

APACMed

The APACMed 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

MEDTECH FORUM ASIA PACIFIC 2019
CONNECTING LEADERS • CONNECTING CARE

Starting on the Journey to Connected Care

The Trifecta of Care: Access, Quality and Affordability

Making a Global Impact

Leapfrogging and Frugal Innovation

Digital Healthcare

Drivers, Challenges and Partnerships

MedTech 4.0

Transforming into Connected Care

Personalised Medicine

Harnessing the Power of Data and AI

The Road towards Personalised Medicine and Connected Care

Looking to the Future

The Future of Surgical Training with AI and Connectivity

The Future is Here: Asia's MedTech Disruptors



Contents



Event matrix in a glance

- Welcome Note **3**
- Starting On The Journey to Connected Care: **5**
The Trifecta of Care: Access, Quality and Affordability
- Making a Global Impact **7**
Leapfrogging and Frugal Innovation
- Digital Healthcare **9**
Drivers, Challenges and Partnerships
- MedTech 4.0 **11**
Transforming into Connected Care
- Personalised Medicine **14**
Harnessing the Power of Data and AI
- The Road towards Personalised Medicine and Connected Care **15**
- Looking to the Future **17**
Shafi Ahmed's Future of Surgical Training with AI and Connectivity
- The Future is Here: Asia's MedTech Disruptors **15**
- Closing Message **19**
- Special Thanks to Our Sponsors **20**



1092 Attendees
(785 in 2018)



31 Countries
(25 in 2018)



54 Sponsors & Exhibitors



28 Start ups in the start up zone
20 MedTech Innovator Asia Pacific Showcase Companies
04 MedTech Innovator Finalists



Increased share of voice across regional media (health trades; international business and newswires; dailies) and LinkedIn

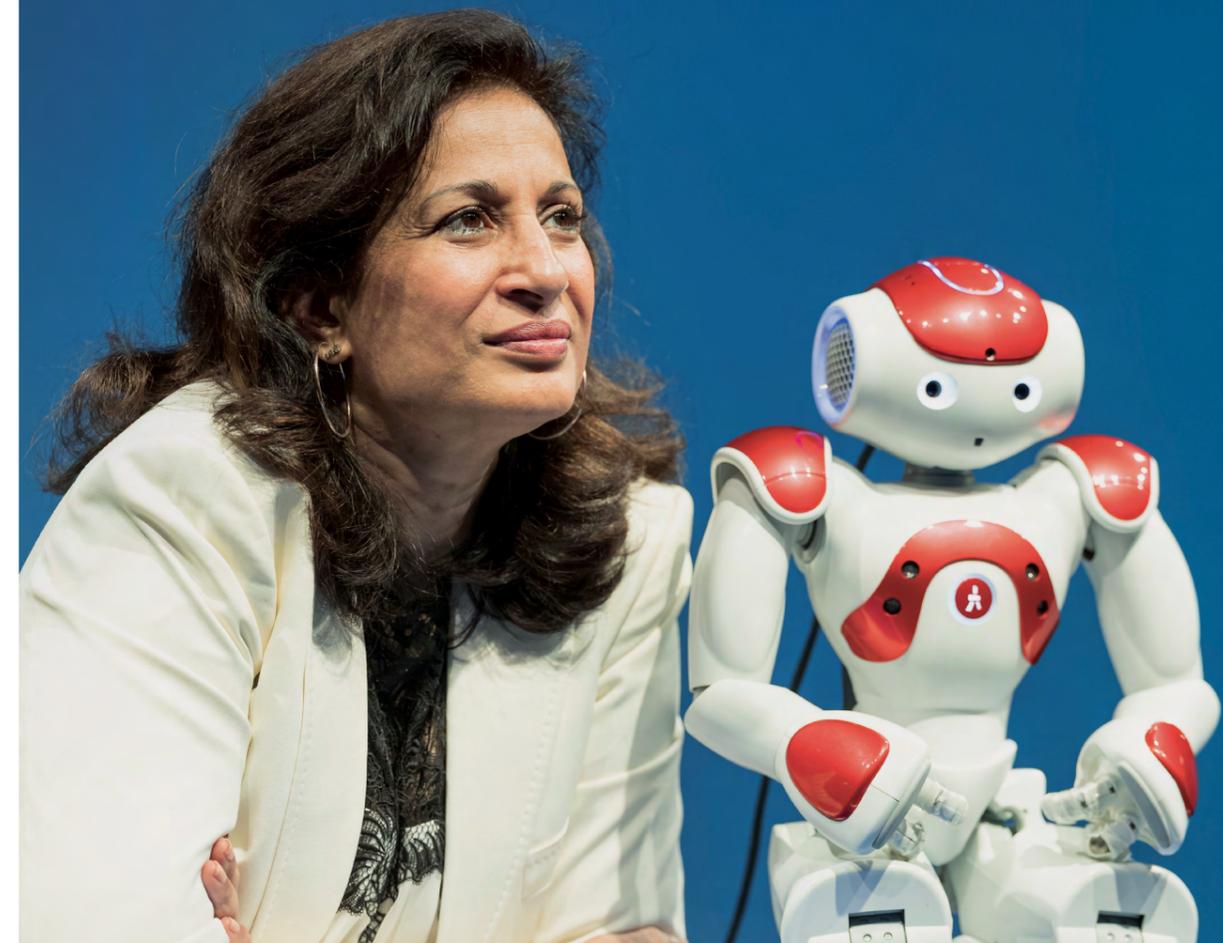
On 7-9 October, the Asia Pacific Medical Technology Association (APACMed) hosted the 2019 Asia Pacific (APAC) MedTech Forum at the Suntec Singapore International Convention and Exhibition Centre. Over 1,090 delegates from across 31 countries participated in discussions and exhibitions around the theme of "Connecting Leaders, Connecting Care". With so many leaders and visionaries in a single venue, this gathering deepened and broadened our understanding of how digital technologies will impact the future of healthcare in APAC. From artificial intelligence to computer-aided surgery, wireless communication, mobile health apps and health-tech wearables, our digital options are vast, and we are only just now seeing the extent of evolution and revolution our industry needs to go through.

