

It's Not “All in your Head”

The Importance of Screening for Panic-Related Anxiety in Emergency Medicine Patients

Sharon C. Sung, Ph.D.

Assistant Professor, Health Systems & Services Research, Duke-NUS Medical School

Senior Clinical Psychologist, Institute of Mental Health

Senior Clinical Psychologist, KK Women's & Children's Hospital

~~Imagine~~ out to dinner with your family, when all of a sudden...

- You feel pain in your chest - your heart races
- You start to sweat
- You feel like you cannot breathe
- You start to feel dizzy and unsteady
- You think “Something is seriously wrong with me!”

What would you do?

- Assume you're having a heart attack - get your spouse to take to you the A&E right away.
- Worry that something is seriously wrong with you. Avoid restaurant dining in the future.

- Laugh it off and go back to eating your meal.
- Wait for a few minutes to see if it passes. (You sometimes feel this way when eating spicy food.)

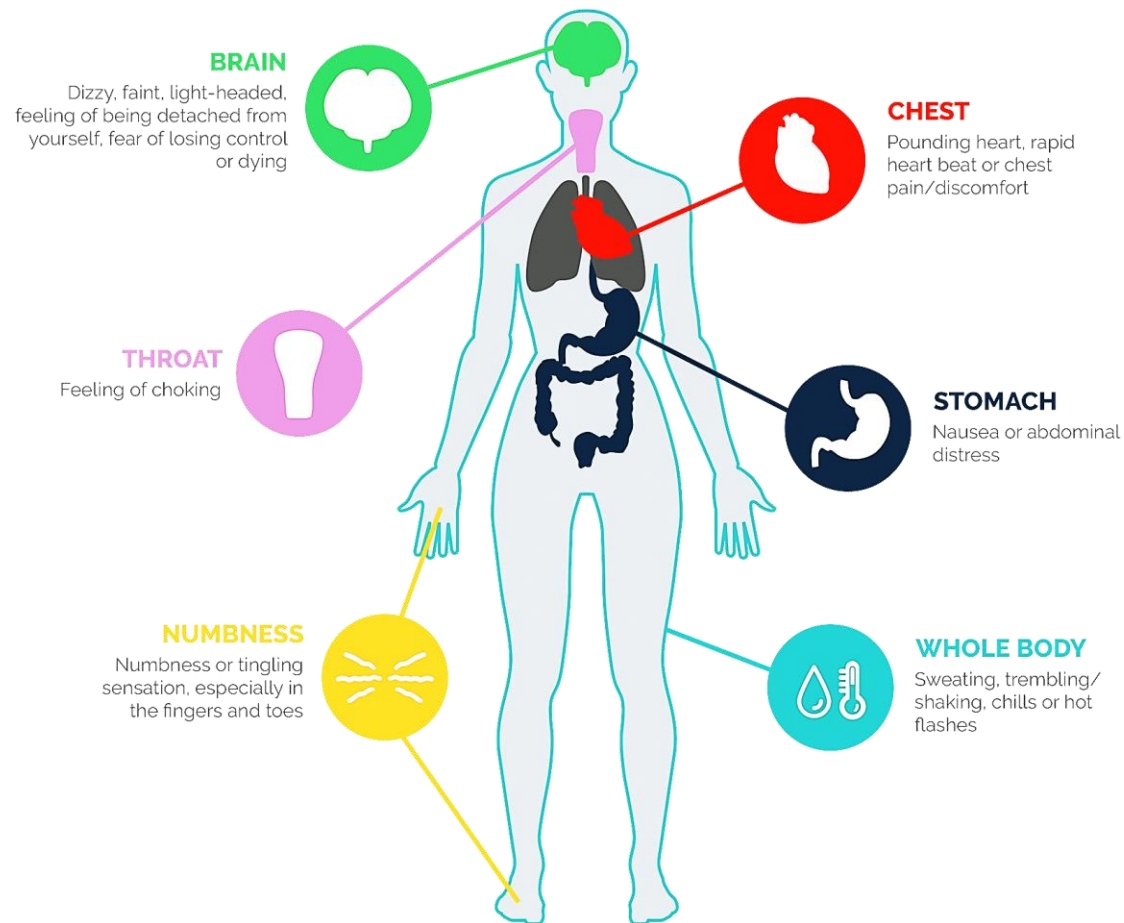


What had happened? attack.

