

SUMMARY REPORT

# Chronic Disease Management The Case For MedTech Health Services

JULY 2022



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Unmet Needs  
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## 02 Foreword

The rising prevalence of chronic diseases in Asia-Pacific (APAC) poses key public health challenges for policymakers in terms of growing health expenditure, infrastructure constraints, funding challenges and complex care pathways. MedTech companies are uniquely positioned to play a role in addressing these needs with innovative service offerings, in more ways than one.

The broad range of solutions and service offerings from MedTech offers fresh perspectives on how the patient's care journey can be optimised and integrated across settings. For example, digital applications and platforms can be leveraged to support hospital operations and optimise resource use with infrastructure and manpower constraints. Another example is early identification and diagnosis of chronic diseases to control disease progression, through symptomatic screening and access to testing. In addition, empowering patients for home-based care, supported by smart drug delivery systems and remote patient monitoring, has emerged in recent years as viable alternative management models.

Interestingly, the need to deliver such diverse solutions and services has heralded shifts within MedTech industry as well, which has traditionally been established as product manufacturers. As service providers, MedTech solutions can be segmented into three archetypes: services complementary to product offerings, services as core offerings and direct-to-patient clinical services.

Since the launch of the white paper in January 2022, *"Health Services in APAC — Opportunities, Challenges and the Path to Progress: Insights from MedTech"*, APACMed has held a series of discussions with stakeholders to identify unmet needs in the region. As a follow-up, we now launch this summary report *"Chronic Disease Management — The Case For MedTech Health Services"* to crystallise our findings and chart the path forward for MedTech companies in the role of health service providers.

This new service-based operating paradigm presents opportunities for MedTech industry to innovate existing business models in tandem with the changing needs of the market. Equally, traditional healthcare providers are also innovating service delivery models to deliver value-based patient care. To this end, APACMed calls for collaboration and partnerships between industry and healthcare providers, as well as payors and policymakers — to unlock new models of care for patients across the region.



**Harjit Gill**  
CEO, APACMed

# 03 Introduction

To meet the growing healthcare needs of the APAC region, MedTech companies have stepped up their role in healthcare provision through service innovation, education and digitisation to support better service integration and enable more seamless end-to-end patient care. In 2021, APACMed member companies formed a Working Group on Health Services and undertook a landscape scan of existing range of services and solutions provided by the MedTech industry. The results were presented in the paper “Health Services in APAC — Opportunities, Challenges and the Path to Progress: Insights from MedTech” in partnership with L.E.K. Consulting.

A series of discussions were held with stakeholders to better understand the role MedTech companies could play in addressing some of the existing gaps in healthcare systems today. From these discussions, stakeholders agreed that a critical area with challenges and unmet needs in the APAC region, where MedTech service providers could play an important role, was chronic disease management.

This summary report aims to bring together insights from these discussions and chart the path forward for MedTech companies in the role of health service providers in chronic disease management.

## Key barriers in chronic disease management in APAC economies

	Developing APAC markets	Developed APAC markets
 <b>Disease burden</b>	<b>Poor workflow optimisation resulting in sub-par quality of care along with underdiagnosis or late diagnosis resulting in significant disease-related complications</b>	<b>Limited patient education on identifying risk factors for early diagnosis and self-management</b>
 <b>Infrastructure</b>	<b>Shortage of specialists/trained personnel, especially outside urban areas, and poor internet connectivity</b>	<b>Limited regulatory support for new care models (e.g. telemedicine) resulting in low adoption rates</b>
 <b>Funding</b>	<b>Funding support limited to paying for episodic treatments (e.g. hospitalisation due to complications) instead of preventive measures (e.g. wellness, check-up)</b>	<b>Modest funding available for preventive measures; however, restricted to select patient groups with high risk</b>
 <b>Complex care pathway</b>	<b>A lack of trust in the ability of primary care to support chronic disease management complicates referral pathways and causes clinical inertia, resulting in sub-optimal care</b>	<b>Limited coordination of care between primary health and tertiary care settings</b>

Figure 1: Key barriers in chronic disease management in APAC economies

# 04 Challenges And Unmet Needs In Chronic Disease Management

The prevalence of chronic diseases in APAC is increasing and poses public health challenges for policymakers in terms of:

1. Growing disease burden and health expenditure
2. Healthcare infrastructure constraints
3. Funding challenges
4. Complex care pathways

## 1. Growing disease burden and health expenditure

In comparison to global rates, high prevalence and growing incidence of chronic diseases has been recorded in APAC, with the region accounting for over 20% of global mortality associated with chronic diseases.<sup>1</sup> Across APAC countries, chronic diseases are also often diagnosed at late stages, resulting in increased risk of complications and poor prognosis.<sup>2</sup>

In developed economies (e.g. South Korea, Japan), limited patient education on identifying risk factors and lifestyle requirements impedes early diagnosis. For example, a recent health literacy survey conducted indicates that Japanese populations have significantly lower health literacy compared to Western populations, which increases the risk of chronic disease-associated adverse events.<sup>3,4</sup> Furthermore, limited focus on physician or patient education on chronic disease management may lead to significant clinical inertia (i.e. failure to intensify therapy recommendations) and delays, which leads to suboptimal referral management.<sup>5</sup> In developing economies, the challenge of tackling chronic diseases is further exacerbated due to a lack of disease recognition. This lack of awareness and upstream interventions lead to sub-par quality of care, resulting in a higher incidence of patients with multiple morbidities.

