ravi H. Gedam
Computer Science &
Engineering School of Engineering & Technology, GHRU

Dr. R. Senthamil Selvan
Associate Professor, Department of ECE,
Annamacharya Institute of Technology and Sciences (Autonomous),
Tirupati, Andhra Pradesh.

Dr. A. Karunamurthy
Associate professor, Dept. of MCA,
Sri Manakula Vinayagar Engineering College (Autonomous),
Pondicherry, India.

Dr. Sheshang Degadwala
Professor & Head, Department of Computer Engineering,
Sigma University, Vadodara, Gujarat

Last date for registration: July 31, 2026
Students / Research Scholars :₹300 (Life Members: 10% discount)
Faculty / Academicians / Industry : ₹500 (Life Members: 10% discount)

TECHNICAL COMMITTEE

Khan Iftekharuddin
Old Dominion University, Norfolk, United States

Muhammad Fazal Ijaz
Melbourne Institute of Technology, Melbourne, Australia

Francesco Isgrò PhD
University of Naples Federico II, Naples, Italy

Harleen Kaur
United Nations University, Tokyo, Japan

Philipp Koehn
Johns Hopkins University, University of Edinburgh, Edinburgh, United Kingdom

Matthew Korban
University of Virginia, Charlottesville, United States

Constantine Kotropoulos
Aristotle University of Thessaloniki, Thessaloniki, Greece

Fernando Lezama
Polytechnic Institute of Porto, Porto, Portugal

MediSphere 2026/Journal Publication

- Journal of Health Science and Medical Research
- Pain, Joints, Spine
- International Journal of Aquatic Research and Environmental Studies
- Genetics and Molecular Research
- International Journal of Drug Delivery Technology (IJDDT)
- Letters in Biomathematics
- International Journal of Special Education
- BIOINFORMATION
- Oriental Journal of Chemistry
- Bioscience Biotechnology Research Communications
- ADVANCES IN BIORESEARCH

All full Papers/Abstract should be submitted electronically to conferences_events@annaicollege.com

REGISTRATION FEES

Students and Research Scholars :
Rs.300 [life members 10% discount]
Faculty/ Academician & Indrustry :
Rs.500 [life members 10% discount]
Conference proceedings with ISBN softcopy + softcopy certificate = free for all [all authors individual certificates free for each single registration]
Conference proceedings with ISBN hardcopy + hardcopy certificate = not free
[we will inform later based on the page numbers of proceedings]
Participation certificate = free
Best paper certificate = free [each session 1 member will be selected]
Full Paper Publication in conference proceedings: Rs.1000

ACCOUNT DETAILS

Company Name :
CHENDUR ENTERPRISES
Bank Name : Karur Vysya Bank
A/C No : 1617135000009848
IFSC Code : KVBL0001617
Account Type : Current

Note: All accepted and presented papers will be published in the Conference Proceedings with ISBN, and selected papers will be published in Scopus Springer indexed.

LIST OF FULL PAPER PUBLICATIONS

F1	A STUDY ON DEVELOPMENT OF RURAL HERBAL AND FOLK MEDICINES FOR SUSTAINABLE DEVELOPMENT OF RURAL INDIAN COMMUNITIES AND SOCIETIES Dr. Pradipta Mukhopadhyay
F2	GENDER DIFFERENCES IN PERIPHERAL NERVE CONDUCTION PARAMETERS: A CROSS-SECTIONAL NEUROPHYSIOLOGICAL STUDY OF HEALTHY ADULTS Beulah Snowin D.R, Sowmiya T., Ashwini V.
F3	CLINICAL SPECTRUM OF PREVIOUSLY UNDIAGNOSED COMORBIDITIES IDENTIFIED DURING ROUTINE PRE-ANAESTHETIC ASSESSMENT AND THEIR IMPLICATIONS FOR PERIOPERATIVE RISK STRATIFICATION: A PROSPECTIVE OBSERVATIONAL STUDY Sowmiya T, Ashwini V, Beulah Snowin D.R
F4	DEVELOPMENT OF AN INTEGRATED DIFFICULT AIRWAY PREDICTION MODEL USING THE STOP-BANG QUESTIONNAIRE AND CONVENTIONAL BEDSIDE AIRWAY ASSESSMENT PARAMETERS IN ADULT SURGICAL PATIENTS: A PROSPECTIVE OBSERVATIONAL STUDY Ashwini V, Beulah Snowin D.R, Sowmiya T

