Pre-Launch Engagement Session for NIC Phase 1B Grant Call on the Caregiving Ecosystem

19 February 2021







Programme

S/N	Item	Time
1	Welcome Remarks by NIC Programme Office	9.00 – 9.05am
2	Opening Remarks by Prof Tan Chorh Chuan, MOH Chief Health Scientist	9.05 – 9.10am
3	Overview of Phase 1B Grant Structure by NIC Programme Office	9.10 – 9.15am
4	Sharing Session by Expert Panel	9.15 – 9.45am
	 A/Prof Josip Car (NTU) – Carer Needs within the Care Ecosystem Ms See Yen Theng (AIC) – Overview of Caregiver Initiatives Mr Teo Cher Hwa (NHIC) – Considerations in Supporting & Developing Health Technologies 	
5	 Roundtable Discussion Prof Tan Chorh Chuan Expert Panel: A/Prof Josip Car, Ms See Yen Theng, Mr Teo Cher Hwa Ms Charlene Chang, Group Dir, Ageing Planning Office, MOH (<i>moderator</i>) 	9.45 – 10.00am
6	Post-programme Networking	10.00 – 10.30am

House Rules

Please take note of the following house rules:

- 1. Ensure that your microphones are <u>muted</u> during the session.
- 2. Participants could raise their questions in the chat room during the roundtable discussion session. The moderator will select the questions to be discussed by panellists.

Opening Remarks by MOH Chief Health Scientist, Prof Tan Chorh Chuan

Singaporeans are rapidly ageing. By 2030, we will have >900,000 seniors aged 65 and above.

Old Age Support Ratio 1:8 (2000) → 1:3 (2030) 83,000 seniors will live alone.

1 in 3 seniors may have ≥ 3 chronic conditions.

Through R&D efforts, maximise the potential of our longer life span, tap the potential of the silver economy, and unlock opportunities for seniors to have good quality of life with longer life years.

- > Multi-agency partnerships between researchers, industry, providers
- > Translation of research pilots into real life solutions for our seniors and society

Emerging opportunities in the Silver Economy







National Innovation Challenge (NIC) on Active and Confident Ageing supports multidisciplinary, translational ideas and research on ageing

- The NIC on Ageing was established in Aug 2015 as part of the Action Plan for Successful Ageing, to support multi-disciplinary, translational ideas and research to transform the experience of ageing in Singapore.
- Up to \$200 million set aside to find new ways to solve existing challenges and transform the experience of ageing.

More research into ageing issues:

 Up to \$200 million set aside for a National Innovation Challenge to catalyse research related to ageing.



Holistic national ageing R&D portfolio for different research stages and funding needs – NIC and HLCA grant calls

NIC Grant Calls	 Phase 1A (FY2015 – FY2018) Launched 7 grant calls in home care, cognition, ageless workplaces, assistive devices, frailty prevention, falls prevention and chronic disease management 3-year funding period
	 <u>Phase 1B</u> (FY2019 – FY2023) Directed investment on focus areas Larger grant calls with a longer timeframe for applied, multi-disciplinary research



Grant programmes of different funding quantum, funding duration, target audience and scope serve to complement each other

Healthy Longevity Catalyst Awards 3 Rounds from 2020 to 2022 Collaboration with the US National Academy of Medicine (NAM) to catalyse breakthrough innovations & solutions \$50K USD (~\$70K SGD) Catalyst Awards for startups, community partners and young innovators

NIC Phase 1B: larger grant calls of up to \$10M each, and with a 5 year horizon to address priority needs and generate impactful outcomes

- Grant calls larger in quantum (i.e. up to \$10M per project), over a longer timeframe (i.e. 5 years) than those in Phase 1A
- Specific focus areas on caregiving ecosystem (i.e. Ageing in Place) and managing frailty (i.e. Extending Health Span) utilising technology as an enabler
- Key requirement to have a multi-disciplinary team (e.g. team members of medical, technology and engineering background, with service provider as an implementation partner to test-bed proposed solution)

	Phase 1A grant calls	Phase 1B grant calls
Funding quantum	Below \$3M per project	Up to \$10M per project
Funding period	3 years	5 years
Number of focus areas	7 themes across 3 key research thrusts (i.e. Lengthening Health Span, Productive Longevity and Ageing in Place)	2 themes across 2 key research thrusts focusing on high priority needs within health care (i.e. Extending Health Span and Ageing in Place)

NIC Phase 1B's strategic research & translational focus on Extending Healthspan & Ageing in Place to transform trajectory of ageing

Systems Function



Grant Call on Caregiving Ecosystem

Rising caregiving demand in Singapore & existing efforts under Caregiver Support Action Plan

- Shrinking old age support ratio leading to growing healthcare expenditure and heavier caregiver burden
- 2019 estimates suggest that in Singapore there are around 110,000 to 120,000 family members or friends serving as caregivers for persons aged 65 and above, with 85,000 to 90,000 care recipients in that age bracket.



