

Expectations for CSA Applications

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Singapore General Hospital



KK Women's and Children's Hospital



Sengkang Health



National Cancer Centre Singapore



National Dental Centre Singapore



National Heart Centre Singapore



National Neuroscience Institute



Singapore National Eye Centre



Polyclinics SingHealth



Bright Vision Hospital

Expectations of CSA Grants

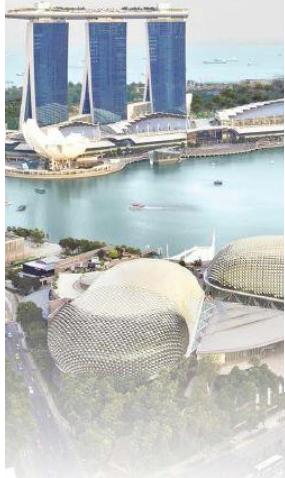
1. Know the MOH/NMRC Landscape
2. Plan Early & Build a Track Record
3. Ask Key Questions (Importance) & Address Gaps (Novelty)
4. Pilot Data & Robust Methodology
5. Collaboration & Mentor

#1: Know the MOH/NMRC Landscape

Research Innovation Enterprise 2020 Plan

Winning the Future through Science and Technology

| TUESDAY, DECEMBER 22, 2015 | THE STRAITS TIMES |



The Straits Times says

Cultivate broad innovation strategy

The record \$16.1 billion injected by the Government into research between 2011 and 2015 reflects its commitment to create a city of innovation, despite the general challenges faced by nations in pursuit of a “new research economy”. By any measure, research and development is a costly undertaking with no certain returns. Yet, many countries are banking on innovation policies that call for considerable public funds. R&D’s appeal lies in the prospects of growth that technology-based products and services can offer as star sectors fade. With Australia’s mining industry losing its shine, Prime Minister Malcolm Turnbull unfurled an ambitious A\$1.1 billion (S\$1.1 billion) innovation agenda earlier this month. It is aimed at

attracting “highly talented people” (like foreign students with research qualifications), tech entrepreneurs and angel investors to help create a 21st-century “boom that can continue forever”, unlike mineral resources, as he put it.

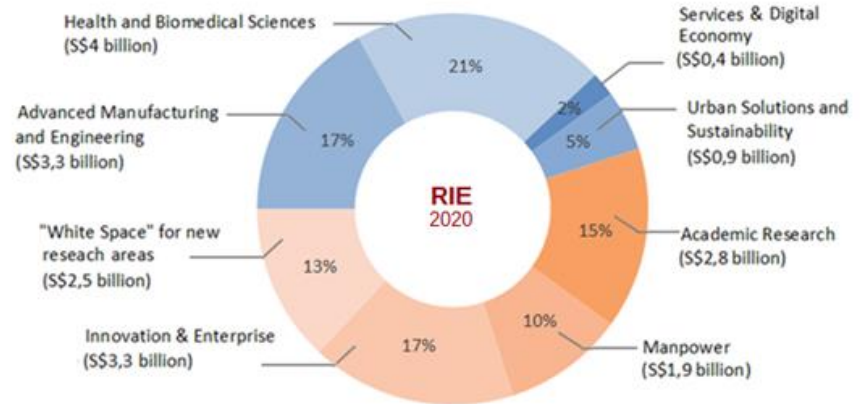
Of course, the devil in even well-laid plans is in the details. Years of pump priming in some OECD countries have not eliminated the “innovation paradox” of low rates of actual innovation despite high levels of R&D activity. Singapore, however, has made a name for itself in water technologies and gastric cancer research, as National Research Foundation chief Low Teck Seng noted recently. But taking inventions to market and nudging up private research remain a work in progress. These

indicators should not be overlooked when fresh funding and expectations for the next five years, under the Research, Innovation and Enterprise Plan, are announced next month. While other performance metrics – like A*Star patents per billion dollars of R&D expenditure compared with Harvard’s number – are favourable, one would also expect a visible flow-through of economic benefits like more jobs and spin-offs small and medium-sized enterprises can take advantage of.

Supply-side public policies everywhere, like the provision of research infrastructure, have played an important role in past years. There is now recognition of the need for demand-side innovation policies as well. These include improving condi-

tions for consumer reception of technological improvements, and the public procurement of products, processes and services that are innovative in different ways and not just focused on information and communication technologies.

