

Summary Report

Expert Dialogue on Health Services beyond Hospitals

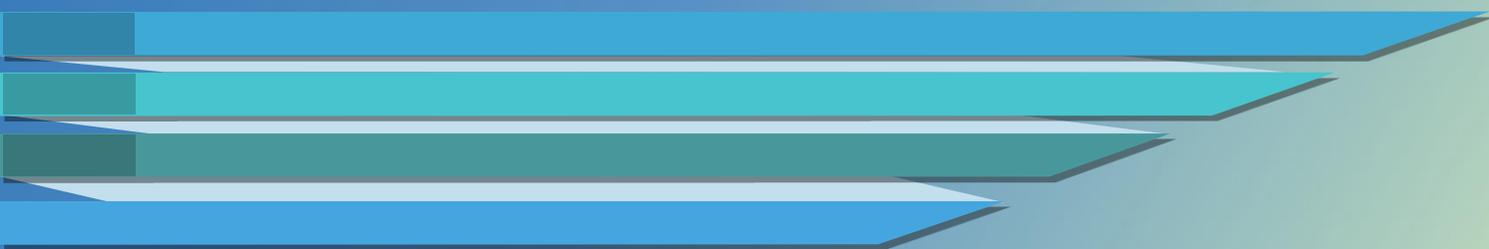
APACMed-Tsinghua University

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On 28 August 2022, hosted by Institute for Global Industry of Tsinghua University and APACMed, the “Expert Dialogue on Health Services beyond Hospitals” was successfully held. 150 attendees from esteemed academia, HCPs and industry leaders joined the dialogue. The dialogue shared global and APAC learnings, deep dived into the pain points in China and recommended solutions and strategic approaches for the next step. Experts on the meeting discussed solutions for chronic disease management in out-of-hospital care against the background of COVID-19 pandemic and for the aging society in China. This kicked off the discussion of APACMed health service work in China in 2022.

As disease spectrum and health demand keeps involving, traditional hospital-centered model was burdened with more and more issues, mainly manifested in chronic disease management for an aging population, insufficient medical resources, and rising costs of medical care. Against such background, it has been a more apparent trend to focus on and keep pushing for out-of-hospital care empowered by digital medical technologies.

Out-of-Hospital Care for Chronic Disease Management in Asia-Pacific Region

The Asia-Pacific region is actively exploring the utilization of digital technology innovation as a new medical care model, fully unlocking the potential of digital health, and managing to apply AI/Deep Learning and other new technologies in clinical outcome analysis and out-of-hospital management of chronic diseases.

Taking Singapore as an example, it aims to legitimize remote care, and has achieved results in applying AI technology in out-of-hospital screening and treatment of multiple chronic diseases. In terms of chronic disease management, Singapore has developed an AI technology that can detect diabetes-induced eye disease based on pictures of retina. Based on this technology, Singapore has launched a nation-wide remote ophthalmological care diabetes-retina disease screening program, assigned professionals to rate the screening results, and arranged patient transfers according to the current transfer standards, effectively reducing hospitals' workload of treating those patients.

At the same time, Singapore has also actively developed “virtual”

out-of-hospital outpatient service and home monitoring of chronic diseases, thus effectively reducing patients' waiting time and significantly enhancing patient experience, cutting public expenditure on chronic disease management, and allowing health professionals to focus more on serious illnesses.

However, applying digital technology in out-of-hospital care still has the following obstacles:

- First, digital health technologies including AI and machine learning are continuously evolving through innovation;
- Second, even if digital technology is mature and proven, its clinical application still has many obstacles to tackle;
- Third, APAC region shall focus not only on medical technology innovation, but also on non-technical challenges in the future, understanding and tackling the obstacles preventing patients from being discharged, further integrating technology and medical system, and coordinating various stakeholders in out-of-hospital care scenarios.

Current Situation of Out-of-Hospital Care and Chronic Disease Management in Europe

Out-of-hospital care in Europe has three major categories: care at home, outpatient care and day care. Care at home refers to any nursing service provided at the living environment of the patient, including home-based medical service, caretaking and assistance. Outpatient nursing refers to all types of nursing services accepted out of hospital, including scanning and ultrasound service, management of serious illnesses such as cancer and diabetes. Day care mainly refers to day surgery, which requires the patient to be admitted and discharged in the same day.

Taking **Belgium** as an example, out-of-hospital care is consumed by 7-10% of total population, of which most of the chronic disease patients are over 75 years of age. In terms of chronic disease management, taking chronic kidney failure for example, dialysis at home has been identified as a safer technology. Out of 10000 Belgian patients with this disease, about 10% completed peritoneal dialysis at home, while the other 90% received dialysis at medical centers or outpatient department of hospitals.

