



香港中文大學
The Chinese University of Hong Kong



香港中文大學醫學院
Faculty of Medicine
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Sharing Session on Research Fellowship Scheme:
The Increasing Incidence of Anaphylaxis in Hong Kong: A Westernized Allergy Trend and the Importance of Early Intervention

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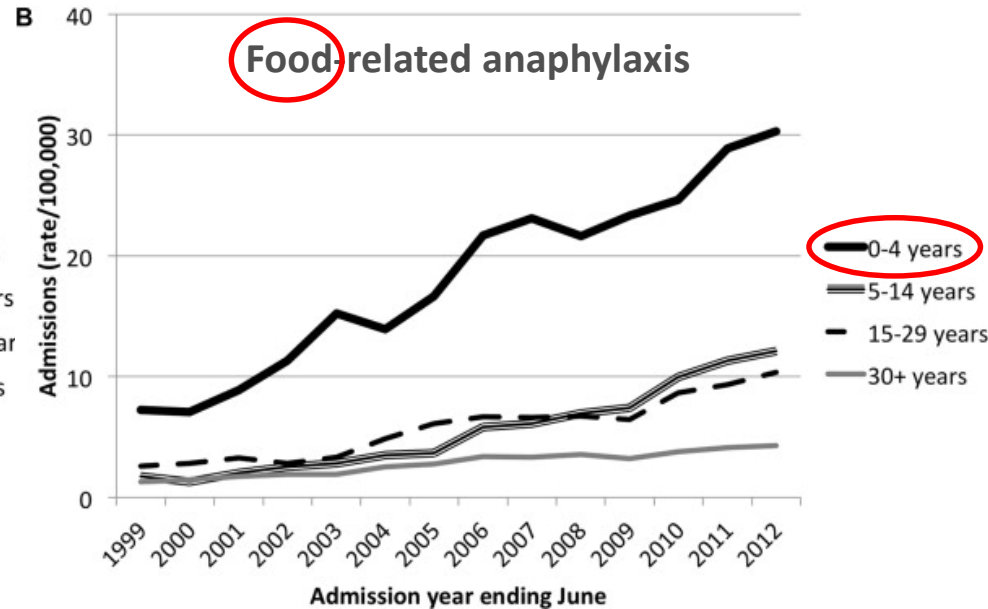
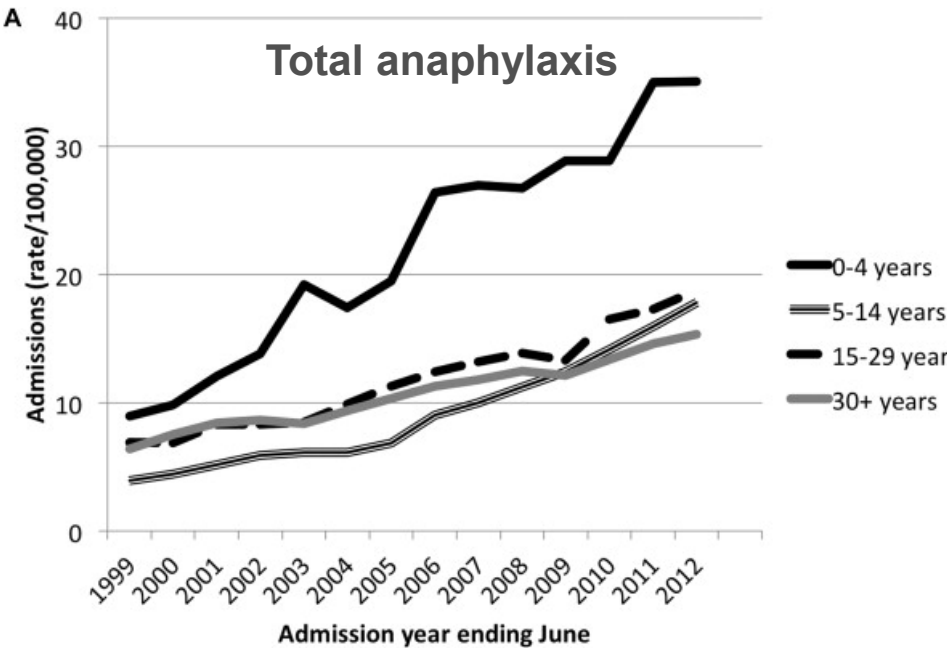
Health Bureau
The Government of the Hong Kong Special Administrative Region
of the People's Republic of China