Panic attack:

- Body's natural "alarm reaction"
- Adaptive in situations of true danger - alarm reaction orients & mobilizes body to respond to threats
- A "false alarm" when symptoms occur in non-life threatening situation
- Symptoms are not inherently physically dangerous

Panic symptoms are real and physical



Panic attacks are common...

- 35–50% of adults will experience at least one panic attack in their lifetime.
- Due to physical nature of panic symptoms, attacks are often mistaken for signs of life-threatening physical illness (e.g., heart attack).
- Panic Disorder affects around 2% of the general population worldwide and in Singapore at any given time.

...and Costly

- Patients with panic symptoms most often seek care in the emergency department, rather than specialist psychiatric clinics.
- Panic symptoms go virtually undetected in emergency medicine patients worldwide.
- These patients are often “frequent fliers” in the A&E, resulting in unnecessary medical costs & overcrowding.
- If undiagnosed and untreated, panic attacks can escalate to Panic Disorder - a more severe, chronic, and disabling psychiatric disorder.

The problem from a health system perspective

- Overseas studies show large treatment gap for A&E patients:
 - Approximately 25 - 40% of patients with cardiac or respiratory symptoms meet diagnostic criteria for panic attacks or panic disorder.
 - These patients are generally not assessed or treated for panic symptoms when they present to the A&E.
 - Most are referred for additional cardiac investigations or other follow-up care.

Program of Research in Singapore

1) Chart review

2) Pilot study

3) Screening study

4) Randomized controlled trial

Study 1 - Chart Review

- Determine if panic-related anxiety was being diagnosed in A&E patients
- Preliminary investigation using de-identified case records from SGH Department of Emergency Medicine
- Examined discharge diagnosis from case files of 5,217 patients presenting with panic-like somatic complaints

Chart Review Results

- Fewer than 1% (n=47) were discharged with diagnosis consistent with panic-related anxiety
- Suggested very low rate of Panic Disorder diagnosis during routine care
- Could not say for certain this was due to under-detection
 - Patients were not systematically assessed for panic-related anxiety

Introduction

Panic disorder (PD) is a common and disabling anxiety disorder characterized by recurrent panic attacks - episodes of rapid heart rate, difficulty breathing, chest pain or discomfort, dizziness, and other somatic symptoms of acute fear that can mimic those of common medical conditions (8-12). Due to the somatic nature of the condition, patients with PD are more likely to initially seek care in general medical settings rather than in specialty psychiatric clinics (13). Relative to outpatients with other anxiety disorders, patients with PD attend the most general medical visits and the most visits to cardiology, family medicine, and emergency medicine services (14). Untreated PD has a chronic and relapsing course and is associated with high rates of suicidality and medical service use (15, 16).

PD patients frequently present to the ED complaining of respiratory or cardiac symptoms, thereby contributing to overcrowding, lengthier waiting times, and increased emergency medicine costs (17, 18). In North American samples, up to 12% of all ED patients meet screening criteria for probable PD diagnosis, and these patients are 2.5 to 3 times as likely as patients without PD to have had multiple ED visits in the past year (15). Rates of PD are even higher among ED patients who present with the sorts of somatic complaints that are consistent with panic attack. Meta-analysis of data from the United States and Canada suggest that approximately 20-35% of ED patients with chest pain are actually suffering from PD (1).

Data from the few studies that have examined anxiety disorders in Singapore suggest that PD is a serious problem that results in substantial patient disability and unnecessary medical costs. The most recent Singapore Mental Health Study estimated a population prevalence of 2% in a community sample of Singaporeans aged 13-65 (19). A study by Luo et al (20) found that Singaporean outpatients with anxiety disorders (50% of whom had PD) reported significantly poorer health-related quality of life compared to Singaporeans with systemic lupus erythematosus and Singaporean thyroid cancer survivors. Reductions in health-related quality of life were similar to those found in two samples of American outpatients with PD. Finally, Lim et al found that Singaporean outpatients with PD were more likely to request medical investigations and to report greater psychiatric comorbidity, greater distress, and greater disruption in social and occupational functioning as compared to Singaporean outpatients with generalized anxiety disorder (21).

