



Michelle Thi Cao, MD

Clinical Professor, Medicine - Pulmonary, Allergy & Critical Care Medicine

CLINICAL OFFICE (PRIMARY)

- **Chest Clinic**

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Bio

BIO

Dr. Michelle Cao is a board-certified, fellowship-trained pulmonologist, sleep medicine specialist, and intensivist (a doctor who cares for patients in intensive care units) with Stanford Health Care. She is a clinical professor in the Department of Medicine, Division of Pulmonary, Allergy & Critical Care Medicine at Stanford University School of Medicine. She completed a fellowship in sleep medicine at Stanford University School of Medicine and a fellowship in pulmonary and critical care medicine at UCLA David Geffen School of Medicine.

Dr. Cao specializes in providing home assisted ventilation (breathing assistance) to people living with chronic respiratory failure, such as those with neuromuscular disease. She has experience helping people with all types of respiratory conditions and sleep-related breathing disorders, including chronic obstructive pulmonary disease (COPD), sleep apnea, and hypoventilation syndromes. Dr. Cao is at the forefront of the latest advances in noninvasive ventilation, and she creates a personalized care plan for each of her patients.

Dr. Cao's clinical research interests include helping people with chronic respiratory failure adhere to a noninvasive ventilation program. She has also written about the emerging need for a new subspecialty in medicine devoted to caring for people with chronic respiratory failure.

Dr. Cao's articles have appeared in many peer-reviewed publications, including Annals of the American Thoracic Society, Expert Review of Respiratory Medicine, and Journal of Clinical Sleep Medicine. She has authored more than a dozen book chapters on sleep-related breathing disorders and neuromuscular diseases.

Dr. Cao edited An Introduction to Sleep Disorders, which was published by the American Academy of Sleep Medicine in 2019. She has served as a reviewer for several publications, including CHEST Journal, American Journal of Respiratory and Critical Care Medicine, and the Journal of the American Medical Association (JAMA).

Dr. Cao has presented her research and shared her expertise at conferences in the United States and around the globe. She has been invited to speak about a range of topics, including the latest advances in home mechanical ventilation and sleep disordered breathing. She has spoken at international

conferences for the American Thoracic Society (ATS), the American College of Chest Physicians (CHEST), the Associated Professional Sleep Societies (SLEEP), and many more.

Dr. Cao is a fellow of CHEST and the American Academy of Sleep Medicine (AASM). She is a member of ATS and the California Thoracic Society, where she served as president.

CLINICAL FOCUS

- Home Mechanical Ventilation
- Pulmonology and Sleep Disorders
- Pulmonary and sleep related breathing disorders in neuromuscular disease
- Sleep Apnea Syndromes
- Critical Care Medicine

ACADEMIC APPOINTMENTS

- Clinical Professor, Medicine - Pulmonary, Allergy & Critical Care Medicine

HONORS AND AWARDS

- Woman of the Year Award, California Thoracic Society (CTS)
- Teaching Award, Stanford University Department of Medicine, Division of Pulmonary, Allergy & Critical Care Medicine
- Distinguished CHEST Educator Award, American College of Chest Physicians (CHEST)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Chair, American Academy of Sleep Medicine; Sleep Technologist & Respiratory Therapist Education Committee (2022 - present)
- Vice Chair, American College of Chest Physicians - Scientific Presentations and Awards Committee (2021 - present)
- President, California Thoracic Society (2022 - 2023)
- Chair, American College of Chest Physicians - Home Mechanical Ventilation and Neuromuscular Disease NetWork (2019 - 2021)
- Member, American Thoracic Society (2008 - present)
- Fellow, American Academy of Sleep Medicine (2007 - present)
- Fellow, American College of Chest Physicians (2004 - present)

PROFESSIONAL EDUCATION

- Board Certification: Sleep Medicine, American Board of Internal Medicine (2009)
- Board Certification: Critical Care Medicine, American Board of Internal Medicine (2007)
- Board Certification: Pulmonary Disease, American Board of Internal Medicine (2006)
- Fellowship: Stanford University Sleep Medicine Fellowship (2008) CA
- Fellowship: Los Angeles County Harbor UCLA Pulmonary Disease and Critical Care Fellowship (2007) CA
- Residency: Loma Linda University Internal Medicine Residency (2003) CA
- Medical Education: Western University of Health Sciences College of Osteopathic Medicine of the Pacific (2000) CA

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Positive Airway Pressure devices for central sleep apnea

Teaching

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Sleep Medicine (Fellowship Program)