Outline

- Brief introduction to food allergy & anaphylaxis
- Proposal methodology & results
- Challenges during the implementation phase
- Take-home messages

Time-trend of Anaphylaxis in Australia (national statistics)

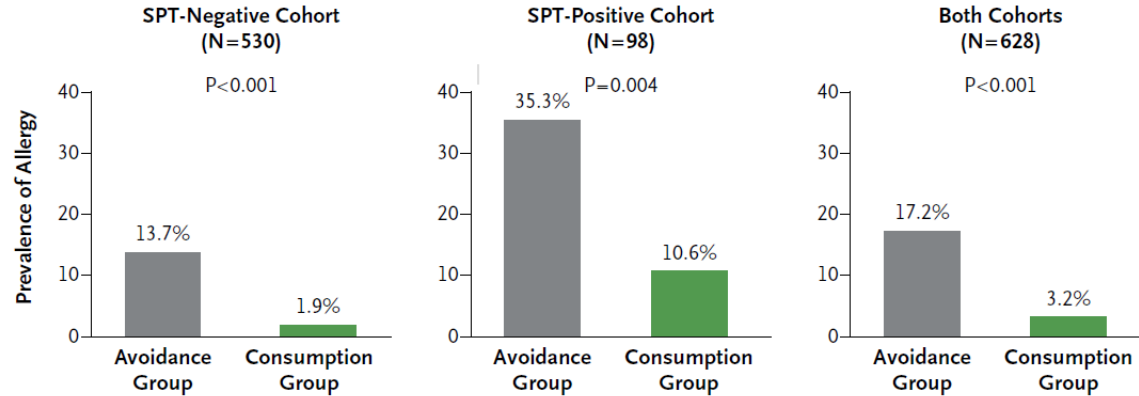
Anaphylaxis is a **severe, life-threatening** allergic reaction that rapidly affects multiple body systems



Rise in anaphylaxis incidence was mainly driven by **food anaphylaxis in young children**

Early peanut consumption reduced the risk of peanut allergy

Intention-to-Treat Analysis



640 infants aged 4-10 months with severe eczema, egg allergy, or both (i.e. high-risk infants); Each cohort randomised to:

- early peanut consumption (6 g peanut protein per wk)
- peanut avoidance until 60 months (by FFQ)

Primary outcome: **peanut allergy at 60 months**



Part I: Research project on food allergy

- 2-year research project

Aim 1: To evaluate the disease burden of FA and FA-induced anaphylaxis in HK

Aim 2: To investigate the relationship between timing of solids introduction and FA development in HK children

Approach: Retrospective time-trend evaluation of anaphylaxis incidence in HK

Approach: Prospective epidemiological survey to study the prevalence and risk factors of FA

Part I: Research project on food allergy

Components	Actions
A research project	<ul style="list-style-type: none">• Scientific merits and translational value• Include preliminary data (<i>Local food allergy prevalence data</i>)• Feasibility within proposed time frame (<i>24 months</i>)• Powered sample size (<i>Not just based on feasibility</i>)• Limitations and alternative solutions (<i>Important for the interview...heed the advice of the panelists</i>)
	<ul style="list-style-type: none">• Local, regional and international perspectives in mind (<i>Seek the support of Mentor and Overseas Preceptor</i>)• Consider having knowledge-transfer activities in mind (<i>Support from professional organizations, consumer engagement strategies</i>)

Part I/II: Research project & training plan

Components	Actions
A mentorship program	<ul style="list-style-type: none">• Seek support of a Mentor (<i>early advice from local mentors – allergy specialists</i>)• Develop the proposal with the Mentor (<i>study design, objectives, feasibility to conduct the study within the proposed timeframe</i>)
An overseas training program	<ul style="list-style-type: none">• Training plan carries equal weightage as the research plan (<i>both 35%</i>)• Liaise with an overseas research group for training program early (<i>early contact and avoid Christmas</i>)• Set clear learning objectives (<i>must be relevant to the project</i>)• Include deliverables and time frame (<i>work with Overseas preceptor on the training schedule</i>)• Provide justification for the budget (<i>Avoid over-or under-budget...</i>)

The 6 participating centres:

1. Prince of Wales Hospital
2. Queen Mary Hospital
3. Pamela Youde Nethersole Eastern Hospital
4. Queen Elizabeth hospital
5. Princess Margaret Hospital
6. United Christian Hospital

1st Stage (4 months): all FA, DA and anaphylaxis cases in the 6 participating centres will be reviewed retrospectively

Jul 1, 2019 - Oct 31, 2019

2nd Stage (18 months): investigators from the 6 participating centres will prospectively recruit FA, DA and anaphylaxis patients

Nov 1, 2019 - Apr 30, 2022

In-patient wards

Out-patient clinics

Electronic database

All paediatric patients aged 0-18 years old with the diagnosis of physician-diagnosed FA, DA and anaphylaxis

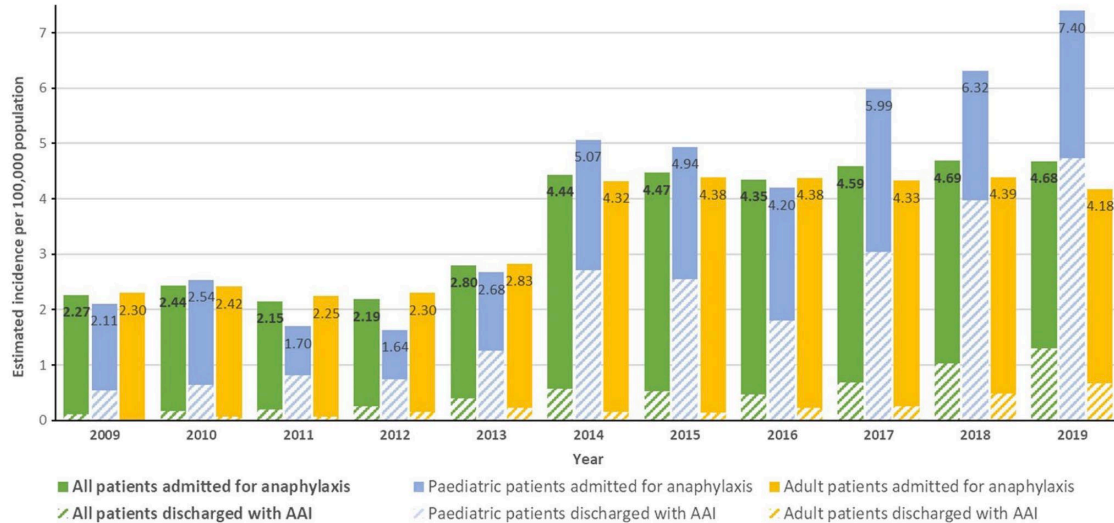
All medical records reviewed;
Additional or missing information collected during follow-up interviews

Skin prick test, Bloods x total IgE values, sIgE for food allergens, serum tryptase

- 1) The relationship between timing of introduction of solids and FA development in HK children
- 2) The incidence rate of FA, DA and anaphylaxis in HK children in this 18-months prospective study
- 3) Common FA, DA & anaphylaxis triggers, the management strategy of FA (use of adrenaline)