Corresponding to the rising disease prevalence, disease-related complications and multiple morbidities, APAC health expenditure for key chronic diseases like diabetes has risen by 2021 to ~US\$250 billion.<sup>6</sup>



## 2. Health infrastructure constraints

In developing economies, there is a need for infrastructure enhancement to cater for growing healthcare needs. Particularly for chronic disease management, developing economies face a severe shortage of specialists (e.g. endocrinologists and nephrologists), which can lead to poor access to care.<sup>7</sup> For example, in Indonesia, the nephrologists per million population (PMP) is significantly lower than the global average (0.4 physicians PMP vs 8.8 PMP globally).<sup>8</sup> Furthermore, the adoption of integrated care models (e.g. remote monitoring, telemedicine) is limited due to shortages of trained healthcare personnel and poor internet connectivity. Developing economies also depend heavily on care provided by public hospitals due to limited private insurance and out-of-pocket payment mechanisms. These further limit the adoption of new models of care in these economies.

Even though developed economies may have more developed infrastructure, rigid service regulatory frameworks still pose impediments for adoption of new care models. For example, in Japan, limited government support/approval has resulted in low adoption in telehealth systems, where only 10%-20% of hospitals in Japan<sup>9</sup> have implemented telehealth systems vs 70%-80%<sup>10</sup> in the US. A regulatory environment that is flexible and allows for new service models to be piloted and scaled over time is needed for the long-term strategic management of chronic disease in APAC.



## 3. Funding challenges

Across most APAC countries, funding and reimbursement challenges have impacted the adoption of health services.

In developing economies, efforts are often focused on the episodic treatment aspect of the chronic disease care continuum. For example, in China, funding for chronic disease management is restricted to hospital settings, thus hindering adoption of health services in other settings such as community- and home-based care involving remote patient monitoring.<sup>11</sup> Although screening and preventive measures for chronic disease management have been put in place, the demand for improved health promotion and health literacy persists in the community.<sup>12</sup>



It is heartening to note that some developed economies are prioritising initiatives focusing on the early prevention and diagnosis as part of the care continuum. For example, the Australian government has recently announced funding to support patient self-management and wellness checks for chronic diseases such as diabetes, including subsidies for diabetes products, vision and foot checks. Other countries, such as Japan and Korea, have made initial strides to improve funding for early prevention and diagnostic services; however, further reimbursement reforms will be needed to encourage wider adoption of digital tools beyond the select patient groups at high risk. For example, in Japan, the Tokutei kenshin system has been established to provide annual check-ups for adults aged 40-74.<sup>13</sup> However, ~30% co-insurance payment requirement<sup>14</sup> remains, which can build up to a considerable amount with the frequency of visits for chronic disease patients. This potentially poses a significant financial barrier to access and may negatively compromise compliance with treatment regimens.<sup>15</sup>

## 4. Complex care pathways

Given the complex referral pathways in chronic disease management, there is a notable variation in health service delivery between geographies within APAC countries.

In developing economies (e.g. Indonesia, China), there are low levels of trust and capacity constraints in primary health (i.e. patients are not referred back to GPs to support care delivery for chronic disease management), thus complicated referral pathways are impacting integrated care provision.<sup>16,17</sup> Poor integration of health records across GPs and specialists, as well as a lack of clarity on referral guidelines laying out recommended referral timelines and pathways are among some of the challenges encountered.<sup>18</sup> Consequently, there are stark differences in the quality of care delivered in urban areas compared to peripheral regions (due to infrastructure and resource constraints).<sup>19</sup>

In developed economies, there may be increased uptake of primary and allied health with management of chronic disease leading to appropriate referrals (right siting of care). However, the coordination of care between primary and tertiary care centres is still lacking.<sup>20</sup> In 2011, the South Korean government initiated the Diabetes Quality Assessment project to ensure improvement in the continuity and process of care delivery. However, the project remains restricted to primary care clinics and does not cover hospitals, despite 30% of patients being managed in the latter.<sup>21</sup>



# 05

## THE CASE FOR INDUSTRY:

# Chronic Disease Management As An Opportunity For Medtech

Given the various systemic challenges and increasing prevalence of chronic diseases, MedTech companies could play a role in improving quality of care and augmenting care delivered by healthcare service providers in the APAC region through innovative service offerings. Chronic disease management is complex and requires an intricate play of different technologies and stakeholders to optimise patient outcomes. Aspects such as self-management, patient monitoring and care coordination are essential for chronic disease management, which may require routine care extended over several years (often lifelong) of the patient journey. Patients have also been increasingly playing a role in decision-making, especially with the accelerated adoption of telemedicine services and patient education platforms during the pandemic.

MedTech companies are innovating 'beyond the product' and offering new services to address the challenges and unmet needs in chronic disease management (e.g. efficient, responsive, cost-effective). With digitisation, MedTech companies are empowered to draw on information and communication technologies in order to enable digital health solutions such as care at a distance, healthcare provider-oriented solutions for clinical decision support, and patient self-care-oriented solutions to complement existing care models and ultimately increase operational efficiency and improve clinical outcomes.

The global MedTech market is ~US\$529 billion (as per data from 2020 report<sup>22</sup>), with a market share for MedTech-delivered services of ~US\$60 billion (as per data from 2018 report<sup>24</sup>). Health service delivery is MedTech's new frontier and has a high growth potential. MedTech-delivered health services have a compound annual growth rate (CAGR) of 10%, compared to 4.4% for traditional MedTech sales.<sup>23</sup> Among the various categories of health services, clinical operations and analytics has the highest CAGR of 45%, and outsourced clinical services are growing up to 15% CAGR.<sup>24</sup> This high growth potential is a big impetus for the acceleration of new care delivery models beyond traditional care settings.