This report aims to provide an account of the rich insights shared by our numerous speakers and panellists over the course of two days and puts in place the foundation on which APACMed can continue to build to nurture the region's healthcare ecosystem.

I am proud to see the achievements of the organisation since I joined as CEO in February 2019, and would like to take this opportunity to thank our Board of Directors, Members of the APACMed Functional Committees, all APACMed members, partners, and of course sponsors of the fifth edition of the Asia Pacific MedTech Forum, who all contributed to making this the biggest edition to date!

Many thanks, and we look forward to seeing you all in 2020!

Harjit Gill
Chief Executive Officer
Asia Pacific MedTech Forum (APACMed)



Starting on the Journey to Connected Care

The Trifecta of Care: Access, Quality and Affordability

The Asia Pacific (APAC) region is at a critical juncture in its journey to improve its citizens' health, and the MedTech community has a key role to play in this endeavour. It will be a long journey ahead for the industry, as it seeks to understand how it can better innovate, scale, and adapt innovations; develop new business models, and understand where its work is most needed and will have the greatest impact.

Across APAC, the most underserved countries share borders with some of the wealthiest. In September 2019, the United Nations General Assembly passed a binding resolution to move towards universal health coverage (UHC). However, Asia is the continent that has the largest variability in essential health services, and progress in closing this gap has been slow. By 2030, only 40-50% of people will have UHC access. Realising these goals will require considerable public health improvements, both from a systems perspective and in terms of access to life-saving technology.

Dr. Krishna Udayakumar, Associate Professor of Global Health and Medicine and the founding Director of the Duke Global Health Innovation Center, emphasised the concept of a trifecta of healthcare, where accessibility, affordability and quality are equally important. Despite the availability and affordability of services and technology, low-quality healthcare has resulted in 8.4 million deaths and up to \$1.6 trillion in productivity losses from early deaths.



Chng Kai Fong,
Managing Director,
Economic Development Board,
Singapore



Chirag Amin,
Marketing Director, Johnson & Johnson Medical Devices, Asia Pacific

Healthcare's true value has been undermined by its low quality in many countries, which has prevented patients from accessing effective and affordable care when they need it. For example, the US, which has the least connected healthcare system in the world, struggles to provide access to care and improve efficiencies, despite having created more jobs in healthcare. Many unmet patient needs persist, and the MedTech industry needs to fully understand what these are in order to achieve its goal of improving health.

"Patients say they want better health, not more healthcare"

Dr. Krishna Udayakumar
Duke Global Health Innovation Center

MedTech's new technologies and innovations must embrace the potential for disruption; digital health should be fully leveraged and empower people, rather than threaten them. India's Narayana Health, a world-renowned group, founded by Dr. Devi Prasad Shetty, seeks to establish itself as the world's lowest-cost, high-quality healthcare service provider, and believes that 'if a solution is not affordable, it's not a solution'. Their open-heart surgery model integrates and scales innovations to those who need it the most and has achieved the same outcomes in India as the US, for less than 5% of the cost.

“In low resource settings where the needs are most urgent, the solutions are often the most creative and transformative”

Dr. Krishna Udayakumar

Duke Global Health Innovation Center

Mexico’s MedcallHome is a tie-up between a telecommunications company and a marketing company, without involving any healthcare system. Its customers can talk to healthcare professionals at any time, for just \$5 a month.

In Sub-Saharan Africa, North Star Alliance modified shipping containers into roadside, Blue Box Clinics. These clinics provide trucking communities with healthcare and services such as vaccinations at a fraction of the cost of brick-and-mortar clinics. Regardless of geography or patient populations, these models worked as they innovated at the consumer level; first by understanding behaviours and then by building solutions around them.



From left to right: **Dr. Krishna Udayakumar**, Duke Global Health Innovation Center. **Sofiat Akinola**, Specialist, Global Health and Healthcare, World Economic Forum. **Kelvin Bryan Tan**, Director Policy, Research and Economics, MOH Singapore. **Ruchika Singhal**, VP, Global Health and Medtronic Labs, Medtronic

In 2011, Duke Health, McKinsey & Company, and the World Economic Forum formed Innovations in Healthcare. It now has a network of 92 innovators, mostly from low resource, low-income countries, and continues to fulfil its vision of finding and supporting promising innovations that improve global healthcare.



Dr. Krishna Udayakumar
Duke Global Health Innovation Center



Making a Global Impact

Leapfrogging and Frugal Innovation

Legacy systems and a lack of infrastructure can provide opportunities for MedTech players to re-imagine healthcare around connected systems and community-based solutions. However, the question remains as to how high-value investments can be made in countries with few resources. APAC cannot afford to be in the same predicament as the US, where healthcare consumes 18% of its gross domestic product, but where life expectancy has declined consecutively for four years. In low resource settings, leapfrogging is a daunting proposition as it means thinking of needs alongside opportunities, but it can yield large-scale, long-term impacts.