- Caregiver Support Action Plan launched in 2019
 - Care navigation
 - Financial support
 - Workplace support
 - Caregiver respite services
 - Caregiver empowerment & training

Grant Call on Caregiving Ecosystem to be launched in 1H 2021

- The NIC Programme Office will be launching a new grant call on Caregiving Ecosystem in 1H 2021.
- The aim of the grant call is to catalyse multi-disciplinary translational research and innovation to achieve sustainable caregiving in the community setting, whilst addressing the current and future trends of caregiving in Singapore.
- This ought to address the needs of caregivers (many of whom may be seniors themselves) and care recipients and translate to **new care models and intervention programmes** that can be **implemented nationally** to strengthen the caregiving ecosystem, with outcomes that are effective and help lower costs at the systems level.
- **Technology should serve as a key enabler** for the proposed solutions/interventions to enhance their impact and scalability.





Challenge Statement for the Grant Call on Caregiving Ecosystem

Project Teams should submit applications in response to the challenge statement:

"The challenge is to develop innovative solutions on caregiving support that are **sustainable** and **scalable** in the community setting, to address the **multi-factorial needs** of caregivers and care recipients as they evolve over the care journey. The solutions should achieve better outcomes than currently in terms of improving the well-being of care recipients and caregivers, including reducing the number of caregiving hours, hospitalisations or subsequent institutionalisation for care recipients, by at least 25%."





Key Aspects of Grant Call

- Open to all public and private entities and institutes of higher learning (IHLs), but **Host Institutions must be public entities or IHLs**
- Clear business model for sustainability and scalability, recommended to obtain letters of support for implementation of the proposed solution from industry, community partners or public agencies
- Four phases to the projects, i.e. Proof of Concept (POC), Proof of Value (POV), Test-Bedding and Scale-Up, with at least two-years for the Test-Bedding and Scale-Up phases

Detailed grant administration information will be shared at public briefing closer to launch date.

Sharing Session by Expert Panel

Item 1: Carer Needs within the Care Ecosystem



Speaker: A/Prof Josip Car Director, Health Services Outcomes Research Programme Nanyang Technological University (NTU)

Carer Needs within the Care Ecosystem

Associate Professor Josip Car MD PhD DIC MSc FFPH FRCPE Director, Centre for Population Health Sciences Director, WHO CC for Digital Health and Health Education



Objectives

Develop a conceptual framework of carer needs

Identify carer needs through literature search to validate framework

Map interventions identified through literature search to carer needs

Populations are getting older





Approach to Sustainable Caregiving – Needs Driven Framework (ASCeND Framework)



Carer Needs



Basic (Physiological) | Security | Social | Self esteem | Self actualisation

Carer Needs: Basic (Physiological)

Need to find time

Need for rest Need for relaxation & leisure Need for self-care Need to take care of health* Need to run errands

Need to find food/shelter

*Health is defined as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (Source: WHO)

Carer Needs: Security

Need for financial security

Need to have financial literacy

Need to find a job

Need to retain a job

Need to re-enter workforce

Need to support family financially

Need to sustain household

Need for education or vocational

skills training

Need for safety

Need to care safely for the relative/care recipient

- Need to have health literacy

- Need to be trained

Need to trust other supporting

carers

Need for future security

Need to have certain/secure future

Need to have financial reserve

Need to plan/deal with legal issues

Need for care recipient to be

financially stable

Carer Needs: Social

In relation to the care recipient

Relational need

Need to empathise

Need to balance personal and care related components

Need to secure attachment

In relation to the family

Need to have loving relationships/intimacy

Need to spend time with children

Need to help raise grandchildren

Need for emotional support & understanding from spouse

In relation to social network*

Need to interact with family, friends, community

Need to be cared for by family & friends

Need for emotional support

Need for informal support (practical help)