Overall health service delivery is an important area of growth for all stakeholders in the healthcare ecosystem. More than 75% of poll respondents in the "Health Services Project Launch: Role of MedTech Health Services for an Integrated and Sustainable Health System" held in January by APACMed (with attendees including payers, patient advocacy groups, healthcare professionals (HCPs) and industry representatives) noted that the importance of service delivery in their organization is expected to increase in the future.<sup>25</sup>

In the current landscape of health systems, service offerings by MedTech companies can be broadly defined based on three archetypes, namely:

1. Services complementary to product offerings
2. Services as a core offering
3. Direct-to-patient clinical services



## The Role Of Medtech As A Health Service Provider

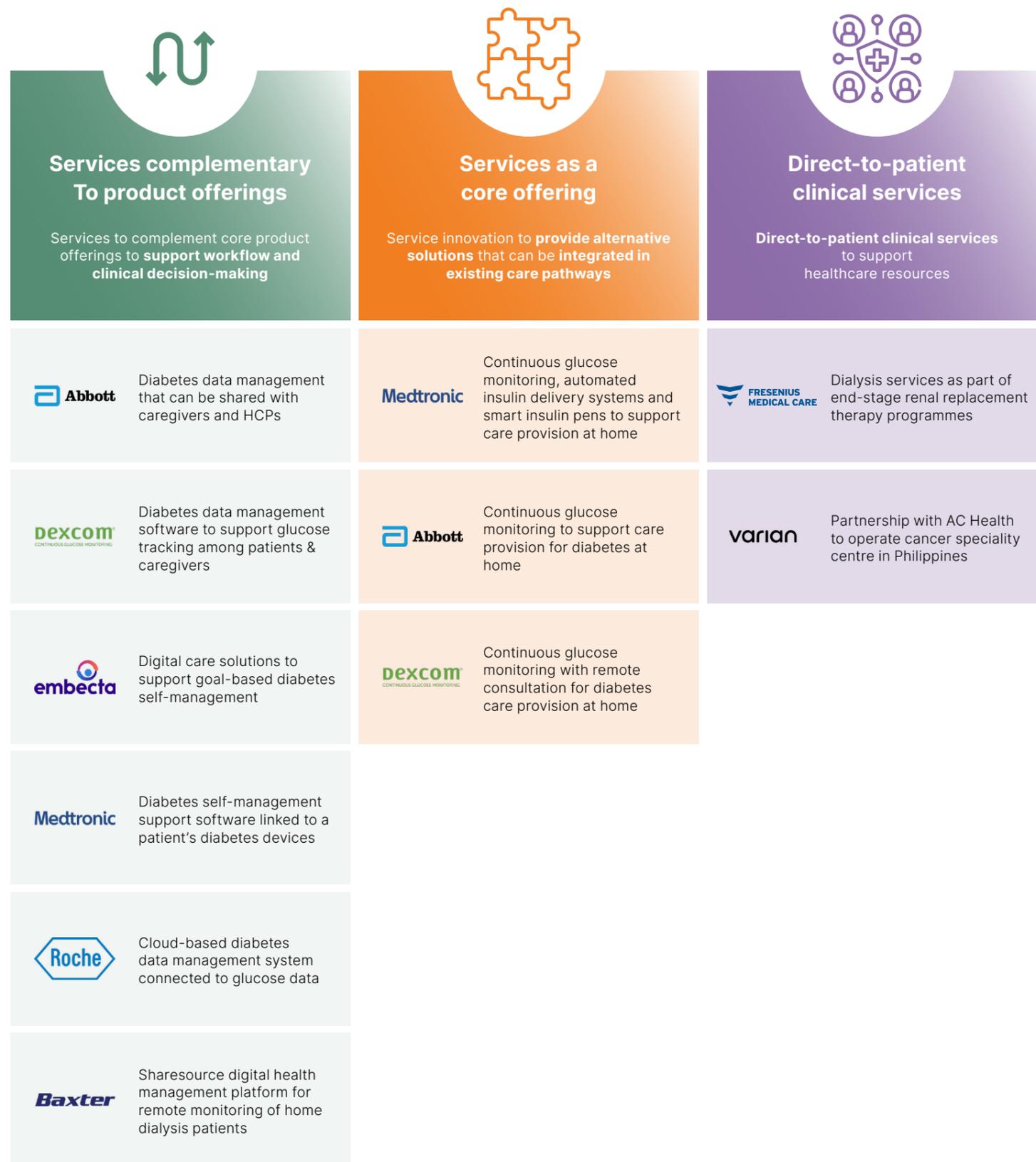


Figure 2: The role of MedTech as a health service provider

## 1. Services complementary to product offerings

Continued focus on core product offerings with expansion across therapeutic areas/technology along with ancillary services offered to support operational workflow and clinical decision-making. For example, cloud-based diabetes data management systems by Abbott and Dexcom provide a convenient way to view glucose data in clear and easy-to-understand reports that can be shared with caregivers and healthcare professionals. Another example is embecta's digital care solution, which provides a comprehensive approach to diabetes self-management. Furthermore, diabetes self-management software, such as those provided by Medtronic and Roche, that are linked to patients' diabetes devices provides a comprehensive approach for diabetes monitoring, treatment and digital documentation. Similarly, for CKD patients, Baxter's Sharesource digital health management system enables remote monitoring of patients undergoing home dialysis and tailors solutions to patient needs.