Mexico’s Sala Uno has lowered the cost of critical urban eye care with five-minute cataract surgeries that prevent blindness in a country where 2 million people lack access to such services. At a time when emerging economies have plenty of small, hidden successes borne out of leapfrogging the existing, flawed, Western systems, the MedTech industry must think outside the box and stop looking to developed economies for solutions.

Duke’s Global Health Innovation Center found that global healthcare costs can change if the healthcare settings and providers are radically restructured and behaviourally adapted into ones that facilitate such changes at scale. Future systems need to focus on patients while simultaneously integrating all stakeholders. Rural Nepal’s Possible Health is an example of the successful execution of value-based healthcare (VBHC) concepts. By supplementing the digital management of district hospitals with case-finding, community-based health workers who supply medical needs assessments, infant mortality has dropped significantly, institutional birth rates have increased, and costs have shrunk to under \$15 per capita.

“Leapfrogging in low resource settings means thinking of the need alongside the opportunity”

Dr. Krishna Udayakumar

Duke Global Health Innovation Center

To implement these principles globally, all stakeholders will have to align around reforms and policies that truly create value, such as those facilitating data exchange or increasing scopes of practice to empower workers.

Government financing programs must foster accountability and integration while also leveraging private funding. Organisations should implement value-based leadership and systems while innovating with content-specific care reforms. Importantly, policies have to be cost-effective, sustainable, and scalable.

Healthcare's future relies on a detailed roadmap with workable transition models for VBHC and businesses.

As partnerships are crucial, the MedTech industry must overcome its reluctance of being the first to change. Leaders can help to accelerate game-changing innovations, abandon yesterday's models so that they can innovate for tomorrow's needs, and think about how to move the industry forward together. The MedTech industry is perfectly positioned to empower all players, connect systems and users, and solve for health rather than healthcare.



Digital Healthcare

Drivers, Challenges and Partnerships

Asia's digitally savvy consumers want greater access to, and control over, their health data and are increasingly playing a part in the push to disrupt traditional healthcare. Non-medical companies, such as Alibaba and Tencent, are accelerating this disruption with technologies like virtual reality, but all industries face a shortage of skilled labour to drive growth in APAC. This problem can only be solved with partnerships that bring affordable and scalable healthcare to the majority, such as the Singapore Health Promotion Board's tie-up with Fitbit, or China's Ping An Good Doctor.

APAC's cultural and demographic diversity means that no single approach can be applied to the entire region. Companies must adapt their solutions to each country's unique cultures and healthcare systems, and yet maintain a doctor- and consumer-centred approach. Align Technology is one example of the transformation of a traditional industry. By considering stakeholders' challenges and resistances, Align has successfully digitised all points of orthodontic care. Traditional companies that operate in silos but that want to offer high-risk devices will find digitisation a challenge as they must foster collaborations while navigating a fragmented healthcare ecosystem. With rapid technological advances, the MedTech community must work with government players and regulators to move their goalposts.

"Each country's healthcare system says a lot about its culture, so companies must fit into those systems"

Joseph M. Hogan, President, Chief Executive Officer, Align Technology

"It is time to focus less on the clinician, and more on the provider as the customer."

Alex Mihos, Bupa

Data plays a key role in the connected care ecosystem. Align Technology curates data from over 7 million patients with the objective of improving outcomes. Inevitably, this means it must protect patient data at all levels, from identity leaks to ransomware attacks. Companies must get smarter about database management to extract the most meaningful data insights or to mitigate any deficiencies. Simultaneously, meaningful tracking and analytics, such as those driven by artificial intelligence (AI) or the Internet of Things (IoT), must be developed so that data can be analysed and used early and

or digital schemes, driving alignment within institutions, especially among physicians, is challenging. Overcoming such barriers is crucial to truly realise VBHC's potential. Stryker APAC's motivation for long-term improvements has led to research on product innovation, cost-effectiveness and value. Yet, Stryker is challenged by getting reimbursements for indirect services, such as on-site expertise for surgeries involving Stryker devices. This challenge can be overcome with private-public healthcare partnerships that understand the value of digital systems in healthcare and support the integration process. But while there is a huge appetite for it, Asia still lacks collaborations with MedTech firms and insurers or payers.



Left to right: **Fabio La Mola**, Partner and Executive Director of Asia-Pacific Life Sciences Centre of Excellence, LEK. **Alexandria Mihos**, Strategy and M&A Director, Bupa. **Graham McLean**, President, Asia Pacific, Stryker. **Sanjay Prabhakaran**, President, Asia Pacific, Hologic. **Tim Schmid**, Company Group Chairman, Asia Pacific, Johnson & Johnson Medical Devices, Asia Pacific

quickly. Leaders must also identify their priorities before they can obtain high-quality data to optimise clinical outcomes and remember that cybersecurity is their constant responsibility. The MedTech community's vision for ASEAN should be an integrated digital healthcare ecosystem which improves accessibility and affordability for the masses and delivers much-needed, market-relevant innovations.