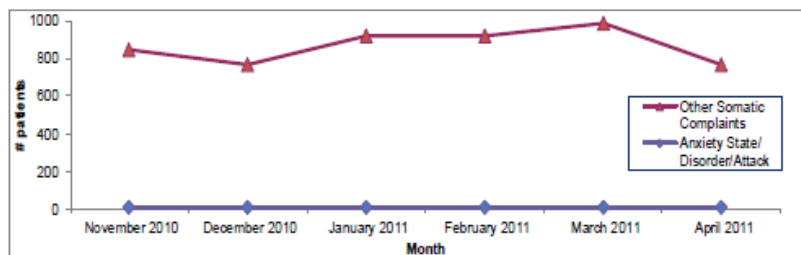
Unfortunately the majority of PD patients are unlikely to be identified by ED physicians. Fleet et al. (5) found that approximately 98% of consecutive chest pain patients with PD were not detected by ED cardiologists. At two year follow up these patients were nearly four times as likely to have returned to the ED for chest pain and three times as likely to have been hospitalized in the past year as compared to chest pain patients without PD (4). Only 22% of PD patients had received any form of mental health treatment (4). These findings are particularly troubling, since effective psychotherapeutic and pharmacological interventions are available (9). Early detection and treatment in the ED appears to prevent some of the negative sequelae of the disorder (2, 15).

Method

Despite high costs associated with mismanagement of PD patients, screening for is usually overlooked by North American ED personnel due to high patient volume and limited clinician. However it is not known if the same situation is true in the Asian setting. To investigate this issue, we analyzed data drawn from the de-identified case notes of consecutive patients presenting to the Department of Emergency Medicine at Singapore General Hospital between November 2010 and May 2011.

Results

Out of 5,217 patients presenting with non-life-threatening cardiac and/or respiratory complaints consistent with panic attack, only 47 (0.93%) were discharged with a diagnosis reflecting probable PD (e.g., anxiety state/disorder/attack). Figure 1 shows rates of these diagnoses over a 6-month period. Rates of panic-like diagnoses were substantially lower than the 20%-30% prevalence found in studies of chest pain patients from the United States and Canada.



Conclusions

Our results reflect a strong likelihood that the majority of PD patients remain unrecognized in the Singapore ED setting. The high costs and poor patient outcomes associated with unrecognized PD point to a great need for improvements in screening and intervention for this population. An effective screening method has the potential to increase identification of PD patients who can then be referred to appropriate psychiatric interventions, thereby reducing unnecessary ED visits, investigations, and hospitalizations.

Study 2 - Pilot Study

- Conducted to systematically assess panic disorder in Singapore A&E setting
- Collaboration between Duke-NUS and SGH, funded by pilot grant from Duke-NUS Office of Clinical Sciences
- Over 12 months recruited 200 English speaking A&E patients presenting with panic-like physical complaints
- Screening Tools:
 - Structured Clinical Interview for DSM-IV
 - Demographics & health history form, two brief panic screening questionnaires

Pilot Study Results - Prevalence

- 46.5% of participants met criteria for panic-related anxiety (23.5% panic attacks, 23.0% panic disorder)
- Participants with panic-related anxiety had greater:
 - Psychiatric comorbidity
 - Health-related disability
 - Rates of A&E and mental health service use
- 82.5% of participants discharged with diagnosis of chest pain, none diagnosed with anxiety during routine care

Pilot Study Results - Screening

- Existing questionnaires were limited in the extent they could detect A&E patients with panic-related anxiety.
- A brief 7-item screener developed by our team identified patients with 85% accuracy.

Research Article

A Brief Interview to Detect Panic Attacks and Panic Disorder in Emergency Department Patients with Cardiopulmonary Complaints

SHARON C. SUNG, PhD
A. JOHN RUSH, MD
ARUL EARNEST, MSc, PhD, DLSHTM
LESLIE E.C. LIM, MBBS
MAEVE P.P. PEK, PgDip
JOEN M.F. CHOI
MAGDALENE P.K. NG, PgDip
MARCUS E.H. ONG, MBBS, MPH

Objectives: Patients with panic-related anxiety often initially present to the emergency department (ED) complaining of respiratory or cardiac symptoms, but rates of detection of panic symptoms by ED physicians remain low. This study was undertaken to evaluate the relevance of panic attacks and panic disorder in ED patients who present with cardiopulmonary symptoms and to determine whether a brief symptom-based tool could be constructed to assist in rapid recognition of panic-related anxiety in the ED setting.