## 2. Services as a core offering

Service innovation by MedTech companies to provide an alternative solution which can be integrated into an existing care pathway. For example, Medtronic offers a range of care solutions, such as continuous glucose monitoring (CGM) systems and automated insulin delivery systems/smart pens, for patient self-management and care provision at home. Another example is Abbott's CGM monitoring system, which helps monitor glucose trends, provides customisable alerts and target setting, and also enables remote consultations with physicians based on information from the glucose sensor. Dexcom's continuous glucose monitoring system helps provide interconnected real-time CGM systems to enable better management of diabetes; the system is designed for stand-alone use as well as use through interconnected automated insulin delivery (AID) systems. There are also continued efforts towards developing smart insulin pens in the future. In addition to applications for care provision at home, Abbott's and Dexcom's CGM systems received emergency approval by the US Food and Drug Administration (FDA) for use with hospitalised patients in light of the increased healthcare burden during the COVID-19 pandemic.

## 3. Direct-to-patient clinical services

Beyond products, MedTech companies are offering direct-to-patient clinical services to respond to the shortage of healthcare resources and expand access to care in chronic disease management. For example, Fresenius offers dialysis services through hospitals and stand-alone dialysis centres to fulfil demand. Similarly, Varian is expanding beyond its current product offerings to operate a cancer speciality centre in the Philippines.

Each archetype has broader commercial and organisational implications as MedTech companies shift away from being traditional product supplier/vendors to become service and solutions providers for HCPs, healthcare providers and broader healthcare ecosystems. This necessitates different capabilities, organisational set-up and approaches towards greater collaboration and partnership with various stakeholders. Additionally, there are challenges to overcome, including localisation and tailoring solutions to be fit for local implementation, and more holistic planning, such as developing interoperable systems supporting multiple portfolio products.

# 06

## THE CASE FOR POLICYMAKERS:

# The Role Of Medtech In Addressing Challenges In Health Systems

Policymakers play a critical role in creating the right environment for adoption of new care models through review of policies, investments, and protocols. In collaboration with MedTech companies, policymakers can help address the unmet needs of health systems.

In larger developing economies, limited infrastructure (in terms of care access and resources) is a significant gap in the healthcare ecosystem. MedTech companies can fill this gap by leveraging digital health technologies such as remote patient monitoring and telemedicine services to overcome capacity constraints and geographical barriers to access to care at overburdened tertiary care hospitals.

In other developing economies with nascent socio-economic conditions, poor patient knowledge supplemented with limited access to diagnostics is resulting in a rising incidence of chronic diseases. To address this challenge, MedTech companies can potentially collaborate with the public sector to identify population segments with greater risk for chronic diseases (e.g. genetic propensity, lifestyle based on income strata) and facilitate early diagnosis and greater control of disease progression.

In countries with mature healthcare systems, chronic diseases continue to drive rising national healthcare expenditures associated with growing hospitalisation rates due to disease complications. MedTech companies can be instrumental in empowering patients to encourage self-care (e.g. patient education apps) and personalised treatment (e.g. clinical decision support) as part of the care continuum, thereby reducing the incidence of chronic disease-associated complications involving hospitalisations and potentially leading to socio-economic savings.

Hence, MedTech companies have a strong proposition as health service providers for chronic disease management and would be a good partner for the healthcare system. Policymakers play a critical role in facilitating the partnership in terms of setting up open communication channels to identify key gaps in chronic disease management and facilitate a shift towards innovative health service solutions to address the current gaps in care provision.



07

# Takeaways From Panel Discussions On Medtech Health Services

Under the umbrella of chronic disease management, CKD and diabetes emerge as key disease areas of relevance in the APAC region.

## The case for MedTech-delivered services in CKD

The key challenges in CKD management span across the patient care continuum, providing opportunities for MedTech companies to be instrumental in bridging gaps in care.

### 1. Primary prevention and risk stratification/diagnosis

With limited patient education initiatives on the risk factors of CKD, patients are often unable to recognise these risk factors (e.g. family history of CKD, comorbidities) or early symptoms (e.g. swelling, high blood pressure) and therefore do not promptly access healthcare services. Overall, 80%-95% of patients with CKD stages one to three remain undiagnosed.<sup>26</sup> Concurrently, in the absence of screening programmes, diagnosis is often made at late stages (stage three and beyond), resulting in an increased risk of complications and a consequent rise in health expenditure.

### 2. Treatment

In developing APAC economies, there is a need for improved infrastructure (e.g. the number of nephrologists in Indonesia per thousand CKD patients is lower than recommended). This results in inadequate access to care and substandard care, which impact patient outcomes.

### 3. Post-treatment/ongoing management

Poor availability of trained healthcare workforce impedes the effective utilisation of integrated care models (e.g. remote monitoring), hindering movement away from traditional CKD management (e.g. routine in-person hospital visits). Furthermore, the absence of established care coordination systems further presents logistical challenges such as delayed development of clinician guidelines, limited outreach of education programmes, etc.

### 4. Across the patient journey

There is an absence of strong education platforms for patient education across the patient journey in terms of identifying risk factors, understanding treatment options that are best suited for a patient's lifestyle/financial needs, and promoting self-management tools that are available for long-term management.

To overcome these barriers, there is a need to work towards equitable access to quality care to ultimately improve patient outcomes. Key levers include addressing infrastructure constraints and implementing patient education systems to mediate early diagnosis/self-management. MedTech companies are increasingly playing a role in mitigating some of the challenges encountered in CKD management by leveraging global best practices and innovative service offerings. Examples of such offerings include artificial intelligence (AI)-supported medical apps that advocate health trends and lifestyle management, platforms that support drug dose personalisation, e-prescriptions that reduce outpatient visits, and telehealth solutions that provide ease of access to specialists/GPs beyond geographical constraints. Furthermore, platforms for remote monitoring of home dialysis patients allow greater visibility of patient adherence patterns and early interventions based on a patient's therapy outcomes, enabling improved CKD management (Figure 3).

