

Overseas training at Massachusetts General Hospital

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The six months spent as a Research Fellow at MGH was as an immersive, intellectual, and inspirational experience. I had hardly warmed up to the environment in the Eikermann Lab in the second week of reporting when I was entrusted the task of finalizing the manuscript for a multicenter, randomized, placebo controlled trial.¹ It was a foretaste of what was to follow in six months of challenging research work.

Despite working in a university-affiliated hospital and having personal research interests, the busy clinical schedules in Hong Kong precluded room to explore in depth the world of research. At MGH, researchers seize the opportunities of working in a world-class institution and devoted incredible amounts of time and energy into their research efforts. I soon found myself surrounded by highly-focused individuals and was motivated to be the same. Working with the goal of finishing a project in six months, my work mainly involved outcomes research. It required data acquisition and organizational skills in handling a dataset of more than 180,000 cases, hypothesizing and feasibility testing, knowledge in statistical software and analytical methods, but above all, a collaborative spirit where we all benefited from the synergism of different researchers. During my time in the lab, we submitted more than five scientific abstracts to the upcoming

Anesthesiology 2017 meeting, and were awarded four oral presentations. The preparation for full manuscripts is underway.²

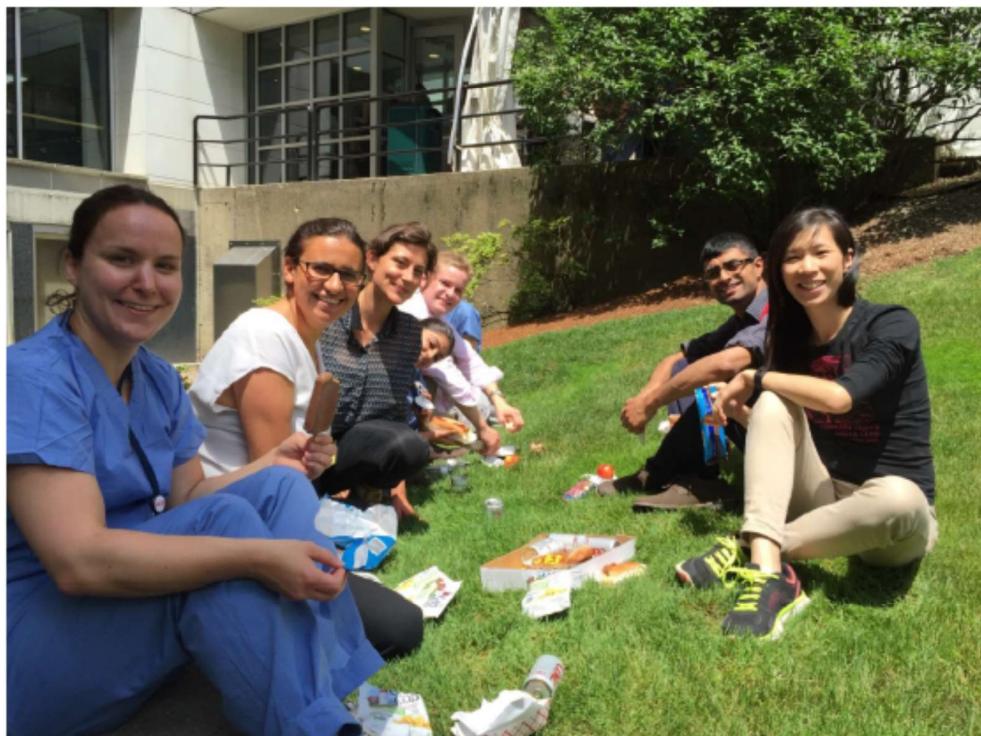
My main project was to examine the association between having a diagnosis of patent foramen ovale (PFO) and the outcome of perioperative ischemic stroke within 30 days of surgery. The hypothesis was that the perioperative period is one that posed excess risks of thrombi formation and paradoxical embolism due to intraoperative hemodynamic changes that increase right-to-left shunting, and postoperative factors such as immobilization. In a cohort of more than 150,000 cases, we found that having a PFO was associated with a substantially increased risk of perioperative stroke (adjusted odds ratio 2.66), and that this PFO-attributable risk was in fact more increased in individuals otherwise considered at low risk for stroke. We also found evidence to support the biological mechanism of paradoxical embolism in PFO-related strokes. To date, the American Heart Association / American Stroke Association and the NICE-accredited guidelines do not address the management of patients with PFO undergoing surgery.^{3,4} We believe our work has important implications for this patient subgroup, providing data to suggest that these patients may benefit from intensifying stroke preventive measures in the perioperative period. The manuscript is

currently under review in a reputable peer-reviewed journal.

Nothing will negate the lasting impact this fellowship has on my medical career and personal growth. I return to a position I already passionately love with a rekindled sense of curiosity and purpose. It is the

cumulation of unreserved support from my mentor Dr Wai-Ming Chan, the unsuspecting generosity of Dr Eikermann to take on a complete stranger, the selflessness of my colleagues in the AICU to bear with my absence, and the sponsorship of the Hong Kong Lung Foundation that paved the way for this unforgettable journey.





References

1. Anstey MH, Wibrow B, Thevathasan T, Roberts B, Chhangani K, Ng PY, Levine A, DiBiasio A, Sarge T, Eikermann M. Midodrine as adjunctive support for treatment of refractory hypotension in the intensive care unit: a multicenter, randomized, placebo controlled trial (the MIDAS trial). *BMC Anesthesiol.* 2017 Mar 21;17(1):47.
2. Bagchi A, Ruldsoph MI, Ng PY, Timm FP, Long DR, Shaefi S, Ladha K, Melo MFV, Eikermann M. The association of postoperative respiratory complications in 109,360 patients with pressure-controlled or volume-controlled ventilation. Accepted at *Anesthesia*.
3. Kernan WN, Ovbiagele B, Black HR, Bravata DM, Chimowitz MI, Ezekowitz MD, Fang MC, Fisher M, Furie KL, Heck DV, Johnston SC, Kasner SE, Kittner SJ, Mitchell PH, Rich MW, Richardson D, Schwamm LH, Wilson JA; American Heart Association Stroke Council, Council on Cardiovascular and Stroke Nursing, Council on Clinical Cardiology, and Council on Peripheral Vascular Disease. Guidelines for the prevention of stroke in patients with stroke and transient ischemic attack: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2014;45:2160-236.
4. National clinical guideline for stroke. 2016. [https://www.strokeaudit.org/SupportFiles/Documents/Guidelines/2016-National-Clinical-Guideline-for-Stroke-5t-\(1\).aspx](https://www.strokeaudit.org/SupportFiles/Documents/Guidelines/2016-National-Clinical-Guideline-for-Stroke-5t-(1).aspx) (accessed June 15, 2017.)