

# Empowering patient care: A conversation with Dr. Frances Chung

Dr. Frances Chung has garnered international acclaim for her contributions to preventative care. Recognized as one of the world's top female scientists, she received the University Health Network (UHN) Inventor of the Year Award for contributing to "A Healthier World" through her transformative work in redefining standards of care for patients with sleep apnea by developing the STOP-Bang clinical questionnaire.



Dr. Frances Chung discusses the development of the STOP-Bang questionnaire.

**Congratulations on winning the UHN Inventor of the Year Award! Can you share more about the development process and the impact of the STOP-Bang clinical questionnaire on reimagining standards of care for patients with sleep apnea?**

I developed the STOP-Bang tool after hypothesizing that post-operative critical incidents and deaths might be related to sleep apnea due to its obstruction of the upper airway. After conducting polysomnography on hundreds of patients, I determined that a high proportion of surgical patients had undiagnosed sleep apnea — with morbidly obese Caucasian patients (especially males) and East Asian populations with retrognathia (receding jaw) at increased risk. I created the STOP-Bang questionnaire as a simple yet effective way to screen for sleep apnea.

**The STOP-Bang questionnaire has become a worldwide screening tool for patients with undiagnosed obstructive sleep apnea. How do you envision its continued evolution in improving patient outcomes?**

The STOP-Bang questionnaire is a screening tool originally created to identify surgical patients with undiagnosed sleep apnea for the prevention of critical incidents in the perioperative period and the postoperative setting. STOP-Bang has broadened its adoption as a global standard diagnostic tool within 40 geographic regions and 500 institutions across a wide range of industries, informing preventative care and treatment for sleep apnea. Besides surgical patients, the tool has been validated in different geographic regions worldwide, in different ethnic groups, sleep clinics, patients with cardiac risk factors, the general population, chronic pain patients and commercial drivers.

The rapid scaling of the simple STOP-Bang clinical tool is changing the vast landscape of sleep apnea diagnosis and treatment. Other sleep scales exist out there, but none are simple enough for patients to do at home.

STOP-Bang is now widely embraced by numerous institutions globally such as preoperative clinics, various hospitals, dental clinics, transportation services including the railway industry and even NASA. It was curiosity and perseverance that led to the development of the STOP-Bang tool and today, it is saving and improving lives around the globe. The licensing revenues go back to support the infrastructure of research and were reinvested into further research at University Health Network.

**Being recognized as one of the top 30 female scientists in Canada and among the best 1,000 female scientists worldwide is a remarkable achievement. Tell us more about your research interests.**

My research interests are in several areas: sleep apnea, cognitive impairment and perioperative medicine.

**As the co-founder and past president of the Society of Anesthesia and Sleep Medicine, what motivated you to establish this organization, and what impact do you hope it will have on the intersection of anesthesia and sleep medicine?**

In October 2010 in San Diego, I organized a gathering of anesthesiologists, sleep physicians, surgeons, emergency physicians, and basic scientists with an interest in sleep and anesthesia at a pre-convention symposium before the American Society of Anesthesiologists meeting. This provided the impetus to form the Society of Anesthesia and Sleep Medicine (SASM) to promote discussion, education, development of clinical standards, and research related to issues common to anesthesia and sleep. The SASM is now 12 years old.

Anesthesiology has evolved from a specialty based on procedures to a broader-based discipline. Anesthesiologists are involved in perioperative medicine and have an evolving role in the care of the surgical patient beyond the immediate perioperative period. Sleep apnea exemplifies a condition that requires expert guidance through the perioperative journey from preadmission to discharge and beyond and illustrates the potential for this broader perioperative role.

**What advice would you give to aspiring scientists and researchers, particularly those interested in the fields of sleep medicine and anesthesia?**

I would say "perseverance" is most important. A swan is usually white, but you may see an unusual black swan. I call it the "black swan phenomenon." If you see something out of the ordinary, keep on probing and don't give up. Every problem has a solution.

**Looking ahead, what are your current projects or areas of focus?**

I am now working with my research team of a MSc student, a PhD student, a research assistant and a research coordinator on cognitive impairment in older surgical patients.

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