Publications

PUBLICATIONS

- **Respiratory insufficiency and sleep impairment in facioscapulohumeral muscular dystrophy.** *Neuromuscular disorders : NMD*
Wenninger, S., Evangelista, T., Cao, M., Fauroux, B., Benditt, J., Sasaki-Honda, M., Hewamadduma, C., Voermans, N. C.
2026; 63: 106419
- **Advancing a New Subspecialty: Hospital Sleep Medicine.** *Sleep medicine clinics*
Cao, M. T., Stansbury, R. C., Sharma, S.
2025; 20 (4): xiii-xiv
- **How I Do It: Transitioning Between Volume Assured Pressure Support (VAPS) Modalities on Home Mechanical Ventilators for Chronic Respiratory Failure.** *Chest*
Lussier, B. L., Orr, J., Cao, M.
2025
- **Reply to Currow et al.** *Annals of the American Thoracic Society*
Cao, M., Katz, S. L., Hansen-Flaschen, J.
2024
- **Roadmap for Advancing a New Subspecialty in Pulmonary Medicine Devoted to Chronic Respiratory Failure.** *Annals of the American Thoracic Society*
Cao, M., Katz, S. L., Hansen-Flaschen, J. H.
2024
- **International consensus statement on obstructive sleep apnea.** *International forum of allergy & rhinology*
Chang, J. L., Goldberg, A. N., Alt, J. A., Ashbrook, L., Auckley, D., Ayappa, I., Bakhtiar, H., Barrera, J. E., Bartley, B. L., Billings, M. E., Boon, M. S., Bosschieter, P., Braverman, et al
2022
- **Chronic Opioid Use and Sleep Disorders.** *Sleep medicine clinics*
Javaheri, S., Cao, M.
2022; 17 (3): 433-444
- **Obstructive sleep apnea: personalizing CPAP alternative therapies to individual physiology.** *Expert review of respiratory medicine*
Nokes, B., Cooper, J., Cao, M.
2022
- **The Effect of Obstructive Sleep Apnea Treatment and Severity on Choroidal Thickness in Patients With Central Serous Chorioretinopathy.** *Journal of vitreoretinal diseases*
Azad, A. D., Davila, J. R., Rayess, N., Cao, M., Mruthyunjaya, P., Pan, C. K.
2022; 6 (1): 22-30
- **A deep learning-based system for survival benefit prediction of tyrosine kinase inhibitors and immune checkpoint inhibitors in stage IV non-small cell lung cancer patients: A multicenter, prognostic study** *eClinicalMedicine*
Deng, K., Wang, L., Liu, Y., Li, X., Hou, Q., Cao, M., Ng, N. N., Wang, H., Chen, H., Yeom, K. W., Zhao, M., Wu, N., Gao, et al
2022; 51: 1-14
- **The Effect of Obstructive Sleep Apnea Treatment and Severity on Choroidal Thickness in Patients With Central Serous Chorioretinopathy** *JOURNAL OF VITREORETINAL DISEASES*
Azad, A. D., Davila, J. R., Rayess, N., Cao, M., Mruthyunjaya, P., Pan, C. K.
2022; 6 (1): 22-30