F4

DEVELOPMENT OF AN INTEGRATED DIFFICULT AIRWAY PREDICTION MODEL USING THE STOP-BANG QUESTIONNAIRE AND CONVENTIONAL BEDSIDE AIRWAY ASSESSMENT PARAMETERS IN ADULT SURGICAL PATIENTS: A PROSPECTIVE OBSERVATIONAL STUDY

[1]Ashwini.v Assistant professor ,Department of operation theatre and Anesthesia Technology ,school of AHS vels institute of science , technology and Advanced Studies,

[2]Beulah snowin .D.R Assistant professor ,Department of physicain Assistant, School of AHS, vels institute of science ,technology and Advanced studies,

[3]Sowmiya .T Assistant professor, Department of operation theatre and Anesthesia Technology ,school of AHS, vels institute of science technology and Advanced Studies

ISBN Number: 978-81-6938-17-7

Abstract Background

Accurate preoperative prediction of difficult airway remains one of the greatest challenges in anaesthetic practice. Conventional bedside airway assessment tests such as the Modified Mallampati Classification (MMC), Thyromental Distance (TMD), Sternomental Distance (SMD), Upper Lip Bite Test (ULBT), mouth opening, neck circumference, and neck mobility demonstrate limited predictive accuracy when used individually. The STOP-Bang questionnaire, originally developed for screening obstructive sleep apnoea, incorporates clinical variables associated with difficult airway and may improve risk prediction. An integrated prediction model combining STOP-Bang with conventional bedside airway parameters may provide superior diagnostic performance.

Aim

To develop and validate an integrated difficult airway prediction model using the STOP-Bang questionnaire and conventional bedside airway assessment parameters in adult patients undergoing general anaesthesia **Methods**

A prospective observational study will be conducted among adult patients undergoing elective surgery under general anaesthesia requiring endotracheal intubation. Preoperative evaluation will include STOP-Bang scoring, Modified Mallampati Classification, Thyromental distance, Sternomental distance, upper lip bite test, interincisor distance, neck

circumference, and cervical spine mobility. Intraoperative airway difficulty will be assessed using the Cormack–Lehane grading system and the Intubation Difficulty Scale (IDS). Logistic regression analysis will be used to identify independent predictors of difficult airway and develop an integrated prediction model. Model performance will be evaluated using sensitivity, specificity, positive predictive value, negative predictive value, diagnostic accuracy, receiver operating characteristic (ROC) curve analysis, area under the curve (AUC), calibration analysis, and internal validation using bootstrapping.

Results

The integrated prediction model is expected to demonstrate superior discrimination and calibration compared with individual bedside airway assessment methods. Combining STOP-Bang with anatomical airway parameters is anticipated to improve sensitivity and overall predictive accuracy for difficult airway identification.

Conclusion

Development of an integrated difficult airway prediction model may facilitate earlier recognition of patients at risk for difficult airway, improve perioperative airway planning, reduce airway-related complications, and enhance patient safety.

Keywords

STOP-Bang Questionnaire, Difficult Airway, Prediction Model, Machine Learning, Diagnostic Accuracy, Airway Assessment, General Anaesthesia.

INTRODUCTION

Airway Evaluation is one of the most Crucial Aspects of Pre-Operative Assessment. According to the American Society of Anaesthesiologists (ASA), a Difficult Airway is defined as a Clinical Situation in which a conventionally trained Anesthesiologist experiences difficulty with mask ventilation, difficulty with tracheal intubation, (or) both. Airway Management is crucial for the Safety and Quality of Anaesthesia. An unpredicted difficult airway can result in failed intubation and, if ventilation is difficult, can evolve to a "cannot ventilate, cannot intubate" (CVCO) scenario, with risk of hypoxic-ischemic brain injury, and death. The Gold Standard for Securing the Airway is Tracheal Intubation via Direct Laryngoscopy. Pre-operative airway Evaluation is crucial for Anaesthesiologists to identify Difficult Airways, allowing for appropriate preparation and management.

