Academic Medicine Innovation Institute
SingHealth Duke-NUS

SingHealth DukeNUS Academic Medical Centre
Alice Lee Innovation Centre of Excellence
SGH CAMPUS

ALICE LEE INNOVATION CENTRE OF EXCELLENCE

Issue 2



Innovation Breakthroughs that impacted the Healthcare Ecosystem

[VisBuddy] To assist patients with swallowing impairment (dysphagia), Dr Wong Seng Mun and her team have developed VisBuddy. It is a device that aims to facilitate the thickening of beverages more accurately and quickly, while verifying that the correct liquid thickness level is achieved, according to international standards.

At an early stage, the project team has learnt to understand the perspectives of multiple stakeholders during prototype development to balance among the technical complexity of the desired product, users' needs and wants and industry commercial interests. The intricacies of collaboration agreements and IP protection are also their more recent learning points. There are ups and downs in this journey - the daunting moments are when people are skeptical about their idea and solution. However, the team has also met nursing participants during prototype testing who found the solution useful and looked forward to the final product. This desire to improve the management dysphagia has kept the project team going despite the sometimes short-lived euphoria of a project milestone achieved. Every little step is worth celebrating, such as a collaboration agreement that comes back with only minor changes!



From Left to Right the team consist of:
Jaylyn Poh Tze Theng (Clinical Innovation Engineer, SGH Research Office)
Wong Seng Mun (Senior Principal Speech Therapist, SGH Dept. of Speech Therapy)
Lee Yan Shan (Principal Speech Therapist, SGH Dept. of Speech Therapy)
Xu Guolin (Managing Director, Arogi Healthcare Pte Ltd)
Lim Siew Hoon and Esther Monica Fan (DNA - Pat Care services and Prof Affairs Admin) (Not present within pciture)

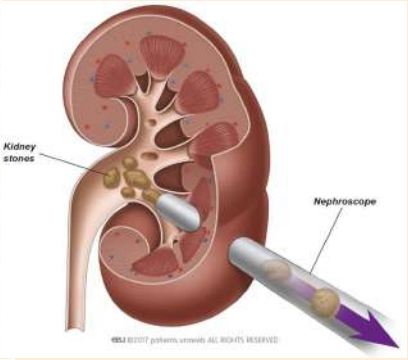
"A.L.I.C.E @ SGH Campus has helped us tremendously by tapping on their networks to match us with an industry partner to co-develop the VisBuddy. The team plays a crucial role by helping clinicians translate clinical needs and gaps into engineering solutions that can be developed by the relevant industries. They are well-versed in the scope of various innovation grants, including grant application preparation. We are grateful to the A.L.I.C.E team, especially Dr Cheong Wai Chye, and to the Clinical Innovation and Technology Unit (CITU) at SGH Research Office, for guiding us towards successful award of the NHIC I2I Grant."

- Dr Wong Seng Mun

Robotic-Assisted Fluoroscopic-Guided Renal Access (ANT-X System) for Percutaneous Nephrolithotomy (PCNL)







Freehand PCNL under ultrasound and/or fluoroscopic guidance exhibits the highest stone-free rate for large renal stones as compared to alternative procedures. However, PCNL is associated with potential complications (such as bleeding and pleural injury etc). Less experienced surgeons who lack the ability to visualize kidney anatomy in 3D usually need many cases in order to be proficient in accurately placing the needle into the desired calyx. This steep learning curve poses as a challenge for clinicians and often requires multiple punctures, potentially causing trauma to the kidney.

The aim is to evaluate whether the ANT-X system can achieve equivalent or better clinical performance for PCNL in Singapore public health institutions and adopt-ability across hospitals. There is currently no known commercial robotic device available to effectively assist in the access into calyxes.

Today, ANT-X has shown promising results in accurately placing the needle into the desired calyx, reducing the number of punctures, shortening puncture time and reducing radiation exposure.