There are significant discrepancies in terms of medical service distribution and medical insurance coverage between European countries and between hospitals within a country. There are also great differences in terms of most common day and outpatient surgery among European countries, because of **differing day surgery insurance coverage**. For example, in Germany the insurance coverage for day surgery is much less than that of inpatient surgery, and therefore day surgery is proportionally lower than inpatient surgery in Germany, because patients prefer the later.

The key reason that the above medical care advances could be achieved, is because **European countries value patient rights** and promulgates Patient Right Act, in order to safeguard patients' rights to take legal actions, have autonomy in making choices, acknowledge by consent, access palliative care and enjoy personal privacy.



Out-of-Hospital Care for Chronic Disease Management in China

While there is an urgency to move from traditional hospital care to out-of-hospital setting, China needs to identify their differences in terms of target groups, premises, methods of treatment, behavior mode, assessment criteria and work approach, which can be summarized as follows in Table. 1.

Table 1: Differences between out-of-hospital and in-hospital medical services in China

Out-of-hospital (Focus on care and treatment through improvement, compensation of human body function)		In-hospital (Focus on disease treatment to remove the causes of illnesses, save lives, reverse disease trend)	
Target patient groups	Patients with a functional disability	Patients with various kinds of diseases	Target patient groups
Premises	Rehabilitation medicine department, rehabilitation center, communities, home	Clinical departments of hospitals at all levels	Premises
Method of treatment	Non-drug treatment, active participation of patients required	Drug treatment, surgical treatment	Method of treatment
Behavior mode	biopsychosocial mode	Biology mode	Behavior mode
Assessment criteria	Physical, psychological, living and social functions	Disease diagnosis, system function	Assessment criteria
Work approach	Supported by integrated teamwork	Supported by specialized team	Work approach

Chronic disease management is a key issue in out-of-hospital care. Most of China's financial and medical resources are concentrated in hospitals, while investments in beyond-hospital care, i.e rehabilitation and nursing is insufficient, with much room for improvement in the future.

As a pillar for rehabilitation care in China, there are many pain points before improving chronic disease management:

- 1. Patient education:** patients tend to rely too much on tertiary hospitals for treatment
- 2. Insufficient primary care:** primary rehabilitation service providers are in dire shortage of both equipment and talent
- 3. Weak IT infrastructure:** outdated information infrastructure of service providers especially those at primary levels.
- 4. Funding and reimbursement:** This is the biggest bottleneck. On one hand, health management and medical services are not yet under a specialized group in DRG reform. On the other hand, it is more difficult to manage the risks in out-of-patient care. It is not easy to supervise and manage out-of-hospital care at community or home setting. To solve the issue, some policymakers have started to reimburse rehabilitation-related service items (such as swallow function test, hand function test, etc.) in 2016.

Issues and challenges identified

Experts on the dialogue analyzed key issues concerning the roll-out of out-of-hospital care in China. All experts agreed that it requires systematic changes along the health service segment in China, including:

- 1. Qualification of out-of-hospital healthcare teams.** Health professionals shall receive specific training and establish a standardized system to ensure quality of the services provided ready to use in out-of-hospital settings are advised to be developed so as to provide a good reference for experts and policymakers in China
- 2. Education on patients.** Only certain type of patients are eligible for out-of-hospital care, and education and training on patients seem to be needed.
- 3. Products and technology approval.** For example, even though hemodialysis has been widely used in hospitals and dialysis centers in China, its home use function has not been approved by NMPA yet. A checklist of all solutions/technologies
- 4. Recognition of the work of health professionals.** It is important to coordinate with different stakeholders in out-of-hospital care to recognize the work of HCPs and their value on providing such care is not sacrificed.
- 5. Health insurance coverage.** As home-based care services are often not reimbursed, it is important to seek funding and reimbursement support, otherwise it would be unaffordable.

Experiences and Opportunities

Health insurance policy

China is experimenting pilots on its health insurance schemes to support patients needing rehabilitation care.

In March 2020, to alleviate the pressure of frequent patient transfer, Jinhua City of Zhejiang Province, together with Peking Union Hospital, Taikang Pension and others, started to research on acute late-stage health insurance payment and management system, and proposed PDPM (Patient Drive Payment Mode). The PDPM groups patients across a series of case-mix criteria and weighs patient payment based on the relative intensity of the total care provided for the first time in China. The points system has solved the problem of frequent transfer of patients, resulting in the promulgation of *Jinhua City Medical Insurance Payment Methods for Acute Late Stage Inpatient Expenditure*, which came into force on 1 Oct. 2021. The payment reform scheme divided rehabilitation and nursing into early rehabilitation and mid-long rehabilitation. For mid-long rehabilitation, a bed-date payments method based on PDPM was adapted (Phase 1 of the reform), while PDPM (patient-

oriented) or FRGs (Function Related Group) were used for payment (Phase 2 of the reform).