Need to belong (e.g. integrating into disease specific support community

Need for family members to participate in joint decision making

Carer Needs: Self esteem

Need to maintain self-worth/ self-confidence/ self-respect

- Need to maintain a sense of integrity
- Need to be proficient in caring
- Need to be competent in caregiving* (selfefficacy)
- Need to develop skills to respond to acute crisis
- (health & non-health)
- Need to balance competing commitments
- Need to feel confident in own skills
- Need for self-development



Need for external validation of self-worthiness

Carer Needs: Self actualisation

Need to give back to community/ society

Need to be active member of community

Need to help others and share knowledge

Need for self-growth

Need to build resilience

Need to appraise caregiving

role

Need to appraise caregiving

role

Need to derive satisfaction

Need to demonstrate values

Need for autonomy

Interventions

Disease prevalence: dementia, Parkinson's, post-stroke, heart failure, cancer, end-of-life care, frailty, eldercare

Interventions mapped to list of carer needs and revealed research gaps:

- Security needs (financial)
- Social needs
- Self-actualization needs

Categories:

- Type: Digital technologies, Telecommunications, Programs
- Recency: Established, Emerging

Interventions: Established

Time-tested and widely used

Digital Technologies

- Global Positioning System tracker
- Television-based e.g. DVD training programs

Telecommunications

- Telephone-based or videoconference-based support
- Text messaging services



Interventions: Emerging

Relatively new, gaining acceptability

Digital Technologies

- Touchscreen devices e.g activity trackers, leisure apps
- Digital support platforms e.g. educational websites, appointment scheduling services
- Assistive technologies e.g. electric wheelchair, social robots
- Ambient technologies e.g. motion sensors



Non-Technological Programs



Home-based

One-on-one coaching: customized caregiving training

Ergonomic furniture/devices: proper furniture fitting

Home modifications: bathroom railing, bed railing, mechanical lifter



Community-based

Community-based training provided to a group of carers

Day and night respite care services: temporary relief of caring duties

Therapies for carers: mental and physical relaxation

Research Recommendations: Established Areas

Well-studied area overseas, needs contextualisation for Singapore

Domains of needs:

caregiving-related self-esteem needs, carer emotional/mental health needs, basic need to find time via respite care

Technologies:

- Mobile text messaging as support service for carers
- Comparisons between traditional, internet-based and app-based (or chatbot) carer support programs or interventions
- Development or use of health apps to support carers or care recipients. Comparison of health outcomes with carers who are not app users.

Research Recommendations: Emergent Areas

Experimenting with or innovating new ideas locally; or testing and developing internationally emerging technologies

Domains of needs: security (financial) needs, social needs and self-actualization needs

Technologies:

- Utility, acceptability & risks of ambient assisted living technologies e.g. motion/tracking sensors
- Digital platform (financial) that enable transparent, accountable and responsible management of financial reserve for caregiving

Research Recommendations: Population

Population level needs assessment: new care models, perceived needs for financial literacy and self-actualisation, carer reserve and how needs change over time

Ongoing policy initiatives: implementation and effectiveness of existing and new policies, optimal mix and types of co-located care services

Community/health system: developing social capital for sustainable caregiving, health screenings impact, adequacy of built environment

Research Recommendations: Other

Areas requiring further primary research and systematic reviews

Wearables (smart devices, smart fabrics) as ambient assisted technologies

Social robots as companion and (health) coach

Specific carer groups

Minority carer groups in the Singapore context e.g. men as carers, teenagers and young adults as carers while pursuing an education

Feasibility and effectiveness of interventions on different generations – including those in the "sandwich" generation, different gender/socio-demographics of carers



10 Feb 2021 01:01PM (Updated: 10 Feb 2021 04:36PM)



Singapore

Growing preference among elderly residents to 'age in place': HDB survey



An elderly man gets a morning workout at a fitness corner in Toa Payoh on Jun 19, 2020, the first day of Phase 2 of Singapore's reopening. (Photo: Jeremy Long)

SINGAPORE: More elderly residents of Housing & Development Board (HDB) flats hope to stay put and grow older in their existing homes, according to the findings of an HDB survey released on Wednesday (Feb 10).

The latest Sample Household Survey, conducted in 2018 among nearly 8,000 households across all HDB estates, aimed to gather feedback about public housing and residents' changing needs. It is conducted once every five years.

The survey found that 86 per cent of elderly residents intended to continue living in their existing flats, up from 80 per cent in 2013.