Conducting bedside assessments to identify a potentially challenging airway before general anaesthesia is a standard component of clinical practice. The airway examination was

ISBN Number: 978-81-6938-47-7

initially conducted by evaluating characteristics such as head extension and neck flexion, Mallampati oropharyngeal classification, Thyromental distance, Sternomental distance, Inter-incisor gap, Upper lip bite test and mandibular protrusion. Each Airway factor was given three possible scores (0/1/2). A total score greater than 10 predicts a greater risk of difficult intubation. It is crucial to differentiate challenging laryngoscopy from difficult tracheal intubation. Several intubation attempts, additional providers and many alternative techniques were recorded. Difficult laryngoscopy is an objective measure associated with the grading of laryngeal visualisation as grades III or IV per Cormack and Lehane. An IDS greater than 5 indicates difficulties with intubation.

Several indicators, including Obstructive Sleep Apnea Syndrome (OSAS), can predict potential Airway Difficulties. A high risk for OSAS could indicate that managing the Airway during Anaesthesia will be challenging. Identifying OSAS in preoperative assessments may aid in preventing adverse effects. Obstructive Sleep Apnea Syndrome (OSAS) is a condition that occurs when the Airway becomes obstructed during sleep, causing repeated Breathing disruptions. The Obstruction arises because the Upper Airway collapses during sleep. OSAS is characterised by Loud Snoring and Excessive Daytime Sleepiness. It is a prevalent condition that impacts individuals across all age demographics. Snoring is loud, which is very noisy and often accompanied by Apnea and Hypopnea and that leads to Suffocation, Fatigue, Irritation and Cognitive Impairment.

Although Obese patients are more likely to have Obstructive Sleep Apnea Syndrome (OSAS), non-obese patients can also have OSAS. In Obese patients, Excess Adipose Tissue in the neck contributes to Airway Constriction, whereas in individuals with Normal Body Weight, Tonsillar Hypertrophy or Craniofacial Structural Anomalies lead to Airway Narrowing or Obstruction. It presents a Difficulty in the perioperative phase due to the increased risk of Difficult Mask Ventilation, Difficult Intubation, and Upper Airway

Collapsibility. Polysomnography (PSG) is the definitive standard for diagnosing Obstructive Sleep Apnea Syndrome (OSAS). A Significant proportion of surgical patients have undiagnosed Obstructive Sleep Apnea, although there is inadequate time in the preoperative period to do a proper polysomnography examination. Furthermore, PSG requires the Knowledge of Sleep medicine specialists, which may not be widely available at many hospitals and medical centres.

This shows the significance of an effective OSAS screening tool. Several screening tools are available for OSAS patients; among these, the STOP-BANG Questionnaire is highlighted because it is user-friendly and has proven to be valid.

The STOP-BANG Questionnaire was initially developed in 2008. It consists of four private [STOP – Snoring,

Tiredness, Observed Apnea and High Blood Pressure] and four Demographic particulars [BANG – Body Mass Index (BMI), Age, Neck Circumference and Gender]. Patients with a STOP-BANG score of ≥5 might be suffering from severe OSAS. The STOP-BANG score is applicable for stratifying intraoperative and postoperative risk, and anaesthesia

ISBN Number: 978-81-959885-17-7

providers must be cautious in managing patients with elevated STOP-BANG scores. A High STOP-BANG score alerts anaesthesia providers of possible changes in their management strategy, such as using regional anaesthesia instead of General anaesthesia or planning for difficult intubation.

LITERATURE REVIEW

Recognizing the structural airway risks associated with sleep apnea, Edwin Seet et al. (2012) conducted a prospective study to evaluate the utility of the STOP-Bang questionnaire as a predictor for problematic airways. The researchers confirmed that a STOP-Bang score ≥ 3 served as a reliable threshold to identify patients facing elevated risks of both undiagnosed Obstructive Sleep Apnea Syndrome (OSAS) and direct intubation complications. Their data showed that individuals classified in higher STOP-Bang tiers had a significantly higher frequency of restricted laryngeal visualization and required more complex airway management interventions. This established the questionnaire as an effective clinical tool that captures multi-dimensional anatomical risks.