Materials and Methods: English-speaking adult ED patients with a chief complaint of palpitations, chest pain, dizziness, or difficulty breathing were evaluated for the presence of panic attacks and panic disorder with the Structured Clinical Interview for DSM-IV Axis I Disorders. Participants completed self-report measures to assess panic-related symptoms, comorbid psychiatric conditions, health-related disability, and health service use.

Results: In this sample (N = 200), 23.5% had panic attacks and 23.0% had panic disorder. Both groups reported higher rates of panic attack symptoms, greater psychiatric comorbidity, greater health-related disability, and higher rates of ED and mental health service use compared with those without either condition. A brief 7-item tool consisting of panic symptoms identified patients with panic attacks or panic disorder with 85% accuracy (area under the curve = 0.90, sensitivity = 82%, specificity = 88%).

Conclusions: Patients with panic attacks or panic disorder commonly present to the ED, but often go unrecognized. A brief 7-item clinician rating scale accurately identifies these patients among those ED patients presenting with cardiopulmonary complaints.

(*Journal of Psychiatric Practice* 2018;24:32-44)

KEY WORDS: panic attack, panic disorder, emergency department, screening tool, cardiopulmonary complaints

Panic disorder is a common, disabling anxiety disorder characterized by recurrent panic attacks—episodes of rapid heart rate, difficulty breathing, chest pain, dizziness, and other somatic symptoms of acute fear.^{1–5} Panic disorder is among the leading

SUNG: Office of Clinical Sciences, Duke-National University of Singapore (NUS) Medical School, Singapore; RUSH: Office of Clinical Sciences, Duke-NUS Medical School; EARNEST: Department of Epidemiology and Preventive Medicine, School of Public Health and Preventive Medicine, Monash University & Office of Clinical Sciences, Duke-NUS Medical School, Singapore; LIM: Department of Psychiatry, Singapore General Hospital & Office of Clinical Sciences, Duke-NUS Medical School, Singapore; PEK: Department of Emergency Medicine, Singapore General Hospital, Singapore; CHOI: Office of Clinical Sciences, Duke-NUS Medical School, Singapore; NG: Office of Clinical Sciences, Duke-NUS Medical School, Singapore; ONG: Department of Emergency Medicine, Singapore General Hospital & Office of Clinical Sciences and Programme in Health Systems & Services Research, Duke-NUS Medical School, Singapore

Copyright © 2018 Wolters Kluwer Health, Inc. All rights reserved.

Please send correspondence to: Sharon C. Sung, PhD, Office of Clinical Sciences, Duke-NUS Medical School, Academia Building Level 6, 20 College Road, 169857 Singapore (e-mail: sharon.sung@duke-nus.edu.sg).

This study was sponsored by a National University of Singapore pilot award to the first author (S.C.S.).

Preliminary versions of this paper were presented at the Anxiety & Depression Association of America Annual Conference and the International Congress of Cognitive Psychotherapy.

ACKNOWLEDGMENT: The authors gratefully acknowledge the patients who agreed to participate in this study, the staff of the Academic Medicine Research Institute, Singapore General Hospital, and Duke-NUS Medical School. The authors would also like to thank Serene A.K. Ong, Academic Medicine Research Institute, Duke-NUS Medical School, for her help in manuscript preparation.

The authors declare no conflicts of interest.

DOI: 10.1097/PRA.0000000000000283



Screening for panic-related anxiety in emergency department patients with cardiopulmonary complaints: A comparison of two self-report instruments

Sharon C. Sung^{1,*,a}, Jackie Ma², Arul Earnest^{3,b,c}, A. John Rush⁴, Leslie E.C. Lim⁵, Marcus E.H. Ong^{6,b,c}

^a Office of Clinical Sciences, Duke-NUS Medical School, 20 College Road, The Academia, Level 6, Singapore 169856, Republic of Singapore

^b Health Services and Systems Research, Duke-NUS Medical School, Singapore, Republic of Singapore

^c Department of Epidemiology and Preventive Medicine, School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia

^d Department of Psychiatry, Singapore General Hospital, Singapore, Republic of Singapore

^e Department of Emergency Medicine, Singapore General Hospital, Singapore, Republic of Singapore