Embracing integrated and digital systems within devices is one way in which the industry can offer, or even redefine, value in healthcare. Yet, while many devices are already widely available and in demand, there are few VBHC successes to report. There are a number of obstacles to fully embracing and leveraging these systems, from shareholders demanding huge returns, to the lack of services or solutions that deliver the profits seen with product-based or fee-for-service models. Even when providers are open to investing in incentive-based integrated

Bupa's Alex Mihos stated that insurers want direct relationships with payers or MedTech companies to better understand their needs and how costs can be made transparent and affordable without creating financial wastage in the system. A new type of payer interaction, that refocuses on the provider as the customer is needed. Relationships with public systems will be critical for this transformation. Governments with mandates focusing on health technology (such as China) are ready to do this and able to implement at scale, but first need to develop their healthcare leadership. Regulators must be engaged to understand devices in order to develop appropriate market rules. Finally, for healthcare to be truly meaningful, the MedTech community must amplify its successes, engage in more dialogue, and offer transparency to create new systems and innovations that can leapfrog those of Western economies.



MedTech 4.0

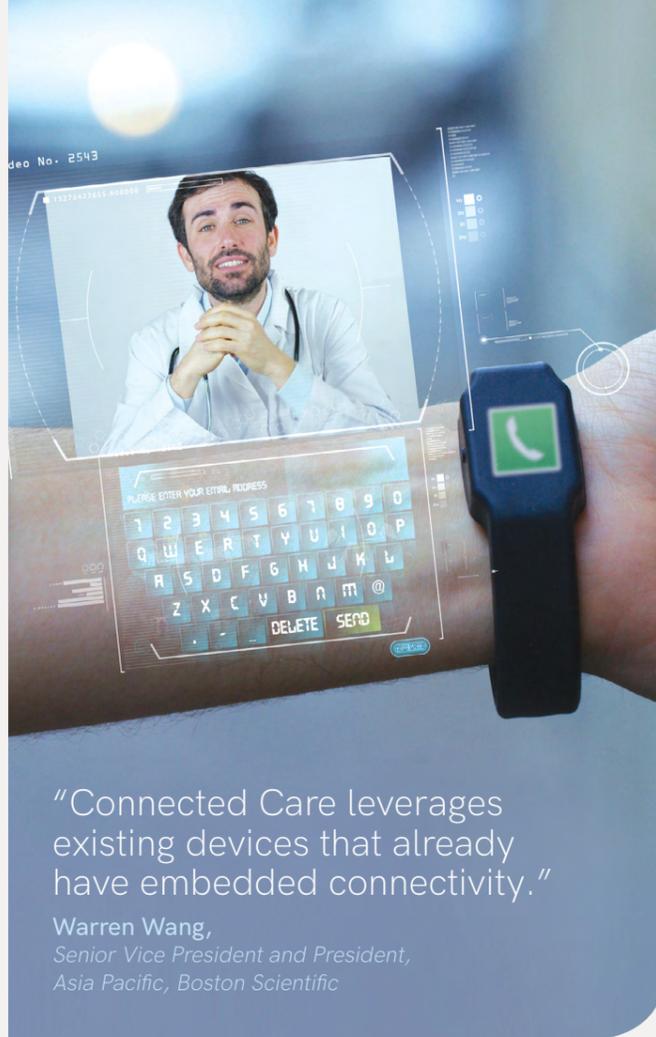
Transforming into Connected Care

Playing fortune teller, Deloitte Consulting predicted outcomes in 2040 if the MedTech industry focused its efforts on the consumer, and how it might impact wellness and disease prevention. People are accustomed to sensors around, on, or inside them that measure both traditional healthcare vitals as well as nonclinical points such as climate fluctuations. Having such granularity at our fingertips allows health to be defined more broadly and previously unquantifiable factors, such as social and mental health, to be studied. But to develop interventions, data insights have to be extracted while AI and other analytical methods need to be applied effectively. Only a highly-connected ecosystem can achieve this.

Connected care (CC) means many things, but to Dr. Anushka Patchava, a United Nations Expert Advisor, it is about people, getting disparate business units to collaborate, breaking health systems out of closed silos, and shifting from patients' sick-care to consumers' health-care. Bumrungrad International Hospital's David Boucher feels that, at a micro-level, CC also connects patients to technologies like Apple Watches and IoT. At Siemens Healthineers, Paul Jamous anticipates that CC will help build cooperative communication between players and understand how providers can leverage data to improve healthcare access. From a device perspective, Boston Scientific's Warren Wang views CC as the leveraging of existing devices that already have embedded connectivity, such as defibrillators that can detect heart failures and pre-emptively alert physicians. However, he stressed that patients care little about how AI and CC will impact them, so the MedTech community must ensure that digital innovations remain relevant, affordable and accessible to those who need them most.

"Connected care links primary care to all other stakeholders, and also links patients to all levels of care and technologies."

David Thomas Boucher, Chief Business Transformation Officer, Bumrungrad International Hospital, Thailand



"Connected Care leverages existing devices that already have embedded connectivity."