A definitive meta-analysis conducted by Shiga et al. (2005) compiled data from 50,760 surgical patients to mathematically verify the accuracy of traditional pre-operative screenings. Their analysis established a baseline difficult intubation occurrence rate of 5.8%. More importantly, the authors proved that individual structural bedside markers—specifically the Mallampati score, thyromental distance (TMD), and sternomental distance (SMD)—offered poor standalone predictive value. When used in isolation, these markers routinely generated low sensitivity profiles and high rates of false-negative errors. The study concluded that single physiological indicators cannot reliably anticipate difficult airways, validating the need for a multivariate diagnostic approach.

MATERIALS AND METHODS

Study population

The study included 197 patients of either gender in the 18-60 year age group with an American Society of Anesthesiologists (ASA) physical status classification of I-III who had undergone General anaesthesia and required endotracheal intubation for elective surgeries. and the Informed Consent from the Patient were obtained, and the study was carried out on patients who underwent Elective Surgeries under General

Anaesthesia. The study is conducted in the pre-operative assessment and inside the sterile operation theatres This study excluded patients who were Unconscious, Unoriented, and Uncooperative, patients with an ASA score of IV, those aged above 60 years, patients with refusal, and patients with obstetrics. **Procedure**

In the pre-operative assessments of all patients, Name, Age, Gender, BMI, Dental status (presence of Buck teeth or not), and Mallampati scores were documented. The Mallampati score was assessed by observing the mouth opening. It was performed with the patient sitting with the mouth opened maximally and the tongue protruding without phonation.

ISBN Number : 978-81-6938-17-1

Classification was determined based on the degree to which the base of the tongue obscures the visibility of pharyngeal structures, categorised into four classes

Anthropometric measurements included Thyromental distance, Sternomental distance, Neck circumference and Inter-incisor Gap, and Head & Neck movement and an upper lip bite test was carried out. The Thyromental distance was measured as the distance between the thyroid cartilage and the tip of the mandible, with the head at full extension, using a ruler. The Sternomental distance was measured with the ruler from the sternal notch to the tip of the jaw with the head fully extended. The Neck Circumference was measured with the tape at the thyroid cartilage level with the head in the neutral position. The Inter-incisor Gap was determined by measuring the distance with the ruler between the upper and lower incisors as the mouth was fully opened. The Head and Neck movement maximum range was noted by asking the patient to extend the head and neck fully. The Upper lip bite test measures mandibular mobility by making the patient bite the upper lip as much as possible with their lower incisors. The patient's ability to bite the upper lip is classified into three categories

The frequency of difficult airway was higher in the patients with a score of 11-14 in other Bedside Predictor tests. Furthermore, all patients were asked to complete the STOP–BANG Questionnaire. The STOP-BANG is an 8-item questionnaire including closed-ended questions, with a score assigned for each affirmative response, utilised as a screening instrument for OSAS. It includes four Subjective [STOP: Snoring, Tiredness, Observed apnea, and High Blood Pressure] and four Demographic items [BANG: Body Mass Index (BMI), Age, Neck Circumference, and Gender]. Patients who scored ≥ 5 points on this questionnaire were classified as having severe OSAS, whereas those who scored < 5 points were classified as having mild to moderate OSAS. Predictors of challenging intubation encompass a Mallampati score of III or IV, a Thyromental distance of < 6 cm, a Sternomental distance of < 12 cm, Head & Neck movement < 90°, an Inter-incisor gap < 4 cm, Upper lip bite test – Class III, Severe Buck Teeth and a STOP-BANG Questionnaire score of ≥ 5. In the operating room, standard ASA monitors (Non-invasive blood pressure, pulse oximetry,

electrocardiogram, and capnography) were applied, and patients were induced with appropriate induction agents following 3 minutes of pre-oxygenation. Challenges in Mask ventilation were accurately documented. A Mask ventilation scale ranging from Grade 1 to 4 was employed.

A Mask Ventilation grade of III or IV indicates challenging ventilation. A Neuromuscular blocker was administered, and following the confirmation of adequate relaxation, Laryngoscopy was performed with a curved blade in the typical sniffing position. The Laryngoscopic vision was assessed using the Cormack and Lehane (C-L) scale.