## Service innovation for CKD management

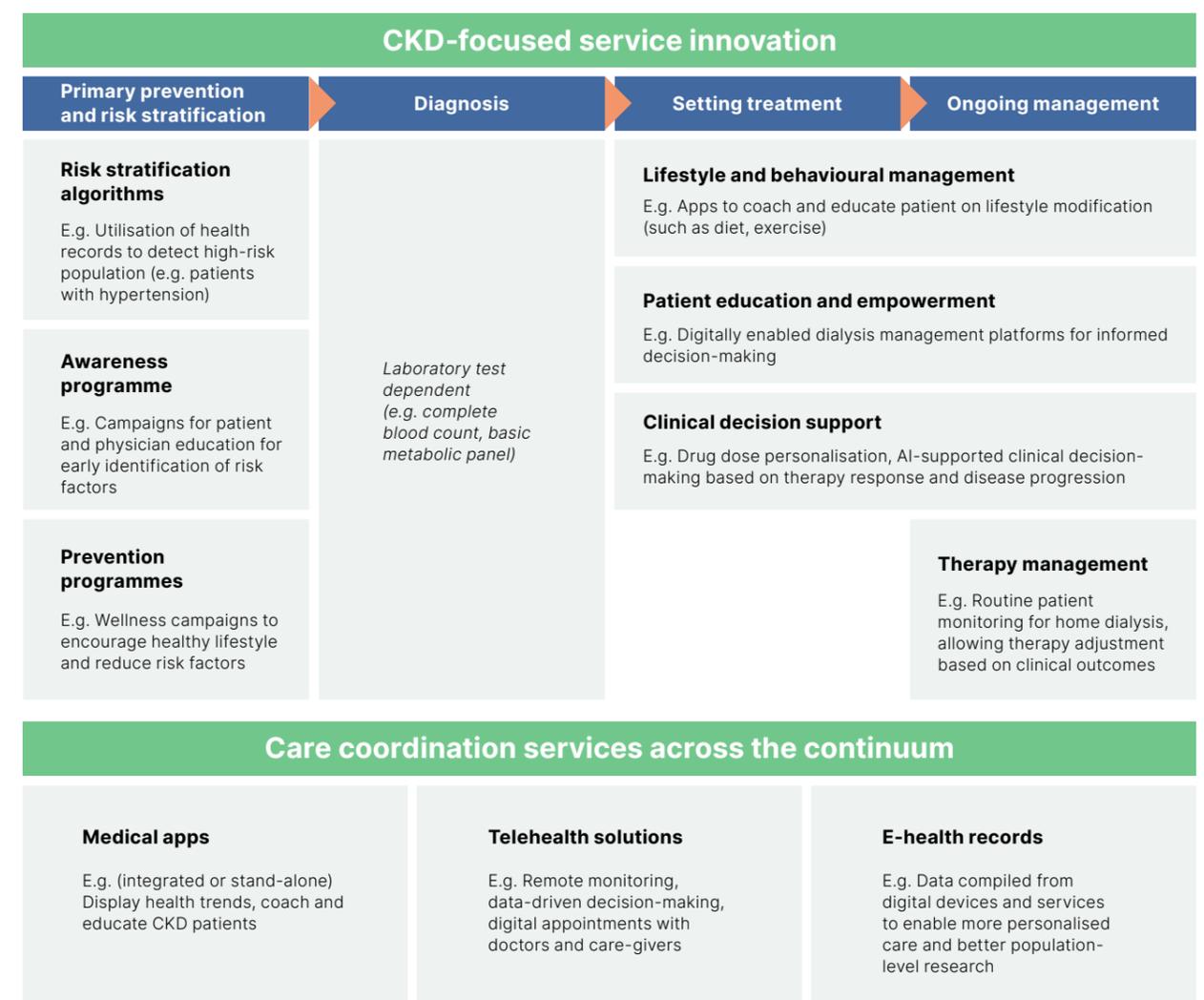


Figure 3: Service innovation for CKD management

However, these efforts encounter persistent roadblocks in terms of the shortage of trained personnel to utilise service solutions and limited implementation of patient engagement models. By supplementing MedTech capabilities using omnichannel engagement platforms with expertise from healthcare stakeholders (e.g. medical associations, HCPs, payers) at a local level, a multi-pronged approach can be taken to promptly develop tailored content for patient education and healthcare personnel training.

## The case for MedTech-delivered services in diabetes

The key challenges in diabetes management span the patient care continuum, providing opportunities for MedTech companies to be instrumental in bridging the care gap.

### 1. Primary prevention and risk stratification/diagnosis

Diabetes is often mis-diagnosed (typically type 1<sup>27</sup>) or diagnosed in its late stages at the onset of serious and irreversible complications.<sup>28</sup> It is estimated that, out of over 290 million people with diabetes (type 1 and type 2) in APAC, 50% remain undiagnosed and prone to long-term complications.<sup>29</sup> Commonly associated long-term complications for diabetes include cardiovascular disease, neuropathy, nephropathy, retinopathy, foot ulcers, disorders of the skin, and others. For instance, in China, 13% of diabetic patients (vs 4% in the US)<sup>30,31</sup> suffer from sight-threatening retinopathy.

### 2. Treatment

Reimbursement challenges persist in most countries (e.g. Japan, Korea) where current reimbursement provisions do not apply to new models of care (e.g. telehealth, remote monitoring, clinical decision support tools<sup>32</sup>). Hesitance regarding broader access to reimbursement provision is largely the result of limited awareness among healthcare professionals/payers of the clinical and socio-economic benefits of health service innovations. Recognising the value of health services (e.g. telehealth, remote monitoring, clinical decision support) that have enabled access to care during the pandemic, select APAC economies accelerated the reimbursement approvals for these services; however, uncertainty persists regarding official recognition of these services post-pandemic.