ARTICLE INFO

Keywords:
Panic disorder
Emergency service
Hospital
Screening

ABSTRACT

The present study examined 1) the accuracy of two self-report measures for detecting panic-related anxiety in emergency department (ED) patients with cardiopulmonary complaints; and 2) whether modified scoring resulted in improved performance. English-speaking adults presenting to the ED of a large public hospital with palpitations, chest pain, dizziness, or difficulty breathing were evaluated for the presence of panic-related anxiety with the Structured Clinical Interview for DSM-IV (SCID) over a one-year period. Patients completed the panic disorder module of the Patient Health Questionnaire (PHQ-PD) and Psychiatric Diagnostic Screening Questionnaire (PDSQ-PD). Sensitivity, specificity, area under the curve (AUC), and predictive values were compared for various cut-offs and scoring algorithms using SCID diagnosis of panic attacks (in the absence of panic disorder) or panic disorder as the reference standard. In this sample of 200 participants, the majority had a chief complaint of chest pain and 46.5% met SCID criteria for panic-related anxiety. The PDSQ-PD demonstrated only fair operating characteristics for panic attacks (AUC = 0.57) and good operating characteristics for panic disorder (AUC = 0.79). The PHQ-PD achieved adequate operating characteristics (AUC = 0.66) for panic attacks and good operating characteristics for panic disorder (AUC = 0.76) using a modified scoring algorithm or a single screening question (AUC = 0.72).

1. Introduction

Panic disorder is a prevalent and disabling anxiety disorder that affects 1.6–2.2% of adults worldwide (Weissman et al., 1997; Rubin et al., 2000; Stein et al., 2010). Because panic symptoms often appear to mimic those of common medical conditions, patients with panic disorder are more likely to initially seek care in general medical settings rather than in specialty psychiatric clinics (Katerndahl and Realini, 1995). Patients with panic disorder attend more visits to general medicine, cardiology, family medicine, and emergency medicine services when compared to outpatients with other anxiety disorders (Deacon et al., 2008). Such patients frequently present to the emergency department (ED) complaining of cardiac and respiratory symptoms, thereby contributing to overcrowding, lengthier waiting times,

and unnecessary repeat utilization of healthcare resources (Leon et al., 1995; Coley et al., 2009; Buccelletti et al., 2013). Up to 44% of ED patients with unexplained chest pain have either panic attacks or panic disorder, but data from several studies indicate that panic symptoms go virtually undetected in ED patients worldwide (Wulsin et al., 1988; Fleet et al., 1996; Foides-Busque et al., 2010; Sung et al., in press).

Panic attacks are defined by the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2000, 2013) as discrete periods of intense fear or discomfort in which four or more of 13 physical or cognitive symptoms¹ develop abruptly and reach a peak within minutes. The formal diagnosis of panic disorder requires that the individual has experienced recurrent unexpected panic attacks with least one of the attacks being followed by one month or more of persistent concern or worry about additional panic attacks or their

* Corresponding author.

E-mail address: sharon.sung@duke-nus.edu.sg (S.C. Sung).

¹ Palpitations, pounding heart, or accelerated heart rate; sweating, trembling or shaking; sensations of shortness of breath or smothering; feelings of choking; chest pain or discomfort; nausea or abdominal distress; feeling dizzy, unsteady, lightheaded, or faint; chills or heat sensations; paresthesias (numbness or tingling sensations); derealization (feelings of unreality) or depersonalization (being detached from oneself); fear of losing control or going crazy; fear of dying.

<https://doi.org/10.1016/j.psychres.2018.02.031>

Received 6 June 2017; Received in revised form 8 February 2018; Accepted 14 February 2018

Available online 16 February 2018

0165-1781/© 2018 Elsevier B.V. All rights reserved.

Study 3 - Screening Study

- Conducted to replicate & extend findings of pilot study
- Collaboration between Duke-NUS and SGH
- Funded by:
 - NMRC Health Services New Investigator Grant
- Same methods as pilot study, but:
 - Recruited 321 A&E patients over 2 year period
 - Included Mandarin-speaking patients

Screening Study Results

- 38.9% of participants met criteria for panic-related anxiety (28.9% panic attacks, 10.0% panic disorder)
- Participants with panic-related anxiety had greater:
 - Psychiatric comorbidity
 - Health-related disability
 - Rates of A&E and mental health service use
- 87.9% of participants discharged with diagnosis of chest pain, 1% discharged with diagnosis of anxiety state
- Refined screening tools with cross-validation