C-L grade of III or IV indicates challenging intubation. The Difficulty of Intubation was evaluated using the Intubation Difficulty Scale (IDS). In our study, Difficult intubation was characterised by a number of additional intubation attempts, the number of additional operators, and the number of alternative techniques used such as Video Laryngoscope or

ISBN Number: 978-81-969388-1-7

Fiberoptic bronchoscope and equipment including stylet, bougie and intubation stylet; Laryngoscopic view as delineated by C-L grade; Lifting force utilised during laryngoscopy and Cricoid pressure was applied (or) not required. IDS score of > 5 indicates difficult intubation. The collected data were systematically recorded and documented, and it was analysed to compare the accuracy of the STOP-BANG Questionnaire with other bedside tests.

RESULTS DEMOGRAPHIC ANALYSIS

The study included 197 participants. Out of 197 patients, 78% belonged to the < 50 years age group and 22% belonged to the > 50 years age group. 56% of the patients belonged to the Female group, and 44% of the patients belonged to the Male group. 95.94% belonged to

< 35 Kg/m2 BMI and 4.06% belonged to > 35 Kg/m2 BMI. 20.3% belonged to ASA I, 51.27% belonged to

ASA II, and 28.43% belonged to ASA III. 43.65% had an Easy STOP-BANG score, 47.72% had a Moderate

STOP-BANG score, and 8.63% had a Difficult STOP-BANG score

Airway Measurements

Airway Measurements

Out of 197 patients, Difficult intubation was more common in Mallampati Class III–IV

(61.11%), showing a statistically significant association ($p < 0.05$). Though 22.22% of

Difficult intubation had a Thyromental distance of 6 – 6.5cm, no statistically significant association was found ($p > 0.05$). Limited Head and Neck Movement was associated with more Difficult intubation (50%), and this was statistically significant ($p < 0.05$). Only 4.47% had Severe Buck Teeth, with none of them experiencing Difficult intubation. There was no statistically significant association between Buck Teeth and Difficult intubation ($p > 0.05$). The majority of patients with Difficult intubation had an Inter-Incisor Gap > 5cm (or) 4 – 5 cm, and no significant statistical association was found ($p > 0.05$). Though 50% of difficult intubation had a Upper Lip Bite Test Class II, no statistically significant association was found ($p > 0.05$). Most patients had > 12.5cm Sternomental distance; no statistically significant association with Difficult intubation was found ($p > 0.05$)

CATEGORY	SUB CATEGORY	TOTAL (N=197)	EASY INTUBATION(N=179)	DIFFICULT INTUBATION (N=18)	P VALUE

ISBN Number : 978-81-6988-177

MALLAMPATI CLASS	Class -I	27 (13.71%)	26 (14.53%)	1 (5.56%)	p < 0.05
	Class-II	115 (58.38%)	109 (60.89%)	6 (33.33%)	
	Class III-IV	55 (27.925%)	44 (24.58%)	11 (61.11%)	
THYROMENTAL DISTANCE (CM)	> 6.5 Cm	174 (88.32%)	160 (89.39%)	14 (77.78%)	p > 0.05
	6-6.5 Cm	23 (11.68%)	19 (10.61%)	4 (22.22%)	
	< 6 Cm	0 (0%)	0 (0%)	0 (0%)	
HEAD AND NECK MOVEMENT (°)	> 90°	140 (71.07%)	133 (74.30%)	7 (38.89%)	p < 0.05
	90°	50 (25.38%)	41 (22.911%)	9 (50%)	
	< 90°	7 (3.55%)	5 (2.79%)	2 (11.11%)	
BUCK TEETH	No	167 (84.77%)	149 (83.24%)	18 (100%)	p > 0.05
	Mild	22 (11.17%)	22 (12.29%)	0 (0%)	
	Severe	8 (4.06%)	8 (4.47%)	0 (0%)	
INTER INCISOR GAP (CM)	> 5 Cm	130 (65.99%)	120 (67.04%)	10 (55.56%)	p > 0.05
	4-5 Cm	50 (25.38%)	43 (24.02%)	7 (38.89%)	

ISBN Number : 978-81-6388817-7

	< 4 Cm	17 (8.63%)	16 (8.94%)	1 (5.56%)	
UPPER LIP BITE TEST	Class -I	86 (43.65%)	81 (45.25%)	5 (27.78%)	p > 0.05
	Class-II	73 (37.06%)	64 (35.75%)	9 (50%)	
	Class-III	38 (19.29%)	34 (18.99%)	4 (22.22%)	
STERNOMENTAL DISTANCE (CM)	> 12.5 Cm	174 (88.32 %)	160 (89.39%)	14 (77.78%)	p > 0.05
	12-12.5 Cm	23 (11.68%)	19 (10.61%)	4 (22.22%)	
	< 12 Cm	0 (0%)	0 (0%)	0 (0%)	