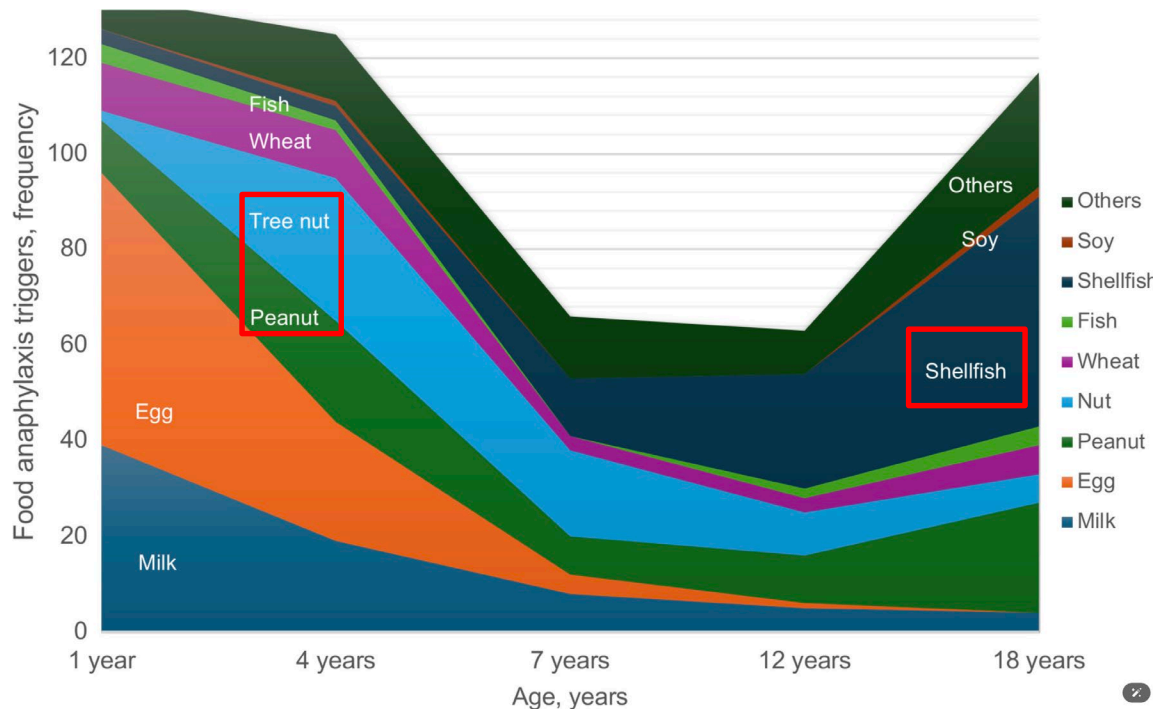


Rising anaphylaxis incidence in Hong Kong



- A **retrospective** search of the centralized electronic database for all patients diagnosed with anaphylaxis by physicians between 2009 and 2019.
- The incidence of anaphylaxis in children is nearly **3.5-fold higher** in 2019 compared to 2009.
- The overall **AAInj prescription rate** remained below 15%, significantly lower for adults (36.5%) compared to pediatric patients (89.4%).

Different anaphylaxis triggers in HK children

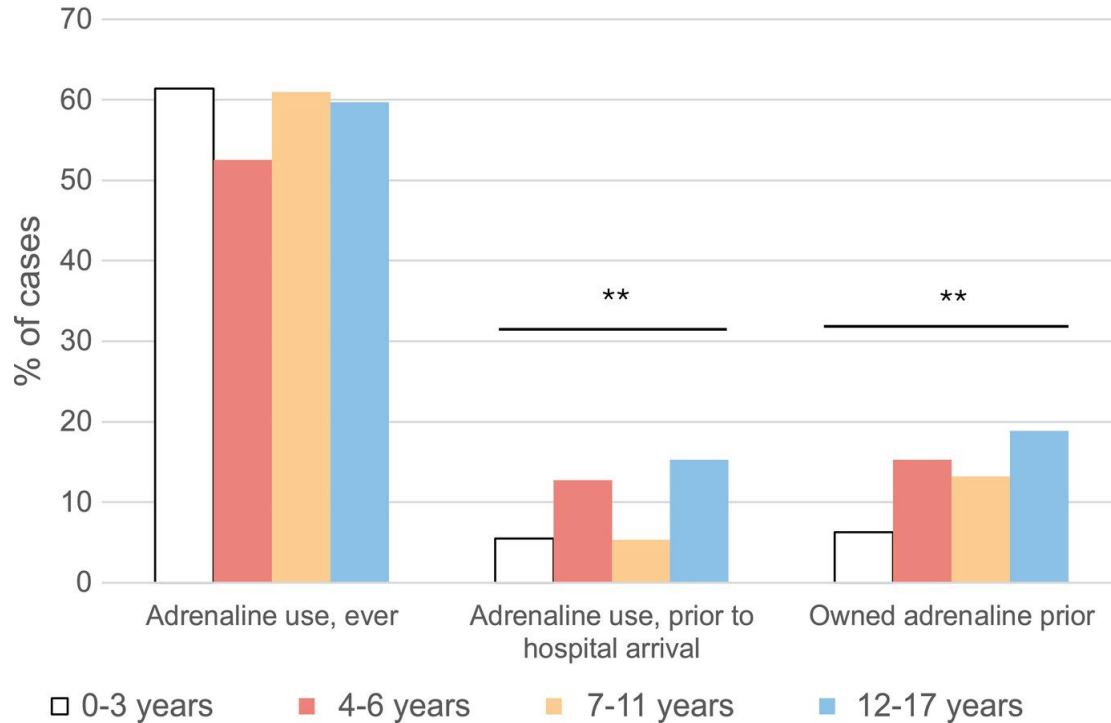


Prospective studies found food allergies, particularly to **peanuts** and **shellfish**, were main triggers.