"The overall development of the system is well over 10 years with different partners and collaborators along the way. Perseverance and patience are the 2 cornerstones that lead to the clinical application of the device.

With the assistance provided by the A.L.I.C.E @ SGH Campus team such as project initiation, grant application, and collaboration with companies, it has been instrumental in this innovation journey, especially in applying for the I2A grant."

-Dr Lu Ya Dong



Bridging the gap between commercial partners and innovators to spark innovative collaboration

By providing a platform that facilitates collaborations between healthcare professionals and commercial partners, A.L.I.C.E @ SGH Campus partners with various companies, by supporting the curation of new insights, creation of impactful technologies, solutions and development of advanced workflow and expertise.

BMEC
a Boustead company

Established in 1988 and now part of Boustead Singapore Ltd (Forbes Asia 200 Best Under A Billion), BMEC prides themselves as the leader in enabling transformative healthcare technologies in areas such as Sport Science, Rehabilitation, Healthcare Simulation, Integrated Wellness Services and Functional Assessment. BMEC believes that everyone has the potential to stretch further, and their role is to identify the gaps and provide the right solutions and tools for their customers.



Their mission is to provide technologies and solutions that enable customers to educate, treat, care for, and realize their fullest potential in healthcare and sports. BMEC offers a diverse range of services, from designing rehabilitation centres to constructing sports performance centres, and healthcare simulation labs. In addition to designing and building various health and sports-related facilities, they also supply and set up a wide range of biomedical products for rehabilitation, nursing, sports science and healthcare simulation. Moreover, BMEC offers integrated services to implement functional assessment and physical frailty programs. These services involve conducting objective assessments using advanced technology and providing a comprehensive outcomes-driven training program for seniors, utilizing whole-body vibration technology and software intelligence.

Partnering with A.L.I.C.E @ SGH Campus has opened doors to potential industry collaborators and highlights BMEC's expanded healthcare services portfolio. This collaboration has allowed to bridge the gap from a solutions provider to a service-oriented entity, enable to recieve tailored clinical assessments alongside technological solutions. It helps to communicate growth and innovation to a wider audience, positioning BMEC as a comprehensive healthcare solutions provider.