### 3. Post-treatment/ongoing management

Due to limited availability of universal protocols and referral frameworks for diabetes management, there is a need for integrated and interoperable technologies to ease the technical and operational challenges encountered by HCPs and providers. This impedes referrals from specialists back to GPs; a valuable mechanism to enable delivery of routine and continuous care to patients.

### 4. Across the patient journey

There is a lack of a centralised data management system across hospital care and/or potentially for primary and secondary/specialist care, which results in poor operational interoperability during patient consultation. This absence of electronic medical record (EMR) integration (also driven by poor data transferability across devices to centralised records) limits collection of population-level data to identify regions of high disease incidence and initiate preventive measures.

To address these challenges, it is essential to implement measures for upstream interventions (prevention and early diagnosis) and encourage patient self-management. Fifty per cent of the panel respondents in the "Health Services Project Launch" agreed that "early-stage patient identification and monitoring" (as part of the patient care continuum) was the most important MedTech service offering in population health services. MedTech companies have been instrumental in implementing this offering through innovative solutions such as digitally enabled prevention programmes<sup>33</sup> and detection algorithms using fitness apps on smartphones to detect vascular changes (e.g., photoplethysmography (PPG) signals<sup>34</sup>) to identify those at high risk of developing diabetes.

Furthermore, lifestyle management systems,<sup>35</sup> patient education and empowerment tools,<sup>36</sup> diabetes management tools,<sup>37</sup> and automated insulin delivery systems<sup>38</sup> have been launched to encourage self-management among patients as part of treatment and ongoing diabetes management. Such digital solutions further aid in clinical decision-making (e.g. treatment adjustments based on disease progression), which in turn could potentially result in improved patient outcomes (Figure 4).