This was because they "found it comfortable or had an emotional attachment to it, having developed fond memories of the time spent with their family in the flat", HDB said. "The elderly continued to show a strong preference to age in place."

Thank you!

A/Prof Josip Car, MD PhD DIC FFPH FRCPE

josip.car@ntu.edu.sg @ejosipcar (Twitter) Josip Car (LinkedIn)

MANYANG TECHNOLOGICAL SINGAPORE Imperial College London

Item 2: Overview of Caregiver Initiatives



Speaker: Ms See Yen Theng

Director, Caregiving and Community Mental Health Division Agency for Integrated Care (AIC)

Overview of Caregiving Initiatives

Sharing at Pre-Launch Engagement session for NIC Phase 1B Grant Call on the Caregiving Ecosystem

Ms See Yen Theng Director, Caregiving and Community Mental Health Division Agency for Integrated Care

19 February 2021





Many Care Support and Services Today Still Focus on the Needs of Mainly Care Recipients



Why We Should Also Focus on the Needs of Caregivers

- In Asian countries like Singapore, informal or family caregivers form the backbone for provision of care to care recipients.
- However, **specific caregiving-related needs of caregivers** are often neglected in current care support and services, which usually places more focus on the needs of the care recipients instead.
- Increasing unmet needs of caregivers not only causes more stress and burden for the caregiver, it also results in the caregiver being unprepared for their role, and poorer care provision for the care recipient.



Caregivers themselves become at risk of developing physical and mental health issues

Caregivers provide poorer quality of care for their care recipients

Lower QoL for both care recipient and caregiver



Ajay S. et al. (2017). Caregiving-related needs of family caregivers of older Singaporeans. Australian Journal on Ageing. **36**(1): E8 – 13.

Understanding the Needs of Caregivers

- Through Focused Group Discussions(FGD) and Studies



A Closer Look at Caregivers' Needs

Resource and Care Navigation	 Easy access to caregiving information and advice from recognisable and trusted sources Caregivers can easily find the services they require based on their needs 	Finances and Employment	 Some caregivers have had to stop working due to caregiving role Full-time caregivers worry about their own financial needs Financial support to defray cost of caregiving
Managing Care in the Community	 How to provide better care for care recipient Better understanding of their care recipients' conditions Caregivers can be easily linked up to community services that they need 	Balancing Caregiving and Other Commitments	 Supportive employers and workplaces help caregivers balance caregiving and work Flexible Work Arrangements Insufficient caregiver leave Support for caregivers returning to work Access to more respite options
Managing Stress from Caregiving	 Emotional support and peer support for caregivers Empowering caregivers to practise self-care 	Future Plans	 Advanced Care Planning for care recipient Concerns about future care arrangements for care recipient, especially for elderly caregivers

Caregiver Support Action Plan (2019) - Inter-ministerial effort



Key Progresses in Caregiver Support Action Plan - Initiatives under MOH and AIC

Care Navigation	Caregiver Support Services	Caregiver Empowerment & Training	Financial Support
 4 Silver Generation Offices (SGOs) as touchpoints, located in the community Enhanced Singapore Silver Pages Launch of Health Marketplace - to facilitate access to care services. This online platform will allow caregivers to purchase products and services that best suit their needs. 	 Piloted Go Respite – 46 providers on board, >600 sign ups, >100 activation Piloted Night Respite with SJH, Peacehaven, Vanguard Woodlands Care Home (suspended due to COVID) Piloted new home based respite for caregivers of palliative care cancer patients >100 beneficiaries 	 4 Caregiver-focused Community Outreach teams supporting ~800 caregivers 5 Caregiver Support Network in community supporting ~300 caregivers New Caregiver Training Curriculum 	 Home Caregiving grant for long- term care, tied to disability of recipient

Supporting Caregivers Through Services

- Night Respite for Persons with Dementia with Sundowning Behaviour



 Estimated 20%¹ of Persons with dementia displaying sundowning behaviours including restlessness, agitation, disorientation and having difficulties sleeping at night

2.