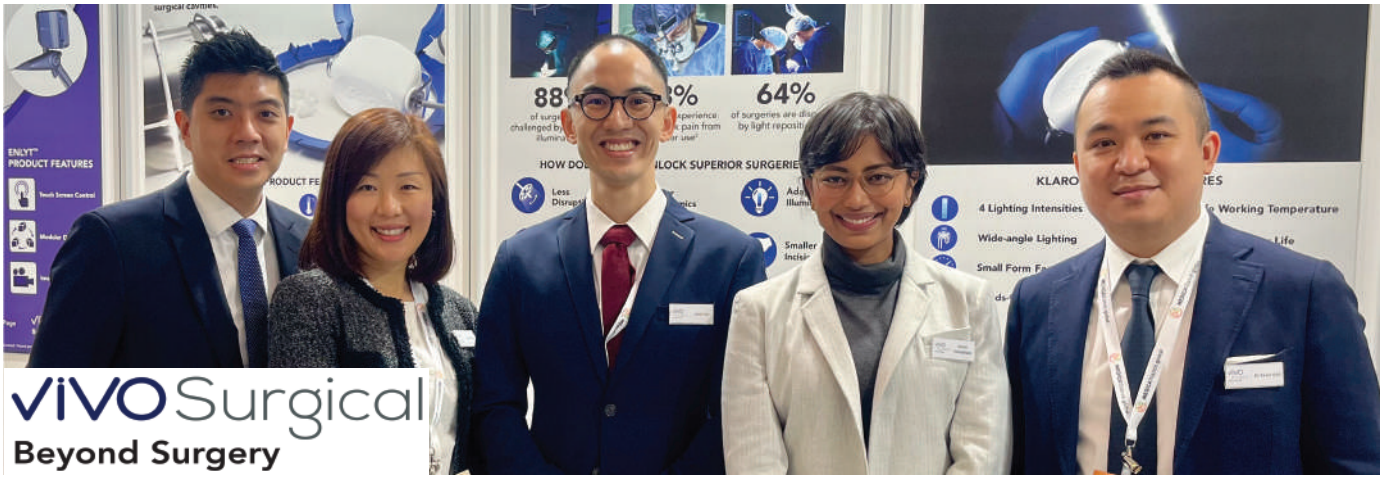
Collaborating Projects

1 ***New Assessment and Rehabilitation Technology***

At BMEC, they provide functional assessments for patients using cutting-edge technology which enables them to generate objective data that assists clinicians in tracking patient progress, evaluating the effectiveness of treatments, and planning personalized treatment plans. Importantly, while FAC is currently operational at CGH, the model is adaptable to other hospitals, clinics, or community settings. This scalability emphasizes its potential to improve patient care and treatment strategies across diverse healthcare environments.

2 ***Integrated Programs in the Community***

Their integrated initiatives, like the Boost program, deployed within the community, stand as another cornerstone of their dedication to improving healthcare outcomes. By offering outcome-driven training and evidence-based interventions customized to meet the needs of community members, particularly seniors, this endeavor underscores thier proactive stance in extending high-quality healthcare beyond conventional clinical environments, fostering healthier and more resilient communities.



A Singapore-based medical technology company pioneering a flexible endoscope robot for advanced endoscopic surgeries along the gastrointestinal tract. Through strategic co-innovation partnerships with reputable health systems and key opinion leaders, the company's vision is to solve the world's unmet clinical needs whilst achieving optimal healthcare outcomes that impact society on a broader level. ISO 13485 certified with international accreditations such as the FDA, CE and HSA certifications, the company's other medical devices in their technology portfolio include an in vivo surgical lighting device for deep cavity surgeries and a portable endoscope for primary care screening and diagnostic applications.

Efforts to impact the healthcare eco-system

Vivo Surgical has been developing medical devices alongside clinical groups from both local and overseas healthcare ecosystems, and have built up good working relationships with several leading international hospitals and research institutes. With the company's first product already commercially launched and a second from Q4 2024, the team has the necessary technical experience and commercial know-how to take medical technologies through its necessary paces and successfully to market.

Collaborating Projects



1 ***ENLYT® Flexible Endoscope***
A US NIH R01 grant funded co-development project between Vivo Surgical, the Duke Global Health Institute (USA), Singapore General Hospital and National Otolaryngology Hospital (Vietnam). The aim is to develop a portable flexible endoscope device for primary care-based screening and diagnosis of clinical conditions in the nasopharyngeal space and beyond, applicable to both emerging and developed economies.

2 ***ERES™ Endoscope Robot:*** *A co-development between Vivo Surgical, Singapore General Hospital and A*STAR SIMTech, with initial support from the A*STAR-SingHealth Medical Catalyst Program grant. This novel endoscope robot has been uniquely developed to be a complementary add-on to any existing endoscope on the market, positioning itself as a game-changer in the area of advanced endoscopic surgeries. The targeted clinical application area as a start would be surgeries in the lower gastrointestinal (GI) tract, with the robot effectively augmenting the skills of the user to perform advanced endoscopic surgeries with great dexterity, speed and precision.*



The A.L.I.C.E @ SGH Campus team has always been a central node across all of Vivo Surgical projects involving SingHealth. Besides facilitating discussions and collaborations with key opinion leaders and clinical departments, the team has been instrumental in helping to make the necessary connections with key parties both within SingHealth as well as externally. Invitations to talks and to exhibit the company's devices at important lectures/seminars at SingHealth have also helped with Vivo Surgical's PR and fundraising efforts. Vivo Surgical is thankful for the strong partnership with A.L.I.C.E @ SGH Campus and looks forward to many more good years ahead with the team.