There’s a need for new solutions across a broad field in the public sector – for example, in health, welfare of the aged, social cohesion, energy security, and the environment. Even established practices in the private sector can benefit from R&D. The wider its reach, the better the chances of a culture of innovation taking root here at all levels. Alongside the traditional focus on the output and impact of research institutions, there should also be some effort to track innovation in other areas.



A19

MOH Research Strategy 2020

R&D

#1: Promote excellence in healthcare research

(includes Translational and Clinical Research (TCR) and Health Services Research (HSR))

- Support top-down directed strategic research and invest research funding into strategic areas identified by MOH
- Allow room for bottom-up/ investigator-initiated research to provide “strategic buffer” of ideas and greater flexibility
- Increase emphasis on Health Services Research, including comparative effectiveness and implementation research

Translation

#2: Enhance translation of healthcare research into health and economic outcomes

- Enhance Non-Commercial Pathway to Impact
 - Review research outputs and assess if findings have potential to be implemented within institutions or nationally
 - Work closely with institutions e.g. School of Public Health, to translate research findings to support MOH’s health policy-making
- Enhance Commercial Pathway to Impact
 - National Health Innovation Centre (NHIC) to coordinate across healthcare institutions and offer assistance on IP strategy and commercialisation

Outcomes

#5: Demonstrate benefits of healthcare research

- Outcomes to show economic value derived from healthcare research*
- Outcomes to show how standards of care have risen (e.g. adoption of diagnostics and interventions that have been proven effective into hospital practice)*
- Outcomes to show retention of talent in the public sector healthcare system*

*Proposed outcomes are aligned with the objectives of MOH’s emphasis on clinical research laid out in 2006 Cab Memo

#3: Nurture a vibrant research community of clinicians and scientists

- Build and maintain critical mass of human capital for healthcare research at about 5% of public sector clinician-specialists, i.e. 160 clinician scientists
- Provide core funding to retain talent supporting healthcare research, e.g. research admin

#4: Be the preferred site for early phase clinical trials in Asia and play a leadership/coordinating role for multi-national clinical trials

- Develop enablers to support clinical trial landscape

Talent

Enablers

Contributes to Broader MOH Outcomes

Better Care

Better Value

Better Health

Better Future

MOH Research Strategic Areas

Cardiovascular Diseases

Research Opportunities:

- Evaluation of treatments and therapeutic interventions; and Detection, screening and diagnosis in Ischemic Heart Diseases
- Aetiology and development of treatments

Neurological and Sense Disorders

Research Opportunities:

- Aetiology and evaluation of treatments and therapeutic interventions for Alzheimer's and other dementias
- Development of treatments and therapeutic interventions for vision impairment in elderly and children

Ageing has also been identified as a theme that transcends across disease areas, as well as social and other non-health related aspects

Infectious Diseases

Research Opportunities:

- Detection, screening and diagnosis; and evaluation of treatments and therapeutic interventions for influenza (evolving in tropical setting)
- Underpinning research and aetiology to understand anti-microbial resistant infections and to design strategies to contain them

Diabetes Mellitus and other Metabolic/Endocrine Conditions

Research Opportunities:

- Aetiology to understand factors in risk prediction for Diabetes
- Development and evaluation of treatments and therapeutic interventions for Diabetes
- Development of medical devices for monitoring insulin levels and insulin delivery

Cancers

Research Opportunities:

- Development and evaluation of treatments and therapeutic interventions for Cancers, e.g. Breast
- Underpinning research and aetiology to understand risk factors for Cancers, e.g. genetic predisposition to EGFR mutant non-small cell lung cancer. This may help improve detection, screening and diagnosis of the cancers.