• Caregivers unable to rest at night and resulting in burnout

Night Respite Service

- Pilot at 3 Service Providers
- Services provided 6 nights a week
- Includes transportation between homes and centres
- Centres designed with dementia-friendly principles and have home-like settings
- Service suspended during COVID

. Persons with dementia are meaningfully engaged during the night respite service







No local data available. The United States Alzheimer's Association estimated that 20% of those diagnosed with Alzheimer's disease may experience sundowning behaviour. Sundowning, Sleep, Alzheimer's & Dementia. Alzheimer's Association. (2016). Source: http://www.alz.org/care/alzheimers-dementia-sleep-issues-sundowning.asp

Supporting Caregivers Through Process Improvement - Go Respite

Objectives of Go-Respite:

- Encourages caregivers to <u>plan ahead</u> and <u>identify a suitable respite care</u> provider via pre-enrolment
- Aims to <u>shorten activation time for respite care</u> by completing some administrative processes in advance
- After pre-enrolment with the selected respite care provider, caregivers can <u>directly contact the service provider to activate the respite care</u> when needed.

Participating Service Providers:

- 26 Nursing Homes
- 20 Senior Care Centres

Impact of Go-Respite to Date:

- 40% reduction in time needed for caregivers to activate respite service
- Caregivers are generally satisfied with the overall experience and they feel less burden as they manage to get respite



Supporting Caregivers Through Empowerment - Caregiver Support Networks

Goals

Empower caregivers through peer support networks focusing on self-care, mindset change and recognition

1. Peer Support Network

Stay connected through regular sessions via face to face or virtually, WhatsApp, small groups and buddy system

2. Promote Caregiver Wellbeing

Through health talks, self care skills and preventive health activities

3. Recognition

- Recognize that caregivers can step up to lead in programmes by tapping on their strengths, talents and interests
- Recognize caregivers through corporate discounts and privileges

Queenstown Caregivers Connect



Outing to Labrador Nature & Coastal Walk



Talk on Good Nutrition by KTPH Dietitian



Mindfulness led by Caregiver Peer



Talk on Self Care by Guardian Pharmacist





Commonly Seen Care Recipient / Caregiver Profiles

Senior Caregivers

- Elderly Spouse
- Children in 60's

Middle aged Caregivers

with significant health issues or psychosocial issues

Single Child Sole Caregiver

Caregivers with resource constraints or strained relationships



Potential Areas for Future Research on Caregiving

Key Themes	Potential Research Areas
1. Key strategies to identify, assess, and support the unique and varied needs of families through better understanding of their attitudes, values, preferences, feelings, and expectations.	 How do the preferences, values and needs of caregivers affect decision-making, their needs for services and efficacy of interventions? Models of support that enable caregivers to be involved in the most meaningful way, particularly in acute care and community care settings. Enhancing feedback systems within services – accessibility and effectiveness to capture caregiver's concerns. Evaluation of the effects of caregiver involvement on the care outcomes.
2. Technological interventions to support caregivers in decision-making and the impact on the families and care outcomes	 Which aspects of caregiving are good areas to implement technology as enablers? (e.g. Education, Assessments, Care Provision and Accessibility) Types of technology platforms or channels that offer access to information and facilitate caregivers in decision-making? (for different CG groups)
3. Evaluating promising caregiving interventions from prototype to large scale adoption -scalability and sustainability.	 Common set of relevant outcome measures and assessment areas for family caregiver interventions at individual, family, health system, and community levels. Cost benefits analysis for promising caregiver interventions
 4. Future proofing - Adaptation to changing social- economic trends Eg. Trends of ageing without children, older carers caring for elderly parents or for their children with disabilities or severe MH issues 	 Research on different family structures and how they affect outcomes? Research into research methods for evidence-based intervention can be adapted Research into strategies that can be used to identify adaptations to interventions needed

Thank You. Connecting You to Community Care

Email address: yen.theng.see@aic.sg





Speaker: Mr Teo Cher Hwa Director National Health Innovation Centre (NHIC)

CONSIDERATIONS IN SUPPORTING & DEVELOPING HEALTH TECHNOLOGIES

19.02.2021



NATIONAL HEALTH INNOVATION CENTRE

We provide the publicly-funded clinical research sector of Singapore with **translational funding** and **strategic guidance** to accelerate healthcare innovation and commercialisation.