- **Obstructive sleep apnea and severe COVID-19 infection: is there a plausible link?** *Journal of clinical sleep medicine : JCSM : official publication of the American Academy of Sleep Medicine*
Sahni, A., Cao, M.
2021
- **Acute on Chronic Neuromuscular Respiratory Failure in the Intensive Care Unit: Optimization of Triage, Ventilation Modes, and Extubation** *CUREUS*
Murray, N. M., Reimer, R. J., Cao, M.
2021; 13 (7)
- **Acute on Chronic Neuromuscular Respiratory Failure in the Intensive Care Unit: Optimization of Triage, Ventilation Modes, and Extubation.** *Cureus*
Murray, N. M., Reimer, R. J., Cao, M.
2021; 13 (7): e16297
- **Reply to Comment on: The Effect of Obstructive Sleep Apnea on Absolute Risk of Central Serous Chorioretinopathy** *AMERICAN JOURNAL OF OPHTHALMOLOGY*
Pan, C. K., Vail, D., Bhattacharya, J., Cao, M., Mruthyunjaya, P.
2021; 226: 271-272
- **Reply to Comment on: The Effect of Obstructive Sleep Apnea on Absolute Risk of Central Serous Chorioretinopathy.** *American journal of ophthalmology*
Pan, C. K., Vail, D., Bhattacharya, J., Cao, M., Mruthyunjaya, P.
2021
- **Respiratory Assessment** *The Encyclopedia of Sleep and Circadian Rhythms*
Hekmat, A., Cao, M.
2021
- **Sleep and Neuromuscular Diseases** *Principles and Practice of Sleep Medicine*
Gipson, K., Cao, M.
2021
- **Medication effects on sleep related breathing disorders** *The Encyclopedia of Sleep and Circadian Rhythms*
Teckchandani, P., Truong, K., Cao, M.
2021
- **Noninvasive Ventilator Devices and Modes.** *Sleep medicine clinics*
Singh, G., Cao, M.
2020; 15 (4): 545–55
- **Consensus-Based Care Recommendations for Pulmonologists Treating Adults with Myotonic Dystrophy Type 1.** *Respiration; international review of thoracic diseases*
Boentert, M. n., Cao, M. n., Mass, D. n., De Mattia, E. n., Falcier, E. n., Goncalves, M. n., Holland, V. n., Katz, S. L., Orlikowski, D. n., Sannicolò, G. n., Wijkstra, P. n., Hellerstein, L. n., Sansone, et al
2020: 1–9
- **Sleep Hypoventilation Syndromes** *American Psychiatric Association Publishing Pocket Guide on Sleep Disorders*
Aeyung, W., Cao, M.
2020
- **Sleep medicine exposure offered by United States residency training programs.** *Journal of clinical sleep medicine : JCSM : official publication of the American Academy of Sleep Medicine*
Sullivan, S. S., Cao, M. T.
2020
- **The Effect of Obstructive Sleep Apnea on Absolute Risk of Central Serous Chorioretinopathy.** *American journal of ophthalmology*
Pan, C. K., Vail, D. n., Bhattacharya, J. n., Cao, M. n., Mruthyunjaya, P. n.
2020
- **NEUROMUSCULAR RESPIRATORY FAILURE IN THE ICU: AN "UNWEANABLE" PATIENT AND A NOVEL TIERED PROTOCOL**

Murray, N., Reimer, R., Cao, M.
LIPPINCOTT WILLIAMS & WILKINS.2020

- **Chronic opioid use on sleep and respiration: scratching the surface.** *Sleep medicine*
Cao, M. n.
2019
- **Effects of Chronic Opioid Use on Sleep and Wake** *SLEEP MEDICINE CLINICS*
Cao, M., Javaheri, S.
2018; 13 (2): 271-+
- **Survey of Sleep Education Offered by US Pulmonary and Critical Care Fellowship Training Programs**
Sullivan, S., Cao, M.
ELSEVIER SCIENCE BV.2017: 554A
- **Sleep and Health: Medical Students' Perspectives and Lessons Learned** *ACADEMIC PSYCHIATRY*
Sullivan, S. S., Cao, M. T.
2017; 41 (5): 679-81
- **Factors Influencing Noninvasive Ventilation Initiation in Amyotrophic Lateral Sclerosis**
Doddamreddy, P., Singh, G., Schultz, B., Cao, M.
ELSEVIER SCIENCE BV.2017: 187A
- **Continuous positive airway pressure therapy in obstructive sleep apnea: benefits and alternatives** *EXPERT REVIEW OF RESPIRATORY MEDICINE*
Cao, M. T., Sternbach, J. M., Guilleminault, C.
2017; 11 (4): 259-272
- **SURVEY OF SLEEP EDUCATION OFFERED BY US NEUROLOGY TRAINING PROGRAMS**
Cao, M., Sullivan, S.
OXFORD UNIV PRESS INC.2017: A440
- **SURVEY OF SLEEP EDUCATION OFFERED BY US PSYCHIATRY SUBSPECIALTY FELLOWSHIP PROGRAMS**
Sullivan, S., Lopez, J., Cao, M.
OXFORD UNIV PRESS INC.2017: A440-A441
- **The hypocretin/orexin system in sleep disorders: preclinical insights and clinical progress.** *Nature and science of sleep*
Chow, M., Cao, M.
2016; 8: 81-86
- **Sleep and Neuromuscular Diseases** *Principles and Practice of Sleep Medicine*
Cao, M., Guilleminault, C.
2016
- **Narcolepsy: diagnosis and management** *Principles and Practice of Sleep Medicine*
Cao, M., Guilleminault, C.
2016
- **Opioids, Sedatives, and Sleep Hypoventilation** *SLEEP MEDICINE CLINICS*
Arora, N., Cao, M., Javaheri, S.
2014; 9 (3): 391-+
- **A Novel Adaptive Servoventilation (ASVAuto) for the Treatment of Central Sleep Apnea Associated with Chronic Use of Opioids.** *Journal of clinical sleep medicine*
Cao, M., Cardell, C., Willes, L., Mendoza, J., Benjafield, A., Kushida, C.
2014; 10 (8): 855-861
- **Central Sleep Apnea: Effects on Stroke Volume in Heart Failure** *AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE MEDICINE*
Cao, M., Guilleminault, C., Lin, C.
2013; 187 (4): 340-341