Intubation Difficulty Scale

Intubation Difficulty Scale

CATEGORY	SUB CATEGORY	TOTAL (N=197)	EASY INTUBATION (N=179)	DIFFICULT INTUBATION(N=18)	P VALUE
NO OF ATTEMPTS	0	182 (92.39 %)	179 (100%)	3 (16.67%)	p < 0.05
	1	15 (7.61%)	0 (0%)	15 (83.33%)	
NO OF OPERATORS	0	179 (90.86 %)	176 (98.32%)	3 (16.67%)	p < 0.05
	1	18 (9.14%)	3 (1.68%)	15 (83.33%)	

ISBN Number : 978-81-6938-17-7

NO O ALTERNATIVI TECHNIQUES	0	148 (75.13 %)	147 (82.12%)	1 (5.56%)	p < 0.05
	1	45 (22.84 %)	31 (17.32%)	14 (77.78%)	
	2	4 (2.03%)	1 (0.56%)	3 (16.67%)	
CORMACK AND LEHANE GRADE	CLASS I	97 (49.24 %)	97 (54.19%)	0 (0%)	p < 0.05
	CLASS II	72 (36.55 %)	70 (39.11%)	2 (11.11%)	
	CLASS III	27 (13.71 %)	12 (6.70%)	15 (83.33%)	
	CLASS IV	1 (0.51%)	0 (0%)	1 (5.56%)	
LIFTING RCE REQUIRED F O	NORMAL	152 (77.16 %)	152 (84.92%)	0 (0%)	p < 0.05
	INCREASED	45 (22.84 %)	27 (15.08%)	18 (100%)	
CRICOID COMPRESSIO N	NOT APPLIED	152 (77.16 %)	152 (84.92%)	0 (0%)	p < 0.05
	APPLIED	45 (22.84%)	27 (15.08%)	18 (100%)	

Out of 197 patients, the majority of patients with difficult intubation (83.33%)

required more than one attempt ($p < 0.05$), and 83.33% needed assistance from more than one operator ($p < 0.05$). The need for Alternative techniques was also significantly higher among the difficult intubation group, with 77.78% requiring at least one alternative method

ISBN Number: 978-81-6988-17-7

and 16.67% requiring two alternative techniques ($p < 0.05$). Cormack and Lehane Grades

(III and IV) were significantly linked to difficult intubation, with 83.33% of Grade-III and 5.56% of Grade-IV cases facing difficulty ($p < 0.05$). Additionally, increased lifting force was required in 100% of difficult intubations ($p < 0.05$). Similarly, Cricoid pressure was applied in 100% of difficult intubation cases ($p < 0.05$). All these factors were significantly associated with difficult intubation

Intubation Difficulty Scale

Intubation Difficulty Scale

CATEGORY	SUB CATEGORY	TOTAL (N=197)	EASY INTUBATION (N=179)	DIFFICULT INTUBATION(N=18)	P VALUE
NO OF ATTEMPTS	0	182 (92.39 %)	179 (100%)	3 (16.67%)	p < 0.05
	1	15 (7.61 %)	0 (0%)	15 (83.33%)	
NO OF OPERATORS	0	179 (90.86 %)	176 (98.32%)	3 (16.67%)	p < 0.05
	1	18 (9.14 %)	3 (1.68%)	15 (83.33%)	
NO OF ALTERNATIVE TECHNIQUES	0	148 (75.13 %)	147 (82.12%)	1 (5.56%)	p < 0.05
	1	45 (22.84 %)	31 (17.32%)	14 (77.78%)	
	2	4 (2.03 %)	1 (0.56%)	3 (16.67%)	