Notably, anaphylaxis was often **underdiagnosed** or **misdiagnosed**

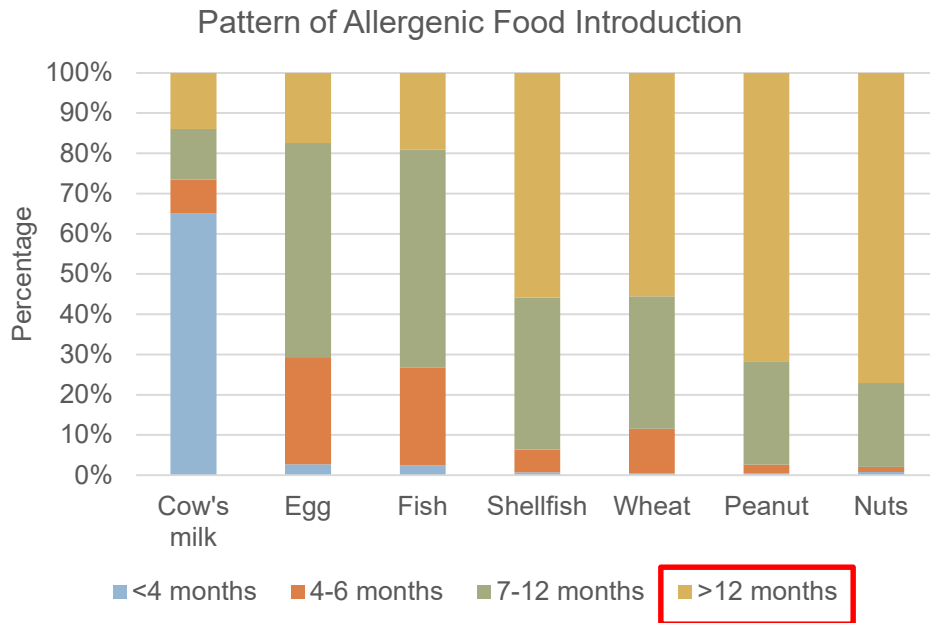
The study underscores the need for improved anaphylaxis **education** and management.

Suboptimal anaphylaxis management



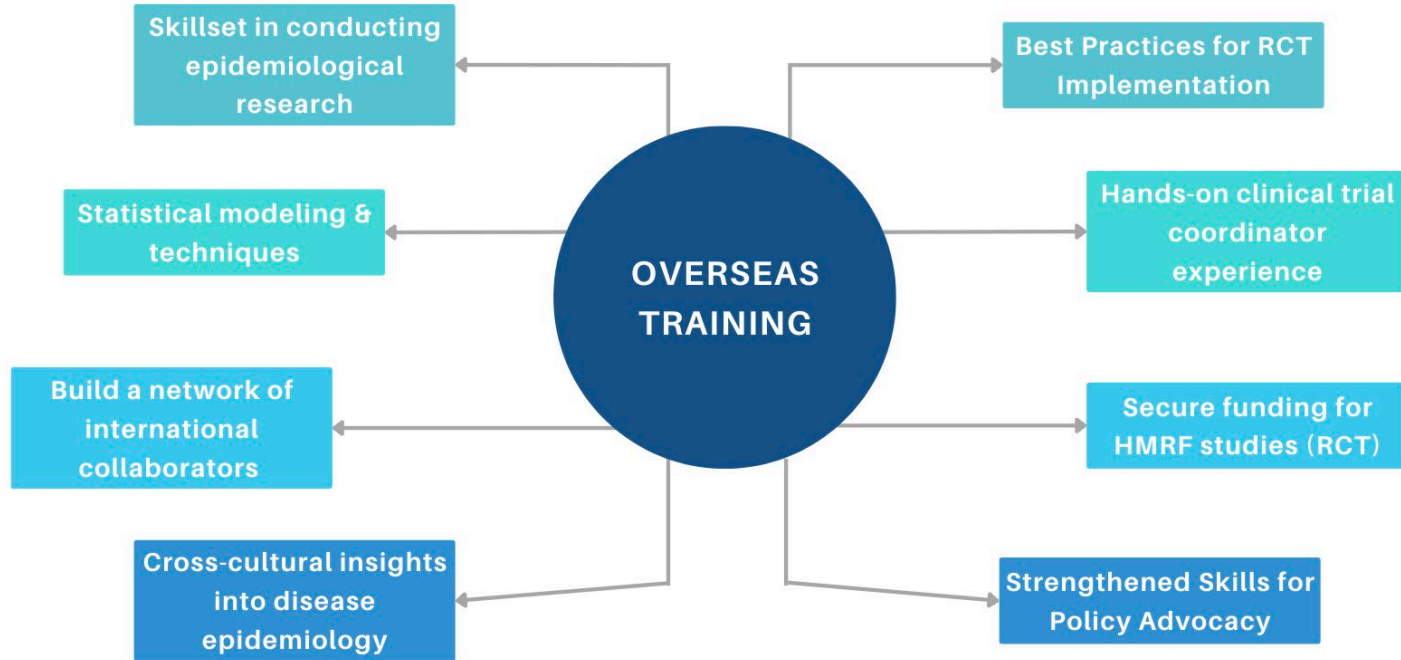
- Adrenaline, given both pre-hospital and in-hospital, was administered in 434 (60%) anaphylaxis cases, of which only **9% of cases received adrenaline prior to hospital arrival**
- The rate of prehospital use of an adrenaline device was lower than the rate of owning an adrenaline device prior to an anaphylactic event