In June 2021, the Healthcare Security Administration of Changsha City, and Taikang Pension Insurance Group, Hunan Rehabilitation Society and other organizations added 15 rehabilitation disease types into the latest round of medical payment reform, and decided to divide the entire acute late-stage rehabilitation period into recovery period and chronic period. During the recovery period, Function Related Groups (FRGs) payment method is used to decide the fee per person per time, while for a FRG payment group, fees are charged per time per group. During the chronic period, PDCRG bed-day payment method is used based on the patients' needs. For cases during chronic period, Changsha and Jinhua both adopt PDPM grouping method to set up different fee categories and group patients accordingly. With regard to TCM rehabilitation, Changsha plan sets it as a separated category for payment.

Hospital-Industry pilots during COVID-19 lockdown

What is worth noting is that during the COVID-19 lockdown in Shanghai in the first half of this year, tertiary hospitals in Shanghai were in severe shortages of both staffing and medical resources. The lockdown in residential areas made it almost impossible to provide hemodialysis care to renal patients that would otherwise go to hospitals for treatment 3 times a week. Shanghai Renji Hospital obtained a special qualification to

conduct hemodialysis at home as early as 2018. During the pandemic, Renji Hospital helped four patients to receive dialysis treatment at home, and monitored their health conditions via Internet, saving lives through this new out-of-hospital care model. A small pilot like this would shed light on home-care model for chronic disease management in China.

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Case Studies from Industry on Out-Of-Hospital Care

In this panel discussion, four industry representatives, selected from APACMed's China Health Service Working Group, shared their solutions and challenges on long-term out-of-hospital care under China's pandemic control context which were rooted from corporate positioning and values.

1. **Fresenius Medical Care:** In recent years, the German dialysis solution provider Fresenius piloted in China on providing hemodialysis services inside centers operated and owned by itself, because the company's focus on renal diseases, extracorporeal circulation and related medical products.

By the breaking-out of COVID-19 epidemic in Wuhan, Fresenius responded with building two hemodialysis clinics to treat renal patients who tested COVID19 positive. When Shanghai was under health emergency caused by COVID-19, Fresenius recruited doctors and nurses from cities to support Shanghai and built a makeshift, emergency hemodialysis clinic. Fresenius' home-based dialysis solutions have been on the market for more than 20 years and its products and technologies are widely applied in Europe and the US. However, these home-based products and technologies have not yet been marketed in China officially for several reasons. The first obstacle is to obtain market access approval. NMPA has approved some dialysis equipment, but none is approved for home use. Secondly, health worker's professional qualifications bring challenges. Clear operational guidelines and professional trainings are needed for out-of-hospital care. Thirdly, health insurance coverage and reimbursement policy on home-based care are missing.

Currently, home-based dialysis is still not covered by any health insurance, and therefore patients can hardly bear the treatment cost by out-of-pocket payment. A joint effort of NMPA, NHC, and NHSA are always needed to expand the health insurance coverage to out-of-hospital care.

2. **Abbott:** Through COVID-19 pandemic, many Abbott technologies are applied in emergency rooms, ICUs, operation theaters and other frontline medical contexts. In terms of out-of-hospital care, Abbott offers nutritional supplements covering the entire life cycle of patients, cardiovascular and medications, and equipment and products for Flash Continuous Glucose Monitoring and digital long-term management solutions. On out-of-hospital diabetes care, Abbott believes that health insurance coverage for out-of-hospital care and guidelines for out-of-hospital monitoring and management could effectively lower the occurrence of medical complications in patients and reduce the disease and care burden for the whole society. At the same time, Abbott called for attention of various government agencies on recognizing the significance and social-economic value in chronic disease management and on establishing guidelines for out-of-hospital chronic disease management with high-quality medical services.