## Service innovation for diabetes management

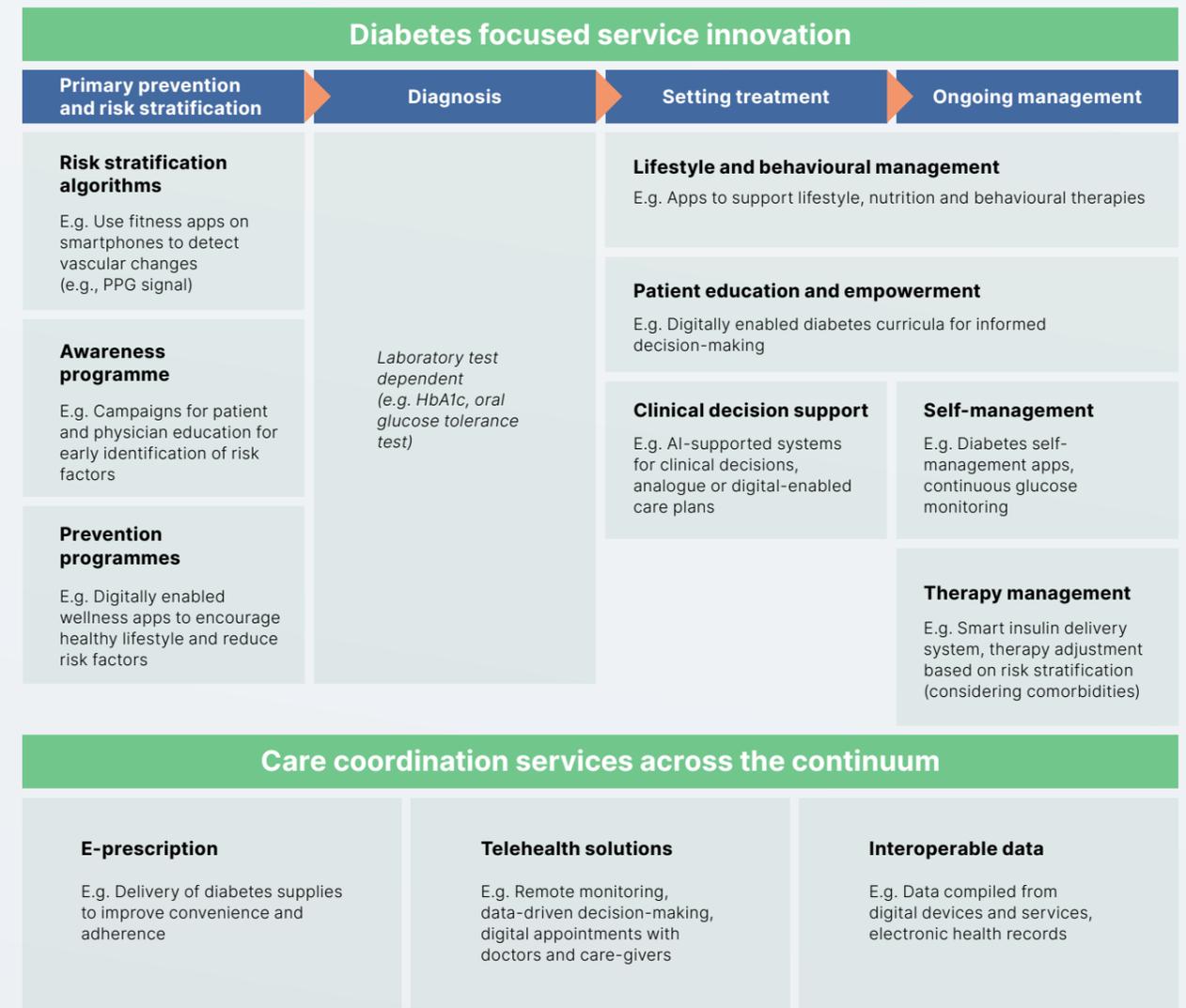


Figure 4: Service innovation for diabetes management

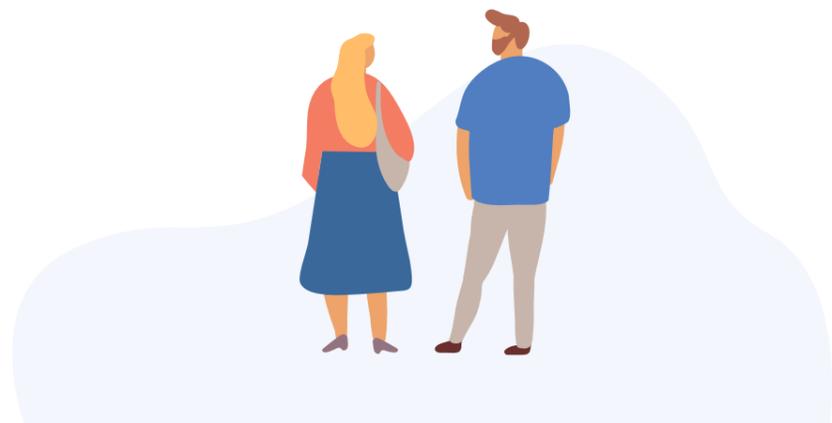
There is, however, a need to scale up adoption of these solutions; adoption is currently limited by reimbursement constraints and challenges with data management. Cost of and access to innovative models of care are important considerations for adoption of MedTech-delivered health services. This can be improved by building communication channels with payers to provide proof of the value of health services (e.g., in terms of quality-adjusted life years (QALY), health expenditure) and advocate for the expansion of reimbursement to new care models to enable better access to care. This can be undertaken through regional pilots and eventually expanded to a nationwide scale. Partnerships between MedTech companies and key opinion leaders (KOLs) (e.g., MedTech associations, government organisations, HCPs) can facilitate an improved understanding of data management needs to increase interoperability between devices/services as well as across borders to achieve scale-up and foster adoption of health services.

# 08 Conclusion

The complexity of chronic disease management poses key barriers in the healthcare ecosystem such as infrastructure and manpower constraints, complex care delivery models, and growing disease burden. MedTech companies are being increasingly instrumental in addressing the gaps in healthcare delivery by expanding 'beyond the product' through innovative service offerings such as cloud-based data management systems, smart drug delivery systems, etc., which can play a pivotal role in tackling the capacity and capability constraints encountered by the healthcare ecosystem in chronic disease management. There is a need for creation of an interoperable interconnected ecosystem of end-to-end solutions and services across the continuum of care to move from incremental isolated innovations for service optimisation to a transformational innovation to meet the context-specific needs of healthcare systems.

Furthermore, it is crucial to factor in both internal and external considerations to work towards more effective and efficient care delivery systems. Internal considerations for MedTech companies include leveraging global expertise and best practices to improve clinical standards, contextualise solutions to cater to local needs, and collate data on the clinical and socio-economic value of implemented solutions. External considerations include establishing working relationships with key stakeholders in the ecosystem to ensure infrastructure readiness (e.g. education, training) for implementation of new care models, collaborating with policymakers to develop the right regulatory environment, and providing reimbursement provision to enable scaled-up adoption.

Overall, to achieve the desired scale of health services, there is a need to take key actions following a multi-stakeholder approach involving industry, healthcare professionals, payers and policymakers (Figure 5). Such a collaborative approach, involving the implementation of innovative solutions, would result in optimised clinical workflows, promote greater health literacy and ultimately contribute to improved patient outcomes. Public-private partnerships established through the development of pilot initiatives across the region can complement these interoperable service solutions and chart the path forward for an integrated and sustainable healthcare ecosystem in the future.



## Call to action for stakeholders in the healthcare ecosystem

Call to action for operational efficiencies, health literacy and improved clinical outcomes	Stakeholders for implementation			
	HCPs	Industry	Payers	Policymakers
<b>Call to action for health literacy</b>				
Encourage greater patient autonomy and health literacy for self-management	✓			
Raise awareness of chronic diseases across the continuum of care (screening, prevention and treatment)	✓	✓		✓
<b>Call to action for operational efficiencies</b>				
Establish public-private partnerships for chronic disease management solutions development and deployment across key healthcare settings		✓		✓
Deployment of standardised mainstream health service funding for chronic disease management			✓	✓
Enable shift from acute, episodic care model towards preventive, community-based care model for chronic disease management	✓		✓	✓
<b>Call to action for improved clinical outcomes</b>				
Enable adoption of new care models such as telemonitoring and remote patient monitoring for more efficient chronic disease management	✓			✓
Establish evaluation framework to recognise full value of technology across the continuum of care and optimise funding		✓	✓	✓

Figure 5: Call to action for stakeholders in the healthcare ecosystem

## 09

# Acknowledgements

## L.E.K. Consulting

**Stephen Sunderland**  
**Calvin Wijaya**  
**Samyukta Ravishankar**

## We thank the following key contributors to the report:

**Sanjay Krishnan**, Enterprise Accounts Director APAC, *Abbott Medical (S) Pte. Ltd*  
**Mary Kiang**, Senior Manager, *Baxter International Inc.*  
**Christoph Liesche**, Head of Public and Government Affairs Asia-Pacific, *Fresenius Medical Care*  
**Yuta Inoue**, Senior Reimbursement Analyst, *Medtronic*  
**Fabian Mueller**, Regional Health Access Strategy Leader, APAC Region, *Roche Diagnostics*  
**Glenda Ya-Wen Teng**, Manager, Government Affairs & Market Access, *APACMed*  
**Dr. Benish Aslam**, Assistant Manager, Government Affairs & Market Access, *APACMed*

## We thank the following individuals for their insights:

**Scott Moss**, VP and General Manager, Asia Pacific, *Dexcom*  
**Dr. Shailendra Bajpai**, Regional Medical Director, *embecta*  
**Yasmin Hwang**, Sr. Reimbursement Program Manager, *Medtronic*  
**Yen Yu Chen**, Market Access Lead, *Roche Diabetes*

The authors thank **Genevieve Tan** for secretarial assistance  
 & **Sharlyn Solomon** for design of this publication.