PMH3

CROSS-VALIDATION OF A 7-ITEM CLINICAL DECISION RULE FOR DETECTING PANIC-RELATED ANXIETY IN EMERGENCY MEDICINE PATIENTS

Sung SC¹, Rush AJ¹, Earnest A², Lim LE³, Lim SH³, Ong ME³

¹Duke-NUS Medical School, Singapore, Singapore, ²Monash University, Melbourne, Australia,

³Singapore General Hospital, Singapore, Singapore

OBJECTIVES: Patients with panic-related anxiety frequently seek care in the Emergency Department (ED), but panic-related anxiety is rarely diagnosed by ED physicians due to limited time and a focus on stabilizing life-threatening conditions. We have previously developed a brief clinical decision rule (CDR) to help physicians quickly identify patients with panic-related anxiety in the ED setting. This study was undertaken to cross-validate the original CDR with a larger group of patients. **METHODS:** English and Mandarin-speaking adult ED patients with a primary complaint of palpitations, chest pain, dizziness, or difficulty breathing were evaluated for the presence of panic-related anxiety (i.e., panic attacks or panic disorder) using the Structured Clinical Interview for DSM-IV. All 13 panic attack symptoms were entered into a multivariate model using stepwise selection with presence/absence of panic-related anxiety as the outcome variable. We compared receiver operating characteristics, sensitivity, and specificity for the original 7-item CDR created with our derivation sample (n=200) versus an alternative 7-item CDR created with the validation sample (n=321) using the same model selection procedure. **RESULTS:** 46.5% of participants in the derivation sample and 39.3% of participants in the validation sample met criteria for panic-related anxiety. The original CDR showed excellent separation between those with panic-related anxiety and those without (AUC=0.90) in the derivation sample. A cutoff score of 3 or greater retained good sensitivity (81.7%) and specificity (87.9%) while correctly classifying 85.0% of participants. The original CDR did not perform as well in the validation sample (AUC=0.84, sensitivity=78.1%, specificity=89.3%, classified correctly=77.9%). The alternative model performed slightly better (AUC=0.88, sensitivity=78.4%, specificity=85.7%, classified correctly=82.8%) in the validation sample. **CONCLUSIONS:** Panic-related anxiety is common and should be strongly considered in ED patients. A brief clinical decision rule may be useful for screening purposes. Which items to retain in the final CDR requires further investigation.

Study 4 - Randomized Controlled Trial

- Builds on prior work to address treatment gap for A&E patients with panic-related anxiety
- Collaboration between Duke-NUS, SGH, & CGH
- Funded by:
 - NMRC Transition Award
- Designed to evaluate effectiveness of stepped-care intervention for A&E patients with panic-related anxiety:
 - Clinical
 - Patient-centred
 - Economic

Stepped Care Intervention

| Step | Level of Care | Intervention |
|--------|-----------------------------|-----------------|
| Step 3 | High Intensity Intervention | CBT |
| Step 2 | Low Intensity Intervention | Psychoeducation |
| Step 1 | Recognition of Problem | Screening |

Recommended interventions at each level of a stepped-care model for panic disorder treatment (National Institute for Health and Clinical Excellence 2011 clinical practice guidelines)⁸

Randomized Controlled Trial Methods

- Two-Arm Multisite RCT
 - Treatment arm consists of stepped-care intervention (psychoeducation & cognitive behavioural therapy)
 - Control arm consists of screening for panic-related anxiety in the A&E and discharge to routine care
- Goal is final sample of 80 participants in each arm

Future Directions

- Results of RCT will be used to propose cost-effective and clinically meaningful care pathway for panic patients who present to emergency medicine, which can be implemented nationally.
- Follow-up studies to focus on evidence-based screening and intervention for panic patients who present to primary care and cardiology.

Research Team Members

- Prof John Rush
 - Prof Daniel Fung
 - Prof Ecosse Lamoureux
 - A/Prof Marcus Ong
 - A/Prof Arul Earnest
 - A/Prof Leslie Lim
 - A/Prof Steven Lim
 - A/Prof Swee Han Lim
 - A/Prof Bibhas Chakraborty
 - Ms Maeve Pek
 - Ms Joen Choi
 - Ms Magdalene Ng
 - Ms Jackie Ma
 - Ms Gilaine Ng
 - Mr Sherman Lian
- Overseas collaborators:
- Prof Timothy Strauman
 - Prof Mark Pollack



Thank You