ISBN Number: 978-81-6988-17-7

CORMACK AND LEHANE GRADE	CLASS I	97 (49.24 %)	97 (54.19%)	0 (0%)	p < 0.05
	CLASS II	72 (36.55 %)	70 (39.11%)	2 (11.11%)	
	CLASS III	27 (13.71 %)	12 (6.70%)	15 (83.33%)	
	CLASS IV	1 (0.51 %)	0 (0%)	1 (5.56%)	
LIFTING FORCE REQUIRED	NORMAL	152 (77.16 %)	152 (84.92%)	0 (0%)	p < 0.05
	INCREASED	45 (22.84 %)	27 (15.08%)	18 (100%)	
CRICOID COMPRESSION	NOT APPLIED	152 (77.16 %)	152 (84.92%)	0 (0%)	p < 0.05
	APPLIED	45 (22.84 %)	27 (15.08%)	18 (100%)	

Significant Associations were found for Age (p = 0.003), Male gender (p = 0.003), Mallampati Class (p = 0.004), Neck Circumference (p < 0.001), and Head & Neck

Movement (p = 0.005). These variables showed a strong statistical relationship with

Difficult airway. BMI (p = 0.112), Buck Teeth (p = 0.169), IIG (p = 0.374), and ULBT (p =

0.345) were not statistically significant

Association of Individual Predictors for Difficult Intubation

ISBN Number : 978-81-6988-17-7

FACTOR	CHI-SQUARE TEST	P VALUE
AGE > 50	8.7405	0.003
MALE (GENDER)	9.0778	0.003
BMI > 35	2.5274	0.112
MALLAMPATI 3 – 4	10.9057	0.004
BUCK TEETH	3.5587	0.169
NECK CIRCUMFERENCE > 40CM	25.5390	0.000
INTER-INCISOR GAP < 4CM	1.9680	0.374
HEAD AND NECK MOVEMENT < 90°	10.8015	0.005
UPPER LIP BITE TEST CLASS - 3	2.1280	0.345

Correlations between Factors Predicting Difficult Intubation

Correlations between Factors Predicting Difficult Intubation

Difficult intubation was most frequent in the STOP-BANG Questionnaire High-risk group

(77.78%) and absent in the Low-risk group. A Significant Positive Correlation was found ($r = 0.4819$, $p < 0.05$). Most patients had Easy Airway Scores. Difficult intubation was weakly correlated with the Airway factors. 16 out of the 18 Difficult intubation cases were in the Easy group and 2 (11.11%) in the Moderate group. The Correlation between Airway factors and Difficult intubation was weak and not statistically significant ($r = 0.0487$, $p >$

0.05). All 9 patients with Difficult Mask Ventilation experienced Difficult Intubation. A Strong, Significant Correlation was found ($r = 0.5571$, $p < 0.05$)

CATEGORY	SUB CATEGORY	TOTAL (N=197)	EASY INTUBATION (N=179)	DIFFICULT INTUBATION (N=18)	SPEARMAN CORRELATION	P VALUE

ISBN Number: 978-81-6988-17-7

STOP –BANG QUESTIONNAIRE	Easy	86 (43.65 %)	86 (48.04%)	0 (0%)	0.4819	p < 0.05
	Moderate	94 (47.72 %)	90 (50.28%)	4 (22.22%)		
	Difficult	17 (8.63 %)	3 (1.68%)	14 (77.78%)		
AIRWAY FACTORS	Easy	183 (92.89 %)	167 (93.30%)	16 (88.89%)	0.0487	p > 0.05
	Moderate	13 (6.6%)	11 (6.15%)	2 (11.11%)		
	Difficult	1 (0.51 %)	1 (0.56%)	0 (0%)		
MASK VENTILATION	Easy	139 (70.56 %)	139 (77.65%)	0 (0%)	0.5571	p < 0.05
	Moderate	49 (24.87 %)	40 (22.35%)	9 (50%)		
	Difficult	9 (4.57 %)	0 (0%)	9 (50%)		

Discussion

Accurate prediction of difficult airway remains one of the most important objectives of preoperative anaesthetic assessment. Failure to recognize a potentially difficult airway before induction of general anaesthesia may lead to failed intubation, hypoxaemia, aspiration, airway trauma, and increased perioperative morbidity and mortality. Although several bedside airway assessment methods have been proposed, no single test has demonstrated consistently high sensitivity and specificity. Therefore, combining multiple predictors into an integrated prediction model may improve diagnostic performance and facilitate better perioperative planning In the present study, the incidence of difficult intubation was 9.14%, which is consistent with previously published literature reporting difficult intubation rates between 5% and 15% among adult surgical patients. This finding suggests that difficult airway continues to be a clinically significant problem despite routine preoperative assessment