## 10

# References

- World Economic Forum. (2017). Non-communicable diseases kill 8.5 million people in Asia each year.
- Economist impact. (2021). Infections and non-communicable diseases in Asia-Pacific: The need for integrated healthcare.
- Clinical and experimental nephrology. (2020). Fact-finding survey on health literacy among Japanese pre-dialysis chronic kidney disease patients: a multi-institutional cross-sectional study. 25, 224-230.
- BMC Public Health. (2015). Comprehensive health literacy in Japan is lower than in Europe: a validated Japanese-language assessment of health literacy. 15(505).
- Diabetology & Metabolic Syndrome. (2020). Clinical inertia is the enemy of therapeutic success in the management of diabetes and its complications: a narrative literature review. 12(52).
- International Diabetes Federation Diabetes Atlas Portal, Diabetes-related health expenditure (10th edition, 2021)
- Kidney Int Suppl. (2021). International Society of Nephrology Global Kidney Health Atlas: structures, organization, and services for the management of kidney failure in Oceania and Southeast Asia. 11(2), e86-e96.
- Kidney International Supplements. (2018). Global nephrology workforce: gaps and opportunities toward a sustainable kidney care system. 8(2), 52-63.
- APCO Worldwide. (2021). The challenges and growth of telehealth in Japan: Is it here to stay?
- American Hospital Association. (2019). Fact sheet: Telehealth.
- Reuters. (2015). Chronic disease management in China.
- Chronic disease and translational medicine. (2021). Unmet needs as indicator of improving chronic care delivery system in China. 7(1).
- MedTech Intelligence. (2018). Chronic Disease Management in Asia.
- The Commonwealth Fund. (2020). International healthcare systems profiles: Japan.
- AJMC. (2021). Association of Co-pay Elimination with Medication Adherence and Total Cost. 27(6). 249-254.
- Novo Nordisk. (2013). The Blueprints for Change Programme.
- Medical simulation. (2017). Factors influencing two-way referral between hospitals and the community in China: A system dynamics simulation model. 94(9), 765 – 782.
- Asia Pacific Observatory on Health Systems and Policies. (2021). Integrated care for chronic diseases in Asia Pacific countries. 4(2).
- BMC Health Services Research. (2020). Rural and urban differences in health system performance among older Chinese adults: cross-sectional analysis of a national sample. 20(372).
- Br J Gen Pract. (2021). Integrating public health and primary care: the response of six Asia-Pacific countries to the COVID-19 pandemic. 71(708), 236-329.
- Journal of Korean Medical Science. (2019). The Need to Improve the Quality of Diabetes Care in Korea. 34(31), e210.
- IQVIA. (2020). The Global MedTech Industry: Evolving in Turbulent Times.
- Boston Consulting Group. Venturing into Value-Added Services in MedTech. (2018).
- IQVIA MedTech White Paper. The Global MedTech Industry: Evolving in Turbulent Times. (2020).
- APACMed Health Service Project Launch: Role of MedTech Health Services for an Integrated and Sustainable Health System, held on 24 January 2022.
- World Economic Forum. (2021). Early detection of chronic kidney disease can save lives and cut costs.
- Med Res Arch. (2019). Mistaken Identity: Missed Diagnosis of Type 1 Diabetes in an Older Adult. 7(8), 1962.
- OECD. (2020). Health at a Glance: Asia/Pacific 2020: Measuring Progress Towards Universal Health Coverage.
- International Diabetes Federation Diabetes Atlas Portal, Undiagnosed diabetes (10th edition, 2021)
- BMJ Open. (2017) Prevalence of diabetic retinopathy among 13473 patients with diabetes mellitus in China: a cross-sectional epidemiological survey in six provinces. 7, e013199.
- JAMA. (2010). Prevalence of Diabetic Retinopathy in the United States, 2005-2008. 304(6), 649-656.
- APACMed. (2020). Landscape of Digital health reimbursement policies in APAC.
- BMJ Open. (2019). Evaluation of the digital diabetes prevention programme pilot: uncontrolled mixed-methods study protocol. 9(5), e025903.
- JMIR. (2021). Risk Stratification for Early Detection of Diabetes and Hypertension in Resource-Limited Settings: Machine Learning Analysis. 23(1).
- Pediatric Endocrinology Diabetes and Metabolism. (2022). The usefulness of the nutrition apps in self-control of diabetes mellitus – the review of literature and own experience. 28(1).
- Diabetes Metab Syndr Obes. (2019). Empowerment of patients with type 2 diabetes: current perspectives. 12, 1311-1321.
- Stud Health Technol Inform. (2020). Digital Health Interventions for Diabetes Self-Management Education/Support in Type 1 & 2 Diabetes Mellitus. 270, 1263-1264.
- Current Opinion in Biomedical Engineering. (2021). Review of automated insulin delivery systems for individuals with type 1 diabetes: tailored solutions for subpopulations. 19, 100312.



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. For more information, visit: [www.apacmed.org](http://www.apacmed.org)



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