3. **ResMed:** ResMed is a globally leading medical equipment and digital health company of solutions for sleep health and chronic respiratory diseases, which help patients to breathe easier and sleep better. In China, ResMed faces the challenge caused by lack of awareness of sleep apnea that causes various severe comorbidities. Currently, there're about 170 million patients with sleep apnea in China, of which over 60 million suffering from severe or moderate OSA who need medical treatment or intensive care. Evidences from many advanced economies have revealed that treating OSA patients could greatly reduce the impact of the development of comorbidities and lower overall medical expenditure. At present, it is estimated that more than 99% patients have not been identified, indicating a huge untapped needs in the future. ResMed called for initiatives aiming to strengthen the sleep apnea awareness and suggested that out-of-hospital breathe health diagnosis and treatment could be covered by health insurance with strong policy support from the government.

4. **Medtronic:** Medtronic operates in more than 150 countries and regions, leading the world in medical technology and solutions in cardiovascular, surgical, neuroscience and diabetes. Medtronic's diabetes department focuses on artificial pancreas technology.

The latest generation MiniMed™ 670G System-hybrid closed loop system was recognized as one of the most outstanding 25 innovations in 2016. Both ADA(the American Diabetes Association) and EASD(European Association for the Study of Diabetes) recommended it as the first choice for T1 diabetes treatment. Compared to T2 patients, T1 patients face more challenges and risks in blood sugar management. The hybrid closed-loop system makes diabetes management more effective and efficient, and increases the benefits for T1 patients, hospitals, medical staff and society. The 670G system consists of control algorithm, insulin pump and continuous glucose monitoring (CGM). The Smart Guard Technology embedded in the system can help measure users' blood glucose level every five minutes, which delivers insulin or suspends insulin injections according to real-time individually customized needs. Also, the technology reduces the occurrence of hypoglycemia, the related complications and medical expenditure.

The out-of-hospital blood glucose management of T1 diabetes has high economic and social value. However, the lack of standardized guidelines, medical service models and medical insurance limits its adoption and development. We call on the stakeholders from government, industry, academy and hospital to make efforts in this area.

Furthermore, in APAC regions, there are many/more cases on medical technologies' application in out-of-hospital care. For example, in Indonesia, Varian has established Mochtar Riady Comprehensive Oncology Center, which conducts research on clinical opportunities and innovative products and technologies for cancer treatment. In Philippines, Varian has established a strategic partnership with ACHealth to open the country's first specialized oncology hospital, providing high-quality and affordable care for patients. In Singapore, Fresenius collaborated with NKF to improve the managerial capacity building to public health agencies, for solving the problem of over-crowding in dialysis clinics. In India, Abbott works closely with India Medical Research Council and Central Drug Standard Control Organization, and jointly developed COVID19-testing mobile phone applications to manage the raising patient testing needs.



APACMed China will support Tsinghua University on research programs of out-of-hospital care, targeting professional qualifications, health insurance and payment policy development, patient demand assessment, etc. Research priorities reaches consensus among the invited experts are listed as the following:

1. **Patient Demand assessment:** investigations on patient groups, application scenarios and demand in volume.
2. **Policy Research:** in order to assess the feasibility of large-scale promotion,. conducting pilot projects on commercial insurance strengthening and policy research about piloting cities.
3. **Health service providers and professional qualifications:** assessment on the willingness of operating such service and the need for further trainings.
4. **Industry supply:** compiling a list of solutions from device and technology suppliers.

APACMed will focus on sharing with domestic actors with international experience and solution list from the industry, in order to match the specific needs of domestic out-of-hospital care providers.



Speakers



Jingsong Zeng
Secretary General of IGI,
Tsinghua University



Prof. Tienyin Wong
Tsinghua University



Prof. Jun Jing
Tsinghua University



Harjit Gill
CEO, APACMed



Prof. Weihong Zhang
Ghent University



Prof. Naijun Hu
UCAS



You Wu
Tsinghua University



Glenda Teng
Manager of GAMA,
APACMed



Prof. Jian Wang
Wuhan University



Zhong Wang
Professor of Tsinghua
Changung Hospital



Jing Wu
NCNCD of China CDC



Dr. Renhua Lu
Renji Hospital

Speakers



Jenny Jing
Fresenius Medical
Care China



Jun Cao
ResMed China



Grace Chen
Abbott China



Chen Luo
Medtronic China



About APACMed

The Asia Pacific Medical Technology Association (APACMed) represents manufacturers and suppliers of medical equipment, devices and in vitro diagnostics, industry associations, and other key stakeholders associated with the medical technology industry in the Asia Pacific region. APACMed's mission is to improve the standards of care for patients through innovative collaborations among stakeholders to jointly shape the future of healthcare in Asia-Pacific. In 2020, APACMed established a Digital Health Committee to support its members in addressing regional challenges in digital health.

If you wish to join this project, please feel free to reach out to APACMed China at: alicia_chang@apacmed.org