- **Respiratory Assessment** *The Encyclopedia of Sleep*
Cao, M.
2013
- **Sleep-Disordered Breathing, Heart Failure, and Phrenic Nerve Stimulation** *CHEST*
Cao, M., Guilleminault, C.
2012; 142 (4): 821-823
- **Acute and Chronic Sleep Loss: Implications on Age-Related Neurocognitive Impairment** *SLEEP*
Cao, M., Guilleminault, C.
2012; 35 (7): 901-902
- **NEUROHORMONES AND SLEEP** *VITAMINS AND HORMONES: SLEEP HORMONES, VOL 89*
Frenette, E., Lui, A., Cao, M.
2012; 89: 1-17
- **Sleep Paralysis & Hypnopompic/Hypnagogic Hallucinations** *Encyclopedia of Sleep and Dreams: The Evolution, Function, Nature, and Mysteries of Slumber*
Cao, M.
2012
- **Chronic Opioid Use: effects on sleep and sleep disordered breathing** *Opioids: Pharmacology, Clinical Uses and Adverse Effects*
Cao, M., Javaheri, S.
2012
- **Hypocretin Antagonists in Insomnia Treatment and Beyond** *CURRENT PHARMACEUTICAL DESIGN*
Ruoff, C., Cao, M., Guilleminault, C.
2011; 17 (15): 1476-1482
- **Hypocretin and Its Emerging Role as a Target for Treatment of Sleep Disorders** *CURRENT NEUROLOGY AND NEUROSCIENCE REPORTS*
Cao, M., Guilleminault, C.
2011; 11 (2): 227-234
- **Advances in the pharmacological approach to sleep disorders.** *Current pharmaceutical design*
Cao, M.
2011; 17 (15): 1416-1417
- **Sleep and Neuromuscular Diseases** *Principles and Practice of Sleep Medicine*
Cao, M., George, C., Guilleminault, C.
2011
- **Clinical Features and Evaluation of Obstructive Sleep Apnea and Upper Airway Resistance Syndrome** *Principles and Practice of Sleep Medicine*
Cao, M., Guilleminault, C., Kushida, C.
2011
- **Narcolepsy: diagnosis and management** *Principles and Practice of Sleep Medicine*
Guilleminault, C., Cao, M.
2011
- **Obstructive Sleep Apnea and Chronic Opioid Use** *LUNG*
Guilleminault, C., Cao, M., Yue, H. J., Chawla, P.
2010; 188 (6): 459-468
- **Families with sleepwalking** *SLEEP MEDICINE*
Cao, M., Guilleminault, C.
2010; 11 (7): 726-734
- **Advances in Narcolepsy** *MEDICAL CLINICS OF NORTH AMERICA*
Cao, M.

2010; 94 (3): 541-?

- **Pediatric sleep disorders: How can sleep-medicine make a difference?** *SLEEP MEDICINE REVIEWS*
Cao, M., Guilleminault, C.
2009; 13 (2): 107-110
- **Sleep and breathing: The impact of mechanical ventilation on the quality of sleep** *CRITICAL CARE MEDICINE*
Cao, M., Sarinas, P. S.
2008; 36 (6): 1960-1962
- **Sleep difficulties and behavioral outcomes in children** *ARCHIVES OF PEDIATRICS & ADOLESCENT MEDICINE*
Cao, M., Guilleminault, C.
2008; 162 (4): 385-389
- **Maxillomandibular advancement surgery for obstructive sleep apnea** *Minerva Pneumologica*
Cao M, Li KK, Guilleminault C
2008; 47: 203-12
- **Sleep-Disordered Breathing** *Bone's Atlas of Pulmonary Medicine*
Cao, M., Huynh, N., Guilleminault, C.
2008
- **Not all that wheezes is asthma: A case of adenoid cystic carcinoma mistaken for severe asthma exacerbation**
Cao, M., Vintch, J.
AMER COLL CHEST PHYSICIANS.2006: 309S-310S
- **Lymphocytic interstitial pneumonia (LIP) and human immunodeficiency virus (HIV) in the modern era**
Cao, M., Soogor, M., Vintch, J.
AMER COLL CHEST PHYSICIANS.2005: 426S-427S
- **The dual-wave bolus feature in continuous subcutaneous insulin infusion pumps controls prolonged post-prandial hyperglycaemia better than standard bolus in Type 1 diabetes** *DIABETES NUTRITION & METABOLISM*
Lee, S. W., Cao, M., Sajid, S., Hayes, M., Choi, L., Rother, C., de Leon, R.
2004; 17 (4): 211-216