OUR VISION

Singapore as a leading hub for health innovation & enterprise in Asia

OUR MISSION

Drive impactful health and economic outcomes for Singapore by **catalyzing** innovation and enterprise endeavours in the healthcare research community through public and industry **partnerships**

OUR VALUE PROPOSITION





Types of Public Research and Innovation Grants

TALENT DEVELOPMENT

- Nature new investigator .
- Talent development
- Talent attraction

٠

E.g. CS-IRG, STaR, CSA, CIDA, MOE, A*STAR scholarship

- Quick tip: Find the Appropriate Funding Mechanism
- Address the needs of THEMATIC specific sector PROGRAMME

E.g. NIC, HSR, AI.SG, COVID-19

National Health Innovation Centre

RESEARCH

GRANT

Discovery and application of basic science ideas

E.g. LCG, IRG, MOE AcRF

GAP **FUNDING**

- Translate research outputs into outcomes ٠ with economic and social impact
- Capture value through translation of ٠ research to impact.

E.g. Centralized Gap Funding, I&E Cluster Fund, Centralized Core Funding, CTG-IIT, **ESG Startup SG grants**

INDUSTRY ALIGNMENT

- Capabilities needed by Industry
- **Future Industry readiness**

.g. IAF-PP, IAF-ICP, CTG-ICT

Understanding Healthcare Stakeholders

Quick tip:

GAP

Understand your

Stakeholders

and bridge the





Understanding Healthcare Innovation



UNMET CLINICAL NEED

What is the potential for solution to address the unmet clinical need? What is the voice of customer? Feedback from KOLs?

SOLUTION & INTELECTUAL PROPERTY

How does the solution fit into the clinical workflow and current practices? What is the stage of IP, any potential issues with competitor patents?

COMPETITIVE LANDSCAPE

What are the competing solutions and how is this solution is superior?, including other treatment approaches e.g. surgery or devices?

TECHNOLOGY DEVELOPMENT

How feasible is the development plan? Is the development plan seemed appropriate, both in cost and time?

MARKET LANDSCAPE

Who are the target patients? What is the incidence and/or prevalence? What is the total amount spent per year to address the problem faced by these target patients?

SAFETY, PERFORMANCE & EFFICACY

Is the current data adequate, well-reasoned and appropriate to the development of the technology so far?

COMMERCIALISATION STRATEGY

Have any strategic partners been identified/approached? Clear plan for formation of new commercial enterprises, or codevelopment with industry?

FUNDING PATHWAY

Identify the estimated amounts required and when/how to obtain subsequent funding, and how these funds are to be used.

HEALTH ECONOMICS

What are the potential impact on patientrelated outcomes, in terms of reducing the mortality and morbidity, or healthcare outcomes such as improvement of cost-effectiveness of healthcare delivery

Current Process in Introducing Health Technology



Commercial Product:

Regulatory Service Planning / Funding Considerations (MOH) **Entry into PHIs** (HSA/MOH) Evaluation of clinical and cost-effectiveness of Health Tech Approval by by the Agency for Care Effectiveness (ACE) Approval by HSA (for Chairman of Funding consideration (i.e. subsidy, MediShieldLife) by MOH Quality, Safety, Efficacy) Medical Board and appointed advisory committee members Approval by MOH for ٠ Approval by ٠ higher risk services / Service planning considerations, including high-cost CFO technologies products

Other products (not assessed by HSA):

- In-house manufactured products subject to regulatory policies/regime by MOH
- Products not registered with HSA
 - May be introduced on a named patient basis via HSA
 - May be introduced for the purposes of research, as approved by the Institutional Review Board (IRB)

CASE STUDY 1



NEW IDEA WITH NO PROTOTYPE



Quick tip: Be Novel, but not too Novel

READINESS



MED

HIGH

TECHNICAL FEASIBILTY

Assembled a lab/bench prototype (Basic) -> Performance specifications to fill an unmet need -> Technology assessment, likelihood of success

CLINICAL FEASIBILTY

Unmet clinical needs identified (Basic) -> Clinical Need confirmed -> Clinical workflow description -> Preliminary Intended Use Statement

MARKET OPPORTUNITY

Value Proposition -> Preliminary business plan Key stakeholders identified -> Strategic partner engaged Competitive landscape -> Competing solutions characterization

ર્ટ્^{...)} KEY STAKEHOLDERS

Innovators, Healthcare professionals, Research partners, Healthcare providers, Team

COMMON PITFALLS

Weakly defined unmet need, Mismatch of technology, Unconvincing team composition



Bench top prototype assembled, Established the required performance specifications

CASE STUDY 2





LEVEL MED MED HIGH

RFADINFSS

TECHNICAL FEASIBILTY

Proof of Concept - lab or bench prototype (Basic) -> Risk assessment -> Preliminary D&D plan -> Preliminary V&V plan