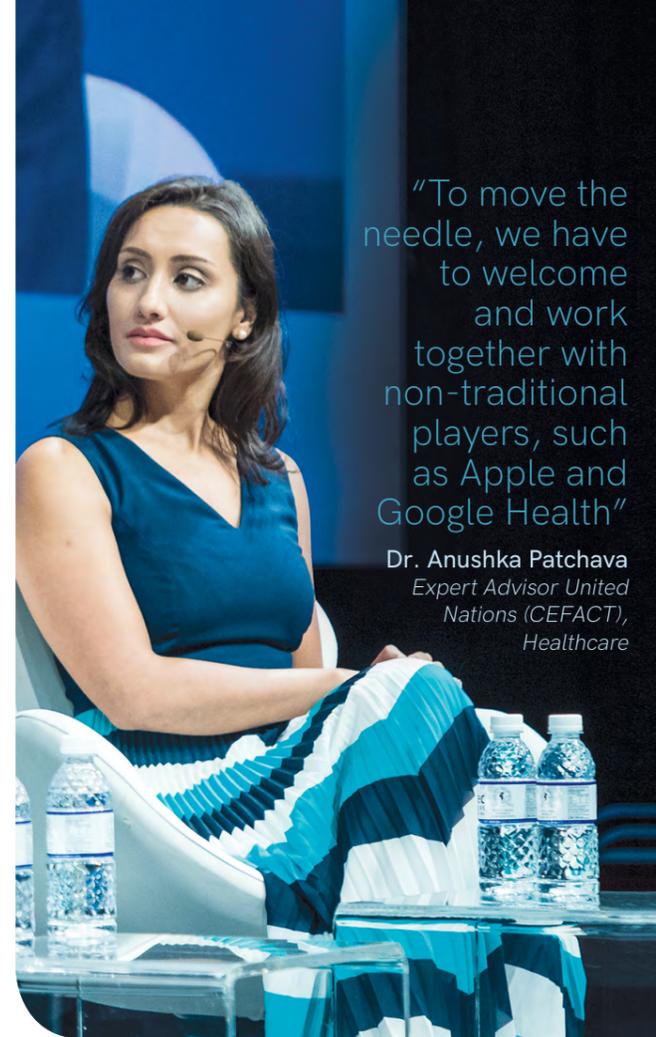
Warren Wang, Senior Vice President and President, Asia Pacific, Boston Scientific

Putting CC theories into practice requires leaders to cultivate a safe environment and to evolve a company's culture from a traditional, risk-averse one, to one that supports learning from device testing failures. Healthcare providers need to learn to think like business leaders and develop policies apace with technological advancements. Some countries already see productivity gains from collaborations with non-healthcare industries to implement CC. Thailand's Bumrungrad Hospital uses telemedicine in eye care and now plans to expand these services for remote presurgical care, postsurgical care, or early care such as mammogram alerts.



David Thomas Boucher

The MedTech industry has moved from just manufacturing and selling devices to now offering solutions with continuous customer engagement, but while it keeps up with rapid advancements and improving workflows,



"To move the needle, we have to welcome and work together with non-traditional players, such as Apple and Google Health"

Dr. Anushka Patchava
Expert Advisor United Nations (CEFACT), Healthcare

efficiencies and accuracies, it must still maintain its human touch.

Each organisation or stakeholder also has a different value driver, from physicians concerned with what data means in real-time, to hospitals that want to reduce readmission rates. Telemedicine funding has exceeded \$640 USD million worldwide, yet its adoption rate is only 7%, making it a non-viable commercial option for most payers. It is also high-tech, low-touch, and ignores patients' desire for systems that bring doctors physically closer to them. Providers need the right data to offer risk-based interventions that keep high-risk patients in hospitals, move medium-risk ones into community care, or nudge those who are low-risk to make better healthcare decisions, all of which ultimately reduce costs.

LEK Consulting found that there were opportunities for CC implementation to be accelerated and executed more consistently across APAC. For example, while Japan's traditional purchaser-supplier partnerships have resulted in slow CC implementation, China's

leaders are now harnessing clinical data and adopting digital health activities. With the public sector providers prioritising cost-efficiency and the private sector providers seeking large-scale, improved outcomes, the MedTech industry is well-placed to offer these stakeholders their latest and best-value products and services, as well as participate in risk-sharing.

Uneven implementation of VBHC and CC is also caused by the focusing of resources on diagnosis and treatment, rather than on diagnosis and prevention. Without a good understanding of APAC's systems, a simple solution will continue to evade both the public and private sectors. Sanjay Prabhakaran of Hologic cites efforts to help governments grasp the value of detection and diagnostic systems in large populations, such as early cancer detection programs.

Although these initiatives are effective at preventing deaths, governments struggle to fund them or to come up with government-supported solutions.



Left to right: **Warren Wang**, Senior Vice President and President, Asia Pacific, Boston Scientific Corporation. **Paul Jamous**, Head of Science And Collaboration for Diagnostic Imaging APAC, Siemens Healthineers. **David Thomas Boucher**, Chief Business Transformation Officer, Bumrungrad International Hospital, Thailand. **Dr. Anushka Patchava**, Expert Advisor United Nations (CEFACT), Healthcare. **Glenn H. Snyder**, Principal, MedTech Practice Leader, Deloitte Consulting

Perhaps a small-scale, proof-of-concept study rather than grander, national programs, is all that is needed to change perceptions and priorities. Private insurance players also cannot see where true value and demand is, or how to move towards VBHC effectively. Alex Mihos shared how, within Bupa's data-rich and integrated ecosystem, physicians already know which insured devices give the best results, but Bupa continues to seek better outcomes and cost transparency. However, Bupa is challenged by a lack of information from regulators on costs, outcomes and adverse events, that support VBHC and transparency for decision-makers. To improve their decisions on the latest MedTech advances, insurance providers need to increase their engagement with MedTech players.

"Incorporating machine learning into MedTech innovations will ensure that patient data is accurate, complete and interpreted correctly."

Dale Sanders,
Chief Technology Officer, Health Catalyst

A great example of digitisation in healthcare is Deep Genomics, a company that uses AI to reduce drug discovery timelines from 10 years to just 18 months.