CSA

- Applicants should hold a **clinical qualification (e.g. MBBS, MD, BDS or equivalent), with specialty training beyond medical or dental school** (including specialists, family physicians and public health practitioners).
- Applicants who are **PhD holders working in human clinical research** (including PhDs in areas such as biostatistics, epidemiology, behavioural science, nursing, pharmacy, psychology, and allied health) and whose research is clinically relevant and has potential health impact, will be considered an exception on a **case-by-case basis***.
- Non-medically trained PhD applicants conducting laboratory based research are **not** eligible.
- Applicants must have been an **independent PI** on at least one national or international research grant, equivalent to an Individual Research Grant (IRG)-level grant.
- Upon award, applicant must:
 - Hold a **primary appointment** in a local public hospital/public health institutions/national specialty centre/public university/Academic Medical Centre;
 - Hold a **regular-rank faculty/academic appointment** in one of the academic medical centres (AMC) or medical school;
 - Be a Singapore citizen or Permanent Resident

** Applicants who are submitting on an exception basis are to submit their CV (with track records including publication records and grants held as PIs/Co-PIs in the past 5 years) to the Secretariat to determine their eligibility prior to submitting a full proposal.*

CSA Success

Grant Call	Apps received	Approved	Success Rate %
May-09	10 (4 SI, 6 INV)	4 (3 INV, 1 SI)	40
Nov-09	12 (3 SI, 9 INV)	6 (2 SI, 4 INV)	50
May-10	8 (4 SI, 4 INV)	4 (1 SI, 3 INV)	50
Nov-10	6 (4 SI, 2 INV)	3 (1 SI, 2 INV)	50
May-11	10 (5 SI, 5 INV)	3 (2 SI, 1 INV)	30
Nov-11	15 (5 SI, 10 INV)	7 (1 SI, 6 INV)	47
May-12	20 (10 SI, 10 INV)	8 (3 SI, 5 INV)	40
Nov-12	15 (12 SI, 3 INV)	7 (5 SI, 2 INV)	47
May-13	7 (3 SI, 4 INV)	4 (1 SI, 3 INV)	57
Nov-13	9 (4 SI, 5 INV)	5 (3 SI, 2 INV)	56
May-14	4 (1SI, 3 INV)	2 (1 SI, 1 INV)	50
Nov-14	15 (4SI, 11INV)	6 (3SI, 3INV)	40
Average Success Rate			48

#2: Plan Early & Build a Track Record

- Demonstrate appropriate **training** – Fellowships, PhD, etc
- Show **momentum** in publications...recent 1st author publications
- Demonstrate success in previous **grants**
- Clearly shows **commitment** to research

“Hobby” vs “Professional” Sport

1. Not critical to career
2. Can “quit”
3. Research skills are secondary
4. Grant (TA/NIG) based on “potential” and “promise”

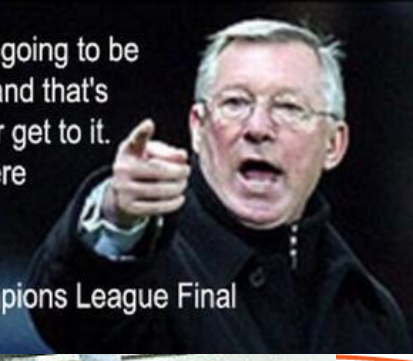
1. **Critical for career**
2. **Unlikely to turn back**
3. **Research skills are primary**
4. **Grant (CSA) based on importance & novelty, track record & feasibility & translation**

Change in Mindset



"At the end of the game, you're going to be six feet away from that trophy, and that's the closest most of you will ever get to it. Don't you dare come back in here without giving it 100%"

Sir Alex Ferguson - 1999 Champions League Final



Positive Reviews

- ✓ “PI’s published journals range from good to top tier in the field. She is well-funded and holds grants from national research foundation and NMRC”
- ✓ “PI has consistently published in the area of research”
- ✓ PI is highly committed to laboratory and pathology work that extends beyond clinical alone

Negative Reviews

- x “Most of the PI’s past publications were **not related** to her proposed study.”
- x “PI did not have any laboratory track record as most of her publications were **clinical studies**.”
- x “Applicant has a few first author publications but mostly in **moderate impact** journals. He should focus on writing high impact first author papers in the next few years. Ideally, the applicant should devote at least one year to full-time research to master research-specific **skills**.”

More Negative Reviews

- x “Applicant’s role in the proposed study was not clearly defined and she did not appear to be the main driver of the project.”
- x “The exact role of the applicant is unclear in this ambitious project within multiple experiments probably done at various labs – what will the applicant be doing specifically?”
- x “PI shows only modest training in molecular genetics and animal models of disease and has not yet demonstrated skills with a number of the techniques she proposes to use.