Shellfish introduction was delayed in children with history of allergic reactions



	With Hx of AFR/FA (n=109)		Without Hx of AFR/FA (n=316)	
	Non-delay (≤ 12 mo)	Delay (> 12 mo)	Non-delay (≤ 12 mo)	Delay (> 12 mo)
Cow's milk	98 (89.9%)	11 (10.1%)	265 (84.7%)	48 (15.3%)
Egg	86 (81.1%)	20 (18.9%)	246 (83.1%)	50 (16.9%)
Fish	90 (84.1%)	17 (15.9%)	236 (79.7%)	60 (20.3%)
Shellfish	34 (32.7%)	70 (67.3%)	140 (48.3%)	150 (51.7%)
Wheat	60 (59.4%)	41 (40.6%)	110 (39.1%)	171 (60.9%)
Peanut	27 (27.6%)	71 (72.4%)	81 (28.3%)	205 (71.7%)
Tree nuts	20 (20.8%)	76 (79.2%)	67 (23.7%)	216 (76.3%)

Overseas training experience



The Australasian Society of Clinical Immunology and Allergy infant feeding for allergy prevention guidelines

Preeti A Joshi , Jill Smith, Sandra Vale, Dianne E Campbell

First published: 13 January 2019 | <https://doi.org/10.5694/mja2.12102> | Citations: 70



UPDATE ON SOLID FOOD INTRODUCTION IN HONG KONG INFANTS

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Leung^{1,2}, on behalf of Hong Kong Society for Paediatric Immunology Allergy and Infectious Diseases

Local recommendation

- For healthy infants: no change in current feeding guideline is recommended
- For at-risk infants: No delay in introduction of allergenic foods including egg, cow's milk, peanut, soy, wheat, fish and shellfish



Project Period: Unexpected Challenges

2021: COVID

- **Reduced training period** due to closed border.
- **Recruitment activities** of Part II of the research project were interrupted due to the activated Hospital Authority's Emergency response level. However, most severe allergic reactions could still be captured.
- **Project extension** (provided justification and a concrete plan).

Timely communication with Research Fund Secretariat on amendments and budget revision

Take-home messages

- Research project with an impact: Local, regional and international perspectives
- Training/ Mentorship Plan is as important as the Research Plan
- Begin with the end in mind: Publications, societal impact and knowledge-transfer activities
- Preparing for interview: Be cognizant of the limitations and alternative solutions
- Challenges during implementation: Seek the advice of the Mentor and Collaborators
- Progress report submission time is a good checkpoint
- Timely communication with the Research Fund Secretariat on amendments and budget revisions



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 - *Dr. YS Yau, Dr. Polly Ho, Dr. WH Chan (QEH Paediatrics)*
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 - *Dr. Jaime SRD, Dr. Gilbert Chua (QMH Paediatrics)*
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