The understanding of patients' digital needs also has to improve. Just 100 megabytes of data per patient per year is being collected, compared to at least 30 terabytes per car per 8-hour journey. Data on healthy people is also lacking, so any insights gained into healthcare are skewed.

"Asia can leapfrog the problems seen in Western healthcare systems by including AI and data in health optimisations."

Dale Sanders, Health Catalyst

Digitisation is merely a means to creating a productive, innovative workforce, and the technology for this is already available. Creating the patient's digital twin only requires knowing their characteristics, treatments, outcomes and costs, and using AI or algorithms that already exist or are being developed. With bio-integrated sensors, patients now hold more data on themselves than the healthcare system does. Other industries' working models and successes can be adapted and capitalised upon.

With the volume and quality of healthcare data still much lower than the hype around it, MedTech players have room to make huge achievements and transformations.



Personalised Medicine

Harnessing the Power of Data and AI

In an era of personalised medicine, data analytics and AI have a significant but unclear role to play. Dale Sanders of Health Catalyst suggested that for data to inform decision-making, each decision point in a system must be digitised. While digitisation has proceeded rapidly in other industries, it also first required all assets and operations to be understood. Yet, MedTech leaders should not slow their digitisation progress to deal with infrastructure issues such as data collection, verification or analysis, as any improvement in these factors would be insignificant, unscalable and lack impact. As Google recently indicated, "simple models and a lot of data trump more elaborate models based on less data."

"Efforts to digitize healthcare should not be distracted by lesser infrastructural concerns"

Dale Sanders, Health Catalyst

The MedTech industry can learn from other industries, like the automotive sector. Tesla, the electric car manufacturer, now collects 25 gigabytes of driving data per car per hour and can monitor all aspects of vehicle health - exactly what healthcare hopes to do for each patient. However, the healthcare industry lacks the rigour and critical thinking of engineers constructing automobiles, even though healthcare also deals with heterogeneous, time-dependent, multi-dimensional, multi-modality and even incorrect or missing data. Digital twins can help address this issue - a comprehensive record of a person's data over his lifetime merged with AI models. The MedTech industry can also learn from the fields of genomics and medical imaging - traditionally "data-dense", these life sciences have unleashed AI's pattern recognition power.

The Road towards Personalised Medicine and Connected Care

In a panel discussion hosted by SG Innovate Founder Steve Leonard, Professor Dean Ho of the National University of Singapore emphasises the challenges in finding the most economical, practical, or achievable route to personalised medicine. Personalised medicine arose as an alternative to the failing, one-size-fits-all clinical approaches, according to Siew Hwa Ong of Acumen Research. Individualising traditional therapeutics for the masses is complicated due to the unprecedented scale of redesigning and customisation required. MedTechs can help achieve the goal of personalisation; there already

exist sensors which tailor insulin delivery to the particular requirements of Type I diabetic patients.

The emerging early-stage, deep-tech start-ups must be willing to conduct high-risk, as-yet unscalable experiments and partner with larger companies to distribute their products. This will require stakeholders, including regulators, to create an arsenal of solutions of solutions. As medical knowledge becomes democratised, patients may also drive some of this change, as seen with the growth of telemedicine in specific markets. Mobile apps now individualise customer engagement, so the MedTech industry should expect similar impacts from personalised medicine as it promises affordability and access.

“Democratised healthcare access is one goal of personalised medicine, but barriers in business models and care delivery methods must be removed.”

Steve Leonard, SG Innovate

It is essential to understand how care delivery and standards will be affected, if healthcare systems need retooling and if existing technology and connections need to be rebuilt.

Governments can provide much-needed support here; Singapore’s Agency for Science, Technology and Research exemplifies this with their S\$0.5 million commitment to scaling up, developing and manufacturing cancer cell therapies. Government stakeholders’ understanding of the importance of innovations to the future of healthcare is what the industry must tap into.



Steve Leonard added that barriers in business models and care delivery must be removed, and healthcare financing must be reformed to lower costs, whether in logistics, manufacturing or at the point of care. Unlike developed countries where regulations, entrenched systems and risk conservatism can hamper innovation and risk-taking, emerging markets have greater appetites for risk and experimentation. Testing products and business models in these markets may be easier, and countries like Vietnam and Laos may become the future leaders of MedTech.

Left to right: Prof. Dean Ho, Provost’s Chair Professor of Biomedical Engineering and Pharmacology Director, NUS. Danny Soon, Senior Director BMRC, A*STAR. Dr. Ong Siew Hwa, Founder and CEO, Acumen Research Laboratories. Steve Leonard, Founding CEO, SGInnovate

“Governments can provide support as they can see points of convergence and help to accelerate progress”

Danny Soon, A*STAR



Looking to the Future

Prof. Shafi Ahmed’s Future of Surgical Training with AI and Connectivity

Robotics, virtual reality (VR) and AI are true game changers with the potential to revolutionise medical education and healthcare. Established companies, new start-ups and non-traditional businesses all want a leading role in this transformation, but among these large players are individuals with the foresight to harness cutting edge technologies and challenge limitations. Professor Shafi Ahmed of the Royal London Hospital is one such futurist who embraces technology and connectivity to bring surgical training to students worldwide.