#3: Importance & Novelty

- **Importance**

- Is the research addressing one of the **national priority**?
- What is the impact of your research - “So what?”

- **Novelty**

- Timely
- Trends

Reviews

- ✓ “Project maintains high scientific interest about an important topic for clinical practice.”
- ✓ “The proposal is well-written and this is an important as well as relatively novel topic.”
- x “Research outcomes are not evident. Details on experimental design, interpretation of results and follow-up studies are not provided”
- x “Although this is an important area of research, the project is not particularly original”

Reviews

- ✓ “The proposal is well structured...The applicant discusses **alternative strategies** and describes all the techniques and approaches with sufficient detail.”
- x “Proposed method was labour intensive compared to the current method...”
- x “It would have been even more beneficial for the application if **potential pitfalls, difficulties, limitations** would have been described and alternative methods be proposed.”

#4: Pilot Data & Methods

- ✓ “Preliminary studies have been **performed** and provide valuable background data”
- x “No **data to support** the hypothesis, which is critical to the success of the proposal. Controls are hardly mentioned.”
- x The studies are all underpowered...proposal requires international collaboration to boost the numbers.
- x No statistical estimates are provided about the necessary sample size or, how low numbers will be complemented in an assumed result validation of the study

#5: Collaboration & Mentor

- ✓ “PI has access to established investigators with sufficient expertise to guide the project”
- ✓ Study is designed in collaboration with the diagnostic lab and physicians, so there is a practical plan to translate findings...”
- ✓ The PI and collaborators have a good track record in this area. They are complementary to each other and make this project have a good chance of completion.

Negative Reviews

- X “Lack of local collaborators both clinically and in laboratory”
- X “Excess dependence on overseas collaborators”
- X “No clear mentorship programme. No plan for further development of transferable skills, grantsmanship or leadership. No regular contacts between the PI and mentor.”
- X “Mentor’s did not appear to be trained in research and his publications record was not strong”

CSA Review: Unsuccessful

External Reviewers			CSA Panel		
Reviewer 1	Reviewer 2	Reviewer 3	Funding Recommendations	Comments	Funding Recommendations
May Fund 8	May Fund 7	May Fund 8	May fund (3) Average score: 7.67	<p>XXX: Fund; Significant improvement in re-submission... All 3 reviewers were positive.</p> <p>XXX: Decent publication record from TA award.</p> <p>XXX: This is an interesting proposal, but my main reservation is...Reviewer 2 raises this same concern, stating in the Primary Impact section...The PI does not respond to this very critical point. None of the reviewers recommended to Fund. All were “may fund”.</p> <p>XXX: Candidate is competent though not stellar.</p> <p>XXX: The external reviewers still appear undecided with this re-submission.</p> <p>XXX: Potentially important study...some concern about feasibility of ...there is not a clear description of the value or use of the results. Good to very good track record.</p> <p>XXX: International reviewers agree that subject is important, revised grant much improved and no substantive criticisms</p>	<p>Fund (5)</p> <p>Discuss (2)</p> <p>Do not fund (1)</p>

CSA Review: Successful

External Reviewers				CSA Panel	
Reviewer 1	Reviewer 2	Reviewer 3	Funding Recommendations	Comments	Funding Recommendations
XXX Fund 8	XXX Fund 9.5	XXX Fund 10	Fund (3) Average score: 9.17	<p>XXX: Overall consistently good comments and review, stating novelty, importance, ambition, feasibility and track record.</p> <p>All reviewers were also substantial and specific, giving the scores more weight.</p> <p>XXX: Positive reviews from all reviewers, a strong proposal and good track record.</p> <p>XXX: A good proposal by a good clinician-researcher, endorsed by all 3 external reviewers.</p> <p>XXX: Well written proposal for implementation science study. Builds on existing research by accomplished clinician investigator.</p> <p>XXX: Highly accomplished applicant and well-constructed proposal.</p>	Fund (8)

Joys of a Professional CS

1. Broader impact on **medicine, patients** and **society**
2. Intense, varied, **exciting** and ground-breaking work
3. A critical and valuable member of the Department, Hospital and University – despite what they tell you
4. Longer **balanced** career
5. Opportunities for international work – **globally** competitive

Questions?

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