CLINICAL FEASIBILTY

Clinical Need confirmed (Basic) -> Proof of functionality in a limited number of in vitro and in vivo research models or laboratory model

MARKET OPPORTUNITY

Value Proposition -> Preliminary business plan -> User feedbacks IP landscape -> Patent Protected Identify and engage strategic partners -> Establish partnership with key stakeholders Competitive landscape -> Competing solutions characterization

Quick tip: Concise, Clear and Complete



KEY STAKEHOLDERS

Regulators, Suppliers and Vendors, Investors, Patients/End Users, Government & Policy makers

COMMON PITFALLS

Lack of regulatory strategy, Insufficient data points, limited considerations on cost of product & manufacturability

CRITICAL MILESTONES

Solution feasibility validated , Regulatory pathway for target markets, Product development plan

Technologies for the Elderly and Caregivers



In Singapore, the number of senior citizens aged 65 and above is expected to reach 900,000 by 2030. Coupled with rising chronic illness demands and the nation's low birth rate, it is important that seniors are provided with the support they need for healthy ageing.

SoundEye

365

Smart Sensor Technology to Aid Elderly Care

E.g. Monitor activities of frail/elderly

Tele-Health Rehabilitation Can Bring Elderly Care to Home E.g. Internet-based video conferencing services

Assistive Technology Through Robotic Assistants

E.g. "Carebot" such as Pepper and Palro

Wearable Technology for Seniors E.g. Step trackers, Healthy 365 mobile app

Digital Healthcare Companion

E.g. HealthHub app – greater ownership of their health

Smart Technology for the Elderly Living E.g. VR apps to combat isolation and boredom



QuantumTX has partnered with Lien Foundation to make its BICEPS Wellness Device available to seniors in the community participating in the Gym Tonic, evidence-based strength training programme, which aims to reverse physical frailty.



To engage and motivate seniors in exercise routines, a humanoid robot known as Robocoach was created by Ngee Ann Polytechnic (NP) students to act as a fitness instructor to senior citizens. BT PHOTO





What do grantors look for?

QUALITY

A good quality project enhances the success rate of the project.

Factors: Team, Development Plan, and Datasets

ACHIEVABLE

2

Ability to meet the milestones, and achieve the key performance indicators.

Factors: Time, Resources, and Deliverables

IMPACT

What impact can the project create? Economic, healthcare, societal outcomes?

Factors: Clinical integration, Market, Value creation

Simple Rules for Getting Grants

Be Novel, but not too Novel

Speculative science may not be supported, particularly when funds are tight – sad but true.

Find the Appropriate Funding Mechanism

Read the Associated Request for Applications very carefully, and respond specifically to the Request

Obey the Three C's – Concise, Clear and Complete

Specify the scope up-front and make sure it is realistic with respect to the funds requested.

Timing and Internal Review are Important

Complete a draft, leave sufficient time to get feedback from colleagues, and look at the grant again yourself with a fresh eye.

Include the Appropriate Background and Preliminary Data as required

Convince the reviewer that your team is competent to perform the work as proposed.

Follow the Guidelines for Submission Very Carefully and Comply

Length and format are the most frequent offenders.

Remember, Reviewers are People, Too

Avoid getting key points buried in an overly lengthy or difficult-toread document. It is a skill to capture the interest of experts and non-experts alike.

Know your Grantor Funding Your Grant

The more they know and understand you and your work, the better your chances of success. Don't just reply on e-mail to know your grant administrator.



Source: Bourne PE, Chalupa LM (2006) Ten simple rules for getting grants. PLoS Comput Biol 2(2): e12.



Thank you



Roundtable Discussion

 Participants could raise their questions in the chat room during the roundtable discussion session. The moderator will select the questions to be discussed by panellists.

Post-programme networking

Breakout sessions for further discussion on topic areas

- The session will involve three breakout rooms anchored by panellists discussing the caregiver research ecosystem, support services and technology.
- Participants may move freely across breakout rooms to raise questions on each topic area – please click "Leave breakout room" instead of "Leave meeting"

Breakout Room	Facilitator / Topic
1	A/Prof Josip Car – Caregiver R&D Ecosystem
2	Ms See Yen Theng – Caregiver Support Initiatives
3	Mr Teo Cher Hwa – Health Technology







For enquiries, please email to <u>NIC Ageing@moh.gov.sg</u>