Professor Ahmed emphasised the idea that while the future is here, it is unevenly distributed and much of the innovation is hidden from view. Correcting this situation will require people to adapt, yet their lack of flexibility is a huge obstacle. People must learn to adapt to change at a pace that will create a paradigm shift in what can be achieved. Their linear thinking and mindsets must evolve into exponential ones: consider how 30 footsteps only take us to the end of a room, but 30 exponential footsteps will take us around the planet 26 times! Conventional teaching methods are becoming irrelevant due to this pace of adaptation, and the fourth industrial revolution requires a reassessment of how digital knowledge is applied.

“People must learn to adapt to change quickly to achieve a paradigm shift and our linear thinking and mindset must grow into an exponential one.”

Prof. Shafi Ahmed, Royal London Hospital

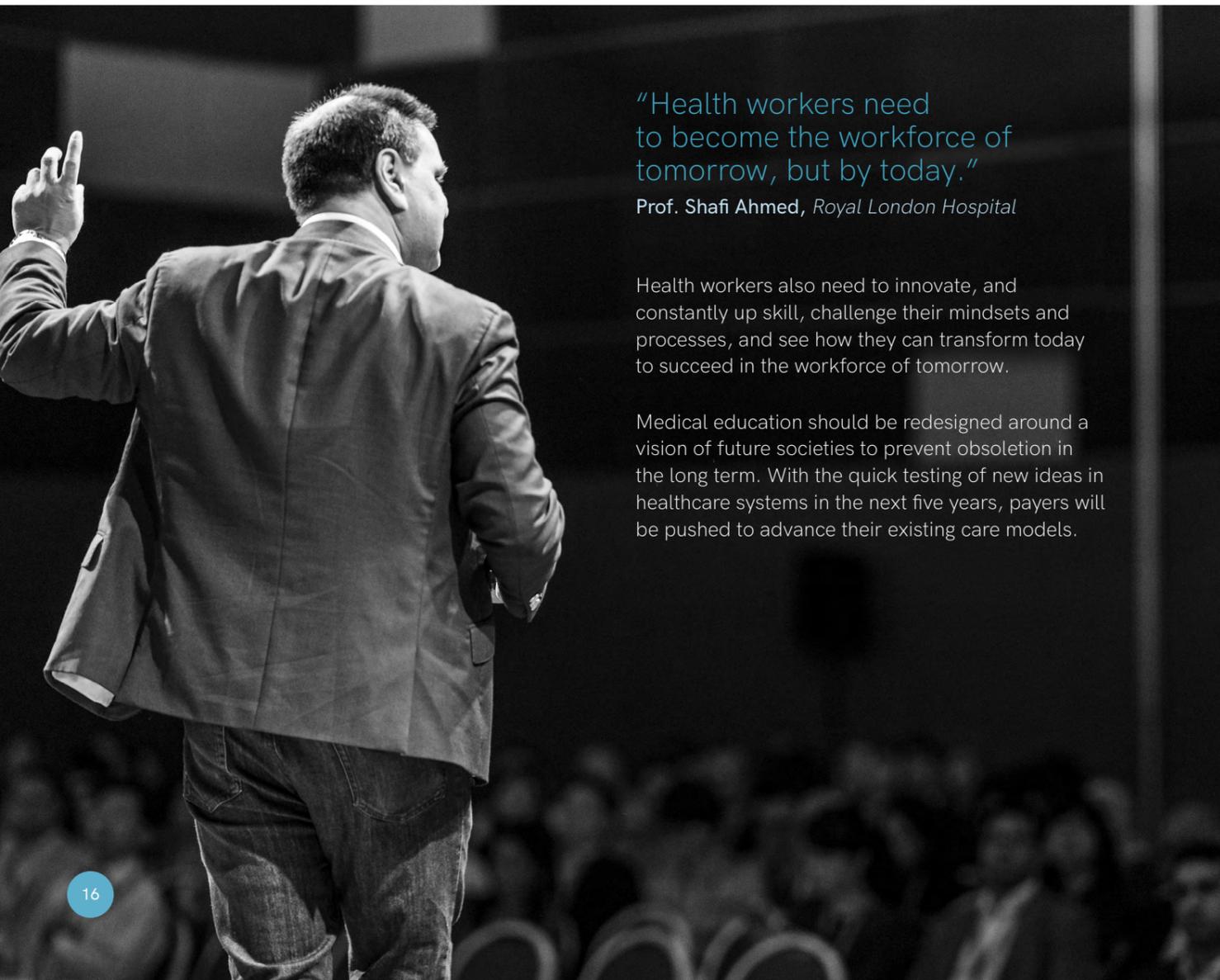
Medical education must meet future demands and cannot take five years of study when the need for doctors, especially in this region, is immediate and urgent. By embracing internet connectivity and wearables, Gen Z students are pushing the digital transformation of entire sectors, including medical education.



In May 2014, Professor Ahmed used the Google Glass to broadcast a teaching surgery to 14,000 students worldwide. When he then used HoloLens' VR simulators to teach, he found that remote students enjoyed seeing surgeries in real-time. He also taught the Snapchat generation of medical students during the world's first Snapchat surgery. His broadcast reached 2 million people worldwide and was shared 56 million times, showing the importance of connecting with younger minds on platforms with which they frequently engage.

Patients want healthcare services to be immediately and digitally accessible. AI Chatbots, like Sensely, will analyse patients' needs and complexities before connecting them to doctors, while Amazon's Alexa can manage therapy and CheXNet's chest X-ray exceeds the accuracy of practising radiologists at detection and diagnosis.