Your Ideal Partner

Access Value- Adding Capabilities for Impactful Innovation

From unmet clinical needs validation, co-development & validation, test-bedding & adoption, key-opinion leaders consultations, and technology licensing & commericalization opportunities, we tailor partnerships to suit your specific needs and goals.

Resource Matching Capabilities

- Project management and resource match collaboration projects such as linking critical technology owners, professional service regulatory consultation, etc.
- Engineering support is available in-house in A.L.I.C.E @ SGH Campus
- Clinicians who have explored their initial ideas with A.L.I.C.E @ SGH Campus may be linked up to our extensive commercial partners network to pursue deeper development of their projects through comprehensive commercial partnerships

Find out more on how A.L.I.C.E @ SGH Campus is able to assist the healthcare ecosystem!



At A.L.I.C.E, we believe in forging strong alliances with like-minded organisations to revolutionise the healthcare landscape. Besides serving our internal community, we also support the wider innovation ecosystem in furthering their solutions, leveraging on our strength as the largest healthcare cluster in Singapore.

This Commercial Naviguide is produced to guide commercial partners in navigating the healthcare innovation landscape within SingHealth.

Click on the link to find out more

https://www.singhealthdukenus.com.sg/innovation/ALICE/Pages/Naviguide.aspx

Grants / Funding Opportunities available

Clinical and Systems Innovation Grant (CSI)

CSI grant seeks to promote clinical and system innovation to transform healthcare. It provides innovators with funding to catalyse ideas and develop prototypes.

There are two grant calls a year and all staff, i.e. nurses, allied health professionals, administrators and clinicians are encouraged to participate in collaboration with ACPs.

Digital Health Accelerator (DHA) Program

DHA program aims to focus on prioritized PHI needs with substantial global markets and growth potential. It aims to bring together the various stakeholders in the healthcare system to enable the development, integration and implementation of the digital health solutions in care delivery organisations

Innovation Seed Grant (ISG)

ISG aims to kick-start and translate early stage innovation projects into working prototypes which would be used to gather feedback from potential users and test the technical feasibility for potential scalability across the cluster.

SingHealth-A*STAR Healthcare Translation Partnership (HTP)

HTP aims to accelerate the translation, deployment and commercialisation of joint healthcare research and innovation projects to generate healthcare impact, improve population health and create economic value.

Note: HTP grant will not fund registries, basic research, discovery/exploratory science or Proof-of-Concept work.

Translation and Innovation Partnership Program (TIPP)

TIPP aims to establish a support system in our AMC ecosystem that will enable and accelerate the translation / commercialisation of promising strategic innovation programs (co)-developed by our faculties and our partnering Institutions of Innovation and Research.

AMII Test-Bedding and Adoption Grant (TAG)

TAG seeks to support testing feasibility and test-bedding of innovations in clinical practice or to bridge the gaps for adoption and implementation of innovations across clusters.

Tier-1 Funding Support
Aimed at supporting Proof-of-Concept (POC) projects for further translation and development of the innovations, bringing them closer towards potential adoption and implementation within the healthcare system.

Tier-2 Funding Support
Aimed at supporting and driving Proof-of-Value (POV) projects towards the adoption and implementation of their innovations across the clusters.

For more information, kindly email us at

innovate@singhealth.com.sg

Colleagues at our sister Do-IT (Division of Innovation & Transformation) office, SingHealth Office of Innovation (SHOFI), will be glad to furnish further information.

Our Partners



Types of Partnership Available

01. Discovery

Committed commercial partnership keen to explore potential collaboration & value-add the AMC Innovation ecosystem

02. Innovatory

Commercial partners setting up satellite office in A.L.I.C.E & committed to provide in depth on-site support to value-add AMC innovation

03. Metamorphosis

Supporting SingHealth Duke-NUS AMC startup to further advance project/product value proposition

Find out more about Alice Lee Innovation Centre of Excellence

innovationcentre@singhealth.com.sg

https://www.singhealthdukenus.com.sg/innovation/ALICE