ISBN Number: 978-81-6988-17-7

The STOP-Bang questionnaire demonstrated a strong association with difficult airway. Patients classified as high risk showed a substantially greater incidence of difficult intubation than those in the low-risk category. This observation supports previous investigations showing that patients with suspected obstructive sleep apnoea are more likely to experience difficult mask ventilation and difficult laryngoscopy because of increased upper airway collapsibility and altered airway anatomy

Among the conventional bedside airway assessment parameters, the Modified Mallampati Classification, increased neck circumference, and reduced cervical spine mobility demonstrated significant associations with difficult airway. These findings indicate that anatomical airway characteristics remain valuable predictors during routine preoperative evaluation. Conversely, thyromental distance, sternomental distance, upper lip bite test, and inter-incisor distance showed weaker predictive performance when used individually, highlighting the limitations of relying on isolated bedside tests

The findings of this study support the concept that difficult airway is multifactorial. Anatomical measurements alone cannot fully explain airway difficulty, while physiological risk factors included in the STOP-Bang questionnaire also contribute substantially to airway management challenges. Therefore, integrating these complementary predictors into a single clinical prediction model is likely to improve overall diagnostic accuracy.

The proposed integrated prediction model combines patient characteristics, STOP-Bang score, and conventional bedside airway assessment parameters into a comprehensive risk assessment strategy. Such an approach may help anaesthesiologists identify high-risk patients before induction of anaesthesia, allowing adequate preparation of advanced airway equipment, experienced personnel, and alternative airway management techniques.

From a clinical perspective, an integrated prediction model may contribute to improved patient safety by reducing unexpected difficult intubation, minimizing repeated laryngoscopy attempts, decreasing airway-related complications, and supporting evidence-based decision-making in perioperative airway management. Future multicentre studies with larger sample sizes and external validation are required to confirm the generalizability and clinical utility of the proposed model.

CONCLUSION

The study concludes that the STOP-BANG Questionnaire proved to be a better predictor of difficult airway compared to other bedside airway tests. Furthermore, Mask Ventilation difficulty and Intubation difficulty parameters also serve as an important adjunct in predicting and managing difficult airways. The findings strongly support the routine use of the STOP-BANG Questionnaire in Preoperative Airway Evaluation, along with conventional bedside airway tests (Mallampati class, Thyromental Distance, Sternomental Distance, InterIncisor Gap, Head & Neck Movement, Buck Teeth, and Upper Lip Bite Test) to enhance patient safety and optimize Anesthesia management

ISBN Number: 978-81-19088-17-7

REFERENCE

1.Apfelbaum JL, Hagberg CA, Caplan RA, Blitt CD, Connis RT, Nickinovich DG, et al. Practice guidelines for management of the difficult airway: An updated report by the American Society of Anesthesiologists.

Anesthesiology. 2022;136(1):31–81.

2.Chung F, Yegneswaran B, Liao P, Chung SA, Vairavanathan S, Islam S, et al. STOP Questionnaire: A tool to screen patients for obstructive sleep apnea. Anesthesiology. 2008;108(5):812–821.

3.Chung F, Abdullah HR, Liao P. STOP-Bang Questionnaire: A practical approach to screen for obstructive sleep apnea. Chest. 2016;149(3):631–638.

4.Seet E, Chung F, Wang CY, et al. Association of STOP-Bang Questionnaire with difficult airway in surgical patients: A prospective multicentre observational study. Br J Anaesth. 2017;119(4):885–892.

5.Khan MN, Ahmed A. STOP-Bang Questionnaire as a predictor of difficult mask ventilation in patients undergoing general anaesthesia. J Anaesthesiol Clin Pharmacol. 2018;34(2):220–225.

6.Kurtipek O, Yilmaz S, et al. Airway assessment in patients with obstructive sleep apnea syndrome. Eur Arch Otorhinolaryngol. 2015;272(4):1053–1059.

7.Markovic D, Milic M, et al. Predicting difficult intubation using the STOP-Bang Questionnaire and Intubation Difficulty Scale. BMC Anesthesiol. 2022;22:168.

ISBN Number : 978-81-6388-17-7