Within these human-AI interfaces, MedTech can provide more sophisticated or invasive sensors to collect real-time data. It can combine robots that are more refined, connected, efficient, flexible, agile and miniaturised, with 5G networks. This will allow surgeons performing remote surgeries to transmit data without latency and get near-instant outcomes. Entire healthcare systems can be created in incredibly remote locations by 3D printing drugs, replacement tissues or organs. In 2017, a finger splint was created by a 3D-printer from Made in Space. Clinical practice will be augmented by these technologies rather than replaced by them, so doctors' narratives must shift from one of fear to one of adaptation, and patient contact must grow from one of sickness-care to one of wellness-care. The MedTech community's approach to patients should also evolve – patients should be seen as Chief Patient Officers and work alongside start up on new innovations.



"Health workers need to become the workforce of tomorrow, but by today."

Prof. Shafi Ahmed, Royal London Hospital

Health workers also need to innovate, and constantly up skill, challenge their mindsets and processes, and see how they can transform today to succeed in the workforce of tomorrow.

Medical education should be redesigned around a vision of future societies to prevent obsolescence in the long term. With the quick testing of new ideas in healthcare systems in the next five years, payers will be pushed to advance their existing care models.



The 20 Showcase Companies of MedTech Innovator Asia Pacific 2019

The Future is Here: Asia's MedTech Disruptors

MedTech start-ups thrive in the APAC region but sometimes struggle to find the resources to commercialise. MedTech Innovator Asia Pacific is a non-profit MedTech accelerator supported by partnerships with companies such as Amgen, Boston Scientific, Johnson & Johnson, Johnan, Olympus and Terumo. As its CEO, Paul Grand, highlights, these organisations recognise the value of disruptive innovations that help patients live longer, healthier lives, and aim to help accelerate the growth of early-stage companies.



Left to right: Andrew Frye, Senior Vice President and President APAC, Baxter. Deep Tankha, Senior Director Marketing, Asia Pacific, Boston Scientific. Peter Hawkes, Head of New Business Development, Medical Devices Asia Pacific, Johnson & Johnson. Townsend Goddard, Senior Vice President, Global Head of Business Development, Olympus

Representatives from each company pitched their innovations to the judges, Andrew Frye (Baxter), Deep Tankha (Boston Scientific), Peter Hawkes (Johnson & Johnson) and Townsend Goddard (Olympus).



Paul Grand, Chief Executive Officer, MedTech Innovator

This year, 35 companies were chosen from over 170 applicants to pitch in one of four events across Asia. Twenty of these companies progressed to a showcase at the MedTech Forum and were narrowed down to four grand finalists: Crely Inc. (India and USA), Inochi Care Pvt Ltd (India), NDR Medical Technology (Singapore) and Nesa Medtech Pvt Ltd (India).

Nesa Founder, Sreekar Kothamachu, showcased a portable device that delivers radiofrequency therapy directly into uterine fibroids during uterine-preserving keyhole surgery. This device reduces costs by 90% and can be used in outpatient procedures without changing clinical workflows. NDR Medical Technology's CEO, Alan Goh, introduced an AI- and image-guided surgical robot that targets kidney stones and lung cancer nodules smaller than 10mm. It can also diagnose tumours on-site and support needle biopsy and tumour ablation. As the robot is always physician-controlled, it is low-risk and less invasive.

Inochi Care's Co-Founder, Shivani Gupta, presented the VACOX multitherapeutic wound healing technology, which creates negative pressure therapy and oxygenates non-healing chronic wounds in a single step. Tested in clinical trials, it accelerated wound healing by 63%, reduced dressings by 75% and increased cost savings by 60%.

Crely Healthcare's Founder and CEO, Arun Sethuraman, presented a medical device-enabled Software-as-a-service that detects, predicts, and manages surgical site infections (SSIs). Thus far, it has successfully detected 70% of early SSIs.



left to right: **Jenell Paul-Robinson**, VP Clinical Value and Provider Relations, MedTech Innovator. **Shivani Gupta**, Co-Founder, Inochi Care

Impressed by their pioneering technology, the audience voted to reward NDR Medical with the grand prize of US\$150,000 and a one-year software license from Siemens Industry Software.

Second place winner, Inochi Care, took home US\$25,000, while in the showcase cohort, Eko.ai won S\$50,000 from Enterprise Singapore Start-up SG and a 1-year free residency at JLABS @ Shanghai.

These cutting edge innovations are testimony to the vibrancy of the region's MedTech ecosystem. With exposure at the MedTech Forum's to the world's top providers, these start-ups will no doubt make key contributions to driving the transformation of healthcare in the region.



left to right: **Alan Goh**, Co-founder & CEO, NDR Medical. **Jenell Paul-Robinson**, VP Clinical Value and Provider Relations, MedTech Innovator

Closing Message

With companies across the Asia Pacific region having to navigate diverse demographics and complex regulatory frameworks, uniformly and successfully navigating the obstacles and resolving the issues raised during this meeting will be a monumental task. And yet, the vast and rapidly-ageing populations across the region urgently need new, quick, accessible and affordable healthcare solutions. AI and other healthcare technologies can spur rapid periods of growth, and the MedTech community should look forward to platforms such as 5G networks and IoT, to realise the goal of a more connected world.

The MedTech industry's mandate is clear, and it can lead by accelerating and facilitating innovations.

High tech, high touch is no longer an idea; it is now a mission statement for the MedTech industry.



MedTech Innovator Asia Pacific 2019 Showcase Companies and Winners

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